



**FINAL
2024 LONG-TERM MANAGEMENT AND REMEDIAL
ACTION OPERATIONS REPORT**

**Cape Romanzof Long Range Radar Site, Alaska
Sites LF003, SS010, SS015, SS016, SS017, and ST009**

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November 2025

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ACTION OPERATIONS REPORT**

Cape Romanzof Long Range Radar Site, Alaska

November 2025

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ACRONYMS AND ABBREVIATIONS

%	percent
%R	percent recovery
°C	degrees Celsius
µg/L	microgram(s) per liter
AAC	Alaska Administrative Code
ADEC	Alaska Department of Conservation
AFCEC	Air Force Civil Engineering Center
AK	Alaska
AST	aboveground storage tank
BTEX	benzene, toluene, ethylbenzene, and xylenes
BOS	Base Operations Support
CCV	continuing calibration verification
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
COC	contaminant of concern
COV	coefficient of variation
CY	cubic yards
DO	dissolved oxygen
DoD	Department of Defense
DQO	data quality objective
DRO	diesel range organics
EPA	U.S. Environmental Protection Agency
ERP	Environmental Restoration Program
ESD	Explanation of Significant Differences
FD	field duplicate
FYR	Five Year Review
GPS	global positioning system
GRO	gasoline range organics
IC	institutional control

ID	identification
IDW	investigation derived waste
LRRS	Long Range Radar Site
LTM	long term management
LUC	land use control
mg/kg	milligram(s) per kilogram
mg/L	milligram(s) per liter
MK	Mann-Kendall
MS	matrix spike
MSD	matrix spike duplicate
MW	monitoring well
ND	non-detect
No.	number
North Wind-EA JV	North Wind-EA Joint Venture
ORP	oxidation reduction potential
PCB	polychlorinated biphenyl
PVC	polyvinyl chloride
QAPP	Quality Assurance Project Plan
QC	quality control
QSM	Quality Systems Manual
RA-C	Remedial Action-Construction
RA-O	Remedial Action-Operation
ROD	record of decision
RPD	relative percent difference
RRO	residual range organics
SOP	Standard Operating Procedure
SW	solid waste
USAF	U.S. Air Force
UST	underground storage tank
UU/UE	unlimited use and unrestricted exposure

EXECUTIVE SUMMARY

This report presents the results and observations from the 2024 Long-Term Management (LTM) and Remedial Action-Operation (RA-O) program at the Cape Romanzof Long Range Radar Site (LRRS) in Cape Romanzof, Alaska. This report was prepared by North Wind-EA Joint Venture, LLC (North Wind-EA JV) under U.S. Army Corps of Engineers – Alaska District Contract Number W911KB-20-D-0012, Task Order W911KB20F0120 for the Air Force Civil Engineering Center (AFCEC).

One field event was conducted 11 July through 17 July 2024. Field activities included the evaluation of land use controls (LUCs) and institutional controls (ICs) at Sites LF003, SS010, SS015, SS016, SS017, and ST009. Sites regulated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) include LF003, SS016 and SS017. Sites regulated under Alaska state regulations include SS010, SS015, and ST009. Groundwater samples were collected from monitoring wells at Sites SS015 and ST009, and sediment and surface water samples were collected at Site LF003. The 2024 LTM field activities were performed in accordance with the *Final Cape Romanzof LRRS Uniform Federal Policy for Quality Assurance Project Plan for Long-Term Management and Remedial Action Operation Activities* (U.S. Air Force [USAF] 2021a) and the *Final Work Plan Amendment 1* (USAF 2022a).

Site SS015 Sample Results

Groundwater monitoring wells at Site SS015 (WW01, WW05, and WW06) were sampled and analyzed for gasoline range organics (GRO), diesel range organics/residual range organics (DRO/RRO), and benzene, toluene, ethylbenzene, and total xylenes (BTEX). Resulting concentrations greater than the Alaska Department of Environmental Conservation (ADEC) Table C groundwater cleanup criteria (ADEC 2023) include DRO in monitoring well WW01 at 11,900 micrograms per liter ($\mu\text{g/L}$), and benzene and ethylbenzene in WW01 at 40.5 $\mu\text{g/L}$ and 18.9 $\mu\text{g/L}$, respectively. Monitoring wells WW05 and WW06 had detections of GRO and DRO, but below the ADEC cleanup levels of 2,200 $\mu\text{g/L}$ and 1,500 $\mu\text{g/L}$, respectively. RRO was not detected in any of the three wells. All other results were below the ADEC cleanup levels.

Mann-Kendall (MK) statistical trend analysis of the three groundwater monitoring wells at SS015 indicated DRO is stable in all wells; GRO is stable in WW01; and ethylbenzene and toluene are stable in WW01. Although RRO is increasing in wells WW05 and WW06, RRO is not a contaminant of concern (COC), has never been detected above ADEC cleanup criterion in WW05 and has been non-detect (ND) for the last five years, and has only had three low-level detections in WW06 where concentrations do not appear to be increasing. The MK increasing trend results for RRO in WW05 and WW06 is likely the result of increasing laboratory limits of detection (LODs). No other statistically significant trends were observed. It is recommended that RRO analysis be removed from future LTM activities. RRO, toluene and xylenes are not COCs identified in the ROD; no RRO exceedances have been observed in the past seven years, and no toluene or total xylenes have been observed above the ADEC groundwater cleanup levels for a minimum of ten years.

Site ST009 Sample Results

Two groundwater monitoring wells at Site ST009 (MW04 and MW07) were sampled and analyzed for GRO, DRO, and BTEX, the COCs for this site. Monitoring well MW09 was not able to be sampled due to an obstruction in the well casing. Resulting concentrations greater than the ADEC Table C groundwater cleanup criteria include DRO in monitoring well MW07 at 1,740 $\mu\text{g/L}$. All other results were either ND or below the ADEC cleanup levels.

The MK trend analysis of the three groundwater monitoring wells indicated the only increasing trend is benzene in well MW07; however, benzene has only had one single detection in 2007 and the increasing trend is likely the result of increasing laboratory LODs. GRO and ethylbenzene are decreasing in all three wells. DRO is decreasing in MW04 and probably decreasing in MW09. Total xylenes is decreasing in MW07 and MW09; and toluene is probably decreasing in MW09. No other statistically significant trends were observed. Although monitoring well MW09 was not sampled in 2024, the inclusion of MW09 in the current MK trend analysis is based on data from 15 historical events from 2004 through 2023. Decreasing or probably decreasing trends for multiple analytes at the ST009 wells indicate that attenuation is occurring in the groundwater at this site. It is recommended that BTEX are removed from future LTM activities.

Site LF003 Sample Results

One surface water sample and four sediment samples were collected for polychlorinated biphenyls (PCB) analysis at LF003. A lack of surface water at three sediment sample locations (S01, S02 and S04) prevented collocating the surface water samples except for surface water sample S03. Results for total PCBs were reported as ND in the surface water sample collected at S03 and ND in all four sediment samples. Sediment monitoring should be continued annually for 2 more years from the area of previous exceedances to confirm the presence of PCBs exceeding 1.0 mg/kg in the area and to complete delineation. Delineation will aid in determining the quantity of soil requiring removal. For the future, if needed based on results of delineation of PCBs in that area, a limited removal action should be scheduled. If PCBs are not detected above cleanup levels, the soil control barriers should be removed and sediment sampling should cease. Recommend changing the analytical method for PCB analysis to ensure the total PCB results have LODs below ADEC's cleanup criterion.

Institutional Controls

The ICs at Sites SS010, SS015, SS016, SS017, and ST009 are functioning as intended to protect human receptors from exposure to contaminated media. Erosion soil control barriers (silt fencing) at Site LF003 are either functioning poorly or non-existent. Minor erosion exists along the side slopes of the landfill cap at Site LF003, and the landfill liner is exposed in some areas. Litter and vehicle tracks observed at Sites LF003, SS010, SS015, SS016, SS017, and ST009 suggest these sites are occasionally accessed, and wind erosion may have exposed some liner and metal debris at Sites LF003, SS015, and SS017. Although geotextile fabric was observed exposed at Site SS016, due to its proximity to the radar dome that has live high voltage power cables, transformer boxes, and the tight constraints of the surrounding buildings, and the limited amount of fabric exposed, it is not recommended that additional fill be added to cover exposed fabric.

LUC warning signs at each site were in good condition, legible, and not obscured by vegetation, with the exception of signs that have been downed by wind or snowplow, or removed since the previous visit at Sites LF003, SS010 and SS015. New signs were installed at SS015 and LF003, and one sign was relocated at SS016. It is recommended that one LUC warning sign be installed on the western boundary of SS010, and one on the eastern boundary of SS015. High-visibility markers should be considered at LF003 so the signs can be seen during snow removal activities along the road.

Continued annual IC/LUC inspections are recommended at three sites (LF003, SS016, and SS017) to confirm IC/LUCs remain protective of human health and the environment. At sites SS010, SS015 and ST009, it is recommended to decrease the frequency of inspections to once every five years since the annual inspections and FYR requirements have been met at SS010, and the MNA remedy selected in the ROD for SS015 and ST009 was stated to occur no less than once every five years. At LF003, as discussed above, it is recommended to evaluate if the erosion control barriers are still necessary since there have

been no exceedances or ND results in annual sediment and surface water samples from 2019 through 2023; surface water samples have been ND but the LODs exceeded the ADEC cleanup criteria in 2021, 2022 and 2023. The landfill cover at Site LF003 will continue to be visually monitored for signs of settlement, subsidence, erosion, or other such events.

1.0 INTRODUCTION

This report presents the results and observations from the 2024 Long-Term Management (LTM) and Remedial Action-Operation (RA-O) program at the Cape Romanzof Long Range Radar Site (LRRS) in Cape Romanzof, Alaska. The field activities were conducted at six Environmental Restoration Program (ERP) sites listed below. This report was prepared by North Wind-EA, Joint Venture, LLC (North Wind-EA JV) for the Air Force Civil Engineering Center (AFCEC) under U.S. Army Corps of Engineers – Alaska District Contract Number W911KB-20-D-0012, Task Order W911KB20F0120 and in accordance with the Statement of Work.

The six LRRS ERP sites evaluated include the following:

- LF003: Former Landfill #2
- SS010: Weather Station Building Area
- SS015: Lower Camp Underground Storage Tanks (USTs)
- SS016: Upper Tram Terminal Area,
- SS017: Lower Tram Terminal Area
- ST009: Former Truck Fueling Station

The following LTM/RA-O activities were conducted in 2024:

- Visual inspections at all six sites to verify the effectiveness of institutional controls (IC)/land use controls (LUCs).
- Groundwater monitoring at Sites SS015 and ST009 for analysis of gasoline range organics (GRO), diesel range organics (DRO), and benzene, toluene, ethylbenzene, and total xylenes [BTEX]; Site SS015 was additionally analyzed for residual range organics (RRO).
- Collection of four sediment samples at Site LF003 for analysis of polychlorinated biphenyls (PCBs).
- Collection of one surface water sample at Site LF003 for analysis of PCBs.

1.1 Purpose

The purpose of the 2024 field activities was to evaluate the effectiveness of LUCs and ICs in accordance with each site's Record of Decision (ROD). Site inspections and LTM were performed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); Title 18 of the Alaska Administrative Code (AAC), Chapter 75 (18 AAC 75) – Alaska Oil and Hazardous Substance Pollution Control Act (ADEC 2023); the *Final Uniform Federal Policy for Quality Assurance Project Plan* (QAPP) (U.S. Air Force [USAF] 2021a) and *Work Plan Amendment 1* (USAF 2022a); the USAF AFCEC *Land Use Control Management Plan Pacific Air Forces Regional Support Center Remote Installations* (USAF 2019); and each site's ROD (USAF 2008 [ST009]; 2011 [SS015]; 2013 [LF003, SS010, SS016, SS017]).

1.2 Project Background and History

Cape Romanzof LRRS is located approximately 540 miles west of Anchorage, Alaska (AK). The nearest communities are Scammon Bay and Hooper Bay, located approximately 15 miles to the east and south,

respectively. The Cape Romanzof LRRS facility was constructed in 1953 as one of 10 original aircraft control and warning sites in AK. It has been operated by independent contractors since 1977 and was converted to a minimally-attended radar site in the 1980s. The site consists of 4,900 acres of land located within the Yukon Delta Wildlife Refuge (USAF 2013). Remedial activities under CERCLA were initiated at the installation in 1989. Various subsequent environmental investigations at the facility have identified areas where hazardous substances or petroleum products were released to the environment or disposed of onsite.

The 2024 LTM effort at Cape Romanzof LRRS included LUC/IC inspections at all six sites listed below, groundwater monitoring at two sites (SS015 and ST009), and sediment and surface water sampling at Site LF003 to fulfill the selected remedial actions identified in each site-specific ROD.

1.2.1 Site LF003, Landfill No. 2

LF003 is identified as Landfill No. 2 according to the *Land Use Management Plan Pacific Air Forces Regional Support Center Remote Installations* (USAF 2019). ICs identified in the ROD include prohibiting the development and use of property for residential housing, prohibiting excavation or disturbance of the landfill cap/cover, and requiring maintenance of the cap/cover (USAF 2013).

Site LF003 (CS hazard identification [ID] 1341) consists of a former, capped landfill located on the south side of the access road between the Lower Camp and the airstrip. The area covers approximately 43,800 square feet and was used as the primary landfill for the installation from 1953 until the mid-1970s. Landfill No. 2 received various household and industrial wastes including garbage, wood, metal, plastic, construction/demolition debris, shop waste, and incinerator ash. The landfill was initially capped in 1993 and 1994 (USAF 2017). The interim ROD identified the remedy as additional capping of the disposal cell, combined with excavation and disposal of impacted soil/sediment outside of the disposal cell, and long-term monitoring and ICs (USAF 2017). PCBs and lead in surface soil and sediment are the site contaminants of concern (COCs) for LF003 that were addressed in the final ROD (USAF 2013). The ROD provides a more detailed description of site history and COC distribution (USAF 2013). The remedy implemented at LF003 included excavation and off-site disposal, as well as ICs/LUCs and post-closure monitoring requirements. The third Five Year Review (FYR) was completed in 2018, which confirmed that the selected remedy was not considered protective of human health and the environment due to exposed debris present at the site, a lack of soil erosion control barriers, and the remaining presence of PCB-contaminated sediment (USAF 2018).

LTM activities completed in 2019 and 2020 included LUC/IC inspections, and the continued monitoring of surface water and sediments for PCBs (USAF 2020; 2021a; 2021b). Silt fencing was also installed in 2019 downgradient of LF003 to prevent offsite migration of sediments (USAF 2020). No detections of PCBs exceeding the regulatory criteria were noted in sediment or surface water and the warning signs were in good shape in 2019 and 2020 (USAF 2021a). The site inspection completed 12 August 2020 had concluded that inert surface debris observed at the site was not associated with the landfill, and not eroded to the surface through a compromised landfill cap, but rather appeared to be waste that was disposed of separately, dumped on the ground surface in the close proximity to the landfill toe/sidewall sometime after the mid-1970s closure of LF003. Surface debris, which included scrap metal, black construction bags, air compressor parts, and the remnants of an old vehicle, was collected and disposed of at the permitted LRRS landfill (USAF 2021a). Downgradient movement of PCBs from the landfill is a primary concern at LF003. The sediment traps (e.g., silt fences) were placed to limit potential migration, and the inspection and sampling program is intended to confirm migration in excess of Alaska Department of Conservation (ADEC) criteria is not occurring.

Between 12 August 2021 to 14 October 2021, a Remedial Action-Construction (RA-C) consisting of excavation, transportation, and disposal of PCBs and lead impacted soils was conducted (USAF 2022c).

The remedial activities consisted of excavating the northern area formerly excavated in 2016 with remaining lead exceedances and continuing the excavation to the east and north. The excavation was advanced to 0.5 to 1.0 feet bgs. After the first part of the excavation, lead results exceeding 400 milligrams per kilogram (mg/kg) were reported in the southern sidewall and northeastern floor of the excavation. Debris was present on the floor of the excavation and extended in all directions beyond the extent of the excavation. The second excavation lift extended horizontally to the east and north, but the excavation was not advanced laterally in this direction due to water intrusion. Debris in this area consisted of metal items, which were disposed of in the Cape Romanzof landfill. Final confirmation soil sample results reported PCBs less than the 2013 ROD soil cleanup target levels, as well as lead in the southern extent of the southern excavation; however, lead remains above the 2013 ROD soil cleanup target levels in the northern portion of the southern excavation. The backfilled surface of the excavation area was restored to match surrounding grade to protect the landfill cap from erosion. Damage to the LF003 landfill cap was repaired by leveling the surface of the exposed cell, placing appropriate geofabric liner over the exposed area, and covering with clean fill from an onsite source (USAF 2022c). Approximately 278.1 tons of lead-contaminated soil was excavated and placed in seventy 3.5 CY supersacks for offsite disposal. Several truckloads of metal debris were placed in the Cape Romanzof LRRS landfill (USAF 2022c).

LTM and LUC/IC inspections were conducted September 2021, 2022, and 2023. Sediment and surface water samples were collected for PCB analysis each year. Analytical results for sediment samples reported total PCBs below the ADEC cleanup level in 2021; total PCBs were detected in two sediment samples (S03 and S04) in 2022 at concentrations of 0.0118 and 0.350 mg/kg, respectively, both below the ADEC cleanup level of 1.0 mg/kg for soil; and results for total PCBs were non-detect (ND) in all sediment samples in 2023. Surface water sample results in 2021, 2022 and 2023 reported PCBs as not detected, although the limit of detection (LOD) of 0.5 micrograms per liter (μ /L) was above the ADEC cleanup level of 0.44 μ g/L. In 2022, a LUC warning sign was replaced at the west end of the site that was noted as destroyed in 2021. Two LUC signs were replaced along the road in 2023: one on the west side of the site and one on the east side of the site. The ICs at LF003 were reported to be functioning as intended to protect human receptors from exposure to contaminated media.

The fourth FYR was completed in 2023, confirming the remedy had not been fully implemented as intended by the 2013 ROD (USAF 2024b). The excavation component of the remedy was initiated in 2016 and continued in 2021; however, lead contamination remained, as observed in July 2023, along the eastern, western, and northern extent of the excavation completed in 2021. Debris was observed throughout both excavations and appeared to be present past the excavation boundaries. The FYR indicated that additional fill placement may be required at LF003 to cover exposed debris observed at the site and to restore the integrity of the landfill cap. Additionally, the erosion soil control barriers (silt fencing) that were installed in 2019 were not functioning as intended. Silt fences are torn down by high winds annually and due to the remoteness of the site, immediate repairs are not practicable. The fourth FYR recommended re-evaluating the need for the erosion control barriers since, based on surface water and sediment PCB results, there is no evidence of migration of PCB-contamination above the ROD cleanup levels from the landfill (USAF 2024b).

1.2.2 Site SS010, Weather Station Building Area

Site SS010 is identified as Weather Station Well Spill Site 4 according to the *Land Use Management Plan Pacific Air Forces Regional Support Center Remote Installations* (USAF 2019). ICs identified in the ROD include preventing access to groundwater and soil, prohibiting development and use of property for residential housing, preventing the use of contaminated soil, and implementing a soil management plan (USAF 2013).

Site SS010 (CS Hazard ID 1334) is located approximately 600 feet east of the southwest end of the airstrip. The site encompasses a Weather Station Building area and consists of fuel spills associated with a former diesel fuel aboveground storage tank (AST). The suspected contaminant sources, Tank #11 (a 25,000-gallon diesel AST) and diesel fuel AST Tank #4, have been removed. Previous investigations conducted identified total petroleum hydrocarbons (GRO, DRO and RRO) as COCs in subsurface soil and groundwater. The ROD provides a more detailed description of site history and COC distribution at SS010 (USAF 2013). The remedy implemented for SS010 included ICs and long-term monitoring. Monitoring ceased in 2015 due to the site meeting remedial goals for two successive monitoring events (USAF 2018). A Non-CERCLA Periodic Review was completed in 2018 which confirmed that the selected remedy remained protective of human health and the environment (USAF 2018). The most recent LTM inspections were completed in 2019 and 2020 (USAF 2020; 2021a; 2021b), which documented the decommissioning of three site wells. No issues were noted with the ICs. The first FYR was completed in 2018 confirming the remedy at Site SS010 was protective of human health and the environment (USAF 2018).

IC/LUC inspections were conducted September 2021, 2022, and 2023. The ICs were reported to be functioning as intended to protect human receptors from exposure to contaminated media. An LUC sign was replaced in 2023 along the west side of the access road. The site has two LUC warning signs.

The second FYR was completed in 2023, confirming the remedy to be protective of human health and the environment in accordance with the ROD (USAF 2024b).

1.2.3 Site SS015, Lower Camp USTs

Site SS015 is identified as Old UST Site/Leaking USTs according to the *Land Use Management Plan Pacific Air Forces Regional Support Center Remote Installations* (USAF 2019). ICs identified in the ROD include limiting excavation and prohibiting installation of water supply wells (USAF 2011).

Site SS015 (CS Hazard ID 1329) is located at Lower Camp. This UST spill area, located 200 feet south of the Lower Camp and north of SS013, is the result of diesel fuel spills from two USTs. The 5,000- and 15,000- gallon USTs were discovered in 1991 during an excavation of fuel-contaminated soils from an adjacent AST (USAF 2011). Multiple investigations were completed in the 1990s to document soil and groundwater exceeding ADEC CLs and an interim ROD consisting of monitored natural attenuation and IC/LUC was implemented in 2002 (USAF 2011). Site COCs include GRO, DRO, RRO, and benzene in groundwater. Inspections and monitoring have been ongoing since the 2002 interim ROD was approved, with the most recent LTM activities completed in 2019 and 2020 (USAF 2020; 2021a; 2021b). The most recent Non-CERCLA Periodic Review was completed in 2018, which confirmed that the selected remedy remains protective of human health and the environment (USAF 2018). The 2020 site inspection noted that the LUC warning signs were in good condition and recommended continued annual inspections.

LTM and LUC/IC inspections were conducted September 2021 (USAF 2022b), 2022 (USAF 2024a), and 2023 (USAF 2024c). Monitoring wells WW01, WW05, and WW06 were sampled each September and analyzed for GRO, DRO/RRO, and BTEX. All results were reported below the ADEC cleanup levels with the following exceptions: WW01 – DRO (2021, 2022 and 2023) and benzene (2021 and 2022); WW05 – DRO (2022), benzene (2022 and 2023) and ethylbenzene (2022 and 2023); WW06 – DRO (2022), benzene (2021) and ethylbenzene (2021). The Mann-Kendall (MK) statistical trend analysis was evaluated each year. Although some analyte trends have been stable in previous years, limited data is available, and those analyte trends have fluctuated through time. If not specified below, the analytes showed no statistically significant trend in any of the three wells.

- WW01: GRO, DRO, RRO benzene and toluene were stable in 2021; GRO and xylenes were decreasing in 2023.

- WW05: DRO was stable in 2021; RRO was increasing in 2022 and 2023.
- WW06: DRO was stable in 2021; RRO was increasing in 2022 and 2023.

The ICs at SS015 were reported to be functioning as intended to protect human receptors from exposure to contaminated media. In 2021, the LUC warning signs at SS015 were reported to be in good condition, legible and not obscured by vegetation (USAF 2022b). In 2022, two LUC warning signs were present, and two new signs were installed in the northwest and northeast corners of the site. In 2023, one LUC sign was observed destroyed and one LUC sign was observed out of its foundation and was reinstalled.

The fourth FYR was completed in 2023, confirming the remedy at SS015 is protective of human health and the environment in accordance with the ROD (USAF 2024b).

1.2.4 Site SS016, Upper Tram Terminal Area

Site SS016 is identified as Upper Tram Terminal Area according to the *Land Use Management Plan Pacific Air Forces Regional Support Center Remote Installations* (USAF 2019). ICs identified in the ROD include prohibiting development and use of property for residential housing, preventing use of contaminated soil for restricted uses, requiring a dig permit in the event of excavation, implementing a soil management plan, and maintaining the cap (USAF 2013).

Site SS016 (CS Hazard ID 4129) is situated on top of a steep slope at the Upper Camp. COCs identified at the Site SS016 consist of PCBs and lead in the surface soil. Approximately 339 cubic yards (CY) of surface soil was previously identified with PCB contamination. The ROD identified the SS016 remedy as excavation with off-site disposal but also stated that excavation of all impacted soil might not be possible, in which case capping and institutional controls would be implemented (USAF 2013). The 2016 removal action conducted at Site SS016 resulted in the removal of approximately 129 tons of PCB- and lead-contaminated soil (USAF 2017). While soil contamination remained at the site, resolution of safety concerns including the relocation of live high voltage power cables and stabilization of the tram dock footing should be required before additional remedial activities could be performed.

The first Non-CERCLA Periodic Review was completed in 2018, which determined that a protectiveness statement would be deferred until remediation could occur (USAF 2018). The removal action was conducted between May and August 2021 (USAF 2022c). Demolition of the upper tram building at SS016 included removal of the structure down to concrete footings (USAF 2022c). Excavation activities did not occur at three cells (24, 28, and 45) due to the presence of the live high voltage power cables, transformer boxes, and the tight constraints of the surrounding buildings; PCB contamination identified during the 2016 RA-C activities remains in these three cells. In Cell 44, approximately six inches of soil were removed and PCB and lead confirmation soil samples indicated lead was present at concentrations greater than the 2013 ROD soil cleanup target levels. The presence of subsurface electrical wiring and an electrical junction box obstructed further excavation. A plastic liner was placed within the SS016 excavation and along the sidewalls to serve as a visual indicator of the 2021 excavation limits (USAF 2022c). Clean backfill was placed within the excavation, compacted with the loader bucket, and sloped to match the existing grade. Approximately 72.8 tons of lead and/or PCB-contaminated soil were excavated from SS016 and placed in nineteen 3.5 CY supersacks for offsite disposal. It was recommended that the contamination in these areas be left in place until the decommissioning of the facility (USAF 2022c), and if the subsurface electrical wiring or other infrastructure obstructions are moved prior to decommissioning the facility, consideration should be given to remove the contaminated soil from the site.

IC/LUC site inspections were conducted in 2020, before the removal action, and 2021, after the removal action described above. The site was observed to be protective of human health and the environment the LUC warning sign was in good condition, and continued annual inspections were recommended (USAF

2022b). Inspections were conducted again in 2022 (USAF 2024a). The previous LUC warning signs were attached to the former building that was demolished. It was recommended to replace these signs in 2023.

The fourth FYR was completed in 2023 and confirmed the remedy at SS016 was currently protective of human health and the environment (USAF 2024b). The FYR indicated that there were no immediate threats from SS016, and the remedy was being implemented in accordance with the Explanation of Significant Differences (ESD) issued in 2018. The ESD amended the remedy to allow inaccessible contaminated soil that could not be excavated or capped to remain until the Upper Tram Terminal is removed. Because of safety concerns related to live high-voltage wires and remaining infrastructure, additional excavation is not possible and full decommissioning of the Upper Camp may be needed before remaining contamination can be excavated. The remedy is protective because LUCs are fully implemented and backfill and cover are preventing exposure to residual contamination. In the long term, excavation or permanent capping of the remaining contamination, replacement of LUC signage, and LUC/IC inspections are needed to ensure protectiveness (USAF 2024b).

In September 2023, field activities included inspecting the LUCs/ICs. Two LUC signs were installed: one on the west side of the entrance corridor to the building on the outside of the structure, and one on the outside of the utility shed on the north side of the building.

1.2.5 Site SS017, Lower Tram Terminal Area

Site SS017 is identified as Lower Tram Terminal Area according to the *Land Use Management Plan Pacific Air Forces Regional Support Center Remote Installations* (USAF 2019). ICs identified in the ROD include prohibiting development and use of property for residential housing, preventing use of contaminated soil for restricted uses, requiring a dig permit in the event of excavation, implementing a soil management plan, and maintaining the cap (USAF 2013).

Site SS017 (CS Hazard ID 4129) sits at the toe of the slope from the Upper Camp. COCs identified at Site SS017 consist of PCBs and lead in the subsurface soil and surface soil. Approximately 11 CY of PCB-contaminated subsurface soil and 179 CY of PCB-contaminated surface soil had been previously identified at the site. The 2013 ROD identified the SS017 remedy as excavation with off-site disposal (USAF 2013). The 2016 removal action resulted in the removal of approximately 454 tons of PCB and lead contaminated surface and subsurface soil. While soil contamination of lead and PCB remained at the site, resolution of safety concerns including the presence of live high voltage power cable, would require relocation prior to resuming remedial activities (USAF 2017).

The first Non-CERCLA Periodic Review was completed in 2018, which determined that a protectiveness statement would be deferred until remediation could occur. (USAF 2018). The removal action was conducted between May and August 2021 (USAF 2022c). The abandoned Lower Tram Building was demolished and removed to ground level, and approximately 847.7 tons of lead, PCB, and/or POL-contaminated soil exceeding the 2013 ROD soil cleanup target levels were excavated and placed in 178 3.5 CY supersacks for offsite disposal. Approximately four to five CYs of lead contaminated soil remains on the eastern extent of the gravel pad mostly within the tundra (Cell 44), and POL contaminated soil remains in several areas. Areas of SS017 disturbed by the 2021 RA-C activities were returned to a surface condition resembling their original state at the time of project initiation. All stakes, fences, and barricades installed during site activities were removed. Tire or track ruts created by heavy machinery during soil excavation and staging operations were repaired and graded to pre-excavation conditions. Concrete below grade was left in place and covered with soil and rocks (USAF 2022c).

IC/LUC site inspections were conducted in 2020, before the removal action, and 2021, after the removal action described above. The site was observed to be protective of human health and the environment, LUC warning signs were in good condition, and continued annual inspections were recommended (USAF

2021b, 2022b). Inspections were conducted again in 2022 (USAF 2024a). The previous LUC warning signs were attached to the former building that was demolished. It was recommended to replace these signs in 2023. Litter and vehicle tracks suggest this site is occasionally accessed, and wind erosion may have exposed some liner and metal debris at the site. Evidence of wildlife was noted on the visual inspection checklists.

The second FYR was completed in 2023, confirming the remedy at SS017 is expected to be protective of human health and the environment upon completion of the additional removal of lead- and POL-contaminated soil and replacement of the LUC signs for the ESD remedy to be fully implemented; however, the remedy is functioning as intended because ICs outlined in the 2023 LUCMP and the Notice of Environmental Contamination (NEC) on file with the AK Department of Natural Resources prohibit development and use of the property for residential housing, prevent use of contaminated soil for restricted uses, require a dig permit in the event of excavation, and implement a soil management plan to prevent direct exposure. Additionally, a cap has been installed over the remaining contamination (USAF 2024b).

In September 2023, field activities included inspecting the LUCs/ICs. Two LUC signs were installed: one on the west side of the site along the access road, and one on the north side of the site near the former building footprint.

1.2.6 Site ST009, Former Truck Fueling Station (Spill Site 3)

Site ST009 is identified as Spill Site 3 according to the *Land Use Management Plan Pacific Air Forces Regional Support Center Remote Installations* (USAF 2019). ICs identified in the ROD include excavation and construction restrictions, documentation that soil is impacted above levels allowing unrestricted use, and a prohibition on the installation of water supply wells (USAF 2008).

Site ST009 (CS Hazard ID 1339) consists of a former truck fueling station, located downstream of Lower Camp and adjacent to the mouth of Fowler Creek. The site was contaminated as a result of numerous small petroleum spills associated with vehicle fueling activities. A 1994 investigation estimated that approximately 955 CYs of contaminated soil was present at the site. Soil was left in place and further characterized during a 2004 site investigation. Investigations at the site identified GRO, DRO, and benzene as COCs. The 2008 ROD (USAF 2008) summarizes the nature and extent and the remedy for Site ST009, which include monitored natural attenuation as a remedial action for groundwater, and annual monitoring at one surface water location – the latter was discontinued following the 2015 LTM monitoring event on the basis that total aromatic hydrocarbons (TAH) and total aqueous hydrocarbons (TAqH) results were below the Alaska Water Quality Standards (AWQS) for TAH and TAqH (USAF 2018). Inspections and monitoring have been ongoing since the ROD was approved, with the most recent LTM activities completed in 2019 and 2020 (USAF 2020; 2021a; 2021b). The 2020 and 2021 site inspection noted that the LUC warning signs were in good condition and recommended continued annual monitoring and inspections.

LTM and LUC/IC inspections were conducted September 2021 (USAF 2022b), 2022 (USAF 2024a), and 2023 (USAF 2024c). Monitoring wells MW04, MW07, and MW09 were sampled each September and analyzed for GRO, DRO, and BTEX. All results were reported below the ADEC cleanup levels except for DRO in all wells in 2021, 2022 and 2023. The MK statistical trend analysis was evaluated each year. Although some analyte trends have been stable or decreasing in previous years, limited data is available, and those analyte trends have fluctuated over time. If not specified below, the analytes showed no statistically significant trend in any of the three wells.

- MW04: DRO was decreasing in 2021 and 2022; GRO and ethylbenzene were decreasing in 2022 and 2023.

- MW07: DRO was stable in 2021 and decreasing in 2023; GRO, ethylbenzene and xylenes were decreasing in 2021, 2022 and 2023; benzene has had an increasing trend and is likely the result from increasing LODs.
- MW09: GRO, ethylbenzene and xylenes were decreasing in 2021, 2022 and 2023; DRO was decreasing in 2021 and 2022; toluene was decreasing in 2021; and xylenes were decreasing.

The ICs at ST009 were reported to be functioning as intended to protect human receptors from exposure to contaminated media. Two LUC warning signs are located at the site and have been reported to be in good condition, legible and not obscured by vegetation in 2021, 2022 and 2023.

The third FYR was completed in 2023, confirming the remedy at ST009 is protective of human health and the environment in accordance with the ROD (USAF 2024b).

1.3 Project Objectives

The objectives of the September 2024 field effort were to perform environmental monitoring to ensure the current LTM and IC/LUC programs continue to prevent human exposure to site COCs and future releases of contaminants, and to continue to monitor contaminant degradation at the installation.

The LTM program was instituted at the facility to meet the requirements of 18 AAC 75, CERCLA and the National Contingency Plan, where applicable, and the final RODs for LF003 and ST009 (USAF 2013) and SS015 (USAF 2011). The objective of the program is to track the reduction of residual contamination at the impacted sites and to monitor any further release of contaminants to the undisturbed surrounding areas.

Field activities included the inspection of the landfill cap at Site LF003, LUC/IC inspections at six sites, and collection of environmental samples at Sites LF003, ST009, and SS015.

1.4 Regulatory Framework

The cleanup of the installation is conducted in accordance with CERCLA, the National Contingency Plan, and AK state regulations. Sites regulated under CERCLA include LF003, SS016 and SS017. Sites regulated under AK state regulations include SS010, SS015, and ST009. In accordance with the CERCLA process, the USAF was identified as the responsible party and is the lead cleanup agency. ADEC oversees the cleanup effort on behalf of the state to ensure that remediation objectives are consistent with the State of Alaska CLs in 18 AAC 75 and guidance for soil/sediment, groundwater, and surface water.

Under the ERP, the USAF 611th Civil Engineer Squadron developed a LTM program in accordance with the Final RODs and ESDs at the Cape Romanzof LRRS (USAF 2008; 2011; 2013).

1.5 Report Organization

This report is organized as follows:

- **Section 1.0, Introduction.** This section presents the project purpose, objectives, project area background and history, regulatory setting, document organization, and analytical program.
- **Section 2.0, 2024 Site Activities and Observations.** This section describes IC/LUC inspection activities, sampling methodology, global positioning system (GPS) surveys, deviations, and investigation derived waste (IDW) disposal from the ADEC-approved QAPP (USAF 2021a).

- **Section 3.0, 2024 Analytical Results.** This section presents the laboratory analytical results for media sampled at Sites LF003, SS015, and ST009.
- **Section 4.0, Data Quality Review.** Presents the results of the data verification, validation, and usability assessment, as well as ADEC data review checklists.
- **Section 5.0, Mann-Kendall Trend Analysis.** Presents the Mann-Kendall (MK) statistical analysis used to quantitatively evaluate the measured groundwater concentrations.
- **Section 6.0, Summary and Recommendations.** Presents a summary of the conclusions, data limitations, and recommendations for future work.
- **Section 7.0, References.** Presents the works cited and referenced within this report.
- **Appendix A. Photograph Log:** Presents general site photographs for 2024 field activities, including LUC inspection photographs, monitoring well inspection photographs, low-flow groundwater sampling, and sediment and surface water sampling.
- **Appendix B. Field Forms and Logbook:** Presents the daily logbook notes, visual inspection checklists, calibration log forms, and low-flow groundwater sampling and stabilization forms associated with 2024 field activities.
- **Appendix C. Chemical Data Tables:** Presents the full chemical data tables.
- **Appendix D. ADEC Laboratory Data Review Checklist and Data Quality Assurance Review:** Presents a chemical data quality review, ADEC checklists, and sample summary table.
- **Appendix E. Laboratory Analytical Report:** Presents the Level II analytical laboratory report associated with project samples in electronic version only. The Level IV laboratory report will be provided separately.
- **Appendix F. Mann-Kendall Trend Analysis Input File:** Presents the ProUCL output for the Mann-Kendall trend analysis.
- **Appendix G. Regulatory Documentation:** Presents the regulatory comments and responses.

2.0 2024 SITE ACTIVITIES AND OBSERVATIONS

Field activities conducted from 11 – 17 July 2024 included visual inspections, groundwater monitoring/sample collection, and sediment and surface water sample collection. Travel was via chartered aircraft from Bethel, AK to Cape Romanzof LRRS. Photographs of site conditions and field activities are presented in the Photograph Log (Appendix A). Inspection checklists, sample forms, and instrument calibration log forms are presented in Appendix B.

2.1 Land Use Control/Institutional Control and Landfill Cover Inspections

LUC/IC visual inspections were conducted at Sites LF003, SS010, SS015, SS016, SS017, and ST009. A landfill cover inspection was conducted at LF003. Site locations are shown on Figure 1. The following subsections describe the observations from each site inspection.

2.1.1 Site LF003, Landfill No. 2

There was no evidence of settling on the capped surface. Petroleum sheen and chemical odors were not observed or evident at the cap or at surface water downgradient to the southwest. Areas of exposed geotextile liner were observed along the southern portion of the excavation area. The site had some debris, including plastic markers and metal materials. Vehicle tracks were observed in the flat/pull-off area of the site. The site had damaged or missing silt fences. All silt fences were in various states of disrepair and non-operative condition due to high winds. The damage to the silt fences include those done by wind damage where they were observed ripped and partially attached to bent posts and completely missing given by standalone posts with no attached fabric. No discolored vegetation was observed. All monitoring wells appeared intact and in good condition. No wildlife was present and no evidence of animal burrows was observed. The site was lightly vegetated on the cap surface and south/west side slopes, and up to 90 percent (%) vegetated on the east side slope. Two LUC signs found damaged in 2023 were replaced with new signs during this site visit. One sign was installed on the east side of the site on the south side of the road (Appendix A, Photograph 01), and the other sign was installed on the west side of the site on the south side of the road (Appendix A, Photograph 02). The LUC area and the locations of the newly installed LUC signs are shown on Figure 2.

2.1.2 Site SS010, Weather Station Building Area

There was no evidence of settling on the capped surface, and no ponded water with petroleum sheen or any chemical odors were observed. Vehicle tracks were observed on the access road to the weather station. No discolored vegetation or evidence of excavation was observed. No wildlife was present and no evidence of animal burrows was observed. The site is approximately 65% vegetated. One LUC warning sign was present and in good condition on the east side of the access road. The second LUC sign located at the northwestern portion of the site near the access road was found to be missing and not observed anywhere at the site. The LUC area is shown on Figure 3.

2.1.3 Site SS015, Lower Camp USTs

There was minor evidence of settling on parts of graded surface areas, but there were no observations of ponded water. Trash, metal, and construction debris were observed throughout the site, some possibly wind-blown from another location. Exposed geotextile fabric was observed in some locations (Figure 4). Monitoring wells present at this site were observed to be in good condition. Vehicles were observed driving on the road around the site boundary. Survey marker nails were present, but they are not tied to the National Geodetic Survey database. The site did not appear to have surface erosion, discolored vegetation, or previously buried materials exposed at the ground surface with the exception of geotextile fabric. No wildlife was present and no evidence of animal burrows was observed. The site is 80% vegetated. Two LUC warning signs were present, upright, and in fair condition (Appendix A,

Photographs 16 & 17). One LUC sign was found destroyed and on the ground in the northeastern area of the site (Appendix A, Photograph 18). One new LUC was installed in the southern area of the site (Appendix A, Photograph 15). The LUC area is shown on Figure 4.

2.1.4 Site SS016, Upper Tram Terminal Area

The building and debris have been removed from this site. Although portions of the building footprint exist at the site, there was no debris present. There was no evidence of settling on the site's surface and no observations of ponded water. No monitoring wells were present. A small patch of geotextile fabric was observed near the radar dome (Appendix A, Photograph 29), as well as one survey marker. Vehicle tracks were observed, indicating the Base Operations Support (BOS) contractor accesses this site; use of the site by the BOS contractor was confirmed, and use aligned with the support contract. Surface erosion, discolored vegetation, and previously buried debris were not observed. No wildlife was present and no evidence of animal burrows was observed. The site is approximately 5 to 10% vegetated. The LUC sign located on the north side of the utility shed was removed and reinstalled along the access road's last turn on the approach to the site for greater visibility (Appendix A, Photographs 27 & 28). The LUC area is shown on Figure 5.

2.1.5 Site SS017, Lower Tram Terminal Area

The building has been removed from this site. Portions of the building footprint exist and scattered remnants of metal, concrete and wood debris are still present. There was no evidence of settling on the capped surface and no observations of ponded water. The concrete footprint of the former building was observed, as well as geotextile fabric along the excavation boundary (Appendix A, Photograph 33). Vehicle tracks were present in the southwest/southeast portion of the site. Surface erosion and discolored vegetation were not observed. No wildlife was present and no evidence of animal burrows was observed. The site is approximately 25% vegetated. Two LUC signs were observed in good condition (Appendix A, Photographs 31 & 32). The LUC area is shown on Figure 6.

2.1.6 Site ST009, Former Truck Fueling Station (Spill Site 3)

There was no evidence of settling on the site surface, and no petroleum sheen was observed in any of the surface water bodies at this site. Metal and other debris was observed scattered across the site. All six wells appeared in good condition except for each having a rusted lock. New combination locks were installed on wells MW04, MW07, and MW09. All wells were in working order except for MW09, which was obstructed at approximately 8.5 feet below the top of the well casing.

Vehicle tracks were observed on the access road within the site boundary, as well as on the barge unloading area. Minor, natural erosion was observed on the beach and barge unloading dock area where there is more of a slope. This area of natural erosion is shown on Figure 7. Surface erosion, discolored vegetation, and previously buried debris were not observed anywhere else at the site. No wildlife was present, yet a possible animal burrow was observed (Appendix A, Photograph 41). The site is 65% vegetated on the surface, and up to 75% vegetated on the side slopes. Two LUC warning signs were present and in good condition (Appendix A, Photographs 35 & 36). The LUC area is shown on Figure 7.

2.2 Sampling Methodology

All environmental media samples were collected by ADEC Qualified Environmental Professionals meeting the requirements of 18 AAC 75.333 following the approved QAPP and Work Plan Amendment 1 (USAF 2021a and 2022a). Any deviations to sampling methods are presented in Section 2.3.

After sample collection, the sample containers were placed directly into sealable plastic bags and placed in an insulated cooler with frozen gel packs. The gel packs were replaced at the time of shipment to

maintain the inside temperature of the cooler equal to or less than 6 degrees Celsius (°C). The samples were transported via charter to Bethel, AK where personnel directly transferred the samples to AK Air Cargo for shipment to Anchorage, AK. Once the samples arrived in Anchorage, the insulated coolers were opened by North Wind-EA personnel and the gel packs were replaced with fresh frozen gel packs. The coolers were secured using chain of custody procedures and shipped via FedEx within 24 hours to Pace Analytical National Laboratory (Pace) in Mount Juliet, Tennessee.

2.2.1 Groundwater Monitoring and Sampling

Groundwater monitoring was conducted at Sites SS015 (Lower Camp USTs), and ST009 (Former Truck Fueling Station). Prior to initiating sampling activities, depth to groundwater was measured and recorded at each well using a water level meter (electronic tape) to 0.01-foot precision from the northern or marked side of the polyvinyl chloride (PVC) well casing. Each well at ST009 exhibited a medium to strong fuel odor. The water level meter was thoroughly decontaminated after each well gauging with non-phosphate soap and deionized water mix and then rinsed with deionized water.

Monitoring wells were purged and sampled using low-flow sampling protocols in accordance with ADEC's Field Sampling Guidance (ADEC 2022) to minimize disruption to the water column. To ensure the purged groundwater was flowing from the aquifer, water was purged from the wells at a minimal rate to limit drawdown. Although a water level measurement was collected at monitoring well MW09 at ST009, the well was blocked at approximately 8.5 feet below top of casing and therefore could not be purged or sampled. A low flow, submersible pump (12-volt Proactive stainless steel Mini-Monsoon) was used to purge and sample the monitoring wells. New silicone and low-density polyethylene tubing were used for each well. The pump or tubing was lowered into the well slowly and carefully to a depth corresponding with the approximate midpoint of the saturated screen interval. When a visible sheen or odor was observed in the purge water or on the water level meter tape, to target suspected petroleum contaminants, the intake was set as close as possible to the water table surface (within the top foot of water column) regardless of screened interval length. The pump was turned on to a flow rate of 0.1 to 0.5 liters per minute. The water level in the well was monitored during sampling to measure drawdown during purging and the flow rate was adjusted to ensure minimum drawdown (less than 0.3 foot below initial water level).

Water quality parameters were measured at regular intervals (3-5 minutes) during groundwater purging activities using a closed flow-through cell water quality meter. Field stabilization parameters including potential hydrogen (pH), temperature, turbidity, specific conductance, dissolved oxygen, and oxidation reduction potential, were measured in the field using a calibrated Horiba U-50 multiprobe system water quality meter during purging and prior to sample collection and documented on the Well Purge and Sampling Field Forms included in Appendix B. Once groundwater quality parameters stabilized, groundwater was collected into laboratory-provided sample containers after disconnecting the tubing from the Horiba flow cell.

All groundwater monitoring wells at the Lower Camp UST Site SS015 (SS015-WW01, SS015-WW05, SS015-WW06) were sampled on 13 July 2024 and analyzed for GRO, DRO, RRO, and BTEX. All groundwater monitoring wells at the Former Truck Fueling Station (Spill Site 3) Site ST009 (ST009-MW04 and ST009-MW07), with the exception of ST009-MW09, were sampled on 14 July 2024 and analyzed for GRO, DRO, and BTEX. Locations of groundwater monitoring wells for Sites SS015 and ST009 are shown on Figure 4 and Figure 7, respectively.

The analytical results are presented in Section 3.1. Groundwater quality control (QC) samples included trip blanks, field duplicate (FD) samples (one per site), and additional aliquots for designated matrix spike (MS) and matrix spike duplicates (MSD) submitted to the laboratory with the primary groundwater samples.

2.2.2 Surface Water Sampling

Surface water sampling at Site LF003 was conducted on 15 July 2024 at only one location due to the lack of surface water. The samples were collected down gradient from the silt fence using the direct fill method. The sampler faced upstream and collected the sample without disturbing the sediment. The sampler submerged the closed sample container, unscrewed the container lid to collect the sample, and then returned the lid while sub-surface. A transfer bottle was not needed for collection since the sample bottles did not contain any preservatives.

Samples LF003-SW03-071524 and FD LF003-SW99-071524 were collected for laboratory analysis of PCBs by U.S. Environmental Protection Agency (EPA) Solid Waste (SW) Method 8082. The analytical results are presented in Section 3.2. The QC samples included one FD sample and additional aliquots for designated MS/MSD samples submitted to the laboratory with the primary surface water sample. Figure 2 shows the surface water collection locations and results at Site LF003.

2.2.3 Sediment Sampling

Sediment sampling at Site LF003 was conducted 15 July 2024. The sediment samples at LF003 were collected just upgradient from the established silt fences via grab sampling methods using a dedicated/disposable trowel directly into laboratory-provided sample containers. The sampler filled the unpreserved container full to ensure no head space was present.

Four primary sediment samples, plus one FD sample were collected from the immediate upgradient vicinities of each silt fence location. The silt fences were previously installed in the downgradient areas below the Site LF003 cap boundary. Samples LF003-SO1, LF003-SO2 (and FD LF003-SO99), LF003-SO3 (collocated with SW03), and LF003-SO4 were collected for laboratory analysis of PCBs by SW8082.

Field sampling forms are provided in Appendix B. Figure 2 shows the sediment collection locations. The analytical results are presented in Section 3.2.

2.3 Work Plan Deviations

Deviations from the QAPP (USAF 2021a) and Work Plan Amendment 1 (USAF 2022a) include the following:

- LF003
 - Due to the lack of surface water in the area, only one surface water sample (SW03) was collected; the sediment sample, SO3, was also collected from this location.
 - The surface water FD sample and surface water MS/MSD samples from LF003 were collected from SO3/SW03 instead of SO2/SW02 and SO4/SW04, respectively, due to the lack of surface water at those locations.
- ST009
 - Sample collection did not occur at MW09 due to an obstruction in the well at approximately 8.5 feet below top of well casing.

2.4 Investigation Derived Waste

The IDW generated during the 2024 field effort included purge water from groundwater sampling, decontamination fluids, and disposable sampling equipment. Purge and decontamination water generated

during the groundwater sampling effort at SS015 and ST009 was containerized and then cycled through a 5-gallon granulated activated carbon (GAC) filter of appropriate size and flowrate. The water was treated through the GAC system prior to being discharged to the ground surface close to the point of generation at locations where it would not run-off to existing streams of surface water bodies and greater than 100 feet from drinking water wells in accordance with the approved QAPP (USAF 2021a). Approximately 10 gallons of liquid IDW was treated through the GAC from the wells at SS015 and ST009.

For fuel hydrocarbons with low concentrations that may have been encountered at SS015 and ST009, contamination breakthrough in the GAC effluent (the point when measurable contaminants are first detected in the effluent) was assumed to occur when the weight of the contaminants in the influent would be equal to approximately 3 percent (%) of the weight of the activated carbon (for example, 3 pounds of hydrocarbons for 100 pounds of activated carbon) (PCC 2023). Using Freundlich's isotherm method for carbon life estimation, assuming the influent concentration is equal to or less than the solubility of diesel fuel (about 5 mg/L), the volume of water that can theoretically be filtered with a GAC canister with 18 pounds of granular activated carbon is approximately 216 gallons (that is, $1000 \text{ mg/L} \times 2.205 \times 10^{-6} \text{ pounds/mg} \times 3.785 \text{ L/gallon} = 8.35 \times 10^{-3} \text{ pounds/gallon}$; $1.8 \text{ pounds} / 8.35 \times 10^{-3} \text{ pounds/gallon} = 215.67 \text{ gallons}$). The design flow rate for the GAC vessels was 0.5 gallon. It is estimated that approximately 10 gallons of liquid IDW was treated during the groundwater sampling at SS015 and ST009. As a means of ensuring the portable GAC filtration system was operating properly, observations were made and recorded with respect to appearance, odor, and presence or absence of sheen. No sheen or free product was observed in the purge water or filtered through the GAC canister.

The remaining miscellaneous solid waste including used personal protective equipment, disposable sampling equipment and various other solid waste items, was bagged onsite and disposed of locally via the camp incinerator.

3.0 2024 ANALYTICAL RESULTS

This section presents the laboratory analytical results for media sampled at Sites LF003, SS015, and ST009. Tabulated analytical data is presented in Appendix C. The Level II laboratory report is included as Appendix E. The USACE North Pacific Division Laboratory (NPDL) project number is 21-037.

3.1 Groundwater Sampling Results

Monitoring wells were sampled at SS015 and ST009. Results are presented below.

3.1.1 SS015 Groundwater Analytical Results

Three primary and one FD groundwater samples were collected from SS015 monitoring wells WW01, WW05, WW06 for analysis of GRO (Alaska Method [AK] 101), DRO/RRO (AK102/103), and BTEX (EPA method 8260D). An equipment blank (SS015-EB-071324) was collected prior to sampling the wells at this site and analyzed for the above constituents.

Analytical results showed detections from each of the monitoring wells. Exceedances to the ADEC cleanup levels were only observed in monitoring well WW01. Figure 4 shows the site layout, monitoring well locations and summary tables of analytical results. Table 1 lists the 2024 analytical results.

