Final Combined Report

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews

Formerly Used Defense Site F10AK096903

Northeast Cape, Saint Lawrence Island, Alaska

Contract W911KB20D0002

Task Order W911KB21F0086

June 2023

Prepared for:

U.S. Army Corps of Engineers

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ACRONYMS AND ABBREVIATIONS

%	percent
°F	degrees Fahrenheit
µg/L	micrograms per liter
AAC	Alaska Administrative Code
AC&WS	Aircraft Control and Warning Station
ADEC	Alaska Department of Environmental Conservation
AST	aboveground storage tank
bgs	below ground surface
BMP	best management practice
Brice	Brice Engineering, LLC
BTEX	benzene, toluene, ethylbenzene, and total xylenes
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	contaminant of concern
CON-HTRW	Containerized Hazardous, Toxic, and Radioactive Waste
CSM	conceptual site model
cy	cubic yards
DD	Decision Document
DO	dissolved oxygen
DOT	U.S. Department of Transportation
DQCR	daily quality control report
DRO	diesel range organics
DU	decision unit
ESD	explanation of significant differences
foc	fraction of organic carbon
FUDS	Formerly Used Defense Site
GAC	granular activated carbon
GNSS	Global Navigation Satellite System
gpm	gallons per minute
GPS	Global Positioning System
HTRW	Hazardous, Toxic, and Radioactive Waste
ISCO	in situ chemical oxidation
ISM	incremental sampling methodology
LCL	lower confidence limit
LDU	Lower Decision Unit
LPAH	low-molecular weight polycyclic aromatic hydrocarbons
LUC	land use control
MDU	Middle Decision Unit
mg/kg	milligrams per kilogram
mg/L	milligrams per liter

ACRONYMS AND ABBREVIATIONS (CONTINUED)

MNA	monitored natural attenuation
MOC	Main Operations Complex
ND	non-detect
NEC	Northeast Cape
NOAA	National Oceanic Atmospheric Administration
NTU	nephelometric turbidity unit
ORP	oxidation-reduction potential
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PID	photoionization detector
POL	petroleum, oil, and lubricant
PVC	polyvinyl chloride
QA	quality assurance
QAR	quality assurance representative
QC	quality control
RAO	remedial action objective
RA-O	remedial action-operation
RCRA	Resource Conservation and Recovery Act
RRO	residual range organics
RSD	relative standard deviation
RTK	real-time kinematic
SOP	standard operating procedure
SSCL	site-specific cleanup level
TAH	total aromatic hydrocarbons
TAqH	total aqueous hydrocarbons
TOC	total organic carbon
UAV	unmanned aerial vehicle
UCL	upper confidence limit
UDU	Upper Decision Unit
UECA	Uniform Environmental Covenant Act
USACE	U.S. Army Corps of Engineers
USCS	Unified Soil Classification System
UST	underground storage tank
UVOST	Ultra-Violet Optical Screening Tool
WACS	White Alice Communications System

EXECUTIVE SUMMARY

This report details the remedial action-operation (RA-O) activities performed in the field during 2022 by Brice Engineering, LLC (Brice) at Northeast Cape (NEC) Formerly Used Defense Site (FUDS) F10AK0969-03 on Saint Lawrence Island, Alaska. Remediation activities were conducted on behalf of U.S. Army Corps of Engineers (USACE) Alaska District, under Contract Number W911KB20D0002, Task Order W911KB21F0086. The work was performed as described in the approved Final Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews Work Plan for the USACE in accordance with the Statement of Work (USACE 2021) and Title 18 of the Alaska Administrative Code (AAC) Chapter 75 (Alaska Department of Environmental Conservation [ADEC] 2023).

The primary RA-O objectives were to remove accumulated contaminated sediment from Area 28, complete a supplemental soil investigation at Site 8, remove residual diesel-contaminated soil at Site 15 Fuel Pipeline, perform monitored natural attenuation (MNA) groundwater sampling at the Main Operations Complex (MOC), and perform various additional follow-up actions described in the most recent Five-Year Review Report (USACE 2020c) in compliance with the U.S. Environmental Protection Agency (EPA) and ADEC regulations.

The RA-O and investigation activities occurred at Site 7, Site 8, Site 28, the MOC, MOC Site 15, the gravel airstrip, and gravel road.

Mobilization to NEC occurred in July 2022. Personnel stayed onsite in a fully equipped camp. Demobilization occurred in August of 2022.

Gravel Road and Gravel Airstrip and LUC Sign Repairs

Gravel road and airstrip repairs were completed to the extent possible. Gravel roads were made passable for pedestrians and vehicle traffic. The gravel airstrip was made usable in order to complete the 2022 field work; however, additional work will be needed in the future to restore the gravel airstrip to suitable functionality. The LUC signs installed during 2018 at the north end of the airstrip and along the gravel road near the Native Village of Northeast Cape were inspected, found to be missing or damaged, and were replaced with new signs.

Site 7 Landfill

Several settled areas of the landfill cap were backfilled with clean gravel acquired from the onsite borrow source, blended to match surrounding gravel landfill cap, a topographic survey was conducted, and a visual landfill cap inspection was performed. No significant issues were identified as a result of the visual landfill cap inspection.

It is recommended that landfill cap visual inspections continue to confirm landfill cap integrity, and an explanation of significant differences (ESD) be prepared to change from land use controls (LUCs) and deed notices to LUCs and an Environmental Covenant (EC) in accordance with the Uniform Environmental Covenants Act (UECA), as well as document that areas of the gravel landfill cap do not contain sufficient fine grained soil material to support robust plant growth, as identified in the Second Periodic Review report (USACE 2020b).

MOC – Site 15 Excavation

A total of 465 cubic yards (cy) totaling 517 tons of soil exceeding the site-specific cleanup level (SSCL) for diesel range organics (DRO) were removed from Site 15. The contingency soil remedy of excavation is now complete.

It is recommended that an ESD be prepared to document the anticipated change from a LUC in the form of a deed notice to an EC in accordance with the UECA, as identified in the Second Periodic Review report (USACE 2020b).

MOC – MNA Groundwater Sampling

Current groundwater conditions indicate natural attenuation is occurring in the vicinity of several monitoring wells at the MOC. Concentrations of DRO and lead that exceeded groundwater SSCLs and naphthalene exceeded the ADEC Table C groundwater cleanup level in the vicinity of select MOC monitoring in 2022.

The DRO groundwater plume is located along the northern margin of the MOC, which is the downgradient side of the site, which has a northwest flow direction. DRO in the groundwater samples collected from wells 14MW05 and 14MW06 exceeded the DRO SSCL of 1.5 milligrams per liter (mg/L) at 1.78 and 1.99 mg/L, respectively. Total lead in the groundwater sample collected from well 17MW1 exceeded the lead SSCL of 0.015 mg/L at 0.0176 mg/L, but the dissolved lead concentration (0.0103 mg/L) sample did not exceed the SSCL.

Mann-Kendall trend analysis identified a decreasing DRO concentration trend in groundwater samples collected from monitoring wells 14MW05 and 14MW06. Continued groundwater sampling of all MOC monitoring wells is recommended to confirm the decreasing DRO concentration trend in groundwater in the vicinity of 14MW05 and 14MW06, and to work towards establishing a trend in DRO concentrations in groundwater in the vicinity of 14MW01 and 14MW02. Continued groundwater sampling is recommended at monitoring well 17MW1 to work towards establishing a trend for total and dissolved lead in groundwater in the vicinity of the well.

Analytical results from wells located upgradient of the MOC and in the central portion of the MOC did not exceed SSCLs. Although there have been no exceedances of SSCLs or ADEC Table C cleanup levels in groundwater samples collected from wells 14MW03, 14MW04, 14MW07, 20MW1, 22MW2, 26MW1, MW10-1, MW88-1, MW88-10, MW88-3 during at least the past three sampling events (i.e., since 2014), to continue to build a complete dataset, it is recommended that at least one more round of groundwater samples be collected from all MOC monitoring wells during the next groundwater MNA event.

It is also recommended that an ESD be prepared to document the anticipated change from LUCs in the form of deed notices to LUCs in the form of ECs in accordance with the UECA for MOC Sites 10, 11, 13, 15, 16, and 19 as identified in the Second Periodic Review report (USACE 2020b).

Site 8 Supplemental Soil Investigation

At the Site 8 Pipeline Break, as a result of the 2022 supplemental soil investigation, concentrations of DRO and polycyclic aromatic hydrocarbons (PAHs) exceeding the sediment SSCLs and soil DRO SSCL were vertically and horizontally delineated within, and to the east, of the roadway. The total delineated area with soil exhibiting either PAH or DRO exceeding SSCLs was approximately 160 feet by 25 feet with an average depth of 6 feet, which is approximately 880 cy of contaminated soil.

The impacted areas slope southward toward the Suqitughneg (Suqi) river. Although high concentrations of petroleum constituents have been identified in soil, contamination does not appear to be migrating to either groundwater or surface water.

Site 28 Sediment Removal and Disposal

Contaminated sediment at Site 28 was successfully removed as a result of 2022 sediment removal activities. The total volume (30 bank cy) of available contaminated sediment was significantly lower than the 2018 estimated volume (196 bank cy) because the 2018 sediment mapping had overestimated the available sediment by counting several areas of submerged vegetation mat as sediment. Following the 2022 sediment removal effort, petroleum impacts remained bound in the soil substrate below the sediment layer but did not appear to be migrating to the Suqi river. One sediment sample with a result indicating a biased-low detection of 2-methylnaohthalene at 0.642 mg/kg as compared to the SSCL of 0.6 mg/kg was present immediately downstream of the natural stilling area in Sediment Removal Area 10. A fraction of organic carbon (foc) calculation from non-impacted sediment/soil substrate areas was calculated at 0.05421, significantly higher than the ADEC default of 0.001, which can indicate that petroleum constituents would not migrate as easily through the substrate. Biogenic interference was also observed in soil substrate samples collected from Site 28, resulting in an average decrease in DRO concentration in 2022 samples of 42 percent (%), suggesting that DRO concentrations observed at Site 28 are significantly increased by naturally occurring organics.

It is recommended that the updated sediment mapping and sampling standard operating procedure (SOP) and sediment sample DRO analysis both with silica gel cleanup and without silica gel cleanup be used during future Site 28 sediment mapping and sampling efforts.

Background Sampling

Ten discrete background samples were collected from uncontaminated areas near the NEC MOC gravel pad and analyzed for DRO with and without silica gel cleanup and foc. The calculated foc using uncontaminated background samples is 0.05195 with a relative standard deviation (RSD) of 80.6% between foc samples. This calculated value exceeds the ADEC default foc of 0.001 and should be used for the purposes of calculating site-specific alternative cleanup levels where applicable. Background sample lithology is similar to contaminated tundra soil areas on Site 28 and Site 8. Further supporting the background values applicability to other areas of NEC, the calculated 95% lower confidence limit (LCL) from background samples is similar to that calculated at Site 28 (0.05421).

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1.0 INTRODUCTION

This report presents the procedures and field activities for the Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews at the Northeast Cape (NEC) Formerly Used Defense Site (FUDS) F10AK0969-03 on Saint Lawrence Island, Alaska (Figure 1). This work was performed under the U.S. Army Corps of Engineers (USACE), Alaska District, Contract W911KB20D0002, Task Order W911KB21F0086.

The field activities documented in this report were performed by Brice Engineering, LLC (Brice), in accordance with the Alaska Department of Environmental Conservation (ADEC)-approved Work Plan, *Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews Formerly Used Defense Site F10AK096903 Northeast Cape, Saint Lawrence Island, Alaska* (USACE 2022), hereafter referred to as the Work Plan.

1.1 Project Objectives

Fieldwork at the NEC FUDS was conducted in July and August 2022 at Site 7, Site 8, Site 28, Site 15, the Main Operations Complex (MOC), and the gravel airstrip and gravel road (Figure 2). As detailed in the Work Plan, the primary objectives were to:

- Perform necessary repairs to site gravel roads and the gravel airstrip to ensure safe vehicle and pedestrian travel.
- Conduct maintenance and inspection of the Site 7 Landfill cap by backfilling two areas of settlement located near the top of the landfill cap and completing a landfill inspection.
- Complete a supplemental soil investigation at the Site 8 petroleum, oil, and lubricant (POL) spill.
- Excavate 330 bank cubic yards (cy) (approximately 430 cy or 500 tons) of residual diesel-contaminated soil at Site 15 Fuel Pipeline and transport for offsite disposal
- Pilot test sediment dredging or other vacuum equipment and techniques to improve the effectiveness of contaminated sediment removal from Site 28.
- Remove 196 cy of accumulated contaminated sediment from Site 28 and transport for offsite disposal. Following sediment removal Site 28 will be mapped and surveyed to evaluate the presence/absence and thickness of remaining sediment.
- Perform monitored natural attenuation (MNA) groundwater sampling at the MOC.
- Conduct maintenance on three monitoring wells, resurvey the well elevations, and complete decommissioning of one partially decommissioned monitoring well at the MOC. Inspect, and if necessary, repair land use control (LUC) signage at the gravel airstrip and gravel road (two signs).

1.2 Physical Setting

The NEC FUDS is on Saint Lawrence Island, Alaska, which is approximately 135 air-miles southwest of Nome in the western portion of the Bering Sea (Figure 1). The NEC FUDS is situated on the eastern side of the island, approximately 9 miles west of the island's northeastern cape. The FUDS property originally encompassed approximately 4,800 acres (7.5 square miles) and is bound by Kitnagak Bay to the northeast, Kangighsak Point to the northwest, and the Kinipaghulghat Mountains to the south (USACE 2015a).

The property consists mainly of rolling tundra rising from the Bering Sea toward the base of the Kinipaghulghat Mountains. The mountains rise abruptly to an elevation of approximately 1,800 feet above sea level roughly 3 miles from the coastline. The NEC FUDS is not connected to other permanent communities on the island by road and is only accessible by air, water, or all-terrain vehicle trails. The Village of Savoonga, the closest community, is approximately 60 miles to the northwest (Figure 1).

1.2.1 Climate

Saint Lawrence Island has a cool, moist, subarctic maritime climate, with some continental influences during winter when much of the Bering Sea is capped with pack ice. Winds and fog are common, and precipitation occurs approximately 300 days per year as light rain, mist, or snow. Annual precipitation is about 16 inches (rain plus snow water equivalent), and more than half of the annual precipitation falls as light rain between June and September. Annual snowfall is approximately 80 inches. Summer daily temperatures typically range between 34 degrees Fahrenheit (°F) and 48°F, with a record high of 65°F. Winter temperatures typically range from -2°F to 10°F, with an extreme low of -30°F. Freeze-up on the island normally occurs in October or November, and breakup normally occurs in June (USACE 2020a).

1.2.2 Geology

Saint Lawrence Island consists of isolated bedrock highlands of igneous, metamorphic, and older sedimentary rocks surrounded by unconsolidated surficial deposits overlying a relatively shallow erosional bedrock surface. The MOC is located at approximately 100 feet in elevation. In the area of the MOC, shallow unconsolidated surficial materials overlie quartz monzonitic rocks of the Kinipaghulghat Pluton (Patton and Csejtey 1980). The pluton forms the mountainous area south of the NEC FUDS, which includes Kangukhsam Mountain. The Suqitughneq River drainage in the Kinipaghulghat Pluton has created an erosional valley and alluvial fan of unconsolidated sediments. The NEC FUDS is located on this alluvial fan protruding north from the mountain front toward the Bering Sea. Granitic bedrock materials are exposed at the north coast of the site at Kitnagak Bay, which suggests that the quartz monzonitic bedrock underlies the unconsolidated materials at a relatively shallow depth on a wave-cut erosional platform (USACE 2015a).

The native soil stratigraphy at NEC is characterized by silt near the surface overlying more sand-dominated soil at depth. The silt contains varying quantities of clay/sand/gravel and varies from 0 to 10 feet in thickness. The silt is dark brown to dark green and sometimes exhibits a mottled texture. In some areas, the silt exhibits an aqua green or blue color. Dark brown silts are observed in outcrops. The sand at depth contains varying degrees of silt/gravel/cobbles that ranges from 2 feet to greater than 20 feet in thickness. These deeper, coarse-grained materials are generally unsorted and are likely to be of glaciofluvial origin. The depth to bedrock is unknown (USACE 2015a).

1.2.3 Hydrology

The aquifer at NEC is present within the unconsolidated alluvial material that underlies the area. Select regions, consisting of areas where bedrock blocks are breaking off to form talus fields flanking the Kinipaghulghat Mountains, are likely capable of transmitting large volumes of groundwater. The mountainous area to the south of the former installation provides an ideal recharge area for these unconsolidated materials, providing runoff from rain and snowmelt during the summer that permeates the broken bedrock, alluvial, and glacial deposits. Based on the topography and geology of the site, the regional groundwater flow direction is expected to flow north from the mountainous recharge area south of the site toward the Bering Sea. The shallow subsurface groundwater is likely seasonally thawed water

that can be spatially and temporally intermittent depending on variations to yearly levels of precipitation (USACE 2017a).

Key factors influencing seasonal groundwater flow are permafrost and frozen soil, which render the unconsolidated materials effectively impermeable in some areas. The U.S. Geological Survey has classified Saint Lawrence Island as an area of moderately thick to thin permafrost. Although the Saint Lawrence Island permafrost depth is unknown, the permafrost base on the mainland at Nome (135 air-miles to the northeast) is estimated to be 120 feet deep on average. The deeper, unconsolidated deposits at the site are likely permafrost, and the shallow soil represents the active layer where soil is frozen and thawed seasonally. Frozen soil has a profound effect in restricting groundwater flow during most of the year (USACE 2017a).

1.2.4 Land and Resource Use

Saint Lawrence Island residents from the villages of Gambell and Savoonga engage in subsistence fishing, hunting, and gathering in the NEC FUDS area year-round. Currently, there are not any permanent residents of the NEC area; however, representatives of the Native Village of Savoonga have indicated a desire to re-establish a permanent residential community at the site in the future (USACE 2015a).

Saint Lawrence Island supports habitat for the following endangered or threatened species: the polar bear (threatened); spectacled eider (endangered); Steller's eider (threatened); and the Western Distinct Population Segment of Steller sea lion (endangered). Walrus are protected under the Marine Mammal Protection Act. The area of NEC FUDS is used for the collection of berries and subsistence hunting of reindeer. The Suqitughneq River, located within the NEC FUDS, is used for subsistence fishing. The ocean surrounding the NEC FUDS is used extensively for subsistence activities, including fishing and hunting of whales, walrus, seals, and sea birds (USACE 2015a).

1.3 Site History

The NEC FUDS was constructed as an Aircraft Control and Warning Station (AC&WS) during 1950 and 1951 to provide radar coverage and surveillance for the Alaskan Air Command, and later for the North American Air Defense Command, as part of the Alaska Early Warning System. The site was activated in 1952 and a White Alice Communications System (WACS) station was added to the site in 1954. The AC&WS and WACS operations were supported by 212 personnel and terminated in 1969 and 1972, respectively. The majority of military personnel were removed from the site by the end of 1969 (USACE 2015a).

The NEC FUDS included areas for housing site personnel, power plant facilities, fuel storage tanks, distribution lines, maintenance shops, wastewater treatment facilities, and landfills. The buildings and most furnishings and equipment related to the AC&WS were initially abandoned in place due to the high cost of off-island transport (USACE 2015a). However, demolition of the buildings and other structures was completed between 1994 and 2004 (USACE 2015b). The runway, improved gravel roads, and concrete slabs of some of the former structures remain intact (USACE 2020a).

In 1971, the villages of Gambell and Savoonga opted out of the Alaska Native Claims Settlement Act, allowing for title to 1.136 million acres of land in the former Saint Lawrence Island Reindeer Reserve, which was established in 1903. The Gambell Native Corporation and Savoonga Native Corporation (now known as Sivuqaq, Inc. and Kukulget, Inc., respectively) received titles to all of Saint Lawrence Island (except U.S. Surveys 4235, 4237, 4340, 4369, and 3728) by Interim Conveyance Number (No.) 203, dated 21 June 1979. In 1982, the Navy obtained approximately 26 acres of land containing the former WACS.

The land transfer was later deemed invalid and property ownership was reverted to Sivuqaq, Inc. and Kukulget, Inc. (USACE 2015a).

Four remedial investigations (RIs) were conducted at the NEC FUDS between 1994 and 2004, during which environmental concerns were grouped into 34 sites (USACE 2015a). The main sources of contamination are attributed to spills and leaks of fuel products associated with aboveground storage tanks (ASTs), underground storage tanks (USTs), and associated piping. Other sources of contamination include electrical transformers, waste stored in 55-gallon drums, metal debris, and organic chemicals from paint, solvents, and other miscellaneous facility activities (USACE 2020a). In March 2007, USACE completed a Feasibility Study, which summarized the historical sampling results for each of the 34 sites, described the previous removal activities conducted, and evaluated a range of alternatives according to the criteria prescribed by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). In July 2007, a Proposed Plan, which summarized historical information and described the preferred remedial alternatives and rationale for each decision, was made available for public review and comment; and a final Decision Document (DD) resulted from the approved Proposed Plan (USACE 2021). In 2008, a separate Proposed Plan specific to the Site 7 Cargo Beach Road Landfill was prepared and provided for public review and comment and a final DD resulted from the approved Proposed Plan (USACE 2021).

In 2009, two DDs were signed identifying selected remedies and remedial action objectives (RAOs) for each site; the multi-site *Decision Document: Hazardous, Toxic, and Radioactive Waste (HTRW) Project #F10AK096903, Northeast Cape FUDS, St. Lawrence Island, Alaska* (USACE 2009a) and the *Decision Document: Site 7 Cargo Beach Road Landfill Containerized Hazardous, Toxic, and Radioactive Waste (CON-HTRW) Project #F10AK096905 Northeast Cape FUDS St. Lawrence Island, Alaska* (USACE 2009b). A range of alternatives was considered for each of the 34 individual sites, including no further action, LUCs, natural attenuation, long-term monitoring, phytoremediation, landfarming, thermal treatment, in situ chemical oxidation (ISCO), reactive walls, reactive matting, constructed wetlands, and excavation and offsite disposal.

The two DDs were signed in September 2009. Remedial actions and monitoring are ongoing.

1.3.1 Site 7 – Cargo Beach Road Landfill

Environmental sampling activities at Site 7 (Figure 3) have included the collection of soil, sediment, and groundwater samples, to determine if landfill contents were migrating. Samples have been primarily collected around the perimeter of the landfill, and in a limited quantity of soil within the landfill boundary. The Site 7 contaminants of concern (COCs) identified in the DD (USACE 2009b) include diesel range organics (DRO), residual range organics (RRO), polychlorinated biphenyls (PCBs), and arsenic in soil along with total aromatic hydrocarbons (TAH), total aqueous hydrocarbons (TAqH), and sheen in surface water per ADEC 18 Alaska Administrative Code (AAC) 70 (2020).

Several non-time-critical interim removal actions have been performed throughout the NEC FUDS to address the removal of CON-HTRW items, buildings and miscellaneous debris, and hotspots of contaminated soil (USACE 2009b). Prior to the finalization of the DD, Site 7 removal actions and investigations included:

- In 2000, more than 6 thousand 55-gallon drums were removed from the surrounding area.
- In 2003, 15 tons of scrap metal was removed from the area east of Cargo Beach Road.
- In 2005, approximately 14 tons of PCB-contaminated soil from six areas along the southeastern edge of the landfill was removed, as well as exposed drums and miscellaneous debris from the landfill perimeter edges (USACE 2009b).

- In 2007, a geophysical survey (USACE 2007b) was conducted to map the extent of buried metallic anomalies. The geophysical data were consistent with side-cast debris around the edges of a natural topographic mound. Most of the remaining debris identified was located at the northwest and southeast edges of the topographic mound. Buried debris was not identified to extend beneath Cargo Beach Road.

The selected remedies listed in the Site 7 DD (USACE 2009b) to address the RAOs and implementation status for Site 7 are presented in Table 1. The RAOs, as specified in the DD include:

- Reduce threats to human health, safety, and the environment.
- Remove drums containing POL, hazardous substances, pollutants, or contaminants, as necessary, to reduce the likelihood of future spillage, leakage, and exposure to humans, animals, and the food chain.
- Prevent current and future exposure to humans by ingestion, inhalation, and dermal contact with contaminated soil at levels above risk-based cleanup levels.
- Prevent exposure to ecological receptors by direct contact with contaminated soil/sediment above risk-based cleanup levels.

Table 1 Site 7 Remedy and Status

SELECTED REMEDY	IMPLEMENTATION STATUS
Expose underlying drums/debris by disturbing the upper approximately 1-foot of fill across the areas with mapped metallic anomalies (estimated 150,000 square feet) to determine if near-surface drums are present.	Completed in 2009. Ten test pits (10 feet by 10 feet by 4 feet) and 72 shallow potholes were advanced at Site 7 (USACE 2010a).
Excavate test pits or trenches distributed across the areas of known metallic anomalies to determine if large caches of drums are present.	Completed in 2009. Excavation during limited drum removal overlapped the areas with magnetic anomalies (129,000 square feet). Final excavation depth was not reported (USACE 2010a).
Remove or drain identified drums with liquid content; characterize the waste contents; transport offsite for proper disposal.	Completed in 2009. A total of 182 drums located in the test pits and potholes were drained, cleaned, and crushed before disposal offsite or burial under the landfill cap. Drum contents were comingled and sent to an offsite disposal facility (USACE 2010a).
Remove incidental contaminated soil associated with identified drums to the extent grossly stained soil is determined by the contractor and USACE Quality Assurance Representative; characterize the soil for disposal; transport offsite for proper disposal.	Completed in 2009. A total of 100 tons of soil was removed from 1 to 2 feet below the drums during excavation and sent to an offsite disposal facility (USACE 2010a).
Cap the debris with a minimum 2 feet of fill	Completed in 2009. Landfill cap material (28,994 cy) was transported to the site from a local borrow source and spread across the site (USACE 2010a).
Revegetate the site.	Initiated in 2009 (USACE 2010a). Additional seed and fertilizer were spread in 2011 (USACE 2012). Areas of the gravel cap do not contain sufficient fine-grained soil material to support robust plant growth. Despite the lack of vegetation on areas of the cap, the cap is stable and not eroding.
Survey the landfill boundary with map and text description.	Completed in 2009 (USACE 2010a).
Deed notation[1]	Not yet completed.
Implement LUCs to limit groundwater use and prevent construction of buildings on top of the landfill.[2]	Not yet completed. Signage installed September 2018.

Table 1 Site 7 Remedy and Status

SELECTED REMEDY	IMPLEMENTATION STATUS
Visual monitoring of the cap for settlement and erosion over a period of 5 years, with visual monitoring included in Periodic Reviews for up to 30 years, if deemed necessary.	Periodic Reviews ongoing. Annual visual monitoring completed between 2011 and 2015 (Craner 2011; Shewman 2012; Geist 2013; USACE 2016a). First Periodic Review conducted in 2013 (USACE 2015b). Visual monitoring for the Second Periodic Review was performed during 2018.

Notes:
For definitions, refer to the Acronyms and Abbreviations section.
[1] The landowner will be requested to provide confirmation of existing land use at the time of review, and any change in land use will trigger a review of the remedy protectiveness.
[2] It is anticipated LUCs will be recorded as a deed notice in the form of an Environmental Covenant in accordance with the UECA.

The selected action from the DD for this site is intrusive investigation of metallic anomalies, removal of an estimated 50 drums with contents, removal of 50 cy of severely stained soil, placement of 2 feet of soil cover over the buried debris, site revegetation, periodic visual monitoring of the landfill cover, survey of the landfill boundary, deed notation, and implementation of LUCs to limit groundwater use and prevent construction of buildings on top of the landfill materials. Following cap construction, periodic visual monitoring for settlement and erosion is to be conducted over a period of 5 years immediately following the closure. Up to 30 years of additional visual monitoring may be conducted if deemed necessary based on the results of the site inspections (USACE 2021). In 2014, maintenance of the cap occurred when fill material was added to a small area where settling was noted. A long-term management plan was prepared for the site in 2016 (USACE 2016). In 2014, 2015, and 2018, site inspections were conducted. During the 2018 site inspection, signage was installed, and two areas were identified near the top of the landfill where the landfill cap had settled.

The Second Periodic Review Report for Site 7 Cargo Beach Road Landfill (USACE 2020b) identified several recommendations and follow-up actions for the site, as identified in Table 2.

The periodic review concluded that the remedy at Site 7 is expected to be protective of human health and the environment upon its completion. However, the periodic review recommended conducting maintenance of the landfill cap by adding fill to areas which have settled.

Table 2 Site 7 Recommendations and Follow-Up Actions

ISSUE No.	FOLLOW-UP ACTIONS	RESPONSIBLE PARTY	REGULATORY PARTY	MILESTONE DATE
1	Record the deed notice and implement the LUCs as described in the DD.	USACE	ADEC	2021
2	Conduct maintenance of the landfill cap by adding fill to areas which have settled.	USACE	ADEC	2025
3	The change from LUC and deed notices to UECA and Environmental Covenants, as well as documentation that areas of the gravel cap do not contain sufficient fine-grained soil material to support robust plant growth, should be addressed in an ESD document.	USACE	ADEC	2025

Notes:
For definitions, refer to the Acronyms and Abbreviations section.

1.3.2 Site 8 – Pipeline Break

Site 8, also known as the Pipeline Break, is located southwest of the intersection of the access roads to Cargo Beach and the airstrip (Figure 5). A POL spill resulted from a surface pipeline break. The break occurred in wetland underlain by sand and cobbles and covered with a thick surface vegetative mat that sloped southward toward the Suqitughneq River. The exact location of the break is unknown, and the general area was identified by information obtained from community members; however, the approximate location has been refined based on subsequent sediment and soil sample results. Based on sampling results from the 2016 Site 8 and Suqitughneq River Surface Water and Sediment Sampling event conducted by Environmental Compliance Consultants and Jacobs Engineering, it is presumed that the pipeline transferred diesel fuel from the Site 3 pump house to the Site 11 bulk storage tanks in the MOC.

In 2000, the surface pipeline and tanks were drained and removed (USACE 2017a). In 2004, two sediment samples and one surface water sample were collected at Site 8 to assess the potential fuel impacts to the area. Sediment samples were collected 50 to 100 feet downgradient of the suspected location pipeline break. DRO was identified above cleanup levels in sediment at concentrations of 6,700 milligrams per kilogram (mg/kg) (sample 04NE08SD103) and 19,500 mg/kg (sample 04NE08SD102); no exceedances were identified in surface water (USACE 2017). RRO was also detected in concentrations greater than the ADEC Method Two Over 40-Inch Cleanup levels, however concentrations of RRO in samples were less than the ADEC Method Two Over 40-Inch Cleanup levels after a silica gel cleanup, indicating the presence of a high amount of organics in soil at the site. The potential for significant adverse effects to human and ecological receptors at Site 8 is considered low because of the high organic content of the sediment, which promotes fuel component binding minimizing the potential for contaminant migration (USACE 2009a). The selected remedies listed in the DD, RAOs, and implementation status for Site 8 are presented in Table 3.

In 2010, the DD-selected remedy of MNA of petroleum-contaminated sediment was initiated. Three decision units (DUs) were established in the area of the suspected the pipeline break so that representative samples could be collected to monitor the progress of natural attenuation: the Upper Decision Unit (UDU), upgradient of the source area; the Middle Decision Unit (MDU), encompassing the likely pipeline release point; and the Lower Decision Unit (LDU), downgradient of the suspected release point (Figure 5). Each DU was subdivided into a sample grid 4 columns wide by 10 rows long, creating 40 grid squares measuring approximately 10 feet by 10 feet (USACE 2017a).

From 2010 through 2012, discrete samples were collected from eight random grid nodes in each DU and composited to provide one representative sample from each DU; these samples were analyzed for both DRO and RRO before and after silica gel cleanup, polycyclic aromatic hydrocarbons (PAHs), and total organic carbon (TOC). Samples were inconsistently referred to as sediment and/or soil during this time so the application of the appropriate DD-specified site-specific cleanup levels (SSCLs) is not possible (USACE 2017a).

In 2014, the first five-year review conducted at Site 8 indicated that the composite sampling conducted in 2010, 2011, and 2012 may have under-represented the DUs due to the limited number of subsamples collected per DU. The first five-year review recommended establishing the average DU concentration using a multi-incremental sampling approach (USACE 2017a).

Table 3 Site 8 Remedy, RAOs, and Status

SELECTED REMEDY TO ACHIEVE THE RAO	RAO	IMPLEMENTATION STATUS
MNA of petroleum-contaminated sediment for a period of 3 years.	Prevent exposure to ecological receptors by direct contact with contaminated soil/sediment above risk-based cleanup levels.	Complete
Periodic review of petroleum-only contaminated sites with residual contamination performed approximately every 5 years from the date of final signature of the DD (USACE 2009a) until cleanup levels are met.[1]		Incomplete
LUC to record a deed notice that this area should not be used for residential land use without additional investigation and/or cleanup.[2]	Prevent ingestion of groundwater containing contaminants at levels above state drinking water standards and pertinent risk-based standards for petroleum hydrocarbons.	Incomplete

Notes:
For definitions, refer to the Acronyms and Abbreviations section.
[1] The landowner will be requested to provide confirmation of existing land use at the time of review, and any change in land use will trigger a review of the remedy protectiveness.
[2] It is anticipated LUCs will be recorded as a deed notice in the form of an Environmental Covenant in accordance with the UECA.

In 2016, a soil and sediment investigation was conducted at the site, but due to the presence of the Cargo Beach Road, the site could not be fully delineated. A total of 83 samples (44 soil and 39 sediment) were collected between 1.0 to 2.5 feet below ground surface (bgs) from 75 sample locations. Analytical results indicated POL contamination exceeding SSCLs was present downgradient of the suspected pipeline break and along the eastern edge of both the MDU and LDU and the western toe of the road. The sediment samples exceeded the SSCLs for DRO, RRO, and 2-methylnaphthalene, and the soil samples exceeded the SSCL for DRO only. Although sediment exceeded the RRO SSCL, there is no record of anthropogenic sources of RRO at Site 8; and based on chromatogram interpretation, the presence of RRO was attributed to biogenic interference of natural organic matter (USACE 2017a).

An attempt was made to modify the existing DUs using the data collected in 2016. In 2018, a site inspection was performed; however, sediment samples were not collected as anticipated. Sediment samples were not collected due to an insufficient volume of sediment, (defined in the DD as “continuously submerged”) to provide enough sampling and analytical data to perform representative monitoring. Intermittently submerged sediments (e.g., ephemeral ponds, wet tundra) at Site 8 are considered soil. Contaminated sediment and soil remain onsite above the NEC SSCLs (USACE 2020b). The Second Periodic Review Report for Multiple Sites (USACE 2020a) identified recommendations and follow-up actions for the site as shown in Table 4.

Table 4 Site 8 Recommendations and Follow-Up Actions

ISSUE No.	RECOMMENDATIONS/FOLLOW-UP ACTIONS	RESPONSIBLE PARTY	REGULATORY PARTY	MILESTONE DATE
1	Complete the implementation of LUCs by filing a deed notice anticipated to be in the form of an Environmental Covenant in accordance with the UECA, to record areas identified with residual contamination above DD cleanup levels (USACE 2009a). LUCs at Site 8 should not be implemented until a supplemental soil investigation occurs.	USACE	ADEC	2025
2	Complete a supplemental soil investigation to delineate the lateral and vertical extent of soil contamination east of the 2016 sampling area and revise the location of the historical pipeline spill currently estimated based on 2016 and supplemental sample data. Evaluate exposure risk and protectiveness as part of the next Periodic Review.	USACE	ADEC	2025
3	Discontinue MNA sediment sampling at Site 8 until the supplemental soil investigation is complete.	USACE	ADEC	2025
4	The anticipated change from LUCs (i.e., deed notices) in the form of Environmental Covenants in accordance with UECA should be addressed in an ESD document.	USACE	ADEC	2025

Notes:
For definitions, refer to the Acronyms and Abbreviations section.

The Periodic review concluded that the remedy at Site 8 currently protects human health and the environment because there is no direct exposure pathway between the contaminated material and the receptor. However, for the remedy to be protective in the long-term, DRO contamination must be delineated laterally and vertically in soil east of the 2016 sample locations to further evaluate exposure risk and whether additional action is necessary to achieve protectiveness.

1.3.3 Site 28 – Drainage Basin

The Site 28 Drainage Basin lies north of the MOC and flows north into the Suqitughneq River (Figure 6A). This site has been impacted by diesel releases from the bulk fuel storage tanks, as well as other spills and releases, such as drainage from the heat and power plant drain and manhole. Surface water run-off drains and subsurface water seeps from the MOC gravel pad drain into this tundra/wetland area (USACE 2009a).

Three distinct drainages originate from the upgradient MOC gravel pad and contribute flow to Site 28 (Figure 6A). The eastern drainage flows from the area adjacent to Sites 10 and 11, a vegetated area north of the former fuel tanks; the middle drainage originates from an area where a culvert that previously directed flow from MOC Site 27 was removed during 2010 remedial actions; and the western drainage is downgradient of Site 13. The western drainage originated from a manhole and a small, concrete supporting structure just north of the perimeter access road, which emptied into an artificially created swale. The manhole likely served as the drain leading from Building 110 (Heat and Electrical Power Building) at the MOC. In 2010, the concrete manhole structure was cleaned and removed (USACE 2013).

At Site 11, soil staining has been observed near the head of the eastern drainage and at the former AST locations but was later removed during contaminated soil removal action efforts. Additionally, sediments in the upper portion of the Site 28 Drainage Basin that were described as stained were removed during the 2012/2013 sediment removal action; however, some sediment within Site 28 has since been described as producing sheen when disturbed. Between 1994 and 2001, sampling activities occurred at the drainage

basin. Based on data available before 2011, the primary COCs in soil and sediments included chromium, lead, zinc, PCBs, PAHs, DRO, and RRO. The highest concentrations of contaminants were located proximal to the edge of the MOC gravel pad (USACE 2013).

In 1994, 1996, and 2001, surface water samples were collected from the drainage basin. In 1994, concentrations of DRO, total recoverable petroleum hydrocarbons, PCBs, and lead exceeded cleanup levels. Surface water samples collected in 2001 were analyzed for DRO, RRO, and PCBs. The samples were not analyzed for lead. DRO was detected at concentrations ranging from 0.39 milligrams per liter (mg/L) to 2.3 mg/L. PCBs and RRO were not detected. Analytical results indicated that the most heavily contaminated surface waters of the drainage basin were found at the head of the western and middle drainages, located at the terminus of the former culverts (USACE 2013).

The selected remedy in the site DD (USACE 2009a) included excavation and disposal of POL, metals, and PCB-contaminated sediments, to include removal of near-surface sediments from the narrow active channel, construction of a sedimentation pond, and information LUC signage. Selected remedies, RAOs, and status are described in Table 5.

Table 5 Site 28 Remedy, RAOs, and Status

SELECTED REMEDY TO ACHIEVE THE RAO	RAO	IMPLEMENTATION STATUS
Construct a sedimentation pond or other appropriate controls. The ends of the culverts would also be cleaned out and removed or plugged to prevent direct outflows of upgradient residual sources of contamination (USACE 2009a).	Prevent migration of contaminants into the Suqitughneq river above risk-based cleanup levels.	Ongoing[1]
Excavation and removal of petroleum-, PCB-, and metals-contaminated sediment, including the removal of near-surface sediments from the narrow channel upgradient of the Suqitughneq River.		Ongoing
Periodic Reviews as necessary until cleanup levels are met.	Mitigate potential future risk to human health from ingestion, inhalation, and dermal contact with soil/sediment exposure pathways. Meet pertinent risk-based cleanup levels in sediment.	Ongoing

Notes:
For definitions, refer to the Acronyms and Abbreviations section.
[1] The construction of a sedimentation pond or other controls is not necessary to prevent migration of contaminants above risk-based cleanup levels into the Suqitughneq River. This will be addressed in an ESD document.

In 2010, approximately 95 feet of culvert was removed, and one culvert was capped (USACE 2011). The concrete manhole structure in the western drainage was also cleaned and removed. Sludge inside the manhole contained concentrations of DRO up to 68,000 mg/kg, PCB Aroclor 1254 up to 20 mg/kg, arsenic at 41 mg/kg, barium at 820 mg/kg, cadmium at 18 mg/kg, lead up to 5,000 mg/kg, mercury up to 15 mg/kg, and silver up to 16 mg/kg (USACE 2011). A 12-inch corrugated metal pipe that attached to the manhole and continued upgradient toward the MOC was cut, and 63 feet of the pipe was removed. The open end of the pipe was filled with bentonite and welded shut. In the middle drainage, another 12-inch corrugated metal pipe measuring 32 feet in length was completely removed (USACE 2011).

In 2011, sediment and soil sampling were conducted along 11 transects placed between the upper end of Site 28 (near the MOC) and its confluence with the Suqitughneq River to delineate the extent and magnitude of contamination at Site 28. Transect lines were placed to include areas of historical

contamination and were analyzed to gain a general understanding of the potential contaminants throughout the drainage. Sediment results were compared to the criteria specified in the DD when applicable. If sediment criteria were not listed in the DD for a particular analyte, evaluation criteria were based on the National Oceanic and Atmospheric Administration (NOAA) Screening Quick Reference Tables for freshwater sediment at the probable effect level (Buchman 2008). Some of the samples collected in 2011 did not meet the project definition of sediment, so soil cleanup levels were used for screening purposes.

In 2012, additional sediment mapping and sampling were conducted. Streams and ponds in the drainage basin were inspected to define the horizontal boundaries of the sediment accumulation areas and probing was conducted to determine the thickness of the sediment (USACE 2013). The mapping efforts identified approximately 400 cy of sediment in 22 locations along the drainage (USACE 2013).

In September 2012, following the mapping and sampling effort, Phase I of the sediment removal remedy was initiated in three areas. Two removal methods, excavation and a combination of a Venturi dredge and geotextile dewatering tube, were evaluated for efficacy and implementability.

- An excavator removed sediment in Areas 1 and 2, just north of the MOC gravel pad. This method allowed sediment to be dewatered in place but is limited to areas with firm ground such as the MOC gravel pad or a road. The excavator removed approximately 5 cy of sediment from Area 1 in the western drainage and 16 cy from Area 2 near the middle drainage. In Area 1, DRO, acenaphthylene, naphthalene, and 2-methylnaphthalene exceeded cleanup criteria in both confirmation samples. In Area 2, the same analytes plus RRO, acenaphthene, fluorene, and phenanthrene exceeded cleanup levels.
- The Venturi dredge was used in Area 4 in the main channel of the drainage. This method can be used where the excavator cannot travel but requires large volumes of water to remove the sediment. Following removal, the sediment must be separated from the water and the water must be confirmed to meet discharge requirements before release. The dredge removed approximately 18 cy of sediment from Area 4. No confirmation samples were collected. Approximately 135 cy of contaminated sediment remained at Area 4 at the conclusion of the 2012 field season (USACE 2013).

In 2013, sediment removal continued within Areas 3 through 11 (USACE 2015a):

- At Areas 5, 6, and 7, vegetative material routinely clogged the in-line pumps. Sediment and vegetative material were removed by hand instead of using the dredge. Personnel donned dry suits, entered the shallow ponds, and rolled/scooped up the sediment/decaying plant material in large pieces. Material was placed at the edge of each pond and an excavator was used to place the material in bulk bags for disposal (USACE 2013).
- Removal Area 8 was a small pond in 2012; however, it was dry in 2013. Material from this area was removed by excavator and placed directly into a bulk bag for disposal.
- Sediment was removed from Areas 3, 4, 7, 9, 10, and 11 using the Venturi dredge and geotextile dewatering system.
- Surface water samples were collected at three locations before, during, and after sediment removal and at one location downstream of the sediment trap. Samples were analyzed for DRO; RRO; benzene, toluene, ethylbenzene, and total xylenes (BTEX); PAHs; PCBs; and total and dissolved Resource Conservation and Recovery Act (RCRA) metals plus nickel, vanadium, and zinc. All surface water samples were below applicable surface water criteria, and no sheen was observed (USACE 2015a).

- At the conclusion of the 2013 field season, several analytes, including DRO, RRO, low-molecular weight PAHs (LPAHs), arsenic, chromium, 2-methylnaphthalene, acenaphthene, fluorene, naphthalene, and phenanthrene, remained at concentrations greater than cleanup levels. Analytes exceeding cleanup levels remained within all 11 sediment removal areas. In addition, acenaphthylene, 1-methylnaphthalene, and selenium were identified in sediment.

During 2012/2013 removal activities, the water and sediment removed using the dredge system were moved to a water processing area west of Site 28. The processing area consisted of two 20,000-gallon-capacity lined containment cells approximately 60 by 30 feet and 1.5 feet deep. The primary containment area consisted of a geotextile dewatering tube for sediment dewatering designed to contain the sediment while allowing water to pass through the pore spaces. The pore size ranged from 59 to 350 microns. Water was then treated through a scrubber—a natural cellulose fiber that selectively absorbs hydrocarbons inside high-density polyethylene containers with an inlet at the top. Water then flowed to the second set of containment cells to await analytical results prior to discharge. In 2012, the samples collected from the treated water did not meet discharge criteria for TAH and TAqH identified in the State of Alaska Wastewater General Permit 2009DB0004-0216 (USACE 2013). No water was discharged. Excavated sediment and treated water from Area 4 remained within the lined containments over the winter.

Following the 2012 field activities, changes to the sediment/water treatment system were made to discharge treated water and implement this remedy effectively. In 2013, a SPINPRO HydroMizer polymer feed system with injection pump was introduced into the piping line prior to sediment capture in the geotextile tube to facilitate coagulation and settling (USACE 2013). The water filtration system was modified to consist of two sock filters (water first flowed through a 25-micron filter, then through a 5-micron filter), followed by a scrubber containing hydrocarbon-absorbent cellulose fibers (USACE 2015a). After the first batch of water was processed in 2013, analytical results indicated water was still above the TAqH criterion (USACE 2015a). A granular activated carbon (GAC) system was added as the last treatment step and the hydrocarbon scrubber was eliminated. Analytical results from the first batch using the modified treatment system were below discharge criteria presented in the State of Alaska Wastewater General Permit 2009DB0004-0216 and 18 AAC 70. ADEC and USACE agreed that pre-treated water containment samples were no longer needed and treated water was discharged to the ground (USACE 2015a).

During 2012/2013 activities, silt fencing and an in-stream sediment trap were used to control and minimize downstream sediment migration. Silt fencing was used where there was no direct flow to the main channel of the Suqitughneq River and was placed on the north side of the ponded area. The sediment trap was placed downstream of sediment Removal Area 4. The trap was a steel box, 8 feet wide by 4 feet deep, with the rear (downstream) height extending approximately 6 feet high and tapering to a front section approximately 4 feet high. Rectangular slots allowed water to flow down and through the box. Unrolled jute mats were placed inside the trap, upstream, and downstream of the trap (USACE 2015a). The silt fencing and sediment trap were removed at the end of the 2013 sediment removal effort. Approximately 265 cy of sediment were removed during the 2012/2013 removal effort.

During the 2014 field season, sediment dewatering tubes and water containments were removed from the Site 28 work pad.

In 2018, field activities included the mapping of sediment and surface water and the collection of sediment samples. The surface water bodies measured at Site 28 extended from the border of the MOC to the confluence with the Suqitughneq River. The lateral and vertical extent of the surface water bodies were measured if they appeared greater than 30 feet in diameter. A real-time kinematic (RTK) Global

Positioning System (GPS) was used to collect survey positions around the edge of major water bodies at Site 28. The depth of the water body was collected during the sediment mapping activities.

During the 2018 sediment mapping effort, submerged areas were characterized as sediment or vegetative mat within the surveyed water bodies. For this evaluation, sediment was defined as all continuously submerged loose material and organic material, except that which is actively growing vegetation and is part of the vegetative mat. If no material that met the project definition of sediment was identified (e.g., only vegetative mat present), the lack of sediment was documented, and no further evaluation occurred in that water body. When sediment was identified, the vertical extent of sediment was measured. For discrete water bodies containing sediment, north/south and east/west transects were established. Transects crossed approximately at the center of the sediment area in the water body to measure thickness. A graduated hand probe was used to measure sediment thickness to the nearest 0.1 foot starting from the edge of the sediment area and at intervals not exceeding 10 feet.

During 2018, a total of 54 sediment samples were collected from 0 to 2 feet bgs or until refusal was met with the hand tool. Forty-five samples were collected from surveyed locations based on the 2012 sediment mapping effort (USACE 2013). Seven additional locations (locations S28- 04, -11, -25, -38, -42, -43, and -51) were staked and surveyed in either vegetative mat or on dry land. These seven locations were relocated to suitable sample locations because the original staked survey locations did not contain sediment as defined by the project. Three sediment samples of opportunity were collected from water bodies that contained a fuel odor or sheen (locations S28-51, 52, and 53). Sediment samples collected from Site 28 were analyzed for DRO and RRO with and without silica gel cleanup, TOC, PAHs, PCBs, and metals (arsenic, chromium, lead, selenium, and zinc). The concentrations of PAHs, PCBs, and metals were below the SSCLs. Exceedances of DRO and RRO did not occur beyond the natural stilling area. This distribution of contamination indicates the existing wetland is preventing contaminants above risk-based cleanup levels from moving downgradient from the natural stilling area to the Suqitughneq River. A total of 281 cy of sediment was estimated to be present at Site 28 water bodies, with an estimated 196 of the 281 cy containing compounds exceeding their respective SSCLs. Impacted sediments are within Areas 2 through 9 (excluding area 5-South).

Site 28 has reached construction completion; however, contaminated sediment remains above the SSCLs, and further remedy implementation was recommended in the recent periodic review report (USACE 2020a). This recommendation included continuation of remedy implementation (removal of contaminated sediment) where 2018 sediment results indicated COCs are present in sediment above DD-established cleanup levels including pilot testing to assess if effectiveness of sediment removal (dredging) can be improved. As a separate effort, an explanation of significant differences (ESD) will be prepared to formally document that the contamination remaining at the southern end of Site 28 is associated with Site 11, why continued remedy implementation (excavation) at Site 28 is not feasible due to the presence of shallow groundwater and anticipated significant impacts to wetlands, and construction of a sedimentation pond in Site 28 is not necessary to prevent migration of contaminants above risk-based cleanup levels in the Suqitughneq River (USACE 2020a). The Site 28 Recommendations and Follow-Up Actions identified in the 2020 Periodic Review are included in Table 6.

Table 6 Site 28 Recommendations and Follow-Up Actions

ISSUE No.	RECOMMENDATIONS/FOLLOW-UP ACTIONS	RESPONSIBLE PARTY	REGULATORY PARTY	MILESTONE DATE
1	Continue remedy implementation (removal of contaminated sediment) until cleanup levels are met. Conduct pilot testing to assess if effectiveness of remedy implementation (dredging) can be improved.	USACE	ADEC	2025
2	The contamination remaining at the southern end of Site 28 associated with Site 11 should be documented in an ESD. In addition, formally document in the ESD why continued remedy implementation (excavation) at the site is not feasible due to the presence of shallow groundwater and anticipated significant impacts to wetlands.	USACE	ADEC	2025
3	Complete an ESD for Site 28.	USACE	ADEC	2025

Notes:
For definitions, refer to the Acronyms and Abbreviations section.

1.3.4 Main Operations Complex (Sites 10, 11, 13, 15, 19, 27)

The MOC at the NEC FUDS contained the majority of the site infrastructure and was partitioned into various sites throughout the site history. Sites 10, 11, 13, 15, 16, 19, and 27 are within or near the MOC (Figure 2). Site 11 historically contained three 400,000-gallon ASTs, one of which was punctured in the late 1960s, leading to a large release of diesel fuel. Other potential contaminant sources originated from Site 13, the former Heat and Power Plant, which contained a variety of ASTs and USTs, diesel generators, and power transformers; Site 15, where a fuel pipeline break resulted in a diesel fuel spill; the Site 16 Paint and Dope Storage building, originally a flammable liquids storage facility with an AST; Site 19, which once contained an auto maintenance building; and Site 27, an equipment and vehicle refueling area consisting of a small shed and a concrete valve box attached to a buried fuel pipeline, which was connected to the large ASTs at Site 11. During the 2000 through 2005 removal actions, the MOC infrastructure, including buildings, tanks, and piping, were demolished, and transported offsite (USACE 2009a).

Primary sources of contamination at the MOC included ASTs, USTs, and all associated piping that contained fuel products; secondary sources included residual subsurface fuel-contaminated soil caused by historical spills. Electrical transformers, 55-gallon drums, and miscellaneous activities contributed to site contamination (USACE 2009a). Historically, COCs observed in soil at the MOC above SSCLs are DRO, PCBs, and naphthalene; DRO, benzene and arsenic have been observed in groundwater. Shallow groundwater is contaminated throughout the northern portion of the MOC (USACE 2020a).

The selected remedy for the MOC includes chemical oxidation to treat petroleum-contaminated groundwater and soil with a contingency for excavation and disposal of petroleum-contaminated soil should chemical oxidation technology prove impractical. The contingency also includes MNA of groundwater, land use controls, and periodic reviews.

To implement the remedy, preliminary ISCO bench and field testing were conducted (USACE 2010b). The bench study indicated site conditions were potentially unfavorable for ISCO due the presence of naturally occurring organic compounds in site soil that compete contaminants for oxidation. The potential for increased short-term mobilization of contaminants into water was also identified. In the field, a pilot study was conducted by injecting hydrogen peroxide and iron-activated sodium persulfate into injection wells, but the target volume could not be injected due to preferential pathways in soil leading to surface releases

of the oxidant materials (USACE 2010b). Due to these limitations, it was determined that ISCO was unlikely to achieve target cleanup levels for COCs, and the contingency was implemented instead (USACE 2020a).

In 2010, to implement the contingency remedy of excavation, soil contamination was further delineated through direct-sensing Ultra-Violet Optical Screening Tool (UVOST) (USACE 2011). A total of 198 probe locations were advanced around the MOC to final depths between 10 and 24 feet. The areas corresponding to DRO concentrations of 9,200 mg/kg or greater were mapped and 10 plumes were labeled A through J across the MOC to Site 28. These plume locations correspond with site contamination identified in previous investigations for Sites 13, 15, 19, 27, and an additional subsurface location to the west (A1 plume). Plume locations were used to guide subsequent soil excavations to the extent practicable.

As required by the DD, an MNA program was initiated in 2010 for groundwater at the site. The current groundwater monitoring wells at the MOC can be grouped according to position relative to contamination. Wells 26MW1, 22MW2, 20MW-1, and 14MW07 are located upgradient of all known petroleum sources; wells 17MW1 and MW10-1 are crossgradient to known petroleum sources; and wells MW88-1, MW88-3, MW88-10, 14MW01, 14MW02, 14MW03, 14MW04, 14MW05, and 14MW06 are within petroleum source areas (USACE 2020a). Additional monitoring wells were not installed within Site 28 downgradient from the MOC source areas because freeze/thaw cycles and the resulting frost heave would damage the wells. Groundwater samples collected from the wells at the MOC are analyzed for DRO, RRO, BTEX, PAHs, PCBs, and total and dissolved RCRA metals plus nickel, vanadium, and zinc, alkalinity, dissolved manganese, sulfate, and methane. Additionally, MNA field parameters are monitored for nitrate, sulfate, ferrous iron, and turbidity.

In 2011, the contingency remedy of soil excavation was initiated for various MOC sites (USACE 2012a). Additional excavations were opened in 2013, and several additional rounds of excavation were conducted in 2014.

The MOC sites recommendations and follow-up actions in the second periodic review (USACE 2020a) are described in Table 7.

Table 7 MOC – Sites 10, 11, 13, 15, 19, and 27 Recommendations and Follow-Up Actions

SITE	RECOMMENDATIONS/FOLLOW-UP ACTIONS	RESPONSIBLE PARTY	REGULATORY PARTY	MILESTONE DATE
10, 11, 13, 15, 19, 27	Complete the implementation of LUCs by filing a deed notice anticipated to be in the form of an Environmental Covenant in accordance with the UECA, to record areas identified with residual contamination above DD cleanup levels (USACE 2009a).	USACE	ADEC	2025
10, 11, 13, 15, 19, 27	Conduct maintenance on monitoring wells 14MW05, MW88-1, and MW88-3 and re-survey the top of casing elevations following maintenance. Abandon the partially decommissioned well at Site 19.	USACE	ADEC	2025
15	Complete the implementation of the remedy (remove residual DRO-contaminated soil above the SSCL).	USACE	ADEC	2025
10	Discontinue groundwater sample analysis for ethylene glycol and volatile organic compounds downgradient of Site 10 (monitoring wells MW10-1 and 14MW06) because the previously identified data gap is closed.	USACE	ADEC	2025

Table 7 MOC – Sites 10, 11, 13, 15, 19, and 27 Recommendations and Follow-Up Actions

SITE	RECOMMENDATIONS/FOLLOW-UP ACTIONS	RESPONSIBLE PARTY	REGULATORY PARTY	MILESTONE DATE
10, 11, 13, 15, 19, 27	The anticipated change from LUCs (i.e., deed notices) in the form of Environmental Covenants in accordance with UECA should be addressed in an ESD document.	USACE	ADEC	2025

Notes:
For definitions, refer to the Acronyms and Abbreviations section.

1.3.4.1 Site 15 – Fuel Pipeline

Site 15 – Fuel Pipeline is adjacent to MOC Site 13 and includes the pipeline corridor connecting to the diesel fuel pump island at MOC Site 27 (Figure 5). A break in this fuel line resulted in a diesel fuel spill (USACE 2009a). In 2001, a 2,000-gallon UST, the pipeline, and surrounding stained soil were removed; an investigation in 2002 detected DRO at a maximum concentration of 16,000 mg/kg at 6 to 8 feet bgs (USACE 2020a).

In 2011, the contingency remedy of soil excavation was initiated after the 2010 UVOST investigation delineated the F and G plumes near historical contamination at Site 15. The locations of the F and G plumes coincide with the highest DRO contamination indicated in the DD (USACE 2009a) and FS (USACE 2007a). The DD and the UVOST investigation stated the contamination was expected to be 8 to 15 feet bgs in this area. In 2011, an attempt to excavate the G plume was unsuccessful when groundwater was encountered at 7 feet bgs before the excavation could advance to the target depth of contamination at 8 to 9 feet bgs. No contaminated soil was excavated (USACE 2012a).

In 2012, groundwater levels were lower, and soil was excavated in the F and G plumes to a depth of approximately 12 feet bgs, which was 2 feet below the groundwater surface. The excavation was guided by field screening results; when these results indicated that the boundary had been reached, excavation confirmation samples were collected. Following 2012 excavation activities, three excavation floor confirmation soil sample locations (12NCMOCSS033, 12NCMOCSS037, and 12NCMOCSS039) were above the SSCL at 12 feet bgs (USACE 2021).

As indicated in Table 8, removal of residual DRO-contaminated soil above the SSCL at Site 15 was recommended in the Second Periodic Review (USACE 2020a).

2.0 REGULATORY CRITERIA

Cleanup levels for COCs in soil, sediment, groundwater, and surface water are defined by the DDs. Soil cleanup levels were developed based on the Human Health and Ecological Risk Assessment to be protective of future residential use of the site. The cleanup levels for sediments are risk-based concentrations that are protective of human health and ecological receptors - compounds with no SSCL were compared to the sediment screening levels in the Washington Administrative Code 173-204-520, Table III, Sediment Minimum Cleanup Levels. Groundwater cleanup levels were defined by 18 AAC 75 (ADEC 2023). Surface water cleanup levels were defined by ADEC 18 AAC 70 (ADEC 2020b).

For purposes of this work, sediment is defined as all continuously submerged loose mineral and organic material except that which is actively growing vegetation and is part of the vegetative mat; therefore, sediment cleanup levels are only applicable to continuously submerged sediment. Sediment that is intermittently submerged was considered soil. Tables 8 and 9 present project specific sediment, soil, groundwater, and surface water criteria.

Each site was sampled for the following:

- Site 8 – Soil/sediment: DRO/RRO (with and without silica gel cleanup), and PAHs.
- Site 15 – Soil: DRO only.
- Site 28 –
  - Sediment: DRO/RRO (with and without silica gel cleanup), 2-methylnaphthalene, acenaphthene, fluoranthene, fluorene, naphthalene, phenanthrene, and total LPAH.
  - Surface water: DRO, RRO, BTEX, and PAHs. TAH and TAqH were calculated from the BTEX and PAH results.
- MOC –
  - Groundwater: DRO/RRO, BTEX, PAHs, PCBs, RCRA metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver) plus nickel, vanadium, zinc, sulfate, alkalinity, dissolved manganese, and methane.
  - MNA field parameters: nitrate, ferrous iron, and turbidity.

Waste characterization samples composited from excavated material were screened against Toxic Substances Control Act criteria for waste characterization and disposal (50 mg/kg PCBs), and RCRA maximum concentration for toxicity characteristic by TCLP (Table 10).

Table 8 Project-Specific Soil and Sediment Criteria

METHOD	ANALYTE	CAS RN	SOIL[1] (mg/kg)	SEDIMENT[2] (mg/kg)
AK102	DRO	N/A	9,200	3,500
AK102	DRO – Silica Gel	N/A	9,200	3,500
AK103	RRO	N/A	9,200	3,500
AK103	RRO – Silica Gel	N/A	9,200	3,500
Walkley-Black	TOC By Walkley Black (%)	TOC	NS	NS
8270C SIM	1-Methylnaphthalene	90-12-0	0.41	NS
8270C SIM	2-Methylnaphthalene	91-57-6	1.3	0.6
8270C SIM	Acenaphthene	83-32-9	37	0.5
8270C SIM	Acenaphthylene	208-96-8	18	NS
8270C SIM	Anthracene	120-12-7	390	NS
8270C SIM	Benzo(a)anthracene	56-55-3	0.7	NS
8270C SIM	Benzo(a)pyrene	50-32-8	1.5	NS
8270C SIM	Benzo(b)fluoranthene	205-99-2	15	NS
8270C SIM	Benzo(g,h,i)perylene	191-24-2	2,300	1.7
8270C SIM	Benzo(k)fluoranthene	207-08-9	150	NS
8270C SIM	Chrysene	218-01-9	600	NS
8270C SIM	Dibenzo(a,h)anthracene	53-70-3	1.5	NS
8270C SIM	Fluoranthene	206-44-0	590	2
8270C SIM	Fluorene	86-73-7	36	0.8
8270C SIM	Indeno(1,2,3-cd)pyrene	193-39-5	15	3.2
8270C SIM	Naphthalene	91-20-3	120	1.7
8270C SIM	Phenanthrene	85-01-8	39	4.8
8270C SIM	Pyrene	129-00-0	87	NS
Calc	Total LPAH	N/A	--	7.8
Calc	Total HPAH	N/A	--	9.6

Notes:
For definitions, refer to the Acronyms and Abbreviations section.
[1] Soil - 18 AAC 75, most stringent Under 40-inch Human Health/Migration to Groundwater for analytes (ADEC 2023)
[2] WAC 173-204-520, Table III, Sediment Minimum Cleanup Level (WAC 1995)
NEC Site-Specific Cleanup Levels (USACE 2007)
Highlighted limits are from the NEC Site-Specific Cleanup Levels Table 2-1 from USACE 2021.
LPAH are the sum of naphthalene, acenaphthene, acenaphthylene, fluorene, phenanthrene, and anthracene.
HPAH are the sum of fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene, dibenzo(a,h)anthracene, and indeno(l,2,3-c,d)pyrene.
NS=no screening criteria applicable

Table 9 Project-Specific Groundwater and Surface Water Criteria

METHOD	ANALYTE	CAS RN	GROUNDWATER[3] (mg/L)	SURFACE WATER[4] (mg/L)
AK102	DRO	DROC10C25	1.5	1.5
AK103	RRO	RROC25C36	1.1	1.1
6010B	Arsenic	7440-38-2	0.01	0.010
6010B	Barium	7440-39-3	3.8	2.00
6010B	Cadmium	7440-43-9	0.0092	0.005
6010B	Chromium, total	7440-47-3	22	0.100
6010B	Lead	7439-92-1	0.015	0.015
6010B	Manganese	7439-96-5	0.43	0.050
7470A	Mercury	7439-97-6	0.00052	0.002
6010B	Nickel	7440-02-0	0.39	0.390
6010B	Selenium	7782-49-2	0.1	0.050
6010B	Silver	7440-22-4	0.094	0.100
6010B	Vanadium	7440-62-2	0.086	0.086
6010B	Zinc	7440-66-6	6.0	0.200
8260B	Benzene	71-43-2	0.005	0.005
8260B	Ethylbenzene	100-41-4	0.7	0.700
8260B	Toluene	108-88-3	1.1	1.00
8260B	Xylenes, Total	1330-20-7	0.19	10
Calc	TAH[1]	Calc	--	0.010
8270C SIM	1-Methylnaphthalene	90-12-0	0.011	NS
8270C SIM	2-Methylnaphthalene	91-57-6	0.036	NS
8270C SIM	Acenaphthene	83-32-9	0.53	NS
8270C SIM	Acenaphthylene	208-96-8	0.26	NS
8270C SIM	Anthracene	120-12-7	0.043	NS
8270C SIM	Benzo(a)anthracene	56-55-3	0.0003	NS
8270C SIM	Benzo(a)pyrene	50-32-8	0.00025	NS
8270C SIM	Benzo(b)fluoranthene	205-99-2	0.0025	NS
8270C SIM	Benzo(g,h,i)perylene	191-24-2	0.00026	NS
8270C SIM	Benzo(k)fluoranthene	207-08-9	0.0008	NS
8270C SIM	Chrysene	218-01-9	0.002	NS
8270C SIM	Dibenzo(a,h)anthracene	53-70-3	0.00025	NS
8270C SIM	Fluoranthene	206-44-0	0.26	NS
8270C SIM	Fluorene	86-73-7	0.29	NS
8270C SIM	Indeno(1,2,3-cd)pyrene	193-39-5	0.00019	NS
8270C SIM	Naphthalene	91-20-3	0.0017	NS
8270C SIM	Phenanthrene	85-01-8	0.17	NS
8270C SIM	Pyrene	129-00-0	0.12	NS

Table 9 Project-Specific Groundwater and Surface Water Criteria

METHOD	ANALYTE	CAS RN	GROUNDWATER[3] (mg/L)	SURFACE WATER[4] (mg/L)
Calc	TAH	Calc	--	0.010
Calc	TAqH [2]	Calc	--	0.015
8082	Aroclor 1016	12674-11-2	0.00044	NS
8082	Aroclor 1221	11104-28-2	0.00044	NS
8082	Aroclor 1232	11141-16-5	0.00044	NS
8082	Aroclor 1242	53469-21-9	0.00044	NS
8082	Aroclor 1248	12672-29-6	0.00044	NS
8082	Aroclor 1254	11097-69-1	0.00044	NS
8082	Aroclor 1260	11096-82-5	0.00044	NS
8082	Aroclor 1262	37324-23-5	0.00044	NS
8082	Aroclor 1268	11100-14-4	0.00044	NS
300.0	Sulfate	151-21-3	NS	250
2320 B-2011	Alkalinity	N/A	NS	NS
RSK175	Methane	74-82-8	NS	NS

Notes:
For definitions, refer to the Acronyms and Abbreviations section.
[1] TAH – total aromatic hydrocarbons are the sum of BTEX.
[2] TAqH – total aqueous hydrocarbons are the sum of BTEX and PAH.
[3] Groundwater – 18 AAC 75 Table C Groundwater Cleanup criteria, unless otherwise specified with highlights (ADEC 2023).
[4] Surface Water – Surface Water Standards Table Tech memo 18.02 (ADEC 2019b). Values derived from different sources, per the memo.
18 AAC 70 Water Quality Standards (ADEC 2020b)
NEC Site-Specific Cleanup Levels (USACE 2007)

Table 10 Maximum concentration of Contaminant for the Toxicity Characteristic

EPA HAZARDOUS WASTE NUMBER	CONTAMINANT	CAS RN	REGULATORY LEVEL (mg/L)
D004	Arsenic	7440-38-2	5.0
D005	Barium	7440-39-3	100.0
D018	Benzene	71-43-2	0.5
D006	Cadmium	7440-43-9	1.0
D019	Carbon tetrachloride	56-23-5	0.5
D020	Chlordane	57-74-9	0.03
D021	Chlorobenzene	108-90-7	100.0
D022	Chloroform	67-66-3	6.0
D007	Chromium	7440-47-3	5.0
D023	o-Cresol	95-48-7	200.0[1]
D024	m-Cresol	108-39-4	200.0[1]
D025	p-Cresol	106-44-5	200.0[1]
D026	Cresol		200.0[1]
D016	2,4-D	94-75-7	10.0
D027	1,4-Dichlorobenzene	106-46-7	7.5
D028	1,2-Dichloroethane	107-06-2	0.5
D029	1,1-Dichloroethylene	75-35-4	0.7
D030	2,4-Dinitrotoluene	121-14-2	0.13[2]
D012	Endrin	72-20-8	0.02
D031	Heptachlor (and its epoxide)	76-44-8	0.008
D032	Hexachlorobenzene	118-74-1	0.13[2]
D033	Hexachlorobutadiene	87-68-3	0.5
D034	Hexachloroethane	67-72-1	3.0
D008	Lead	7439-92-1	5.0
D013	Lindane	58-89-9	0.4
D009	Mercury	7439-97-6	0.2
D014	Methoxychlor	72-43-5	10.0
D035	Methyl ethyl ketone	78-93-3	200.0
D036	Nitrobenzene	98-95-3	2.0
D037	Pentachlorophenol	87-86-5	100.0
D038	Pyridine	110-86-1	5.0[2]
D010	Selenium	7782-49-2	1.0
D011	Silver	7440-22-4	5.0
D039	Tetrachloroethylene	127-18-4	0.7
D015	Toxaphene	8001-35-2	0.5
D040	Trichloroethylene	79-01-6	0.5
D041	2,4,5-Trichlorophenol	95-95-4	400.0

Table 10 Maximum concentration of Contaminant for the Toxicity Characteristic

EPA HAZARDOUS WASTE NUMBER	CONTAMINANT	CAS RN	REGULATORY LEVEL (mg/L)
D042	2,4,6-Trichlorophenol	88-06-2	2.0
D017	2,4,5-TP (Silvex)	93-72-1	1.0
D043	Vinyl chloride	75-01-4	0.2

Notes:

For definitions, refer to the Acronyms and Abbreviations section.

[1] If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/L.

[2] Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.

18 AAC 70 Water Quality Standards (ADEC 2020b)

NEC Site-Specific Cleanup Levels (USACE 2007)

3.0 FIELD ACTIVITIES

Field activities are presented in the following subsections. A daily quality control report (DQCR) was submitted each day work was performed documenting daily progress, concerns, and implemented or suggested solutions (Appendix H). Field activities were recorded in bound field logbooks, which are presented in Appendix A. Permits are presented in Appendix B. Field Photographs are presented in Appendix C. USACE conducted an inspection of the Site 9 Landfill during the 2022 mobilization; the landfill inspection form is included in Appendix B.

3.1 Permits and Agreements

Prior to commencing project activities, the following permits and agreements were procured:

- An Excavation Dewatering general permit (AKG002000) was approved on 13 July 2022.
- An agreement with Kukulget, Inc. and Sivuqaq, Inc., was established to quarry fill material for activities at the local borrow source area (Figure 2).
- An ADEC FF9 Temporary Camp Authorization permit (12922) issued to Alaska Minerals, Inc. under the provisions of 18 AAC 31

3.2 Mobilization, Site Setup, and Site Visitors

Equipment and supplies were mobilized from Anchorage to Seward, Alaska via the roadway and transported to NEC via Brice Marine barge. All equipment and supplies arrived at NEC in July 2022. Mobilization of the crew to St. Lawrence Island began in late July 2022. Brice personnel traveled from Anchorage to Nome via commercial airline and then to St. Lawrence Island via air charter. The Alaska Minerals, Inc. crew also arrived in late July to begin camp construction.

The USACE quality assurance representative (QAR) Aaron Shewman arrived on 27 July 2022 and departed 6 August 2022. USACE QAR alternate Eric Barnhill arrived 6 August 2022 departed on 17 August 2022 following the conclusion of remediation. ADEC Contaminated Sites Program staff Curtis Dunkin and Erica Blake arrived at the site on 2 August 2022 to conduct a site visit and inspection and departed on 4 August 2022. A tribal representative, Curtis Silook, arrived at the site from Gambell on 4 August and departed 6 August.

3.2.1 Onsite Camp

Personnel stayed onsite in a fully equipped camp provided by Alaska Minerals, Inc. The camp facility was staffed by a full-time cook and camp attendant. An Emergency Medical Technician was also present onsite for medical response. The camp included appropriate mess/food preparations and hygiene facilities to support the team. Space for other onsite camp-related supplies/equipment included a kitchen, laundry area, shower area utility room, sleeping quarters, office, dry tent, and bathroom facilities. Separate sleeping quarters were available for USACE, ADEC, and the visiting tribal representative. Figure 2 presents the camp location and staging areas.

3.2.2 Site Access

Utility vehicles and trucks were used to mobilize personnel and supplies between sites during the field efforts. Existing roads were predominantly used; no additional roads were constructed. Off-road travel was limited to tracked vehicles. Two tracked Utility Terrain Vehicles (UTVs) were used at Site 28 during dredging operations; pathways were limited to only the areas necessary to complete the project objectives.

3.3 Survey

Excavation boundaries, soil, surface water, and sediment sample locations, soil borings, monitoring well elevations, and other pertinent site features were surveyed using Global Navigation Satellite System (GNSS) RTK techniques and post-processed GNSS static/conventional surveying techniques at locations where RTK was not suitable. A Trimble R10 base/rover kit was used for GNSS surveying activities. A Trimble 0.3 millimeter per kilometer digital level was used to measure elevation differences and establish monitoring well elevations. The differential leveling performed met closure requirements of third order leveling (Federal Geodetic Control Committee 1984). Airstrip data was collected using a fixed-wing UAV (Delair UX11).

Survey data are provided within the National Spatial Reference System. The horizontal datum selected was the North American Datum of 1983 (NAD83) (2011) Epoch 2010.0000, with Alaska State Plane Coordinate, zone 9 as the projected coordinate system. The North American Vertical Datum of 1988 (NAVD88) was the vertical datum used. Horizontal coordinates and elevation are expressed in U.S. Survey Feet. The positional and vertical accuracy of measured site features have met the minimum survey accuracy requirements listed in the *Manual for Electronic Deliverables* (USACE 2017b). Survey data is incorporated into the project GIS, which is in the WGS84 datum, using ESRI transformation "WGS_1984_(ITRF08) _To_NAD_1983_2011".

3.4 Site Restoration and Demobilization

Clean stockpiled soil was used to backfill the excavation at Site 15, and the excavation was returned to the original grade. Several holes and natural depressions were backfilled with quarry material and graded. Soil borings were backfilled with soil cuttings, clean sand, and bentonite. Decommissioned well locations were backfilled with clean sand and bentonite. All disturbed areas were left to revegetate naturally. The quarry at NEC was used to provide material for backfill and road maintenance. Before and after photos of the quarry were taken to document quarry conditions and are included in the photograph log.

All personnel demobilized from NEC by 21 August 2022. Personnel demobilized by air charter to Nome and returned to Anchorage via commercial aircraft. Sampling and survey equipment demobilized with personnel. The remote camp, heavy equipment, support vehicles, excavated material, and supplies were staged for barge transport. A Brice Marine barge demobilized all supplies and equipment in August 2022.

3.5 Disposal

Containerized soil and sediment, investigation derived waste (IDW), inert debris, and inert camp waste were loaded onto a Brice Marine barge for transport and disposal. IDW, Inert debris, and inert camp waste was disposed at a municipal landfill in Anchorage. Nonhazardous soil and sediment were transported for disposal at Columbia Ridge Landfill in Arlington, Oregon. Disposal documentation is in Appendix D.

4.0 GRAVEL AIRSTRIP AND ROAD MAINTENANCE, AND LUC SIGN REPAIRS

The gravel airstrip at NEC, and the system of existing gravel roads associated with NEC were repaired to ensure safe vehicle and pedestrian travel. In addition, LUC signage was inspected and replaced.

4.1 Gravel Road Maintenance

At mobilization, numerous large dips and frost heaves made the gravel road nearly impassible by vehicles. 323 cy of fill material was transported from the local borrow source area for road repairs. Fill material was transported by rock truck to damaged areas and compacted with a dozer and graded to the surrounding topography. An area that was identified in the work plan A failed culvert observed in the gravel road between the airstrip and Site 8 during 2018 field activities was not present upon arrival on site. The QAR confirmed the absent culvert, and therefore, no replacement was completed.

4.2 Gravel Airstrip Maintenance

Approximately one month prior to mobilization, an airstrip check was conducted by air charter company Bering Air to evaluate the NEC airstrip condition and confirm that there was sufficient runway length in good condition for the anticipated air travel during the project. This airstrip check could not be conducted earlier in the season because of frequent storms in the area. Significant runway damage was identified, and airstrip repairs were required prior to using the airstrip for crew mobilization. Brice Marine crew arrived shortly after the airstrip check and were able to perform initial repairs to allow for the Brice crew to safely mobilize via air charter.

Additional repairs were conducted following mobilization. The crew used a dozer and drag sled to reduce the magnitude of the undulations present on the airstrip. Clean fill material could not be added because of the large quantity of necessary quarry material. In addition, as existing frost heaves were cut into, larger-sized base material was exposed and would have caused damage to airplane tires. After repairs were completed to the extent possible with available equipment and existing materials, approximately 2000 feet (approximately the north half of the airstrip) was useable. The type of aircraft which could land on the airstrip was therefore limited due to the shorter usable airstrip length.

As a part of the site survey, a fixed-wing unmanned aerial vehicle (UAV; Delair UX11) was flown over the airstrip in a grid pattern to collect airstrip data. The Delair UX-11 is a fixed wing UAV consisting of the airframe, 21.4-megapixel camera, and dual-frequency GNSS sensor. Flying at a height of 350 feet above ground level enabled imagery acquisition of approximately 1.6-centimeter pixel resolution. Post Process Kinematic (PPK) GPS processing was used to accurately georeference the camera locations for each image. This allows for more accurate and faster processing in Pix4d and eliminates the need for ground control points.

By flying a pre-programmed grid style flight plan and acquiring imagery with 80 percent (%) forward and sidelap, the images can be loaded into post processing software to produce an orthorectified orthomosaic. A Digital Slope Model (DSM) was also created from the imagery.

From this DSM 0.5-foot contours were generated and exported in Autocad DXF format. A surface was generated in Autocad Civil3D from these contours. RTK data was also acquired down the length of the runway at 100-foot cross sections. When comparing the elevation differences between the generated

surface and RTK data on gravel areas the difference was approximately 0.15 feet, which indicates UAV equipment achieved results consistent with expected accuracies, and the data is suitable for grading design and engineering purposes.

A combined surface was created using both the RTK and DSM generated data (Figure 9). The resulting surface is of survey quality and sufficient to perform engineering analysis.

This surface was used to perform preliminary analysis to determine potential cut and fill for possible repairs.

An alignment 4,350 feet in length was created along the centerline of the runway and offset 67.5 feet on both sides for a total width of 135 feet. 67.5 feet would generally match the existing shoulder of the runway. This area was used to compute potential cut and fill amounts.

It was found that following the profile of the alignment and using a 2% slope from the centerline resulted in a cut of 2,855 cy and a fill of 3,375 cy. These values may be used as a general estimation of quantities necessary for airstrip improvement. Further analysis and design by a professional engineer is recommended.

4.3 Sign Repairs

An inspection of the LUC signs was conducted upon arrival at the site. The LUC signs indicate where groundwater use for the purpose of drinking water or ground-disturbing activities are not recommended. Each sign is two-sided and contains Yupik and English transcriptions. The mounting post for the LUC sign at the north end of the airstrip was present; however, the sign was gone, and may have been torn off by the wind. The LUC sign along the gravel road at the Native Village of Northeast Cape had also been torn off. One LUC sign at the gravel road was found on the tundra and recovered; the other could not be relocated. The recovered sign was not reusable, and new replacement signs were ordered and installed during the mobilization. Larger diameter bolts at the top and bottom, and an extra set of bolts at the sign center were used to install the new signs to help them remain secure.

5.0 SITE 7 – LANDFILL GRAVEL CAP MAINTENANCE AND INSPECTION

Field activities at the Site 7 Cargo Beach Road Landfill included filling the gravel cap in three settled areas, a topographic survey of the filled areas, and a landfill cap visual inspection. The landfill inspection form is included in Appendix B.

During the 2018 landfill cap visual inspection, three settled areas were identified: two areas near the center of the landfill cap, and one on the northern side-slope (Figure 3). These areas were filled with 85 cy of gravel material transported from the local borrow source area. A dozer was used to contour and track-compact the cap material to promote positive drainage, reduce ponding, and blend with the surrounding topography. A topographic survey of the filled settlement areas and adjacent undisturbed landfill cap was performed to confirm proper grade was achieved.

Additionally, a landfill cap visual inspection was performed and documented the following: cap integrity and slope stability (e.g., evidence of cap settlement, cracks, erosion, penetration, or holes); amount and quality of vegetative cover; presence/absence of sufficient fine-grained soil material to support robust plant growth; evidence of ponded water within, against, or on the surface of the landfill; observation of odors and/or wildlife in the vicinity of the landfill; condition of access roads. The landfill cap visual inspection confirmed the continued presence of two ponds adjacent to the landfill on the northwest side, observed limited inert debris along the edge of the water and within the ponds, bird habitation, and new and established vegetative growth on the cap. No additional settled areas or other significant issues were identified.

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6.0 MAIN OPERATIONS COMPLEX – SITE 15 DRO-CONTAMINATED SOIL EXCAVATION

Soil excavation at MOC Site 15 involved stockpiling overburden, pre- and post-stockpiling ISM footprint sampling, removing DRO-contaminated soil above the SSCL, stockpile ISM sampling, field screening, and confirmation sampling.

6.1 Incremental Sampling Methodology Sampling

Incremental sampling methodology (ISM) was used at stockpile areas at both Site 15 and Site 28. ISM samples were collected in accordance with the Work Plan. The following procedures were used to calculate 95 percent upper confidence limits (95% UCLs) with the ISM results:

For DUs collected in triplicate:

- Because non-detect (ND) data was censored at the limit of detection (LOD), if the primary and replicate results were ND, the lowest LOD was reported in place of a calculated 95% UCL.
- If there was at least one detection (in the primary, duplicate, or triplicate samples), the Student's *t* and Chebyshev 95% UCLs were calculated; in the case of ND results, LODs were used as inputs. If the CV was less than or equal to 0.23, the Student's *t* 95% UCL was reported. If the CV was greater than 0.23, the Chebyshev 95% UCL was reported (ITRC 2020).

For DUs without replicates:

- If the primary result was ND, the result was "ND" in place of a calculated 95% UCL.
- If the result was a detection, the Student's *t* and Chebyshev 95% UCLs were calculated.
  - The standard deviation calculated for that analyte from the triplicate DU at the site were used to calculate the 95% UCLs, with the primary result used as the average. If the CV was less than or equal to 0.23, the Student's *t* 95% UCL was reported. If the CV was greater than 0.23, the Chebyshev 95% UCL was reported.
  - In the rare case that the DU had a detected result, but the corresponding triplicate DU had only ND results, the detected result was reported in place of a calculated 95% UCL and it was noted that the result was a primary result rather than a 95% UCL. As all three values in the replicate sample(s) were ND, both the SD and CV were equal to zero and the 95% UCL could not be calculated.

6.2 Stockpile Footprint ISM Sampling and Construction

To access the targeted excavation area, overburden material was removed from the ground surface to the historical excavation depths (approximately 12 feet bgs) and stockpiled. To prepare for stockpile construction, a 200-foot by 250-foot area was marked out on the ground surface and cleared of all visible debris with the potential to puncture liner material. This area was then divided into 30 cells representing a single DU to facilitate ISM sampling to establish baseline (pre-stockpiling) conditions in the area.

To collect an ISM sample from the stockpile footprint in triplicate, a random location was selected within the first cell, and duplicate and triplicate sample locations were identified 12 inches to the north and east of the primary location. Increments were then collected from each cell from the primary, duplicate, and

triplicate locations, moving in a serpentine pattern, until 30 increments had been collected for each sample. ISM samples were submitted for DRO analysis.

Following the baseline ISM sampling, two earthen berm stockpile areas were constructed within the stockpile footprint. Berms were constructed from 51 cy of clean gravel material obtained from the borrow source area. Berms were formed into "U" shapes approximately two feet above ground surface, each encompassing an area of approximately 120 feet by 80 feet. Stockpile areas were lined with two to three overlapping layers of reinforced 12-mil abrasion resistant plastic, which continued over top of the earthen berms into a bathtub shape.

6.3 Overburden Stockpiling

Overburden was excavated from the targeted excavation area into a rock truck and a dump truck, which were transported to the lined stockpile areas. A dozer was used to distribute, smooth, and compact the overburden, and graded the stockpiles with a slight slope to maintain adequate water drainage and accessibility. Stockpiles within the separate bermed areas were identified as Stockpile 1 (southernmost stockpile) and Stockpile 2 (northernmost stockpile). After every two feet of excavation, field screening samples were collected from the excavation area and analyzed with a photoionization detector (PID) using heated headspace procedures. PID screening results ranged from 2.2 to 309.3 ppm from the overburden material. Large boulders in the overburden area were not placed in stockpiles but were placed on a lined area adjacent to the excavation, brushed to remove loose material, and staged to be used as eventual backfill. Approximately 0.25 cy of miscellaneous debris including steel cable, steel pipe, and fiber fabric were also removed from the excavation, segregated, and disposed of as inert debris. Following each day of excavation activities, each stockpile was covered with a 6-mil abrasion resistant plastic liner and secured in place with sandbags.

Excavation of overburden proceeded to four feet bgs inside the proposed excavation boundary, then a four-foot bgs bench was excavated to the north of the target excavation area to provide a safe working area. Material excavated from the bench area was also added to the overburden stockpile. Following benching, the excavation proceeded to 11 to 12 feet bgs across the target excavation area. A fiberglass marking stake was observed at this depth, which was presumed to indicate the bottom of the historical excavation area. Highly impacted soil with dark staining and a strong petroleum odor was also observed, indicating that excavated material from this depth and below should be containerized for disposal.

After overburden removal, Stockpile 1 contained approximately 1466 cy and Stockpile 2 contained approximately 766 cy. To confirm that the stockpiled overburden could be used as backfill, analytical samples were collected using ISM. Stockpile 1 was divided into three DUs and Stockpile 2 was divided into two DUs. Stockpile 1 DUs were approximately 92 feet long by 27 feet wide, and the Stockpile 2 DUs were approximately 88 feet wide by 21 feet long. A triplicate ISM sample was collected from the first DU in Stockpile 1, and single ISM samples were collected from the second and third DUs from Stockpile 1 and the two DUs at Stockpile 2. All ISM samples were submitted for DRO analysis.

95% UCLs were calculated for all ISM results. Stockpile 1 DU1, which was sampled in triplicate, had a 95% UCL of 73.60 mg/kg for DRO. Stockpile 1 DU2 and DU3 used the standard deviation from the DU1 triplicate and used the primary result as the average to calculate a 95% UCL. Stockpile 1 DU2 had a 95% UCL of 159.63 mg/kg DRO, and Stockpile 1 DU3 had a 95% UCL of 184.63 mg/kg. Stockpile 2 DU1 and DU1 were sampled singly and also used the Stockpile 1 DU1 triplicate standard deviation to calculate a 95% UCL. Stockpile 2 DU1 had a 95% UCL of 1774.63 mg/kg, and Stockpile 2 DU2 had a 95% UCL of 531.63 mg/kg. All stockpile 95% UCLs were less than the DRO SSCL of 9,200 mg/kg, which indicated that the soil could be used as backfill. 95% UCL calculations and primary sample results are included in Appendix F.

6.4 Excavation

Excavation activities at Site 15 were focused on the historical excavation floor sample locations 12NCMOCSS033, 12NCMOCSS037, and 12NCMOCSS039, which were collected at approximately 12 feet bgs and exceeded the SSCL of 9,200 mg/kg for DRO. Initially the target interval was between 12 to 15 feet bgs, but highly contaminated soil was observed at approximately 11 feet bgs on the eastern end of the excavation area, and groundwater was encountered at 12 feet bgs.

Excavation and containerization of the impacted soil area proceeded from 11 feet bgs to 15 feet bgs across the entire 102-feet by 27-feet footprint of the targeted excavation area. Soil was containerized into 5-cy IP2-rated supersacks labeled with container-specific IDs. Empty supersacks were secured to a loading frame placed on tundra mats lined with abrasion resistant plastic liner and filled on the excavation bench. The supersacks were then weighed and transported to a temporary staging area at the MOC. The first 220 tons were excavated near the top of the water table. To keep free liquid out of the containers, the excavator bucket was allowed to drain before soil was placed into supersacks. Soil below this layer, however, was too saturated to be bagged immediately. Sorbent pads and booms were deployed when POL sheen was observed at the base of the excavation on the water surface.

To drain saturated soil, a half-pipe shaped ramp, sloped towards the excavation, was constructed on the excavation bench. This ramp was lined with reinforced 12-mil abrasion resistant plastic. Approximately 297 tons of soil were excavated and placed on this lined ramp to dewater back into the excavation prior to containerizing the soil. The excavation continued in this manner until soil was removed to 15 feet bgs across the entire impacted soil area. During the excavation field screening samples were collected to help guide removal activities. Field screening results ranged from 432 ppm to greater than 15,000 ppm. 517 tons (approximately 465 cy) of DRO-contaminated soil exceeding the SSCL was excavated.

Following excavation, field screen and discrete confirmation soil samples were collected from the sidewalls and base. Based on the depth of the excavation (11 to 15 feet bgs) and presence of water in the bottom of the excavation, samples were collected from the excavator bucket. PID field screening results for confirmation sample locations ranged from 5.9 ppm to 422.3 ppm. A total of 24 primary soil samples, 13 from the sidewalls and 11 from the base, were collected and analyzed for DRO (Figure 5). Analytical results ranged from 285 mg/kg to 3,630 mg/kg, which confirmed that all soil exceeding the DRO SSCL (9,200 mg/kg) had been removed. Complete data tables are included in Appendix F.

6.5 Waste Characterization Sampling

Waste characterization samples were composited from each supersack. A total of four waste characterization samples were collected. Waste characterization samples were submitted for the analysis of toxicity characteristic leaching procedure (TCLP) volatile organic compound (VOCs), TCLP semi-volatile organic compounds (SVOCs), TCLP-RCRA metals, and total PCBs, as identified in the waste management plan. Results identified no exceedances of hazardous waste thresholds. All excavated material was transported and disposed of as non-hazardous.

6.6 Decontamination

Heavy equipment was decontaminated before it was transported outside of the exclusion zone, eliminating the potential spread of potentially contaminated material. Dry decontamination procedures were used on larger heavy equipment components, such as wheels and tracks. Soil removed from heavy equipment was placed on a liner, added to supersacks, and disposed of with the contaminated soil.

Personnel exiting the exclusion zone of the Site 15 excavation were decontaminated before going off site. Gross contamination on clothing was wiped off with a scrub brush, and boots and clothing were scrubbed and washed with a mixture of deionized water and Alconox in a lined area. Consumable PPE such as gloves and Tyvek coveralls were deposited in trash bags and disposed of as inert waste. Decontamination materials and water were collected and managed with similar waste streams in accordance with the Work Plan.

6.7 Backfill, Site Restoration, and Post-Stockpile Footprint ISM Sampling

Following the Site 15 excavation and sampling activities, Stockpile 1 and Stockpile 2 were used as backfill, and top and bottom liners were removed for disposal as inert debris. The excavated area and bench were completely backfilled to the ground surface. The top two feet was backfilled with 135 cy of clean material from the quarry and track-compacted with a dozer. Containerized DRO-impacted soil and miscellaneous debris were relocated from the MOC gravel pad to the barge landing and staged for transport and disposal.

After the stockpiles were decommissioned, a post-stockpile footprint ISM sample was collected in triplicate under the liner, using the same grid, methodology, and locations from the pre-stockpile ISM sample. The reinforced 12-mil abrasion footprint liners were inspected for rips or tears during removal. No rips, tears, or punctures were observed. No loose stockpile soil was observed on the site surface after removal.

The pre-footprint stockpile result had a 95% UCL of 43.04 mg/kg DRO, and the post-stockpile footprint result had a 95% UCL of 283.50 mg/kg. Both results were less than the SSCL of 9,200 mg/kg DRO.

7.0 MAIN OPERATIONS COMPLEX – MONITORED NATURAL ATTENUATION GROUNDWATER SAMPLING, WELL MAINTENANCE, AND DECOMMISSIONING

Groundwater activities at the MOC included MNA groundwater sampling, development of two monitoring wells, well maintenance, and decommissioning. A comprehensive groundwater sampling and MNA report with figures and attachments is included in Appendix E. Groundwater monitoring exceedances are presented on Figure 7.

7.1 Well Development

Two monitoring wells, MW10-1 and 14MW04 were re-developed to improve water yield and reduce turbidity in subsequent groundwater samples. The wells were re-developed using a submersible pump, surging and purging the well in cycles until multiple well volumes were removed, and the wells produced a strong, clear stream following surging, in accordance with ADEC guidance. At least 48 hours were allowed to pass following re-development prior to sampling.

7.2 Groundwater Sampling

Water levels across the site were gauged within a four-hour period prior to sampling. Low-flow methodology was used for purging and sampling. Field stability parameters were measured and recorded during purging using an Aqua TROLL water quality meter with flow through cell. Parameters included pH, temperature, conductivity, turbidity, dissolved oxygen (DO), and oxidation-reduction potential (ORP).

Groundwater samples were analyzed for DRO, RRO, BTEX, PAHs, PCBs, methane, sulfate, alkalinity, and total and lab-filtered RCRA metals plus nickel, vanadium, and zinc. Field test kits were used to measure sulfate, nitrate, and ferrous iron.

Purge water was containerized in 5-gallon buckets with lids and then treated onsite through a portable GAC filtration unit. Treated water was discharged to a vegetated area onsite more than 100 feet from surface water bodies. At the end of the field activities, the GAC filter material was kept in the sealed, portable unit which was transported offsite via barge. GAC filter material was properly disposed of by Waste Management at the Columbia Ridge Landfill Arlington, Oregon.

7.3 Well Maintenance and Decommissioning

The following well maintenance and decommissioning activities were conducted at the MOC:

- Three frost-jacked monitoring well PVC casings (MW88-1, MW88-3, 14MW01) were cut down
- Two frost-jacked flush-mount well monuments (14MW01 and 14MW05) were reseated
- One flush-mount well cover (MW88-3) was re-tapped.
- An ice plug was present in well 14MW02, approximately 9.5 feet down the PVC well casing, a decontaminated steel rod was used to dislodge the ice plug
- A new well cap and combo lock with code “0911” was installed at monitoring well MW10-1
- Well 17 MW1 was frost-jacked. The PVC well casing was subsequently cut below the flush mount, surveyed, and re-bolted. 5-inches of PVC casing was removed.

- The unidentified monitoring well at Site 19 was decommissioned in accordance with the ADEC Monitoring Well Guidance (2013). It was first attempted to knock out the bottom of the screen, but the well was obstructed before the screen could be reached. The casing was then removed; approximately 4-feet of polyvinyl chloride (PVC) well casing was pulled before the casing broke. As the casing was withdrawn, bentonite chips were added to seal the well, continuing until approximately two feet bgs. The remaining was filled to the ground surface with sand and then gravel. An unidentified Chemical Oxidation pilot test injection well (USACE 2010b) was discovered at the northeast side of the MOC and decommissioned. It was first attempted to knock out the bottom of the screen, but the well was obstructed before the screen could be reached. The casing was then removed; approximately 6-feet of PVC well casing was pulled before the casing broke. As the casing was withdrawn, bentonite chips were added to seal the well, continuing until approximately two feet bgs. The remaining was filled to the ground surface with sand and then gravel.

7.4 Groundwater Sample Results

Groundwater results were compared to the with the SSCLs to evaluate current site conditions with respect to cleanup goals, and the ADEC Table C groundwater cleanup levels for informational purposes.

Filtered and unfiltered groundwater sample results for metals are presented in this report as distinct results to evaluate whether suspended soil particles in unfiltered groundwater are contributing to measured metals concentrations. If suspended solids are present, then metals adsorbed to soil particles would be liberated by the nitric acid preservative in the sample bottles, resulting in higher dissolved metal concentrations than actually present in situ. The comparison of 2022 groundwater results to the SSCLs and ADEC Table C groundwater cleanup levels will consider only dissolved metals because there are no distinct SSCLs or ADEC Table C groundwater cleanup levels associated with filtered or unfiltered groundwater and the ADEC Table C groundwater cleanup levels are typically calculated considering only the water-soluble fraction.

7.4.1 Comparison of 2022 Results to SSCLs

Groundwater samples were analyzed for DRO, RRO, BTEX, PAHs, PCBs, methane, sulfate, alkalinity, and total and lab filtered RCRA metals plus nickel, vanadium, and zinc. Field test kits were used to measure sulfate, nitrate, and ferrous iron.

DRO exceeded the SSCL (1.5 mg/L) in monitoring wells 14MW05 and 14MW06 with results of 1.78 mg/L and 1.99 mg/L, respectively. Both wells are located on the northern (downgradient) edge of the MOC. Total (unfiltered) lead exceeded the SSCL in monitoring well 17MW1 with a result of 0.0176 mg/L. This well is located on the northwestern (downgradient) edge of the MOC. Historical lead concentrations in groundwater have been low with only one dissolved lead exceedance and infrequent exceedances of total lead with no obvious spatial or temporal association. The variability in both total and dissolved lead appears to be related to the presence of soil particles suspended in the groundwater sample, some of which may be colloidal in size. Where reliably quantified, the results for total lead were greater than or equal to dissolved lead, implicating a lead source that is removed by filtration. All other analytes for all other wells were below the SSCLs. Historically, exceedances have also been identified for GRO, RRO, benzene, arsenic, and lead. Table 11 presents the 2022 results for all analytes with current or historical exceedances.

Table 11 2022 MOC Groundwater Sample Results Compared to SSCLs

WELL ID	DRO (mg/L)	RRO (mg/L)	ARSENIC-TOTAL (mg/L)	ARSENIC-DISSOLVED (mg/L)	LEAD-TOTAL (mg/L)	LEAD-DISSOLVED (mg/L)
SSCL	1.5	1.1	0.010	0.010	0.015	0.015
14MW01	0.481 J	ND [1.050] QL	0.00525	0.00447	0.0088	0.00750
14MW02	1.1	ND [0.460]	0.000484 J	0.000508	ND [0.00150]	0.000742
14MW03	1.04	ND [1.000] QH	0.00194	0.00190	0.00299 J, B	0.00325
14MW04	0.414 J	ND [0.460]	0.000250 J	0.000235	ND [0.00150]	0.000657
14MW05	**1.78**	ND [0.460]	0.00128	0.00130	0.00265 J	0.00296
14MW06	**1.99**	0.605 J, QN	0.000561 J	0.000650 J	0.00104 J, B	0.00106 J
14MW07	ND [0.420]	ND [1.050]	0.000348 J	0.000369 J	0.00411 B	0.00470
17MW1	ND [0.400]	ND [1.000]	0.00198	0.00119	**0.0176**	0.0103
20MW1	ND [0.420]	ND [1.050]	0.000463 J	0.000304 J	0.00209 J	0.00208 J
22MW2	ND [0.400]	ND [1.000]	ND [0.0005	ND [0.0005]	0.000996 J	0.000843 J
26MW1	ND [0.420]	ND [1.050]	0.000667 J	0.000241 J	0.00150 J	0.00145 J
MW10-1	ND [0.400]	0.758 J	0.00143	0.000752	0.00543	0.00561
MW88-1	ND [0.420]	ND [1.050]	ND [0.0005]	ND [0.0005]	0.000778 J	0.000923 J
MW88-10	0.805	ND [1.000] QH	0.000259 J	0.000232 J	0.00349 B	0.003 J
MW88-3	ND [0.400]	ND [1,000]	0.000536 J	0.000340 J	0.00208 J	0.00109 J

Notes:
For definitions, refer to the Acronyms and Abbreviations section.
Bold red indicates result exceeding the SSCL (USACE 2009).
B – Analyte result is considered a high estimated value due to contamination present in the method, trip, or equipment blank.
[ ] The LOD for ND analytical results.
H – Preparation or analytical holding time has been exceeded.
J – The analyte was positively identified; however, the associated result was less than the limit of quantitation but greater than or equal to the DL.
QN – Analyte result was considered an estimated value (unknown bias) due to a QC failure.
QL – Analyte result was considered an estimated value (biased low) due to a QC failure.

7.4.2 Comparison of 2022 MOC Groundwater Sample Results to ADEC Table C Cleanup Levels

Naphthalene in 14MW01 (0.0031 mg/L) exceeded the ADEC cleanup level of 0.0017 mg/L Table 12 presents the analytical results for all wells.

Concentrations of naphthalene have been detected above the ADEC Table C cleanup level in monitoring well 14MW01 since 2014, with values ranging from 0.0018 mg/L to 0.023 mg/L. The 2022 result of 0.0031 mg/L is lower than the concentrations observed from the 2016 and 2018 sampling events, which had results of 0.0075 mg/L and 0.023 mg/L, respectively.

Table 12 2022 MOC Groundwater Results Exceeding the ADEC Table C Groundwater Cleanup Levels

WELL ID	DRO (mg/L)	NAPHTHALENE (mg/L)	LEAD-TOTAL (mg/L)
Cleanup Level[1]	**1.5**	**0.0017**	**0.015**
14MW01	0.481 J	**0.00310**	0.00880
14MW02	1.1	ND [0.0005] QL	ND [0.00150]
14MW03	1.04	ND [0.0005] J	0.00299 J, B
14MW04	0.414 J	ND [0.0005] H	ND [0.00150]
14MW05	**1.78**	ND [0.0005] H	0.00265 J
14MW06	**1.99**	ND [0.0005] QL	0.00104 J, B
14MW07	ND [0.420]	ND [0.0005] QL	0.00411 B
17MW1	ND [0.400]	ND [0.0005] QL	**0.0176**
20MW1	ND [0.420]	ND [0.0005] QL	0.00209 J
22MW2	ND [0.400]	ND [0.0005] QL	0.000996 J
26MW1	ND [0.420]	ND [0.0005] QL	0.00150 J
MW10-1	ND [0.400]	ND [0.0005] H	0.00543
MW88-1	ND [0.420]	ND [0.0005] QL	0.000778 J
MW88-10	0.805	ND [0.0005]	0.00349
MW88-3	ND	ND [0.0005]	0.00208

Notes:
For definitions, refer to the Acronyms and Abbreviations section.
[1] Cleanup levels defined by ADEC Table C, groundwater cleanup levels (ADEC 2023).
Bold red indicates results greater than the cleanup levels (ADEC 2023).
B – Analyte result is considered a high estimated value due to contamination present in the method, trip, or equipment blank.
[ ] – The LOD for ND analytical results.
H – Preparation or analytical holding time has been exceeded.
J – The analyte was positively identified; however, the associated result was less than the limit of quantitation but greater than or equal to the DL.
QN – Analyte result was considered an estimated value (unknown bias) due to a QC failure.
QL – Analyte result was considered an estimated value (biased low) due to a QC failure.

7.5 Groundwater Trend Analysis

Comparison of results from the two most recent sampling events (2018 and 2022) for the nine source-area wells suggests that DRO concentrations in groundwater are decreasing in the MOC source area. Monitoring wells 14MW01, 14MW02, 14MW04, 14MW05, and 14MW06 were selected for statistical trend analysis using the Mann-Kendall trend test. Decreasing trends were identified in wells 14MW04, 14MW05, and 14MW06. Wells 14MW01 and 14MW02 had no identifiable trend.

Geometric regression analysis suggests that DRO in groundwater in the vicinity well 14MW04 has a half-life of 2.9 years; estimated DRO SSCL attainment began in 2017, and the SSCL of 1.5 mg/L DRO was met in 2020. In groundwater in the vicinity of well 14MW05, geometric regression analysis suggests DRO has an estimated half-life of 4.0 years, and attainment of the SSCL of 1.5 mg/L for DRO is expected to be achieved in 2023. Trend analyses and further discussion are included in Appendix E.

8.0 SITE 8 PIPELINE BREAK

Field activities at Site 8 included drilling, hand-augering, soil sampling, and surveying. Contamination exceeding cleanup levels in sediment and soil at Site 8 was previously identified from 1.0 to 2.5 feet bgs downgradient of the suspected pipeline break and along the eastern edge of both the Middle DU and Lower DU and the western toe of the road (Figure 5). Contaminated sediment and soil investigations were previously restricted to the west side of the road, and no information was available under and to the east side of the road (USACE 2020a). In 2022, soil samples were collected from beneath the gravel roadway and to the east to define the extent of surface and subsurface soil impacts.

8.1 Drilling and Soil Sampling

The proposed soil boring locations were laid out in accordance with the Work Plan in a grid-like pattern across the road surface and on the tundra to the east. Locations were adjusted if the drill rig could not access the planned location due to the presence of a steep slope or saturated soil conditions, or when additional borings were advanced based on field screening results and observations. A Geoprobe 6610, track-mounted, direct push drill rig was deployed on the road and accessible tundra sample locations where it was advanced to refusal, permafrost, or to 12 to 16 feet bgs. Saturated tundra locations SB28, SB30, and SB32 at the southeast edge of the investigation were inaccessible to the Geoprobe and were hand-augered to 4 feet bgs (Figure 5). Samples from soil borings and hand-auger locations were analyzed for DRO and RRO with and without silica gel analysis, PAHs, and TOC.

For purposes of this work, sediment was defined as all continuously submerged loose mineral and organic material except that which was actively growing vegetation and was part of the vegetative mat. The collected samples did not meet the criteria for sediment; therefore, all samples were classified as soil samples and characterized using the Unified Soil Classification System (USCS).

Frozen soil was encountered at approximately 3 feet bgs within the gravel road and at 2 feet bgs outside the gravel road. Impermeable permafrost was encountered in road borings SB01, SB04, SB05, SB07, and SB29, between 8 and 14 feet bgs. Wet soil was encountered in shallow lenses, with dry layers below. No continuous water-bearing layer tied to lithology was identified in the soil boring depths evaluated.

Soil from each boring and hand auger core was field screened in 2-foot intervals using PID-heated headspace procedures. Soil samples were collected from the highest PID reading in each boring. In three locations, SB06, SB26, and SB31, soil samples were also collected beneath the highest PID reading to determine vertical depth of the impacted area. Where evidence of impacts was encountered from a horizontal spatial perspective, step out soil borings were advanced until a clean location was identified.

Following field screening and sample collection and documentation, soil cuttings were returned to the unique soil boring location from which they originated. Borings were then filled with bentonite to approximately 2 feet bgs then capped with sand. All borings, locations, and pertinent features were surveyed.

8.2 Equipment Decontamination

Down-hole drilling equipment (e.g., rods, augers, drill bits) were decontaminated between borings using a potable water and Alconox mixture. Decontamination water was collected in a tub and U.S. Department of Transportation (DOT)-approved 5-gallon buckets with screw-top lids and then treated using GAC and discharged onsite. All decontamination water was discharged at least 100-feet from surface water.

Smaller items including hand tools and soil sampling equipment (e.g., spoons and trowels), were decontaminated between sample locations and/or samples to prevent cross contamination. Decontamination of these smaller items consisted of washing the equipment with a mixture of deionized water and Alconox, followed by a deionized water rinse. The water generated during decontamination activities was collected in a tub and DOT-approved 5-gallon buckets with screw-top lids. Decontamination water was treated using GAC and discharged onsite at least 100-feet from surface water.