Table 1. SS015 Groundwater Analytical Results - 2024

Well				WW01	WW05		WW06
Sample ID				SS015-WW01-071324	SS015-WW05-071324	SS015-WW99-071324 (FD)	SS015-WW06-071324
Analytes	Analytical Method	Unit	ADEC Cleanup Level ¹	Results			
GRO	AK101	µg/L	2200	618 [50.0]	37.4 [50.0] B, J	15.9 [50.0] B, J	15.7 [50.0] B, J
DRO	AK102	µg/L	1500	11900 [400]	178 [400] J	ND [400]	603 [400] J
RRO	AK103	µg/L	1100	ND [600]	ND [600]	ND [600]	ND [600]
Benzene	SW8260D	µg/L	4.6	40.5 [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
Toluene	SW8260D	µg/L	1100	0.310 [0.600] J	ND [0.600]	ND [0.600]	ND [0.600]
Ethylbenzene	SW8260D	µg/L	15	18.9 [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
Xylenes (Total)	SW8260D	µg/L	190	38.7 [1.50]	ND [1.50]	ND [1.50]	ND [1.50]

Notes:

¹ ADEC Groundwater Cleanup Levels, AAC Title 18, Chapter 75.345, Table C for Human Health (ADEC 2023).

Results shown in **red** exceed cleanup levels.

µg/L = microgram(s) per liter

FD = Field duplicate

ND = Not detected above the limit of detection (LOD) in brackets [400].

Data Qualifiers:

B = Analyte result is considered a high estimated value due to contamination present in the blank.

J = The analyte result is considered an estimated value because the level is below the laboratory limit of quantitation (LOQ) but above the detection limit (DL).

3.1.2 ST009 Groundwater Analytical Results

Two primary groundwater samples and one FD sample were collected from ST009 groundwater monitoring wells MW04 and MW07 for analysis of GRO (AK101), DRO (AK102/103), and BTEX

(8260D). An equipment blank (ST009-EB-071424) was collected prior to sampling the wells and analyzed for the above constituents.

Analytical results observed one exceedance of DRO in MW07 in the primary sample; the FD sample results were less than the ADEC cleanup levels. No other exceedances were observed. Figure 7 shows the site layout, monitoring well locations and summary tables of analytical results. Table 2 below lists the 2024 analytical results.

Table 2. ST009 Groundwater Analytical Results - 2024

Well ID				MW04	MW07	
Sample ID				ST009-MW4-071424	ST009-MW7-071424	ST009-MW99-071424 (FD)
Analytes	Analytical Method	Unit	ADEC Cleanup Level ¹	Results		
GRO	AK101	µg/L	2200	17.3 [50.0] B, J	232 [50.0] QL	213 [50.0] QL
DRO	AK102	µg/L	1500	309 [400] J	1310 [400]	1740 [400]
Benzene	SW8260D	µg/L	4.6	ND [0.500]	ND [0.500]	ND [0.500]
Toluene	SW8260D	µg/L	1100	ND [0.600]	ND [0.600]	ND [0.600]
Ethylbenzene	SW8260D	µg/L	15	ND [0.500]	1.02 [0.500]	1.08 [0.500]
Xylenes (Total)	SW8260D	µg/L	190	ND [1.50]	1.64 [1.50] J	1.73 [1.50] J

Notes:

¹ ADEC Groundwater Cleanup Levels, AAC Title 18, Chapter 75.345, Table C for Human Health (ADEC 2023).

Results shown in **red** exceed cleanup levels.

µg/L = microgram(s) per liter

FD = Field duplicate

ND = Not detected above the limit of detection (LOD) in brackets [50.0].

Data Qualifiers:

B = Analyte result is considered a high estimated value due to contamination present in the blank.

J = The analyte result is considered an estimated value because the level is below the laboratory limit of quantitation (LOQ) but above the detection limit (DL).

QL = Analyte result is considered an estimated value biased low due to matrix effects or a quality control failure.

3.2 Surface Water and Sediment Sampling Results at LF003

One primary surface water sample, four primary sediment samples, and one FD from each media were collected from LF003 for analysis of PCBs as Aroclors and total PCBs by SW8082A. Results for total PCBs were ND in surface water samples; however, the total PCBs LOD was slightly greater than the corresponding ADEC cleanup level of 0.44 µg/L at 0.500 µg/L. The results are listed in Appendix C, Table C- 4.

Total PCB concentrations in sediment samples were all ND. Current and historical detections for sediment are listed below in Table 3. The site layout, sample locations, and summary tables of analytical results are presented in Figure 2. Table C- 5 in Appendix C presents the full summary of the 2024 analytical results.

Table 3. LF003 Historical Summary of Sediment Analytical Results.

PCB	ADEC Cleanup Level ¹ (mg/kg)	Location ID	Year					
			2020	2021	2022	2023	2024	
1254	NA	S01	ND [0.00857]	ND [0.0156]	ND [0.0803]	ND [0.0254]	ND [0.0258] QN	
		S02	0.0242 [0.00894]	ND [0.0112]	ND [0.0961]	ND [0.0219]	ND [0.0208]	
		S03	ND [0.0432]	ND [0.0152]	0.118 [0.0295]	ND [0.0462]	ND [0.0293]	
		S04	0.0893 [0.0108]	ND [0.0135]	0.350 [0.0243]	ND [0.0413]	ND [0.0323] QN	
1260		S01	ND [0.00857]	ND [0.0156] QN	ND [0.0803]	ND [0.0254]	ND [0.0258] QN	
		S02	ND [0.00894]	ND [0.0112] QN	ND [0.0961]	0.0816 [0.0219]	ND [0.0208]	
		S03	ND [0.0432]	0.240 [0.0152] J	ND [0.0295]	ND [0.0462]	ND [0.0293]	
		S04	ND [0.0108]	0.0977 [0.0135] J	ND [0.0243]	0.157 [0.0413]	ND [0.0323] QN	
1268		S01	ND [0.00857]	ND [0.0156]	ND [0.0803]	ND [0.0254]	ND [0.0258] QN	
		S02	ND [0.00894]	ND [0.0112]	ND [0.0961]	ND [0.0219]	ND [0.0208]	
		S03	ND [0.0432]	ND [0.0152]	ND [0.0295]	ND [0.0462]	ND [0.0293]	
		S04	ND [0.0108]	ND [0.0135]	ND [0.0961]	ND [0.0413]	ND [0.0323] QN	
TOTAL PCBs		1.0	S01	ND [0.00857]	ND [0.0156]	ND [0.0803]	ND [0.0254]	ND [0.0258] QN
			S02	0.0242 [0.00894]	ND [0.0112]	ND [0.0961]	0.0816 [0.0219]	ND [0.0208]
			S03	ND [0.0432]	0.240 [0.0152] J	0.118 [0.0295]	ND [0.0462]	ND [0.0293]
			S04	0.0893 [0.0108]	0.0977 [0.0135] J	0.350 [0.0243]	0.157 [0.0413]	ND [0.0323] QN

Notes:

¹ ADEC Soil Cleanup Levels, AAC Title 18, Chapter 75.341, Table B1 for Human Health (ADEC 2023).

mg/kg = milligrams per kilogram

NA = Not applicable

ND = Not detected above the limit of detection (LOD) in brackets [0.016].

PCB = Polychlorinated Biphenyl

Data Qualifier:

J = The analyte was positively identified; the quantitation is estimated because of discrepancies in meeting certain analyte-specific quality control criteria.

QN = Analyte result is considered an estimated value biased “uncertain” due to matrix effects or a quality control failure.

4.0 DATA QUALITY REVIEW

All laboratory results, including laboratory QC sample results, were reviewed and evaluated for quality, validity, and usability by the North Wind data validation team. The data validation was performed under Stage 2B validated guidelines in accordance with the QAPP (USAF 2021a), Work Plan Amendment 1 (USAF 2022a), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.4 (DoD 2021b), the DoD General Validation Guidelines (DoD 2019), the DoD Data Validation Guidelines Module 1: Data Validation Procedure for Organic Analysis by GC/MS (DoD 2020), and the DoD Data Validation Guidelines Module 4: Data Validation Procedure for Organic Analysis by GC (DoD 2021a). Where specific guidance was not available, the data was evaluated in a conservative manner consistent with industry standards using professional experience.

A Data Quality Assessment Report is included in Appendix D along with the ADEC Laboratory Data Review Checklist. The level II laboratory analytical report is provided in Appendix E.

QC samples (including FDs, MS/MSDs, trip blanks, and equipment blanks) were collected to monitor accuracy, precision, and the presence of field contamination. Equipment blanks for sites ST009 and SS015 were collected prior to sampling and analyzed for the site's contaminants of concern. Equipment blank ST009-EB-071424 had a GRO detection of 24.9 µg/L. Equipment blank SS015-EB-071324 had detections of GRO and DRO at concentrations of at 21.1 µg/L and 189 µg/L, respectively. The data usability for results reported below the ADEC cleanup levels was not affected. Results reported above the ADEC cleanup levels and <5x the equipment blank detections were affected as presented below, and a summary of the QC results is presented in Appendix D.

- AK101: GRO in samples SS015-WW05-071324, SS015-WW06-071324, SS015-EB-071324, SS015-TB-071324, ST009-MW4-071424, ST009-EB-071424, and ST009-TB-071424 have been qualified with a 'B' validation flag.

One sample delivery group (SDG), L1758483, was submitted for laboratory analysis by Pace. The results of data verification and validation processes indicate that the data generated from the samples collected during the July 2024 field activities are of sufficient quality and quantity necessary to accomplish project objectives. Sample results accurately indicate the presence and/or absence of target analyte concentrations at sampled locations and are representative of conditions at the time of collection. Samples were collected and analyzed as specified in the Final QAPP (USAF 2021a) and the Final Work Plan Amendment 1 (USAF 2022a).

The following issues were noted during the validation:

Volatiles

Continuing Calibration

- SW846 Method 8082A: Surrogate decachlorobiphenyl in the continuing calibration verifications [CCVs] analyzed on Column 1 on 08/03/24 at 20:45 (79.5 percent recovery [%R]), and on Column 2 on 08/07/24 at 04:44 (122%R), 08/07/24 at 10:49 (127%R), and 08/07/24 at 12:02 (127%R) was outside of the 80-120% recovery acceptance criteria. However, no qualification is warranted due to the CCV %R exceedances for surrogate decachlorobiphenyl. The remaining CCV criteria were met.

Volatiles, continued

Method Quantitation Limits

Several sample results have been qualified with a 'J' validation flag to denote the reported results are estimated due to sample results reported at levels between the detection limit (DL) and the quantitation limit (LOQ). The remaining sample results were either ND or were reported above the LOQ.

Overall Comments for Volatiles

- Overall, the data meet the requirements and intent of the methods indicating the preparatory process and analytical system were in control at the time of sample analysis, and the reported laboratory results are of sufficient quality for their intended purpose.

The overall quality of the data was acceptable. No associated sample data were rejected as a result of this evaluation. Overall, the data meet the requirements and intent of the methods indicating the preparatory process and analytical system were in control at the time of sample analysis, and the reported laboratory results are of sufficient quality for their intended purpose. Several sample results were reported above the limit of quantitation (LOQ), have been assessed, and remain unqualified.

Results obtained are comparable to industry standards in that collection and analytical techniques followed approved, documented procedures, and results are reported in industry standard units. The data are complete, and the results are usable for project objectives. The overall completeness of the data indicates that the quality of the analytical program and the laboratory and field procedures were sufficient to meet the data quality objectives (DQOs).

5.0 MANN-KENDALL TREND ANALYSIS

The Mann-Kendall (MK) test was used to evaluate the site groundwater concentration trends. The EPA ProUCL program (EPA 2022) was used to complete the statistical analyses. The MK test is well-suited for environmental data because it can be used on small sample sizes (e.g., $n \geq 4$) and does not assume any underlying distribution for the data (e.g., it is nonparametric). The output of the MK test is the S statistic. Positive and negative S statistics are indicators of increasing and decreasing concentration trends, respectively. To differentiate whether a trend finding from the S-statistic is statistically significant, ProUCL was used to develop a decision matrix based on the S-statistic, the confidence in the trend, and the coefficient of variation (COV). The confidence level, expressed as a percentage, is calculated by subtracting the probability (p) from 1 (e.g., confidence = $[1-p] \times 100$). The p-value indicates whether or not the association between the response and predictor (analyte concentration vs. time) is statistically significant at the given level of confidence. The COV is defined as the standard deviation of the sample set divided by the average of the sample set. Based on the results of calculating these three statistics, the concentration trend indicated by the S-statistic is determined to be increasing, probably increasing, no trend, stable, probably decreasing, or decreasing using the decision matrix presented in Table 4. Appendix F provides the ProUCL output for the MK analyses.

The LOD is used in the MK analysis for ND results. Where all results have not been detected above the LOQ, the statistic is reported as “ND.”

Table 4. Mann-Kendall Analysis Decision Matrix

Mann-Kendall Statistic	Confidence in Trend	Statistical Trend
$S > 0$	> 95%	Increasing
	90 - 95%	Probably Increasing
	< 90%	No Trend
$S \leq 0$	< 90% and $COV \geq 1$	No Trend
	< 90% and $COV < 1$	Stable
$S < 0$	90 - 95%	Probably Decreasing
	> 95%	Decreasing

The historic site data summarized in Table 5 were used as input for the ProUCL program. Appendix F provides the ProUCL input for the MK analysis. The results of the MK test are shown in Table 6.

The MK results are summarized as follows:

- Site SS015
 - WW01: GRO, DRO, ethylbenzene and toluene have stable trends. RRO and benzene continue to demonstrate no trend; however, RRO and total xylenes have never been detected above cleanup criteria.
 - WW05: DRO has a stable trend stable; all other analytes demonstrate no trend except RRO, which has an increasing trend. However, RRO has never been detected above cleanup criterion and has been ND for the last five years. The increasing MK trend is likely the result of different LODs across sampling events. Toluene and total xylenes have never been detected above cleanup criteria.
 - WW06: DRO has a stable trend, and RRO has an increasing trend. RRO has only had three low-level detections and concentrations do not appear to be increasing. The MK trend result is likely the result of increasing LODs. BTEX have been ND for all years analytical data has been available. All other analytes demonstrate no trend.

- Site ST009
 - MW04: GRO, DRO and ethylbenzene display decreasing trends while all other analytes (benzene, toluene and xylenes) demonstrate no trend.
 - MW07: GRO, ethylbenzene and xylenes display decreasing trends. Benzene has an increasing trend. DRO and toluene demonstrate no trend. Benzene has had only had one single detection in 2007, and the increasing trend is likely the result of increasing LODs.
 - MW09: This well was not sampled in 2024; thus the MK results would have remained unchanged from the previous year. However, due to revised MK trend decision criteria (Table 4), the MK analysis was performed on all data for this well. DRO and toluene displayed a probably decreasing trend; GRO, ethylbenzene and xylenes displayed a decreasing trend; and benzene had no trend.

The three increasing MK trend results are likely the result of increasing LODs and should not be considered representative of site conditions. The trends at SS015 are largely stable, are all ND for a given analyte, or a statistically significant trend is unable to be determined. Decreasing or probably decreasing trends for multiple analytes at the ST009 wells indicate that attenuation is occurring in the groundwater at this site.

Table 5. Summary of Historical Groundwater Analytical Data Results at SS015 and ST009.

Well ID	Year	GRO (µg/L)	DRO (µg/L)	RRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)
		Cleanup Level ¹						
		2200	1500	1100	4.6	1100	15	190
SS015-WW01	2014	191	3160	—	2.21	ND [0.5]	3.63	6.75
	2015	1040	19700	—	87.6	ND [0.5]	27.2	139
	2016	460	12000	—	70	—	—	—
	2017	249	8960	552	56.7	ND [0.5]	6.85	33.2
	2019	190	3800	170	9.3	ND [1]	5.8	7.7
	2020	172	3830	ND [460]	12.5	ND [0.5]	7.83	11.7
	2021	278 J	4620 J-	ND [460] UJ	15.5 J	ND [0.05]	2.82 U	6.84 U
	2022	91.1 [50.0] B, J	13200 [400] QN	787 [460] J	5.12 [0.500]	ND [0.600]	3.39 [0.500]	4.75 [1.50]
	2023	114 [50.0] B	2590 [400]	ND [600]	1.08 [0.500]	ND [0.600]	2.36 [0.500]	3.29 [1.50]
	2024	618 [50.0]	11900 [400]	ND [600]	40.5 [0.500]	0.310 [0.600] J	18.9 [0.500]	38.7 [1.50]
SS015-WW05	2014	ND [50]	418	—	ND [0.2]	ND [0.5]	ND [0.5]	ND [1.5]
	2015	70.3	887	—	3.51	ND [0.5]	0.68	3.66
	2016	4200	2300	—	67	—	—	—
	2017	807	1360	168	66.6	1.52	69.4	89.9
	2019	780	1300	110	46	1.2	91	113.1
	2020	ND [50]	ND [400]	ND [460]	ND [0.5]	ND [0.5]	ND [0.5]	ND [1.5]
	2021	1280	1290 J-	ND [483] UJ	50	1.2	75.4	99.8
	2022	866 [50.0]	1620 [400]	ND [460] H	55.5 [0.500]	1.20 [0.600] J	70.7 [0.500]	97.4 [1.50]
	2023	864 [50.0]	1100 [400]	ND [600]	47.8 [0.500] QL	1.01 [0.600] J, QL	71.9 [0.500] QL	92.4 [1.50] QL
	2024	37.4 [50.0] B, J	178 [400] J	ND [600]	ND [0.500]	ND [0.600]	ND [0.500]	ND [1.50]

Table 5. Summary of Historical Groundwater Analytical Data Results at SS015 and ST009, Continued.

Well ID	Year	GRO (µg/L)	DRO (µg/L)	RRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)
		Cleanup Level ¹						
		2200	1500	1100	4.6	1100	15	190
SS015- WW06	2014	37.8	1560	—	ND [0.2]	ND [0.5]	ND [0.5]	ND [1.5]
	2015	ND [0.05]	421	—	ND [0.2]	ND [0.5]	ND [0.5]	ND [1.5]
	2016	—	2300	—	—	—	—	—
	2017	ND [0.05]	1700	318	ND [0.2]	ND [0.5]	ND [0.5]	ND [1.5]
	2019	ND [200]	1800	180	ND [2]	ND [1]	ND [1]	ND [2]
	2020	ND [50]	308	ND [460]	ND [0.5]	ND [0.5]	ND [0.5]	ND [1.5]
	2021	30.2 U	1370 J-	ND [480]	ND [0.5]	ND [0.5]	ND [0.5]	ND [1.5]
	2022	24.3 [50.0] B, J	2290 [420]	571 [483] J	ND [0.500]	ND [0.600]	ND [0.500]	ND [1.50]
	2023	23.0 [50.0] J, B	1080 [400]	ND [600]	ND [0.500] QN	ND [0.600] QN	ND [0.500] QN	ND [1.50] QN
	2024	15.7 [50.0] B, J	603 [400] J	ND [600]	ND [0.500]	ND [0.600]	ND [0.500]	ND [1.50]
ST009- MW04	2004	75700	1360000	34500	5.96	59.9	340	291
	2006	60	13700	340	0.65	ND [2]	1.42	5.6
	2007	521	5900	—	ND [0.5]	ND [2]	1.33	8
	2008	240	40000	—	ND [0.12]	ND [0.21]	ND [0.2]	ND [0.15]
	2009	140	1140	—	ND [0.15]	1.41	ND [0.62]	2.1
	2012	45	2400	—	ND [0.15]	ND [0.15]	ND [0.15]	ND [0.45]
	2013	42.5	1280	—	ND [0.24]	0.65	0.51	1.26
	2014	ND [72.7]	1210	—	ND [0.2]	ND [0.5]	ND [0.5]	ND [1.5]
	2015	175	5440	—	ND [0.2]	ND [0.5]	ND [0.5]	ND [1.5]
	2016	—	1200	—	—	—	—	—
	2017	ND [67.3]	4530	386	ND [0.2]	ND [0.5]	ND [0.5]	ND [1.5]
	2019	320	320	—	ND [2]	ND [1]	ND [1]	ND [2]
	2020	58.3	5460	ND [460]	ND [0.5]	ND [0.5]	ND [0.5]	ND [1.5]
	2021	ND [50]	208 J-	—	ND [0.5]	ND [0.5]	ND [0.5]	ND [1.5]
	2022	36.0 [50.0] J	5600 [400]	703 [460] J	ND [0.500]	ND [0.600]	ND [0.500]	ND [1.50]
2023	61.4 [50.0] J, B	1890 [400] B	—	ND [0.500] QN	ND [0.600] QN	ND [0.500] QN	ND [1.50] QN	
2024	17.3 [50.0] B, J	309 [400] J	—	ND [0.500]	ND [0.600]	ND [0.500]	ND [1.50]	

Table 5. Summary of Historic Analytical Data Results at SS015 and ST009, Continued.

Well ID	Year	GRO (µg/L)	DRO (µg/L)	RRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)
		Cleanup Level ¹						
		2200	1500	1100	4.6	1100	15	190
ST009- MW07	2004	1020	3090	427	ND [0.5]	1.13	14	19.3
	2006	1560	1350	2310	ND [0.5]	6.6	ND [2]	2.8
	2007	1300	4440	—	0.185	8.6	18.8	3.3
	2008	370	2100	—	ND [0.12]	ND [0.21]	3.7	8.9
	2009	421	3030	—	ND [0.15]	2.05	5.36	151.6
	2012	340	6400	—	ND [0.15]	ND [0.15]	2.3	5.5
	2013	462	2760	—	ND [0.24]	0.76	1.97	4.79
	2014	495	2870	—	ND [0.2]	ND [0.5]	2	5.35
	2015	512	2580	—	ND [0.2]	ND [0.5]	2	5.12
	2016	—	2300	—	—	—	—	—
	2017	138	1270	243	ND [0.2]	ND [0.5]	1.39	3.24
	2019	310	1900	—	ND [2]	ND [1]	2	3.8
	2020	412	4010	ND [460]	ND [0.5]	ND [0.5]	1.45	2.92
	2021	293 J-	4650 J-	ND [460] UJ	ND [0.5] UJ	ND [0.5] UJ	1.16 J-	2.07 J
	2022	145 [50.0] H	53100 [400] QN	800 [460]	ND [0.500] J	ND [0.600]	0.505 [0.500] J	1.02 [1.50] B, J
2023	390 [50.0]	3980 [400] QL	—	ND [0.500] QN	ND [0.600] QN	0.663 [0.500] J, QL	1.28 [1.50] J, QL	
2024	232 [50.0] QL	1740 [400]	—	ND [0.500]	ND [0.600]	1.08 [0.500]	1.73 [1.50] J	
ST009- MW09	2004	456	4140	505	0.402	ND [2]	3.3	5.1
	2006	441	2240	458	0.18	2.62	4.37	14
	2007	236	2860	—	1.98	ND [2]	1.98	5.89
	2008	280	1400	—	ND [0.12]	ND [0.21]	1.5	3.1
	2009	217	1150	—	ND [0.15]	1.43	1.57	5.74
	2013	216	1460	—	ND [0.24]	0.54	1.17	2.67
	2014	293	1040	—	ND [0.2]	ND [0.5]	0.64	1.06
	2015	208	3480	—	ND [0.2]	ND [0.5]	0.35	ND [1.5]
	2016	—	2900	—	—	—	—	—
	2017	ND [68.8]	1500	376	ND [0.2]	ND [0.5]	ND [0.5]	ND [1.5]
	2019	220	1300	—	ND [2]	ND [1]	ND [1]	ND [2]
	2020	ND [50]	230	469	ND [0.5]	ND [0.5]	ND [0.5]	ND [1.5]
	2021	127 U	600 J-	—	ND [0.5]	ND [0.5]	0.241 U	0.451 U
	2022	66.6 [50.0] B, J	1520 [400]	649 [460] J	0.134 [0.500] J	ND [0.600]	0.175 [0.500] J	0.254 [1.50] J
2023	129 [50.0] B	2020 [400] B	—	ND [0.500] QN	ND [0.600] QN	0.310 [0.500] J, QL	0.381 [1.50] J, QL	
2024	NS	NS	NS	NS	NS	NS	NS	

Table 5. Summary of Historic Analytical Data Results at SS015 and ST009, Continued.

Notes

¹ ADEC Groundwater Cleanup Levels, AAC Title 18, Chapter 75.345, Table C for Human Health (ADEC 2023).

Results shown in **bold** exceed cleanup levels.

— Not analyzed

µg/L = microgram(s) per liter

ND = Not detected above the limit of detection limit (LOD) in brackets [400].

NS = Not sampled.

Data Qualifiers

B = Analyte result is considered a high estimated value due to contamination present in the blank.

H = Analyte result is considered a low estimate due to holding time exceedance.

J = The analyte was positively identified; the quantitation is estimated because of discrepancies in meeting certain analyte-specific QC criteria.

J- = The analyte was positively identified and the result is an estimated quantity, but the result may be biased low.

QL = Analyte result is considered an estimated value biased low due to matrix effects or a quality control failure.

QN = Analyte result is considered an estimated value biased “uncertain” due to matrix effects or a quality control failure.

U = The analyte was analyzed for, but not detected or is qualified as non-detect because of blank contamination.

UJ = The analyte was not detected; however, the result is estimated because of discrepancies in meeting certain analyte-specific QC criteria.

Table 6. Mann-Kendall Trend Analysis Results

Site	Site-Well ID	Analyte	Min (µg/L)	Max (µg/L)	Median (µg/L)	Mann-Kendall Statistic (S)	Confidence Factor (%)	COV	Mann-Kendall Trend
SS015	SS015-WW01	GRO	91.1	1040	220	-13	85.8	0.865	Stable
		DRO	2590	19700	6790	-3	57.1	0.682	Stable
		RRO	170	787	552	9	89.1	0.365	No Trend
		Benzene	1.08	87.6	14	-13	85.8	1.047	No Trend
		Toluene	0.05	1	0.5	-1	50	0.497	Stable
		Ethylbenzene	2.36	27.2	5.8	-8	76.7	0.979	Stable
		Xylenes	3.29	139	7.7	-10	82.6	1.557	No Trend
	SS015-WW05	GRO	37.4	4200	793.5	0	50	1.382	No Trend
		DRO	178	2300	1195	-7	70.4	0.591	Stable
		RRO	110	600	460	15	98.43	0.477	Increasing
		Benzene	0.2	67	46.9	0	50	0.856	No Trend
		Toluene	0.5	1.52	1.01	2	54.3	0.43	No Trend
		Ethylbenzene	0.5	91	69.4	5	66.5	0.948	No Trend
		Xylenes	1.5	113.1	89.9	3	58.4	0.921	No Trend
	SS015-WW06	GRO	0.05	200	24.3	-7	73.5	1.448	No Trend
		DRO	308	2300	1465	-7	70.4	0.54	Stable
		RRO	180	600	480	18	99.51	0.345	Increasing
		Benzene	0.2	2	0.5	13	92.18	0.983	ND
		Toluene	0.5	1	0.5	13	92.18	0.274	ND
		Ethylbenzene	0.5	1	0.5	-2	57.7	0.3	ND
		Xylenes	1.5	2	1.5	-2	57.7	0.107	ND
ST009	ST009-MW04	GRO	17.3	75700	64.35	-56	99.336	3.895	Decreasing
		DRO	208	1360000	2400	-56	98.83	3.851	Decreasing
		Benzene	0.12	5.96	0.5	15	74.3	1.797	No Trend
		Toluene	0.15	59.9	0.6	-26	87.5	3.304	No Trend
		Ethylbenzene	0.15	340	0.5	-40	97.03	3.887	Decreasing
		Xylenes	0.15	291	1.5	-22	84.5	3.584	No Trend
	ST009-MW07	GRO	138	1560	401	-60	99.605	0.778	Decreasing
		DRO	1270	53100	2870	2	51.6	2.045	No Trend
		Benzene	0.12	2	0.37	41	97.11	1.031	Increasing
		Toluene	0.15	8.6	0.6	-19	79.6	1.567	No Trend
		Ethylbenzene	0.505	18.8	2	-86	99.9943533	1.362	Decreasing
Xylenes	1.02	151.6	3.55	-70	99.905359	2.656	Decreasing		

Table 6. Mann-Kendall Trend Analysis Results, continued.

Site	Site-Well ID	Analyte	Min (µg/L)	Max (µg/L)	Median (µg/L)	Mann-Kendall Statistic (S)	Confidence Factor (%)	COV	Mann-Kendall Trend
ST009	ST009-MW09	GRO	50	456	216.5	-59	99.925134	0.585	Decreasing
		DRO	230	4140	1500	-27	90.09	0.584	Probably Decreasing
		Benzene	0.12	2	0.22	15	78.1	1.222	No Trend
		Toluene	0.21	2.62	0.57	-25	91.19	0.772	Probably Decreasing
		Ethylbenzene	0.175	4.37	0.82	-72	99.9950438	0.988	Decreasing
		Xylenes	0.254	14	1.75	-66	99.982697	1.132	Decreasing

Notes

COV = Coefficient of variation (the standard deviation of the sample set divided by the average of the sample set).

ND = Analyte was non-detect for all sample events.

6.0 SUMMARY AND RECOMMENDATIONS

Site inspections and environmental monitoring was performed at Cape Romanzof LRRS to ensure LUC/ICs are protecting human health and the environment; the landfill cap at LF003 is reducing the migration of PCBs in the surface water and soil; and the LTM program of monitoring natural attenuation of groundwater contamination is effective. Field activities performed in 2024 included LUC/IC inspections at Sites LF003, SS010, SS015, SS016, SS017, and ST009; sediment and surface water sampling at Site LF003; and groundwater monitoring at Sites ST009 and SS015.

6.1 Summary

IC inspections were conducted at six sites. Most appeared to be in good condition with no evidence of activities contradictory to the land use control plans. The following sites had specific findings from the visual inspections.

- LF003: Minor erosion along the side slopes of the landfill cap from water runoff was observed. The geotextile liner was exposed in multiple areas within the landfill cap boundaries, but in otherwise good condition. Silt fences for erosion control that were previously installed downgradient from the site are either damaged or non-existent. Two LUC signs were replaced along the road near the site boundary.
- SS010: One LUC sign was observed missing along the west side of the access road. One LUC sign was observed in good condition on the east side of the site. Vehicle tracks were observed on the access road to the weather station. A large area of surface erosion/water runoff was present along the western and eastern boundary of the site.
- SS015: Site surfaces are rocky and uneven; mounds often revealed emerging debris, including construction and metal debris. Some of the debris could possibly have been windblown from another location. Exposed geotextile fabric was observed emerging from the ground. One LUC sign was installed and one was missing. The other two LUC signs were observed in fair condition.
- SS016: One LUC sign was relocated from the north side of the utility shed and installed along the access road to the site. Minor steel and concrete from the structure footing exist at the site. Exposed geotextile fabric was observed near the radar dome.
- SS017: Two LUC signs observed in good condition. Metal, wood, and cables are present throughout the site.
- ST009: The two LUC warning signs were in good condition. Minor, natural erosion was observed on beach/in the barge unloading dock area.

Monitoring activities included the sampling of groundwater, surface water, and sediment. Analytical results were compared to ADEC and/or ROD specified criteria. In addition, MK statistical trend analyses were completed for groundwater sample locations where adequate historic data were available.

- LF003: No PCB exceedances were observed in surface water or sediment samples. A deviation to the planned work, as documented in Section 2.3, included a lack of surface water at LF003, thus only one sample surface water was collected for analysis.
- SS015: Cleanup level exceedances were observed in monitoring well WW01 (DRO, benzene, and ethylbenzene). All other constituents in wells sampled were detected below CLs or not detected. MK statistical trend of the three groundwater monitoring wells at SS015 indicated DRO is stable

in all wells; GRO is stable in WW01; and ethylbenzene and toluene are stable in WW01.

Although RRO is increasing in wells WW05 and WW06, RRO is not a COC, has never been detected above ADEC cleanup criterion in WW05 and has been ND for the last five years, and has only had three low-level detections in WW06 where concentrations do not appear to be increasing. The MK increasing trend results for RRO in WW05 and WW06 is likely the result of increasing LODs. No other statistically significant trends were observed.

- ST009: DRO cleanup level exceedances were only observed in MW07 with a concentration of 1,740 µg/L. MW09 was not sampled as it was observed to have an obstruction at approximately 8.5 ft. below the top of the well casing. Both MW04 and MW07 exhibited a strong fuel odor. The DRO concentrations in MW04 and MW07 decreased from the previous year's sampling event. All other constituents were detected below CLs or not detected. MK statistical trend analysis for these three groundwater monitoring wells indicated the only increasing trend is benzene in well MW07; however, benzene has only had one single detection and the increasing trend is likely the result of increasing laboratory LODs. GRO and ethylbenzene are decreasing in all three wells. DRO is decreasing in MW04 and probably decreasing in MW09. Total xylenes is decreasing in MW07 and MW09; and toluene is probably decreasing in MW09. No other statistically significant trends were observed. Although monitoring well MW09 was not sampled in 2024, the inclusion of MW09 in the current MK trend analysis is based on data from 15 historical events from 2004 through 2023. Decreasing or probably decreasing trends for multiple analytes at the ST009 wells indicate that attenuation is occurring in the groundwater at this site.

6.2 Recommendations

Recommendations by site are provided in the list below.

- LF003: Maintenance of the landfill cap should be completed periodically to re-cover exposed sections of the landfill fabric cover and replace or improve the structural integrity of the downslope silt fences. Reinstall and maintain the silt fences (soil erosion control barriers) at the same locations. Continue the sediment monitoring until sediment with PCBs are less than 1.0 mg/kg. This will be less expensive than the wet basins and is a short-term inexpensive option until the extent of contamination can be determined. During the next round of LTM activities, collect sediment samples from the area of previous exceedances to confirm the presence of PCBs exceeding 1.0 mg/kg in the area and to complete delineation. Delineation will help determine total quantity of soil requiring removal. For the future, if needed based on results of delineation of PCBs in that area, a limited removal action should be scheduled that will require sediment and surface water samples. Continue annual monitoring for 2 more years, and then if PCBs are not detected above cleanup levels, the soil control barriers should be removed and sediment sampling should cease. There have been no exceedances or ND results in sediment and surface water samples collected yearly from 2019 through 2023 (surface water samples were ND but the LODs exceeded the ADEC cleanup level in 2021 through 2023). Recommend changing the analytical method for PCB analysis to ensure the total PCB results have LODs below ADEC's cleanup criterion. High-visibility markers should be considered so the signs can be seen during snow removal activities along the road. Continue to discourage site use and perform LUC/IC inspections on an annual basis.
- SS010: Install one LUC sign west of access road. Discourage site use and reduce LUC/IC inspections to once every five years since the inspections first commenced in 2014 and annual inspections and FYR requirements have been met.
- SS015: Replace one LUC sign along the eastern boundary of the site. Groundwater monitoring should be continued on an annual basis. Discourage site use and reduce LUC/IC inspections and

monitoring to no less than once every five years until this site is acceptable for UU/UE and inspections are deemed unnecessary by the USAF and ADEC. Recommend removing RRO analysis from future LTM activities. RRO, toluene and total xylenes are not COCs identified in the ROD and no exceedances have been observed in the past seven years. Analytical results for toluene and total xylenes have not exceeded the ADEC groundwater cleanup levels for a minimum of ten years.

- SS016: Discourage site use and continue annual LUC/IC inspections on an annual basis until this site is acceptable for UU/UE and inspections are deemed unnecessary by the USAF and ADEC.
- SS017: Discourage site use and continue annual LUC/IC inspections on an annual basis until the site is acceptable for UU/UE and inspections are deemed unnecessary by the USAF and ADEC.
- ST009: BTEX have not been reported above ADEC cleanup criteria since 2007 and the MK statistical trend analysis indicated that the COCs are decreasing, probably decreasing, or no trend for all contaminants in all wells except for benzene in MW07. Benzene has been ND since 2004 in monitoring well MW07 and after reviewing the data, the increase is due to an increased LOD for the last five years. The ROD states that monitoring shall continue until ADEC groundwater cleanup levels are reached and cumulative risk is below Alaska threshold levels, or until the groundwater plume is steady state or shrinking, contaminant concentrations are decreasing, and concentrations meet applicable cleanup levels at approved alternative point of compliance (USAF 2008). Annual groundwater monitoring should continue at ST009 for GRO and DRO. Recommend removing BTEX from future LTM activities. Purge and sample MW09 with a 1.5” bladder pump if the 2-inch submersible pump cannot get past the blockage identified in 2024. Discourage site use and reduce LUC/IC inspections to once every five years until this site is acceptable for UU/UE and inspections are deemed unnecessary by the USAF and ADEC.

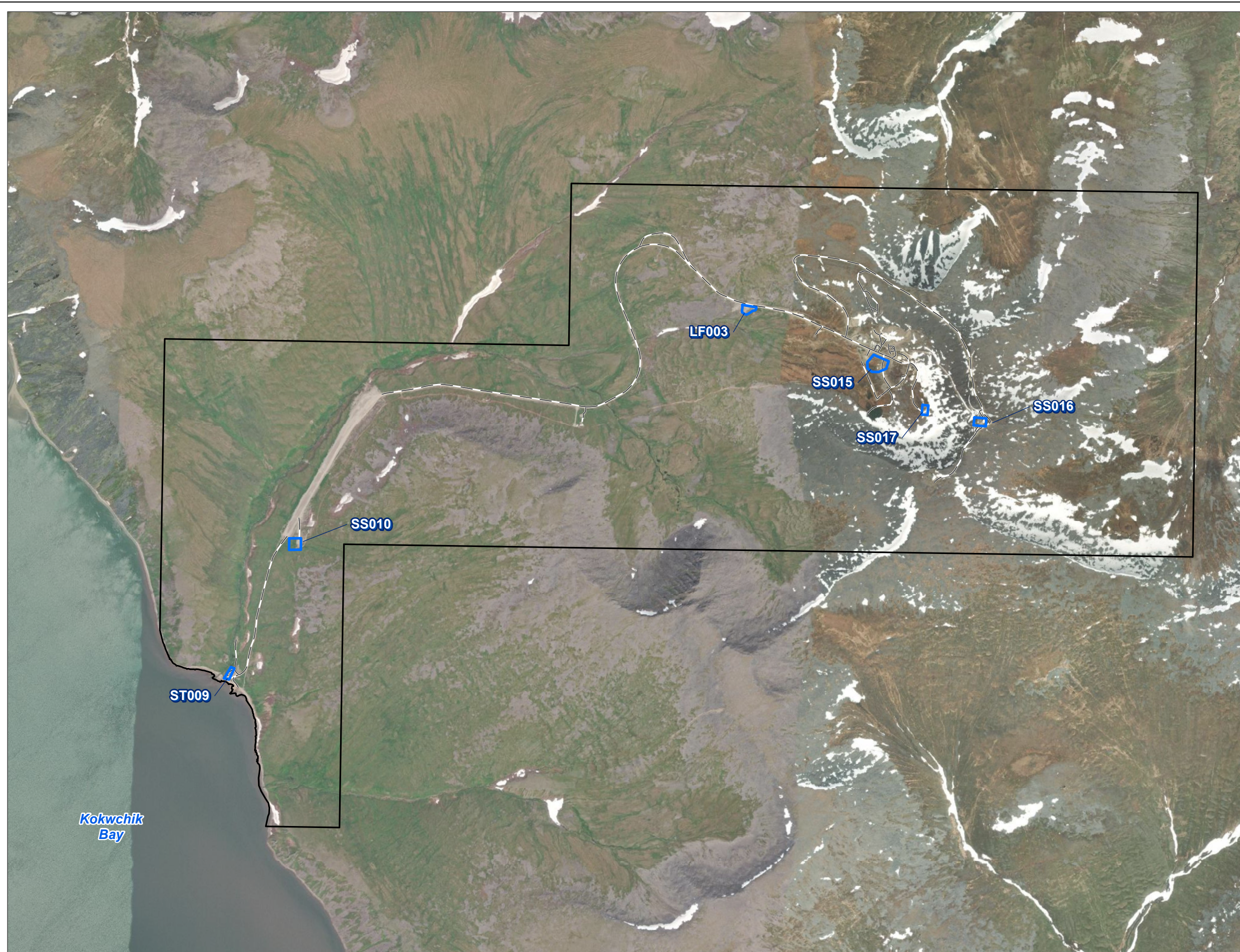
7.0 REFERENCES

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FIGURES

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Legend

-  Land Use Control Boundary
-  Installation Boundary
-  Installation Roads (OT005)

Notes:

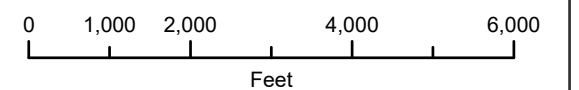
1. LUC boundaries depicted on this figure are preliminary pending final analysis of survey information. LUC boundaries will be updated once this information is available.
2. Boundary data are from 611th GeoBase or have been georeferenced into GIS from historical documents. Data could be incomplete and are of unknown accuracy.
3. For more detailed land use restriction information, see individual site descriptions and summaries.

Acronyms

- GIS - Geographic Information System
- LUC - Land Use Control
- LRRS - Long Range Radar Site



1 inch = 2,374 feet

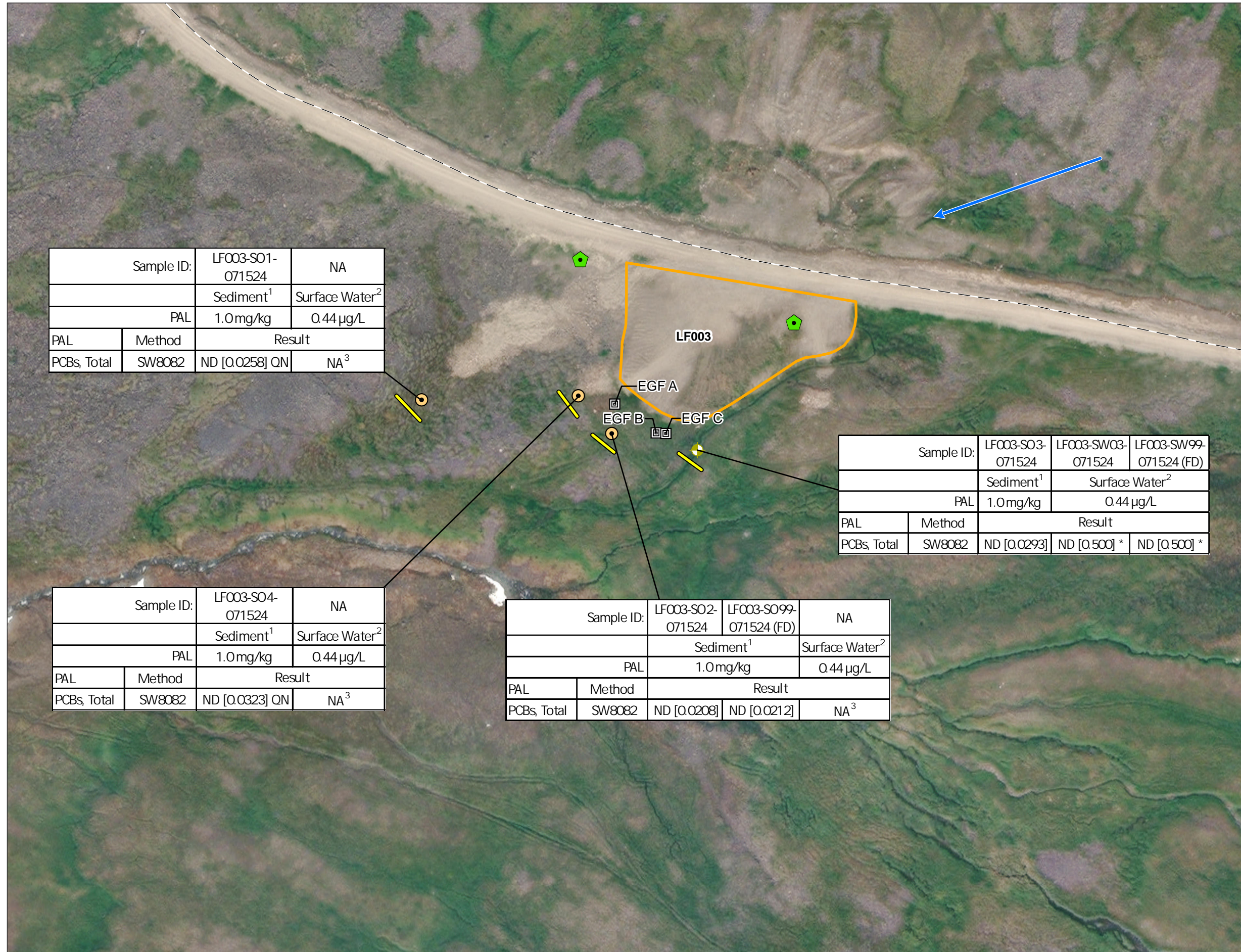


Coordinate System: NAD 1983 UTM Zone 3N

**2024 Remedial Action Operations,
Institutional Control/Land Use
Control Report**

Cape Romanzof LRRS, Alaska

**Figure 1
Cape Romanzof LRRS Overview**



- Legend**
- Sediment Sample
 - ⊕ Sediment and Surface Water Sample
 - Exposed Geotextile Fabric
 - ⬠ New LUC Sign
 - LUC Boundary
 - Approximate location of Silt Fence
 - General Groundwater Flow Direction
 - Installation Roads (OT005)

Notes

¹ ADEC Soil Cleanup Level, 18 AAC 75.341, Table B1 for Human Health (ADEC, October 2023).

² PALs are the Final Remedial Action-Operation objectives per the Record of Decision for LF003; PAL is based on ADEC Groundwater Cleanup Level from 18 AAC 75.345 Table C (ADEC, October 2023).

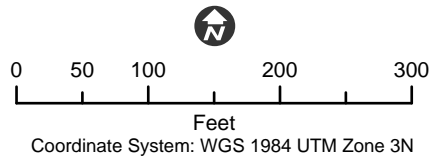
³ Sample location was void of surface water; no surface water sample collected.

* Limit of Detection (LOD) is greater than the PAL.

- Results presented with the laboratory LOD in brackets [LOD].
- LUC boundaries depicted on this figure are preliminary pending survey information and will be updated when available.
- Boundary data are from 611th GeoBase or have been georeferenced into GIS from historical documents. Data could be incomplete and are of unknown accuracy.
- For more detailed land use restriction information, see 2023 Land Use Control Management Plan.

Acronyms

µg/L = microgram per liter
 ADEC = Alaska Department of Environmental Conservation
 EGF = Exposed Geotextile Fabric
 FD = Field Duplicate
 GIS = Geographic Information System
 LUC = Land Use Control
 LRRS = Long Range Radar Site
 mg/kg = milligram per kilogram
 NS = Not Sampled
 ND = Not detected above the LOD
 PAL = Project Action Limit
 PCBs = Polychlorinated Biphenyls
 QN = Analyte result is considered an estimated value biased "uncertain" due to matrix effects or quality control failure.



Sample ID:	LF003-SO1-071524	NA
	Sediment ¹	Surface Water ²
PAL	1.0mg/kg	0.44 µg/L
PAL	Method	Result
PCBs, Total	SW8082	ND [0.0258] QN NA ³

Sample ID:	LF003-SO3-071524	LF003-SW03-071524	LF003-SW99-071524 (FD)
	Sediment ¹	Surface Water ²	
PAL	1.0mg/kg	0.44 µg/L	
PAL	Method	Result	
PCBs, Total	SW8082	ND [0.0293]	ND [0.500] * ND [0.500] *

Sample ID:	LF003-SO4-071524	NA
	Sediment ¹	Surface Water ²
PAL	1.0mg/kg	0.44 µg/L
PAL	Method	Result
PCBs, Total	SW8082	ND [0.0323] QN NA ³






Sample ID:	LF003-SO2-071524	LF003-SO99-071524 (FD)	NA
	Sediment ¹	Surface Water ²	
PAL	1.0mg/kg	0.44 µg/L	
PAL	Method	Result	
PCBs, Total	SW8082	ND [0.0208]	ND [0.0212] NA ³

2024 Remedial Action Operation and Long-Term Management Report
 Cape Romanzof LRRS, Alaska

Figure 2 - LF003 Surface Water and Sediment Analytical Results



Legend

-  Existing LUC Sign
-  LUC Sign to be Replaced
-  LUC Boundary
-  Installation Boundary
-  General Groundwater Flow Direction

Notes:

IC = Institutional Control
 LUC = Land Use Control



0 25 50 100 150 Feet

Coordinate System: WGS 1984 UTM Zone 3N

**2024 Remedial Action Operations
 and Long Term Management Report**
 Cape Romanzof LRRS, Alaska

Figure 3
SS010 Land Use Control

Sample ID: SS015-WW05-071324				SS015-WW99-071324 (FD)	
Analyte	Method	Unit	CL ¹	Result	
GRO	AK101	µg/L	2200	37.4 [50.0] BJ	15.9 [50.0] BJ
DRO	AK102	µg/L	1500	178 [400] J	ND [400]
RRO	AK103	µg/L	1100	ND [600]	ND [600]
Benzene	SW8260D	µg/L	4.6	ND [0.500]	ND [0.500]
Toluene	SW8260D	µg/L	1100	ND [0.600]	ND [0.600]
Ethylbenzene	SW8260D	µg/L	15	ND [0.500]	ND [0.500]
Xylenes (Total)	SW8260D	µg/L	190	ND [1.50]	ND [1.50]

Sample ID: SS015-WW01-071324				
Analyte	Method	Unit	CL ¹	Result
GRO	AK101	µg/L	2200	618 [50.0]
DRO	AK102	µg/L	1500	11900 [400]
RRO	AK103	µg/L	1100	ND [600]
Benzene	SW8260D	µg/L	4.6	40.5 [0.500]
Toluene	SW8260D	µg/L	1100	0.310 [0.600] J
Ethylbenzen	SW8260D	µg/L	15	18.9 [0.500]
Xylenes (Tot	SW8260D	µg/L	190	38.7 [1.50]

Sample ID: SS015-WW06-071324				
Analyte	Method	Unit	CL ¹	Result
GRO	AK101	µg/L	2200	15.7 [50.0] BJ
DRO	AK102	µg/L	1500	603 [400] J
RRO	AK103	µg/L	1100	ND [600]
Benzene	SW8260D	µg/L	4.6	ND [0.500]
Toluene	SW8260D	µg/L	1100	ND [0.600]
Ethylbenzen	SW8260D	µg/L	15	ND [0.500]
Xylenes (Tot	SW8260D	µg/L	190	ND [1.50]



Legend

- Monitoring Well
- Survey Monument
- Concrete Pad
- LUC Boundary
- Concrete Tank Stand
- Installation Boundary
- Existing LUC Sign
- Approximate location of Debris
- LUC Sign to be Replaced
- Installation Roads (OT005)
- Exposed Geotextile Fabric
- General Groundwater Flow Direction

Notes:

1. Groundwater cleanup level from 18 AAC 75.345 Table C (ADEC, October 2023). Result presented with the laboratory Limit of Detection in brackets [LOD].

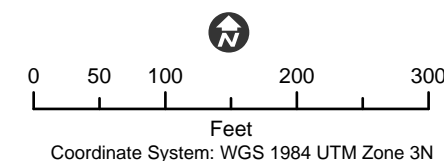
- Values in **Red** exceed cleanup limit
- LUC boundaries depicted on this figure are preliminary pending survey information and will be updated when available.
- Boundary data are from 611th GeoBase or have been georeferenced into GIS from historical documents. Data could be incomplete and are of unknown accuracy.
- For more detailed land use restriction information, see 2023 Land Use Control Management Plan.

Acronyms

µg/L = microgram per liter
 CL = Cleanup Level
 DRO = Diesel Range Organics
 FD = Field Duplicate
 GIS = Geographic Information System
 GRO = Gasoline Range Organics
 LUC = Land Use Control
 ND = Not detected above the limit of detection
 RRO = Residual Range Organics
 LRRS = Long Range Radar Site Data Qualifiers

Data Qualifiers

B = Analyte result is considered a high estimated value due to contamination present in the blank.
 J = Estimated value below the limit of quantitation but above the detection limit



2024 Remedial Action Operation and Long-Term Management Report
 Cape Romanzof LRRS, Alaska

Figure 4 - SS015 Groundwater Analytical Results

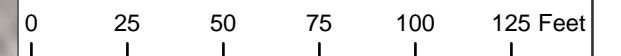


Legend

- LUC Boundary
- Existing Sign
- Exposed Geotextile Fabric
- ⬠ New Sign
- ★ Survey Monument
- ➔ General Groundwater Flow Direction

Acronyms

IC = Institutional Control
 LUC = Land Use Control








Coordinate System: WGS 1984 UTM Zone 3N

2024 Remedial Action Operations and Long Term Management Report
 Cape Romanzof LRRS, Alaska

Figure 5
SS016 Land Use Control Area



Legend

-  LUC Boundary
-  Approximate location of Debris
-  Existing Sign
-  Exposed Geotextile Fabric
-  General Groundwater Flow Direction

Acronyms

IC = Institutional Control
 LUC = Land Use Control



Coordinate System: WGS 1984 UTM Zone 3N

**2024 Remedial Action Operations
 and Long Term Management Report**
 Cape Romanzof LRRS, Alaska

Figure 6 - SS017 Land Use Control Area



- Legend**
- Monitoring Well
 - Existing LUC Sign
 - LUC Boundary
 - Installation Roads (OT005)
 - Approximate location of Natural Erosion
 - General Groundwater Flow Direction

Notes:

¹ Groundwater cleanup level is from 18 AAC 75.345 Table C (ADEC, October 2023). Result presented with the laboratory Limit of Detection in brackets [LOD].

- Values in **Red** exceed cleanup limit
- LUC boundaries depicted on this figure are preliminary pending survey information and will be updated when available.
- Boundary data are from 611th GeoBase or have been georeferenced into GIS from historical documents. Data could be incomplete and are of unknown accuracy.
- For more detailed land use restriction information, see 2023 Land Use Control Management Plan.

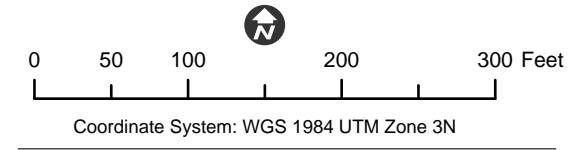
Acronyms

µg/L = microgram per liter
 CL = Cleanup Level
 DRO = Diesel Range Organics
 FD = Field Duplicate
 GIS = Geographic Information System
 GRO = Gasoline Range Organics
 LUC = Land Use Control
 ND = Not detected above the LOQ
 RRO = Residual Range Organics
 LRRS = Long Range Radar Site

Data Qualifiers:

B = Analyte result is considered a high estimated value due to contamination present in the blank.
 J = Estimated value below the limit of quantitation but above the detection limit
 QL = Analyte result is considered an estimated value biased low due to matrix effects or quality control failure.

Sample ID: ST009-MW07-071424				Sample ID: ST009-MW99-071424 (FD)	
Analyte	Method	Unit	CL ¹	Result	
GRO	AK101	µg/L	2200	232 [50.0] QL	213 [50.0] QL
DRO	AK102	µg/L	1500	1310 [400]	1740 [400]
Benzene	SW8260D	µg/L	4.6	ND [0.500]	ND [0.500]
Toluene	SW8260D	µg/L	1100	ND [0.600]	ND [0.600]
Ethylbenzene	SW8260D	µg/L	15	1.02 [0.500]	1.08 [0.500]
Xylenes (Total)	SW8260D	µg/L	190	1.64 [1.50] J	1.73 [1.50] J




2024 Remedial Action Operations and Long Term Management Report
 Cape Romanzof LRRS, Alaska


Figure 7 - ST009 Groundwater Analytical Results

Appendix A. Photograph Log


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LF003

Photograph No.: 01	Photo ID: E LUC Sign LF003	
Date Taken: 07/15/2024		
Photograph taken by: C. Aronson		
Direction: South	Location: LF003	
Description: New LUC sign installed near the eastern boundary of LF003 along access road.		


Photograph No.: 02	Photo ID: P7150294	
Date Taken: 07/15/2024		
Photograph taken by: C. Aronson		
Direction: South	Location: LF003	
Description: New LUC installed near the western boundary of LF003.		

Photograph No.: 03	Photo ID: P7150300
Date Taken: 07/15/2024	
Photograph taken by: C. Aronson	
Direction: South	Location: LF003
Description: Exposed geotextile fabric.	




A photograph showing a rocky, hazy landscape. A black geotextile fabric is exposed and draped over a pile of rocks in the foreground. The background is a misty, open field with scattered rocks. A timestamp in the bottom right corner reads "07/15/2024 09:58".

Photograph No.: 04	Photo ID: P7150305
Date Taken: 07/15/2024	
Photograph taken by: C. Aronson	
Direction: North	Location: LF003
Description: Destroyed silt fencing at sample location SO2.	




A photograph showing a rocky, hazy landscape. In the foreground, there are large, reddish-brown rocks and some green vegetation. A black geotextile fabric is draped over the rocks. In the background, a person is visible standing near a silt fence. A timestamp in the bottom right corner reads "07/15/2024 09:59".


Photograph No.: 05	Photo ID: P7150312
Date Taken: 07/15/2024	
Photograph taken by: C. Aronson	
Direction: Northeast	Location: LF003
Description: Debris at LF003.	




Photograph No.: 06	Photo ID: P7150315
Date Taken: 07/15/2024	
Photograph taken by: C. Aronson	
Direction: Northeast	Location: LF003
Description: Destroyed silt fencing at sample location SO1.	




Photograph No.: 07	Photo ID: P7150316
Date Taken: 07/15/2024	
Photograph taken by: C. Aronson	
Direction: South	Location: LF003
Description: Groundwater monitoring well CMW-7.	



Photograph No.: 08	Photo ID: P7150319
Date Taken: 07/15/2024	
Photograph taken by: C. Aronson	
Direction: Northeast	Location: LF003
Description: Groundwater monitoring well CMW-6.	




Photograph No.: 09	Photo ID: P7150320
Date Taken: 07/15/2024	
Photograph taken by: C. Aronson	
Direction: North	Location: LF003
Description: Groundwater monitoring well CMW-3.	



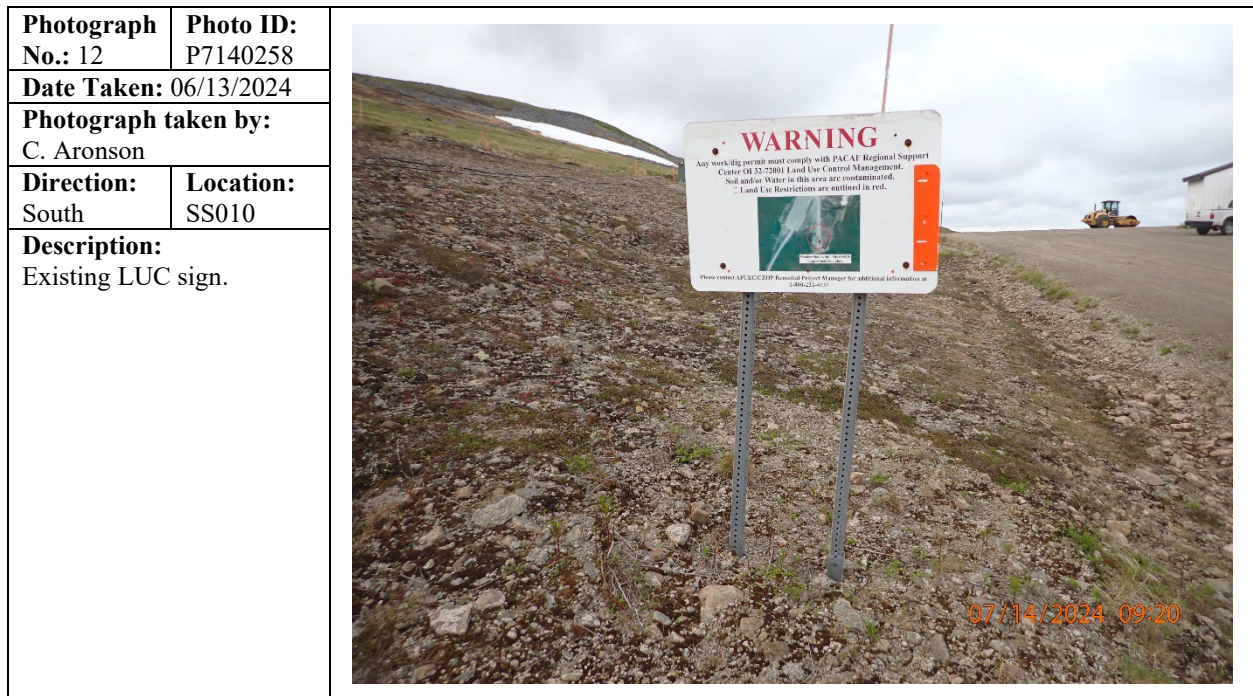
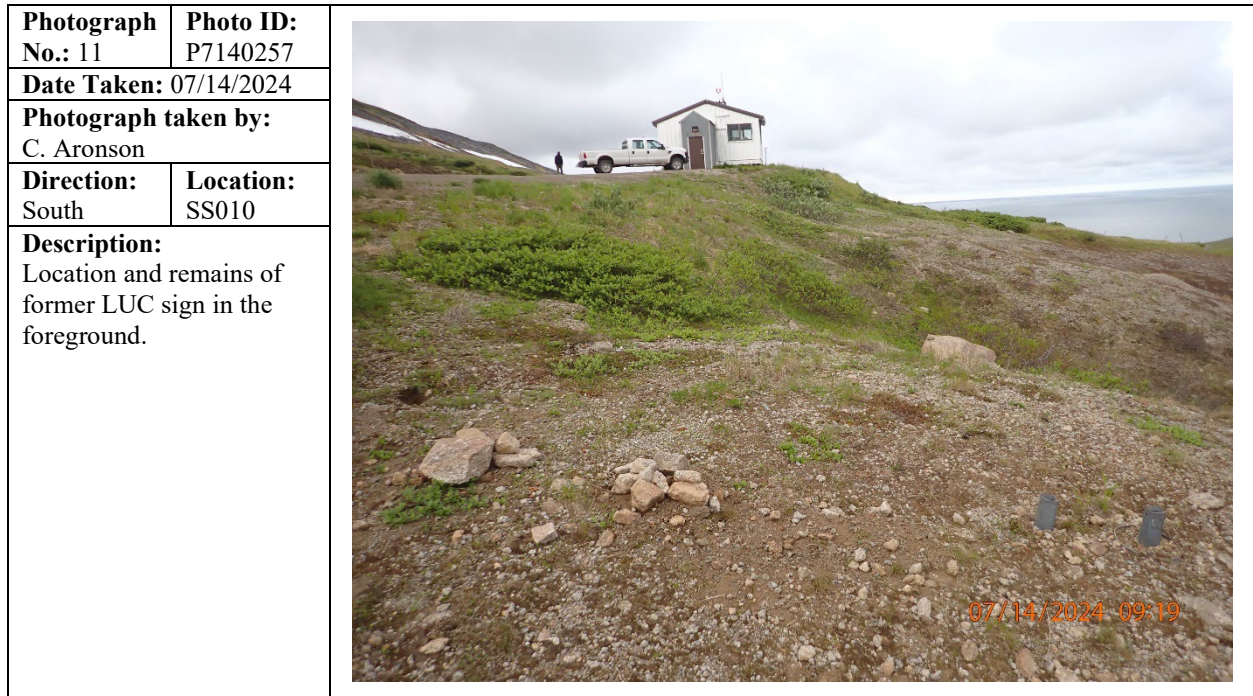
A photograph showing a groundwater monitoring well (CMW-3) in a grassy field. The well is a metal pipe with a cap, set in a concrete base. The surrounding area is covered in green and brown vegetation. A white plastic bag is visible in the background. The photo is timestamped 07/15/2024 10:47.


Photograph No.: 10	Photo ID: P7150321
Date Taken: 07/15/2024	
Photograph taken by: C. Aronson	
Direction: North	Location: LF003
Description: Destroyed silt fencing at sample location SO3 and SW03.	




A photograph showing a destroyed silt fence in a grassy field. The fence is made of black plastic and is partially collapsed. The surrounding area is covered in green and brown vegetation. A white plastic bag is visible in the background. The photo is timestamped 07/15/2024 10:48.

SS010



Photograph No.: 13	Photo ID: P7140260	
Date Taken: 07/14/2024		
Photograph taken by: C. Aronson		
Direction: Southeast	Location: SS010	
Description: View of area and condition of southeastern boundary.		

Photograph No.: 14	Photo ID: P7140266	
Date Taken: 07/14/2024		
Photograph taken by: C. Aronson		
Direction: North	Location: SS010	
Description: View of area and condition of northern boundary toward runway.		


SS015


Photograph No.: 15	Photo ID: P7120180	
Date Taken: 07/12/2024		
Photograph taken by: C. Aronson		
Direction: Northeast	Location: SS015	
Description: New LUC sign near southern boundary.		

Photograph No.: 16	Photo ID: P7120183	
Date Taken: 07/12/2024		
Photograph taken by: C. Aronson		
Direction: South	Location: SS015	
Description: Existing LUC sign near western boundary.		


Photograph No.: 17	Photo ID: P7120188	
Date Taken: 07/12/2024		
Photograph taken by: C. Aronson		
Direction: South	Location: SS015	
Description: Existing LUC sign near northern boundary.		

Photograph No.: 18	Photo ID: P7120190	
Date Taken: 07/12/2024		
Photograph taken by: C. Aronson		
Direction:	Location: SS015	
Description: Destroyed LUC sign near northeastern boundary.		


Photograph No.: 19	Photo ID: P7120193	
Date Taken: 07/12/2024		
Photograph taken by: C. Aronson		
Direction: Southwest	Location: SS015	
Description: Geotextile fabric and storage tank remnants.		

Photograph No.: 20	Photo ID: P7120197	
Date Taken: 07/12/2024		
Photograph taken by: C. Aronson		
Direction: South	Location: SS015	
Description: Concrete foundation and debris.		


Photograph No.: 21	Photo ID: P7130238
Date Taken: 07/13/2024	
Photograph taken by: C. Aronson	
Direction:	Location: SS015
Description: Groundwater monitoring well WW-06.	




Photograph No.: 22	Photo ID: P7130242
Date Taken: 07/13/2024	
Photograph taken by: C. Aronson	
Direction:	Location: SS015
Description: Groundwater monitoring well WW-06 with new combination lock.	



Photograph No.: 23	Photo ID: P7130245
Date Taken: 07/13/2024	
Photograph taken by: C. Aronson	
Direction: Northwest	Location: SS015
Description: Collecting groundwater quality parameters at monitoring well WW-05.	



Photograph No.: 24	Photo ID: P7130249
Date Taken: 07/13/2024	
Photograph taken by: C. Aronson	
Direction:	Location: SS015
Description: Groundwater monitoring well WW-05 with new combination lock.	



Photograph No.: 25	Photo ID: P7130252
Date Taken: 07/13/2024	
Photograph taken by: C. Aronson	
Direction: East	Location: SS015
Description: Collecting groundwater quality parameters at monitoring well WW-01. Exposed geotextile fabric behind well.	




Photograph No.: 26	Photo ID: P7130254
Date Taken: 07/13/2024	
Photograph taken by: C. Aronson	
Direction: East	Location: SS015
Description: Groundwater monitoring well WW-01 with new combination lock.	




SS016

Photograph No.: 27	Photo ID: P7120218
Date Taken: 07/12/2024	
Photograph taken by: C. Aronson	
Direction: South	Location: SS016
Description: Location where LUC sign was installed in 2023. This sign was removed and re-located along access road to SS016.	




A photograph showing the exterior of a building with corrugated metal siding. On the left, three large grey pipes run vertically. On the right, a white door is slightly ajar, revealing a dark interior. The ground is covered in gravel and dirt. An orange timestamp in the bottom right corner reads '07/12/2024 13:26'.

Photograph No.: 28	Photo ID: P7120232
Date Taken: 07/12/2024	
Photograph taken by: C. Aronson	
Direction: West	Location: SS016
Description: Location where LUC sign was relocated along access road to SS016.	



A photograph of a dirt access road in a desolate, hilly landscape. A tall, thin metal pole stands in the center. To its right, a white warning sign is mounted on two metal posts. The sign features a picture of a dog and the word 'WARNING' in red. A white bucket and some tools are on the ground near the base of the pole. An orange timestamp in the bottom right corner reads '07/12/2024 14:48'.

Photograph No.: 29	Photo ID: P7120219
Date Taken: 07/12/2024	
Photograph taken by: C. Aronson	
Direction:	Location: SS016
Description: Geotextile fabric exposed near building.	



A photograph showing a gravel-covered ground area next to a white building. A piece of dark, black geotextile fabric is lying on the gravel. A metal post is visible in the center, and a blue metal beam is on the right. A timestamp in the bottom right corner reads "07/12/2024 13:27".

Photograph No.: 30	Photo ID: P7120221
Date Taken: 07/12/2024	
Photograph taken by: C. Aronson	
Direction: East	Location: SS016
Description: Existing LUC sign.	



A photograph of a white building wall with vertical siding. A rectangular sign is mounted on the wall. The sign has the word "WARNING" in red at the top, followed by text: "Any work being performed must comply with P.L.C. 48. Electrical Support Contact 484 42-2900 (land) U.S. Customs Management. The subject of this sign is not intended to be used for any other purpose. Land Use Management is a subsidiary of P.L.C." Below the text is a small image of a person. A timestamp in the bottom right corner reads "07/12/2024 13:32".

SS017


Photograph No.: 31	Photo ID: P7120209
Date Taken: 07/12/2024	
Photograph taken by: C. Aronson	
Direction: South	Location: SS017
Description: Existing LUC sign in the southwestern area of SS017.	



Photograph No.: 32	Photo ID: P7120210
Date Taken: 07/12/2024	
Photograph taken by: C. Aronson	
Direction: East	Location: SS017
Description: Existing LUC sign in the northern area of SS017.	




Photograph No.: 33	Photo ID: P7120213
Date Taken: 07/12/2024	
Photograph taken by: C. Aronson	
Direction: Southeast	Location: SS017
Description: Geotextile fabric at former building footprint.	



A photograph showing a gravel path on the left leading to a rocky shoreline. A black geotextile fabric is laid out on the ground, partially covered by large, reddish-brown rocks. In the background, there is a body of water and a hazy sky. A timestamp in the bottom right corner reads "07/12/2024 10:39".

Photograph No.: 34	Photo ID: P7120215
Date Taken: 07/12/2024	
Photograph taken by: C. Aronson	
Direction: Southeast	Location: SS017
Description: Various debris at SS017.	



A photograph showing a wide expanse of a rocky shoreline covered with various pieces of debris, including pipes and other unidentifiable objects. The rocks are dark and jagged. In the background, there is a body of water and a hazy sky. A timestamp in the bottom right corner reads "07/12/2024 10:40".

ST009


Photograph No.: 35	Photo ID: P7140267	
Date Taken: 07/14/2024		
Photograph taken by: C. Aronson		
Direction: West	Location: ST009	
Description: Existing LUC sign in the southeastern area of the ST009.		

Photograph No.: 36	Photo ID: P7140269	
Date Taken: 07/14/2024		
Photograph taken by: C. Aronson		
Direction: Southwest	Location: ST009	
Description: Existing LUC sign in the northeastern area of the ST009.		


Photograph No.: 37	Photo ID: P7140283
Date Taken: 07/14/2024	
Photograph taken by: C. Aronson	
Direction: North	Location: ST009
Description: Collecting water quality parameters at MW04.	



Photograph No.: 38	Photo ID: P7140285
Date Taken: 07/14/2024	
Photograph taken by: C. Aronson	
Direction: North	Location: ST009
Description: MW04 with new combination lock.	



Photograph No.: 39	Photo ID: P7140292
Date Taken: 07/14/2024	
Photograph taken by: C. Aronson	
Direction: Southwest	Location: ST009
Description: MW07 with new combination lock.	




A photograph showing a cylindrical metal monitoring well (MW07) with a new combination lock. The well is situated in a flat, open area with sparse vegetation. In the background, there is a white container and a small building. A blue and white cooler is visible to the right of the well. The timestamp in the bottom right corner of the photo reads "07/14/2024 16:13".

Photograph No.: 40	Photo ID: P7140279
Date Taken: 07/14/2024	
Photograph taken by: C. Aronson	
Direction: West	Location: ST009
Description: MW09 with new combination lock.	



A close-up photograph of a cylindrical metal monitoring well (MW09) with a new combination lock. The well is located on a gravelly surface with some green plants growing around its base. The timestamp in the bottom right corner of the photo reads "07/14/2024 10:24".

Photograph No.: 41	Photo ID: P7140286	
Date Taken: 07/14/2024		
Photograph taken by: M. Rafter		
Direction: Down	Location: ST009	
Description: Observation of probable animal burrow.		

Appendix B. Field Forms and Logbook

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WELL PURGE AND SAMPLING FIELDSHEET

Project: Cape Romanzof LRRS Well ID: WW-01 Date: 7/13/24
 Project #: 060068 Start Time: 2:14:30
 Field Team: Aranson, Rafter End Time: _____
 Sample ID: SS015-WW01-071324 Time: 1500 primary dup other: _____
 Sample ID: _____ Time: _____ primary dup other: _____
 Sample ID: _____ Time: _____ primary dup other: _____
 Filtered? Y / N 0.45µm 1.0µm

Well Information

Depth to Top of Product: _____ Depth to Water (BTOC): 43.32
 Depth to Oil/Water Interface: _____ Total Depth (BTOC): 66.6
 Casing Diameter: 2-in 4-in Water Column (ft): 23.28
 gal/ft of casing: 0.163 0.653 Casing Volume(gal): 15.2
 Pump Intake Depth: 43.9 Screen Interval: _____ to _____
 Stable DTW (BTOC): _____ Measured Stickup: 31"

Method of Purging

Pump: SUB BLADR PERIST OTHER: _____ Bailer: Teflon SS Other: _____
 Purge Start Time: _____ Flow Rate (lpm): 0.400 Bailer volume (Liters): _____
 Purge End Time: _____ Volume Purged (Liters): _____ Required Pulls: _____
 Volume Purged (Liters): ~6.5

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Depth to Water Stabilization	
			Time	Depth to Water
Temperature	-5 to 45 degrees C	+/- 0.2 degrees C		
pH	0 to 14 NTU	+/- 0.1	<u>14:51</u>	<u>43.9 (pH) 5.97</u>
Conductivity	0 to 200 mS/cm	+/- 3%	<u>14:56</u>	<u>43.38 (Cond) 0.272</u>
ORP	-999 to +999 mV	+/- 10 mV	<u>14:56</u>	<u>43.38 (Turbidity) 11</u>
Dissolved Oxygen	0 to 50 mg/L	+/- 10%		<u>16.2</u>
Turbidity	0 to 1,000 NTU	+/- 10% [<10 NTU]		<u>16.2</u>

Instrument Observations

Round	Time	Water Level [ft BTOC]	Volume Purged [Liters]	pH	Cond [mS/cm]	Turbidity [NTU]	DO [mg/L]	Temp [C]	ORP [mV]
1	14:41	43.41	1.1	5.97	0.259	27.2	3.90	3.76	25
2	14:46	43.43	3.5	5.97	0.272	19.9	2.48	3.97	13
3	14:51	43.4	4.7	5.97	0.271	16.7	1.84	4.11	36
4	14:56	43.38	6.1	5.98	0.272	16.2	1.62	4.58	11
5									
6									
7									
8									
9									

Notes: Draw-down should ideally be less than 0.3 feet from the original depth to groundwater.
 Minimal draw-down achieved and measured by: 1) pumping at a low rate (approximately 1 liter/3 minutes or 0.1 gal/min and 2) continually measuring water levels in the well.

Sensory Observations

Color: Clear Amber, Tan, Brown, Grey, Milky White, Other: _____
 Odor: None, Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical?, Unknown
 Turbidity: None, Low, Medium, High, Very Turbid, Heavy Silts

Comments: _____

WELL PURGE AND SAMPLING FIELDSHEET

Project: Cape Romanof URS Well ID: WW-05 Date: 7/13/24
 Project #: 060068 Start Time: 13:20
 Field Team: Rafter, Aronson End Time: _____
 Sample ID: SS015-WW05-071324 Time: 1400 primary dup other: _____
 Sample ID: SS015-WW09-071324 Time: 1630 primary dup other: _____
 Sample ID: _____ Time: _____ primary dup other: _____
 Filtered? Y / N 0.45µm 1.0µm

Well Information

Depth to Top of Product: _____ Depth to Water (BTOC): 30.42
 Depth to Oil/Water Interface: _____ Total Depth (BTOC): 50.2
 Casing Diameter: 2-in 4-in Water Column (ft): 19.78
 gal/ft of casing: 0.163 0.653 Casing Volume(gal): 12.91
 Pump Intake Depth: 30.8 Screen Interval: _____ to _____
 Stable DTW (BTOC): _____ Measured Stickup: 44.5

Method of Purging

Pump: SUB BLADR PERIST OTHER: _____ Bailer: Teflon SS Other: _____
 Purge Start Time: _____ Flow Rate (lpm): 0.25 Bailer volume (Liters): _____
 Purge End Time: _____ Volume Purged (Liters): _____ Required Pulls: _____
 Volume Purged (Liters): ~13

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Depth to Water Stabilization	
			Time	Depth to Water
Temperature	-5 to 45 degrees C	+/- 0.2 degrees C		
pH	0 to 14 NTU	+/- 0.1	<u>13:34</u>	<u>30.44 (Cond)</u>
Conductivity	0 to 200 mS/cm	+/- 3%	<u>13:34</u>	<u>30.44 (Turbidity)</u>
ORP	-999 to +999 mV	+/- 10 mV	<u>13:44</u>	<u>30.45 (PH)</u>
Dissolved Oxygen	0 to 50 mg/L	+/- 10%	<u>13:44</u>	<u>30.45 (ORP)</u>
Turbidity	0 to 1,000 NTU	+/- 10% [<10 NTU]		

Instrument Observations

Round	Time	Water Level [ft BTOC]	Volume Purged [Liters]	pH	Cond [mS/cm]	Turbidity [NTU]	DO [mg/L]	Temp [C]	ORP [mV]
1	<u>13:24</u>	<u>30.43</u>	<u>1.5</u>	<u>5.98</u>	<u>0.034</u>	<u>15.6</u>	<u>9.78</u>	<u>3.47</u>	<u>169</u>
2	<u>13:29</u>	<u>30.5</u>	<u>3.0</u>	<u>5.69</u>	<u>0.033</u>	<u>16.2</u>	<u>9.50</u>	<u>3.90</u>	<u>176</u>
3	<u>13:34</u>	<u>30.44</u>	<u>6.1</u>	<u>5.88</u>	<u>0.033</u>	<u>15.3</u>	<u>8.17</u>	<u>3.84</u>	<u>165</u>
4	<u>13:39</u>	<u>30.47</u>	<u>9.1</u>	<u>5.93</u>	<u>0.034</u>	<u>13.5</u>	<u>9.47</u>	<u>3.53</u>	<u>162</u>
5	<u>13:44</u>	<u>30.45</u>	<u>12</u>	<u>5.97</u>	<u>0.035</u>	<u>15.6</u>	<u>9.23</u>	<u>3.45</u>	<u>162</u>
6									
7									
8									
9									

Notes: Draw-down should ideally be less than 0.3 feet from the original depth to groundwater.
 Minimal draw-down achieved and measured by: 1) pumping at a low rate (approximately 1 liter/3 minutes or 0.1 gal/min and 2) continually measuring water levels in the well.

Sensory Observations

Color: Clear, Amber, Tan, Brown, Grey, Milky White, Other: _____
 Odor: None, Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical?, Unknown
 Turbidity: None, Low, Medium, High, Very Turbid, Heavy Silts

Comments: _____

WELL PURGE AND SAMPLING FIELDSHEET

Project: Cape Romanzof LRRS Well ID: WW-06 Date: 7/13/24
 Project #: 060068 Start Time: 11:20
 Field Team: M Katter, L. Aronson End Time: _____
 Sample ID: SS015-WW06-071324 Time: 1145 primary dup other: _____
 Sample ID: _____ Time: _____ primary dup other: _____
 Sample ID: _____ Time: _____ primary dup other: _____
 Filtered? Y (N) 0.45µm 1.0µm

Well Information

Depth to Top of Product: _____ Depth to Water (BTOC): 20.21
 Depth to Oil/Water Interface: _____ Total Depth (BTOC): 29.1
 Casing Diameter: 2-in 4-in Water Column (ft): 8.89
 gal/ft of casing: 0.163 0.653 Casing Volume(gal): 5.8
 Pump Intake Depth: 20.9 Screen Interval: _____ to _____
 Stable DTW (BTOC): _____ Measured Stickup: 35 3/4"

Method of Purging

Pump: (SUB) BLADR PERIST OTHER: _____ Bailer: Teflon SS Other: _____
 Purge Start Time: _____ Flow Rate (lpm): 0.3 Bailer volume (Liters): _____
 Purge End Time: _____ Volume Purged (Liters): _____ Required Pulls: _____
 Volume Purged (Liters): ~6

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Depth to Water Stabilization	
			Time	Depth to Water
Temperature	-5 to 45 degrees C	+/- 0.2 degrees C		
pH	0 to 14 NTU	+/- 0.1	<u>11:35</u>	<u>20.32 (ORP)</u> ✕
Conductivity	0 to 200 mS/cm	+/- 3%	<u>11:35</u>	<u>20.32 (Cond)</u>
ORP	-999 to +999 mV	+/- 10 mV	<u>11:35</u>	<u>20.32 (pH)</u> ✕
Dissolved Oxygen	0 to 50 mg/L	+/- 10%		
Turbidity	0 to 1,000 NTU	+/- 10% [<10 NTU]		

Instrument Observations

Round	Time	Water Level [ft BTOC]	Volume Purged [Liters]	pH	Cond [mS/cm]	Turbidity [NTU]	DO [mg/L]	Temp [C]	ORP [mV]
1	<u>11:25</u>	<u>20.2</u>	<u>2.1</u>	<u>5.18</u>	<u>0.082</u>	<u>104</u>	<u>4.57</u>	<u>3.29</u>	<u>311</u>
2	<u>11:30</u>	<u>20.33</u>	<u>3.5</u>	<u>5.08</u>	<u>0.082</u>	<u>93.8</u>	<u>9.18</u>	<u>3.37</u>	<u>313</u>
3	<u>11:35</u>	<u>20.32</u>	<u>5</u>	<u>5.07</u>	<u>0.082</u>	<u>94.1</u>	<u>7.88</u>	<u>3.64</u>	<u>315</u>
4									
5									
6									
7									
8									
9									

Notes: Draw-down should ideally be less than 0.3 feet from the original depth to groundwater.
 Minimal draw-down achieved and measured by: 1) pumping at a low rate (approximately 1 liter/3 minutes or 0.1 gal/min and 2) continually measuring water levels in the well.

Sensory Observations

Color: Clean Amber, Tan, Brown, Grey, Milky White, Other: _____
 Odor: None Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical?, Unknown
 Turbidity: None Low, Medium, High, Very Turbid, Heavy Silts

Comments: 4 inch well, pump intake hard to tell

WELL PURGE AND SAMPLING FIELDSHEET

Project: Cape Romanzof LRPS Well ID: MW-4 Date: 7/14/24
 Project #: 060068 Start Time: 10:30
 Field Team: C. Anson, M. Rafter End Time: _____
 Sample ID: ST009-MW4-071424 Time: 1105 primary dup other: _____
 Sample ID: _____ Time: _____ primary dup other: _____
 Sample ID: _____ Time: _____ primary dup other: _____
 Filtered? Y N 0.45µm 1.0µm

Well Information

Depth to Top of Product: _____ Depth to Water (BTOC): 9.47
 Depth to Oil/Water Interface: _____ Total Depth (BTOC): 15.86
 Casing Diameter: 2-in 4-in Water Column (ft): 6.39
 gal/ft of casing: 0.163 0.653 Casing Volume (gal): 1.04
 Pump Intake Depth: 9.86 Screen Interval: _____ to _____
 Stable DTW (BTOC): _____ Measured Stickup: 33.5"

Method of Purging

Pump: SUB BLADR PERIST OTHER: _____ Bailer: Teflon SS Other: _____
 Purge Start Time: _____ Flow Rate (lpm): 0.25 Bailer volume (Liters): _____
 Purge End Time: _____ Volume Purged (Liters): _____ Required Pulls: _____
 Volume Purged (Liters): 26.5

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Depth to Water Stabilization	
			Time	Depth to Water
Temperature	-5 to 45 degrees C	+/- 0.2 degrees C		
pH	0 to 14 NTU	+/- 0.1	<u>10:54</u>	<u>9.63 (Cond)</u>
Conductivity	0 to 200 mS/cm	+/- 3%	<u>10:54</u>	<u>9.63 (Turbidity)</u>
ORP	-999 to +999 mV	+/- 10 mV	<u>10:59</u>	<u>9.66 (ORP)</u>
Dissolved Oxygen	0 to 50 mg/L	+/- 10%		
Turbidity	0 to 1,000 NTU	+/- 10% [<10 NTU]		

Instrument Observations

Round	Time	Water Level [ft BTOC]	Volume Purged [Liters]	pH	Cond [mS/cm]	Turbidity [NTU]	DO [mg/L]	Temp [C]	ORP [mV]
1	<u>10:44</u>	<u>9.63</u>	<u>1.1</u>	<u>5.80</u>	<u>0.057</u>	<u>6.0</u>	<u>12.16</u>	<u>4.74°</u>	<u>218</u>
2	<u>10:49</u>	<u>9.62</u>	<u>2.2</u>	<u>5.59</u>	<u>0.056</u>	<u>4.1</u>	<u>10.40</u>	<u>4.72</u>	<u>225</u>
3	<u>10:54</u>	<u>9.63</u>	<u>3.6</u>	<u>5.42</u>	<u>0.055</u>	<u>3.3</u>	<u>9.45</u>	<u>4.46</u>	<u>238</u>
4	<u>10:59</u>	<u>9.66</u>	<u>5.2</u>	<u>5.32</u>	<u>0.056</u>	<u>3.1</u>	<u>8.70</u>	<u>4.42°</u>	<u>248</u>
5									
6									
7									
8									
9									

Notes: Draw-down should ideally be less than 0.3 feet from the original depth to groundwater.
 Minimal draw-down achieved and measured by: 1) pumping at a low rate (approximately 1 liter/3 minutes or 0.1 gal/min and 2) continually measuring water levels in the well.

Sensory Observations

Color: Clear Amber, Tan, Brown, Grey, Milky White, Other: _____
 Odor: None Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical?, Unknown
 Turbidity: None Low, Medium, High, Very Turbid, Heavy Silts

Comments: _____

WELL PURGE AND SAMPLING FIELDSHEET

Project: Cape Romanzof URS Well ID: MW-7 Date: 7/14/24
 Project #: 060068 Start Time: 15:20
 Field Team: C. Annison, M. Rafter End Time: _____
 Sample ID: ST009-MW7-071424 Time: 1550 primary dup other: MS/MSD
 Sample ID: ST009-MW99-071424 Time: 1645 primary dup other: _____
 Sample ID: _____ Time: _____ primary dup other: _____
 Filtered? Y / N 0.45µm 1.0µm

Well Information

Depth to Top of Product: _____ Depth to Water (BTOC): 17.85
 Depth to Oil/Water Interface: _____ Total Depth (BTOC): 24.78
 Casing Diameter: 2-in 4-in Water Column (ft): 6.93
 gal/ft of casing: 0.163 0.653 Casing Volume(gal): 1.13
 Pump Intake Depth: 18.12 Screen Interval: _____ to _____
 Stable DTW (BTOC): _____ Measured Stickup: 33.5

Method of Purging

Pump: SUB BLADR PERIST OTHER: _____ Bailer: Teflon SS Other: _____
 Purge Start Time: _____ Flow Rate (lpm): 0.300 Bailer volume (Liters): _____
 Purge End Time: _____ Volume Purged (Liters): _____ Required Pulls: _____
 Volume Purged (Liters): ~6.5

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Depth to Water Stabilization	
			Time	Depth to Water
Temperature	-5 to 45 degrees C	+/- 0.2 degrees C		
pH	0 to 14 NTU	+/- 0.1	<u>15:36</u>	<u>17.94 (pH)</u>
Conductivity	0 to 200 mS/cm	+/- 3%	<u>15:36</u>	<u>17.94 (Cond)</u>
ORP	-999 to +999 mV	+/- 10 mV	<u>15:36</u>	<u>17.94 (ORP)</u>
Dissolved Oxygen	0 to 50 mg/L	+/- 10%		
Turbidity	0 to 1,000 NTU	+/- 10% [<10 NTU]		

Instrument Observations

Round	Time	Water Level [ft BTOC]	Volume Purged [Liters]	pH	Cond [mS/cm]	Turbidity [NTU]	DO [mg/L]	Temp [C]	ORP [mV]
1	<u>15:26</u>	<u>18.00</u>	<u>0.5</u>	<u>5.77</u>	<u>0.131</u>	<u>14.3</u>	<u>1.57</u>	<u>4.27°</u>	<u>-26</u>
2	<u>15:31</u>	<u>17.97</u>	<u>1.6</u>	<u>5.77</u>	<u>0.128</u>	<u>7.8</u>	<u>1.04</u>	<u>4.43</u>	<u>-31</u>
3	<u>15:36</u>	<u>17.94</u>	<u>2.4</u>	<u>5.78</u>	<u>0.129</u>	<u>6</u>	<u>0.88</u>	<u>4.65°</u>	<u>-33</u>
4	<u>15:41</u>	<u>18.12</u>	<u>5.5</u>	<u>5.77</u>	<u>0.130</u>	<u>4.6</u>	<u>0.78</u>	<u>3.29</u>	<u>-34</u>
5									
6									
7									
8									
9									

Notes: Draw-down should ideally be less than 0.3 feet from the original depth to groundwater.
 Minimal draw-down achieved and measured by: 1) pumping at a low rate (approximately 1 liter/3 minutes or 0.1 gal/min and 2) continually measuring water levels in the well.

Sensory Observations

Color: Clear Amber, Tan, Brown, Grey, Milky White, Other: _____
 Odor: None Low, Medium, High Very Strong, H2S, Fuel Like, Chemical?, Unknown
 Turbidity: None Low, Medium, High, Very Turbid, Heavy Silts

Comments: heavy sheen

WELL PURGE AND SAMPLING FIELDSHEET

Project: CAPE ROMANOFF LARS Well ID: MW-9 Date: 7/14/24
 Subject #: 060068 Start Time: _____
 Field Team: C. Avonson + M. Ratter End Time: _____
 Sample ID: _____ Time: _____ primary dup other: _____
 Sample ID: _____ Time: _____ primary dup other: _____
 Sample ID: _____ Time: _____ primary dup other: _____
 Filtered? Y / N 0.45µm 1.0µm

Well Information

Depth to Top of Product: _____ Depth to Water (BTOC): 20.38
 Depth to Oil/Water Interface: _____ Total Depth (BTOC): 26.7
 Casing Diameter: 2-in 4-in Water Column (ft): 6.32
 gal/ft of casing: 0.163 0.653 Casing Volume (gal): 1.03
 Pump Intake Depth: _____ Screen Interval: _____ to _____
 Stable DTW (BTOC): _____ Measured Stickup: _____

Method of Purging

Pump: SUB BLADR PERIST OTHER: _____ Bailer: Teflon SS Other: _____
 Purge Start Time: _____ Flow Rate (lpm): _____ Bailer volume (Liters): _____
 Purge End Time: _____ Volume Purged (Liters): _____ Required Pulls: _____
 Volume Purged (Liters): _____

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Depth to Water Stabilization	
			Time	Depth to Water
Temperature	-5 to 45 degrees C	+/- 0.2 degrees C		
	0 to 14 NTU	+/- 0.1		
Conductivity	0 to 200 mS/cm	+/- 3%		
ORP	-999 to +999 mV	+/- 10 mV		
Dissolved Oxygen	0 to 50 mg/L	+/- 10%		
Turbidity	0 to 1,000 NTU	+/- 10% [<10 NTU]		

Instrument Observations

Round	Time	Water Level [ft BTOC]	Volume Purged [Liters]	pH	Cond [mS/cm]	Turbidity [NTU]	DO [mg/L]	Temp [C]	ORP [mV]
1									
2									
3									
4									
5									
6									
7									
8									
9									

Notes: Draw-down should ideally be less than 0.3 feet from the original depth to groundwater.
 Minimal draw-down achieved and measured by: 1) pumping at a low rate (approximately 1 liter/3 minutes or 0.1 gal/min and 2) continually measuring water levels in the well.

Sensory Observations

Color: Clear, Amber, Tan, Brown, Grey, Milky White, Other: _____
 Odor: None, Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical?, Unknown
 Turbidity: None, Low, Medium, High, Very Turbid, Heavy Silts

Comments: Not able to get Monsoon pump beyond ~ 8.5' bgs BTOC because of obstruction.

Sampling Log - Grab Water Samples

Project No. 060068 Site Location Cape Roman of URS - LF003
Sample Date 7/15/2024 Arrival Time 1058 Sample Time 1100
Sample ID LF003-SW03-071524 / LF003-SW99-071524 (FD) Field Personnel C. Aronson
M. Rafter
Weather Conditions 40°F, Rain, 20mph gusts Duplicate? Yes No
Sample Temp. (°C) 4.58 Spec. Conductivity (µS/cm) 0.032 pH 7.2
Sampling Method Grab - Surface Water Turbidity (NTU) 5.4

Method(s)	Container Description	Preservative
<u>Grab</u>	<u>(2) 100 ml, Amber</u>	<u>NA</u>

Remarks Collected primary, duplicate, matrix spike and matrix spike duplicate.

Sample Date _____ Arrival Time _____ Sample Time _____
Sample ID _____ Field Personnel _____
Weather Conditions _____ Duplicate? Yes / No
Sample Temp. (°C) _____ Spec. Conductivity (µS/cm) _____ pH _____
Sampling Method _____ Grab - Surface Water _____ Turbidity (NTU) _____

Method(s)	Container Description	Preservative

Remarks _____



Sampling Log - Grab Soil/Sediment Samples

Project No. 060068 Site Location Cape Roman of LRRS - LF003
Sample Date 7/15/2024 Arrival Time 1010 Sample Time 1012
Sample ID LF003-502-071524 / LF003-5099-071524 Field Personnel C. Aronson
(FD) M. Rafter
Weather Conditions 40F, rain, 20 mph gusts Duplicate? Yes / No
Sampling Method Grab - sediment

Method(s)	Container Description	Preservative
<u>Grabs</u>	<u>(1) 4oz, clear</u>	<u>NA</u>

Remarks (1) primary, (1) field duplicate

Sample Date 7/15/24 Arrival Time 1043 Sample Time 1045
Sample ID LF003-501-071524 Field Personnel C. Aronson
M. Rafter
Weather Conditions 40F, rain, 20 mph gusts Duplicate? Yes / No
Sampling Method Grab - sediment

Method(s)	Container Description	Preservative
<u>Grabs</u>	<u>(1) 4oz, clear</u>	<u>NA</u>

Remarks

Sampling Log - Grab Soil/Sediment Samples

Project No. 060068 Site Location Cape Romanof LRRS - LF003
Sample Date 7/15/24 Arrival Time 10:20 Sample Time 10:30
Sample ID LF003-S04-071524 Field Personnel C. Aronson
M. Rafter
Weather Conditions 40° F, Blowing rain, foggy Duplicate? Yes / No
Sampling Method Grab - Sediment

Method(s) Grab Container Description (1) 4oz clear Preservative None

Remarks (1) primary, (1) Matrix spike, (1) Matrix spike duplicate

Sample Date 7/15/24 Arrival Time 11:05 Sample Time 11:10
Sample ID LF003-S03-071524 Field Personnel C. Aronson
M. Rafter
Weather Conditions Rainy, windy, foggy Duplicate? Yes / No
Sampling Method Grab - Sediment

Method(s) Grab Container Description (1) 4oz clear Preservative None

Remarks (1) primary

VISUAL INSPECTION CHECKLIST

INSTALLATION: <u>Cape Romanoff URS</u>		INSPECTION SITE NAME: <u>LF003</u>	
MONITORING ITEM	YES	NO	COMMENTS
If unit is a landfill, is there any evidence of settling at ground surface?		✓	
Evidence of fencing? Any damaged or broken areas?	✓		<u>All silt fencing collapsed</u>
Evidence of escape of impacted materials or debris from the site?		✓	
Survey monuments observed?		✓	
Evidence of surface erosion/washouts in area?		✓	
Ponded water observed at or near the site? If yes, is petroleum sheen observed?	✓		<u>No sheen.</u>
Chemical or petroleum odors noted?		✓	
Discoloring of vegetations in the surrounding area of the site?		✓	
Notification signage present? Confirm present and condition of each sign.		✓	<u>One sign observed on ground Two newly installed</u>
Integrity of observed monitoring wells, if present?	✓		
Is there wildlife present? Indicate number and types.		✓	
Evidence of excavation activities or animal burrows?		✓	
Structures present on site? If so what is the structural integrity?		✓	
Estimated Percent Vegetative Cover: On Cap Surface: <u>10%</u> On sideslopes: <u>90%</u>			
Comments:			

Name of Inspector: C. Aronson, M. Rafter Date: 7/15/24

Weather Conditions: Blowing rain, windy, foggy

Temperature: 47 °F

Photographs Taken: Yes 293-321

General Comments:
No signs intact, one observed on ground.
One separated from posts on the ground

Correction Action Taken:
Two new signs installed.

VISUAL INSPECTION CHECKLIST

INSTALLATION: <u>Cape Romanzof LRRS</u>		INSPECTION SITE NAME: <u>SSD 15</u>	
MONITORING ITEM	YES	NO	COMMENTS
If unit is a landfill, is there any evidence of settling at ground surface?		✓	
Evidence of fencing? Any damaged or broken areas?		✓	
Evidence of escape of impacted materials or debris from the site?		✓	
Survey monuments observed?	✓		<u>One monument observed & recorded</u>
Evidence of surface erosion/washouts in area?			
Ponded water observed at or near the site? If yes, is petroleum sheen observed?		✓	
Chemical or petroleum odors noted?		✓	
Discoloring of vegetations in the surrounding area of the site?		✓	
Notification signage present? Confirm present and condition of each sign.	✓		<u>One sign installed southwest, two signs intact, one sign missing (Eastern)</u>
Integrity of observed monitoring wells, if present?	✓		
Is there wildlife present? Indicate number and types.	✓		<u>One small bird</u>
Evidence of excavation activities or animal burrows?		✓	
Structures present on site? If so what is the structural integrity?	✓		<u>Concrete pad 10' x 12', concrete tank support intact</u>
Estimated Percent Vegetative Cover: On Cap Surface: <u>80%</u> On sideslopes: <u>80%</u>			
Comments:			

Name of Inspector: M. Rafter / C. Aronson Date: 7/12/24

Weather Conditions: Heavy fog, Moderate rain

Temperature: 47 °F

Photographs Taken: Yes, 177 - ~~217~~ 206

General Comments: Low visibility due to fog, one sign missing on Eastern boundary.

Correction Action Taken: One sign installed on southwestern boundary. Replaced locks as we were unable to change combo on existing locks. Combo is 0911

VISUAL INSPECTION CHECKLIST

INSTALLATION: <u>Cape Royan 204 UKRS</u>		INSPECTION SITE NAME: <u>SS0116</u>	
MONITORING ITEM	YES	NO	COMMENTS
If unit is a landfill, is there any evidence of settling at ground surface?		✓	
Evidence of fencing? Any damaged or broken areas?		✓	
Evidence of escape of impacted materials or debris from the site?		✓	
Survey monuments observed?	✓		<u>SS016-1 observed; recorded in field maps</u>
Evidence of surface erosion/washouts in area?		✓	
Ponded water observed at or near the site? If yes, is petroleum sheen observed?		✓	
Chemical or petroleum odors noted?		✓	
Discoloring of vegetations in the surrounding area of the site?		✓	
Notification signage present? Confirm present and condition of each sign.	✓		<u>one sign moved from building to road just before building</u>
Integrity of observed monitoring wells, if present?		✓	<u>N/A</u>
Is there wildlife present? Indicate number and types.		✓	
Evidence of excavation activities or animal burrows?		✓	
Structures present on site? If so what is the structural integrity?	✓		
Estimated Percent Vegetative Cover: On Cap Surface: <u>~5%</u> On sideslopes: <u>0%</u>			
Comments:			

Name of Inspector: M. Rafter, C. Aronson Date: 7/12/24

Weather Conditions: Medium fog, heavy rain

Temperature: 48 °F

Photographs Taken: Yes, 218-237

General Comments: One sign on the backside of top camp in a low visibility spot

Correction Action Taken: Moved sign to side of road just before site. Much higher visibility location.

VISUAL INSPECTION CHECKLIST

INSTALLATION: <u>Cape Romanoff LRFS</u>		INSPECTION SITE NAME: <u>69017</u>	
MONITORING ITEM	YES	NO	COMMENTS
If unit is a landfill, is there any evidence of settling at ground surface?		✓	
Evidence of fencing? Any damaged or broken areas?		✓	
Evidence of escape of impacted materials or debris from the site?		✓	
Survey monuments observed?		✓	
Evidence of surface erosion/washouts in area?		✓	
Ponded water observed at or near the site? If yes, is petroleum sheen observed?		✓	
Chemical or petroleum odors noted?		✓	
Discoloring of vegetations in the surrounding area of the site?		✓	
Notification signage present? Confirm present and condition of each sign.	✓		<u>Two signs present in good condition</u>
Integrity of observed monitoring wells, if present?		✓	
Is there wildlife present? Indicate number and types.		✓	
Evidence of excavation activities or animal burrows?		✓	
Structures present on site? If so what is the structural integrity?		✓	
Estimated Percent Vegetative Cover: On Cap Surface: <u>25%</u> On sideslopes: <u>25%</u>			
Comments:			

Name of Inspector: M. Rafter, C. Aronson Date: 7/12/24

Weather Conditions: Heavy Fog, moderate rain

Temperature: 50 °F

Photographs Taken: Yes, RDB-217

General Comments: Tram concrete foundation observed.

Correction Action Taken: None

Cape Romanof CRCS out

VISUAL INSPECTION CHECKLIST

INSTALLATION: Romanof weather station		INSPECTION SITE NAME: 35010	
MONITORING ITEM	YES	NO	COMMENTS
If unit is a landfill, is there any evidence of settling at ground surface?		✓	
Evidence of fencing? Any damaged or broken areas?		✓	
Evidence of escape of impacted materials or debris from the site?		✓	
Survey monuments observed?		✓	
Evidence of surface erosion/washouts in area?		✓	
Ponded water observed at or near the site? If yes, is petroleum sheen observed?		✓	
Chemical or petroleum odors noted?		✓	
Discoloring of vegetations in the surrounding area of the site?		✓	
Notification signage present? Confirm present and condition of each sign.	✓		One sign present, one sign collapsed and missing
Integrity of observed monitoring wells, if present?		✓	N/A
Is there wildlife present? Indicate number and types.		✓	
Evidence of excavation activities or animal burrows?		✓	
Structures present on site? If so what is the structural integrity?	✓		Weather station present and structurally sound.
Estimated Percent Vegetative Cover:	On Cap Surface:	65%	On sideslopes: 85%
Comments:			

Name of Inspector: M. Rafter, C. Aronson Date: 7/14/24

Weather Conditions: Cloudy, mild wind

Temperature: 45°F

Photographs Taken: Yes. 255-266

General Comments: One sign collapsed and was nowhere to be found.

Correction Action Taken: None

Cape Romanoff LPRs

VISUAL INSPECTION CHECKLIST

INSTALLATION: Romanoff beach CA		INSPECTION SITE NAME: 3T009	
MONITORING ITEM	YES	NO	COMMENTS
If unit is a landfill, is there any evidence of settling at ground surface?		✓	
Evidence of fencing? Any damaged or broken areas?		✓	
Evidence of escape of impacted materials or debris from the site?		✓	
Survey monuments observed?		✓	
Evidence of surface erosion/washouts in area?	✓	✓	at
Ponded water observed at or near the site? If yes, is petroleum sheen observed?		✓	
Chemical or petroleum odors noted?		✓	
Discoloring of vegetations in the surrounding area of the site?		✓	
Notification signage present? Confirm present and condition of each sign.	✓		2 signs in good condition
Integrity of observed monitoring wells, if present?	✓		Wells in good condition
Is there wildlife present? Indicate number and types.		✓	
Evidence of excavation activities or animal burrows?	✓		Probable animal burrow located. Picture 286 for reference.
Structures present on site? If so what is the structural integrity?		✓	Connexes present, no structures
Estimated Percent Vegetative Cover: On Cap Surface: <u>65%</u> On sideslopes: <u>75%</u>			
Comments:			

Name of Inspector: M. Rafter, C. Aronson Date: 7/14/24

Weather Conditions: Cloudy, mild wind

Temperature: 45 °F

Photographs Taken: Yes 267 - 292

General Comments: Old locks were not reprogrammable

Correction Action Taken: New locks were installed on all three wells. Combo 0911

*With the exception of MW09 - obstruction found at approximately 8.5' below top of casing.