8.3 Sample Results and Nature and Extent

A total of 35 soil samples were collected from 32 borings. Soil samples were analyzed for DRO and RRO with and without silica gel, PAHs, and TOC.

The concentration of DRO exceeded the SSCL of 9,200 mg/kg in one sample (SS02) collected from SB02 at a depth of 4 to 6 feet bgs, with a result of 169,000 mg/kg. Concentrations of 1-methylnaphthalene (946 mg/kg), 2-methylnapthalene (1,290 mg/kg), and naphthalene (897 mg/kg) were also observed above SSCLs. Concentrations of 1-methylnaphthalene and 2-methylnaphthalene exceeded the SSCLs in samples from borings SB03 (SS03) and SB26 (SS27), which are located in the roadway south of SB02, at depths of 6-8 feet bgs and 4-6 feet bgs, respectively. Concentrations of 1-methylnaphthalene above the SSCL were also observed in samples from borings SB31 (SS33), SB21 (SS22), and SB28 (SS29) at depths of 4 to 6 feet bgs, 6 to 8 feet bgs, 1 to 2 feet bgs, respectively. Table 13 presents analytical results above the SSCLs.

The area with DRO concentrations above the SSCL at Site 8 is limited to the west side of the roadway and the tundra on the west side of the road, extending north-south from soil boring SB02 at the northern end of the impacted area, to the south including historical sample locations 16NEC-S08-SS-030, 16NEC-S08-SD-026, and 16NEC-S08-SS-013. Contamination is bound to the north by analytical results less than the SSCLs at boring locations SB01, SB07, and SB29; to the east by SB04, SB05, SB17, SB25, and SB27; and to the south by SB06 and SB22. DRO is vertically bound from 4 to 12 feet bgs at SB02, where ice was encountered in the soil boring and PID readings dropped to 2.6 ppm. Depth of contamination outside the road locations are present from the ground surface to the shallow frozen layer at approximately 4 to 6 feet bgs. The DRO-impacted area is approximately 120 feet by 10 feet with an average of 6 feet depth, which is approximately 267 cy of contaminated soil.

The area with PAH concentrations above SSCLs is defined by analytical results from SB03, SB21, SB26, SB28, and SB31. This area includes the DRO-impacted area and extends west to include the historical lower DU and the eastern side of the roadway. At boring location SB26, the analytical results from soil sample SS28 define the vertical depth of the PAH-contaminated interval from 4 feet bgs to 10 feet bgs. Depth of contamination outside the road locations are bound from the site surface to the shallow frozen layer at approximately 4 to 6 feet bgs. Within the lower DU, PAH contamination depth is present from the site surface to 0.5 feet bgs. The PAH contamination is bound to north by analytical results less than the SSCLs at boring locations SB01, SB07, and SB29; to the east by SB04, SB05, SB12, SB17, SB25, SB27, and SB32; and to the south by SB06 and SB32. The PAH-impacted area, which includes the DRO-impacted area, is approximately 160 feet by 25 feet with an average depth of 6 feet, which is approximately 880 cy of contaminated soil. The area with PAH concentrations above SSCLs around SB21 is bound vertically from 6 to 8 feet bgs and is delineated laterally with five clean surrounding samples in an approximately 10-foot radius, encompassing approximately 2 cy of soil.

Soil sample SS29, from boring location SB28, was collected from near the ground surface on the east side of the roadway near the outlet of a culvert. Analytical results from SS29 were above the SSCLs for select PAHs. This location may represent contamination that was transported through the culvert at the time of the pipeline release. Soil sample results from boring location SB06, SB19, and SB23 indicate that

contamination is not continuous from the west side of the road to the east. Additionally, analytical results from the soil sample collected from soil boring SB30, located on the south side of the Suqi River across from Site 8, were less than the SSCLs. The area with PAH concentrations above SSCLs around SB28 is bound vertically to 1 to 2 feet bgs, and is delineated to the north, south, and west, but does not have a sample bounding it directly to the east until SB12, approximately 40 feet away. The sample from SB28 only slightly exceeded the 1-methylnaphthalene PSL (0.41 mg/kg) with a concentration of 0.603 mg/kg and is unlikely to extend more than ten feet eastward, encompassing approximately 2 cy of soil.

Table 13 Site 8 Soil Sample Exceedances

ANALYTE	SSCL[1] (mg/kg)	SAMPLE ID					
		22NEC-S08-SS02	22NEC-S08-SS03	22NEC-S08-SS22	22NEC-S08-SS27	22NEC-S08-SS29	22NEC-S08-SS33
DRO	9,200	**169,000 QN**	5,050	2,430	5,020	189 J	573 QN
DRO-SG	9,200	**143,000 QN**	5,070	2,480	5,040	189 J	268 J
RRO	9,200	5,780 QN	719	357	4,500	292 J	7,230 QL
RRO-SG	9,200	3,950 QN	238	187	2,750	292 J	2,530 QN
1-Methylnaphthalene	0.41	**946 QN**	**33.7**	**2.74 QH**	**7.00**	**0.603**	**0.731 QN**
2-Methylnaphthalene	1.3	**1,290 QN**	**60.2**	1.25 QL	**14.1**	0.809 QL	1.18 QL
Naphthalene	120	**897 QN**	30.9	0.335 QL	2.90 QL	0.0687 QL	0.318 QL

Notes:

For definitions, refer to the Acronyms and Abbreviations section.

Bold red – analytical result is greater than the SSCL

[1] Cleanup levels for DRO, RRO, and naphthalene are defined by the NEC FUDS, St. Lawrence Island Decision Document (USACE 2009b); cleanup levels for all other analytes are defined by soil 18 AAC 75 B1 and B2 most stringent of the Under 40-inch and Migration to Groundwater (ADEC 2023).

J – The analyte was positively identified; however, the associated result was less than the limit of quantitation but greater than or equal to the DL.

QH/QL/QN – the result is an estimated value, bias high/low/indeterminate, due to a QC failure

8.3.1 Silica Gel Cleanup and Biogenic Interference

Due to the potential for biogenic interference, all soil samples were analyzed for DRO (with and without silica gel) in accordance with ADEC Technical Memorandum 21-001, *Biogenic Interference and Silica Gel Cleanup* (ADEC 2021). The chromatograms were evaluated for each sample, and were assigned a category with the following descriptions:

- Primarily petrogenic sources
- Primarily biogenic sources
- A mixture of petrogenic/biogenic sources
- Unable to identify or Negative percent (%) reduction likely due to lack of homogeneity with result(s) near or less than the limit of quantitation (LOQ)

The number of samples in each category and average percentage of reduction in DRO concentrations by category are presented in Table 14. Excluding sample results with a negative % reduction because of detections near the LOQ, the overall average reduction in concentration from silica gel cleanup is 26%. A review of the results and chromatograms indicate that biogenic interference is present at the site. Appendix F presents a comparison of DRO results with and without silica gel cleanup.

Table 14 Site 8 Silica Gel Cleanup DRO Analysis

CATEGORY	NUMBER OF SAMPLES	AVERAGE REDUCTION IN CONCENTRATION
Primarily Petrogenic Sources	22	2.58%
Primarily Biogenic Sources	6	58.6%
A mixture of petrogenic/biogenic sources	7	17.17%
Unable to identify / Negative % reduction likely due to lack of homogeneity with result(s) near or less than the LOQ	4	0% - no detections

Notes:
For definitions, refer to the Acronyms and Abbreviations section.

8.3.2 TOC Analysis

The TOC values collected in each sample were used to determine a representative foc in accordance with the ADEC Technical Memorandum, *Determining the Fraction of Organic Carbon (foc) for Methods Three and Four* (ADEC 2017a). To reduce the chance of hydrocarbon presence impacting TOC values, only the soil samples with non-detect analytical results for DRO, without silica gel cleanup, were included in the TOC analysis. Analytical results that had a DRO detection, with silica gel cleanup, were accepted if the chromatogram evaluation indicated biogenic interference, and if there were no other petroleum-related exceedances. The TOC values ranged from 1,450 mg/kg to 119,000 mg/kg. Table 15 presents soil samples and analytical results for DRO, DRO with silica gel cleanup, and TOC.

Table 15 Site 8 Analytical Results for DRO, DRO SGCU, and TOC

SAMPLE ID	LOCATION	SOIL BORING LOCATION	DRO (mg/kg)	DRO SGCU (mg/kg)	TOC (mg/kg)
		SSCL	3,200	3,200	N/A
22NEC-S08-SS01	22NEC-S08-SB01	Road	ND [117]	ND [117]	26,700 [294]
22NEC-S08-SS06	22NEC-S08-SB06	Road	ND [110]	ND [110]	3,600 [55.2] QN
22NEC-S08-SS07	22NEC-S08-SB05	Road	ND [150]	98.4 [150] J	84,600 [752]
22NEC-S08-SS09	22NEC-S08-SB08	Tundra	ND [114]	ND [114]	7,980 [56.8]
22NEC-S08-SS10	22NEC-S08-SB09	Tundra	ND [115]	ND [115]	31,900 [515]
22NEC-S08-SS11	22NEC-S08-SB10	Tundra	ND [119]	ND [119]	31,600 [593]
22NEC-S08-SS12	22NEC-S08-SB11	Tundra	ND [122]	ND [122]	21,100 [610]
22NEC-S08-SS13	22NEC-S08-SB12	Tundra	ND [122]	ND [122]	22,400 [609]
22NEC-S08-SS14	22NEC-S08-SB13	Tundra	ND [118]	ND [118]	4,170 [59.0]
22NEC-S08-SS18	22NEC-S08-SB17	Tundra	ND [121]	ND [121]	7,140 [60.7]
22NEC-S08-SS19	22NEC-S08-SB18	Road	ND [156]	ND [156]	104,000 [858]
22NEC-S08-SS20	22NEC-S08-SB19	Road	ND [114]	ND [114]	11,100 [57.2] QN
22NEC-S08-SS21	22NEC-S08-SB20	Road	ND [131]	ND [131]	26,600 [722]
22NEC-S08-SS24	22NEC-S08-SB23	Road	ND [111]	60.6 [111] J	1,450 [557]
22NEC-S08-SS26	22NEC-S08-SB25	Tundra	ND [155]	ND [155]	119,000 [777]
22NEC-S08-SS28	22NEC-S08-SB26	Road	ND [120]	ND [120]	16,900 [601]
22NEC-S08-SS34	22NEC-S08-SB31	Road	ND [131]	ND [131]	28,600 [653]

Notes:
For definitions, refer to the Acronyms and Abbreviations section.
LOD shown in brackets [ ]
J – the result is an estimated value greater than or equal to the DL and below the LOQ
QH/QL/QN – the result is an estimated value, bias high/low/indeterminate, due to a QC failure

8.3.3 FOC Calculation

A representative site-specific foc was calculated using a 95% LCL of the mean. Microsoft Excel was first used to calculate the mean for foc values using the AVERAGE Excel function, then the standard deviation (SD) for foc values was calculated using the STDEV function. Next, the standard error (SE) was calculated as the SD divided by the square root of the sample size. The SE was multiplied by 1.96, and the normal distribution 95% LCL was calculated as 95% LCL=Mean-(1.96xSE). The 1.96 refers to 1.96 SDs on either side of the mean. This calculation produced a normal distribution confidence interval. To provide comparison with other 95% confidence interval calculations, Student's t and Chebyshev equations were also used to generate 95% LCLs. Relative standard deviations (RSDs) were also calculated for foc values, as foc results calculated with RSDs greater than 100% are not recommended for use as a site-specific value. Appendix F presents the TOC soil data.

The calculated foc using uncontaminated background samples is 0.01541 with an RSD of 110% between foc samples. This calculated value exceeds the ADEC default foc of 0.001, but the high RSD indicates that this calculated value is not recommended for the purposes of calculating site-specific alternative cleanup levels. An outlier test was performed on the data, and the smallest and largest values were not identified as outliers.

9.0 SITE 28 SEDIMENT REMOVAL AND DISPOSAL

Fieldwork at Site 28 included a pilot study for sediment removal, full-scale sediment removal, sediment mapping, and surface water and sediment sampling.

9.1 Sediment/Water Processing Area

As a component of both the sediment removal pilot study and full-scale sediment removal, a sediment/water processing area was installed on the MOC gravel pad located on the south side of Site 28. The first step in the sediment/water extraction process separated sediment from water and contained the sediment, and the second step treated the resulting water prior to discharge.

9.1.1 ISM Footprint Sampling

Prior to construction of the sediment/water processing area, a 200-foot by 220-foot area was marked out for ISM sampling (Figure 6B). This area encompassed the footprint of the sediment/water containment basins, and was divided into 30 cells representing a single DU. To collect an ISM sample from the DU (22NEC-S28-DU1) in triplicate, a random location was selected within the first cell, and duplicate and triplicate sample locations were identified 12 inches to the north and east of the primary location. Increments were then collected from locations in a serpentine pattern, until 30 increments had been collected for each sample. ISM samples were analyzed for DRO, RRO, and PAHs.

A second DU (22NEC-S28-DU2) was established in the treated water discharge area. This area was 21 feet by 34 feet. A single pre-processing ISM sample was collected from 22NEC-S28-DU2, using the same methodology as 22NEC-S28-DU1. ISM samples were analyzed for DRO, RRO, and PAHs.

9.1.2 Sediment/Water Processing Area Construction

The sediment/water processing area was composed of the following components:

- Two 40 mil HDPE 20,000-gallon containment basins, each with an estimated capacity of approximately 20,000 gallons
- Two 40 mil HDPE containment basin footprint liners
- Geotextile dewatering tubes (e.g., geotubes) measuring 52.5-feet by 35-feet and 52.5-feet by 45-feet, respectively, placed inside the first and second containment basins
- Electromagnetic flowmeter
- Polymer flocculant injection system
  - Spinpro Hydromizer® for flocculant mixing, sampling, and injection
  - Drums of liquid emulsion polymer flocculant – Spinpro 410
  - Flocculant polymer pump
  - Flocculant agitator pipe
  - Sampling port
  - A flocculant mixture fresh water supply tank (2,000 gallons)
  - 2-inch trash pump to supply fresh water to the hydromizer
- Water Treatment System
  - One 4-vessel Sand Filter skid
  - Two skids, each with two 500 gallon GAC vessels

- 2-inch and 3-inch PVC suction hose
- 2-inch and 3-inch layflat discharge hose
- 2-inch and 3-inch Semi-trash pumps
- Electric submersible pumps and hose

The sediment/water processing area from the influent (dredge) side began with a three-inch semi-trash pump, which could be used to finely control flow (gallons per minute) of the dredge sediment/water mixture (slurry) into the sediment/water processing area. The trash pump was connected to a 3-inch PVC suction hose which ran onto the MOC gravel pad, through a flowmeter hard-piped into the system. After the flowmeter, a wye on the slurry line was used to inject the flocculant into the slurry. The polymer flocculant was set up to be introduced to the slurry before being pumped into the containment basins and geotubes.

The flocculant injection system used a pump mounted on top of the flocculant polymer drums to inject undiluted flocculant into the hydromizer, where fresh water was added to mix the flocculant to the appropriate concentration based on the slurry flow. The freshwater-diluted flocculant was then added to the slurry. Following the flocculant injection, the slurry-flocculant mix was pumped through an agitator then through at least 150 feet of 3-inch PVC suction hose to allow for sufficient mixture. The slurry was then pumped to the uphill side of the first containment basin and inside of the first geotube. The containment basins were set up on a slightly sloped area of the MOC pad, so that the slurry would drain naturally to the downhill side. The geotubes placed inside the containment basins were anchored in place to the uphill side of the containment, so that room for a downhill sump would be created. At the downhill side of the containment, a semi-trash pump and electric submersible pump were set up to transfer excess water from the first containment to the second containment. Inside the second containment was a second geotube. All water pumped from the first containment was pumped to the uphill side of the second containment inside the second geotube. At the downhill side of the second geotube, a semi-trash pump was set up to pump water through the water treatment system.

The water treatment system was composed of a four-vessel sand filter skid, followed by two 500-gallon GAC vessel skid. A second two 500-gallon GAC vessel skid was available as a replacement/backup. Sand filters were filled with 0.75-inch minus gravel at the base, then 20 grade filter sand. The GAC vessels used LRC830 GAC media supplied by Pacific Coast Carbon. Water was pumped through the sand filters and then through the GAC vessels. Treated water was discharged from the GAC vessels to a lined/bermed area that ran from the MOC gravel pad onto the Site 28 tundra.

9.2 Dredging

The primary objective of dredging was to remove contaminated sediment identified in 2018. For purposes of this work, sediment was defined as all continuously submerged loose mineral and organic material except that which is actively growing vegetation and was part of the vegetative mat.

Dredging at Site 28 included the completion of a pilot study at Area 6 and Area 9, the evaluation of the dredging and treatment system, and full-scale implementation. Prior to dredging, historical sample locations, contaminated sediment boundaries, area boundaries, and transects were surveyed and marked using wood lath. In addition, for the duration of dredging, silt fences were installed downstream of Site 28 Area 9 to reduce surface water turbidity and mitigate sediment transport to the Suqi river.

Sediment dredging was conducted using a Piranha dredge model PS-165E mini dredge, equipped with a 4-inch intake. The dredge intake was equipped with a metal pole to manually direct the stinger head, which had a metal screen cover. In addition to the dredge, an agitator mounted to the dredge frame was used to agitate loose sediment into the water column and direct sediment towards the dredge intake.

The dredge outlet consisted of 4-inch PVC suction hose. The dredge slurry was directed to a temporary 2,500-gallon plastic containment pond. From the containment pond, the slurry was then pumped through the sediment/water processing area. Depending on how far the dredging location was from the MOC gravel pad, multiple containment ponds in line were used to transfer dredged slurry to the containment pond closest to the sediment/water processing area. A 3-inch PVC suction hose or 3-inch layflat discharge hose were run between containment ponds. Slurry was transferred between ponds initially using diaphragm pumps, but these were changed out for 3-inch semi-trash pumps to allow for greater flow control.

9.2.1 Pilot Study

The dredging pilot study began at the Area 6 pond, which had an estimated extractable sediment volume of 6.4 cy. The Area 6 pond was approximately six feet deep in the center, necessitating that the dredging crew wear chest waders or diving suits to access the bottom. First attempts at dredging resulted in the immediate clogging of the dredge intake screen. An underwater vegetative mat was observed beneath the targeted sediment area that was not able to be dredged because the vegetative mat clogged the dredge intake. In addition, this vegetative mat did not meet the definition of sediment. The underlying vegetative mat exhibited a high tensile strength, and therefore was not dredge-able. The dredging team identified that the only way to access dredgable material at Area 6 was to remove the vegetation mat by hand. Some vegetation was removed and subsequently containerized, but it was quickly identified that removal of the vegetative mat was not included in the objective to remove loose sediment. The pilot study at Area 6 concluded with an estimated 0.25 cy of sediment removed.

The field crew then mobilized to Area 9, which is part of the linear drainage that eventually leads to the Suqi River (Figure 6D). Area 9 had an estimated extractable dredging material volume of 32.15 cy. Area 9 was shallower, which allowed the dredging crew to wear chest waders. Unlike at Area 6, measurable loose sediment was observable at the base of the water body. Dredging and agitation began at Area 9 but clogging occurred again when the dredge intake touched the vegetative mat underlying the thin sediment layer. Dredging with both the square-hole and round-hole screens installed on the intake resulted in clogging with dead and live vegetation within one minute of initiating dredging. Once clogged, the remaining material removed during dredging consisted of only the very fine vegetative particles, limited sediment and water that could fit through the clogged screen. While dredging, a petroleum sheen appeared on the surface water at Area 9. Petroleum absorbent booms were deployed near the downstream silt fences to mitigate surface water sheen migration. The pilot study at Area 9 concluded with an estimated 3.75 cy of sediment removed.

Sediment volume in geotubes following the pilot study at Area 6 and Area 9 was estimated at 4 cy of material. After the two days that the pilot study was conducted, 8,817 gallons of slurry were pumped into the containments in the sediment/water processing area. A small volume of water that had run through the geotubes was treated and discharged. Most of the water was still draining from the geotubes after completion of the two day pilot study. The discharged water had a maximum of 15.3 nephelometric turbidity units (NTU), with no odor. Discharge water sample 22NEC-S28-WA-01 was collected from the discharged water and analyzed for DRO, RRO, BTEX, and PAHs, to calculate surface water quality parameters TAH and TAqH in accordance with the ADEC Discharge Permit (Appendix B). Analytical results

indicated no analytes were detected, and therefore there was no TAH/TAqH exceedance. Complete analytical results are provided in Appendix F.

Surface water turbidity was measured before, during, and after pilot study dredging activities to evaluate whether turbidity increased downstream as a result of dredging. Sample locations included the four historical surface water sample locations (Figure 6A). Turbidity did not show a significant increase following dredging except for the surface water location monitored within Area 9 during dredging within Area 9. Increases from 5.1 to 25.8 NTU were observed. The day following dredging, turbidity decreased to the baseline levels of 4.53 NTU at Area 9.

9.2.2 Pilot Study Evaluation

Directly following the pilot study, the Field Team Lead, Project Manager, and USACE QAR completed the Pilot Study Evaluation (Appendix K). Several improvements to dredging were recommended in the evaluation. The evaluation was split into several performance factors, including Dredging Material Extracted, Dredging Flow Rate, Downgradient Water Quality, Flocculant Injection, Water Management and Geotube Dewatering, Treated Water, and Health and Safety.

For the Dredging Material Extracted performance factor the following recommendations were made in order to increase the volume of sediment removed:

- During full-scale implementation, the dredge crew began dredging from the center of each pond and working outwards towards the pond perimeter, taking note to avoid dredging in areas where vegetative mat was present.
- Raking or other physical removal efforts may have been needed for dealing with loose vegetation that interfered with the removal of loose sediment. It was also identified that special care should be taken to identify where the vegetative mat was present, which does not need to be removed.
- Remove the intake screens, which would increase the particle size allowed through the dredge; however, this recommendation was discarded after a short period of implementation due to clogged dredge intake hoses and impellers.
- It was identified that loose sediment was left in the containment ponds because of the stationary output hoses; therefore, that the output hoses should be used to sweep the containment ponds to remove the remaining sediment.

The Dredging Flow Rate portion of the evaluation included a proposal to run a temporary pipeline from a nearby stream to provide freshwater to the flocculant system rather than from a containment pond, but this was not implemented because the distance to the nearest suitable water body was over 1,000 feet.

The evaluation of the Downgradient Water Quality performance factor identified that turbidity did not show a significant increase following dredging except for the surface water location monitored within Area 9 during dredging within Area 9. It was recommended that, because of the sheen observed, petroleum sorbent booms and pads were to be placed at all pond inlets and outlets to collect petroleum sheen that may appear on the water.

Flocculant injection rates were adjusted to meet expectations. With a controlled 65-gallons per minute (gpm) slurry input rate, a 50-speed, 50-stroke rate of the flocculent pump at an 8-gpm freshwater input rate, the flocculant mix is appropriate for curd-formation. This was recommended to be adjusted as density of the slurry material increases (i.e., more sediment per volume of water).

The Water Management and Geotube Dewatering Water performance factor identified that containment areas were leak-free and appropriately constructed. It was recommended that water levels within each containment be checked each evening and early-morning, additional checks will be needed during heavy precipitation events, and that the field team may need to adjust operations to allow a night watch for dewatering and pumping from the first containment cell to the second cell, as well as pumping from the second containment cell through the water treatment system. Geotubes were performing as expected. An in-line sand, stainless mesh, or sock filter were brought up depending on treated water discharge monitoring results but were not added to the system, as the treated water discharge had no detected contaminants. In addition, it was noted that the sand pots may need to be backflushed more often than anticipated.

9.2.3 Full-Scale Implementation

Full scale implementation of sediment removal was initiated at Area 3. Area 3 exhibited a narrow stream where shallow riffles upwelled from several springs. Dredging began using the 4-inch dredge within a deeper spring area, and manual pressurized agitation was created using the agitator to move sediment into the water column and guide material suction into the intake nozzle of the dredge. The Area 3 stream was immediately depleted by the dredge. Following depletion, it was observed that a large percentage of root-laden material constituted most of the stream bed in the area previously identified for contaminated sediment removal, and the delineation of the extent of loose sediment was conducted on a site-walk with the USACE QAR.

Several areas of stained orange and black loose sediment (0-2 inches thick) with gelatinous consistency, were identified atop root-laden vegetative mat material exhibiting high tensile strength with thickness from 17 inches to 23 inches. The solid surface below this ubiquitous vegetative mat was found to be occasionally frozen and/or a dense layer consisting of either vegetation or soil, or both, at the base of the water body. An observations and recommendations document (Appendix K) was prepared for the USACE and ADEC to review to confirm the removal strategy, document observations, and provide recommendations to achieve project objectives. Several improvements to dredging operations were identified that would limit the removal to loose sediment only, as defined for the purposes of this work, and would not attempt to remove the vegetative mat.

To successfully dredge the material that met the definition of sediment in areas where contaminated sediment was identified during the 2018 sediment mapping and sampling field effort, the following procedures were identified:

1. Along narrow channels:
    a. Natural pools were identified. A silt fence, wood stakes, sorbent booms, and other necessary best management practices (BMPs) were placed immediately downstream of each pool to create a temporary coffer dam to increase water levels in the immediate vicinity and enable dredging, and trap sediment that enters the water column during dredging.
    b. In areas where loose sediment was identified on top of the vegetative mat, rakes, shovels, and skimmers were dragged across the top of the vegetative mat upstream of the dredge intake to cause the loose sediment to either move directly into the dredge intake or become suspended in the water column and enter the dredge intake.
    c. Sediment that could be hand-shoveled was placed into a supersack for disposal. Special care would be taken to not disturb the vegetative mat or solid surface below the loose sediment.

   d. A smaller 2-inch dredge was used in areas with limited water flow. A 4-inch dredge was used in areas with sufficient water flow. If needed, the dredge agitator or a small trash pump was used to recirculate water to cause the loose sediment to become suspended in the water column and enter the dredge intake.

2. In ponded areas:
   a. A deep area was identified as a central dredging location. Silt fencing and sorbent booms were installed at the exits from each pond, and at the entrances where the sediment was at risk of migrating upstream when disturbed.
   b. A footer was fabricated and used to suspend the dredge intake above the vegetative mat layer and mitigate clogging. An effective footer was constructed with a screened dredge intake inside a bucket with 3/8-inch holes around the sides, with a sorbent boom wrapped around the dredge intake hose at the water surface to prevent floating vegetation from entering the intake. A stake was used to hold the footer in place.
   c. As the dredge pumped, the crew caused the loose sediment in the vicinity of the dredge intake to become suspended in the water column and enter the dredge intake by walking within the pond and using rakes, the agitator, and other hand tools to “sweep” loose material into the dredge intake.
   d. A smaller 2-inch dredge was used first, to better regulate the intake flow. A 4-inch dredge was used in larger areas with thicker sediment.
   e. After the pond had been dredged, the areas with silt fence at the exits from each pond was swept or dredged to remove accumulated sediment.
3. Before/after pictures and physical and visual inspections of the area were made following dredging to ensure loose sediment has been effectively removed.

These procedures were followed for Area 3 dredging. Silt fencing, wood stakes, sorbent booms, and other BMPs were placed immediately downstream of each sump location to create a temporary coffer dam to increase water levels in the immediate vicinity and enable dredging, and trap sediment that entered the water column during dredging. The 4-inch dredge was replaced with a 2-inch dredge to reduce intake volume and maintain sufficient stream discharge necessary for sediment removal. A modified 5-gallon bucket with numerous holes drilled throughout was deployed as a sump, and the dredge intake was secured within to prevent clogging by vegetation. To increase the volume of agitated sediment suspended in the water column, upstream material was manually raked from the stream bed and agitated using hand tools (e.g., shovels, rakes, skimmers), towards the intake nozzle downstream for removal. The pressurized dredge agitator was also used to loosen sediment from the vegetative mat and matted decomposing vegetative material. The agitation produced from the pressurized agitator was focused along stream shoulders to suspend loose sediment along stream/pond beds into the water column. Any remaining sediment observed on the soil was removed using shovels, placed into 5-gallon buckets, and then containerized in 1 cy IP2 supersacks following dredging. Before/after photographs and physical and visual inspections of the area were documented following dredging to ensure loose sediment was effectively removed.

New sediment removal procedures were considered effective and dredging activities continued to Area 4 downstream of Area 3, until the geotubes reached maximum capacity. An estimated volume of 8 cy was removed from Area 3, and an estimated 3 cy was removed from Area 4. Following dredging at Area 3 and Area 4. An estimated 30,268 gallons of slurry had been run through the sediment/water processing area.

Dredging was performed again at Area 9, then proceeded to the ponds nearest the MOC including Area 7, Area 8, Area 2, Area 6, and Area 5N using the updated dredging methodology. An estimated volume of 0.5 cy was removed from Area 9, and a total of approximately 10 cy of sediment was extracted from Area 7, Area 8, Area 2, Area 6, and Area 5N.

Following final dredging operations, 64,094 gallons of slurry was run through the sediment/water processing area. With the additional freshwater added through the flocculant injection system, and the precipitation that had collected in the open containments, a total of 83,422 gallons of water was run through the water treatment system.

9.3 Surface Water Sampling

Surface water samples were collected before, during, and after sediment removal at the historical surface water sample locations (Figure 6A), downstream of dredging. Samples were analyzed for DRO, RRO, BTEX, and PAHs. TAH and TAqH were calculated from the BTEX and PAH results. Water quality parameters including ORP, pH, DO, conductivity, temperature, and turbidity were monitored during sample collection. To ensure effectiveness of turbidity control measures, and concurrent with surface water sample collection, daily surface water turbidity measurements were collected at the same locations where surface water samples were collected.

Twelve surface water samples were collected. Analytical results indicate no detections exceed cleanup levels prior to, during, or following dredging. No TAH or TAqH exceedances were identified. Contaminant concentrations increased slightly during dredging (Table 16). Complete analytical results for surface water samples collected at Site 28 are provided in Appendix F.

Table 16 Site 28 Select Surface Water Analytical Results Prior To, During, and After Dredging

LOCATION	SAMPLE ID	EVENT	DRO (mg/L)	TAH (mg/L	TAqH (mg/L
		PSL	1.5	0.010	0.015
22NEC-S28-SW-01	22NEC-S28-SW-01/-901*	7/27/2022 Prior to Dredging	ND [400]	ND [3.1]	5.12
	22NEC-S28-SW-06	8/12/2022 During Dredging	ND [400]	ND [3.1]	4.2286
	22NEC-S28-SW-13	8/15/2022 After Dredging	390 [444] J,QH	ND [3.1]	ND [5.14]
22NEC-S28-SW-03	22NEC-S28-SW-03	7/27/2022 Prior to Dredging	222 [420] J,QN	ND [3.1]	5.12
	22NEC-S28-SW-07	8/12/2022 During Dredging	190 [444] J	ND [3.1]	ND [5.14]
	22NEC-S28-SW-12	8/15/2022 After Dredging	309 [400] J,QH	ND [3.1]	4.90
22NEC-S28-SW-04	22NEC-S28-SW-04	7/27/2022 Prior to Dredging	239 [420] J,QN	1.77	3.32
	22NEC-S28-SW-09/-909*	8/12/2022 During Dredging	194 [400] J	ND [3.1]	4.45
	22NEC-S28-SW-10	8/15/2022 After Dredging	437 [400] J,QH	1.78	3.58

Table 16 Site 28 Select Surface Water Analytical Results Prior To, During, and After Dredging

LOCATION	SAMPLE ID	EVENT	DRO (mg/L)	TAH (mg/L	TAqH (mg/L
		PSL	1.5	0.010	0.015
F22NEC-S28-SW-05	22NEC-S28-SW-05	7/27/2022 Prior to Dredging	ND [400]	ND [3.1]	4.7598
	22NEC-S28-SW-08	8/12/2022 During Dredging	ND [444]	ND [3.1]	4.6928
	22NEC-S28-SW-11	8/15/2022 After Dredging	290 [400] J,QH	ND [3.1]	ND [5.14]

Notes:
For definitions, refer to the Acronyms and Abbreviations section.
*Field duplicate sample, highest detection shown
LOD shown in brackets [ ]
J – the result is an estimated value greater than or equal to the DL and below the LOQ
QH/QL/QN – the result is an estimated value, bias high/low/indeterminate, due to a QC failure

9.4 Sediment Mapping

Sediment mapping was conducted following dredging activities. Sediment mapping followed the revised Sediment Mapping standard operating procedure (SOP) (Appendix K), integrating several recommendations identified in the Observations and Recommendations Document. The extent of waterbodies greater than 30 feet in diameter were measured across Site 28 (Figures 5C through 5G) by measuring the perimeter of each waterbody at the shoreline. Elevation of the waterbody was also established. Within the surveyed waterbodies, areas were documented as containing sediment or vegetative mat. Per the SOP, "*If there is no material that meets the Section 3 definition of sediment (only the vegetative mat present) no further evaluation will occur in that area of the waterbody. No assessment below the vegetative mat will occur*."

Vegetative mat is a material that appears to be ubiquitous throughout Site 28 water bodies and exists beneath the loose sediment (if present), is matted, has a high tensile strength, contains vegetative matter and live and dead roots, as well as rocks, gravel, and other mineral material. The vegetative mat could be identified by hand with a shovel based on its resistance to lifting or prying, and its cohesiveness with the surrounding vegetative mat. A shovel or coring tool was also used to bring the vegetative mat material to the water surface for observation and determination of the presence of vegetative mat and/or sediment.

In areas where sediment was present, four layers were identified:

- Surface water
- Loose sediment
- Vegetative mat
- Solid base

To conduct the sediment mapping, starting at the Suqi river, historical transect locations were identified. The transect began with an evaluation if sediment was present across the transect using observations or a shovel test. Where sediment was present, the water depth to the top of sediment (bathymetry) was measured and recorded. Depth of sediment was then measured. Below sediment, if a vegetative mat was present, the thickness of the vegetative mat was recorded. Below the vegetative mat, the solid surface elevation was recorded.

Cross sections were generated for each transect with sediment at Site 28. For sediment mapping, the surveyor's RTK probe was used rather than a graduated hand probe to improve measurement precision and reduce field time. Figure 6C through Figure 6G illustrate transect localities, sediment thickness, and sediment removal locations in 2022. Sediment was not observed during sediment mapping in any of the areas that were dredged in 2022. For transects that had no sediment present, the transect line was walked by the surveyor, a shovel test was performed to evaluate sediment presence, and a determination was noted before moving to the next transect.

9.5 Confirmation Sampling

Confirmation substrate sampling was performed during the sediment mapping, after dredging operations were completed. These samples were not from media which met the definition of loose sediment for purposes of this work but were collected from the substrate beneath the vegetative mat. In areas that were not dredged, sediment was sampled, where present. A total of 60 discrete confirmation samples were collected and analyzed for DRO and RRO with and without silica gel cleanup, PAHs, and TOC. Analytical results for these samples were evaluated against SSCLs and those compounds with no SSCL were compared to the sediment screening levels in the Washington Administrative Code 173-204-520, Table III, Sediment Minimum Cleanup Levels. Sample locations were surveyed and are presented in Figures 5E through 5G. Complete analytical results are in Appendix F.

Concentrations of DRO and RRO greater than the SSCLs (3,500 mg/kg) were identified in samples collected throughout the southern half of Site 28, including Area 1, Area 3, Area 7, and Area 9. Analytical results greater than the SSCL for DRO were observed in 29 samples, ranging from 4,260 mg/kg to 74,800 mg/kg (Figure 6H). Analytical results greater than the SSCL for RRO were observed in nine samples ranging from 3,720 mg/kg to 82,200 mg/kg (Figure 6I). Concentrations of select PAHs (2-methylnaphthalene, acenaphthene, fluoranthene, fluorene, and naphthalene) were also observed above cleanup levels (Figure 6J). The following exceedances were observed in each area:

- Area 2, concentrations of DRO (ranging from 14,300 mg/kg to 57,300 mg/kg), RRO, 2-methylnaphthalene, acenaphthene, naphthalene, and fluorene were observed above the SSCL and cleanup levels (Figure 6G).
- Area 3, the southernmost linear water body, concentrations of DRO (ranging from 4,400 mg/kg to 74,800 mg/kg), RRO, 2-methylnaphthalene, acenaphthene, fluorene, and naphthalene were observed above the SSCL and cleanup levels (Figure 6F).
- Area 4, concentrations of DRO (ranging from 4,890 mg/kg to 44,100 mg/kg), RRO (ranging from 5,950 mg/kg to 7,860 mg/kg), 2-methylnaphthalene, acenaphthene, fluoranthene, fluorene, and naphthalene were observed above the SSCL and cleanup levels (Figure 6E).
- Area 5N, two samples were collected. Concentrations of 2-methylnaphthalene were observed above the cleanup level in both samples (Figure 6G).
- Area 6, concentrations of DRO (ranging from 4,260 mg/kg to 60,400 mg/kg), RRO, 2-methylnaphthalene, acenaphthene, naphthalene, and fluorene were observed above the SSCL and cleanup levels (Figure 6G).
- Area 7, concentrations of DRO (ranging from 4,840 mg/kg to 20,200 mg/kg), 2-methylnaphthalene, acenaphthene, naphthalene, and fluorene were observed above the SSCL and cleanup levels.

- At Area 8, concentrations of DRO (ranging from 4,260 mg/kg to 15,600 mg/kg), 2-methylnaphthalene, naphthalene, and fluorene were observed above the SSCL and cleanup levels (Figure 6G).
- Area 9, concentrations of DRO (6,250 mg/kg and 28,300 mg/kg), 2-methylnaphthalene, acenaphthene, fluorene, and naphthalene were observed above the SSCL and cleanup levels (Figure 6D).
- In Area 10, north (immediately downstream) of the Natural Stilling Area (Figure 6C), a biased-low detection of 2-methylnaphthalene was observed above the cleanup level in sample SD12.
- Area 11, located nearest to the Suqi River confluence, all analytical results were either non-detect or less than the SSCLs and/or cleanup levels (Figure 6C).

9.5.1 Silica Gel Cleanup and Biogenic Interference

Due to the potential for biogenic interference, all soil samples were analyzed for DRO (with and without silica gel) in accordance with ADEC Technical Memorandum 21-001, *Biogenic Interference and Silica Gel Cleanup* (ADEC 2021). The chromatograms were evaluated for each sample, and were assigned a category with the following descriptions:

- Primarily petrogenic sources
- Primarily biogenics sources
- A mixture of petrogenic/biogenic sources
- Unable to identify or Negative percent (%) reduction likely due to lack of homogeneity with result(s) near or less than the limit of quantitation (LOQ)

The number of samples in each category and average percentage of reduction in DRO concentrations by category are presented in Table 17. Excluding sample results with a negative % reduction, the overall average reduction in concentration from silica gel cleanup is 42%. A review of the results and chromatograms indicate that biogenic interference is present at the site. Appendix F presents a comparison of DRO results with and without silica gel cleanup.

Table 17 Site 28 Silica Gel Cleanup DRO Analysis

CATEGORY	NUMBER OF SAMPLES	AVERAGE REDUCTION IN CONCENTRATION EXCLUDING INCREASES
Primarily Petrogenic Sources	30	34%
Primarily Biogenic Sources	15	67%
A mixture of petrogenic/biogenic sources	10	26%
Unable to identify / Negative % reduction likely due to lack of homogeneity with result(s) near or less than the LOQ	12	0% - no detections

Notes:
For definitions, refer to the Acronyms and Abbreviations section.

9.5.2 TOC Analysis

The TOC values collected in each substrate sample were used to determine a representative foc in accordance with the ADEC Technical Memorandum, *Determining the Fraction of Organic Carbon (foc) for Methods Three and Four* (ADEC 2017a). To reduce the chance of hydrocarbon presence impacting TOC values, only those Site 28 substrate samples that were ND for DRO, with and without silica gel cleanup, were included in the TOC analysis. This included nine samples, identified in Table 18. TOC values ranged from 30,300 mg/kg to 160,000 mg/kg.

Table 18 Site 28 TOC Sample Results

SAMPLE ID	LOCATION	DEPTH (feet bgs)	DRO (mg/kg)	DRO SGCU (mg/kg)	TOC (mg/kg)
		SSCL	3,200	3,200	N/A
22NEC-S28-SD08	22NEC-S28-SD08	0-1.5	ND [509]	ND [509]	83,600 [2,800]
22NEC-S28-SD09	22NEC-S28-SD09	0-1.5	ND [290]	ND [290]	65,300 [1,590]
22NEC-S28-SD10	22NEC-S28-SD10	0-1.5	ND [583]	ND [583]	160,000 [2,620]
22NEC-S28-SD11	22NEC-S28-SD11	0-1.5	ND [438]	ND [438]	52,000 [2,410]
22NEC-S28-SD12	22NEC-S28-SD12	0-1.5	ND [564]	ND [564]	92,200 [2,540]
22NEC-S28-SD17	22NEC-S28-SD17	0-1.5	ND [746]	ND [746]	70,700 [4,100]
22NEC-S28-SD22	22NEC-S28-SD22	0-1.5	ND [613]	ND [613]	151,000 [2,760]
22NEC-S28-SD56	22NEC-S28-SD56	0-1.5	ND [306]	ND [306]	46,900 [1,530]
22NEC-S28-SD58	22NEC-S28-SD58	0-1.5	ND [632]	ND [632]	30,300 [6,000]

Notes:
For definitions, refer to the Acronyms and Abbreviations section.
LOD shown in brackets [ ]

9.5.3 FOC Calculation

A representative site-specific foc was calculated using a 95% LCL of the mean. Microsoft Excel was first used to calculate the mean for foc values using the AVERAGE Excel function, then the standard deviation (SD) for foc values was calculated using the STDEV function. Next, the standard error (SE) was calculated as the SD divided by the square root of the sample size. The SE was multiplied by 1.96, and the normal distribution 95% LCL was calculated as 95% LCL=Mean-(1.96xSE). The 1.96 refers to 1.96 SDs on either side of the mean. This calculation produced a normal distribution confidence interval. To provide comparison with other 95% confidence interval calculations, Student's t and Chebyshev equations were also used to generate 95% LCLs. RSDs were also calculated for foc values, as foc results calculated with RSDs greater than 100% are not recommended for use as a site-specific value. Appendix F presents the TOC soil data and calculations.

The calculated foc using uncontaminated samples is 0.05421 with an RSD of 53.8% between foc samples. This calculated value exceeds the ADEC default foc of 0.001 and should be used for the purposes of calculating site-specific alternative cleanup levels.

9.6 Site Restoration, Containerization, Post-ISM Sampling, and Waste Disposal

Following dredging operations, silt fence cofferdams, stakes, sorbents, and BMPs were removed from the surface water bodies; streams were left unaltered following all dredging operations; and all survey lath and pin flags were removed and disposed of as inert debris.

Geotubes were drained to the extent possible using gravity, manual agitation, and the addition of sandbags and other weights to the tops of the geotubes. When the geotubes were sufficiently drained, the geotubes and sediment were placed inside IP2-rated supersacks for transport and disposal. In total, 30 cy of sediment (including geotubes) was containerized for disposal (Table 19).

Table 19 Site 28 Dredged Volume by Area

DREDGING AREA	APPROXIMATE CY
Area 2	1.5
Area 3	8
Area 4	3
Area 5N	0.5
Area 6	2.5
Area 7	4
Area 8	2
Area 9	4.25
Geotubes (Non-Sediment)	4.25
Total	**30**

Notes:
For definitions, refer to the Acronyms and Abbreviations section.

Plastic containments, containment liners, filter fabric, and other inert debris were wiped of any visible sediment and placed in supersacks or an open-top container for disposal as inert debris.

Following removal of all the sediment/water processing area materials and equipment, a post-processing ISM sample was collected from the DUs established (S28-DU1 and S28-DU2), using the same methodology as the pre-processing samples. S28-DU1 was sampled in triplicate (22NEC-S28-DU1-SS04 through 22NEC-S28-DU1-SS06); only one sample (22NEC-S28-DU2-SS02) was collected from S28-DU2. ISM samples were analyzed for DRO, RRO, and PAHs. 95% UCLs were calculated for all analytes. The 95% UCL results indicated no SSCL exceedances for any of the DU samples pre- or post- construction. Complete results and calculations are included in Appendix F.

10.0 BACKGROUND SAMPLING

Background samples were collected from outside known impacted areas at NEC to provide TOC and silica gel cleanup values in accordance with the ADEC *Biogenic Interference and Silica Gel Cleanup* technical memorandum (2021b). An unimpacted area for sampling background was indicated by the USACE QAR during field activities, west of the Site 6 area. A hand auger and trowel were used to access the soil below the surface vegetation. Ten discrete background samples were collected and submitted for analysis of DRO with and without silica gel cleanup and TOC. All but one sample were collected from 0 to 1 feet bgs, as ice or impermeable rock was encountered in all locations at that depth. One sample, 22NEC-BG-4 was collected from 0 to 1.5 feet bgs. Soil lithology for background samples was primarily silty organic soil, gray-brown to black, with some sand and occasional medium/coarse sand, USCS code OL (organic silts and organic silty clays of low plasticity). All background locations were photographed and surveyed (Figure 8).

Background sample results for DRO without silica gel cleanup ranged from ND to 164 mg/kg. DRO results with silica gel cleanup ranged from ND to 277 mg/kg. In two samples, 22NEC-BG-6 and 22NEC-BG-7, silica gel cleanup results for DRO were detections, 277 mg/kg and 168 mg/kg, respectively, and both were ND for DRO without silica gel cleanup. No samples exceeded the DRO SSCL. TOC results ranged from 15,400 mg/kg to 235,000 mg/kg. Background results are included in Table 20.

Table 20 Background Soil Sample Results

SAMPLE ID	LOCATION	DEPTH (feet bgs)	DRO (mg/kg)	DRO SGCU (mg/kg)	TOC (mg/kg)
		SSCL	9,200	9,200	N/A
22NEC-BG-1	22NEC-BG-1	0-1	ND [229]	ND [229]	104,000
22NEC-BG-901[1]	22NEC-BG-1	0-1	ND [210]	ND [210]	76,900
22NEC-BG-2	22NEC-BG-2	0-1	ND [263]	ND [263]	155,000 [1310]
22NEC-BG-3	22NEC-BG-3	0-1	164 [251] J	ND [251]	235,000 [1260]
22NEC-BG-4	22NEC-BG-4	0-1.5	ND [176]	ND [176]	70,100 [880]
22NEC-BG-5	22NEC-BG-5	0-1	112 [151] J	ND [151]	81,200 [679]
22NEC-BG-6	22NEC-BG-6	0-1	ND [186]	277 [186] J,QH	148,000 [929]
22NEC-BG-7	22NEC-BG-7	0-1	ND [232]	168 [232] J,QH	218,000 [1160]
22NEC-BG-8	22NEC-BG-8	0-1	ND [114]	ND [114]	6,890 [515]
22NEC-BG-9	22NEC-BG-9	0-1	ND [116]	ND [116]	5,740 [580]
22NEC-BG-10	22NEC-BG-10	0-1	ND [135]	ND [135]	15,400 [135]

Notes:
For definitions, refer to the Acronyms and Abbreviations section.
[1] Field duplicate
LOD shown in brackets [ ]
J – the result is an estimated value greater than or equal to the DL and below the LOQ
QH/QL/QN – the result is an estimated value, bias high/low/indeterminate, due to a QC failure

The TOC background values were used to determine a representative foc in accordance with the *ADEC Technical Memorandum, Determining the Fraction of Organic Carbon (foc) for Methods Three and Four* (ADEC 2017a).

A representative site-specific foc was calculated using a 95% LCL of the mean. Microsoft Excel was first used to calculate the mean for foc values using the AVERAGE Excel function, then the standard deviation (SD) for foc values was calculated using the STDEV function. Next, the standard error (SE) was calculated as the SD divided by the square root of the sample size. The SE was multiplied by 1.96, and the normal distribution 95% LCL was calculated as 95% LCL=Mean-(1.96xSE). The 1.96 refers to 1.96 SDs on either side of the mean. This calculation produced a normal distribution confidence interval. To provide comparison with other 95% confidence interval calculations, Student's t and Chebyshev equations were also used to generate 95% LCLs. RSDs were also calculated for foc values, as foc results calculated with RSDs greater than 100% are not recommended for use as a site-specific value. Appendix F presents the TOC soil data.

The calculated foc using uncontaminated background samples is 0.05195 with an RSD of 80.6% between foc samples. This calculated value exceeds the ADEC default foc of 0.001 and could be used for the purposes of calculating site-specific alternative cleanup levels.

11.0 WORK PLAN DEVIATIONS

The following section describes approved deviations from the Work Plan.

11.1 ISM Decision Units at Site 28

The Work Plan addressed collecting ISM samples from the dewatering pad, water containment footprint areas, and the treated water discharge area(s) to characterize impact, if any, from the water treatment system and discharge. The dewatering pad, water containment footprint areas, and the treated water discharge area(s) were each to be considered a DU and sampled pre- and post-water containment using ISM. The deviation from this plan consisted of ISM sampling from only one DU covering both the dewatering pad and the containment. The deviation was discussed with and approved by the USACE QAR on 27 July 2022.

11.2 Well Decommissioning at MOC

The approved Work Plan indicated one partially decommissioned unnamed 2-inch-diameter PVC well at Site 19 was to be relocated and decommissioned in accordance with ADEC Monitoring Well Guidance (ADEC 2013). The well was to be evaluated and removed fully, if practicable, or abandoned in place. If abandonment in place was selected for the well, the casing bottom was to be punctured, and the well casing filled with hydrated bentonite chips to within 4 feet of ground surface.

However, the well bottom could not be accessed after removal of the casing. Instead, the annulus was backfilled with bentonite within 4 feet of ground surface and then sand. This deviation was discussed with the USACE QAR on 30 July 2022.

11.3 Method for Measuring Elevations at Site 28

The Site 28 Sediment Mapping and Sample Collection SOP and approved Work Plan defined the survey procedure to use a graduated hand probe to obtain sediment thickness measurements. However, for sediment mapping, the surveyor's RTK probe was used to collect highly accurate elevation data at each layer in the Site 28 waterbodies, instead of the graduated hand probe. The RTK probe provides equal to or greater resolution for elevation/depth than the 0.1-foot graduated hand probe and can also be used to calculate sediment thickness. This deviation was discussed with the USACE QAR who approved the modified methodology on 16 August 2022.

11.4 Sediment Mapping and Dredging at Site 28

Site 28 dredging volumes, techniques, and sediment mapping were revised following the submittal and revision of an Observations and Recommendations document. This deviation was submitted to the USACE QAR who approved the modified methodology.

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12.0 QUALITY ASSURANCE AND QUALITY CONTROL

The quality assurance (QA)/quality control (QC) report in Appendix F summarizes the evaluation of laboratory data collected during the 2022 investigation at NEC FUDS. The chemical data quality review includes the report narrative; a sample summary, including all samples collected and submitted to the laboratory for the associated sample delivery group in Attachment F-1; complete analytical results presented in crosstab format in Attachment F-2; the ADEC Laboratory Data Review Checklists in Attachment F-3; and laboratory reports in Attachment F-4.

The quality of the project data was acceptable and completeness goals were met for most sites. The most significant issue identified during the data quality review and assessment was a pattern of poor surrogate recovery for method SW8270D-SIM in sediment samples collected at Site 28. A total of 14 primary samples had surrogate recoveries less than the lower cutoff due to matrix interference. In accordance with the Work Plan, detected analytes were qualified QL for possible low bias and ND results were qualified X for exclusion from project decision-making. However, the chromatograms for these samples were reviewed and matrix interference was confirmed, so it is recommended that the affected NDs be considered usable with qualification (QL) for possible low bias.

Qualified data are considered acceptable for use with the limitations discussed within this QA/QC report and the ADEC Laboratory Data Review Checklists regarding the qualifiers applied to the results.

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13.0 CONCEPTUAL SITE MODEL

Conceptual site models (CSMs) for NEC FUDS were updated in accordance with the applicable guidance from ADEC *Guidance on Developing Conceptual Site Models* (ADEC 2017b), USACE *Conceptual Site Models* (USACE 2012b). The CSM provides a graphical depiction of site conditions and identifies source and release mechanisms, impacted media, transport mechanisms, exposure pathways, and potential current and future receptors. Appendix J presents the CSM graphic and scoping forms.

13.1 Site 7

The CSM for NEC Site 7 (Appendix J) was updated in accordance with the guidance (ADEC 2017b, USACE 2012b). The CSM provides a graphical depiction of site conditions and identifies source and release mechanisms, impacted media, transport mechanisms, exposure pathways, and current and future receptors.

13.1.1 Source and Release Mechanisms

The contaminant sources are associated with petroleum hydrocarbon releases from drums, storage tanks, and other debris deposited in the landfill. The COCs identified in the DD at the site are DRO, RRO, PCBs, and arsenic in soil and TAH and TAqH in surface water (USACE 2020b). There were no TAH and TAqH exceedances in the last sampling event (USACE 2020b).

13.1.2 Impacted Media, Transport Mechanisms, Human Health Exposure Pathways, and Human Receptors

Potentially impacted media at the site include surface and subsurface soil, air. Current potential receptors include site visitors, construction workers, recreational users, and subsistence harvesters and consumers. In addition to these receptors, potential future receptors include commercial or industrial workers, and adult and child residents.

Potentially complete pathways in surface and subsurface soil include ingestion, dermal exposure, and direct contact for all current and future receptors.

The groundwater exposure pathway is incomplete because there is not enough water produced to be considered a reasonable potential future source for drinking water (USACE 2009b).

Although local residents utilize the subsistence hunting and fishing camp adjacent to Cargo Beach, drinking water is typically gathered from the Kangukhsam Mountain Spring, a spring located near the base of Kangukhsam Mountain south of the MOC just upstream of Site 32 Lower Tramway. In 2013, surface water samples were collected from Kangukhsam Mountain Spring and analyzed for GRO, DRO, RRO, BTEX, PAHs, and PCBs as well as total and dissolved RCRA metals and zinc. All sample results were below site-specific cleanup levels. Surface water samples collected from the Suqitughneq River indicate that levels of contaminants are less than the ADEC regulatory criteria. The ADEC has agreed that surface water around and downgradient of the landfill is insufficient for use and is not considered a potential drinking water source; therefore, this pathway is considered incomplete for current and future receptors (ADEC 2007).

There are no buildings at the site; therefore, the indoor air (vapor intrusion) pathway is considered potentially complete only for future receptors. The outdoor air pathway is considered potentially complete but insignificant for current and future receptors.

PCBs are bioaccumulative. A landfill cap is in place and no burrowing species are present at the site. Therefore, the biota pathway is considered incomplete. Burrowing animals have not been observed during any of the landfill cap visual inspections performed since 2011.

13.2 Site 8

The CSM for NEC Site 8 (Appendix J) was updated in accordance with the guidance (ADEC 2017b, USACE 2012b). The CSM provides a graphical depiction of site conditions and identifies source and release mechanisms, impacted media, transport mechanisms, exposure pathways, and potential current and future receptors.

13.2.1 Source and Release Mechanisms

The remaining contaminant sources are associated with petroleum hydrocarbon releases associated with a pipeline. The primary COCs at the site are petroleum hydrocarbons. The Site 8 COCs are DRO and PAHs in sediment/soil.

13.2.2 Impacted Media, Transport Mechanisms, Human Health Exposure Pathways, and Human Receptors

Potentially impacted media at the site include surface and subsurface soil, sediment, groundwater, and air. Current potential receptors include site visitors, construction workers, recreational users, and subsistence harvesters and consumers. In addition to these receptors, potential future receptors include commercial or industrial workers, and adult and child residents.

Potentially complete pathways in surface and subsurface soil include ingestion, dermal exposure, and direct contact for all current and future potential receptors.

Potentially complete pathways in groundwater includes ingestion, dermal absorption, and inhalation of volatile compounds in tapwater, in the future.

Surface water is not impacted at Site 8 and is not considered a potential drinking water source; therefore, the Ingestion of Surface Water and Inhalation of Volatile Compounds in Tapwater pathways are considered incomplete for current and future receptors.

There are no buildings at the sites; therefore, the indoor air (vapor intrusion) pathway is considered potentially complete only for future receptors. The outdoor air pathway is considered potentially complete for current and future receptors.

13.3 Site 28

The CSM for NEC Site 28 was updated in accordance with the guidance (ADEC 2017b, USACE 2012b). The CSM provides a graphical depiction of site conditions and identifies source and release mechanisms, impacted media, transport mechanisms, exposure pathways, and potential current and future receptors.

13.3.1 Source and Release Mechanisms

The remaining contaminant sources are associated with petroleum hydrocarbon releases. The primary COCs at the site are petroleum hydrocarbons. Site 28 COCs are DRO, RRO, acenaphthene, fluoranthene, fluorene, naphthalene, phenanthrene, and 2-methlynaphthalene in sediment and soil.

13.3.2 Impacted Media, Transport Mechanisms, Human Health Exposure Pathways, and Human Receptors

Potentially impacted media at the site include surface and subsurface soil, groundwater, sediment, surface water, and air. Current potential receptors include site visitors, construction workers, recreational users, and subsistence harvesters and consumers. In addition to these receptors, potential future receptors include commercial or industrial workers, and adult and child residents.

Potentially complete pathways in surface and subsurface soil include ingestion, dermal exposure, and direct contact for all current and future potential receptors. Direct contact with sediment is a complete pathway.

Groundwater at the NEC FUDS is not currently or reasonably expected to be a future drinking water source since – as noted in the decision document: there is an insufficient volume produced by shallow groundwater in tundra areas to be considered a reasonable source. Therefore, use of groundwater as a potable water source is not expected. Groundwater pathways are considered complete but insignificant at Site 28.

Surface water is not considered a potential drinking water source; therefore, the Ingestion of Surface Water and Inhalation of Volatile Compounds in Tapwater pathways are considered incomplete for current and future receptors. Dermal absorption of contaminants in surface water is complete but insignificant.

There are no buildings at the sites; therefore, the indoor air (vapor intrusion) pathway is considered potentially complete but insignificant only for future receptors, as the site is located on tundra that is unsuitable for building foundations. The outdoor air pathway is considered potentially complete but insignificant for current and future receptors.

13.4 Site 15 and the MOC

The CSM for NEC Site 15 and MOC groundwater (Appendix J) was updated in accordance with the guidance (ADEC 2017b, USACE 2012b). The CSM provides a graphical depiction of site conditions and identifies source and release mechanisms, impacted media, transport mechanisms, exposure pathways, and potential current and future receptors.

13.4.1 Source and Release Mechanisms

The remaining primary contaminant sources are associated with petroleum hydrocarbon releases. The primary COCs at the site are petroleum hydrocarbons. MOC (including Site 15) COCs are DRO, GRO, RRO, benzene, and lead in groundwater.

13.4.2 Impacted Media, Transport Mechanisms, Human Health Exposure Pathways, and Human Receptors

Potentially impacted media at the site include subsurface soil, groundwater, surface water, sediment, and air. Current potential receptors include site visitors, construction workers, recreational users, and subsistence harvesters and consumers. In addition to these receptors, potential future receptors include commercial or industrial workers, and adult and child residents.

Since the removal of contaminated soil in 2022, pathways in surface and subsurface soil are incomplete.

Groundwater at the NEC FUDS is not currently or reasonably expected to be a future drinking water source since – as noted in the decision document: land use controls limit future groundwater uses at the Main Complex; there is an insufficient volume produced by shallow groundwater in tundra areas to be considered a reasonable source. Therefore, use of groundwater as a potable water source is not expected. Therefore, in groundwater, the ingestion and inhalation of volatile organic compounds pathway is complete but insignificant for all current and future potential receptors. Dermal absorption of contaminants in groundwater is complete but insignificant.

Surface water is not considered a potential drinking water source; therefore, the Ingestion of Surface Water and Inhalation of Volatile Compounds in Tapwater pathways are considered incomplete for current and future receptors. Dermal absorption of contaminants in surface water is complete but insignificant. Direct contact with sediment, present downgradient of the site, is considered incomplete as ambient temperatures are too low for the chronic direct contact with sediment.

There are no buildings at the sites; therefore, the indoor air (vapor intrusion) pathway is considered potentially complete but insignificant only for future receptors. The outdoor air pathway is considered incomplete.

14.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are made based on the data presented in the preceding sections of this report.

14.1 Gravel Road and Gravel Airstrip

Gravel road and airstrip repairs were completed to the extent possible. Gravel roads were made passable for pedestrians and vehicle traffic. The gravel airstrip was made usable in order to complete the 2022 field work; however, additional work will be needed in the future to restore the gravel airstrip to suitable functionality.

Following the UAV survey, it is recommended that the airstrip improvements follow the existing centerline profile and slope off at 2% grade. Following the profile of the alignment and using a 2% slope from the centerline resulted in a cut of 2,855 cy and a fill of 3,375 cy. These values can be used as a general estimation of quantities to be expected. Further analysis and design by a professional engineer is recommended. Airstrip improvements of this type will require a grader, roller compactor, rock truck, excavator, dozer, skid steer, and loader. New material can be brought in from outside NEC or generated using a screen plant with the local quarry.

14.2 Site 7 Landfill

Several settled areas of the landfill cap were backfilled with clean gravel acquired from the onsite borrow source to keep cap thickness above two feet, blended to match surrounding gravel landfill cap topography, a topographic survey of the cap was conducted, and a visual landfill cap inspection was performed. No significant issues were identified as a result of the visual landfill cap inspection.

It is recommended that landfill cap visual inspections continue to confirm landfill cap integrity, and an ESD be prepared to change from LUC and deed notices LUCs and an EC in accordance with the UECA, as well as document that areas of the gravel landfill cap do not contain sufficient fine grained soil material to support robust plant growth, as identified in the Second Periodic Review report (USACE 2020b). The 2022 landfill inspection confirmed that there was no continuous vegetation on the cap outside of sparse patches of grass.

14.3 MOC – Site 15

All contaminated soil exceeding the SSCL for DRO was removed. The contingency soil remedy of excavation is now complete.

It is recommended that an ESD be prepared to document the anticipated change from a LUC in the form of a deed notice to an EC in accordance with the UECA, as identified in the Second Periodic Review report (USACE 2020b).

14.4 MOC – MNA

Current groundwater conditions indicate natural attenuation is occurring in the vicinity of several monitoring wells at the MOC. Concentrations of DRO and lead that exceeded groundwater SSCLs and naphthalene exceeded the ADEC Table C groundwater cleanup level in the vicinity of select MOC monitoring in 2022.

The DRO groundwater plume is located along the northern margin of the MOC, which is the downgradient side of the site, and has a northwest flow direction. DRO in the groundwater samples collected from wells 14MW05 and 14MW06 exceeded the DRO SSCL of 1.5 mg/L at 1.78 and 1.99 mg/L, respectively. Total lead in the groundwater sample collected from well 17MW1 exceeded the lead SSCL of 0.015 mg/L at 0.0176 mg/L, but the dissolved lead concentration (0.0103 mg/L) sample did not exceed the SSCL.

Mann-Kendall trend analysis identified a decreasing DRO concentration trend in groundwater samples collected from monitoring wells 14MW05 and 14MW06. Continued groundwater sampling of all MOC monitoring wells is recommended to confirm the decreasing DRO concentration trend in groundwater in the vicinity of 14MW05 and 14MW06, and to work toward establishing a trend in DRO concentrations in groundwater in the vicinity of 14MW01 and 14MW02. Continued groundwater sampling is recommended at monitoring well 17MW1 to work toward establishing a trend for total and dissolved lead in groundwater in the vicinity of the well. Analytical results from wells located upgradient of the MOC and in the central portion of the MOC did not exceed SSCLs. Although there have been no exceedances of SSCLs or ADEC Table C cleanup levels in groundwater samples collected from wells 14MW03, 14MW04, 14MW07, 20MW1, 22MW2, 26MW1, MW10-1, MW88-1, MW88-10, MW88-3 during at least the past three sampling events (i.e., since 2014), to continue to build a complete dataset, it is recommended that at least one more round of groundwater samples be collected from all MOC monitoring wells during the next groundwater MNA event. PCBs were not detected in any groundwater samples during the 2022 field effort; however, due to limitations in laboratory abilities, both the LOD and LOQs reported for individual Aroclors exceeded the ADEC Table C groundwater cleanup level. PCBs should be included in at least one more future groundwater MNA event to confirm absence of these analytes. Attention should be paid to PCB detection limits to ensure adequate laboratory sensitivity to reliably achieve the ADEC groundwater cleanup level.

It is also recommended that an ESD be prepared to document the anticipated change from LUCs in the form of deed notices to LUCs in the form of ECs in accordance with the UECA for MOC Sites 10, 11, 13, 15, 16, and 19 as identified in the Second Periodic Review report (USACE 2020b).

14.5 Site 8 Pipeline Break

At the Site 8 Pipeline Break, concentrations of DRO and PAHs exceeding the sediment SSCLs and soil DRO SSCL were vertically and horizontally delineated within, and to the east, of the roadway. The total delineated area with soil exhibiting wither PAHs or DRO exceeding SSCLs was approximately 160 feet by 25 feet with an average depth of 6 feet, which is approximately 880 cy of contaminated soil.

The impacted areas slope southward toward the Suqi river. Although high concentrations of petroleum constituents have been identified in soil, contamination does not appear to be migrating to either groundwater or surface water.

14.6 Site 28 Sediment Removal and Disposal, Sediment Mapping, Confirmation Sampling, and Biogenic Interference

Contaminated sediment at Site 28 was successfully removed as a result of 2022 sediment removal activities. The total volume (30 bank cy) of available contaminated sediment was significantly lower than the 2018 estimated volume (196 bank cy) because the 2018 sediment mapping had overestimated the available sediment by counting several areas of submerged vegetation mat as sediment. Following the 2022 sediment removal effort, petroleum impacts remained bound in the soil substrate below the sediment layer but did not appear to be migrating to the Suqi river. One sediment sample with a result indicating a biased-low detection of 2-methylnaphthalene at 0.642 mg/kg as compared to the SSCL of 0.6 mg/kg was present immediately downstream of the natural stilling area in Sediment Removal Area 10.

An foc calculation from non-impacted sediment/soil substrate areas was calculated at 0.05421, significantly higher than the ADEC default of 0.001, which can indicate that petroleum constituents would not migrate as easily through the substrate. Biogenic interference was also observed in soil substrate samples collected from Site 28, resulting in an average decrease in DRO concentration in 2022 samples of 42%, suggesting that DRO concentrations observed at Site 28 are significantly increased by naturally occurring organics.

It is recommended that the updated sediment mapping and sampling SOP and sediment sample DRO analysis both with and without silica gel cleanup be used during future Site 28 sediment mapping and sampling efforts.

14.7 Background Sampling

Ten discrete background samples were collected from uncontaminated areas near the NEC MOC gravel pad and analyzed for DRO with and without silica gel cleanup and foc. The calculated foc using uncontaminated background samples is 0.05195 with an RSD of 80.6% between foc samples. This calculated value exceeds the ADEC default foc of 0.001 and could be used for the purposes of calculating site-specific alternative cleanup levels. Background sample lithology is similar to contaminated tundra soil areas on Site 28 and Site 8. Further supporting the applicability of the background values to other areas at NEC, the calculated 95% LCL from background samples is similar to that calculated at Site 28 which had an foc value of 0.05421 and an RSD of 53.8%. At Site 8, an foc of 0.01541 was calculated with an RSD of 110% between foc samples.

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15.0 REFERENCES

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FIGURES

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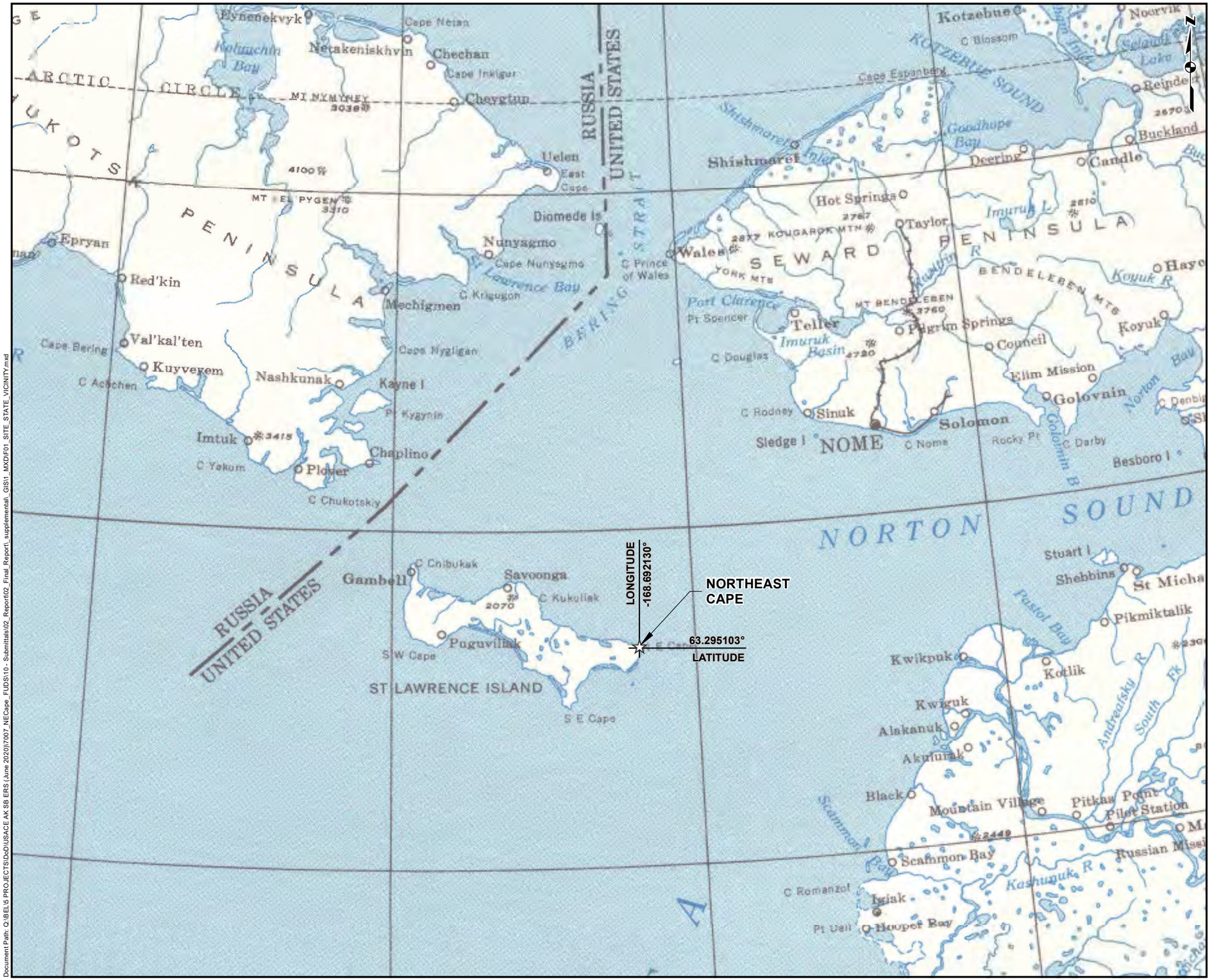
SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

SITE LOCATION AND VICINITY MAP



Legend

Notes

1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

References

1. Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User CommunityDS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.

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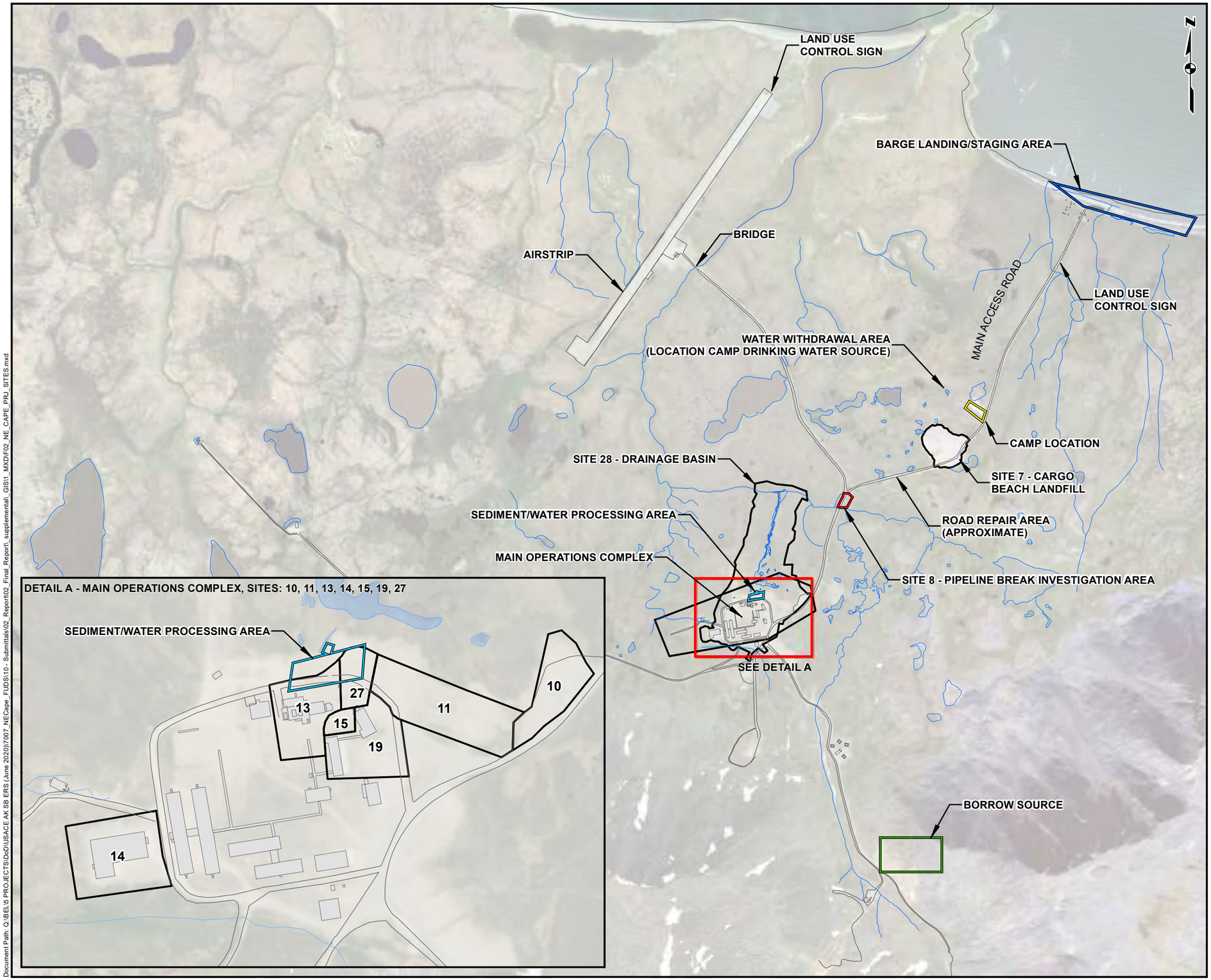

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

2022 NORTHEAST CAPE PROJECT SITES

Legend

- Road/Path
- Surface Water Feature
- Approximate Site Location
- 2022 Barge Landing/Staging Area
- Borrow Source Area
- 2022 Camp Location - Primary
- 2022 Dewatering Pad and Water Treatment Area
- Site 8 - Pipeline Break Investigation Area

Notes

1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

References

1. GIS data and imagery source: USACE. 2015c. *First Five-Year Review Report, Northeast Cape FUDS*, Saint Lawrence Island, Alaska. February.

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SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

SITE 7 - CARGO BEACH LANDFILL

Legend
- 1' Ground Elevation Contour - 2018
- Limit of Fill Area
- Road/Path
- Surface Water Feature
- Approximate Site Location
- Surface Water

Abbreviations
GNSS	Global Navigation Satellite System
GSD	ground sample distance
RTK	real-time kinematic

Notes
1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.
3. Elevation contours generated in AutoCAD Civil 3D, 2021using ground shot survey data measured post grade by Brice Engineering LLC 2022.

References
1. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
2. Survey conducted by Brice Engineering LLC, August 2022.

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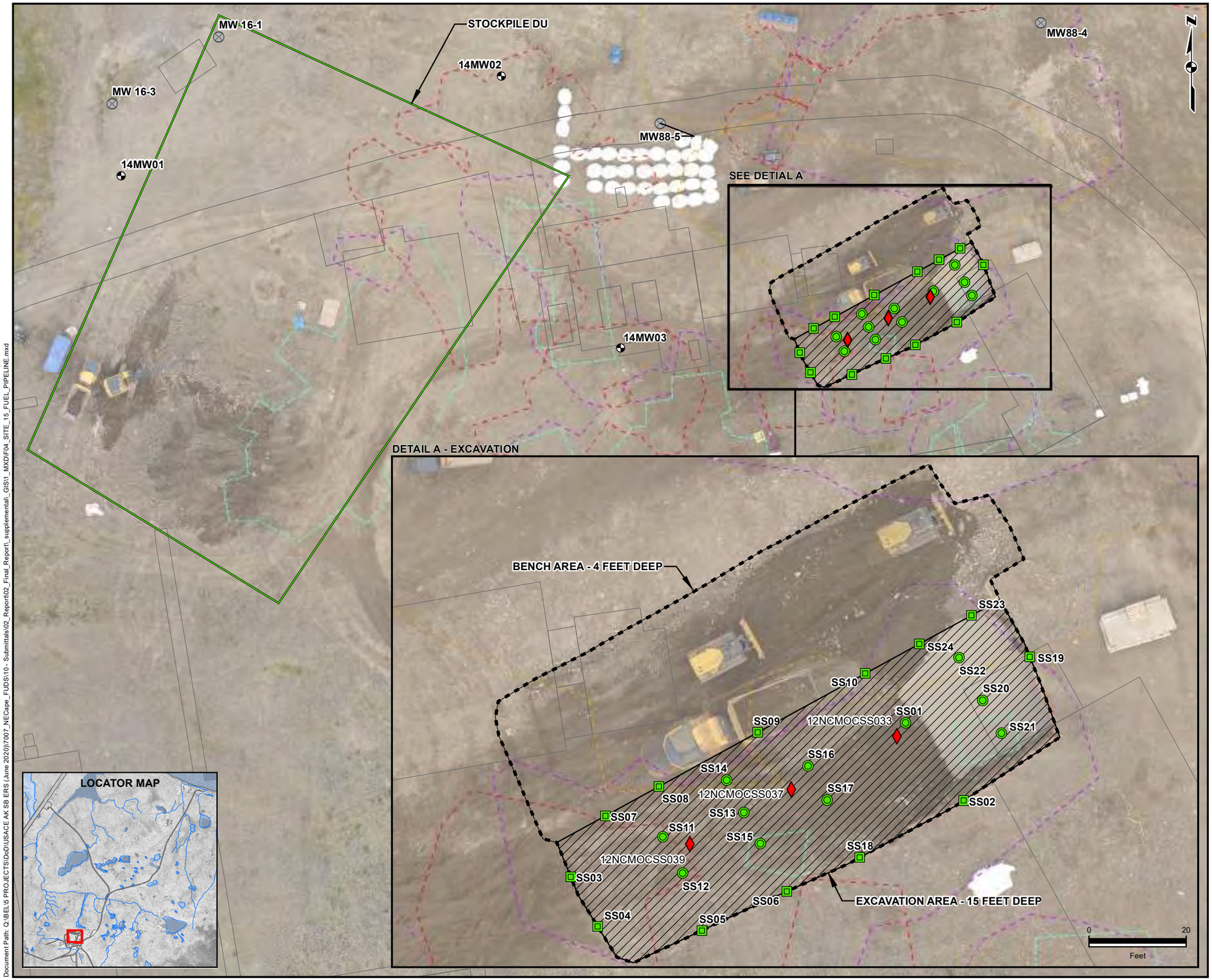

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SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

SITE 15 – FUEL PIPELINE

Legend
- 2012 Soil Sample Investigation Result > PSL (Removed and Confirmed in 2022 Excavation and Confirmation)
- 2022 Excavation Confirmation Base Sample (15 ft bgs) Result < PSL
- 2022 Excavation Confirmation Sidewall Sample (12-15 ft bgs) Result < PSL
- Existing Monitoring Well
- Abandoned Monitoring Well
- Road/Path
- Former Building
- 2011 Excavation Extent
- 2012 Excavation Extent
- 2013 Excavation Extent
- 2014 Excavation Extent

2022 Excavation
- Excavation Boundary
- Bench Area - 4 Feet Deep
- Excavation Area - 15 Feet Deep

Abbreviations
bgs	below ground surface
DRO	diesel range organics
GNSS	Global Navigation Satellite System
GSD	ground sample distance
ft	feet
mg/kg	milligram per kilogram
PSL	project screening level
QN	the result is an estimated value, bias high/low/indeterminate, due to a QC failure
RRO	residual range organics
RTK	real-time kinematic

Notes
1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

Chemistry Notes
1. PSLs for soil are site specific cleanup levels defined in the Decision Document (USACE 2010) or are the 18 AAC 75 B1 & B2 most stringent of the Under 40-Inch and Migration to Groundwater cleanup levels.
2. Location IDs are abbreviated, characters following "22NEC-S28-S15" are presented in labels: 22NEC-S28-S15-SS01 = SS01.
3. The highest result of the primary and duplicate sample pair is shown, where applicable.

References

1. Historical GIS data source: USACE. 2015c. *First Five-Year Review Report, Northeast Cape FUDS*, Saint Lawrence Island, Alaska. February.
2. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
3. Survey conducted by Brice Engineering LLC, August 2022.

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HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

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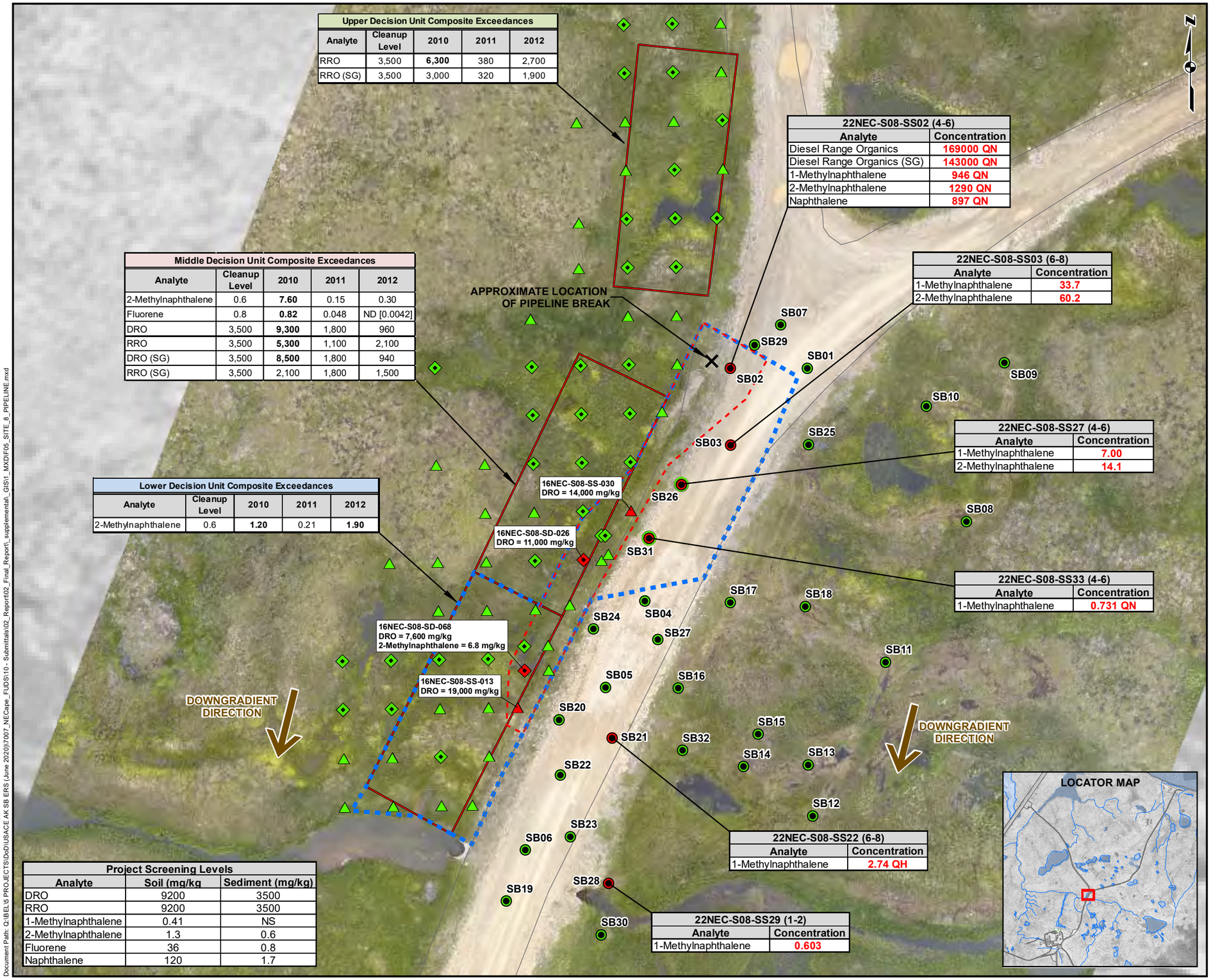

Upper Decision Unit Composite Exceedances				
Analyte	Cleanup Level	2010	2011	2012
RRO	3,500	**6,300**	380	2,700
RRO (SG)	3,500	3,000	320	1,900

Middle Decision Unit Composite Exceedances				
Analyte	Cleanup Level	2010	2011	2012
2-Methylnaphthalene	0.6	**7.60**	0.15	0.30
Fluorene	0.8	**0.82**	0.048	ND [0.0042]
DRO	3,500	**9,300**	1,800	960
RRO	3,500	**5,300**	1,100	2,100
DRO (SG)	3,500	**8,500**	1,800	940
RRO (SG)	3,500	2,100	1,800	1,500

Lower Decision Unit Composite Exceedances				
Analyte	Cleanup Level	2010	2011	2012
2-Methylnaphthalene	0.6	**1.20**	0.21	**1.90**

Project Screening Levels		
Analyte	Soil (mg/kg)	Sediment (mg/kg)
DRO	9200	3500
RRO	9200	3500
1-Methylnaphthalene	0.41	NS
2-Methylnaphthalene	1.3	0.6
Fluorene	36	0.8
Naphthalene	120	1.7

22NEC-S08-SS02 (4-6)	
Analyte	Concentration
Diesel Range Organics	169000 QN
Diesel Range Organics (SG)	143000 QN
1-Methylnaphthalene	946 QN
2-Methylnaphthalene	1290 QN
Naphthalene	897 QN

22NEC-S08-SS03 (6-8)	
Analyte	Concentration
1-Methylnaphthalene	33.7
2-Methylnaphthalene	60.2

22NEC-S08-SS27 (4-6)	
Analyte	Concentration
1-Methylnaphthalene	7.00
2-Methylnaphthalene	14.1

22NEC-S08-SS33 (4-6)	
Analyte	Concentration
1-Methylnaphthalene	0.731 QN

22NEC-S08-SS22 (6-8)	
Analyte	Concentration
1-Methylnaphthalene	2.74 QH

22NEC-S08-SS29 (1-2)	
Analyte	Concentration
1-Methylnaphthalene	0.603

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

SITE 8 - PIPELINE BREAK

Legend
- 2022 Soil Boring Sample Result(s) > PSL With Sample Results at Depth < PSL
- 2022 Soil Boring Sample Results < PSL
- 2022 Soil Boring Sample Result(s) > PSL
- 2016 Sediment Sample < PSL
- 2016 Sediment Sample > PSL
- 2016 Surface Soil Sample < PSL
- 2016 Surface Soil Sample > PSL
- Road/Path
- Decision Unit Result(s) > PSL
- DRO Impacts Above the SSCL
- PAH Impacts Above the SSCL

Abbreviations
DRO	diesel range organics
GNSS	Global Navigation Satellite System
GSD	ground sample distance
mg/kg	milligram per kilogram
NS	not specified
PAH	polycyclic aromatic hydrocarbon
PSL	project screening level
QH/QN	the result is an estimated value, bias high/indeterminate, due to a QC failure
RRO	residual range organics
RTK	real-time kinematic
SG	silica gel
SSCL	site specific cleanup level

Notes
1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

Chemistry Notes
1. The screening criteria for DRO, RRO, and naphthalene are the SSCLs defined in the Decision Document (USACE 2010). The remaining screening criteria are the most stringent of the 18 AAC 75 B1 & B2 Under 40-inch and Migration to Groundwater cleanup levels.
2. The screening criteria for sediment are site specific cleanup levels defined in the Decision Document (USACE 2010) or are derived from the WAC 173-204-520, Table III, Sediment Minimum Cleanup Level (WAC 1995).
3. **Bold red** text indicates results greater than screening criteria.
4. All results presented in mg/kg.
5. Sample depth shown in parenthesis in feet below ground surface: 22NEC-S08-S02 (4-6).
6. Location IDs are abbreviated, last 4 characters presented in labels: 22NEC-S08-SB01.
7. The highest result of the primary and duplicate sample pair is shown, where applicable.
8. Sample IDs do not correspond to boring numbers because multiple samples were collected at select borings.

References

1. Historical GIS data source: USACE. 2015c. *First Five-Year Review Report, Northeast Cape FUDS*, Saint Lawrence Island, Alaska. February.
2. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
3. Survey conducted by Brice Engineering LLC, August 2022.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

40 20 0 40 80
Feet

PROJECT No.: 700701	DATE: 6/9/2023	FIGURE: 5
P.M.: S.M.	DRAWN: J.C.	

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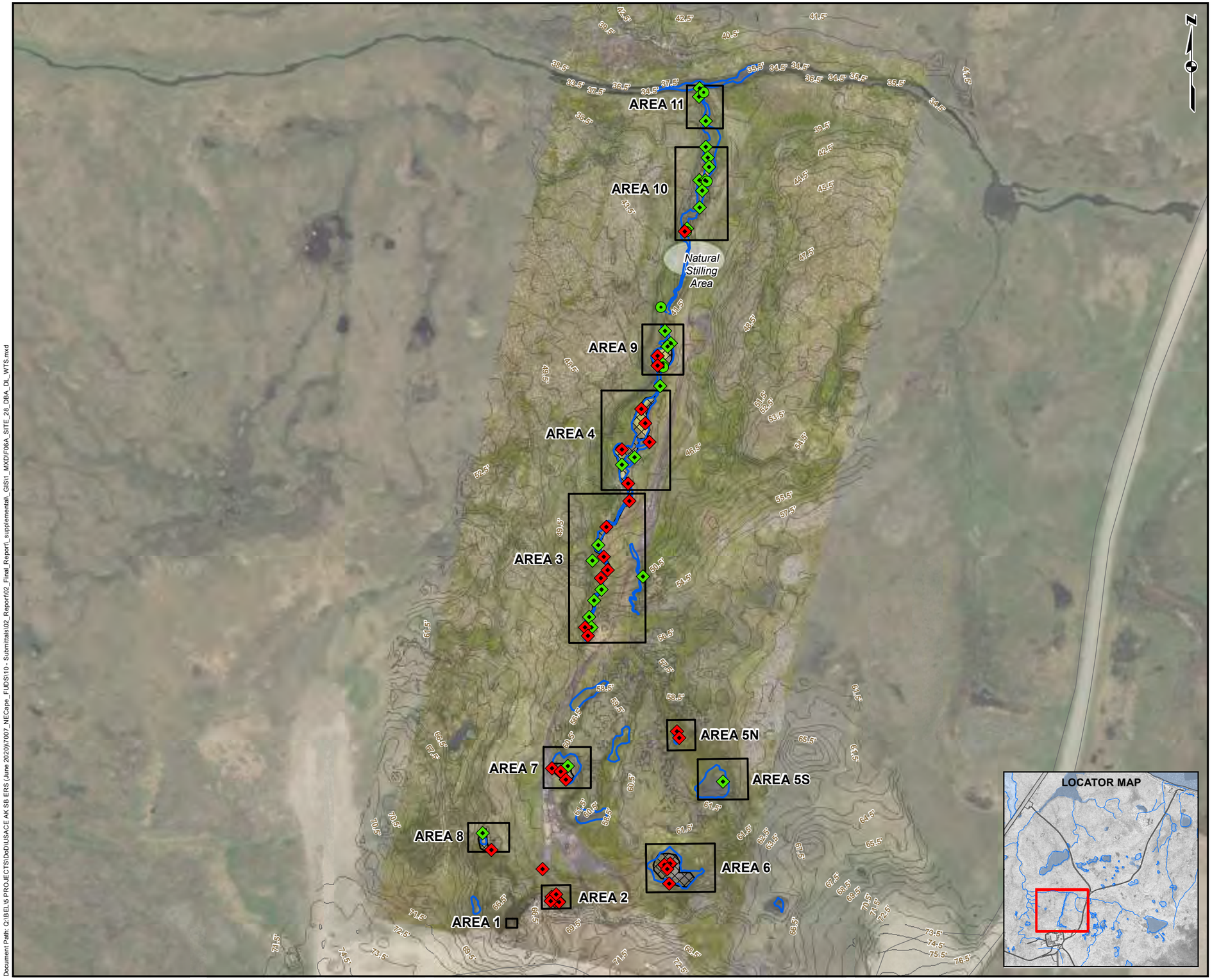

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

SITE 28 – DRAINAGE BASIN AREAS OVERVIEW

Legend

- 2022 Substrate Sample Result < PSL
- 2022 Substrate Sample Result > PSL
- 2022 Surface Water Sample Result < PSL
- Elevation Contour (feet above Mean Sea Level)
- Road/Path
- 2022 Surveyed Waterbody
- 2018 Contaminated Sediment Extent
- 2018 Non-Contaminated Sediment Extent
- 2022 Sediment Removal Area
- Natural Stilling Area

Abbreviations

GNSS	Global Navigation Satellite System
GSD	ground sample distance
PSL	project screening level
RTK	real-time kinematic

Notes

1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

References

1. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
2. Survey conducted by Brice Engineering LLC, August 2022.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

180 90 0 180 360
Feet

PROJECT No.:	DATE:	FIGURE:
700701	6/9/2023	6A
P.M.: S.M.	DRAWN: J.C.	

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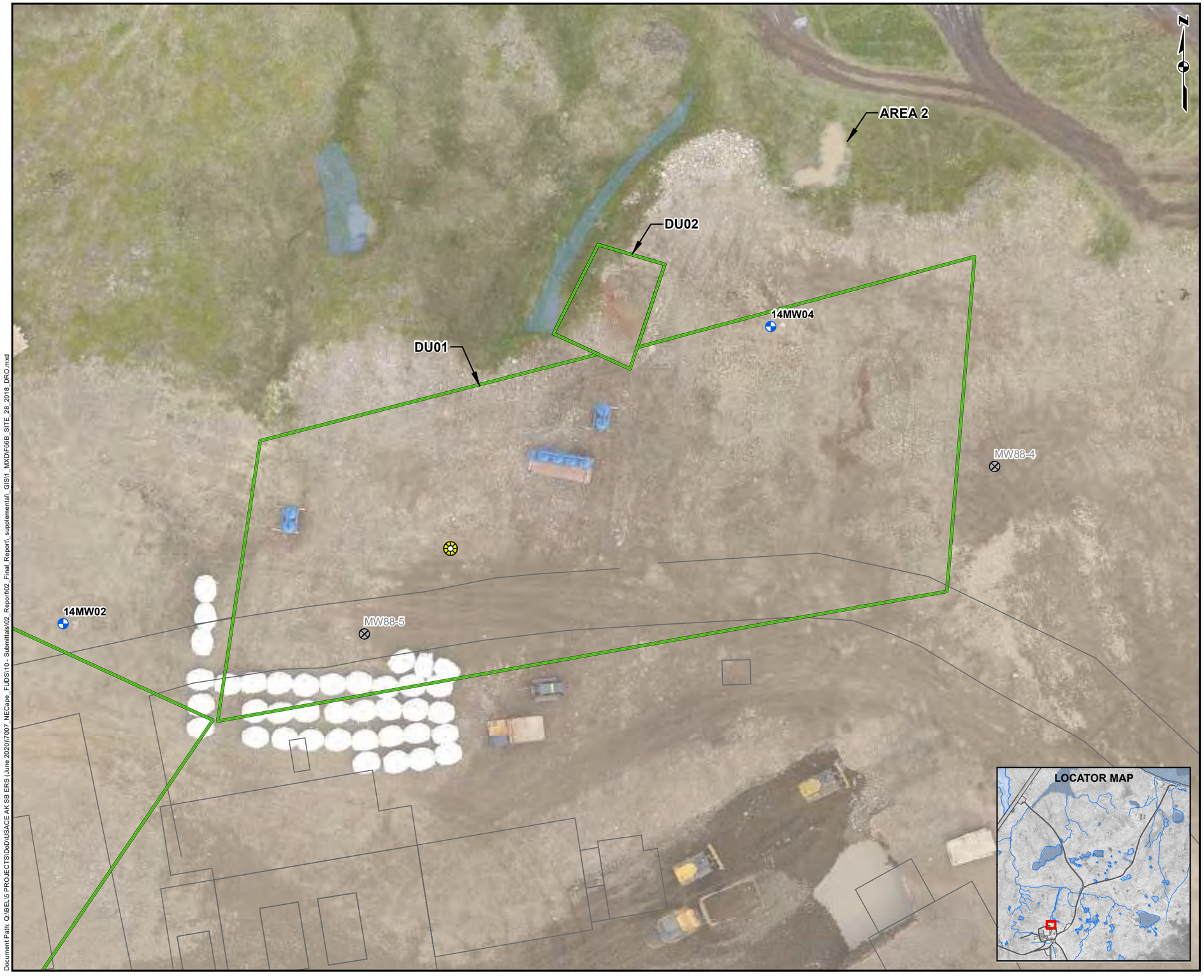

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

SITE 28 - WATER TREATMENT SYSTEM

Legend

- Abandoned Monitoring Well
- Existing Monitoring Well
- Former Manhole
- Road/Path
- Decision Unit Boundary - Sample Results < PSL
- Former Building
- Surface Water

Abbreviations

DU	decision unit
GNSS	Global Navigation Satellite System
GSD	ground sample distance
mg/kg	milligram per kilogram
PSL	project screening level
RTK	real-time kinematic

Notes

1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

References

1. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
1. Survey conducted by Brice Engineering LLC, August 2022.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

30 15 0 30 60
Feet

PROJECT No.:	DATE:	FIGURE:
700701	6/9/2023	6B
P.M.: S.M.	DRAWN: J.C.	

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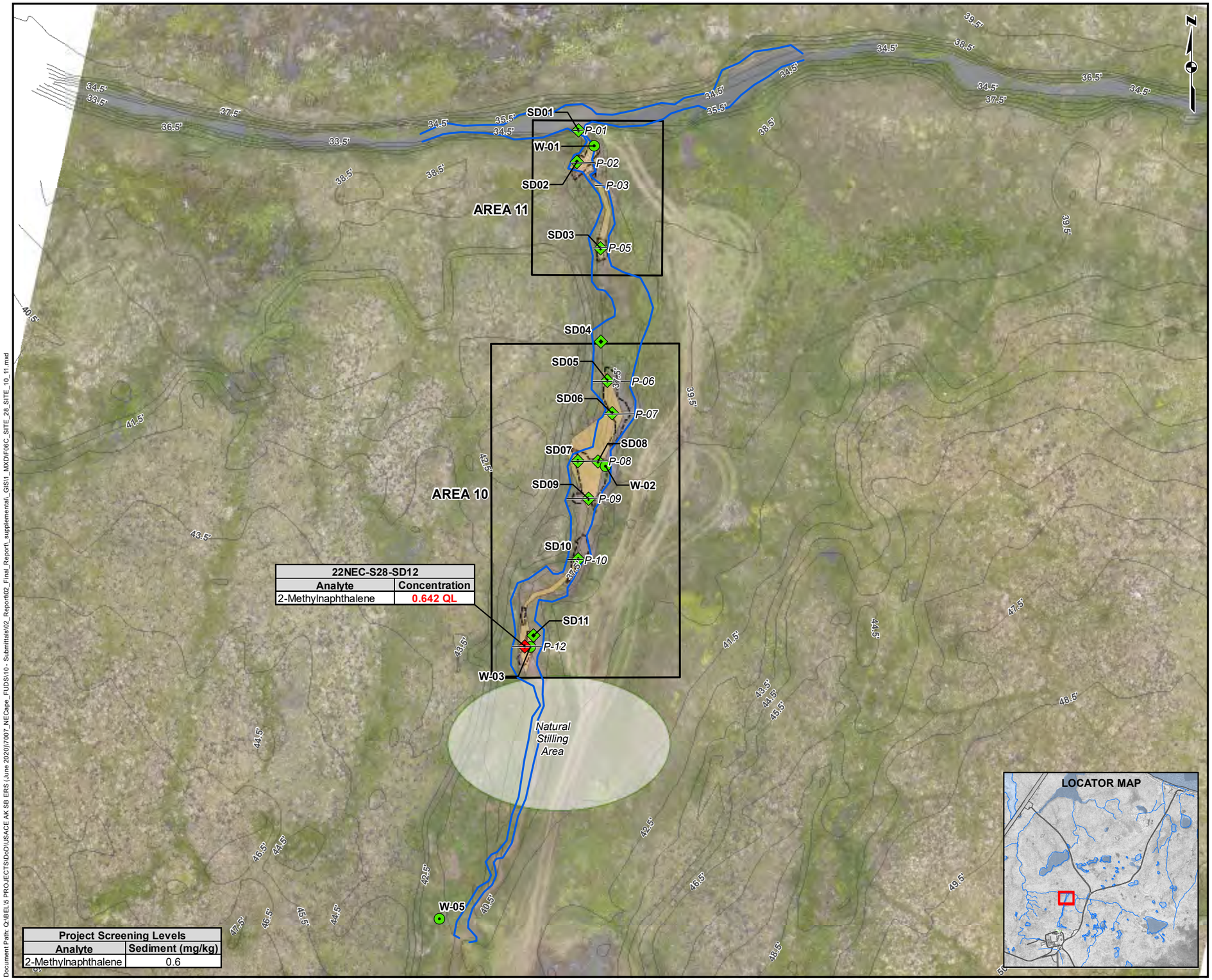

22NEC-S28-SD12	
Analyte	Concentration
2-Methylnaphthalene	**0.642 QL**

Project Screening Levels	
Analyte	Sediment (mg/kg)
2-Methylnaphthalene	0.6

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SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

SITE 28 – SAMPLE LOCATIONS AND SEDIMENT TRANSECTS – AREAS 10 AND 11

Legend

- 2022 Substrate Sample Result < PSL
- 2022 Substrate Sample Result > PSL
- 2022 Surface Water Sample Result < PSL
- Sediment Measurement Transect
- Elevation Contour (feet above Mean Sea Level)
- 2022 Surveyed Waterbody
- Natural Stilling Area
- Previous Sediment Removal
- Non-Contaminated Sediment Extent

Abbreviations

GNSS	Global Navigation Satellite System
GSD	ground sample distance
mg/kg	milligram per kilogram
PSL	project screening level
QL	the result is an estimated value, bias low, due to a QC failure
RTK	real-time kinematic

Notes

1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

Chemistry Notes

1. PSLs for sediment are site specific cleanup levels defined in the Decision Document (USACE 2010) or are derived from the WAC 173-204-520, Table III, Sediment Minimum Cleanup Level (WAC 1995).
2. **Bold red** text indicates results greater than PSLs.
3. All results presented in mg/kg.
4. Location IDs are abbreviated, characters following "22NEC-S28" are presented in labels: 22NEC-S28-SD16 = SD16.
5. The highest result of the primary and duplicate sample pair is shown, where applicable.

References

1. Historical GIS data source: USACE. 2020c. Second Five-Year Review Report for Northeast Cape Formerly Used Defense Site FUDS NO. F10AK0969-03, Saint Lawrence Island, Alaska. February and USACE. 2013. Northeast Cape HTRW Remedial Actions, Site 28 Phase I Sediment Removal Report, Revision 2, St. Lawrence Island, Alaska. May.
2. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
3. Survey conducted by Brice Engineering LLC, August 2022.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

50 25 0 50 100
Feet

PROJECT No.: 700701	DATE: 6/9/2023	FIGURE:
P.M.: S.M.	DRAWN: J.C.	6C

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22NEC-S28-SD18	
Analyte	**Concentration**
Diesel Range Organics	**28300**
Residual Range Organics	**5950**
Diesel Range Organics (SG)	**15000**
2-Methylnaphthalene	**9.22 QL**
Acenaphthene	**1.05**
Fluorene	**2.18**
Naphthalene	**2.88 QL**

22NEC-S28-SD16	
Analyte	**Concentration**
Diesel Range Organics	**6250**
Diesel Range Organics (SG)	**4680**
2-Methylnaphthalene	**1.10 QH**

Project Screening Levels	
Analyte	**Sediment (mg/kg)**
DRO	3500
RRO	3500
2-Methylnaphthalene	0.6
Acenaphthene	0.5
Fluorene	0.8
Naphthalene	1.7

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

SITE 28 – SAMPLE LOCATIONS AND REMOVAL BOUNDARIES – AREA 9

Legend

- 2022 Substrate Sample Result < PSL
- 2022 Substrate Sample Result > PSL
- 2022 Surface Water Sample Result < PSL
- Elevation Contour (feet above Mean Sea Level)
- 2022 Surveyed Waterbody
- Previous Sediment Removal
- 2018 Contaminated Sediment Extent
- 2022 Sediment Removal Area

Abbreviations

DRO	diesel range organics
GNSS	Global Navigation Satellite System
GSD	ground sample distance
mg/kg	milligram per kilogram
PSL	project screening level
QH/QM/QL	the result is an estimated value, bias high/low/indeterminate, due to a QC failure
RRO	residual range organics
RTK	real-time kinematic
SG	silica gel

Notes

1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.
3. Dredging in 2022 focused on the 2018 contaminated sediment extent contours, but all accessible areas where loose sediment were encountered in submerged areas were dredged.

Chemistry Notes

1. PSLs for sediment are site specific cleanup levels defined in the Decision Document (USACE 2010) or are derived from the WAC 173-204-520, Table III, Sediment Minimum Cleanup Level (WAC 1995).
2. **Bold red** text indicates results greater than PSLs.
3. All results presented in mg/kg.
4. Location IDs are abbreviated, characters following "22NEC-S28" are presented in labels: 22NEC-S28-SD16 = SD16.
5. The highest result of the primary and duplicate sample pair is shown, where applicable.