7/Jul 2024

Cape Romanof URS

- 1145 Depart Bethel
1230 Anson and Rafter arrive at Cape Romanof.
Greeted by ARTEC personnel, Brandon and Kevin.
All gear accounted for except one personal bag.
ARTEC gives station briefing and check-in.
1330 Field team begins assembling UIC signs.
1500 Receive word that Grant will deliver personal bag
at 1645. Continue with organizing gear and
assembling UIC signs.
1630 Depart for runway to receive personal bags.
1800 Walk to SS015 to see removed monitoring well
that has been accidentally plowed over.
Was unable to locate the well. Allevells
seemed to be in place.
1900 D&CRoot Complete Daily Quality Control Report.
1930 EOD

At

Cape Romanoff LPRS 7/12/2024

- 0730 Weather: overcast, fog, 46°F, 15 mph wind, rain
 Tailgate safety meeting with Avonson and Rafter.
 Make plan for the day with ARCTEC vehicle
 support. Organize gear for the day.
- 0830 Move to SS015 to conduct LUC inspection.
 Wells WW-01, WW-05 and WW-06 were all in
 good condition with locks. 2 LUC signs were
 found in good condition. 1 sign on NE boundary
 was missing. And old sign completely destroy
 found at N. boundary. Installed new LUC
 sign along SW boundary. Old concrete
 tank support and concrete pad present.
 Some geotextile fabric exposed - GPS points
 were taken. Photos were also taken - 0177-0206.
- 1000 Move to SS017 to conduct LUC inspection.
 2 LUC signs found in good condition. Various
 metal debris observed. A few areas of geotextile
 fabric observed, but nothing exposed due to erosion.
 GPS points and photos taken (0208-0217).
- 1130 Depart SS017 for Base Camp. Organize gear
 and had lunch.
- 1200 Depart for SS016 Top Camp.
- 1320 Arrive at Top Camp to conduct SS016 LUC inspection
 and remove N. building sign and re-install it
 on posts in a more visible location. Asked
 camp crew for advice regarding where to place
 sign so it will not get destroyed by blowing
 debris. Found 1 location of exposed geotextile
 fabric and 1 survey monument. Photos taken
 0218-0237 and GPS points were taken of
 monument, signs and exposed fabric.
- 1610 Depart SS016 for Base Camp.
- 1630 Arrive at Base Camp. Organize gear.
- 1730 Paperwork and discuss plan for 7/13.
- 1845 EOD

CA

7/13/2024

Cape Romanoff LRRS

0730 Weather: 38°F, 15 mph wind, scattered rain and fog.
Tailgate Safety meeting with Aronson and Rafter.
Organize gear for the day. Make plan to have ARCTIC vehicle support.

0800 Calibrate HOR.3A and collect Equipment Blank
SS015-EB-071324.

1030 At SS015 to collect water samples beginning with
17W, WW-06

1145 Collected SS015-WW06-071324

Well	DTW (ft)	TDW
WW-06	20.21	29.1
WW-05	30.48	30.2
WW-01	43.32	66.6

1200 Break for lunch

1240 Move to WW-05

1320 Begin pumping

1400 Collect SS015-WW05-071324 and FD SS015-WW09-071324
FD Time fabricated @ 1600.

1415 Move to WW-01

1430 Begin pumping WW-01

1500 Collect SS015-WW01-071324

1520 Depart WW-01 for Base Camp to clean
probe, pump and organize gear.

1630 Process samples. Make plan for transport to ST009 Sunday 7/14.

1800 Organize samples for ST009 sampling.

1845 Complete daily report and paperwork.

2000 EOD

OA

Cape Roussier CRRS

7/14/2024

0730 weather: 43°F, 15 mph wind, rain and fog
 Tailgate safety meeting with Aronson and Rafter.
 Coordinate ride to ST009 and SS010 today.

0800 Calibrate Horiba and collect equipment block
 ST009-EB-071424.

0845* Depart Base Camp for SS010 to conduct LUC
 inspection.

0900 @ SS010. Sign on East side of road in good
 condition. Sign on West side of road is missing.
 Photos taken (0255-0266) and GPS points taken.
 GPS points of signs and photos taken w/ tablet.

0930 Depart SS010 for ST009.

0940 Arrive at ST009 to conduct LUC inspection and
 collect samples from MW-4, MW-7 and MW-9.
 Initial well depths are below:

well	DTW(ft)	TDW(ft)
MW-9	20.38	26.7
MW-7	17.85	24.78
MW-4	9.47	15.86

1015 @ MW-9. Able to reach bottom of well with
 probe but not immersion. It hits at stopping point
 at about 10^{ft} CA 8.5'.

1020 probe to MW-4

1030 Pad locks @ Monitoring wells corroded and thus unable
 to reset combination. All three locks replaced with
 new ones, combo = 0911

1105 Collected ST009-MW4-071424

1140 Depart for Base Camp

1320 Arrive back at ST009 to sample ST009-MW7-071424

1550 Collect ST009-MW7-071424 with MS/MSD

Field duplicate ST009-MW9-071424 (Time Fals. @ 1645)

1630 Move to Base Camp to clean gear and process
 samples. Complete daily report and paperwork.
 Photos 0255-0292 cover the day's activities.

2000 EOD

7/15/24

Cape Hornard URS

- 0730 Weather: 40°F, 12 mph wind, rain and fog. Tailgate safety meeting with Hanson and Rafter. Today's plan is to install 2 new LUC signs and LFOO3, conduct an inspection of LFOO3, and collect surface water and sediment samples at LFOO3.
- 0800 Organize vehicle and gear for LFOO3.
- 0900 Move to LFOO3 for LUC inspection, sampling and sign installation.
- 0930 Begin installing West LUC sign.
- 1000 Begin LUC inspection. Some geotextile fabric and debris visible within LFOO3 and debris around the boundaries of LFOO3. Observed only one location for collecting surface water - SWO3 location.
- 1012 Collected SO2 and F.D. 5099 (Time Lab. 1115)
- 1030 Collected SO4 (+MS/MSD)
- 1045 Collected SO1
- 1100 Collected SWO3. Monitored water quality parameters (see sample sheet), +MS/MSD, F.D. 5099 (Time Lab. 1130)
- 1110 Collected SO3 SW99
- 1130 Move to Base Camp to clean samples, coolers and gear.
- 1300 Call Grant to schedule pickup for 7/16 - confirmed.
- 1330 Call North wind for update.
- 1400 Move to East side of LFOO3 for second sign installation.
- 1500 Back at Base Camp to process samples, clean gear, and pack for leaving Cape Hornard. Photos taken 0293 - 0321. GPS points taken of LFOO3 with photos attached as well.
- 1800 Pack coolers with custody seal and placed in cold storage until departure.
- 1900 Complete daily report.
- 1930 EOD

at

Cape Romanof LRRS

7/16/2024

0730 weather: 41 F, 15 mph wind, fog, mist/rain
0800 North wind field team is awaiting confirmation from Grant Aviation that we will depart Cape Romanof today. To prepare, field team is packing everything and weighing everything this morning.

1730 updated GPS points to reach 55005, photo log, well data. Updates from Grant throughout the day. Ultimately, Grant says not enough pilots to fly us out of here. They will try tomorrow.

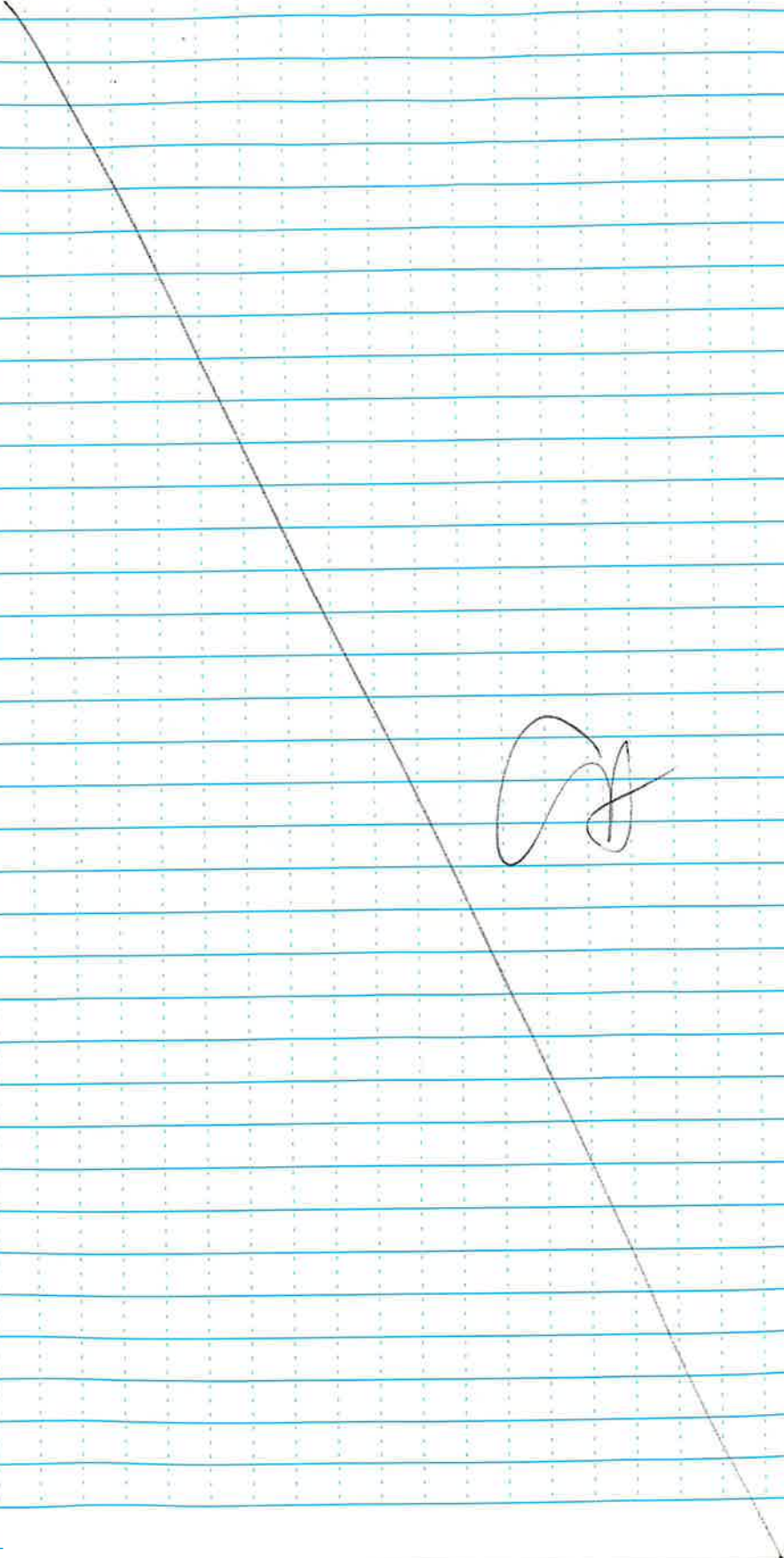
1800 (FD)

CA


7/17/2024

Cape Romanof CR25

0900 update from Grant - they will arrive
around 1130 - 1200.
1130 Depart Cape Romanof



AS

		Field Instrument Calibration Datasheet																Page 1 of 1				
Project Number:		1																2				
Calibration Event																						
Date and Time		7/13/2024 800 AM																				
Instrument																						
Instrument Type		HORIBA																				
Instrument Make & Model Number		U-5200																				
Serial Number		17EFK90																				
Owner of Instrument		NORTH WIND																				
Calibration Solution(s)																						
		DO	ORP	Cond	pH			Turbidity				DO	ORP	Cond	pH			Turbidity				
					1 st pt	2 nd pt	3 rd pt	1 st pt	2 nd pt	3 rd pt	4 th pt				1 st pt	2 nd pt	3 rd pt	1 st pt	2 nd pt	3 rd pt	4 th pt	
Solution Type(s)		9.06	351	4.59	2.02	3.96	4.10															
Solution Lot Number(s)		1C260009																				
Solution Expiration Date		8/31/24																				
Calibration Solution Temperature (°C)																						
Solution Standard Value(s) @ Temperature																						
Calibration Values																						
Calibration Value @ Temperature																						
Operator's Name																						
Notes/Comments		pH4 for all parameters.																				

NORTH WIND		Field Instrument Calibration Datasheet																Page 1 of 1				
Project Number:		1																2				
Calibration Event		1																2				
Date and Time		7/14/2024 8:00 AM																				
Instrument																						
Instrument Type		Horiba																				
Instrument Make & Model Number		U-5200																				
Serial Number		17EFLKPO																				
Owner of Instrument		NORTH WIND																				
Calibration Solution(s)																						
		DO	ORP	Cond	pH			Turbidity				DO	ORP	Cond	pH			Turbidity				
					1 st pt	2 nd pt	3 rd pt	1 st pt	2 nd pt	3 rd pt	4 th pt				1 st pt	2 nd pt	3 rd pt	1 st pt	2 nd pt	3 rd pt	4 th pt	
Solution Type(s)																						
Solution Lot Number(s)																						
Solution Expiration Date																						
Calibration Solution Temperature (°C)																						
Solution Standard Value(s) @ Temperature																						
Calibration Values																						
Calibration Value @ Temperature																						
Operator's Name																						
Notes/Comments		pH 4 for all parameters																				

W911KB-20-D-0012 / W911KB20F0120	North Wind Site Services, LLC	611 CES S. ORC / 060068
Contract Number / Task Order No. 001	Contractor 07/11/2024	Project Title / NWSS Project No. Cape Romanzof / C. Aronson & M. Rafter
CQC Report Number	Date or Time Period	Location and Team

I. Weather Conditions:
 Temp Low 43F Temp High 48F Cloudy Partly Cloudy Clear
 Wind Speed 5-10mph Precipitation No Yes

II. Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action)
 Preparatory
 Initial
 Follow-Up
 Was the construction deficiency tracking list updated this date? Yes No

III. Was Field Sampling and Testing Performed This Date? Yes No

If yes, then complete the following:

Type of test	Method/Matrix	Results

Have Data Quality Objectives been achieved? N/A Yes No

IV. Have Samples Been Collected for Laboratory Analysis? Yes No

If yes, then complete the following:

Type of Test	EPA Test Method/Matrix	Quantity of Samples

Have required amount of QC trip blanks and rinsates been achieved? Yes No
 Have appropriate QC laboratory tests been ordered? (matrix spikes, method blanks, surrogates, reference standards, etc.) Yes No
 Have QA and QC samples been collected in the specified quantity? Yes No
 Have samples been properly labeled and packaged? Yes No

V. Health and Safety.
 Worker protection levels this date: Level A Level B Level C Level D
 Was any work activity conducted within a confined space? Yes No
 Was any work activity conducted within an area determined to be immediately dangerous to life and health? Yes No
 Were approved decontamination procedures used on workers and equipment as required? Yes No
 Was a Job Safety Meeting held this date? Yes No
 Were there any lost time accidents this date? (If YES, attach copy of completed accident report) Yes No
 Was hazardous waste/material released into the environment? Yes No
 Safety comments: (Include any infractions of approved safety plan, and include instructions from Government personnel. Specify corrective action taken.)

VI. Work Activities Performed This Date.						
	Reference (DFW #/Tech Spec #)	Activity & Location	Quantity	Subcontractor		
1.	QAPP	Travel to Cape Romanzof; organized gear;				
2.	QAPP Update #1					
3.	Well Repair Workplan #3					
4.		Assemble LUC signs				
5.						
VII. Labor & Manpower.						
	Classification	Name	Employer	Hours		
1.	Geologist	Caleb Aronson	North Wind Site Services	9		
2.	Environmental Technician	Mason Rafter	North Wind Group	8		
3.						
4.						
5.						
6.						
Total Hours				17		
VIII. Equipment.						
	No. of Units	Plant/Equipment	Date of Safety Check	Hours Used	Hours Idle	Hours Repair
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
Total Hours						0
IX. Material Received to be Incorporated into Job.						
						None <input checked="" type="checkbox"/>
	Acceptability	Stored Where?	Reference Plans/Drawings			
1.						
2.						
3.						
X. Submittals Reviewed.						
						None <input checked="" type="checkbox"/>
	Submittal No.	Spec/Plan Reference	By Whom	Action Taken		
1.						
2.						
3.						
XI. Offsite Surveillance Activities. (include action taken)						
						None <input checked="" type="checkbox"/>

XII.	Instructions Given by the Government to the Contractor. (Include names, reactions, and remarks)	Verbal <input type="checkbox"/>	Written <input type="checkbox"/>	None <input checked="" type="checkbox"/>
XIII.	Work Progress.			
1.	Are there any Contractor caused delays?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
2.	Are there any Contractor-potential findings of fact?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
3.	Are there any Government caused delays or potential finding of fact?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
4.	Are there any Government-potential findings of fact?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
5.	Are there any unforeseeable or weather related delays? Fog, lightning, hail, numerous tornado warnings	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
XIV.	Deficiency List.			
	Tracking No.	Deficiencies Identified (Not corrected by COB)	Tracking No.	Deficiencies Corrected (From Deficiency Tracking List)
XV.	Remarks. (Include any visitors to project and miscellaneous remarks pertinent to work.)			
1				
2				
3				
4				
5				
<p>The above report is complete and correct, and all work reported is believed, to the best of my knowledge, to be in compliance with contract plans and specifications, except as noted above.</p>				
CQC Site Manager	<u>Caleb Aronson</u>	Date	<u>07/11/2024</u>	
Project Manager	<u>Renee LaFata</u> <small>Digitally signed by Renee LaFata Date: 2024.07.12 12:25:18 -08'00'</small>	Date		
XVI.	Government Quality Assurance Comments. (if applicable)			
Concurs with the QC report?		Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Additional comments or exceptions:				
QAR Signature	_____	Date	_____	
Supervisor's Initial	_____	Date	_____	

W911KB-20-D-0012 / W911KB20F0120	North Wind Site Services, LLC	611 CES S. ORC / 060068
Contract Number / Task Order No. 002	Contractor 07/12/2024	Project Title / NWSS Project No. Cape Romanzof / C. Aronson & M. Rafter
CQC Report Number	Date or Time Period	Location and Team

I. Weather Conditions:
 Temp Low 41F Temp High 46F Cloudy Partly Cloudy Clear
 Wind Speed 5-10mph Precipitation No Yes

II. Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action)
 Preparatory
 Initial
 Follow-Up
 Was the construction deficiency tracking list updated this date? Yes No

III. Was Field Sampling and Testing Performed This Date? Yes No

If yes, then complete the following:

	Type of test	Method/Matrix	Results

Have Data Quality Objectives been achieved? N/A Yes No

IV. Have Samples Been Collected for Laboratory Analysis? Yes No

If yes, then complete the following:

	Type of Test	EPA Test Method/Matrix	Quantity of Samples

Have required amount of QC trip blanks and rinsates been achieved? Yes No
 Have appropriate QC laboratory tests been ordered? (matrix spikes, method blanks, surrogates, reference standards, etc.) Yes No
 Have QA and QC samples been collected in the specified quantity? Yes No
 Have samples been properly labeled and packaged? Yes No

V. Health and Safety.
 Worker protection levels this date: Level A Level B Level C Level D
 Was any work activity conducted within a confined space? Yes No
 Was any work activity conducted within an area determined to be immediately dangerous to life and health? Yes No
 Were approved decontamination procedures used on workers and equipment as required? Yes No
 Was a Job Safety Meeting held this date? Yes No
 Were there any lost time accidents this date? (If YES, attach copy of completed accident report) Yes No
 Was hazardous waste/material released into the environment? Yes No
 Safety comments: (Include any infractions of approved safety plan, and include instructions from Government personnel. Specify corrective action taken.)

VI. Work Activities Performed This Date.						
	Reference (DFW #/Tech Spec #)	Activity & Location	Quantity	Subcontractor		
1.	QAPP	LUC Inspections of SS015, SS016, and SS017				
2.		Install (1) LUC sign at SS015				
3.	Per ADEC Comments to the 2023 RAO IC/LUC Report	Re-install (1) LUC sign at SS016				
4.						
5.						
VII. Labor & Manpower.						
	Classification	Name	Employer	Hours		
1.	Geologist	Caleb Aronson	North Wind Site Services	11		
2.	Environmental Technician	Mason Rafter	North Wind Group	11		
3.						
4.						
5.						
6.						
Total Hours				22		
VIII. Equipment.						
	No. of Units	Plant/Equipment	Date of Safety Check	Hours Used	Hours Idle	Hours Repair
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
Total Hours						0
IX. Material Received to be Incorporated into Job.						
						None <input checked="" type="checkbox"/>
	Acceptability	Stored Where?	Reference Plans/Drawings			
1.						
2.						
3.						
X. Submittals Reviewed.						
						None <input checked="" type="checkbox"/>
	Submittal No.	Spec/Plan Reference	By Whom	Action Taken		
1.						
2.						
3.						
XI. Offsite Surveillance Activities. (include action taken)						
						None <input checked="" type="checkbox"/>
<hr/> <hr/>						
XII. Instructions Given by the Government to the Contractor. (Include names, reactions, and remarks)						
				Verbal <input type="checkbox"/>	Written <input type="checkbox"/>	None <input checked="" type="checkbox"/>

XIII. Work Progress.

- 1. Are there any Contractor caused delays? Yes No
- 2. Are there any Contractor-potential findings of fact? Yes No
- 3. Are there any Government caused delays or potential finding of fact? Yes No
- 4. Are there any Government-potential findings of fact? Yes No
- 5. Are there any unforeseeable or weather related delays? Fog, lightning, hail, numerous tornado warnings Yes No

XIV. Deficiency List.

Tracking No.	Deficiencies Identified (Not corrected by COB)	Tracking No.	Deficiencies Corrected (From Deficiency Tracking List)

XV. Remarks. (Include any visitors to project and miscellaneous remarks pertinent to work.)

- 1 The north LUC sign installed on the building at SS016 in 2023 was removed and re-installed along access road to be more visible.
- 2
- 3
- 4
- 5

The above report is complete and correct, and all work reported is believed, to the best of my knowledge, to be in compliance with contract plans and specifications, except as noted above.

CQC Site Manager Caleb Aronson **Date** 07/12/2024

Project Manager Renee LaFata Digitally signed by Renee LaFata
Date: 2024.07.15 13:16:11 -08'00' **Date** _____

XVI. Government Quality Assurance Comments. (if applicable)

Concurs with the QC report? Yes No

Additional comments or exceptions:

QAR Signature _____ **Date** _____

Supervisor's Initial _____ **Date** _____



View northeast. New LUC sign installed at SS015. Monitoring well WW-06 is visible behind the sign.



View south. Location of where a LUC sign was installed in 2023 and removed and relocated in 2024.



View west. New location of LUC sign removed from north side of building at SS016.



View north. New location of LUC sign removed from north side of SS016 building showing proximity to access road and building.

W911KB-20-D-0012 / W911KB20F0120	North Wind Site Services, LLC	611 CES S. ORC / 060068
Contract Number / Task Order No. 003	Contractor 07/13/2024	Project Title / NWSS Project No. Cape Romanzof / C. Aronson & M. Rafter
CQC Report Number	Date or Time Period	Location and Team

I. Weather Conditions:
 Temp Low 38F Temp High 44F Cloudy Partly Cloudy Clear
 Wind Speed 15 mph Precipitation No Yes Gusting to 25 mph

II. Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action)
 Preparatory
 Initial
 Follow-Up
 Was the construction deficiency tracking list updated this date? Yes No

III. Was Field Sampling and Testing Performed This Date? Yes No

If yes, then complete the following:

Type of test	Method/Matrix	Results

Have Data Quality Objectives been achieved? N/A Yes No

IV. Have Samples Been Collected for Laboratory Analysis? Yes No

If yes, then complete the following:

Type of Test	EPA Test Method/Matrix	Quantity of Samples
Groundwater Sample Collection at Site SS015 monitoring wells, WW-01, WW-05, and WW-06.	GRO by AK 101 / Water; DRO by AK 102 / Water; RRO by AK 103 / Water; and BTEX by EPA SW8021.	5 total: (3) primary samples, (1) field duplicate, and (1) equipment blank

Have required amount of QC trip blanks and rinsates been achieved? Yes No
 Have appropriate QC laboratory tests been ordered? (matrix spikes, method blanks, surrogates, reference standards, etc.) Yes No
 Have QA and QC samples been collected in the specified quantity? Yes No
 Have samples been properly labeled and packaged? Yes No

V. Health and Safety.
 Worker protection levels this date: Level A Level B Level C Level D
 Was any work activity conducted within a confined space? Yes No
 Was any work activity conducted within an area determined to be immediately dangerous to life and health? Yes No
 Were approved decontamination procedures used on ~~workers~~ and equipment as required? Yes No
 Was a Job Safety Meeting held this date? Yes No
 Were there any lost time accidents this date? (If YES, attach copy of completed accident report) Yes No
 Was hazardous waste/material released into the environment? Yes No
 Safety comments: (Include any infractions of approved safety plan, and include instructions from Government personnel. Specify corrective action taken.)

VI. Work Activities Performed This Date.						
	Reference (DFW #/Tech Spec #)	Activity & Location	Quantity	Subcontractor		
1.	QAPP & QAPP Update #1	Groundwater Sampling	5 total: (3) primary samples, (1) field duplicate, and (1) equipment blank			
2.						
3.						
4.						
5.						
VII. Labor & Manpower.						
	Classification	Name	Employer	Hours		
1.	Geologist	Caleb Aronson	North Wind Site Services	11		
2.	Environmental Technician	Mason Rafter	North Wind Group	9		
3.						
4.						
5.						
6.						
Total Hours				20		
VIII. Equipment.						
	No. of Units	Plant/Equipment	Date of Safety Check	Hours Used	Hours Idle	Hours Repair
1.	1	Monsoon XL Submersible Pump	7/13/2024	7	4	
2.	1	Horiba U-5000 Water Quality Meter	7/13/2024	7	4	
3.	1	Water Interface Probe	7/13/2024	7	4	
4.						
5.						
6.						
7.						
8.						
9.						
10.						
Total Hours				21	12	0
IX. Material Received to be Incorporated into Job.						
						None <input checked="" type="checkbox"/>
	Acceptability	Stored Where?		Reference Plans/Drawings		
1.						
2.						
3.						
X. Submittals Reviewed.						
						None <input checked="" type="checkbox"/>
	Submittal No.	Spec/Plan Reference	By Whom	Action Taken		
1.						
2.						
3.						
XI. Offsite Surveillance Activities. (include action taken)						
						None <input checked="" type="checkbox"/>
<hr/> <hr/>						
XII. Instructions Given by the Government to the Contractor. (Include names, reactions, and remarks)						
				Verbal <input type="checkbox"/>	Written <input type="checkbox"/>	None <input checked="" type="checkbox"/>

XIII. Work Progress.			
1.	Are there any Contractor caused delays?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
2.	Are there any Contractor-potential findings of fact?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
3.	Are there any Government caused delays or potential finding of fact?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
4.	Are there any Government-potential findings of fact?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
5.	Are there any unforeseeable or weather related delays? Fog, lightning, hail, numerous tornado warnings	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
XIV. Deficiency List.			
Tracking No.	Deficiencies Identified (Not corrected by COB)	Tracking No.	Deficiencies Corrected (From Deficiency Tracking List)
XV. Remarks. (Include any visitors to project and miscellaneous remarks pertinent to work.)			
1			
2			
3			
4			
5			
<p>The above report is complete and correct, and all work reported is believed, to the best of my knowledge, to be in compliance with contract plans and specifications, except as noted above.</p> <p>CQC Site Manager <u>Caleb Aronson</u> Date <u>07/13/2024</u></p> <p>Project Manager <u>Renee LaFata</u> <small>Digitally signed by Renee LaFata Date: 2024.07.15 13:19:46 -0800</small> Date _____</p>			
XVI. Government Quality Assurance Comments. (if applicable)			
Concurs with the QC report?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Additional comments or exceptions:			
QAR Signature _____		Date _____	
Supervisor's Initial _____		Date _____	

W911KB-20-D-0012 / W911KB20F0120	North Wind Site Services, LLC	611 CES S. ORC / 060068
Contract Number / Task Order No. 004	Contractor 07/14/2024	Project Title / NWSS Project No. Cape Romanzof / C. Aronson & M. Rafter
CQC Report Number	Date or Time Period	Location and Team

I. Weather Conditions:
 Temp Low 43F Temp High 48F Cloudy Partly Cloudy Clear
 Wind Speed 15 mph Precipitation No Yes Gusting to 30 mph

II. Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action)
 Preparatory
 Initial
 Follow-Up
 Was the construction deficiency tracking list updated this date? Yes No

III. Was Field Sampling and Testing Performed This Date? Yes No

If yes, then complete the following:

	Type of test	Method/Matrix	Results

Have Data Quality Objectives been achieved? N/A Yes No

IV. Have Samples Been Collected for Laboratory Analysis? Yes No

If yes, then complete the following:

	Type of Test	EPA Test Method/Matrix	Quantity of Samples
	Groundwater Sample Collection at Site ST009 monitoring wells, MW-4 and MW-7.	GRO by AK 101 / Water; DRO by AK 102 / Water; and BTEX by EPA SW8021.	6 total: (2) Primary Samples, (1) Field Duplicate, (1) Matrix Spike, (1) Matrix Spike Duplicate, and (1) Equipment Blank.

Have required amount of QC trip blanks and rinsates been achieved? Yes No
 Have appropriate QC laboratory tests been ordered? (matrix spikes, method blanks, surrogates, reference standards, etc.) Yes No
 Have QA and QC samples been collected in the specified quantity? Yes No
 Have samples been properly labeled and packaged? Yes No

V. Health and Safety.
 Worker protection levels this date: Level A Level B Level C Level D
 Was any work activity conducted within a confined space? Yes No
 Was any work activity conducted within an area determined to be immediately dangerous to life and health? Yes No
 Were approved decontamination procedures used on ~~workers and~~ equipment as required? Yes No
 Was a Job Safety Meeting held this date? Yes No
 Were there any lost time accidents this date? (If YES, attach copy of completed accident report) Yes No
 Was hazardous waste/material released into the environment? Yes No
 Safety comments: (Include any infractions of approved safety plan, and include instructions from Government personnel. Specify corrective action taken.)

VI. Work Activities Performed This Date.						
	Reference (DFW #/Tech Spec #)	Activity & Location	Quantity	Subcontractor		
1.	QAPP & QAPP Update #1	Groundwater Sampling	6 total: (2) Primary Samples, (1) Field Duplicate, (1) Matrix Spike, (1) Matrix Spike Duplicate, and (1) Equipment Blank.			
2.	QAPP	LUC Inspections at SS010 ST009				
3.						
4.						
5.						
VII. Labor & Manpower.						
	Classification	Name	Employer	Hours		
1.	Geologist	Caleb Aronson	North Wind Site Services	12		
2.	Environmental Technician	Mason Rafter	North Wind Group	11		
3.						
4.						
5.						
6.						
Total Hours				23		
VIII. Equipment.						
	No. of Units	Plant/Equipment	Date of Safety Check	Hours Used	Hours Idle	Hours Repair
1.	1	Monsoon XL Submersible Pump	7/14/2024	7	4	
2.	1	Horiba U-5000 Water Quality Meter	7/14/2024	7	4	
3.	1	Water Interface Probe	7/14/2024	7	4	
4.						
5.						
6.						
7.						
8.						
9.						
10.						
Total Hours				21	12	0
IX. Material Received to be Incorporated into Job.						
						None <input checked="" type="checkbox"/>
	Acceptability	Stored Where?	Reference Plans/Drawings			
1.						
2.						
3.						
X. Submittals Reviewed.						
						None <input checked="" type="checkbox"/>
	Submittal No.	Spec/Plan Reference	By Whom	Action Taken		
1.						
2.						
3.						
XI. Offsite Surveillance Activities. (include action taken)						
						None <input checked="" type="checkbox"/>
<hr/> <hr/>						

XII.	Instructions Given by the Government to the Contractor. (Include names, reactions, and remarks)	Verbal <input type="checkbox"/>	Written <input type="checkbox"/>	None <input checked="" type="checkbox"/>
XIII.	Work Progress.			
1.	Are there any Contractor caused delays?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
2.	Are there any Contractor-potential findings of fact?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
3.	Are there any Government caused delays or potential finding of fact?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
4.	Are there any Government-potential findings of fact?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
5.	Are there any unforeseeable or weather related delays? Fog, lightning, hail, numerous tornado warnings	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
XIV.	Deficiency List.			
	Tracking No.	Deficiencies Identified (Not corrected by COB)	Tracking No.	Deficiencies Corrected (From Deficiency Tracking List)
XV.	Remarks. (Include any visitors to project and miscellaneous remarks pertinent to work.)			
1	Monitoring well MW-9 at Site ST009 could not be sampled with the Monsoon pump or with a bailer due to blockage/kink in well at approximately 8.5' from top of casing.			
2				
3				
4				
5				
The above report is complete and correct, and all work reported is believed, to the best of my knowledge, to be in compliance with contract plans and specifications, except as noted above.				
CQC Site Manager	<u>Caleb Aronson</u>	Date	<u>07/14/2024</u>	
Project Manager	<u>Renee LaFata</u>	Date		
	Digitally signed by Renee LaFata Date: 2024.07.15 13:18:57 -08'00'			
XVI.	Government Quality Assurance Comments. (if applicable)			
	Concurs with the QC report?			Yes <input type="checkbox"/> No <input type="checkbox"/>
	Additional comments or exceptions:			
QAR Signature	_____	Date	_____	
Supervisor's Initial	_____	Date	_____	

W911KB-20-D-0012 / W911KB20F0120	North Wind Site Services, LLC	611 CES S. ORC / 060068
Contract Number / Task Order No. 005	Contractor 07/15/2024	Project Title / NWSS Project No. Cape Romanzof / C. Aronson & M. Rafter
CQC Report Number	Date or Time Period	Location and Team

I. Weather Conditions:
 Temp Low 40F Temp High 46F Cloudy Partly Cloudy Clear
 Wind Speed 15 mph Precipitation No Yes Gusting to 25 mph

II. Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action)
 Preparatory
 Initial
 Follow-Up
 Was the construction deficiency tracking list updated this date? Yes No

III. Was Field Sampling and Testing Performed This Date? Yes No

If yes, then complete the following:

	Type of test	Method/Matrix	Results

Have Data Quality Objectives been achieved? N/A Yes No

IV. Have Samples Been Collected for Laboratory Analysis? Yes No

If yes, then complete the following:

	Type of Test	EPA Test Method/Matrix	Quantity of Samples
	Surface water sample collection	PCBs by EPA SW8082 / Surface water	(4) Total: (1) Primary, (1) Duplicate, (1) Matrix Spike, and (1) Matrix Spike Duplicate
	Sediment sample collection	PCBs by EPA SW8082 / Soil	(7) Total: (4) Primary, (1) Duplicate, (1) Matrix Spike, and (1) Matrix Spike Duplicate

Have required amount of QC trip blanks and rinsates been achieved? Yes No
 Have appropriate QC laboratory tests been ordered? (matrix spikes, method blanks, surrogates, reference standards, etc.) Yes No
 Have QA and QC samples been collected in the specified quantity? Yes No
 Have samples been properly labeled and packaged? Yes No

V. Health and Safety.
 Worker protection levels this date: Level A Level B Level C Level D
 Was any work activity conducted within a confined space? Yes No
 Was any work activity conducted within an area determined to be immediately dangerous to life and health? Yes No
 Were approved decontamination procedures used on ~~workers and~~ equipment as required? Yes No
 Was a Job Safety Meeting held this date? Yes No
 Were there any lost time accidents this date? (If YES, attach copy of completed accident report) Yes No
 Was hazardous waste/material released into the environment? Yes No
 Safety comments: (Include any infractions of approved safety plan, and include instructions from Government personnel. Specify corrective action taken.)

VI. Work Activities Performed This Date.						
	Reference (DFW #/Tech Spec #)	Activity & Location	Quantity	Subcontractor		
1.	QAPP & QAPP Update #1	LF003: Surface water and sediment sample collection				
2.	QAPP	LUC Inspection at LF003				
3.	2024 Sign Replacement Work Plan Addendum	Installation of (2) LUC signs at LF003				
4.						
5.						
VII. Labor & Manpower.						
	Classification	Name	Employer	Hours		
1.	Geologist	Caleb Aronson	North Wind Site Services	11		
2.	Environmental Technician	Mason Rafter	North Wind Group	9		
3.						
4.						
5.						
6.						
Total Hours				20		
VIII. Equipment.						
	No. of Units	Plant/Equipment	Date of Safety Check	Hours Used	Hours Idle	Hours Repair
1.	1	Horiba U-5000 Water Quality Meter	7/15/2024	1		
2.						
3.						
4.						
5.						
6.						
7.						
8.						
Total Hours				1	0	0
IX. Material Received to be Incorporated into Job. None <input checked="" type="checkbox"/>						
	Acceptability	Stored Where?	Reference Plans/Drawings			
1.						
2.						
3.						
X. Submittals Reviewed. None <input checked="" type="checkbox"/>						
	Submittal No.	Spec/Plan Reference	By Whom	Action Taken		
1.						
2.						
3.						
XI. Offsite Surveillance Activities. (include action taken) None <input checked="" type="checkbox"/>						
<hr/> <hr/>						
XII. Instructions Given by the Government to the Contractor. (Include names, reactions, and remarks) Verbal <input type="checkbox"/> Written <input type="checkbox"/> None <input checked="" type="checkbox"/>						
<hr/> <hr/>						

XIII. Work Progress.			
1.	Are there any Contractor caused delays?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
2.	Are there any Contractor-potential findings of fact?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
3.	Are there any Government caused delays or potential finding of fact?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
4.	Are there any Government-potential findings of fact?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
5.	Are there any unforeseeable or weather related delays? Fog, lightning, hail, numerous tornado warnings	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
XIV. Deficiency List.			
Tracking No.	Deficiencies Identified (Not corrected by COB)	Tracking No.	Deficiencies Corrected (From Deficiency Tracking List)
XV. Remarks. (Include any visitors to project and miscellaneous remarks pertinent to work.)			
1	Only one surface water sample could be collected instead of four due to lack of surface water.		
2	All tasks have been completed; anticipated departure on 7/16/24.		
3			
4			
5			
<p>The above report is complete and correct, and all work reported is believed, to the best of my knowledge, to be in compliance with contract plans and specifications, except as noted above.</p>			
CQC Site Manager		<u>Caleb Aronson</u>	Date <u>07/15/2024</u>
Project Manager		<u>Renee LaFata</u> <small>Digitally signed by Renee LaFata Date: 2024.07.16 08:46:20 -08'00'</small>	Date _____
XVI. Government Quality Assurance Comments. (if applicable)			
Concurs with the QC report?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Additional comments or exceptions:			
QAR Signature _____		Date _____	
Supervisor's Initial _____		Date _____	



View south. New LUC sign on the west side of LF003.



View south. New LUC sign on the east side of LF003.

Appendix C. Chemical Data Tables

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Table C- 1. 2024 Sample Summary

Lab Sample ID	Location ID	Field Sample ID	Sample Depth	Collected	Analytical Method	Matrix	Container & Preservative	NPDL Number	QC Type	Lab	SDG	Preservation	Cooler Name	Sampler	TAT
L1758483-01	LF003-S01	LF003-S01-071524	0-0.5 ft	7/15/2024	SM2540G	SO	4oz Clear	21-037	N	PAN	L1758483	0-6°C	BABY BLUE	CA/MR	Standard
L1758483-01	LF003-S01	LF003-S01-071524	0-0.5 ft	7/15/2024	SW8082	SO	4oz Clear	21-037	N	PAN	L1758483	0-6°C	BABY BLUE	CA/MR	Standard
L1758483-02	LF003-S02	LF003-S02-071524	0-0.5 ft	7/15/2024	SM2540G	SO	4oz Clear	21-037	N	PAN	L1758483	0-6°C	BABY BLUE	CA/MR	Standard
L1758483-02	LF003-S02	LF003-S02-071524	0-0.5 ft	7/15/2024	SW8082	SO	4oz Clear	21-037	N	PAN	L1758483	0-6°C	BABY BLUE	CA/MR	Standard
L1758483-03	LF003-S03	LF003-S03-071524	0-0.5 ft	7/15/2024	SM2540G	SO	4oz Clear	21-037	N	PAN	L1758483	0-6°C	BABY BLUE	CA/MR	Standard
L1758483-03	LF003-S03	LF003-S03-071524	0-0.5 ft	7/15/2024	SW8082	SO	4oz Clear	21-037	N	PAN	L1758483	0-6°C	BABY BLUE	CA/MR	Standard
L1758483-04	LF003-S04	LF003-S04-071524	0-0.5 ft	7/15/2024	SM2540G	SO	4oz Clear	21-037	N	PAN	L1758483	0-6°C	BABY BLUE	CA/MR	Standard
L1758483-04	LF003-S04	LF003-S04-071524	0-0.5 ft	7/15/2024	SW8082	SO	4oz Clear	21-037	N	PAN	L1758483	0-6°C	BABY BLUE	CA/MR	Standard
L1758483-05	LF003-S02	LF003-S099-071524	0-0.5 ft	7/15/2024	SM2540G	SO	4oz Clear	21-037	FD	PAN	L1758483	0-6°C	BABY BLUE	CA/MR	Standard
L1758483-05	LF003-S02	LF003-S099-071524	0-0.5 ft	7/15/2024	SW8082	SO	4oz Clear	21-037	FD	PAN	L1758483	0-6°C	BABY BLUE	CA/MR	Standard
L1758483-06	LF003-SW03	LF003-SW03-071524	0-0.5 ft	7/15/2024	SW8082	WS	100mL Amber	21-037	N	PAN	L1758483	0-6°C	BABY BLUE	CA/MR	Standard
L1758483-07	LF003-SW03	LF003-SW99-071524	0-0.5 ft	7/15/2024	SW8082	WS	100mL Amber	21-037	FD	PAN	L1758483	0-6°C	BABY BLUE	CA/MR	Standard
L1758483-08	ST009-MW4	ST009-MW4-071424	NA	7/14/2024	AK101	WG	40mL Amber HCl	21-037	N	PAN	L1758483	0-6°C	BIG BLUE	CA/MR	Standard
L1758483-08	ST009-MW4	ST009-MW4-071424	NA	7/14/2024	AK102	WG	100mL Amber HCl	21-037	N	PAN	L1758483	0-6°C	BIG BLUE	CA/MR	Standard
L1758483-08	ST009-MW4	ST009-MW4-071424	NA	7/14/2024	SW8260D	WG	40mL Amber HCl	21-037	N	PAN	L1758483	0-6°C	BIG BLUE	CA/MR	Standard
L1758483-09	ST009-MW7	ST009-MW7-071424	NA	7/14/2024	AK101	WG	40mL Amber HCl	21-037	N	PAN	L1758483	0-6°C	BIG BLUE	CA/MR	Standard
L1758483-09	ST009-MW7	ST009-MW7-071424	NA	7/14/2024	AK102	WG	100mL Amber HCl	21-037	N	PAN	L1758483	0-6°C	BIG BLUE	CA/MR	Standard
L1758483-09	ST009-MW7	ST009-MW7-071424	NA	7/14/2024	SW8260D	WG	40mL Amber HCl	21-037	N	PAN	L1758483	0-6°C	BIG BLUE	CA/MR	Standard
L1758483-10	ST009-MW7	ST009-MW99-071424	NA	7/14/2024	AK101	WG	40mL Amber HCl	21-037	FD	PAN	L1758483	0-6°C	BIG BLUE	CA/MR	Standard
L1758483-10	ST009-MW7	ST009-MW99-071424	NA	7/14/2024	AK102	WG	100mL Amber HCl	21-037	FD	PAN	L1758483	0-6°C	BIG BLUE	CA/MR	Standard
L1758483-10	ST009-MW7	ST009-MW99-071424	NA	7/14/2024	SW8260D	WG	40mL Amber HCl	21-037	FD	PAN	L1758483	0-6°C	BIG BLUE	CA/MR	Standard
L1758483-11	FIELDQC	ST009-EB-071424	NA	7/14/2024	AK101	WQ	40mL Amber HCl	21-037	EB	PAN	L1758483	0-6°C	BIG BLUE	CA/MR	Standard
L1758483-11	FIELDQC	ST009-EB-071424	NA	7/14/2024	AK102	WQ	100mL Amber HCl	21-037	EB	PAN	L1758483	0-6°C	BIG BLUE	CA/MR	Standard
L1758483-11	FIELDQC	ST009-EB-071424	NA	7/14/2024	SW8260D	WQ	40mL Amber HCl	21-037	EB	PAN	L1758483	0-6°C	BIG BLUE	CA/MR	Standard
L1758483-12	FIELDQC	ST009-TB-071424	NA	7/14/2024	AK101	WQ	40mL Amber HCl	21-037	TB	PAN	L1758483	0-6°C	BIG BLUE	CA	Standard
L1758483-12	FIELDQC	ST009-TB-071424	NA	7/14/2024	SW8260D	WQ	40mL Amber HCl	21-037	TB	PAN	L1758483	0-6°C	BIG BLUE	CA	Standard
L1758483-13	SS015-WW01	SS015-WW01-071324	NA	7/13/2024	AK101	WG	40mL Amber HCl	21-037	N	PAN	L1758483	0-6°C	BIG RED	CA/MR	Standard
L1758483-13	SS015-WW01	SS015-WW01-071324	NA	7/13/2024	AK102/AK103	WG	100mL Amber HCl	21-037	N	PAN	L1758483	0-6°C	BIG RED	CA/MR	Standard
L1758483-13	SS015-WW01	SS015-WW01-071324	NA	7/13/2024	SW8260D	WG	40mL Amber HCl	21-037	N	PAN	L1758483	0-6°C	BIG RED	CA/MR	Standard
L1758483-14	SS015-WW05	SS015-WW05-071324	NA	7/13/2024	AK101	WG	40mL Amber HCl	21-037	N	PAN	L1758483	0-6°C	BIG RED	CA/MR	Standard
L1758483-14	SS015-WW05	SS015-WW05-071324	NA	7/13/2024	AK102/AK103	WG	100mL Amber HCl	21-037	N	PAN	L1758483	0-6°C	BIG RED	CA/MR	Standard
L1758483-14	SS015-WW05	SS015-WW05-071324	NA	7/13/2024	SW8260D	WG	40mL Amber HCl	21-037	N	PAN	L1758483	0-6°C	BIG RED	CA/MR	Standard
L1758483-15	SS015-WW06	SS015-WW06-071324	NA	7/13/2024	AK101	WG	40mL Amber HCl	21-037	N	PAN	L1758483	0-6°C	BIG RED	CA/MR	Standard
L1758483-15	SS015-WW06	SS015-WW06-071324	NA	7/13/2024	AK102/AK103	WG	100mL Amber HCl	21-037	N	PAN	L1758483	0-6°C	BIG RED	CA/MR	Standard
L1758483-15	SS015-WW06	SS015-WW06-071324	NA	7/13/2024	SW8260D	WG	40mL Amber HCl	21-037	N	PAN	L1758483	0-6°C	BIG RED	CA/MR	Standard
L1758483-16	SS015-WW05	SS015-WW99-071324	NA	7/13/2024	AK101	WG	40mL Amber HCl	21-037	FD	PAN	L1758483	0-6°C	BIG RED	CA/MR	Standard
L1758483-16	SS015-WW05	SS015-WW99-071324	NA	7/13/2024	AK102/AK103	WG	100mL Amber HCl	21-037	FD	PAN	L1758483	0-6°C	BIG RED	CA/MR	Standard
L1758483-16	SS015-WW05	SS015-WW99-071324	NA	7/13/2024	SW8260D	WG	40mL Amber HCl	21-037	FD	PAN	L1758483	0-6°C	BIG RED	CA/MR	Standard
L1758483-17	FIELDQC	SS015-EB-071324	NA	7/13/2024	AK101	WQ	40mL Amber HCl	21-037	EB	PAN	L1758483	0-6°C	BIG RED	CA/MR	Standard
L1758483-17	FIELDQC	SS015-EB-071324	NA	7/13/2024	AK102/AK103	WQ	100mL Amber HCl	21-037	EB	PAN	L1758483	0-6°C	BIG RED	CA/MR	Standard
L1758483-17	FIELDQC	SS015-EB-071324	NA	7/13/2024	SW8260D	WQ	40mL Amber HCl	21-037	EB	PAN	L1758483	0-6°C	BIG RED	CA/MR	Standard
L1758483-18	FIELDQC	SS015-TB-071324	NA	7/13/2024	AK101	WQ	40mL Amber HCl	21-037	TB	PAN	L1758483	0-6°C	BIG RED	CA	Standard
L1758483-18	FIELDQC	SS015-TB-071324	NA	7/13/2024	SW8260D	WQ	40mL Amber HCl	21-037	TB	PAN	L1758483	0-6°C	BIG RED	CA	Standard
R4098521-4	ST009-MW7	ST009-MW7-071424-MS	NA	7/14/2024	SW8260D	WG	40mL Amber HCl	21-037	MS	PAN	L1758483	0-6°C	BIG BLUE	CA/MR	Standard
R4098521-5	ST009-MW7	ST009-MW7-071424-SD	NA	7/14/2024	SW8260D	WG	40mL Amber HCl	21-037	SD	PAN	L1758483	0-6°C	BIG BLUE	CA/MR	Standard

Table C-1. 2024 Sample Summary, Continued.

Lab Sample ID	Location ID	Field Sample ID	Sample Depth	Collected	Analytical Method	Matrix	Container & Preservative	NPDL Number	QC Type	Lab	SDG	Preservation	Cooler Name	Sampler	TAT
R4099336-4	ST009-MW7	ST009-MW7-071424-MS1	NA	7/14/2024	AK101	WG	40mL Amber HCl	21-037	MS	PAN	L1758483	0-6°C	BIG BLUE	CA/MR	Standard
R4099336-5	ST009-MW7	ST009-MW7-071424-SD1	NA	7/14/2024	AK101	WG	40mL Amber HCl	21-037	SD	PAN	L1758483	0-6°C	BIG BLUE	CA/MR	Standard
R4099913-8	ST009-MW7	ST009-MW7-071424-MS2	NA	7/14/2024	AK102	WG	100mL Amber HCl	21-037	MS	PAN	L1758483	0-6°C	BIG BLUE	CA/MR	Standard
R4099913-9	ST009-MW7	ST009-MW7-071424-SD2	NA	7/14/2024	AK102	WG	100mL Amber HCl	21-037	SD	PAN	L1758483	0-6°C	BIG BLUE	CA/MR	Standard
R4099952-3	LF003-SW03	LF003-SW03-071524-MS	0-0.5 ft	7/15/2024	SW8082	WS	100mL Amber	21-037	MS	PAN	L1758483	0-6°C	BABY BLUE	CA/MR	Standard
R4099952-4	LF003-SW03	LF003-SW03-071524-SD	0-0.5 ft	7/15/2024	SW8082	WS	100mL Amber	21-037	SD	PAN	L1758483	0-6°C	BABY BLUE	CA/MR	Standard
R4103683-3	LF003-S04	LF003-S04-071524-MS	0-0.5 ft	7/15/2024	SW8082	SO	4oz Clear	21-037	MS	PAN	L1758483	0-6°C	BABY BLUE	CA/MR	Standard
R4103683-4	LF003-S04	LF003-S04-071524-SD	0-0.5 ft	7/15/2024	SW8082	SO	4oz Clear	21-037	SD	PAN	L1758483	0-6°C	BABY BLUE	CA/MR	Standard

Notes:

All samples were shipped to Pace Analytical with a 21-day turnaround time (TAT).

All samples were soil and properly chilled to 0-6 °Celsius (C).

CA/MR – C. Aronson/M. Rafter

EB – Equipment Blank

FD – Field Duplicate

Ft - Feet

HCl – Hydrochloric Acid

mL – Milliliter

MS – Matrix Spike

MSD – Matrix Spike Duplicate

N – None

NPDL - North Pacific Division Laboratory

Oz = Ounce

PAN – Pace Analytical Laboratory

QC – Quality Control

SO – Soil

TB – Trip Blank

WG - Groundwater

WQ – Water Quality

Table C- 2. Summary of 2024 Analytical Results for Groundwater Samples at Site SS015.

				Location ID	SS015-WW01	SS015-WW05		SS015-WW06	SS015-EB-071324	SS015-TB-071324
				Client Sample ID	SS015-WW01-071324	SS015-WW05-071324	SS015-WW99-071324	SS015-WW06-071324	L1758483-17	L1758483-18
				Laboratory Sample ID	L1758483-13	L1758483-14	L1758483-16	L1758483-15	L1758483-17	L1758483-18
				Collected Date	7/13/24 3:00	7/13/24 2:00	7/13/24 16:30	7/13/24 11:45	7/13/24 8:00	7/13/24 8:00
				Matrix	Groundwater	Groundwater	Groundwater	Groundwater		
Analytes	Method	Units	ADEC Cleanup Level ¹				Field Duplicate to SS015-WW05-071324		Equipment Blank	Trip Blank
Petroleum Hydrocarbons										
TPH Gasoline Range Organics (C6-C10)	AK101	µg/L	2200	618 [50.0]	37.4 [50.0] B, J	15.9 [50.0] B, J	15.7 [50.0] B, J	21.1 [50.0] B, J	38.5 [50.0] B, J	
TPH Diesel Range Organics (C10-C25)	AK102	µg/L	1500	11900 [400]	178 [400] J	ND [400]	603 [400] J	189 [400] J	—	
TPH Residual Range Organics (C25-C36)	AK103	µg/L	1100	ND [600]	ND [600]	ND [600]	ND [600]	ND [600]	—	
Volatile Organic Compounds										
Benzene	SW8260D	µg/L	4.6	40.5 [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
Toluene	SW8260D	µg/L	1100	0.310 [0.600] J	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]
Ethylbenzene	SW8260D	µg/L	15	18.9 [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
Xylenes (Total)	SW8260D	µg/L	190	38.7 [1.50]	ND [1.50]	ND [1.50]	ND [1.50]	ND [1.50]	ND [1.50]	ND [1.50]

Notes:

¹ADEC Groundwater Cleanup Levels, AAC Title 18, Chapter 75.345, Table C for Human Health (ADEC 2023).