References

1. Historical GIS data source: USACE. 2020c. Second Five-Year Review Report for Northeast Cape Formerly Used Defense Site FUDS NO. F10AK0969-03, Saint Lawrence Island, Alaska. February and USACE. 2013. Northeast Cape HTRW Remedial Actions, Site 28 Phase I Sediment Removal Report, Revision 2, St. Lawrence Island, Alaska. May.
2. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
3. Survey conducted by Brice Engineering LLC, August 2022.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

10 5 0 10 20
Feet

PROJECT No.: 700701	DATE: 6/9/2023	FIGURE:
P.M.: S.M.	DRAWN: J.C.	6D

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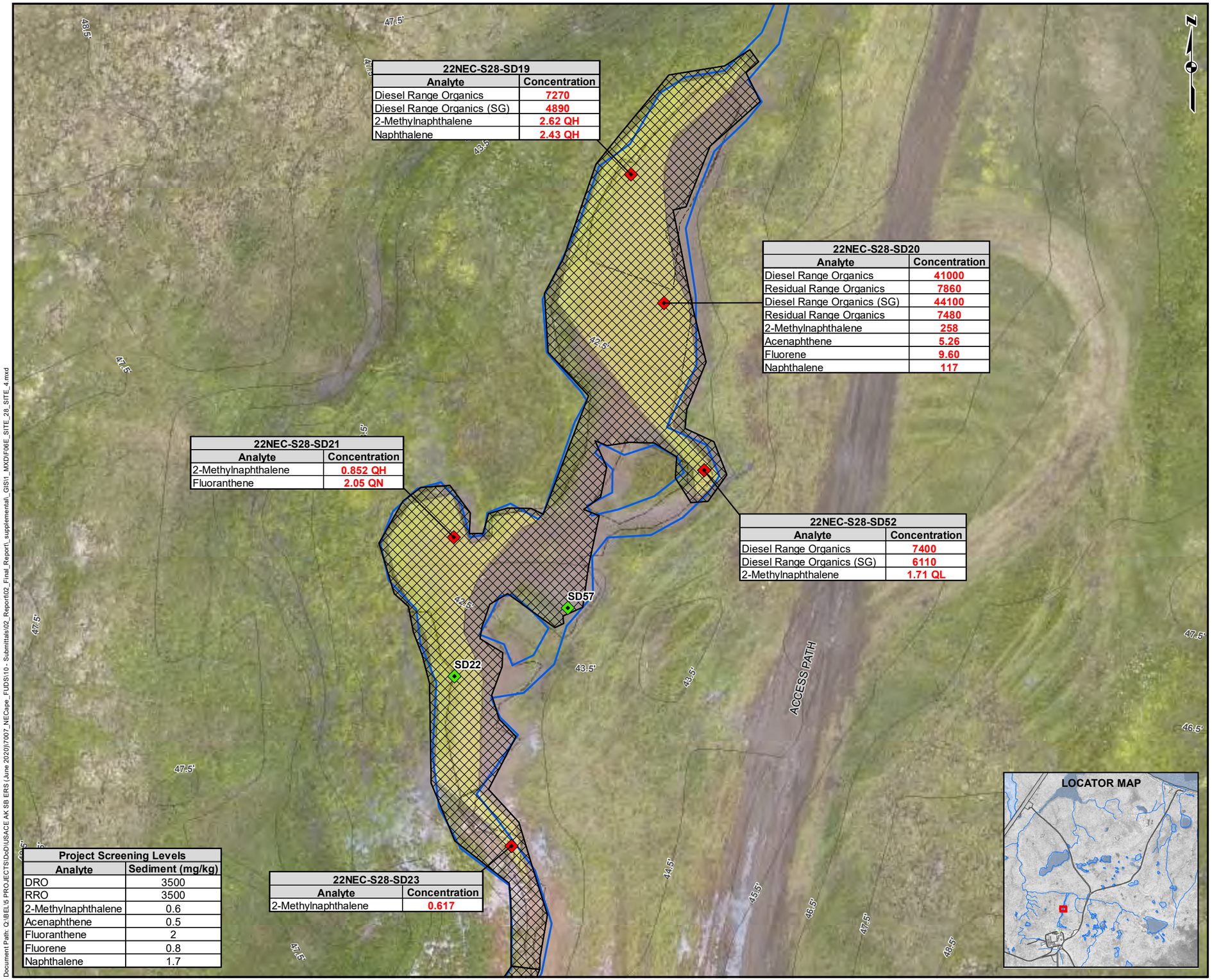

22NEC-S28-SD19	
Analyte	Concentration
Diesel Range Organics	7270
Diesel Range Organics (SG)	4890
2-Methylnaphthalene	2.62 QH
Naphthalene	2.43 QH

22NEC-S28-SD20	
Analyte	Concentration
Diesel Range Organics	41000
Residual Range Organics	7860
Diesel Range Organics (SG)	44100
Residual Range Organics	7480
2-Methylnaphthalene	258
Acenaphthene	5.26
Fluorene	9.60
Naphthalene	117

22NEC-S28-SD21	
Analyte	Concentration
2-Methylnaphthalene	0.852 QH
Fluoranthene	2.05 QN

22NEC-S28-SD52	
Analyte	Concentration
Diesel Range Organics	7400
Diesel Range Organics (SG)	6110
2-Methylnaphthalene	1.71 QL

Project Screening Levels	
Analyte	Sediment (mg/kg)
DRO	3500
RRO	3500
2-Methylnaphthalene	0.6
Acenaphthene	0.5
Fluoranthene	2
Fluorene	0.8
Naphthalene	1.7

22NEC-S28-SD23	
Analyte	Concentration
2-Methylnaphthalene	0.617

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

SITE 28 – SAMPLE LOCATIONS AND REMOVAL BOUNDARIES – AREA 4

Legend

- 2022 Substrate Sample Result < PSL
- 2022 Substrate Sample Result > PSL
- Elevation Contour (feet above Mean Sea Level)
- 2022 Surveyed Waterbody
- Previous Sediment Removal
- 2018 Contaminated Sediment Extent
- 2022 Sediment Removal Area

Abbreviations

DRO	diesel range organics
GNSS	Global Navigation Satellite System
GSD	ground sample distance
mg/kg	milligram per kilogram
PSL	project screening level
QH/QM/QL	the result is an estimated value, bias high/low/indeterminate, due to a QC failure
RRO	residual range organics
RTK	real-time kinematic
SG	silica gel

Notes

1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.
3. Dredging in 2022 focused on the 2018 contaminated sediment extent contours, but all accessible areas where loose sediment were encountered in submerged areas were dredged.

Chemistry Notes

1. PSLs for sediment are site specific cleanup levels defined in the Decision Document (USACE 2010) or are derived from the WAC 173-204-520, Table III, Sediment Minimum Cleanup Level (WAC 1995).
2. **Bold red** text indicates results greater than PSLs.
3. All results presented in mg/kg.
4. Location IDs are abbreviated, characters following "22NEC-S28" are presented in labels: 22NEC-S28-SD16 = SD16.
5. The highest result of the primary and duplicate sample pair is shown, where applicable.

References

1. Historical GIS data source: USACE. 2020c. Second Five-Year Review Report for Northeast Cape Formerly Used Defense Site FUDS NO. F10AK0969-03, Saint Lawrence Island, Alaska. February and USACE. 2013. Northeast Cape HTRW Remedial Actions, Site 28 Phase I Sediment Removal Report, Revision 2, St. Lawrence Island, Alaska. May.
2. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
3. Survey conducted by Brice Engineering LLC, August 2022.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

20 10 0 20 40
Feet

PROJECT No.: 700701	DATE: 6/9/2023	FIGURE: 6E
P.M.: S.M.	DRAWN: J.C.	

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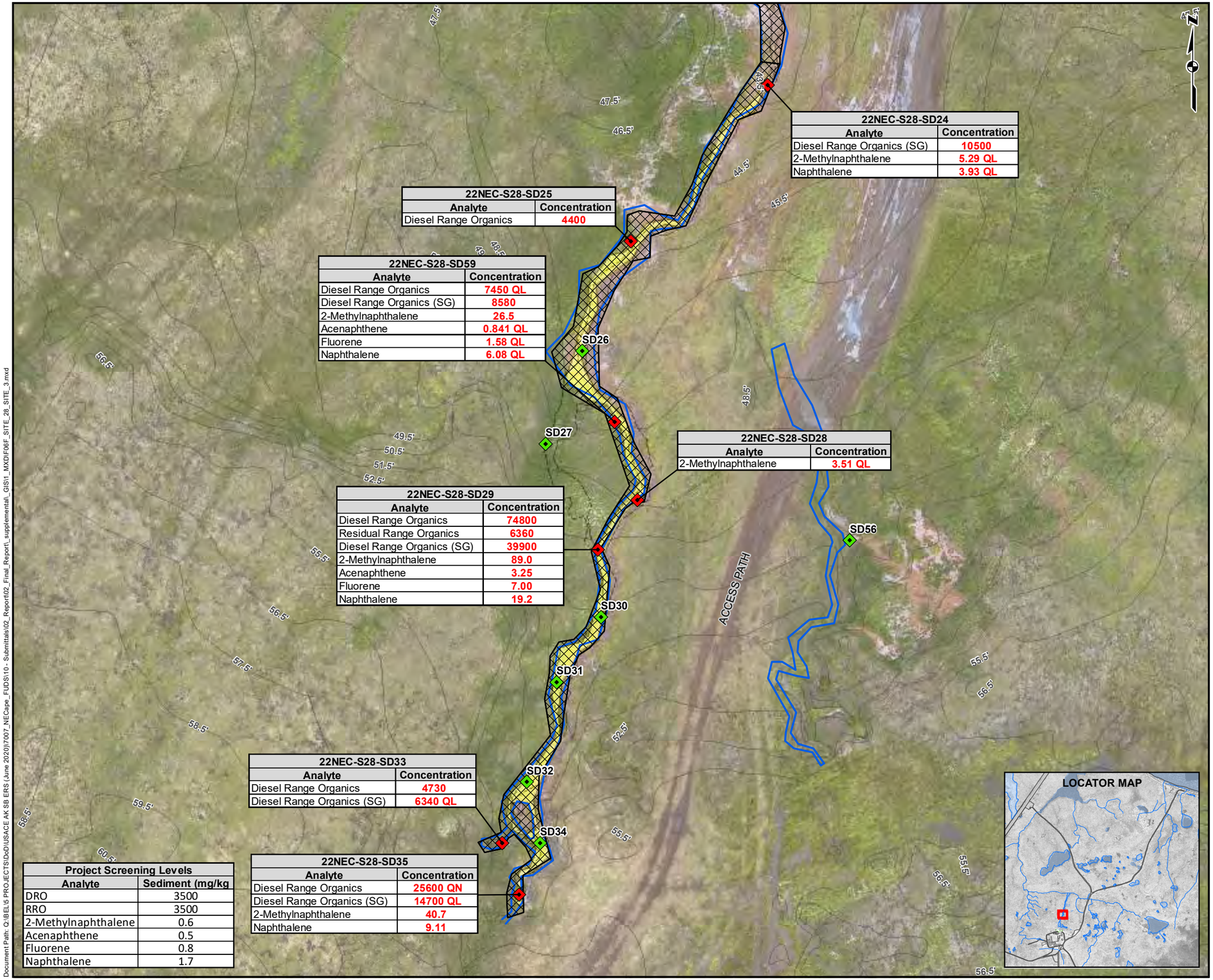

Project Screening Levels	
Analyte	Sediment (mg/kg
DRO	3500
RRO	3500
2-Methylnaphthalene	0.6
Acenaphthene	0.5
Fluorene	0.8
Naphthalene	1.7

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

SITE 28 – SAMPLE LOCATIONS AND REMOVAL BOUNDARIES – AREA 3

Legend
- 2022 Substrate Sample Result < PSL
- 2022 Substrate Sample Result > PSL
- Elevation Contour (feet above Mean Sea Level)
- 2022 Surveyed Waterbody
- Previous Sediment Removal
- 2018 Contaminated Sediment Extent
- 2022 Sediment Removal Area

Abbreviations
DRO	diesel range organics
GNSS	Global Navigation Satellite System
GSD	ground sample distance
mg/kg	milligram per kilogram
PSL	project screening level
QH/QM/QL	the result is an estimated value, bias high/low/indeterminate, due to a QC failure
RRO	residual range organics
RTK	real-time kinematic
SG	silica gel

Notes
1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.
3. Dredging in 2022 focused on the 2018 contaminated sediment extent contours, but all accessible areas where loose sediment were encountered in submerged areas were dredged.

Chemistry Notes
1. PSLs for sediment are site specific cleanup levels defined in the Decision Document (USACE 2010) or are derived from the WAC 173-204-520, Table III, Sediment Minimum Cleanup Level (WAC 1995).
2. **Bold red** text indicates results greater than PSLs.
3. All results presented in mg/kg.
4. Location IDs are abbreviated, characters following "22NEC-S28" are presented in labels: 22NEC-S28-SD16 = SD16.
5. The highest result of the primary and duplicate sample pair is shown, where applicable.

References

1. Historical GIS data source: USACE. 2020c. Second Five-Year Review Report for Northeast Cape Formerly Used Defense Site FUDS NO. F10AK0969-03, Saint Lawrence Island, Alaska. February and USACE. 2013. Northeast Cape HTRW Remedial Actions, Site 28 Phase I Sediment Removal Report, Revision 2, St. Lawrence Island, Alaska. May.
2. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
3. Survey conducted by Brice Engineering LLC, August 2022.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

30 15 0 30 60
Feet

PROJECT No.: 700701	DATE: 6/9/2023	FIGURE: 6F
P.M.: S.M.	DRAWN: J.C.	

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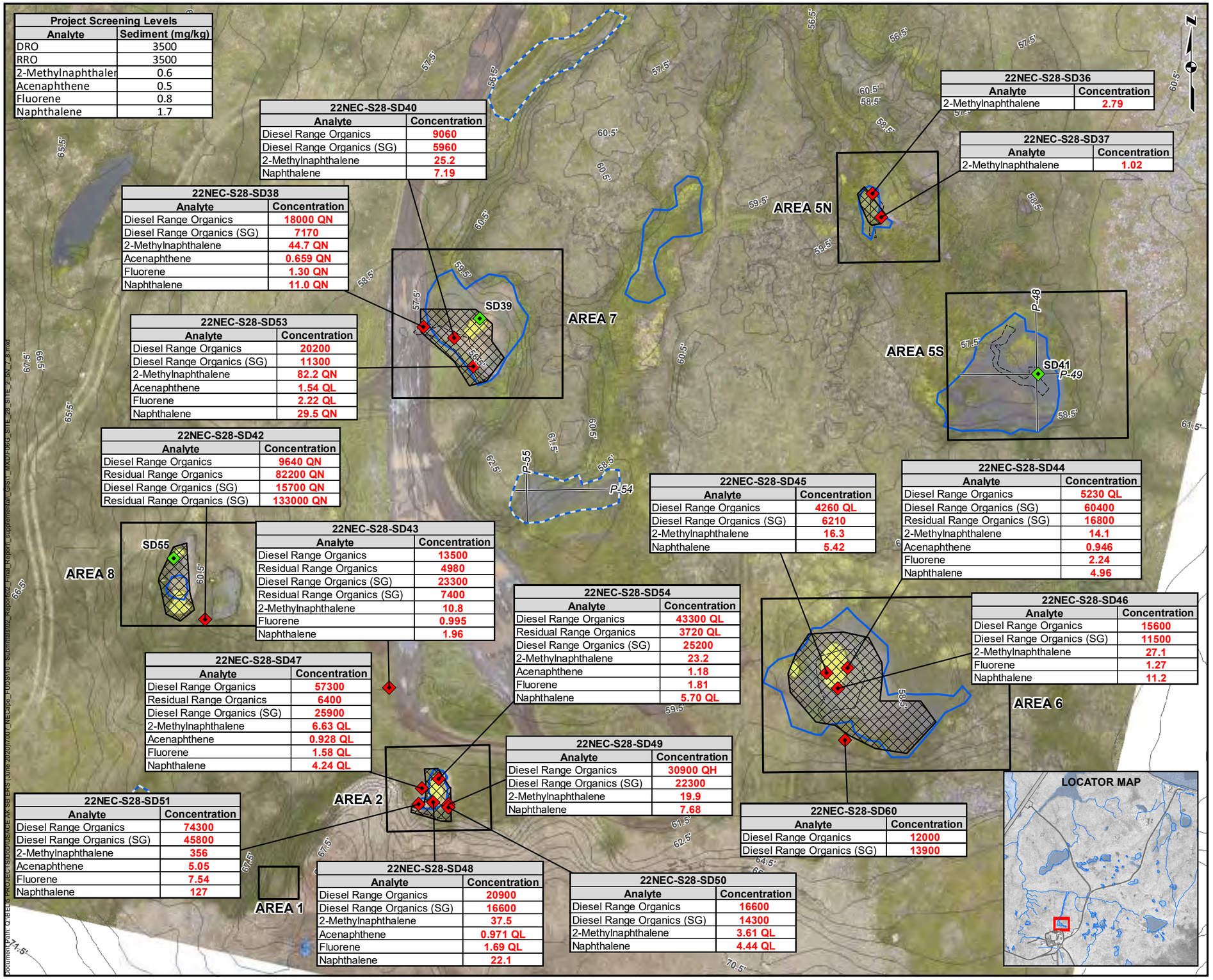

Project Screening Levels	
Analyte	Sediment (mg/kg)
DRO	3500
RRO	3500
2-Methylnaphthaler	0.6
Acenaphthene	0.5
Fluorene	0.8
Naphthalene	1.7

22NEC-S28-SD40	
Analyte	Concentration
Diesel Range Organics	9060
Diesel Range Organics (SG)	5960
2-Methylnaphthalene	25.2
Naphthalene	7.19

22NEC-S28-SD38	
Analyte	Concentration
Diesel Range Organics	18000 QN
Diesel Range Organics (SG)	7170
2-Methylnaphthalene	44.7 QN
Acenaphthene	0.659 QN
Fluorene	1.30 QN
Naphthalene	11.0 QN

22NEC-S28-SD53	
Analyte	Concentration
Diesel Range Organics	20200
Diesel Range Organics (SG)	11300
2-Methylnaphthalene	82.2 QN
Acenaphthene	1.54 QL
Fluorene	2.22 QL
Naphthalene	29.5 QN

22NEC-S28-SD42	
Analyte	Concentration
Diesel Range Organics	9640 QN
Residual Range Organics	82200 QN
Diesel Range Organics (SG)	15700 QN
Residual Range Organics (SG)	133000 QN

22NEC-S28-SD43	
Analyte	Concentration
Diesel Range Organics	13500
Residual Range Organics	4980
Diesel Range Organics (SG)	23300
Residual Range Organics (SG)	7400
2-Methylnaphthalene	10.8
Fluorene	0.995
Naphthalene	1.96

22NEC-S28-SD47	
Analyte	Concentration
Diesel Range Organics	57300
Residual Range Organics	6400
Diesel Range Organics (SG)	25900
2-Methylnaphthalene	6.63 QL
Acenaphthene	0.928 QL
Fluorene	1.58 QL
Naphthalene	4.24 QL

22NEC-S28-SD51	
Analyte	Concentration
Diesel Range Organics	74300
Diesel Range Organics (SG)	45800
2-Methylnaphthalene	356
Acenaphthene	5.05
Fluorene	7.54
Naphthalene	127

22NEC-S28-SD36	
Analyte	Concentration
2-Methylnaphthalene	2.79

22NEC-S28-SD37	
Analyte	Concentration
2-Methylnaphthalene	1.02

22NEC-S28-SD45	
Analyte	Concentration
Diesel Range Organics	4260 QL
Diesel Range Organics (SG)	6210
2-Methylnaphthalene	16.3
Naphthalene	5.42

22NEC-S28-SD44	
Analyte	Concentration
Diesel Range Organics	5230 QL
Diesel Range Organics (SG)	60400
Residual Range Organics (SG)	16800
2-Methylnaphthalene	14.1
Acenaphthene	0.946
Fluorene	2.24
Naphthalene	4.96

22NEC-S28-SD54	
Analyte	Concentration
Diesel Range Organics	43300 QL
Residual Range Organics	3720 QL
Diesel Range Organics (SG)	25200
2-Methylnaphthalene	23.2
Acenaphthene	1.18
Fluorene	1.81
Naphthalene	5.70 QL

22NEC-S28-SD46	
Analyte	Concentration
Diesel Range Organics	15600
Diesel Range Organics (SG)	11500
2-Methylnaphthalene	27.1
Fluorene	1.27
Naphthalene	11.2

22NEC-S28-SD49	
Analyte	Concentration
Diesel Range Organics	30900 QH
Diesel Range Organics (SG)	22300
2-Methylnaphthalene	19.9
Naphthalene	7.68

22NEC-S28-SD60	
Analyte	Concentration
Diesel Range Organics	12000
Diesel Range Organics (SG)	13900

22NEC-S28-SD48	
Analyte	Concentration
Diesel Range Organics	20900
Diesel Range Organics (SG)	16600
2-Methylnaphthalene	37.5
Acenaphthene	0.971 QL
Fluorene	1.69 QL
Naphthalene	22.1

22NEC-S28-SD50	
Analyte	Concentration
Diesel Range Organics	16600
Diesel Range Organics (SG)	14300
2-Methylnaphthalene	3.61 QL
Naphthalene	4.44 QL

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

SITE 28 – SAMPLE LOCATIONS, REMOVAL BOUNDARIES, AND SEDIMENT TRANSECTS – AREAS 2, 5N, 5S, 6, 7, 8

Legend

- 2022 Substrate Sample Result < PSL
- 2022 Substrate Sample Result > PSL
- 2022 Surveyed Waterbody
- 2022 Surveyed Waterbody - Did Not Meet the Definition of Sediment Removal
- Elevation Contour (feet above Mean Sea Level)
- Sediment Measurement Transect
- Previous Sediment Removal
- 2018 Contaminated Sediment Extent
- 2022 Sediment Removal Area

Abbreviations

DRO	diesel range organics
GNSS	Global Navigation Satellite System
GSD	ground sample distance
mg/kg	milligram per kilogram
PSL	project screening level
QH/QM/QL	the result is an estimated value, bias high/low/indeterminate, due to a QC failure
RRO	residual range organics
RTK	real-time kinematic
SG	silica gel

Notes

1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

Chemistry Notes

1. PSLs for sediment are site specific cleanup levels defined in the Decision Document (USACE 2010) or are derived from the WAC 173-204-520, Table III, Sediment Minimum Cleanup Level (WAC 1995).
2. **Bold red** text indicates results greater than PSLs.
3. All results presented in mg/kg.
4. Location IDs are abbreviated, characters following "22NEC-S28" are presented in labels: 22NEC-S28-SD16 = SD16.
5. The highest result of the primary and duplicate sample pair is shown, where applicable.

References

1. Historical GIS data source: USACE. 2020c. Second Five-Year Review Report for Northeast Cape Formerly Used Defense Site FUDS NO. F10AK0969-03, Saint Lawrence Island, Alaska. February and USACE. 2013. Northeast Cape HTRW Remedial Actions, Site 28 Phase I Sediment Removal Report, Revision 2, St. Lawrence Island, Alaska. May.
2. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
3. Survey conducted by Brice Engineering LLC, August 2022.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

50 25 0 50 100
Feet

PROJECT No.: 700701	DATE: 6/9/2023	FIGURE: 6G
P.M.: S.M.	DRAWN: J.C.	

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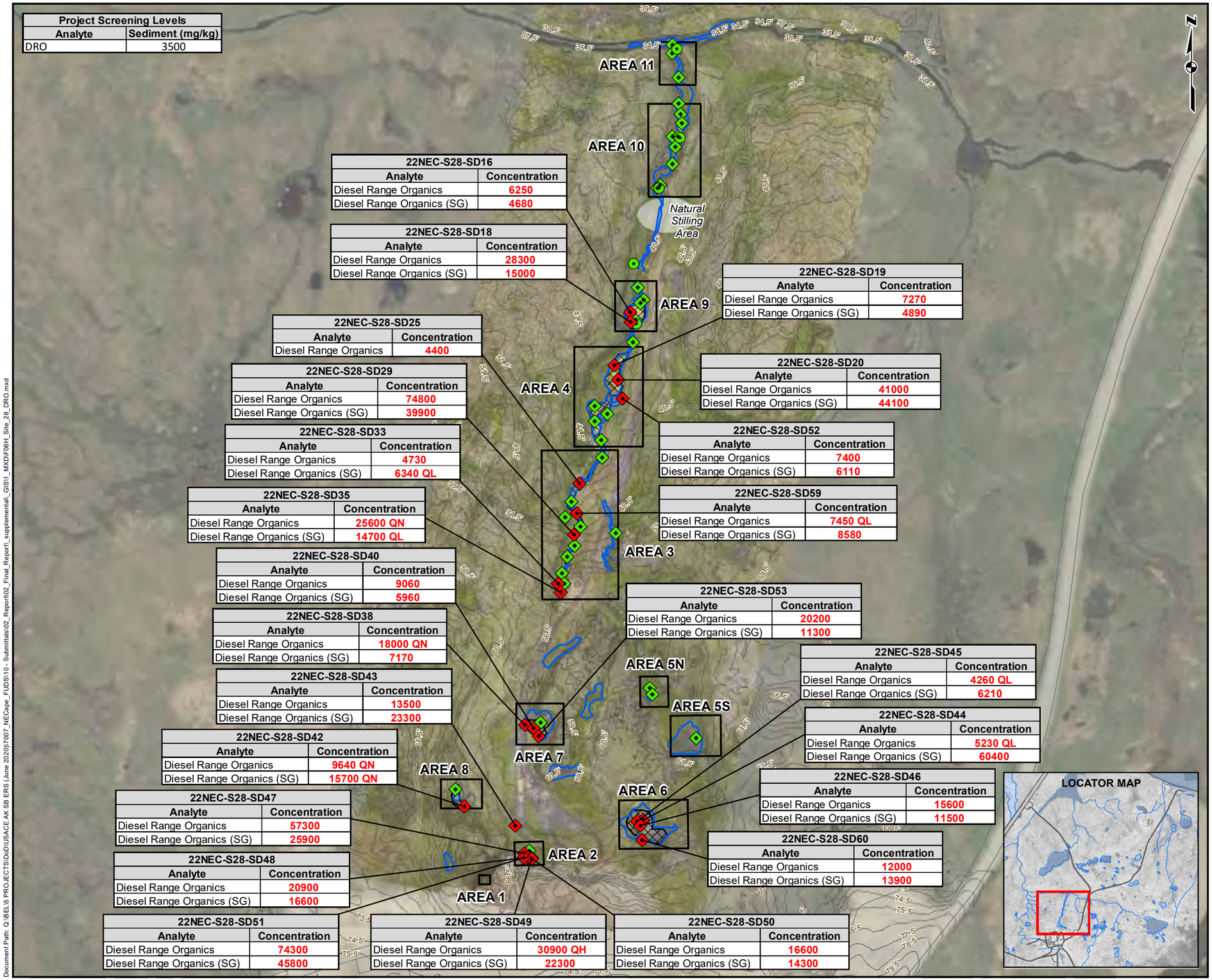
1 INCH

Project Screening Levels	
Analyte	Sediment (mg/kg)
DRO	3500



22NEC-S28-SD16	
Analyte	Concentration
Diesel Range Organics	6250
Diesel Range Organics (SG)	4680

22NEC-S28-SD18	
Analyte	Concentration
Diesel Range Organics	28300
Diesel Range Organics (SG)	15000

22NEC-S28-SD19	
Analyte	Concentration
Diesel Range Organics	7270
Diesel Range Organics (SG)	4890

22NEC-S28-SD25	
Analyte	Concentration
Diesel Range Organics	4400

22NEC-S28-SD29	
Analyte	Concentration
Diesel Range Organics	74800
Diesel Range Organics (SG)	39900

22NEC-S28-SD20	
Analyte	Concentration
Diesel Range Organics	41000
Diesel Range Organics (SG)	44100

22NEC-S28-SD33	
Analyte	Concentration
Diesel Range Organics	4730
Diesel Range Organics (SG)	6340 QL

22NEC-S28-SD52	
Analyte	Concentration
Diesel Range Organics	7400
Diesel Range Organics (SG)	6110

22NEC-S28-SD35	
Analyte	Concentration
Diesel Range Organics	25600 QN
Diesel Range Organics (SG)	14700 QL

22NEC-S28-SD59	
Analyte	Concentration
Diesel Range Organics	7450 QL
Diesel Range Organics (SG)	8580

22NEC-S28-SD40	
Analyte	Concentration
Diesel Range Organics	9060
Diesel Range Organics (SG)	5960

22NEC-S28-SD53	
Analyte	Concentration
Diesel Range Organics	20200
Diesel Range Organics (SG)	11300

22NEC-S28-SD38	
Analyte	Concentration
Diesel Range Organics	18000 QN
Diesel Range Organics (SG)	7170

22NEC-S28-SD45	
Analyte	Concentration
Diesel Range Organics	4260 QL
Diesel Range Organics (SG)	6210

22NEC-S28-SD43	
Analyte	Concentration
Diesel Range Organics	13500
Diesel Range Organics (SG)	23300

22NEC-S28-SD44	
Analyte	Concentration
Diesel Range Organics	5230 QL
Diesel Range Organics (SG)	60400

22NEC-S28-SD42	
Analyte	Concentration
Diesel Range Organics	9640 QN
Diesel Range Organics (SG)	15700 QN

22NEC-S28-SD46	
Analyte	Concentration
Diesel Range Organics	15600
Diesel Range Organics (SG)	11500

22NEC-S28-SD47	
Analyte	Concentration
Diesel Range Organics	57300
Diesel Range Organics (SG)	25900

22NEC-S28-SD60	
Analyte	Concentration
Diesel Range Organics	12000
Diesel Range Organics (SG)	13900

22NEC-S28-SD48	
Analyte	Concentration
Diesel Range Organics	20900
Diesel Range Organics (SG)	16600

22NEC-S28-SD51	
Analyte	Concentration
Diesel Range Organics	74300
Diesel Range Organics (SG)	45800

22NEC-S28-SD49	
Analyte	Concentration
Diesel Range Organics	30900 QH
Diesel Range Organics (SG)	22300

22NEC-S28-SD50	
Analyte	Concentration
Diesel Range Organics	16600
Diesel Range Organics (SG)	14300

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

SITE 28 – DRO EXCEEDANCES

Legend
- 2022 Substrate Sample Result < PSL
- 2022 Substrate Sample Result > PSL
- 2022 Surface Water Sample Result < PSL
- Elevation Contour (feet above Mean Sea Level)
- Road/Path
- 2022 Surveyed Waterbody
- 2018 Contaminated Sediment Extent
- 2018 Non-Contaminated Sediment Extent
- 2022 Sediment Removal Area
- Natural Stilling Area

Abbreviations
DRO	diesel range organics
GNSS	Global Navigation Satellite System
GSD	ground sample distance
mg/kg	milligram per kilogram
PSL	project screening level
QH/QN/QL	the result is an estimated value, bias high/indeterminate/low, due to a QC failure
RTK	real-time kinematic
SG	silica gel
SSCL	site specific cleanup level

Notes
1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

Chemistry Notes
1. The screening criteria for DRO, RRO, and naphthalene are the SSCLs defined in the Decision Document (USACE 2010). The remaining screening criteria are the most stringent of the 18 AAC 75 B1 & B2 Under 40-inch and Migration to Groundwater cleanup levels.
2. The screening criteria for sediment are site specific cleanup levels defined in the Decision Document (USACE 2010) or are derived from the WAC 173-204-520, Table III, Sediment Minimum Cleanup Level (WAC 1995).
3. **Bold red** text indicates results greater than screening criteria.
4. All results presented in mg/kg.
5. The highest result of the primary and duplicate sample pair is shown, where applicable.

References
1. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
2. Survey conducted by Brice Engineering LLC, August 2022.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

180 90 0 180 360
Feet

PROJECT No.: 700701	DATE: 6/9/2023	FIGURE: 6H
P.M.: S.M.	DRAWN: J.C.	

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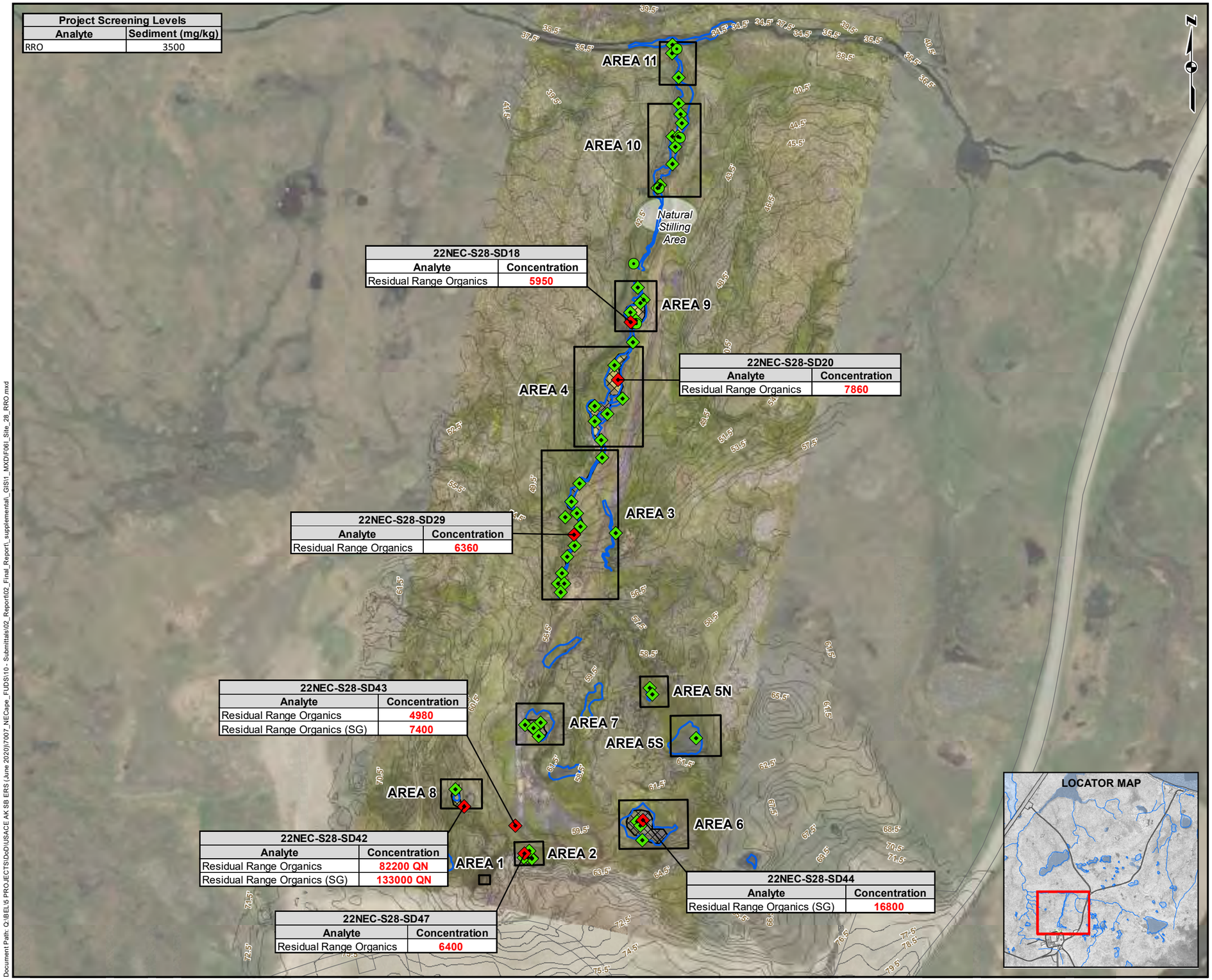
1 INCH

Project Screening Levels	
Analyte	Sediment (mg/kg)
RRO	3500



22NEC-S28-SD18	
Analyte	Concentration
Residual Range Organics	5950

22NEC-S28-SD20	
Analyte	Concentration
Residual Range Organics	7860

22NEC-S28-SD29	
Analyte	Concentration
Residual Range Organics	6360

22NEC-S28-SD43	
Analyte	Concentration
Residual Range Organics	4980
Residual Range Organics (SG)	7400

22NEC-S28-SD42	
Analyte	Concentration
Residual Range Organics	82200 QN
Residual Range Organics (SG)	133000 QN

22NEC-S28-SD44	
Analyte	Concentration
Residual Range Organics (SG)	16800

22NEC-S28-SD47	
Analyte	Concentration
Residual Range Organics	6400

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS FORMERLY USED DEFENSE SITE F10AK096903

NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

SITE 28 – RRO EXCEEDANCES

Legend

- 2022 Substrate Sample Result < PSL
- 2022 Substrate Sample Result > PSL
- 2022 Surface Water Sample Result < PSL
- Elevation Contour (feet above Mean Sea Level)
- Road/Path
- 2022 Surveyed Waterbody
- 2018 Contaminated Sediment Extent
- 2018 Non-Contaminated Sediment Extent
- 2022 Sediment Removal Area
- Natural Stilling Area

Abbreviations

GNSS	Global Navigation Satellite System
GSD	ground sample distance
mg/kg	milligram per kilogram
PSL	project screening level
QH/QN/QL	the result is an estimated value, bias high/indeterminate/low, due to a QC failure
RRO	residual range organics
RTK	real-time kinematic
SG	silica gel
SSCL	site specific cleanup level

Notes

1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

Chemistry Notes

1. The screening criteria for DRO, RRO, and naphthalene are the SSCLs defined in the Decision Document (USACE 2010). The remaining screening criteria are the most stringent of the 18 AAC 75 B1 & B2 Under 40-inch and Migration to Groundwater cleanup levels.
2. The screening criteria for sediment are site specific cleanup levels defined in the Decision Document (USACE 2010) or are derived from the WAC 173-204-520, Table III, Sediment Minimum Cleanup Level (WAC 1995).
3. **Bold red** text indicates results greater than screening criteria.
4. All results presented in mg/kg.
5. The highest result of the primary and duplicate sample pair is shown, where applicable.

References

1. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
2. Survey conducted by Brice Engineering LLC, August 2022.

WGS 1984 UTM ZONE 2N, METER

HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

180 90 0 180 360

Feet

PROJECT No.: 700701	DATE: 6/9/2023	FIGURE: 6I
P.M.: S.M.	DRAWN: J.C.	

Document Path: Q:\BEL\5 PROJECTS\DoD\USACE AK SB ERS (June 2020)\7007_NECape_FUDS\10 - Submittals\02_Report\02_Final_Report_supplemental_GIS\1_MXD\F06I_Site_28_RRO.mxd

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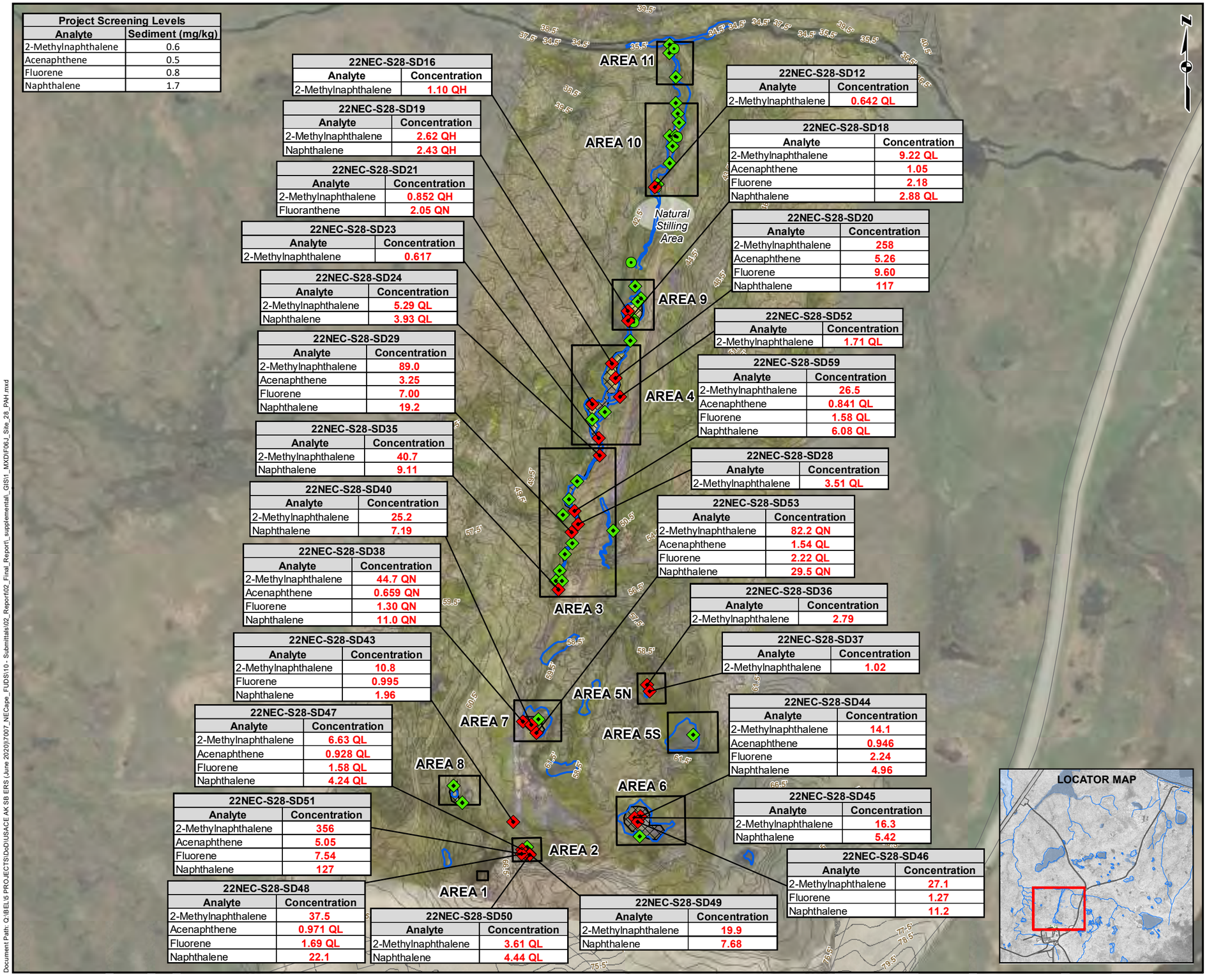
1 INCH

Project Screening Levels	
Analyte	Sediment (mg/kg)
2-Methylnaphthalene	0.6
Acenaphthene	0.5
Fluorene	0.8
Naphthalene	1.7



22NEC-S28-SD16	
Analyte	Concentration
2-Methylnaphthalene	1.10 QH

22NEC-S28-SD19	
Analyte	Concentration
2-Methylnaphthalene	2.62 QH
Naphthalene	2.43 QH

22NEC-S28-SD21	
Analyte	Concentration
2-Methylnaphthalene	0.852 QH
Fluoranthene	2.05 QN

22NEC-S28-SD23	
Analyte	Concentration
2-Methylnaphthalene	0.617

22NEC-S28-SD24	
Analyte	Concentration
2-Methylnaphthalene	5.29 QL
Naphthalene	3.93 QL

22NEC-S28-SD29	
Analyte	Concentration
2-Methylnaphthalene	89.0
Acenaphthene	3.25
Fluorene	7.00
Naphthalene	19.2

22NEC-S28-SD35	
Analyte	Concentration
2-Methylnaphthalene	40.7
Naphthalene	9.11

22NEC-S28-SD40	
Analyte	Concentration
2-Methylnaphthalene	25.2
Naphthalene	7.19

22NEC-S28-SD38	
Analyte	Concentration
2-Methylnaphthalene	44.7 QN
Acenaphthene	0.659 QN
Fluorene	1.30 QN
Naphthalene	11.0 QN

22NEC-S28-SD43	
Analyte	Concentration
2-Methylnaphthalene	10.8
Fluorene	0.995
Naphthalene	1.96

22NEC-S28-SD47	
Analyte	Concentration
2-Methylnaphthalene	6.63 QL
Acenaphthene	0.928 QL
Fluorene	1.58 QL
Naphthalene	4.24 QL

22NEC-S28-SD51	
Analyte	Concentration
2-Methylnaphthalene	356
Acenaphthene	5.05
Fluorene	7.54
Naphthalene	127

22NEC-S28-SD48	
Analyte	Concentration
2-Methylnaphthalene	37.5
Acenaphthene	0.971 QL
Fluorene	1.69 QL
Naphthalene	22.1

22NEC-S28-SD50	
Analyte	Concentration
2-Methylnaphthalene	3.61 QL
Naphthalene	4.44 QL

22NEC-S28-SD49	
Analyte	Concentration
2-Methylnaphthalene	19.9
Naphthalene	7.68

22NEC-S28-SD12	
Analyte	Concentration
2-Methylnaphthalene	0.642 QL

22NEC-S28-SD18	
Analyte	Concentration
2-Methylnaphthalene	9.22 QL
Acenaphthene	1.05
Fluorene	2.18
Naphthalene	2.88 QL

22NEC-S28-SD20	
Analyte	Concentration
2-Methylnaphthalene	258
Acenaphthene	5.26
Fluorene	9.60
Naphthalene	117

22NEC-S28-SD52	
Analyte	Concentration
2-Methylnaphthalene	1.71 QL

22NEC-S28-SD59	
Analyte	Concentration
2-Methylnaphthalene	26.5
Acenaphthene	0.841 QL
Fluorene	1.58 QL
Naphthalene	6.08 QL

22NEC-S28-SD28	
Analyte	Concentration
2-Methylnaphthalene	3.51 QL

22NEC-S28-SD53	
Analyte	Concentration
2-Methylnaphthalene	82.2 QN
Acenaphthene	1.54 QL
Fluorene	2.22 QL
Naphthalene	29.5 QN

22NEC-S28-SD36	
Analyte	Concentration
2-Methylnaphthalene	2.79

22NEC-S28-SD37	
Analyte	Concentration
2-Methylnaphthalene	1.02

22NEC-S28-SD44	
Analyte	Concentration
2-Methylnaphthalene	14.1
Acenaphthene	0.946
Fluorene	2.24
Naphthalene	4.96

22NEC-S28-SD45	
Analyte	Concentration
2-Methylnaphthalene	16.3
Naphthalene	5.42

22NEC-S28-SD46	
Analyte	Concentration
2-Methylnaphthalene	27.1
Fluorene	1.27
Naphthalene	11.2

LOCATOR MAP

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

SITE 28 – PAH EXCEEDANCES

Legend

- 2022 Substrate Sample Result < PSL
- 2022 Substrate Sample Result > PSL
- 2022 Surface Water Sample Result < PSL
- Elevation Contour (feet above Mean Sea Level)
- Road/Path
- 2022 Surveyed Waterbody
- 2018 Contaminated Sediment Extent
- 2018 Non-Contaminated Sediment Extent
- 2022 Sediment Removal Area
- Natural Stilling Area

Abbreviations

GNSS	Global Navigation Satellite System
GSD	ground sample distance
mg/kg	milligram per kilogram
PAH	polycyclic aromatic hydrocarbon
PSL	project screening level
QH/QN/QL	the result is an estimated value, bias high/indeterminate/low, due to a QC failure
RTK	real-time kinematic
SSCL	site specific cleanup level

Notes

1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

Chemistry Notes

1. The screening criteria for DRO, RRO, and naphthalene are the SSCLs defined in the Decision Document (USACE 2010). The remaining screening criteria are the most stringent of the 18 AAC 75 B1 & B2 Under 40-inch and Migration to Groundwater cleanup levels.
2. The screening criteria for sediment are site specific cleanup levels defined in the Decision Document (USACE 2010) or are derived from the WAC 173-204-520, Table III, Sediment Minimum Cleanup Level (WAC 1995).
3. **Bold red** text indicates results greater than screening criteria.
4. All results presented in mg/kg.
5. The highest result of the primary and duplicate sample pair is shown, where applicable.

References

1. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
2. Survey conducted by Brice Engineering LLC, August 2022.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

180 90 0 180 360
Feet

PROJECT No.: 700701	DATE: 6/9/2023	FIGURE: 6J
P.M.: S.M.	DRAWN: J.C.	

Document Path: Q:\BEL5 PROJECTS\DoD\USACE AK SB ERS (June 2020)\7007_NECape_FUDS\10 - Submittals\02_Report\02_Final_Report_supplemental_GIS\1_MXD\F06J_Site_28_PAH.mxd

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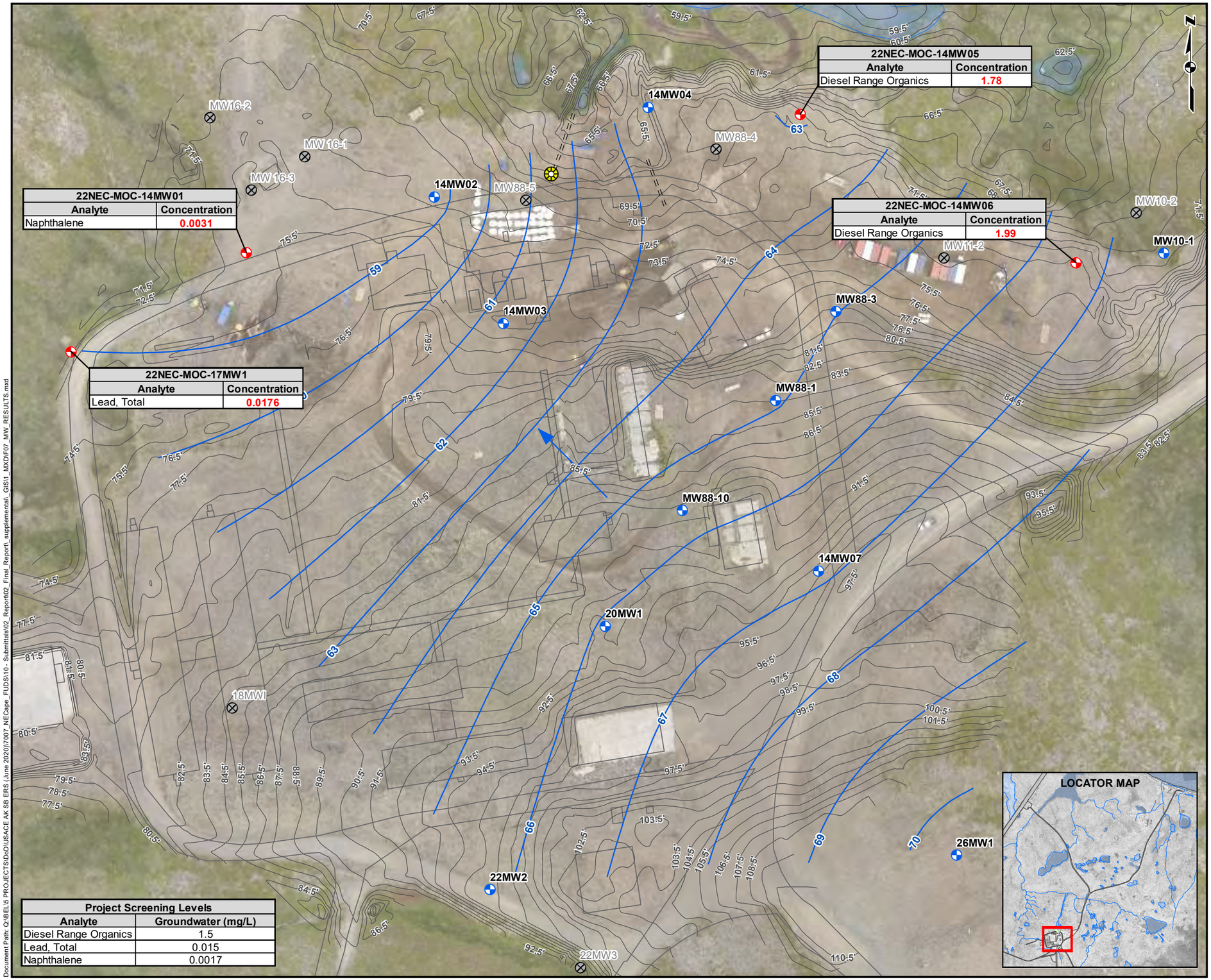
1 INCH



SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

MAIN OPERATION COMPLEX GROUNDWATER MONINTORING WELL RESULTS ABOVE SSCLS OR PSLS

Legend

- Abandoned Monitoring Well
- Existing Monitoring Well
- Existing Monitoring Well Sample With Exceedance
- Former Manhole
- Approximate Groundwater Flow Direction
- 2022 Groundwater Contour
- Elevation Contour (feet above Mean Sea Level)
- Road/Path
- Surface Water Feature
- Former Building
- Surface Water

Abbreviations

DRO	diesel range organics
GNSS	Global Navigation Satellite System
GSD	ground sample distance
PSL	project screening level
mg/L	milligrams per liter
QH/QM/QL	the result is an estimated value, bias high/low/indeterminate, due to a QC failure
RRO	residual range organics
RTK	real-time kinematic
SSCL	site specific cleanup levels

Notes

1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

Chemistry Notes

1. The screening levels for DRO and total lead are SSCLs defined in the Decision Document (USACE 2010). The screening level for naphthalene is the 18 AAC 75 Table C groundwater cleanup level.
2. **Bold red** text indicates results greater than screening levels.
3. All results presented in mg/L.
4. Location IDs are abbreviated, characters following "MOC" in location ID presented in labels: 22NEC-MOC-14MW05 = 14MW05.
5. The highest result of the primary and duplicate sample pair is shown, where applicable.

References

1. Historical GIS data source: USACE. 2020c. Second Five-Year Review Report for Northeast Cape Formerly Used Defense Site FUDS NO. F10AK0969-03, Saint Lawrence Island, Alaska. February and USACE. 2013. Northeast Cape HTRW Remedial Actions, Site 28 Phase I Sediment Removal Report, Revision 2, St. Lawrence Island, Alaska. May.
2. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
3. Survey conducted by Brice Engineering LLC, August 2022.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

100 50 0 100 200
Feet

PROJECT No.: 700701	DATE: 6/9/2023	FIGURE: 7
P.M.: S.M.	DRAWN: J.C.	

Document Path: Q:\BEL5 PROJECTS\DoD\USACE AK SB ERS (June 2020)\7007_NECape_FUDS\10 - Submittals\02_Report\02_Final_Report_supplemental_GIS\1_MXD\F07_MW_RESULTS.mxd

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1 INCH

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

BACKGROUND SAMPLE LOCATIONS

Legend

- Background Sample Location
- Road/Path
- Surface Water Feature
- Surface Water

Notes

1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

References

1. Imagery source: Esri, Maxar, Earthstar Geographics, and the GIS User Community.
2. Survey conducted by Brice Engineering LLC, August 2022.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

100 50 0 100 200
Feet

PROJECT No.: 700701	DATE: 6/9/2023	FIGURE: 8
P.M.: S.M.	DRAWN: J.C.	

Document Path: Q:\BEL5 PROJECTS\DoD\USACE AK SB ERS (June 2020)\7007_NECape_FUDS\10 - Submittals\02_Report\02_Final_Report_supplemental_GIS\1_MXD\F08_BG_Samples.mxd

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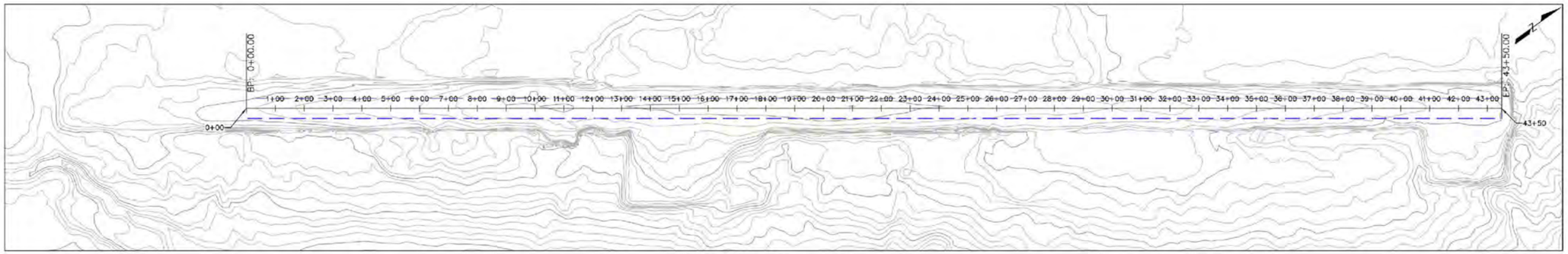
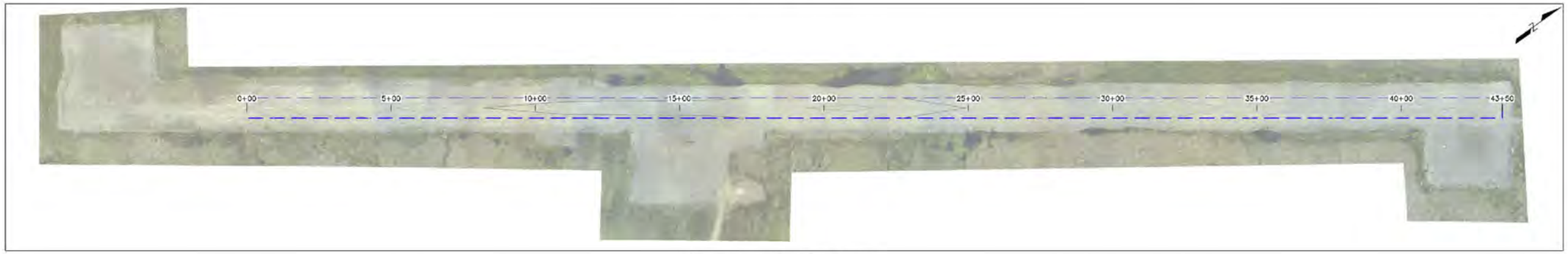
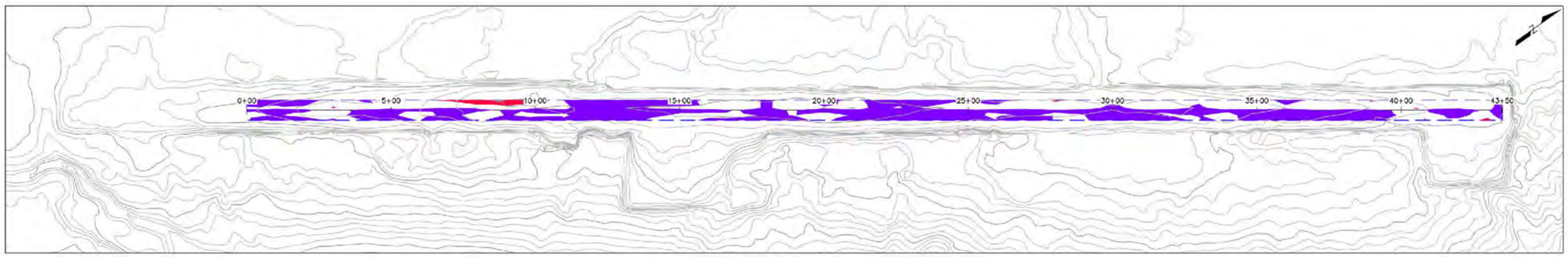


Existing Conditions

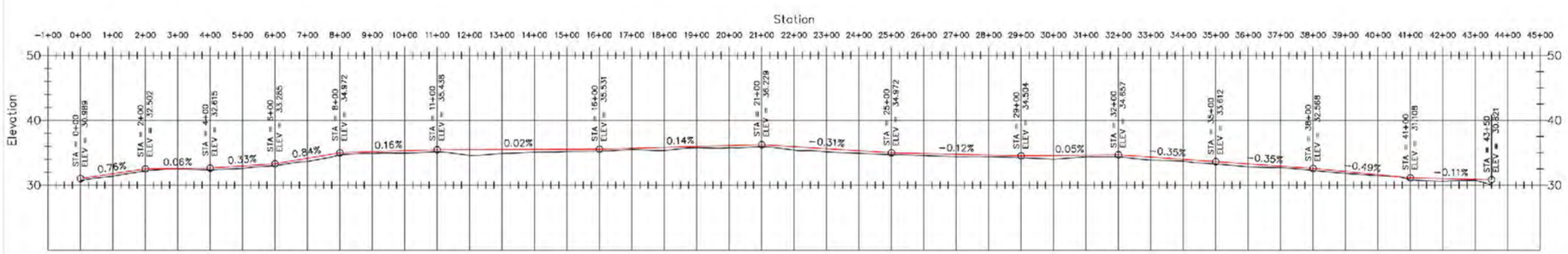


Proposed Surface



Cut/Fill

PROPOSED CORRIDOR PARAMETERS USED FOR DISPLAY



Proposed and Existing Runway Profiles

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

AIRFIELD MATERIAL QUANTITY ANALYSIS

NOTES

1. This figure is for informational and planning purposes only. The information shown should not be construed or interpreted as an engineering design plan.

2. The computed surface, as depicted on proposed surfaced, was constructed by following the general contour of the existing runway centerline. The computed centerline was then raised 0.3' to minimize material that would otherwise result in a cut. The same computed profile was used for both the 70' width and the 135' width.

3. The resulting cut/fill between the existing and proposed surfaces, with the assumption of a 70' width, are as follows:

Cut = 170.8 cubic yards
Fill = 2,467 cubic yards

4. The resulting cut/fill between the existing and proposed surfaces, with the assumption of a 135' width, are as follows:

Cut = 496.0 cubic yards
Fill = 8,472.0 cubic yards

5. Proposed surfaces displayed on this figure are representative of the 70' computed runway width.

Legend

	-0.61' (max cut) to -0.20'
	0.20' to 1.00' (max fill)

For display purposes, only cuts/fills greater than 0.2' displayed

0 200 400 Feet

Drawing is full scale at 22x34
If plotted at reduced size use graphic scale

ANCHORAGE OFFICE
3700 Centerpoint Drive
Anchorage, AK 99502
907.275.2898 (Office and Fax)
Brice ENGINEERING
ANC 8(a)

PROJECT NO.:	FIGURE:
700704	9
DATE: 2/24/23	
P.M.: SM	
DRAWN: JAA	

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APPENDIX A
LOGBOOK

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Northeast Cape FUDS
Site 25 Sediment Removal and Various
Follow-up Actions
W911KB-20-D-002
25 July 2022 - 10 August 2022

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CONTENTS

PAGE	REFERENCE	DATE

Monday 25 July 2022 Rainy, fog 40°F

0630. Breakfast. Site safety Meeting

0715. Crew goes over daily plan, splits into three crews:

Chad Armintrout (CA)
Scotty Mann (SM)
Andrew Platt (AP)
Dave Clifford (DC)
to work on GAC system and supplies.

Dylan Hickey (DH)
Patrick Schick (PS)
to survey

Monte Garrette (MG)
Greg Filbey (GF)
Tigan Donaldson (TD)
Michael Williams (MW)
to review QC checklists, DQCRs, then perform ISM sampling.

0730. MG + crew to site IS stockpile footprint area to ISM sample.

Crew lays out a 200 ft X 250 ft area for sampling. Sampling area is divided into 30 grid cells.

Random area selected in first cell —

other 2 increments are to the right and above of the random area.

1005. ISM sample 22NEC-S15-DU1-SS01, DRO.

1010. ISM 22NEC-S15-DU1-SS02 for DRO

1015. ISM 22NEC-S15-DU1-SS03 for DRO

1030. Crew prepares to set up for ISM at containment area; inspects geotubes and containment berms - available area for working is approx. 140 X 230 ft., with a smaller area of 100 ft. X 230.

Area will be 1 ISM sample, with 8 x 4 cells.

1230. Lunch. Crew discussed operations.

1300. Crew mob to MOC to continue setup and ISM.

— Random part of cell selected for sampling , dup. and triplicate to right and above.

1305. Sample 22NEC-S28-DU1-SP01

1310 sample 22NEC-S28-DU1-SP02

1320. sample 22NEC-S28-DU1-SP03

all 3 samples ISM DRO, RRO, PAH.

1330 Crew begins preparing Diaphragm pumps for dredging system - then placing pump and solid pipe runs, and check pads along run.

25 July 2022

1600. SM stops by camp, Internet is working. SM contacts client and arranges next flights out.

1610. Crew begins filling sand bags and GAC vessels.

1700. MG, TD, MW, PS to complete sample paperwork and dailies at camp, SM, CA, DC, GF to fill GAC vessels.

1900. Crew back at camp, GAC vessels are filled.

Appended Notes -

1417. Photo CM190001, facing SE, photo of ISM sample 22NEC-S28-DU1-SD01 pre-containment area. footprint.

1418. Photo CM190002, facing South, ISM sample 22NEC-S15-DU1-SS01, the site 15 stockpile footprint.

End of Day

Matt Gamoube 7/25/22

Tuesday
26 July 2022. Clear, windy, 38°F

0700. Site safety Meeting. Daily planning. Flight is expected around 1300 with EMT and 1 Brice Personnel (Jane Suhey), and a tribal representative from Gambell (Curtis Silook).

0730. Crew Mobs to MOC. MG stays at camp to complete paperwork. Crew is setting up dredge containment and GAC vessels.

1030. MG back to MOC. Crew is setting up containment area. First containment area is designed as follows:

1. 40 mil HDPE liner layflat
2. Felt Geofabric
3. 40 mil HDPE Bermpac containment.

Containment area slopes slightly downhill towards Site 28, oriented towards W-S on long side.

1105. Photo CM190003, facing NE. Setup of S28 containment berm.

1200. Crew heads to camp for lunch.

1207. Photo CM190004, facing east. Camp setup nearly complete at Site 6.

1230. Crew shifts rooms in prep for incoming crew, then continues to build containment and fill the sand filter vessels.

Rite in the Rain

26 July 2022

1400. Crew sets up second containment area. Bering Air charter arrives. with Jane Suhey (JS) and Beacon EMT Craig Perry.

1445. Crew finishes second containment area. Crew cleans up and goes to finish sand bagging.

1535. Photo CM190005, facing SE, Both containment areas set up, first with the large (45' L) Geotube.

1535. Photo CM190006 facing SE, Site is pre-excavation.

1536. Photo CM190007, Facing NW, Sediment dredging area nearest the dewatering area.

1537. Photo CM190008, facing SE, Project laydown area at the MOC

1538. Photo CM190009, facing SE, Sand filters for dewatering system.

1538. Photo CM190010, facing NE, GAC vessels for dewatering system, not yet installed.

1545. MG+SM to build flocculant system mount, Rest of crew

26 July 2022

1645. MG+SM finish flocculant frame, Jane Suhey (JS) to MOC.

1700. MW, TD, PS finish sand bags - Will mob to camp and set up environmental container. CA, DC, AP, GF setting up GAC. GAC has moved so that vessels are too close together for the top manifold to fit. Crew will work to fix - appears GAC vessels were bent during transport.

1900. Crew back to camp. Dinner.

2000. MG+CA to inspect LUC signs. Sign at airport is completely gone. Sign at barge landing is down but may be able to be ripped off. End of day.

Matt Smith 7/26/22

Wednesday 27 July 2022 Sun, 50°

0700. Site safety. Crew will continue S28 Setup and Surface water Sampling.

0730. MG, TD, PS, MW to go over DQCR, review workplan and set up sampling equipment. Rest of crew to set up GAC system.

1000. MG, TD, PS to Surface water Sample, MW to help set up floc. system with GF.

1030. Sample 22NEC-S28-SW-01 and Field duplicate 22NEC-S28-SW-901. Surface water Samples collected from furthest north 2013 location. DRO/RRO, BTEX, PAH. Parameters:

ORP: 57.8 mV
DO: 83.11%
Temp: 11.35°C
PH: 7.46
Conductivity: 181.58 µS/cm
Turbidity: 2.32 NTU

1050. Sample 22NEC-S28-SW-02 MS/MSD for DRO/RRO, BTEX, and PAH.

ORP: 54.1 DO: 85.82% Temp: 11.19
PH: 6.80 Cond: 190.19 µS/cm Turb: 2.22

1105. Sample 22NEC-S28-SW-03, surface water sample for DRO/RRO, BTEX, and PAH. ORP:
DO: 72.59% Temp: 9.51°C PH: 6.39 Cond: 192.57
Turb: 5.81

27 July 2022

1120. Sample 22NEC-S28-SW-04 Surface water for DRO/RRO, BTEX, PAH.

DO: 90.53% Temp: 10.11°C pH: 6.68
Cond: 205.47 Turb. 5.26 ORP: 49.8

1130. MG + MW to pack cooler of Surface water, at Camp. TD and JS to ISM discharge area.

1135. Upon arrival at Camp, observed that the camp manager had spilled a small amount of fuel while refueling. Spill was immediately stopped, absorbents were applied from spill kit, and crew was alerted. Crew returned with a skid steer /w loader bucket to dig up dirt around impacted area, estimated approx 1 gallon. Soil was removed until no odor or staining was observed.

1230. Lunch.

1300. Crew returns to MOC to continue ISM at discharge area and rest of crew to finish dewatering area.

1336. Photo CM180091. Facing SE. Treated water discharge area pre-discharge, ISM sample.

1345. Crew is ISM sampling at discharge area.

1350. ISM sample 22NEC-S28-DUZ-SD01 MS/MSD for DRO/RRO, PAH. →

27 July 2022

1350. ISM Du is 21'w x 34'L, 30 increments -

← random location within each cell.

1500. Aaron Showman arrives on air charter, also cargo arrives. MG + SM. Pick up Aaron and unload supplies.

1600. Drop off Aaron and unload supplies.

1645. Aaron Showman USACE Rep (AS) arrives on site, introduced to crew.

1700. MG + SM decide to conduct first dredging at Area 6. This will eliminate several variables at the further away Area 9. Team set up at Area 6, all set up except for Floc system and Final GAC fittings.

1500. TD and JS to Camp to Cooler Pack and QC paperwork.

1700. End of day.

Matt Gooch 7/27/22

0700. Site safety. Crew to perform pilot study today.

0730. MG review DQCR with AS. MW, TD, JS Pack coolers.

0900. MG at MOC. Crew nearly set up at Area 6, Site 28.

0915. CA, DC hauling rock to Site 15 laydown, MW, JS, TD picking debris.

0945. MG, AS review surface water sample locations. Debris picked from Site 15 ~0.25 CY.

1030. MG, TD, JS set up GW well leveling.

1045. Team reviews Dredging AHA, goes over hazards. Cold water, engines, refueling. Discuss layout and processes. Will start with 3 people at dredge, 2 at floc, geotube system. System illustration on next page.

1100. Team sets up for pilot study.

1121. Photo CM190011, Containment and dewatering system, set up, Facing East.

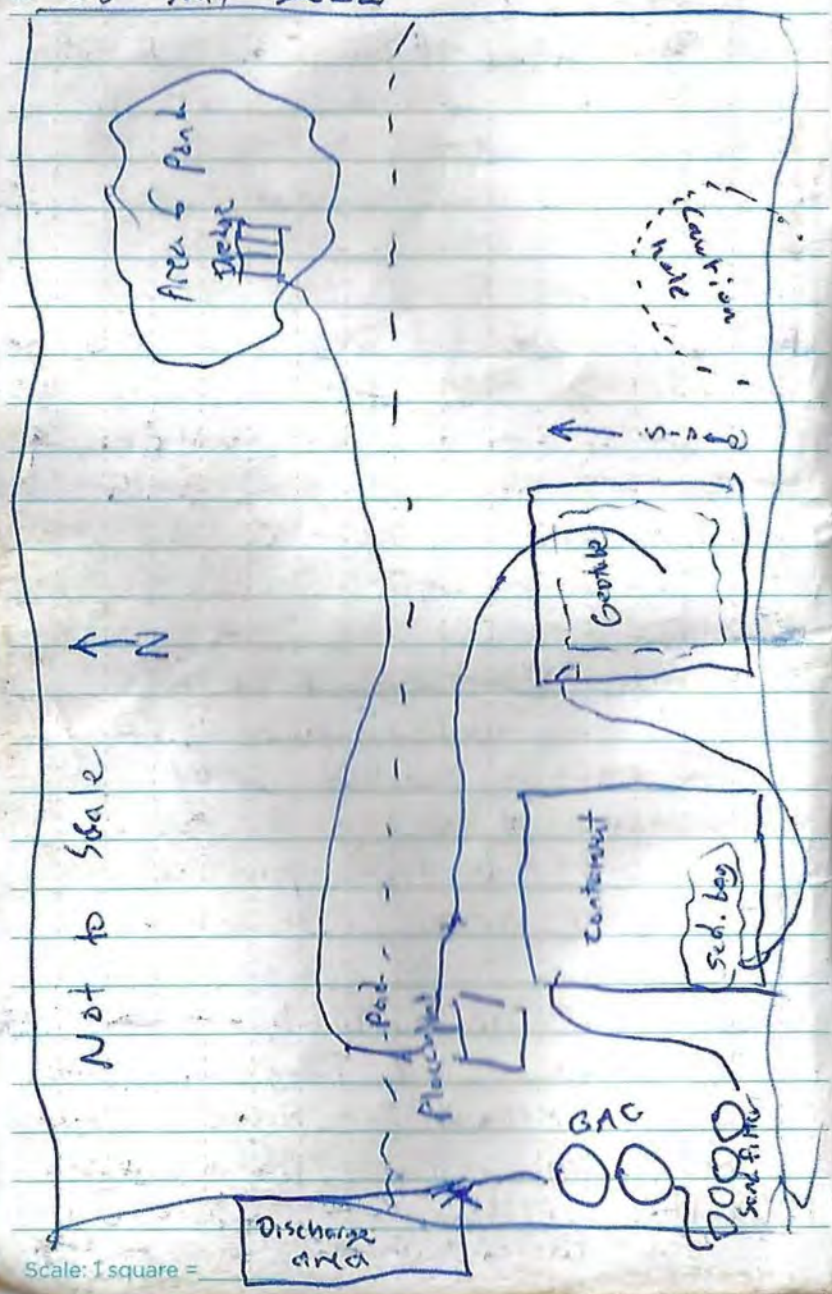
1121. Photo CM190012, Tiyan D. ~~Water Samp~~ MG 7/28 opening well at MOC, Facing N.

1124. Photo CM190013, Team reviewing dredge setup before pilot study, Facing N.

1128. Photo CM190014, Site 28 area 6 pilot. Facing Northwest.

Rite in the Rain

28 July 2022



28 July 2022

1135. Begin dredging. Adjusting flow rate and floc rate. Keeping floc at a minimum while flow adjusts.

1155. Stop dredging. Team will put on dry diving suits and reset after lunch.

1230. Lunch.

1300. Team sets up for continuing pilot test, team in Dry suits.
MG + GF test flow rates from floc pump. Seal set at 20 speed, 30 stroke for starting pump rate, 12 GPM freshwater input.

1430. Change fish tote freshwater tank.

1500. Photo CM190015, facing East. Brice sampling dewatering system discharge of treated water.

1500. Sample 22NEC-528-WQ-01, for BTEX and PAH. from GAC treatment system. Water was clear, no odor.

1520. Crew shuts down Area 6 pilot test. Will reevaluate system and try setting up at rivulets (Area 9+). Will separate the jet and dredge intake, will set up more water at floc system, will shorten the length behind the dredge, add in line pump

28 July 2022

1616. Photo (CM190016), facing east, Pulling dredge to Area 9.
Team set up BMPs (silt fence) along site 28 between stilling area, Sugi., and Area 9.

1708. Photo (CM190017), facing NE, Silt fence by Sugi R. Confluence.

1715. Clean up site. Total dewatered - approx 3444 gallons. from flowmeter, plus ~800 gallons freshwater for 4244 gallons treated. Turbidity = 10.2 NTU.

1800. End of day.

Matt Smith 7/25/22

Friday
29 July 2022 partly cloudy, 0-10mph, 50°F

0700. Site safety. Team to set up at site 28, Area 9. Will finish DOCR with AS at lunch.

0730 Crew sets up Area 9 Dredging Pilot. Moves ponds so that next in-line pump intake.
Area 9 setup has 3 ponds - 2500 gal each, with diaphragm pumps on the end of each, approx. 300 ft apart. First pond is ~250 ft from dredge, with ~5 foot elevation change.

0930. Discussed surface water locations, with USACE Aaron, will check 2013 report for 4th location.
- Set up a second recirc. trash pump at 1st containment, set up second geotube in second containment.

1000. Set up for pilot test - Will go from Area 9 - start with 3 at dredge -

1040. Begin Pilot test.

1050. Dredge is primed - running at full throttle

1055. First pond is full - Starting diaphragm pump.

1056. Shut down. Diaphragm pump leaking, Will fix and pump out first pond.

29 July 2022

1100. MG + As to office to look at surface water locations. We will need to adjust a surface water location to match the 2013 report, location 28-SW-01B.

1200. Crew takes lunch, SM + GF to check all diaphragm pumps.

1230. SM + GF to camp, all pumps checked.

1300. Crew sets up for next pilot test.

1350. Set up dredge.

1355. Begin pumping at dredge. Pump rate at dredge is ~25% throttle, somewhat ideal for matching Pond 1, Pump 1 at diaphragm pump at 75% throttle.

1403. Photo (CM190018) Area 9 dredging. Facing east

1415. Photo (CM190019) facing south. dredge next to Area 9, Pond 1 in background

1418. In-line Pump 3 may be switched out to reduce surging prior to floc system.

1425. Dredge clogged, stopped pumping to fix.

29 July 2022

1429. Restart dredging using round stinger head.

1438. Clogged dredge, switching out with clean one + water break.

1445. Restart dredging. Strong odor and sheen on surface water

1457. Stop dredging to switch to square head and brace pond 2.

1550. Adding foot screen to pond 2 intake.

1555. Restart dredging. System at this distance takes 4-8 people. 3 at dredge, 1 each in-line pump, 2 at containment area.

1609. Clogged dredge. Stopped to unclog.

1615. Start dredging

1617. Clogged, switch out

1617. Photo (CM190021). Facing East. Crew unclogging clogged stinger. Note: photo (CM190020), facing East, mistake photo while cleaning camera.

1624. Clogged dredge - cleaning. MG to pad to go over clogging options. May remove screen from stinger. Crew at pad has dialed in the

29 July 2022

1624, cont. floc system, Geotube is swelling.

1641, photo CM190022, flocculant recirculation system.

1641. photo CM190023, Geotube in containment full of water.

1730. End dosing and clean up. Meet with Crew to discuss Pilot Study. Go over details. Need to make sure Ponds are on solid ground and reinforce where needed. Will take down freshwater Pond and put liner down. Notes on Pond 3: 3" trash Pump set at approx 30% which was exactly 65 GPM. Floc Meter was 50 speed / 50 stroke, with 8 GPM on fresh flow meters / floc Mixer. Total on flowmeter = 8817.4636. Freshwater used = ~2000 gallons. MG. collect background turbidity from tundra Pond - 45.6 NTU. Collected turbidity from treated water = 15.5 NTU. No odor or color, clear.

29 July 2022

1830. TD and PS to office to complete Daily/photo log.

1830. Team cleans up site to prepare for next activities while awaiting water treatment results.

1900. Team back to camp.

Measured sizes of containment:

1st Containment - Bottom HDPE liner is 32' Wide x 59' Long
- Containment is 28.5' wide x 55' L
- Geotube (bottom) is 25' wide x 45' Long.

2nd Containment - Bottom HDPE Liner is 28' W x 59' L,
Containment is 29' w x 55' L
Geotube (bottom) is 25' wide x 35' Long.

End of day:

Brent Gnatt 7/29/22

Saturday
30 July 2022 Fog, 0-10 mph, 38°F

0700. Site safety, Review day.
MW, JS, PS to Pack coolers.
TD to bump check the turbidimeter.

0715. MG, GF, SM, CA meet with USACE QAR Aaron Shewman to discuss site 28 dredging. SM Identified that the primary Material between Stream and hardpan is organics and not settled soil. Organics are causing filter and dewatering system issues. AS identified that Brice may need to Rake vegetation out of the stream would be one solution. Brice did not entirely account for raking stream. Brice will add Sorbent booms to stream intakes and outlets. Dredging will start upstream and move down in next phase, AS pointed out the veg. counts to quantities, but it causes dewatering system issues. If vegetation/organics is removed, we can add to supersacks and count to quantities. Brice discussed organics screens for Midpoint. Also raking Material into the bass boat before dredging. Considered shaker plant on tundra mats. AS identified that we must prepare Creek Prior to dredging to avoid intake of floating organics. Brice will take

0715. cont. a good core to include annotations of where sediment is present.

0900. USACE pointed out workplan states 430 cy will be excavated at ~~500~~ MG 7/30, site 15, want to clarify that SOW identifies 500 tons and 330 bcy. Team agreed that 500 tons is the Project goal. approx. 50 x 9 cy bags. Crew will place liner below bags if needed, but will not sample ISM.
For site 8, need to adjust scale.

1000. Team sets up to backflush GAC system, Rest of crew set up Site 15 laydown area.

1200. Lunch

1230. Team sets up at 14MW07.

1500. Plane arrives - Scotty Mann and Greg Filbey depart. Logan Sinclair (LS) arrives at site.

1515. Locals arrive on site from Savoonga, 6 people, all on ATVs. Crew refills their fuel.

1530. MG, TD, PS, MW, JS to sample 14MW07. Set field forms.

~~1700~~ MG 7/30 1700. TD, PS, MW, JS to next well. Rest of crew backwash sand pots.

30 July 2022

1730. Solenoids working, team setting up at next well.

1750. Visited area adjacent to site 21 with AS that will be sampled for background TOC and DRO w/silica gel.

1815. Completed Backwash of sand pot system - 1 minute backwash, 20 second delay. Pumped backwash water (from clean source) into containment 1. Backwash was tan-color with some organics. Total treated = ~3000 gallons

1400. Back to camp. end of day

[signature] 7/30/22

Sunday
31 July 2022 Fog, 0 - mph, 38°F.

0700. Site safety.

0730. Crew at site - survey, prep for drilling, laydown stockpile area site 15.

0930. Crew sets up liner for site 15 stockpiles. area is 120'x80' lined with 12 mil Durascrim - reinforced.

1000. Crew gathers for excavation AHA. Crew walks route to pick up last bits of metal.

1100. Aaron Shewman asked that top layer of site 15, when backfilled, is clean backfill or the original top layer being excavated first.

1105. Operation has 1 rock truck, 1 Dump, loading with 350 excavator, starting on west (uphill side) of excav. area.

1110. First dump truck being loaded, top layer has mixed boulders, large rock. 0-2 ft bgs. Crew sets up a boulder area (lined) next to excavation.

1120. MG to site 8. MW to screen site 15.

1122. MG + LS, JS, PS go over drilling safety. Begin drilling at Northern road at fork. Complete SB102. Excavation PID at 2' bgs = 30.2

1200. Start SB102. Lunch.

Rite in the Rain

31 July 2022

1330. Excavation PID = 17.6 ppm at 2' bgs. Drill crew continues soil borings at Site 8. TD groundwater monitoring.

1355. Removing debris from excav. including ~50 feet steel cable, 4' large steel pipe, Fiber fabric. Segregated and placed in pile to be put in a supersack.

1420. Photo CM190024. Removing clean backfill/overburden from Site 15.

1421. Photo CM190025, loading dump truck at site 15 with overburden.

1453. PID headspace of gray soil ~3 ft bgs = 108.7 ppm.

1455. Set up debris bag at Site 15 - 22NEC-D-1. A 5-CY IP2 supersack.

1458. Photo CM190026, Brice sampling well MW88-1.

1500. Spoke to TD, well 88-1 has a blockage at 6.3 ft bgs - the water level barely fits past it to water - the submersible pump could not. Will try a 1" PVC rod.

1510. Photo CM190027. Facing North.

31 July 2022.

1510, cont. → Boulders removed from Site 15 in top 3 feet.

1512. Photo CM190028. Facing Northeast. Site 15 stockpile with ~3 ft. removed from excavation.

1517. Site 15 excavation continues to east side at ~3 ft bgs. Gray soil with POL-like odor present along excav. base. PID Headspace = 117.9 ppm at 3' bgs.

1630. Moving east at site 15 - PID headspace = 224.2 ppm.

1755. Footprint of excavation removed to ~3 ft bgs. PID headspace at east end of excav. base = 159.5 ppm.

1815. Crew stops excavation to cover stockpiles. Total excavated =

17 rock truck loads x ~~20~~ 17 MG 7/31 = ~~340~~ MG 289

14 ~~16~~ MG 7/31 dump truck loads x 10 = ~~160~~ MG 7/31 140

Total ~500 CY excavated.

Crew covers stockpile.

1900. End of day

Matt [illegible] 7/31/22

Rite in the Rain

Monday 1 August 2022 rain, fog, 38°F - 0 mph

0700. Site safety. Plane may come in tomorrow. TD groundwater monitoring and development (see forms). JS and PS, LS Drilling at site 8 (see PS+JS notes). CA, MW, AP, DC continuing Site 15 excav.

0900. PS+JS drilling east side of road - starting at outside edges and stepping in or out.

0915. Crew continuing excav at site 15 - set up safety barriers and removing to 4' bgs before benching. Will place swing ties to locate excav. center. PID = 2.2 ppm

1015. Talked to USACE QAR about GWM MNA parameters - we have not been monitoring ferrous iron and nitrates, they have 48 hr hold times so we need field tests. Will order reagent pillows for colorimeter.

1030. PID at center excav base = 432.2 ppm.

1200 Lunch

1230. Crew continues excavation, GWM, and site 8 drilling.

1300. Site 15 excav. reaches west side, 0 - 4 ft along footprint.

1315. Begin benching along north side of excav. Fuel odors present along base, PID = 2.2, PID = 54.9 at SW corner.

1500 Drill crew continue along SE side of site 8. Marshy ground requires hand auger along creek, will complete after drilling other areas. No contamination identified along far east side.

1558. Photo (CM190029). Facing north. Beginning benching along north side of site 15 excavation.

1607. Photo (CM190030). Facing southeast, stockpile for overburden at site 15.

1638. PID from bench base at NW corner = 7.9 ppm

1900. Total excavated at site 15 =
24 rock truck loads x 17 cy. = 408
21 Dump truck loads x 10 cy = 210
End of day.

Mark Kenworthy 8/1/22

Tuesday 2 August 2022 Clear, 40°F 0 mph

0700. Site safety. TD to GW sample, PS, JS, LS to continue drilling at Site 8. Site 15 crew will continue excavation activities.

0900. Site 15 crew paused to place site 28 floc system into containment for next dredging phase. Site 15 bench PID = 32.2 ppm.

1000. Crew continues Site 15 backfill excavation. Water (GW) has been exposed at NE corner.

1200. Lunch. Plane will leave soon from OME. Tigan Donaldson out, 2 ADEC (Curtis Dunn and Erica Blake) in from Aug. 2-4.

1300. Plane lands, some supplies + materials, 2 ADEC in, TD out. Sent 2 water coolers.

1330. MG to Site 8. Crew is finishing delineation.

1340. ADEC on site, MG gives tour of site 8, then site 28, and site 15.

1730. ADEC off site.

1830. Whole crew covers stockpile at Site 15 -

Rock trucks - 17 x 17 = 289

Dump trucks - 13 x 10 = 130, total = 419

1900. End of day.

[signature] 8/3

Wednesday 3 August 2022 38°F, fog

0700. Site Safety. Will continue Site 15 excavation. Benching is complete. Will dig within original boundaries to reach deeper locations - Concerns are groundwater exposure, will slope or bench where needed for trench stability. Drillers at Site 8 will finish borings and hand auger to complete delineation, then will move to well repairs - taking care to measure PVC removed.

0900. Site 8 Crew LS, JS, PS finishing last borings and beginning hand auger locations by Suqi river.

0915. Site 15 crew finished benching - water exposed at NE corner of bench - at approx. 5' bgs. Will proceed to remove soil to 8' bgs at SE corner and move west.

Excavation bench PID: east - 0.9 ppm, center = 36.1 ppm west = 0.4 ppm.

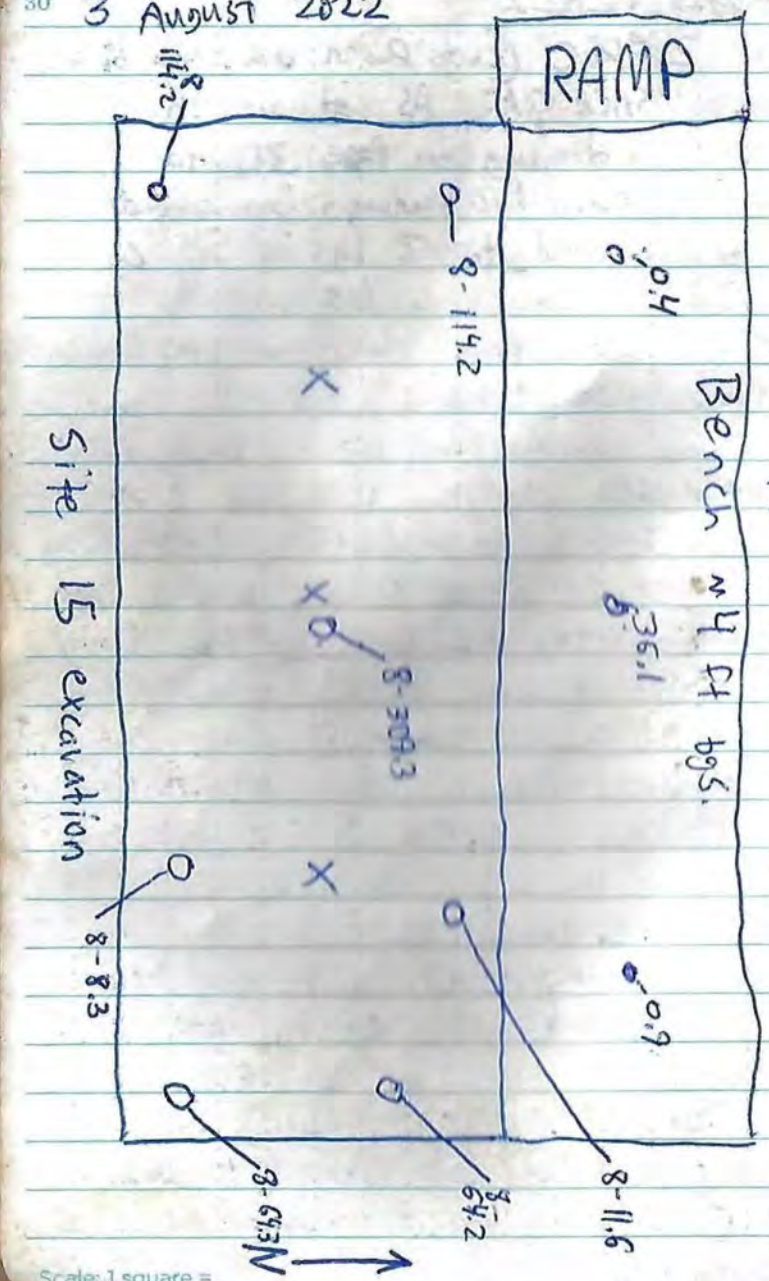
photo CM190031. Facing loading backfill at site 15.

photo CM190032. Facing building stockpile for Site 15 overburden.

0950. Crew noted that creek by quarry is dry.

Rite in the Rain

3 August 2022



Scale: 1 square = _____

3 August 2022

1010. 2 ADEC (Curtis Durkin and Erica Blake) and USACE QAR AS at Site 15.

1015. Note drawing on Page 30 for Headspace PID readings from excavation. Soils observed to 8' bgs at S15 consist of large cobbles, boulders, unsorted, with mixed fines - brown or gray, with some POL odor with gray stained soil. Consistent with local geology / Quarry and site history of Mix clean backfill and previously excavated Material <SSCL.

1030. Site 8 at Boring 29. Will complete boring 30 on road, then will hand auger 2 wet locations that drill rig cannot access.

1120. Site 15 - NE side of excav. Compacted, gray, area of strong POL odor exposed - 8' bgs. dry. PID headspace = 11.6 ppm.

1200. Lunch

1230 Crew back to site

1355. LS to repair wells - cut down PVC at MW88-1 - removed 4 5/8" PVC, now -4" bgs

1400. Inspected MW88-3. Casing has frost jacked. Well cover bolts are rusted but may be usable.

Scale: 1 square = _____

3 August 2022

1405. Inspected well 14MW05. Flush mount is frost jacked, could be pulled up by hand.

1430. Found out we need unpreserved bottles for dissolved metals. Will resample wells.

1509. Removed 3.50" of PVC from MW88-3. Re-tapped the flush mount threads. Flush mount is repaired.

1520. Inspected 14MW01 - Casing and mount are frost jacked. Pulled mount out. Will repair. Removed 7" of PVC.

1528. Inspected 14MW02 - Ice plug present at ~9.5 ft bgs. Mount + Casing good condition. Cleaned casing out with decontaminated steel rod - no obstruction present, likely just small amount of ice.

1530. MG+LS to camp for supplies for well repair.

1715. 14MW05 repaired - Casing not cut.

1714 Photo CM180050. Well 14MW05 monument re-mounted.

1718. Well 14MW01 repaired - Casing reduced by 7-inches.

1720. Site 15 excavation reaching 12→

0700. cont. ft bgs. At 12, drastic change in color and groundwater is reached.

1726. Photo CM180051. Reaching 12 feet bgs at NE corner of site 15 excavation. Facing SE.

1730. Crew prepares for bagging soil - will need to containerize soil from approx. ~10.5-11ft bgs to ensure all exceeding soil is containerized.

1746. Photo CM180052. Facing NE. Repaired flush mount for well 14MW01

1749. Photo CM180053. Facing SE. Site 15 overburden stockpiles.

1830. Crew covers site 15 stockpile.
Total added to stockpile -
Rock truck 28 @ 17 cy = 476 cy
Dump truck 29 @ 10 cy = 290 cy
total = 766 cy

1900. End of day

[illegible] 8/3

Thursday 4 August 2022

0700. Site Safety. Will conduct refueling, vehicle maintenance, then prep for Site 15 excavation. If plane comes in, LS is out, and Curtis Dunkin and Erica Blake (ADEC) will be out. Two Brice and the Gambell Rep. will be in.

0730. MG + JS pack coolers, rest of crew refueling and maintenance.

1200. Plane delayed at Nome. Bering Air. Will update when plane arrives in Nome.

1200. Lunch

1230. Crew continues refuel + prep for Site 15 excavation. MW + JS to groundwater sample.

1727. Photo CM190033. Facing South. Brice sampling groundwater monitoring wells.

1753. Photo CM190034. Sample coolers packed for shipping. Facing SW.

1830. Plane arrives. Curtis Dunkin and Erica Blake out, Samantha Carter (SC) and Alessa Green (AG), and Curtis Silcok (CS) arrive. CS is Gambell Representative. AG + SC are Scientists/Engineers.

1900. End of day. [illegible] Barrett 8/4/22

Friday 5 August Rain, 40°F, 0

0700. Site Safety.

0730. Crew to MOC. Stockpiles need more sandbags, crew repairs.

1030. Crew sets up at Site 15 excav. MW + AG groundwater monitoring.

1045. Photo CM190035. Facing SE. First bag loaded at Site 15.

1045. used 9 cy bags for first bag at Site 15, may be too heavy.

1047. Photo CM190036. Facing NE. Brice crew + Gambell rep. groundwater sampling by Site 28 containment.

1150. Equipment cannot lift 9 cy bags.

1200. Lunch. Will switch to 5 cy bags

1425. First bag NEC22-S-1, 5 cy. bag - 8100 lbs. See J.S. Notes for excavation activities.

1841. IP2 supersacks staged after loading. Photo CM190038. Facing south.

1900. Crew does stockpile maintenance and vehicle + equipment cleanup. End of day.

Attached Notes:

1154. Photo CM190037. Facing west. Decon area outside of Site 15 ramp.

[illegible] Barrett 8/5

Saturday 6 August 2022 Clear, sunny 0-15

0700. Site safety. Heavy equipment safety. Packing coolers. Flight in today.

0730. MG to mark sample locations. See J.S. notes for site 15 excavation. A.G. to sample groundwater field parameters. See MW notes for stockpile ISM sampling for site 15 overburden.

1043. Photo CM190039. Site 15 excavation, reaching 15 feet bgs at eastern sample location.

1100. Plane will leave Nome at approx 1200.

1200. Lunch. Plane left Nome at 1200.

1245. Curtis Silook, Aaron Shewman to airstrip to fly out. Eric Barnhill (EB) to arrive as USACE QAR.

1300. Plane lands. AS briefs EB on site.

1335. Plane takes off. MG to unpack supplies.

1438. Photo CM190040. ISM sampling grid for site 15 stockpile 2.

1520. MW finishes ISM at stockpiles.

1600. EB on site - MG gives site tour site 15, 28, MOC.

1800. MG + AG to collect background samples.

1812. Photo CM190041. Facing east. Background locations.

6 August 2022

1815. Sample 22NEC-BG-1, Dro w/w/out silica, TOC, from 1 ft. bgs. Silty organic soil, gray-brown to black. Sulphur odor. Frozen at 1 ft.

1825. Sample 22NEC-BG-2, DRO w/w/out silica, TOC, 1 ft bgs. Silty organic soil w/some sand. Brown to gray. Frozen at 1 ft.

1840. Sample 22NEC-BG-3, Dro w/w/out silica gel, TOC, 1 ft bgs, frozen. Silty organic soil with medium/coarse sand.

MG 6/22

~~1842. Sample 22NEC-B~~

1842. Photo CM190042. Facing North. Background Sample 22NEC-BG-3.

1843. Photo CM190043. Facing East. Background Sample 22NEC-BG-2.

1843. Photo CM190044. Facing East. Background Sample 22NEC-BG-1.

1900. Crew packs up, puts tools away.

1930. End of day

[signature] 8/5/22

Rite in the Rain

Sunday 7 August 2022. Overcast, windy 10-15

0700. Safety tailgate. Extremely high winds last night likely caused some stockpile cover damage. Crew will check Dredge and stockpiles.

0730. Crew at site. Small tear in stockpile top cover. Will repair. Several containments at dredge system have folded slightly and be fixed. Crew also modifying bag stand to ensure bag tops are not torn. Also repaired caution tape around excavation.

0920. Crew (AG+MW) completed last GW field parameters well sampling. Note that well MW10-1 had a broken well cap, we will order one to replace + lock.

0930. MG+AG to background sample

0950. Sample 22NEC-BG-4. Background sample, 1.5 ft. bgs. Silty organic soil, brown with medium sand, Ice crystals.

1020. Sample 22NEC-BG-5. Background sample, 1 ft. bgs, frozen. Same as BG-4.

1025. Sample 22NEC-BG-6. Same as BG-5.

1030. Sample 22NEC-BG-7. Same as BG-6.

1045. Sample 22NEC-BG-8. Background

1045. Cont → sample, collected at base of mountain, brown silt + coarse sand, no odors.

1100. Sample 22NEC-BG-9. Same as BG-8.

1115. Sample 22NEC-BG-10: same as BG-9.

1116. Photo CM190045. Background sample BG-10, facing SE.

1117. Photo CM190046. Background sample BG-9, facing SE.

1118. Photo CM190047. Background sample BG-8, facing SE

1122. Photo CM190048. BG sample BG-7, facing SE.

1123. Photo CM190049. BG sample BG-6, NW.

1124. Photo CM190050. BG sample BG-5, N.

1125. Photo CM190051. BG sample BG-4, N.

1130. Brice Crew finishing bracing construction for dredge ponds.

1200. Lunch. CA+MG discuss next phase of site is excavation - Soil is underwater and some is too saturated for bagging - we will remove soil to beach with a bottom liner to drain back into the excavation, then bag after draining.

1230. MG Marks landfill site 7 depressions for fill.

7 August 2022

1300. MG, JS, SC, CA to continue at Site 15 – will remove to 15' and stockpile and Collect Confirmation Samples. See J.S. Notes.

MG 8/7 ~~1645~~. 1620. Photo (CM190053). Bags loaded for transport to barge landing.

1800. site 15 to 15' bgs along all of excavation except for NE corner. Some oil floating – Sorbents and boom deployed to retrieve. Soil too saturated to bag – Placed soil on lined ramp in bench to drain as much as possible. Liner 12 mil dwasorim. Groundwater at 12 ft bgs.

1855. Photo (CM190054). Site 15 excavated soil on ramp for dewatering.

1920. End of day.

Appended Notes:

1442. Photo (CM190052) East half of Site 15 excavation excavated to 15 feet bgs.

Matt [signature] 8/7

Monday 8 August 2022 overcast, windy, rain. 38°F

0700. Site safety. Snow on mountain to ½ way down. Crew still waiting for Site 15 stockpile to dry before bagging – Crew will Move dredge to Area 3 to begin upstream dredging. DC, MW, PS to Move bags from MOC to barge landing. Pilot study changes to be implemented.

0730. Crew at site – begin adding agitator following floc injection. Other crew Moving dredge and assoc. to Area 3, and Moving bags, but First filling water supply for floc, injection. Crew also switching diaphragm pumps for recently arrived 3" trash pumps.

1000. Crew used diaphragm pumps to Pump water, did not work. will use a 2" trash pump.

1100. Crew set up at Area 3 – has shallow riffles and fast water upwelling from a Spring/several springs. The dredge, when Primed, sucked the stream dry immediately, and plugged the second time. The loose sediment, as understood by survey, is not recoverable without Manual agitation – an excavator would be able to make the sediment accessible. Will speak to QAR about use of excavator.

1200. Lunch. Discussed situation with →

Rite in the Rain

8 August 2022

1200 cont. → QAR Eric. We asked that we track the excavator to the stream to remove the Matted Material into bags, because it can not be dredged. Eric indicated he would call Aaron to discuss.

1300. Crew moves tundra mats from barge landing to MOC and CA tracks the volvo Excavator from the quarry to the MOC. Crew checks for 3.5 cy bags on site, only 5 cy available for use. Crew removes fuel tank from Marooka to put Bag stack on Marooka.

1400. QAR Eric contacts us to let us know that if the Mattech Material is not loose then it doesn't meet the definition of sediment and should not be removed. Therefore excavator should not be necessary to remove sediment. Eric has scheduled a call for 8/9 to discuss dredging situation and steps forward.

1410. Crew continues to move bags, prep for dredging, upkeep on stockpile.

1900. End of day.

[illegible] 8/8

Tuesday 9 August 2022

0700. Site safety.

0730. CA + MG call with Scotty Mann. JS, AG, SC to pack coolers. Ryan air flight coming in at 1000, to demob drill rig. Bering air flight coming at noon to drop off Cargo + Pick up coolers. DC, AP, MW to add cap material to site 7 and doze flat.

0900. MG, JS, CA to finish excavation at Site 15 NE corner and collect last confirmation samples. Stirred the ramp of stockpiled soil - it is still very wet at the center. See JS. Notes for Confirmation samples.

1000. Ryan Air arrives to demob. drill rig.

1015. Drill rig will not start, Crew goes to the airstrip to try to Jump.

1100 Rig still not starting, loading Ryan Air, With other supplies, coolers.

1200. Ryan air flight departs.

1300. Bering Air arrives with coolers and some supplies.

1330. Crew unloads supplies. Continues working on drill rig.

1400. Crew decons excavator at Site 15.

9 August 2022.

1430. Crew begins adding cap Material to site 7 landfill.

1515. MG, CA, EB have call with Aaron Shewman and Scotty Mann. EB and MG describe dredging observations and conditions, and plans to work with what is present. MG and EB agree with surveyed yardage may be overestimated based on root mat depths counted towards sediment. Aaron S. requested several photos, measurements, and a written description of observations and recommendations at site 28.

1600. MG, CA back to site. CA inspects landfill 7 cap and will add more rock to get a proper graded surface.

1625. Photo CM190057 Matted material with no sediment that is dredgable.

1630. Photo CM190058. Sediment over matted roots - sed. is 0.15 ft thick, water 0.05 over sediment.

1630. Photo CM190059 Little recoverable sediment in Area 3.

1634. Photo CM190060. Vegetative mat.

1900. MG types up observations. End of day.

[signature] 8/9

Wednesday 10 Aug. 2022 Wind, Fog 40°F

0700 Site safety & Crew preps for dredging. Weather is very windy, Plane won't make it if it doesn't improve. Andrew Platt (Brize) will depart if plane comes. 2 Brize Crew will arrive.

0730. Crew to prep for dredging site 28. MG to revise site 28 recommendations and submit.

0900. Crew sets up for dredging site 28 Area 3. Set up 4th Pond near dredge. Move trash pumps. Set up 2" dredge in bucket, laying on its side. Other crew raking, shoveling, and skimming upstream to dredge "sump". Have silt curtains, booms behind sump to raise water level and trap sediment.

0942. Start dredge

0944. Dredge primed. Pumping heavily sedimented Material from sump.

0950. Pumping to Pond 2 - from new Pond.

1000. Dredging stopped - air issue.

1005 Dredge running. Subarea is mostly cleaned up, crew to sweep around sump.

Rite in the Rain

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1010. To keep invegetation out of dredge, the dredger sweeps in front of sump with a rake.

1015. Cleanup step at the sump — Sweep around the sump and pump until upper stream less turbid, and area around sump is clear, and pump until veg. clotting. Note: need to set outlet fitting at downhill side of the pond.

1025. 3" trash pump — broken down.

1113. Pumping at subarea 2.

1200. Lunch. Crew sets up for dredging.

1320. Pumping subarea 2. Raking and skimming. AG packing w/c. coolers

1515. Plane on its way.

1530. Bering Air arrives. A. Platt out to home, Chris Beck (CB) Brice labor/operator, and Joe Knapik (JK) scientist, arrive.

1610. MG drops off CB, JK at camp to get situated, unloads AK Minerals supplies and drops off supplies at MOC.

1630. SC to pick up CB, JK + Bring to site. Crew is successfully dredging.

1640. MG to give site tour to new staff. PPE set up, Orientation, safety.

1700. CB, JK to dredge at Area 3. CB to run dredge pump + watch Pond 1, DC to watch pond 2 and run pump, SC to watch Pond 3 and run last trash pump. AG to track flow and direct SC. CA to adjust floc and flow to geotubes and control pumps through system to second geotube and to sand pots and GAC. ~~Aggregator~~/Agitator MG 8/10 set up in system after floc injector to mix slurry/floc.

1710. Crew finishes subarea 2 dredging. Sets up second 2" dredge to help with clogged primary — primary set aside until it can be unclogged. Crew sets up new silt fencing at natural dip in stream for subarea 3. MW noted that QAR Eric identified sediment in subarea 1 that needs more work, but subarea 2 looks complete.

10 August 2022.

1840. Photo CM190084, Orange sediment in Area 3.

1842. Photo CM190085, Orange sediment removed for inspection.

1843. Depth of root mat measured in Area 3 – in 3 places, 1.6, 1.4, 1.95 ft. Sediment present above root mat from 0 – 2 inches thick, average 1 inch. Some thick layers up to 12 inches thick, in limited dips. Solid base too hard, dense to inspect.

1850. Photo CM190086 Black sediment removed for inspection, from base of Pond, above root mat. Pond has approx 12 inch thick sed. layer in some places.

1903. Photo CM190087 Geotube after dredging activities. Crew goes to dinner.

2100. CA + MG check containments, Pump out water, End of Day.

[illegible] 8/10

Scale: 1 square =

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Northeast Cape FUDS
Site 28 Sediment Removal and Various
Follow-Up Actions
W911KB-20-D-0002
11 August 2022 – 21 August 2022

INCH

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Thursday 11 August 2022 Fog → Sunny, 38-58F

0700. Site safety. DC, JK to get water.

0930. Meeting on dredging.

1010. Photo CM190088. facing SE.
New well cap on MW10-1.
Combo is "0911".

1030. Crew is dredging at Site 28 Area 3. Crew at dredge is
Michael Williams (MW),
Joe Knapik (JK),
Chris Bosch (CB),
Jane Shiley (JS),
Patrick Schick (PS).
Crew is doing cleanup on the stream section (area 3), dredging at a low area in front of silt fencing which creates a coffer dam effect.
Crew is agitating the sediment to the sump and shoveling dryer sediment into buckets and into a supersack.
Dredging has picked up most of the mobile material and shoveling is being used to pick up the rest.

1100. Crew ~~has~~ MG 8/11 is preparing to dredge at Area 4 - Moving 4" Dredge, setting up pump at →

1100. Cont. → Pond 1, and draining the rest of the Mobile Pond.
MOC pad dewatering area is pumping when Ponds 2 and 3 are full.

1200. Lunch.

1230. Crew finishes setup and priming at Area 4. Chad Armintrout (CA), Alissa Green (AG), Samantha Carter (SC) at MOC pad and Pump 3.

1442. Begin dredging at Area 4, just downstream of Area 3 subarea 1.
Dredge intake is screened (round hole), inside a bucket with holes. A sorbent boom is wrapped around the surface to prevent floating veg. from entering the pump.

1444. Photo CM190089. Dredging intake at Area 4.

1445. Photo CM190090. Crew raking loose sediment to dredge intake.

1500. Dredge clogged - stopping to clear. Screen was easy to clear.

1505. Dredge starting again. Agitator is working.

1525. Most of upstream end of Area 4 is dredged to hardpack.

11 August 2022

1530. Talked to QAR Eric. He asked us to make sure to spray stream shoulders with agitator to wash down the loose sediment. Crew is reaching up as far as possible into Area 3 to wash shoulders.

1500. Crew finishes pumping at upstream of area 4. Will reposition. Geotube is ~~very full~~ MG 8/11 getting full.

1607. Photo CM190090. Crew sets up at second subarea of area 4.

1620. Dredging begins at subarea 2 of area 4.

1700. Dredging stopped to deal with full geotubes, prep for backwash, and Tie down second Geotube.

1659. Photo CM190092. Geotube at dewatering area with water + sediment.

1710. Crew gets dump truck ready to haul water. Rest of crew cleans up.

1900. Dinner.

2100. MG + Chad Armitrout (CA) pump containments with Geotube.

2130. End of day

Matt Gmoult 8/11

Friday
12 August 2022 Fog, 38°F

0700. Site safety. CB, JK, DC to get backwash water, stage air compressor. JS to surface water sample, parameters, turbidity.

0928. Backwash the sand pots - 2 min cycle, used approx ~~3000~~ MG 3500 gallons of freshwater, pumped back into containment for treatment.

0930. Weighed supersack NEC22-S-S1 - 6800 lbs. Produced from excavator decon.

0930. MG collected WC sample from sediment pumped out of pond - composited from dry pools, supersacks shoveled out. 22NEC-WC-4.

1030. Filled 2pz scy supersack with soil shoveled from Site 28 - bag number NEC22-E-1. Only filled 3/5 full.
Note: Air compressor (Dewalt) quit working during first attempt at backwash. Replaced with backup and tagged for repair/eval.

1045. Backwash of GAC. Approx. gal. used in backwash.

1200. Lunch.

1300. Crew sets up for dredging - Area 4 subarea 2. JS to do landfill checklist.

~~1405~~ MG 8/12. 1353. Photo CM190093. Pond 1 and trash pump.

1353. Photo CM190094. Dredge outflow to Pond 1.

Rite in the Rain

12 August 2022

1354. Photo CM190095. Crew finishing dredging at Area 4 subarea 2.

1405. Crew Moving downstream to Area 4 subarea 3. Sheen appears on Surface when crew tracks through. Sorbent Pads and booms deployed across area and at downstream pond exit.

1410. Dredging begins at Area 4 subarea 3.

1415. Photo CM190096. Sheen on Area 4 subarea 3.

1430. Attempting to actively dredge Pond 4 by moving dredge intake - using Pole and Keeping Sorbent boom on Surface to deter. Veg.

1445. Nearly out of freshwater feed for floc - MG+DC to get water truck + Fill.

1700. High backpressure from treatment System - Shutting down dredge + Ponds to address before removing any more water.

1730. Set up 1000 gal tank to pump Containment. Crew to Check Sand Pots and GAC vessels.

1740. Sand pots are gunned up by floc.

12 August 2022

1740. Crew will switch out sand pots to Just treat with GAC.

1830. GAC hooked up, Pumping from containments successfully.

1900. Dinner

2100. MG+CA Check geotube Containments, drain each.

2130. End of day.

Appended Notes:

1438. Photo CM190097. Skimmer implements fabricated for Sediment removal.

Monte Everett 8/12/22

Rite in the Rain

Saturday 13 August 2022 overcast, Fog 38.45

0700. Site Safety. Crew to finish Area 9 at site 28, then move to lakes. MG+DC to start getting freshwater.

0910. Crew Dredging Area 9.

1000. Crew finished Area 9. Will pack up, Clean out first Plastic pond of ~12 inches accumulated sediment, break down Pond and restage at lakes.

1200. Lunch.

1245. Teleconference w/ MG+CA + Scotty Mann to review project progress.

1330. crew set up to dredge Area

1338. Photo CM190098. Area pre dredging.

1345. Photo CM190099. Area while Crew is dredging

1400. Area dredging complete. Area is veg. Mat on sides or hard on bottom. Will move to Area 8.

1413. Photo CM190100. Area 8 pre-dredging.

1415. Crew set up to dredge Area 8. Area appears to be a sunken tundra area that is occasionally underwater. Several sediment areas are currently dry. Crew will shovel these areas and →

1415 cont. → dredge at the shallow pond.

1445. Dredging at Area 8 complete. Crew moving to Area 2.

1449. Photo CM190101 Area 2 predredging.

1450. Photo CM190102. Area 8 post dredging.

1488. Crew dredging at Area 2. Strong Sheen and odor in pond, silt at base. dredge is sucking dry. Photo CM190103.

1505. Deploy sorbents into Area 2.

1530. Crew finishes shoveling sediment from Area 2. Moves to Area 6.

1600. Crew starts dredging Area 6.

1549. Photo CM190104. Area 6 Pre-dredging.

1603. Photo CM190105. Area 2 post dredging. Sorbents will be collected during site 28 cleanup.

1623. Photo CM190106. Area 5N, Pre-shovel.

1700. Crew finishes at Area 6. MG+PS finish removal of sediment at Area 5N. Crew begins dredging cleanup, breakdown, and decon. Crew is decontaminating dredge + tubing + assoc. into containment then running through large GAC.

1713. Photo CM190107. Facing W. Area 6 post-dredging.

Rite in the Rain

13 August 2022

1714. Photo CM190108 Area 5N post-removal.

1715. Crew continues to decon, Pumps out remaing sediment at base of Plastic ponds using 2" ~~thrash~~ pump supplying water and 3" removing. Crew weighs bag NEC22-E-1-6800lbs, bag from shoveled Site 28 Material.

1900. End of day-dinner, Will check containments later.

2140. AG + SC to drain geotube containments

2210. End of day.

Monte Carotte 8/13

Scale: 1 square = _____

Sunday 14 August 2022

0700. Site safety. Crew will finish Site 28 decon, then bag excavated Material from Site 15. AG, SC to collect Site 28 turbidity.

0730. Crew to decon site 28 equipment, MG, JS to pack coolers.

0830. Crew begins loading Site 15 Supersacks. First bag is NEC22-S-52.

0930. MG + CB Packing up site 28 tubing.

1200. Lunch. Crew resumes Site 15 bagging. Soil has dried significantly since excavation.

1403. Photo CM190110 Steep drop/depression on tundra near Area 7.

1404. Photo CM190111 Brice crew filling Hazardous Steep depression on tundra with clean fill. Dry Path used by skid steer to avoid wet tundra - no damage by skid steer use.

1420. Steep depression filled - approx 3 yards added. Fill contoured to match grade.

1422. Photo CM190112 Depression Filled and Contoured to match grade.

1500. Bering Air lands. Jake Austin (surveyor) arrives, and Survey materials. Drop off 2 copies.

1613. Crew finished bagging site 15 Materials from ramp. Photo CM190113. Ramp of excavated Material removed from Site 15.

Scale: 1 square = _____

14 August 2022

1630. MG+JA site orientation. Mob to airport to fly UX-11 UAV.
Crew continues Site 28 cleanup and bag loading.

1915. UX-11 UAV flight complete. End of day.

Appended Notes:

1004. Photo CM190109. Bagging excavated Site 15 Material from drying ramp.

Mark Smith 8/14

15 August 2022 Monday Rain, 38-45°F

0700. Site safety meeting. Crew to continue moving bags, recollect GW samples at 4 wells, collect SW samples, continue decon. and breakdown at Site 28.

0730. AG+JS to do QC check of sample FDs and MS/MSD; before final sample effort.

0900. CB, JK, CA, SC to clean up site 28.

0930. MG+SC to hang LUC signs.

1115. MG pointed out a well casing to QAR E. Barnhill. QAR recommended decom. in accordance with the WP. MG+SC get supplies to remove and decom. casing.

1124. Photo CM190114. Unidentified well casing in MOC Pad. MG+SC attempt to pull casing with sling and shovels - ground is too compacted to move. Bentonite added to well to ~6 inches then gravel added on top. Area will be surveyed.

1130. Photo CM190115. Decommissioned unknown well casing. MG+SC to continue sign hanging.

1200. Lunch.

1338. Photo CM190116. LUC Signposts, in condition upon field team arrival at Airstrip.

1545. Photo CM190117. Airstrip LUC Signs, installed. Facing SE.

15 August 2022.

1545. Photo ~~CM190118~~ AG 8/15 CM190118. LUC Sign installed at Airstrip. Facing N.

1559. photo CM190119. LUC sign installed at fish camp. Facing S.

1605. Photo CM190120. LUC Sign installed, at fish camp. Facing N. MG+SC back to MOC.

1700. CA using quarry rock to fill in hazardous area at MOC.

1701. Photo CM190121. Partially filled safety hazardous dip at MOC.

1803. Photo CM190122. Completely filled Safety-hazard dip at MOC. 85 cy added. Crew continues site 28 Cleanup and bag loading. Geotubes are drying out, may bag sediment tomorrow.

1900. End of day.

Matt Gavotto 8/15

Tuesday 16 August 2022

0700. Site safety. MG, JA, JS to sediment survey. CA, JK, CB, AG, SC to bag sediment, PS, DC, MW to move bags.

0930. Crew (MG, JA, JS) set up transects, at site 28 - first is at Sagi confluence "P01".

0940. Photo CM190123. First 3 transects on site 28.

0945. Photo CM190124. Shovel test of P01. sediment to solid base.

0945. Sample 22NEC-528-SD01. DRO/RRO with and without silica gel, PAH (limited compounds), TOC.

0949. Start P02

0958. Photo CM190125. Transect P02 south end - sediment layer exposed with shovel to veg. mat - Surveyor using Rod with RTK for elevations of each layer, measuring veg mat to solid base.

1001. Start P03. Crew uses coring tool and clam shovels to identify layers.

1005. Sample 22NEC-528-SD02

1007. Note: that the coring tool recovers 0-5% in this substrate, will not use if shovel test is effective.

Rite in the Rain

16 August 2022

1011. Transect P04. Photo CM190125. Transect is entirely veg. Mat. No sediment depths collected. Start P05.

1015. Sample 22NEC-S28-SD03. Sample is from Veg. Mat, no sediment present.

1017. Photo CM190127. Sample Material from SD03 location - Veg. Mat.

1020. Ryan Air plane arrives to demob. drill rig.

1030. Sample 22NEC-S28-SD04. From Substrate under veg. Mat. No loose sediment above veg. mat.

1033. Sample 22NEC-S28-SD05. Sediment below water. From transect P06. Slight ARO odor.

1035. Start P07. Eric Barnhill (QAR) indicates that Brice can backfill site is ok

1045. Sample 22NEC-S28-SD06. From P07. Start P08.

1050. Sample 22NEC-S28-SD07 from P08.

1052. Sample 22NEC-S28-SD08 from P08. and dup 22NEC-S28-SD908, sub at #52.

1056. P09 has a raised hump in middle of veg. Mat, will measure each side.

16 August 2022

1100. Ryan Air leaves airstrip.

1103. Crew observes that horsetails do not usually grow in veg. Mat.

1105. Sample 22NEC-S28-SD09. from P09. Start P10.

1107. Photo CM190128 Transect P09 with raised veg mat in center.

1110. Sample 22NEC-S28-SD10. Start P11.

1118. P11 = veg mat

1122. Sample 22NEC-S28-SD11. MS/MSD.

1125. Photo CM190129. Transect P11 which is entirely veg mat. Start P12.

1126. Sample 22NEC-S28-SD12.

1127. Photo CM190130. Sediment from area at SD12 location.

1136. Moved to Area 9 - in northern removal area the sump location has filled in since dredging - crew will remove.

1142. Removed all sediment from dredge sump.

1145. Sample 22NEC-S28-SD13, from solid silt layer below where loose sediment was removed.

1150. Sample 22NEC-S28-SD14. Area 9

1155. Sample 22NEC-S28-SD15. Area 9.

1200. Lunch.

Rite in the Rain

16 August 2022

1300. Crew back at site 28. Other crews moving supersacks and bagging sediment. Received site is stockpile results - all <CRL. Can begin backfilling when ready.

1340. Sample 22NEC-S28-SD16. Pol shown

1342. Sample 22NEC-S28-SD17

1345. Sample 22NEC-S28-SD18.

For samples SD16-18, sample is from hard-pack solid base made up of gray clay and silt. This base is present in Area 9 Pond.

1348. Sample 22NEC-S28-SD19, Clay/silt

1350 Sample 22NEC-S28-SD20, Veg Mat.

1400. Sample 22NEC-S28 SD52, Clay/silt hard pack. Using some sample numbers as historical.

1405. Sample 22NEC-S28-SD21. and Field duplicate 22NEC-S28-921. submit as 1505.

1407. Photo CM190131 Solid clay/silt layer at base, collected from near SD21.

1410. Sample 22NEC-S28-SD22, Clay/silt.

1418. Sample 22NEC-S28-SD23, Veg mat-bound sediment. Area 4 at base of stream.

16 August 2022

1427. Sample 22NEC-S28-SD24. From Area 3, below Veg Mat.

1430. Sample 22NEC-S28-SD25, Clay/silt.

1434. Sample 22NEC-S28-SD26, MS/MSD.

1440. Sample 22NEC-S28-SD27. Peat root mat from 2ft wide pond ~~east~~ west of area 3.

1445. Sample 22NEC-S28-SD28. Area 3 - below peat.

1447. Sample 22NEC-S28-SD29.

1450. Sample 22NEC-S28-SD30.

1451. Photo CM190132. Root mat from sample SD30 location.

1455. Sample 22NEC-S28-SD31, silt under Root Mat

1500. Sample 22NEC-S28-SD32.

1503. Sample 22NEC-S28-SD33.

1505. Sample 22NEC-S28-SD34. and Field dup 22NEC-S28-SD934. Submitted as 1505

1510. Sample 22NEC-S28-SD35. Top of Area 3.

1521. Sample 22NEC-S28-SD36. Area 5N.

1528. Sample 22NEC-S28-SD37. Material under root mat. Area 5N.

Rite in the Rain

16 August 2022.

1532. Photo CM190133. Crew loading geotubes into 5 cy supersack.

* 1543. Sample 22NEC-S28-SD~~38~~41. Area 5

1600. sample 22NEC-S28-SD44

1604. Sample 22NEC-S28-SD45

1609. sample 22NEC-S28-SD46

all from Area 6 pond.

1613. Area 1, Sample 22NEC-S28-SD47.

1615. Sample 22NEC-S28-SD48 area 1

1618. Sample 22NEC-S28-SD49 area 1, MS/MSD

1620. sample 22NEC-S28-SD50. area 1

1630. Sample 22NEC-S28-SD51 area 1

1633. Sample 22NEC-S28-SD54. Area 1

1635. sample 22NEC-S28-SD43.

1640. Sample 22NEC-S28-SD42. Area 8.

and Field duplicate 22NEC-S28-SD942.

Submitted as 1740.

1647. Sample 22NEC-S28-SD38

and field duplicate 22NEC-S28-SD938.

Submitted as 1747. Area 7

1652. Sample 22NEC-S28-SD40. Area 7

1655. Sample 22NEC-S28-SD53. Area 7

and Field dup. 22NEC-S28-SD953. Area 7

1700. sample 22NEC-S28-SD39. Area 7.

1730. Crew Packs up rest of site 28.

16 August 2022

1800. Crew finished with packing Geotubes into 5 cy bags. Sediment bags from site 28 are labeled NEC22-E-1 through NEC22-E-6.

two bags were double-bagged into IP2 5cy containers E-4, and E-5, and may need stabilization.

HDPE Containments were placed in debris bags NEC22-D-2 and NEC22-D-3. Final water flow meter = 64094 gal.

Matt Sewatt 8/16/22

Rite in the Rain

 Wednesday August 17, 2022

0700. Site safety. Crew will fly out - AG, SC, CA, Eric Barnhill, PS out today. Crew will uncover stockpile and begin Site 15 backfill.

0955. Plane arrived. One cooler on plane

1015. Plane leaves.

1120. MG + JK sediment sampling at Site 28.

1130. Sample 22NEC-528-SD55, DRO/RRO with and without silica gel cleanup, TOC, PAH sublist. Material was below Veg-Mat, clay + silt, gray, with Medium gravel + Peat. Area

1135. Photo (CM190134) Sample location for SD-55.

1140. Sample 22NEC-528-SD56. Orange sediment

1145. Photo (CM190135). Orange sediment in creek downstream of 5N.

1150. Sample 22NEC-528-SD57. From Area 4, at solid base black silt/~~clay~~ MG 8/17, organics

1154. Sample 22NEC-528-SD58. Between area 4 and 9. Silt black clay/organics at base

1200. Sample 22NEC-528-SD59. Area 3. Silty Peat under veg Mat Just above Solid base (frozen?). POL odor.

1207. Sample 22NEC-528-SD60. Area 6.

 17 August 2022

1219. Photo (CM190136) Well 17MW1 frostjacked. MG + JK repaired and cut down 5'0 off casing

1230. Lunch.

1300. Crew continues 515 backfill. JK, JA to Level wells. JS to continue cooler packing.

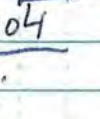
1437. Photo (CM190137). Removing Stockpile SP-2 from liner and placing in rock truck to backfill.

1532. Photo (CM190138). Survey crew leveling wells.

1550. SP-2 placed back in Site 15, moving to SP-1.

1630. MG set up ISM Grid at Site 28 DU1 (dewatering pad) and site 28 DU2 (discharge Area) - Same corners and grid as pre-activity DUs. 32 increments in DU1, 30 in DU2.

DU1 random cell location =

DU2 Random Cell location = 

1700. ISM sample 22NEC-528-DU1-SS04

1710. ISM Sample 22NEC-528-DU1-SS05.

1720. ISM sample 22NEC-528-DU1-SS06

1730. ISM sample 22NEC-528-DU2-SS02. MS/MSD

Rite in the Rain

17 August 2022

1755. Photo CM190139. Site 28 discharge area (ISM DU 2) boundary.

1756. Photo CM190140. Site 28 Dewatering area (ISM DU 1) boundary.

1815. MG + JA to survey DU corners, Decom. wells, sediment samples.

1900. End of day.

Scale: 1 square = _____

Thursday
18 August 2022

0700. Tailgate site safety. Crew to finish backfill, at site 15, MG, JS to pack up office and start inventory. Plane will come in around 1300 today.

0730. Crew backfilling site 15. Using excavator at SP1, dozer grading material into excavation, running rock truck and dump truck.
J.S. sample packing + QC.
MG project QC.

1200. Lunch.

1300. Bering Air arrives. Craig Perry (Beacon medic) leaves. AK Minerals takedown crew arrives.

1345. Plane leaves.

1451. Photo CM190141. Site 15 excavation being backfilled with stockpiled soil.

1452. Photo CM190142. Site 28 Dewatering pad restored to original condition.

1453. Photo CM190143. Removing stockpile 2 at site 15.

1800. Stockpile 2 completely removed, MG + MW to ISM sample stockpile area. DU random cell location = [illegible]

Scale: 1 square = _____

18 August 2022

ISM sample 22NEC-S15-DU1-SS04

ISM sample 22NEC-S15-DU1-SS05, DRO.

ISM 22NEC-S15-DU1-SS06. All DRO.

Crew continues demob activities.

1930. End of day. MW, JS, MG, JA to demob tomorrow. Will be packed.

Matt Cavanaugh 8/18/22

Friday 19 August 2022.

0700 Site safety. Plane to arrive at 1000, then a second plane will arrive. MG, JS, MW, JA, and Cook Diana will depart.

0730. Crew adds top cover to Site 15 with clean backfill, from the quarry.

0953. Photo CM190144. Last load from quarry.
Total was 5 x 17cy rock truck loads and 5 x 10 cy dump truck loads, for a total of 135 cy added.

0959. Photo CM190145. Quarry after final removal.

1015. Photo CM190146. Site 15 restored condition.

1050. Bering Air arrives - MW, JS depart. They will drop off at Nome then come back. 6 coolers (Site 28 Sediment + ISM and Site 15 ISM) sent out as well.

1100. Crew remaining - JK, CB, DC moving supersacks and materials with trailer and loader.

1200. Lunch

1330. Plane arrives. MG, JA depart with

Rite in the Rain

19 August 2022

1330. cont. 1 AK Minerals employee

1430. MG, JA coordinate last coolers and supplies, then depart to Anchorage. CB, JA, DC continue moving supplies to barge landing

2100. End of day.

Mark Smith 8/19/22

Scale: 1 square = _____

Saturday -
20 August 2022

0700. CB, DC, JA continue moving supplies. Site safety meeting.

1200. Lunch. CB calls MG to indicate Job will be finished on 21 August. MG cordinates flight with Bering Air.

2130. End of day.

Mark Smith 8/20/22

Scale: 1 square = _____

Rite in the Rain

Sunday 21 August 2022

0700. CB, DC, JA finishing barge preparation and refueling.

1130. Bering air arrives = CB, DC, JA offsite, 3 AK minerals still on site.

1700. Second Bering Air Charter arrives. Last of AK Minerals crew demobs. End of Mobilization.

Monte Garrett 8/21/22

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ALL-WEATHER
UNIVERSAL
№ 371FX

Northeast Cape FUDS
Site 28 Sediment
Removal and Various
Follow-up Actions
W911KB-20-D-002
25 July 2022 -
August 2022

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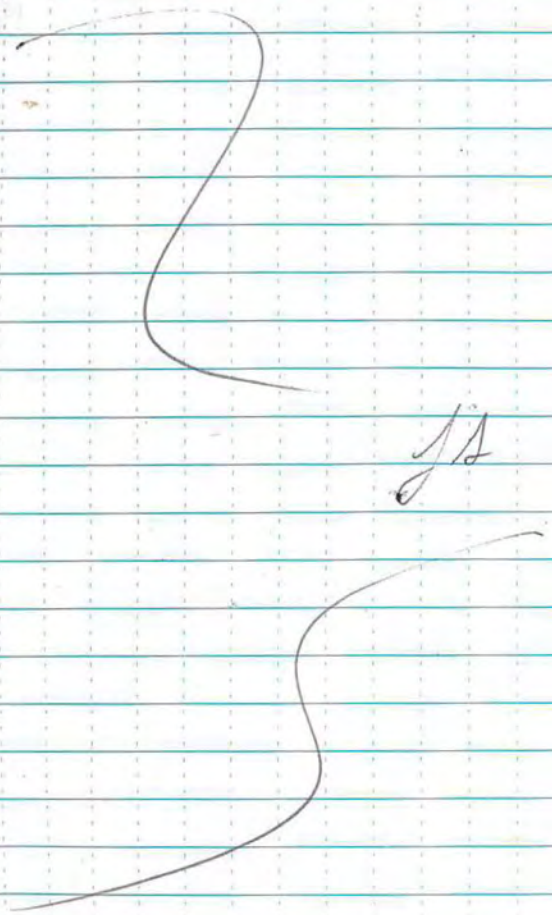

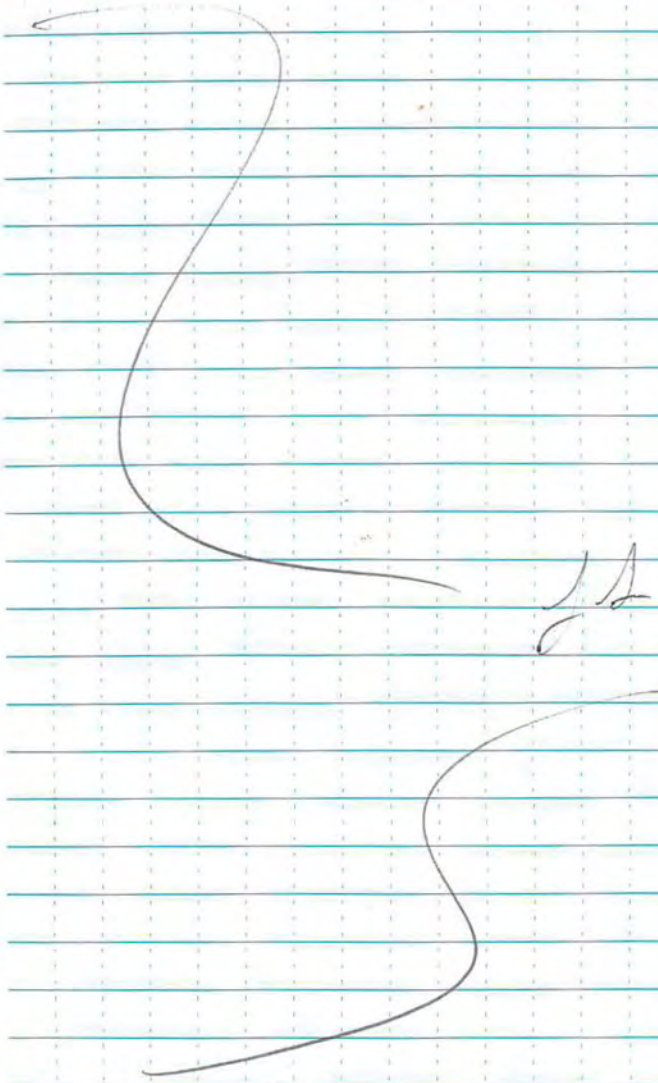

7/19/22

→ 0900 @ ANC w/ Scotty Mann (SRM), Chad Armintrout (CA), Andrew Platt (AP), Greg Filbey (GF), Patrick Schick (PS) = Brice

Depart ANC → in OME @ 1125 @ Bering Air @ 1200 Depart OME @ 1330 on Navajo @ NE-Cape @ 1420.

Weather = 52°, pt-cld, 10-15 NW.

Meet up w/ AK Minerals

*Note, BML ~~prepped~~ Dropped 44 cargo off on 7/16/22. Due to ~~runway~~ runway cond, I, SRM, had BML pick up AK Min from Nome & bring to NE-Cape on 7/19/22, @ 1100

I, SRM, had BML back runway w/loader so Bering Air could land. Dylan Hickey (DH) on site @ 1500

→ cont. road to proposed camp in bad cond. move camp to laydown area.

→ 1500 → 2200, set up camp,

road repair

EOD

7/20/22

→ 0700, SRM, AP, CA, GF, PS, DH, & G-AK Min conduct H & S meeting

Weather = 42°, Rain, 20-30 NW.

CA work on road to runway & runway all day

DH, work on survey

SRM, PS, AP, GF work on moving materials to MOC & camp set-up

→ 2100

EOD

Rite in the Rain

7/21/22
→ 0730, same crew
Weather = 35°, rain 20-30 NW
→ 0800 → 1930, work on camp set-up, road & runway
EOD

7/22/22
→ 0700, same crew
Weather = rainy 48° F, 10 mph NW
H & S meeting, continue to grade runway, camp conduct, road work, stage containers @ MOC
→ 1900
EOD

7/23/22
→ 0700, same crew, H & S meeting
Weather = Lt rain, 52° F, no wind.
Continue to work on camp set-up, road work, fuel EQ.
→ 1300 → 1800, work on Dredge set-up
2-trips of rock truck = 40 cy total for road work
→ 1900
EOD

7/24/22
→ 0700, same crew, H & S meeting
Weather = 51° F, 0-5 SW, Lt rain
Continue to work on camp set-up

Rite in the Rain

7/28/22

→ 0715 Michael W. (MW) and myself (JS) prepare sample coolers for shipment - later joined by TD.

→ 0800 crew consisting of MW, TD, and JS join PS, SRM, CA, AP, GF, DC, to assist with Dredge set-up.

→ 1000 TD, MW, and I tasked with metal debris removal at MOC stock-pile area (SW of site). Numerous metal debris collected and placed in designated open-top debris conex.

→ 1040 TD and I gather materials needed to measure ground water well depths, observed damage if present/well condition, etc.

Rite in the Rain

7/28/22 Thursday

→ 1040

Well number	Time	Casing
Decomissioned	1040	4.58 AC

Depth to TD

Well number	Time	Casing
~~MW88-01~~ MW88-10	1148	0.335' bgs

Depth to TD
25.51'

Well #	Time	Casing	Damage
20 MW 1	1158	.21' bgs	NA

Depth to TD	Depth to GW
28.945'	25.771'

Well #	Time	Casing	Damage
14MW07	1305	.152'	NA

Depth to TD	Depth to GW
33.230'	28.614'

Well #	Time	Casing	Damage
17MW1	1318	.119'	Frost - jacked

Depth to TD	Depth to GW
15.621'	14.938'

Scale: 1 square =

Damage	Depth to GW
casing rim uneven	5.55' stop ice?

Damage	Depth to GW
NA	23.51

Well #	Time	Casing	Damage
26MW1	1330	.525'	* NA loose lid

Depth to TD	Depth to GW
41.758'	39.381'

* screw threads comp.

Well #	Time	Casing	Damage
22MW2	1337	.512'	NA

Depth to TD	Depth to GW
34.401'	30.518'

Well #	Time	Casing	Damage
MW88-1	1350	.1054B	frost jacked

Depth to TD	Depth to GW
23.193'	19.985'

Scale: 1 square =

Rite in the Rain

7/28/22 Thursday

* MW88-1 sediment encountered at well bottom (very little)

Well #	Time	Casing	Damage
MW88-3	1355	.172'	NA

Depth to TD	Depth to GW
19.415'	15.125'

* ~1/4 ft sediment encountered at well bottom
* slightly frost-jacked - unable to secure lid

Well #	Time	Casing	Damage
MW10-1	1408	2.178' AB	NA

Depth to TD	Depth to GW
11.280'	6.275'

* ice reached at bottom of well and lock cut to access well

Well #	Time	Casing	Damage
14MW03	1420	.265'	NA

Depth to TD	Depth to GW
24.0'	13.080'

* 1/4 ft of sediment encountered at well bottom

7/28/22 Thursday

Well #	Time	Casing	Damage
14MW06	1435	.438	NA

Depth to TD	Depth to GW
14.715'	5.080'

* silt encountered at well bottom ~ about 2 tenths.

Well #	Time	Casing	Damage
14MW04	1444	.425'	NA

Depth to TD	Depth to GW
15.0	3.891'

* sediment encountered at well bottom ~ about a tenth of a foot.

Well #	Time	Casing	Damage
14MW01	1456	.358	frost heaved

Depth to TD	Depth to GW
22.325	17.505

* sediment/silt encountered at well bottom ~ about 2 tenths.

Well #	Time	Casing	Damage
14MW02	1500	.255 bgs	Standing water @ top of casing

Depth to TD	Depth to GW
16.925'	12.455

7/28/22 Thursday

* 1/4 ft of sediment encountered at 14MW02

Well #	Time	Casing	Damage
14MW05	1514	.425	*See note

Depth to TD	Depth to GW
13.225	4.23

* Sand and bentonite covered top of casing and had to be removed to access well. about a tenth of a foot of sediment encountered at well bottom.

→ 1600 MG, PS, MW, TD, JS move dredge and continue preparations for dredging

→ 1900
EOD

JA

7/28/22 Thursday

→ 1625 Water turbidity sampling (JS)

22NEC-S28-SW10 9.52 NTU
collected by JS @ 1625

22NEC-S28-SWØ2 6.68 NTU
JS @ 1630

22NEC-S28-SWØ3 7.23 NTU
JS @ 1634

22NEC-S28-SWØ4 37.4 NTU
JS @ 1637

→ 1800 Police the site, tidy up, misc. garbage collected and placed in debris Conex

→ 1900
EOD

JA

7/29/22 Friday

→ 0725 conduct bump test for Turbidimeter.

791 NTU	800 NTU
0.38 NTU	<0.1 NTU
20.7 NTU	20 NTU
99.7 NTU	100 NTU

→ 0805 MW and JS take turbidity readings of site 28.

5.10 NTU 22NEC-S28-01
5.18 NTU 22NEC-S28-02
4.03 ~~5.10~~ NTU 22NEC-S28-03
5.10 NTU 22NEC-S28-04

→ 0830 MG, ~~PS~~, ~~TD~~, JS, MW, GF move ponds and pumps, prepare for dredging. PS, and TD join crew and prepare for dredging at site 28 a wood support consisting of plywood and beams placed in deepest section of trail in hydro connecting MOC to site 28.

→ 1020 TD stationed @ pump #3, JS @ pump #2, and PS @ pump #1; MG tasked with roving between pumps #1-3 and

MOC to ensure proper function of the system; AP, MW prepare to dredge; remaining crew positioned @ MOC (GF, BRM, CA, and OC

→ 1200 lunch

→ 1300 mobilize to site 28 and MOC. TD and JS collect surface water sample 22NEC-S28-SW05 @ 1330. Dredging begins @ 1345

→ 1508 TD and JS take turbidity readings

11.4 NTU	22NEC-S28-SW-01
6.87 NTU	22NEC-S28-SW-02
27.9 NTU	22NEC-S28-SW-03
36.1 NTU	22NEC-S28-SW-05
25.8 NTU	22NEC-S28-SW-04

→ 1525 dredging continued → 1800 followed by site clean-up

→ 1900

EOD

JS

Rite in the Rain

7/30/22 Saturday

→ ~~0945~~ 0700 Same crew SRM, MG, GT, CA, D, PS, MW, TD conduct health and safety meeting, discuss soil removal prep, stock pile prep, dredging techniques

→ 0945 JS calibrated PID with Isobutylene 95.5 ppm. Removed misc metal debris on site with MW, assisted with various MOC dredging and soil removal activities.

→ 1100 MG, TD, PS, MW, JS begin groundwater sampling starting from least contaminated to historically most contaminated. MG instructed crew in proper sampling techniques using

→ 12 lunch

→ 1300 Return to groundwater sampling.

→ 1610

0mL blank sulfate reading obtained 15.1mL/L obtained for sulfate sample at groundwater well 14MW07.

7/30/22 Saturday

→ 1650 begin groundwater sampling @ 17MW1; sulfate result 10.4 mL @ 1748 by PS, TD, MW and JS.

→ 1800 Test hole w/ Geoprobe at MOC. Logan Sanders driller (LS) Underlopeed well location

*PVC well casing removed by Geoprobe Backfilled with bentonite — remaining 2 ft filled with sand to finish

*4.8 ft of casing was removed about 4.2 ft bgs

→ 1900

EOD

JA

Rite in the Rain

Sunday

7/31/22

→ 0630 health and safety meeting with same crew

→ 0700 PS and JS prepare sampling materials for Geoprobe and drive to MOC MG and TD on groundwater sampling

→ 0800 Soil removal and stockpile prep. MG, CA, AP, PS, ~~AND~~,

PID calibrated 100.1 ppm with isobutylene (C_4H_8) 100 ppm balance

- instrument experienced setting malfunction after powering on, settings fixed and is now properly functioning

- stock pile liner rolled out at set in place, 3 layers of liner overlap ~5 ft, additional liner rolled over berms and entrance of stock pile

*6 liners used in total for bottom of stock pile

7/31/22

Sunday

→ 1130 Drilling with Geoprobe LS, PS, JS, MG

Sample 22NEC-S08-SS01 collected from middle of road on Site 8 at 4-8 ft, at (SB01) at 1155 with PID of 1.3 ppm

→ 1200 lunch

→ 1300 Geoprobe soil sampling cont. LS, PS, and JS at site 8 on gravel road

(SB02) → 1345 Sample 22NEC-S08-SS02 379.5 ppm collected at 4-6 ft bgs + (Dup. SS02 1445)

→ 1430 Sample 22NEC-S08-SS03 collected at 6-8 ft depth at (SB03), 193.4 ppm

→ 1510 Sample 22NEC-S08-SS04 collected at 4-6 ft depth on gravel road of site 8 at (SB04), 2.6 ppm

→ 1650 sample 22NEC-S08-SS05 collected at 8-10 ft bgs at (SB06) on gravel road @ site 8, 288 ppm

→ 1700 sample 22NEC-S08-SS06 collected at 16-18 ft bgs. Soil boring reached 20 ft without encountering perm. frost,

Rite in the Rain

7/31/22 Sunday

Boring location at SB06 located 49.2 ppm approx. 15 ft from creek, adjacent to culvert on gravel road at site 8. This sample collected beneath contaminated soil horizon (288 ppm field screening @ 8-10 ft bgs).

→ 1725 soil sample 22NEC-S08-SS07 collected at SB05 at 6-10 ft depth. MS/MSD also collected at SB05 from 6-10 ft. Sample name for MS/MSD 22NEC-S08 ~~SS08~~-SS07.

* Sample interval 6'-10' ft (75.5 ppm)

→ 1815 soil sample 22NEC-S08-SS08 collected at SB07 at 4-6' bgs. Core sampling location was decontaminated following sample collection and logging. (2.4 ppm)

→ 1900

EOD

8/1/22

→ 0630 health and safety meeting

→ 0730 PID calibration 106.5 ppm 592601042 and 96.5 ppm for BES0042.

PID 592601042 was calibrated once again 101.3 ppm after conducting an zero calibration

→ 0800 drill crew, LS, PS, JS, begin day 2 of soil core sampling using geoprobe at site 8, in trench adjacent to road (east of pipeline break).

→ 0925 sample 22NEC-S08-SS09 collected from 10-12 ft bgs, from SB08 with highest PID reading 1.8 ppm

* hydraulic line came lose on Geoprobe, no hydraulic fluid observed to have released/spilled in the area. Zip ties obtained to secure hydraulic line while drilling to avoid lose fitting.

Rite in the Rain

→ 1050 Sample 22NEC-SØ8-SS10 (soil core sample) collected at (SBØ9) in tundra at site 8 adjacent to RD (east of pipeline break at 14'-16' bgs, with 2.4 ppm reading.

→ 1145 Sample 22NEC-SØ8-SS11 soil core sample collected at (SB10) 6'-8' at Site 8 in tundra adjacent to RD (east of pipeline break) where the highest PID reading was recorded 8.3 ppm.

→ 1200 lunch

→ 1255 Return to Geoprobe core sampling location at Site 8 LS, PS and JS. Drilling at SB11, first soil core only has about 10" in. recovery, re-cored 0'-4' depth for better recovery. 2nd attempt yeiled no recovery for 0'-4' interval, re-cored a third time with 3.5" recovered.

→ 1350 Soil core sample 22NEC-SØ8-SS12 collected at (SB11) 4'-6' bgs, with 2.2 ppm PID reading. Geoprobe stuck near SB11, additional support, i.e skidsteer to free Geoprobe

was used, Geoprobe remained upright throughout recovery process. 1420 Geoprobe is unstuck and can fully navigate to SB12 on its own without assistance from skidsteer (operators D. and AP)

→ 1525 soil sample collected from (SB12) named 22NEC-SØ8-SS13 on site 8 in tundra adjacent to road SE of pipeline break, 6'-8' bgs where the highest PID reading was 5.4 ppm.

→ 1630 soil core sample 22NEC-SØ8-SS14 collected from 12'-14' bgs where maximum PID reading of 4.0 ppm was read. Sample location (SB13) on Site 8, tundra adjacent to gravel road SE of pipeline break.

→ 1730 soil core sample 22NEC-SØ8-SS15 collected from 2'-4' bgs where maximum PID reading of 6.9 ppm was read at (SS14) at site 8, tundra adjacent to gravel road SE of pipeline break.

→ 1800 soil core sample 22NEC-SØ8-SS16 collected at 2'-4' bgs with maximum PID reading of 2.4 ppm at

8/1/22 Monday

site 8, in tundra adjacent to gravel road SE of pipeline break. at SB15.

→ 1900 soil core sample

22NEC-S08-SS17 collected at SB16 2'-4' bgs at Site 8, in tundra adjacent to gravel road SE of pipeline break, 2.7 ppm PID reading was read.

→ 1915

EOD

JS

8/2/22 Tuesday

→ 0630 health and safety meeting with same crew. Weather Sunny/prt cld.

→ 0730 PID calibration

BES0042 99.8 ppm

BES0043 100.2 ppm

→ 0800 drill crew begins soil core prep at site 8 (LS and JS). PS joins crew 0923.

→ 0925 soil core sample 22NEC-S08-SS18 collected from SB17 8'-10' bgs at

8/2/22 Tuesday

Site 8 in tundra adjacent to Rd E of pipeline break. PID reading recorded at this interval was 1.6 ppm.

→ 1015 soil core sample

22NEC-S08-SS19 at SB18 from 6'-8' interval at Site 8, tundra 2.1 ppm PID adjacent to Rd E of pipeline break.

→ 1130 soil core sample

22NEC-S08-SS20 collected at SB19, 8'-10' at site 8 from middle of gravel road S of culvert. Duplicate sample 22NEC-S08-SS920 at 1230 from SB19, with 1.4 ppm PID.

→ 1200 lunch

→ 1300 drill crew LS, PS, JS begin drilling at SB20 on site 8 on gravel road. Sample 22NEC-S08-SS21 collected at 1345 at SB20 8'-10' bgs PID reading 1.8 ppm.

→ 1430 soil core sample

22NEC-S08-SS22 collected at 6'-8' at site 8 SB21 where PID reading was 327.0 ppm, on gravel road. A second core was obtained from interval 4'-8' at SB21 to collect additional

Rite in the Rain

8/2/22 Tuesday

material sampling.

→ 1650 Soil core sample 22NEC-S08-SS24 at SB23 from site 8 gravel road 6'-8' bgs where PID reading 8.4 ppm was recorded.

→ 1735 soil core sample 22NEC-S08-SS25 at SB24 site 8, gravel road 4'-6' bgs with PID reading 155.0 ppm. Duplicate sample 22NEC-S08-SS925 at SB24 4'-6' bgs at 1835.

* 22NEC-S08-SS23 soil core sample collected at 1530 @ SB22 6'-8' bgs with PID reading of 274.9 ppm

* 22NEC-S08-SS26 soil core sample collected at 1825 @ SB25 2'-4' bgs with PID reading of 3.4 ppm, [MS/MSD included], * 3 jars total (8oz)

→ 1900

EOD

Scale: 1 square =

8/3/22 Wednesday

→ 0630 health and safety meeting with crew

→ 0745 PIDs calibrated

BESC043 100.2 ppm

BESC042 103.3 ppm

→ 0800 Drill crew begins at site 8 for soil core sampling (LS, PS, JS).

→ 0900 soil core sample 22NEC-S08-SS27 at SB26 from 4'-6' bgs where PID reading 215.4 ppm was recorded. SB26 in gravel road S of pipeline break.

→ 0910 soil core sample 22NEC-S08-SS28 collected at SB26 from 10'-12' bgs below contamination level. PID reading 1.3 ppm.

→ 1015 soil sample collected by hand augering at location SB28 22NEC-S08-SS29 at site 8 1'-2' where PID read 6.3 ppm. This interval had organic material and fine silts and sands/gravelly present.

Scale: 1 square =

→ 1020 soil core sample 22NEC-S08-SS30 at (SB27) 4'-6' bgs on gravel road at site 8, 2.1 ppm PID

* Discussed obtaining elevation data for Site 8, depicting gently sloping topo towards S. River and raised road.

→ 1130 soil sample/core 22NEC-S08-SS31 collected from (SB29) at site 8 in grave road, 2'-4' bgs, 13.7 ppm PID reading.

→ 1153 soil sample collected from hand auger 22NEC-S08-SS32 at (SB30) at site 8 in tundra adjacent to gravel road, 1'-2' bgs with 1.3 ppm.

→ 1230 soil core sample collected 22NEC-S08-SS33 at (SB31) 4'-6' bgs at Site 8. Duplicate sample 22NEC-S08-SS933 was ~~alto~~ also collected at 4'-6' bgs with PID reading 18.1 ppm, at 1330

→ 1235 soil core sample 22NEC-S08-SS34 collected at (SB31) at interval 10'-12' below likly contaminated area to further delineate contamination horizon, PID 1.0 ppm.

→ 1245 lunch

→ 1325 JS prep coolers w/ soil core samples for shippment, update tracking log, CoC

→ ~~1335~~

→ 1630 soil sample collected from hand auger at (SB32), 3'-4' bgs, 22NEC-S08-SS35 sample name with PID reading 3.1 ppm.

→ 1900

EOD

8/4/22 Thursday

→ 0630 health and safety meeting with same crew

→ 0700 PID calibration MW, JS
BESC043 100.4 ppm
BESC042 101.6 ppm

→ 0730 sample packing and C.C for Site 8 and MOC (soil samples and groundwater samples respectively). Soil boring logs also QC'ed and scanned/uploaded to drive. Field notes also updated and scanned.

→ 1200 lunch

→ 1245 JS continues scanning logs and updating project tracking forms.

→ Refer to MG's notes ——

JS
8/4/22

8/5/22 Friday

→ 06:30 health and safety meeting Curtis Silook (C.S)

→ 0720 PID calibration
109.3 BESC042
97.9 BESC043

→ 0730 crew mob. to site 15 MOC (MG, CA, AG, SC, PS, MW, C, DC, AP). Stock piles re-secured by distributing sand bags. MW and AG begin groundwater sampling at MOC.

→ 1025 Excavation begins with crew including MG, CA, AP, DC, PS, SC and myself

→ 1040 Super sack *
NEC 22-S-1 filled weight

* 9/2 Cy Supersack. Filled too heavy for excavator to lift → loader used to lift NEC-22-S-1 from excavation — NEC-22-S-1 proved too heavy for loader to lift, super sack removed

Rite in the Rain

while in excavation, cut open and dumped to be re-bagged. 5 cy supersack will replace the former NEC-22-S-1 bag and will be named NEC-22-S-1.

→ 1200 lunch

→ 1300 Return to site 15, MOC, MW and AG continue groundwater sampling. Supersack NEC-22-S-1 is filled (wet) 8,100 ~~10,000~~ lbs 5 cy SS NEC-22-S-1 @ 1455.

→ 1500 NEC-22-S-2 filled 12,960 lbs

* 1445 → collected from NEC-22-S-1 / NEC-22-S-2 area 15,000 ppm from East corner excavation

→ 1545 ~~NEC-22~~ NEC 22-S-3 filled and weighed @ ~~12550~~ (12750 lbs)

→ 1610 NEC22-S-4 filled weighing in @ (10950)

→ 1618 head space grab screening samples: strong odor, wet, feels saturated, gray in color, clay/silt, >15,000 ppm [ambient breathing zone for workers 1-2 ppm] (12,950 lb) for NEC22-S-5

→ 1630

→ 1645 NEC22-S-6 weighing in @ (12350)

→ 1655 NEC22-S-7 weighing in @ (13100) lbs

→ 1700 NEC22-S-8 weighing in @ (10100 lbs)

12,500 (NEC22-S-47)
11,200 (NEC22-S-23)
10,050 (NEC22-S-24)
9,150 (NEC22-S-25)
10,700 (NEC22-S-26)
11,200 (NEC22-S-27)
11,500 (NEC22-S-28)
12,250 (NEC22-S-29)
12,750 (NEC22-S-30)
11,700 (NEC22-S-31)
12,400 (NEC22-S-32)
13,000 (NEC22-S-33)
12,500 (NEC22-S-46)

Running Total

8,100 (NEC22-S-1)
12,960 (NEC22-S-2)
12,750 (NEC22-S-3)
10,950 (NEC-22-S-4)
12,750 (NEC-22-S-5)
12,350 (NEC22-S-6)
13,100 (NEC22-S-7)
10,100 (NEC22-S-8)
11,700 (NEC22-S-9)
9,000 (NEC22-S-10)
9,650 (NEC22-S-11)

12,100 NEC22-S-48
13,800 (NEC22-S-34)
12,700 (NEC22-S-35)
11,400 (NEC22-S-36)
11,400 (NEC22-S-37)
11,750 (NEC22-S-38)
12,300 (NEC22-S-39)
10,850 (NEC22-S-40)
12,150 (NEC22-S-41)
11,150 (NEC22-S-42)
14,150 (NEC22-S-43)
11,300 (NEC22-S-44)
11,500 (NEC22-S-45)
13,450 (NEC22-S-46)
11,600 (NEC22-S-12)
11,100 (NEC22-S-13)
10,450 (NEC22-S-14)
11,050 (NEC22-S-15)
9,600 (NEC22-S-16)
10,650 (NEC22-S-17)
11,700 (NEC-22-S-18)
10,650 (NEC22-S-19)
10,850 (NEC22-S-20)
10,500 (NEC22-S-21)
10,700 (NEC22-S-22)

→ 0630 health and safety meeting with same crew. Cooler with groundwater samples prep. for shipment (AG, JS)

→ 0800 PID calibration
100.3 ppm BESC042

→ 0830 super sacking @ MOC excavation site 15 continues (CA, DC, AP, PS, SC, and myself)

→ 0845 NEC22-S-9 weighing in at 11,700 lbs

→ 0910 NEC22-S-10 super sack straps broke while being lifted by loader over excavation - bag dropped back into excavation. NEC22-S-10 bag cut open, emptied, and re-bagged into new super sack labeled NEC22-S-10.

→ 0950 NEC22-S-10 weighing in @ 9,000 lbs

→ 1005 NEC22-S-11 weighing in @ 9550 lbs

8/6/22 Saturday

→1015 DEC22-S-12 @ 11,600 lbs filled

→1030 DEC22-S-13 @ 11,100 lbs filled

*14ft to water - 15 ft to bottom on SE corner of excavation

→1050 DEC22-S-14 @ 10,450 lbs filled

Confirmation samples collected from bottom SE corner of excavation total of 5# screening samples

→1100 DEC22-S-15 @ 11,050 lbs filled

→1110 DEC22-S-16 @ 9,600 lbs

→1120 DEC22-S-17 @ 10,650 lbs filled

SE corner excavation confirmation soil sample field screening PID readings

Bottom 15'	#5	278.9 ppm
Bottom 15'	#4	194.5 ppm
Bottom 15'	#3	287.5 ppm
Bottom 15'	#2	323.5 ppm
Bottom 15'	#2	173.4 ppm
Sidewall 12-15'	#5	152.3 ppm
Sidewall 12-15'	#4	278.7 ppm
Sidewall 12-15'	#3	195.9 ppm

8/6/22 Saturday

Sidewall 12'-15'	#2	168.9 ppm
Sidewall 12'-15'	#1	142.5 ppm

Confirmation Sample 22DEC-S15-SS01 collected from bottom 15' of SE corner of excavation @ 1140

→1145 22DEC-S15-SS02 collected from sidewall 12'-15' of SE corner of excavation

→1146 DEC22-S-18 @ 12,700 lbs filled

→1146 DEC22-S-19 10,650 lbs filled

→1150 moved into supersack 20, DEC22-S-20, PID reading 336.2 ppm

→1155 DEC22-S-20 10850 lbs filled

* 221,166 lbs bagged total

→1200 lunch

→1330 DEC22-S-21 10500 lbs filled

→1340 DEC22-S-22 10700 lbs filled

Ambient air reading 0.4 ppm

Rite in the Rain

8/6/22 Saturday

→1350 NEC22-S-23 11,200 lbs filled
→1355 NEC22-S-24 10,050 lbs filled

* Due to the high saturated moisture content of excavation soils, Supersacks had to be filled statistically

273 ppm → 1430 NEC22-S-25 9,150 lbs filled
→1450 NEC22-S-26 10,700 lbs filled
→1500 NEC22-S-27 11,200 lbs filled
→1515 NEC22-S-28 11,500 lbs filled
156.6 ppm → 1525 NEC22-S-29 12,250 lbs filled
→1530 NEC22-S-30 12,750 lbs filled
→1545 NEC22-S-31 11,700 lbs filled
→1600 NEC22-S-32 12,400 lbs filled
→1605 NEC22-S-33 13,000 lbs filled
→1615 NEC22-S-34 13,800 lbs filled
273.4 ppm → 1620 NEC22-S-35 12,700 lbs filled
→1630 NEC22-S-36 11,400 lbs filled
→1640 NEC22-S-37 11,400 lbs filled
263 ppm → NEC22-S-38 11,750 lbs filled
→1700 NEC22-S-39 12,300 lbs filled
→1715 NEC22-S-40 10,850 lbs filled
→1730 NEC22-S-41 12,150 lbs filled

8/6/22 Saturday

15½ ft on South middle of excavation

→1735 NEC22-S-42 11,150 lbs filled
→1745 NEC22-S-43 14,150 lbs filled
→1755 NEC22-S-44 11,300 lbs filled
131.5 ppm → 1805 NEC22-S-45 11,500 lbs filled
→1815 NEC22-S-46 13,450 lbs filled
→1825 NEC22-S-47 12,500 lbs filled
→1834 * NEC22-S-48 12,100 lbs filled
→1845 NEC22-S-49 12,500 lbs filled
214.3 ppm → 1855 NEC22-S-50 11,650 lbs filled

→1900 Waste Char. Samples NEC22-WC-1 Collected
NEC22-WC-2
EOD

Rite in the Rain

 8/7/22 Sunday

→0630 health and safety meeting with crew.

→0715 PID reading/calibration 99.7 ppm
BESCO 4/2
See MG's notes

→1200 lunch

→1330 crew returns to dig at excavation on MOC at Sh 15 (CA, MG, AP, PS, MW, AC, SC, DC,)
Digging to 15 on southern extent of excavation — currently the SW corner -12' and S sidewall and bottom -14'.

→1420 crest end/back South west side of excavation @ 15.5 ft
Field screening completed on excavation base and W and SW sidewalls.

→1535 field screening completed on North central sidewall and base of excavation.

Scale: 1 square =

8/7/22 Sunday

→1600

PID Field screening

Sidewall-1-W1	73.5 ppm	
Sidewall-1-W2	54.1 ppm	
Sidewall-1-W3	56.5 ppm	
Sidewall-1-W4	144.2 ppm	✓ SS3
Sidewall-1-W5	128.3 ppm	SS18
Sidewall-2-W6	52.3 ppm	
Sidewall-2-W7	50.1 ppm	
Sidewall-2-W8	48.9 ppm	
Sidewall-2-W9	79.6 ppm	✓ SS4
Sidewall-2-W10	50.1 ppm	
Sidewall-11	65.6 ppm	
Sidewall-12	189.9 ppm	
Sidewall-13	81.6 ppm	
Sidewall-14	230.6 ppm	✓ SS5
Sidewall-15	137.8 ppm	
Sidewall-16	~~214.1 ppm~~ 192.8 ppm	JA 8/7/22
Sidewall-17	214.1 ppm	
Sidewall-18	217.4 ppm	
Sidewall-19	121.0 ppm	
Sidewall-20	226.0 ppm	✓ SS6
Sidewall-21	422.3 ppm	✓ SS7
Sidewall-22	143.7 ppm	
Sidewall-23	219.7 ppm	

Scale: 1 square =

			Screening	ppm
	Sidewall-24	176.4 ppm	Base-8	19.0
	Sidewall-25	150.0 ppm	(5) Base-9	15.0
	Sidewall-26	224.0 ppm	(16) Base-10	11.6
SS8	Sidewall-27	291.8 ppm	(18) Base-11	7.8
	Sidewall-28	175.8 ppm	Base-12	6.8
	Sidewall-29	212.7 ppm	Base-13	6.3
	Sidewall-30	164.5 ppm	Base-14	5.8
	Sidewall-31	221.3 ppm	Base-15	5.3
	Sidewall-32	158.3 ppm		
SS9	Sidewall-33	253.8 ppm ✓		
	Sidewall-34	112.2 ppm		
	Sidewall-35	222.0 ppm		
	Sidewall-36	128.9 ppm ✓	SS10	
	Sidewall-37	53.0 ppm		
	Sidewall-38	91.2 ppm		
	Sidewall-39	42.1 ppm		
	Sidewall-40	95.0 ppm		
	Base-1	45.5 ppm		
	Base-2	15.8 ppm ✓	~~SS11~~ SS12	
	Base-3	60 ppm		
	Base-4	101.4 ppm		
	Base-5	112.0 ppm ✓	SS11,	SS911
	Base-6	131.6 ppm ✓	SS13	
	Base-7	110.5 ppm	SS14,	

Scale: 1 square = _____

→1605 Soil sample 22NEC-S15-SS03 collected from west sidewall at 12'-15' ft bgs

→1615 soil sample 22NEC-S15-SS04 collected from west sidewall at 12'-15' ft bgs

→1630 Soil sample 22NEC-S15-SS05 collected from southwest corner of sidewall 12'-15' bgs.

→1700 soil sample 22NEC-S15-SS06 collected from southwest/central sidewall 12'-15' bgs.

→1800 soil sample 22NEC-S15-SS07 collected from northwest corner of sidewall 12'-15' bgs.

→1805 soil sample 22NEC-S15-SS08 collected from northwest ~~corner~~ side of sidewall 12'-15' bgs.

→1810 soil sample 22NEC-S15-SS09 collected from north central sidewall of excavation. 22NEC-S15-SS909 collected @ 1910 (Duplicate), 12'-15'

→1815 soil sample 22NEC-S15-SS10 collected from northeast sidewall 12'-15' bgs of excavation

→1820 Soil sample 22NEC-S15-SS11 collected from base of westernmost area of excavation. 22NEC-S15-SS911 collected 1920 (Duplicate)

→1830 soil sample 22NEC-S15-SS12 collected from SW corner of excavation from bottom/base adj. SS11 location.

Scale: 1 square = _____

Rite in the Rain

8/7/22 Sunday

→1640 NEC22-S15-SS13 soil confirmation sample collected from excavation base at west central area @15 ft

→1845 NEC22-S15-SS14 soil confirmation sample collected from N central excavation from base at 15'

→1850 NEC22-S15-SS15 soil confirmation sample collected from S central excavation area from base at 15'

→1855 NEC22-S15-SS16 with m/MSD base soil sample collected from central excavation location at 15'

→1900 ~~NEC22-S15-SS17 ms/msd~~ NEC22-S15-SS17 base sample ~~collected from~~ collected from central base location of excavation, 15'

→1905 NEC22-S15-SS18 base 14 sample collected from sidewall 12'-15' bgs

EOD

8/7/22

Scale: 1 square = _____

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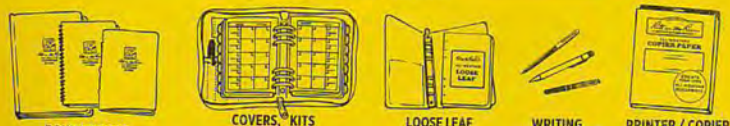

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CONTENTS

PAGE	REFERENCE	DATE

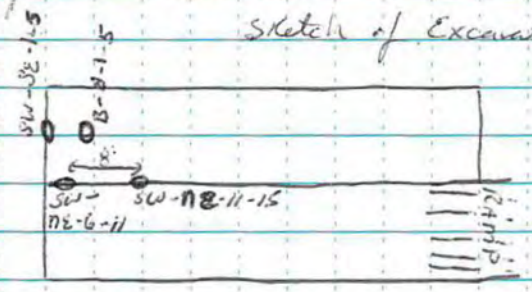
8/9/22 Tuesday

→ 0630 health and safety meeting w/ same crew

→ 0700 C.O.C. sample tracking updated, sample cooler packing by AG, SC, and myself. DC, AP, MW transport supervacks from Site 15 MOC to barge landing area on beach

→ 0845 MG, CA, PS, and myself on MOC continuing excavation and sampling (confirmation samples of sidewalls and base of excavation). PID BCUC043 zero calibrated, then span calibrated 105.7 ppm. Southeast area of excavation east sidewall and adjacent base floor of excavation.

Sketch of Excavation



PID field screenings:

Sidewall - SE-1	121.6 ppm
Sidewall - SE-2	136.5 ppm
Sidewall - SE-3	179.7 ppm

PID Field screenings cont.

Sidewall - SE - 4	107.5 ppm
Sidewall - SE - 5	156.5 ppm
Base - E - 1	44.1 ppm
Base - E - 2	75.9 ppm ✓
Base - E - 3	55.5 ppm
Base - E - 4	58.2 ppm ✓
Base - E - 5	105.5 ppm ✓
Sidewall - NE - 6	10.7 ppm
Sidewall - NE - 7	5.9 ppm
Sidewall - NE - 8	67.8 ppm
Sidewall - NE - 9	45.1 ppm
Sidewall - NE - 10	124.9 ppm ✓
Sidewall - NE - 11	47.4 ppm
Sidewall - NE - 12	148.0 ppm
Sidewall - NE - 13	147.6 ppm
Sidewall - NE - 14	71.3 ppm
Sidewall - NE - 15	281.0 ppm ✓

→ 0940

Sample 22NEC - S15 - SS19 collected from southeast sidewall 12'-15' bgs with PID reading 179.7 ppm (field screening ID Sidewall - SE - 3).

→ 0945 soil grab sample 22NEC - S15 - SS20 collected from SE base of excavation at Site 15 (field screening ID Base - E - 2) PID reading 75.9 ppm

→ 0950 soil sample 22NEC-S15-SS21 collected from SE base of excavation at Site 15 (field screening ID Base - E - 4) PID reading 58.2 ppm.

→ 0955 soil sample 22NEC-S15-SS22 collected from SE base of excavation at site 15 (field screening ID Base - E - 5) PID reading 105.5 ppm

→ 1000 soil sample 22NEC-S15-SS23 collected from NE sidewall 12'-15' bgs of excavation at Site 15 (field screening ID ~~Base~~ Sidewall - NE - 10) with PID reading of 124.9 ppm. MS/MSD collected. JJ 8/12/22

→ 1005 soil sample 22NEC-S15-SS24 collected from NE sidewall 12'-15' bgs at excavation at site 15 (field screening ID Sidewall - NE - 15) PID reading of 281.0 ppm. Duplicate 22NEC-S15-SS924 collected at 1105.

→ 1115 JS return to camp, pack coolers and prepare for sample shipment. ~~in the aftern~~ assisted by AG, and SC.

→ 1200 lunch

→ 1300 Decontaminate excavator tracks and prepare for dredging at site 28.

→ 1900
EOD

JA 8/9/22

8/10/22 Wednesday

→ 0630 health and safety meeting with same crew

→ 0730 Calibrated Turbidimeter (JS)

120 NTU	100 NTU standard
24.2 NTU	20 NTU standard
0.13 NTU	<0.1 NTU standard
867 NTU	800 NTU standard

→ 0745 CA, DC, PS, AP, SC, AG and myself arrive on site MOC to prepare for dredging.

→ 0815 JS Collect turbidity measurements

from surface water locations prior to start of dredging.

→ 0817	22NEC-S28-SW-01	25.8 NTU
→ 0822	22NEC-S28-SW-02	16.1 NTU
→ 0825	22NEC-S28-SW-03	11.5 NTU
→ 0829	22NEC-S28-SW-04	26.4 NTU
→ 0838	22NEC-S28-SW-05	16.1 NTU

→ See MG's notes

JA 8/10/22

→ 1841	22NEC-S28-SW-01	29.2 NTU
→ 1845	22NEC-S28-SW02	44.3 NTU
→ 1847	22NEC-S28-SW03	40.5 NTU

8/10/22 Wednesday

→1850 22nEC - S28 - SW05 97.8 nTU

→1853 22nEC - S28 - SW04 127.0 nTU

→1900

EOD

JS 8/10/22

8/11/22 Thursday

→0630 health and safety meeting including MC, CA, DC, PS, MW, SC, AG, CB, JK, and myself along with EMT Alaska minerals crew.

→0730 Calibrated Turbidimeter (JS)

20 nTU standard	21.6 nTU
<0.1 nTU standard	0.18 nTU
100 nTU standard	94.9 nTU
800 nTU standard	812.0 nTU

→0800 SC, AG, myself, MW, PS, CA, DC, CB, JK arrive at MOC to prepare for dredging.

→0815 collect water turbidity measurements from surface sample water locations prior to start of dredging.

→0820	22nEC - S28 - SW - 01	12.7 nTU
→0825	22nEC - S28 - SW - 02	15.5 nTU
→0828	22nEC - S28 - SW - 03	17.5 nTU
→0832	22nEC - S28 - SW - 05	23.9 nTU
→0838	22nEC - S28 - SW - 04	16.0 nTU

→0900 dredging prep continues, followed by completion of dredge activities — see MG's notes

→1710 JS begins collection of water turbidity at surface water sample locations #1 thru #5 following dredge activities at area 3 and and area 4.

→1717	22nEC - S28 - SW - 01	12.9 nTU
→1725	22nEC - S28 - SW - 02	18.2 nTU
→1728	22nEC - S28 - SW - 03	22.6 nTU
→1731	22nEC - S28 - SW - 05	35.3 nTU
→1734	22nEC - S28 - SW - 04	58.3 nTU

→1745 assist with misc. MOC clean-up activities

→1900

EOD

JS 8/11/22

Rite in the Rain

→ 0630 health and safety meeting

→ 0715 Aqua Troll bump test (AG, SC, JS)

Conductivity	8,116.3 uS/cm
pH	7.11 pH
ORP	217.4 mV
Temp.	11.58°C
RDO	12.43 mg/L

→ 0730 Tubidity Calibration (JS)

20 nTu standard	21.1 nTu
100 nTu standard	103.0 nTu
<0.1 nTu standard	0.10 nTu
800 nTu standard	803.0 nTu

→ 0745 I arrive on MOC with CA, DC, PS, MW, AG, SC, JK, and CB who arrived on MOC at 0730 to prepare for dredging and reseaure Geotube

→ 0820 collect surface water turbidity from surface water locations #1 through #5 prior to dredging activities.

→ 0823	22nEC-S28-SW-01	13.0 nTu
→ 0824	22nEC-S28-SW-02	10.4 nTu
→ 0826	22nEC-S28-SW-03	11.7 nTu
→ 0828	22nEC-S28-SW-05	16.6 nTu
→ 0830	22nEC-S28-SW-04	17.0 nTu

→ 0845 SC and JS collect surface water sample 22nEC-S28-SW-06 at 22nEC-S28-SW-01 and recorded the following parameters with Aqua Troll:

Temp. 48.13°F
pH 6.77 pH
Specific Conductivity 247.42 uS/cm
ORP 59.0 mV
Tubidity 7.07 nTu
RDO 8.98 mg/L
RDO saturation 78.57 %
Total dissolved solids 0.16 ppt

→ 0915 SC and JS collect surface water sample 22nEC-S28-SW-07 at 22nEC-S28-SW-03 and recorded the following parameters with Aqua Troll:

Temp. 47.91°F pH 6.58
Specific Conductivity 238.98 ORP 44.30 mV

Rite in the Rain

Turbidity 9.66 nTU RDO 8.58 mg/L
RDO % saturation 74.36
TDS 0.15 ppt

→ 0945 SC and JS collect surface water sample 22nEC-S28-SW-08 at 22nEC-S28-SW-05 location and recorded the following parameters with Aqua Troll:
Temp. 47.28 pH 6.82
Specific Conductivity 237.05
ORP 25.6
Turbidity 13.88 nTU
RDO 9.68 RDO% saturation 83.18
TDS 0.15 ppt

→ 1000 SC and JS collect surface water sample 22nEC-S28-SW-09 at 22nEC-S28-SW-04 location and recorded the following parameters with Aqua Troll:
Temp. 49.04 F pH 7.20
Specific Conductivity 250.86
ORP 2.31
Turbidity 13.21

Scale: 1 square =

RDO 9.53 RDO% saturation 83.82
TDS 0.16
Duplicate sample 22nEC-S28-SW-09 @ 1100 was also collected from surface water sampling location 22nEC-S28-SW-04.

→ 1025 JS return to camp to update sample tracking log and prepare cooler for shipment/pack with ice.

→ 1200 lunch

→ 1300 update sample tracking log and inspect landfill cap.

→ 1600 JS returns to MOC, stationed @ pond #2 for dredging

→ 1830 Collect surface water turbidity from surface water locations #1 thru #5 ~~prior to~~ after dredging activities, (AG and SC) JS 8/12/22

→ 1850 22nEC-S28-SW-01 12.8 nTU
→ 1855 22nEC-S28-SW-02 11.7 nTU
→ 1858 22nEC-S28-SW-03 25.3 nTU
→ 1800 22nEC-S28-SW-04 128.0 nTU
→ 1910 22nEC-S28-SW-05 108.0 nTU

Scale: 1 square =

→ 0630 health and safety meeting with same crew

→ 0730 At MOC (CA, CB, SC, AG, MW, PS, JK, JS) calibrate turbidimeter.

20 nTU standard	36.4 nTU
failed calibration value out of range	24.2 nTU
	23.2 nTU
100 nTU standard	105.0 nTU
<0.1 nTU standard	0.41 nTU
800 nTU standard	834.0 nTU

→ 0755 collect surface water turbidity from surface water locations #1 thru #5 prior to dredging activities. (JS)

→ 0800	22nEC-S28-SW-01	9.67 nTU
→ 0803	22nEC-S28-SW-02	8.39 nTU
→ 0808	22nEC-S28-SW-03	9.17 nTU
→ 0815	22nEC-S28-SW-05	13.6 nTU
→ 0823	22nEC-S28-SW-04	17.9 nTU

→ 0830 Dredging starts (JS) monitors pond #2 while operating pump. Following stream dredging, five ponds

are also dredged and shorted where ponds lack water but sediment present. Refer to MG's notes

→ 1750 collect surface water turbidity from surface water locations #1 thru #5 following dredging activities (JS)

→ 1751	22nEC-S28-SW-01	15.5 nTU
→ 1754	22nEC-S28-SW-02	14.6 nTU
→ 1755	22nEC-S28-SW-03	15.6 nTU
→ 1757	22nEC-S28-SW-05	18.0 nTU
→ 1759	22nEC-S28-SW-04	17.6 nTU

→ 1815 update sample tracking log, record waste characterization samples

→ 1900 EOD

JA 8/13/22

→ 0630 health and safety meeting with same crew

→ 0730 update project tracking, prepare sample coolers for shipment, make COC for the two sample coolers (waste characterization and surface water samples), edit SOP document (JS and MG), also scan field notes

→ 1200 lunch

→ 1300 return to MCC for bagging remaining material from excavation (CA, DC, PS, AC, SC, MW, JK, and myself)

→ 1315	nec22-s-68	8,850 lbs
→ 1320	nec22-s-69	12,000 lbs
→ 1325	nec22-s-70	10,150 lbs
→ 1330	nec22-s-71	10,350 lbs
→ 1340	nec22-s-72	10,450 lbs
→ 1345	nec22-s-73	9,950 lbs
→ 1355	nec22-s-74	10,000 lbs
→ 1400	nec22-s-75	10,300 lbs
→ 1405	nec22-s-76	11,000 lbs
→ 1410	nec22-s-77	10,900 lbs

→ 1415	nec22-s-78	11,950 lbs
→ 1420	nec22-s-79	9,600 lbs
→ 1430	nec22-s-80	11,000 lbs
→ 1435	nec22-s-81	10,050 lbs
→ 1445	nec22-s-82	11,350 lbs
→ 1450	nec22-s-83	10,700 lbs
→ 1455	nec22-s-84	10,950 lbs
→ 1500	nec22-s-85	9,400 lbs
→ 1510	nec22-s-86	10,550 lbs
→ 1520	nec22-s-87	10,050
→ 1530	nec22-s-88	9,700
→ 1535	nec22-s-89	12,150
→ 1543	nec22-s-90	11,150
→ 1550	nec22-s-91	11,100
→ 1555	nec22-s-92	12,600
→ 1600	nec22-s-93	12,500

Rite in the Rain

*→ 0745 SC and AG calibrate turbid. meter

20 nTU standard (STD)	21.1 nTU
100 nTU STD	107 nTU
800 nTU STD	837 nTU
<0.1 nTU STD	0.1 nTU

→ 0830 SC and AG collect surface water turbidity from surface water locations #1 thru #5 at site 28.

→ 0830	22NEC-S28-SW-01	11.4 nTU
→ 0835	22NEC-S28-SW-02	7.13 nTU
→ 0840	22NEC-S28-SW-03	7.52 nTU
→ 0845	22NEC-S28-SW-05	8.69 nTU
→ 0850	22NEC-S28-SW-04	13.1 nTU

CA, PS, MW, AG, SC, DC, and CB fill supersacks with remaining base and sidewall material from excavation (5 cy supersacks).

→ 0950	NEC22-S-52	11,800 lbs
→ 1000	NEC22-S-53	10,550 lbs
→ 1015	NEC22-S-54	10,450 lbs
→ 1030	NEC22-S-55	9,950 lbs
→ 1035	NEC22-S-56	10,850 lbs
→ 1040	NEC22-S-57	10,800 lbs
→ 1050	NEC22-S-58	11,800 lbs

→ 1100	NEC22 - S - 59	10880 lbs
→ 1110	NEC22 - S - 60	10900 lbs
→ 1115	NEC22 - S - 61	11,400 lbs
→ 1120	NEC22 - S - 62	11,300 lbs
→ 1130	NEC22 - S - 63	9,850 lbs
→ 1135	NEC22 - S - 64	10,580 lbs
→ 1145	NEC22 - S - 65	10,160 lbs
→ 1150	NEC22 - S - 66	11,330 lbs
→ 1155	NEC22 - S - 66	11,750 lbs

→ Refer to MG's notes

8/14/22

Scale: 1 square = _____

→ 0630 health and safety meeting with same crew including Jake

→ 0730 JS and AG prepare for groundwater and surface water sampling

→ 0915 groundwater sample 22NEC-MOC-MW10-1-2 collected from monitoring well MW10-1 for PAH analysis. Water samples packaged in two 100 mL non-preserved amber glass jars.

→ 0945 groundwater sample ~~22NEC-MOC-MW~~ 22NEC-MOC-14MW02-2 collected from monitoring well 14MW02 for PAH analysis. Water samples packaged in two 100 mL non-preserved amber glass jars.

→ 1030 groundwater sample 22NEC-MOC-14MW05-2 collected from monitoring well 14MW05 for PAH analysis. Water samples packaged in two 100 mL non-preserved

Scale: 1 square = _____

Rite in the Rain

amber glass jars.

→ 1110 groundwater sample
22NEC-MOC-14MW04-2 collected from monitoring well 14MW04 for PAH analysis. Water samples packaged in two 100 mL non-preserved amber glass jars.
Duplicate 22NEC-MOC-14MW04-D2 was collected from 14MW04 at time 1210.

→ 1145 Surface water sample
22NEC-S28-SW-10 from surface water sample location 22NEC-S28-SW-04 and recorded the following parameters with Aqua Troll:
Temp. 41.77°F
pH 6.89
specific Conductivity 302.88
ORP -8.8
Turbidity 31.55
RDO 11.21

TDS 0.2
RDO % saturation 89.05%

→ 1200 lunch

→ 1300 AG, JS, and JK leave camp and arrive at MOC to continue water sampling and site clean-up.

→ 1330 AG and JS collect surface water sample 22NEC-S28-SW-11 from water sample location 22NEC-S28-SW-05 and recorded the following parameters with Aqua Troll:
Temp. 41.90°F
pH 6.77
Specific Conductivity 272.05
ORP 11.4
Turbidity 9.87 NTU
RDO 11.20
TDS 0.18
RDO % saturation 88.92%

→1345 AG and JS collect surface water sample 22NEC-S28-SW-12 from surface water location 22NEC-S28-SW-03 (03) and recorded the following parameters with Aqua Troll:

Temp 41.45°F
pH 6.62
Specific Conductivity 230.04
ORP 30.7
Turbidity 5.66 nTu
RDO 11.03
TDS 0.15
RDO% saturation 86.8%

→1400 AG and JS collect surface water sample 22NEC-S28-SW-13 from surface water location 22NEC-S28-SW-01 and recorded the following parameters with Aqua Troll:

Temp. 41.56°F
pH 6.64
Specific conductivity 230.88
ORP 53.7
Turbidity 15.20
RDO 11.84

TDS 0.15
RDO% saturation 93.45

→1420 AG and JS return to camp to complete CoC and update sample tracking, and prepare sample cooler PACE-22NEC-WC07 for shipment.

→1830 AG calibrates turbidity

→1845 22NEC-S28-SW-02 7.77 nTu

*0839 AG ~~and SC~~ JA 8/15/22 complete bump check for Aqua Troll:

Temp 5.71°C pH 7.17 pH
Conductivity 7,912.5 uS/cm
ORP 215.1 mV
RDO 12.83 mg/L

Rite in the Rain

 8/15/22 Monday

→1900 EOD

JA 8/15/22

8/16/22 Tuesday

→0630 health and safety meeting with same crew

→0715 JS calibrated PID BESC043 97.9 ppm

→ Refer to MG's notes —

JA 8/16/22

Scale: 1 square = _____

Scale: 1 square = _____

Rite in the Rain

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Rite in the Rain.
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Northeast Cape FUDS
Site 28 Sediment Removal
and Various Follow-Up Actions
W911KB-20-D-002

27 July 2022 –
16 August 2022

Patrick
Schick

27 July 2022
Partly cloudy, 50°F, light wind, no precip.

For all actions and decisions not recorded in this log, see field log of Monte Garroute.

Survey Log Daily file name: NEC_072711A
4 surface water sample locations captured within Site 28 using Trimble Geo 7x and antenna.
Sample IDs: 22NEC-S28-SW-01, 22NEC-S28-SW-02, 22NEC-S28-SW-03, 22NEC-S28-SW-04.

4 corner locations (northeast, northwest, southwest, southeast) of ISM DU (Incremental Sampling Method Decision Unit) captured with Geo 7x and antenna. ISM DU covered the future discharge area and is pre-activity.
ISM sample ID:
22NEC-S28-DU2-SD01

Rite in the Rain

27 July 2022 continued

Photo Log

CAM18 photo 100-0002; ~~Time 1050. Facing south-east.~~ P.S. Time 1630. Facing north-west. Flocculant injection system under construction at upper end of pond-hose-pump sediment slurry transport system.

CAM18 photo 100-0003: Time 1801. Facing north north-east. Dredge ready for flocculent system pilot test at ~~Area 28~~ P.S. Site 28.

R.D.
7/27/2022

End of field activities for 27 July 2022.

Rite in the Rain

28 July 2022

Cloudy, 46°F, light wind, occasional mist.

For all actions and decisions not recorded in this log, see field log of Monte Garrouste.

~~Survey Log~~ P.S.

Photo Log

CAM 18 photo 100-0004: Time 1050. Facing south-east. First geotube in containment and connected to flocculant system.

CAM 18 photo 100-0005. Time 1050. Facing west south-west. Second geotube containment, sand pots, GAC (granular activated carbon) vessels, and discharge area, all connected in sequence.

Rite in the Rain

28 July 2022 continued

CAM 18 photo 100-0006: Time 1804. Facing south-west. Second geotube in second containment.

CAM 18 photo 100-0007: Time P.S. ~~1818.~~ 1819. Facing north north-west. Dredge system at Site 28 Area 9, with silt fencing downstream.

7/28/2022

End of field activity for 28 July 2022.

Rite in the Rain

29 July 2022

High clouds, 50°F, 0-5mph wind, no precip.

For all actions and decisions not recorded in this log, see field log of Monte Garrouste.

1324: Surveyed (captured) the locations of the 4 corners (NE, NW, SW, SE) of the discharge area. Daily survey file name: NEC_07292022

1344: CAM18 photo 100-0008. Facing SW. Pump pond 1 with sediment slurry.

1626: CAM18 photo 100-0009. Facing ~~WS~~ P.S. WNW. Pump pond 1 with sediment slurry and improved suction hose mounting.

P.S. [signature]
7/29/2022

End of field activity for 29 July 2022

Rite in the Rain

30 July 2022

Cloudy, foggy, 47°F, calm, no precip.

For all actions and decisions not recorded in this log, see field log of Monte Garronte.

1035: Began measuring water quality parameters at 4 surface water sampling locations downstream from Site 28 Area 9.

~~Sampling Location~~ P.S.

Sampling Location	22NEC-528-SW-04	22NEC-528-SW-05	22NEC-528-SW-03	22NEC-528-SW-01
Temperature °F	40.92	41.99	42.58	42.99
Turbidity (NTU)	4.53	6.50	4.50	5.35
Conductivity (µS/cm)	221.81	222.59	217.75	217.45
Dissolved Oxygen %	75.03	61.60	66.39	72.96
~~Ox~~ P.S. Oxidation Reduction Potential (mV)	127.11	137.92	156.86	149.85
pH	6.76	6.51	6.33	6.50
Time of measurement	1036	1043	1047	1055

Rite in the Rain

30 July 2022 continued

1658: Photo CM180010. Facing North. Beginning sampling of monitoring well 17MW1.

1755: Photo CM180011. Facing Northwest. Monitoring well 17MW1 casing frost-jacked.

1804: Photo CM180012. Facing Southwest. Geoprobe ready to decommission unnamed well.

7/30/2022

End of field activity for 30 July 2022

Rite in the Rain

31 July 2022

Partly cloudy, thick fog in morning, 50°F, Light wind.

For all activities and decisions not recorded in this log, see field log of Monte Garroutte.

0951: Photo CM180013. Facing Southwest. Laying out Duraskrim liner for Site 15 excavation stockpiled soil.

1100: Photo CM180014. Facing South. Truck loading area with liner for Site 15 excavation.

1155: Photo CM180015. SB01.

1346: Photo CM180016. SB02.

1438: Photo CM180017. SB03.

1508: Photo CM180018. SB04.

1642: Photo CM180019. SB06.

Rite in the Rain

31 July 2022 continued

1714. Photo CM180020. SB05.

1737: Photo CM180021. 12'-16' interval of SB04.

1817: Photo CM180022. SB07.

Survey Log: Surveyed (captured) locations of 7 boreholes drilled and sampled, using Geo 7x and antenna.
Boreholes surveyed: 22NEC-S08-SB01, 22NEC-S08-SB02, 22NEC-S08-SB03, 22NEC-S08-SB04, 22NEC-S08-SB05, 22NEC-S08-SB06, 22NEC-S08-SB07.
Data file: NEC_07312022(2)

7/31/2022

End of field activity for 31 July 2022.

Rite in the Rain

01 August 2022

Fog, 44° F, calm, light rain.

For all activities and decisions not recorded in this log, see field log of Monte Gatrouttte.

0916: Photo CM180023. SB08.

0940: Captured location of borehole 22NEC-S08-SB08 using Geo 7x.

1042: Photo CM180024. SB09.

1144: Captured locations of boreholes 22NEC-S08-SB09 and 22NEC-S08-SB10 using Geo 7x.

1151: Photo CM180025. SB10.

1352: Photo CM180026. SB11.

1400: Captured location of borehole 22NEC-S08-SB11, using Geo 7x.

Rite in the Rain

01 August 2022 continued

1522: Photo CM180027. SB12.

1545: Captured location of borehole 22NEC-S08-SB12 using Geo 7x.

~~1420~~ P.S. ~~1620: Captured location of borehole 22NEC-S08-SB~~ P.S.

1620: Photo CM180028. SB13.

1650: Captured location of borehole 22NEC-S08-SB13 using Geo 7x.

1727: Photo CM180029. SB14.

1755: Captured locations of boreholes 22NEC-S08-SB14 and 22NEC-S08-SB15 using Geo 7x.

1759: Photo CM180030. SB15.

1852: Photo CM180031. SB16.

Rite in the Rain

 01 August 2022 continued

1856: Captured location of borehole 22NEC-S08-SB16 using Geo 7x.
Data file for all 8/01/2022 surveying:
NEC_08012022(3)

8/01/2022

End of field activity for 01 August 2022.

Rite in the Rain

02 August 2022

0929: Photo CM180032. SB17.

1015: Captured locations of boreholes 22NEC-S08-SB17 and 22NEC-S08-SB18 using Geo 7x.

1025: Photo CM180033. SB18.

1123: Photo CM180034. SB19.

1343: Photo CM180035. SB20.

1405: Captured locations of boreholes 22NEC-S08-SB19 and 22NEC-S08-SB20 using Geo 7x.

1426: Photo CM180036. SB21.

1535: Photo CM180037. SB22.

1542: ~~Captured~~ P.S. Captured locations of boreholes 22NEC-S08-SB21 and 22NEC-S08-SB22 using Geo 7x. File name for all locations captured up to this time

(continued on next page)

Rite in the Rain

02 August 2022 continued

on 8/02/2022: NEC_08022022.

1655: CM180038 photo. SB23.

1747: Photo CM180039. SB 24.

1809: Photo CM180040. Facing East. Collecting headspace field screening from SB25.

1812: Captured locations of boreholes 22NEC-508-SB23, 22NEC-508-SB24, 22NEC-508-SB25 using Geo 7X. File name for these 3 borehole locations: NEC_08022022(2).

1821: Photo CM180041. SB25.

8/2/2022

End of field activity for 08/02/2022

Rite in the Rain

03 August 2022

Foggy, partly cloudy, 51°F, calm, no precip.

For all actions and decisions not recorded in this log, see field log of Monte Garroutte.

~~Photo~~ P.S.

0923: Photo CM180042. SB26.

1019: Photo CM180043. SB27.

1021: Photo CM180044. SB28.

1146: Photo CM180045. SB29.

1154: Photo CM180046. SB30.

1202: Photo CM180047. SB31.

~~1224: Photo CM180048. S1~~ P.S.

1224: Photo CM180048. Accidental second photo of SB3.

Rite in the Rain

03 August 2022 continued

1523: Photo CM180049. SB32.

1612: Captured locations of boreholes 22NEC-S08-SB26, 22NEC-S08-SB27, 22NEC-S08-SB28, 22NEC-S08-SB29, 22NEC-S08-SB30, 22NEC-S08-SB31, and 22NEC-S08-SB32 using Geo 7x.
Data file name: NEC_08032022

8/3/2022

End of field activity for 03 August 2022

Rite in the Rain

05 August 2022

Low clouds, 48° F, light wind gusting to 20mph, moderate rain.

For all actions and decisions not recorded in this log, see field log of Monte Garrouette.

1312: Photo CM180054. Mis-take photo of Site 15 excavation overburden stockpiles - no GPS data. Facing West.

1313: Photo CM180055. Facing West. Covered stockpiles of overburden from Site 15 excavation.

BA
6/5/2022

End of field activity for 05 August 2022

Rite in the Rain

06 August 2022

Sunny, 53° F, light wind, no precip.

For all decisions and actions not recorded in this log, see field log of Monte Garrouette.

1326: Photo CM180056. Facing Southeast. Supersack on frame in Site 15 excavation.

1338: Photo CM180057. Facing Northwest. Site 15 excavation stockpiles with pin flags marking sample locations.

8/6/2022

End of field activity for 06 August 2022

Rite in the Rain

07 August 2022

Cloudy, 50°F, light wind, light rain in afternoon.

For all actions and decisions not recorded in this log, see field log of Monte Garroutte.

1310: Photo CM180058. Facing East. Building hose cradles for dredge system pumping ponds.

1918: Photo CM180059. Facing West. Supersacks staged on beach.

RD
6/7/2022

End of field activity for 07 August 2022

Rite in the Rain

08 August 2022

Low clouds, 46° F, windy, ~~occassional~~ occasional mist.

For all actions and decisions not recorded in this log, see field log of Monte Garponte.

1331: Photo CM180060. Facing West. Pump pond 2 with hose cradle.

8/8/2022

End of field activity for 08 August 2022

Rite in the Rain

10 August 2022

Partly cloudy, low blowing clouds and fog, 50° F, strong wind, no precip.

For all actions and decisions not recorded in this log, see field log of Monte Garrutte.

0756: Photo CM180061. Facing West. Flocculant system ready for dredging.

0915: Photo CM180062. Facing West. ~~Photo~~ P.S. Before-dredging photo 1 of 10 of lowest flowing water section of Site 28 Area 3 that will be dredged by the stationary dredge-in-sump method.

0924: Photo CM190061. Facing Southwest. Before-dredging photo 2 of 10 of " ".

0924: Photo CM190062. Facing Southwest. Before-dredging

(continued on page 44)

Rite in the Rain

10 August 2022 continued

photo 3 of 10 of " ".

0925: Photo CM190063. Facing Southwest. Before-dredging photo 4 of 10 of " ".

0925: Photo CM190064. Facing Northwest. Before-dredging photo 5 of 10 of " ".

0925: Photo CM190065. Facing Northwest. Before-dredging photo 6 of 10 of " ".

0926: Photo CM190066. Facing Northwest. Before-dredging photo 7 of 10 of " ".

0926: Photo CM190067. Facing Northwest. Before-dredging photo 8 of 10 of " ".

0926: Photo CM190068. Facing Northwest. Before-dredging photo 9 of 10 of " ".

(continued on page 46)

Rite in the Rain

10 August 2022 continued

0926: Photo CM190069. Facing Northwest. Before-dredging photo 10 of 10 of " ".

0946: Photo CM190070. Facing Southwest. Sediment slurry pumping into holding pond from dredging sump in Site 28 Area 3.

0950: Photo CM190071. Facing Southwest. Raking sediment slurry into dredge sump.

0950: Photo CM190072. Facing Southwest. Sediment slurry swirling around dredge sump.

1033: Photo CM190073. Facing Northwest. Before-dredging photo 1 of 2 of lower middle flowing water section of Site 28 Area 3 that will be dredged by the stationary dredge-in-sump method.

(continued on page 48)

Rite in the Rain

10 August 2022 continued

1033: Photo CM190074. Facing Southwest. Before-dredging photo 2 of 2 of " ".

1034: Photo CM190075. Facing West. Before-dredging photo 1 of 1 of upper middle flowing water section of Site 28 Area 3 that will be dredged by the stationary dredge-in-sump method.

1035: Photo CM190076. Facing West. Before-dredging photo ~~of~~ P.S. 1 of 2 of upper ~~section of~~ P.S. flowing water section of Site 28 Area 3 that will be dredged by the stationary dredge-in-sump method.

1035: Photo CM190077. Facing Northwest. Before-dredging photo 2 of 2 of " ".

1055: Photo CM190078. Facing Southwest. ~~S~~ P.S. Sediment in

(continued on page 50)

Rite in the Rain

10 August 2022 continued

bottom of first dredging pond.

1743: Photo CM190079. Facing West. After-dredging photo 1 of Site 28 Area 3.

1743: Photo CM190080. Facing Northwest. After-dredging photo 2 of Site 28 Area 3.

1744: Photo CM190081. Facing Northwest. After-dredging photo 3 of Site 28 Area 3.

1744: Photo CM190082. Facing Northwest. After-dredging photo 4 of Site 28 Area 3.

1744: Photo CM190083. Facing Northwest. After-dredging photo 5 of Site 28 Area 3.

[illegible] 8/10/2022

End of field activity for 10 August 2022

Rite in the Rain

11 August 2022

Sunny, 54°F, windy, no precip.

For all actions and decisions not recorded in this log, see Field log of Monte Garrouette.

1415: Captured locations of background soil samples ~~B~~ P.S. 22NEC-BG-1, 22NEC-BG-2, 22NEC-BG-3, 22NEC-BG-4, 22NEC-BG-5, 22NEC-BG-6, 22NEC-BG-7 using Geo 7X.

1445: Captured locations of the 4 corners of the working bench adjacent to the Site 15 excavation. Bench depth: 4.5 feet bgs.

1455: Waste characterization and confirmation soil sample locations within Site 15 excavation are too hazardous to survey. These locations are recorded in excavation diagrams, not in this log. (continued on page 54)

Rite in the Rain

11 August 2022 continued

1550: Captured locations of vertices of polygons delineating landfill repair areas.

1636: Photo CM190063. Facing North. Dredging site 28 Area 4.

1637: Photo CM190064. Facing Northwest. Sediment suspended in water near dredge intake.

1640: Captured locations of subarea dredging sumps:
Site 28 Area 3 Subarea 1,
Site 28 Area 3 Subarea 2,
Site 28 Area 3 Subarea 3.

1735: Captured locations of subarea dredging sumps:
Site 28 Area 4 Subarea 1,
Site 28 Area 4 Subarea 2.

1748: Photo CM190065. Facing Southwest. After dredging photo 6 of Site 28 Area 3.

(continued on page 56)

Rite in the Rain

11 August 2022 continued

1749: Photo CM190066. Facing Northwest. After-dredging photo 7 of Site 28 Area 3.

1749: Photo CM190067. Facing Northwest. After-dredging photo 8 of Site 28 Area 3.

1750: Photo CM190068. Facing West. After-dredging photo 9 of Site 28 Area 3.

1751: Photo CM190069. Facing West. After-dredging photo 10 of Site 28 Area 3.

All survey data for 11 August 2022 is in file NEC-08112022

6/11/2022

End of field activity for 11 August 2022.

Rite in the Rain

12 August 2022

Cloudy, patchy mist, 47°F, light wind, no precip.

For all ~~actio~~ P.S. actions and decisions not recorded in this log, see field log of Monte Girrontte.

1005: Captured locations of the 4 corners of the ISM Decision Unit for the Site 15 excavation stockpile area.

1025: Captured locations of the 4 corners of the ISM Decision Unit for the Site 28 dewatering ~~st~~ P.S. system area.

1050: Captured locations of the vertices of a polygon delineating a depression in the surface of the MOC that is up to 2 feet bgs in depth.

1156: Captured locations of

(continued on page 60)

Rite in the Rain

12 August 2022 continued

background soil samples:
22NEC-BG-8,
22NEC-BG-9' and
22NEC-BG-10'. File for all 12 August 2022 surveying: NEC_08122022

1337: Photo CM180070. Facing Southwest. Depression in surface of MOC.

1344: Photo CM180071. Facing Northeast. Landfill cap repair fill 1.

1345: Photo CM180072. Facing Northwest. Landfill cap repair fill 2.

1346: Photo CM180073. Facing Northeast. Landfill cap repair fill 3.

8/12/2022

End of field activity for 12 August 2022

Rite in the Rain

13 August 2022

Cloudy, 46°F, moderate wind, no precip.

For all actions and decisions not recorded in this log, see field log of Monte Garrouette.

1342: Photo CM180074. Facing Northeast. Ready to dredge at Site 28 Area 7.

1349: Photo CM180075. Facing Northeast. Dredging Site 28 Area 7.

1421: Photo CM180076. Facing East. Removing sediment in Site 28 Area 7.

1502: Photo CM180077. Facing East. Dredging in Site 28 Area 2.

1602: Photo CM180078. Facing Northeast. Dredging in Site
(continued on page 64)

Rite in the Rain

13 August 2022 continued

28 Area 6.

1723: Photo CM180079. Facing Northwest, sediment in bottom of pumping pond.

RA
8/13/2022

End of field activity for 13 August 2022.

Rite in the Rain

14 August 2022

Cloudy, 45°F, light wind, no precip.

For all actions and decisions not recorded in this log, see field log of Monte Garrouette.

1304: Photo CM180080. Facing East. Supersack on bag frame in Site 15 excavation.

1614: Photo CM180081. Facing Northwest. Supersacks staged at the MOC.

8/14/2022

End of field activity for 14 August 2022.

Rite in the Rain

16 August 2022

Cloudy, 48°F, moderate wind, no precip.

For all actions and decisions not recorded in this log, see field log of Monte Garroutte.

1105: Photo CM180082. Facing East. Geotube full of sediment.

1106: Photo CM180083. Facing Northwest. Supersacks ready for transport to beach.

1840: Photo CM180084. Facing South. Placing supersacks on beach.

8/16/2022

End of field activity for 16 August 2022.