Solid shade indicates ADEC cleanup level exceedance.

Results are reported with the limit of detection (LOD) in brackets [50.0].

µg/L = microgram(s) per liter

ND = not detected above LOD

Data Qualifiers:

B = Analyte result is considered a high estimated value due to contamination present in the blank.

J = The analyte result is considered an estimated value because the level is below the laboratory LOQ but above the DL

Table C- 3. Summary of 2024 Analytical Results for Groundwater Samples at Site ST009

				Location ID	ST009-MW4	ST009-MW7	ST009-MW7	Equipment Blank	Trip Blank
				Field Sample ID	ST009-MW4-071424	ST009-MW7-071424	ST009-MW99-071424	ST009-EB-071424	ST009-TB-071424
				Laboratory Sample ID	L1758483-08	L1758483-09	L1758483-10	L1758483-11	L1758483-12
				Collection Date/Time	7/14/24 11:05	7/14/24 3:50	7/14/24 16:45	7/14/24 8:00	7/14/24 8:00
				Matrix	Groundwater	Groundwater	Groundwater		
Analytes	Analytical Method	Units	ADEC Cleanup Level ¹		Primary, MS/MSD	Field Duplicate to ST009-MW7-071424	Equipment Blank	Trip Blank	
Petroleum Hydrocarbons									
TPH Gasoline Range Organics (C6-C10)	AK101	µg/L	2200	17.3 [50.0] B, J	232 [50.0] QL	213 [50.0] QL	24.9 [50.0] B, J	61.7 [50.0] B, J	
TPH Diesel Range Organics (C10-C25)	AK102	µg/L	1500	309 [400] J	1310 [400]	1740 [400]	ND [400]	--	
Volatile Organic Compounds									
Benzene	SW8260D	µg/L	4.6	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	
Toluene	SW8260D	µg/L	1100	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]	
Ethylbenzene	SW8260D	µg/L	15	ND [0.500]	1.02 [0.500]	1.08 [0.500]	ND [0.500]	ND [0.500]	
Xylenes (Total)	SW8260D	µg/L	190	ND [1.50]	1.64 [1.50] J	1.73 [1.50] J	ND [1.50]	ND [1.50]	

Notes:

¹ADEC Groundwater Cleanup Levels, AAC Title 18, Chapter 75.345, Table C for Human Health (ADEC 2023).

Solid shade indicates ADEC cleanup level exceedance.

Results are reported with the limit of detection (LOD) in brackets [50.0].

µg/L = microgram(s) per liter

MS/MSD = matrix spike/matrix spike duplicate

NA = not analyzed

ND = not detected above the LOD.

Data Qualifiers

B = Analyte result is considered a high estimated value due to contamination present in the blank.

J = The analyte result is considered an estimated value because the level is below the laboratory LOQ but above the DL

QL = Analyte result is considered an estimated value biased low due to matrix effects or a quality control failure.

Table C- 4. Summary of 2024 Analytical Results for Surface Water Samples at Site LF003

				LF003-SW03	
				LF003-SW03-071524	LF003-SW99-071524
				L1758483-06	L1758483-07
				7/15/24 11:00	7/15/24 11:30
				Surface Water	Surface Water
Analytes	Analytical Method	Units	ADEC Cleanup Levels ¹	Primary, MS/MSD	Field Duplicate of LF003-SW03-071524
Aroclor-1016	SW8082	µg/L	—	ND [0.750]	ND [0.750]
Aroclor-1221	SW8082	µg/L	—	ND [0.750]	ND [0.750]
Aroclor-1232	SW8082	µg/L	—	ND [0.750]	ND [0.750]
Aroclor-1242	SW8082	µg/L	—	ND [0.750]	ND [0.750]
Aroclor-1248	SW8082	µg/L	—	ND [0.500]	ND [0.500]
Aroclor-1254	SW8082	µg/L	—	ND [0.500]	ND [0.500]
Aroclor-1260	SW8082	µg/L	—	ND [0.500]	ND [0.500]
Aroclor-1262	SW8082	µg/L	—	ND [0.500]	ND [0.500]
Aroclor-1268	SW8082	µg/L	—	ND [0.500]	ND [0.500]
Polychlorinated biphenyls (Total PCBs) ³	SW8082	µg/L	0.44	ND [0.500]	ND [0.500]

Notes:

¹ ADEC Groundwater Cleanup Levels (ADEC 2023), 18 AAC 75.345 Table C.

² Reported LODs were reported at 0.500 µg/L, which exceeded the project LOD for Total PCBs of 0.25 µg/L and the ADEC cleanup level at 0.44 µg/L.

— = Cleanup level not specified

Results are reported with the limit of detection (LOD) in brackets [0.500].

LOD is above the cleanup level.

µg/L = Micrograms per liter

MS/MSD = matrix spike/matrix spike duplicate

ND = not detected above the detection limit.

Table C- 5. Summary of 2024 Analytical Results for Sediment Samples at Site LF003

				Location ID	LF003-S01	LF003-S02		LF003-S03	LF003-S04
				Client Sample ID	LF003-S01-071524	LF003-S02-071524	LF003-S099-071524	LF003-S03-071524	LF003-S04-071524
				Laboratory Sample ID	L1758483-01	L1758483-02	L1758483-05	L1758483-03	L1758483-04
				Collected Date	7/15/24 10:45	7/15/24 10:12	7/15/24 11:15	7/15/24 11:10	7/15/24 10:30
				Matrix	Sediment	Sediment	Sediment	Sediment	Sediment
Analytes	Analytical Method	Units	ADEC Cleanup Level ¹			FD of LF003-S02-071524			Primary, MS/MSD
Percent Solids	SM2540G	%	—	58.2 [0.200]	72.0 [0.200]	70.8 [0.200]	51.2 [0.200]	46.5 [0.200]	
Aroclor-1016	SW8082	mg/kg	—	ND [0.0429] QN	ND [0.0347]	ND [0.0353]	ND [0.0488]	ND [0.0538] QN	
Aroclor-1221	SW8082	mg/kg	—	ND [0.0429] QN	ND [0.0347]	ND [0.0353]	ND [0.0488]	ND [0.0538] QN	
Aroclor-1232	SW8082	mg/kg	—	ND [0.0429] QN	ND [0.0347]	ND [0.0353]	ND [0.0488]	ND [0.0538] QN	
Aroclor-1242	SW8082	mg/kg	—	ND [0.0429] QN	ND [0.0347]	ND [0.0353]	ND [0.0488]	ND [0.0538] QN	
Aroclor-1248	SW8082	mg/kg	—	ND [0.0258] QN	ND [0.0208]	ND [0.0212]	ND [0.0293]	ND [0.0323] QN	
Aroclor-1254	SW8082	mg/kg	—	ND [0.0258] QN	ND [0.0208]	ND [0.0212]	ND [0.0293]	ND [0.0323] QN	
Aroclor-1260	SW8082	mg/kg	—	ND [0.0258] QN	ND [0.0208]	ND [0.0212]	ND [0.0293]	ND [0.0323] QN	
Aroclor-1262	SW8082	mg/kg	—	ND [0.0258] QN	ND [0.0208]	ND [0.0212]	ND [0.0293]	ND [0.0323] QN	
Aroclor-1268	SW8082	mg/kg	—	ND [0.0258] QN	ND [0.0208]	ND [0.0212]	ND [0.0293]	ND [0.0323] QN	
Polychlorinated biphenyls (Total PCBs)	SW8082	mg/kg	1.0	ND [0.0258] QN	ND [0.0208]	ND [0.0212]	ND [0.0293]	ND [0.0323] QN	

Notes:

¹ ADEC 18 AAC 75.341 Table B1 Method 2, human health, under 40-inch zone Soil Cleanup Levels (ADEC 2023); no ADEC sediment cleanup levels are available.

— = Cleanup level not specified

% = Percent

mg/kg = microgram per kilogram

Results are reported with the limit of detection (LOD) in brackets [0.200].

FD = Field Duplicate

MS/MSD = matrix spike/matrix spike duplicate

ND = Not detected above the detection limit

Appendix D. ADEC Laboratory Data Review Checklist and Data Quality Assurance Review

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ADEC Contaminated Sites Program Laboratory Data Review Checklist

Completed By:	Sherrie Robinson	CS Site Name:	Cape Romanzof LRRS	Lab Name:	Pace Analytical
Title:	Staff Scientist	ADEC File No.:	NPDL 21-037 LF003: 2526.38.001 SS015: 2526.38.010 ST009: 2526.38.011	Lab Report No.:	L1758483
Consulting Firm:	North Wind Site Services	Hazard ID No.:	LF003: 1341 SS015: 1329 ST009: 1339	Lab Report Date:	08/27/24

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

1. Laboratory

- a. Did an ADEC Contaminated Sites Laboratory Approval Program (CS-LAP) approved laboratory receive and perform all of the submitted sample analyses?
Yes No N/A
Comments: Yes, the samples were analyzed by Pace Analytical.
- b. If the samples were transferred to another “network” laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses CS-LAP approved?
Yes No N/A
Comments: Samples were not subcontracted.

2. Chain of Custody (CoC)

- a. Is the CoC information completed, signed, and dated (including released/received by)?
Yes No N/A
Comments: COC is complete and accurate.
- b. Were the correct analyses requested?
Yes No N/A
Analyses requested: SW-846 Methods 8260D and 8082A, AK101/102/103, and Total Solids by Method 2540 G-2011
Comments: The correct analyses were requested per the COC.

3. Laboratory Sample Receipt Documentation

- a. Is the sample/cooler temperature documented and within range at receipt (0° to 6° C)?
Yes No N/A
Cooler temperature(s): 2.1°C, 2.7°C, and 4.8°C

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Sample temperature(s): Not applicable.

Comments: The samples were received cooled at 2.1°C, 2.7°C, and 4.8°C per the sample receipt documentation.

- b. Is the sample preservation acceptable – acidified waters, methanol preserved soil (GRO, BTEX, VOCs, etc.)?

Yes No N/A

Comments: The samples were received properly preserved.

- c. Is the sample condition documented – broken, leaking, zero headspace (VOA vials); canister vacuum/pressure checked and no open valves, etc.?

Yes No N/A

Comments: No discrepancies were noted.

- d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, canister not holding a vacuum, etc.?

Yes No N/A

Comments: No discrepancies were noted.

- e. Is the data quality or usability affected?

Yes No N/A

Comments: Data quality and usability were not affected.

4. Case Narrative

- a. Is the case narrative present and understandable?

Yes No N/A

Comments: The case narrative is present and understandable.

- b. Are there discrepancies, errors, or QC failures identified by the lab?

Yes No N/A

Comments:

SW-846 Method 8082A Batches WG2334869 and WG2337266:

Surrogate recovery limits have been exceeded; values are outside lower control limits.

SW-846 Method 8260D Batch WG2327118:

The sample matrix interfered with the ability to make any accurate determination; spike value is high.

Method AK101 Batch WG2327259:

The same analyte is found in the associated blank.

The sample matrix interfered with the ability to make any accurate determination; spike value is low.

The associated batch QC was outside the established quality control range for

precision.

Method AK102 Batch WG2330419:

Surrogate recovery limits have been exceeded; values are outside upper control limits.

- c. Were all the corrective actions documented?

Yes No N/A

Comments: No corrective actions were noted.

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

Comments: See following sections for data quality/usability.

5. Sample Results

- a. Are the correct analyses performed/reported as requested on CoC?

Yes No N/A

Comments: The correct analyses were performed as requested on the COC.

- b. Are all applicable holding times met?

Yes No N/A

Comments: All applicable holding times were met.

- c. Are all soils reported on a dry weight basis?

Yes No N/A

Comments: Soil samples were reported on a dry weight basis

- d. Are the reported limits of quantitation (LoQ) or limits of detections (LOD), or reporting limits (RL) less than the Cleanup Level or the action level for the project?

Yes No N/A

Comments: PCBs in samples LF003-SW03-071524 (lab ID L1758483-06) and LF003-SW99-071524 (lab ID L1758483-07) were non-detect and the LODs reported by the laboratory were elevated and over the PALs. Users are cautioned that there are elevated LODs.

- e. Is the data quality or usability affected?

Yes No N/A

Comments: LODs for PCBs in samples LF003-SW03-071524 (lab ID L1758483-06) and LF003-SW99-071524 (lab ID L1758483-07) were greater than the PALs. However, data usability is determined on a case by case basis by the project manager and risk assessment team. Data users are cautioned that non-detects will be driving the risk and the LODs were greater than the PALs.

6. QC Samples

a. Method Blank

- i. Was one method blank reported per matrix, analysis, and 20 samples?
Yes No N/A

Comments: Method blanks were analyzed at the proper frequency.

- ii. Are all method blank results less than LOQ (or RL)?

Yes No

Comments: Method AK101- GRO C6 to C10 (31.1 ug/l, J) was detected between the DL and LOD in the method blank.

SW-846 Method 8260D- All method blank results were non-detect.

SW-846 Method 8082A and Methods AK102/103- All method blank results were non-detect.

- iii. If above LoQ or RL, what samples are affected?

Comments: Method AK101- GRO C6 to C10 in samples ST009-MW4-071424 (lab ID L1758483-08), ST009-EB-071424 (lab ID L1758483-11), ST009-TB-071424 (lab ID L1758483-12), SS015-WW05-071324 (lab ID L1758483-14), SS015-WW06-071324 (lab ID L1758483-15), SS015-WW99-071324 (lab ID L1758483-16), SS015-EB-071324 (lab ID L1758483-17), and SS015-TB-071324 (lab ID L1758483-18) was detected at concentrations <LOQ and has been qualified with a 'B' validation flag due to the method blank detection.

The remaining GRO C6 to C10 results were detected at concentrations >LOQ and >5x the method blank concentration and warrant no qualification due to the method blank detection.

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

Yes No N/A

Comments: The data flags were clearly defined.

- v. Is the data quality or usability affected?

Yes No N/A

Comments: Method AK101- GRO C6 to C10 in samples ST009-MW4-071424 (lab ID L1758483-08), ST009-EB-071424 (lab ID L1758483-11), ST009-TB-071424 (lab ID L1758483-12), SS015-WW05-071324 (lab ID L1758483-14), SS015-WW06-071324 (lab ID L1758483-15), SS015-WW99-071324 (lab ID L1758483-16), SS015-EB-071324 (lab ID L1758483-17), and SS015-TB-071324 (lab ID L1758483-18) has been qualified with a 'B' validation flag due to the method blank detection.

The affected sample results were reported below the LOQ and PAL, and in the professional judgement of the validator, the data is usable. However, the final usability determination should be decided by the project.

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

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

Yes No N/A

Comments: LCS/LCSD analyses were analyzed at the proper frequency.

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

Yes No N/A

Comments: All Total Solids LCS and duplicate criteria were met. No qualifications were warranted.

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

Yes No N/A

Comments: All LCS/LCSD recovery criteria were met. No qualifications were warranted.

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

Yes No N/A

Comments: All LCS/LCSD precision criteria were met. No qualifications were warranted.

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

Comments: All LCS/LCSD recovery and precision criteria were met. No qualifications were warranted.

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

Yes No N/A

Comments: All LCS/LCSD recovery and precision criteria were met. No qualifications were warranted.

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vii. Is the data quality or usability affected?

Yes No N/A

Comments: Data quality and usability were not affected.

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

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

Yes No N/A

Comments: SW-846 Method 8082A: Samples LF003-S04-071524 (lab ID L1758483-04) and LF003-SW03-071524 (lab ID L1758483-06) were the parent samples for the MS/MSD analyses.

SW-846 Method 8260D: Sample ST009-MW7-071424 (lab ID L1758483-09) was the parent sample for the MS/MSD analysis.

Method AK101: Sample ST009-MW7-071424 (lab ID L1758483-09) was the parent sample for the MS/MSD analysis.

Method AK102: Sample ST009-MW7-071424 (lab ID L1758483-09) and non-SDG sample L1757053-02 were the parent samples for the MS/MSD analyses.

Method AK103: A MS/MSD pair was not analyzed for the AK103 analysis. Instead, the laboratory analyzed an LCS/LCSD pair to ensure precision and accuracy.

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

Yes No N/A

Comments: Metals/inorganics were not included in this SDG.

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

Yes No N/A

Comments: SW-846 Method 8260D: In the ST009-MW7-071424 (lab ID L1758483-09) MS/MSD, benzene (130%R & 124%R) was outside of the 79-120% recovery criteria. Benzene in sample ST009-MW7-071424 (lab ID L1758483-09) was non-detect and no qualifications were warranted due to the high MS/MSD recoveries.

Method AK101: In the ST009-MW7-071424 (lab ID L1758483-09) MS/MSD, GRO C6 to C10 MS recovery (66.6%R) and precision (45.7%RPD) were outside of the 70-130% recovery criteria and 20% RPD criteria. Per the DOD QSM, only the parent sample shall be qualified due to MS/MSD considerations; however, samples ST009-MW7-071424 (lab

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ID L1758483-09) and ST009-MW99-071424 (lab ID L1758483-10) were a field duplicate pair, and the MS/MSD has been used to assess both samples. GRO C6 to C10 in samples ST009-MW7-071424 (lab ID L1758483-09) and ST009-MW99-071424 (lab ID L1758483-10) was reported above the LOQ and has been qualified with a 'QL' validation flag due to low MS/MSD recovery and high MSD RPD.

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

Yes No N/A

Comments: See section 6.c.iii above for specifics.

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

Comments: See section 6.c.iii above for specifics.

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

Yes No N/A

Comments: Data flags were clearly defined.

- vii. Is the data quality or usability affected?

Yes No N/A

Comments: See section 6.c.iii above for qualifications.

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

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

Yes No N/A

Comments: No comments.

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

Yes No N/A

Comments: SW-846 Method 8082A: Surrogate tetrachloro-m-xylene in samples LF003-S01-071524 (lab ID L1758483-01) [30.3%] and LF003-S04-071524 (lab ID L1758483-04) [29.7%] exceeded the 42-129% recovery criteria. The Sample Narratives noted, "Duplicate Analysis performed due to QC failure. Reporting most compliant data."

Qualifications are as follows:

- All LF003-S01-071524 (lab ID L1758483-01) and LF003-S04-071524

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(lab ID L1758483-04) Aroclor sample results were non-detect and have been qualified with a 'QN' validation flag due to low surrogate recoveries.

• The remaining surrogate recoveries were within the acceptance criteria. No further qualifications were warranted.

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

Yes No N/A

Comments: Data flags were clearly defined.

iv. Is the data quality or usability affected?

Yes No N/A

Comments: All LF003-S01-071524 (lab ID L1758483-01) and LF003-S04-071524 (lab ID L1758483-04) Aroclor sample results have been qualified with a 'QN' validation flag due to low surrogate recoveries.

e. Trip Blanks

i. Is one trip blank reported per matrix, analysis, and for each cooler containing volatile samples? Yes No N/A

Comments: Trip blanks ST009-TB-071424 (lab ID L1758483-12) and SS015-TB-071324 (lab ID L1758483-18) were present in this SDG and were analyzed for SW-846 Method 8260D and Method AK101.

ii. Are all results less than LoQ or RL?

Yes No N/A

Comments: Method AK101: GRO C6 to C10 (61.7 ug/l, J) was detected between the DL and LOD in trip blank ST009-TB-071424 (lab ID L1758483-12). Qualifications are as follows:

• GRO C6 to C10 in sample ST009-MW4-071424 (lab ID L1758483-08) was detected at a concentration <LOD and has been qualified with a 'B' validation flag due to the trip blank detection.

GRO C6 to C10 (38.5 ug/l, J) was detected between the DL and LOD in trip blank SS015-TB-071324 (lab ID L1758483-18). Qualifications are as follows:

• GRO C6 to C10 in samples SS015-WW05-071324 (lab ID L1758483-14), SS015-WW06-071324 (lab ID L1758483-15), and SS015-WW99-071324 (lab ID L1758483-16) was detected at concentrations <LOD and has been qualified with a 'B' validation flag due to the trip blank detection.
• The remaining samples were reported at concentrations >LOQ and >5x the blank concentrations and warrant no qualification due to the trip blank detections.

iii. If above LoQ or RL, what samples are affected?

Comments: Method AK101: See Section 6.e.ii for qualifications.

iv. Is the data quality or usability affected?

Yes No N/A

Comments: AK101: GRO C6 to C10 in samples ST009-MW4-071424 (lab ID L1758483-08), SS015-WW05-071324 (lab ID L1758483-14), SS015-WW06-071324 (lab ID L1758483-15), and SS015-WW99-071324 (lab ID L1758483-16) was detected at concentrations <LOD and has been qualified with a 'B' validation flag due to the trip blank detections. The affected sample results were reported below the LOQ and PAL, and in the professional judgement of the validator, the data is usable. However, the final usability determination should be decided by the project.

f. Field Duplicate

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

Yes No N/A

Comments: The following samples were the field duplicate pairs for this project:

- Sample LF003-S02-071524 (lab ID L1758483-02) and LF003-S099-071524 (lab ID L1758483-05)
- Sample LF003-SW03-071524 (lab ID L1758483-06) and LF003-SW99-071524 (lab ID L1758483-07)
- Sample ST009-MW7-071424 (lab ID L1758483-09) and ST009-MW99-071424 (lab ID L1758483-10)
- Sample SS015-WW05-071324 (lab ID L1758483-14) and SS015-WW99-071324 (lab ID L1758483-16)

ii. Was the duplicate submitted blind to lab?

Yes No N/A

Comments: Field duplicates were submitted blind to the lab.

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

$$RPD (\%) = \left| \frac{R_1 - R_2}{\left(\frac{R_1 + R_2}{2}\right)} \right| \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Is the data quality or usability affected? (Explain)

Yes No N/A

Comments: The following table shows the compounds that were detected in the samples and the resulting field duplicate RPD. The remaining

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results in the field duplicate pairs were non-detect. All results that exceeded the field duplicate RPD were either non-detect or <LOQ and warrant no qualification due to the high field duplicate RPDs.

Analytical Method(s)	Analyte	LF003-S02-071524 (lab ID L1758483-02)	LF003-S099-071524 (lab ID L1758483-05)	RPD
8082A	All results	Non-detect	Non-detect	NA
	Analyte	LF003-SW03-071524 (lab ID L1758483-06)	LF003-SW99-071524 (lab ID L1758483-07)	RPD
	All results	Non-detect	Non-detect	NA
Analyte	ST009-MW7-071424 (lab ID L1758483-09)	ST009-MW99-071424 (lab ID L1758483-10)	RPD	
8260D	Ethylbenzene	1.02	1.08	5.71%
	Total Xylenes	1.64, J	1.73, J	5.34%
AK101	GRO C6 to C10	232	213	8.54%
AK102	DRO C10-C25	1310	1740	28.2%
Analyte	SS015-WW05-071324 (lab ID L1758483-14)	SS015-WW99-071324 (lab ID L1758483-16)	RPD	
8260D	All results	Non-detect	Non-detect	NA
AK101	GRO C6 to C10	37.4, J	15.9, J	80.7%
AK102	DRO C10-C25	178, J	400, U	76.8%
AK103	RRO C25-C36	Non-detect	Non-detect	NA

Note: For non-detect results, the LOD has been utilized for the field duplicate precision calculation.

$$RPD = \frac{|S-D|}{(S+D)} \times 200\%$$

iv. Is the data quality or usability affected? (Explain)

Yes No N/A

Comments: All results that exceeded the field duplicate RPD were either non-detect or <LOQ and warrant no qualification due to the high field duplicate RPDs.

g. Decontamination or Equipment Blanks

i. Were decontamination or equipment blanks collected?

Yes No N/A

Comments: Equipment blanks ST009-EB-071424 (lab ID L1758483-11) and SS015-EB-071324 (lab ID L1758483-17) were present in this SDG and were analyzed for Methods AK101/102 and SW-846 Method 8260D.

ii. Are all results less than LoQ or RL?

Yes No N/A

Comments: GRO C6 to C10 (24.9 ug/l, J) was detected between the DL and LOD in equipment blank ST009-EB-071424 (lab ID L1758483-11). Qualifications are as follows:

- GRO C6 to C10 in associated sample ST009-MW4-071424 (lab ID L1758483-08) was detected at a concentration <LOD and has been qualified with a 'B' validation flag due to the equipment blank detection.

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- The remaining associated samples were reported at concentrations >LOQ and >5x the blank concentrations and warrant no qualification due to the equipment/trip blank detections.

GRO C6 to C10 (21.1 ug/l, J) was detected between the DL and LOD in equipment blank SS015-EB-071324 (lab ID L1758483-17). Qualifications are as follows:

- GRO C6 to C10 in associated samples SS015-WW05-071324 (lab ID L1758483-14), SS015-WW06-071324 (lab ID L1758483-15), and SS015-WW99-071324 (lab ID L1758483-16) was detected at concentrations <LOD and has been qualified with a 'B' validation flag due to the equipment blank detection.

- The remaining associated samples were reported at concentrations >LOQ and >5x the blank concentrations and warrant no qualification due to the equipment/trip blank detections.

All SW846 Method 8260D equipment blank ST009-EB-071424 and SS015-EB-071324 results were non-detect.

iii. If above LoQ or RL, specify what samples are affected.

Comments: See Section 6.g.ii for affected samples.

iv. Are data quality or usability affected?

Yes No N/A

Comments: Method AK101: GRO C6 to C10 in samples ST009-MW4-071424 (lab ID L1758483-08), SS015-WW05-071324 (lab ID L1758483-14), SS015-WW06-071324 (lab ID L1758483-15), and SS015-WW99-071324 (lab ID L1758483-16) was detected at concentrations <LOD and has been qualified with a 'B' validation flag due to the equipment blank detections. The affected sample results were reported below the LOQ and PAL, and in the professional judgement of the validator, the data is usable. However, the final usability determination should be decided by the project.

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

a. Are they defined and appropriate?

Yes No N/A

Comments: Several sample results have been qualified with a 'J' validation flag as the results were reported between the detection limit (DL) and the limit of quantitation (LOQ) and are estimates.

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Lab Name: Pace Analytical
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Validation Level: 2b

Attachment A

This review is based on project requirements, the requirements of the analytical methods, and validator technical judgment in accordance with the following documents:

- South Optimized Remediation Contract. Cape Romanzof LRRS 21-035. Final, August 2022.
- Department of Defense (DoD). Department of Defense (DOD)/Department of Energy (DOE) Consolidated Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.4. 2021.
- U.S. Environmental Protection Agency (USEPA). 1986. Solid Waste SW-846 Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, Third Edition and Updates.
- Method AK101, Determination of Gasoline Range Organics, Version 12/21/16.
- Method AK102, Determination of Diesel Range Organics, Version 12/21/16.
- Method AK103, Determination of Residual Range Organics, Version 12/21/16.

The Sample Table, Qualifier and Reason Code Definition Table, and Validation Qualifier tables with validation qualifiers in red are provided in Attachment B.

1. Validation Checklist

Organic Validation Criteria	Y	N	NA
Instrument Performance Check			
<i>GC/MS Methods:</i> Were instruments properly tuned prior to initial calibration and sample analysis?	X		
<i>GC/MS Methods:</i> Are mass spectral relative abundances acceptable according to method criteria?	X		
Initial Calibration			
Are initial calibration data present in the data submittal?	X		
Does the initial calibration (IC) curve consist of at least 5 standards?	X		
Are all target analytes present in the initial calibration?	X		
Do compounds meet the required relative standard difference (RSD) criteria?	X		
Is a linear (or quadratic) regression equation used for target compound quantitation?	X		
If linear and/or quadratic regressions are used, do r or r ² values meet criteria?	X		
Is the origin not forced and not included in the calibration curve for linear regression?	X		
Are IC verification (ICV) results present in the data submittal?	X		
Are IC verification (ICV) results within the acceptance criteria?	X		
<i>GC/MS Methods:</i> For the system performance check compounds (SPCC), do response factors meet criteria?	X		
<i>GC/MS Methods:</i> Do compounds meet the minimum response factor criteria?	X		
Continuing Calibration			
Are continuing calibration (CC) data present in the data submittal?	X		
Are all target analytes present in the CC and continuing calibration verification(s) (CCV)?	X		
Were CCVs performed in accordance with method criteria and at the required frequency?	X		
Do the percent differences/drift (%D) meet criteria for all CCV compounds?	X		
<i>GC/MS Methods:</i> Do the CC/CCV response factors of SPCCs meet criteria?	X		
<i>GC/MS Methods:</i> Do the CC/CCV compounds meet the required minimum response factors?	X		
<i>GC/MS Methods:</i> Do the percent differences/drift (%D) meet criteria for all continuing calibration check (CCC) compounds?		X	
<i>GC/MS Methods:</i> Was a closing CCV performed, and did it meet acceptance criteria?	X		
Confirmation Column (Dual Column GC Methods)			
Was second-column confirmation performed?	X		
Were retention times (RTs) within the retention time windows (RTWs)?	X		
For all detected target compounds, is the RPD or %D (difference) within the acceptance limit?	X		
Internal Standards			
Are method-appropriate internal standards (ISs) data present in the data submittal?	X		
Are IS added to each calibration standard and within acceptance criteria?	X		

Organic Validation Criteria	Y	N	NA
Do area counts appear to be at least minimally adequate?	X		
Method Quantitation Limits			
Are only those results that fall between the lowest and highest calibration standards reported (i.e., no "J" values or values between the MDL and low standard or above the high standard)?		X	

2. Validation Comments

Instrument Performance Check and Initial Calibration

Instrument performance check criteria were met. No validation qualification necessary.

All initial calibration criteria and initial calibration verification (ICV) criteria were met. No validation qualification necessary.

Continuing Calibration

SW846 Method 8082A: Surrogate decachlorobiphenyl in the CCVs analyzed on Column 1 on 08/03/24 at 20:45 (79.5%R), and on Column 2 on 08/07/24 at 04:44 (122%R), 08/07/24 at 10:49 (127%R), and 08/07/24 at 12:02 (127%R) was outside of the 80-120% recovery acceptance criteria. However, no qualification is warranted due to the CCV %R exceedances for surrogate decachlorobiphenyl. The remaining CCV criteria were met.

Confirmation Column (Dual Column GC Methods)

All retention times criteria and identification precision criteria were met. No validation qualification necessary.

Internal Standards

All internal standard criteria were met. No validation qualification necessary.

Method Quantitation Limits

Several sample results have been qualified with a 'J' validation flag to denote the reported results are estimated due to sample results reported at levels between the detection limit (DL) and the quantitation limit (LOQ). The remaining sample results were either non-detect or were reported above the LOQ.

Overall Data Assessment

Overall, the data meet the requirements and intent of the methods, indicate the preparatory process and analytical system were in control at the time of sample analysis, and the reported laboratory results are of sufficient quality for their intended purpose.

3. Validator and Reviewer Acknowledgement

Data Validator	Data Validation Reviewer
Name: Sherrie Robinson	Name: Amber Brinly
Title: Staff Scientist	Title: Staff Scientist
Company: North Wind Portage	Company: North Wind Portage
Date: 09/06/2024, Rev1 03/24/2025	Date: 09/10/2024, Rev1 03/24/2025

Project Name: Cape Romanzof LRRS
Lab Name: Pace Analytical
SDG No.: L1758483
Validation Level: 2b

*Attachment B -
Validation Tables*

SampleID	LabSampleID	Type	Parent Sample	Matrix	Method	DF	Sample Date	Extract Date	Analysis Date
SS015-EB-071324	L1758483-17	Equipment Blank	NA	QC Water	AK101	1	07/13/2024	07/21/2024	07/21/2024
SS015-TB-071324	L1758483-18	Trip Blank	NA	QC Water	AK101	1	07/13/2024	07/21/2024	07/21/2024
SS015-WW01-071324	L1758483-13	Field Sample	NA	Groundwater	AK101	1	07/13/2024	07/21/2024	07/21/2024
SS015-WW05-071324	L1758483-14	Field Sample	NA	Groundwater	AK101	1	07/13/2024	07/21/2024	07/21/2024
SS015-WW06-071324	L1758483-15	Field Sample	NA	Groundwater	AK101	1	07/13/2024	07/21/2024	07/21/2024
SS015-WW99-071324	L1758483-16	Field Duplicate	SS015-WW05-071324	Groundwater	AK101	1	07/13/2024	07/21/2024	07/21/2024
ST009-EB-071424	L1758483-11	Equipment Blank	NA	QC Water	AK101	1	07/14/2024	07/21/2024	07/21/2024
ST009-MW4-071424	L1758483-08	Field Sample	NA	Groundwater	AK101	1	07/14/2024	07/21/2024	07/21/2024
ST009-MW7-071424	L1758483-09	Field Sample	NA	Groundwater	AK101	1	07/14/2024	07/21/2024	07/21/2024
ST009-MW99-071424	L1758483-10	Field Duplicate	ST009-MW7-071424	Groundwater	AK101	1	07/14/2024	07/21/2024	07/21/2024
ST009-TB-071424	L1758483-12	Trip Blank	NA	QC Water	AK101	1	07/14/2024	07/21/2024	07/21/2024
ST009-EB-071424	L1758483-11	Equipment Blank	NA	QC Water	AK102	1	07/14/2024	07/26/2024	07/29/2024
ST009-MW4-071424	L1758483-08	Field Sample	NA	Groundwater	AK102	1	07/14/2024	07/26/2024	07/29/2024
ST009-MW7-071424	L1758483-09	Field Sample	NA	Groundwater	AK102	1	07/14/2024	07/26/2024	07/29/2024
ST009-MW99-071424	L1758483-10	Field Duplicate	ST009-MW7-071424	Groundwater	AK102	1	07/14/2024	07/26/2024	07/29/2024
SS015-EB-071324	L1758483-17	Equipment Blank	NA	QC Water	AK102/AK103	1	07/13/2024	07/26/2024	07/29/2024
SS015-WW01-071324	L1758483-13	Field Sample	NA	Groundwater	AK102/AK103	1	07/13/2024	07/26/2024	07/29/2024
SS015-WW05-071324	L1758483-14	Field Sample	NA	Groundwater	AK102/AK103	1	07/13/2024	07/26/2024	07/29/2024
SS015-WW06-071324	L1758483-15	Field Sample	NA	Groundwater	AK102/AK103	1	07/13/2024	07/26/2024	07/29/2024
SS015-WW99-071324	L1758483-16	Field Duplicate	SS015-WW05-071324	Groundwater	AK102/AK103	1	07/13/2024	07/26/2024	07/29/2024
SS015-EB-071324	L1758483-17	Equipment Blank	NA	QC Water	SW8260D	1	07/13/2024	07/21/2024	07/21/2024
SS015-TB-071324	L1758483-18	Trip Blank	NA	QC Water	SW8260D	1	07/13/2024	07/21/2024	07/21/2024
SS015-WW01-071324	L1758483-13	Field Sample	NA	Groundwater	SW8260D	1	07/13/2024	07/21/2024	07/21/2024
SS015-WW05-071324	L1758483-14	Field Sample	NA	Groundwater	SW8260D	1	07/13/2024	07/21/2024	07/21/2024
SS015-WW06-071324	L1758483-15	Field Sample	NA	Groundwater	SW8260D	1	07/13/2024	07/21/2024	07/21/2024
SS015-WW99-071324	L1758483-16	Field Duplicate	SS015-WW05-071324	Groundwater	SW8260D	1	07/13/2024	07/21/2024	07/21/2024
ST009-EB-071424	L1758483-11	Equipment Blank	NA	QC Water	SW8260D	1	07/14/2024	07/21/2024	07/21/2024
ST009-MW4-071424	L1758483-08	Field Sample	NA	Groundwater	SW8260D	1	07/14/2024	07/21/2024	07/21/2024
ST009-MW7-071424	L1758483-09	Field Sample	NA	Groundwater	SW8260D	1	07/14/2024	07/21/2024	07/21/2024
ST009-MW99-071424	L1758483-10	Field Duplicate	ST009-MW7-071424	Groundwater	SW8260D	1	07/14/2024	07/21/2024	07/21/2024
ST009-TB-071424	L1758483-12	Trip Blank	NA	QC Water	SW8260D	1	07/14/2024	07/21/2024	07/21/2024
LF003-S01-071524	L1758483-01	Field Sample	NA	Soil	SW8082	1	07/15/2024	08/02/2024	08/03/2024
LF003-S02-071524	L1758483-02	Field Sample	NA	Soil	SW8082	1	07/15/2024	08/02/2024	08/02/2024
LF003-S03-071524	L1758483-03	Field Sample	NA	Soil	SW8082	1	07/15/2024	08/02/2024	08/02/2024
LF003-S04-071524	L1758483-04	Field Sample	NA	Soil	SW8082	1	07/15/2024	08/06/2024	08/07/2024
LF003-S099-071524	L1758483-05	Field Duplicate	LF003-S02-071524	Soil	SW8082	1	07/15/2024	08/02/2024	08/02/2024
LF003-SW03-071524	L1758483-06	Field Sample	NA	Surface Water	SW8082	1	07/15/2024	07/28/2024	07/29/2024
LF003-SW99-071524	L1758483-07	Field Duplicate	LF003-SW03-071524	Surface Water	SW8082	1	07/15/2024	07/28/2024	07/29/2024
LF003-S01-071524	L1758483-01	Field Sample	NA	Soil	SM2540G	1	07/15/2024	07/22/2024	07/22/2024
LF003-S02-071524	L1758483-02	Field Sample	NA	Soil	SM2540G	1	07/15/2024	07/22/2024	07/22/2024
LF003-S03-071524	L1758483-03	Field Sample	NA	Soil	SM2540G	1	07/15/2024	07/22/2024	07/22/2024
LF003-S04-071524	L1758483-04	Field Sample	NA	Soil	SM2540G	1	07/15/2024	07/22/2024	07/22/2024
LF003-S099-071524	L1758483-05	Field Duplicate	LF003-S02-071524	Soil	SM2540G	1	07/15/2024	07/23/2024	07/23/2024

Data Qualification Exceptions Report

Exceptions

SAMPLE_NAME	LAB_SAMPLE_ID	SAMPLE_TYPE	MATRIX	SAMPLE_DATE	METHOD	ANALYTE	QUALIFIER	REASON_CODE
LF003-S01-071524	L1758483-01	N	SO	7/15/24 10:45	SW8082	Aroclor-1016	QN	SO1
LF003-S01-071524	L1758483-01	N	SO	7/15/24 10:45	SW8082	Aroclor-1221	QN	SO1
LF003-S01-071524	L1758483-01	N	SO	7/15/24 10:45	SW8082	Aroclor-1232	QN	SO1
LF003-S01-071524	L1758483-01	N	SO	7/15/24 10:45	SW8082	Aroclor-1242	QN	SO1
LF003-S01-071524	L1758483-01	N	SO	7/15/24 10:45	SW8082	Aroclor-1248	QN	SO1
LF003-S01-071524	L1758483-01	N	SO	7/15/24 10:45	SW8082	Aroclor-1254	QN	SO1
LF003-S01-071524	L1758483-01	N	SO	7/15/24 10:45	SW8082	Aroclor-1260	QN	SO1
LF003-S01-071524	L1758483-01	N	SO	7/15/24 10:45	SW8082	Aroclor-1262	QN	SO1
LF003-S01-071524	L1758483-01	N	SO	7/15/24 10:45	SW8082	Aroclor-1268	QN	SO1
LF003-S01-071524	L1758483-01	N	SO	7/15/24 10:45	SW8082	Polychlorinated biphenyls (Total PCBs)	QN	SO1
LF003-S04-071524	L1758483-04	N	SO	7/15/24 10:30	SW8082	Aroclor-1016	QN	SO1
LF003-S04-071524	L1758483-04	N	SO	7/15/24 10:30	SW8082	Aroclor-1221	QN	SO1
LF003-S04-071524	L1758483-04	N	SO	7/15/24 10:30	SW8082	Aroclor-1232	QN	SO1
LF003-S04-071524	L1758483-04	N	SO	7/15/24 10:30	SW8082	Aroclor-1242	QN	SO1
LF003-S04-071524	L1758483-04	N	SO	7/15/24 10:30	SW8082	Aroclor-1248	QN	SO1
LF003-S04-071524	L1758483-04	N	SO	7/15/24 10:30	SW8082	Aroclor-1254	QN	SO1
LF003-S04-071524	L1758483-04	N	SO	7/15/24 10:30	SW8082	Aroclor-1260	QN	SO1
LF003-S04-071524	L1758483-04	N	SO	7/15/24 10:30	SW8082	Aroclor-1262	QN	SO1
LF003-S04-071524	L1758483-04	N	SO	7/15/24 10:30	SW8082	Aroclor-1268	QN	SO1
LF003-S04-071524	L1758483-04	N	SO	7/15/24 10:30	SW8082	Polychlorinated biphenyls (Total PCBs)	QN	SO1
SS015-EB-071324	L1758483-17	EB	WQ	7/13/24 8:00	AK101	TPH Gasoline Range Organics (C6-C10)	BJ	JO1,BO1
SS015-EB-071324	L1758483-17	EB	WQ	7/13/24 8:00	AK102/AK103	TPH Diesel Range Organics (C10-C25)	J	JO1
SS015-TB-071324	L1758483-18	TB	WQ	7/13/24 8:00	AK101	TPH Gasoline Range Organics (C6-C10)	BJ	JO1,BO1
SS015-WW01-071324	L1758483-13	N	WG	7/13/24 3:00	SW8260D	Toluene	J	JO1
SS015-WW05-071324	L1758483-14	N	WG	7/13/24 2:00	AK101	TPH Gasoline Range Organics (C6-C10)	BJ	JO1,BO1,BO2,BO3
SS015-WW05-071324	L1758483-14	N	WG	7/13/24 2:00	AK102/AK103	TPH Diesel Range Organics (C10-C25)	J	JO1
SS015-WW06-071324	L1758483-15	N	WG	7/13/24 11:45	AK101	TPH Gasoline Range Organics (C6-C10)	BJ	JO1,BO1,BO2,BO3
SS015-WW06-071324	L1758483-15	N	WG	7/13/24 11:45	AK102/AK103	TPH Diesel Range Organics (C10-C25)	J	JO1
SS015-WW99-071324	L1758483-16	FD	WG	7/13/24 16:30	AK101	TPH Gasoline Range Organics (C6-C10)	BJ	JO1,BO1,BO2,BO3
ST009-EB-071424	L1758483-11	EB	WQ	7/14/24 8:00	AK101	TPH Gasoline Range Organics (C6-C10)	BJ	JO1,BO1
ST009-MW4-071424	L1758483-08	N	WG	7/14/24 11:05	AK101	TPH Gasoline Range Organics (C6-C10)	BJ	JO1,BO1,BO2,BO3
ST009-MW4-071424	L1758483-08	N	WG	7/14/24 11:05	AK102	TPH Diesel Range Organics (C10-C25)	J	JO1
ST009-MW7-071424	L1758483-09	N	WG	7/14/24 3:50	AK101	TPH Gasoline Range Organics (C6-C10)	QL	MO1,DO3
ST009-MW7-071424	L1758483-09	N	WG	7/14/24 3:50	SW8260D	Xylenes, (Total)	J	JO1
ST009-MW99-071424	L1758483-10	FD	WG	7/14/24 16:45	AK101	TPH Gasoline Range Organics (C6-C10)	QL	MO1,DO3
ST009-MW99-071424	L1758483-10	FD	WG	7/14/24 16:45	SW8260D	Xylenes, (Total)	J	JO1
ST009-TB-071424	L1758483-12	TB	WQ	7/14/24 8:00	AK101	TPH Gasoline Range Organics (C6-C10)	BJ	JO1,BO1

SAMPLE_NAME	LOCATION	LAB_SAMPLE_ID	TYPE	MATRIX	SAMPLE_DATE	METHOD	FRACTION	ANALYTE	CAS#	RESULT	DETECT	DL	LOD	LOQ	UNIT	LABQUAL	VALQUAL	APPLY_REASON_CODE	PREP_DATE	ANALYSIS_DATE	LAB_NAME_CODE
R4098521-3		R4098521-3	LB	WQ	7/20/24 23:44	SW8260D	N	Xylenes, (Total)	1330-20-7		N	0.174	0.174	3.00	ug/l	U			7/20/24 23:44	7/20/24 23:44	PAN
R4099336-3		R4099336-3	LB	WQ	7/21/24 12:09	AK101	N	TPH Gasoline Range Organics (C6-C10)	TPH-GRO	31.1	Y	10.0	10.0	100	ug/l	J			7/21/24 12:09	7/21/24 12:09	PAN
R4099113-1		R4099113-1	LB	WQ	7/26/24 7:58	AK102/AK103	N	TPH Diesel Range Organics (C10-C25)	TPH-DRO		N	170	170	800	ug/l	U			7/26/24 7:58	7/29/24 8:48	PAN
R4099131-1		R4099131-1	LB	WQ	7/26/24 7:58	AK102/AK103	N	TPH Residual Range Organics (C25-C36)	TPH-RRO		N	460	460	800	ug/l	U			7/26/24 7:58	7/29/24 8:48	PAN
R409952-1		R409952-1	LB	WQ	7/28/24 15:11	SW8082	N	Aroclor-1016	12674-11-2		N	0.270	0.270	1.50	ug/l	U			7/28/24 15:11	7/29/24 10:06	PAN
R409952-1		R409952-1	LB	WQ	7/28/24 15:11	SW8082	N	Aroclor-1221	11104-28-2		N	0.270	0.270	1.50	ug/l	U			7/28/24 15:11	7/29/24 10:06	PAN
R409952-1		R409952-1	LB	WQ	7/28/24 15:11	SW8082	N	Aroclor-1232	11141-16-5		N	0.270	0.270	1.50	ug/l	U			7/28/24 15:11	7/29/24 10:06	PAN
R409952-1		R409952-1	LB	WQ	7/28/24 15:11	SW8082	N	Aroclor-1242	53469-21-9		N	0.270	0.270	1.50	ug/l	U			7/28/24 15:11	7/29/24 10:06	PAN
R409952-1		R409952-1	LB	WQ	7/28/24 15:11	SW8082	N	Aroclor-1248	12672-29-6		N	0.173	0.173	1.00	ug/l	U			7/28/24 15:11	7/29/24 10:06	PAN
R409952-1		R409952-1	LB	WQ	7/28/24 15:11	SW8082	N	Aroclor-1254	11097-69-1		N	0.173	0.173	1.00	ug/l	U			7/28/24 15:11	7/29/24 10:06	PAN
R409952-1		R409952-1	LB	WQ	7/28/24 15:11	SW8082	N	Aroclor-1260	11096-82-5		N	0.173	0.173	1.00	ug/l	U			7/28/24 15:11	7/29/24 10:06	PAN
R409952-1		R409952-1	LB	WQ	7/28/24 15:11	SW8082	N	Aroclor-1262	37324-23-5		N	0.173	0.173	1.00	ug/l	U			7/28/24 15:11	7/29/24 10:06	PAN
R409952-1		R409952-1	LB	WQ	7/28/24 15:11	SW8082	N	Aroclor-1268	11100-14-4		N	0.173	0.173	1.00	ug/l	U			7/28/24 15:11	7/29/24 10:06	PAN
R409952-1		R409952-1	LB	WQ	7/28/24 15:11	SW8082	N	Polychlorinated biphenyls (Total PCBs)	1336-36-3		N	0.173	0.173	1.00	ug/l	U			7/28/24 15:11	7/29/24 10:06	PAN
R4102287-1		R4102287-1	LB	SQ	8/2/24 9:34	SW8082	N	Aroclor-1016	12674-11-2		N	0.0118	0.0118	0.0500	mg/kg	U			8/2/24 9:34	8/2/24 16:23	PAN
R4102287-1		R4102287-1	LB	SQ	8/2/24 9:34	SW8082	N	Aroclor-1221	11104-28-2		N	0.0118	0.0118	0.0500	mg/kg	U			8/2/24 9:34	8/2/24 16:23	PAN
R4102287-1		R4102287-1	LB	SQ	8/2/24 9:34	SW8082	N	Aroclor-1232	11141-16-5		N	0.0118	0.0118	0.0500	mg/kg	U			8/2/24 9:34	8/2/24 16:23	PAN
R4102287-1		R4102287-1	LB	SQ	8/2/24 9:34	SW8082	N	Aroclor-1242	53469-21-9		N	0.0118	0.0118	0.0500	mg/kg	U			8/2/24 9:34	8/2/24 16:23	PAN
R4102287-1		R4102287-1	LB	SQ	8/2/24 9:34	SW8082	N	Aroclor-1248	12672-29-6		N	0.00738	0.00738	0.0300	mg/kg	U			8/2/24 9:34	8/2/24 16:23	PAN
R4102287-1		R4102287-1	LB	SQ	8/2/24 9:34	SW8082	N	Aroclor-1254	11097-69-1		N	0.00738	0.00738	0.0300	mg/kg	U			8/2/24 9:34	8/2/24 16:23	PAN
R4102287-1		R4102287-1	LB	SQ	8/2/24 9:34	SW8082	N	Aroclor-1260	11096-82-5		N	0.00738	0.00738	0.0300	mg/kg	U			8/2/24 9:34	8/2/24 16:23	PAN
R4102287-1		R4102287-1	LB	SQ	8/2/24 9:34	SW8082	N	Aroclor-1262	37324-23-5		N	0.00738	0.00738	0.0300	mg/kg	U			8/2/24 9:34	8/2/24 16:23	PAN
R4102287-1		R4102287-1	LB	SQ	8/2/24 9:34	SW8082	N	Aroclor-1268	11100-14-4		N	0.00738	0.00738	0.0300	mg/kg	U			8/2/24 9:34	8/2/24 16:23	PAN
R4102287-1		R4102287-1	LB	SQ	8/2/24 9:34	SW8082	N	Polychlorinated biphenyls (Total PCBs)	1336-36-3		N	0.00738	0.00738	0.0300	mg/kg	U			8/2/24 9:34	8/2/24 16:23	PAN
R4103683-1		R4103683-1	LB	SQ	8/6/24 16:57	SW8082	N	Aroclor-1016	12674-11-2		N	0.0118	0.0118	0.0500	mg/kg	U			8/6/24 16:57	8/7/24 5:08	PAN
R4103683-1		R4103683-1	LB	SQ	8/6/24 16:57	SW8082	N	Aroclor-1221	11104-28-2		N	0.0118	0.0118	0.0500	mg/kg	U			8/6/24 16:57	8/7/24 5:08	PAN
R4103683-1		R4103683-1	LB	SQ	8/6/24 16:57	SW8082	N	Aroclor-1232	11141-16-5		N	0.0118	0.0118	0.0500	mg/kg	U			8/6/24 16:57	8/7/24 5:08	PAN
R4103683-1		R4103683-1	LB	SQ	8/6/24 16:57	SW8082	N	Aroclor-1242	53469-21-9		N	0.0118	0.0118	0.0500	mg/kg	U			8/6/24 16:57	8/7/24 5:08	PAN
R4103683-1		R4103683-1	LB	SQ	8/6/24 16:57	SW8082	N	Aroclor-1248	12672-29-6		N	0.00738	0.00738	0.0300	mg/kg	U			8/6/24 16:57	8/7/24 5:08	PAN
R4103683-1		R4103683-1	LB	SQ	8/6/24 16:57	SW8082	N	Aroclor-1254	11097-69-1		N	0.00738	0.00738	0.0300	mg/kg	U			8/6/24 16:57	8/7/24 5:08	PAN
R4103683-1		R4103683-1	LB	SQ	8/6/24 16:57	SW8082	N	Aroclor-1260	11096-82-5		N	0.00738	0.00738	0.0300	mg/kg	U			8/6/24 16:57	8/7/24 5:08	PAN
R4103683-1		R4103683-1	LB	SQ	8/6/24 16:57	SW8082	N	Aroclor-1262	37324-23-5		N	0.00738	0.00738	0.0300	mg/kg	U			8/6/24 16:57	8/7/24 5:08	PAN
R4103683-1		R4103683-1	LB	SQ	8/6/24 16:57	SW8082	N	Aroclor-1268	11100-14-4		N	0.00738	0.00738	0.0300	mg/kg	U			8/6/24 16:57	8/7/24 5:08	PAN
R4103683-1		R4103683-1	LB	SQ	8/6/24 16:57	SW8082	N	Polychlorinated biphenyls (Total PCBs)	1336-36-3		N	0.00738	0.00738	0.0300	mg/kg	U			8/6/24 16:57	8/7/24 5:08	PAN
SS015-EB-071324		L1758483-17	EB	WQ	7/13/24 8:00	AK101	N	TPH Gasoline Range Organics (C6-C10)	TPH-GRO	21.1	Y	10.0	10.0	100	ug/l	B J		JO1,BO1	7/21/24 14:11	7/21/24 14:11	PAN
SS015-EB-071324		L1758483-17	EB	WQ	7/13/24 8:00	AK102/AK103	N	TPH Diesel Range Organics (C10-C25)	TPH-DRO	189	Y	170	170	800	ug/l	J		JO1	7/26/24 7:58	7/29/24 19:25	PAN
SS015-EB-071324		L1758483-17	EB	WQ	7/13/24 8:00	AK102/AK103	N	TPH Residual Range Organics (C25-C36)	TPH-RRO		N	460	460	800	ug/l	U			7/26/24 7:58	7/29/24 19:25	PAN
SS015-EB-071324		L1758483-17	EB	WQ	7/13/24 8:00	SW8260D	N	Benzene	71-43-2		N	0.0941	0.0941	1.00	ug/l	U			7/21/24 3:31	7/21/24 3:31	PAN
SS015-EB-071324		L1758483-17	EB	WQ	7/13/24 8:00	SW8260D	N	Ethylbenzene	100-41-4		N	0.137	0.137	1.00	ug/l	U			7/21/24 3:31	7/21/24 3:31	PAN
SS015-EB-071324		L1758483-17	EB	WQ	7/13/24 8:00	SW8260D	N	Toluene	108-88-3		N	0.278	0.278	1.20	ug/l	U			7/21/24 3:31	7/21/24 3:31	PAN
SS015-EB-071324		L1758483-17	EB	WQ	7/13/24 8:00	SW8260D	N	Xylenes, (Total)	1330-20-7		N	0.174	0.174	3.00	ug/l	U			7/21/24 3:31	7/21/24 3:31	PAN
SS015-TB-071324		L1758483-18	TB	WQ	7/13/24 8:00	AK101	N	TPH Gasoline Range Organics (C6-C10)	TPH-GRO	38.5	Y	10.0	10.0	100	ug/l	B J		JO1,BO1	7/21/24 13:25	7/21/24 13:25	PAN
SS015-TB-071324		L1758483-18	TB	WQ	7/13/24 8:00	SW8260D	N	Benzene	71-43-2		N	0.0941	0.0941	1.00	ug/l	U			7/21/24 2:06	7/21/24 2:06	PAN
SS015-TB-071324		L1758483-18	TB	WQ	7/13/24 8:00	SW8260D	N	Ethylbenzene	100-41-4		N	0.137	0.137	1.00	ug/l	U			7/21/24 2:06	7/21/24 2:06	PAN
SS015-TB-071324		L1758483-18	TB	WQ	7/13/24 8:00	SW8260D	N	Toluene	108-88-3		N	0.278	0.278	1.20	ug/l	U			7/21/24 2:06	7/21/24 2:06	PAN
SS015-TB-071324		L1758483-18	TB	WQ	7/13/24 8:00	SW8260D	N	Xylenes, (Total)	1330-20-7		N	0.174	0.174	3.00	ug/l	U			7/21/24 2:06	7/21/24 2:06	PAN
SS015-WW01-071324	SS015-WW01	L1758483-13	N	WG	7/13/24 3:00	AK101	N	TPH Gasoline Range Organics (C6-C10)	TPH-GRO	618	Y	10.0	10.0	100	ug/l	U			7/21/24 15:42	7/21/24 15:42	PAN
SS015-WW01-071324	SS015-WW01	L1758483-13	N	WG	7/13/24 3:00	AK102/AK103	N	TPH Diesel Range Organics (C10-C25)	TPH-DRO	11900	Y	170	170	800	ug/l	U			7/26/24 7:58	7/29/24 16:16	PAN
SS015-WW01-071324	SS015-WW01	L1758483-13	N	WG	7/13/24 3:00	AK102/AK103	N	TPH Residual Range Organics (C25-C36)	TPH-RRO		N	460	460	800	ug/l	U			7/26/24 7:58	7/29/24 16:16	PAN
SS015-WW01-071324	SS015-WW01	L1758483-13	N	WG	7/13/24 3:00	SW8260D	N	Benzene	71-43-2		Y	0.0941	0.0941	1.00	ug/l	U			7/21/24 6:19	7/21/24 6:19	PAN
SS015-WW01-071324	SS015-WW01	L1758483-13	N	WG	7/13/24 3:00	SW8260D	N	Ethylbenzene	100-41-4		Y	0.137	0.137	1.00	ug/l	U			7/21/24 6:19	7/21/24 6:19	PAN
SS015-WW01-0713																					