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Northeast Cape FUDs
Site 28 Sediment Removal and Various
Follow-up Actions

W911KB-20-D-002

~~25 July~~ 2022
8 August

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CONTENTS

PAGE	REFERENCE	DATE

August 6, 2022 Saturday Partly Cloudy 40-50°F

0700 - morning site safety meeting
0730 - mob to MOC
0845 - Began setting up Grids for ISM Sampling of stockpiles named Stockpile 1 and stockpile 2. Stockpile 1 split into 3 Decision Units (DU). See Notes on separate scratch pad for diagram and measurements. Stockpile 2 split into 2 DU. Also drawn on attached diagrams
1030 - Sample 22NEC-SP1-DU1-01 collected from stockpile 1. Analyzed for DRO
1035 - Sample 22NEC-SP1-DU1-02 Same as above (SAA)
1040 - Sample 22NEC-SP1-DU1-03
1115 - Sample 22NEC-SP1-DU2-01 SAA
1300 - Sample 22NEC-SP1-DU3-01
1415 - Sample 22NEC-SP2-DU1-01
1430 - Sample 22NEC-SP2-DU2-01
All samples ISM analyzed for DRO.
1500 - Joined excavation team, see Jane Suhey notes
1930 - Ended day return to camp

Scale: 1 square = _____

Scale: 1 square = _____

Rite in the Rain

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APPENDIX B
FIELD FORMS

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Soil Boring Logs

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SOIL BORING LOG

Sheet 1 of 1

Project: NEC 22	Project Number: 700700	Client: USACE	Boring No. SB 01
Address, City, State /		Drilling Contractor: Brice	
Logged By: Jane Suhey	Date: Started: 7/31/22; Completed: 7/31/22; Backfilled: /	Drilling Method and Equipment Used: 6610 direct Push	
Drill Crew: Logan Sanders, Patrick Schick	Groundwater Depth: 6-10' wet layer	Elevation: /	Total Depth of Boring: 0'-12'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	36		1130	Road bed - 0-4, Gravel up to 2" diameter, angular, dry to moist, small amount organics, no odor. GP	
1							
2				0.1	1140		
3							
4				0.2	1140		
		48	22		1135	GP large gravel 4-6, 6-8 is Gray silt, thin lens peat at 6. OL	
5							
6				1.3	1138	*Concrete found in core at 5 ft. - likely from utility	22NEC-S08-SS01 4-8'
7							
8				0.3	1139		
		48	47		1140	Decomp. odor observed, 8-10 transitions to SW gravelly sands and silts, dry moist.	
9							
10				0.5	1150	10-12, OL grey silt w/ice	
11				0.5	1153	9 1/2 feet is frozen, ice in silt/clay	
12						12 = end of boring	
13							
14							
15							
16							

* All Soil, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC22	Project Number: 700700	Client: USACE	Boring No. SB02
Address, City, State: /		Drilling Contractor: Brice	
Logged By: Jane Suhey	Date: Started: 7/31/22; Completed: 7/31/22; Backfilled: /	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders, Patrick Schick	Groundwater Depth: 9-11' wet water	Elevation: /	Total Depth of Boring: 0'-12'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	24		1310	Road Bed - 0-4, Gravel up to 3.2' ft in core, ~1.5" diameter, angular, little-no fines GP, dry-moist, no odor, little organics	
1				0.4	1329		
2						* Concrete encountered ~3'ft depth, likely utility	
3							
				0.3	1330		
4		48	46		1323	4-6, dark, fine, moist silt OL	22NEC-S08-SS02 4'-6' 22NEC-S08-SS902 (DUP)
5				379.5	1340		
6						6-8, dark, brown-grey moist silt, OH	
7						* odor detected, at approx 7.0' ft	
				130.6	1338		
8		48	46		1333	8-10, dark brown-grey ~~black~~ silt, odor encountered, OH	
9				~~408.6~~	~~1344~~		
				33.2	1344		
10						10-12, dark grey-black silt, ice encountered @ 11'ft.	
11							
				2.6	1345	12' end of boring	
12							
13							
14							
15							
16							

SOIL BORING LOG

Sheet 1 of 1

Project: NEC22	Project Number: 700700	Client: USACE	Boring No. SB03
Address, City, State		Drilling Contractor: Brice	
Logged By: Jane Schey	Date – Started: 7/31/22; Completed: 7/31/22; Backfilled: /	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders, Patrick Schick	Groundwater Depth: 8' - 10' wet layer	Elevation: /	Total Depth of Boring: 0' - 12'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	26		1353	Road bed, 0-4'; Gravel up to 4' of core, max 2" diameter, angular, little/no fines, brown-grey, concrete material at 2.4'; GP	
1				30.4	1415		
2							
3							
4				3.1	1422		
		48	46		1410	4-6, fine gravel and sand - light brown/tan, dry/moist OL	
5				9.6	1420		
6							
7				193.4	1421	6-8, fine silt, brown-dark brown-grey, moist,	22NEC-SB8-SS03 6'-8'
8		48			1416	8-10, fine silt, moist, dark brown-grey	
9				5.2	1429	OH ~~ice at 8' ?~~	
10						10-12, fine silt, moist, dark grey, ice at 10-11'. OH	
11							
12				7.4	1430	12' end of boring	
13							
14							
15							
16							

* All soil, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC22	Project Number: 700700	Client: USACE	Boring No. SB04
Address, City, State		Drilling Contractor: Brice	
Logged By: Jane Suhey	Date: Started: 7/31/22; Completed: 7/31/22; Backfilled: /	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders, Patrick Schick	Groundwater Depth: 12-14' wet layer	Elevation: /	Total Depth of Boring: 0'-16'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
	40	48	23		1440	Road Bed, 0-4' gravel, angular, 2.5" max. diameter, little-no fines, dry/moist sand present, brown/red/tan — grey (concrete) brown. GP	
1				2.3	1459		
2							
3							
4				1.2	1500		
		48	45		1450	4-6, fine gravel and sand, brown-white 1.5 ft' dry/moist	
5				2.6	1503		
6							
7				1.5	1504	6-8, fine silt, brown-dark brown, moist/wet, odor-mild detected OL, organic matter present.	NEC-SØ8-SSØ4 4'-6'
8		48	46		1500	8-10, fine sand, silt, dry-moist, brown silt, dark organics OL	
9				2.4	1508		
10							
11				1.3	1509	10-12, fine silt, dark brown-grey, moist-wet, ~~12' end of boring~~ NOT END OF BORING!	
12							
		48	14			12-14' dark grey, silt, wet, somewhat frozen	
13				1.1	1735		
14						14-16' dark grey silt, frozen OL	
15				1.0	1736		
16						End of Boring JS	

* All soil, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC22	Project Number: 700700	Client: USACE	Boring No. SB05
Address, City, State		Drilling Contractor: Brice	
Logged By: Jane Schey	Date – Started: 7/31/22	Drilling Method and Equipment Used: 6610 Direct Push	
	Date – Completed: 7/31/22		
Drill Crew: Logan Sanders, Patrick Schick	Date – Backfilled: –		
	Groundwater Depth: 12-14' wet layer	Elevation: –	Total Depth of Boring: 0'-16'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	36		1524	Road Bed - 0-4' gravel, angular 2.0" max diameter, minor/few fines, brown→white/grey dry, moist	
1				3.4	1540		
2							
3				2.8	1541		
4		48	26		1530	large gravel, angular 1.0" max diameter, more fines, ~50% fine material, light brown, tan – dark brown - red/brown finer silts 4-6' SP	22NEC-SB05-SS07 6'-10', MS/MSD
5				3.4	1546		
6							
7				75.5	1547	6-8 ft the dark brown - red/brown finer silts OL, little/minor odor detected	
8		48	40		1539	fine sand/silt brown - dark brown, moist, organics 8-10' ft SC	
9				9.8	1600		
10						10-12' ft dark brown - dark/brown/grey, fine silt moist OL	
11				5.0	1601		
12		48	24		1715	fine silt/clay, dark brown/grey, wet and icy 12-14.	
13				16.6	1718		
14						14-16' frozen - grey/dark silt	
15				3.2	1719		
16						End of Boring	

* All soil, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC22	Project Number: 700700	Client: USACE	Boring No. SB06
Address, City, State		Drilling Contractor: Brice	
Logged By: Jane Schey	Date: Started: 7/31/22; Completed: 7/31/22; Backfilled:	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders, Patrick Schick	Groundwater Depth:	Elevation:	Total Depth of Boring: 0' - 20'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	25		1610	Gravel Road Bed, 0-4' gravel, angular, <5% fines, grey-brown, pebble/gravel max 1.5" diameter, dry/moist, GP	
1				4.4	1612		
2							
3				3.0	1613		
4		48	20	3.9	1634	4-6, large gravel 1.8" max diameter, angular/rounded, light brown - dark brown - ~~grey/white~~. GP	
5							
6							
7				2.9	1635	6-8, large gravel 1.8" max diameter, angular/rounded, dark brown - grey/white SP	
8		48	46			8-10, gravel, sand and silt, 0.8" max diameter, moist, organics present/roots + vegetation. ~~OL~~ SP	
9				28.8	1636		
10							
11				22.6	1637	10-12, silt, dark brown, organics present/roots + vegetation, moist OL	22NEC-SB06-SS05 8'-10'
12		48	46			12-14, fine silt, dark brown, moist, organics OL	
13				13.7	1638		
14							
15				8.6	1639	14-16, fine silt, dark brown/black/grey, moist, organics, OL	
16							

* All Soil, no Sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC 22	Project Number: 700700	Client: USACE	Boring No. SB06

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	14		1700	Gray silt/clay and gravel, 1.0" diameter maximum diameter SP, moist 16-18, 18-20.	
17				49.2	1703		
18							
19				3.1	1704		22NEC-SB06-SS06 16'-18'
20						End of Boring	
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							

SOIL BORING LOG

Sheet 1 of 1

Project: NEC22	Project Number: 700700	Client: USACE	Boring No. SB07
Address, City, State		Drilling Contractor:	
Logged By: Jane Suhey	Date: Started: 7/31/22; Completed: 7/31/22; Backfilled:	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders, Patrick Schick	Groundwater Depth: 6-8 ft wet layer	Elevation:	Total Depth of Boring: 0' - 12'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	23		1745	Road bed, gravel 0-4', angular, 1.5" max. diameter, dry, moist, light brown - gray-brown, pockets of gravel within soil distribution. GP	
1				1.0	1800		
2							
3				1.9	1802		
4		48	46		1755	4-6' ft, gravel to fine grained silt grey - brown ~~dark brown - dark gray~~ SP, moist	
5				2.4	1810		
6							
7				2.3	1811	6-8' ft, silt, dark brown - dark gray, moist, wet, frozen	NEC-SB8-SS08 4'-6'
8		48	48		1812	8-12' ft, FROZEN, dark silt, gray/dark brown	
9				1.0	1813		
10							
11							
12				0.8	1815	End of Casing	
13							
14							
15							
16							

* All Soil, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NE22	Project Number: 700700	Client: USACE	Boring No. SB08
Address, City, State		Drilling Contractor: Brice	
Logged By: Jane Sahey	Date: Started: 8/1/22; Completed: 8/1/22; Backfilled:	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders, Patrick Schick	Groundwater Depth: 2-4' wet layer	Elevation:	Total Depth of Boring: 0'-12'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	46		0835	Site 8, tundra adjacent to road (east of pipeline break), fine grained sediment and organic matter, roots extending the first 4-6 inches. light brown grey 0-4' OL ice crystals observed at 2' ft.	
1				0.6	0855		
2							
3				1.1	0856		
4		48	40		0840	4-6', fine, wet silt and clay. dark brown, organics observed (roots) OL	
5				1.3	0857		
6				1.0	0900	6-8', fine, wet silt/clay. dark grey, odor observed at 7' OL, no ice observed	
7							
8		48	26		0910	8-12', fine silt/clay, wet, some ice crystals, few pebbles (<0.3" diameter), dark grey/brown, 8-9 ft very wet	22NEC-SØ8-SSØ9 10'-12'
9				1.1	0920		
10							
11				1.8	0921	10-12', more coherent solid, some ice, pebbles, dark grey/brown CL END of Boring	
12							
13							
14							
15							
16							

* All soil, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC 22	Project Number: 700700	Client: USACE	Boring No. SB09
Address, City, State		Drilling Contractor: Brice	
Logged By: Jane Schey	Date – Started: 8/1/22; Completed: 8/1/22; Backfilled: –	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders, Patrick Schick	Groundwater Depth: 8'-10' wet layer	Elevation: –	Total Depth of Boring: 0' – 20'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
1		48	24	0.8	0950 1010	0-4' ft, S. to 8' tundra adjacent to Rd. (east of pipeline break), fine sediment, organic matter consistent 0-8in, light brown-grey-dark brown, wet, some roots at 4 ft depth, few ice crystals observed. OL	
2							
3				1.2	1011		
4		48	28	1.4	0955 1012	4-6', fine grained silt/clay, dark brown/grey OL	
5							
6						6-8', fine grained silt/clay, dark grey, some gravel, <0.5" diameter CL	
7				1.3	1013		
8		48	28	1.7	1000 1014	8-10', fine grained silt/clay, grey, wet OL	
9							
10						10-12', fine grained silt/clay and gravel and sand, grey CL gravel < 0.5" diameter	
11				1.6	1015		
12		48	24	2.1	1016 1034	12-14', fine grained silt/clay, gravel and sand, 1.5" gravel diameter max, grey, wet	
13							
14						14-16', gravel, sand and clay, grey, wet GC	
15				2.4	1035		20DEC-SB9-SS/D 14'-16'
16							

* All soil, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC 22	Project Number: 700700	Client: USACE	Boring No. SB09

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	24		1036	16 - 18' silt, clay, sand, gravel 1.5"	
17				1.2	1045	max. diameter, gray - light gray/white GP moist.	
18						18 - 20', gravel, clay, dark gray, moist	
19				2.1	1046	GC,	
20						End of Boring	
21							
22							
23							
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SOIL BORING LOG

Sheet 1 of 1

Project: NEC 22	Project Number: 700700	Client: USACE	Boring No. SB10
Address, City, State		Drilling Contractor: Brice	
Logged By: Jane Sokey	Date – Started: 8/1/22; Completed: 8/1/22; Backfilled:	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders, Patrick Schick	Groundwater Depth: 9-10 wet layer	Elevation:	Total Depth of Boring: 0'-16'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	26		1055	0'-4', silt & tundra adjacent to RD (east of pipeline break), organic matter 0'-2' observed, fine silt, light brown-grey, moist, OL, low plasticity	
1				2.1	1135		
2							
3				3.2	1136		
4		48	40		1058	4'-6', fine silt/clay, moist, grey, some sand observed.	
5				2.5	1137		
6						6'-8', fine silt, dark brown, moist/dry organics, sand OL	
7				8.3	1138		22NEC-SB8-SS11 6'-8'
8		48	26		1100	8'-10', silt, moist, brown-grey OL	
9				1.7	1141		
10						10'-12', silt/gravel, wet, grey, 0.2" diameter gravel SP clay at 11.5' moist.	
11				1.6	1142		
12		48	24		1105	12'-14', gravel/silt/clay, 0.5" max diameter of gravels, wet-moist, grey SP	
13				2.6	1139		
14						14'-16' clay/silt/sand, grey moist	
15				1.6	1140		
16						End of Boring	

* All Soil, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC 22	Project Number: 700700	Client: USACE	Boring No. SB11
Address, City, State		Drilling Contractor: Brice	
Logged By: Jane Sohey	Date: Started: 8/1/22; Completed: 8/1/22; Backfilled: /	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders, Patrick Schick	Groundwater Depth: 1'-4' wet layer	Elevation: /	Total Depth of Boring: 0'-8'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	35		1315	0'-4' moist, low plasticity silt with >20% organics, light-dark brown ice observed 1'-2' and solid ice observed 2'-4'. OL	
1				1.4	1331		
2							
3				1.2	1332		
4		48	31		1323	4'-6', moist fine silt/clay with ice crystals observed, brown-grey, some organics	22NEC-S08-SS12 4'-6'
5				2.2	1333		
6						6'-8', moist clay, dark grey, moist-wet with higher plasticity OH	
7				1.8	1334		
8		48				End of Boring	
9							
10							
11							
12		48					
13							
14							
15							
16							

* All Soil, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC22	Project Number: 700700	Client: USACE	Boring No. SB12
Address, City, State		Drilling Contractor: Brice	
Logged By: Jane Sohey	Date: Started: 8/1/22; Completed: 8/1/22; Backfilled: /	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders, Patrick Schick	Groundwater Depth: /	Elevation: -	Total Depth of Boring: 0' - 16'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	20		1430	0'-4', organics and silty soil, frozen from 3'-4' ft. moist - wet, low plasticity, light brown OL	
1				3.8	1500		
2							
3				3.7	1501		
4		48	46		1440	4'-6', sand dark grey, wet → transitions to moist clay SW	
5				4.1	1502		
6							
7				5.4	1503	6'-8', clay and silt, organics present, low plasticity, moist, dark grey OL	22NEC-SB8-SS13 6'-8'
8		48	22		1500	8'-10', sand, dark grey, moist transitions to dark clay, moist SW	
9				1.8	1518		
10						10'-12', gravel 1.0" in diameter and clay, moist, dark grey GC	
11				1.3	1519		
12		48	34		1515	12'-14', clay, moist (higher plasticity <50% liquid) dark grey/blue OL	
13				2.4	1520		
14						14'-16', clay, moist <50% liquid) dark grey/blue → transitions to gravel and sand wet mixture <0.8" diameter gravel GC	
15				2.6	1521		
16							

End of Boring

* All Soil, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: AEC 22	Project Number: 700700	Client: USACE	Boring No. SB13
Address, City, State		Drilling Contractor: Brice	
Logged By: Jane Silvey	Date: Started: 8/1/30; Completed: 8/1/30; Backfilled: –	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders, Patrick Schick	Groundwater Depth: 6'-8' wet layer	Elevation: –	Total Depth of Boring: 0'-16'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	24		1545	0-4', organics, and frozen silts, soils	
1				2.2	1625	light brown PT-OL	
2						*roots extend 0-3ft	
3				3.2	1626		
4		48	25		1555	4'-6', organics, light brown silts, clay, and	
5				3.0	1627	sands/gravel OL → SC	
6						6'-8', sands/gravels, and clays, wet-moist,	
7				2.8	1628	dark grey, low plasticity, SC	
8		48	20		1600	8'-10', sandy gravel to clay, dark grey,	
9				2.8	1627	moist, low plasticity. SC	
10						10'-12', clay, sand, dark grey, moist, low	
11				3.3	1630	plasticity SC	
12		48	13		1605	12-16' gravelly sands and clays,	
13				4.0	1631	1.7" diameter gravels, moist GC	
14							
15				2.9	1632		20SC-SB3-SS14 12'-14'
16						End of Boring	

*All Soil, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC 22	Project Number: 700700	Client: USACE	Boring No. SB14
Address, City, State		Drilling Contractor: BRICE	
Logged By: Jane Suhey	Date: Started: 8/1/22; Completed: 8/1/22; Backfilled: /	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders, Patrick Schick	Groundwater Depth: 12'-16' wet layer	Elevation: —	Total Depth of Boring: 0'-16'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	25		1645	0'-4', organic material, wet/frozen	
1				1.9	1700	0'-2.5' ft, transitions to moist, light brown/grey clay. Roots visible throughout core	
2							
3				6.9	1701	PT-OL	22NEC-SB8-SS15 0'-4'
4		48	36		1650	4'-6', organic material moist soils and clay, roots still observed, light brown, <50% liquid, low plasticity. PT-OL	
5				3.9	1702		
6						6'-8', sands and clays, dark greys, moist, low plasticity <50% liquid, SC	
7				3.5	1703		
8		48	22		1715	8'-10', clay and fine gravel, moist, dark grey	
9				0.9	1728		
10						10'-12', clay and gravel, moist, dark brown/grey GC	
11				1.0	1729		
12		48	25		1718	12'-16', clay - water - clay/gravel - water - gravel 1.8" diameter, wet, grey	
13				2.1	1719		
14						GC	
15				1.7	1720		
16						End of Boring	

*All Soil, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC 22	Project Number: 700700	Client: USACE	Boring No. SB15
Address, City, State		Drilling Contractor: Brice	
Logged By: Jane Sohey	Date – Started: 8/1/22; Completed: 8/1/22; Backfilled:	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders, Patrick Schick	Groundwater Depth: 8'-10' wet layer	Elevation:	Total Depth of Boring: 0' - 14'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	12.9		1730	0'-2', organics brown, wet root material	
1				2.0	1753	2'-4', brown fine-very fine silt, damp, with organics present from 3'-4' OL	
2							
3				2.4	1754		22NEC-SB3-SS16 2'-4'
4		48	24.25		1735	4'-6', gray silt w/clay with interspersed rounded gravel. 6'-7' a lense of fine, gray sand surrounded by medium gravel	
5				1.6	1755		
6							
7				1.8	1756	6'-8' thin lense of brown organics, and gray silt at 8'. GC	
8		48	12.15		1743	8'-10', wet silt grading to very fine sand, gray. SC	
9				1.4	1758		
10						10'-12', clay with large-rounded to angular gravel. GC clay is damp	
11				1.0	1759		
12		24	12		1750	12'-14' gray clay with large gravel, angular <1.0" diameter GC	
13				1.4	1800	End of Boring	
14	REFUSAL						
15							
16							

*All Soil, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC 22	Project Number: 700700	Client: USACE	Boring No. SB16
Address, City, State		Drilling Contractor: Brice	
Logged By: Jane Sibley	Date: Started: 8/1/22; Completed: 8/1/22; Backfilled:	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders, Patrick Schuck	Groundwater Depth:	Elevation:	Total Depth of Boring: 0'-16'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	25		1820	0'-2', brown, fine silt with organics - damp, organic smell present	22NEC-SB8-SS17 0'-4'
1		*		1.8	1853		
2						2'-4', brown, fine silt/to very fine Strong odor of decomposition OL	
3				2.7	1854		
4		48	36		1823	4'-6', brown - grey silt, very fine, Strong odor	
5				1.8	1855		
6		*				6'-8', lense of sand ~ 2.0" thick observed at 6', dry, grades to fine/very fine silt with odor present OL	
7				1.5	1856		
8		48	1235		1843	8'-10', clay with large gravel, grey, damp	
9				1.4	1857		
10						10'-12', concrete @ 12'.0, gravelly-clay GC	
11				1.4	1858		
12		48	38		1845	12'-14', clay-gravels, dark grey with concrete/gravel at 15 ft loosely consolidated material	
13				1.5	1859		
14							
15				1.2	1900	GC	
16						End of Boring	

* All Soil, no Sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC22	Project Number: 700700	Client: USACE	Boring No. SB17
Address, City, State		Drilling Contractor: Brice	
Logged By: Jane Sukey	Date: Started: 8/2/22; Completed: 8/2/22; Backfilled:	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders	Groundwater Depth:	Elevation:	Total Depth of Boring: 0'-16'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	36		0845	0'-2', light brown, organic silts and	
1				0.8	0908	rounded gravels < 0.3" diameter, roots 0'-2',	
2						Course - fine, moist and spongy	
3				0.3	0909	2'-4', brown, fine, moist - ice present throughout, dry near 2.5'-4', low plasticity. SM-OL	
4		48	41		0847	4'-6', brown, dry silt, fine	
5				0.3	0915		
6						6'-8', brown-grey fine silt, liquid lense	
7						2.2'-2.5' wet, grades to brown dry organic lense 2.8'-3.2' then to fine grey silt. OL	
8		48	24		0900	8'-10' brown-grey, moist silty gravel < 0.8"	
9				1.6	0916	diameter	
10						10'-12' grey moist silt with gravel < 1.0"	
11				0.8	0917	diameter subtle organic odor GM	22NEC-SØ8-SS18 8'-10'
12		48	13		0905	12'-16' moist - wet gravelly silts, grey -	
13				0.7	0920	dark grey - Gravel angular < 1.5" diameter.	
14						GM	
15				1.2	0921		
16						End of Boring	

* All Soil, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC 22	Project Number: 700700	Client: USACE	Boring No. SB18
Address, City, State		Drilling Contractor: Brice	
Logged By: Jane Sibley	Date: Started: 8/2/22; Completed: 8/2/22; Backfilled:	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders, Patrick Schick	Groundwater Depth:	Elevation:	Total Depth of Boring: 0'-16'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	38		0943	0'-4', organic rich course-fine silt, roots observed to 2', ice crystals in core 3" – 2.6' sand 2.9'-3.1'. OL	
1				1.3	1008		
2							
3				1.6	1009		
4		48	39		0950	4'-6' sands, course, wet grades to finer silts moist-dry	
5				1.6	1010		
6						6'-8' fine dry silts grey, grades to organic rich, light brown lense 6.6'-8' ~~OL~~ SM	
7				2.1	1011		20NEC-SB18-SS19 6'-8'
8		48	24.3		0955	8'-10' course sands and silts grey-dark brown, organic lense 8.3'-8.5', organic odor present.	
9				1.6	1012		
10						10'-12', fine-very fine grey silts and gravel <1.3" diameter GM	
11				1.1	1013		
12		48	18		1000	12'-16', fine silt, grey, add gravels 1.5" diameter, moist	
13				1.2	1014		
14							
15				1.0	1015	GM	
16						End of Boring	

* All soil, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC 22	Project Number: 700700	Client: USACE	Boring No. SB19
Address, City, State		Drilling Contractor: Brice	
Logged By: Jane Suhey	Date: Started: 8/2/22; Completed: 8/2/22; Backfilled: -	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders, Patrick Schick	Groundwater Depth: -	Elevation: -	Total Depth of Boring: 0' - 16'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	29		1043	0'-4', Road Bed material, gravel	
1				1.3	1108	and sand up to 4', dry <1.0" diameter	
2						GP	
3				1.1	1109		
4		48	27		1055	4'-6', gravel material and sand	
5				1.0	1110	<1.3" diameter, dry	
6						6'-8', gravel material, sand <1.4"	
7				1.2	1111	diameter, dry GP	
8					1100	8'-10', gravelly sand, dry, <2.00" diameter	
9				1.4	1112	gravels, light brown, ovidation 8.3"-8.6"	
10						10'-12' fine silt, dark brown, moist,	
11				1.3	1113	some organic material (ie.) roots	22NEC-SB-SS20 8'-10'
12					1105	12'-16' Coarse sands and silts, light brown-	
13				0.8	1118	dark brown → grades to finer more moist	
14						material, organic lense 2.3'-3.1', →	
15				0.8	1119	gravel at 3.1', to bottom.	
16						GM End of Casing	

*All soils, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC 22	Project Number: 700700	Client: USACE	Boring No. SB20
Address, City, State		Drilling Contractor: Brice	
Logged By: Jane Suhay	Date: Started: 8/2/22; Completed: 8/2/22; Backfilled: –	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders, Patrick Schick	Groundwater Depth: 6'-8' wet layer	Elevation: –	Total Depth of Boring: 0'-16'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	27		1310	0'-4' gravel road, gravel and sand material < 1.5" diameter, light brown, dry, GP	
1				0.7	1324		
2							
3				0.7	1325		
4		48	28		1315	4'-6', gravel road, gravel and sand material < 1.0" diameter, light brown, moist, 0.7-1.4" wet sand and silt lense 6'-8', gravel grades to fine silt, moist, organics present, GM	
5				0.6	1326		
6							
7				1.5	1327		
8		48	39		1328	8'-10', gravelly silt, moist, brown, organic odor present, fine	22NEC-SB8-SS21 8'-10'
9				1.8	1338		
10						10'-12' fine, grainy silt, brown-dark brown, organics at 11'	
11				1.0	1339		
12		48	24		1329	12'-16', dark brown/grey fine silt dry-moist with gravel interspersed < 1.3" diameter.	
13				0.7	1340		
14							
15				0.7	1341		
16						End of Boring	

* All Soils, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project:	Project Number:	Client:	Boring No.
HEC22	0700700	USACE	SB21
Address, City, State		Drilling Contractor: Brice	

Logged By:	Date		Drilling Method and Equipment Used:
Jane Sohey	Started: 8/2/22		6610 Direct Push
	Completed: 8/2/22		
Drill Crew: Logan Sanders, Patrick Schick	Backfilled:		
	Groundwater Depth: 6.5-7.5' wet layer	Elevation:	Total Depth of Boring: 0'-16'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	24		1350	0'-4', gravelly sand mixture from gravel road <1.4" diameter light brown, dry. GP	
1				0.9	1415		
2							
3				1.1	1416		
4		48	24		1355	4'-8', gravelly sand mixture from gravel road <1.6" diameter, light brown grading to dark brown, wet at 7ft, organics observed at 7.8'. GP slight odor	
5				0.9	1417		
6							
7				327.0	1418		HEC22-SB21-SS22 (6'-8')
8		48	39		1410	8'-10', silt, dry-moist, light brown, slight organic odor	
9				29.0	1419		
10						10'-12', silt, dry-moist, dark brown slight organic odor, sand lense 11.8'→ 11.9' fine OL	
11				13.7	1420		
12		48	24		1413	12'-16', dark grey silt, dry-moist, interspersed with gravel <1.5" diameter	
13				7.6	1421		
14							
15				2.6	1422	GM	
16						End of Boring	

* All soils, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC 22	Project Number: 700700	Client: USACE	Boring No. SB22
Address, City, State		Drilling Contractor: Brice	
Logged By: Jane Schey	Date: Started: 8/2/22; Completed: 8/2/22; Backfilled: ✓	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders, Patrick Schick	Groundwater Depth: 6'-8' wet layer	Elevation: ✓	Total Depth of Boring: 0' - 8'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	26		1508	0' - 4', gravel road / gravelly sand, dry,	
1				0.9	1516	light brown, white-grey, <1.5"	
2						diameter gravel GP	
3				1.0	1517		
4		48	28		1510	4' - 6', gravelly sand, dry, <1.4" diameter	22NEC-SØ8-SS23 6'-8'
5				64.4		gravel,	
6						6'-8', gravelly sand grades to wet gravel	
7				274.9	1511	→ organic silt and sand, dark brown GM	
8		REFUSAL				End of Boring	
9							
10							
11							
12							
13							
14							
15							
16							

* All soils, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC 22	Project Number: 700700	Client: USACE	Boring No. SB23
Address, City, State		Drilling Contractor: Bruce	
Logged By: Jane Suhey	Date: Started: 8/2/22; Completed: 8/2/22; Backfilled: –	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders Patrick Schick	Groundwater Depth: 7'-8' wet layer	Elevation: –	Total Depth of Boring: 0'-12'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	21		1600	0'-4', moist siltly gravel <1.5" diameter.	
1				0.6	1606		
2						4'-6', moist silt and gravel <1.0" diameter, organics present. GP	
3				0.4	1607		
4		~~48~~	~~40~~		~~1610~~		
5							
6		48	27			6'-8' gravelly silts wet 7.5' <2.0" in diameter GM	22NEC-SB8-SS24 6'-8'
7				8.4	1645		
8		48	40		1610	8'-10' silt, dry, light brown and moist organics, roots extend to 9.0'	
9				3.0	1614		
10						10'-12' silt, moist, organic material, fine-very fine. OL	
11				1.5	1615		
12						End of Boring	
13							
14							
15							
16							

Bore 0'-8'

Bore 0'-6'

* All soils, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: DEC 22	Project Number: 700700	Client: USACE	Boring No. SB24
Address, City, State		Drilling Contractor: Brice	
Logged By: Jane Sohey	Date: Started: 8/2/22; Completed: 8/2/22; Backfilled: –	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders, Patrick Schick	Groundwater Depth: 4.5-5 wet layer	Elevation: –	Total Depth of Boring: 0'-16'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	18		1714	0'-4' Gravel Rd.	
1				1.5	1725	gravelly sand, dry, <1.4" diameter, light brown	
2							
3				1.5	1726	GP	
4					1715	4'-6' gravelly silt, wet, <1.2" diameter	22DEC-S08-SS25; 22DEC-S08-SS925 4'-6' (Dup)
5				155.0	1727		
6						6'-8', moist fine, dark-brown silt, subtle odor/organic detected, organic lense 2.4-2.6' on core OL	
7				4.5	1720		
8		48	31		1718	8'-12' sand/wet grading to silt/dry.	
9				12.5	1728	organic lense 1.6'-1.7' on core/w organic odor → grades to fine/very fine silt	
10							
11				3.8	1729	dark grey, dry.	
12		48	25			12'-16', fine silt, grey, dry-damp/moist.	
13				3.2	1730		
14							
15				3.3	1731		
16						End of Boring	

* All soils, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC22	Project Number: 700700	Client: USACE	Boring No. SB25
Address, City, State: –		Drilling Contractor: Brice	
Logged By: Jane Suhey	Date: Started: 8/2/22; Completed: 8/2/22; Backfilled:	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders, Patrick Schick	Groundwater Depth: 6'-8 wet layer	Elevation: –	Total Depth of Boring: 0' – 16'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	26		1745	0'-4', wet gravelly (small/rounded) silt with organics, ice present, light brown, - dark brown OL	22NEC-SB8-SS26 (MS/MSD) 2'-4'
1				2.2	1813		
2							
3				3.4	1814		
4		48	39		1750	4'-6', sandy gravel to fine silt, grey, dark	
5				2.2	1815		
6							
7				2.7	1816	6'-8', fine silt, dark grey wet 1.7'-2', remaining core dry. OL	
8		48	27		1755	8'-10', silt, dark brown-grey, damp-moist	
9				1.8	1817		
10						10'-12', gravelly silts, moist <0.5" diameter, rounded GM	
11				1.3	1818		
12		48	7		1800	12'-16 very fine silt, moist, dark grey	
13				1.3	1819		
14							
15				1.5	1820	GM	
16						End of Boring	

* All soils, no sediment oberved

SOIL BORING LOG

Sheet 1 of 1

Project: NEC22	Project Number: 700700	Client: USACE	Boring No. SB26
Address, City, State		Drilling Contractor: Bnce	
Logged By: Jane Suhey	Date: Started: 8/3/22; Completed: 8/3/22; Backfilled: —	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders Patrick Schick	Groundwater Depth: -	Elevation: -	Total Depth of Boring: 0' - 16'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	28		0825	0'-4' Gravel Road, dry, gravelly	
1				0.5	0850	Sand mixture, gravel <1.5" diameter,	
2						light brown, angular, course, <15% fines.	
3				11.3	0851	GP	
4		48	42		0830	4'-6', gravelly sands <1.4" diameter	22NEC-S08-SS27 4'-6'
5				215.4	0853	angular gravel, moist, grades to organic	
6						rich lens with course/fine silt. Odor present	
7				7.5	0854	6'-8', fine silt, brown-grey. odor present	
8						moist OL	
		48	36		0835	8'-10' course sands (light brown/tan)	22NEC-S08-SS28 10'-12'
9				3.8	0855	grade to fine, grey silts damp-moist	
10						10'-12', fine grey silts, damp-moist	
11				1.3	0900	ML	
12		48	17		840	12'-16'	
13				12.3	0901	Course sands (light brown/tan) grade to	
14						dark brown/black PT (3") lenses → grade to	
15				1.3	0902	fine silts - grey / Course gravels <1.0" diameter	
16						End of Boring GM	

* All soils, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC22	Project Number: 700700	Client: USACE	Boring No. SB27
Address, City, State		Drilling Contractor: Brice	
Logged By: Jane Schey	Date: Started: 8/3/22; Completed: 8/3/22; Backfilled: —	Drilling Method and Equipment Used: 6610 Direct Push	
Drill Crew: Logan Sanders, Patrick Schick	Groundwater Depth: 6'-7' wet layer	Elevation: —	Total Depth of Boring:

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	17		0928	0'-4' Gravel Road	
1				1.2	1011	gravelly sands, course, damp, tan-light brown <1.0" gravel diameter <20% fines, angular gravel	
2							
3				0.8	1015	GW	
4		48	36		0935	4'-6' course gravel, angular, course sand, lense of organic matter 4.0"	22NEC-SØ8-SS30 4'-6'
5				2.1	1016		
6							
7				1.4		6'-8' fine silt, moist, ice present OL	
8		48	43		0938	8'-10' fine silt dark grey-brown, dry-damp	
9				1.1	1017		
10							
11				0.9	1018	10'-12' fine silt, damp, dark brown-grey ML	
12							
13				0.9	1019	12'-16' silty gravel ~~<0~~ <1.3" diameter, grey, moist <40% fines	
14							
15				0.8	1020	GM	
16						End of Boring	

* All soils, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC 22	Project Number: 700700	Client: USACE	Boring No. SB28
Address, City, State		Drilling Contractor: Brice	
Logged By: Jane Sulay	Date: Started: 8/3/22; Completed: 8/3/22; Backfilled: –	Drilling Method and Equipment Used: Hand Auger	
Drill Crew: Patrick Schick	Groundwater Depth: –	Elevation:	Total Depth of Boring: 0'-6'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
			12	2.5	0932	0'-1' organic material sand and silt, moist/wet	22NEC-SB28 (1'-2')
1			12	6.3	1005	1'-2' organic material, fine silt, gravel, moist	
2			12	3.7	1006	2'-3' silty, brown, organics present, gravel, moist	
3			12	2.7	1006	3'-4' silty, brown, organics present, gravel, moist	
4			12	1.7	1007	4'-5' silty brown with gravelly sand, moist	
5			12	1.5	1008	5'-6' silty brown with gravelly sand, moist	
6						* <1.5" diameter gravels	
7							
8						GM End of Boring	
9							
10							
11							
12							
13							
14							
15							
16							

* All soils no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project:	Project Number:	Client:	Boring No.
NEC22	700700	USACE	SB29
Address, City, State		Drilling Contractor: Brice	

Logged By:	Date: Started:	Drilling Method and Equipment Used:
Jane Solvay	8/3/22	6610 Direct Push
	Completed: 8/3/22	
Drill Crew: Logan Sanders, Patrick Schick	Backfilled: ✓	
	Groundwater Depth:	Elevation: ✓ / Total Depth of Boring: 0'-12'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	24		1045	0'-4' Gravel Road	20NEC-SB29-SS31 2'-4'
1				2.2	1055	Gravelly sands <1.4" gravel angular, light brown, dry. <10% fines	
2							
3				13.7	1125	GP	
4		48	43		1050	4'-6' coarse sands and gravel grades to organic rich silt, dark brown, fine OL	
5				4.6	1108		
6						6'-8' frozen / very hard, dry, gray-brown, very fine	
7				2.1	1109	ML	
8		48	40			8'-12' Permafrost very fine silt, gray, grades to fine silt interspersed w/ small angular gravel fragments <0.8" diameter ML	
9				1.2	1131		
10							
11				0.8	1132		
12						End of Boring	
13							
14							
15							
16							

* All soils, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC22	Project Number: 700700	Client: USACE	Boring No. SB30
Address, City, State: –		Drilling Contractor: Brice	
Logged By: June Suhay	Date: Started: 8/3/22; Completed: 8/3/22; Backfilled: –	Drilling Method and Equipment Used: Hand Auger	
Drill Crew: Patrick Schick	Groundwater Depth: –	Elevation: –	Total Depth of Boring: 0'-5'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
1				1.1	1144	0'-1' - fine silt, abundant organics, brown, moist	22NEC-SB2-SS32 1'-2'
2				1.3	1145	0'-2', fine silt, rich in organics, brown, moist	
3				1.2	1146	2'-3' fine silt, rich in organics, brown, moist	
4				1.1	1147	3'-4' fine/very fine silt, brown, moist, some organics	
5				0.9	1148	4'-5' fine silt, dry/damp, less-little <5% organics	
6						End of hand augering OL	
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

* All soils, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project:	Project Number:	Client:	Boring No.
NEC 22	700700	USACE	SB31
Address, City, State		Drilling Contractor: Brice	

Logged By:	Date: Started:	Drilling Method and Equipment Used:
Jane Sibley	8/3/22	6610 Direct Push
Drill Crew:	Completed: 8/3/22	
Logan Sanders, Patrick	Backfilled: –	
	Groundwater Depth: –	Elevation: – / Total Depth of Boring: 0' – 16'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
		48	25		1200	0'–4' Gravel Rd.	
1				0.3	1215	Gravelly sand ~~<50%~~ <5% fines, light	
2						brown/tan <1.3" diameter gravel	
3				0.2	1216	GM	22NEC-SB-SS033
4		48	44		1205	4'–6' silty gravel, gray <1.3" angular	
5				18.1	1217	gravel, grades to organic rich layer 6"–7".	22NEC-SB-SS33 + 22NEC-SB-SS033 4'-6' (DUP)
6						organic odor detected	
						7'–8' fine silt, gray-brown, damp,	
7				1.1	1218	grades to finer gray silt, frozen	
8						OL	
		48	36		1210	8'–12' fine gray, dry silt, grades to	
9				1.1	1220	dark brown/black @ 11.5'	22NEC-SB-SS34 10'-12'
10							
11				1.0	1221	ML	
12		48	8		1215	12'–16' fine silt and gravel <1.5"	
13				2.5	1222	diameter, angular	
14							
15				2.3	1223	GM	
16						End of Boring	

* All soils, no sediment observed

SOIL BORING LOG

Sheet 1 of 1

Project: NEC22	Project Number: 700700	Client: USACE	Boring No. SB32
Address, City, State		Drilling Contractor: Brice	
Logged By: Jane Sobey	Date: Started: 8/3/22; Completed: 8/3/22; Backfilled:	Drilling Method and Equipment Used: Hand Auger	
Drill Crew: Patrick Schick	Groundwater Depth: –	Elevation: –	Total Depth of Boring: 0'-4'

Depth (feet)	Sample Interval	Inches Driven	Inches Recovered	PID (ppm)	Time	Soil Description: Soil Name, USCS Group Symbol, Color, Relative Density or Consistency, Plasticity, Moisture Content, Secondary Grain Size, Odor, Additional Descriptors	Sample
				1.2	1600	0'-1' course sand, silt, and organic matter, wet	
1					1601	1'-2'. silt, organic matter, dark brown, wet	
2				1.3	1601	2'-3' silt, organics, wet, fine, dark brown	
3				1.3	1602	3'-4', dark brown silt, damp-dry, organics present.	20NEC-SB32 SS35 3'-4'
4				3.1	1603	OL End of Boring	
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

* All Soils, no sediment observed

Groundwater Sampling Forms

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GROUNDWATER SAMPLING DATA FORM

Well ID: ~~14MW01~~ AG 14MW01

Project Name:	NE Cape 2022	Date:	8/2/2022
Project Number:		Start Time:	1000
Sampling Team:	TD	End Time:	1110
Sample ID:	22NEC - MDC - 14MW01	Time: 1045	primary (circled) dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:

Depth to Top of Product (BTOC):	NA	Total Depth (BTOC):	22.19
Depth to Oil/Water Interface (BTOC):	NA	Depth to Water (BTOC)	17.42
Casing Diameter:	*1 in.* / *2 in.* (circled) / *4 in.*	Water Column (ft)	4.77
gal/ft of casing:	*0.041* / *0.163* / *0.653*	Casing Volume (gal)	0.78
Pump Intake Depth:	18.50	Screen Interval	TBD
Stable DTW (BTOC):	17.70	Measured Stick-up	Flush mount

Method of Purging (circle one):

Pump: SUB (circled) BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.112	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time: 25	Vol. Purged (gal):

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L) %Saturation TD	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1010	0	17.42	0	3.19	5.53	83.05	43.2	47.88	280
1015	0.50	17.88	0.46	2.62	6.38	298.6	25.6	17.88	715
1020	1.10	17.68	0.26	2.42	6.71	257.45	21.2	44.41	503
1025	1.7	17.66	0.24	3.44	6.64	200.45	35.9	51.27	203
1030	2.25	17.65	0.23	3.37	6.67	237.21	42.0	25.22	117
1035	2.8	17.71	0.29	3.16	6.45	68.10	57.0	23.09	183

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber (TD), Tan, Brown, Gray (TD), Milky White (circled), Other

Odor: None (circled) Low, Medium, High, Very Strong, H2S, Fuel-Like, Chemical ?, Unknown

Turbidity: None, Low, Medium (circled), High, Very Turbid, Heavy Silts

Comments:
- Sulfate Concentration read via Colorimeter 15.5 mg/L
- Unable to seat well lid, well slightly frost jacked.
- Nitrate Concentration read via ~~a~~ Colorimeter at 0.9 mg/L
- Ferrous Iron Concentration read AG via Test Kit IR-18C at 2.5 mg/L

GROUNDWATER SAMPLING DATA FORM

Well ID: 14 MW02

Project Name:	NE Cape 2022	Date:	8/2/22
Project Number:		Start Time:	1115
Sampling Team:	TD	End Time:	1200
Sample ID:	No sample collected	Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Depth to Top of Product (BTOC):		Total Depth (BTOC):	16.92
Depth to Oil/Water Interface (BTOC):		Depth to Water (BTOC)	12.50
Casing Diameter:	*1 in.* *2 in.* *4 in.*	Water Column (ft)	4.42
gal/ft of casing:	*0.041* *0.163* *0.653*	Casing Volume (gal)	0.72
Pump Intake Depth:		Screen Interval	TBD
Stable DTW (BTOC):		Measured Stick-up	Flush mount

Method of Purging (circle one):

Pump: SUB BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm):	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time:	Vol. Purged (gal):

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
Unable to pump due to blockage at 9.5 ft BTOC									

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber, Tan, Brown, Gray, 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:
- Outer well casing filled with water
- Unable to get submersible pump past a blockage at 9.5 ft BTOC. Attempted to clear blockage with a pointed PVC pipe. Did not collect sample. Small amount of ice was found on the pump

GROUNDWATER SAMPLING DATA FORM

Well ID: 14MW-02

Project Name:	NEC FUD	Date:	08/05/22
Project Number:		Start Time:	1400
Sampling Team:	Michael W. Alli	End Time:	1530
Sample ID:	22NEC-MOC-14MW02	Time: 1445	primary dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Depth to Top of Product (BTOC):		Total Depth (BTOC):	16.84
Depth to Oil/Water Interface (BTOC):		Depth to Water (BTOC)	12.50
Casing Diameter:	*1 in.* *2 in.* *4 in.*	Water Column (ft)	4.34
gal/ft of casing:	*0.041* *0.163* *0.653*	Casing Volume (gal)	0.71 x 2.12
Pump Intake Depth:		Screen Interval	unknown
Stable DTW (BTOC):		Measured Stick-up	N/A

Method of Purging (circle one):

Pump: SUB BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Mega Manipulator Flow Rate (gpm):	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time:	Vol. Purged (gal):

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1426	1	12.97	0.47	1.47	5.90	291.83	237.9	0.52	81.26
1431	2	13.40	0.9	1.15	5.83	293.10	228.2	0.00	19.09
1436	2.25	12.83	0.33	1.57	5.71	291.58	224.3	0.00	80.02
1441	2.5	12.83	0.33	1.80	5.59	291.12	224.2	0.00	13.73

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber, Tan, Brown, Gray, 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:

- Sulfate measured with colorimeter, Read 11.6 mg/L
- Ferrous Iron was measured with test kit. Read 1.5 mg/L
- Nitrate measured with colorimeter Read 1.1 mg/L

GROUNDWATER SAMPLING DATA FORM

Well ID: 14MW03

Project Name:	NE cape 2022	Date:	8/1/2022
Project Number:		Start Time:	1450
Sampling Team:	TD	End Time:	1635
Sample ID:	22NEC-MOC-14MW03	Time: 1600	primary / dup / other:
Sample ID:	22NEC-MOC-14MW903	Time: 1615	primary / dup / other:
Sample ID:		Time:	primary / dup / other:
Depth to Top of Product (BTOC):	NA	Total Depth (BTOC):	24.00
Depth to Oil/Water Interface (BTOC):	NA	Depth to Water (BTOC)	13.17
Casing Diameter:	*1 in.* / *2 in.* / *4 in.*	Water Column (ft)	10.83
gal/ft of casing:	*0.041* / *0.163* / *0.653*	Casing Volume (gal)	1.77
Pump Intake Depth:	~~TD~~ 14.50	Screen Interval	TBD
Stable DTW (BTOC):	14.10	Measured Stick-up	Flushmount

Method of Purging (circle one):

Pump: SUB BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.10	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time: 50 minutes	Vol. Purged (gal):

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L) % sat.	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1500	0	13.20	0	5.57	6.51	178.66	140.4	101.53	73.3
1505	0.50	13.62	0.42	3.14	6.42	219.45	128.9	72.09	49.2
1310	1.00	13.49	0.79	2.61	6.34	206.66	123.5	81.99	86.5
1315	1.50	13.44	0.74	2.69	6.33	266.22	113.0	27.06	81.3
1320	2.00	14.00	0.80	3.12	6.23	181.91	112.7	63.60	63.2
1325	2.50	14.02	0.32	3.04	6.12	164.24	108.5	49.73	51.9
1330	3.00	14.06	0.86	3.33	6.04	237.24	110.5	35.59	40.6
1335	3.50	14.10	0.90	3.26	5.48	92.46	107.8	46.68	36.4
1340	4.00	14.18	0.98	2.45	5.95	181.37	107.7	37.40	20.6
1345	4.50	14.20	1.00	2.72	5.92	168.40	105.5	30.71	31.4

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber, Tan, Brown, Gray, 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:

- Primary sample sulfate concentration via colorimeter 11.0 mg/L
- Duplicate " 10.7 mg/L
- Nitrate concentration via colorimeter at 0.0 mg/L
- Ferrous Iron concentration read via test kit IR-18C at 2.5 mg/L

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1550	5.00	14.06	0.86	3.40	5.94	172.57	107.4	31.87	31.2
					✓		✓	✓	
					3 Parameters stabilized				

GROUNDWATER SAMPLING DATA FORM

Well ID: 14MW-02

Project Name:	NEC FUD	Date:	08/05/22
Project Number:		Start Time:	0946
Sampling Team:	Michael Williams / Allie Green	End Time:	11:40
Sample ID:	22NEC-MOC-14MW03	Time: 1040	primary / dup / other:
Sample ID:	22NEC-MOC-14MW904	Time: 1140	primary / dup / other:
Sample ID:		Time:	primary / dup / other:
Depth to Top of Product (BTOC):		Total Depth (BTOC):	15.04
Depth to Oil/Water Interface (BTOC):		Depth to Water (BTOC)	4.31
Casing Diameter:	*1 in.* / *2 in.* / *4 in.*	Water Column (ft)	~~15.04~~ 10.73
gal/ft of casing:	*0.041* / *0.163* / *0.653*	Casing Volume (gal)	1.75 x3 = 5.25
Pump Intake Depth:		Screen Interval	N/A
Stable DTW (BTOC):		Measured Stick-up	N/A

Method of Purging (circle one):

Pump: SUB BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.5 gpm	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time:	Vol. Purged (gal): 2

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1003	3gal	4.31	0	3.87	6.15	204.25	214.9	8.34	377.98
1013	5	4.31	0	3.54	5.85	188.11	229.2	3.09	46.81
1018	7	4.31	0	3.54	5.75	177.17	235.5	3.17	43.37
1023	9	4.31	0	3.80	5.64	174.40	~~3.21~~ 240.8	3.21	32.04

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber, Tan, Brown, Gray, 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:

1120 Measured Sulfate with Colorimeter. Read 6.0 mg/L

1130 Ferrous Iron was measured with Test Kit Reagent at 0.0 mg/L

1140 12.7 mg/L ; Nitrate measured by colorimeter

GROUNDWATER SAMPLING DATA FORM

Well ID: 14 mW 05

Project Name:	NEC FUD	Date:	08/05/22
Project Number:		Start Time:	1600
Sampling Team:	Michael W., Ali G.	End Time:	
Sample ID:	22NEC-MOC-14mW05	Time:	primary (circled) dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Depth to Top of Product (BTOC):		Total Depth (BTOC):	13.95
Depth to Oil/Water Interface (BTOC):		Depth to Water (BTOC)	3.94
Casing Diameter:	*1 in.* *2 in.* (circled) *4 in.*	Water Column (ft)	10.01
gal/ft of casing:	*0.041* *0.163* *0.653*	Casing Volume (gal)	1.63 x3 = 4.89
Pump Intake Depth:		Screen Interval	Unknown
Stable DTW (BTOC):		Measured Stick-up	N/A

Method of Purging (circle one):

Pump: SUB (circled) BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Mega Monsoon Pro Flow Rate (gpm):	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time:	Vol. Purged (gal):

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1623	~~0.25~~ 1.5	5.17	1.23	3.06	5.62	167.15	197.9	1.76	59.36
1628	2	5.50	1.56	2.52	5.57	181.08	185.8	0.10	24.21
1633	3	5.42	1.48	2.52	5.56	178.09	173.2	0.15	14.85
1638	4.5	5.01	1.07	2.63	5.58	175.91	163.5	0.16	16.67

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber, Tan, Brown, Gray, 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:
- Sulfate measured with colorimeter, read 4.5 mg/L
- Ferrous Iron measured at 2.0 mg/L
- Nitrate read 0.1 mg/L

GROUNDWATER SAMPLING DATA FORM

Well ID: 14MW06

Project Name:	NECape 22	Date:	8/1/2022
Project Number:		Start Time:	1700
Sampling Team:	TD	End Time:	1600
Sample ID:	22NEC-MCC-14MW06	Time: 1735	primary dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Depth to Top of Product (BTOC):	NA	Total Depth (BTOC):	14.69
Depth to Oil/Water Interface (BTOC):	NA	Depth to Water (BTOC)	5.21
Casing Diameter:	*1 in.* *2 in.* *4 in.*	Water Column (ft)	9.48
gal/ft of casing:	*0.041* *0.163* *0.653*	Casing Volume (gal)	1.55
Pump Intake Depth:	6.50	Screen Interval	TBD
Stable DTW (BTOC):	5.70	Measured Stick-up	Flushmount

Method of Purging (circle one):

Pump: SUB BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.09	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time: 20 minutes	Vol. Purged (gal):

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1714	0	5.25	0	5.21	6.68	167.12	134.4	90.68	28.0
1720	0.50	5.81	0.56	3.85	6.60	229.01	137.8	73.47	10.8
1725	0.90	5.66	0.41	4.11	6.58	212.07	140.6	48.67	7.31
	Three parameters stable →				✓		✓		✓
1730	1.50	5.80	0.55	4.04	6.53	232.01	131.1	57.71	6.24

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber, Tan, Brown, Gray, 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: Sulfate concentration read via Colorimeter 1.6 mg/L
Nitrate Concentration read via Colorimeter at 0.0 mg/L
Ferrous Iron Concentration read via Test Kit IR-18C at ~~0.0~~ 0.5 mg/L

GROUNDWATER SAMPLING DATA FORM

Well ID: 14MW07

Project Name:	NE Cape 2022	Date:	7/30/22
Project Number:		Start Time:	1330
Sampling Team:	TD	End Time:	1615
Sample ID:	22NEC-MOC-14MW07	Time: 1600	primary dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Depth to Top of Product (BTOC):	NA	Total Depth (BTOC):	33.19'
Depth to Oil/Water Interface (BTOC):	NA	Depth to Water (BTOC)	28.44'
Casing Diameter:	*1 in.* *2 in.* *4 in.*	Water Column (ft)	4.75'
gal/ft of casing:	*0.041* *0.163* *0.653*	Casing Volume (gal)	0.77 x3 = 2.31 gal.
Pump Intake Depth:	29.50	Screen Interval	TBD
Stable DTW (BTOC):	30.00	Measured Stick-up	Flush Mount

Method of Purging (circle one):

Pump: SUB BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.27	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time: 15	Vol. Purged (gal):

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1540	1.5	30.73	2.29	37.8	5.77	165.97	194.2	78.38	237.90
1545	3	32.08	3.64	40.40	5.66	160.48	229.5	101.54	384.66
1548		EMPTY							
1551	4	30.4	1.96	39.36	5.61	~~0.09~~ 162.74 ?	235.267	100.43	13.48

clear/ brown brown

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber, Tan, Brown, Gray, 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:

@1610 sulfate result obtained with HACH instrument 15.1 mg/L.

Red mark reference on well casing

1548 well dry — pumped for 10 min. 3½ gal pumped total, will wait for a recharge and sample directly. Minimum pump rate was ~300 mL/min.

Nitrate Concentration read via colorimeter at 0.9 mg/L

Ferrous Iron Concentration read via Test Kit IR-18C at 0.0 mg/L

Reference: ADEC, 2013. Monitoring Well Guidance, September.

GROUNDWATER SAMPLING DATA FORM

Well ID: 17MW 1

Project Name:	NF Cap 2022	Date:	7/30/22
Project Number:		Start Time:	1650
Sampling Team:	TD, JS, MG, MW, BS	End Time:	1800
Sample ID:	22NFC-MOC-17MW1	Time: 1730	primary (circled) dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Depth to Top of Product (BTOC):	NA	Total Depth (BTOC):	15.68
Depth to Oil/Water Interface (BTOC):	NA	Depth to Water (BTOC)	14.87
Casing Diameter:	*1 in.* / *2 in.* (circled) / *4 in.*	Water Column (ft)	0.81
gal/ft of casing:	*0.041* / *0.163* / *0.653*	Casing Volume (gal)	0.13 × 3 = 0.396 gal
Pump Intake Depth:	15.90	Screen Interval	TBD
Stable DTW (BTOC):	14.90	Measured Stick-up	flush mount

Method of Purging (circle one):

Pump: SUB (circled) BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.3	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time: 15 minutes	Vol. Purged (gal):

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
~~1650~~		~~14.87~~		37.1					
1702 (milky brown)	2	14.90	0.03	~~58.9~~	5.6	204.8	247.6	10.17	492.9
1710 (clear)	3.5	14.90	0.03	36.52	5.58	208.53	249.3	10.25	87.25
1714	4.5	14.91	0.04	36.22	5.61	208.73	251.9	10.32	90.93

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear (circled), Amber, Tan, Brown, Gray, Milky White, Other

Odor: None (circled), Low, Medium, High, Very Strong, H2S, Fuel-Like, Chemical ?, Unknown

Turbidity: None (circled), Low, Medium, High, Very Turbid, Heavy Silts

Comments:

sulfate reagent result 10.4 mg/L obtained at 1748
Nitrate Concentration read via colorimeter at 0.0 mg/L
Ferrous Iron Concentration read via colorimeter at 0.0 mg/L
Water color milky brown → clear
black mark reference on well casing, frost-jacked observed at well
*ice attached to pump noticed when pump removed from well

GROUNDWATER SAMPLING DATA FORM

Well ID: 20MW1

Project Name:	NE Cape 2022	Date:	7/31/2022
Project Number:		Start Time:	1335
Sampling Team:	TD	End Time:	
Sample ID:	22NEC-MOC-20MW1	Time: 1400	(primary) dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Depth to Top of Product (BTOC):	NA	Total Depth (BTOC):	29.00
Depth to Oil/Water Interface (BTOC):	NA	Depth to Water (BTOC)	25.53
Casing Diameter:	*1 in.* (2 in.) *4 in.*	Water Column (ft)	3.47
gal/ft of casing:	*0.041 0.163 0.653*	Casing Volume (gal)	0.57
Pump Intake Depth:	26.50 ft BTOC	Screen Interval	TBD
Stable DTW (BTOC):		Measured Stick-up	Flush mount

Method of Purging (circle one):

Pump: (SUB) BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.13	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time: 15 minutes	Vol. Purged (gal): 2.0

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or (°C))	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1340	0	25.53	0	5.23	6.17	173.67	226.7	90.67	688.56
1345	0.75	25.89	0.36	3.58	5.94	178.92	241.3	91.90	488.73
1349	1.5	25.95	0.42	3.80	5.97	178.49	233.0	91.82	284.00
1354	2.0	26.00	0.47	3.77	5.97	178.93	237.4	91.35	180.74

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, (Amber, Tan,) Brown, Gray, 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: Sulfate concentration via colorimeter of 15.4 mg/L
Nitrate Concentration read via colorimeter at 0.0 mg/L
Ferrous Iron Concentration read via Test Kit IR-18C at 0.0 mg/L

GROUNDWATER SAMPLING DATA FORM

Well ID: 22MW2

Project Name:	NE Cape 22	Date:	7/31/2022
Project Number:		Start Time:	1055
Sampling Team:	TD	End Time:	~~1~~ TD 1135
Sample ID:	22NEC-MOC-22MW2	Time: 1125	primary (circled) dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Depth to Top of Product (BTOC):	NA	Total Depth (BTOC):	34.64
Depth to Oil/Water Interface (BTOC):	NA	Depth to Water (BTOC)	30.23
Casing Diameter:	*1 in.* / *2 in.* (circled) / *4 in.*	Water Column (ft)	4.41
gal/ft of casing:	*0.041* / *0.163* / *0.653*	Casing Volume (gal)	0.72
Pump Intake Depth:	31.2~~0~~	Screen Interval	TBD
Stable DTW (BTOC):	30.4~~0~~	Measured Stick-up	Flush mount

Method of Purging (circle one):

Pump: SUB (circled) BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.2	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time: 20 minutes	Vol. Purged (gal): ~~8~~ TD

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down (Ft)	Temp. (°F or °C) (circled)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. ~~(%sat)~~ (mg/L) TD	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1110	0	30.23	0	4.52	5.65	7.85	253.1	101.54	621.90
1115	2.5	30.39	0.16	3.73	5.54	210.96	258.7	101.21	26.80
1118	4.0	30.40	0.17	3.75	5.57	210.99	258.7	101.51	21.16

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear (circled), Amber, Tan, Brown, Gray, Milky White, Other

Odor: None (circled), Low, Medium, High, Very Strong, H2S, Fuel-Like, Chemical ?, Unknown

Turbidity: None, Low (circled), Medium, High, Very Turbid, Heavy Silts

Comments: Sulfate concentration read via colorimeter of 18.6 mg/L
Nitrate Concentration read via Colorimeter at 1.1 mg/L
Ferrous Iron Concentration read via Test Kit IR-18C at 0.0 mg/L

GROUNDWATER SAMPLING DATA FORM

Well ID: 26MW1

Project Name:	NE Cape 2022	Date:	7/31/2022
Project Number:		Start Time:	0930
Sampling Team:	TD	End Time:	1010
Sample ID:	22NEC-MOC-26MW1	Time: 1000	primary dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Depth to Top of Product (BTOC):	NA	Total Depth (BTOC):	42.10'
Depth to Oil/Water Interface (BTOC):	NA	Depth to Water (BTOC)	39.13'
Casing Diameter:	*1 in.* / *2 in.* / *4 in.*	Water Column (ft)	2.97
gal/ft of casing:	*0.041* / *0.163* / *0.653*	Casing Volume (gal)	0.48
Pump Intake Depth:	40.00 ft BTOC	Screen Interval	TBD
Stable DTW (BTOC):	39.20	Measured Stick-up	Flush mount

Method of Purging (circle one):

Pump: SUB BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.3	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time: 25 minutes	Vol. Purged (gal): ~~6~~ TD 8

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. ~~(mg/L)~~ TD % sat	Turbidity (NTU)
				±3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
0945	0	39.13	0	3.73 ~~7.22~~ TD	6.75	169.96	196.8	13 ~~102.32~~ ~~63~~ TD	302.54
0950	3	39.21	0.08	2.52	6.11	172.22	210.0	101.77	29.2
		~~39.25~~ TD							

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber, Tan, Brown, Gray, 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: Sulfate concentration read via ~~Colorimeter~~ TD colorimeter of 15.7 mg/L
Nitrate Concentration read via Colorimeter at 0.7 mg/L
Ferrous Iron Concentration read via Test Kit HC IR-18C at 0.0 mg/L

GROUNDWATER SAMPLING DATA FORM

Well ID: MW10-1

Project Name:	NEC FuDs	Date:	08/04/22
Project Number:		Start Time:	1615
Sampling Team:	Michael Williams Jane Sudley	End Time:	
Sample ID:	22NEC-MUC-MW10-1	Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Depth to Top of Product (BTOC):		Total Depth (BTOC):	11.3
Depth to Oil/Water Interface (BTOC):		Depth to Water (BTOC)	6.77
Casing Diameter:	*1 in.* *2 in.* *4 in.*	Water Column (ft)	4.53
gal/ft of casing:	*0.041* *0.163* *0.653*	Casing Volume (gal)	0.74 x 3 2.2 gal.
Pump Intake Depth:		Screen Interval	—
Stable DTW (BTOC):		Measured Stick-up	

Method of Purging (circle one):

Pump: SUB BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm):	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time:	Vol. Purged (gal):

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1695	2	7.33	0.56	4.54	5.73	91.71	195.6	47.08	249.34
1700	4	8.4	1.63	4.96	5.63	92.44	220.6	30.79	227.29
1705	5	8.93	2.13	4.49	5.59	93.12	228.3	16.32	291.20

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber, Tan, Brown, Gray, 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:

1805 Sulfide Colorimeter read 2.7 mg/L

- Nitrate Concentration read via Colorimeter at 0.1 mg/L
- Ferrous Iron Concentration read via Test Kit IR-18C at 0.0 mg/L

GROUNDWATER SAMPLING DATA FORM

Well ID: MW88-1

Project Name:	NE Cape 2022	Date:	7/31/2022
Project Number:		Start Time:	1455
Sampling Team:	TD	End Time:	1605
Sample ID:	~~22NEC-MOC-MW-88~~ TD	Time: 1600	primary dup other:
Sample ID:	22NEC-MOC-MW88-1	Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Depth to Top of Product (BTOC):	NA	Total Depth (BTOC):	23.31
Depth to Oil/Water Interface (BTOC):	NA	Depth to Water (BTOC)	19.81
Casing Diameter:	*1 in.* *2 in.* *4 in.*	Water Column (ft)	3.50
gal/ft of casing:	*0.041* *0.163* *0.653*	Casing Volume (gal)	0.57
Pump Intake Depth:	20.80	Screen Interval	TBD
Stable DTW (BTOC):	19.85	Measured Stick-up	Flush mount

Method of Purging (circle one):

Pump: SUB BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.13	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time: 25 minutes	Vol. Purged (gal): 3.25

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1530	0	19.81	0	8.06	6.06	145.97	238.0	83.55	858.36
1535	~~0.75~~ 0.75	19.92	0.11	2.22	5.64	125.03	257.6	71.88	322.10
1540	1.50	20.06	0.25	2.00	5.49	18.07	268.8	48.59	73.67
1545	2.25	19.88	0.07	2.26	5.49	41.37	272.7	67.78	42.26
1550	3.00	19.82	0.01	3.09	5.40	165.32	283.1	37.80	16.75

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber, Tan, Brown, Gray, 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: Blockage at 6.29 ft BTOC in well. No water detected; hard hit with gauge. Initially unable to fit Submersible pump past the blockage. Used 10ft 1inch PVC pipe to try to remove blockage, which was apparently a layer of ice. Continued sampling procedures.

- Well is frost jacked; unable to close lid
- Sulfate concentration read via colorimeter of 11.2 mg/L
- Nitrate concentration read via colorimeter at 0.0 mg/L
- Ferrous Iron Concentration read via Test Kit IR-18C at 0.0 mg/L

GROUNDWATER SAMPLING DATA FORM

Well ID: MW88-3

Project Name:	NE Cape 2022	Date:	8/1/2022
Project Number:		Start Time:	1300
Sampling Team:	TD	End Time:	1430
Sample ID:	22NEC-MOC-MW88-3	Time: 1350	primary dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:

Depth to Top of Product (BTOC):	NA			Total Depth (BTOC):	19.45
Depth to Oil/Water Interface (BTOC):	NA			Depth to Water (BTOC)	14.91
Casing Diameter:	*1 in.*	*2 in.*	*4 in.*	Water Column (ft)	4.54
gal/ft of casing:	*0.041*	*0.163*	*0.653*	Casing Volume (gal)	0.74
Pump Intake Depth:	16.00			Screen Interval	TBD
Stable DTW (BTOC):	15.20			Measured Stick-up	Flush mount

Method of Purging (circle one):

Pump: SUB BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.096	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time: 25 minutes	Vol. Purged (gal):

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. % (mg/L) Sat.	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1318	0	14.95	0	3.36	6.15	126.42	172.0	98.59	468
1324	0.50	15.14	0.19	3.28	6.10	119.86	178.1	89.88	235
1330	1.00	15.16	0.21	3.02	6.02	106.93	178.0	85.49	125
1335	1.50	15.19	0.24	2.91	5.81	125.44	187.7	75.30	88.7
1339	2.00	15.20	0.25	2.84	5.69	38.96	193.3	33.46	57.8
1342	2.30	15.27	0.32	2.38	5.79	50.86	189.7	62.55	44.4

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber, Tan, Brown, Gray, 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:
- Sulfate concentration read via colorimeter of 8.6 mg/L
- MS/MSD collected
- Nitrate concentration read via colorimeter at 0.0 mg/L
- Ferrous Iron concentration read via Test Kit IR-18C at 0 mg/L

GROUNDWATER SAMPLING DATA FORM

Well ID: MW88-10

Project Name:	NE Cape 2022	Date:	7/31/2022
Project Number:		Start Time:	1655
Sampling Team:	TO	End Time:	1750
Sample ID:	22NEC-MW-MW88-10	Time: 1735	(primary) dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:

Depth to Top of Product (BTOC):	NA			Total Depth (BTOC):	25.75
Depth to Oil/Water Interface (BTOC):	NA			Depth to Water (BTOC)	23.28
Casing Diameter:	*1 in.*	(2 in.)	*4 in.*	Water Column (ft)	2.47
gal/ft of casing:	*0.041*	*0.163*	*0.653*	Casing Volume (gal)	0.40
Pump Intake Depth:	24.30 ft BTOC			Screen Interval	TBD
Stable DTW (BTOC):	23.50			Measured Stick-up	Flush mount

Method of Purging (circle one):

Pump: (SUB) BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.11	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time: 20 minutes	Vol. Purged (gal): 2.25

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or (°C))	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (%Sat) (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1710	0	23.28	0	3.71	5.75	42.58	249.2	52.46	8.34
1715	0.50	23.77	0.49	2.91	5.75	64.70	244.1	89.27	33.94
1720	1.25	23.93	0.65	3.17	5.58	188.02	242.7	33.54	6.64
1725	1.75	23.89	0.61	3.13	5.56	170.77	241.9	13.75	8.21
1730	2.25	23.54	0.26	2.95	5.47	185.71	243.6	12.39	22.97

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: (Clear,) Amber, Tan, Brown, Gray, 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:
- Sulfate Concentration read via colorimeter of 16.3 mg/L
- Nitrate Concentration read via colorimeter at 0.4 mg/L
- Ferrous Iron Concentration read via Test Kit IR-18C at 0.0 mg/L

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Well Development Monday 1 August 2022 Site: NE Cape

Well ID: MW10-1 Start time: 0812
DTW: 6.73 ft BTOC End time: 1020
TD: Hard hit at 11.30 ft BTOC, potentially ice
Casing Diameter: 2"
Borehole Diameter: 6"

Borehole Volume = 0.555 gal/ft * 4.57 ft = 2.54 gal

Min purge volume =
Pump type: Peristaltic

Purging Information:

Time	Volume Purged (gal)	Temperature (°C)	Conductivity (µS/cm)	DO (% Saturation)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft BTOC)
~~30~~ 0843	0	No Data						~~6.75~~
~~0845~~	0.25	8.18	0.84	102.57	5.86	215.4	2561.0	6.83
0850	0.75	6.37	2.18	100.79	~~5.86~~ TD 5.86	242.1	1155.0	~~6.83~~ TD 6.87
0855	1.00	5.55	1.35	96.85	5.72	265.0	712.30	6.96
0855	SURGE							
0900	1.00	6.20	0.29	97.65	5.68	223.8	~~12.86~~ 7,222.2 TD	6.95
0905	1.50	4.92	59.29	94.72	5.58	249.6	8,022.2	7.02
0910	2.00	4.84	60.06	91.10	5.41	265.3	7,272.3	7.100
0915	2.50	4.82	60.32	87.57	5.31	280.7	2,481.7	7.16
0920	3.00	4.77	58.20	82.32	5.19	299.3	863.92	7.35
0920	SURGE							
0925	3.06	5.29	49.26	88.65	5.19	299.8	7905.2	7.25
0930	3.50	4.75	48.70	87.32	5.16	307.3	8,220.7	7.35
0935	4.00	4.62	26.88	83.39	5.17	316.5	8,275.7	7.43
0955	6.00	4.86	91.02	45.62	5.07	327.6	429.55	7.95
1000	6.50	4.87	9.62	40.97	5.07	328.4	210.33	8.12
1000	7.50	5.02	69.14	92.42	5.40	326.2	147.46	8.15

1015 Stop purging at 8.00 gallons. Water is clear and shows no to little turbidity. Aquatroll reading of turbidity 147.85 NTU likely overestimate due to residual silt in the flow-through cell.

Scale: 1 square = _____

Rite in the Rain

Well Development Monday 1 August 2022 NE Cape

Well ID: 14MW04 Start Time: 1036

DTW: 4.13 ft BTOC End Time:

TD: 15.00 ft BTOC Pump Type: peristaltic

Casing Diameter: 2"

Borehole Diameter: 6"

Purge Information

Surge at 1045

Time	Gallons Purged (gal)	Temperature (°C)	Conductivity (mS/cm)	DO (% saturation)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft BTOC)
1050	0	6.26	176.85	100.71	5.96	176.9	5602.4	4.28
1100	1.25	3.40	228.85	33.04	5.76	188.2	371.40	4.31
1105	2.0	3.43	220.79	32.02	5.75	192.4	269.60	4.31
1105	SURGE							
1110	2.0	4.01	213.56	57.66	5.93	168.5	6788.3	4.36
1120	3.25	3.70	198.19	36.30	5.63	187.8	552.78	4.46
1140	5.50	3.65	181.38	28.28	5.73	196.2	204.86	4.36

stop purging at 1145. Turbidity reading via aquatroll 212.11 NTU likely overestimate due to residual silt. Water was notably clear.

Scale: 1 square = _____

Site 9 Landfill Cap Visual Inspection

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Visual Inspection Checklist (Post-Closure)
Site 9 Landfill

This form is to be filled out during visual inspection

Name of Inspector: _____Aaron Shewman_____Date:08/03/2022_____

Weather conditions: __Cloudy and Breezy with Occasional Showers Precipitation_ X Yes ☐ No

Temperature: _50_°**F** Prevailing Wind Direction: _South_____ Speed: __NA_____

Photographs Taken: One photo taken during landfill cap tour with two ADEC representatives

Landfill Post-Closure Monitoring Items	Y	N	COMMENTS
Evidence of settlement or frost jacking within or on surface of landfill?		X	
Ponded water within, against, or on surface of landfill?	X		Ponds present along North and Southeast edges of landfill cap; pond water was clear
Evidence of surface erosion on disposal area walls or on exterior berms?		X	
Erosion of access roads?		X	
Discoloring of vegetation downslope?		X	
Any evidence of leakage or escape of waste from cells?		X	
Airborne ash or dust particles?		X	
Evidence of wildlife or birds present? Include number and type of birds on site.		X	
Windblown litter in cells or along access roads or adjacent ponds?		X	
Landfill odors?		X	
Fire or combustion in the waste?		X	
Damage to the structural integrity of a dike wall, culvert, or erosion control feature, if present?		X	Pond water diversion ditch exiting from North end of pond that is adjacent to Southeast side of landfill cap was functioning as intended.
Is revegetation occurring?	X		It appeared grass growth was limited by the rocky nature of the landfill cap material. Grass was growing where finer soil existed within the landfill cap material.
Estimated Percent Vegetative Cover: On Cap Surface ___25%_ On Sideslopes: __75%_____ Comments:			

General Comments: __Structural integrity of landfill cap is excellent. _____

_____

_____

Visual Inspection Checklist (Post-Closure)
Site 9 Landfill

This form is to be filled out during visual inspection

Corrective Actions Taken: None, landfill cap is stable as a result of the rocky nature of landfill cap material.

_____

_____

(Use additional pages if necessary)

Photo 1: View toward the NE of diversion channel at north end of pond located southeast of landfill cap with ADEC representatives in foreground

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Permits

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THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Environmental Conservation
DIVISION OF WATER
Wastewater Discharge Authorization Program

555 Cordova Street
Anchorage, Alaska 99501-2617
Main: 907.269.6285
Fax: 907.334.2415
www.dec.alaska.gov/water/wastewater

July 13, 2022

Brice Engineering LLC
Attn: Scotty Mann
3700 Centerpoint Drive, STE 8223
Anchorage AK 99503

Re: Permit Authorization: AKG002251 v1.0 - Site 28 Sediment removal Northeast Cape

The Alaska Department of Environmental Conservation (DEC) has completed its review of your AKG002000 Excavation Dewatering Notice of Intent (NOI) for the project site: *Site 28 Sediment removal Northeast Cape* and is issuing the permit authorization number **AKG002251** for this project. The discharge from this project is authorized in accordance with the terms and conditions of the general permit and any site-specific requirements in this authorization. An electronic copy of the Excavation Dewatering general permit is available at http://dec.alaska.gov/water/wastewater/stormwater/dewater-hydrostatic/#dewater.

Effective date is 7/13/2022.

Project Description: Removal of impacted sediment from the drainages leading to the Suqi river using dredging. Water will be separated from sediment, treated, and discharged to the tundra.

Project Location: Savoonga, AK 99769; Latitude/Longitude: 63.312368, -168.96638.

Discharge location is to land as described in the NOI associated Best Management Practice (BMP) plan.

Estimated project dates: 5/15/2022 to 8/20/2023.

Note, as per Permit Part 2.5 the permittee is required to submit a modification NOI within 30 calendar days if any of the following change: Owner/Operator address and contact information, site information, estimated start or end dates.

Permit Part 3.1.3.3 states; DEC may modify or impose additional permit stipulations on a site-specific basis, if information in a permittee's NOI, required reports, or from other sources indicates that the discharges are not controlled as necessary to meet applicable Water Quality Standards (WQS).

The following are site specific conditions:

- Include a daily entry into the discharge log that verifies discharge resulting from the dewatering process is not entering storm drains or other storm water conveyance system or otherwise entering waters of the U.S. If the water is observed not infiltrating and discharging into any storm water conveyance or otherwise entering waters of the U.S., discharge shall cease, and DEC will be contacted in order to determine how to proceed in accordance with Permit Part 5.2.

The permittee is reminded of the following permit requirements:

- Compliance with Standards and Limits, see Permit Part 3.1 Requirements for all Projects.
- Control Measures, see Permit Parts 4.0 and 4.1 – Erosion and Sediment Control Measures.

- Limitations, Inspections, and Monitoring Requirements, see Permit Part 5.1 Land Disposal Discharges of Excavation Dewatering, see Permit Part 5.2 Surface Water Discharges of Excavation Dewatering.

- Quality Assurance Project Plan (QAPP), See Permit Part 5.
  Note: Although not required to be submitted with the Application, a QAPP is required to be developed and implemented to assist in planning for the collection and analysis of sampling.

- Reporting and Recordkeeping, see Permit Part 6.

- Submitting a Notice of Termination (NOT), see Permit Part 7.
  Note: within 30 days upon completion of the dewatering activity you are required to submit a NOT to the DEC Permitting Program to terminate coverage. For discharges to surface water include the Discharge Monitoring Report (DMR, http://dec.alaska.gov/media/13312/akg002000-dmr.pdf) with your submission of the NOT. The complete and accurate NOT and DMR is to be submitted electronically using the Environmental Data Management System (EDMS) which can be accessed at https://dec.alaska.gov/Applications/Water/EDMS/ncore/external/home.

A copy of the General Permit AKG002000 and this authorization must be available at the project site. This authorization does not relieve the permittee from other local, state, or federal government permitting requirements.

If you have general questions regarding the storm water program or your responsibilities under the Excavation Dewatering general permit, please contact Sam Kito, sam.kito@alaska.gov, 907-269-6285.

Sincerely,

James Rypkema
Program Manager, Storm Water and Wetlands

Reference EDMS NOI (HPJ-8XTN-TBP1W, received: 6/7/2022)

cc: Jessica Miller, DNR, Water Resources Section

Alaska Food Code
2022 Establishment Permit

Division of Environmental Health
Food Safety & Sanitation Program

Permit Number:	12922
Issued to:	**ALASKA MINERALS INC**
For:	**NE Cape**
For Operation of:	**FF-9 Camp Authorization**
Located at:	**Remote Savoonga, AK 99769**

This permit, issued under the provisions of 18 AAC 31, is valid until the noted expiration date or unless suspended or revoked by the department.

This permit is not transferable for change of ownership, facility location, or type of operation. It must be posted in plain view in the establishment and is the property of the State of Alaska.

Expiration Date:
December 31, 2022

Program Manager:

If you have questions or concerns regarding safe food handling practices call toll free:

1-87-SAFE-FOOD

(in Anchorage call 334-2560)

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Stockpile ISM Diagrams

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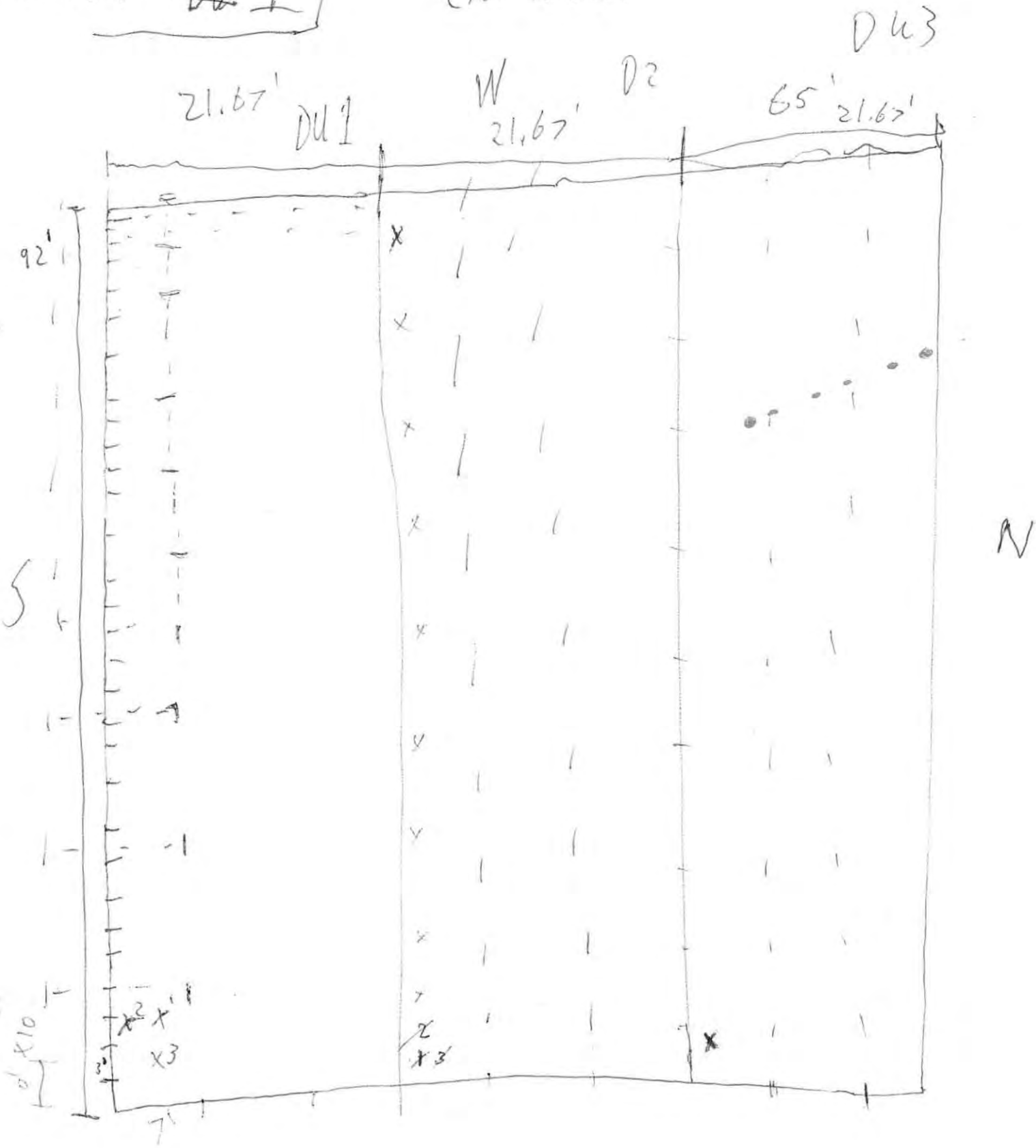
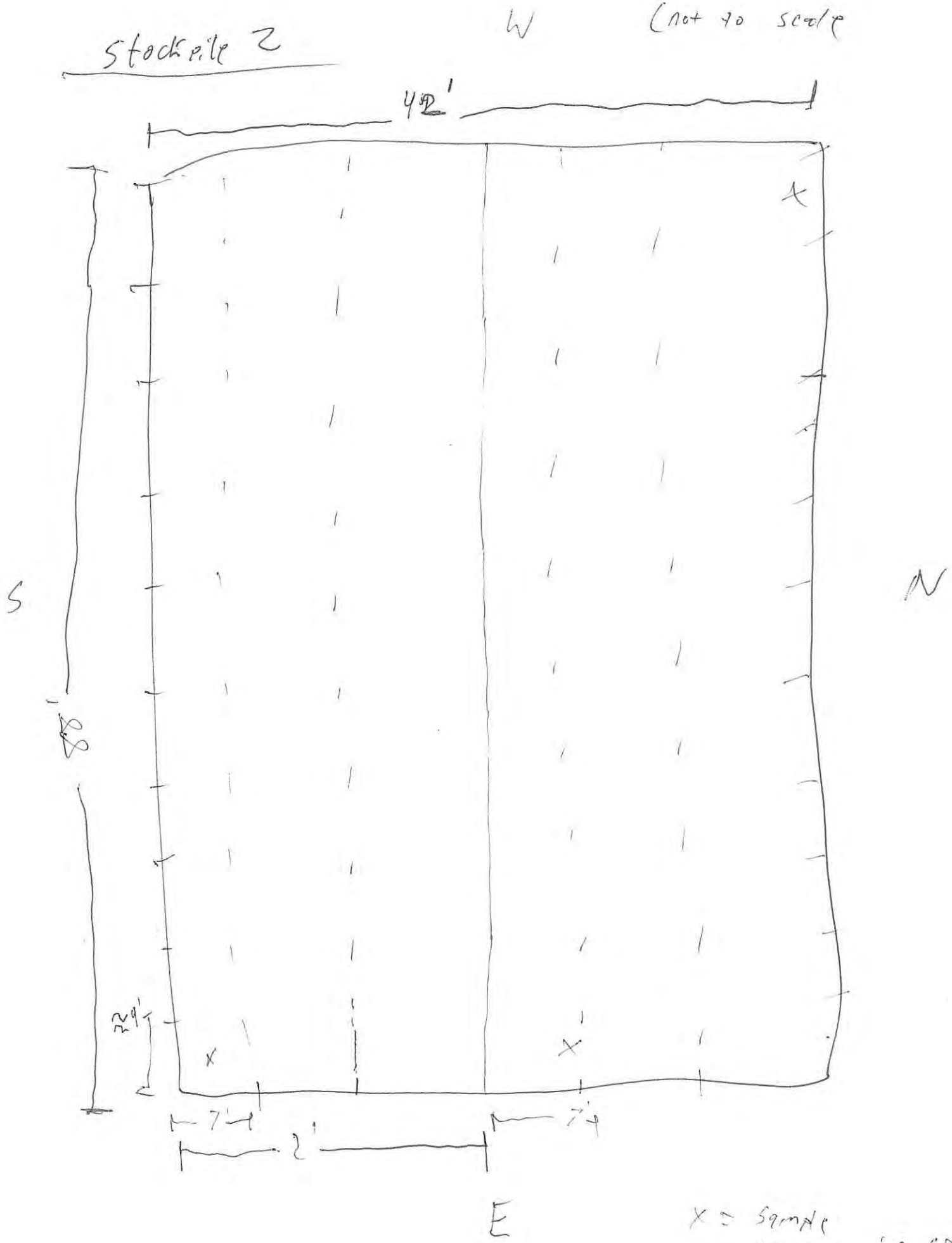
Stockpile ~~DU~~ I) (not to scale



92' x 65' = 5,980'

$\frac{5,980}{3} = 1,993.33$

Stockpile 2



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PHOTOGRAPH LOG

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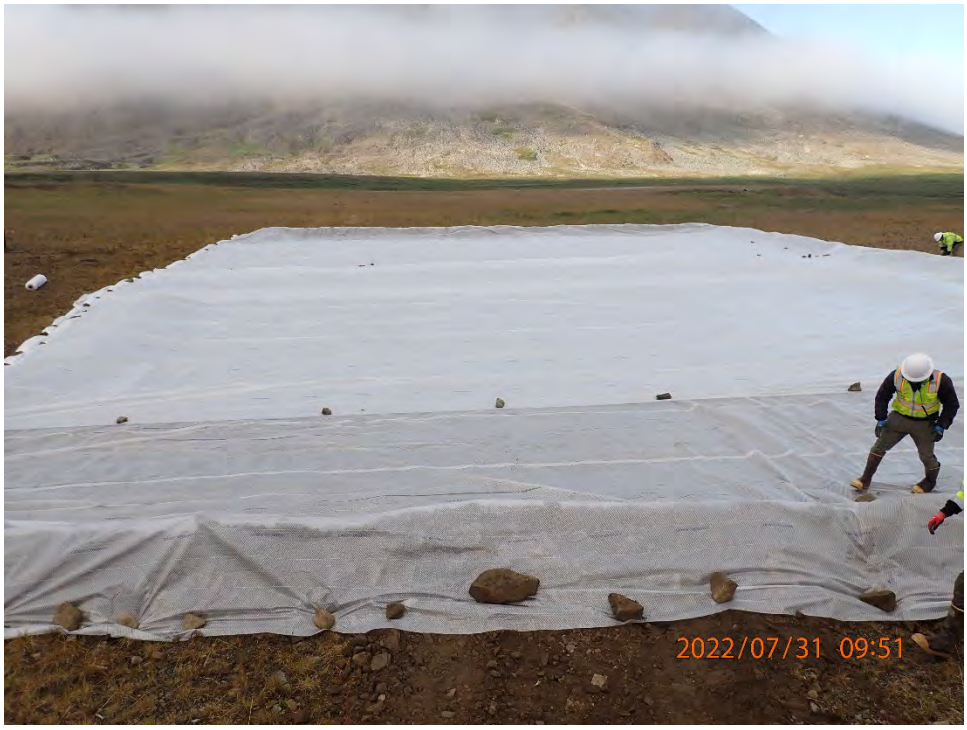

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Photograph 26: Site 15 excavation. View oblique. Coordinates 63.31144, 168.96387.

Photograph 27: Site 15 excavation, covering overburden stockpiles. View West. Direction 268°; coordinates 63.31121, 168.96528.

Photograph 28: Site 15 excavation, first 9-cy IP2 supersack filled. View Southeast. Direction 199°; coordinates 63.31154, 168.96373.

Photograph 29: Site 15, PPE decontamination. View Southwest.
Direction 100°; coordinates 63.3114, 168.96423.

Photograph 30: Site 15, IP2 supersacks containing excavated material. View West.
Direction 194°; coordinates 63.31155, 168.96378.

Photograph 31: Site 15 excavation, supersack on frame. View Southeast. Direction 119°; coordinates 63.31153, 168.96401.

Photograph 32: Site 15 excavation stockpiles with pin flags marking ISM sample locations. View Northwest. Coordinates 63.31113, 168.96537.

Photograph 33: Site 15 excavation, reaching 15 feet bgs at eastern sample location. View Northeast. Direction 19°; coordinates 63.3109, 168.96323.

Photograph 34: Site 15 Stockpile 2 ISM sampling grid. View West. Direction 242°; coordinates 63.31108, 168.96607.

Photograph 35: Facing South. Western half of the Site 15 excavation reaching 15 feet bgs. Direction 162°; coordinates 63.31146, 168.9641.

Photograph 36: Site 15 supersacks loaded for transport to barge landing. View West. Direction 262°; coordinates 63.31164, 168.96455.

Photograph 37: Site 15 excavation, laying soil on liner. View Southeast.
Direction 120°; coordinates 63.31159, 168.96403.

Photograph 38: Site 15 excavation supersack on bag frame. View East.
Direction 82°; coordinates 63.31145, 168.96471.

Photograph 39: Site 15 supersacks staged at the MOC. View Northwest. Direction 329°; coordinates 63.3114, 168.96417.

Photograph 40: Site 15 drying ramp, bagging excavated material. View Southeast. Direction 160°.

Photograph 41: Site 15, ramp of excavated material removed. View West. Direction 265°; coordinates 63.31127, 168.96268.

Photograph 42: Site 15, removing Stockpile 2 from liner and placing in rock truck to backfill. View Southeast. Direction 165°; coordinates 63.31157, 168.96594.

Photograph 43: MOC, supersacks ready for transport to beach. View Northwest. Coordinates 63.31158, 168.96417.

Photograph 44: MOC, opening a well. View North. Direction 341°; coordinates 63.31179, 168.96278.

Photograph 45: MOC, sampling monitoring well 17MW1. View North.
Direction 340°; coordinates 63.31123, 168.96729.

Photograph 46: MOC monitoring well 17MW1, frost-jacked. View North.
Direction 325°; 63.31126, 168.96726.

Photograph 47: MOC unnamed well, geoprobe positioned to decommission. View Southwest. Direction 201°; coordinates 63.31128, 168.96296.

Photograph 48: MOC, sampling well MW88-1. View East. Direction 105°;coordinates 63.31111, 168.96303.

Photograph 49: MOC well 14MW05, monument re-mounted. View Northwest. Direction 316°; coordinates 63.31194, 168.96264.

Photograph 50: MOC well 14MW01, flush mount repaired. View Northwest. Direction 294°; coordinates 63.31156, 168.96594.

Photograph 51: MOC monitoring well MW10-1, sampling. View West. Direction 190°; coordinates 63.31141, 168.95947.

Photograph 52: MOC sample coolers prepared for shipment. View Southeast. Direction 121°; coordinates 63.31944, 168.94261.

Photograph 53: MOC near Site 28 containment, field team and Gambell representative groundwater sampling. View Northeast. Direction 316°; coordinates 63.31195, 168.96364.

Photograph 54: MOC monitoring well MW10-1 cap. View Southeast.
Direction 142°; coordinates 63.31139, 168.96026.

Photograph 55: MOC pad, unidentified well casing. View Northwest.
Direction 342°; coordinates 63.3116, 168.96269.

Photograph 56: MOC pad, decommissioned unknown well casing. View Northeast.
Direction 8°; coordinates 63.31156, 168.96262.

Photograph 57: MOC monitoring well 17MW1 frost jacked. Approximately 5.0 inches removed from top of casing. View oblique. Direction 3°; coordinates 63.31126, 168.96726.

Photograph 58: Site 8 soil boring SB02 from 0-12 feet bgs; coarse, angular road gravel (GP) to moist, odorous silt (OH). View oblique. Direction 198°; coordinates 63.31573, 168.9554.

Photograph 59: Site 8 soil boring SB04 from 0-16 feet bgs; coarse, angular road gravel (GP) to fine sand and silt (OL). Permafrost encountered at 12 feet bgs. View oblique. Direction 93°; coordinates 63.3157, 168.95547.

Photograph 60: Site 8 soil boring SB07 from 0-12 feet bgs; coarse, angular road gravel (GP) to fine silt (SP). Permafrost encountered at 6 feet bgs. View oblique. Direction 114°; 63.31599, -168.95516.

Photograph 61: Site 8 soil boring SB09 from 0-20 feet bgs; fine sediment and soil with organics (OL) to moist, gravelly clay (GC). View oblique. Direction 193°; coordinates 63.31571, 168.95555.

Photograph 62: Site 8 soil boring SB12 from 0-16 feet bgs; silty soil with organics (OL) to moist clay and gravelly sand (GC). View oblique. Direction 192°; coordinates 63.31572, 168.95547.

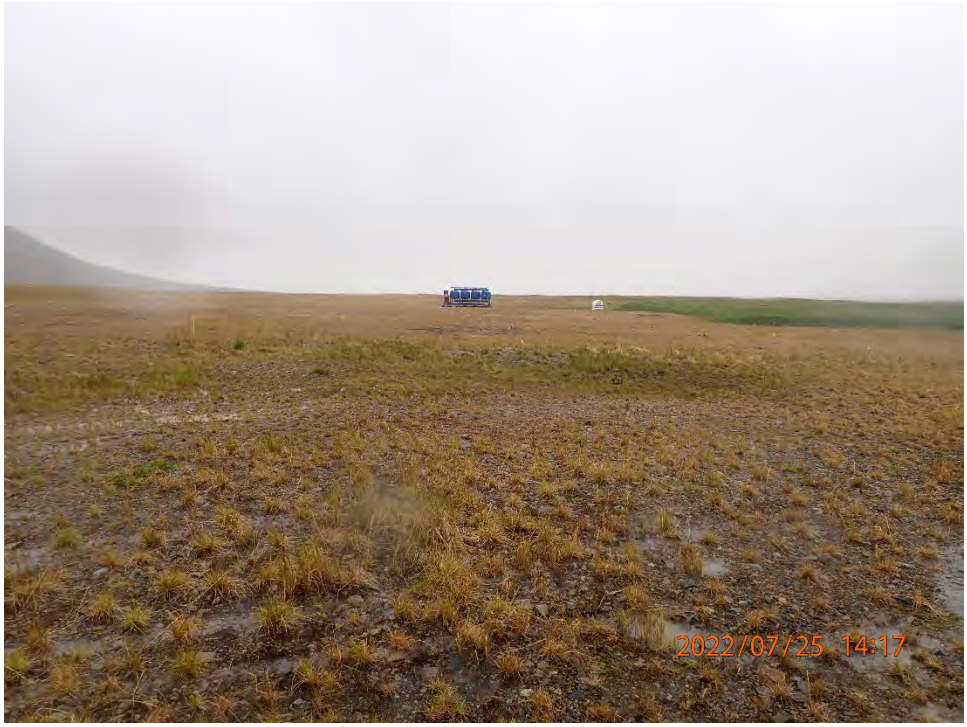
Photograph 63: Site 8 soil boring SB19 from 0-16 feet bgs; coarse, angular road gravel (GP) to coarse sands and silts with organics (GM). View oblique. Direction 192°; coordinates 63.31574, 168.95548.

Photograph 64: Site 8 soil boring SB20 from 0-16 feet bgs; coarse, angular road gravel (GP) to moist, fine gravelly silt (GM). View oblique. Direction 206°.

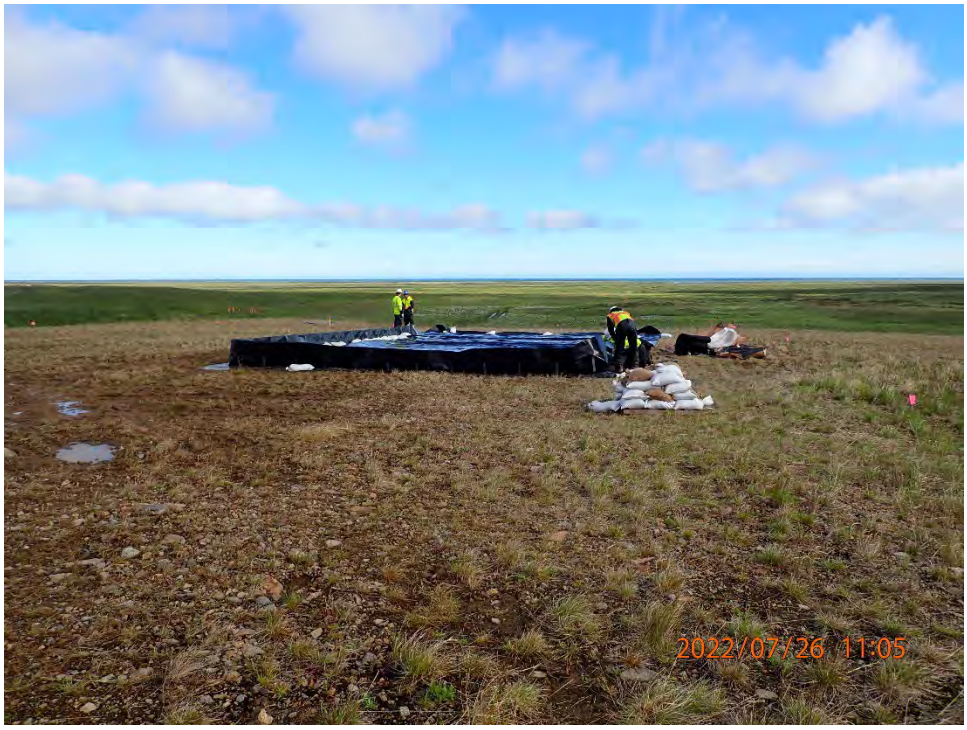
Photograph 65: Site 8 soil boring SB21 from 0-16 feet bgs; coarse, angular road gravel (GP) to moist, gravelly silt (GM). View oblique. Direction 180°; coordinates 63.31573, 168.95544.

Photograph 66: Site 8 soil boring SB25, field screening headspace. View East. Direction 71°; coordinates 63.31574, 168.95549.

Photograph 67: Site 8 soil boring SB31 from 0-16 feet bgs; coarse, angular road gravel (GP) to fine gravelly silt (GM). View oblique. Direction 208°; coordinates 63.31576, 168.95551.



Photograph 68: Site 28 ISM Sample 22NEC-S28-DU1, pre-containment area footprint. View West. Direction 234°; coordinates 63.31168, 168.96276.



Photograph 69: Site 28, setup of the containment berm. View Northeast. Direction 319°; coordinates 63.31159, 168.96334.

Photograph 70: Site 28 containment areas setup, first geotube installed in containment (right). View Northwest. Direction 211°; coordinates 63.31144, 168.96321.

Photograph 71: Site 28 containment and dewatering system setup. View West. Direction 276°; coordinates 63.31176, 168.96295.

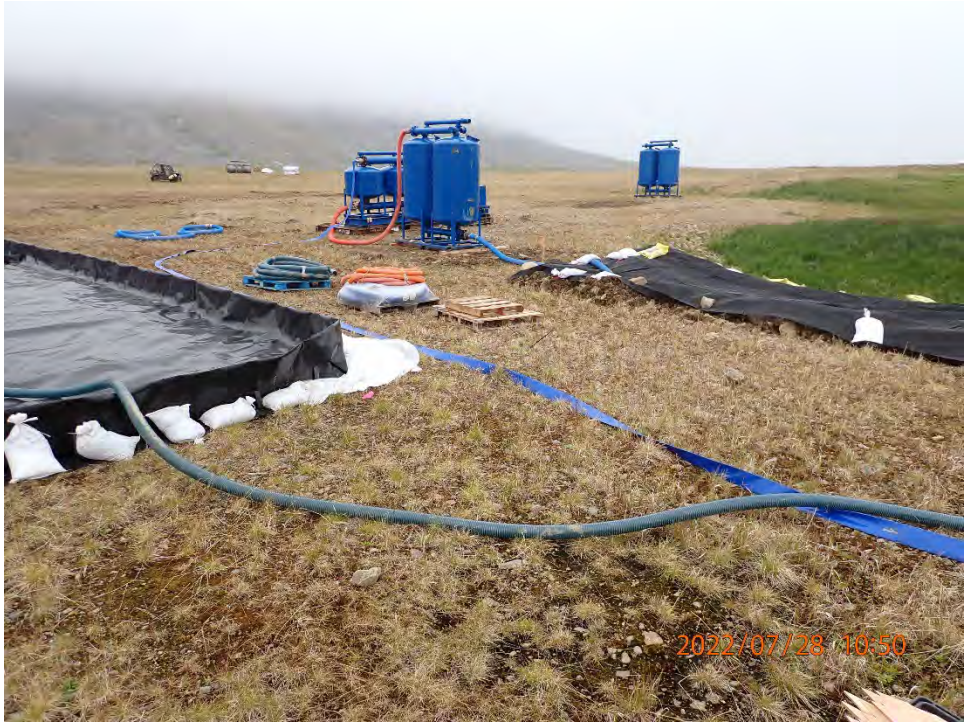
Photograph 72: Site 28 water treatment system sand pots. View Southwest. Direction 223°; coordinates 63.31304, 168.96322.

Photograph 73: Site 28 water treatment system, GAC vessels not yet installed. View Northwest. Direction 308°; coordinates 63.31174, 168.96441.

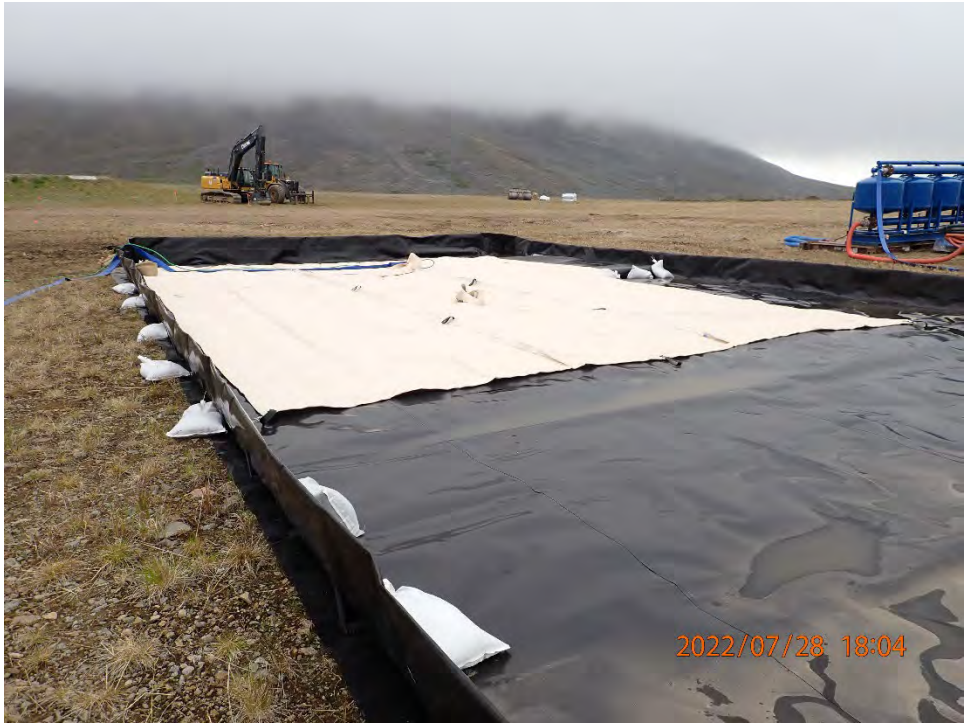
Photograph 74: Site 28 treated water discharge area, pre-discharge, and ISM sample boundaries. View Southwest. Direction 217°; coordinates 63.31198, 168.96381.

Photograph 75: Site 28 flocculant injection system, mid-construction. View Northwest. Direction 312°; coordinates 63.31191, 168.96356.

Photograph 76: Site 28, first geotube in containment and connected to the flocculant injection system. View Southeast. Direction 133°; coordinates 63.31204, 168.96393.



Photograph 77: Site 28 second geotube containment, sand pots, GAC vessels, and discharge area all connected in sequence. View Southwest. Direction 243°; coordinates 63.31198, 168.96367.



Photograph 78: Site 28, second geotube installed in containment. View Southwest. Direction 204°; coordinates 63.31178, 168.96354.

Photograph 79: Site 28 Area 2, sediment dredging nearest the dewatering pad. View Northwest. Direction 25°; coordinates 63.31196, 168.96356.

Photograph 80: Site 28 Area 6, dredge positioned. View Northeast. Direction 18°; coordinates 63.31214, 168.96238.

Photograph 81: Site 28 Area 6, team reviewing dredge setup before Pilot Study. View Northeast. Direction 30°; coordinates 63.31211, 168.96248.

Photograph 82: Site 28 Area 6, Pilot Study. View Northeast. Direction 24°; coordinates 63.3121, 168.96249.

Photograph 83: Site 28 treated water discharge, collecting sample. View West.

Photograph 84: Site 28 Area 9, relocating dredge. View East.
Direction 278°; coordinates 63.31463, 168.9616.

Photograph 85: Site 28 silt fencing placed upstream of the Suqi River confluence. View North. Direction 288°; coordinates 63.31595, 168.96138.

Photograph 86: Site 28 Area 9, dredge system with silt fencing downstream. View Northwest. Direction 335°; coordinates 63.31469, 168.96194.

Photograph 87: Site 28, pump pond 1 with sediment slurry. View Northwest. Direction 217°; coordinates 63.31435, 168.96214.

Photograph 88: Site 28, pump pond 1 with sediment slurry and improved intake (left) and discharge (right) hose mounting. View Northwest. Direction 277°; coordinates 63.31438, 168.96217.

Photograph 89: Site 28 Area 9, dredging. View West.
Direction 242°; coordinates 63.31484, 168.962.

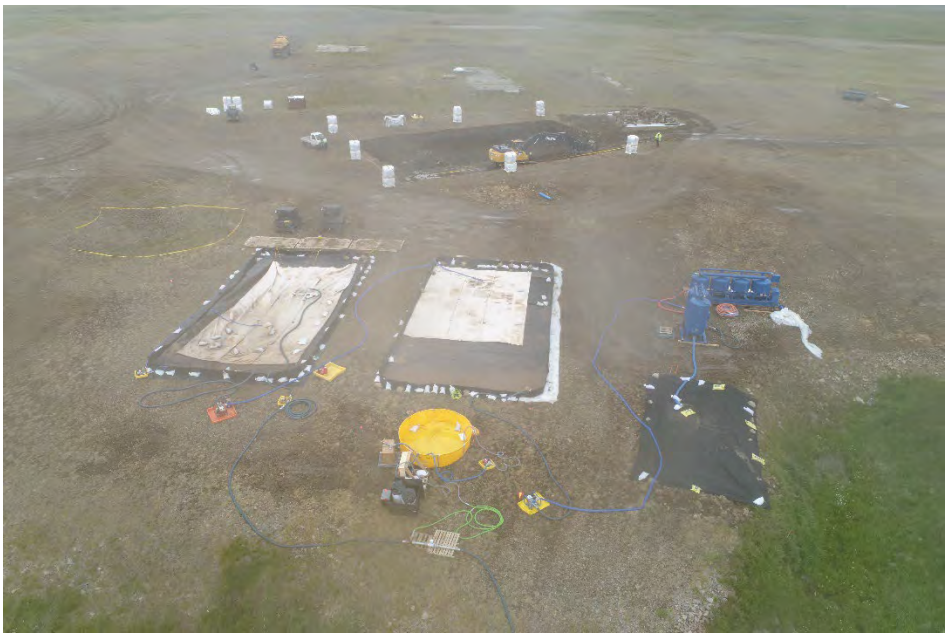
Photograph 90: Site 28, dredge adjacent to Area 9, pond 1 in background. View South. Direction 187°; coordinates 63.31478, 168.96198.

Photograph 91: Site 28, crew unclogging stinger. View West.
Direction 265°; coordinates 63.31563, 168.96092.

Photograph 92: Site 28 flocculant injection system in operation. View Northwest.
Direction 295°; coordinates 63.31195, 168.96349.

Photograph 93: Site 28, first geotube filling with sediment slurry. View South. Direction 157°; coordinates 63.31195, 168.96352.

Photograph 94: Aerial overview, Site 28 geotubes in containment, flocculant injection system, sand pots, GAC vessels, and discharge area. View oblique. Coordinates 63.31192, 168.96364.



Photograph 95: Aerial Overview, Site 28 geotubes in containment, Site 15 excavation, flocculant injection system, sand pots, GAC vessels, and discharge area. View Southwest. Coordinates 63.31213, 168.96365.

Photograph 96: MOC, building hose cradles for dredge system pumping ponds. View East. Direction 98°; coordinates 63.31139, 168.96221.

Photograph 97: Site 28 pump pond 2 with hose cradle. View West. Direction 275°; coordinates 63.31336, 168.96279.

Photograph 98: Site 28 Area 3, dredging upstream segment. View Northwest. Direction 300°; coordinates 63.31312, 168.96286.

Photograph 99: Site 28 Area 3, moving vegetative mat away from dredging area. View Southwest. Direction 235°.

Photograph 100: Site 28 Area 3, root mat stream bottom after dredging. View West. Direction 259°; coordinates 63.31334, 168.96306.

Photograph 101: Site 28 Area 3, sediment depth atop root mat. View Southeast. Direction 114°; coordinates 63.3134, 168.96307.

Photograph 102: Site 28 , root mat with no sediment cover. View Southeast. Direction 76°; coordinates 63.31347, 168.96358.

Photograph 103: Site 28 root mat. View Southeast. Direction 87°; coordinates 63.31326, 168.96316.

Photograph 104: Site 28 flocculant injection system ready for dredging. View West. Direction 265°; coordinates 63.31189, 168.96334.

Photograph 105: Site 28 Area 3, before-dredging photograph 1. View West. Direction 255°; coordinates 63.3142, 168.96243.

Photograph 106: Site 28 Area 3, before-dredging photograph 2. View Southwest. Direction 238°; coordinates 63.3138, 168.96293.

Photograph 107: Site 28 Area 3, before-dredging photograph 3. View West. Direction 250°; coordinates 63.31379, 168.9629.

Photograph 108: Site 28 Area 3, after-dredging photograph 1. View Northwest. Direction 291°; coordinates 63.31404, 168.96251.

Photograph 109: Site 28 Area 3, after-dredging photograph 2. View Northwest. Direction 297°; coordinates 63.31392, 168.96273.

Photograph 110: Site 28 Area 3, after-dredging photograph 3. View Northwest. Direction 317°; coordinates 63.3139, 168.96277.

Photograph 111: Site 28 Area 3, using agitator and rake. View South. Direction 195°; coordinates 63.31417, 168.96243.

Photograph 112: Site 28, sediment slurry pumping into holding pond from dredging sump. View Southwest. Direction 215°; coordinates 63.31417, 168.96253.

Photograph 113: Site 28, raking sediment slurry into dredge sump. View Southwest. Direction 228°; coordinates 63.3142, 168.96254.

Photograph 114: Site 28, sediment slurry swirling around dredge sump. View Southwest. Direction 240°; coordinates 63.31421, 168.96255.

Photograph 115: Site 28, sediment at bottom of first holding pond. View Southwest. Direction 213°; coordinates 63.31402, 168.96232.

Photograph 116: Site 28 Area 3 stream sediment. View South.
Direction 165°; coordinates 63.31339, 168.96308.

Photograph 117: Site 28 Area 3 pond sediment. View North.
Direction 7°; coordinates 63.31428, 168.96246.

Photograph 118: Site 28 geotube after dredging. View Southwest.
Direction 211°; coordinates 63.31187, 168.96324.

Photograph 119: Site 28 Area 4 dredging. View North. Direction 337°; coordinates 63.31405, 168.96226.

Photograph 120: Site 28 sediment suspended in water near dredge intake. View Northwest. Direction 300°; coordinates 63.31427, 168.96253.

Photograph 121: Site 28 Area 4 dredging. View Southwest. Direction 226°; coordinates 63.31419, 168.96255.

Photograph 122: Site 28 Area 4, moving dredge. View Northwest. Direction 284°; coordinates 63.31424, 168.96233.

Photograph 123: Site 28 geotube after dredging. View Southwest. Direction 231°; coordinates 63.3122, 168.96291.

Photograph 124: Site 28 pump and pumping pond. View Northeast. Direction 45°.

Photograph 125: Site 28 sediment slurry pouring into pumping pond. View Northeast. Direction 43°; coordinates 63.31437, 168.96221.

Photograph 126: Site 28 Area 4, dredging. View Southwest. Direction 225°; coordinates 63.31437, 168.96222.

Photograph 127: Site 28 Area 4, sheen on water near dredge. View Northwest. Direction 315°; coordinates 63.31438, 168.96236.

Photograph 128: Site 28 sediment-moving rakes. View South.
Direction 154°; coordinates 63.31395, 168.96179.

Photograph 129: Site 28 Area 7, ready to dredge. View Northeast. Direction 39°; coordinates 63.31261, 168.96336.

Photograph 130: Site 28 Area 7 dredging. View Northeast. Direction 40°; coordinates 63.31265, 168.96344.

Photograph 131: Site 28 Area 7, removing sediment. View East.
Direction 69°; coordinates 63.31238, 168.96438.

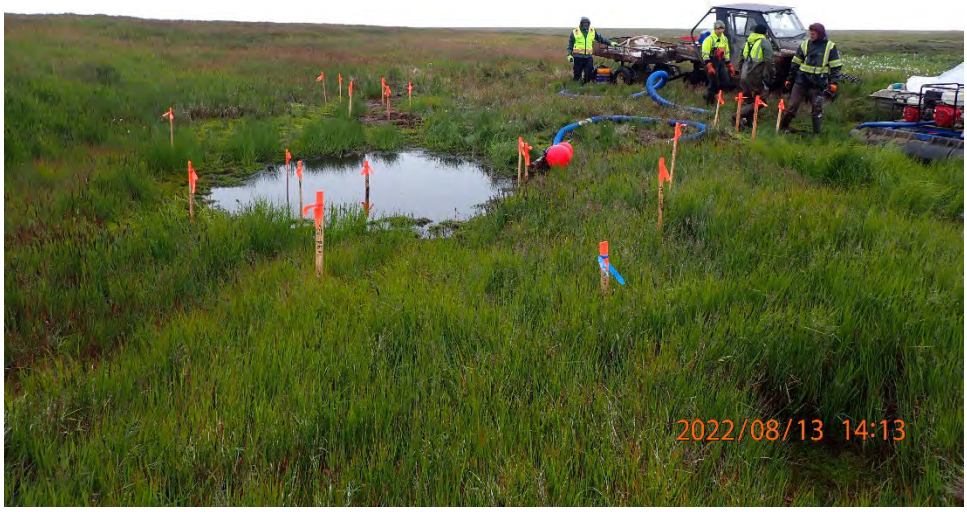
Photograph 132: Site 28 Area 2 dredging. View East.
Direction 67°; coordinates 63.3121, 168.96364.

Photograph 133: Site 28 Area 6, dredging. View Northeast.
Direction 56°; coordinates 63.31214, 168.96253.

Photograph 134: Site 28 sediment at bottom of pumping pond. View Northwest. Direction 294°; coordinates 63.31333, 168.96303.

Photograph 135: Site 28 Area 8, dredge ready. View East.
Direction 64°; coordinates 63.31264, 168.96341.

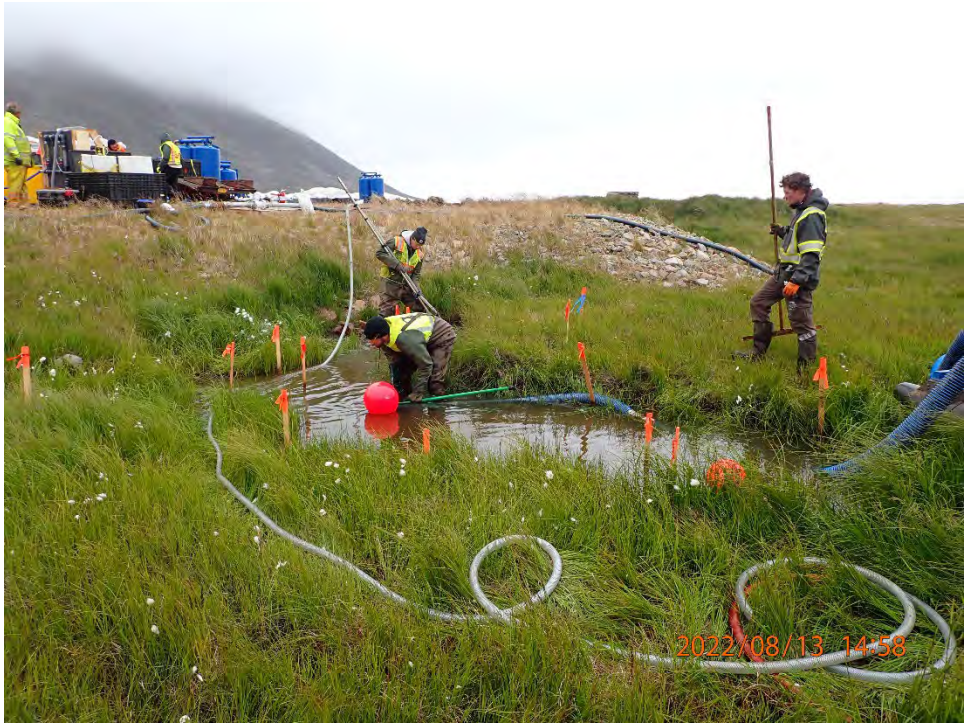
Photograph 136: Site 28 Area 8, dredging. View East.
Direction 94°; coordinates 63.31267, 168.96339.



Photograph 137: Site 28 Area 7, setting up dredge. View North.
Direction 9°; coordinates 63.31229, 168.96416.

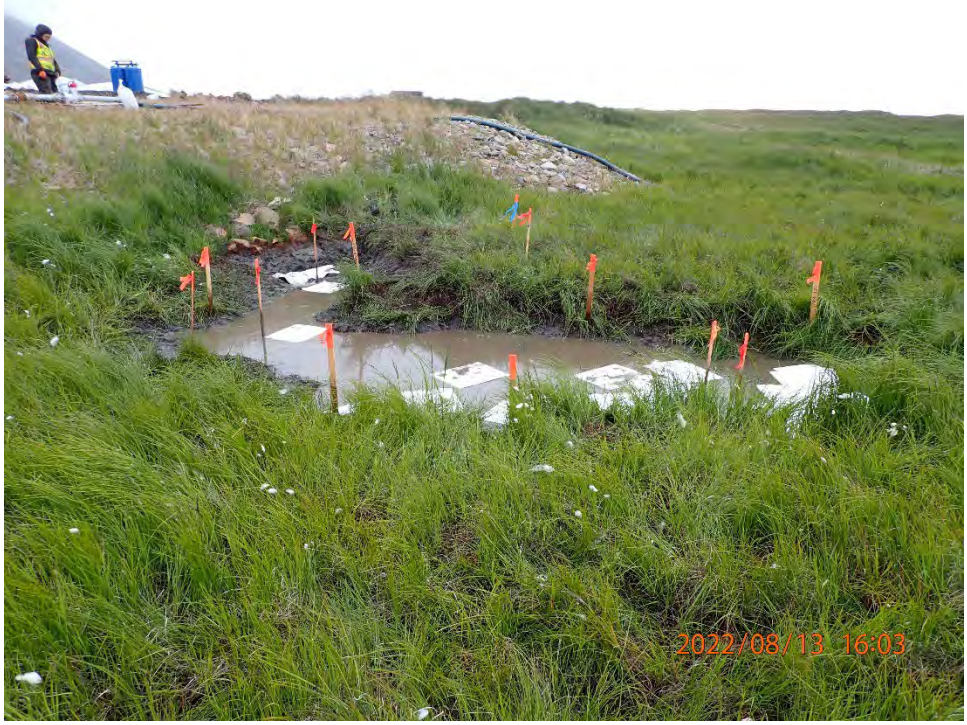
Photograph 138: Site 28 Area 2 before dredging. View Southwest. Direction 226°.

Photograph 139: Site 28 Area 7 after sediment removal. View Northeast. Direction 37°; coordinates 63.3123, 168.96438.

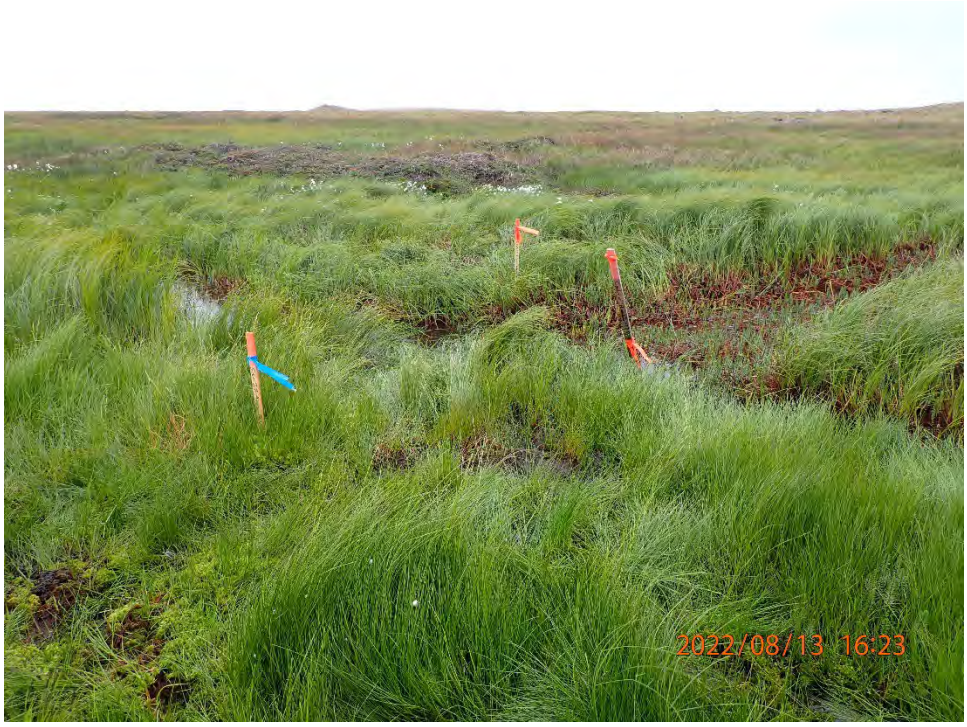


Photograph 140: Site 28 Area 2, removing sediment. View Southwest. Direction 226°; coordinates 63.31208, 168.96341.

Photograph 141: Site 28 Area 6, setting up dredge. View East. Direction 62°



Photograph 142: Site 28 Area 2 after sediment removal. View Southwest. Direction 237°; coordinates 63.31162, 168.96452.



Photograph 143: Site 28 Area 5N before sediment removal. View East.
Direction 85°; coordinates 63.31278, 168.96205.

Photograph 144: Site 28 Area 6 after dredging. View Southeast.
Direction 101°; coordinates 63.31205, 168.96247.

Photograph 145: Site 28 Area 5N after sediment removal. View East. Direction 84°; coordinates 63.3128, 168.96219.

Photograph 146: Site 28 geotube containing sediment. View East. Coordinates 63.31186, 168.96354.

Photograph 147: Site 28, crew loading geotubes into 5-cy supersack. View Southwest. Direction 225°; coordinates 63.31255, 168.96186.

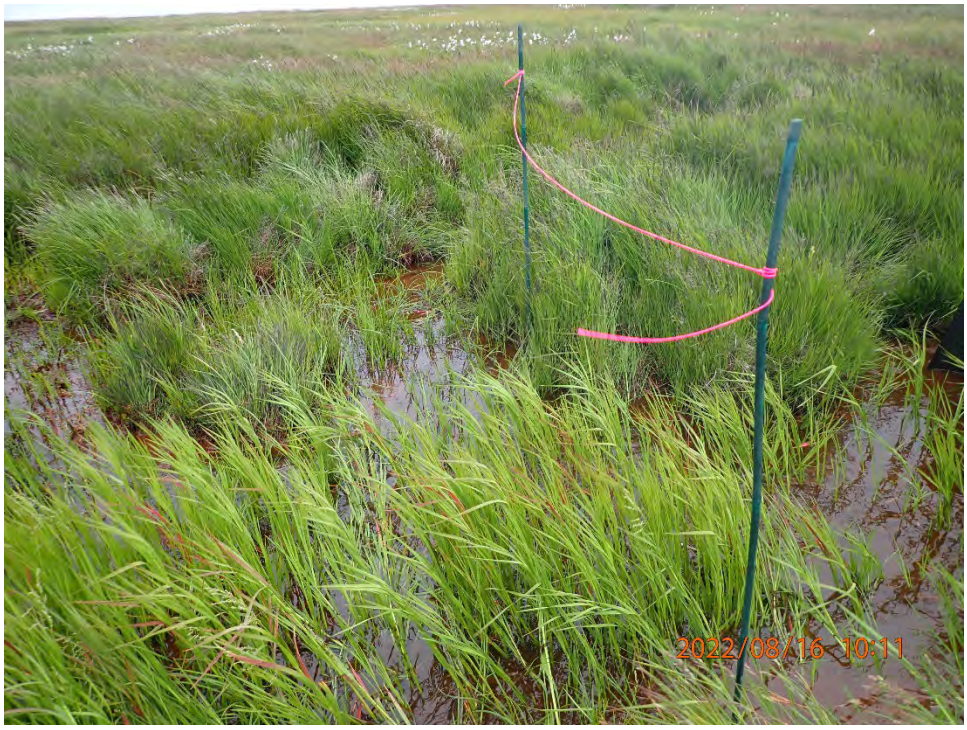
Photograph 148: Site 28 dewatering area (ISM DU 1) boundary. View Southwest. Direction 254°; coordinates 63.31181, 168.96303.

Photograph 149: Site 28 discharge area (ISM DU 2) boundary. View Northwest. Direction 305°; coordinates 63.31168, 168.96375.

Photograph 150: Site 28, first three sediment transects measured. View Northwest. Direction 314°; coordinates 63.31599, 168.96146.

Photograph 151: Site 28 sediment transect P01 Shovel test. View Southwest. Direction 203°; coordinates 63.31611, 168.96156.

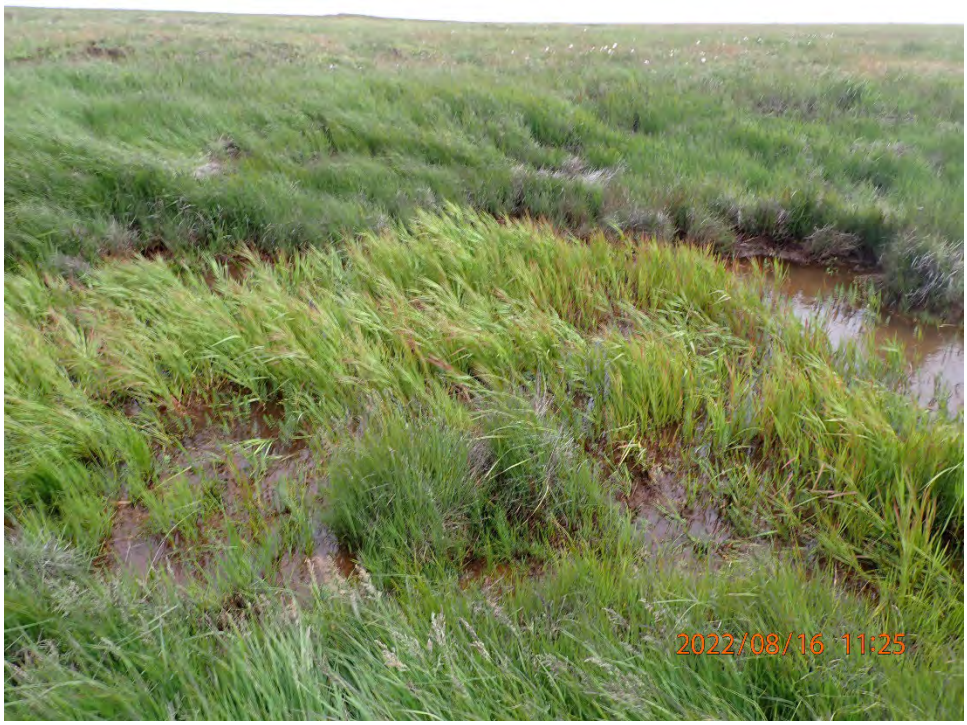
Photograph 152: Site 28 sediment transect P02, surveying south-end sediment layer to vegetation mat. View Northwest. Direction 286°; coordinates 63.31601, 168.96132.



Photograph 153: Site 28 sediment transect P04. View Northwest. Direction 271°.

Photograph 154: Site 28 sample material from SD03. View Southeast. Direction 145°; coordinates 63.31595, 168.96136.

Photograph 155: Site 28 sediment transect P04 with raised vegetation mat in center. View West. Direction 268°; coordinates 63.3155, 168.96146.



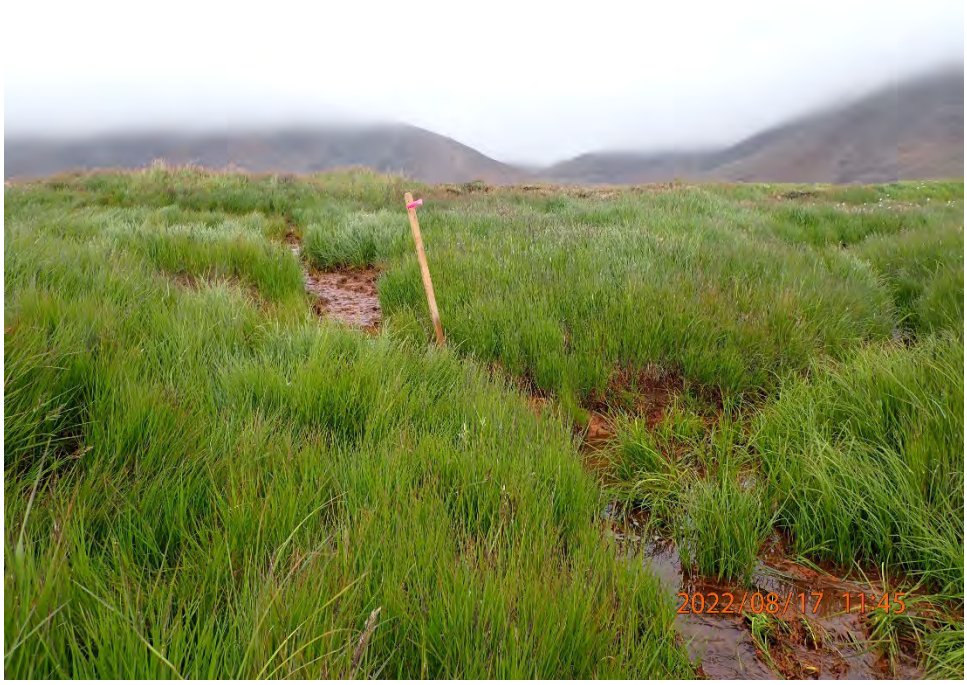
Photograph 156: Site 28 sediment transect P11. View West. Direction 266°; coordinates 63.31547, 168.96179.

Photograph 157: Site 28 Sediment from sample location SD12. View Northeast. Direction 65°; coordinates 63.31529, 168.96179.

Photograph 158: Site 28, solid clay/silt layer at base of pond, collected near SD21. View Northwest. Direction 12°.

Photograph 159: Site 28 root mat from sample location SD30. View Northeast. Direction 34°; coordinates 63.31365, 168.96291.

Photograph 160: Site 28 sediment sample location SD55. View Northwest. Direction 259°; coordinates 63.31282, 168.96399.



Photograph 161: Site 28, orange-stained sediment in creek downstream of Area 5N. View Southeast. Direction 158°.

Photograph 162: Aerial overview, Site 15 excavation, staged supersacks, geotubes, and Site 28. View North. Coordinates 63.3109, 168.96404.

Photograph 163: Aerial overview, Site 15 excavation, staged supersacks, geotubes, and Site 28. View North. Coordinates 63.3109, 168.96384.

Photograph 164: Aerial overview, Site 15 excavation, staged supersacks, geotubes, and Site 28. View North. Coordinates 63.3109, 168.96404.

Photograph 165: Aerial overview, Site 15 excavation, staged supersacks, geotubes, and Site 28. View North. Coordinates 63.31086, 168.96404.

Photograph 166: Aerial overview, Site 15 excavation, staged supersacks, geotubes, and stockpiles. View oblique. Coordinates 63.31097, 168.96406.

Photograph 167: Aerial overview, Site 15 excavation, staged supersacks, geotubes, and stockpiles. View oblique. Coordinates 63.3114, 168.9638.

Photograph 168: Aerial overview, Site 15 excavation. View oblique. Coordinates 63.31141, 168.9638.

Photograph 169: Aerial overview, geotubes, , flocculant injection system, sand pots, and GAC vessels. View oblique. Coordinates 63.31183, 168.96363.

Photograph 170: Aerial overview, geotubes, flocculant injection system, sand pots, GAC vessels, supersacks, and the Site 15 excavation. View South. Coordinates 63.31216, 168.96416.

Photograph 171: Aerial overview, Site 28 and dewatering system. View North. Coordinates 63.31143, 168.96373.

Photograph 172: MOC working area. View South. Coordinates 63.31305, 168.96397.

Photograph 173: MOC working area and the Site 28 drainage with dredge system. View Southwest. Coordinates 63.31555, 168.96108.

Photograph 174: Aerial overview, Site 28 with MOC in the distance. View South. Coordinates 63.31506, 168.96246.

Photograph 175: Background locations near the MOC. View West. Direction 244°; coordinates 63.31032, 168.97184.

Photograph 176: Background sample 22NEC-BG-1 collected. View East. Direction 300°; coordinates 63.31022, 168.97215.

Photograph 177: Background sample 22NEC-BG-2 collected. View East. Direction 291°; coordinates 63.30966, 168.97222.

Photograph 178: Background sample 22NEC-BG-3 collected. View North. Direction 340°; coordinates 63.30966, 168.97223.

Photograph 179: Background sample BG-4 collected. View North. Direction 359°; coordinates 63.31016, 168.97286.

Photograph 180: Background sample BG-5 collected. View North. Direction 350°; coordinates 63.31013, 168.97287.

Photograph 181: Background sample BG-6 collected. View Northwest. Direction 49°; coordinates 63.30995, 168.97287.

Photograph 182: Background sample BG-7 collected. View Southeast. Direction 232°; coordinates 63.30988, 168.97256.

Photograph 183: Background sample BG-8 collected. View South. Direction 216°; coordinates 63.30773, 168.97328.

Photograph 184: Background sample BG-9 collected. View Southwest. Direction 225°; coordinates 63.30773, 168.97354.

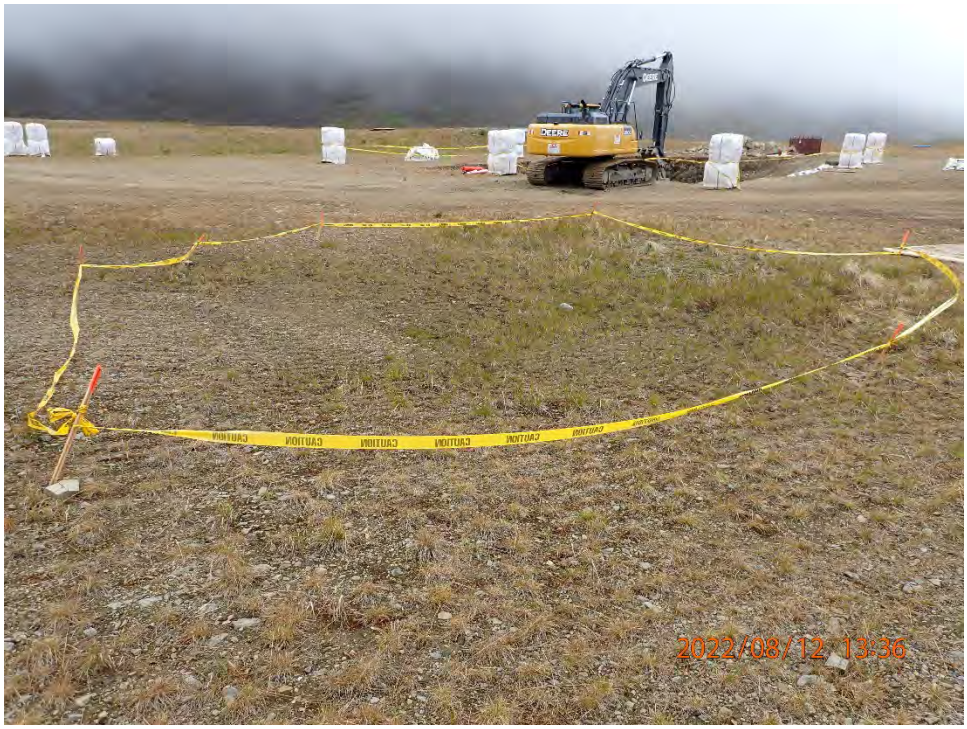
Photograph 185: Background sample BG-10 collected. View Southwest. Direction 222°; coordinates 63.30781, 168.97406.

Photograph 186: MOC, survey crew leveling wells. View Southwest. Direction 233°; coordinates 63.31118, 168.9624.

Photograph 187: MOC, steep drop/depression on tundra near Area 7. View Northeast. Direction 47°; coordinates 63.31289, 168.96347.

Photograph 188: MOC, filling a steep depression in tundra with clean fill near Area 7. View Southwest. Direction 220°; coordinates 63.3129, 168.96348.

Photograph 189: MOC, depression filled and contoured to match grade near Area 7. View Northeast. Direction 27°; coordinates 63.31288, 168.9635.



Photograph 190: MOC, depression in surface. View Southwest. Direction 208°; coordinates 63.31174, 168.96303.

Photograph 191: MOC, partially filled depression. View Northwest. Direction 303°; coordinates 63.31144, 168.96315.

Photograph 192: MOC, filled and smoothed depression. View Northwest. Direction 306°; coordinates 63.31149, 168.96311.

Photograph 193: Local borrow source area prior to material removal. View Southeast.

Photograph 194: Local borrow source area following 2022 field activities. View Southeast.

Photograph 195: Supersacks staged on beach. View West. Direction 275°; coordinates 63.32706, 168.92804.

Photograph 196: Staging supersacks on beach for barge pickup. View East. Direction 152°; coordinates 63.32729, 168.92901.

APPENDIX D
WASTE DOCUMENTATION

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Table D-1 Northeast Cape Waste Profile Results

			SAMPLE ID	NEC22-WC-1	NEC22-WC-2	NEC22-WC-3	22NEC-WC-4
			LOCATION ID	NEC22-WC-1	NEC22-WC-2	NEC22-WC-3	22NEC-WC-4
			LAB SDG	L1525023	L1525023	L1525023	L1526252
			COLLECTION DATE	8/5/2022 9:00:00 AM	8/6/2022 8:00:00 AM	8/10/2022 1:40:00 PM	8/12/2022 9:25:00 AM
			MATRIX	Soil	Soil	Soil	Soil
			QC TYPE	Primary	Primary	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**				
SW6010D TCLP	Arsenic	5	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
	Barium	100	mg/L	0.547 [0.0500]	0.597 [0.0500]	0.505 [0.0500]	0.494 [0.0500]
	Cadmium	1	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
	Chromium	5	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
	Lead	5	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
	Selenium	1	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
	Silver	5	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
	Mercury	0.2	mg/L	ND [0.00500]	ND [0.00500]	ND [0.00500]	ND [0.00500]
SW8082A	Aroclor 1016	50	mg/kg	ND [0.0290]	ND [0.0296]	ND [0.0290]	ND [0.0746]
	Aroclor 1221	50	mg/kg	ND [0.0290]	ND [0.0296]	ND [0.0290]	ND [0.0746]
	Aroclor 1232	50	mg/kg	ND [0.0290]	ND [0.0296]	ND [0.0290]	ND [0.0746]
	Aroclor 1242	50	mg/kg	ND [0.0290]	ND [0.0296]	ND [0.0290]	ND [0.0746]
	Aroclor 1248	50	mg/kg	ND [0.0174]	ND [0.0178]	ND [0.0174]	ND [0.0448]
	Aroclor 1254	50	mg/kg	ND [0.0174]	ND [0.0178]	ND [0.0174]	ND [0.0448]
	Aroclor 1260	50	mg/kg	ND [0.0174]	ND [0.0178]	0.0140 [0.0174] J,QN	ND [0.0448]
	Aroclor 1262	50	mg/kg	ND [0.0174]	ND [0.0178]	ND [0.0174]	ND [0.0448]
	Aroclor 1268	50	mg/kg	ND [0.0174]	ND [0.0178]	ND [0.0174]	ND [0.0448]
SW8260D TCLP	1,1-Dichloroethene	0.7	mg/L	ND [0.0250]	ND [0.0250]	ND [0.0250]	ND [0.0250]
	1,2-Dichloroethane	0.5	mg/L	ND [0.0250]	ND [0.0250]	ND [0.0250]	ND [0.0250]
	2-Butanone	200	mg/L	ND [0.250]	ND [0.250]	ND [0.250]	ND [0.250]
	Benzene	0.5	mg/L	ND [0.0250]	ND [0.0250]	ND [0.0250]	ND [0.0250]
	Carbon tetrachloride	0.5	mg/L	ND [0.0250]	ND [0.0250]	ND [0.0250]	ND [0.0250]
	Chlorobenzene	100	mg/L	ND [0.0250]	ND [0.0250]	ND [0.0250]	ND [0.0250]
	Chloroform	6	mg/L	ND [0.125]	ND [0.125]	ND [0.125]	ND [0.125]
	Tetrachloroethene	0.7	mg/L	ND [0.0250]	ND [0.0250]	ND [0.0250]	ND [0.0250]
	Trichloroethene	0.5	mg/L	ND [0.0250]	ND [0.0250]	ND [0.0250]	ND [0.0250]
	Vinyl chloride	0.2	mg/L	ND [0.0250]	ND [0.0250]	ND [0.0250]	ND [0.0250]
SW8270E TCLP	1,4-Dichlorobenzene	7.5	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500] QL	ND [0.0500]
	2,4,5-Trichlorophenol	400	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
	2,4,6-Trichlorophenol	2	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
	2,4-Dinitrotoluene	0.13	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500] QL	ND [0.0500]
	2-Methylphenol	200	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
	3-Methylphenol/4-Methylphenol Coelution	200	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
	Hexachlorobenzene	0.13	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500] QL	ND [0.0500]
	Hexachlorobutadiene	0.5	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500] QL	ND [0.0500]
	Hexachloroethane	3	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500] QL	ND [0.0500]
	Nitrobenzene	2	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500] QL	ND [0.0500]
	Pentachlorophenol	100	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
	Pyridine	5	mg/L	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500]
SM2540G	Solids	NS	%	86.3 [0.200]	84.4 [0.200]	86.3 [0.200]	33.5 [0.200]

Notes:

[1] PSLs are defined as the RCRA maximum concentration for toxicity characteristic, Table 1, 40 CFR §261.24 and for PCBs, the TSCA regulatory concentration, 40 CFR §761.

LOD shown in brackets [ ]

% – percent

DL – detection limit

J – the result is an estimated value greater than or equal to the DL and below the LOQ

LOD – limit of detection

LOQ – limit of quantitation

mg/L – milligrams per liter

mg/kg – milligrams per kilogram

ND – not detected

NS – not specified

PCB – polychlorinated biphenyl

PSL – project screening level

QC – quality control

QH/QL/QN – the result is an estimated value, bias high/low/indeterminate, due to a QC failure

RCRA – resource conservation and recovery act

SDG – sample delivery group

TCLP – toxicity characteristic leaching procedure

TSCA – toxic substances control act

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ANALYTICAL REPORT

August 18, 2022

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

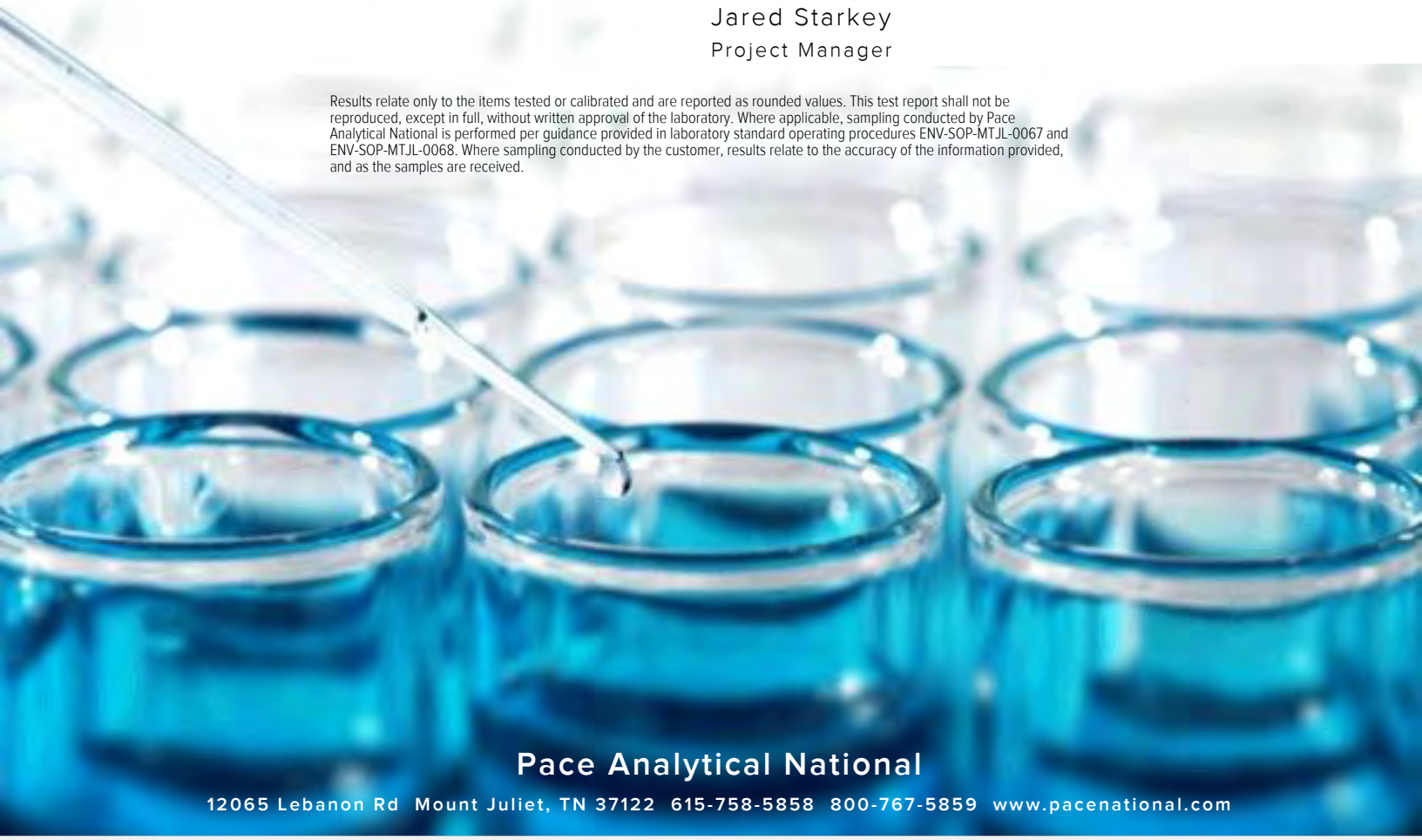
Brice Engineering, LLC

Sample Delivery Group:	L1525023
Samples Received:	08/13/2022
Project Number:	700700-020
Description:	Northeast Cape FUDS NPDL - 20-015
Site:	NEC22-WC-1
Report To:	Jillian Janssen 3700 Centerpoint Drive, Suite 800 Anchorage, AK 99503

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 www.pacenational.com

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NEC22-WC-1 L1525023-01 Solid

Collected by	Collected date/time	Received date/time
	08/05/22 09:00	08/13/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1910840	1	08/15/22 14:00	08/15/22 14:08	CMK	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082 A	WG1910535	1	08/14/22 09:01	08/14/22 17:51	JMB	Mt. Juliet, TN

NEC22-WC-1 L1525023-02 Waste

Collected by	Collected date/time	Received date/time
	08/05/22 09:00	08/13/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1910567	1	08/14/22 13:41	08/14/22 13:41	JTM	Mt. Juliet, TN
Mercury by Method 7470A	WG1910673	1	08/15/22 10:08	08/16/22 08:00	MRW	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1911216	1	08/15/22 16:41	08/15/22 21:06	CCE	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG1911740	1	08/17/22 13:51	08/18/22 10:29	AGW	Mt. Juliet, TN

NEC22-WC-1 L1525023-03 Solid

Collected by	Collected date/time	Received date/time
	08/05/22 09:00	08/13/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1910648	1	08/15/22 10:21	08/15/22 10:21	JTM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1911796	1	08/17/22 15:31	08/17/22 15:31	DWR	Mt. Juliet, TN

NEC22-WC-2 L1525023-04 Solid

Collected by	Collected date/time	Received date/time
	08/06/22 08:00	08/13/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1910840	1	08/15/22 14:00	08/15/22 14:08	CMK	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082 A	WG1910535	1	08/14/22 09:01	08/14/22 18:18	JMB	Mt. Juliet, TN

NEC22-WC-2 L1525023-05 Waste

Collected by	Collected date/time	Received date/time
	08/06/22 08:00	08/13/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1910567	1	08/14/22 13:41	08/14/22 13:41	JTM	Mt. Juliet, TN
Mercury by Method 7470A	WG1910673	1	08/15/22 10:08	08/16/22 08:02	MRW	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1911216	1	08/15/22 16:41	08/15/22 21:09	CCE	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG1911740	1	08/17/22 13:51	08/18/22 10:51	AGW	Mt. Juliet, TN

NEC22-WC-2 L1525023-06 Solid

Collected by	Collected date/time	Received date/time
	08/06/22 08:00	08/13/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1910648	1	08/15/22 10:21	08/15/22 10:21	JTM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1911796	1	08/17/22 15:52	08/17/22 15:52	DWR	Mt. Juliet, TN

NEC22-WC-3 L1525023-07 Solid

Collected by	Collected date/time	Received date/time
	08/10/22 13:40	08/13/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1910840	1	08/15/22 14:00	08/15/22 14:08	CMK	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082 A	WG1910535	1	08/14/22 09:01	08/14/22 18:27	JMB	Mt. Juliet, TN

NEC22-WC-3 L1525023-08 Waste

Collected by	Collected date/time	Received date/time
	08/10/22 13:40	08/13/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1910567	1	08/14/22 13:41	08/14/22 13:41	JTM	Mt. Juliet, TN
Mercury by Method 7470A	WG1910673	1	08/15/22 10:08	08/16/22 08:04	MRW	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1911216	1	08/15/22 16:41	08/15/22 21:12	CCE	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG1911740	1	08/17/22 13:51	08/18/22 11:12	AGW	Mt. Juliet, TN

NEC22-WC-3 L1525023-09 Solid

Collected by	Collected date/time	Received date/time
	08/10/22 13:40	08/13/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1910648	1	08/15/22 10:21	08/15/22 10:21	JTM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1911796	1	08/17/22 16:12	08/17/22 16:12	DWR	Mt. Juliet, TN

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

Metals (ICP) by Method 6010D

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

Batch	Lab Sample ID	Analytes
WG1911216	(MS) R3826545-2, (MSD) R3826545-3	Arsenic, Cadmium, Chromium and Silver

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

The associated batch QC was above the established quality control range for accuracy.

Batch	Lab Sample ID	Analytes
WG1911796	(LCS) R3827273-1, (LCSD) R3827273-2, L1525023-03, 06, 09	1,2-Dichloroethane and 2-Butanone (MEK)

Polychlorinated Biphenyls (GC) by Method 8082 A

RPD between the primary and confirmatory analysis exceeded 40%

Batch	Lab Sample ID	Analytes
WG1910535	L1525023-07	PCB 1260
WG1910535	(MS) R3826731-3	PCB 1016
WG1910535	(MSD) R3826731-4	PCB 1016

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

Batch	Analyte	Lab Sample ID
WG1910535	Tetrachloro-m-xylene	(LCS) R3826731-2, (MS) R3826731-3, (MSD) R3826731-4

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

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

Batch	Analyte	Lab Sample ID
WG1911740	Nitrobenzene-d5	L1525023-08

The associated batch QC was below the established quality control range for accuracy.

Batch	Lab Sample ID	Analytes
WG1911740	(LCS) R3827739-1, L1525023-02, 05, 08	Pyridine

Metals (ICP) by Method 6010D

Client ID	Lab Sample ID	Analyte	Result mg/l	Qualifier	LOQ mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
NEC22-WC-1	L1525023-02	Barium	0.547		0.100		1	08/15/2022 21:06	WG1911216
NEC22-WC-2	L1525023-05	Barium	0.597		0.100		1	08/15/2022 21:09	WG1911216
NEC22-WC-3	L1525023-08	Barium	0.505		0.100		1	08/15/2022 21:12	WG1911216

Polychlorinated Biphenyls (GC) by Method 8082 A

Client ID	Lab Sample ID	Analyte	CAS #	Result (dry) mg/kg	Qualifier	DL (dry) mg/kg	LOD (dry) mg/kg	LOQ (dry) mg/kg	Dilution	Analysis date / time	Batch
NEC22-WC-3	L1525023-07	PCB 1260	11096-82-5	0.0140	J P	0.00855	0.0174	0.0348	1	08/14/2022 18:27	WG1910535

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

Analyte	Result	Units
Cooler#	PACE-22NEC-007	
Cooler Temperature	5.6	Deg. C

Total Solids by Method 2540 G-2011

Analyte	Result %	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	86.3		1	08/15/2022 14:08	WG1910840

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	0.0290	U	0.0137	0.0290	0.0579	1	08/14/2022 17:51	WG1910535
PCB 1221	11104-28-2	0.0290	U	0.0137	0.0290	0.0579	1	08/14/2022 17:51	WG1910535
PCB 1232	11141-16-5	0.0290	U	0.0137	0.0290	0.0579	1	08/14/2022 17:51	WG1910535
PCB 1242	53469-21-9	0.0290	U	0.0137	0.0290	0.0579	1	08/14/2022 17:51	WG1910535
PCB 1248	12672-29-6	0.0174	U	0.00855	0.0174	0.0347	1	08/14/2022 17:51	WG1910535
PCB 1254	11097-69-1	0.0174	U	0.00855	0.0174	0.0347	1	08/14/2022 17:51	WG1910535
PCB 1260	11096-82-5	0.0174	U	0.00855	0.0174	0.0347	1	08/14/2022 17:51	WG1910535
PCB 1262	37324-23-5	0.0174	U	0.00855	0.0174	0.0347	1	08/14/2022 17:51	WG1910535
PCB 1268	11100-14-4	0.0174	U	0.00855	0.0174	0.0347	1	08/14/2022 17:51	WG1910535
(S) Decachlorobiphenyl	*2051-24-3*	*65.5*				*10.0-143*		*08/14/2022 17:51*	WG1910535
(S) Tetrachloro-m-xylene	*877-09-8*	*53.9*				*44.0-129*		*08/14/2022 17:51*	WG1910535

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

Analyte	Result	Units
Cooler#	PACE-22NEC-007	
Cooler Temperature	5.6	Deg. C

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		8/14/2022 1:41:24 PM	WG1910567
Fluid	1		8/14/2022 1:41:24 PM	WG1910567
Initial pH	6.63		8/14/2022 1:41:24 PM	WG1910567
Final pH	4.92		8/14/2022 1:41:24 PM	WG1910567

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	LOQ mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.0100	0.20	1	08/16/2022 08:00	WG1910673

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	LOQ mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Arsenic	ND		0.100		1	08/15/2022 21:06	WG1911216
Barium	0.547		0.100		1	08/15/2022 21:06	WG1911216
Cadmium	ND		0.100		1	08/15/2022 21:06	WG1911216
Chromium	ND		0.100		1	08/15/2022 21:06	WG1911216
Lead	ND		0.100		1	08/15/2022 21:06	WG1911216
Selenium	ND		0.100		1	08/15/2022 21:06	WG1911216
Silver	ND		0.100		1	08/15/2022 21:06	WG1911216

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result mg/l	Qualifier	LOQ mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
1,4-Dichlorobenzene	ND		0.100	7.50	1	08/18/2022 10:29	WG1911740
2,4-Dinitrotoluene	ND		0.100	0.13	1	08/18/2022 10:29	WG1911740
Hexachlorobenzene	ND		0.100	0.13	1	08/18/2022 10:29	WG1911740
Hexachloro-1,3-butadiene	ND		0.100	0.50	1	08/18/2022 10:29	WG1911740
Hexachloroethane	ND		0.100	3	1	08/18/2022 10:29	WG1911740
Nitrobenzene	ND		0.100	2	1	08/18/2022 10:29	WG1911740
Pyridine	ND	J4	0.100	5	1	08/18/2022 10:29	WG1911740
3&4-Methyl Phenol	ND		0.100	400	1	08/18/2022 10:29	WG1911740
2-Methylphenol	ND		0.100	200	1	08/18/2022 10:29	WG1911740
Pentachlorophenol	ND		0.100	100	1	08/18/2022 10:29	WG1911740
2,4,5-Trichlorophenol	ND		0.100	400	1	08/18/2022 10:29	WG1911740
2,4,6-Trichlorophenol	ND		0.100	2	1	08/18/2022 10:29	WG1911740
(S) 2-Fluorophenol	*35.5*		*19.0-119*			*08/18/2022 10:29*	WG1911740
(S) Phenol-d5	*24.8*		*10.0-67.0*			*08/18/2022 10:29*	WG1911740
(S) Nitrobenzene-d5	*49.3*		*44.0-120*			*08/18/2022 10:29*	WG1911740
(S) 2-Fluorobiphenyl	*66.8*		*44.0-119*			*08/18/2022 10:29*	WG1911740
(S) 2,4,6-Tribromophenol	*91.0*		*43.0-140*			*08/18/2022 10:29*	WG1911740
(S) p-Terphenyl-d14	*87.1*		*50.0-134*			*08/18/2022 10:29*	WG1911740

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

Analyte	Result	Units
Cooler#	PACE-22NEC-007	
Cooler Temperature	5.6	Deg. C

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP ZHE Extraction	-		8/15/2022 10:21:08 AM	WG1910648

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

Analyte	Result mg/l	Qualifier	LOQ mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.0500	0.50	1	08/17/2022 15:31	WG1911796
Carbon tetrachloride	ND		0.0500	0.50	1	08/17/2022 15:31	WG1911796
Chlorobenzene	ND		0.0500	100	1	08/17/2022 15:31	WG1911796
Chloroform	ND		0.250	6	1	08/17/2022 15:31	WG1911796
1,2-Dichloroethane	ND	J4	0.0500	0.50	1	08/17/2022 15:31	WG1911796
1,1-Dichloroethene	ND		0.0500	0.70	1	08/17/2022 15:31	WG1911796
2-Butanone (MEK)	ND	J4	0.500	200	1	08/17/2022 15:31	WG1911796
Tetrachloroethene	ND		0.0500	0.70	1	08/17/2022 15:31	WG1911796
Trichloroethene	ND		0.0500	0.50	1	08/17/2022 15:31	WG1911796
Vinyl chloride	ND		0.0500	0.20	1	08/17/2022 15:31	WG1911796
(S) Toluene-d8	*110*		*89.0-112*			*08/17/2022 15:31*	WG1911796
(S) 4-Bromofluorobenzene	*96.6*		*85.0-114*			*08/17/2022 15:31*	WG1911796
(S) 1,2-Dichloroethane-d4	*110*		*81.0-118*			*08/17/2022 15:31*	WG1911796

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

Analyte	Result	Units
Cooler#	PACE-22NEC-007	
Cooler Temperature	5.6	Deg. C

Total Solids by Method 2540 G-2011

Analyte	Result %	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	84.4		1	08/15/2022 14:08	WG1910840

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	0.0296	U	0.0140	0.0296	0.0592	1	08/14/2022 18:18	WG1910535
PCB 1221	11104-28-2	0.0296	U	0.0140	0.0296	0.0592	1	08/14/2022 18:18	WG1910535
PCB 1232	11141-16-5	0.0296	U	0.0140	0.0296	0.0592	1	08/14/2022 18:18	WG1910535
PCB 1242	53469-21-9	0.0296	U	0.0140	0.0296	0.0592	1	08/14/2022 18:18	WG1910535
PCB 1248	12672-29-6	0.0178	U	0.00874	0.0178	0.0355	1	08/14/2022 18:18	WG1910535
PCB 1254	11097-69-1	0.0178	U	0.00874	0.0178	0.0355	1	08/14/2022 18:18	WG1910535
PCB 1260	11096-82-5	0.0178	U	0.00874	0.0178	0.0355	1	08/14/2022 18:18	WG1910535
PCB 1262	37324-23-5	0.0178	U	0.00874	0.0178	0.0355	1	08/14/2022 18:18	WG1910535
PCB 1268	11100-14-4	0.0178	U	0.00874	0.0178	0.0355	1	08/14/2022 18:18	WG1910535
(S) Decachlorobiphenyl	*2051-24-3*	*70.3*				*10.0-143*		*08/14/2022 18:18*	WG1910535
(S) Tetrachloro-m-xylene	*877-09-8*	*55.2*				*44.0-129*		*08/14/2022 18:18*	WG1910535

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

Analyte	Result	Units
Cooler#	PACE-22NEC-007	
Cooler Temperature	5.6	Deg. C

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		8/14/2022 1:41:24 PM	WG1910567
Fluid	1		8/14/2022 1:41:24 PM	WG1910567
Initial pH	6.63		8/14/2022 1:41:24 PM	WG1910567
Final pH	4.97		8/14/2022 1:41:24 PM	WG1910567

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	LOQ mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.0100	0.20	1	08/16/2022 08:02	WG1910673

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	LOQ mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Arsenic	ND		0.100		1	08/15/2022 21:09	WG1911216
Barium	0.597		0.100		1	08/15/2022 21:09	WG1911216
Cadmium	ND		0.100		1	08/15/2022 21:09	WG1911216
Chromium	ND		0.100		1	08/15/2022 21:09	WG1911216
Lead	ND		0.100		1	08/15/2022 21:09	WG1911216
Selenium	ND		0.100		1	08/15/2022 21:09	WG1911216
Silver	ND		0.100		1	08/15/2022 21:09	WG1911216

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result mg/l	Qualifier	LOQ mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
1,4-Dichlorobenzene	ND		0.100	7.50	1	08/18/2022 10:51	WG1911740
2,4-Dinitrotoluene	ND		0.100	0.13	1	08/18/2022 10:51	WG1911740
Hexachlorobenzene	ND		0.100	0.13	1	08/18/2022 10:51	WG1911740
Hexachloro-1,3-butadiene	ND		0.100	0.50	1	08/18/2022 10:51	WG1911740
Hexachloroethane	ND		0.100	3	1	08/18/2022 10:51	WG1911740
Nitrobenzene	ND		0.100	2	1	08/18/2022 10:51	WG1911740
Pyridine	ND	J4	0.100	5	1	08/18/2022 10:51	WG1911740
3&4-Methyl Phenol	ND		0.100	400	1	08/18/2022 10:51	WG1911740
2-Methylphenol	ND		0.100	200	1	08/18/2022 10:51	WG1911740
Pentachlorophenol	ND		0.100	100	1	08/18/2022 10:51	WG1911740
2,4,5-Trichlorophenol	ND		0.100	400	1	08/18/2022 10:51	WG1911740
2,4,6-Trichlorophenol	ND		0.100	2	1	08/18/2022 10:51	WG1911740
(S) 2-Fluorophenol	*35.9*		*19.0-119*			*08/18/2022 10:51*	WG1911740
(S) Phenol-d5	*26.0*		*10.0-67.0*			*08/18/2022 10:51*	WG1911740
(S) Nitrobenzene-d5	*54.2*		*44.0-120*			*08/18/2022 10:51*	WG1911740
(S) 2-Fluorobiphenyl	*75.4*		*44.0-119*			*08/18/2022 10:51*	WG1911740
(S) 2,4,6-Tribromophenol	*98.5*		*43.0-140*			*08/18/2022 10:51*	WG1911740
(S) p-Terphenyl-d14	*85.1*		*50.0-134*			*08/18/2022 10:51*	WG1911740

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

Analyte	Result	Units
Cooler#	PACE-22NEC-007	
Cooler Temperature	5.6	Deg. C

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP ZHE Extraction	-		8/15/2022 10:21:08 AM	WG1910648

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

Analyte	Result mg/l	Qualifier	LOQ mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.0500	0.50	1	08/17/2022 15:52	WG1911796
Carbon tetrachloride	ND		0.0500	0.50	1	08/17/2022 15:52	WG1911796
Chlorobenzene	ND		0.0500	100	1	08/17/2022 15:52	WG1911796
Chloroform	ND		0.250	6	1	08/17/2022 15:52	WG1911796
1,2-Dichloroethane	ND	J4	0.0500	0.50	1	08/17/2022 15:52	WG1911796
1,1-Dichloroethene	ND		0.0500	0.70	1	08/17/2022 15:52	WG1911796
2-Butanone (MEK)	ND	J4	0.500	200	1	08/17/2022 15:52	WG1911796
Tetrachloroethene	ND		0.0500	0.70	1	08/17/2022 15:52	WG1911796
Trichloroethene	ND		0.0500	0.50	1	08/17/2022 15:52	WG1911796
Vinyl chloride	ND		0.0500	0.20	1	08/17/2022 15:52	WG1911796
(S) Toluene-d8	*109*		*89.0-112*			*08/17/2022 15:52*	WG1911796
(S) 4-Bromofluorobenzene	*95.1*		*85.0-114*			*08/17/2022 15:52*	WG1911796
(S) 1,2-Dichloroethane-d4	*109*		*81.0-118*			*08/17/2022 15:52*	WG1911796

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

Analyte	Result	Units
Cooler#	PACE-22NEC-007	
Cooler Temperature	5.6	Deg. C

Total Solids by Method 2540 G-2011

Analyte	Result %	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	86.3		1	08/15/2022 14:08	WG1910840

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	0.0290	U	0.0137	0.0290	0.0579	1	08/14/2022 18:27	WG1910535
PCB 1221	11104-28-2	0.0290	U	0.0137	0.0290	0.0579	1	08/14/2022 18:27	WG1910535
PCB 1232	11141-16-5	0.0290	U	0.0137	0.0290	0.0579	1	08/14/2022 18:27	WG1910535
PCB 1242	53469-21-9	0.0290	U	0.0137	0.0290	0.0579	1	08/14/2022 18:27	WG1910535
PCB 1248	12672-29-6	0.0174	U	0.00855	0.0174	0.0348	1	08/14/2022 18:27	WG1910535
PCB 1254	11097-69-1	0.0174	U	0.00855	0.0174	0.0348	1	08/14/2022 18:27	WG1910535
PCB 1260	11096-82-5	0.0140	J P	0.00855	0.0174	0.0348	1	08/14/2022 18:27	WG1910535
PCB 1262	37324-23-5	0.0174	U	0.00855	0.0174	0.0348	1	08/14/2022 18:27	WG1910535
PCB 1268	11100-14-4	0.0174	U	0.00855	0.0174	0.0348	1	08/14/2022 18:27	WG1910535
(S) Decachlorobiphenyl	*2051-24-3*	*62.8*				*10.0-143*		*08/14/2022 18:27*	WG1910535
(S) Tetrachloro-m-xylene	*877-09-8*	*54.4*				*44.0-129*		*08/14/2022 18:27*	WG1910535

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

Analyte	Result	Units
Cooler#	PACE-22NEC-007	
Cooler Temperature	5.6	Deg. C

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		8/14/2022 1:41:24 PM	WG1910567
Fluid	1		8/14/2022 1:41:24 PM	WG1910567
Initial pH	6.59		8/14/2022 1:41:24 PM	WG1910567
Final pH	4.94		8/14/2022 1:41:24 PM	WG1910567

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	LOQ mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.0100	0.20	1	08/16/2022 08:04	WG1910673

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	LOQ mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Arsenic	ND		0.100		1	08/15/2022 21:12	WG1911216
Barium	0.505		0.100		1	08/15/2022 21:12	WG1911216
Cadmium	ND		0.100		1	08/15/2022 21:12	WG1911216
Chromium	ND		0.100		1	08/15/2022 21:12	WG1911216
Lead	ND		0.100		1	08/15/2022 21:12	WG1911216
Selenium	ND		0.100		1	08/15/2022 21:12	WG1911216
Silver	ND		0.100		1	08/15/2022 21:12	WG1911216

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result mg/l	Qualifier	LOQ mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
1,4-Dichlorobenzene	ND		0.100	7.50	1	08/18/2022 11:12	WG1911740
2,4-Dinitrotoluene	ND		0.100	0.13	1	08/18/2022 11:12	WG1911740
Hexachlorobenzene	ND		0.100	0.13	1	08/18/2022 11:12	WG1911740
Hexachloro-1,3-butadiene	ND		0.100	0.50	1	08/18/2022 11:12	WG1911740
Hexachloroethane	ND		0.100	3	1	08/18/2022 11:12	WG1911740
Nitrobenzene	ND		0.100	2	1	08/18/2022 11:12	WG1911740
Pyridine	ND	J4	0.100	5	1	08/18/2022 11:12	WG1911740
3&4-Methyl Phenol	ND		0.100	400	1	08/18/2022 11:12	WG1911740
2-Methylphenol	ND		0.100	200	1	08/18/2022 11:12	WG1911740
Pentachlorophenol	ND		0.100	100	1	08/18/2022 11:12	WG1911740
2,4,5-Trichlorophenol	ND		0.100	400	1	08/18/2022 11:12	WG1911740
2,4,6-Trichlorophenol	ND		0.100	2	1	08/18/2022 11:12	WG1911740
(S) 2-Fluorophenol	*29.3*		*19.0-119*			*08/18/2022 11:12*	WG1911740
(S) Phenol-d5	*21.1*		*10.0-67.0*			*08/18/2022 11:12*	WG1911740
(S) Nitrobenzene-d5	*41.5*	J2	*44.0-120*			*08/18/2022 11:12*	WG1911740
(S) 2-Fluorobiphenyl	*59.1*		*44.0-119*			*08/18/2022 11:12*	WG1911740
(S) 2,4,6-Tribromophenol	*90.5*		*43.0-140*			*08/18/2022 11:12*	WG1911740
(S) p-Terphenyl-d14	*87.7*		*50.0-134*			*08/18/2022 11:12*	WG1911740

Sample Narrative:

L1525023-08 WG1911740: Surrogate recovery within historical limits.

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

Analyte	Result	Units
Cooler#	PACE-22NEC-007	
Cooler Temperature	5.6	Deg. C

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP ZHE Extraction	-		8/15/2022 10:21:08 AM	WG1910648

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

Analyte	Result mg/l	Qualifier	LOQ mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.0500	0.50	1	08/17/2022 16:12	WG1911796
Carbon tetrachloride	ND		0.0500	0.50	1	08/17/2022 16:12	WG1911796
Chlorobenzene	ND		0.0500	100	1	08/17/2022 16:12	WG1911796
Chloroform	ND		0.250	6	1	08/17/2022 16:12	WG1911796
1,2-Dichloroethane	ND	J4	0.0500	0.50	1	08/17/2022 16:12	WG1911796
1,1-Dichloroethene	ND		0.0500	0.70	1	08/17/2022 16:12	WG1911796
2-Butanone (MEK)	ND	J4	0.500	200	1	08/17/2022 16:12	WG1911796
Tetrachloroethene	ND		0.0500	0.70	1	08/17/2022 16:12	WG1911796
Trichloroethene	ND		0.0500	0.50	1	08/17/2022 16:12	WG1911796
Vinyl chloride	ND		0.0500	0.20	1	08/17/2022 16:12	WG1911796
(S) Toluene-d8	*109*		*89.0-112*			*08/17/2022 16:12*	WG1911796
(S) 4-Bromofluorobenzene	*95.9*		*85.0-114*			*08/17/2022 16:12*	WG1911796
(S) 1,2-Dichloroethane-d4	*112*		*81.0-118*			*08/17/2022 16:12*	WG1911796

QUALITY CONTROL SUMMARY

L1525023-01,04,07

Method Blank (MB)

(MB) R3826569-1 08/15/22 14:08

Analyte	MB Result %	MB Qualifier	MB DL %	MB LOD %	MB LOQ %
Total Solids	0.00400			0.200	

L1524701-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1524701-11 08/15/22 14:08 • (DUP) R3826569-3 08/15/22 14:08

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	77.9	78.6	1	0.931		5

Laboratory Control Sample (LCS)

(LCS) R3826569-2 08/15/22 14:08

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	49.9	99.9	85.0-115	

QUALITY CONTROL SUMMARY

L1525023-02,05,08

Method Blank (MB)

(MB) R3826576-1 08/16/22 07:23

Analyte	MB Result mg/l	MB Qualifier	MB DL mg/l	MB LOD mg/l	MB LOQ mg/l
Mercury	0.00500	U	0.00330	0.00500	0.0100

Laboratory Control Sample (LCS)

(LCS) R3826576-2 08/16/22 07:24

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.0300	0.0298	99.4	82.0-119	

L1523795-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1523795-02 08/16/22 07:26 • (MS) R3826576-3 08/16/22 07:28 • (MSD) R3826576-4 08/16/22 07:30

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.0300	ND	0.0299	0.0292	99.7	97.2	1	82.0-119			2.54	20

L1523967-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1523967-02 08/16/22 07:32 • (MS) R3826576-5 08/16/22 07:34 • (MSD) R3826576-6 08/16/22 07:36

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.0300	ND	0.0294	0.0291	98.1	97.0	1	82.0-119			1.11	20

QUALITY CONTROL SUMMARY

L1525023-02,05,08

Method Blank (MB)

(MB) R3826545-4 08/16/22 02:44

Analyte	MB Result mg/l	MB Qualifier	MB DL mg/l	MB LOD mg/l	MB LOQ mg/l
Arsenic	0.0500	U	0.0330	0.0500	0.100
Barium	0.0500	U	0.0330	0.0500	0.100
Cadmium	0.0500	U	0.0330	0.0500	0.100
Chromium	0.0500	U	0.0330	0.0500	0.100
Lead	0.0500	U	0.0330	0.0500	0.100
Selenium	0.0500	U	0.0330	0.0500	0.100
Silver	0.0500	U	0.0330	0.0500	0.100

Laboratory Control Sample (LCS)

(LCS) R3826545-5 08/16/22 02:46

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	10.0	8.93	89.3	87.0-113	
Barium	10.0	9.40	94.0	88.0-113	
Cadmium	10.0	9.11	91.1	88.0-113	
Chromium	10.0	9.15	91.5	90.0-113	
Lead	10.0	9.04	90.4	86.0-113	
Selenium	10.0	9.38	93.8	83.0-114	
Silver	2.00	1.70	84.9	84.0-115	

L1523875-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1523875-05 08/15/22 20:38 • (MS) R3826545-2 08/15/22 20:43 • (MSD) R3826545-3 08/15/22 20:46

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	10.0	ND	8.47	8.55	84.7	85.5	1	87.0-113	J6	J6	0.916	20
Barium	10.0	0.818	9.70	9.80	88.8	89.9	1	88.0-113			1.07	20
Cadmium	10.0	ND	8.76	8.78	87.6	87.8	1	88.0-113	J6	J6	0.241	20
Chromium	10.0	ND	8.72	8.75	86.8	87.1	1	90.0-113	J6	J6	0.435	20
Lead	10.0	ND	8.60	8.61	86.0	86.1	1	86.0-113			0.130	20
Selenium	10.0	ND	8.90	9.02	88.5	89.8	1	83.0-114			1.44	20
Silver	2.00	ND	1.64	1.64	81.8	82.1	1	84.0-115	J6	J6	0.390	20

Method Blank (MB)

(MB) R3827273-3 08/17/22 12:28

Analyte	MB Result mg/l	MB Qualifier	MB DL mg/l	MB LOD mg/l	MB LOQ mg/l
Benzene	0.0250	U	0.0167	0.0250	0.0500
Carbon tetrachloride	0.0250	U	0.0167	0.0250	0.0500
Chlorobenzene	0.0250	U	0.0167	0.0250	0.0500
Chloroform	0.125	U	0.0833	0.125	0.250
1,2-Dichloroethane	0.0250	U	0.0167	0.0250	0.0500
1,1-Dichloroethene	0.0250	U	0.0167	0.0250	0.0500
2-Butanone (MEK)	0.250	U	0.167	0.250	0.500
Tetrachloroethene	0.0250	U	0.0167	0.0250	0.0500
Trichloroethene	0.0250	U	0.0167	0.0250	0.0500
Vinyl chloride	0.0250	U	0.0167	0.0250	0.0500
(S) Toluene-d8	*108*				*89.0-112*
(S) 4-Bromofluorobenzene	*99.7*				*85.0-114*
(S) 1,2-Dichloroethane-d4	*111*				*81.0-118*

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

(LCS) R3827273-1 08/17/22 10:35 • (LCSD) R3827273-2 08/17/22 10:56

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.250	0.282	0.269	113	108	79.0-120			4.72	20
Carbon tetrachloride	0.250	0.273	0.258	109	103	72.0-136			5.65	20
Chlorobenzene	0.250	0.266	0.261	106	104	82.0-118			1.90	20
Chloroform	0.250	0.280	0.270	112	108	79.0-124			3.64	20
1,2-Dichloroethane	0.250	0.335	0.324	134	130	73.0-128	J4	J4	3.34	20
1,1-Dichloroethene	0.250	0.294	0.282	118	113	71.0-131			4.17	20
2-Butanone (MEK)	1.25	1.88	1.96	150	157	56.0-143	J4	J4	4.17	20
Tetrachloroethene	0.250	0.288	0.268	115	107	74.0-129			7.19	20
Trichloroethene	0.250	0.267	0.249	107	99.6	79.0-123			6.98	20
Vinyl chloride	0.250	0.261	0.240	104	96.0	58.0-137			8.38	20
(S) Toluene-d8				*106*	*106*	*89.0-112*				
(S) 4-Bromofluorobenzene				*97.8*	*102*	*85.0-114*				
(S) 1,2-Dichloroethane-d4				*112*	*111*	*81.0-118*				

L1525249-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1525249-01 08/17/22 19:15 • (MS) R3827273-4 08/17/22 19:35 • (MSD) R3827273-5 08/17/22 19:56

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.250	ND	0.261	0.257	104	103	1	79.0-120			1.54	20
Carbon tetrachloride	0.250	ND	0.255	0.255	102	102	1	72.0-136			0.000	20
Chlorobenzene	0.250	ND	0.249	0.247	99.6	98.8	1	82.0-118			0.806	20
Chloroform	0.250	ND	0.268	0.264	107	106	1	79.0-124			1.50	20
1,2-Dichloroethane	0.250	ND	0.315	0.309	126	124	1	73.0-128			1.92	20
1,1-Dichloroethene	0.250	ND	0.269	0.263	108	105	1	71.0-131			2.26	20
2-Butanone (MEK)	1.25	ND	1.76	1.70	141	136	1	56.0-143			3.47	20
Tetrachloroethene	0.250	ND	0.255	0.259	102	104	1	74.0-129			1.56	20
Trichloroethene	0.250	ND	0.237	0.231	94.8	92.4	1	79.0-123			2.56	20
Vinyl chloride	0.250	ND	0.250	0.238	100	95.2	1	58.0-137			4.92	20
(S) Toluene-d8					*106*	*110*		*89.0-112*				
(S) 4-Bromofluorobenzene					*97.2*	*98.2*		*85.0-114*				
(S) 1,2-Dichloroethane-d4					*115*	*109*		*81.0-118*				

Method Blank (MB)

(MB) R3826731-1 08/14/22 17:24

Analyte	MB Result mg/kg	MB Qualifier	MB DL mg/kg	MB LOD mg/kg	MB LOQ mg/kg
PCB 1016	0.0250	U	0.0118	0.0250	0.0500
PCB 1221	0.0250	U	0.0118	0.0250	0.0500
PCB 1232	0.0250	U	0.0118	0.0250	0.0500
PCB 1242	0.0250	U	0.0118	0.0250	0.0500
PCB 1248	0.0150	U	0.00738	0.0150	0.0300
PCB 1254	0.0150	U	0.00738	0.0150	0.0300
PCB 1260	0.0150	U	0.00738	0.0150	0.0300
PCB 1262	0.0150	U	0.00738	0.0150	0.0300
PCB 1268	0.0150	U	0.00738	0.0150	0.0300
(S) Decachlorobiphenyl	*69.4*				*10.0-143*
(S) Tetrachloro-m-xylene	*67.7*				*44.0-129*

Laboratory Control Sample (LCS)

(LCS) R3826731-2 08/14/22 17:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
PCB 1016	0.167	0.0899	53.8	47.0-134	
PCB 1260	0.167	0.0950	56.9	53.0-140	
(S) Decachlorobiphenyl			*40.4*	*10.0-143*	
(S) Tetrachloro-m-xylene			*37.7*	*44.0-129*	J2

L1525023-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1525023-01 08/14/22 17:51 • (MS) R3826731-3 08/14/22 18:00 • (MSD) R3826731-4 08/14/22 18:09

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	0.193	0.0290	0.182	0.168	94.0	86.8	1	47.0-134	P	P	7.95	30
PCB 1260	0.193	0.0174	0.108	0.105	55.8	54.3	1	53.0-140			2.72	30
(S) Decachlorobiphenyl					*48.8*	*49.1*		*10.0-143*				
(S) Tetrachloro-m-xylene					*42.8*	*39.6*		*44.0-129*	J2	J2		

Method Blank (MB)

(MB) R3827739-2 08/18/22 10:08

Analyte	MB Result mg/l	MB Qualifier	MB DL mg/l	MB LOD mg/l	MB LOQ mg/l
1,4-Dichlorobenzene	0.000497		0.000401	0.0500	0.100
2,4-Dinitrotoluene	0.0500	U	0.0333	0.0500	0.100
Hexachlorobenzene	0.0500	U	0.0333	0.0500	0.100
Hexachloro-1,3-butadiene	0.00128		0.000329	0.0500	0.100
Hexachloroethane	0.000484		0.000365	0.0500	0.100
Nitrobenzene	0.0500	U	0.0333	0.0500	0.100
Pyridine	0.0500	U	0.0333	0.0500	0.100
3&4-Methyl Phenol	0.0500	U	0.00266	0.0500	0.100
2-Methylphenol	0.0500	U	0.00312	0.0500	0.100
Pentachlorophenol	0.0500	U	0.00313	0.0500	0.100
2,4,5-Trichlorophenol	0.0500	U	0.0333	0.0500	0.100
2,4,6-Trichlorophenol	0.0500	U	0.000297	0.0500	0.100
(S) 2-Fluorophenol	*35.8*				*19.0-119*
(S) Phenol-d5	*25.0*				*10.0-67.0*
(S) Nitrobenzene-d5	*52.1*				*44.0-120*
(S) 2-Fluorobiphenyl	*75.6*				*44.0-119*
(S) 2,4,6-Tribromophenol	*93.5*				*43.0-140*
(S) p-Terphenyl-d14	*87.0*				*50.0-134*

Laboratory Control Sample (LCS)

(LCS) R3827739-1 08/18/22 09:46

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
1,4-Dichlorobenzene	0.500	0.309	61.8	29.0-112	
2,4-Dinitrotoluene	0.500	0.444	88.8	57.0-128	
Hexachlorobenzene	0.500	0.485	97.0	53.0-125	
Hexachloro-1,3-butadiene	0.500	0.348	69.6	22.0-124	
Hexachloroethane	0.500	0.293	58.6	21.0-115	
Nitrobenzene	0.500	0.240	48.0	45.0-121	
Pyridine	0.500	0.0237	4.74	13.5-58.9	J4
3&4-Methyl Phenol	0.500	0.212	42.4	29.0-110	
2-Methylphenol	0.500	0.218	43.6	30.0-117	
Pentachlorophenol	0.500	0.384	76.8	35.0-138	
2,4,5-Trichlorophenol	0.500	0.428	85.6	50.0-125	
2,4,6-Trichlorophenol	0.500	0.385	77.0	53.0-123	
(S) 2-Fluorophenol			*31.8*	*19.0-119*	
(S) Phenol-d5			*24.2*	*10.0-67.0*	
(S) Nitrobenzene-d5			*48.4*	*44.0-120*	

Laboratory Control Sample (LCS)

(LCS) R3827739-1 08/18/22 09:46

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) 2-Fluorobiphenyl			*75.1*	*44.0-119*	
(S) 2,4,6-Tribromophenol			*105*	*43.0-140*	
(S) p-Terphenyl-d14			*87.7*	*50.0-134*	

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.
ND	Not detected at the Reporting Limit (or DL where applicable).
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
J	The identification of the analyte is acceptable; the reported value is an estimate.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J4	The associated batch QC was outside the established quality control range for accuracy.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P	RPD between the primary and confirmatory analysis exceeded 40%.
U	Below Detectable Limits: Indicates that the analyte was not detected.

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.

Chain-of-Custody Report

Report to: Brice Engineering, LLC
Address: 3700 Centerpoint Drive, Suite 800, Anchorage, AK 99503
Invoice to: Brice Engineering, LLC
Address: accountspayable@calistacorp.com, 5015 Business Park Blvd, Suite 3000, Anchorage, AK 99503
Project Name: Northeast Cape FUDS Project Number: 700700

COC #: PACE-22NEC-007 Cooler ID: PACE-22NEC-007

Page: 1 of 1
NPDL WO Number (USACE): 20-015
Quote Number: BRICEAAK052121_PN
PO/WO Number: 700700-020

Laboratory: Pace National, 12065 Lebanon Road, Mt Juliet, TN 37122, (800) 767-5859

1054
L1528023

Field Sample ID	Matrix	Grab/ Comp	Location ID	Collection Date	Collection Time	Sampler	Qty	Container Type	Container Volume	Preservative	DRO (AK102)	DRO/RRO (AK102/103)	DRO/RRO Silica Gel (AK102/103	PAH-SIM (SW8270D-SIM)	TOC(Walkley-Black)	% Solids	Total PCBs	TCLP RCRA Metals*	TCLP VOC (1311/8260D)	TCLP SVOC (1311/8270D)			QC	TAT	Notes:
NEC22-WC-1	SO	C	NEC22-WC-1	8/5/22	0900	JS, SC	1	Clear Glass w/TLS	8-oz	4C							X	X		X				2 day	RUSH TAT; Strong POL odor -01/02
NEC22-WC-1	SO	C	NEC22-WC-1	8/5/22	0900	JS, SC	1	Clear Glass w/TLS	4-oz	4C									X					2 day	RUSH TAT; Strong POL odor -03
NEC22-WC-2	SO	C	NEC22-WC-2	8/6/22	0800	JS, SC	1	Clear Glass w/TLS	8-oz	4C							X	X		X				2 day	RUSH TAT; Strong POL odor -04/05
NEC22-WC-2	SO	C	NEC22-WC-2	8/6/22	0800	JS, SC	1	Clear Glass w/TLS	4-oz	4C									X					2 day	RUSH TAT; Strong POL odor -06
NEC22-WC-3	SO	C	NEC22-WC-3	8/10/22	1340	AG	1	Clear Glass w/TLS	8-oz	4C							X	X		X				2 day	RUSH TAT; Strong POL odor -07/08
NEC22-WC-3	SO	C	NEC22-WC-3	8/10/22	1340	AG	1	Clear Glass w/TLS	8-oz	4C									X					2 day	RUSH TAT; Strong POL odor -09

.pdf EDD

Deliverables needed: Level II, Level IV EQEDD, AK SEDD DOD Project: USACE - Ak District
Special Instructions: Must comply with DoD QSM 5.3 or current. Send receipt confirmation to jjanssen@briceeng.com & receipt.cooler@usace.army.mil within 24-hours of receipt. *TCLP Metals (SW1311/6010D/7470A)

Relinquish By: Monte Garrett / Monte Garrett (Signature/Printed Name) 08/10/1500 (Date/Time) Relinquish By: DEAN REAVES PACE (Signature/Printed Name) 8-12-22 1100 (Date/Time)

Received By: DEAN REAVES PACE (Signature/Printed Name) 8-12-22 0800 (Date/Time) Received By: FEDEX (Signature/Printed Name) (Date/Time)

Sample Receipt Checklist
COC Seal Present/Intact: Y__N
COC Signed/Accurate: Y__N
Bottles arrive intact: Y__N
Correct bottles used: Y__N
Sufficient volume sent: Y__N
RAD Screen <0.5 mR/hr: Y__N
If Applicable
VOA Zero Headspace: __Y__N
Pres.Correct/Check: __Y__N

Temp-5.6 ± 0=5.6
Track #-571961828096
Kylee Talleman 8-13-22
(6BTLS) 0900

COOLER RECEIPT FORM
(ONE PER COOLER)

Brice ANC 8(a)

Please email this form and the completed CoC records to the Brice Project Chemist within 24 hours of sample receipt.

COC Number	
Cooler Number/Name on COC	Pace - 22NEC-007
3 perature (temp blank, °C)	
Temperature (cooler, °C)	5.6
Thermometer type/ID	A7
Laboratory/Location	Pace Mt. Juliet TN
Laboratory SDG	L1525023

1. Were custody seals present and intact? **N/A** Hand Delivered **Yes** **No**
   If yes, how many and where? Front (Back)
   Signature/date present on custody seals? **Yes** **No**
2. Were custody papers taped to lid inside cooler? **Yes** **No**
3. Were custody papers properly filled out (ink, signed, etc.)? **Yes** **No**
4. Custody forms signed/dated and properly accepted/relinquished? **Yes** **No**
5. Has the shipper/tracking number been documented on the paperwork? **Yes** **No**
5. Has the shipper/tracking number been documented on the paperwork? **N/A** **Yes** **No**
5. Has the shipper/ Wet ☐ Gel Still frozen? **Yes** **No**
7. Were all samples/bottles sealed in separate plastic bags? **N/A** **Yes** **No**
8. Did all bottles arrive in good condition? (intact, not leaking, etc.) **Yes** **No**
9. Were all bottle labels complete (sample ID, date, analysis, preservative, etc.) ? **Yes** **No**
10. Did all bottle labels agree with the custody papers? **Yes** **No**
11. Were the appropriate containers used for the analyses? **Yes** **No**
12. Are all VOA vials free of headspace > 6mm in diameter? **N/A** **Yes** **No**
    If no, note samples and number of vials affected below.
    If no, are there vials without headspace to perform the analysis? **N/A** **Yes** **No**
13. Was sufficient volume sent in each bottle to perform analysis? **N/A** **Yes** **No**
14. If there are volatiles present, is there a trip blank present in this cooler? **N/A** **Yes** **No**
15. Is the temperature within 0-6°C? **N/A** **Yes** **No**
16. Were labels correctly associated with pre-tared containers (not placed directly on jars for methanol-preserved volatiles)? **N/A** **Yes** **No**
17. Were non-volatile sample checked for appropriate preservation? **N/A** **Yes** **No**
18. Were methanol-preserved soil containers accompanied by an unpreserved aliquot for percent moisture content? **N/A** **Yes** **No**
    (If checked at the bench, include prep logs or narrative with final report.)

Explain any discrepancies/deficiencies (attach additional sheets if required):

_____

_____

_____

_____

_____

If discrepancies/deficiencies are noted, was the Brice chemist contacted*?
Chemist: _____ Date/Time: _____ Contact Method: phone email

Email or phone notes should be included with final report, if applicable, or at a minimum documented in the case narrative.

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ANALYTICAL REPORT

August 24, 2022

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

Brice Engineering, LLC

Sample Delivery Group:	L1526252
Samples Received:	08/17/2022
Project Number:	700700-020
Description:	Northeast Cape FUDS NPDL - 20-015
Site:	22NEC-WC-4
Report To:	Jillian Janssen 3700 Centerpoint Drive, Suite 800 Anchorage, AK 99503

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
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22NEC-WC-4 L1526252-01 Solid

Collected by	Collected date/time	Received date/time
	08/12/22 09:25	08/17/22 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1912683	1	08/18/22 09:31	08/18/22 09:39	CMK	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082 A	WG1912606	1	08/18/22 06:39	08/18/22 17:32	AMM	Mt. Juliet, TN

22NEC-WC-4 L1526252-02 Waste

Collected by	Collected date/time	Received date/time
	08/12/22 09:25	08/17/22 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1912401	1	08/18/22 05:48	08/18/22 05:48	BTP	Mt. Juliet, TN
Preparation by Method 1311	WG1912696	1	08/18/22 09:14	08/18/22 09:14	JWS	Mt. Juliet, TN
Mercury by Method 7470A	WG1913515	1	08/19/22 12:11	08/20/22 07:57	SRT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1914256	1	08/21/22 16:12	08/22/22 11:03	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1913822	1	08/21/22 13:36	08/21/22 13:36	DWR	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG1915112	1	08/23/22 16:29	08/24/22 16:12	JNJ	Mt. Juliet, TN

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

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

Metals (ICP) by Method 6010D

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

Batch	Lab Sample ID	Analytes
WG1914256	(MS) R3828883-6, (MSD) R3828883-7	Arsenic

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
WG1913822	(MS) R3828723-4, (MSD) R3828723-5	1,1-Dichloroethene, 1,2-Dichloroethane, 2-Butanone (MEK), Benzene, Carbon tetrachloride, Chloroform and Vinyl chloride

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

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

Batch	Analyte	Lab Sample ID
WG1915112	2-Fluorobiphenyl	(BLANK) R3830052-2
WG1915112	p-Terphenyl-d14	(BLANK) R3830052-2

Metals (ICP) by Method 6010D

Client ID	Lab Sample ID	Analyte	Result mg/l	Qualifier	LOQ mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
22NEC-WC-4	L1526252-02	Barium	0.494		0.100		1	08/22/2022 11:03	WG1914256

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

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.5	Deg. C

Total Solids by Method 2540 G-2011

Analyte	Result %	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	33.5		1	08/18/2022 09:39	WG1912683

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	0.0746	U	0.0352	0.0746	0.149	1	08/18/2022 17:32	WG1912606
PCB 1221	11104-28-2	0.0746	U	0.0352	0.0746	0.149	1	08/18/2022 17:32	WG1912606
PCB 1232	11141-16-5	0.0746	U	0.0352	0.0746	0.149	1	08/18/2022 17:32	WG1912606
PCB 1242	53469-21-9	0.0746	U	0.0352	0.0746	0.149	1	08/18/2022 17:32	WG1912606
PCB 1248	12672-29-6	0.0448	U	0.0220	0.0448	0.0896	1	08/18/2022 17:32	WG1912606
PCB 1254	11097-69-1	0.0448	U	0.0220	0.0448	0.0896	1	08/18/2022 17:32	WG1912606
PCB 1260	11096-82-5	0.0448	U	0.0220	0.0448	0.0896	1	08/18/2022 17:32	WG1912606
PCB 1262	37324-23-5	0.0448	U	0.0220	0.0448	0.0896	1	08/18/2022 17:32	WG1912606
PCB 1268	11100-14-4	0.0448	U	0.0220	0.0448	0.0896	1	08/18/2022 17:32	WG1912606
(S) Decachlorobiphenyl	*2051-24-3*	*89.6*				*10.0-143*		*08/18/2022 17:32*	WG1912606
(S) Tetrachloro-m-xylene	*877-09-8*	*88.5*				*44.0-129*		*08/18/2022 17:32*	WG1912606

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

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.5	Deg. C

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		8/18/2022 9:14:38 AM	WG1912696
TCLP ZHE Extraction	-		8/18/2022 5:48:52 AM	WG1912401
Fluid	1		8/18/2022 9:14:38 AM	WG1912696
Initial pH	6.29		8/18/2022 9:14:38 AM	WG1912696
Final pH	5.09		8/18/2022 9:14:38 AM	WG1912696

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	LOQ mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.0100	0.20	1	08/20/2022 07:57	WG1913515

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	LOQ mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Arsenic	ND		0.100		1	08/22/2022 11:03	WG1914256
Barium	0.494		0.100		1	08/22/2022 11:03	WG1914256
Cadmium	ND		0.100		1	08/22/2022 11:03	WG1914256
Chromium	ND		0.100		1	08/22/2022 11:03	WG1914256
Lead	ND		0.100		1	08/22/2022 11:03	WG1914256
Selenium	ND		0.100		1	08/22/2022 11:03	WG1914256
Silver	ND		0.100		1	08/22/2022 11:03	WG1914256

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

Analyte	Result mg/l	Qualifier	LOQ mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.0500	0.50	1	08/21/2022 13:36	WG1913822
Carbon tetrachloride	ND		0.0500	0.50	1	08/21/2022 13:36	WG1913822
Chlorobenzene	ND		0.0500	100	1	08/21/2022 13:36	WG1913822
Chloroform	ND		0.250	6	1	08/21/2022 13:36	WG1913822
1,2-Dichloroethane	ND		0.0500	0.50	1	08/21/2022 13:36	WG1913822
1,1-Dichloroethene	ND		0.0500	0.70	1	08/21/2022 13:36	WG1913822
2-Butanone (MEK)	ND		0.500	200	1	08/21/2022 13:36	WG1913822
Tetrachloroethene	ND		0.0500	0.70	1	08/21/2022 13:36	WG1913822
Trichloroethene	ND		0.0500	0.50	1	08/21/2022 13:36	WG1913822
Vinyl chloride	ND		0.0500	0.20	1	08/21/2022 13:36	WG1913822
(S) Toluene-d8	*109*		*89.0-112*			*08/21/2022 13:36*	WG1913822
(S) 4-Bromofluorobenzene	*101*		*85.0-114*			*08/21/2022 13:36*	WG1913822
(S) 1,2-Dichloroethane-d4	*114*		*81.0-118*			*08/21/2022 13:36*	WG1913822

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result mg/l	Qualifier	LOQ mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
1,4-Dichlorobenzene	ND		0.100	7.50	1	08/24/2022 16:12	WG1915112
2,4-Dinitrotoluene	ND		0.100	0.13	1	08/24/2022 16:12	WG1915112
Hexachlorobenzene	ND		0.100	0.13	1	08/24/2022 16:12	WG1915112
Hexachloro-1,3-butadiene	ND		0.100	0.50	1	08/24/2022 16:12	WG1915112
Hexachloroethane	ND		0.100	3	1	08/24/2022 16:12	WG1915112

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result mg/l	Qualifier	LOQ mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Nitrobenzene	ND		0.100	2	1	08/24/2022 16:12	WG1915112
Pyridine	ND		0.100	5	1	08/24/2022 16:12	WG1915112
3&4-Methyl Phenol	ND		0.100	400	1	08/24/2022 16:12	WG1915112
2-Methylphenol	ND		0.100	200	1	08/24/2022 16:12	WG1915112
Pentachlorophenol	ND		0.100	100	1	08/24/2022 16:12	WG1915112
2,4,5-Trichlorophenol	ND		0.100	400	1	08/24/2022 16:12	WG1915112
2,4,6-Trichlorophenol	ND		0.100	2	1	08/24/2022 16:12	WG1915112
(S) 2-Fluorophenol	*32.9*		*19.0-119*			*08/24/2022 16:12*	WG1915112
(S) Phenol-d5	*21.1*		*10.0-67.0*			*08/24/2022 16:12*	WG1915112
(S) Nitrobenzene-d5	*58.5*		*44.0-120*			*08/24/2022 16:12*	WG1915112
(S) 2-Fluorobiphenyl	*54.9*		*44.0-119*			*08/24/2022 16:12*	WG1915112
(S) 2,4,6-Tribromophenol	*61.0*		*43.0-140*			*08/24/2022 16:12*	WG1915112
(S) p-Terphenyl-d14	*54.0*		*50.0-134*			*08/24/2022 16:12*	WG1915112

QUALITY CONTROL SUMMARY

L1526252-01

Method Blank (MB)

(MB) R3828028-1 08/18/22 09:39

Analyte	MB Result %	MB Qualifier	MB DL %	MB LOD %	MB LOQ %
Total Solids	0.00100			0.200	

L1526344-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1526344-03 08/18/22 09:39 • (DUP) R3828028-3 08/18/22 09:39

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	77.4	80.7	1	4.17		5

Laboratory Control Sample (LCS)

(LCS) R3828028-2 08/18/22 09:39

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

QUALITY CONTROL SUMMARY

L1526252-02

Method Blank (MB)

(MB) R3828434-1 08/20/22 07:43

Analyte	MB Result mg/l	MB Qualifier	MB DL mg/l	MB LOD mg/l	MB LOQ mg/l
Mercury	0.00500	U	0.00330	0.00500	0.0100

Laboratory Control Sample (LCS)

(LCS) R3828434-2 08/20/22 07:45

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.0300	0.0342	114	82.0-119	

L1526249-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1526249-01 08/20/22 07:47 • (MS) R3828434-3 08/20/22 07:53 • (MSD) R3828434-4 08/20/22 07:55

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.0300	ND	0.0346	0.0326	115	109	1	82.0-119			5.90	20

QUALITY CONTROL SUMMARY

L1526252-02

Method Blank (MB)

(MB) R3828883-1 08/22/22 10:02

Analyte	MB Result mg/l	MB Qualifier	MB DL mg/l	MB LOD mg/l	MB LOQ mg/l
Arsenic	0.0558	J	0.0330	0.0500	0.100
Barium	0.0500	U	0.0330	0.0500	0.100
Cadmium	0.0500	U	0.0330	0.0500	0.100
Chromium	0.0500	U	0.0330	0.0500	0.100
Lead	0.0500	U	0.0330	0.0500	0.100
Selenium	0.0500	U	0.0330	0.0500	0.100
Silver	0.0500	U	0.0330	0.0500	0.100

Laboratory Control Sample (LCS)

(LCS) R3828883-2 08/22/22 10:05

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	10.0	9.69	96.9	87.0-113	
Barium	10.0	10.0	100	88.0-113	
Cadmium	10.0	9.96	99.6	88.0-113	
Chromium	10.0	9.72	97.2	90.0-113	
Lead	10.0	9.71	97.1	86.0-113	
Selenium	10.0	10.2	102	83.0-114	
Silver	2.00	1.89	94.5	84.0-115	

L1526076-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1526076-02 08/22/22 10:19 • (MS) R3828883-6 08/22/22 10:22 • (MSD) R3828883-7 08/22/22 10:25

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	10.0	1.78	10.5	10.2	86.8	84.1	1	87.0-113	J6	J6	2.64	20
Barium	10.0	ND	9.98	9.94	99.1	98.7	1	88.0-113			0.450	20
Cadmium	10.0	ND	10.1	10.0	101	100	1	88.0-113			0.203	20
Chromium	10.0	ND	9.66	9.62	96.6	96.2	1	90.0-113			0.381	20
Lead	10.0	ND	9.75	9.68	97.5	96.8	1	86.0-113			0.743	20
Selenium	10.0	ND	10.3	10.2	103	102	1	83.0-114			0.931	20
Silver	2.00	ND	1.92	1.92	95.9	95.9	1	84.0-115			0.00568	20

Method Blank (MB)

(MB) R3828723-3 08/21/22 12:54

Analyte	MB Result mg/l	MB Qualifier	MB DL mg/l	MB LOD mg/l	MB LOQ mg/l
Benzene	0.0250	U	0.0167	0.0250	0.0500
Carbon tetrachloride	0.0250	U	0.0167	0.0250	0.0500
Chlorobenzene	0.0250	U	0.0167	0.0250	0.0500
Chloroform	0.125	U	0.0833	0.125	0.250
1,2-Dichloroethane	0.0250	U	0.0167	0.0250	0.0500
1,1-Dichloroethene	0.0250	U	0.0167	0.0250	0.0500
2-Butanone (MEK)	0.250	U	0.167	0.250	0.500
Tetrachloroethene	0.0250	U	0.0167	0.0250	0.0500
Trichloroethene	0.0250	U	0.0167	0.0250	0.0500
Vinyl chloride	0.0250	U	0.0167	0.0250	0.0500
(S) Toluene-d8	*106*				*89.0-112*
(S) 4-Bromofluorobenzene	*97.3*				*85.0-114*
(S) 1,2-Dichloroethane-d4	*117*				*81.0-118*

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

(LCS) R3828723-1 08/21/22 11:31 • (LCSD) R3828723-2 08/21/22 11:52

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.250	0.261	0.250	104	100	79.0-120			4.31	20
Carbon tetrachloride	0.250	0.262	0.259	105	104	72.0-136			1.15	20
Chlorobenzene	0.250	0.228	0.223	91.2	89.2	82.0-118			2.22	20
Chloroform	0.250	0.260	0.246	104	98.4	79.0-124			5.53	20
1,2-Dichloroethane	0.250	0.270	0.260	108	104	73.0-128			3.77	20
1,1-Dichloroethene	0.250	0.266	0.235	106	94.0	71.0-131			12.4	20
2-Butanone (MEK)	1.25	1.68	1.62	134	130	56.0-143			3.64	20
Tetrachloroethene	0.250	0.231	0.222	92.4	88.8	74.0-129			3.97	20
Trichloroethene	0.250	0.252	0.233	101	93.2	79.0-123			7.84	20
Vinyl chloride	0.250	0.323	0.269	129	108	58.0-137			18.2	20
(S) Toluene-d8				*103*	*102*	*89.0-112*				
(S) 4-Bromofluorobenzene				*102*	*103*	*85.0-114*				
(S) 1,2-Dichloroethane-d4				*114*	*118*	*81.0-118*				

L1526126-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1526126-12 08/21/22 17:24 • (MS) R3828723-4 08/21/22 20:10 • (MSD) R3828723-5 08/21/22 20:30

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.250	ND	0.329	0.326	132	130	1	79.0-120	J5	J5	0.916	20
Carbon tetrachloride	0.250	ND	0.342	0.334	137	134	1	72.0-136	J5		2.37	20
Chlorobenzene	0.250	ND	0.287	0.286	115	114	1	82.0-118			0.349	20
Chloroform	0.250	ND	0.325	0.328	130	131	1	79.0-124	J5	J5	0.919	20
1,2-Dichloroethane	0.250	ND	0.327	0.327	131	131	1	73.0-128	J5	J5	0.000	20
1,1-Dichloroethene	0.250	ND	0.343	0.340	137	136	1	71.0-131	J5	J5	0.878	20
2-Butanone (MEK)	1.25	ND	2.08	2.13	166	170	1	56.0-143	J5	J5	2.38	20
Tetrachloroethene	0.250	ND	0.297	0.299	119	120	1	74.0-129			0.671	20
Trichloroethene	0.250	ND	0.299	0.278	120	111	1	79.0-123			7.28	20
Vinyl chloride	0.250	ND	0.435	0.399	174	160	1	58.0-137	J5	J5	8.63	20
(S) Toluene-d8					*101*	*101*		*89.0-112*				
(S) 4-Bromofluorobenzene					*102*	*102*		*85.0-114*				
(S) 1,2-Dichloroethane-d4					*116*	*113*		*81.0-118*				

Method Blank (MB)

(MB) R3828275-1 08/18/22 16:08

Analyte	MB Result mg/kg	MB Qualifier	MB DL mg/kg	MB LOD mg/kg	MB LOQ mg/kg
PCB 1016	0.0250	U	0.0118	0.0250	0.0500
PCB 1221	0.0250	U	0.0118	0.0250	0.0500
PCB 1232	0.0250	U	0.0118	0.0250	0.0500
PCB 1242	0.0250	U	0.0118	0.0250	0.0500
PCB 1248	0.0150	U	0.00738	0.0150	0.0300
PCB 1254	0.0150	U	0.00738	0.0150	0.0300
PCB 1260	0.0150	U	0.00738	0.0150	0.0300
PCB 1262	0.0150	U	0.00738	0.0150	0.0300
PCB 1268	0.0150	U	0.00738	0.0150	0.0300
(S) Decachlorobiphenyl	*128*				*10.0-143*
(S) Tetrachloro-m-xylene	*119*				*44.0-129*

Laboratory Control Sample (LCS)

(LCS) R3828275-2 08/18/22 16:18

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
PCB 1016	0.167	0.205	123	47.0-134	
PCB 1260	0.167	0.196	117	53.0-140	
(S) Decachlorobiphenyl			*129*	*10.0-143*	
(S) Tetrachloro-m-xylene			*122*	*44.0-129*	

L1524155-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1524155-09 08/18/22 19:24 • (MS) R3828275-3 08/18/22 19:33 • (MSD) R3828275-4 08/18/22 19:43

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	0.172	0.0267	0.204	0.192	119	110	1	47.0-134			5.93	30
PCB 1260	0.172	0.0160	0.179	0.165	104	95.1	1	53.0-140			8.05	30
(S) Decachlorobiphenyl					*111*	*91.6*		*10.0-143*				
(S) Tetrachloro-m-xylene					*116*	*107*		*44.0-129*				

Method Blank (MB)

(MB) R3830052-2 08/24/22 15:06

Analyte	MB Result mg/l	MB Qualifier	MB DL mg/l	MB LOD mg/l	MB LOQ mg/l
1,4-Dichlorobenzene	0.0500	U	0.000401	0.0500	0.100
2,4-Dinitrotoluene	0.0500	U	0.0333	0.0500	0.100
Hexachlorobenzene	0.0500	U	0.0333	0.0500	0.100
Hexachloro-1,3-butadiene	0.0500	U	0.000329	0.0500	0.100
Hexachloroethane	0.0500	U	0.000365	0.0500	0.100
Nitrobenzene	0.0500	U	0.0333	0.0500	0.100
Pyridine	0.0500	U	0.0333	0.0500	0.100
3&4-Methyl Phenol	0.0500	U	0.00266	0.0500	0.100
2-Methylphenol	0.0500	U	0.00312	0.0500	0.100
Pentachlorophenol	0.0500	U	0.00313	0.0500	0.100
2,4,5-Trichlorophenol	0.0500	U	0.0333	0.0500	0.100
2,4,6-Trichlorophenol	0.0500	U	0.000297	0.0500	0.100
(S) 2-Fluorophenol	*26.5*				*19.0-119*
(S) Phenol-d5	*17.9*				*10.0-67.0*
(S) Nitrobenzene-d5	*48.2*				*44.0-120*
(S) 2-Fluorobiphenyl	*41.6*	J2			*44.0-119*
(S) 2,4,6-Tribromophenol	*51.0*				*43.0-140*
(S) p-Terphenyl-d14	*49.9*	J2			*50.0-134*

Laboratory Control Sample (LCS)

(LCS) R3830052-1 08/24/22 14:44

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
1,4-Dichlorobenzene	0.500	0.233	46.6	29.0-112	
2,4-Dinitrotoluene	0.500	0.392	78.4	57.0-128	
Hexachlorobenzene	0.500	0.307	61.4	53.0-125	
Hexachloro-1,3-butadiene	0.500	0.255	51.0	22.0-124	
Hexachloroethane	0.500	0.234	46.8	21.0-115	
Nitrobenzene	0.500	0.264	52.8	45.0-121	
Pyridine	0.500	0.0824	16.5	13.5-58.9	
3&4-Methyl Phenol	0.500	0.257	51.4	29.0-110	
2-Methylphenol	0.500	0.241	48.2	30.0-117	
Pentachlorophenol	0.500	0.312	62.4	35.0-138	
2,4,5-Trichlorophenol	0.500	0.321	64.2	50.0-125	
2,4,6-Trichlorophenol	0.500	0.291	58.2	53.0-123	
(S) 2-Fluorophenol			*31.7*	*19.0-119*	
(S) Phenol-d5			*21.8*	*10.0-67.0*	
(S) Nitrobenzene-d5			*51.0*	*44.0-120*	

Laboratory Control Sample (LCS)

(LCS) R3830052-1 08/24/22 14:44

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) 2-Fluorobiphenyl			*54.0*	*44.0-119*	
(S) 2,4,6-Tribromophenol			*66.0*	*43.0-140*	
(S) p-Terphenyl-d14			*54.0*	*50.0-134*	

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

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.
ND	Not detected at the Reporting Limit (or DL where applicable).
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
J	The identification of the analyte is acceptable; the reported value is an estimate.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
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.

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	LAO000356
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.

Chain-of-Custody Report

Report to: Brice Engineering, LLC
Address: 3700 Centerpoint Drive, Suite 800, Anchorage, AK 99503
Invoice to: Brice Engineering, LLC
Address: accountspayable@calistacorp.com, 5015 Business Park Blvd, Suite 3000, Anchorage, AK 99503
Project Name: Northeast Cape FUDS Project Number: 700700

COC #: PACE-22NEC-008 Cooler ID: PACE-22NEC-008

Page: 1 of 1
NPDL WO Number (USACE): 20-015
Quote Number: BRICEAAK052121_PN
PO/WO Number: 700700-020
Laboratory: Pace National, 12065 Lebanon Road, Mt Juliet, TN 37122, (800) 767-5859

L1526252

Field Sample ID	Matrix	Grab/ Comp	Location ID	Collection Date	Collection Time	Sampler	Qty	Container Type	Container Volume	Preservative	DRO (AK102)	DRO/RRO (AK102/103)	DRO/RRO Silica Gel (AK102/103)	PAH-SIM (SW8270D-SIM)	TOC(Walkley-Black)	% Solids	Total PCBs	TCLP RCRA Metals*	TCLP VOC (1311/8260D)	TCLP SVOC (1311/8270D)			QC	TAT	Notes:
22NEC-WC-4	SO	C	22NEC-WC-4	8/12/22	0925	MG	1	Clear Glass w/TLS	8-oz	4C							X	X		X				1 day	Strong POL odor -01/-02
22NEC-WC-4	SO	C	22NEC-WC-4	8/12/22	0925	MG	1	Clear Glass w/TLS	8-oz	4C									X					1 day	Strong POL odor -02

Analysis

Deliverables needed: .pdf EDD
Level II, Level IV EQEDD, AK SEDD DOD Project: USACE - AK District
Special Instructions: Must comply with DoD QSM 5.3 or current. Send receipt confirmation to jjenssen@briceeng.com & receipt.cooler@usace.army.mil within 24-hours of receipt. *TCLP Metals (SW1311/6010D/7470A)

Relinquish By: Jane Suhey 8/14/22 Relinquish By: DEAN REAVES PALE 8-16-22 1100
Received By: DEAN REAVES PALE 8-16-22 0830 Received By: FEDEX

8:30
0.5+0.5

Sample Receipt Checklist

COC Seal Present/Intact: ✓Y__N
COC Signed/Accurate: ✓Y__N
Bottles arrive intact: ✓Y__N
Correct bottles used: ✓Y__N
Sufficient volume sent: ✓Y__N
RAD Screen <0.5 mR/hr: ✓Y__N

If Applicable
VOA Zero Headspace: __Y__N
Pres.Correct/Check: __Y__N

G191

COOLER RECEIPT FORM
(ONE PER COOLER)

~~L1526~~ TD

Brice ANC 8(a)

Please email this form and the completed CoC records to the Brice Project Chemist within 24 hours of sample receipt.

COC Number	PACE-22NEC-008
Cooler Number/Name on COC	PACE-22NEC-008
3 perature (temp blank, °C)	
Temperature (cooler, °C)	0.5°C ±0 = 0.5°C
Thermometer type/ID	RR A6
Laboratory/Location	
Laboratory SDG	L1526252

1.	Were custody seals present and intact?	N/A Hand Delivered	Yes	No
	If yes, how many and where? Front Back			
	Signature/date present on custody seals?		Yes	No
2.	Were custody papers taped to lid inside cooler?		Yes	No
3.	Were custody papers properly filled out (ink, signed, etc.)?		Yes	No
4.	Custody forms signed/dated and properly accepted/relinquished?		Yes	No
5.	Has the shipper/tracking number been documented on the paperwork?		Yes	No
5.	Has the shipper/tracking number been documented on the paperwork?	N/A	Yes	No
5.	Has the shipper/ Wet ☐ Gel Still frozen? Yes No			
7.	Were all samples/bottles sealed in separate plastic bags?	N/A	Yes	No
8.	Did all bottles arrive in good condition? (intact, not leaking, etc.)		Yes	No
9.	Were all bottle labels complete (sample ID, date, analysis, preservative, etc.) ?		Yes	No
10.	Did all bottle labels agree with the custody papers?		Yes	No
11.	Were the appropriate containers used for the analyses?		Yes	No
12.	Are all VOA vials free of headspace > 6mm in diameter?	N/A	Yes	No
	If no, note samples and number of vials affected below.			
	If no, are there vials without headspace to perform the analysis?	N/A	Yes	No
13.	Was sufficient volume sent in each bottle to perform analysis?	N/A	Yes	No
14.	If there are volatiles present, is there a trip blank present in this cooler?	N/A	Yes	No
15.	Is the temperature within 0-6°C?	N/A	Yes	No
16.	Were labels correctly associated with pre-tared containers (not placed directly on jars for methanol-preserved volatiles)?	N/A	Yes	No
17.	Were non-volatile sample checked for appropriate preservation?	N/A	Yes	No
18.	Were methanol-preserved soil containers accompanied by an unpreserved aliquot for percent moisture content?	N/A	Yes	No

(If checked at the bench, include prep logs or narrative with final report.)

Explain any discrepancies/deficiencies (attach additional sheets if required):

If discrepancies/deficiencies are noted, was the Brice chemist contacted*?

Chemist: _____ Date/Time: _____ Contact Method: phone email

Email or phone notes should be included with final report, if applicable, or at a minimum documented in the case narrative.