SAMPLE_NAME	LOCATION	LAB_SAMPLE_ID	TYPE	MATRIX	SAMPLE_DATE	METHOD	FRACTION	ANALYTE	CAS#	RESULT	DETECT	DL	LOD	LOQ	UNIT	LABQUAL	VALQUAL	APPLY_REASON_CODE	PREP_DATE	ANALYSIS_DATE	LAB_NAME_CODE
ST009-MW4-071424	ST009-MW4	L1758483-08	N	WG	7/14/24 11:05	AK101	N	TPH Gasoline Range Organics (C6-C10)	TPH-GRO	17.3	Y	10.0	10.0	100	ug/l	B J	Bj	JO1,BO1,BO2,BO3	7/21/24 14:33	7/21/24 14:33	PAN
ST009-MW4-071424	ST009-MW4	L1758483-08	N	WG	7/14/24 11:05	AK102	N	TPH Diesel Range Organics (C10-C25)	TPH-DRO	309	Y	170	170	800	ug/l	J	J	JO1	7/26/24 7:58	7/29/24 14:15	PAN
ST009-MW4-071424	ST009-MW4	L1758483-08	N	WG	7/14/24 11:05	SW8260D	N	Benzene	71-43-2		N	0.0941	0.0941	1.00	ug/l	U			7/21/24 5:16	7/21/24 5:16	PAN
ST009-MW4-071424	ST009-MW4	L1758483-08	N	WG	7/14/24 11:05	SW8260D	N	Ethylbenzene	100-41-4		N	0.137	0.137	1.00	ug/l	U			7/21/24 5:16	7/21/24 5:16	PAN
ST009-MW4-071424	ST009-MW4	L1758483-08	N	WG	7/14/24 11:05	SW8260D	N	Toluene	108-88-3		N	0.278	0.278	1.20	ug/l	U			7/21/24 5:16	7/21/24 5:16	PAN
ST009-MW4-071424	ST009-MW4	L1758483-08	N	WG	7/14/24 11:05	SW8260D	N	Xylenes, (Total)	1330-20-7		N	0.174	0.174	3.00	ug/l	U			7/21/24 5:16	7/21/24 5:16	PAN
ST009-MW7-071424	ST009-MW7	L1758483-09	N	WG	7/14/24 3:50	AK101	N	TPH Gasoline Range Organics (C6-C10)	TPH-GRO	232	Y	10.0	10.0	100	ug/l	B J3 J6	QL	MO1,DO3	7/21/24 14:56	7/21/24 14:56	PAN
ST009-MW7-071424	ST009-MW7	L1758483-09	N	WG	7/14/24 3:50	AK102	N	TPH Diesel Range Organics (C10-C25)	TPH-DRO	1310	Y	170	170	800	ug/l				7/26/24 7:58	7/29/24 14:35	PAN
ST009-MW7-071424	ST009-MW7	L1758483-09	N	WG	7/14/24 3:50	SW8260D	N	Benzene	71-43-2		N	0.0941	0.0941	1.00	ug/l	J5 U			7/21/24 5:37	7/21/24 5:37	PAN
ST009-MW7-071424	ST009-MW7	L1758483-09	N	WG	7/14/24 3:50	SW8260D	N	Ethylbenzene	100-41-4	1.02	Y	0.137	0.137	1.00	ug/l				7/21/24 5:37	7/21/24 5:37	PAN
ST009-MW7-071424	ST009-MW7	L1758483-09	N	WG	7/14/24 3:50	SW8260D	N	Toluene	108-88-3		N	0.278	0.278	1.20	ug/l	U			7/21/24 5:37	7/21/24 5:37	PAN
ST009-MW7-071424	ST009-MW7	L1758483-09	N	WG	7/14/24 3:50	SW8260D	N	Xylenes, (Total)	1330-20-7	1.64	Y	0.174	0.174	3.00	ug/l	J	J	JO1	7/21/24 5:37	7/21/24 5:37	PAN
ST009-MW99-071424	ST009-MW7	L1758483-10	FD	WG	7/14/24 16:45	AK101	N	TPH Gasoline Range Organics (C6-C10)	TPH-GRO	213	Y	10.0	10.0	100	ug/l	B	QL	MO1,DO3	7/21/24 15:19	7/21/24 15:19	PAN
ST009-MW99-071424	ST009-MW7	L1758483-10	FD	WG	7/14/24 16:45	AK102	N	TPH Diesel Range Organics (C10-C25)	TPH-DRO	1740	Y	170	170	800	ug/l				7/26/24 7:58	7/29/24 15:35	PAN
ST009-MW99-071424	ST009-MW7	L1758483-10	FD	WG	7/14/24 16:45	SW8260D	N	Benzene	71-43-2		N	0.0941	0.0941	1.00	ug/l	U			7/21/24 5:58	7/21/24 5:58	PAN
ST009-MW99-071424	ST009-MW7	L1758483-10	FD	WG	7/14/24 16:45	SW8260D	N	Ethylbenzene	100-41-4	1.08	Y	0.137	0.137	1.00	ug/l				7/21/24 5:58	7/21/24 5:58	PAN
ST009-MW99-071424	ST009-MW7	L1758483-10	FD	WG	7/14/24 16:45	SW8260D	N	Toluene	108-88-3		N	0.278	0.278	1.20	ug/l	U			7/21/24 5:58	7/21/24 5:58	PAN
ST009-MW99-071424	ST009-MW7	L1758483-10	FD	WG	7/14/24 16:45	SW8260D	N	Xylenes, (Total)	1330-20-7	1.73	Y	0.174	0.174	3.00	ug/l	J	J	JO1	7/21/24 5:58	7/21/24 5:58	PAN
ST009-TB-071424		L1758483-12	TB	WQ	7/14/24 8:00	AK101	N	TPH Gasoline Range Organics (C6-C10)	TPH-GRO	61.7	Y	10.0	10.0	100	ug/l	B J	Bj	JO1,BO1	7/21/24 13:03	7/21/24 13:03	PAN
ST009-TB-071424		L1758483-12	TB	WQ	7/14/24 8:00	SW8260D	N	Benzene	71-43-2		N	0.0941	0.0941	1.00	ug/l	U			7/21/24 1:45	7/21/24 1:45	PAN
ST009-TB-071424		L1758483-12	TB	WQ	7/14/24 8:00	SW8260D	N	Ethylbenzene	100-41-4		N	0.137	0.137	1.00	ug/l	U			7/21/24 1:45	7/21/24 1:45	PAN
ST009-TB-071424		L1758483-12	TB	WQ	7/14/24 8:00	SW8260D	N	Toluene	108-88-3		N	0.278	0.278	1.20	ug/l	U			7/21/24 1:45	7/21/24 1:45	PAN
ST009-TB-071424		L1758483-12	TB	WQ	7/14/24 8:00	SW8260D	N	Xylenes, (Total)	1330-20-7		N	0.174	0.174	3.00	ug/l	U			7/21/24 1:45	7/21/24 1:45	PAN

Data Qualification Exceptions Report

Qualifiers&Reasons

EQUS eQAPP	Code	Description	TypeCode
AKMED_SORC_J_Under_LOQ_Only_RC	!	Non-Reportable	Qualifier
AKMED_SORC_J_Under_LOQ_Only_RC	B	Analyte result is considered a high estimated value due to contamination present in the blank.	Qualifier
AKMED_SORC_J_Under_LOQ_Only_RC	H	Analyte result is considered a low estimate due to holding time exceedance.	Qualifier
AKMED_SORC_J_Under_LOQ_Only_RC	J	The analyte result is considered an estimated value because the level is below the laboratory LOQ but above the DL.	Qualifier
AKMED_SORC_J_Under_LOQ_Only_RC	NQ	Not Qualified	Qualifier
AKMED_SORC_J_Under_LOQ_Only_RC	QH	Analyte result is considered an estimated value biased high due to matrix effects or a quality control failure.	Qualifier
AKMED_SORC_J_Under_LOQ_Only_RC	QL	Analyte result is considered an estimated value biased low due to matrix effects or a quality control failure.	Qualifier
AKMED_SORC_J_Under_LOQ_Only_RC	QN	Analyte result is considered an estimated value with uncertain bias due to matrix effects or a quality control failure.	Qualifier
AKMED_SORC_J_Under_LOQ_Only_RC	R	Analyte result is rejected – result is not usable. Note that “R” replaces the chemical result (no result shall be reported with a “R” flag).	Qualifier
AKMED_SORC_J_Under_LOQ_Only_RC	BI1	Lab Blank Contamination	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	BI3	Equipment Blank Contamination	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	BI4	Field Blank Contamination	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	BI5	Leachate/Reagent Blank Contamination	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	BO1	Lab Blank Contamination	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	BO2	Trip Blank Contamination	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	BO3	Equipment Blank Contamination	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	BO4	Field Blank Contamination	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	BO5	Leachate/Reagent Blank Contamination	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	CI1	Low Continuing Calibration Verification	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	CI2	High Continuing Calibration Verification	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	CI3	Exceeded Continuing Calibration Verification Criteria	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	CI4	Low LLC (Low-Level Calibration Check) Verification	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	CI5	High LLC (Low-Level Calibration check) Verification	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	CO1	Low Continuing Calibration Verification	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	CO2	High Continuing Calibration Verification	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	CO3	Exceeded Continuing Calibration Verification Criteria	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	CO4	Exceeded RRF Continuing Calibration Verification	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	DI1	Poor LCS/LCSD precision	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	DI2	Poor Field Duplicate precision	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	DI3	Poor MS/MSD RPD precision	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	DI4	Poor Laboratory Duplicate Sample (LDS) Precision	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	DO1	Poor LCS/LCSD precision	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	DO2	Poor Field Duplicate precision	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	DO3	Poor MS/MSD RPD precision	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	DO4	Poor Dual Column Precision	Reason

EQUS eQAPP	Code	Description	TypeCode
AKMED_SORC_J_Under_LOQ_Only_RC	D05	Poor Laboratory Duplicate Sample (LDS) Precision	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	E01	Low EIS Recovery	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	E02	High EIS Recovery	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	E03	Poor EIS Criteria	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	HI1	Holding time exceeded	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	HI2	Preservative issues	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	HO1	Holding time exceeded	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	HO2	Preservative issues	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	IF11	Low Interference Check Sample (ICS) Recovery	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	IF12	High Interference Check Sample (ICS) Recovery	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	IF13	Poor Interference Check Sample (ICS) Recovery	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	IFO1	IFO1	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	II1	Low initial calibration	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	II2	High initial calibration	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	IO1	Low initial calibration	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	IO2	High initial calibration	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	IO3	Exceeded ICAL %RSD	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	IO4	Exceeded ICAL RRF criteria	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	IR01	Ion Ratio Not Met	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	ISI1	High Internal Standard	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	ISI2	Low Internal Standard	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	ISO1	High Internal Standard or High Non-Extractable Internal Standard	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	ISO2	Low Internal Standard or High Non-Extractable Internal Standard	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	ISO3	EICP over 50% of average peak area	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	ISO4	Poor Internal Standard Response	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	JI1	Result less than LOQ, Inorganic	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	JO1	Result less than LOQ.	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	LI1	Low LCS recovery	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	LI2	High LCS recovery	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	LI3	Poor LCS performance	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	LO1	Low LCS recovery	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	LO2	High LCS recovery	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	LO3	Poor LCS performance	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	MI1	Low MS recovery	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	MI2	High MS Recovery	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	MI3	Poor MS/MSD Performance	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	MO1	Low MS recovery	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	MO2	High MS Recovery	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	MO3	Poor MS/MSD Performance	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	PJI1	Professional Judgement	Reason

EQuIS eQAPP	Code	Description	TypeCode
AKMED_SORC_J_Under_LOQ_Only_RC	PJO1	Professional Judgement	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	SI1	High SDS %D	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	SO1	Low Surrogate Recovery	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	SO2	High Surrogate Recovery	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	SO3	Poor Surrogate Recovery	Reason
AKMED_SORC_J_Under_LOQ_Only_RC	TO1	Tentatively Identified Compound (TIC)	Reason

Appendix E. Laboratory Analytical Report

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ANALYTICAL REPORT

August 25, 2024

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Ds
- 6 Sr
- 7 Qc
- 8 Gl
- 9 Al
- 10 Sc

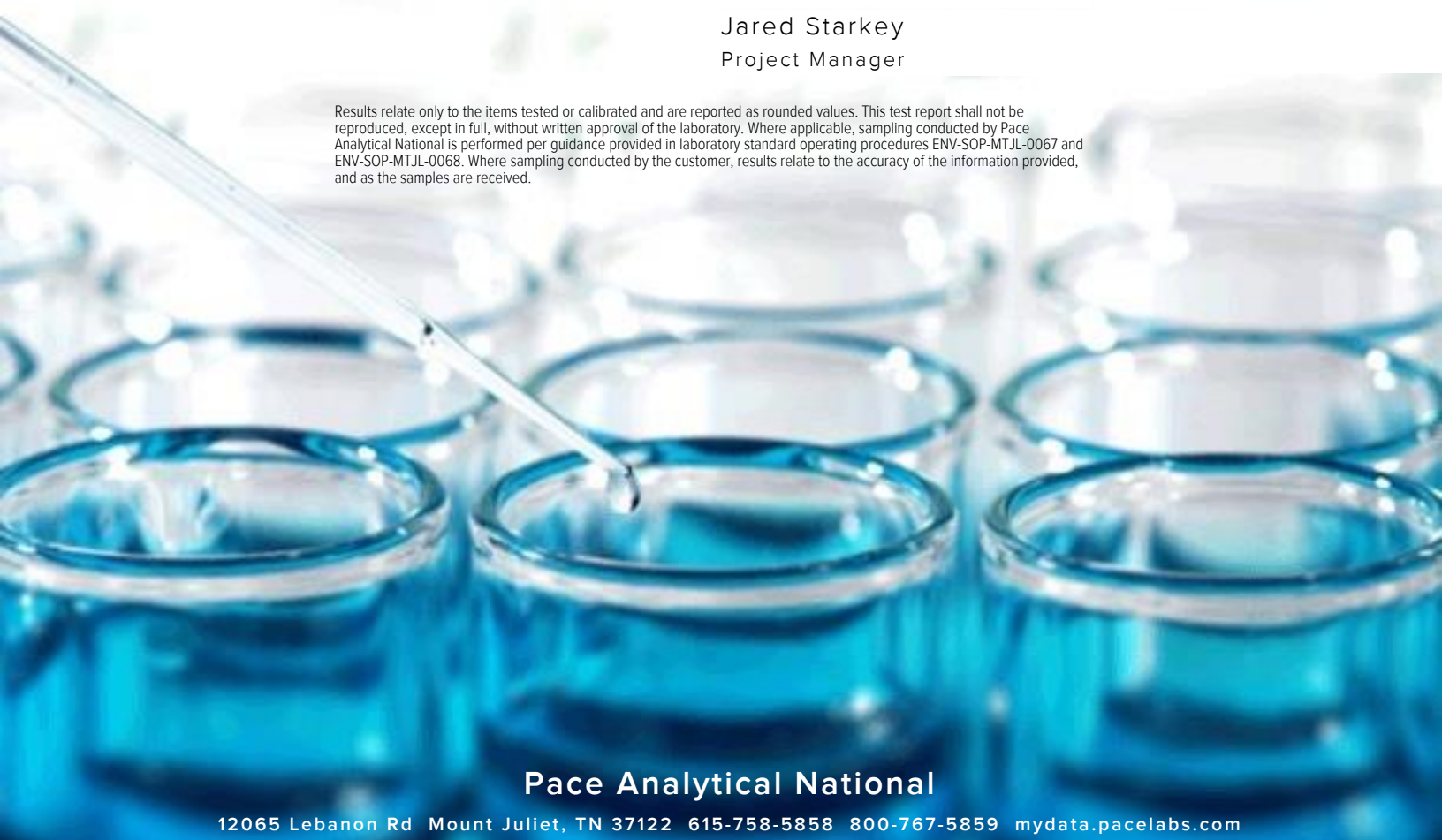
North Wind Site Services, LLC- AK

Sample Delivery Group: L1758483
 Samples Received: 07/19/2024
 Project Number: 060068
 Description: Cape Romanzof LRRS 21-035
 Site: LF003-S01
 Report To: North Wind
 7910 King Street
 Anchorage, AK 99518

Entire Report Reviewed By:

Jared Starkey
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

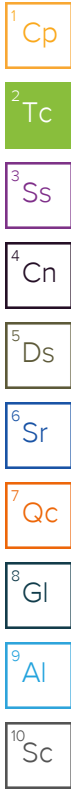


Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

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SAMPLE SUMMARY

LF003-S01-071524 L1758483-01 Solid

Collected by Caleb Aronson Collected date/time 07/15/24 10:45 Received date/time 07/19/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2326811	1	07/22/24 14:32	07/22/24 14:38	KDW	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082 A	WG2334869	1	08/02/24 09:36	08/03/24 19:05	HCS	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

LF003-S02-071524 L1758483-02 Solid

Collected by Caleb Aronson Collected date/time 07/15/24 10:12 Received date/time 07/19/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2326811	1	07/22/24 14:32	07/22/24 14:38	KDW	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082 A	WG2334869	1	08/02/24 09:36	08/02/24 16:49	HCS	Mt. Juliet, TN

4 Cn

5 Ds

6 Sr

LF003-S03-071524 L1758483-03 Solid

Collected by Caleb Aronson Collected date/time 07/15/24 11:10 Received date/time 07/19/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2326811	1	07/22/24 14:32	07/22/24 14:38	KDW	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082 A	WG2334869	1	08/02/24 09:36	08/02/24 16:58	HCS	Mt. Juliet, TN

7 Qc

8 Gl

9 Al

LF003-S04-071524 L1758483-04 Solid

Collected by Caleb Aronson Collected date/time 07/15/24 10:30 Received date/time 07/19/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2326811	1	07/22/24 14:32	07/22/24 14:38	KDW	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082 A	WG2337266	1	08/06/24 16:58	08/07/24 11:13	RDH	Mt. Juliet, TN

10 Sc

LF003-S099-071524 L1758483-05 Solid

Collected by Caleb Aronson Collected date/time 07/15/24 11:15 Received date/time 07/19/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2326812	1	07/23/24 08:07	07/23/24 08:16	CMB	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082 A	WG2334869	1	08/02/24 09:36	08/02/24 17:34	HCS	Mt. Juliet, TN

LF003-SW03-071524 L1758483-06 GW

Collected by Caleb Aronson Collected date/time 07/15/24 11:00 Received date/time 07/19/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Polychlorinated Biphenyls (GC) by Method 8082 A	WG2331401	1	07/28/24 15:16	07/29/24 12:54	NWH	Mt. Juliet, TN

LF003-SW99-071524 L1758483-07 GW

Collected by Caleb Aronson Collected date/time 07/15/24 11:30 Received date/time 07/19/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Polychlorinated Biphenyls (GC) by Method 8082 A	WG2331401	1	07/28/24 15:16	07/29/24 13:22	NWH	Mt. Juliet, TN

SAMPLE SUMMARY

ST009-MW4-071424 L1758483-08 GW

Collected by Caleb Aronson Collected date/time 07/14/24 11:05 Received date/time 07/19/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG2327259	1	07/21/24 14:33	07/21/24 14:33	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2327118	1	07/21/24 05:16	07/21/24 05:16	DYW	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG2330419	1	07/26/24 07:58	07/29/24 14:15	AUU	Mt. Juliet, TN



ST009-MW7-071424 L1758483-09 GW

Collected by Caleb Aronson Collected date/time 07/14/24 15:50 Received date/time 07/19/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG2327259	1	07/21/24 14:56	07/21/24 14:56	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2327118	1	07/21/24 05:37	07/21/24 05:37	DYW	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG2330419	1	07/26/24 07:58	07/29/24 14:35	AUU	Mt. Juliet, TN

ST009-MW99-071424 L1758483-10 GW

Collected by Caleb Aronson Collected date/time 07/14/24 16:45 Received date/time 07/19/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG2327259	1	07/21/24 15:19	07/21/24 15:19	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2327118	1	07/21/24 05:58	07/21/24 05:58	DYW	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG2330419	1	07/26/24 07:58	07/29/24 15:35	AUU	Mt. Juliet, TN

ST009-EB-071424 L1758483-11 GW

Collected by Caleb Aronson Collected date/time 07/14/24 08:00 Received date/time 07/19/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG2327259	1	07/21/24 13:48	07/21/24 13:48	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2327118	1	07/21/24 03:10	07/21/24 03:10	DYW	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG2330419	1	07/26/24 07:58	07/29/24 15:56	AUU	Mt. Juliet, TN

ST009-TB-071424 L1758483-12 GW

Collected by Caleb Aronson Collected date/time 07/14/24 08:00 Received date/time 07/19/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG2327259	1	07/21/24 13:03	07/21/24 13:03	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2327118	1	07/21/24 01:45	07/21/24 01:45	DYW	Mt. Juliet, TN

SS015-WW01-071324 L1758483-13 GW

Collected by Caleb Aronson Collected date/time 07/13/24 15:00 Received date/time 07/19/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG2327259	1	07/21/24 15:42	07/21/24 15:42	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2327118	1	07/21/24 06:19	07/21/24 06:19	DYW	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG2330419	1	07/26/24 07:58	07/29/24 16:16	AUU	Mt. Juliet, TN

SS015-WW05-071324 L1758483-14 GW

Collected by Caleb Aronson Collected date/time 07/13/24 14:00 Received date/time 07/19/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG2327259	1	07/21/24 16:04	07/21/24 16:04	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2327118	1	07/21/24 06:41	07/21/24 06:41	DYW	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG2330419	1	07/26/24 07:58	07/29/24 16:36	AUU	Mt. Juliet, TN

SAMPLE SUMMARY

SS015-WW06-071324 L1758483-15 GW

Collected by: Caleb Aronson
 Collected date/time: 07/13/24 11:45
 Received date/time: 07/19/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG2327259	1	07/21/24 16:27	07/21/24 16:27	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2327118	1	07/21/24 07:02	07/21/24 07:02	DYW	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG2330419	1	07/26/24 07:58	07/29/24 18:44	AUU	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

SS015-WW99-071324 L1758483-16 GW

Collected by: Caleb Aronson
 Collected date/time: 07/13/24 16:30
 Received date/time: 07/19/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG2327259	1	07/21/24 18:16	07/21/24 18:16	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2327118	1	07/21/24 07:23	07/21/24 07:23	DYW	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG2330419	1	07/26/24 07:58	07/29/24 19:04	AUU	Mt. Juliet, TN

⁵Ds

⁶Sr

⁷Qc

SS015-EB-071324 L1758483-17 GW

Collected by: Caleb Aronson
 Collected date/time: 07/13/24 08:00
 Received date/time: 07/19/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG2327259	1	07/21/24 14:11	07/21/24 14:11	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2327118	1	07/21/24 03:31	07/21/24 03:31	DYW	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG2330419	1	07/26/24 07:58	07/29/24 19:25	AUU	Mt. Juliet, TN

⁸Gl

⁹Al

¹⁰Sc

SS015-TB-071324 L1758483-18 GW

Collected by: Caleb Aronson
 Collected date/time: 07/13/24 08:00
 Received date/time: 07/19/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG2327259	1	07/21/24 13:25	07/21/24 13:25	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2327118	1	07/21/24 02:06	07/21/24 02:06	DYW	Mt. Juliet, TN

CASE NARRATIVE

Unless qualified or notated within the narrative below, all sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jared Starkey
Project Manager



Volatile Organic Compounds (GC) by Method AK101

The same analyte is found in the associated blank.

Batch	Analyte	Lab Sample ID
WG2327259	TPHGAK C6 to C10	L1758483-08, 09, 10, 11, 12, 14, 15, 16, 17, 18

The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Batch	Lab Sample ID	Analytes
WG2327259	(MS) R4099336-4, L1758483-09	TPHGAK C6 to C10

The associated batch QC was outside the established quality control range for precision.

Batch	Lab Sample ID	Analytes
WG2327259	(MSD) R4099336-5, L1758483-09	TPHGAK C6 to C10

Volatile Organic Compounds (GC/MS) by Method 8260D

The sample matrix interfered with the ability to make any accurate determination; spike value is high.

Batch	Lab Sample ID	Analytes
WG2327118	(MS) R4098521-4, (MSD) R4098521-5, L1758483-09	Benzene

Semi-Volatile Organic Compounds (GC) by Method AK102

Surrogate recovery limits have been exceeded; values are outside upper control limits.

Batch	Analyte	Lab Sample ID
WG2330419	o-Terphenyl	(BLANK) R4099913-1

Polychlorinated Biphenyls (GC) by Method 8082 A

Surrogate recovery limits have been exceeded; values are outside lower control limits.

Batch	Analyte	Lab Sample ID
WG2334869	Tetrachloro-m-xylene	L1758483-01
WG2337266	Tetrachloro-m-xylene	L1758483-04

DETECTION SUMMARY

Volatile Organic Compounds (GC) by Method AK101

Client ID	Lab Sample ID	Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
				ug/l		ug/l	ug/l	ug/l		date / time	
ST009-MW4-071424	L1758483-08	TPHGAK C6 to C10	TPH C6-C10	17.3	B J	10.0	50.0	100	1	07/21/2024 14:33	WG2327259
ST009-MW7-071424	L1758483-09	TPHGAK C6 to C10	TPH C6-C10	232	B J3 J6	10.0	50.0	100	1	07/21/2024 14:56	WG2327259
ST009-MW99-071424	L1758483-10	TPHGAK C6 to C10	TPH C6-C10	213	B	10.0	50.0	100	1	07/21/2024 15:19	WG2327259
ST009-EB-071424	L1758483-11	TPHGAK C6 to C10	TPH C6-C10	24.9	B J	10.0	50.0	100	1	07/21/2024 13:48	WG2327259
ST009-TB-071424	L1758483-12	TPHGAK C6 to C10	TPH C6-C10	61.7	B J	10.0	50.0	100	1	07/21/2024 13:03	WG2327259
SS015-WW01-071324	L1758483-13	TPHGAK C6 to C10	TPH C6-C10	618		10.0	50.0	100	1	07/21/2024 15:42	WG2327259
SS015-WW05-071324	L1758483-14	TPHGAK C6 to C10	TPH C6-C10	37.4	B J	10.0	50.0	100	1	07/21/2024 16:04	WG2327259
SS015-WW06-071324	L1758483-15	TPHGAK C6 to C10	TPH C6-C10	15.7	B J	10.0	50.0	100	1	07/21/2024 16:27	WG2327259
SS015-WW99-071324	L1758483-16	TPHGAK C6 to C10	TPH C6-C10	15.9	B J	10.0	50.0	100	1	07/21/2024 18:16	WG2327259
SS015-EB-071324	L1758483-17	TPHGAK C6 to C10	TPH C6-C10	21.1	B J	10.0	50.0	100	1	07/21/2024 14:11	WG2327259
SS015-TB-071324	L1758483-18	TPHGAK C6 to C10	TPH C6-C10	38.5	B J	10.0	50.0	100	1	07/21/2024 13:25	WG2327259

1 Cp

2 Tc

3 Ss

4 Cn

5 Ds

6 Sr

7 Qc

Volatile Organic Compounds (GC/MS) by Method 8260D

Client ID	Lab Sample ID	Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
				ug/l		ug/l	ug/l	ug/l		date / time	
ST009-MW7-071424	L1758483-09	Ethylbenzene	100-41-4	1.02		0.137	0.500	1.00	1	07/21/2024 05:37	WG2327118
ST009-MW7-071424	L1758483-09	Total Xylenes	1330-20-7	1.64	J	0.174	1.50	3.00	1	07/21/2024 05:37	WG2327118
ST009-MW99-071424	L1758483-10	Ethylbenzene	100-41-4	1.08		0.137	0.500	1.00	1	07/21/2024 05:58	WG2327118
ST009-MW99-071424	L1758483-10	Total Xylenes	1330-20-7	1.73	J	0.174	1.50	3.00	1	07/21/2024 05:58	WG2327118
SS015-WW01-071324	L1758483-13	Benzene	71-43-2	40.5		0.0941	0.500	1.00	1	07/21/2024 06:19	WG2327118
SS015-WW01-071324	L1758483-13	Ethylbenzene	100-41-4	18.9		0.137	0.500	1.00	1	07/21/2024 06:19	WG2327118
SS015-WW01-071324	L1758483-13	Toluene	108-88-3	0.310	J	0.278	0.600	1.20	1	07/21/2024 06:19	WG2327118
SS015-WW01-071324	L1758483-13	Total Xylenes	1330-20-7	38.7		0.174	1.50	3.00	1	07/21/2024 06:19	WG2327118

8 Gl

9 Al

10 Sc

Semi-Volatile Organic Compounds (GC) by Method AK102

Client ID	Lab Sample ID	Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
				ug/l		ug/l	ug/l	ug/l		date / time	
ST009-MW4-071424	L1758483-08	AK102 DRO C10-C25	C10-C25	309	J	170	400	800	1	07/29/2024 14:15	WG2330419
ST009-MW7-071424	L1758483-09	AK102 DRO C10-C25	C10-C25	1310		170	400	800	1	07/29/2024 14:35	WG2330419
ST009-MW99-071424	L1758483-10	AK102 DRO C10-C25	C10-C25	1740		170	400	800	1	07/29/2024 15:35	WG2330419

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Client ID	Lab Sample ID	Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
				ug/l		ug/l	ug/l	ug/l		date / time	
SS015-WW01-071324	L1758483-13	AK102 DRO C10-C25	C10-C25	11900		170	400	800	1	07/29/2024 16:16	WG2330419
SS015-WW05-071324	L1758483-14	AK102 DRO C10-C25	C10-C25	178	J	170	400	800	1	07/29/2024 16:36	WG2330419
SS015-WW06-071324	L1758483-15	AK102 DRO C10-C25	C10-C25	603	J	170	400	800	1	07/29/2024 18:44	WG2330419
SS015-EB-071324	L1758483-17	AK102 DRO C10-C25	C10-C25	189	J	170	400	800	1	07/29/2024 19:25	WG2330419

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	Baby Blue	
Cooler Temperature	2.1	Deg. C

Total Solids by Method 2540 G-2011

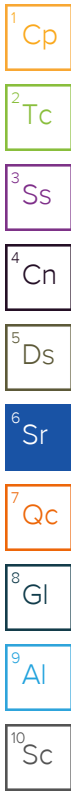
Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	58.2		1	07/22/2024 14:38	WG2326811

Polychlorinated Biphenyls (GC) by Method 8082 A

Analyte	CAS #	Result (dry) mg/kg	Qualifier	DL (dry) mg/kg	LOD (dry) mg/kg	LOQ (dry) mg/kg	Dilution	Analysis date / time	Batch
PCB 1016	12674-11-2	0.0429	U	0.0203	0.0429	0.0859	1	08/03/2024 19:05	WG2334869
PCB 1221	11104-28-2	0.0429	U	0.0203	0.0429	0.0859	1	08/03/2024 19:05	WG2334869
PCB 1232	11141-16-5	0.0429	U	0.0203	0.0429	0.0859	1	08/03/2024 19:05	WG2334869
PCB 1242	53469-21-9	0.0429	U	0.0203	0.0429	0.0859	1	08/03/2024 19:05	WG2334869
PCB 1248	12672-29-6	0.0258	U	0.0127	0.0258	0.0515	1	08/03/2024 19:05	WG2334869
PCB 1254	11097-69-1	0.0258	U	0.0127	0.0258	0.0515	1	08/03/2024 19:05	WG2334869
PCB 1260	11096-82-5	0.0258	U	0.0127	0.0258	0.0515	1	08/03/2024 19:05	WG2334869
PCB 1262	37324-23-5	0.0258	U	0.0127	0.0258	0.0515	1	08/03/2024 19:05	WG2334869
PCB 1268	11100-14-4	0.0258	U	0.0127	0.0258	0.0515	1	08/03/2024 19:05	WG2334869
Total PCBs	1336-36-3	0.0258	U	0.0127	0.0258	0.0515	1	08/03/2024 19:05	WG2334869
(S) Decachlorobiphenyl	2051-24-3	19.2				10.0-143		08/03/2024 19:05	WG2334869
(S) Tetrachloro-m-xylene	877-09-8	30.3	J2			42.0-129		08/03/2024 19:05	WG2334869

Sample Narrative:

L1758483-01 WG2334869: Duplicate Analysis performed due to QC failure. Reporting most compliant data.



Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	Baby Blue	
Cooler Temperature	2.1	Deg. C

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	72.0		1	07/22/2024 14:38	WG2326811

Polychlorinated Biphenyls (GC) by Method 8082 A

Analyte	CAS #	Result (dry) mg/kg	Qualifier	DL (dry) mg/kg	LOD (dry) mg/kg	LOQ (dry) mg/kg	Dilution	Analysis date / time	Batch
PCB 1016	12674-11-2	0.0347	U	0.0164	0.0347	0.0694	1	08/02/2024 16:49	WG2334869
PCB 1221	11104-28-2	0.0347	U	0.0164	0.0347	0.0694	1	08/02/2024 16:49	WG2334869
PCB 1232	11141-16-5	0.0347	U	0.0164	0.0347	0.0694	1	08/02/2024 16:49	WG2334869
PCB 1242	53469-21-9	0.0347	U	0.0164	0.0347	0.0694	1	08/02/2024 16:49	WG2334869
PCB 1248	12672-29-6	0.0208	U	0.0102	0.0208	0.0417	1	08/02/2024 16:49	WG2334869
PCB 1254	11097-69-1	0.0208	U	0.0102	0.0208	0.0417	1	08/02/2024 16:49	WG2334869
PCB 1260	11096-82-5	0.0208	U	0.0102	0.0208	0.0417	1	08/02/2024 16:49	WG2334869
PCB 1262	37324-23-5	0.0208	U	0.0102	0.0208	0.0417	1	08/02/2024 16:49	WG2334869
PCB 1268	11100-14-4	0.0208	U	0.0102	0.0208	0.0417	1	08/02/2024 16:49	WG2334869
Total PCBs	1336-36-3	0.0208	U	0.0102	0.0208	0.0417	1	08/02/2024 16:49	WG2334869
(S) Decachlorobiphenyl	2051-24-3	37.8				10.0-143		08/02/2024 16:49	WG2334869
(S) Tetrachloro-m-xylene	877-09-8	51.4				42.0-129		08/02/2024 16:49	WG2334869

1 Cp

2 Tc

3 Ss

4 Cn

5 Ds

6 Sr

7 Qc

8 Gl

9 Al

10 Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	Baby Blue	
Cooler Temperature	2.1	Deg. C

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	51.2		1	07/22/2024 14:38	WG2326811

Polychlorinated Biphenyls (GC) by Method 8082 A

Analyte	CAS #	Result (dry) mg/kg	Qualifier	DL (dry) mg/kg	LOD (dry) mg/kg	LOQ (dry) mg/kg	Dilution	Analysis date / time	Batch
PCB 1016	12674-11-2	0.0488	U	0.0230	0.0488	0.0977	1	08/02/2024 16:58	WG2334869
PCB 1221	11104-28-2	0.0488	U	0.0230	0.0488	0.0977	1	08/02/2024 16:58	WG2334869
PCB 1232	11141-16-5	0.0488	U	0.0230	0.0488	0.0977	1	08/02/2024 16:58	WG2334869
PCB 1242	53469-21-9	0.0488	U	0.0230	0.0488	0.0977	1	08/02/2024 16:58	WG2334869
PCB 1248	12672-29-6	0.0293	U	0.0144	0.0293	0.0586	1	08/02/2024 16:58	WG2334869
PCB 1254	11097-69-1	0.0293	U	0.0144	0.0293	0.0586	1	08/02/2024 16:58	WG2334869
PCB 1260	11096-82-5	0.0293	U	0.0144	0.0293	0.0586	1	08/02/2024 16:58	WG2334869
PCB 1262	37324-23-5	0.0293	U	0.0144	0.0293	0.0586	1	08/02/2024 16:58	WG2334869
PCB 1268	11100-14-4	0.0293	U	0.0144	0.0293	0.0586	1	08/02/2024 16:58	WG2334869
Total PCBs	1336-36-3	0.0293	U	0.0144	0.0293	0.0586	1	08/02/2024 16:58	WG2334869
(S) Decachlorobiphenyl	2051-24-3	58.1				10.0-143		08/02/2024 16:58	WG2334869
(S) Tetrachloro-m-xylene	877-09-8	73.8				42.0-129		08/02/2024 16:58	WG2334869

1 Cp

2 Tc

3 Ss

4 Cn

5 Ds

6 Sr

7 Qc

8 Gl

9 Al

10 Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	Baby Blue	
Cooler Temperature	2.1	Deg. C

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	46.5		1	07/22/2024 14:38	WG2326811

Polychlorinated Biphenyls (GC) by Method 8082 A

Analyte	CAS #	Result (dry) mg/kg	Qualifier	DL (dry) mg/kg	LOD (dry) mg/kg	LOQ (dry) mg/kg	Dilution	Analysis date / time	Batch
PCB 1016	12674-11-2	0.0538	U	0.0254	0.0538	0.108	1	08/07/2024 11:13	WG2337266
PCB 1221	11104-28-2	0.0538	U	0.0254	0.0538	0.108	1	08/07/2024 11:13	WG2337266
PCB 1232	11141-16-5	0.0538	U	0.0254	0.0538	0.108	1	08/07/2024 11:13	WG2337266
PCB 1242	53469-21-9	0.0538	U	0.0254	0.0538	0.108	1	08/07/2024 11:13	WG2337266
PCB 1248	12672-29-6	0.0323	U	0.0159	0.0323	0.0646	1	08/07/2024 11:13	WG2337266
PCB 1254	11097-69-1	0.0323	U	0.0159	0.0323	0.0646	1	08/07/2024 11:13	WG2337266
PCB 1260	11096-82-5	0.0323	U	0.0159	0.0323	0.0646	1	08/07/2024 11:13	WG2337266
PCB 1262	37324-23-5	0.0323	U	0.0159	0.0323	0.0646	1	08/07/2024 11:13	WG2337266
PCB 1268	11100-14-4	0.0323	U	0.0159	0.0323	0.0646	1	08/07/2024 11:13	WG2337266
Total PCBs	1336-36-3	0.0323	U	0.0159	0.0323	0.0646	1	08/07/2024 11:13	WG2337266
(S) Decachlorobiphenyl	2051-24-3	22.5				10.0-143		08/07/2024 11:13	WG2337266
(S) Tetrachloro-m-xylene	877-09-8	29.7	J2			42.0-129		08/07/2024 11:13	WG2337266

Sample Narrative:

L1758483-04 WG2337266: Duplicate Analysis performed due to GC failure. Reporting most compliant data.

1 Cp

2 Tc

3 Ss

4 Cn

5 Ds

6 Sr

7 Qc

8 Gl

9 Al

10 Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	Baby Blue	
Cooler Temperature	2.1	Deg. C

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	70.8		1	07/23/2024 08:16	WG2326812

Polychlorinated Biphenyls (GC) by Method 8082 A

Analyte	CAS #	Result (dry) mg/kg	Qualifier	DL (dry) mg/kg	LOD (dry) mg/kg	LOQ (dry) mg/kg	Dilution	Analysis date / time	Batch
PCB 1016	12674-11-2	0.0353	U	0.0167	0.0353	0.0706	1	08/02/2024 17:34	WG2334869
PCB 1221	11104-28-2	0.0353	U	0.0167	0.0353	0.0706	1	08/02/2024 17:34	WG2334869
PCB 1232	11141-16-5	0.0353	U	0.0167	0.0353	0.0706	1	08/02/2024 17:34	WG2334869
PCB 1242	53469-21-9	0.0353	U	0.0167	0.0353	0.0706	1	08/02/2024 17:34	WG2334869
PCB 1248	12672-29-6	0.0212	U	0.0104	0.0212	0.0424	1	08/02/2024 17:34	WG2334869
PCB 1254	11097-69-1	0.0212	U	0.0104	0.0212	0.0424	1	08/02/2024 17:34	WG2334869
PCB 1260	11096-82-5	0.0212	U	0.0104	0.0212	0.0424	1	08/02/2024 17:34	WG2334869
PCB 1262	37324-23-5	0.0212	U	0.0104	0.0212	0.0424	1	08/02/2024 17:34	WG2334869
PCB 1268	11100-14-4	0.0212	U	0.0104	0.0212	0.0424	1	08/02/2024 17:34	WG2334869
Total PCBs	1336-36-3	0.0212	U	0.0104	0.0212	0.0424	1	08/02/2024 17:34	WG2334869
(S) Decachlorobiphenyl	2051-24-3	37.3				10.0-143		08/02/2024 17:34	WG2334869
(S) Tetrachloro-m-xylene	877-09-8	49.9				42.0-129		08/02/2024 17:34	WG2334869

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Ds
- 6 Sr
- 7 Qc
- 8 Gl
- 9 Al
- 10 Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	Baby Blue	
Cooler Temperature	2.1	Deg. C

Polychlorinated Biphenyls (GC) by Method 8082 A

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
Total PCBs	1336-36-3	0.500	U	0.173	0.500	1.00	1	07/29/2024 12:54	WG2331401
PCB 1016	12674-11-2	0.750	U	0.270	0.750	1.50	1	07/29/2024 12:54	WG2331401
PCB 1221	11104-28-2	0.750	U	0.270	0.750	1.50	1	07/29/2024 12:54	WG2331401
PCB 1232	11141-16-5	0.750	U	0.270	0.750	1.50	1	07/29/2024 12:54	WG2331401
PCB 1242	53469-21-9	0.750	U	0.270	0.750	1.50	1	07/29/2024 12:54	WG2331401
PCB 1248	12672-29-6	0.500	U	0.173	0.500	1.00	1	07/29/2024 12:54	WG2331401
PCB 1254	11097-69-1	0.500	U	0.173	0.500	1.00	1	07/29/2024 12:54	WG2331401
PCB 1260	11096-82-5	0.500	U	0.173	0.500	1.00	1	07/29/2024 12:54	WG2331401
PCB 1262	37324-23-5	0.500	U	0.173	0.500	1.00	1	07/29/2024 12:54	WG2331401
PCB 1268	11100-14-4	0.500	U	0.173	0.500	1.00	1	07/29/2024 12:54	WG2331401
(S) Decachlorobiphenyl	2051-24-3	40.5				10.0-156		07/29/2024 12:54	WG2331401
(S) Tetrachloro-m-xylene	877-09-8	60.3				44.0-124		07/29/2024 12:54	WG2331401

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Ds
- 6 Sr
- 7 Qc
- 8 Gl
- 9 Al
- 10 Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	Baby Blue	
Cooler Temperature	2.1	Deg. C

Polychlorinated Biphenyls (GC) by Method 8082 A

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
Total PCBs	1336-36-3	0.500	U	0.173	0.500	1.00	1	07/29/2024 13:22	WG2331401
PCB 1016	12674-11-2	0.750	U	0.270	0.750	1.50	1	07/29/2024 13:22	WG2331401
PCB 1221	11104-28-2	0.750	U	0.270	0.750	1.50	1	07/29/2024 13:22	WG2331401
PCB 1232	11141-16-5	0.750	U	0.270	0.750	1.50	1	07/29/2024 13:22	WG2331401
PCB 1242	53469-21-9	0.750	U	0.270	0.750	1.50	1	07/29/2024 13:22	WG2331401
PCB 1248	12672-29-6	0.500	U	0.173	0.500	1.00	1	07/29/2024 13:22	WG2331401
PCB 1254	11097-69-1	0.500	U	0.173	0.500	1.00	1	07/29/2024 13:22	WG2331401
PCB 1260	11096-82-5	0.500	U	0.173	0.500	1.00	1	07/29/2024 13:22	WG2331401
PCB 1262	37324-23-5	0.500	U	0.173	0.500	1.00	1	07/29/2024 13:22	WG2331401
PCB 1268	11100-14-4	0.500	U	0.173	0.500	1.00	1	07/29/2024 13:22	WG2331401
(S) Decachlorobiphenyl	2051-24-3	54.5				10.0-156		07/29/2024 13:22	WG2331401
(S) Tetrachloro-m-xylene	877-09-8	63.9				44.0-124		07/29/2024 13:22	WG2331401

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Ds
- 6 Sr
- 7 Qc
- 8 Gl
- 9 Al
- 10 Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	Big Blue	
Cooler Temperature	2.7	Deg. C

Volatile Organic Compounds (GC) by Method AK101

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	TPH C6-C10	17.3	<u>BJ</u>	10.0	50.0	100	1	07/21/2024 14:33	WG2327259
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	98-08-8	90.1				50.0-150		07/21/2024 14:33	WG2327259

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
Benzene	71-43-2	0.500	<u>U</u>	0.0941	0.500	1.00	1	07/21/2024 05:16	WG2327118
Ethylbenzene	100-41-4	0.500	<u>U</u>	0.137	0.500	1.00	1	07/21/2024 05:16	WG2327118
Toluene	108-88-3	0.600	<u>U</u>	0.278	0.600	1.20	1	07/21/2024 05:16	WG2327118
Total Xylenes	1330-20-7	1.50	<u>U</u>	0.174	1.50	3.00	1	07/21/2024 05:16	WG2327118
(S) <i>Toluene-d8</i>	2037-26-5	105				89.0-112		07/21/2024 05:16	WG2327118
(S) <i>4</i> -Bromofluorobenzene	460-00-4	97.2				85.0-114		07/21/2024 05:16	WG2327118
(S) <i>1,2</i> -Dichloroethane- <i>d4</i>	17060-07-0	110				81.0-118		07/21/2024 05:16	WG2327118

Semi-Volatile Organic Compounds (GC) by Method AK102

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	C10-C25	309	<u>J</u>	170	400	800	1	07/29/2024 14:15	WG2330419
(S) <i>o</i> -Terphenyl	84-15-1	132				50.0-150		07/29/2024 14:15	WG2330419

1 Cp

2 Tc

3 Ss

4 Cn

5 Ds

6 Sr

7 Qc

8 Gl

9 Al

10 Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	Big Blue	
Cooler Temperature	2.7	Deg. C

Volatile Organic Compounds (GC) by Method AK101

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	TPH C6-C10	232	<u>B J3 J6</u>	10.0	50.0	100	1	07/21/2024 14:56	WG2327259
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	98-08-8	88.7				50.0-150		07/21/2024 14:56	WG2327259

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
Benzene	71-43-2	0.500	<u>J5 U</u>	0.0941	0.500	1.00	1	07/21/2024 05:37	WG2327118
Ethylbenzene	100-41-4	1.02		0.137	0.500	1.00	1	07/21/2024 05:37	WG2327118
Toluene	108-88-3	0.600	<u>U</u>	0.278	0.600	1.20	1	07/21/2024 05:37	WG2327118
Total Xylenes	1330-20-7	1.64	<u>J</u>	0.174	1.50	3.00	1	07/21/2024 05:37	WG2327118
(S) <i>Toluene-d8</i>	2037-26-5	95.2				89.0-112		07/21/2024 05:37	WG2327118
(S) <i>4-Bromofluorobenzene</i>	460-00-4	98.3				85.0-114		07/21/2024 05:37	WG2327118
(S) <i>1,2-Dichloroethane-d4</i>	17060-07-0	106				81.0-118		07/21/2024 05:37	WG2327118

Semi-Volatile Organic Compounds (GC) by Method AK102

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	C10-C25	1310		170	400	800	1	07/29/2024 14:35	WG2330419
(S) <i>o</i> -Terphenyl	84-15-1	128				50.0-150		07/29/2024 14:35	WG2330419

1 Cp

2 Tc

3 Ss

4 Cn

5 Ds

6 Sr

7 Qc

8 Gl

9 Al

10 Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	Big Blue	
Cooler Temperature	2.7	Deg. C

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Ds
- 6 Sr
- 7 Qc
- 8 Gl
- 9 Al
- 10 Sc

Volatile Organic Compounds (GC) by Method AK101

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	TPH C6-C10	213	B	10.0	50.0	100	1	07/21/2024 15:19	WG2327259
(S) a,a,a-Trifluorotoluene(FID)	98-08-8	89.5				50.0-150		07/21/2024 15:19	WG2327259