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181466

Ph: 206 763 5025

Customer Name BRICE ENGINEERING LLC BRICE E
Ticket Date 11/28/2022
Payment Type Credit Account
Manual Ticket#
Route AK
Hauling Ticket#
Destination
PO# 700703/138589OR

Carrier R TRANSPORT R TRANSPORT
Vehicle# 77T
Volume
Container
Driver DANIEL HOLLIDAY
Check#
Billing# 0000838
Grid

	Time	Scale	Operator	Inbound		
In	11/28/2022 09:16:23	SCALE 1	galtheim		Gross	81780 lb
Out	11/28/2022 09:16:23		galtheim		Tare	44500 lb
					Net	37280 lb
					Tons	18.64

Comments RT-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	18.64	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				
3	GONDOLA T-GONDOLA TON	100	18.64	Tons				
4	FUELSUR-FUEL SURCHARGE	100		%				

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181468

Ph: 206 763 5025

Customer Name BRICE ENGINEERING LLC BRICE E
Ticket Date 11/28/2022
Payment Type Credit Account
Manual Ticket#
Route AK
Hauling Ticket#
Destination
PO# 700703/138589OR

Carrier R TRANSPORT R TRANSPORT
Vehicle# R-4
Volume
Container
Driver TODD NYSETHER
Check#
Billing# 0000838
Grid

	Time	Scale	Operator	Inbound		
In	11/28/2022 09:25:49	SCALE 1	galtheim		Gross	84880 lb
Out	11/28/2022 09:27:38	SCALE 1	galtheim		Tare	39760 lb*
					Net	45120 lb
			* Manual Weight		Tons	22.56

Comments RT-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	22.56	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	22.56	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181469

Ph: 206 763 5025

Customer Name BRICE ENGINEERING LLC BRICE E
Ticket Date 11/28/2022
Payment Type Credit Account
Manual Ticket#
Route AK
Hauling Ticket#
Destination
PO# 700703/138589OR

Carrier R TRANSPORT R TRANSPORT
Vehicle# M01 Volume
Container
Driver TONY MERANTO
Check#
Billing# 0000838
Grid

	Time	Scale	Operator	Inbound		
In	11/28/2022 09:33:18	SCALE 1	galtheim		Gross	84400 lb
Out	11/28/2022 09:33:18		galtheim		Tare	39620 lb
					Net	44780 lb
					Tons	22.39

Comments M-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	22.39	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				
3	GONDOLA T-GONDOLA TON	100	22.39	Tons				
4	FUELSUR-FUEL SURCHARGE	100		%				

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181470

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	BDI
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	NIGI FISHER
Route		Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 09:37:05	SCALE 1	galtheim		Gross	79440 lb
Out	11/28/2022 09:37:05		galtheim		Tare	39660 lb
					Net	39780 lb
					Tons	19.89

Comments N-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	19.89	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	19.89	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181473

Ph: 206 763 5025

Customer Name BRICE ENGINEERING LLC BRICE E
Ticket Date 11/28/2022
Payment Type Credit Account
Manual Ticket#
Route AK
Hauling Ticket#
Destination
PO# 700703/138589OR

Carrier R TRANSPORT R TRANSPORT
Vehicle# 77T
Volume
Container
Driver DANIEL HOLLIDAY
Check#
Billing# 0000838
Grid

	Time	Scale	Operator	Inbound		
In	11/28/2022 09:54:16	SCALE 1	galtheim		Gross	83320 lb
Out	11/28/2022 09:54:16		galtheim		Tare	44500 lb
					Net	38820 lb
					Tons	19.41

Comments RT-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	19.41	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				
3	GONDOLA T-GONDOLA TON	100	19.41	Tons				
4	FUELSUR-FUEL SURCHARGE	100		%				

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181475

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	R-4
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	TODD NYSETHER
Route	AK	Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 10:14:33	SCALE 1	galtheim		Gross	86140 lb
Out	11/28/2022 10:14:33		galtheim		Tare	39760 lb
					Net	46380 lb
					Tons	23.19

Comments RENE-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	23.19	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	23.19	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181476

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	M01
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	TONY MERANTO
Route	AK	Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 10:17:07	SCALE 1	galtheim		Gross	86240 lb
Out	11/28/2022 10:17:07		galtheim		Tare	39620 lb
					Net	46620 lb
					Tons	23.31

Comments MER-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	23.31	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	23.31	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181477

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	BDI
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	NIGI FISHER
Route		Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 10:28:17	SCALE 1	galtheim		Gross	76840 lb
Out	11/28/2022 10:28:17		galtheim		Tare	39660 lb
					Net	37180 lb
					Tons	18.59

Comments BD-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	18.59	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	18.59	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181480

Ph: 206 763 5025

Customer Name BRICE ENGINEERING LLC BRICE E
Ticket Date 11/28/2022
Payment Type Credit Account
Manual Ticket#
Route AK
Hauling Ticket#
Destination
PO# 700703/138589OR

Carrier R TRANSPORT R TRANSPORT
Vehicle# 77T
Volume
Container
Driver DANIEL HOLLIDAY
Check#
Billing# 0000838
Grid

	Time	Scale	Operator	Inbound		
In	11/28/2022 10:38:23	SCALE 1	galtheim		Gross	72960 lb
Out	11/28/2022 10:38:23		galtheim		Tare	44500 lb
					Net	28460 lb
					Tons	14.23

Comments RT-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	14.23	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	14.23	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181481

Ph: 206 763 5025

Customer Name BRICE ENGINEERING LLC BRICE E
Ticket Date 11/28/2022
Payment Type Credit Account
Manual Ticket#
Route AK
Hauling Ticket#
Destination
PO# 700703/138589OR

Carrier R TRANSPORT R TRANSPORT
Vehicle# R-4
Volume
Container
Driver TODD NYSETHER
Check#
Billing# 0000838
Grid

	Time	Scale	Operator	Inbound		
In	11/28/2022 10:53:26	SCALE 1	galtheim		Gross	81280 lb
Out	11/28/2022 10:53:26		galtheim		Tare	39760 lb
					Net	41520 lb
					Tons	20.76

Comments RTY-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	20.76	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				
3	GONDOLA T-GONDOLA TON	100	20.76	Tons				
4	FUELSUR-FUEL SURCHARGE	100		%				

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181484

Ph: 206 763 5025

Customer Name BRICE ENGINEERING LLC BRICE E
Ticket Date 11/28/2022
Payment Type Credit Account
Manual Ticket#
Route AK
Hauling Ticket#
Destination
PO# 700703/138589OR

Carrier R TRANSPORT R TRANSPORT
Vehicle# M01
Volume
Container
Driver TONY MERANTO
Check#
Billing# 0000838
Grid

	Time	Scale	Operator	Inbound		
In	11/28/2022 11:02:01	SCALE 1	galtheim		Gross	79560 lb
Out	11/28/2022 11:02:01		galtheim		Tare	39620 lb
					Net	39940 lb
					Tons	19.97

Comments MER-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	19.97	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				
3	GONDOLA T-GONDOLA TON	100	19.97	Tons				
4	FUELSUR-FUEL SURCHARGE	100		%				

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181486

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	BDI
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	NIGI FISHER
Route		Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 11:08:00	SCALE 1	galtheim		Gross	81800 lb
Out	11/28/2022 11:08:00		galtheim		Tare	39660 lb
					Net	42140 lb
					Tons	21.07

Comments BDI-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	21.07	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	21.07	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181488

Ph: 206 763 5025

Customer Name BRICE ENGINEERING LLC BRICE E
Ticket Date 11/28/2022
Payment Type Credit Account
Manual Ticket#
Route AK
Hauling Ticket#
Destination
PO# 700703/138589OR

Carrier R TRANSPORT R TRANSPORT
Vehicle# 77T
Volume
Container
Driver DANIEL HOLLIDAY
Check#
Billing# 0000838
Grid

	Time	Scale	Operator	Inbound		
In	11/28/2022 11:27:08	SCALE 1	galtheim		Gross	76660 lb
Out	11/28/2022 11:27:08		galtheim		Tare	44500 lb
					Net	32160 lb
					Tons	16.08

Comments RT-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	16.08	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				
3	GONDOLA T-GONDOLA TON	100	16.08	Tons				
4	FUELSUR-FUEL SURCHARGE	100		%				

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181490

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	R-4
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	TODD NYSETHER
Route	AK	Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 11:43:30	SCALE 1	galtheim		Gross	82800 lb
Out	11/28/2022 11:43:30		galtheim		Tare	39760 lb
					Net	43040 lb
					Tons	21.52

Comments RT-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	21.52	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	21.52	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181491

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	M01
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	TONY MERANTO
Route	AK	Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 11:45:53	SCALE 1	galtheim		Gross	87740 lb
Out	11/28/2022 11:45:53		galtheim		Tare	39620 lb
					Net	48120 lb
					Tons	24.06

Comments MER-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	24.06	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	24.06	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181494

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	BDI
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	NIGI FISHER
Route		Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 11:53:43	SCALE 1	galtheim		Gross	77120 lb
Out	11/28/2022 11:53:43		galtheim		Tare	39660 lb
					Net	37460 lb
					Tons	18.73

Comments BDI-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	18.73	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	18.73	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181495

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	77T
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	DANIEL HOLLIDAY
Route	AK	Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 11:59:24	SCALE 1	galtheim		Gross	73960 lb
Out	11/28/2022 11:59:24		galtheim		Tare	44500 lb
					Net	29460 lb
					Tons	14.73

Comments RT-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	14.73	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	14.73	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181499

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	R-4
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	TODD NYSETHER
Route	AK	Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 12:35:03	SCALE 1	galtheim		Gross	73120 lb
Out	11/28/2022 12:35:03		galtheim		Tare	39760 lb
					Net	33360 lb
					Tons	16.68

Comments RENE-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	16.68	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	16.68	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181500

Ph: 206 763 5025

Customer Name BRICE ENGINEERING LLC BRICE E
Ticket Date 11/28/2022
Payment Type Credit Account
Manual Ticket#
Route AK
Hauling Ticket#
Destination
PO# 700703/138589OR

Carrier R TRANSPORT R TRANSPORT
Vehicle# M01
Volume
Container
Driver TONY MERANTO
Check#
Billing# 0000838
Grid

	Time	Scale	Operator	Inbound		
In	11/28/2022 12:42:16	SCALE 1	galtheim		Gross	82900 lb
Out	11/28/2022 12:42:16		galtheim		Tare	39620 lb
					Net	43280 lb
					Tons	21.64

Comments MER-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	21.64	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	21.64	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181503

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	BDI
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	NIGI FISHER
Route		Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 12:57:41	SCALE 1	galtheim		Gross	84000 lb
Out	11/28/2022 12:57:41		galtheim		Tare	39660 lb
					Net	44340 lb
					Tons	22.17

Comments BDI-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	22.17	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	22.17	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181505

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	77T
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	DANIEL HOLLIDAY
Route	AK	Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 13:06:42	SCALE 1	galtheim		Gross	91540 lb
Out	11/28/2022 13:06:42		galtheim		Tare	44500 lb
					Net	47040 lb
					Tons	23.52

Comments RT-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	23.52	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	23.52	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181507

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	R-4
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	TODD NYSETHER
Route	AK	Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 13:19:53	SCALE 1	galtheim		Gross	85120 lb
Out	11/28/2022 13:19:53		galtheim		Tare	39760 lb
					Net	45360 lb
					Tons	22.68

Comments RT-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	22.68	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	22.68	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181509

Ph: 206 763 5025

Customer Name BRICE ENGINEERING LLC BRICE E
Ticket Date 11/28/2022
Payment Type Credit Account
Manual Ticket#
Route AK
Hauling Ticket#
Destination
PO# 700703/138589OR

Carrier R TRANSPORT R TRANSPORT
Vehicle# M01
Volume
Container
Driver TONY MERANTO
Check#
Billing# 0000838
Grid

	Time	Scale	Operator	Inbound		
In	11/28/2022 13:28:43	SCALE 1	galtheim		Gross	82920 lb
Out	11/28/2022 13:28:43		galtheim		Tare	39620 lb
					Net	43300 lb
					Tons	21.65

Comments MER-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	21.65	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	21.65	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181510

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	BDI
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	NIGI FISHER
Route		Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 13:40:58	SCALE 1	galtheim		Gross	81880 lb
Out	11/28/2022 13:40:58		galtheim		Tare	39660 lb
					Net	42220 lb
					Tons	21.11

Comments BDI-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	21.11	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	21.11	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181512

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	77T
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	DANIEL HOLLIDAY
Route	AK	Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 13:51:55	SCALE 1	GALTHEIM		Gross	86780 lb
Out	11/28/2022 13:51:55		GALTHEIM		Tare	44500 lb
					Net	42280 lb
					Tons	21.14

Comments RT-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	21.14	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				
3	GONDOLA T-GONDOLA TON	100	21.14	Tons				
4	FUELSUR-FUEL SURCHARGE	100		%				

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181513

Ph: 206 763 5025

Customer Name BRICE ENGINEERING LLC BRICE E
Ticket Date 11/28/2022
Payment Type Credit Account
Manual Ticket#
Route AK
Hauling Ticket#
Destination
PO# 700703/138589OR

Carrier R TRANSPORT R TRANSPORT
Vehicle# R-4
Volume
Container
Driver TODD NYSETHER
Check#
Billing# 0000838
Grid

	Time	Scale	Operator	Inbound		
In	11/28/2022 13:56:35	SCALE 1	GALTHEIM		Gross	74460 lb
Out	11/28/2022 13:56:35		GALTHEIM		Tare	39760 lb
					Net	34700 lb
					Tons	17.35

Comments RT-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	17.35	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	17.35	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181466

Ph: 206 763 5025

Customer Name BRICE ENGINEERING LLC BRICE E
Ticket Date 11/28/2022
Payment Type Credit Account
Manual Ticket#
Route AK
Hauling Ticket#
Destination
PO# 700703/138589OR

Carrier R TRANSPORT R TRANSPORT
Vehicle# 77T
Volume
Container
Driver DANIEL HOLLIDAY
Check#
Billing# 0000838
Grid

	Time	Scale	Operator	Inbound		
In	11/28/2022 09:16:23	SCALE 1	galtheim		Gross	81780 lb
Out	11/28/2022 09:16:23		galtheim		Tare	44500 lb
					Net	37280 lb
					Tons	18.64

Comments RT-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	18.64	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				
3	GONDOLA T-GONDOLA TON	100	18.64	Tons				
4	FUELSUR-FUEL SURCHARGE	100		%				

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

Acknowledgement of Loading

Ken Watson — Name (Please Print)

Brice Enviro. — Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: R-Transport	**Waste Profile # 138589OR** Waste Type: ADC Exp : 10/13/2023

Dan Holliday
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181468

Ph: 206 763 5025

Customer Name BRICE ENGINEERING LLC BRICE E
Ticket Date 11/28/2022
Payment Type Credit Account
Manual Ticket#
Route AK
Hauling Ticket#
Destination
PO# 700703/138589OR

Carrier R TRANSPORT R TRANSPORT
Vehicle# R-4
Volume
Container
Driver TODD NYSETHER
Check#
Billing# 0000838
Grid

	Time	Scale	Operator	Inbound		
In	11/28/2022 09:25:49	SCALE 1	galtheim		Gross	84880 lb
Out	11/28/2022 09:27:38	SCALE 1	galtheim		Tare	39760 lb*
					Net	45120 lb
			* Manual Weight		Tons	22.56

Comments RT-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	22.56	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	22.56	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

Acknowledgement of Loading

Ken Watson — Name (Please Print)

Brice Enviro. — Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: RTransport	**Waste Profile # 138589OR** Waste Type: ADC Exp : 10/13/2023

Todd Nysether
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181469

Ph: 206 763 5025

Customer Name BRICE ENGINEERING LLC BRICE E
Ticket Date 11/28/2022
Payment Type Credit Account
Manual Ticket#
Route AK
Hauling Ticket#
Destination
PO# 700703/138589OR

Carrier R TRANSPORT R TRANSPORT
Vehicle# M01 Volume
Container
Driver TONY MERANTO
Check#
Billing# 0000838
Grid

	Time	Scale	Operator	Inbound		
In	11/28/2022 09:33:18	SCALE 1	galtheim		Gross	84400 lb
Out	11/28/2022 09:33:18		galtheim		Tare	39620 lb
					Net	44780 lb
					Tons	22.39

Comments M-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	22.39	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				
3	GONDOLA T-GONDOLA TON	100	22.39	Tons				
4	FUELSUR-FUEL SURCHARGE	100		%				

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

Acknowledgement of Loading

Ken Watson
Name (Please Print)

Brice Environmental
Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: A Transport / Merante Trucking	**Waste Profile # 138589OR** **Waste Type: ADC** **Exp : 10/13/2023**

Tony Merante
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181470

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	BDI
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	NIGI FISHER
Route		Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 09:37:05	SCALE 1	galtheim		Gross	79440 lb
Out	11/28/2022 09:37:05		galtheim		Tare	39660 lb
					Net	39780 lb
					Tons	19.89

Comments N-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	19.89	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	19.89	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

Acknowledgement of Loading

Keri Watson
Name (Please Print)

Brice Environmental
Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: Beyond Dirt	**Waste Profile # 138589OR** **Waste Type: ADC** **Exp : 10/13/2023**

Nigi Fisher
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181473

Ph: 206 763 5025

Customer Name BRICE ENGINEERING LLC BRICE E
Ticket Date 11/28/2022
Payment Type Credit Account
Manual Ticket#
Route AK
Hauling Ticket#
Destination
PO# 700703/138589OR

Carrier R TRANSPORT R TRANSPORT
Vehicle# 77T
Volume
Container
Driver DANIEL HOLLIDAY
Check#
Billing# 0000838
Grid

	Time	Scale	Operator	Inbound		
In	11/28/2022 09:54:16	SCALE 1	galtheim		Gross	83320 lb
Out	11/28/2022 09:54:16		galtheim		Tare	44500 lb
					Net	38820 lb
					Tons	19.41

Comments RT-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	19.41	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				
3	GONDOLA T-GONDOLA TON	100	19.41	Tons				
4	FUELSUR-FUEL SURCHARGE	100		%				

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

Acknowledgement of Loading

Keri Watson
Name (Please Print)

Brice Environmental
Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: R-Transport	**Waste Profile # 138589OR** **Waste Type: ADC** **Exp : 10/13/2023**

Dan Holliday
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181475

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	R-4
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	TODD NYSETHER
Route	AK	Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 10:14:33	SCALE 1	galtheim		Gross	86140 lb
Out	11/28/2022 10:14:33		galtheim		Tare	39760 lb
					Net	46380 lb
					Tons	23.19

Comments RENE-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	23.19	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	23.19	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

Acknowledgement of Loading

Ken Watson
Name (Please Print)

Brice Enviro.
Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: RTransport	**Waste Profile # 138589OR** **Waste Type: ADC** **Exp : 10/13/2023**

Todd Nysether
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181476

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	M01
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	TONY MERANTO
Route	AK	Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 10:17:07	SCALE 1	galtheim		Gross	86240 lb
Out	11/28/2022 10:17:07		galtheim		Tare	39620 lb
					Net	46620 lb
					Tons	23.31

Comments MER-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	23.31	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	23.31	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

Acknowledgement of Loading

Keri Watson — Name (Please Print)

Brice Environmental. — Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: A Transport / Melanto Trucking	**Waste Profile # 138589OR**
	Waste Type: ADC Exp : 10/13/2023

Tony Melanto
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181477

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	BDI
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	NIGI FISHER
Route		Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 10:28:17	SCALE 1	galtheim		Gross	76840 lb
Out	11/28/2022 10:28:17		galtheim		Tare	39660 lb
					Net	37180 lb
					Tons	18.59

Comments BD-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	18.59	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	18.59	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

Acknowledgement of Loading

Keri Watson
Name (Please Print)

Brice Environmental
Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: Beyond Dirt	**Waste Profile # 138589OR** **Waste Type: ADC** **Exp : 10/13/2023**

Nigi Fisher
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181480

Ph: 206 763 5025

Customer Name BRICE ENGINEERING LLC BRICE E
Ticket Date 11/28/2022
Payment Type Credit Account
Manual Ticket#
Route AK
Hauling Ticket#
Destination
PO# 700703/138589OR

Carrier R TRANSPORT R TRANSPORT
Vehicle# 77T
Volume
Container
Driver DANIEL HOLLIDAY
Check#
Billing# 0000838
Grid

	Time	Scale	Operator	Inbound		
In	11/28/2022 10:38:23	SCALE 1	galtheim		Gross	72960 lb
Out	11/28/2022 10:38:23		galtheim		Tare	44500 lb
					Net	28460 lb
					Tons	14.23

Comments RT-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	14.23	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	14.23	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

Acknowledgement of Loading

Keri Watson
Name (Please Print)

Brice Environmental
Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: R-Transport	**Waste Profile # 138589OR** **Waste Type: ADC** **Exp : 10/13/2023**

Dan Holliday
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181481

Ph: 206 763 5025

Customer Name BRICE ENGINEERING LLC BRICE E
Ticket Date 11/28/2022
Payment Type Credit Account
Manual Ticket#
Route AK
Hauling Ticket#
Destination
PO# 700703/138589OR

Carrier R TRANSPORT R TRANSPORT
Vehicle# R-4
Volume
Container
Driver TODD NYSETHER
Check#
Billing# 0000838
Grid

	Time	Scale	Operator	Inbound		
In	11/28/2022 10:53:26	SCALE 1	galtheim		Gross	81280 lb
Out	11/28/2022 10:53:26		galtheim		Tare	39760 lb
					Net	41520 lb
					Tons	20.76

Comments RTY-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	20.76	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				
3	GONDOLA T-GONDOLA TON	100	20.76	Tons				
4	FUELSUR-FUEL SURCHARGE	100		%				

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

Acknowledgement of Loading

Kevi Watson
Name (Please Print)

Brice Environmental
Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: R Transport	**Waste Profile # 138589OR**
	Waste Type: ADC **Exp : 10/13/2023**

Todd Nysether
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181484

Ph: 206 763 5025

Customer Name BRICE ENGINEERING LLC BRICE E
Ticket Date 11/28/2022
Payment Type Credit Account
Manual Ticket#
Route AK
Hauling Ticket#
Destination
PO# 700703/138589OR

Carrier R TRANSPORT R TRANSPORT
Vehicle# M01
Volume
Container
Driver TONY MERANTO
Check#
Billing# 0000838
Grid

	Time	Scale	Operator	Inbound		
In	11/28/2022 11:02:01	SCALE 1	galtheim		Gross	79560 lb
Out	11/28/2022 11:02:01		galtheim		Tare	39620 lb
					Net	39940 lb
					Tons	19.97

Comments MER-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	19.97	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				
3	GONDOLA T-GONDOLA TON	100	19.97	Tons				
4	FUELSUR-FUEL SURCHARGE	100		%				

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

Acknowledgement of Loading

Keri Watson
Name (Please Print)

Brice Environmental
Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: R Transport / Meralto Trucking	**Waste Profile # 138589OR** Waste Type: ADC Exp : 10/13/2023

Tony Meranto
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181486

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	BDI
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	NIGI FISHER
Route		Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 11:08:00	SCALE 1	galtheim		Gross	81800 lb
Out	11/28/2022 11:08:00		galtheim		Tare	39660 lb
					Net	42140 lb
					Tons	21.07

Comments BDI-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	21.07	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	21.07	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

Acknowledgement of Loading

Ken Watson
Name (Please Print)

Brice Environmental.
Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: Beyond Dirt	**Waste Profile # 138589OR** **Waste Type: ADC** **Exp : 10/13/2023**

Nigi Fisher
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181488

Ph: 206 763 5025

Customer Name BRICE ENGINEERING LLC BRICE E
Ticket Date 11/28/2022
Payment Type Credit Account
Manual Ticket#
Route AK
Hauling Ticket#
Destination
PO# 700703/138589OR

Carrier R TRANSPORT R TRANSPORT
Vehicle# 77T
Volume
Container
Driver DANIEL HOLLIDAY
Check#
Billing# 0000838
Grid

	Time	Scale	Operator	Inbound		
In	11/28/2022 11:27:08	SCALE 1	galtheim		Gross	76660 lb
Out	11/28/2022 11:27:08		galtheim		Tare	44500 lb
					Net	32160 lb
					Tons	16.08

Comments RT-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	16.08	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				
3	GONDOLA T-GONDOLA TON	100	16.08	Tons				
4	FUELSUR-FUEL SURCHARGE	100		%				

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

Acknowledgement of Loading

Keri Watson
Name (Please Print)

Brice Environmental
Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: R-Transport	**Waste Profile # 138589OR** **Waste Type: ADC** **Exp : 10/13/2023**

Don Holliday
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181490

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	R-4
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	TODD NYSETHER
Route	AK	Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 11:43:30	SCALE 1	galtheim		Gross	82800 lb
Out	11/28/2022 11:43:30		galtheim		Tare	39760 lb
					Net	43040 lb
					Tons	21.52

Comments RT-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	21.52	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	21.52	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

Acknowledgement of Loading

Kevi Watson
Name (Please Print)

Brice Environmental
Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: R Transport	**Waste Profile # 138589OR**
	Waste Type: ADC **Exp : 10/13/2023**

Todd Nysether
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181491

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	M01
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	TONY MERANTO
Route	AK	Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 11:45:53	SCALE 1	galtheim		Gross	87740 lb
Out	11/28/2022 11:45:53		galtheim		Tare	39620 lb
					Net	48120 lb
					Tons	24.06

Comments MER-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	24.06	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	24.06	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

Acknowledgement of Loading

Ken Watson
Name (Please Print)

Brice Environmental
Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: R Transport / Merato Trucking	**Waste Profile # 138589OR**
	Waste Type: ADC **Exp : 10/13/2023**

Tony Merato
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181494

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	BDI
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	NIGI FISHER
Route		Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 11:53:43	SCALE 1	galtheim		Gross	77120 lb
Out	11/28/2022 11:53:43		galtheim		Tare	39660 lb
					Net	37460 lb
					Tons	18.73

Comments BDI-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	18.73	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	18.73	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

Acknowledgement of Loading

Keri Watson
Name (Please Print)

Brice Environmental
Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: Beyond Dirt	**Waste Profile # 138589OR** **Waste Type: ADC** **Exp : 10/13/2023**

Nigi Fisher
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181495

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	77T
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	DANIEL HOLLIDAY
Route	AK	Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 11:59:24	SCALE 1	galtheim		Gross	73960 lb
Out	11/28/2022 11:59:24		galtheim		Tare	44500 lb
					Net	29460 lb
					Tons	14.73

Comments RT-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	14.73	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	14.73	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

Acknowledgement of Loading

Ken Watson
Name (Please Print)

Brice Enviro.
Company

Deliver To:

ALASKA RELOAD & RECYCLING FACILITY
70 SOUTH ALASKA STREET
SEATTLE, WASHINGTON 98134
TELEPHONE #: (206) 763-5025

Disposal Facility:

COLUMBIA RIDGE LANDFILL AND
RECYCLING FACILITY

Transporter Name:

R-Transport
77T

Waste Profile # 138589OR

Waste Type: ADC
Exp : 10/13/2023

Dan Holliday
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181499

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	R-4
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	TODD NYSETHER
Route	AK	Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 12:35:03	SCALE 1	galtheim		Gross	73120 lb
Out	11/28/2022 12:35:03		galtheim		Tare	39760 lb
					Net	33360 lb
					Tons	16.68

Comments RENE-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	16.68	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	16.68	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

Acknowledgement of Loading

Keri Watson
Name (Please Print)

Brice Environmental.
Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: R Transport	**Waste Profile # 138589OR**
	Waste Type: ADC Exp : 10/13/2023

Todd Nysether
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181500

Ph: 206 763 5025

Customer Name BRICE ENGINEERING LLC BRICE E
Ticket Date 11/28/2022
Payment Type Credit Account
Manual Ticket#
Route AK
Hauling Ticket#
Destination
PO# 700703/138589OR

Carrier R TRANSPORT R TRANSPORT
Vehicle# M01
Volume
Container
Driver TONY MERANTO
Check#
Billing# 0000838
Grid

	Time	Scale	Operator	Inbound		
In	11/28/2022 12:42:16	SCALE 1	galtheim		Gross	82900 lb
Out	11/28/2022 12:42:16		galtheim		Tare	39620 lb
					Net	43280 lb
					Tons	21.64

Comments MER-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	21.64	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	21.64	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181503

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	BDI
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	NIGI FISHER
Route		Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 12:57:41	SCALE 1	galtheim		Gross	84000 lb
Out	11/28/2022 12:57:41		galtheim		Tare	39660 lb
					Net	44340 lb
					Tons	22.17

Comments BDI-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	22.17	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	22.17	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

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Keri Watson — Name (Please Print)

Brice Environmental. — Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: Beyond Dirt	**Waste Profile # 138589OR** Waste Type: ADC Exp : 10/13/2023

Nigi Fisher
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181505

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	77T
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	DANIEL HOLLIDAY
Route	AK	Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 13:06:42	SCALE 1	galtheim		Gross	91540 lb
Out	11/28/2022 13:06:42		galtheim		Tare	44500 lb
					Net	47040 lb
					Tons	23.52

Comments RT-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	23.52	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	23.52	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

Acknowledgement of Loading

Ken Watson — Name (Please Print)

Brice Enviro. — Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: R-Transport 77T	**Waste Profile # 138589OR** **Waste Type: ADC** **Exp : 10/13/2023**

Dan Holliday
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181507

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	R-4
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	TODD NYSETHER
Route	AK	Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 13:19:53	SCALE 1	galtheim		Gross	85120 lb
Out	11/28/2022 13:19:53		galtheim		Tare	39760 lb
					Net	45360 lb
					Tons	22.68

Comments RT-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	22.68	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	22.68	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

Acknowledgement of Loading

Ken Watson — Name (Please Print)

Brice Enviro. — Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: RTransport R-4	**Waste Profile # 138589OR** **Waste Type: ADC** **Exp : 10/13/2023**

Todd Nysether
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181509

Ph: 206 763 5025

Customer Name BRICE ENGINEERING LLC BRICE E
Ticket Date 11/28/2022
Payment Type Credit Account
Manual Ticket#
Route AK
Hauling Ticket#
Destination
PO# 700703/138589OR

Carrier R TRANSPORT R TRANSPORT
Vehicle# M01
Volume
Container
Driver TONY MERANTO
Check#
Billing# 0000838
Grid

	Time	Scale	Operator	Inbound		
In	11/28/2022 13:28:43	SCALE 1	galtheim		Gross	82920 lb
Out	11/28/2022 13:28:43		galtheim		Tare	39620 lb
					Net	43300 lb
					Tons	21.65

Comments MER-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	21.65	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	21.65	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

Acknowledgement of Loading

Ken Watson
Name (Please Print)

Brice Environmental
Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: A Transport / Merante Trucking MOI	**Waste Profile # 138589OR** **Waste Type: ADC** **Exp : 10/13/2023**

Tony Merante
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181510

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	BDI
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	NIGI FISHER
Route		Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 13:40:58	SCALE 1	galtheim		Gross	81880 lb
Out	11/28/2022 13:40:58		galtheim		Tare	39660 lb
					Net	42220 lb
					Tons	21.11

Comments BDI-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	21.11	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	21.11	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181512

Ph: 206 763 5025

Customer Name	BRICE ENGINEERING LLC BRICE E	Carrier	R TRANSPORT R TRANSPORT
Ticket Date	11/28/2022	Vehicle#	77T
Payment Type	Credit Account	Container	
Manual Ticket#		Driver	DANIEL HOLLIDAY
Route	AK	Check#	
Hauling Ticket#		Billing#	0000838
Destination		Grid	
PO#	700703/138589OR		

Volume

	Time	Scale	Operator	Inbound		
In	11/28/2022 13:51:55	SCALE 1	GALTHEIM		Gross	86780 lb
Out	11/28/2022 13:51:55		GALTHEIM		Tare	44500 lb
					Net	42280 lb
					Tons	21.14

Comments RT-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	21.14	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				
3	GONDOLA T-GONDOLA TON	100	21.14	Tons				
4	FUELSUR-FUEL SURCHARGE	100		%				

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

Acknowledgement of Loading

Keri Watson
Name (Please Print)

Brice Environmental
Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: R-Transport	**Waste Profile # 138589OR** Waste Type: ADC Exp : 10/13/2023

Dan Holliday
Driver's Name (Please Print)

Alaska Street
70 S Alaska Street
Seattle, WA, 98134

Reprint
Ticket# 181513

Ph: 206 763 5025

Customer Name BRICE ENGINEERING LLC BRICE E
Ticket Date 11/28/2022
Payment Type Credit Account
Manual Ticket#
Route AK
Hauling Ticket#
Destination
PO# 700703/138589OR

Carrier R TRANSPORT R TRANSPORT
Vehicle# R-4
Volume
Container
Driver TODD NYSETHER
Check#
Billing# 0000838
Grid

	Time	Scale	Operator	Inbound		
In	11/28/2022 13:56:35	SCALE 1	GALTHEIM		Gross	74460 lb
Out	11/28/2022 13:56:35		GALTHEIM		Tare	39760 lb
					Net	34700 lb
					Tons	17.35

Comments RT-GA

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	Daily Cover-PCS-Tons-Pet	100	17.35	Tons				ALASKA
2	EVF-P-Standard Environme	100		%				ALASKA
3	GONDOLA T-GONDOLA TON	100	17.35	Tons				ALASKA
4	FUELSUR-FUEL SURCHARGE	100		%				ALASKA

Total Tax
Total Ticket

Driver`s Signature

WASTE MANAGEMENT

Generators Name & Address:
U.S. Army Corps of Engineers
Northeast Cape
St Lawrence Island AK 99769

Billing: Brice Engineering
Contact: Scotty Mann
Contact Number: (970) 623-0995
Billing Email: scotty.mann@bricesolutions.com

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Keri Walsh — Name (Please Print)

Brice Environmental — Company

Deliver To:	**Disposal Facility:**
ALASKA RELOAD & RECYCLING FACILITY 70 SOUTH ALASKA STREET SEATTLE, WASHINGTON 98134 TELEPHONE #: (206) 763-5025	COLUMBIA RIDGE LANDFILL AND RECYCLING FACILITY
Transporter Name: R Transport	**Waste Profile # 138589OR**
	Waste Type: ADC Exp : 10/13/2023

Todd Nysether
Driver's Name (Please Print)

ARL
1111 E 56th Ave
Anchorage, AK 99518

Ticket: 1120557
Date: 11/29/2022
Time: 10:50:51 - 11:45:44

			Scale
Gross:	22580 LB	In	Scale ARL I
Tare:	19820 LB	Out	Scale ARL (
Net:	2760 LB		

Truck: BRICE
Customer: 1099999999002/SWS CASH WE
Carrier: 07/WEIGHED CASH CUST(

Comment:

Origin	Materials & Services	Quantity	Unit	Rate/Unit	Amount
NA/Not Applicable	LOAD T AR/DISPOSAL CH/	1.38	Ton	$71.97/TON	$99.32
NA/Not Applicable	RECY CM AR/Community recy	1.38	Ton	$2.00/TON	$2.76

Total Amount: $102.08
Other: xxxx-: $102.08

Driver: _____

Deputy Weighmaster: _____
AC

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APPENDIX E
GROUNDWATER MONITORING REPORT

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ATTACHMENTS

Attachment E-1 Field Documentation
Attachment E-2 Summarized Analytical Results and Trend Plots

ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
°F	degrees Fahrenheit
µg/L	micrograms per liter
µS/cm	micro-Siemens per centimeter
AAC	Alaska Administrative Code
AC&WS	Aircraft Control and Warning Station
ADEC	Alaska Department of Environmental Conservation
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
btoc	below top of casing
COC	contaminant of concern
DD	decision document
DL	detection limit
DO	dissolved oxygen
DoD	U.S. Department of Defense
DRO	diesel range organics
DTW	depth to water
EPA	U.S. Environmental Protection Agency
FUDS	Formerly Used Defense Site
GRO	gasoline range organics
GWE	groundwater elevation
HTRW	hazardous, toxic, and radiological waste
LOD	limit of detection
mg/L	milligrams per liter
MOC	Main Operations Complex
msl	mean sea level
mV	millivolt
ND	non-detect
NEC	Northeast Cape
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
POL	petroleum, oil, and lubricant
QC	quality control
RCRA	Resource Conservation and Recovery Act
RI	remedial investigation
RRO	residual range organics
SIM	selective-ion monitoring
SSCL	site-specific cleanup level
Suqi River	Suqitughneq River

ACRONYMS AND ABBREVIATIONS (CONTINUED)

USACE	U.S. Army Corps of Engineers
VOC	volatile organic compound
WACS	White Alice Communications System

EXECUTIVE SUMMARY

This report summarizes continuing remedial action-operations in the form of monitored natural attenuation (MNA) groundwater sampling at the Main Operations Complex (MOC) at Northeast Cape on St. Lawrence Island, Alaska, conducted during July and August of 2022. Brice Engineering, LLC (Brice) performed the fieldwork and prepared this report for the U.S. Army Corps of Engineers (USACE) under Hazardous, Toxic, and Radiological Wastes, Contract W911KB17D0017, Task Order W911KB18F0020.

Fieldwork included locating the 15 serviceable groundwater monitoring wells at the Main Operations Complex (MOC), inspection, repair or decommissioning of select monitoring wells, re-development of two monitoring wells (MW10-1 and 14MW04), measuring depth to groundwater prior to sampling, measuring (GWEs) to determine the groundwater flow direction, and the collection of groundwater samples. Groundwater sample results were compared to site-specific cleanup levels (SSCLs) established by the 2009 Decision Document (USACE 2009) and by Alaska Department of Environmental Conservation (ADEC) Alaska Administrative Code (AAC) Title 18, Chapter 75, Table C groundwater cleanup levels (ADEC 2023).

Analytical results and field parameters supported the conclusion that concentrations of diesel range organics (DRO) in groundwater were naturally attenuating. The findings were separated into two groups: findings based on the evaluation of 2022 groundwater sampling data and findings based on the comparison of 2022 data to the historical data set.

- Findings based on the evaluation of 2022 groundwater data:
  - The 2022 groundwater flow direction at the MOC is predominantly northwest, similar to previous sampling events.
  - DRO and lead were the only analytes that exceeded groundwater SSCLs. The DRO plume is located along the northern (downgradient) margin of the MOC. DRO in samples collected from wells 14MW05 and 14MW06 exceeded the DRO SSCL of 1.5 milligrams per liter (mg/L) at 1.78 and 1.99 mg/L, respectively. Total lead concentrations in the sample collected from monitoring well 17MW1 exceeded the lead SSCL of 0.015 mg/L at 0.0176 mg/L.
  - One analyte without a SSCL exceeded the ADEC Table C groundwater cleanup levels. Comparisons of results for analytes without an SSCL to ADEC Table C groundwater cleanup levels identified that naphthalene was present at a concentration of 0.0031 mg/L in the sample collected from well 14MW01, which was above the ADEC table C groundwater cleanup level of 0.0017 mg/L. There were no other SSCL or ADEC Table C cleanup level exceedances in the sample collected from well 14MW01.
  - Current groundwater conditions including low concentrations of dissolved oxygen (DO), detectable concentrations of methane, and elevated concentrations of alkalinity and dissolved manganese in wells 14MW04, 14MW05, and 14MW06 indicate natural attenuation is occurring in groundwater in the vicinity of these wells at the MOC. Anaerobic processes are dominant in groundwater for in-plume wells and aerobic processes are dominant at the margins of the plume.
- Findings for comparison of 2022 data with historical data:
  - The elevation of the groundwater table observed in 2022 was lower than the elevations observed and recorded in 2018. However, elevations were higher than the previous three monitoring events in 2014-2016.

- Observed trends for DRO concentrations show that natural attenuation is occurring. All monitoring wells have reached the remedial action objective for DRO except for four in-plume wells. Mann-Kendall trend analysis identified a decreasing trend for DRO in groundwater in the vicinity monitoring well 14MW05. The trend analysis did not identify a trend in wells 14MW01, 14MW02, and 14MW06 at a statistically sufficient confidence level. There was a detection of DRO in monitoring well 14MW06 in 2022 for the first time since 2015. Additional sampling is needed to overcome the variability in DRO concentration that appears to be attributable to changing water levels from year to year.
- DRO attenuation has reached its remediation goal in monitoring well 14MW04. Monitoring well 14MW05 may reach the SSCL by 2023. The cleanup timeframes are based on geometric regression analyses using a small data set comprised of 2014, 2015, 2016, 2018, and 2022 results. There was a detection of DRO in monitoring well 14MW06 in 2022 for the first time since 2015.

1.0 INTRODUCTION

This report presents the 2022 fieldwork activities and sample results for MOC groundwater at the Northeast Cape (NEC) Formerly Used Defense Site (FUDS) on St. Lawrence Island, Alaska. Brice performed the fieldwork and prepared this report for the U.S. Army Corps of Engineers (USACE) under Hazardous, Toxic, and Radiological Waste (HTRW) Contract W911KB17D0017, Task Order W911KB18F0020.

Field activities were performed in accordance with the *Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews Work Plan* (Work Plan; USACE 2022).

1.1 Project Goals and Objectives

The goals defined in the Work Plan were to conduct monitoring well maintenance, collect and analyze groundwater samples for contaminants of concern (COCs) and monitored natural attenuation (MNA) parameters, and assess trends, if any, for the COCs. Tasks completed to meet these goals included:

- Measuring groundwater and well casing depths
- Sampling 15 monitoring wells using low-flow sampling methodology
- Redeveloping monitoring wells MW10-1 and 14MW04
- Inspecting and repairing monitoring wells
- Decommissioning one monitoring well
- Performing statistical and visual analysis of COC trends

1.2 Regulatory Criteria

The 2009 Decision Document (DD; USACE 2009) identified the following as groundwater COCs: diesel range organics (DRO), residual range organics (RRO), gasoline range organics (GRO), benzene, ethylbenzene, arsenic, and lead. Site-specific cleanup levels (SSCLs) were established for each of these contaminants and are the primary criteria for evaluating groundwater contamination. Several compounds – naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene – have historically been detected at elevated concentrations but do not have SSCLs. These compounds are compared to ADEC Table C groundwater cleanup levels, which are used as screening levels, as no SSCLs were established for these contaminants in the DD. Table 1 presents the cleanup level or screening level used to evaluate each COC.

Table 1 COCs and Associated Site-Specific Cleanup or Screening Levels

COC	CLEANUP LEVEL (mg/L)	SOURCE
DRO	1.5	SSCL
RRO	1.1	SSCL
GRO	1.3	SSCL
Benzene	0.005	SSCL
Ethylbenzene	0.7	SSCL
Arsenic	0.01	SSCL
Lead	0.015	SSCL
Naphthalene	0.0017	ADEC Table C
1-Methylnaphthalene	0.011	ADEC Table C
2-Methylnaphthalene	0.036	ADEC Table C

Notes:
For definitions, refer to the Acronyms and Abbreviations section.

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2.0 BACKGROUND

The following sections present the NEC location, information about the physical and ecological setting, site history, and previous investigations at the MOC.

2.1 Site Description

The NEC FUDS is located on St. Lawrence Island, Alaska, in the western portion of the Bering Sea, approximately 135 air miles southwest of Nome (Figure E-1). It is 9 miles west of the northeastern cape of St. Lawrence Island at 63°19' N, 168°58' W. The property originally encompassed approximately 4,800 acres (7.5 square miles) and is bordered by Kitnagak Bay to the northeast, Kangighsak Point to the northwest, and the Kinipaghulghat Mountains to the south (USACE 2015a).

NEC consists mainly of rolling tundra, which rises from the Bering Sea toward the base of the Kinipaghulghat Mountains. The Kinipaghulghat Mountains rise abruptly to an elevation of approximately 1,800 feet above mean sea level (msl) roughly 3 miles from the coastline. The site is not connected to other permanent communities on the island by road and is only accessible by air, water, or off-road vehicle trails. The Native Village of Savoonga, the closest community, is located approximately 60 miles to the northwest (Figure E-1).

2.1.1 Geology

St. Lawrence Island consists of isolated bedrock highlands of igneous, metamorphic, and older sedimentary rocks surrounded by unconsolidated surficial deposits overlying a relatively shallow erosional bedrock surface (USACE 2009). The MOC is located at approximately 100 feet above msl. At the MOC, shallow unconsolidated surficial materials overlie quartz monzonitic rocks of the Kinipaghulghat Pluton (Patton and Csejtey 1980). The pluton forms the mountainous area south of the NEC sites, which includes Kangukhsam Mountain. The Suqitughneq River (Suqi River) drainage has created an erosional valley in the Kinipaghulghat Pluton and deposited an alluvial fan of unconsolidated sediments. NEC is located on this alluvial fan, which protrudes north from the mountain front toward the Bering Sea. Granitic bedrock is exposed at the coast north of the site, at Kitnagak Bay, which suggests that the quartz monzonitic bedrock is present at a relatively shallow depth beneath the unconsolidated materials as a wave-cut erosional platform.

In general, the native soil stratigraphy at NEC is characterized by silt near the surface overlying more sand-dominated soil at depth. The dark brown (in outcrops) to dark green (aqua-green or blue in some areas) and sometimes mottled silt contains varying quantities of clay/sand/gravel and varies from 0 to 10 feet in thickness. The sand at depth contains varying degrees of silt/gravel/cobbles and ranges from 2 feet to greater than 20 feet in thickness. These deeper, coarse-grained materials are generally unsorted and likely to be of glaciofluvial origin. The depth to bedrock at the site is unknown (USACE 2009).

2.1.2 Hydrogeology

The aquifer at the MOC is contained within the unconsolidated alluvial material that underlies the area. The mountainous area to the south of the former installation is the recharge area for these unconsolidated materials, providing runoff from rain and snowmelt during the summer that permeates talus slopes and enters the alluvium. Based on the topography and geology of the site, the regional groundwater flow direction is expected to flow north across the site toward the Bering Sea from the mountainous recharge area to the south (USACE 2015b).

The 2022 groundwater elevations (GWEs) recorded in the MOC sampling area wells ranged from approximately 59 to 75 feet above msl and exhibited depths from approximately 3 to 39 feet below ground surface (bgs). Groundwater appears to flow to the northwest. Depth to water at the MOC is greatest to the south, becoming progressively shallower toward the north; groundwater discharges to surface water in the drainage basin that runs through Site 28 at the north side of the MOC (USACE 2015b).

Key factors influencing the flow of groundwater at the site are permafrost and frozen soil, which render the unconsolidated materials effectively impermeable in some areas. The U.S. Geological Survey has classified St. Lawrence Island as an area of moderately thick to thin permafrost. Although the depth of permafrost at St. Lawrence Island is unknown, the base of permafrost on the mainland at Nome (135 air miles to the northeast) is estimated to be 120 feet bgs. The deeper unconsolidated deposits at the site are likely permafrost, and the shallow soil represent the active layer where soil freezes and thaws seasonally. Frozen soil has a profound effect in retarding groundwater flow during most of the year (USACE 2015b).

2.1.3 Surface Water

In addition to the Bering Sea that borders NEC to the north, area surface water consists of small streams, small- to moderate-sized lakes, and marshy areas. Surface water generally flows northward from highland areas to the south. Small surface waterbodies are common throughout the area. The primary stream drainage in the area, the Suqi River, is fed by runoff from the prominent drainage of the Kinipaghulghat Mountain valley in the lower mountain area south of the former installation. Several smaller tributaries, originating from two small, unnamed lakes, feed the Suqi River as it flows north into Kitnagak Bay. Surface water flow in the area is highly dynamic, changing significantly over time.

Between the 2014 and 2018 field activities significant changes in surface water characteristics were observed. During the 2018 field season, low water levels were observed in the ponds adjacent to Site 6, and completely dry ponds were observed at Site 3. In addition, surface water flow in the Site 8 drainage had been reduced to a small spring upwelling adjacent to the Suqi River. During previous remedial and removal actions water had been encountered during excavations ranging from 7 feet bgs in 2010 to approximately 12 feet bgs in 2012 (USACE 2015b). The variability of depth to groundwater at the MOC appears to be heavily influenced by proximity to wetlands near the Site 28 Drainage Basin, the seasonal spring thaw, and high levels of precipitation during the summer field season. Notable seasonal variation has been observed at a location directly south (uphill) from Site 26 where surface water runs through a culvert underneath the road that connects the MOC and Site 31 (USACE 2015b). This drainage originated in the Kinipaghulghat Mountains and exhibited variable flow in late spring/early summer. The drainage would flow for days at a time but would run dry later into the summer during drier periods.

2.2 Site History

NEC was constructed as an Aircraft Control and Warning Station (AC&WS) during 1950 and 1951 to provide radar coverage and surveillance for the Alaskan Air Command and later for the North American Air Defense Command as part of the Alaska Early Warning System. The site was activated in 1952, and a White Alice Communications System (WACS) station was added to the site in 1954. The AC&WS and WACS operations, supported by up to 212 personnel, were terminated in 1969 and 1972, respectively. Most military personnel were removed from the site by the end of 1969 (USACE 2015a).

NEC included housing areas, power plant facilities, fuel storage tanks, distribution lines, maintenance shops, wastewater treatment facilities, and landfills. The buildings and the majority of furnishings and

equipment related to the AC&WS were initially abandoned in place due to the high cost of off-island transport (USACE 2015a).

In 1971, the villages of Gambell and Savoonga opted out of the Alaska Native Claims Settlement Act, which allowed them title to 1.136 million acres of land in the former St. Lawrence Island Reindeer Reserve, established in 1903. The Gambell Native Corporation and Savoonga Native Corporation (now known as Sivuqaq, Inc. and Kukulget, Inc., respectively) received titles to all of St. Lawrence Island (except U.S. Surveys 4235, 4237, 4340, 4369, and 3728) by Interim Conveyance No. 203 dated 21 June 1979 and finalized 2 December 1980. In 1982, the Navy obtained approximately 26 acres of land containing the former WACS. The land transfer was later deemed invalid and property ownership reverted to Sivuqaq, Inc. and Kukulget, Inc.

Demolition and removal of the buildings and most other structures from 1990 through 2014 were completed under multiple USACE contracts (USACE 2015b). The runway, improved gravel roads, and concrete slabs of some of the former structures remain intact. Four remedial investigations (RIs) were conducted between 1994 and 2004, during which environmental concerns were grouped into 34 individual sites (USACE 2015a). Following the feasibility study in 2007 (USACE 2007) and completion of the DD in September of 2009, remedial actions occurred through 2014 (USACE 2015b).

Sites 10 through 22, 26, and 27 are collectively referred to as the MOC (Figure E-1) and included the majority of site infrastructure such as buildings, heat and power supply, fuel storage tanks, maintenance shops, and housing. All aboveground portions of MOC structures have been demolished, but concrete foundations, pads, and backfilled utilidors remain. Fuel tanks and fuel distribution piping have been removed.

The primary sources of contamination at NEC are spills and leaks of fuel products associated with the former aboveground storage tanks, underground storage tanks, and associated piping. Other sources include polychlorinated biphenyls (PCBs) from transformers and electrical equipment, and vehicle maintenance fluids, such as glycol and solvent, from maintenance shops. Individual sites within the MOC were grouped to facilitate evaluation of an overall response action for the known contamination (USACE 2015a). These sites are located broadly across the central and eastern portion of the MOC.

The largest documented spill at NEC occurred in March 1967 when a plow truck hit petroleum, oil, and lubricant (POL) Tank No. 2, resulting in the release of approximately 30,000 gallons of fuel. Interviews with former installation personnel suggest there were several undocumented incidents of spills greater than 30,000 gallons from the large aboveground storage tanks (USACE 2015a).

Based on the results of the excavation and removal activities, the northernmost edge of the area excavated at the MOC contains petroleum in subsurface soil at concentrations that are below the risk-based site-specific cleanup levels (SSCLs) defined in the 2009 Decision Document (DD; USACE 2009). Additional excavation was not performed due to the likelihood that excavation would have resulted in negative impacts to the downgradient wetland area known as the Site 28 Drainage Basin.

Shallow groundwater is contaminated throughout the northern portion of the MOC. The DD-specified COCs in groundwater are GRO, DRO, RRO, benzene, ethylbenzene, arsenic, and lead (USACE 2009).

RIs were conducted in 1994, 1996, 1998, 2001, 2002, and 2004. The sampling results indicated soil and groundwater contained petroleum compounds at elevated levels. An in situ chemical oxidation pilot test was completed at the MOC in 2009. Results indicated that in situ chemical oxidation was not an effective means of remediating the petroleum-contaminated soil present at the MOC due to the peat and organic silts in the soil, the presence of permafrost and/or frozen zones, and the observation of preferential flow zones (USACE 2010).

Several monitoring wells have been installed and removed over time at the MOC. Monitoring well installation at the MOC began during the RIs and continued through 2014 (USACE 2015b). Currently, there are 15 serviceable monitoring wells at the MOC (installed between 2002 and 2014): 17MW-1, 20MW-1, 22MW2, 26MW1, MW10-1, MW88-1, MW88-3, MW88-10, 14MW01, 14MW02, 14MW03, 14MW04, 14MW05, 14MW06, and 14MW07 (Figure E-2).

The current groundwater monitoring wells at the MOC can be grouped according to position relative to contamination. Wells 26MW1, 22MW2, 20MW-1, and 14MW07 are located upgradient of all known petroleum sources; wells 17MW1 and MW10-1 are cross gradient to known petroleum sources; and wells MW88-1, MW88-3, MW88-10, 14MW01, 14MW02, 14MW03, 14MW04, 14MW05, and 14MW06 are within petroleum source areas. Soil samples collected during well installation were analyzed for analytical suites that variably included GRO, DRO, RRO, benzene, toluene, ethylbenzene, and xylenes (BTEX), polycyclic aromatic hydrocarbons (PAHs), PCBs, total organic carbon, and metals. Analytical results for all soil samples were less than the SSCLs (USACE 2002, 2003, 2005, 2015b).

In 2002 and 2004, groundwater samples were analyzed for GRO, DRO, RRO, and BTEX (USACE 2003, 2005). Additional analytes in 2002 included alkalinity, sulfate, methane, ethane, and ethene (USACE 2003) while in 2004 additional analytes included PAHs, total organic carbon, and metals (USACE 2005). Groundwater samples collected in 2002 and 2004 exceeded the SSCLs for GRO, DRO, RRO, benzene, and lead in wells MW88-3, MW88-4, MW88-5, MW88-10, and 20MW-1. Table 1 presents historical results above SSCLs.

In 2010 and 2011, groundwater samples were analyzed for GRO, DRO, BTEX, PAHs, PCBs, methane, metals, and natural attenuation parameters including ferrous iron, manganese, sulfate, nitrate, alkalinity, conductivity, dissolved oxygen (DO), and oxidation-reduction potential (USACE 2011, 2012). Beginning in 2012, the analyte list was expanded to include RRO (USACE 2013, 2014). In 2014 and 2015, volatile organic compounds (VOCs) and glycols were added to the analytical suite for well 10MW-1 (USACE 2015b, 2016). Groundwater samples collected between 2010 and 2015 exceeded SSCLs for DRO, RRO, benzene, arsenic, and lead. Monitoring wells MW88-4 and MW88-5 were removed in 2013 due to contaminated soil excavation. Prior to removal, final samples from these wells did not exceed SSCLs.

All samples collected from wells in 2016 were analyzed for GRO, DRO, RRO, BTEX, PAHs, PCBs, methane, sulfate, and alkalinity. Samples collected from wells MW10-1 and 14MW06 associated with Site 10 within the MOC were also analyzed for VOCs and glycols. Analytical results indicated that DRO and lead exceeded SSCLs. The 2016 groundwater sampling report (USACE 2017) concluded that natural attenuation of petroleum was occurring in groundwater at the MOC via anaerobic biological processes and that DRO levels were predicted to reach the SSCL by 2023 with attenuation complete in 2047.

Fieldwork in 2018 consisted of sampling 15 wells, and redeveloping wells MW10-1 and 14MW04. DRO was the only analyte that exceeded groundwater SSCLs, with exceedances from samples in wells 14MW01, 14MW02, 14MW04, and 14MW05. ADEC Table C groundwater cleanup levels were also exceeded for several analytes including naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, manganese, DRO, and arsenic (which also has a SSCL). Groundwater conditions in source area wells indicated that groundwater attenuation of DRO was occurring. However, increases in DRO concentrations were observed in several wells, which were attributed to the high-water level.

Table 2 Historical Groundwater Results Above SSCLs

WELL ID	YEAR	CONTAMINANT	SSCL (mg/L)	RESULT (mg/L)
14MW01	2018	DRO	1.5	1.8
	2018	DRO	1.5	2.0
14MW02	2015	DRO	1.5	1.6
	2016	DRO	1.5	1.6
	2018	DRO	1.5	2.8
14MW03	2014	DRO	1.5	2.4
		Total Lead	0.015	0.062
	2015	Total Lead	0.015	0.015
14MW04	2014	DRO	1.5	2.5
	2015	DRO	1.5	2.8 QN
	2016	DRO	1.5	2.2 QL
		Total Lead	0.015	0.0582
		Dissolved Lead	0.015	0.0349
	2018	DRO	1.5	1.8
14MW05	2014	DRO	1.5	4.9
	2015	DRO	1.5	12
	2016	DRO	1.5	3.2 QL
	2018	DRO	1.5	3.1
14MW06	2014	DRO	1.5	5.2 QL
	2015	DRO	1.5	2.3
	2018	DRO	1.5	1.5
14MW07	2014	Total Lead	0.015	0.13
20MW1	2004	Total Lead	0.015	0.0517
MW88-1	2012	DRO	1.5	1.9
MW88-3	2002	DRO	1.5	34
MW88-4	2002	DRO	1.5	72
				56[1]
		RRO	1.1	1.9
				1.3[1]
		Benzene	0.005	0.03
				0.03[1]
	2004	DRO	1.5	3.89
				3.82 J[1]
				3.49[1]
		RRO	1.1	1.46 B
				1.11 B[1]
		Benzene	0.005	0.033
				0.0337[1]
				0.0276[1]

Table 2 Historical Groundwater Results Above SSCLs

WELL ID	YEAR	CONTAMINANT	SSCL (mg/L)	RESULT (mg/L)
	2010	DRO	1.5	3.3
				3.2[1]
	2011	DRO	1.5	2.3
		Benzene	0.005	0.0094
		Dissolved Arsenic	0.01	0.011
	2012	DRO	1.5	2.0
				1.8[1]
		Total Arsenic	0.01	0.011
				0.011[1]
		Dissolved Arsenic	0.01	0.011
MW88-5	2002	DRO	1.5	9.5
		RRO	1.1	2.3
		Benzene	0.005	0.019
	2004	GRO	1.3	1.5 J
		DRO	1.5	11.3
		RRO	1.1	2.28 B
		Benzene	0.005	0.0297
	2010	DRO	1.5	12
		RRO	1.1	1.6
		Benzene	0.005	0.0093
	2011	DRO	1.5	7.5
				7.2[1]
		RRO	1.1	2.0
				1.8[1]
		Benzene	0.005	0.016
				0.02[1]
	2012	DRO	1.5	4.6
		Benzene	0.005	0.0064
MW88-10	2002	DRO	1.5	55
		RRO	1.1	1.3
	2004	Total Lead	0.015	0.0376
	2010	DRO	1.5	1.6

Notes:
For definitions, refer to the Acronyms and Abbreviations section.
[1] indicates a field duplicate
J – The analyte was positively identified; however, the associated result was less than the limit of quantitation but greater than or equal to the detection limit (DL).
B – The analyte was detected in the method blank, the trip blank, or equipment blank above the DL and the concentration in the sample did not exceed the blank concentration by a factor of five (factor of 10 for common laboratory contaminants acetone, toluene, and methylene chloride).
QL – Analyte result was considered an estimated value (biased low) due to a QC failure.
QN – Analyte result was considered an estimated value (unknown bias) due to a QC failure.

3.0 FIELD ACTIVITIES

Field activities at NEC took place between July and August 2022. Activities at the MOC took place from 27 July through 15 August 2022. All fieldwork was performed in accordance with the ADEC-approved Work Plan (USACE 2022).

3.1 Mobilization and Demobilization

Mobilization and demobilization occurred in July and August 2022, respectively. Brice personnel traveled from Anchorage to Nome via commercial airline on 19 July 2022 and then to St. Lawrence Island via air charter. Supplies for the camp were barged to St. Lawrence Island prior to the commencement of fieldwork. All personnel demobilized from NEC via Bering Air charter by 21 August 2022. Personnel demobilized by air charter traveled to Nome and returned to Anchorage via commercial airline.

3.2 Well Gauging

Prior to sampling and well redevelopment, all 15 monitoring wells were gauged. Depth to groundwater, total well depth, and (if applicable) well stick-up height were measured to the nearest 0.01 foot. If a discernible amount of silt was encountered in the bottom of a monitoring well, the depth of silt was estimated and recorded. Deficiencies in well condition (e.g., frost jacking, unopenable well locks) were also noted.

3.3 Well Redevelopment

Two monitoring wells (MW10-1 and 14MW04) were redeveloped prior to sampling to improve water yield and reduce turbidity in subsequent groundwater samples. Both monitoring wells were surged twice with a pointed PVC rod for five-minute durations. Between well surging, purging was performed with a peristaltic pump. Purge water was containerized in 5-gallon buckets with lids and then treated onsite through a portable 5-gallon granular activated carbon (GAC) filtration unit. Treated water was discharged onto the MOC surface, within the site boundary and over 100 feet away from the nearest water body.

Field stability parameters were measured and recorded during purging using an Aqua TROLL water quality meter with flow through cell. These parameters included pH, temperature, conductivity, turbidity, DO, and ORP. Measurements were recorded at five-minute intervals. Well redevelopment was considered complete once the well reached stability, water was clear, and at least three well volumes, based on the diameter of the PVC well casing, were removed.

3.4 Groundwater Sampling

Groundwater samples were collected from 15 monitoring wells at the MOC (Figure E-2) in the order of wells with the lowest contaminant concentrations to the highest contaminant concentrations based on 2018 DRO results. Low-flow methodology was used for sampling in accordance with the Work Plan. Samples were collected and analyzed DRO, RRO, BTEX, PAHs, PCBs, methane, sulfate, alkalinity, and total Resource Conservation and Recovery Act (RCRA) metals plus nickel, vanadium, and zinc. Field test kits were used to measure sulfate, nitrate, and ferrous iron.

Samples were thermally preserved in the field using gel ice immediately after collection. All samples were shipped via Bering Air from NEC to Nome. In Nome, the coolers were transferred to Anchorage via Alaska

Airlines Goldstreak where they were re-iced and re-packed. Samples were then shipped via Alaska Airlines GoldStreak priority cargo from Anchorage to Pace Analytical Nashville, TN.

3.5 Well Repairs and Decommissioning

Wells were inspected for damage and conditions. Upon findings of damage, repairs were made accordingly. Table 2 summarizes findings of damage and associated repairs made on the wells.

Table 3 Summary of Monitoring Well Damage and Repairs

WELL ID	DAMAGE	REPAIR PERFORMED
14MW01	PVC casing and monument were frost jacked; the well lid could not be properly seated on the mount.	The monument was removed by hand. The PVC casing was reduced by 7 inches. The monument was reseated.
14MW02	An ice plug was present approximately 9.5 feet down inside the PVC well casing; a submersible pump could not be lowered past the blockage.	A decontaminated steel rod was used to dislodge the ice plug.
14MW05	The PVC well casing was submerged in filter sand, and the monument was frost jacked and could be removed by hand.	The excess filter sand was removed by hand. The monument was reseated flush with the ground and sealed with bentonite.
MW10-1	The well lock was unopenable due to rust, and the well cap was lodged on top.	The well lock was cut with bolt cutters. A new lock and well cap were ordered were installed on the well.
MW88-1	The PVC well casing was frost jacked, preventing the well cover to be properly seated on the monument.	The well casing PVC was cut down by 4.6 inches.
MW88-3	The PVC well casing was frost jacked, preventing the well cover from being properly seated on the monument. The well cover bolts were rusted but usable.	The well casing PVC was cut down by 3.5 inches, and the flush mount cover threads were re-tapped.

Notes:
For definitions, refer to the Acronyms and Abbreviations section.

One partially decommissioned unnamed 2-inch PVC well at Site 19 was fully decommissioned. In addition, an unidentified former Chemical Oxidation pilot test injection well was discovered at the northeast side of the MOC and decommissioned. For both wells, the PVC casing was removed, and the borehole was filled with hydrated bentonite chips to within 4 feet of the ground surface. The remainder of the borehole was filled with native soil.

3.6 Waste Management

Investigation-derived waste was transported and disposed of in accordance with all applicable local, state, and federal regulations. Investigation-derived waste included used personal protective equipment, sample tubing, decontamination water, and general refuse. Solid wastes were stored in contractor bags and shipped out as inert debris. Purge water was containerized in 5-gallon buckets with lids then treated onsite through a GAC filter. Treated water was discharged to a vegetated area onsite more than 100 feet from surface water bodies. At the end of the field activities, the GAC filter material was added to the supersacks of soil and transported offsite via barge. GAC filter material was disposed of by Waste Management at Columbia Regional Landfill Arlington, Oregon.

4.0 INVESTIGATION RESULTS AND DISCUSSION

The 2022 field measurements, analytical results, data quality, concentration trends, and attenuation were evaluated. GWEs contours (Figure E-3) and selected natural attenuation parameters (Figures E-11A through E-11H) and analytical results (Figures E-4 through E-11) are presented in Attachment E-2. Summaries of groundwater data from the 2022 and historical monitoring events, tables and/or plots for GWEs measurements, selected natural attenuation parameter measurements, selected analytical results, and DRO natural attenuation regression and trend analysis are also included in Attachment E-2.

4.1 Groundwater Elevation

Water level measurements collected from each of the 15 monitoring wells at the MOC are provided in Table 3 as depth to water (DTW) and elevation. A comparison of the 2022 GWEs to previous measurements is provided in Table 4.

The GWEs ranged from 59.37 to 75.86 feet msl (Table 3). Generally, GWE was highest in monitoring wells located along the southeastern perimeter of the MOC. Wells along the southern perimeter also demonstrated the greatest differences in GWE between 2016 and 2018 (Table 4), with the maximum change in elevation of 5.56 feet observed at well 26MW1. Based on the 2022 data the groundwater flow direction at the MOC is predominantly northwest (Figure E-3).

Table 4 2022 Depth to Groundwater and Groundwater Elevation Measurements from MOC Monitoring Wells

WELL ID	DATE AND TIME	2022 STICK-UP (feet)	DTW (feet btoc)	DTW (feet bgs)	GROUNDWATER ELEVATION[1] (feet msl)	CHANGE FROM 2018 (feet)[2]
14MW01	8/2/2022 10:00	-0.15	17.42	17.57	59.37	1.77
14MW02	8/5/2022 14:00	-0.3	12.50	12.8	60.74	2
14MW03	8/1/2022 14:50	-0.2	13.17	13.37	63.67	1.12
14MW04	8/5/2022 09:46	-0.48	4.31	4.79	63.94	1.09
14MW05	8/5/2022 16:00	-0.52	3.94	4.46	64.12	0.84
14MW06	8/1/2022 16:00	-0.5	5.21	5.71	68.02	1.74
14MW07	7/30/2022 13:30	-0.25	28.44	28.69	70.78	2.81
17MW-1	7/30/2022 16:50	-0.15	14.87	15.02	60.35	2.72
20MW-1	7/31/2022 13:35	-0.15	25.53	25.68	69.59	2.93
22MW2	7/31/2022 :1055	-0.45	30.23	30.68	70.29	2.66
26MW1	7/31/2022 09:30	-0.4	39.13	39.53	75.86	4.17
MW10-1	8/4/2022 16:15	2.2	6.77	4.57	69.43	1.59
MW88-1	7/31/2022 14:55	-0.15	14.81	14.96	73.79	2.13
MW88-10	7/31/2022 16:55	-0.35	23.28	23.63	69.58	2.59
MW88-3	8/1/2022 13:00	-0.2	14.91	15.11	68.93	2.59

Notes:
For definitions, refer to the Acronyms and Abbreviations section.
[1] GWE calculated from top of casing elevation measurements and DTW from top of casing measured in 2022.
[2] Values from the 2018 MNA Groundwater Annual Sampling Report (USACE 2018)

Table 5 Historical Groundwater Elevation Measurements from Selected Monitoring Wells at the MOC

WELL ID	GWE (feet msl)										
	2022[1]	2018[2]	2016[3]	2015[4]	2014[5]	2013[6]	2012[7]	2011[8]	2010[9]	2004[10]	2002[11]
14MW01	59.37	61.14	59.54	58.75	59.03	--	--	--	--	--	--
14MW02	60.74	62.74	60.08	59.16	59.32	--	--	--	--	--	--
14MW03	63.67	64.79	62.09	60.73	60.74	--	--	--	--	--	--
14MW04	63.94	65.03	63.86	62.42	62.66	--	--	--	--	--	--
14MW05	64.12	64.96	63.53	62.51	61.82	--	--	--	--	--	--
14MW06	68.02	69.76	67.45	66.42	65.27	--	--	--	--	--	--
14MW07	70.78	73.59	69.36	67.08	67.47	--	--	--	--	--	--
17MW-1	60.35	63.07	61.32	60.41	60.88	60.44	62.22	64.19	64.11	61.39	61.57
20MW-1	69.59	72.52	68.86	66.64	67.04	66.44	69.27	71.24	67.68	66.30	66.48
22MW2	70.29	72.95	68.37	66.02	66.46	65.92	69.14	65.69	67.27	65.51	65.9
26MW1	75.86	80.03	74.87	71.42	72.98	71.14	74.38	76.88	68.97	70.53	70.63
MW10-1	69.43	71.02	68.52	66.85	66.55	66.25	69.25	70.32	68.63	66.15	66.53
MW88-1	73.79	71.66	67.56	65.53	65.858	64.92	67.38	69.22	65.84	65.63	66.04
MW88-10	69.58	72.17	68.10	65.97	66.28	65.51	67.96	70.58	67.20	65.98	66.17
MW88-3	68.93	71.52	67.38	65.48	65.74	--	--	--	--	65.5	65.86
MW88-4[12]	--	--	--	--	--	--	62.41	63.06	62.11	60.53	60.62
MW88-5[12]	--	--	--	--	--	--	60.19	61.48	60.5	60.34	60.55

Notes:

For definitions, refer to the Acronyms and Abbreviations section.

[1] GWE calculated from top of casing elevation measurement and DTW from top of casing measured in 2022.

[2] GWE presented in 2018 MNA Groundwater Annual Sampling Report (USACE 2019).

[3] GWE presented in 2016 Annual Groundwater Sampling Report (USACE 2017).

[4] GWE presented in 2015 Annual Groundwater Sampling Report (USACE 2016).

[5] GWE presented in 2014 NEC HTRW Remedial Actions, Revision 1 (USACE 2015b).

[6] GWE presented in NEC HTRW Remedial Actions (USACE 2014).

[7] GWE presented in NEC HTRW Remedial Actions (USACE 2013).

[8] GWE presented in NEC HTRW Remedial Actions (USACE 2012).

[9] GWE presented in NEC HTRW Remedial Actions (USACE 2011).

[10] GWE presented in Phase IV RI (USACE 2005).

[11] GWE presented in Site Characterization Technical Memorandum 2002 Phase III RI Sites 13, 15, 19, 27, and 22 (USACE 2002).

[12] Wells not measured from 2013 through 2022 were removed before 2013 sampling because of soil excavation at the MOC.

-- not measured

4.2 Groundwater Sampling Results

The 2022 groundwater results were compared to SSCLs to evaluate current site conditions with respect to cleanup goals, and the ADEC Table C groundwater cleanup levels for informational purposes. Filtered and unfiltered groundwater sample results are also presented in this report as distinct results to evaluate whether suspended soil particles in unfiltered groundwater are contributing to measured metals concentrations.

4.2.1 Comparison of 2022 Results to SSCLs

Concentrations of DRO were greater than the SSCL in two monitoring wells (14MW05 and 14MW06) and total (unfiltered) lead in one monitoring well. Table 6 presents the 2022 results for all analytes with current or historical SSCL exceedances.

Table 6 2022 MOC Groundwater Sample Results Compared to SSCLs

WELL ID	DRO (mg/L)	RRO (mg/L)	ARSENIC-TOTAL (mg/L)	ARSENIC-DISSOLVED (mg/L)	LEAD-TOTAL (mg/L)	LEAD-DISSOLVED (mg/L)
SSCL	1.5	1.1	0.010	0.010	0.015	0.015
14MW01	0.481 J	ND [1.050] QL	0.00525	0.00447	0.0088	0.00750
14MW02	1.1	ND [0.460]	0.000484 J	0.000508	ND [0.00150]	0.000742
14MW03	1.04	ND [1.000] QH	0.00194	0.00190	0.00299 J, B	0.00325
14MW04	0.414 J	ND [0.460]	0.000250 J	0.000235	ND [0.00150]	0.000657
14MW05	**1.78**	ND [0.460]	0.00128	0.00130	0.00265 J	0.00296
14MW06	**1.99**	0.605 J, QN	0.000561 J	0.000650 J	0.00104 J, B	0.00106 J
14MW07	ND [0.420]	ND [1.050]	0.000348 J	0.000369 J	0.00411 B	0.00470
17MW1	ND [0.400]	ND [1.000]	0.00198	0.00119	**0.0176**	0.0103
20MW1	ND [0.420]	ND [1.050]	0.000463 J	0.000304 J	0.00209 J	0.00208 J
22MW2	ND [0.400]	ND [1.000]	ND [0.0005	ND [0.0005]	0.000996 J	0.000843 J
26MW1	ND [0.420]	ND [1.050]	0.000667 J	0.000241 J	0.00150 J	0.00145 J
MW10-1	ND [0.400]	0.758 J	0.00143	0.000752	0.00543	0.00561
MW88-1	ND [0.420]	ND [1.050]	ND [0.0005]	ND [0.0005]	0.000778 J	0.000923 J
MW88-10	0.805	ND [1.000] QH	0.000259 J	0.000232 J	0.00349 B	0.003 J
MW88-3	ND [0.400]	ND [1,000]	0.000536 J	0.000340 J	0.00208 J	0.00109 J

Notes:
For definitions, refer to the Acronyms and Abbreviations section.
Bold red indicates result exceeding the SSCL (USACE 2009).
B – Analyte result is considered a high estimated value due to contamination present in the method, trip, or equipment blank.
[ ] The LOD for ND analytical results.
H – Preparation or analytical holding time has been exceeded.
J – The analyte was positively identified; however, the associated result was less than the limit of quantitation but greater than or equal to the DL.
QN – Analyte result was considered an estimated value (unknown bias) due to a QC failure.
QL – Analyte result was considered an estimated value (biased low) due to a QC failure.

Monitoring wells 14MW05 and 14MW06 are located on the northern (downgradient) edge of the MOC (Figure E-2). In 2022, the concentration of DRO was 1.78 mg/L in 14MW05 and 1.99 mg/L in 14MW06.

In 14MW05, DRO concentrations have historically exceeded the SSCL, with values ranging from 3.1 mg/L to 12 mg/L. In contrast, DRO concentrations in 14MW06 have historically remained stable at or below the SSCL since 2016. The value of 1.99 mg/L is the highest recorded DRO concentration in this well since 2015.

DRO concentrations at 14MW01 and 14MW02 were below the SSCL but varied from historical results. DRO in 14MW01 has typically remained below the SSCL, but spiked in 2018 with a result of 2 mg/L. In 2022, the result was 0.481 mg/L. DRO in 14MW02 was the lowest recorded and below the SSCL for the first time since 2014, with a value of 1.1 mg/L.

Trend analysis was performed for DRO in 14MW01, 14MW02, 14MW04, 14MW05, and 14MW06, those wells which have exceeded DRO in 2022 or historically, to assess the statistical significance of the 2022 results. These analyses are described further in Section 4.3.1.

Lead exceeded the SSCL (0.015 mg/L) in one monitoring well, 17MW1, at 0.0176 mg/L, with a dissolved lead concentration of 0.0103 mg/L. This well is located on the northwestern (downgradient) edge of the MOC (Figure E-2). From 2011 to 2016, both dissolved and total lead concentrations in this well were significantly below the SSCL. Dissolved lead concentrations ranged from non-detect to 0.0003 mg/L, and the well was not sampled in 2018. Total lead concentrations ranged from non-detect to 0.00051 mg/L during the same period. Comparisons of the 2022 lead sampling results to historical data is further discussed in Section 4.3.3.

4.2.2 Comparison of 2022 MOC Monitoring Well Data to ADEC Table C Cleanup Levels

Groundwater analytical results from two wells, 14MW05 and 14MW06, exceeded the ADEC Table C groundwater cleanup level for DRO (1.5 mg/L), results from 14MW01 exceeded the cleanup level for naphthalene (0.0017 mg/L), and results from 17MW1 exceeded the cleanup level for lead (0.015 mg/L). Table 6 shows the results for these analytes in all 15 sampled wells. Both DRO and lead have SSCLs in groundwater, so naphthalene at 14MW01 is the only exceedance of Table C groundwater cleanup levels without a SSCL.

Table 7 2022 MOC Groundwater Results Exceeding the ADEC Table C Groundwater Cleanup Levels

WELL ID	DRO (mg/L)	NAPHTHALENE (mg/L)	LEAD-TOTAL (mg/L)
Cleanup Level	***1.5***	***0.0017***	***0.015***
14MW01	0.481 J	**0.00310**	0.00880
14MW02	1.1	ND [0.0005] QL	ND [0.00150]
14MW03	1.04	ND [0.0005] J	0.00299 J, B
14MW04	0.414 J	ND [0.0005] H	ND [0.00150]
14MW05	**1.78**	ND [0.0005] H	0.00265 J
14MW06	**1.99**	ND [0.0005] QL	0.00104 J, B
14MW07	ND [0.420]	ND [0.0005] QL	0.00411 B
17MW1	ND [0.400]	ND [0.0005] QL	**0.0176**
20MW1	ND [0.420]	ND [0.0005] QL	0.00209 J
22MW2	ND [0.400]	ND [0.0005] QL	0.000996 J

Table 7 2022 MOC Groundwater Results Exceeding the ADEC Table C Groundwater Cleanup Levels

WELL ID	DRO (mg/L)	NAPHTHALENE (mg/L)	LEAD-TOTAL (mg/L)
Cleanup Level	***1.5***	***0.0017***	***0.015***
26MW1	ND [0.420]	ND [0.0005] QL	0.00150 J
MW10-1	ND [0.400]	ND [0.0005] H	0.00543
MW88-1	ND [0.420]	ND [0.0005] QL	0.000778 J
MW88-10	0.805	ND [0.0005]	0.00349
MW88-3	ND	ND [0.0005]	0.00208

Notes:
For definitions, refer to the Acronyms and Abbreviations section.
[1] Cleanup levels defined by ADEC Table C, groundwater cleanup levels (ADEC 2023).
Bold red indicates results greater than the cleanup levels (ADEC 2023).
B – Analyte result is considered a high estimated value due to contamination present in the method, trip, or equipment blank.
[ ] – The LOD for ND analytical results.
H – Preparation or analytical holding time has been exceeded.
J – The analyte was positively identified; however, the associated result was less than the limit of quantitation but greater than or equal to the DL.
QN – Analyte result was considered an estimated value (unknown bias) due to a QC failure.
QL – Analyte result was considered an estimated value (biased low) due to a QC failure.

14MW01 was the only monitoring well to have a naphthalene detection and ADEC Table C groundwater cleanup level exceedance in 2022. This exceedance is consistent with past results, as the naphthalene concentration in this well has exceeded the cleanup level since 2014, with values ranging from 0.0018 mg/L to 0.023 mg/L. The 2022 measurement of 0.0031 mg/L is lower than the concentrations measured in the past two sampling events in 2016 and 2018, which had values of 0.0075 mg/L and 0.023 mg/L, respectively. Comparisons of the 2022 naphthalene sampling results compared to historical data is further discussed in Section 4.4.4.

4.3 Trend Analysis

This subsection discusses the trends of DRO, RRO, lead, and naphthalene groundwater concentrations. These COCs were selected for further discussion due to either historic exceedances, recent exceedances, or both. The Mann-Kendall trend test was performed for DRO in monitoring wells with current or recent SSCL exceedances. For monitoring wells with decreasing DRO trends, geometric regression analysis was performed to estimate DRO degradation rates. A qualitative assessment was performed for trends in lead, RRO, and naphthalene. The findings of these analyses are detailed below.

4.3.1 DRO

Concentrations of DRO historically exceeded the SSCL of 1.5 mg/L in 11 monitoring wells in the central and northern portion of the MOC (Figure E-4). The highest historical DRO concentrations were observed in wells MW88-4, MW88-10, and MW88-3 in 2002 with results of 7.2 mg/L, 5.5 mg/L, and 3.4 mg/L, respectively. Analytical results from samples collected from the wells in 2004 were lower; the analytical result from only one well (MW88-4) exceeded the SSCL at 3.89 mg/L. In 2010, the highest DRO concentration of 1.2 mg/L was observed in a sample collected from well MW88-5. Analytical

results from groundwater samples collected from wells MW88-4 and MW88-5 exceeded the SSCL for DRO through 2012, after which both wells were decommissioned and removed due to the excavation of POL-contaminated soil. Well 14MW04 was installed downgradient of MW88-4, and 14MW02 was installed downgradient of MW88-5. Analytical results for both wells were above the SSCL for DRO through 2018; however, results for both wells were less than the SSCL in 2022.

In 2013, after the completion of excavation activities, the DRO results for groundwater samples were lower than pre-excavation concentrations in monitoring wells MW88-1, MW88-10, and MW88-3. Other monitoring wells that existed prior to the excavation (10MW-1, 17MW1, 20MW1, 22MW2, and 26MW1) show little overall trend; however, these wells are crossgradient or upgradient relative to the excavation and have exhibited only low to moderate DRO concentrations, less than the SSCL, throughout the period of record.

In 2014, seven monitoring wells were installed and have been sampled five times. Six of these monitoring wells (14MW01 through 14MW06) are near the 2013 excavations, and the seventh monitoring well (14MW07) is located upgradient on the eastern side of the MOC. Among the wells near the excavations, 14MW03, 14MW04, 14MW05, and 14MW06 show generally decreasing concentrations of DRO; DRO concentrations have increased in 14MW01 and 14MW02 and 14MW03 has consistently yielded DRO results less than the SSCL. Concentrations of DRO in the upgradient well (14MW07) have either been non-detect or less than the SSCL.

Comparison of results from the two most recent sampling events (2018 and 2022) for the nine source-area wells suggests that DRO concentrations in groundwater are decreasing on average for the MOC source area. One well yielded higher DRO concentrations in 2022 compared to 2018 while one yielded a lower concentration, and only two exceedances were observed in 2022 compared to four in 2018.

Monitoring wells 14MW01, 14MW02, 14MW04, 14MW05, and 14MW06 were selected for statistical trend analysis using the Mann-Kendall trend test. 14MW01, 14MW02, 14MW04, and 14MW05 were previously selected for trend analysis based on DRO exceeding the SSCL of 1.5 mg/L in 2018; DRO levels in these wells ranged from 1.8 to 3.1 mg/L. 14MW06 was included in the 2022 trend analysis due to an SSCL exceedance of DRO in 2022. Samples collected in 2014, 2015, 2016, 2018, and 2022 provided the basis for identifying trends in DRO concentrations over time via the Mann-Kendall trend test (Attachment E2-4). In wells with decreasing trends, geometric regression analysis was performed to provide a quantitative assessment of the rate of DRO natural attenuation.

The Mann-Kendall trend test identifies whether a trend exists and, if a trend is present, it identifies the trend as increasing or decreasing. The Mann-Kendall test did not identify trends in DRO concentration at any confidence level for samples collected from wells 14MW01 and 14MW02. A trend analyses performed on these monitoring wells in 2018 indicated an increasing trend at an 80% confidence level (USACE 2018b). However, the DRO concentrations in the 2022 samples from 14MW01 and 14MW02 were lower than all previous samples. Only five sampling events have occurred; therefore, the data set is relatively small. Currently, any trend analysis performed at this time would be sensitive to changes in concentration; however, as the data set increases the trend in DRO concentration would become more reliable.

A decreasing trend was identified for DRO concentration in 14MW06. However, this trend was identified at a confidence level of only 75%. Therefore, this decreasing trend may only be qualitative, and the collection of additional data is recommended to achieve a higher confidence level to confirm if DRO concentration is indeed decreasing in this monitoring well.

DRO concentrations in 14MW04 and 14MW05 were evaluated with the Mann-Kendall trend test at a 95% confidence level. Both data sets showed decreasing trends with approximate p-values of 0.043 for both tests. In previous analyses, a trend could not be identified for DRO concentration in these monitoring wells.

Table 7 summarizes the results of the Mann-Kendall trend analysis performed for DRO in these five monitoring wells. The Mann-Kendall trend test analysis inputs and results are provided in Tables E2-4a through E2-4f (Attachment E2-4).

Table 8 2022 DRO Concentration Mann-Kendall Trend Analysis Results

WELL ID	STATISTIC (S)	CONFIDENCE COEFFICIENT	STANDARD DEVIATION OF S	STANDARDIZED VALUE OF S	P-VALUE	TREND
14MW01	1	0.95[1]	3.958	0	0.592	No Trend
14MW02	1	0.95[1]	3.958	0	0.592	No Trend
14MW04	-8	0.95	4.082	-1.715	0.042	Decreasing
14MW05	-8	0.95	4.082	-1.715	0.042	Decreasing
14MW06	-4	0.75[2]	4.082	-0.735	0.242	Decreasing

Notes:
For definitions, refer to the Acronyms and Abbreviations section.
[1] Data was evaluated at all possible confidence coefficients; no trend was identified at all values.
[2] No trend identified when evaluated at a confidence coefficient above 0.75

Geometric regression analyses were prepared for monitoring wells 14MW04 and 14MW05 because DRO had a decreasing trend in these wells at a confidence coefficient of 0.95. The geometric regression analysis assumes that DRO degradation at the MOC follows first-order reaction kinetics, such that the degradation rate is proportional to the DRO concentration. This geometric regression approach is consistent with the EPA guidance for evaluating completion of groundwater restoration (EPA 2014). The intersection of the regression line with the SSCL marks the timeframe at which the expected concentration of a sample is equal to or less than the SSCL; the natural variability inherent in sampling means that samples may still occasionally exceed the SSCL, but their average will be lower. This intersection marks the start of the attainment phase, during which the collected samples are expected to continue to exhibit a decreasing trend and define an average that is lower than the SSCL. EPA guidance recommends that eight samples be collected to demonstrate that the cleanup goal has been met. A second intersection is also considered: the timeframe at which the 95-percent upper confidence limit of the regression line crosses the SSCL provides an estimate of the cleanup timeframe accounting for data scatter. Beyond this timeframe, remediation is considered complete, and collected samples have less than a 5% chance of exceeding the SSCL due to natural variability.

Geometric regression analysis suggests that DRO in well 14MW04 has a half-life of 2.9 years; estimated DRO SSCL attainment began in 2017, and remedial action objectives were met in 2020 (Plot E2-4a and Tables E2-4g and E2-4h in Attachment E2-4). It is noted that because attainment was estimated to have begun in 2017, but the DRO concentration was measured at 1.8 mg/L, the geometric regression may not be fully calibrated for the analytical data. However, the geometric regression curve had a coefficient of determination (r^2) value of 0.91.

In well 14MW05, DRO has an estimated half-life of 4.0 years, attainment of the SSCL for DRO is expected to begin in 2023 (Plot E2-4b and Tables E2-4i and E2-4j [Attachment E2-4]). The geometric

regression curve for 14MW05 did not fit the data as adequately as 14MW04, with an r^2 value of 0.59. Future monitoring events in the future will provide additional data which will be used to better assess trends and provide higher confidence in half-life values.

4.3.2 RRO

The most recent exceedance of RRO was observed in 2011 in historical well MW88-5 (with a result of 2. mg/L). Subsequent sampling in 2012 yielded an RRO concentration below the SSCL (a result of 0.58 mg/L). In 2013, the monitoring well was decommissioned and removed during excavation activities. In 2002, the concentration of RRO also exceeded the SSCL in current well MW88-10 (a result of 1.3 mg/L). All subsequent RRO results from MW88-10 were below the SSCL, with a non-detect result in 2022.

4.3.3 Lead

Historical lead concentrations in groundwater have been low in concentration with only one dissolved lead exceedance and infrequent exceedances of total lead with no obvious spatial association (Figure E-9). Concentrations of total lead have exceeded the SSCL of 0.015 mg/L eight times across six monitoring wells (Attachment E-2). The highest lead result was 0.00013 mg/L from upgradient well 14MW07 in 2014 when this well was installed. Subsequent total lead results from this well were more than two orders of magnitude lower, while dissolved lead was either similar to total lead or also up to two orders of magnitude lower. Other SSCL exceedances for total lead were observed in data from 2004 (from upgradient wells 20MW1 and MW88-10), 2014 and 2015 (from source area well 14MW03), and 2015 and 2016 (from source area well 14MW04). The only exceedance for dissolved lead was observed in 2016 from 14MW04 (a result of 0.0349 mg/L). All samples collected in 2018 yielded total and dissolved lead concentrations below the SSCL. At 14MW04, with exceedances in 2016, concentrations fell to 0.00095 mg/L for total lead and non-detect for dissolved lead. In 2022, total lead in one monitoring well (17MW1) exceeded the SSCL of 0.015 mg/L at 0.0176 mg/L. The dissolved lead concentration in this well was lower than the SSCL of 0.015 mg/L at 0.0103 mg/L.

The variability in both total and dissolved lead appears to be related to the presence of soil particles, some of which may be colloidal in size. Where reliably quantified, the results for total lead are always greater than or equal to dissolved lead, indicating a source that is removed by filtration in nearly all cases presently and historically. A contribution from colloidal particles would explain the year-to-year variability of the filtered lead results, variability unmatched by any other analyte or water quality parameter.

4.3.4 Naphthalene

Naphthalene is not a DD-specified COC but has historically been detected at elevated concentrations. Because there is no SSCL for naphthalene, analytical results were compared to the ADEC Table C groundwater cleanup levels. Current and historical results are presented in Attachment E2-3, and time-series plots of these contaminants as ratios relative to ADEC Table C groundwater cleanup level are also presented in Attachment E2-3 for each current or historical monitoring well.

Historically, the highest naphthalene exceedances occurred in the areas that were excavated in 2013 (Figures E-5 through E-7). Naphthalene was measured at 0.089 mg/L in MW88-4 in 2012, while the ADEC Table C cleanup level is 0.0017 mg/L. Concentrations of naphthalene above the cleanup level have been observed during one or more rounds of sampling in each of the source area wells installed

in 2014 (14MW01 through 14MW06). In 2014, the highest concentration (0.093 mg/L in 14MW05) was close to the pre-excavation maximum (0.089 mg/L in MW88-4 in 2012). Maximum concentrations decreased over the next two years (0.0059 mg/L in 14MW05 in 2015 and 0.0075 mg/L in 14MW01 in 2016) but increased in 2018 to 0.0029 mg/L in 14MW02 and 0.0031 mg/L in 14MW01. Analytical results were non-detect in all other wells.

4.4 Natural Attenuation of DRO in Groundwater

Monitored natural attenuation is the DD-selected remedy for MOC groundwater. Natural attenuation relies on in situ biological, physical, and chemical processes to reduce contaminant concentrations over time. These processes are chiefly dilution, dispersion, and biological degradation by bacteria in groundwater. Typically, the primary line of evidence of natural attenuation is a steadily decreasing trend of analyte levels over time. Geochemical parameters provide a secondary line of evidence that biological or chemical processes are occurring and help identify what type of biological processes are taking place. Tracking geochemical conditions with COC concentrations over time will assist in the ongoing evaluation of remedy performance. Analyte concentrations over time and geochemical groundwater parameters were evaluated at all 15 monitoring wells through field measurements and laboratory analysis for this report.

Natural attenuation parameters recorded during the 2022 field effort are summarized in Table 8, Figures E-11A through E-11H, and Attachment E-2. Temperature ranged from 1.8 to 4.49 degrees Celsius (°C) and was generally inversely related to depth below the surface; the temperature decreased as the depth to water increased. Conductivity ranged between 50.86 and 291.12 micro-Siemens per centimeter (µS/cm) and was highest in wells downgradient of the former source area. Turbidity ranged between 6.24 and 291.20 nephelometric turbidity units. Measurements for pH were slightly acidic and ranged between 5.4 and 6.53. Positive ORP was measured in all groundwater monitoring wells and ranged from 57 millivolts (mV) to 283.1 mV. Values for DO ranged between 0 and 10.32 mg/L. Wells with the highest concentrations of ferrous iron also exhibited the highest dissolved manganese concentrations and were all located in the former source area. Low nitrate was observed in wells in the former source area. Nitrate measured in well 14MW04 was abnormally high (Appendix E, Plot E2-2d) and is to be measured again during the next sampling event to confirm if the result was due to field error or is a sustainable trend. Alkalinity was abnormally high at well 14MW02 (Appendix E, Plot E2-2e), measured at 636 mg/L and is to be measured again during the next sampling event to confirm if the result was due to field error or is a sustainable trend. The highest sulfate concentration was observed at well 17MW1. The highest methane concentration was observed at well 14MW03.

Table 9 2022 DRO Concentrations and Natural Attenuation Parameters

WELL ID	DRO (mg/L)	TEMPERATURE[1] (°C)	CONDUCTIVITY[1] (µS/cm)	DO[1] (mg/L)	PH[1]	ORP[1] (mV)	FERROUS IRON (mg/L)	DISSOLVED MANGANESE (mg/L)	SULFATE (mg/L)	NITRATE (mg/L)	ALKALINITY (mg/L)	METHANE (mg/L)
Source Area Wells												
14MW01[2]	0.481	3.16	68.1	2.12	6.45	57	2.5	1.74	62.7	0.9	19.3	103
14MW02	1.1	1.8	291.12	0	5.59	224.2	1.5	1.78	44.5	1.1	636	10.9
14MW03	1.04	3.4	172.57	2.93	5.94	107.4	2.5	1.38	42.8	0.0	33.9	254.4
14MW04	0.414	3.8	174.4	0.3	5.64	240.8	0.0	0.458	27.4	12.7	37.3	35.3
14MW05	1.78	2.63	175.91	0.16	5.58	163.5	2.0	2.85	23.2	0.1	39.2	70.4
14MW06	1.99	4.04	232.01	5.31	6.53	131.1	0.5	0.41	15.1	0.0	123	<6
MW88-1	ND [0.420]	3.09	165.32	3.48	5.4	283.1	0.0	0.038	41.1	0.0	19.9	<6
MW88-3	ND [0.420]	2.38	50.86	5.75	5.79	189.7	0.0	0.963	38.2	0.0	16.4	<6
MW88-10	0.805	2.95	185.71	1.14	5.47	243.6	0.0	0.351	56.0	0.4	13.2	<6
Upgradient and Crossgradient Wells												
14MW07	ND [0.420]	39.36	162.74	9.24	5.61	235.27	0.0	0.0707	48.4	0.9	8.96	<6
17MW-1	ND [0.420]	2.34	208.73	10.32	5.61	251.9	0.0	0.0595	66.5	0.0	11.6	<6
20MW-1	ND [0.420]	3.77	178.93	8.4	5.97	237.4	0.0	0.0312	54.8	0.0	11.1	<6
22MW2[2]	ND [0.420]	3.75	210.99	9.34	5.57	258.70	0.0	0.00841	66	1.1	10	<6
26MW1	ND [420]	2.52	172.22	9.36	6.11	210	0.0	0.0252	55.5	0.7	10	<6
MW10-1[2]	ND [420]	4.49	93.12	1.5	5.59	228.3	0.0	0.0446	6.71	0.1	21.4	<6

Notes:
For definitions, refer to the Acronyms and Abbreviations section.
[1] Measurement collected prior to sampling.
[2] The higher laboratory result between the primary and duplicate samples is presented.
[ ] – LOD for ND analytical results.
J – The analyte was positively identified; however, the associated result was less than the limit of quantitation but greater than or equal to the DL.
QN – Analyte result was considered an estimated value (unknown bias) due to a QC failure.
QL – Analyte result was considered an estimated value (biased low) due to a QC failure.

The natural attenuation properties observed in samples collected from selected upgradient and crossgradient wells (17MW1, 26MW1, 22MW2, 20MW-1) are typical of water not affected by petroleum (Figures E-11A through E-11H). This water contains high ORP and DO, low conductivity, undetectable ferrous iron, low levels of dissolved manganese, variable nitrate, low alkalinity, and low or undetectable methane. Upgradient well 14MW07 contains a moderate level of ferrous iron but otherwise typical values for the other parameters and may also represent unaffected groundwater. Crossgradient well MW10-1 contains moderately elevated levels of DRO, conductivity, iron, manganese, and alkalinity and low DO, which reflect the influence of the adjacent DRO plume.

Elevated levels of conductivity, iron, manganese, alkalinity, and methane and low DO and nitrate in samples collected from source area monitoring wells indicate that aerobic and anaerobic petroleum biodegradation is occurring in groundwater. Aerobic biodegradation consumes any available oxygen, followed by anaerobic degradation, which first reduces nitrate to ammonia and then converts insoluble ferric iron to soluble ferrous iron. Minor sulfate reduction may also be occurring, or sulfate concentrations may be naturally variable. Finally, minor methanogenesis is occurring.

The remaining DRO plume is in the northern portion of the MOC around former source area wells 14MW01, 14MW02, 14MW05, and 14MW06 (Figure E-4). Although DRO exceedances occurred in the central portion of the site through 2014 (wells 14MW03, MW88-1, MW88-3, and MW88-10), removal of contaminated soil in 2013 appears to have contributed to reductions in DRO concentrations in this area.

The groundwater geochemical parameters measured in the field included ferrous iron, nitrate, conductivity, DO, and ORP. The groundwater geochemical parameters tested at the analytical laboratory included methane, manganese, sulfate, and alkalinity. Isopleth figures of selected geochemical parameters can be found in Figures E-11A through E-11H.

Geochemical patterns in all currently serviceable wells and the geometric regression plots from wells 14MW04 and 14MW05 support the inference of ongoing natural attenuation at the MOC.

4.5 Data Quality Evaluation

Data quality was assessed by reviewing the laboratory case narrative, laboratory data deliverables, and completing ADEC checklists. A review of the analytical results and associated quality control (QC) samples was performed by the Brice Project Chemist in accordance with the Work Plan (USACE 2022).

Data quality was evaluated against the following requirements: U.S. Department of Defense (DoD) Quality Systems Manual (DoD 2017); ADEC analytical methods (ADEC 2022); and laboratory limits. Qualifiers were applied to sample results that did not meet the project data quality objectives. Qualified results are considered estimated and, whenever possible, indicated as biased high or low.

The data quality assessment found the overall quality of the project data to be acceptable, and no results were rejected. The DRO result for sample 20MW01 was reported from an analytical run outside of the 40-day extract hold time due to a bottle switch with 14MW01 during initial sample extraction.

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5.0 SUMMARY AND CONCLUSIONS

Analytical results and field parameters supported the conclusion that concentrations of DRO in groundwater were naturally attenuating. The findings were separated into two groups: findings based on the evaluation of 2022 groundwater sampling data and findings based on the comparison of 2022 data to the historical data set.

- Summary and conclusions for 2022 data evaluation:
  - The 2022 groundwater flow direction at the MOC is predominantly northwest, unchanged from previous sampling events.
  - DRO and lead were the only analytes that exceeded groundwater SSCLs in 2022. The DRO plume is located along the northern margin of the MOC. DRO in the samples collected from wells 14MW05 and 14MW06 exceeded the DRO SSCL of 1.5 mg/L at 1.78 and 1.99 mg/L, respectively. Total Lead in the sample collected from well 17MW1 exceeded the lead SSCL of 0.015 mg/L at 0.0176 mg/L, but the dissolved lead sample did not exceed the SSCL. Groundwater from wells located in the central portion of the MOC did not exceed any SSCLs.
  - Naphthalene was the only analyte without an SSCL in groundwater sampled in 2022 to exceed the ADEC Table C groundwater cleanup levels.
  - Current groundwater conditions (i.e., low concentrations of DO, detectable concentrations of methane, and elevated concentrations of alkalinity and dissolved manganese) in wells 14MW04 and 14MW05 indicate natural attenuation is occurring at the MOC. Anaerobic processes are dominant for in-plume wells and aerobic processes are dominant at the margins of the plume.
- Summary and conclusions for comparison of 2022 data with historical data are as follows:
  - The elevation of the groundwater table observed in 2022 was lower than the elevations observed and recorded in 2018 but higher than the three monitoring events at the MOC in 2016, 2015, and 2014.
  - One monitoring well reached its remediation goal (14MW04), with a decreasing trend.
  - Mann-Kendall trend analysis identified a decreasing trend for DRO in monitoring well 14MW05 and 14MW06. Monitoring well 14MW05 is anticipated to reach the SSCL by 2023.
  - There was no trend identified in wells 14MW01 and 14MW02, however 2022 results indicate that DRO concentrations have decreased since 2018.
  - Monitoring well 17MW1 had total lead concentrations exceeding the SSCL of 0.015 mg/L at 0.0176 mg/L. Dissolved lead concentrations in the same well were 0.0103 mg/L, which did not exceed the SSCL. Dissolved lead samples were collected the same as total lead samples in the field. The only difference was that the dissolved lead sample was filtered by the lab, using a 0.45 micrometer filter before analysis. After being filtered, lead concentrations are detected at a result that is below the SSCL, suggesting that the exceedance is due to particulates in the groundwater. Over the years, lead detections at the MOC have been reliably low in concentration with only one dissolved lead exceedance and infrequent exceedances of totals lead with no obvious spatial

association. Since there have been no trends associated with total or dissolved lead detections, the applicability of this detection does not affect any future decision making for the monitoring wells at the MOC.

- Additional sampling is recommended at 14MW05 and 14MW06 to confirm the decreasing trend, and to establish a trend in 14MW01 and 14MW02.
- Additional sampling is recommended at 17MW1 to determine if lead is a concern in the groundwater at this area.
- PCBs were not detected in any groundwater samples during the 2022 field effort; however, due to limitations in laboratory abilities, both the LOD and LOQs reported for individual Aroclors exceeded the ADEC Table C groundwater cleanup level. PCBs should be included in at least one more future groundwater MNA event to confirm absence of these analytes. Attention should be paid to PCB detection limits to ensure adequate laboratory sensitivity to reliably achieve the ADEC groundwater cleanup level.

6.0 REFERENCES

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FIGURES

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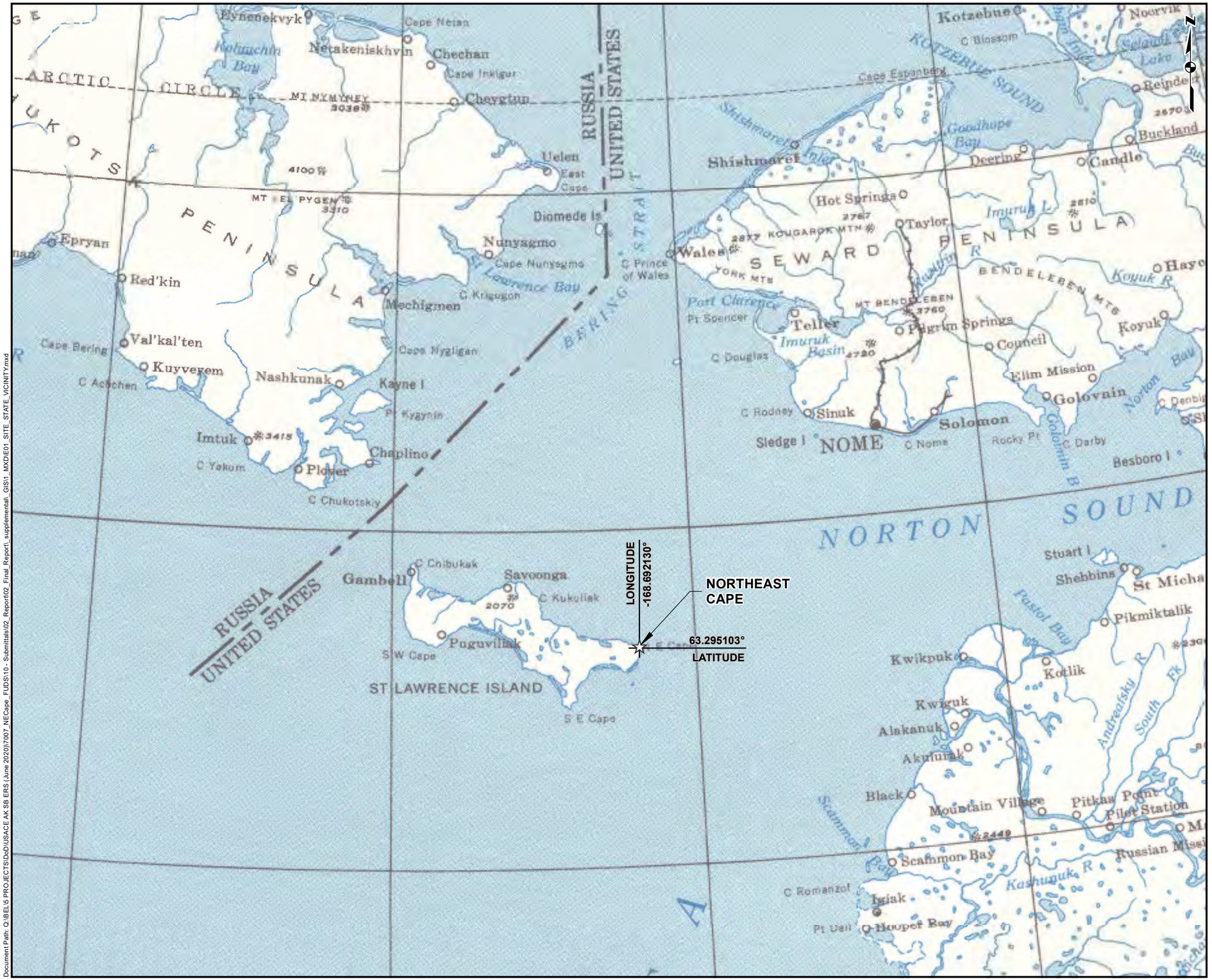
1 INCH

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

SITE LOCATION AND VICINITY MAP



Legend

Notes

1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

References

1. Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User CommunityDS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.

WGS 1984 UTM ZONE 2N, METERT
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

40 20 0 40 80
Miles

PROJECT No.:	DATE:	FIGURE:
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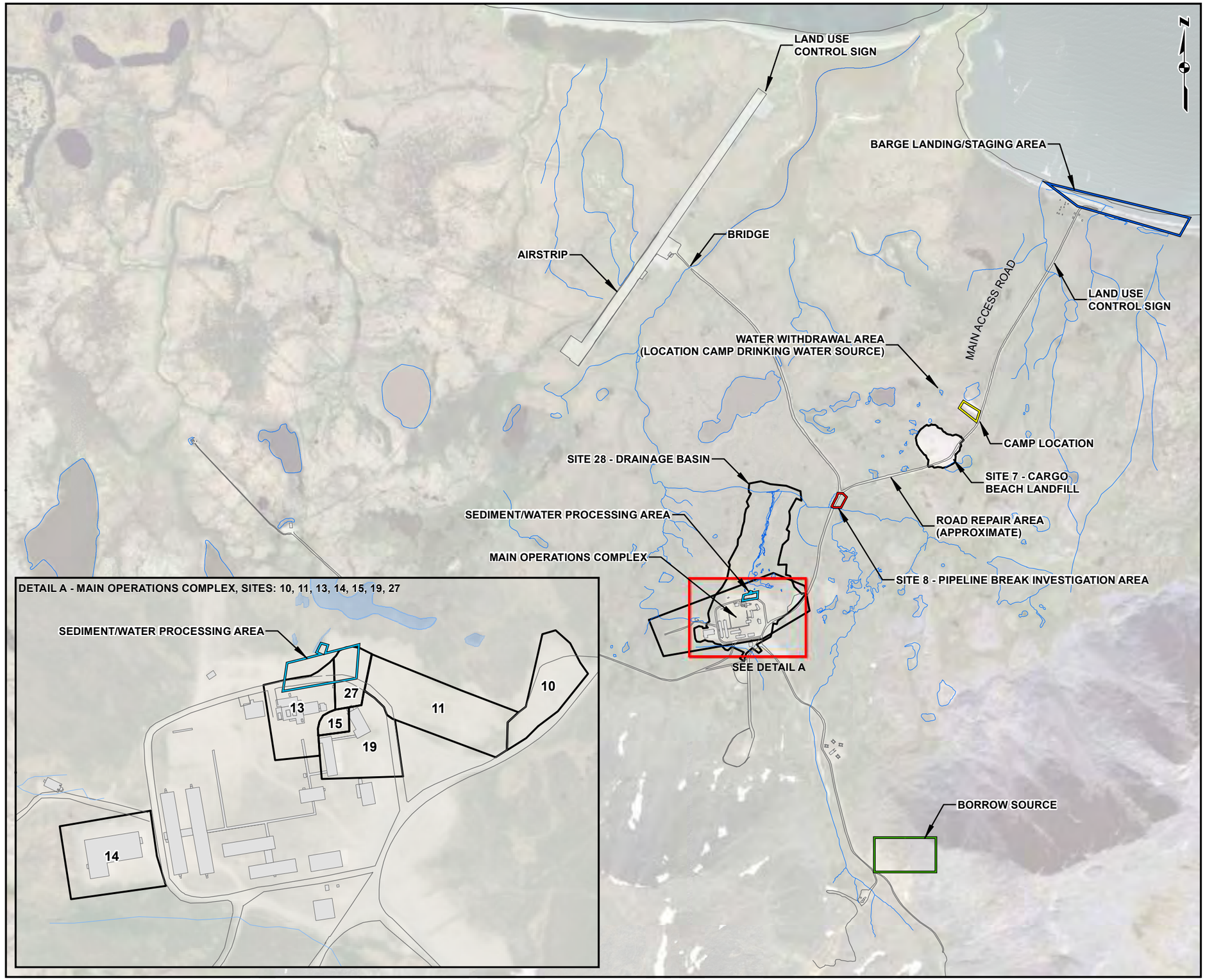

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

2022 NORTHEAST CAPE PROJECT SITES

Legend

- Road/Path
- Surface Water Feature
- Approximate Site Location
- 2022 Barge Landing/Staging Area
- Borrow Source Area
- 2022 Camp Location - Primary
- 2022 Dewatering Pad and Water Treatment Area
- Site 8 - Pipeline Break Investigation Area

Notes

1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

References

1. GIS data and imagery source: USACE. 2015c. *First Five-Year Review Report, Northeast Cape FUDS*, Saint Lawrence Island, Alaska. February.

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HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

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Feet

PROJECT No.: 700701	DATE: 6/6/2023	FIGURE:
P.M.: S.M.	DRAWN: J.C.	E-2

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1 INCH

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS FORMERLY USED DEFENSE SITE F10AK096903

NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

2022 MOC POTENTIOMETRIC SURFACE

Legend

- Abandonded Monitoring Well
- Existing Monitoring Well
- Former Manhole
- Approximate Groundwater Flow Direction
- 2022 Groundwater Contour
- Road/Path
- Surface Water Feature
- Former Building
- Surface Water

Abbreviations

GNSS	Global Navigation Satellite System
GSD	ground sample distance
RTK	real-time kinematic

Notes

1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

References

1. GIS data source: USACE. 2015c. *First Five-Year Review Report, Northeast Cape FUDS*, Saint Lawrence Island, Alaska. February.
2. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
3. Survey conducted by Brice Engineering LLC, August 2022.