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	07/21/2024 05:58	WG2327118
Ethylbenzene	100-41-4	1.08		0.137	0.500	1.00	1	07/21/2024 05:58	WG2327118
Toluene	108-88-3	0.600	U	0.278	0.600	1.20	1	07/21/2024 05:58	WG2327118
Total Xylenes	1330-20-7	1.73	J	0.174	1.50	3.00	1	07/21/2024 05:58	WG2327118
(S) Toluene-d8	2037-26-5	96.3				89.0-112		07/21/2024 05:58	WG2327118
(S) 4-Bromofluorobenzene	460-00-4	98.4				85.0-114		07/21/2024 05:58	WG2327118
(S) 1,2-Dichloroethane-d4	17060-07-0	107				81.0-118		07/21/2024 05:58	WG2327118

Semi-Volatile Organic Compounds (GC) by Method AK102

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	C10-C25	1740		170	400	800	1	07/29/2024 15:35	WG2330419
(S) o-Terphenyl	84-15-1	128				50.0-150		07/29/2024 15:35	WG2330419

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	Big Blue	
Cooler Temperature	2.7	Deg. C

Volatile Organic Compounds (GC) by Method AK101

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	TPH C6-C10	24.9	<u>BJ</u>	10.0	50.0	100	1	07/21/2024 13:48	WG2327259
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	98-08-8	86.3				50.0-150		07/21/2024 13:48	WG2327259

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
Benzene	71-43-2	0.500	<u>U</u>	0.0941	0.500	1.00	1	07/21/2024 03:10	WG2327118
Ethylbenzene	100-41-4	0.500	<u>U</u>	0.137	0.500	1.00	1	07/21/2024 03:10	WG2327118
Toluene	108-88-3	0.600	<u>U</u>	0.278	0.600	1.20	1	07/21/2024 03:10	WG2327118
Total Xylenes	1330-20-7	1.50	<u>U</u>	0.174	1.50	3.00	1	07/21/2024 03:10	WG2327118
(S) <i>Toluene-d8</i>	2037-26-5	104				89.0-112		07/21/2024 03:10	WG2327118
(S) <i>4-Bromofluorobenzene</i>	460-00-4	96.8				85.0-114		07/21/2024 03:10	WG2327118
(S) <i>1,2-Dichloroethane-d4</i>	17060-07-0	107				81.0-118		07/21/2024 03:10	WG2327118

Semi-Volatile Organic Compounds (GC) by Method AK102

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	C10-C25	400	<u>U</u>	170	400	800	1	07/29/2024 15:56	WG2330419
(S) <i>o</i> -Terphenyl	84-15-1	121				50.0-150		07/29/2024 15:56	WG2330419

1 Cp

2 Tc

3 Ss

4 Cn

5 Ds

6 Sr

7 Qc

8 Gl

9 Al

10 Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	Big Blue	
Cooler Temperature	2.7	Deg. C

Volatile Organic Compounds (GC) by Method AK101

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	TPH C6-C10	61.7	<u>BJ</u>	10.0	50.0	100	1	07/21/2024 13:03	WG2327259
(S) a,a,a-Trifluorotoluene(FID)	98-08-8	90.2				50.0-150		07/21/2024 13:03	WG2327259

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
Benzene	71-43-2	0.500	<u>U</u>	0.0941	0.500	1.00	1	07/21/2024 01:45	WG2327118
Ethylbenzene	100-41-4	0.500	<u>U</u>	0.137	0.500	1.00	1	07/21/2024 01:45	WG2327118
Toluene	108-88-3	0.600	<u>U</u>	0.278	0.600	1.20	1	07/21/2024 01:45	WG2327118
Total Xylenes	1330-20-7	1.50	<u>U</u>	0.174	1.50	3.00	1	07/21/2024 01:45	WG2327118
(S) Toluene-d8	2037-26-5	106				89.0-112		07/21/2024 01:45	WG2327118
(S) 4-Bromofluorobenzene	460-00-4	98.7				85.0-114		07/21/2024 01:45	WG2327118
(S) 1,2-Dichloroethane-d4	17060-07-0	103				81.0-118		07/21/2024 01:45	WG2327118

1 Cp

2 Tc

3 Ss

4 Cn

5 Ds

6 Sr

7 Qc

8 Gl

9 Al

10 Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	Big Red	
Cooler Temperature	4.8	Deg. C

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Ds
- 6 Sr
- 7 Qc
- 8 Gl
- 9 Al
- 10 Sc

Volatile Organic Compounds (GC) by Method AK101

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	TPH C6-C10	618		10.0	50.0	100	1	07/21/2024 15:42	WG2327259
(S) a,a,a-Trifluorotoluene(FID)	98-08-8	91.1				50.0-150		07/21/2024 15:42	WG2327259

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
Benzene	71-43-2	40.5		0.0941	0.500	1.00	1	07/21/2024 06:19	WG2327118
Ethylbenzene	100-41-4	18.9		0.137	0.500	1.00	1	07/21/2024 06:19	WG2327118
Toluene	108-88-3	0.310	J	0.278	0.600	1.20	1	07/21/2024 06:19	WG2327118
Total Xylenes	1330-20-7	38.7		0.174	1.50	3.00	1	07/21/2024 06:19	WG2327118
(S) Toluene-d8	2037-26-5	93.4				89.0-112		07/21/2024 06:19	WG2327118
(S) 4-Bromofluorobenzene	460-00-4	104				85.0-114		07/21/2024 06:19	WG2327118
(S) 1,2-Dichloroethane-d4	17060-07-0	96.4				81.0-118		07/21/2024 06:19	WG2327118

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	C10-C25	11900		170	400	800	1	07/29/2024 16:16	WG2330419
AK103 RRO C25-C36	C25-C36	600	U	460	600	800	1	07/29/2024 16:16	WG2330419
(S) o-Terphenyl	84-15-1	120				50.0-150		07/29/2024 16:16	WG2330419
(S) n-Triacontane d62	93952-07-9	75.3				10.0-163		07/29/2024 16:16	WG2330419

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	Big Red	
Cooler Temperature	4.8	Deg. C

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Ds
- 6 Sr
- 7 Qc
- 8 Gl
- 9 Al
- 10 Sc

Volatile Organic Compounds (GC) by Method AK101

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	TPH C6-C10	37.4	<u>BJ</u>	10.0	50.0	100	1	07/21/2024 16:04	WG2327259
(S) a,a,a-Trifluorotoluene(FID)	98-08-8	85.9				50.0-150		07/21/2024 16:04	WG2327259

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
Benzene	71-43-2	0.500	<u>U</u>	0.0941	0.500	1.00	1	07/21/2024 06:41	WG2327118
Ethylbenzene	100-41-4	0.500	<u>U</u>	0.137	0.500	1.00	1	07/21/2024 06:41	WG2327118
Toluene	108-88-3	0.600	<u>U</u>	0.278	0.600	1.20	1	07/21/2024 06:41	WG2327118
Total Xylenes	1330-20-7	1.50	<u>U</u>	0.174	1.50	3.00	1	07/21/2024 06:41	WG2327118
(S) Toluene-d8	2037-26-5	103				89.0-112		07/21/2024 06:41	WG2327118
(S) 4-Bromofluorobenzene	460-00-4	104				85.0-114		07/21/2024 06:41	WG2327118
(S) 1,2-Dichloroethane-d4	17060-07-0	101				81.0-118		07/21/2024 06:41	WG2327118

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	C10-C25	178	<u>J</u>	170	400	800	1	07/29/2024 16:36	WG2330419
AK103 RRO C25-C36	C25-C36	600	<u>U</u>	460	600	800	1	07/29/2024 16:36	WG2330419
(S) o-Terphenyl	84-15-1	126				50.0-150		07/29/2024 16:36	WG2330419
(S) n-Triacontane d62	93952-07-9	121				10.0-163		07/29/2024 16:36	WG2330419

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	Big Red	
Cooler Temperature	4.2	Deg. C

Volatile Organic Compounds (GC) by Method AK101

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	TPH C6-C10	15.7	<u>BJ</u>	10.0	50.0	100	1	07/21/2024 16:27	WG2327259
(S) a,a,a-Trifluorotoluene(FID)	98-08-8	86.9				50.0-150		07/21/2024 16:27	WG2327259

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
Benzene	71-43-2	0.500	<u>U</u>	0.0941	0.500	1.00	1	07/21/2024 07:02	WG2327118
Ethylbenzene	100-41-4	0.500	<u>U</u>	0.137	0.500	1.00	1	07/21/2024 07:02	WG2327118
Toluene	108-88-3	0.600	<u>U</u>	0.278	0.600	1.20	1	07/21/2024 07:02	WG2327118
Total Xylenes	1330-20-7	1.50	<u>U</u>	0.174	1.50	3.00	1	07/21/2024 07:02	WG2327118
(S) Toluene-d8	2037-26-5	105				89.0-112		07/21/2024 07:02	WG2327118
(S) 4-Bromofluorobenzene	460-00-4	105				85.0-114		07/21/2024 07:02	WG2327118
(S) 1,2-Dichloroethane-d4	17060-07-0	99.4				81.0-118		07/21/2024 07:02	WG2327118

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	C10-C25	603	<u>J</u>	170	400	800	1	07/29/2024 18:44	WG2330419
AK103 RRO C25-C36	C25-C36	600	<u>U</u>	460	600	800	1	07/29/2024 18:44	WG2330419
(S) o-Terphenyl	84-15-1	122				50.0-150		07/29/2024 18:44	WG2330419
(S) n-Triacontane d62	93952-07-9	115				10.0-163		07/29/2024 18:44	WG2330419

1 Cp

2 Tc

3 Ss

4 Cn

5 Ds

6 Sr

7 Qc

8 Gl

9 Al

10 Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	Big Red	
Cooler Temperature	4.2	Deg. C

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Ds
- 6 Sr
- 7 Qc
- 8 Gl
- 9 Al
- 10 Sc

Volatile Organic Compounds (GC) by Method AK101

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	TPH C6-C10	15.9	<u>BJ</u>	10.0	50.0	100	1	07/21/2024 18:16	WG2327259
(S) a,a,a-Trifluorotoluene(FID)	98-08-8	90.4				50.0-150		07/21/2024 18:16	WG2327259

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
Benzene	71-43-2	0.500	<u>U</u>	0.0941	0.500	1.00	1	07/21/2024 07:23	WG2327118
Ethylbenzene	100-41-4	0.500	<u>U</u>	0.137	0.500	1.00	1	07/21/2024 07:23	WG2327118
Toluene	108-88-3	0.600	<u>U</u>	0.278	0.600	1.20	1	07/21/2024 07:23	WG2327118
Total Xylenes	1330-20-7	1.50	<u>U</u>	0.174	1.50	3.00	1	07/21/2024 07:23	WG2327118
(S) Toluene-d8	2037-26-5	103				89.0-112		07/21/2024 07:23	WG2327118
(S) 4-Bromofluorobenzene	460-00-4	103				85.0-114		07/21/2024 07:23	WG2327118
(S) 1,2-Dichloroethane-d4	17060-07-0	102				81.0-118		07/21/2024 07:23	WG2327118

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	C10-C25	400	<u>U</u>	170	400	800	1	07/29/2024 19:04	WG2330419
AK103 RRO C25-C36	C25-C36	600	<u>U</u>	460	600	800	1	07/29/2024 19:04	WG2330419
(S) o-Terphenyl	84-15-1	123				50.0-150		07/29/2024 19:04	WG2330419
(S) n-Triacontane d62	93952-07-9	123				10.0-163		07/29/2024 19:04	WG2330419

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	Big Red	
Cooler Temperature	4.2	Deg. C

Volatile Organic Compounds (GC) by Method AK101

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	TPH C6-C10	21.1	<u>BJ</u>	10.0	50.0	100	1	07/21/2024 14:11	WG2327259
(S) a,a,a-Trifluorotoluene(FID)	98-08-8	87.4				50.0-150		07/21/2024 14:11	WG2327259

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
Benzene	71-43-2	0.500	<u>U</u>	0.0941	0.500	1.00	1	07/21/2024 03:31	WG2327118
Ethylbenzene	100-41-4	0.500	<u>U</u>	0.137	0.500	1.00	1	07/21/2024 03:31	WG2327118
Toluene	108-88-3	0.600	<u>U</u>	0.278	0.600	1.20	1	07/21/2024 03:31	WG2327118
Total Xylenes	1330-20-7	1.50	<u>U</u>	0.174	1.50	3.00	1	07/21/2024 03:31	WG2327118
(S) Toluene-d8	2037-26-5	105				89.0-112		07/21/2024 03:31	WG2327118
(S) 4-Bromofluorobenzene	460-00-4	98.6				85.0-114		07/21/2024 03:31	WG2327118
(S) 1,2-Dichloroethane-d4	17060-07-0	104				81.0-118		07/21/2024 03:31	WG2327118

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	C10-C25	189	<u>J</u>	170	400	800	1	07/29/2024 19:25	WG2330419
AK103 RRO C25-C36	C25-C36	600	<u>U</u>	460	600	800	1	07/29/2024 19:25	WG2330419
(S) o-Terphenyl	84-15-1	112				50.0-150		07/29/2024 19:25	WG2330419
(S) n-Triacontane d62	93952-07-9	103				10.0-163		07/29/2024 19:25	WG2330419

1 Cp

2 Tc

3 Ss

4 Cn

5 Ds

6 Sr

7 Qc

8 Gl

9 Al

10 Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	Big Red	
Cooler Temperature	4.2	Deg. C

Volatile Organic Compounds (GC) by Method AK101

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	TPH C6-C10	38.5	<u>BJ</u>	10.0	50.0	100	1	07/21/2024 13:25	WG2327259
(S) a,a,a-Trifluorotoluene(FID)	98-08-8	91.1				50.0-150		07/21/2024 13:25	WG2327259

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis date / time	Batch
Benzene	71-43-2	0.500	<u>U</u>	0.0941	0.500	1.00	1	07/21/2024 02:06	WG2327118
Ethylbenzene	100-41-4	0.500	<u>U</u>	0.137	0.500	1.00	1	07/21/2024 02:06	WG2327118
Toluene	108-88-3	0.600	<u>U</u>	0.278	0.600	1.20	1	07/21/2024 02:06	WG2327118
Total Xylenes	1330-20-7	1.50	<u>U</u>	0.174	1.50	3.00	1	07/21/2024 02:06	WG2327118
(S) Toluene-d8	2037-26-5	105				89.0-112		07/21/2024 02:06	WG2327118
(S) 4-Bromofluorobenzene	460-00-4	96.3				85.0-114		07/21/2024 02:06	WG2327118
(S) 1,2-Dichloroethane-d4	17060-07-0	104				81.0-118		07/21/2024 02:06	WG2327118

1 Cp

2 Tc

3 Ss

4 Cn

5 Ds

6 Sr

7 Qc

8 Gl

9 Al

10 Sc

Method Blank (MB)

(MB) R4097059-1 07/22/24 14:38

Analyte	MB Result	MB Qualifier	MB DL	MB LOD	MB LOQ
	%		%	%	%
Total Solids	0.000			0.200	

¹Cp

²Tc

³Ss

L1758479-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1758479-02 07/22/24 14:38 • (DUP) R4097059-3 07/22/24 14:38

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	%	%		%		%
Total Solids	90.5	90.2	1	0.333		10

⁴Cn

⁵Ds

Laboratory Control Sample (LCS)

(LCS) R4097059-2 07/22/24 14:38

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	%	%	%	%	
Total Solids	50.0	50.0	100	90.0-110	

⁶Sr

⁷Qc

⁸Gl

⁹Al

¹⁰Sc

Method Blank (MB)

(MB) R4097359-1 07/23/24 08:16

Analyte	MB Result	MB Qualifier	MB DL	MB LOD	MB LOQ
	%		%	%	%
Total Solids	0.000			0.200	

L1758494-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1758494-05 07/23/24 08:16 • (DUP) R4097359-3 07/23/24 08:16

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	%	%		%		%
Total Solids	92.6	92.1	1	0.615		10

Laboratory Control Sample (LCS)

(LCS) R4097359-2 07/23/24 08:16

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	%	%	%	%	
Total Solids	50.0	50.0	100	90.0-110	

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Ds
- 6 Sr
- 7 Qc
- 8 Gl
- 9 Al
- 10 Sc

Method Blank (MB)

(MB) R4099336-3 07/21/24 12:09

Analyte	MB Result	MB Qualifier	MB DL	MB LOD	MB LOQ
TPHGAK C6 to C10	31.1	J	10.0	50.0	100
<i>(S)</i> a,a,a-Trifluorotoluene(FID)	87.1				60.0-120

1 Cp

2 Tc

3 Ss

4 Cn

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4099336-1 07/21/24 11:01 • (LCSD) R4099336-2 07/21/24 11:24

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
TPHGAK C6 to C10	5000	4560	4470	91.2	89.4	60.0-120			1.99	20
<i>(S)</i> a,a,a-Trifluorotoluene(FID)				109	107	60.0-120				

5 Ds

6 Sr

7 Qc

L1758483-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1758483-09 07/21/24 14:56 • (MS) R4099336-4 07/21/24 18:38 • (MSD) R4099336-5 07/21/24 19:01

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
TPHGAK C6 to C10	5000	232	3560	5670	66.6	109	1	70.0-130	J6	J3	45.7	20
<i>(S)</i> a,a,a-Trifluorotoluene(FID)					99.0	107		50.0-150				

8 Gl

9 Al

10 Sc

Method Blank (MB)

(MB) R4098521-3 07/20/24 23:44

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
Benzene	0.500	J5	0.0941	0.500	1.00
Ethylbenzene	0.500	J5	0.137	0.500	1.00
Toluene	0.600	J5	0.278	0.600	1.20
Total Xylenes	1.50	J5	0.174	1.50	3.00
(S) Toluene-d8	104				89.0-112
(S) 4-Bromofluorobenzene	101				85.0-114
(S) 1,2-Dichloroethane-d4	102				81.0-118

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4098521-1 07/20/24 22:41 • (LCSD) R4098521-2 07/20/24 23:02

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	5.00	4.64	4.71	92.8	94.2	79.0-120			1.50	20
Ethylbenzene	5.00	4.26	4.49	85.2	89.8	79.0-121			5.26	20
Toluene	5.00	4.37	4.48	87.4	89.6	80.0-121			2.49	20
Total Xylenes	15.0	12.9	13.4	86.0	89.3	79.0-121			3.80	20
(S) Toluene-d8				105	105	89.0-112				
(S) 4-Bromofluorobenzene				103	104	85.0-114				
(S) 1,2-Dichloroethane-d4				102	102	81.0-118				

L1758483-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1758483-09 07/21/24 05:37 • (MS) R4098521-4 07/21/24 08:05 • (MSD) R4098521-5 07/21/24 08:26

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	5.00	0.500	6.48	6.18	130	124	1	79.0-120	J5	J5	4.74	20
Ethylbenzene	5.00	1.02	6.62	6.72	112	114	1	79.0-121			1.50	20
Toluene	5.00	0.600	5.47	5.36	109	107	1	80.0-121			2.03	20
Total Xylenes	15.0	1.64	18.4	18.4	112	112	1	79.0-121			0.000	20
(S) Toluene-d8					96.6	97.2		89.0-112				
(S) 4-Bromofluorobenzene					99.1	100		85.0-114				
(S) 1,2-Dichloroethane-d4					103	100		81.0-118				



Method Blank (MB)

(MB) R4099913-1 07/29/24 08:48

Analyte	MB Result	MB Qualifier	MB DL	MB LOD	MB LOQ
	ug/l		ug/l	ug/l	ug/l
AK102 DRO C10-C25	400	U	170	400	800
AK103 RRO C25-C36	600	U	460	600	800
(S) o-Terphenyl	142	U			60.0-120
(S) n-Triacontane d62	127				10.0-163

1 Cp

2 Tc

3 Ss

4 Cn

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4099913-2 07/29/24 09:08 • (LCSD) R4099913-3 07/29/24 09:28

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
AK102 DRO C10-C25	6000	5980	6020	99.7	100	75.0-125			0.667	20
(S) o-Terphenyl				114	108	60.0-120				

5 Ds

6 Sr

7 Qc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4099913-4 07/29/24 09:49 • (LCSD) R4099913-5 07/29/24 10:09

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
AK103 RRO C25-C36	6000	6410	6550	107	109	21.0-158			2.16	24
(S) n-Triacontane d62				137	134	10.0-163				

8 Gl

9 Al

10 Sc

L1757053-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1757053-02 07/29/24 12:10 • (MS) R4099913-6 07/29/24 12:30 • (MSD) R4099913-7 07/29/24 12:50

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
AK102 DRO C10-C25	5460	400	4440	4780	81.3	83.6	1	75.0-125			7.38	20
(S) o-Terphenyl					72.3	74.2		50.0-150				

L1758483-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

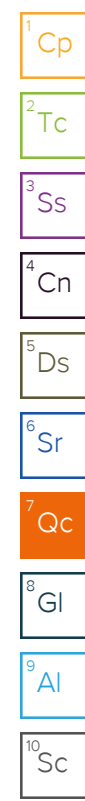
(OS) L1758483-09 07/29/24 14:35 • (MS) R4099913-8 07/29/24 14:55 • (MSD) R4099913-9 07/29/24 15:15

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
AK102 DRO C10-C25	5460	1310	5790	6720	82.1	90.2	1	75.0-125			14.9	20
(S) o-Terphenyl					107	107		50.0-150				

Method Blank (MB)

(MB) R4099913-1 07/29/24 08:48

Analyte	MB Result	MB Qualifier	MB DL	MB LOD	MB LOQ
	ug/l		ug/l	ug/l	ug/l
AK102 DRO C10-C25	400	U	170	400	800
AK103 RRO C25-C36	600	U	460	600	800
(S) o-Terphenyl	142	U			60.0-120
(S) n-Triacontane d62	127				10.0-163



Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4099913-2 07/29/24 09:08 • (LCSD) R4099913-3 07/29/24 09:28

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
AK102 DRO C10-C25	6000	5980	6020	99.7	100	75.0-125			0.667	20
(S) o-Terphenyl				114	108	60.0-120				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4099913-4 07/29/24 09:49 • (LCSD) R4099913-5 07/29/24 10:09

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
AK103 RRO C25-C36	6000	6410	6550	107	109	21.0-158			2.16	24
(S) n-Triacontane d62				137	134	10.0-163				

L1757053-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1757053-02 07/29/24 12:10 • (MS) R4099913-6 07/29/24 12:30 • (MSD) R4099913-7 07/29/24 12:50

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
AK102 DRO C10-C25	5460	400	4440	4780	81.3	83.6	1	75.0-125			7.38	20
(S) o-Terphenyl					72.3	74.2		50.0-150				

L1758483-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1758483-09 07/29/24 14:35 • (MS) R4099913-8 07/29/24 14:55 • (MSD) R4099913-9 07/29/24 15:15

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
AK102 DRO C10-C25	5460	1310	5790	6720	82.1	90.2	1	75.0-125			14.9	20
(S) o-Terphenyl					107	107		50.0-150				

Method Blank (MB)

(MB) R4099913-1 07/29/24 08:48

Analyte	MB Result	MB Qualifier	MB DL	MB LOD	MB LOQ
AK102 DRO C10-C25	400	U	170	400	800
AK103 RRO C25-C36	600	U	460	600	800
(S) o-Terphenyl	142	U			60.0-120
(S) n-Triacontane d62	127				10.0-163

1 Cp

2 Tc

3 Ss

4 Cn

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4099913-2 07/29/24 09:08 • (LCSD) R4099913-3 07/29/24 09:28

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
AK102 DRO C10-C25	6000	5980	6020	99.7	100	75.0-125			0.667	20
(S) o-Terphenyl				114	108	60.0-120				

5 Ds

6 Sr

7 Qc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4099913-4 07/29/24 09:49 • (LCSD) R4099913-5 07/29/24 10:09

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
AK103 RRO C25-C36	6000	6410	6550	107	109	21.0-158			2.16	24
(S) n-Triacontane d62				137	134	10.0-163				

8 Gl

9 Al

10 Sc

L1757053-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1757053-02 07/29/24 12:10 • (MS) R4099913-6 07/29/24 12:30 • (MSD) R4099913-7 07/29/24 12:50

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
AK102 DRO C10-C25	5460	400	4440	4780	81.3	83.6	1	75.0-125			7.38	20
(S) o-Terphenyl					72.3	74.2		50.0-150				

L1758483-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1758483-09 07/29/24 14:35 • (MS) R4099913-8 07/29/24 14:55 • (MSD) R4099913-9 07/29/24 15:15

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
AK102 DRO C10-C25	5460	1310	5790	6720	82.1	90.2	1	75.0-125			14.9	20
(S) o-Terphenyl					107	107		50.0-150				

Method Blank (MB)

(MB) R4099952-1 07/29/24 10:06

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
PCB 1016	0.750	IC	0.270	0.750	1.50
PCB 1221	0.750	IC	0.270	0.750	1.50
PCB 1232	0.750	IC	0.270	0.750	1.50
PCB 1242	0.750	IC	0.270	0.750	1.50
PCB 1248	0.500	IC	0.173	0.500	1.00
PCB 1254	0.500	IC	0.173	0.500	1.00
PCB 1260	0.500	IC	0.173	0.500	1.00
PCB 1262	0.500	IC	0.173	0.500	1.00
PCB 1268	0.500	IC	0.173	0.500	1.00
Total PCBs	0.500	IC	0.173	0.500	1.00
(S) Decachlorobiphenyl	45.4				10.0-156
(S) Tetrachloro-m-xylene	48.1				44.0-124

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Ds

⁶ Sr

⁷ Qc

Laboratory Control Sample (LCS)

(LCS) R4099952-2 07/29/24 10:15

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
PCB 1016	2.50	2.04	81.6	46.0-129	
PCB 1260	2.50	2.03	81.2	45.0-134	
(S) Decachlorobiphenyl			51.5	10.0-156	
(S) Tetrachloro-m-xylene			59.3	44.0-124	

⁸ Gl

⁹ Al

¹⁰ Sc

L1758483-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1758483-06 07/29/24 12:54 • (MS) R4099952-3 07/29/24 13:03 • (MSD) R4099952-4 07/29/24 13:12

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
PCB 1016	2.45	0.750	1.68	1.91	68.6	79.3	1	46.0-129			12.8	30
PCB 1260	2.45	0.500	1.50	1.84	61.2	76.3	1	45.0-134			20.4	30
(S) Decachlorobiphenyl					47.0	57.8		10.0-156				
(S) Tetrachloro-m-xylene					55.5	64.4		44.0-124				

Method Blank (MB)

(MB) R4102287-1 08/02/24 16:23

Analyte	MB Result mg/kg	MB Qualifier	MB DL mg/kg	MB LOD mg/kg	MB LOQ mg/kg
PCB 1016	0.0250	IC	0.0118	0.0250	0.0500
PCB 1221	0.0250	IC	0.0118	0.0250	0.0500
PCB 1232	0.0250	IC	0.0118	0.0250	0.0500
PCB 1242	0.0250	IC	0.0118	0.0250	0.0500
PCB 1248	0.0150	IC	0.00738	0.0150	0.0300
PCB 1254	0.0150	IC	0.00738	0.0150	0.0300
PCB 1260	0.0150	IC	0.00738	0.0150	0.0300
PCB 1262	0.0150	IC	0.00738	0.0150	0.0300
PCB 1268	0.0150	IC	0.00738	0.0150	0.0300
Total PCBs	0.0150	IC	0.00738	0.0150	0.0300
<i>(S) Decachlorobiphenyl</i>	83.8				10.0-143
<i>(S) Tetrachloro-m-xylene</i>	93.1				42.0-129

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Ds
- 6 Sr
- 7 Qc
- 8 Gl
- 9 Al
- 10 Sc

Laboratory Control Sample (LCS)

(LCS) R4102287-2 08/02/24 16:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
PCB 1016	0.167	0.170	102	47.0-134	
PCB 1260	0.167	0.161	96.4	53.0-140	
<i>(S) Decachlorobiphenyl</i>			89.3	10.0-143	
<i>(S) Tetrachloro-m-xylene</i>			99.8	42.0-129	

Method Blank (MB)

(MB) R4103683-1 08/07/24 05:08

Analyte	MB Result mg/kg	MB Qualifier	MB DL mg/kg	MB LOD mg/kg	MB LOQ mg/kg
PCB 1016	0.0250	IC	0.0118	0.0250	0.0500
PCB 1221	0.0250	IC	0.0118	0.0250	0.0500
PCB 1232	0.0250	IC	0.0118	0.0250	0.0500
PCB 1242	0.0250	IC	0.0118	0.0250	0.0500
PCB 1248	0.0150	IC	0.00738	0.0150	0.0300
PCB 1254	0.0150	IC	0.00738	0.0150	0.0300
PCB 1260	0.0150	IC	0.00738	0.0150	0.0300
PCB 1262	0.0150	IC	0.00738	0.0150	0.0300
PCB 1268	0.0150	IC	0.00738	0.0150	0.0300
Total PCBs	0.0150	IC	0.00738	0.0150	0.0300
(S) Decachlorobiphenyl	74.0				10.0-143
(S) Tetrachloro-m-xylene	82.6				42.0-129

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Ds

⁶ Sr

⁷ Qc

Laboratory Control Sample (LCS)

(LCS) R4103683-2 08/07/24 05:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
PCB 1016	0.167	0.0999	59.8	47.0-134	
PCB 1260	0.167	0.104	62.3	53.0-140	
(S) Decachlorobiphenyl			55.6	10.0-143	
(S) Tetrachloro-m-xylene			59.0	42.0-129	

⁸ Gl

⁹ Al

¹⁰ Sc

L1758483-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1758483-04 08/07/24 11:13 • (MS) R4103683-3 08/07/24 11:25 • (MSD) R4103683-4 08/07/24 11:37

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
PCB 1016	0.338	0.0538	0.258	0.342	76.4	98.1	1	47.0-134			28.0	30
PCB 1260	0.338	0.0323	0.269	0.359	79.6	103	1	53.0-140			28.8	30
(S) Decachlorobiphenyl					52.1	87.2		10.0-143				
(S) Tetrachloro-m-xylene					62.5	88.8		42.0-129				

Sample Narrative:

OS: Duplicate Analysis performed due to QC failure. Reporting most compliant data.

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
DL	Detection Limit.
DL (dry)	Detection Limit.
LOD (dry)	Limit of Detection.
LOD	Limit of Detection.
LOQ	Limit of Quantitation.
LOQ (dry)	Limit of Quantitation.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
U	Below Detectable Limits: Indicates that the analyte was not detected.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Ds

⁶ Sr

⁷ Qc

⁸ Gl

⁹ Al

¹⁰ Sc

Company Name/Address:
North Wind Site Services, LLC- AK
 7910 King Street 2525 CST Ste. 130
 Anchorage, AK 99518-03

Billing Information:
 Accounts Payable
 1425 Higham St
 Idaho Falls, ID 83402

Analysis / Container / Preservative

Chain of Custody Page 1 of 2

Report to:
North Wind

Email To:
 rlafata@northwindgrp.com; jlljones@northwin

Project Description:
Cape Romanoff LPRS

City/State Collected:
Cape Romanoff, AK

Please Circle:
 PT MT CT ET

Pace
 PEOPLE ADVANCING SCIENCE
MT JULIET, TN
 12065 Lebanon Rd Mount Juliet, TN 37122
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at:
<https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

Phone: **907-277-5488**
907-602-3082

Client Project #
060068

Lab Project #
NORWINDAAK-CAPEROMAN

DODSV8082 4ozClr-NoPres

SDG # **L1750483**
A053

Collected by (print):
Aronson, Caleb

Site/Facility ID #

P.O. #
6-00001098

DODTS 4ozClr-NoPres

Acctnum: **NORWINDAAK**

Collected by (signature):
Caleb Aronson

Rush? (Lab MUST Be Notified)
 Same Day Five Day
 Next Day 5 Day (Rad Only)
 Two Day 10 Day (Rad Only)
 Three Day

Quote #
 Date Results Needed

No. of Cntrs

Template: **T254738**
 Prelogin: **P1082041**
 PM: **546 - Jared Starkey**
 PB: **LU 6/12/24**

Immediately Packed on Ice N Y

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs		Remarks	Sample # (lab only)
LF003-S01-071524	Grab	SS		7/15/2024	1045	1	X X	CA	-01
LF003-S02-071524	Grab	SS		7/15/2024	1012	1	X X	CA	-02
LF003-S03-071524	Grab	SS		7/15/2024	1110	1	X X	CA	-03
LF003-S04-071524	Grab	SS		7/15/2024	1030	3	X X	CA	+MS/MSD -04
LF003-S099-071524	Grab	SS		7/15/2024	1115	1	X X	CA	-05
		SS							
		SS							
		SS							
		SS							
		SS							

* Matrix:
 SS - Soil AIR - Air F - Filter
 GW - Groundwater B - Bioassay
 WW - WasteWater
 DW - Drinking Water
 OT - Other

Remarks: **NPDL #: 21-035**
Cooler ID: "BABY BLUE"

pH _____ Temp _____
 Flow _____ Other _____

Sample Receipt Checklist	
COC Seal Present/Intact:	<input checked="" type="checkbox"/> NP <input type="checkbox"/> N
COC Signed/Accurate:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Bottles arrive intact:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Correct bottles used:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Sufficient volume sent:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
If Applicable	
VOA Zero Headspace:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Preservation Correct/Checked:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
RAD Screen <0.5 mR/hr:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N

Relinquished by: (Signature)
Caleb Aronson

Date: **7/15/2024**
 Time: **1800**

Received by: (Signature)
Renee Lefter

Trip Blank Received: Yes/No
0
 HCL/MeOH TBR

Relinquished by: (Signature)
Renee Lefter

Date: **7/18/2024**
 Time: **0940**

Received by: (Signature)

Temp: **18.00** °C
 Bottles Received: **15**

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date: **07-19-24**
 Time: **0900**

Received for lab by: (Signature)

Date: **07-19-24**
 Time: **0900**

Hold: Condition: **OK**

Company Name/Address:
North Wind Site Services, LLC- AK
 7910 King Street 2525 C St Ste. 130
 Anchorage, AK 99518-03

Billing Information:
 Accounts Payable
 1425 Higham St
 Idaho Falls, ID 83402

Analysis / Container / Preservative

Pres Chk									
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MT JULIET, TN
 12065 Lebanon Rd Mount Juliet, TN 37122
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubfs/pas-standard-terms.pdf>

Report to:
North Wind

Email To:
 rlafata@northwindgrp.com; jill.jones@northwind.com

Project Description:
Cape Romanof LRS

City/State Collected:
Cape Romanof, AK

Please Circle:
 PT MT CT ET

Phone: **907-277-5488**
907-602-3082

Client Project #
060068

Lab Project #
NORWINDAAK-CAPEROMAN

Collected by (print):
Aronson, Caleb

Site/Facility ID #

P.O. #
6-00001098

Collected by (signature):
Caleb Aronson

Rush? (Lab MUST Be Notified)
 Same Day Five Day
 Next Day 5 Day (Rad Only)
 Two Day 10 Day (Rad Only)
 Three Day

Quote #

Immediately Packed on Ice N Y

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
-----------	-----------	----------	-------	------	------	--------------

LF003-SW03-071524	Grab	GW		7/15/2024	1100	6 X
LF003-SW99-071524	Grab	GW		7/15/2024	1130	2 X
		GW				
		GW				
		GW				
		GW				
		GW				

DOD8082AK 100ml Amb-NoPres						
DODAK101 40ml Amb HCl						
DODAK102 100ml Amb HCl						
DODAK102/103 100ml Amb HCl						
DODV82608TEX 40ml Amb-HCl						

SDG # *L758483*

Table #

Acctnum: **NORWINDAAK**

Template: **T254739**

Prelogin: **P1082044**

PM: **546 - Jared Starkey**

PB: *LM 6/12/24*

Shipped Via:

Remarks	Sample # (lab only)
<i>trms/MSD</i>	<i>-06</i>
	<i>-07</i>

* Matrix:
 SS - Soil AIR - Air F - Filter
 GW - Groundwater B - Bioassay
 WW - WasteWater
 DW - Drinking Water
 OT - Other

Remarks: **NPDL #: 21-035**
Cooler ID: "BABY BLUE"

pH _____ Temp _____
 Flow _____ Other _____

Samples returned via:
 UPS FedEx Courier

Tracking #

Sample Receipt Checklist

COC Seal Present/Intact: NP N

COC Signed/Accurate: N

Bottles arrive intact: N

Correct bottles used: N

Sufficient volume sent: N

If Applicable

VOA Zero HeadSpace: N

Preservation Correct/Checked: N

RAD Screen <0.5 mR/hr: N

Relinquished by: (Signature)
Caleb Aronson

Date: *7/15/2024*
 Time: *1800*

Received by: (Signature)
Renee Lafata

Trip Blank Received: Yes/No
0 HCL/MeoH TBR

Relinquished by: (Signature)
Renee Lafata

Date: *7/18/2024*
 Time: *0940*

Received by: (Signature)

Temp: *1.8003=2.1*
 Bottles Received: *13*

If preservation required by Login: Date/Time


Relinquished by: (Signature)

Date: *07-19-24*
 Time: *0900*

Received for lab by: (Signature)

Date: *07-19-24*
 Time: *0900*

Hold: Condition: **NCF / (OK)**

Company Name/Address: North Wind Site Services, LLC- AK 7910 King Street 2525 C St. Ste. 130 Anchorage, AK 99518-03		Billing Information: Accounts Payable 1425 Higham St Idaho Falls, ID 83402		Pres Chk	Analysis / Container / Preservative										Chain of Custody Page 1 of 1				
Report to: North Wind		Email To: rlafata@northwindgrp.com, jill.jones@northwin				X		X	X							 MT JULIET, TN 12065 Lebanon Rd. Mount Juliet, TN 37122 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubs/pas-standard-terms.pdf			
Project Description: <i>Cape Romanzof, AK</i>		City/State Collected: <i>Cape Romanzof, AK</i>																	
Phone: 907-277-5488 <i>907-602-3082</i>		Client Project # <i>060068</i>		Lab Project # NORWINDAAK-CAPEROMAN		P.O. # 6-00001098		Quote #		Date Results Needed		No. of Cntrs		SDG # <i>U758483</i> A055		Acctnum: NORWINDAAK			
Collected by (print): <i>Caleb Aronson</i>		Site/Facility ID #		Rush? (Lab MUST Be Notified)		Date Results Needed										Template: T254739			
Collected by (signature): <i>Caleb Aronson</i>		Same Day <input type="checkbox"/> Five Day <input type="checkbox"/>		Next Day <input type="checkbox"/> 5 Day (Rad Only) <input type="checkbox"/>		Two Day <input type="checkbox"/> 10 Day (Rad Only) <input type="checkbox"/>		Three Day <input type="checkbox"/>								Prelogin: P1082044			
Immediately Packed on Ice N <input type="checkbox"/> Y <input checked="" type="checkbox"/>																PM: 546 - Jared Starkey			
Sample ID		Comp/Grab	Matrix *	Depth	Date	Time											PB: <i>LM 6/12/24</i>		
																	Shipped Via:		
																	Remarks	Sample # (lab only)	
<i>SS015-WW01-071324</i>		<i>Grab</i>	<i>GW</i>		<i>7/13/2024</i>	<i>1500</i>	<i>8</i>		X	X	X							<i>-13</i>	
<i>SS015-WW05-071324</i>		<i>Grab</i>	<i>GW</i>		<i>7/13/2024</i>	<i>1400</i>	<i>8</i>		X	X	X							<i>-14</i>	
<i>SS015-WW06-071324</i>		<i>Grab</i>	<i>GW</i>		<i>7/13/2024</i>	<i>1145</i>	<i>8</i>		X	X	X							<i>-15</i>	
<i>SS015-WW99-071324</i>		<i>Grab</i>	<i>GW</i>		<i>7/13/2024</i>	<i>1630</i>	<i>8</i>		X	X	X							<i>-16</i>	
<i>SS015-EB-071324</i>		<i>Grab</i>	<i>GW</i>		<i>7/13/2024</i>	<i>0800</i>	<i>8</i>		X	X	X							<i>-17</i>	
<i>SS015-TB-071324</i>		<i>Grab</i>	<i>GW</i>		<i>7/13/2024</i>	<i>0800</i>	<i>2</i>		X		X							<i>-18</i>	
			<i>GW</i>																
			<i>GW</i>																
			<i>GW</i>																
			<i>GW</i>																
* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater DW - Drinking Water OT - Other		Remarks: <i>UPDL #: 21-035</i> <i>Cooler ID: "BIG RED"</i>		pH _____ Temp _____		Flow _____ Other _____		Samples returned via: UPS FedEx Courier		Tracking # <i>7315 3203 0024</i>		Trip Blank Received: Yes/No <i>2</i> MeOH TBR		Bottles Received: <i>4318.3=43 42</i>		If preservation required by Login: Date/Time		RAD Screen <0.5 mR/hr: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	
Relinquished by: (Signature) <i>Caleb Aronson</i>		Date: <i>7/15/2024</i>	Time: <i>1800</i>	Received by: (Signature) <i>Renee Lefta</i>		Trip Blank Received: Yes/No <i>2</i> MeOH TBR		Bottles Received: <i>4318.3=43 42</i>		If preservation required by Login: Date/Time		RAD Screen <0.5 mR/hr: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N							
Relinquished by: (Signature) <i>Renee Lefta</i>		Date: <i>7/18/2024</i>	Time: <i>1017</i>	Received by: (Signature)		Temp: °C <i>4318.3=43 42</i>		Bottles Received: <i>42</i>		If preservation required by Login: Date/Time									
Relinquished by: (Signature)		Date:	Time:	Received for lab by: (Signature) <i>[Signature]</i>		Date: <i>07-19-24</i>	Time: <i>1900</i>	Hold:		Condition: NCF / <input checked="" type="checkbox"/> OK									

Appendix F. Mann-Kendall Trend Analysis Input File

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Well ID	Date	Constituent	Code	Well-Constituent	Result	d_result	Units
ST009-MW04	06/01/2004	Benzene	BZ	ST009-MW04-BZ	5.96	1	µg/L
ST009-MW07	06/01/2004	Benzene	BZ	ST009-MW07-BZ	0.5	0	µg/L
ST009-MW09	06/01/2004	Benzene	BZ	ST009-MW09-BZ	0.402	1	µg/L
ST009-MW04	06/01/2006	Benzene	BZ	ST009-MW04-BZ	0.65	1	µg/L
ST009-MW07	06/01/2006	Benzene	BZ	ST009-MW07-BZ	0.5	0	µg/L
ST009-MW09	06/01/2006	Benzene	BZ	ST009-MW09-BZ	0.18	1	µg/L
ST009-MW04	06/01/2007	Benzene	BZ	ST009-MW04-BZ	0.5	0	µg/L
ST009-MW07	06/01/2007	Benzene	BZ	ST009-MW07-BZ	0.185	1	µg/L
ST009-MW09	06/01/2007	Benzene	BZ	ST009-MW09-BZ	1.98	1	µg/L
ST009-MW04	06/01/2008	Benzene	BZ	ST009-MW04-BZ	0.12	0	µg/L
ST009-MW07	06/01/2008	Benzene	BZ	ST009-MW07-BZ	0.12	0	µg/L
ST009-MW09	06/01/2008	Benzene	BZ	ST009-MW09-BZ	0.12	0	µg/L
ST009-MW04	06/01/2009	Benzene	BZ	ST009-MW04-BZ	0.15	0	µg/L
ST009-MW07	06/01/2009	Benzene	BZ	ST009-MW07-BZ	0.15	0	µg/L
ST009-MW09	06/01/2009	Benzene	BZ	ST009-MW09-BZ	0.15	0	µg/L
ST009-MW04	06/01/2012	Benzene	BZ	ST009-MW04-BZ	0.15	0	µg/L
ST009-MW07	06/01/2012	Benzene	BZ	ST009-MW07-BZ	0.15	0	µg/L
ST009-MW04	06/01/2013	Benzene	BZ	ST009-MW04-BZ	0.24	0	µg/L
ST009-MW07	06/01/2013	Benzene	BZ	ST009-MW07-BZ	0.24	0	µg/L
ST009-MW09	06/01/2013	Benzene	BZ	ST009-MW09-BZ	0.24	0	µg/L
SS015-WW01	06/01/2014	Benzene	BZ	SS015-WW01-BZ	2.21	1	µg/L
SS015-WW05	06/01/2014	Benzene	BZ	SS015-WW05-BZ	0.2	0	µg/L
SS015-WW06	06/01/2014	Benzene	BZ	SS015-WW06-BZ	0.2	0	µg/L
ST009-MW04	06/01/2014	Benzene	BZ	ST009-MW04-BZ	0.2	0	µg/L
ST009-MW07	06/01/2014	Benzene	BZ	ST009-MW07-BZ	0.2	0	µg/L
ST009-MW09	06/01/2014	Benzene	BZ	ST009-MW09-BZ	0.2	0	µg/L
SS015-WW01	06/01/2015	Benzene	BZ	SS015-WW01-BZ	87.6	1	µg/L
SS015-WW05	06/01/2015	Benzene	BZ	SS015-WW05-BZ	3.51	1	µg/L
SS015-WW06	06/01/2015	Benzene	BZ	SS015-WW06-BZ	0.2	0	µg/L
ST009-MW04	06/01/2015	Benzene	BZ	ST009-MW04-BZ	0.2	0	µg/L
ST009-MW07	06/01/2015	Benzene	BZ	ST009-MW07-BZ	0.2	0	µg/L
ST009-MW09	06/01/2015	Benzene	BZ	ST009-MW09-BZ	0.2	0	µg/L
SS015-WW01	06/01/2016	Benzene	BZ	SS015-WW01-BZ	70	1	µg/L
SS015-WW05	06/01/2016	Benzene	BZ	SS015-WW05-BZ	67	1	µg/L
SS015-WW01	06/01/2017	Benzene	BZ	SS015-WW01-BZ	56.7	1	µg/L
SS015-WW05	06/01/2017	Benzene	BZ	SS015-WW05-BZ	66.6	1	µg/L
SS015-WW06	06/01/2017	Benzene	BZ	SS015-WW06-BZ	0.2	0	µg/L
ST009-MW04	06/01/2017	Benzene	BZ	ST009-MW04-BZ	0.2	0	µg/L
ST009-MW07	06/01/2017	Benzene	BZ	ST009-MW07-BZ	0.2	0	µg/L
ST009-MW09	06/01/2017	Benzene	BZ	ST009-MW09-BZ	0.2	0	µg/L
SS015-WW01	06/01/2019	Benzene	BZ	SS015-WW01-BZ	9.3	1	µg/L
SS015-WW05	06/01/2019	Benzene	BZ	SS015-WW05-BZ	46	1	µg/L
SS015-WW06	06/01/2019	Benzene	BZ	SS015-WW06-BZ	2	0	µg/L
ST009-MW04	06/01/2019	Benzene	BZ	ST009-MW04-BZ	2	0	µg/L
ST009-MW07	06/01/2019	Benzene	BZ	ST009-MW07-BZ	2	0	µg/L
ST009-MW09	06/01/2019	Benzene	BZ	ST009-MW09-BZ	2	0	µg/L
SS015-WW01	06/01/2020	Benzene	BZ	SS015-WW01-BZ	12.5	1	µg/L
SS015-WW05	06/01/2020	Benzene	BZ	SS015-WW05-BZ	0.5	0	µg/L
SS015-WW06	06/01/2020	Benzene	BZ	SS015-WW06-BZ	0.5	0	µg/L
ST009-MW04	06/01/2020	Benzene	BZ	ST009-MW04-BZ	0.5	0	µg/L
ST009-MW07	06/01/2020	Benzene	BZ	ST009-MW07-BZ	0.5	0	µg/L
ST009-MW09	06/01/2020	Benzene	BZ	ST009-MW09-BZ	0.5	0	µg/L
SS015-WW01	06/01/2021	Benzene	BZ	SS015-WW01-BZ	15.5	1	µg/L
SS015-WW05	06/01/2021	Benzene	BZ	SS015-WW05-BZ	50	1	µg/L
SS015-WW06	06/01/2021	Benzene	BZ	SS015-WW06-BZ	0.5	0	µg/L
ST009-MW04	06/01/2021	Benzene	BZ	ST009-MW04-BZ	0.5	0	µg/L
ST009-MW07	06/01/2021	Benzene	BZ	ST009-MW07-BZ	0.5	0	µg/L
ST009-MW09	06/01/2021	Benzene	BZ	ST009-MW09-BZ	0.5	0	µg/L
SS015-WW01	06/01/2022	Benzene	BZ	SS015-WW01-BZ	5.12	1	µg/L
SS015-WW05	06/01/2022	Benzene	BZ	SS015-WW05-BZ	55.5	1	µg/L
SS015-WW06	06/01/2022	Benzene	BZ	SS015-WW06-BZ	0.5	0	µg/L
ST009-MW04	06/01/2022	Benzene	BZ	ST009-MW04-BZ	0.5	0	µg/L
ST009-MW07	06/01/2022	Benzene	BZ	ST009-MW07-BZ	0.5	0	µg/L
ST009-MW09	06/01/2022	Benzene	BZ	ST009-MW09-BZ	0.134	1	µg/L
SS015-WW01	06/01/2023	Benzene	BZ	SS015-WW01-BZ	1.08	1	µg/L
SS015-WW05	06/01/2023	Benzene	BZ	SS015-WW05-BZ	47.8	1	µg/L
SS015-WW06	06/01/2023	Benzene	BZ	SS015-WW06-BZ	0.5	0	µg/L
ST009-MW04	06/01/2023	Benzene	BZ	ST009-MW04-BZ	0.5	0	µg/L
ST009-MW07	06/01/2023	Benzene	BZ	ST009-MW07-BZ	0.5	0	µg/L
ST009-MW09	06/01/2023	Benzene	BZ	ST009-MW09-BZ	0.5	0	µg/L
ST009-MW04	06/01/2004	DRO	DRO	ST009-MW04-DRO	136000	1	µg/L
ST009-MW07	06/01/2004	DRO	DRO	ST009-MW07-DRO	3090	1	µg/L
ST009-MW09	06/01/2004	DRO	DRO	ST009-MW09-DRO	4140	1	µg/L
ST009-MW04	06/01/2006	DRO	DRO	ST009-MW04-DRO	13700	1	µg/L
ST009-MW07	06/01/2006	DRO	DRO	ST009-MW07-DRO	1350	1	µg/L

Well ID	Date	Constituent	Code	Well-Constituent	Result	d_result	Units
ST009-MW09	06/01/2006	DRO	DRO	ST009-MW09-DRO	2240	1	µg/L
ST009-MW04	06/01/2007	DRO	DRO	ST009-MW04-DRO	5900	1	µg/L
ST009-MW07	06/01/2007	DRO	DRO	ST009-MW07-DRO	4440	1	µg/L
ST009-MW09	06/01/2007	DRO	DRO	ST009-MW09-DRO	2860	1	µg/L
ST009-MW04	06/01/2008	DRO	DRO	ST009-MW04-DRO	40000	1	µg/L
ST009-MW07	06/01/2008	DRO	DRO	ST009-MW07-DRO	2100	1	µg/L
ST009-MW09	06/01/2008	DRO	DRO	ST009-MW09-DRO	1400	1	µg/L
ST009-MW04	06/01/2009	DRO	DRO	ST009-MW04-DRO	1140	1	µg/L
ST009-MW07	06/01/2009	DRO	DRO	ST009-MW07-DRO	3030	1	µg/L
ST009-MW09	06/01/2009	DRO	DRO	ST009-MW09-DRO	1150	1	µg/L
ST009-MW04	06/01/2012	DRO	DRO	ST009-MW04-DRO	2400	1	µg/L
ST009-MW07	06/01/2012	DRO	DRO	ST009-MW07-DRO	6400	1	µg/L
ST009-MW04	06/01/2013	DRO	DRO	ST009-MW04-DRO	1280	1	µg/L
ST009-MW07	06/01/2013	DRO	DRO	ST009-MW07-DRO	2760	1	µg/L
ST009-MW09	06/01/2013	DRO	DRO	ST009-MW09-DRO	1460	1	µg/L
SS015-WW01	06/01/2014	DRO	DRO	SS015-WW01-DRO	3160	1	µg/L
SS015-WW05	06/01/2014	DRO	DRO	SS015-WW05-DRO	418	1	µg/L
SS015-WW06	06/01/2014	DRO	DRO	SS015-WW06-DRO	1560	1	µg/L
ST009-MW04	06/01/2014	DRO	DRO	ST009-MW04-DRO	1210	1	µg/L
ST009-MW07	06/01/2014	DRO	DRO	ST009-MW07-DRO	2870	1	µg/L
ST009-MW09	06/01/2014	DRO	DRO	ST009-MW09-DRO	1040	1	µg/L
SS015-WW01	06/01/2015	DRO	DRO	SS015-WW01-DRO	19700	1	µg/L
SS015-WW05	06/01/2015	DRO	DRO	SS015-WW05-DRO	887	1	µg/L
SS015-WW06	06/01/2015	DRO	DRO	SS015-WW06-DRO	421	1	µg/L
ST009-MW04	06/01/2015	DRO	DRO	ST009-MW04-DRO	5440	1	µg/L
ST009-MW07	06/01/2015	DRO	DRO	ST009-MW07-DRO	2580	1	µg/L
ST009-MW09	06/01/2015	DRO	DRO	ST009-MW09-DRO	3480	1	µg/L
SS015-WW01	06/01/2016	DRO	DRO	SS015-WW01-DRO	12000	1	µg/L
SS015-WW05	06/01/2016	DRO	DRO	SS015-WW05-DRO	2300	1	µg/L
SS015-WW06	06/01/2016	DRO	DRO	SS015-WW06-DRO	2300	1	µg/L
ST009-MW04	06/01/2016	DRO	DRO	ST009-MW04-DRO	1200	1	µg/L
ST009-MW07	06/01/2016	DRO	DRO	ST009-MW07-DRO	2300	1	µg/L
ST009-MW09	06/01/2016	DRO	DRO	ST009-MW09-DRO	2900	1	µg/L
SS015-WW01	06/01/2017	DRO	DRO	SS015-WW01-DRO	8960	1	µg/L
SS015-WW05	06/01/2017	DRO	DRO	SS015-WW05-DRO	1360	1	µg/L
SS015-WW06	06/01/2017	DRO	DRO	SS015-WW06-DRO	1700	1	µg/L
ST009-MW04	06/01/2017	DRO	DRO	ST009-MW04-DRO	4530	1	µg/L
ST009-MW07	06/01/2017	DRO	DRO	ST009-MW07-DRO	1270	1	µg/L
ST009-MW09	06/01/2017	DRO	DRO	ST009-MW09-DRO	1500	1	µg/L
SS015-WW01	06/01/2019	DRO	DRO	SS015-WW01-DRO	3800	1	µg/L
SS015-WW05	06/01/2019	DRO	DRO	SS015-WW05-DRO	1300	1	µg/L
SS015-WW06	06/01/2019	DRO	DRO	SS015-WW06-DRO	1800	1	µg/L
ST009-MW04	06/01/2019	DRO	DRO	ST009-MW04-DRO	320	1	µg/L
ST009-MW07	06/01/2019	DRO	DRO	ST009-MW07-DRO	1900	1	µg/L
ST009-MW09	06/01/2019	DRO	DRO	ST009-MW09-DRO	1300	1	µg/L
SS015-WW01	06/01/2020	DRO	DRO	SS015-WW01-DRO	3830	1	µg/L
SS015-WW05	06/01/2020	DRO	DRO	SS015-WW05-DRO	400	0	µg/L
SS015-WW06	06/01/2020	DRO	DRO	SS015-WW06-DRO	308	1	µg/L
ST009-MW04	06/01/2020	DRO	DRO	ST009-MW04-DRO	5460	1	µg/L
ST009-MW07	06/01/2020	DRO	DRO	ST009-MW07-DRO	4010	1	µg/L
ST009-MW09	06/01/2020	DRO	DRO	ST009-MW09-DRO	230	1	µg/L
SS015-WW01	06/01/2021	DRO	DRO	SS015-WW01-DRO	4620	1	µg/L
SS015-WW05	06/01/2021	DRO	DRO	SS015-WW05-DRO	1290	1	µg/L
SS015-WW06	06/01/2021	DRO	DRO	SS015-WW06-DRO	1370	1	µg/L
ST009-MW04	06/01/2021	DRO	DRO	ST009-MW04-DRO	208	1	µg/L
ST009-MW07	06/01/2021	DRO	DRO	ST009-MW07-DRO	4650	1	µg/L
ST009-MW09	06/01/2021	DRO	DRO	ST009-MW09-DRO	600	1	µg/L
SS015-WW01	06/01/2022	DRO	DRO	SS015-WW01-DRO	13200	1	µg/L
SS015-WW05	06/01/2022	DRO	DRO	SS015-WW05-DRO	1620	1	µg/L
SS015-WW06	06/01/2022	DRO	DRO	SS015-WW06-DRO	2290	1	µg/L
ST009-MW04	06/01/2022	DRO	DRO	ST009-MW04-DRO	5600	1	µg/L
ST009-MW07	06/01/2022	DRO	DRO	ST009-MW07-DRO	53100	1	µg/L
ST009-MW09	06/01/2022	DRO	DRO	ST009-MW09-DRO	1520	1	µg/L
SS015-WW01	06/01/2023	DRO	DRO	SS015-WW01-DRO	2590	1	µg/L
SS015-WW05	06/01/2023	DRO	DRO	SS015-WW05-DRO	1100	1	µg/L
SS015-WW06	06/01/2023	DRO	DRO	SS015-WW06-DRO	1080	1	µg/L
ST009-MW04	06/01/2023	DRO	DRO	ST009-MW04-DRO	1890	1	µg/L
ST009-MW07	06/01/2023	DRO	DRO	ST009-MW07-DRO	3980	1	µg/L
ST009-MW09	06/01/2023	DRO	DRO	ST009-MW09-DRO	2020	1	µg/L
ST009-MW04	06/01/2004	Ethylbenzene	ETHBZ	ST009-MW04-ETHBZ	340	1	µg/L
ST009-MW07	06/01/2004	Ethylbenzene	ETHBZ	ST009-MW07-ETHBZ	14	1	µg/L
ST009-MW09	06/01/2004	Ethylbenzene	ETHBZ	ST009-MW09-ETHBZ	3.3	1	µg/L
ST009-MW04	06/01/2006	Ethylbenzene	ETHBZ	ST009-MW04-ETHBZ	1.42	1	µg/L
ST009-MW07	06/01/2006	Ethylbenzene	ETHBZ	ST009-MW07-ETHBZ	2	0	µg/L
ST009-MW09	06/01/2006	Ethylbenzene	ETHBZ	ST009-MW09-ETHBZ	4.37	1	µg/L

Well ID	Date	Constituent	Code	Well-Constituent	Result	d_result	Units
ST009-MW04	06/01/2007	Ethylbenzene	ETHBZ	ST009-MW04-ETHBZ	1.33	1	µg/L
ST009-MW07	06/01/2007	Ethylbenzene	ETHBZ	ST009-MW07-ETHBZ	18.8	1	µg/L
ST009-MW09	06/01/2007	Ethylbenzene	ETHBZ	ST009-MW09-ETHBZ	1.98	1	µg/L
ST009-MW04	06/01/2008	Ethylbenzene	ETHBZ	ST009-MW04-ETHBZ	0.2	0	µg/L
ST009-MW07	06/01/2008	Ethylbenzene	ETHBZ	ST009-MW07-ETHBZ	3.7	1	µg/L
ST009-MW09	06/01/2008	Ethylbenzene	ETHBZ	ST009-MW09-ETHBZ	1.5	1	µg/L
ST009-MW04	06/01/2009	Ethylbenzene	ETHBZ	ST009-MW04-ETHBZ	0.62	0	µg/L
ST009-MW07	06/01/2009	Ethylbenzene	ETHBZ	ST009-MW07-ETHBZ	5.36	1	µg/L
ST009-MW09	06/01/2009	Ethylbenzene	ETHBZ	ST009-MW09-ETHBZ	1.57	1	µg/L
ST009-MW04	06/01/2012	Ethylbenzene	ETHBZ	ST009-MW04-ETHBZ	0.15	0	µg/L
ST009-MW07	06/01/2012	Ethylbenzene	ETHBZ	ST009-MW07-ETHBZ	2.3	1	µg/L
ST009-MW04	06/01/2013	Ethylbenzene	ETHBZ	ST009-MW04-ETHBZ	0.51	1	µg/L
ST009-MW07	06/01/2013	Ethylbenzene	ETHBZ	ST009-MW07-ETHBZ	1.97	1	µg/L
ST009-MW09	06/01/2013	Ethylbenzene	ETHBZ	ST009-MW09-ETHBZ	1.17	1	µg/L
SS015-WW01	06/01/2014	Ethylbenzene	ETHBZ	SS015-WW01-ETHBZ	3.63	1	µg/L
SS015-WW05	06/01/2014	Ethylbenzene	ETHBZ	SS015-WW05-ETHBZ	0.5	0	µg/L
SS015-WW06	06/01/2014	Ethylbenzene	ETHBZ	SS015-WW06-ETHBZ	0.5	0	µg/L
ST009-MW04	06/01/2014	Ethylbenzene	ETHBZ	ST009-MW04-ETHBZ	0.5	0	µg/L
ST009-MW07	06/01/2014	Ethylbenzene	ETHBZ	ST009-MW07-ETHBZ	2	1	µg/L
ST009-MW09	06/01/2014	Ethylbenzene	ETHBZ	ST009-MW09-ETHBZ	0.64	1	µg/L
SS015-WW01	06/01/2015	Ethylbenzene	ETHBZ	SS015-WW01-ETHBZ	27.2	1	µg/L
SS015-WW05	06/01/2015	Ethylbenzene	ETHBZ	SS015-WW05-ETHBZ	0.68	1	µg/L
SS015-WW06	06/01/2015	Ethylbenzene	ETHBZ	SS015-WW06-ETHBZ	0.5	0	µg/L
ST009-MW04	06/01/2015	Ethylbenzene	ETHBZ	ST009-MW04-ETHBZ	0.5	0	µg/L
ST009-MW07	06/01/2015	Ethylbenzene	ETHBZ	ST009-MW07-ETHBZ	2	1	µg/L
ST009-MW09	06/01/2015	Ethylbenzene	ETHBZ	ST009-MW09-ETHBZ	0.35	1	µg/L
SS015-WW01	06/01/2017	Ethylbenzene	ETHBZ	SS015-WW01-ETHBZ	6.85	1	µg/L
SS015-WW05	06/01/2017	Ethylbenzene	ETHBZ	SS015-WW05-ETHBZ	69.4	1	µg/L
SS015-WW06	06/01/2017	Ethylbenzene	ETHBZ	SS015-WW06-ETHBZ	0.5	0	µg/L
ST009-MW04	06/01/2017	Ethylbenzene	ETHBZ	ST009-MW04-ETHBZ	0.5	0	µg/L
ST009-MW07	06/01/2017	Ethylbenzene	ETHBZ	ST009-MW07-ETHBZ	1.39	1	µg/L
ST009-MW09	06/01/2017	Ethylbenzene	ETHBZ	ST009-MW09-ETHBZ	0.5	0	µg/L
SS015-WW01	06/01/2019	Ethylbenzene	ETHBZ	SS015-WW01-ETHBZ	5.8	1	µg/L
SS015-WW05	06/01/2019	Ethylbenzene	ETHBZ	SS015-WW05-ETHBZ	91	1	µg/L
SS015-WW06	06/01/2019	Ethylbenzene	ETHBZ	SS015-WW06-ETHBZ	1	0	µg/L
ST009-MW04	06/01/2019	Ethylbenzene	ETHBZ	ST009-MW04-ETHBZ	1	0	µg/L
ST009-MW07	06/01/2019	Ethylbenzene	ETHBZ	ST009-MW07-ETHBZ	2	1	µg/L
ST009-MW09	06/01/2019	Ethylbenzene	ETHBZ	ST009-MW09-ETHBZ	1	0	µg/L
SS015-WW01	06/01/2020	Ethylbenzene	ETHBZ	SS015-WW01-ETHBZ	7.83	1	µg/L
SS015-WW05	06/01/2020	Ethylbenzene	ETHBZ	SS015-WW05-ETHBZ	0.5	0	µg/L
SS015-WW06	06/01/2020	Ethylbenzene	ETHBZ	SS015-WW06-ETHBZ	0.5	0	µg/L
ST009-MW04	06/01/2020	Ethylbenzene	ETHBZ	ST009-MW04-ETHBZ	0.5	0	µg/L
ST009-MW07	06/01/2020	Ethylbenzene	ETHBZ	ST009-MW07-ETHBZ	1.45	1	µg/L
ST009-MW09	06/01/2020	Ethylbenzene	ETHBZ	ST009-MW09-ETHBZ	0.5	0	µg/L
SS015-WW01	06/01/2021	Ethylbenzene	ETHBZ	SS015-WW01-ETHBZ	2.82	1	µg/L
SS015-WW05	06/01/2021	Ethylbenzene	ETHBZ	SS015-WW05-ETHBZ	75.4	1	µg/L
SS015-WW06	06/01/2021	Ethylbenzene	ETHBZ	SS015-WW06-ETHBZ	0.5	0	µg/L
ST009-MW04	06/01/2021	Ethylbenzene	ETHBZ	ST009-MW04-ETHBZ	0.5	0	µg/L
ST009-MW07	06/01/2021	Ethylbenzene	ETHBZ	ST009-MW07-ETHBZ	1.16	1	µg/L
ST009-MW09	06/01/2021	Ethylbenzene	ETHBZ	ST009-MW09-ETHBZ	0.241	1	µg/L
SS015-WW01	06/01/2022	Ethylbenzene	ETHBZ	SS015-WW01-ETHBZ	3.39	1	µg/L
SS015-WW05	06/01/2022	Ethylbenzene	ETHBZ	SS015-WW05-ETHBZ	70.7	1	µg/L
SS015-WW06	06/01/2022	Ethylbenzene	ETHBZ	SS015-WW06-ETHBZ	0.5	0	µg/L
ST009-MW04	06/01/2022	Ethylbenzene	ETHBZ	ST009-MW04-ETHBZ	0.5	0	µg/L
ST009-MW07	06/01/2022	Ethylbenzene	ETHBZ	ST009-MW07-ETHBZ	0.505	1	µg/L
ST009-MW09	06/01/2022	Ethylbenzene	ETHBZ	ST009-MW09-ETHBZ	0.175	1	µg/L
SS015-WW01	06/01/2023	Ethylbenzene	ETHBZ	SS015-WW01-ETHBZ	2.36	1	µg/L
SS015-WW05	06/01/2023	Ethylbenzene	ETHBZ	SS015-WW05-ETHBZ	71.9	1	µg/L
SS015-WW06	06/01/2023	Ethylbenzene	ETHBZ	SS015-WW06-ETHBZ	0.5	0	µg/L
ST009-MW04	06/01/2023	Ethylbenzene	ETHBZ	ST009-MW04-ETHBZ	0.5	0	µg/L
ST009-MW07	06/01/2023	Ethylbenzene	ETHBZ	ST009-MW07-ETHBZ	0.663	1	µg/L
ST009-MW09	06/01/2023	Ethylbenzene	ETHBZ	ST009-MW09-ETHBZ	0.31	1	µg/L
ST009-MW04	06/01/2004	GRO	GRO	ST009-MW04-GRO	75700	1	µg/L
ST009-MW07	06/01/2004	GRO	GRO	ST009-MW07-GRO	1020	1	µg/L
ST009-MW09	06/01/2004	GRO	GRO	ST009-MW09-GRO	456	1	µg/L
ST009-MW04	06/01/2006	GRO	GRO	ST009-MW04-GRO	60	1	µg/L
ST009-MW07	06/01/2006	GRO	GRO	ST009-MW07-GRO	1560	1	µg/L
ST009-MW09	06/01/2006	GRO	GRO	ST009-MW09-GRO	441	1	µg/L
ST009-MW04	06/01/2007	GRO	GRO	ST009-MW04-GRO	521	1	µg/L
ST009-MW07	06/01/2007	GRO	GRO	ST009-MW07-GRO	1300	1	µg/L
ST009-MW09	06/01/2007	GRO	GRO	ST009-MW09-GRO	236	1	µg/L
ST009-MW04	06/01/2008	GRO	GRO	ST009-MW04-GRO	240	1	µg/L
ST009-MW07	06/01/2008	GRO	GRO	ST009-MW07-GRO	370	1	µg/L
ST009-MW09	06/01/2008	GRO	GRO	ST009-MW09-GRO	280	1	µg/L
ST009-MW04	06/01/2009	GRO	GRO	ST009-MW04-GRO	140	1	µg/L

Well ID	Date	Constituent	Code	Well-Constituent	Result	d_result	Units
ST009-MW07	06/01/2009	GRO	GRO	ST009-MW07-GRO	421	1	µg/L
ST009-MW09	06/01/2009	GRO	GRO	ST009-MW09-GRO	217	1	µg/L
ST009-MW04	06/01/2012	GRO	GRO	ST009-MW04-GRO	45	1	µg/L
ST009-MW07	06/01/2012	GRO	GRO	ST009-MW07-GRO	340	1	µg/L
ST009-MW04	06/01/2013	GRO	GRO	ST009-MW04-GRO	42.5	1	µg/L
ST009-MW07	06/01/2013	GRO	GRO	ST009-MW07-GRO	462	1	µg/L
ST009-MW09	06/01/2013	GRO	GRO	ST009-MW09-GRO	216	1	µg/L
SS015-WW01	06/01/2014	GRO	GRO	SS015-WW01-GRO	191	1	µg/L
SS015-WW05	06/01/2014	GRO	GRO	SS015-WW05-GRO	50	0	µg/L
SS015-WW06	06/01/2014	GRO	GRO	SS015-WW06-GRO	37.8	1	µg/L
ST009-MW04	06/01/2014	GRO	GRO	ST009-MW04-GRO	72.7	0	µg/L
ST009-MW07	06/01/2014	GRO	GRO	ST009-MW07-GRO	495	1	µg/L
ST009-MW09	06/01/2014	GRO	GRO	ST009-MW09-GRO	293	1	µg/L
SS015-WW01	06/01/2015	GRO	GRO	SS015-WW01-GRO	1040	1	µg/L
SS015-WW05	06/01/2015	GRO	GRO	SS015-WW05-GRO	70.3	1	µg/L
SS015-WW06	06/01/2015	GRO	GRO	SS015-WW06-GRO	0.05	0	µg/L
ST009-MW04	06/01/2015	GRO	GRO	ST009-MW04-GRO	175	1	µg/L
ST009-MW07	06/01/2015	GRO	GRO	ST009-MW07-GRO	512	1	µg/L
ST009-MW09	06/01/2015	GRO	GRO	ST009-MW09-GRO	208	1	µg/L
SS015-WW01	06/01/2016	GRO	GRO	SS015-WW01-GRO	460	1	µg/L
SS015-WW05	06/01/2016	GRO	GRO	SS015-WW05-GRO	4200	1	µg/L
SS015-WW01	06/01/2017	GRO	GRO	SS015-WW01-GRO	249	1	µg/L
SS015-WW05	06/01/2017	GRO	GRO	SS015-WW05-GRO	807	1	µg/L
SS015-WW06	06/01/2017	GRO	GRO	SS015-WW06-GRO	0.05	0	µg/L
ST009-MW04	06/01/2017	GRO	GRO	ST009-MW04-GRO	67.3	0	µg/L
ST009-MW07	06/01/2017	GRO	GRO	ST009-MW07-GRO	138	1	µg/L
ST009-MW09	06/01/2017	GRO	GRO	ST009-MW09-GRO	68.8	0	µg/L
SS015-WW01	06/01/2019	GRO	GRO	SS015-WW01-GRO	190	1	µg/L
SS015-WW05	06/01/2019	GRO	GRO	SS015-WW05-GRO	780	1	µg/L
SS015-WW06	06/01/2019	GRO	GRO	SS015-WW06-GRO	200	0	µg/L
ST009-MW04	06/01/2019	GRO	GRO	ST009-MW04-GRO	320	1	µg/L
ST009-MW07	06/01/2019	GRO	GRO	ST009-MW07-GRO	310	1	µg/L
ST009-MW09	06/01/2019	GRO	GRO	ST009-MW09-GRO	220	1	µg/L
SS015-WW01	06/01/2020	GRO	GRO	SS015-WW01-GRO	172	1	µg/L
SS015-WW05	06/01/2020	GRO	GRO	SS015-WW05-GRO	50	0	µg/L
SS015-WW06	06/01/2020	GRO	GRO	SS015-WW06-GRO	50	0	µg/L
ST009-MW04	06/01/2020	GRO	GRO	ST009-MW04-GRO	58.3	1	µg/L
ST009-MW07	06/01/2020	GRO	GRO	ST009-MW07-GRO	412	1	µg/L
ST009-MW09	06/01/2020	GRO	GRO	ST009-MW09-GRO	50	0	µg/L
SS015-WW01	06/01/2021	GRO	GRO	SS015-WW01-GRO	278	1	µg/L
SS015-WW05	06/01/2021	GRO	GRO	SS015-WW05-GRO	1280	1	µg/L
SS015-WW06	06/01/2021	GRO	GRO	SS015-WW06-GRO	30.2	1	µg/L
ST009-MW04	06/01/2021	GRO	GRO	ST009-MW04-GRO	50	0	µg/L
ST009-MW07	06/01/2021	GRO	GRO	ST009-MW07-GRO	293	1	µg/L
ST009-MW09	06/01/2021	GRO	GRO	ST009-MW09-GRO	127	1	µg/L
SS015-WW01	06/01/2022	GRO	GRO	SS015-WW01-GRO	91.1	1	µg/L
SS015-WW05	06/01/2022	GRO	GRO	SS015-WW05-GRO	866	1	µg/L
SS015-WW06	06/01/2022	GRO	GRO	SS015-WW06-GRO	24.3	1	µg/L
ST009-MW04	06/01/2022	GRO	GRO	ST009-MW04-GRO	36	1	µg/L
ST009-MW07	06/01/2022	GRO	GRO	ST009-MW07-GRO	145	1	µg/L
ST009-MW09	06/01/2022	GRO	GRO	ST009-MW09-GRO	66.6	1	µg/L
SS015-WW01	06/01/2023	GRO	GRO	SS015-WW01-GRO	114	1	µg/L
SS015-WW05	06/01/2023	GRO	GRO	SS015-WW05-GRO	864	1	µg/L
SS015-WW06	06/01/2023	GRO	GRO	SS015-WW06-GRO	23	1	µg/L
ST009-MW04	06/01/2023	GRO	GRO	ST009-MW04-GRO	61.4	1	µg/L
ST009-MW07	06/01/2023	GRO	GRO	ST009-MW07-GRO	390	1	µg/L
ST009-MW09	06/01/2023	GRO	GRO	ST009-MW09-GRO	129	1	µg/L
ST009-MW04	06/01/2004	RRO	RRO	ST009-MW04-RRO	34500	1	µg/L
ST009-MW07	06/01/2004	RRO	RRO	ST009-MW07-RRO	427	1	µg/L
ST009-MW09	06/01/2004	RRO	RRO	ST009-MW09-RRO	505	1	µg/L
ST009-MW04	06/01/2006	RRO	RRO	ST009-MW04-RRO	340	1	µg/L
ST009-MW07	06/01/2006	RRO	RRO	ST009-MW07-RRO	2310	1	µg/L
ST009-MW09	06/01/2006	RRO	RRO	ST009-MW09-RRO	458	1	µg/L
SS015-WW01	06/01/2017	RRO	RRO	SS015-WW01-RRO	552	1	µg/L
SS015-WW05	06/01/2017	RRO	RRO	SS015-WW05-RRO	168	1	µg/L
SS015-WW06	06/01/2017	RRO	RRO	SS015-WW06-RRO	318	1	µg/L
ST009-MW04	06/01/2017	RRO	RRO	ST009-MW04-RRO	386	1	µg/L
ST009-MW07	06/01/2017	RRO	RRO	ST009-MW07-RRO	243	1	µg/L
ST009-MW09	06/01/2017	RRO	RRO	ST009-MW09-RRO	376	1	µg/L
SS015-WW01	06/01/2019	RRO	RRO	SS015-WW01-RRO	170	1	µg/L
SS015-WW05	06/01/2019	RRO	RRO	SS015-WW05-RRO	110	1	µg/L
SS015-WW06	06/01/2019	RRO	RRO	SS015-WW06-RRO	180	1	µg/L
SS015-WW01	06/01/2020	RRO	RRO	SS015-WW01-RRO	460	0	µg/L
SS015-WW05	06/01/2020	RRO	RRO	SS015-WW05-RRO	460	0	µg/L
SS015-WW06	06/01/2020	RRO	RRO	SS015-WW06-RRO	460	0	µg/L

Well ID	Date	Constituent	Code	Well-Constituent	Result	d_result	Units
ST009-MW04	06/01/2020	RRO	RRO	ST009-MW04-RRO	460	0	µg/L
ST009-MW07	06/01/2020	RRO	RRO	ST009-MW07-RRO	460	0	µg/L
ST009-MW09	06/01/2020	RRO	RRO	ST009-MW09-RRO	469	1	µg/L
SS015-WW01	06/01/2021	RRO	RRO	SS015-WW01-RRO	460	0	µg/L
SS015-WW05	06/01/2021	RRO	RRO	SS015-WW05-RRO	483	0	µg/L
SS015-WW06	06/01/2021	RRO	RRO	SS015-WW06-RRO	480	0	µg/L
ST009-MW07	06/01/2021	RRO	RRO	ST009-MW07-RRO	460	0	µg/L
SS015-WW01	06/01/2022	RRO	RRO	SS015-WW01-RRO	787	1	µg/L
SS015-WW05	06/01/2022	RRO	RRO	SS015-WW05-RRO	460	0	µg/L
SS015-WW06	06/01/2022	RRO	RRO	SS015-WW06-RRO	571	1	µg/L
ST009-MW04	06/01/2022	RRO	RRO	ST009-MW04-RRO	703	1	µg/L
ST009-MW07	06/01/2022	RRO	RRO	ST009-MW07-RRO	800	1	µg/L
ST009-MW09	06/01/2022	RRO	RRO	ST009-MW09-RRO	649	1	µg/L
SS015-WW01	06/01/2023	RRO	RRO	SS015-WW01-RRO	600	0	µg/L
SS015-WW05	06/01/2023	RRO	RRO	SS015-WW05-RRO	600	0	µg/L
SS015-WW06	06/01/2023	RRO	RRO	SS015-WW06-RRO	600	0	µg/L
ST009-MW04	06/01/2004	Toluene	TOL	ST009-MW04-TOL	59.9	1	µg/L
ST009-MW07	06/01/2004	Toluene	TOL	ST009-MW07-TOL	1.13	1	µg/L
ST009-MW09	06/01/2004	Toluene	TOL	ST009-MW09-TOL	2	0	µg/L
ST009-MW04	06/01/2006	Toluene	TOL	ST009-MW04-TOL	2	0	µg/L
ST009-MW07	06/01/2006	Toluene	TOL	ST009-MW07-TOL	6.6	1	µg/L
ST009-MW09	06/01/2006	Toluene	TOL	ST009-MW09-TOL	2.62	1	µg/L
ST009-MW04	06/01/2007	Toluene	TOL	ST009-MW04-TOL	2	0	µg/L
ST009-MW07	06/01/2007	Toluene	TOL	ST009-MW07-TOL	8.6	1	µg/L
ST009-MW09	06/01/2007	Toluene	TOL	ST009-MW09-TOL	2	0	µg/L
ST009-MW04	06/01/2008	Toluene	TOL	ST009-MW04-TOL	0.21	0	µg/L
ST009-MW07	06/01/2008	Toluene	TOL	ST009-MW07-TOL	0.21	0	µg/L
ST009-MW09	06/01/2008	Toluene	TOL	ST009-MW09-TOL	0.21	0	µg/L
ST009-MW04	06/01/2009	Toluene	TOL	ST009-MW04-TOL	1.41	1	µg/L
ST009-MW07	06/01/2009	Toluene	TOL	ST009-MW07-TOL	2.05	1	µg/L
ST009-MW09	06/01/2009	Toluene	TOL	ST009-MW09-TOL	1.43	1	µg/L
ST009-MW04	06/01/2012	Toluene	TOL	ST009-MW04-TOL	0.15	0	µg/L
ST009-MW07	06/01/2012	Toluene	TOL	ST009-MW07-TOL	0.15	0	µg/L
ST009-MW04	06/01/2013	Toluene	TOL	ST009-MW04-TOL	0.65	1	µg/L
ST009-MW07	06/01/2013	Toluene	TOL	ST009-MW07-TOL	0.76	1	µg/L
ST009-MW09	06/01/2013	Toluene	TOL	ST009-MW09-TOL	0.54	1	µg/L
SS015-WW01	06/01/2014	Toluene	TOL	SS015-WW01-TOL	0.5	0	µg/L
SS015-WW05	06/01/2014	Toluene	TOL	SS015-WW05-TOL	0.5	0	µg/L
SS015-WW06	06/01/2014	Toluene	TOL	SS015-WW06-TOL	0.5	0	µg/L
ST009-MW04	06/01/2014	Toluene	TOL	ST009-MW04-TOL	0.5	0	µg/L
ST009-MW07	06/01/2014	Toluene	TOL	ST009-MW07-TOL	0.5	0	µg/L
ST009-MW09	06/01/2014	Toluene	TOL	ST009-MW09-TOL	0.5	0	µg/L
SS015-WW01	06/01/2015	Toluene	TOL	SS015-WW01-TOL	0.5	0	µg/L
SS015-WW05	06/01/2015	Toluene	TOL	SS015-WW05-TOL	0.5	0	µg/L
SS015-WW06	06/01/2015	Toluene	TOL	SS015-WW06-TOL	0.5	0	µg/L
ST009-MW04	06/01/2015	Toluene	TOL	ST009-MW04-TOL	0.5	0	µg/L
ST009-MW07	06/01/2015	Toluene	TOL	ST009-MW07-TOL	0.5	0	µg/L
ST009-MW09	06/01/2015	Toluene	TOL	ST009-MW09-TOL	0.5	0	µg/L
SS015-WW01	06/01/2017	Toluene	TOL	SS015-WW01-TOL	0.5	0	µg/L
SS015-WW05	06/01/2017	Toluene	TOL	SS015-WW05-TOL	1.52	1	µg/L
SS015-WW06	06/01/2017	Toluene	TOL	SS015-WW06-TOL	0.5	0	µg/L
ST009-MW04	06/01/2017	Toluene	TOL	ST009-MW04-TOL	0.5	0	µg/L
ST009-MW07	06/01/2017	Toluene	TOL	ST009-MW07-TOL	0.5	0	µg/L
ST009-MW09	06/01/2017	Toluene	TOL	ST009-MW09-TOL	0.5	0	µg/L
SS015-WW01	06/01/2019	Toluene	TOL	SS015-WW01-TOL	1	0	µg/L
SS015-WW05	06/01/2019	Toluene	TOL	SS015-WW05-TOL	1.2	1	µg/L
SS015-WW06	06/01/2019	Toluene	TOL	SS015-WW06-TOL	1	0	µg/L
ST009-MW04	06/01/2019	Toluene	TOL	ST009-MW04-TOL	1	0	µg/L
ST009-MW07	06/01/2019	Toluene	TOL	ST009-MW07-TOL	1	0	µg/L
ST009-MW09	06/01/2019	Toluene	TOL	ST009-MW09-TOL	1	0	µg/L
SS015-WW01	06/01/2020	Toluene	TOL	SS015-WW01-TOL	0.5	0	µg/L
SS015-WW05	06/01/2020	Toluene	TOL	SS015-WW05-TOL	0.5	0	µg/L
SS015-WW06	06/01/2020	Toluene	TOL	SS015-WW06-TOL	0.5	0	µg/L
ST009-MW04	06/01/2020	Toluene	TOL	ST009-MW04-TOL	0.5	0	µg/L
ST009-MW07	06/01/2020	Toluene	TOL	ST009-MW07-TOL	0.5	0	µg/L
ST009-MW09	06/01/2020	Toluene	TOL	ST009-MW09-TOL	0.5	0	µg/L
SS015-WW01	06/01/2021	Toluene	TOL	SS015-WW01-TOL	0.05	0	µg/L
SS015-WW05	06/01/2021	Toluene	TOL	SS015-WW05-TOL	1.2	1	µg/L
SS015-WW06	06/01/2021	Toluene	TOL	SS015-WW06-TOL	0.5	0	µg/L
ST009-MW04	06/01/2021	Toluene	TOL	ST009-MW04-TOL	0.5	0	µg/L
ST009-MW07	06/01/2021	Toluene	TOL	ST009-MW07-TOL	0.5	0	µg/L
ST009-MW09	06/01/2021	Toluene	TOL	ST009-MW09-TOL	0.5	0	µg/L
SS015-WW01	06/01/2022	Toluene	TOL	SS015-WW01-TOL	0.6	0	µg/L
SS015-WW05	06/01/2022	Toluene	TOL	SS015-WW05-TOL	1.2	1	µg/L
SS015-WW06	06/01/2022	Toluene	TOL	SS015-WW06-TOL	0.6	0	µg/L

Well ID	Date	Constituent	Code	Well-Constituent	Result	d_result	Units
ST009-MW04	06/01/2022	Toluene	TOL	ST009-MW04-TOL	0.6	0	µg/L
ST009-MW07	06/01/2022	Toluene	TOL	ST009-MW07-TOL	0.6	0	µg/L
ST009-MW09	06/01/2022	Toluene	TOL	ST009-MW09-TOL	0.6	0	µg/L
SS015-WW01	06/01/2023	Toluene	TOL	SS015-WW01-TOL	0.6	0	µg/L
SS015-WW05	06/01/2023	Toluene	TOL	SS015-WW05-TOL	1.01	1	µg/L
SS015-WW06	06/01/2023	Toluene	TOL	SS015-WW06-TOL	0.6	0	µg/L
ST009-MW04	06/01/2023	Toluene	TOL	ST009-MW04-TOL	0.6	0	µg/L
ST009-MW07	06/01/2023	Toluene	TOL	ST009-MW07-TOL	0.6	0	µg/L
ST009-MW09	06/01/2023	Toluene	TOL	ST009-MW09-TOL	0.6	0	µg/L
ST009-MW04	06/01/2004	Xylenes	XYL	ST009-MW04-XYL	291	1	µg/L
ST009-MW07	06/01/2004	Xylenes	XYL	ST009-MW07-XYL	19.3	1	µg/L
ST009-MW09	06/01/2004	Xylenes	XYL	ST009-MW09-XYL	5.1	1	µg/L
ST009-MW04	06/01/2006	Xylenes	XYL	ST009-MW04-XYL	5.6	1	µg/L
ST009-MW07	06/01/2006	Xylenes	XYL	ST009-MW07-XYL	2.8	1	µg/L
ST009-MW09	06/01/2006	Xylenes	XYL	ST009-MW09-XYL	14	1	µg/L
ST009-MW04	06/01/2007	Xylenes	XYL	ST009-MW04-XYL	8	1	µg/L
ST009-MW07	06/01/2007	Xylenes	XYL	ST009-MW07-XYL	3.3	1	µg/L
ST009-MW09	06/01/2007	Xylenes	XYL	ST009-MW09-XYL	5.89	1	µg/L
ST009-MW04	06/01/2008	Xylenes	XYL	ST009-MW04-XYL	0.15	0	µg/L
ST009-MW07	06/01/2008	Xylenes	XYL	ST009-MW07-XYL	8.9	1	µg/L
ST009-MW09	06/01/2008	Xylenes	XYL	ST009-MW09-XYL	3.1	1	µg/L
ST009-MW04	06/01/2009	Xylenes	XYL	ST009-MW04-XYL	2.1	1	µg/L
ST009-MW07	06/01/2009	Xylenes	XYL	ST009-MW07-XYL	151.6	1	µg/L
ST009-MW09	06/01/2009	Xylenes	XYL	ST009-MW09-XYL	5.74	1	µg/L
ST009-MW04	06/01/2012	Xylenes	XYL	ST009-MW04-XYL	0.45	0	µg/L
ST009-MW07	06/01/2012	Xylenes	XYL	ST009-MW07-XYL	5.5	1	µg/L
ST009-MW04	06/01/2013	Xylenes	XYL	ST009-MW04-XYL	1.26	1	µg/L
ST009-MW07	06/01/2013	Xylenes	XYL	ST009-MW07-XYL	4.79	1	µg/L
ST009-MW09	06/01/2013	Xylenes	XYL	ST009-MW09-XYL	2.67	1	µg/L
SS015-WW01	06/01/2014	Xylenes	XYL	SS015-WW01-XYL	6.75	1	µg/L
SS015-WW05	06/01/2014	Xylenes	XYL	SS015-WW05-XYL	1.5	0	µg/L
SS015-WW06	06/01/2014	Xylenes	XYL	SS015-WW06-XYL	1.5	0	µg/L
ST009-MW04	06/01/2014	Xylenes	XYL	ST009-MW04-XYL	1.5	0	µg/L
ST009-MW07	06/01/2014	Xylenes	XYL	ST009-MW07-XYL	5.35	1	µg/L
ST009-MW09	06/01/2014	Xylenes	XYL	ST009-MW09-XYL	1.06	1	µg/L
SS015-WW01	06/01/2015	Xylenes	XYL	SS015-WW01-XYL	139	1	µg/L
SS015-WW05	06/01/2015	Xylenes	XYL	SS015-WW05-XYL	3.66	1	µg/L
SS015-WW06	06/01/2015	Xylenes	XYL	SS015-WW06-XYL	1.5	0	µg/L
ST009-MW04	06/01/2015	Xylenes	XYL	ST009-MW04-XYL	1.5	0	µg/L
ST009-MW07	06/01/2015	Xylenes	XYL	ST009-MW07-XYL	5.12	1	µg/L
ST009-MW09	06/01/2015	Xylenes	XYL	ST009-MW09-XYL	1.5	0	µg/L
SS015-WW01	06/01/2017	Xylenes	XYL	SS015-WW01-XYL	33.2	1	µg/L
SS015-WW05	06/01/2017	Xylenes	XYL	SS015-WW05-XYL	89.9	1	µg/L
SS015-WW06	06/01/2017	Xylenes	XYL	SS015-WW06-XYL	1.5	0	µg/L
ST009-MW04	06/01/2017	Xylenes	XYL	ST009-MW04-XYL	1.5	0	µg/L
ST009-MW07	06/01/2017	Xylenes	XYL	ST009-MW07-XYL	3.24	1	µg/L
ST009-MW09	06/01/2017	Xylenes	XYL	ST009-MW09-XYL	1.5	0	µg/L
SS015-WW01	06/01/2019	Xylenes	XYL	SS015-WW01-XYL	7.7	1	µg/L
SS015-WW05	06/01/2019	Xylenes	XYL	SS015-WW05-XYL	113.1	1	µg/L
SS015-WW06	06/01/2019	Xylenes	XYL	SS015-WW06-XYL	2	0	µg/L
ST009-MW04	06/01/2019	Xylenes	XYL	ST009-MW04-XYL	2	0	µg/L
ST009-MW07	06/01/2019	Xylenes	XYL	ST009-MW07-XYL	3.8	1	µg/L
ST009-MW09	06/01/2019	Xylenes	XYL	ST009-MW09-XYL	2	0	µg/L
SS015-WW01	06/01/2020	Xylenes	XYL	SS015-WW01-XYL	11.7	1	µg/L
SS015-WW05	06/01/2020	Xylenes	XYL	SS015-WW05-XYL	1.5	0	µg/L
SS015-WW06	06/01/2020	Xylenes	XYL	SS015-WW06-XYL	1.5	0	µg/L
ST009-MW04	06/01/2020	Xylenes	XYL	ST009-MW04-XYL	1.5	0	µg/L
ST009-MW07	06/01/2020	Xylenes	XYL	ST009-MW07-XYL	2.92	1	µg/L
ST009-MW09	06/01/2020	Xylenes	XYL	ST009-MW09-XYL	1.5	0	µg/L
SS015-WW01	06/01/2021	Xylenes	XYL	SS015-WW01-XYL	6.84	1	µg/L
SS015-WW05	06/01/2021	Xylenes	XYL	SS015-WW05-XYL	99.8	1	µg/L
SS015-WW06	06/01/2021	Xylenes	XYL	SS015-WW06-XYL	1.5	0	µg/L
ST009-MW04	06/01/2021	Xylenes	XYL	ST009-MW04-XYL	1.5	0	µg/L
ST009-MW07	06/01/2021	Xylenes	XYL	ST009-MW07-XYL	2.07	1	µg/L
ST009-MW09	06/01/2021	Xylenes	XYL	ST009-MW09-XYL	0.451	1	µg/L
SS015-WW01	06/01/2022	Xylenes	XYL	SS015-WW01-XYL	4.75	1	µg/L
SS015-WW05	06/01/2022	Xylenes	XYL	SS015-WW05-XYL	97.4	1	µg/L
SS015-WW06	06/01/2022	Xylenes	XYL	SS015-WW06-XYL	1.5	0	µg/L
ST009-MW04	06/01/2022	Xylenes	XYL	ST009-MW04-XYL	1.5	0	µg/L
ST009-MW07	06/01/2022	Xylenes	XYL	ST009-MW07-XYL	1.02	1	µg/L
ST009-MW09	06/01/2022	Xylenes	XYL	ST009-MW09-XYL	0.254	1	µg/L
SS015-WW01	06/01/2023	Xylenes	XYL	SS015-WW01-XYL	3.29	1	µg/L
SS015-WW05	06/01/2023	Xylenes	XYL	SS015-WW05-XYL	92.4	1	µg/L
SS015-WW06	06/01/2023	Xylenes	XYL	SS015-WW06-XYL	1.5	0	µg/L
ST009-MW04	06/01/2023	Xylenes	XYL	ST009-MW04-XYL	1.5	0	µg/L

Well ID	Date	Constituent	Code	Well-Constituent	Result	d_result	Units
ST009-MW07	06/01/2023	Xylenes	XYL	ST009-MW07-XYL	1.28	1	µg/L
ST009-MW09	06/01/2023	Xylenes	XYL	ST009-MW09-XYL	0.381	1	µg/L
SS015-WW01	07/13/2024	Benzene	BZ	SS015-WW01-BZ	40.5	1	µg/L
SS015-WW05	07/13/2024	Benzene	BZ	SS015-WW05-BZ	0.5	0	µg/L
SS015-WW06	07/13/2024	Benzene	BZ	SS015-WW06-BZ	0.5	0	µg/L
ST009-MW04	07/14/2024	Benzene	BZ	ST009-MW04-BZ	0.5	0	µg/L
ST009-MW07	07/14/2024	Benzene	BZ	ST009-MW07-BZ	0.5	0	µg/L
SS015-WW01	07/13/2024	DRO	DRO	SS015-WW01-DRO	11900	1	µg/L
SS015-WW05	07/13/2024	DRO	DRO	SS015-WW05-DRO	178	1	µg/L
SS015-WW06	07/13/2024	DRO	DRO	SS015-WW06-DRO	603	1	µg/L
ST009-MW04	07/14/2024	DRO	DRO	ST009-MW04-DRO	309	1	µg/L
ST009-MW07	07/14/2024	DRO	DRO	ST009-MW07-DRO	1740	1	µg/L
SS015-WW01	07/13/2024	Ethylbenzene	ETHBZ	SS015-WW01-ETHBZ	18.9	1	µg/L
SS015-WW05	07/13/2024	Ethylbenzene	ETHBZ	SS015-WW05-ETHBZ	0.5	0	µg/L
SS015-WW06	07/13/2024	Ethylbenzene	ETHBZ	SS015-WW06-ETHBZ	0.5	0	µg/L
ST009-MW04	07/14/2024	Ethylbenzene	ETHBZ	ST009-MW04-ETHBZ	0.5	0	µg/L
ST009-MW07	07/14/2024	Ethylbenzene	ETHBZ	ST009-MW07-ETHBZ	1.08	1	µg/L
SS015-WW01	07/13/2024	GRO	GRO	SS015-WW01-GRO	618	1	µg/L
SS015-WW05	07/13/2024	GRO	GRO	SS015-WW05-GRO	37.4	1	µg/L
SS015-WW06	07/13/2024	GRO	GRO	SS015-WW06-GRO	15.7	1	µg/L
ST009-MW04	07/14/2024	GRO	GRO	ST009-MW04-GRO	17.3	1	µg/L
ST009-MW07	07/14/2024	GRO	GRO	ST009-MW07-GRO	232	1	µg/L
SS015-WW01	07/13/2024	RRO	RRO	SS015-WW01-RRO	600	0	µg/L
SS015-WW05	07/13/2024	RRO	RRO	SS015-WW05-RRO	600	0	µg/L
SS015-WW06	07/13/2024	RRO	RRO	SS015-WW06-RRO	600	0	µg/L
SS015-WW01	07/13/2024	Toluene	TOL	SS015-WW01-TOL	0.31	1	µg/L
SS015-WW05	07/13/2024	Toluene	TOL	SS015-WW05-TOL	0.6	0	µg/L
SS015-WW06	07/13/2024	Toluene	TOL	SS015-WW06-TOL	0.6	0	µg/L
ST009-MW04	07/14/2024	Toluene	TOL	ST009-MW04-TOL	0.6	0	µg/L
ST009-MW07	07/14/2024	Toluene	TOL	ST009-MW07-TOL	0.6	0	µg/L
SS015-WW01	07/13/2024	Xylenes	XYL	SS015-WW01-XYL	38.7	1	µg/L
SS015-WW05	07/13/2024	Xylenes	XYL	SS015-WW05-XYL	1.5	0	µg/L
SS015-WW06	07/13/2024	Xylenes	XYL	SS015-WW06-XYL	1.5	0	µg/L
ST009-MW04	07/14/2024	Xylenes	XYL	ST009-MW04-XYL	1.5	0	µg/L
ST009-MW07	07/14/2024	Xylenes	XYL	ST009-MW07-XYL	1.73	1	µg/L

Appendix G. Regulatory Documentation

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THE STATE
of **ALASKA**
GOVERNOR MICHAEL J. DUNLEAVY

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Site Program

1700 E. Bogard Rd.
Building B, Suite 103
Wasilla, AK 99654
Main: 907-376-1850
Fax: 907-376-2382

File No.: 2526.38.001, 2526.38.007, 2526.38.010, 2526.38.018, & 2526.38.011

November 13, 2025

Electronic Delivery Only

Dawn Rodriguez
AFCEC/CZOP
10471 20th St. Ste. 340
JBER, AK 99506-2201

Re: DEC responses comments on the *Final 2024 Long Term Management and Remedial Action Operations Report Cape Romanzof Long Range Radar Site (LRRS), Alaska, LF003, SS010, SS015, SS016, SS017, and ST009*, dated November 2025.

Dear Ms. Rodriguez:

The Alaska Department of Environmental Conservation (DEC) Contaminated Sites Program (CSP) received the above-referenced document on November 4th, 2025. The report documents the evaluation of land use controls (LUCs) and institutional controls (ICs) at Sites LF003, SS010, SS015, SS016, SS017, and ST009. Groundwater samples were collected from monitoring wells at Sites SS015 and ST009, and sediment and surface water samples were collected at Site LF003. The groundwater samples indicate that while contamination remains above DEC's groundwater cleanup levels, the contaminant concentrations at the sites are stable or decreasing. Several signs were replaced during the 2024 field season, and several recommendations for changes to the LUCs, ICs, and monitoring program were made.

The DEC accepts all RTCs on the draft document (see enclosure). Please submit the final, signed report for approval. If you have any questions or need further assistance, please feel free to contact me at 907-376-5139 or via email at Juliana.Smit@alaska.gov.

Sincerely,

Juliana Smit
Environmental Program Specialist

Enclosure: 2025.11.13 DEC_RTCs_CR2024LTM_Rpt

CC via Email:

Teresa Lee, USACE

**REVIEW
COMMENTS**

PROJECT: Cape Romanzof

COMMENTS

DOCUMENT: Draft Final 2024 Long Term Management and Remedial Action Operations Report Cape Romanzof Long Range Radar Site

(LRRS), Alaska Sites LF003, SS010, SS015, SS016, SS017, and ST009

ALASKA DEPT. OF ENVIRONMENTAL CONSERVATION		DATE: 11.13.2025 REVIEWER: Juliana Smit PHONE: (907) 376-5139	Action taken on comment by: North Wind-EA JV			
Item No.	Drawing Sheet No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A - comment accepted W - comment withdrawn (if neither, explain)	CONTRACTOR RESPONSE	ADEC/EPA RESPONSE ACCEPTANCE (A-AGREE) (D-DISAGREE)	CONTRACTOR RESPONSE
1	General	Please include installing signage at OB942 in the 2026 LTM activities. While annual inspections are not required for OB942, the most recent five-year review determined that the site has short term protectiveness and that signage should be placed at the site.		The AF will program to add signage at OB942. OB942 was not included in this LTM. Per the 2016 ROD, inspections are required every five years. The AF will need to ensure that this is added to scoping for future LTM activities because signs are required by the 2016 ROD.	A	
2	Section 2.1	Please clarify where the erosion is documented for LF003, SS010, and ST009. The visual inspection checklists all check “no” for evidence of surface erosion or washout in the area.		The inspection checklists and photographic log for LF003 and SS010 are accurate; surface erosion was not observed at these sites in 2024. Discussion of erosion in Section 2.1.1 (LF003) and 2.1.2 (SS010) were carried over from previous reports and have been deleted. The minor, natural erosion observed at ST009 was identified along the low bluff along the beach below MW09 (see Figure 7).	A	
3	Section 2.1.6	“No wildlife was present and no evidence of animal burrows was observed.” The visual inspection checklist notes “Probable animal burrow located. Picture 286 for reference.” Please update this		Section 2.1.6 has been updated to reflect this observation at ST009, and a photograph has been added to Appendix A (Photograph # 41.	A	

**REVIEW
COMMENTS**

PROJECT: Cape Romanzof

(LRRS), Alaska Sites LF003, SS010, SS015, SS016, SS017, and ST009

DOCUMENT: Draft Final 2024 Long Term Management and Remedial Action Operations Report Cape Romanzof Long Range Radar Site

ALASKA DEPT. OF ENVIRONMENTAL CONSERVATION		DATE: 11.13.2025 REVIEWER: Juliana Smit PHONE: (907) 376-5139	Action taken on comment by: North Wind-EA JV			
Item No.	Drawing Sheet No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A - comment accepted W - comment withdrawn (if neither, explain)	CONTRACTOR RESPONSE	ADEC/EPA RESPONSE ACCEPTANCE (A-AGREE) (D-DISAGREE)	CONTRACTOR RESPONSE
		section and provide the photo in the photo log.				
4	Section 2.4	Please include a GAC calculation for using GAC to filter the IDW produced from the monitoring wells at Cape Romanzof.		A discussion of the GAC calculation has been added to Section 2.4.	A	
5	Section 3.2	The surface water data for PCB analysis is not adequate for achieving the RAOs at Cape Romanzof. The laboratory LOD needs to be below DEC's clean up levels to demonstrate that migration to surface water is not occurring. DEC suggests switching the laboratory or the analytical method for PCBs to ensure future sampling events will have adequate LODs that are below DEC's clean up level.		The laboratory was contacted prior to the 2025 field event to ensure the LOD for PCB analysis would be less than regulatory cleanup criterion for total PCBs. The laboratory met the criteria for the field effort in 2025 and the LODs were below DEC's cleanup level. Comment has been added to Section 6.2, Recommendations.	A	
6	Section 6.2 LF003	The 2019 PCB exceedances need to be investigated further prior to removing the ESC barriers. The sediment/surface water sample locations sampled during LTM activities are downgradient of the site and continue to have periodic detections of PCBs below CULs that could be indicative of sediment erosion at LF003. Please revise the recommendations section to capture the need for further investigation and evaluation of PCB contamination at the site prior to the removal of the ESC barriers.		Section 6.2 has been updated with a recommendation to reinstall and maintain ESC barriers, and continue sediment sampling until PCBs are less than 1.0 mg/kg. Also revised Executive Summary to reflect revisions.	A	
7	Section 6.2 ST009	BTEX can be removed from future LTM activities.		Noted; however, BTEX was analyzed in 2025 during the LTM	A	

**REVIEW
COMMENTS**

PROJECT: Cape Romanzof

COMMENTS

DOCUMENT: Draft Final 2024 Long Term Management and Remedial Action Operations Report Cape Romanzof Long Range Radar Site

(LRRS), Alaska Sites LF003, SS010, SS015, SS016, SS017, and ST009

ALASKA DEPT. OF ENVIRONMENTAL CONSERVATION		DATE: 11.13.2025 REVIEWER: Juliana Smit PHONE: (907) 376-5139	Action taken on comment by: North Wind-EA JV			
Item No.	Drawing Sheet No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A - comment accepted W - comment withdrawn (if neither, explain)	CONTRACTOR RESPONSE	ADEC/EPA RESPONSE ACCEPTANCE (A-AGREE) (D-DISAGREE)	CONTRACTOR RESPONSE
				event. BTEX will be removed from LTM in 2026.		
8	Figures, General	Please add the groundwater flow direction to the figures.		Groundwater flow direction has been added to Figures 2 through 7.	A	
9	Figure 6	Please clarify what the Debris Pile icon in the figure key is.		The purple Debris Pile icon in the legend was left in by mistake and is redundant of the "Approximate Location of Debris" icon. It has been removed.	A	
10	End of Comments					