WGS 1984 UTM ZONE 2N, METER

HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

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Feet

PROJECT No.: 700701	DATE: 6/6/2023	FIGURE:
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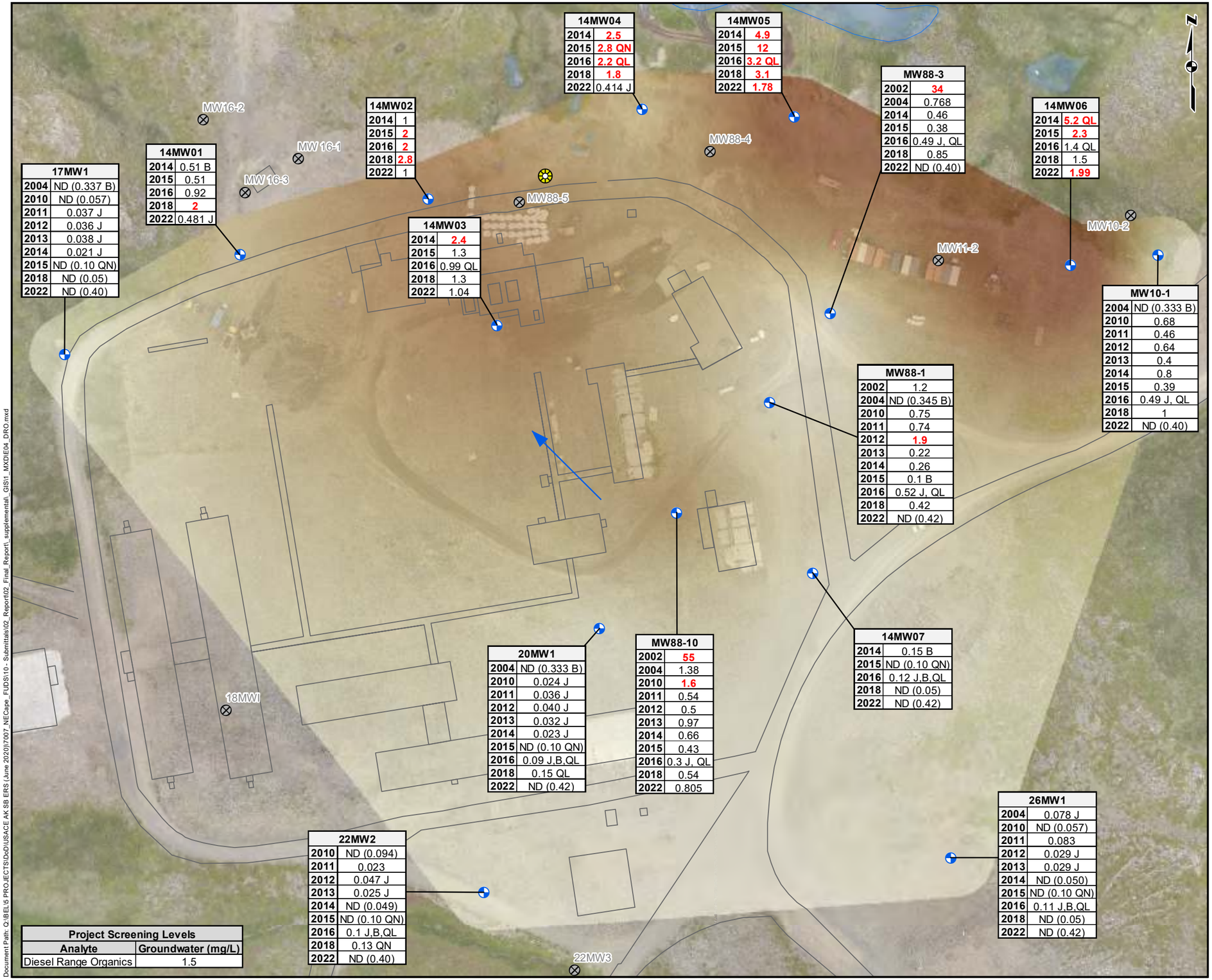

17MW1	
2004	ND (0.337 B)
2010	ND (0.057)
2011	0.037 J
2012	0.036 J
2013	0.038 J
2014	0.021 J
2015	ND (0.10 QN)
2018	ND (0.05)
2022	ND (0.40)

14MW01	
2014	0.51 B
2015	0.51
2016	0.92
2018	**2**
2022	0.481 J

14MW02	
2014	1
2015	**2**
2016	**2**
2018	**2.8**
2022	1

14MW03	
2014	**2.4**
2015	1.3
2016	0.99 QL
2018	1.3
2022	1.04

14MW04	
2014	**2.5**
2015	**2.8 QN**
2016	**2.2 QL**
2018	**1.8**
2022	0.414 J

14MW05	
2014	**4.9**
2015	**12**
2016	**3.2 QL**
2018	**3.1**
2022	**1.78**

MW88-3	
2002	**34**
2004	0.768
2014	0.46
2015	0.38
2016	0.49 J, QL
2018	0.85
2022	ND (0.40)

14MW06	
2014	**5.2 QL**
2015	**2.3**
2016	1.4 QL
2018	1.5
2022	**1.99**

MW10-1	
2004	ND (0.333 B)
2010	0.68
2011	0.46
2012	0.64
2013	0.4
2014	0.8
2015	0.39
2016	0.49 J, QL
2018	1
2022	ND (0.40)

MW88-1	
2002	1.2
2004	ND (0.345 B)
2010	0.75
2011	0.74
2012	**1.9**
2013	0.22
2014	0.26
2015	0.1 B
2016	0.52 J, QL
2018	0.42
2022	ND (0.42)

14MW07	
2014	0.15 B
2015	ND (0.10 QN)
2016	0.12 J,B,QL
2018	ND (0.05)
2022	ND (0.42)

20MW1	
2004	ND (0.333 B)
2010	0.024 J
2011	0.036 J
2012	0.040 J
2013	0.032 J
2014	0.023 J
2015	ND (0.10 QN)
2016	0.09 J,B,QL
2018	0.15 QL
2022	ND (0.42)

MW88-10	
2002	**55**
2004	1.38
2010	**1.6**
2011	0.54
2012	0.5
2013	0.97
2014	0.66
2015	0.43
2016	0.3 J, QL
2018	0.54
2022	0.805

26MW1	
2004	0.078 J
2010	ND (0.057)
2011	0.083
2012	0.029 J
2013	0.029 J
2014	ND (0.050)
2015	ND (0.10 QN)
2016	0.11 J,B,QL
2018	ND (0.05)
2022	ND (0.42)

22MW2	
2010	ND (0.094)
2011	0.023
2012	0.047 J
2013	0.025 J
2014	ND (0.049)
2015	ND (0.10 QN)
2016	0.1 J,B,QL
2018	0.13 QN
2022	ND (0.40)

Project Screening Levels	
Analyte	Groundwater (mg/L)
Diesel Range Organics	1.5

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SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

DRO IN GROUNDWATER 2002 THROUGH 2022

Legend
- Abandonded Monitoring Well
- Existing Monitoring Well
- Former Manhole
- Approximate Groundwater Flow Direction
- Road/Path
- Surface Water Feature
- Former Building
- Surface Water

DRO Concentration (mg/L)
2
0

Abbreviations
B	the result is biased high due to contamination present in an associated blank
DRO	diesel range organics
GNSS	Global Navigation Satellite System
GSD	ground sample distance
J	the result is an estimated value greater than or equal to the Detection Limit and below the Limit of Quantitation
mg/L	milligrams per liter
ND	non detect
PSL	project screening level
QH/QM/QL	the result is an estimated value, bias high/low/indeterminate, due to a QC failure
RTK	real-time kinematic

Notes
1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

Chemistry Notes
1. PSLs for groundwater are the 18 AAC 75 Table C groundwater cleanup levels except for DRO, RRO, arsenic, and lead; which were defined in the Northeast Cape FUDS, St. Lawrence Island Decision Document.
2. **Bold red** text indicates results greater than PSLs.
3. All results presented in mg/L.
4. Limit of Detection shown in parentheses ( )]

References
1. GIS data source: USACE. 2015c. *First Five-Year Review Report, Northeast Cape FUDS*, Saint Lawrence Island, Alaska. February.
2. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
3. Survey conducted by Brice Engineering LLC, August 2022.
4. Contaminant and monitored natural attenuation concentration data was collected during the 2022 groundwater monitoring event.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

100 50 0 100 200
Feet

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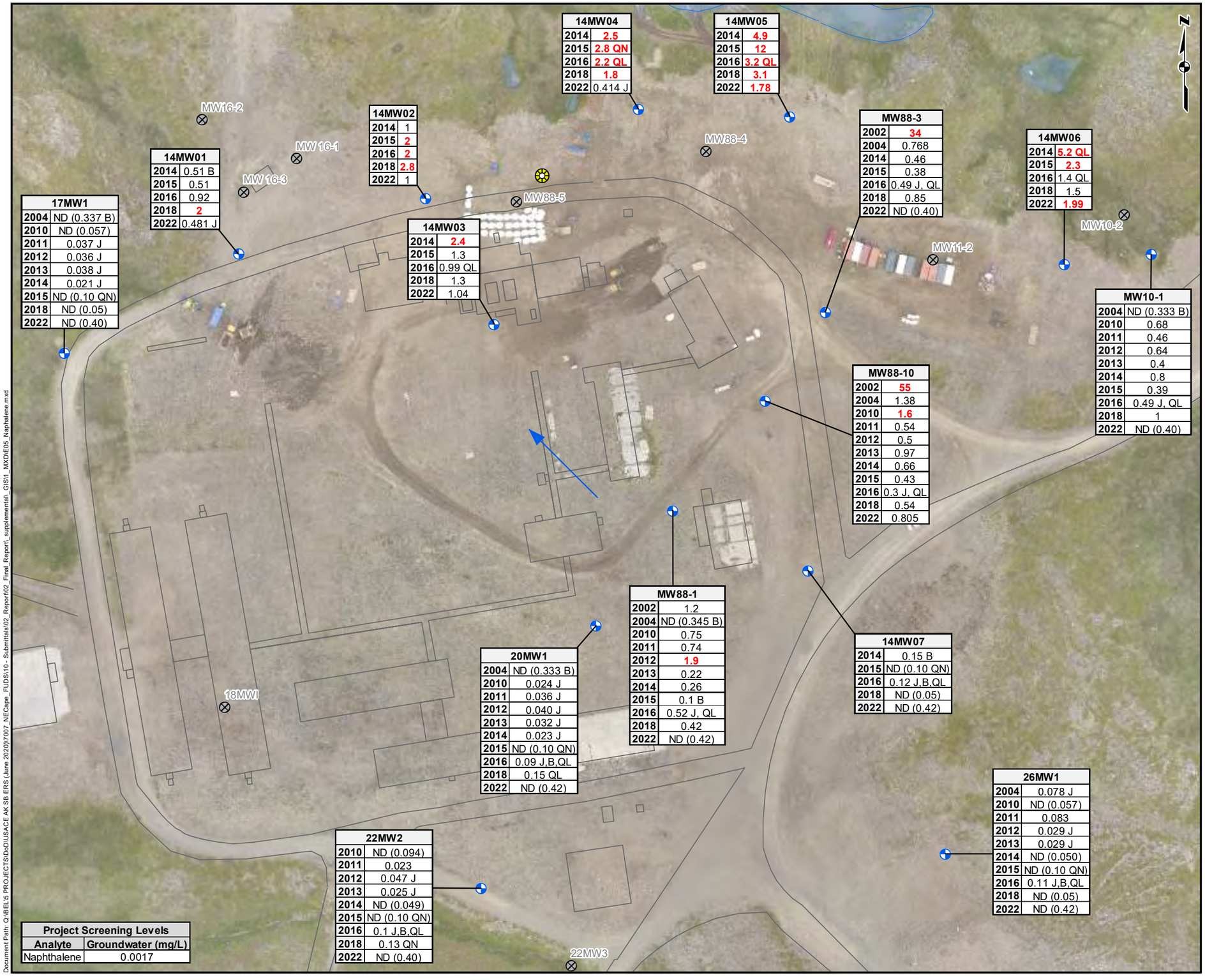

14MW04	
2014	2.5
2015	2.8 QN
2016	2.2 QL
2018	1.8
2022	0.414 J

14MW05	
2014	4.9
2015	12
2016	3.2 QL
2018	3.1
2022	1.78

14MW02	
2014	1
2015	2
2016	2
2018	2.8
2022	1

14MW01	
2014	0.51 B
2015	0.51
2016	0.92
2018	2
2022	0.481 J

17MW1	
2004	ND (0.337 B)
2010	ND (0.057)
2011	0.037 J
2012	0.036 J
2013	0.038 J
2014	0.021 J
2015	ND (0.10 QN)
2018	ND (0.05)
2022	ND (0.40)

14MW03	
2014	2.4
2015	1.3
2016	0.99 QL
2018	1.3
2022	1.04

MW88-3	
2002	34
2004	0.768
2014	0.46
2015	0.38
2016	0.49 J, QL
2018	0.85
2022	ND (0.40)

14MW06	
2014	5.2 QL
2015	2.3
2016	1.4 QL
2018	1.5
2022	1.99

MW10-1	
2004	ND (0.333 B)
2010	0.68
2011	0.46
2012	0.64
2013	0.4
2014	0.8
2015	0.39
2016	0.49 J, QL
2018	1
2022	ND (0.40)

MW88-10	
2002	55
2004	1.38
2010	1.6
2011	0.54
2012	0.5
2013	0.97
2014	0.66
2015	0.43
2016	0.3 J, QL
2018	0.54
2022	0.805

MW88-1	
2002	1.2
2004	ND (0.345 B)
2010	0.75
2011	0.74
2012	1.9
2013	0.22
2014	0.26
2015	0.1 B
2016	0.52 J, QL
2018	0.42
2022	ND (0.42)

20MW1	
2004	ND (0.333 B)
2010	0.024 J
2011	0.036 J
2012	0.040 J
2013	0.032 J
2014	0.023 J
2015	ND (0.10 QN)
2016	0.09 J,B,QL
2018	0.15 QL
2022	ND (0.42)

14MW07	
2014	0.15 B
2015	ND (0.10 QN)
2016	0.12 J,B,QL
2018	ND (0.05)
2022	ND (0.42)

26MW1	
2004	0.078 J
2010	ND (0.057)
2011	0.083
2012	0.029 J
2013	0.029 J
2014	ND (0.050)
2015	ND (0.10 QN)
2016	0.11 J,B,QL
2018	ND (0.05)
2022	ND (0.42)

22MW2	
2010	ND (0.094)
2011	0.023
2012	0.047 J
2013	0.025 J
2014	ND (0.049)
2015	ND (0.10 QN)
2016	0.1 J,B,QL
2018	0.13 QN
2022	ND (0.40)

Project Screening Levels	
Analyte	Groundwater (mg/L)
Naphthalene	0.0017

Document Path: Q:\BEL\5 PROJECTS\DoD\USACE AK SB ERS (June 2020)\7007_NECape_FUDS\10 - Submittals\02_Report\02_Final_Report_supplemental_GIS\1_MXD\E05_Naphalene.mxd

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

NAPTHALENE IN GROUNDWATER 2002 THROUGH 2022

Legend
- Abandonded Monitoring Well
- Existing Monitoring Well
- Former Manhole
- Approximate Groundwater Flow Direction
- Road/Path
- Surface Water Feature
- Former Building
- Surface Water

Abbreviations
B	the result is biased high due to contamination present in an associated blank
GNSS	Global Navigation Satellite System
GSD	ground sample distance
J	the result is an estimated value greater than or equal to the Detection Limit and below the Limit of Quantitation
mg/L	milligrams per liter
ND	non detect
PSL	project screening level
QH/QM/QL	the result is an estimated value, bias high/low/indeterminate, due to a QC failure
RTK	real-time kinematic

Notes
1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

Chemistry Notes
1. PSLs for groundwater are the 18 AAC 75 Table C groundwater cleanup levels except for DRO, RRO, arsenic, and lead; which were defined in the Northeast Cape FUDS, St. Lawrence Island Decision Document
2. **Bold red** text indicates results greater than PSLs.
3. All results presented in mg/L.
4. Limit of Detection shown in parentheses ( )

References
1. GIS data source: USACE. 2015c. *First Five-Year Review Report, Northeast Cape FUDS*, Saint Lawrence Island, Alaska. February.
2. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
3. Survey conducted by Brice Engineering LLC, August 2022.
4. Contaminant and monitored natural attenuation concentration data was collected during the 2022 groundwater monitoring event.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

100 50 0 100 200
Feet

PROJECT No.: 700701	DATE: 6/7/2023	FIGURE:
P.M.: S.M.	DRAWN: J.C.	E-5

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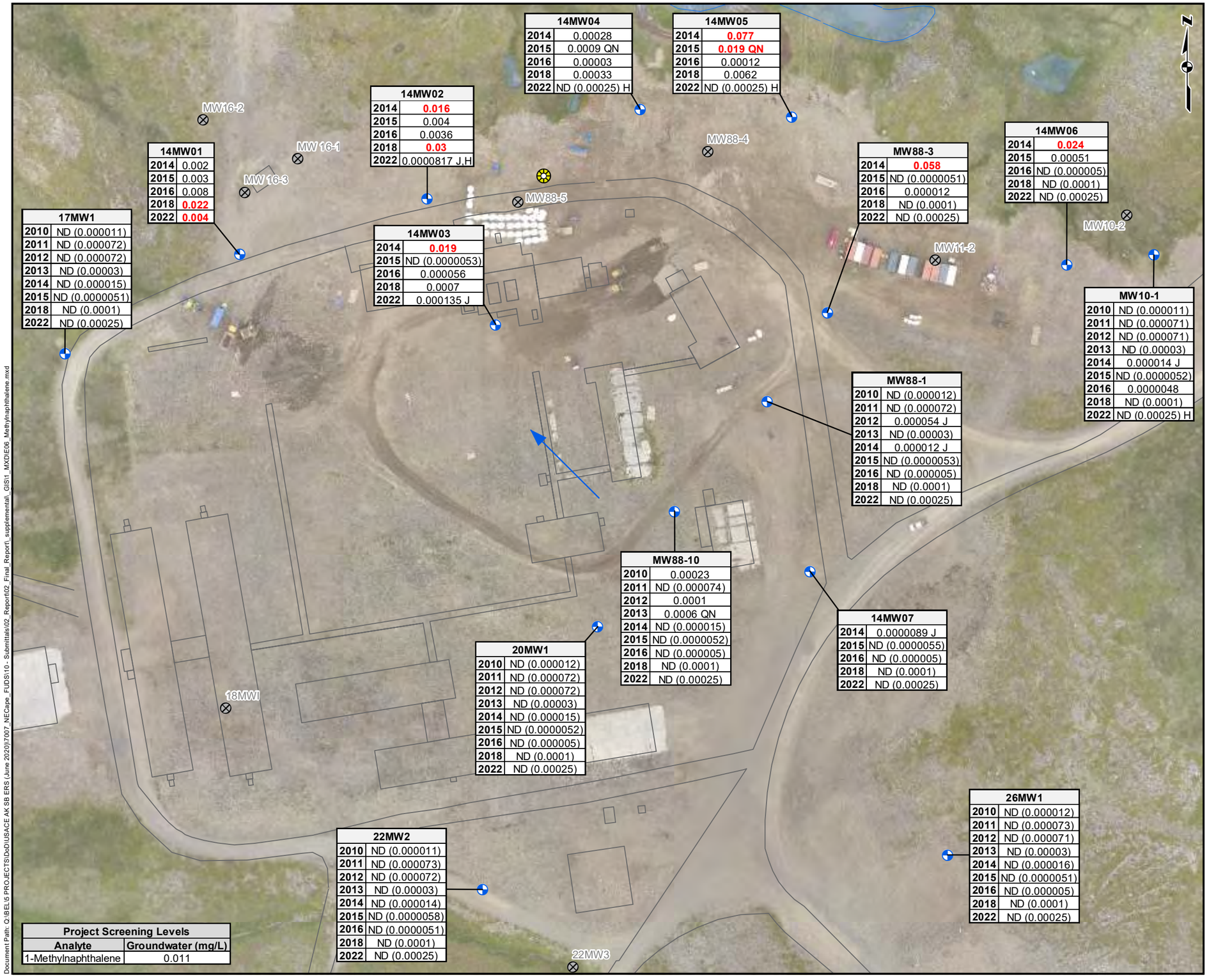
1 INCH



14MW04	
2014	0.00028
2015	0.0009 QN
2016	0.00003
2018	0.00033
2022	ND (0.00025) H

14MW05	
2014	**0.077**
2015	**0.019 QN**
2016	0.00012
2018	0.0062
2022	ND (0.00025) H

14MW02	
2014	**0.016**
2015	0.004
2016	0.0036
2018	**0.03**
2022	0.0000817 J,H

14MW01	
2014	0.002
2015	0.003
2016	0.008
2018	**0.022**
2022	**0.004**

17MW1	
2010	ND (0.000011)
2011	ND (0.000072)
2012	ND (0.000072)
2013	ND (0.00003)
2014	ND (0.000015)
2015	ND (0.0000051)
2018	ND (0.0001)
2022	ND (0.00025)

14MW03	
2014	**0.019**
2015	ND (0.0000053)
2016	0.000056
2018	0.0007
2022	0.000135 J

MW88-3	
2014	**0.058**
2015	ND (0.0000051)
2016	0.000012
2018	ND (0.0001)
2022	ND (0.00025)

14MW06	
2014	**0.024**
2015	0.00051
2016	ND (0.000005)
2018	ND (0.0001)
2022	ND (0.00025)

MW10-1	
2010	ND (0.000011)
2011	ND (0.000071)
2012	ND (0.000071)
2013	ND (0.00003)
2014	0.000014 J
2015	ND (0.0000052)
2016	0.0000048
2018	ND (0.0001)
2022	ND (0.00025) H

MW88-1	
2010	ND (0.000012)
2011	ND (0.000072)
2012	0.000054 J
2013	ND (0.00003)
2014	0.000012 J
2015	ND (0.0000053)
2016	ND (0.000005)
2018	ND (0.0001)
2022	ND (0.00025)

MW88-10	
2010	0.00023
2011	ND (0.000074)
2012	0.0001
2013	0.0006 QN
2014	ND (0.000015)
2015	ND (0.0000052)
2016	ND (0.000005)
2018	ND (0.0001)
2022	ND (0.00025)

14MW07	
2014	0.0000089 J
2015	ND (0.0000055)
2016	ND (0.000005)
2018	ND (0.0001)
2022	ND (0.00025)

20MW1	
2010	ND (0.000012)
2011	ND (0.000072)
2012	ND (0.000072)
2013	ND (0.00003)
2014	ND (0.000015)
2015	ND (0.0000052)
2016	ND (0.000005)
2018	ND (0.0001)
2022	ND (0.00025)

26MW1	
2010	ND (0.000012)
2011	ND (0.000073)
2012	ND (0.000071)
2013	ND (0.00003)
2014	ND (0.000016)
2015	ND (0.0000051)
2016	ND (0.000005)
2018	ND (0.0001)
2022	ND (0.00025)

22MW2	
2010	ND (0.000011)
2011	ND (0.000073)
2012	ND (0.000072)
2013	ND (0.00003)
2014	ND (0.000014)
2015	ND (0.0000058)
2016	ND (0.0000051)
2018	ND (0.0001)
2022	ND (0.00025)

Project Screening Levels	
Analyte	Groundwater (mg/L)
1-Methylnaphthalene	0.011

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SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

1-METHYLNAPHTHALENE IN GROUNDWATER 2010 THROUGH 2022

Legend

- Abandonded Monitoring Well
- Existing Monitoring Well
- Former Manhole
- Approximate Groundwater Flow Direction
- Road/Path
- Surface Water Feature
- Former Building
- Surface Water

Abbreviations

B	the result is biased high due to contamination present in an associated blank
GNSS	Global Navigation Satellite System
GSD	ground sample distance
J	the result is an estimated value greater than or equal to the Detection Limit and below the Limit of Quantitation
mg/L	milligrams per liter
ND	non detect
PSL	project screening level
QH/QM/QL	the result is an estimated value, bias high/low/indeterminate, due to a QC failure
RTK	real-time kinematic

Notes

1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

Chemistry Notes

1. PSLs for groundwater are the 18 AAC 75 Table C groundwater cleanup levels except for DRO, RRO, arsenic, and lead; which were defined in the Northeast Cape FUDS, St. Lawrence Island Decision Document
2. **Bold red** text indicates results greater than PSLs.
3. All results presented in mg/L.
4. Limit of Detection shown in parentheses ( ).

References

1. GIS data source: USACE. 2015c. *First Five-Year Review Report, Northeast Cape FUDS*, Saint Lawrence Island, Alaska. February.
2. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
3. Survey conducted by Brice Engineering LLC, August 2022.
4. Contaminant and monitored natural attenuation concentration data was collected during the 2022 groundwater monitoring event.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

100 50 0 100 200
Feet

PROJECT No.: 700701	DATE: 6/7/2023	FIGURE:
P.M.: S.M.	DRAWN: J.C.	E-6

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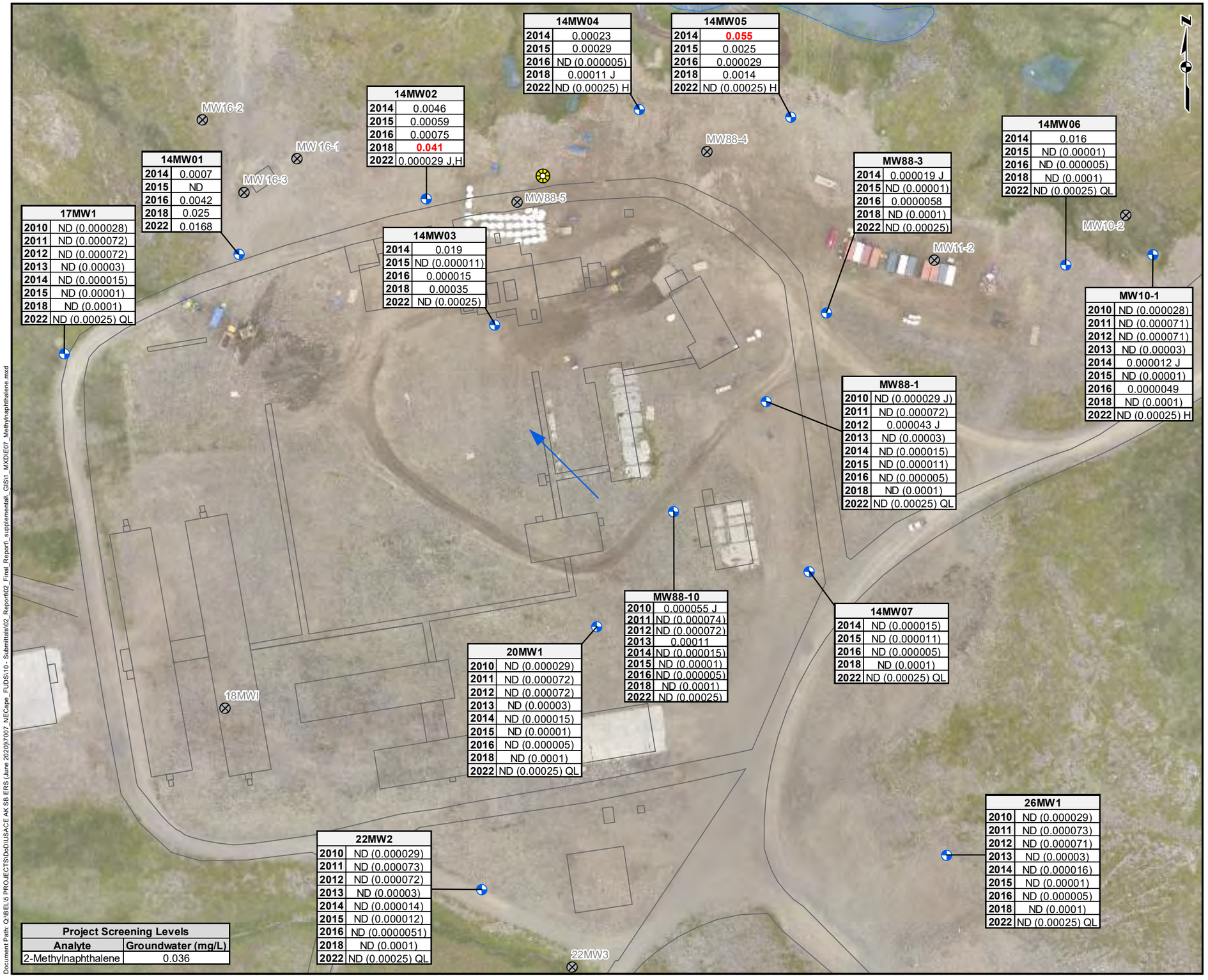
1 INCH



14MW04	
2014	0.00023
2015	0.00029
2016	ND (0.000005)
2018	0.00011 J
2022	ND (0.00025) H

14MW05	
2014	**0.055**
2015	0.0025
2016	0.000029
2018	0.0014
2022	ND (0.00025) H

14MW02	
2014	0.0046
2015	0.00059
2016	0.00075
2018	**0.041**
2022	0.000029 J,H

14MW01	
2014	0.0007
2015	ND
2016	0.0042
2018	0.025
2022	0.0168

17MW1	
2010	ND (0.000028)
2011	ND (0.000072)
2012	ND (0.000072)
2013	ND (0.00003)
2014	ND (0.000015)
2015	ND (0.00001)
2018	ND (0.0001)
2022	ND (0.00025) QL

14MW03	
2014	0.019
2015	ND (0.000011)
2016	0.000015
2018	0.00035
2022	ND (0.00025)

MW88-3	
2014	0.000019 J
2015	ND (0.00001)
2016	0.0000058
2018	ND (0.0001)
2022	ND (0.00025)

14MW06	
2014	0.016
2015	ND (0.00001)
2016	ND (0.000005)
2018	ND (0.0001)
2022	ND (0.00025) QL

MW10-1	
2010	ND (0.000028)
2011	ND (0.000071)
2012	ND (0.000071)
2013	ND (0.00003)
2014	0.000012 J
2015	ND (0.00001)
2016	0.0000049
2018	ND (0.0001)
2022	ND (0.00025) H

MW88-1	
2010	ND (0.000029 J)
2011	ND (0.000072)
2012	0.000043 J
2013	ND (0.00003)
2014	ND (0.000015)
2015	ND (0.000011)
2016	ND (0.000005)
2018	ND (0.0001)
2022	ND (0.00025) QL

MW88-10	
2010	0.000055 J
2011	ND (0.000074)
2012	ND (0.000072)
2013	0.00011
2014	ND (0.000015)
2015	ND (0.00001)
2016	ND (0.000005)
2018	ND (0.0001)
2022	ND (0.00025)

14MW07	
2014	ND (0.000015)
2015	ND (0.000011)
2016	ND (0.000005)
2018	ND (0.0001)
2022	ND (0.00025) QL

20MW1	
2010	ND (0.000029)
2011	ND (0.000072)
2012	ND (0.000072)
2013	ND (0.00003)
2014	ND (0.000015)
2015	ND (0.00001)
2016	ND (0.000005)
2018	ND (0.0001)
2022	ND (0.00025) QL

22MW2	
2010	ND (0.000029)
2011	ND (0.000073)
2012	ND (0.000072)
2013	ND (0.00003)
2014	ND (0.000014)
2015	ND (0.000012)
2016	ND (0.0000051)
2018	ND (0.0001)
2022	ND (0.00025) QL

26MW1	
2010	ND (0.000029)
2011	ND (0.000073)
2012	ND (0.000071)
2013	ND (0.00003)
2014	ND (0.000016)
2015	ND (0.00001)
2016	ND (0.000005)
2018	ND (0.0001)
2022	ND (0.00025) QL

Project Screening Levels	
Analyte	Groundwater (mg/L)
2-Methylnaphthalene	0.036

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

2-METHYLNAPHTHALENE IN GROUNDWATER 2010 THROUGH 2022

Legend
- Abandonded Monitoring Well
- Existing Monitoring Well
- Former Manhole
- Approximate Groundwater Flow Direction
- Road/Path
- Surface Water Feature
- Former Building
- Surface Water

Abbreviations
B	the result is biased high due to contamination present in an associated blank
GNSS	Global Navigation Satellite System
GSD	ground sample distance
J	the result is an estimated value greater than or equal to the Detection Limit and below the Limit of Quantitation
mg/L	milligrams per liter
ND	non detect
PSL	project screening level
QH/QM/QL	the result is an estimated value, bias high/low/indeterminate, due to a QC failure
RTK	real-time kinematic

Notes
1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

Chemistry Notes
1. PSLs for groundwater are the 18 AAC 75 Table C groundwater cleanup levels except for DRO, RRO, arsenic, and lead; which were defined in the Northeast Cape FUDS, St. Lawrence Island Decision Document
2. **Bold red** text indicates results greater than PSLs.
3. All results presented in mg/L.
4. Limit of Detection shown in parentheses ( ).

References
1. GIS data source: USACE. 2015c. *First Five-Year Review Report, Northeast Cape FUDS*, Saint Lawrence Island, Alaska. February.
2. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
3. Survey conducted by Brice Engineering LLC, August 2022.
4. Contaminant and monitored natural attenuation concentration data was collected during the 2022 groundwater monitoring event.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

100 50 0 100 200
Feet

PROJECT No.: 700701	DATE: 6/7/2023	FIGURE:
P.M.: S.M.	DRAWN: J.C.	E-7

Document Path: Q:\BELL5 PROJECTS\DoD\USACE AK SB ERS (June 2020)\7007_NECape_FUDS\10 - Submittals\02_Report\02_Final_Report_supplemental_GIS\1_MXD\E07_Methylnaphthalene.mxd

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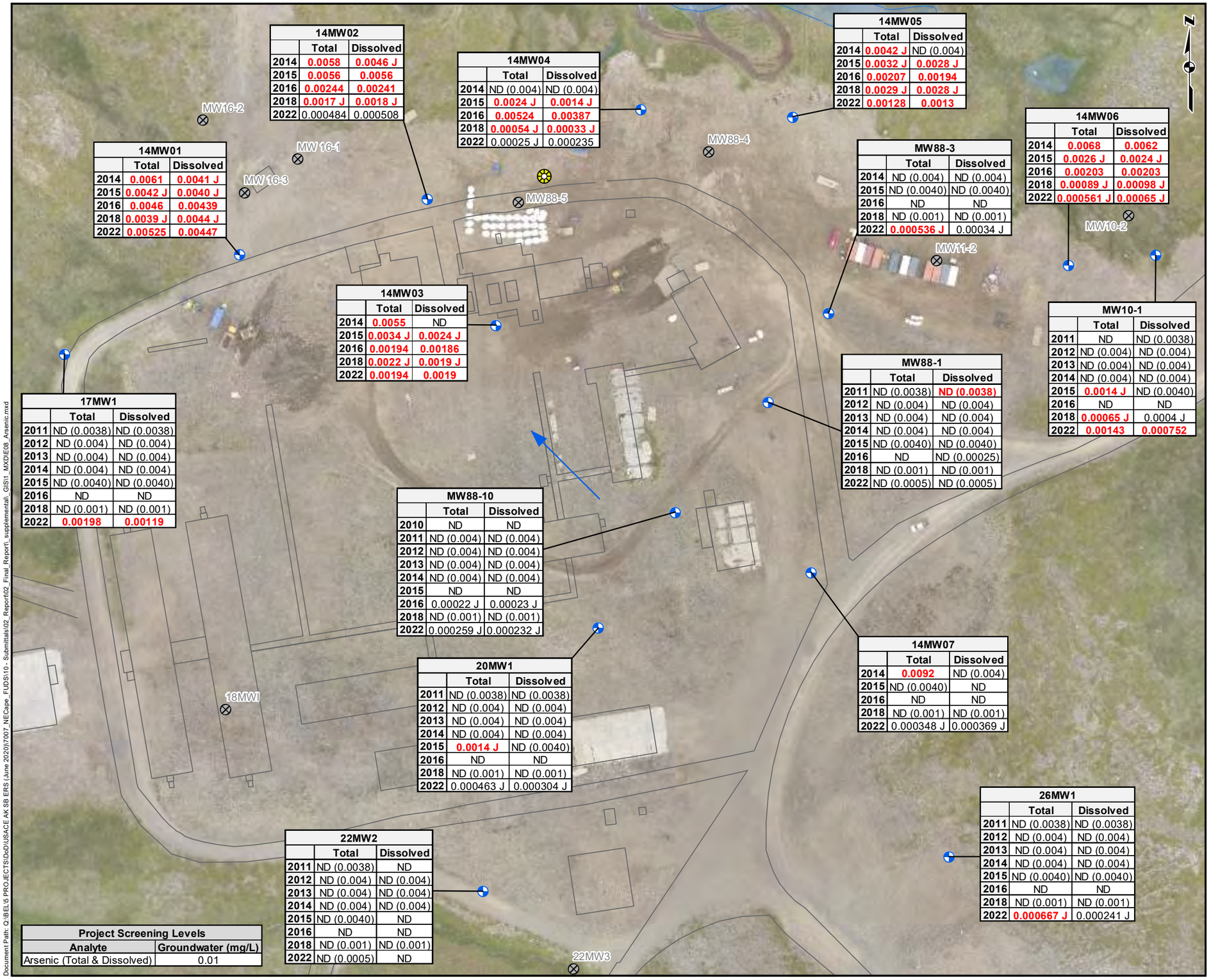
1 INCH



14MW02	Total	Dissolved
2014	0.0058	0.0046 J
2015	0.0056	0.0056
2016	0.00244	0.00241
2018	0.0017 J	0.0018 J
2022	0.000484	0.000508

14MW04	Total	Dissolved
2014	ND (0.004)	ND (0.004)
2015	0.0024 J	0.0014 J
2016	0.00524	0.00387
2018	0.00054 J	0.00033 J
2022	0.00025 J	0.000235

14MW05	Total	Dissolved
2014	0.0042 J	ND (0.004)
2015	0.0032 J	0.0028 J
2016	0.00207	0.00194
2018	0.0029 J	0.0028 J
2022	0.00128	0.0013

14MW01	Total	Dissolved
2014	0.0061	0.0041 J
2015	0.0042 J	0.0040 J
2016	0.0046	0.00439
2018	0.0039 J	0.0044 J
2022	0.00525	0.00447

MW88-3	Total	Dissolved
2014	ND (0.004)	ND (0.004)
2015	ND (0.0040)	ND (0.0040)
2016	ND	ND
2018	ND (0.001)	ND (0.001)
2022	0.000536 J	0.00034 J

14MW06	Total	Dissolved
2014	0.0068	0.0062
2015	0.0026 J	0.0024 J
2016	0.00203	0.00203
2018	0.00089 J	0.00098 J
2022	0.000561 J	0.00065 J

14MW03	Total	Dissolved
2014	0.0055	ND
2015	0.0034 J	0.0024 J
2016	0.00194	0.00186
2018	0.0022 J	0.0019 J
2022	0.00194	0.0019

MW10-1	Total	Dissolved
2011	ND	ND (0.0038)
2012	ND (0.004)	ND (0.004)
2013	ND (0.004)	ND (0.004)
2014	ND (0.004)	ND (0.004)
2015	0.0014 J	ND (0.0040)
2016	ND	ND
2018	0.00065 J	0.0004 J
2022	0.00143	0.000752

17MW1	Total	Dissolved
2011	ND (0.0038)	ND (0.0038)
2012	ND (0.004)	ND (0.004)
2013	ND (0.004)	ND (0.004)
2014	ND (0.004)	ND (0.004)
2015	ND (0.0040)	ND (0.0040)
2016	ND	ND
2018	ND (0.001)	ND (0.001)
2022	0.00198	0.00119

MW88-1	Total	Dissolved
2011	ND (0.0038)	ND (0.0038)
2012	ND (0.004)	ND (0.004)
2013	ND (0.004)	ND (0.004)
2014	ND (0.004)	ND (0.004)
2015	ND (0.0040)	ND (0.0040)
2016	ND	ND (0.00025)
2018	ND (0.001)	ND (0.001)
2022	ND (0.0005)	ND (0.0005)

MW88-10	Total	Dissolved
2010	ND	ND
2011	ND (0.004)	ND (0.004)
2012	ND (0.004)	ND (0.004)
2013	ND (0.004)	ND (0.004)
2014	ND (0.004)	ND (0.004)
2015	ND	ND
2016	0.00022 J	0.00023 J
2018	ND (0.001)	ND (0.001)
2022	0.000259 J	0.000232 J

14MW07	Total	Dissolved
2014	0.0092	ND (0.004)
2015	ND (0.0040)	ND
2016	ND	ND
2018	ND (0.001)	ND (0.001)
2022	0.000348 J	0.000369 J

20MW1	Total	Dissolved
2011	ND (0.0038)	ND (0.0038)
2012	ND (0.004)	ND (0.004)
2013	ND (0.004)	ND (0.004)
2014	ND (0.004)	ND (0.004)
2015	0.0014 J	ND (0.0040)
2016	ND	ND
2018	ND (0.001)	ND (0.001)
2022	0.000463 J	0.000304 J

26MW1	Total	Dissolved
2011	ND (0.0038)	ND (0.0038)
2012	ND (0.004)	ND (0.004)
2013	ND (0.004)	ND (0.004)
2014	ND (0.004)	ND (0.004)
2015	ND (0.0040)	ND (0.0040)
2016	ND	ND
2018	ND (0.001)	ND (0.001)
2022	0.000667 J	0.000241 J

22MW2	Total	Dissolved
2011	ND (0.0038)	ND
2012	ND (0.004)	ND (0.004)
2013	ND (0.004)	ND (0.004)
2014	ND (0.004)	ND (0.004)
2015	ND (0.0040)	ND
2016	ND	ND
2018	ND (0.001)	ND (0.001)
2022	ND (0.0005)	ND

Project Screening Levels	
Analyte	Groundwater (mg/L)
Arsenic (Total & Dissolved)	0.01

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

ARSENIC IN GROUNDWATER 2010 THROUGH 2022

Legend

- Abandonded Monitoring Well
- Existing Monitoring Well
- Former Manhole
- Approximate Groundwater Flow Direction
- Road/Path
- Surface Water Feature
- Former Building
- Surface Water

Abbreviations

B	the result is biased high due to contamination present in an associated blank
GNSS	Global Navigation Satellite System
GSD	ground sample distance
J	the result is an estimated value greater than or equal to the Detection Limit and below the Limit of Quantitation
mg/L	milligrams per liter
ND	non detect
PSL	project screening level
QH/QM/QL	the result is an estimated value, bias high/low/indeterminate, due to a QC failure
RTK	real-time kinematic

Notes

1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

Chemistry Notes

1. PSLs for groundwater are the 18 AAC 75 Table C groundwater cleanup levels except for DRO, RRO, arsenic, and lead; which were defined in the Northeast Cape FUDS, St. Lawrence Island Decision Document
2. **Bold red** text indicates results greater than PSLs.
3. All results presented in mg/L.
4. Limit of Detection shown in parentheses ( ).

References

1. GIS data source: USACE. 2015c. *First Five-Year Review Report, Northeast Cape FUDS*, Saint Lawrence Island, Alaska. February.
2. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
3. Survey conducted by Brice Engineering LLC, August 2022.
4. Contaminant and monitored natural attenuation concentration data was collected during the 2022 groundwater monitoring event.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

100 50 0 100 200
Feet

PROJECT No.: 700701	DATE: 6/7/2023	FIGURE:
P.M.: S.M.	DRAWN: J.C.	E-8

Document Path: Q:\BEL5 PROJECTS\DoD\USACE AK SB ERS (June 2020)\7007_NECape_FUDS\10 - Submittals\02_Report\02_Final_Report_supplemental_GIS\1_MXD\E08_Arsenic.mxd

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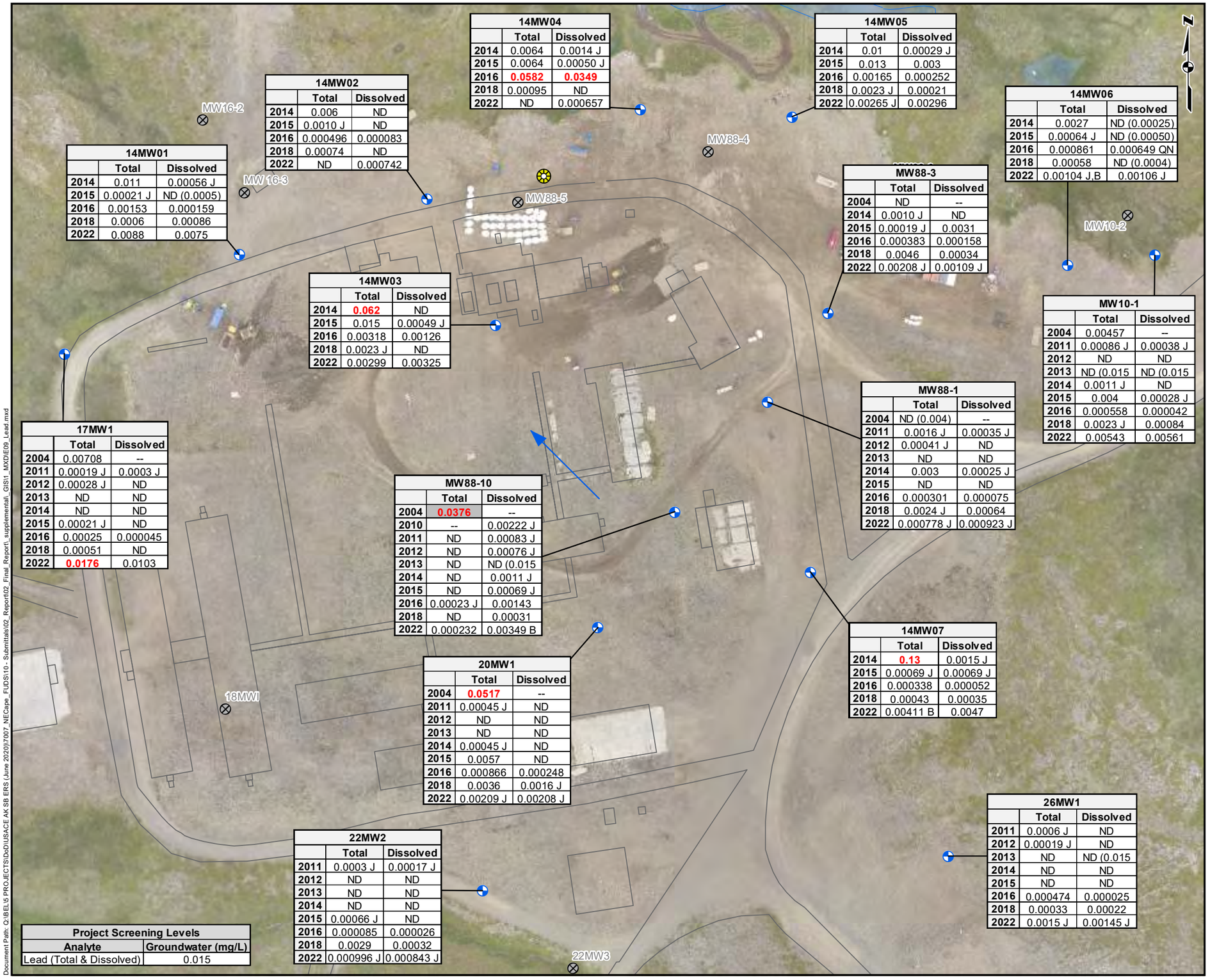

14MW01	Total	Dissolved
2014	0.011	0.00056 J
2015	0.00021 J	ND (0.0005)
2016	0.00153	0.000159
2018	0.0006	0.00086
2022	0.0088	0.0075

14MW02	Total	Dissolved
2014	0.006	ND
2015	0.0010 J	ND
2016	0.000496	0.000083
2018	0.00074	ND
2022	ND	0.000742

14MW03	Total	Dissolved
2014	**0.062**	ND
2015	0.015	0.00049 J
2016	0.00318	0.00126
2018	0.0023 J	ND
2022	0.00299	0.00325

14MW04	Total	Dissolved
2014	0.0064	0.0014 J
2015	0.0064	0.00050 J
2016	**0.0582**	**0.0349**
2018	0.00095	ND
2022	ND	0.000657

14MW05	Total	Dissolved
2014	0.01	0.00029 J
2015	0.013	0.003
2016	0.00165	0.000252
2018	0.0023 J	0.00021
2022	0.00265 J	0.00296

14MW06	Total	Dissolved
2014	0.0027	ND (0.00025)
2015	0.00064 J	ND (0.00050)
2016	0.000861	0.000649 QN
2018	0.00058	ND (0.0004)
2022	0.00104 J,B	0.00106 J

MW88-3	Total	Dissolved
2004	ND	--
2014	0.0010 J	ND
2015	0.00019 J	0.0031
2016	0.000383	0.000158
2018	0.0046	0.00034
2022	0.00208 J	0.00109 J

MW10-1	Total	Dissolved
2004	0.00457	--
2011	0.00086 J	0.00038 J
2012	ND	ND
2013	ND (0.015	ND (0.015
2014	0.0011 J	ND
2015	0.004	0.00028 J
2016	0.000558	0.000042
2018	0.0023 J	0.00084
2022	0.00543	0.00561

MW88-1	Total	Dissolved
2004	ND (0.004)	--
2011	0.0016 J	0.00035 J
2012	0.00041 J	ND
2013	ND	ND
2014	0.003	0.00025 J
2015	ND	ND
2016	0.000301	0.000075
2018	0.0024 J	0.00064
2022	0.000778 J	0.000923 J

17MW1	Total	Dissolved
2004	0.00708	--
2011	0.00019 J	0.0003 J
2012	0.00028 J	ND
2013	ND	ND
2014	ND	ND
2015	0.00021 J	ND
2016	0.00025	0.000045
2018	0.00051	ND
2022	**0.0176**	0.0103

MW88-10	Total	Dissolved
2004	**0.0376**	--
2010	--	0.00222 J
2011	ND	0.00083 J
2012	ND	0.00076 J
2013	ND	ND (0.015
2014	ND	0.0011 J
2015	ND	0.00069 J
2016	0.00023 J	0.00143
2018	ND	0.00031
2022	0.000232	0.00349 B

14MW07	Total	Dissolved
2014	**0.13**	0.0015 J
2015	0.00069 J	0.00069 J
2016	0.000338	0.000052
2018	0.00043	0.00035
2022	0.00411 B	0.0047

20MW1	Total	Dissolved
2004	**0.0517**	--
2011	0.00045 J	ND
2012	ND	ND
2013	ND	ND
2014	0.00045 J	ND
2015	0.0057	ND
2016	0.000866	0.000248
2018	0.0036	0.0016 J
2022	0.00209 J	0.00208 J

26MW1	Total	Dissolved
2011	0.0006 J	ND
2012	0.00019 J	ND
2013	ND	ND (0.015
2014	ND	ND
2015	ND	ND
2016	0.000474	0.000025
2018	0.00033	0.00022
2022	0.0015 J	0.00145 J

22MW2	Total	Dissolved
2011	0.0003 J	0.00017 J
2012	ND	ND
2013	ND	ND
2014	ND	ND
2015	0.00066 J	ND
2016	0.000085	0.000026
2018	0.0029	0.00032
2022	0.000996 J	0.000843 J

Project Screening Levels	
Analyte	Groundwater (mg/L)
Lead (Total & Dissolved)	0.015

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

LEAD IN GROUNDWATER 2004 THROUGH 2022

Legend
- Abandonded Monitoring Well
- Existing Monitoring Well
- Former Manhole
- Approximate Groundwater Flow Direction
- Road/Path
- Surface Water Feature
- Former Building
- Surface Water

Abbreviations
B	the result is biased high due to contamination present in an associated blank
GNSS	Global Navigation Satellite System
GSD	ground sample distance
J	the result is an estimated value greater than or equal to the Detection Limit and below the Limit of Quantitation
mg/L	milligrams per liter
ND	non detect
PSL	project screening level
QH/QM/QL	the result is an estimated value, bias high/low/indeterminate, due to a QC failure
RTK	real-time kinematic

Notes
1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

Chemistry Notes
1. PSLs for groundwater are the 18 AAC 75 Table C groundwater cleanup levels except for DRO, RRO, arsenic, and lead; which were defined in the Northeast Cape FUDS, St. Lawrence Island Decision Document
2. **Bold red** text indicates results greater than PSLs.
3. All results presented in mg/L.
4. Limit of Detection shown in parentheses ( ).

References
1. GIS data source: USACE. 2015c. *First Five-Year Review Report, Northeast Cape FUDS*, Saint Lawrence Island, Alaska. February.
2. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
3. Survey conducted by Brice Engineering LLC, August 2022.
4. Contaminant and monitored natural attenuation concentration data was collected during the 2022 groundwater monitoring event.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

100 50 0 100 200
Feet

PROJECT No.: 700701	DATE: 6/7/2023	FIGURE:
P.M.: S.M.	DRAWN: J.C.	E-9

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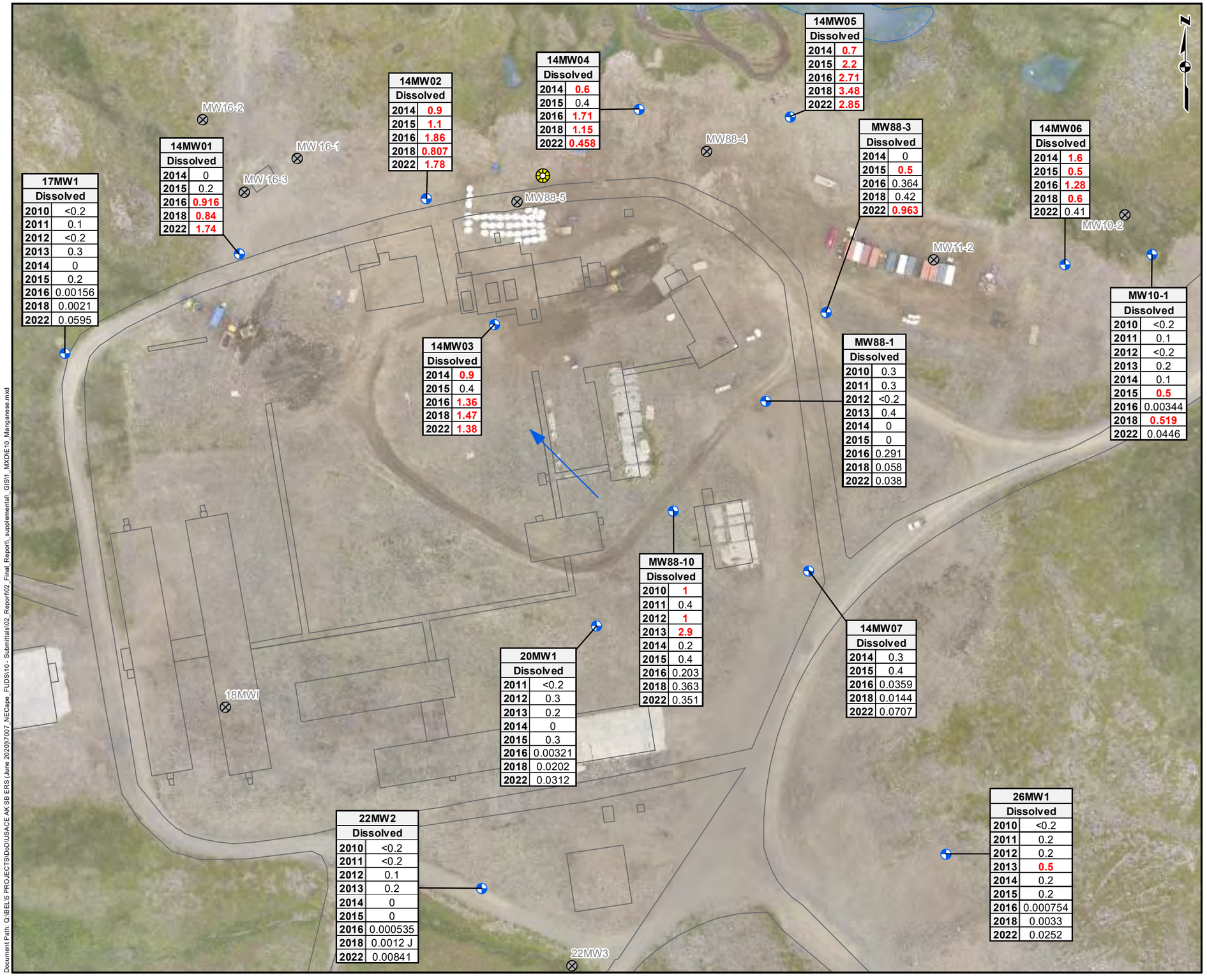

17MW1	
Dissolved	
2010	<0.2
2011	0.1
2012	<0.2
2013	0.3
2014	0
2015	0.2
2016	0.00156
2018	0.0021
2022	0.0595

14MW01	
Dissolved	
2014	0
2015	0.2
2016	**0.916**
2018	**0.84**
2022	**1.74**

14MW02	
Dissolved	
2014	**0.9**
2015	**1.1**
2016	**1.86**
2018	**0.807**
2022	**1.78**

14MW04	
Dissolved	
2014	**0.6**
2015	0.4
2016	**1.71**
2018	**1.15**
2022	**0.458**

14MW05	
Dissolved	
2014	**0.7**
2015	**2.2**
2016	**2.71**
2018	**3.48**
2022	**2.85**

MW88-3	
Dissolved	
2014	0
2015	**0.5**
2016	0.364
2018	0.42
2022	**0.963**

14MW06	
Dissolved	
2014	**1.6**
2015	**0.5**
2016	**1.28**
2018	**0.6**
2022	0.41

MW10-1	
Dissolved	
2010	<0.2
2011	0.1
2012	<0.2
2013	0.2
2014	0.1
2015	**0.5**
2016	0.00344
2018	**0.519**
2022	0.0446

14MW03	
Dissolved	
2014	**0.9**
2015	0.4
2016	**1.36**
2018	**1.47**
2022	**1.38**

MW88-1	
Dissolved	
2010	0.3
2011	0.3
2012	<0.2
2013	0.4
2014	0
2015	0
2016	0.291
2018	0.058
2022	0.038

MW88-10	
Dissolved	
2010	**1**
2011	0.4
2012	**1**
2013	**2.9**
2014	0.2
2015	0.4
2016	0.203
2018	0.363
2022	0.351

14MW07	
Dissolved	
2014	0.3
2015	0.4
2016	0.0359
2018	0.0144
2022	0.0707

20MW1	
Dissolved	
2011	<0.2
2012	0.3
2013	0.2
2014	0
2015	0.3
2016	0.00321
2018	0.0202
2022	0.0312

22MW2	
Dissolved	
2010	<0.2
2011	<0.2
2012	0.1
2013	0.2
2014	0
2015	0
2016	0.000535
2018	0.0012 J
2022	0.00841

26MW1	
Dissolved	
2010	<0.2
2011	0.2
2012	0.2
2013	**0.5**
2014	0.2
2015	0.2
2016	0.000754
2018	0.0033
2022	0.0252

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

MANGANESE IN GROUNDWATER 2010 THROUGH 2022

Legend

- Abandonded Monitoring Well
- Existing Monitoring Well
- Former Manhole
- Approximate Groundwater Flow Direction
- Road/Path
- Surface Water Feature
- Former Building
- Surface Water

Abbreviations

B	the result is biased high due to contamination present in an associated blank
GNSS	Global Navigation Satellite System
GSD	ground sample distance
J	the result is an estimated value greater than or equal to the Detection Limit and below the Limit of Quantitation
mg/L	milligrams per liter
ND	non detect
PSL	project screening level
QH/QM/QL	the result is an estimated value, bias high/low/indeterminate, due to a QC failure
RTK	real-time kinematic

Notes

1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

Chemistry Notes

1. PSLs for groundwater are the 18 AAC 75 Table C groundwater cleanup levels except for DRO, RRO, arsenic, and lead; which were defined in the Northeast Cape FUDS, St. Lawrence Island Decision Document
2. **Bold red** text indicates results greater than PSLs.
3. All results presented in mg/L.
4. Limit of Detection shown in parentheses ( ).

References

1. GIS data source: USACE. 2015c. *First Five-Year Review Report, Northeast Cape FUDS*, Saint Lawrence Island, Alaska. February.
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3. Survey conducted by Brice Engineering LLC, August 2022.
4. Contaminant and monitored natural attenuation concentration data was collected during the 2022 groundwater monitoring event.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

100 50 0 100 200
Feet

PROJECT No.: 700701	DATE: 6/7/2023	FIGURE:
P.M.: S.M.	DRAWN: J.C.	**E-10**

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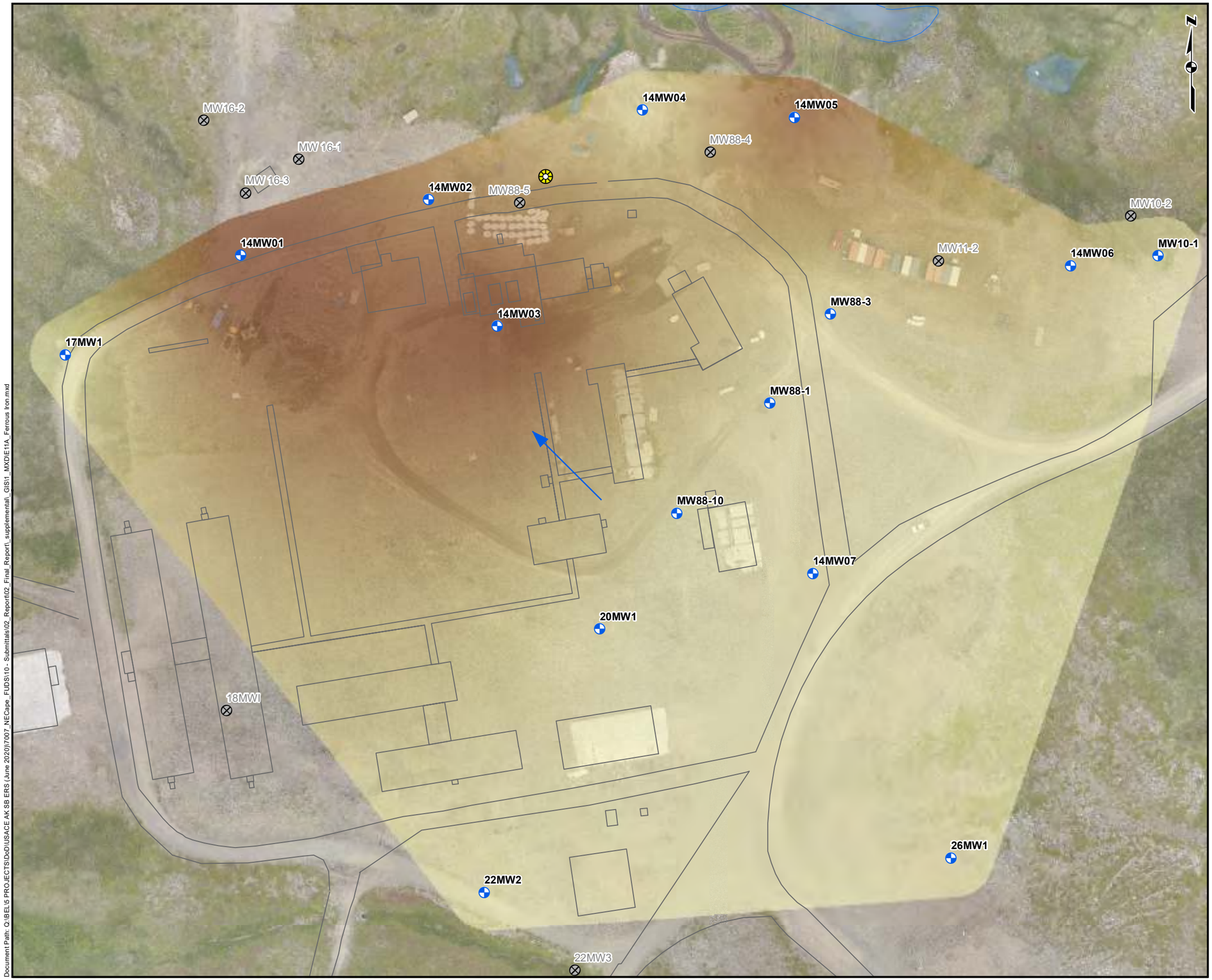

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SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

2022 FERROUS IRON IN GROUNDWATER

Legend

- Abandonded Monitoring Well
- Existing Monitoring Well
- Former Manhole
- Approximate Groundwater Flow Direction
- Road/Path
- Surface Water Feature
- Former Building
- Surface Water

Ferrous Iron Concentration (mg/L)

2.5

0

Abbreviations

GNSS	Global Navigation Satellite System
GSD	ground sample distance
mg/L	milligrams per liter
RTK	real-time kinematic

Notes

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References

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WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

100 50 0 100 200
Feet

PROJECT No.:	DATE:	FIGURE:
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SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

2022 NITRATE IN GROUNDWATER

Legend

- Abandonded Monitoring Well
- Existing Monitoring Well
- Former Manhole
- Approximate Groundwater Flow Direction
- Road/Path
- Surface Water Feature
- Former Building
- Surface Water

Nitrate Concentration (mg/L)

13

0

Abbreviations

GNSS	Global Navigation Satellite System
GSD	ground sample distance
mg/L	milligrams per liter
RTK	real-time kinematic

Notes

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2. Map produced using ESRI ArcMap version 10.7.

References

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WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

100 50 0 100 200
Feet

PROJECT No.:	DATE:	FIGURE:
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P.M.: S.M.	DRAWN: J.C.	

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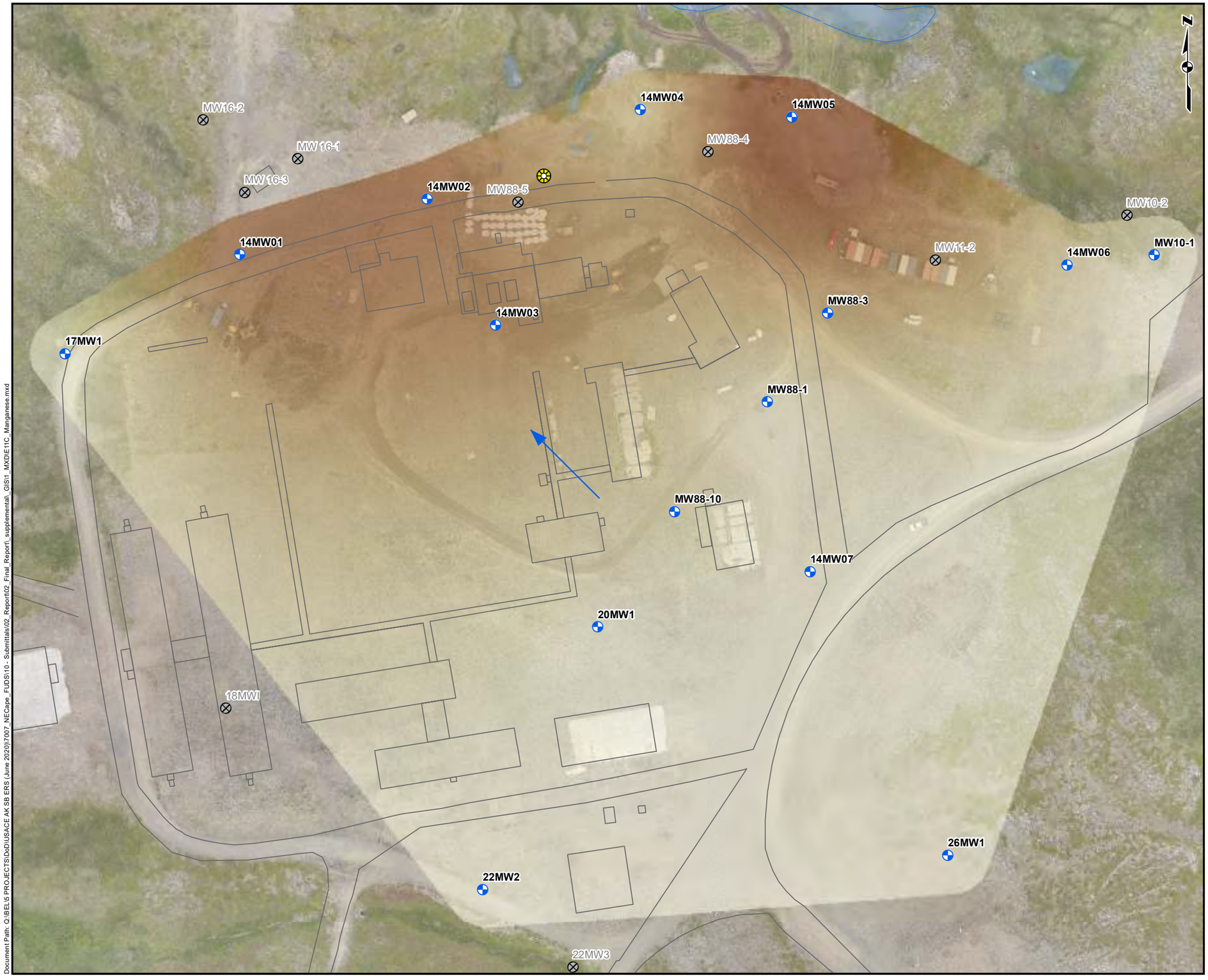

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

2022 MANGANESE IN GROUNDWATER

Legend
- Abandonded Monitoring Well
- Existing Monitoring Well
- Former Manhole
- Approximate Groundwater Flow Direction
- Road/Path
- Surface Water Feature
- Former Building
- Surface Water

Manganese Concentration (mg/L)

3

0

Abbreviations
GNSS	Global Navigation Satellite System
GSD	ground sample distance
mg/L	milligrams per liter
RTK	real-time kinematic

Notes
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2. Map produced using ESRI ArcMap version 10.7.

References
1. GIS data source: USACE. 2015c. *First Five-Year Review Report*, *Northeast Cape FUDS*, Saint Lawrence Island, Alaska. February.
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4. Contaminant and monitored natural attenuation concentration data was collected during the 2022 groundwater monitoring event.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

100 50 0 100 200
Feet

PROJECT No.:	DATE:	FIGURE:
700701	6/7/2023	E-11C
P.M.: S.M.	DRAWN: J.C.	

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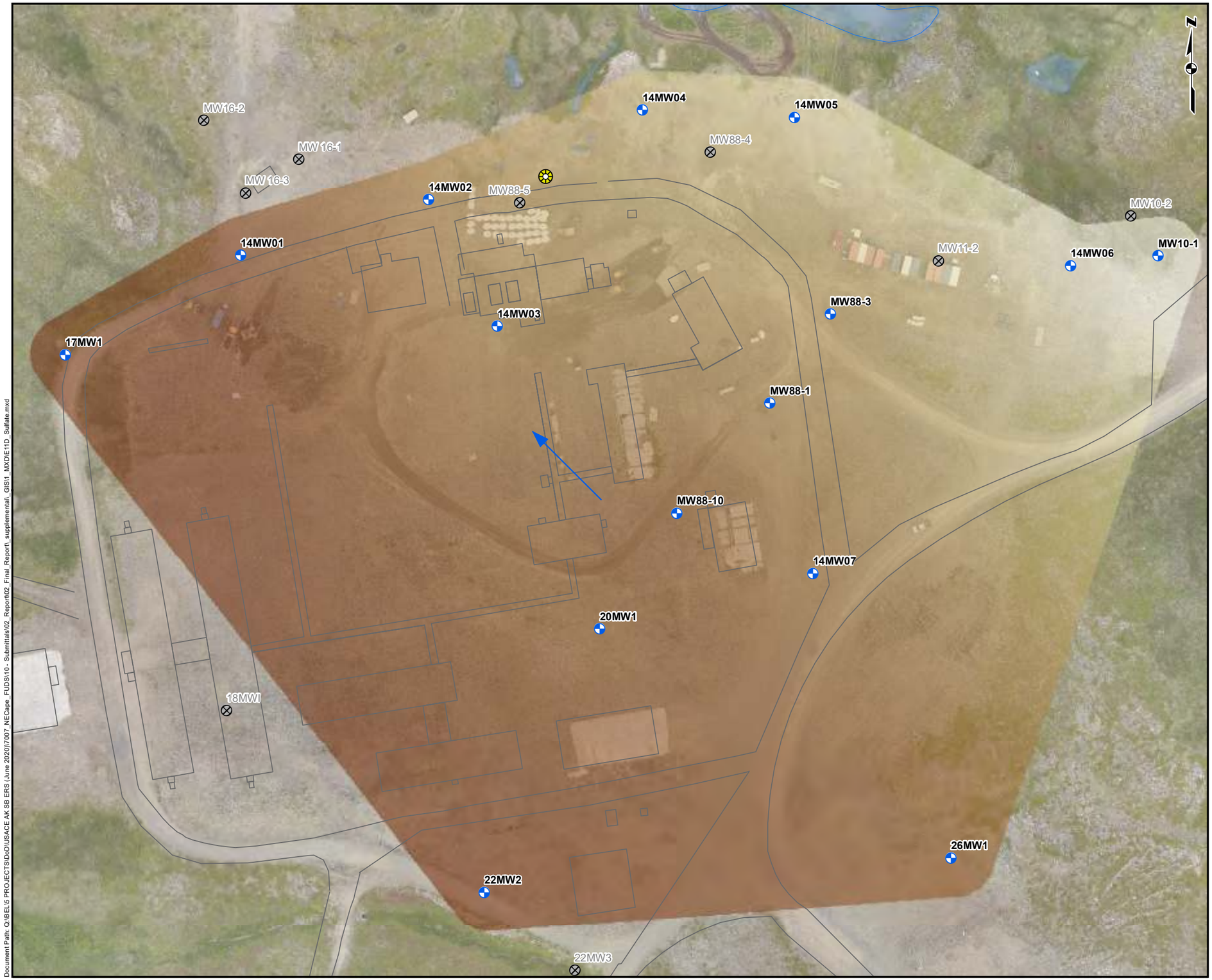

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

2022 SULFATE IN GROUNDWATER

Legend
- Abandonded Monitoring Well
- Existing Monitoring Well
- Former Manhole
- Approximate Groundwater Flow Direction
- Road/Path
- Surface Water Feature
- Former Building
- Surface Water

Sulfate Concentration (mg/L)

67

6

Abbreviations
GNSS	Global Navigation Satellite System
GSD	ground sample distance
mg/L	milligrams per liter
RTK	real-time kinematic

Notes
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2. Map produced using ESRI ArcMap version 10.7.

References
1. GIS data source: USACE. 2015c. *First Five-Year Review Report, Northeast Cape FUDS*, Saint Lawrence Island, Alaska. February.
2. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
3. Survey conducted by Brice Engineering LLC, August 2022.
4. Contaminant and monitored natural attenuation concentration data was collected during the 2022 groundwater monitoring event.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

100 50 0 100 200
Feet

PROJECT No.:	DATE:	FIGURE:
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P.M.: S.M.	DRAWN: J.C.	

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SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

2022 ALKALINITY IN GROUNDWATER

Legend

- Abandonded Monitoring Well
- Existing Monitoring Well
- Former Manhole
- Approximate Groundwater Flow Direction
- Road/Path
- Surface Water Feature
- Former Building
- Surface Water

Alkalinity Concentration (mg/L)

635

0

Abbreviations

GNSS	Global Navigation Satellite System
GSD	ground sample distance
mg/L	milligrams per liter
RTK	real-time kinematic

Notes

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References

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3. Survey conducted by Brice Engineering LLC, August 2022.
4. Contaminant and monitored natural attenuation concentration data was collected during the 2022 groundwater monitoring event.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

100 50 0 100 200
Feet

PROJECT No.: 700701	DATE: 6/7/2023	FIGURE:
P.M.: S.M.	DRAWN: J.C.	E-11E

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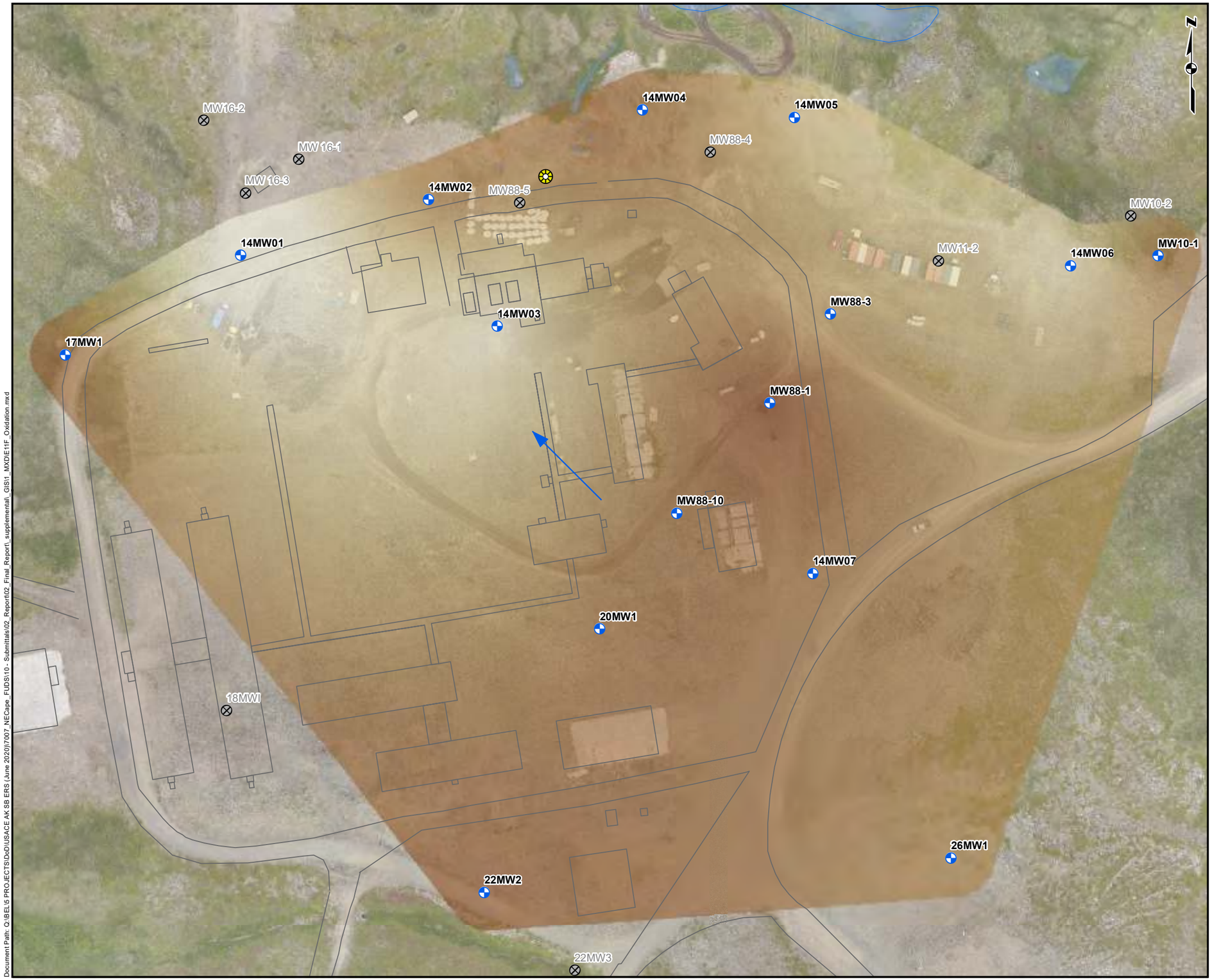

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

2022 OXIDATION REDUCTION POTENTIAL IN GROUNDWATER

Legend
- Abandonded Monitoring Well
- Existing Monitoring Well
- Former Manhole
- Approximate Groundwater Flow Direction
- Road/Path
- Surface Water Feature
- Former Building
- Surface Water

Oxidation Reduction Potential Concentration (mV)

300

50

Abbreviations
GNSS	Global Navigation Satellite System
GSD	ground sample distance
mV	millivolt
RTK	real-time kinematic

Notes
1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

References
1. GIS data source: USACE. 2015c. *First Five-Year Review Report, Northeast Cape FUDS*, Saint Lawrence Island, Alaska. February.
2. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
3. Survey conducted by Brice Engineering LLC, August 2022.
4. Contaminant and monitored natural attenuation concentration data was collected during the 2022 groundwater monitoring event.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

100 50 0 100 200
Feet

PROJECT No.: 700701	DATE: 6/7/2023	FIGURE:
P.M.: S.M.	DRAWN: J.C.	E-11F

Document Path: Q:\BELL\5 PROJECTS\DoD\USACE AK SB ERS (June 2020)\7007_NECape_FUDS\10 - Submittals\02_Report\02_Final_Report_supplemental_GIS\1_MXD\E11F_Oxidation.mxd

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1 INCH

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

2022 DISSOLVED OXYGEN IN GROUNDWATER

Legend
- Abandonded Monitoring Well
- Existing Monitoring Well
- Former Manhole
- Approximate Groundwater Flow Direction
- Road/Path
- Surface Water Feature
- Former Building
- Surface Water

Dissolved Oxygen Concentration (mg/L)

10

0

Abbreviations
GNSS	Global Navigation Satellite System
GSD	ground sample distance
mg/L	milligrams per liter
RTK	real-time kinematic

Notes
1. For conceptual purposes only. All locations are approximate.
2. Map produced using ESRI ArcMap version 10.7.

References
1. GIS data source: USACE. 2015c. *First Five-Year Review Report*, *Northeast Cape FUDS*, Saint Lawrence Island, Alaska. February.
2. Imagery source: Orthomosaic generated using multi-ray digital photogrammetric processing, from Unmanned Aerial Vehicle (UAV) imagery acquired by Brice Engineering/Environmental/Solutions during August 2022. Image has a 0.089-foot GSD and constrained to ground control measured with RTK GNSS equipment.
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WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

100 50 0 100 200
Feet

PROJECT No.: 700701	DATE: 6/7/2023	FIGURE:
P.M.: S.M.	DRAWN: J.C.	E-11G

Document Path: Q:\BEL\5 PROJECTS\DoD\USACE AK SB ERS (June 2020)\7007_NECape_FUDS\10 - Submittals\02_Report\02_Final_Report_supplemental_GIS\1_MXD\E11G_Dissolved_Oxygen.mxd

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1 INCH

SITE 28 SEDIMENT REMOVAL AND VARIOUS FOLLOW-UP ACTIONS FROM THE SECOND FIVE-YEAR AND PERIODIC REVIEWS
FORMERLY USED DEFENSE SITE F10AK096903
NORTHEAST CAPE, SAINT LAWRENCE ISLAND, ALASKA

2022 METHANE IN GROUNDWATER

Legend

- Abandonded Monitoring Well
- Existing Monitoring Well
- Former Manhole
- Approximate Groundwater Flow Direction
- Road/Path
- Surface Water Feature
- Former Building
- Surface Water

Value

High : 102.825

Low : -5.69231

Abbreviations

GNSS	Global Navigation Satellite System
GSD	ground sample distance
mg/L	milligrams per liter
RTK	real-time kinematic

Notes

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2. Map produced using ESRI ArcMap version 10.7.

References

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4. Contaminant and monitored natural attenuation concentration data was collected during the 2022 groundwater monitoring event.

WGS 1984 UTM ZONE 2N, METER
HORIZONAL DATUM: WGS 1984 | VERTICAL DATUM: NAVD88

100 50 0 100 200
Feet

PROJECT No.:	DATE:	FIGURE:
700701	6/8/2023	E-11H
P.M.: S.M.	DRAWN: J.C.	

Document Path: Q:\BELLS PROJECTS\DoD\USACE AK SB ERS (June 2020)\7007_NECape_FUDS\10 - Submittals\02_Report\02_Final_Report_supplemental_GIS\1_MXD\E11H_Methane.mxd

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Attachment E-1
Field Documentation

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Field Logbooks

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SINCE 1816

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ALL-WEATHER
UNIVERSAL
№ 371FX

Northeast Cape FUDS
Site 28 Sediment
Removal and Various
Follow-up Actions
W911KB-20-D-002
25 July 2022 -
August 2022

INCH

TACOMA, WA, USA

— EST. 1916 —

Rite in the Rain®

= DEFYING MOTHER NATURE =

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Project

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CONTENTS

PAGE	REFERENCE	DATE

7/19/22

→ 0900 @ ANC w/ Scotty Mann (SRM), Chad Armintrout (C,A), Andrew Platt (AP), Greg Filbey (GF), Patrick Schick (PS) = Brice

Depart ANC → in OME @ 1125 @ Bering Air @ 1200 Depart OME @ 1330 on Navajo @ NE-Cape @ 1420.

Weather = 52°, pt-cld, 10-15 NW.

Meet up w/ AK Minerals

*Note, BML ~~propped~~ JS Dropped JS cargo off on 7/16/22. Due to ~~running~~ runway cond, I, SRM, had BML pick up AK Min from Nome & bring to NE-Cape on 7/19/22, @ 1100

I, SRM, had BML back runway w/loader so Bering Air could land. Dylan Hickey (DH) on site @ 1500

→ cont. road to proposed camp in bad cond. move camp to laydown area.

→ 1500 → 2200, set up camp,

road repair

EOD

7/20/22

→ 0700, SRM, AP, CA, GF, PS, DH, & 6-AK Min conduct H & S meeting

Weather = 42°, Rain, 20-30 NW.

CA work on road to runway & runway all day

DH, work on survey

SRM, PS, AP, GF work on moving materials to MOC & camp set-up

→ 2100

EOD

Rite in the Rain

7/21/22
→ 0730, same crew
Weather = 35°, rain 20-30 NW
→ 0800 → 1930, work on camp set-up, road & runway
EOD

7/22/22
→ 0700, same crew
Weather = rainy 48° F, 10 mph NW
H & S meeting, continue to grade runway, camp conduct, road work, stage containers @ MOC
→ 1900
EOD

7/23/22
→ 0700, same crew, H & S meeting
Weather = Lt rain, 52° F, no wind.
Continue to work on camp set-up, road work, fuel EQ.
→ 1300 → 1800, work on Dredge set-up
2-trips of rock truck = 40 cy total for road work
→ 1900
EOD

7/24/22
→ 0700, same crew, H & S meeting
Weather = 51° F, 0-5 SW, Lt rain
Continue to work on camp set-up

Rite in the Rain

7/28/22

→ 0715 Michael W. (MW) and myself (JS) prepare sample coolers for shipment - later joined by TD.

→ 0800 crew consisting of MW, TD, and JS join PS, SRM, CA, AP, GF, DC, to assist with Dredge set-up.

→ 1000 TD, MW, and I tasked with metal debris removal at MOC stock-pile area (SW of site). Numerous metal debris collected and placed in designated open-top debris conex.

→ 1040 TD and I gather materials needed to measure ground water well depths, observed damage if present/well condition, etc.

Rite in the Rain

7/28/22 Thursday

→ 1040

Well number	Time	Casing
Decomissioned	1040	4.58 AC

Depth to TD

Well number	Time	Casing
~~MW88-01~~ mw88-10	1148	0.335' bgs

Depth to TD
25.51'

Well #	Time	Casing	Damage
20 MW 1	1158	.21' bgs	NA

Depth to TD	Depth to GW
28.945'	25.771'

Well #	Time	Casing	Damage
14MW07	1305	.152'	NA

Depth to TD	Depth to GW
33.230'	28.614'

Well #	Time	Casing	Damage
17 MW 1	1318	.119'	Frost jacked

Depth to TD	Depth to GW
15.621'	14.938'

Scale: 1 square =

Damage	Depth to GW
casing rim uneven	5.55' stop ice?

Damage	Depth to GW
NA	23.51

Well #	Time	Casing	Damage
26MW1	1330	.525'	* NA loose lid

Depth to TD	Depth to GW
41.758'	39.381'

* screw threads comp.

Well #	Time	Casing	Damage
22MW2	1337	.512'	NA

Depth to TD	Depth to GW
34.401'	30.518'

Well #	Time	Casing	Damage
MW88-1	1350	.105 4B	frost jacked

Depth to TD	Depth to GW
23.193'	19.985'

Scale: 1 square =

Rite in the Rain

7/28/22 Thursday

* MW88-1 sediment encountered at well bottom (very little)

Well #	Time	Casing	Damage
MW88-3	1355	.172'	NA

Depth to TD	Depth to GW
19.415'	15.125'

* ~1/4 ft sediment encountered at well bottom
* slightly frost-jacked - unable to secure lid

Well #	Time	Casing	Damage
MW10-1	1408	2.178' AB	NA

Depth to TD	Depth to GW
11.280'	6.275'

* ice reached at bottom of well and lock cut to access well

Well #	Time	Casing	Damage
14MW03	1420	.265'	NA

Depth to TD	Depth to GW
24.0'	13.080'

* 1/4 ft of sediment encountered at well bottom

7/28/22 Thursday

Well #	Time	Casing	Damage
14MW06	1435	.438	NA

Depth to TD	Depth to GW
14.715'	5.080'

* silt encountered at well bottom ~ about 2 tenths.

Well #	Time	Casing	Damage
14MW04	1444	.425'	NA

Depth to TD	Depth to GW
15.0	3.891'

* sediment encountered at well bottom ~ about a tenth of a foot.

Well #	Time	Casing	Damage
14MW01	1456	.358	frost heaved

Depth to TD	Depth to GW
22.325	17.505

* sediment/silt encountered at well bottom ~ about 2 tenths.

Well #	Time	Casing	Damage
14MW02	1500	.255 bgs	Standing water @ top of casing

Depth to TD	Depth to GW
16.925'	12.455

7/28/22 Thursday

* 1/4 ft of sediment encountered at 14MW02

Well #	Time	Casing	Damage
14MW05	1514	.425	*see note

Depth to TD	Depth to GW
13.225	4.23

* Sand and bentonite covered top of casing and had to be removed to access well. about a tenth of a foot of sediment encountered at well bottom.

→ 1600 MG, PS, MW, TD, JS move dredge and continue preparations for dreding

→ 1900
EOD

JA

7/28/22 Thursday

→ 1625 Water turbidity sampling (JS)

22NEC-S28-SW10 9.52 NTU
collected by JS @ 1625
22NEC-S28-SW02 6.68 NTU
JS @ 1630
22NEC-S28-SW03 7.23 NTU
JS @ 1634
22NEC-S28-SW04 37.4 NTU
JS @ 1637

→ 1800 Police the site, tidy up, misc. garbage collected and placed in debris Conex
→ 1900
EOD

JA

7/29/22 Friday

→ 0725 conduct bump test for Turbidimeter.

791 NTU	800 NTU
0.38 NTU	<0.1 NTU
20.7 NTU	20 NTU
99.7 NTU	100 NTU

→ 0805 MW and JS take turbidity readings of site 28.

5.10 NTU 22NEC-S28-01
5.18 NTU 22NEC-S28-02
4.05 ~~5.10~~ NTU 22NEC-S28-03
5.10 NTU 22NEC-S28-04

→ 0880 MG, ~~PS~~, ~~TD~~, JS, MW, GF move ponds and pumps, prepare for dredging. PS, and TD join crew and prepare for dredging at site 28 a wood support consisting of plywood and beams placed in deepest section of trail in tundra connecting MOC to site 28.

→ 1020 TD stationed @ pump #3, JS @ pump #2, and PS @ pump #1; MG tasked with roving between pumps #1-3 and

7/29/22 Friday

MOC to ensure proper function of the system; AP, MW prepare to dredge; remaining crew positioned @ MOC (GF, SRM, CA, and OC

→ 1200 lunch

→ 1300 mobilize to site 28 and MOC. TD and JS collect surface water sample 22NEC-S28-SW05 @ 1330. Dredging begins @ 1345

→ 1508 TD and JS take turbidity readings

11.4 NTU	22NEC-S28-SW-01
6.87 NTU	22NEC-S28-SW-02
27.9 NTU	22NEC-S28-SW-03
36.1 NTU	22NEC-S28-SW-05
25.8 NTU	22NEC-S28-SW-04

→ 1525 dredging continued → 1800 followed by site clean-up

→ 1900

EOD

JS

Rite in the Rain

7/30/22 Saturday

→ ~~0945~~ 0700 Same crew SRM, MG, GT, CA, D, PS, MW, TD conduct health and safety meeting, discuss soil removal prep, stock pile prep, dredging techniques

→ 0945 JS calibrated PID with Isobutylene 95.5 ppm. Removed misc metal debris on site with MW, assisted with various MOC dredging and soil removal activities.

→ 1100 MG, TD, PS, MW, JS begin groundwater sampling starting from least contaminated to historically most contaminated. MG instructed crew in proper sampling techniques using

→ 12 lunch

→ 1300 Return to groundwater sampling.

→ 1610

0mL blank sulfate reading obtained 15.1mL/L obtained for sulfate sample at groundwater well 14MW07.

7/30/22 Saturday

→ 1650 begin groundwater sampling @ 17MW1; sulfate result 10.4 mL @ 1748 by PS, TD, MW, and JS.

→ 1800 Test hole w/ Geoprobe at MOC. Logan Sanders driller (LS) Underdeveloped well location

*PVC well casing removed by Geoprobe Backfilled with bentonite — remaining 2 ft filled with sand to finish

*4.8 ft of casing was removed about 4.2 ft bgs

→ 1900

EOD

JS

Rite in the Rain

Sunday

7/31/22

→ 0630 health and safety meeting with same crew

→ 0700 JS and JS prepare sampling materials for Geoprobe and drive to MOC MG and TD on groundwater sampling

→ 0800 Soil removal and stockpile prep. MG, CA, AP, PS, ~~AND~~, PID calibrated 100.1 ppm with isobutylene (C_4H_8) 100 ppm balance
- instrument experienced setting malfunction after powering on, settings fixed and is now properly functioning
- stock pile liner rolled out at set in place, 3 layers of liner overlap ~5 ft, additional liner rolled over berms and entrance of stock pile
*6 liners used in total for bottom of stock pile

7/31/22

Sunday

→ 1130 Drilling with Geoprobe LS, PS, JS, MG

Sample 22NEC-S08-SS01 collected from middle of road on Site 8 at 4-8 ft, at (SB01) at 1155 with PID of 1.3 ppm

→ 1200 lunch

→ 1300 Geoprobe soil sampling cont. LS, PS, and JS at site 8 on gravel road

379.5 ppm

(SB02) → 1345 Sample 22NEC-S08-SS02 collected at 4-6 ft bgs + (dup. SS02 1445)

→ 1430 Sample 22NEC-S08-SS03 collected at 6-8 ft depth at (SB03), 193.4 ppm

→ 1510 Sample 22NEC-S08-SS04 collected at 4-6 ft depth on gravel road of site 8 at (SB04), 2.6 ppm

→ 1650 sample 22NEC-S08-SS05 collected at 8-10 ft bgs at (SB06) on gravel road @ site 8, 288 ppm

→ 1700 sample 22NEC-S08-SS06 collected at 16-18 ft bgs. Soil boring reached 20 ft without encountering perm. frost.

7/31/22 Sunday

Boring location at SB06 located 49.2 ppm approx. 15 ft from creek, adjacent to culvert on gravel road at site 8. This sample collected beneath contaminated soil horizon (288 ppm field screening @ 8-10 ft bgs).

→ 1725 soil sample 22NEC-S08-SS07 collected at SB05 at 6-10 ft depth. MS/MSD also collected at SB05 from 6-10 ft. Sample name for [MS/MSD] 22NEC-S08 ~~SS08~~-SS07.

* Sample interval 6'-10' ft (75.5 ppm)

→ 1815 soil sample 22NEC-S08-SS08 collected at SB07 at 4-6' bgs. Core sampling location was decontaminated following sample collection and logging. (2.4 ppm)

→ 1900

EOD

Monday

8/1/22

→ 0630 health and safety meeting

→ 0730 PID calibration 106.5 ppm 59260/042 and 96.5 ppm for BES0042.

PID 59260/042 was calibrated once again 101.3 ppm after conducting an zero calibration

→ 0800 drill crew, LS, PS, JS, begin day 2 of soil core sampling using geoprobe at site 8, in trench adjacent to road (east of pipeline break).

→ 0925 sample 22NEC-S08-SS09 collected from 10-12 ft bgs, from SB08 with highest PID reading 1.8 ppm

* hydraulic line came lose on geoprobe, no hydraulic fluid observed to have released/spilled in the area. Zip ties obtained to secure hydraulic line while drilling to avoid lose fitting.

Rite in the Rain

→ 1050 Sample 22NEC-SØ8-SS10 (soil core sample) collected at SBØ9 in tundra at site 8 adjacent to Rd (east of pipeline break at 14'-16' bgs, with 2.4 ppm reading.

→ 1145 Sample 22NEC-SØ8-SS11 soil core sample collected at SB10 6'-8' at Site 8 in tundra adjacent to Rd (east of pipeline break) where the highest PID reading was recorded 8.3 ppm.

→ 1200 lunch

→ 1255 Return to Geoprobe core sampling location at Site 8 LS, PS and JS. Drilling at SB11, first soil core only has about 10" in. recovery, re-cored 0'-4' depth for better recovery. 2nd attempt yeiled no recovery for 0'-4' interval, re-cored a third time with 35" recovered.

→ 1350 Soil core sample 22NEC-SØ8-SS12 collected at SB11 4'-6' bgs, with 2.2 ppm PID reading. Geoprobe stuck near SB11, additional support, i.e skidsteer to free Geoprobe

was used, Geoprobe remained upright throughout recovery process. 1420 Geoprobe is unstuck and can fully navigate to SB12 on its own without assistance from skidsteer (operator D. and AP)

→ 1525 soil sample collected from SB12 named 22NEC-SØ8-SS13 on site 8 in tundra adjacent to road SE of pipeline break, 6'-8' bgs where the highest PID reading was 5.4 ppm.

→ 1630 soil core sample 22NEC-SØ8-SS14 collected from 12'-14' bgs where maximum PID reading of 4.0 ppm was read. Sample location SB13 on Site 8, tundra adjacent to gravel road SE of pipeline break.

→ 1730 soil core sample 22NEC-SØ8-SS15 collected from 2'-4' bgs where maximum PID reading of 6.9 ppm was read at SS14 at site 8, tundra adjacent to gravel road SE of pipeline break.

→ 1800 soil core sample 22NEC-SØ8-SS16 collected at 2'-4' bgs with maximum PID reading of 2.4 ppm at

8/1/22 Monday

site 8, in tundra adjacent to gravel road SE of pipeline break at (SB15.)

→ 1900 soil core sample 22NEC-S08-SS17 collected at (SB16) 2'-4' bgs at Site 8, in tundra adjacent to gravel road SE of pipeline break, 2.7 ppm PID reading was read.

→ 1915

EOD

8/2/22 Tuesday

→ 0630 health and safety meeting with same crew. Weather Sunny/cold.

→ 0730 PID calibration

BES0042 99.8 ppm

BES0043 100.2 ppm

→ 0800 drill crew begins soil core prep at site 8 (LS and JS). PS joins crew 0923.

→ 0925 soil core sample 22NEC-S08-SS18 collected from (SB17) 8'-10' bgs at

8/2/22 Tuesday

Site 8. in tundra adjacent to Rd E of pipeline break. PID reading recorded at this interval was 1.6 ppm.

→ 1015 soil core sample 22NEC-S08-SS19 at (SB18) from 6'-8' interval at Site 8, tundra adjacent to Rd E of pipeline break. (21 PID ppm)

→ 1130 soil core sample 22NEC-S08-SS20 collected at (SB19) 8'-10' at site 8 from middle of gravel road S of culvert. Duplicate sample 22NEC-S08-SS920 at 1230 from SB19, with 1.4 ppm PID.

→ 1200 lunch

→ 1300 drill crew LS, PS, JS begin drilling at SB20 on site 8 on gravel road. Sample 22NEC-S08-SS21 collected at 1345 at (SB20) 8'-10' bgs PID reading 1.8 ppm.

→ 1430 soil core sample 22NEC-S08-SS22 collected at 6'-8' at site 8 (SB21) where PID reading was 327.0 ppm, on gravel road. A second core was obtained from interval 4'-8' at SB21 to collect additional

Rite in the Rain

8/2/22 Tuesday

material sampling.

→ 1650 Soil core sample 22NEC-SØ8-SS24 at (SB23) from site 8 gravel road 6'-8' bgs where PID reading 8.4 ppm was recorded.

→ 1735 soil core sample 22NEC-SØ8-SS25 at (SB24) site 8, gravel road 4'-6' bgs with PID reading 155.0 ppm. Duplicate sample 22NEC-SØ8-SS925 at SB24 4'-6' bgs at 1835.

* 22NEC-SØ8-SS23 soil core sample collected at 1530 @ (SB22) 6'-8' bgs with PID reading of 274.9 ppm

* 22NEC-SØ8-SS26 soil core sample collected at 1825 @ (SB25) 2'-4' bgs with PID reading of 3.4 ppm, [MS/MSD included], * 3 jars total (8oz)

→ 1900

EOD

8/3/22 Wednesday

→ 0630 health and safety meeting with crew

→ 0745 PIDs calibrated

BESC043 100.2 ppm

BESC042 103.3 ppm

→ 0800 Drill crew begins at site 8 for soil core sampling (LS, PS, JS).

→ 0900 soil core sample 22NEC-SØ8-SS27 at (SB26) from 4'-6' bgs where PID reading 215.4 ppm was recorded. SB26 in gravel road S of pipeline break.

→ 0910 soil core sample 22NEC-SØ8-SS28 collected at (SB26) from 10'-12' bgs below contamination level. PID reading 1.3 ppm.

→ 1015 soil sample collected by hand augering at location (SB28) 22NEC-SØ8-SS29 at site 8 1'-2' where PID read 6.3 ppm. This interval had organic material and fine silts and sands/gravelly present.

Rite in the Rain

→ 1020 soil core sample 22NEC-S08-SS30 at (SB27) 4'-6' bgs on gravel road at site 8, 2.1 ppm PID

* Discussed obtaining elevation data for site 8, depicting gently sloping topo towards S. River and raised road.

→ 1130 soil sample/core 22NEC-S08-SS31 collected from (SB29) at site 8 in grave road, 2'-4' bgs, 13.7 ppm PID reading.

→ 1153 soil sample collected from hand auger 22NEC-S08-SS32 at (SB30) at site 8 in tundra adjacent to gravel road, 1'-2' bgs with 1.3 ppm.

→ 1230 soil core sample collected 22NEC-S08-SS33 at (SB31) 4'-6' bgs at Site 8. Duplicate sample 22NEC-S08-SS933 was ~~alto~~ also collected at 4'-6' bgs with PID reading 18.1 ppm, at 1330

→ 1235 soil core sample 22NEC-S08-SS34 collected at (SB31) at interval 10'-12' below likly contaminated area to further dilineate contamination horizon, PID 1.0 ppm.

→ 1245 lunch

→ 1325 JS prep cooler w/ soil core samples for shippment, update tracking log, C.O.C

→ ~~1335~~

→ 1630 soil sample collected from hand auger at (SB32), 3'-4' bgs, 22NEC-S08-SS35 sample name with PID reading 3.1 ppm.

→ 1900

EOD

JS

8/4/22 Thursday

→ 0630 health and safety meeting with same crew

→ 0700 PID calibration MW, JS
BESC043 100.4 ppm
BESC042 101.6 ppm

→ 0730 sample packing and C.C for Site 8 and MOC (soil samples and groundwater samples respectively). Soil boring logs also QC'ed and scanned/uploaded to drive. Field notes also updated and scanned.

→ 1200 lunch

→ 1245 JS continues scanning logs and updating project tracking forms.

→ Refer to MG's notes ——

JS
8/4/22

8/5/22 Friday

→ 06:30 health and safety meeting Curtis Silock (C.S)

→ 0720 PID calibration
109.3 BESC042
97.9 BESC043

→ 0730 crew mob. to site 15 MOC (MG, CA, AG, SC, PS, MW, C, DC, AP). Stock piles re-secured by distributing sand bags. MW and AG begin groundwater sampling at MOC.

→ 1025 Excavation begins with crew including MG, CA, AP, DC, PS, SC and myself

→ 1040 Super sack *
NEC 22-S-1 filled weight

* 9/2 Cy Supersack. Filled too heavy for excavator to lift → loader used to lift NEC-22-S-1 from excavation — NEC-22-S-1 proved too heavy for loader to lift, super sack removed

Rite in the Rain

while in excavation, cut open and dumped to be re-bagged. 5 cy supersack will replace the former NEC-22-S-1 bag and will be named NEC-22-S-1.

→ 1200 lunch

→ 1300 Return to site 15, MOC, MW and AG continue groundwater sampling. Supersack NEC-22 S-1 is filled (wet) 8,100 ~~10,000~~ lbs 5 cy SS NEC-22-S-1 @ 1455.

→ 1500 NEC-22-S-2 filled 12,960 lbs

* 1445 → collected from NEC-22-S-1 / NEC-22-S-2 area 15,000 ppm from East corner excavation

→ 1545 ~~NEC-28~~ NEC 22-S-3 filled and weighed @ ~~12550~~ 12750 lbs

→ 1610 NEC22-S-4 filled weighing in @ 10950

→ 1618 head space grab screening samples, strong odor, wet, feels saturated, grey in color, clay/silt, >15,000 ppm [ambient breathing zone for workers 1-2 ppm] 12,950 lb for NEC22-S-5

→ 1630

→ 1645 NEC22-S-6 weighing in @ 12350

→ 1655 NEC22-S-7 weighing in @ 13100 lbs

→ 1700 NEC22-S-8 weighing in @ 10100 lbs

Rite in the Rain

12,500 (NEC22-S-47)
11,200 (NEC22-S-23)
12,050 (NEC22-S-24)
9,150 (NEC22-S-25)
10,700 (NEC22-S-26)
11,200 (NEC22-S-27)
11,500 (NEC22-S-28)
12,250 (NEC22-S-29)
12,750 (NEC22-S-30)
11,700 (NEC22-S-31)
12,400 (NEC22-S-32)
13,000 (NEC22-S-33)
12,500 (NEC22-S-46)

Running Total

8,100 (NEC22-S-1)
12,960 (NEC22-S-2)
12,750 (NEC22-S-3)
10,950 (NEC-22-S-4)
12,950 (NEC-22-S-5)
12,350 (NEC22-S-6)
13,100 (NEC22-S-7)
10,100 (NEC22-S-8)
11,700 (NEC22-S-9)
9,000 (NEC22-S-10)
9,550 (NEC22-S-11)

12,100 NEC22-S-48
13,800 (NEC22-S-34)
12,700 (NEC22-S-35)
11,400 (NEC22-S-36)
11,400 (NEC22-S-37)
11,750 (NEC22-S-38)
12,300 (NEC22-S-39)
10,850 (NEC22-S-40)
12,150 (NEC22-S-41)
11,150 (NEC22-S-42)
14,150 (NEC22-S-43)
11,300 (NEC22-S-44)
11,500 (NEC22-S-45)
13,450 (NEC22-S-46)
11,600 (NEC22-S-12)
11,100 (NEC22-S-13)
10,450 (NEC22-S-14)
11,050 (NEC22-S-15)
9,600 (NEC22-S-16)
10,650 (NEC22-S-17)
11,700 (NEC-22-S-18)
10,650 (NEC22-S-19)
10,850 (NEC22-S-20)
10,500 (NEC22-S-21)
10,700 (NEC22-S-22)

8/6/22 Saturday

→ 0630 health and safety meeting with same crew. Cooler with groundwater samples prep. for shipment (AG, JS)

→ 0800 PID calibration
100.3 ppm BESC042

→ 0830 super sacking @ MOC excavation site 15 continues (CA, DC, AP, PS, SC, and myself)

→ 0845 NEC22-S-9 weighing in at 11,700 lbs

→ 0910 NEC22-S-10 super sack straps broke while being lifted by loader over excavation - bag dropped back into excavation. NEC22-S-10 bag cut open, emptied, and re-bagged into new super sack labeled NEC22-S-10.

→ 0950 NEC22-S-10 weighing in @ 9,000 lbs

→ 1005 NEC22-S-11 weighing in @ 9550 lbs

Rite in the Rain

8/6/22 Saturday

→1015 NEC22-S-12 @ 11,600 lbs filled

→1030 NEC22-S-13 @ 11,100 lbs filled

*14ft to water - 15 ft to bottom on SE corner of excavation

→1050 NEC22-S-14 @ 10,450 lbs filled

Confirmation samples collected from bottom SE corner of excavation total of 5#

Screening samples

→1100 NEC22-S-15 @ 11,050 lbs filled

→1110 NEC22-S-16 @ 9,600 lbs

→1120 NEC22-S-17 @ 10,650 lbs filled

SE corner excavation confirmation soil sample field screening PID readings

Bottom 15'	#5	278.9 ppm
Bottom 15'	#4	194.5 ppm
Bottom 15'	#3	287.5 ppm
Bottom 15'	#2	323.5 ppm
Bottom 15'	#2	173.4 ppm
Sidewall 12-15'	#5	152.3 ppm
Sidewall 12-15'	#4	278.7 ppm
Sidewall 12-15'	#3	195.9 ppm

8/6/22 Saturday

Sidewall 12'-15'	#2	168.9 ppm
Sidewall 12'-15'	#1	142.5 ppm

Confirmation Sample 22NEC-S15-SS01 collected from bottom 15' of SE corner of excavation @ 1140

→1145 22NEC-S15-SS02 collected from sidewall 12'-15' of SE corner of excavation

→1146 NEC22-S-18 @ 12,700 lbs filled

→1146 NEC22-S-19 10,650 lbs filled

→1150 moved into supersack 20, NEC22-S-20, PID reading 336.2 ppm

→1155 NEC22-S-20 10,850 lbs filled

* 221,166 lbs bagged total

→1200 lunch

→1330 NEC22-S-21 10,500 lbs filled

→1340 NEC22-S-22 10,700 lbs filled

Ambient air reading 0.4 ppm

Rite in the Rain

8/6/22 Saturday

→1350 NEC22-S-23 11,200 lbs filled

→1355 NEC22-S-24 10,050 lbs filled

* Due to the high saturated moisture content of excavation soils, Supersacks had to be filled strategically

273 ppm → 1430 NEC22-S-25 9,150 lbs filled

→1450 NEC22-S-26 10,700 lbs filled

→1500 NEC22-S-27 11,200 lbs filled

→1515 NEC22-S-28 11,500 lbs filled

156.6 ppm → 1525 NEC22-S-29 12,250 lbs filled

→1530 NEC22-S-30 12,750 lbs filled

→1545 NEC22-S-31 11,700 lbs filled

→1600 NEC22-S-32 12,400 lbs filled

→1605 NEC22-S-33 13,000 lbs filled

→1615 NEC22-S-34 13,800 lbs filled

273.4 ppm → 1620 NEC22-S-35 12,700 lbs filled

→1630 NEC22-S-36 11,400 lbs filled

→1640 NEC22-S-37 11,400 lbs filled

263 ppm → NEC22-S-38 11,750 lbs filled

→1700 NEC22-S-39 12,300 lbs filled

→1715 NEC22-S-40 10,850 lbs filled

→1730 NEC22-S-41 12,150 lbs filled

8/6/22 Saturday

15 1/2 ft on South middle of excavation

→1735 NEC22-S-42 11,150 lbs filled

→1745 NEC22-S-43 14,150 lbs filled

→1755 NEC22-S-44 11,300 lbs filled

131.5 ppm → 1805 NEC22-S-45 11,500 lbs filled

→1815 NEC22-S-46 13,450 lbs filled

→1825 NEC22-S-47 12,500 lbs filled

→1834 * NEC22-S-48 12,100 lbs filled

→1845 NEC22-S-49 12,500 lbs filled

214.3 ppm → 1855 NEC22-S-50 11,650 lbs filled

→1900 Waste Char. Samples NEC22-WC-1 Collected
NEC22-WC-2

EOD

Rite in the Rain

 8/7/22 Sunday

→0630 health and safety meeting with crew

→0715 PID reading/calibration 99.7 ppm
BESCO 4/2
See MG's notes

→1200 lunch

→1330 crew returns to dig at excavation on MOC at Sh. 15 (CA, MG, AP, PS, MW, AG, SC, DC,)
Digging to 15 on southern extent of excavation — currently the SW corner -12' and S sidewall and bottom -14'.

→1420 West end/back South west side of excavation @ 15.5 ft
Field screening completed on excavation base and W and SW sidewalls.

→1535 field screening completed on North central sidewall and base of excavation

 8/7/22 Sunday

→1600

PID Field screening

Sidewall-1-W1	73.5 ppm	
Sidewall-1-W2	54.1 ppm	
Sidewall-1-W3	56.5 ppm	
Sidewall-1-W4	144.2 ppm	✓ SS3
Sidewall-1-W5	128.3 ppm	SS18
Sidewall-2-W6	52.3 ppm	
Sidewall-2-W7	50.1 ppm	
Sidewall-2-W8	48.9 ppm	
Sidewall-2-W9	79.6 ppm	✓ SS4
Sidewall-2-W10	50.1 ppm	
Sidewall-11	65.6 ppm	
Sidewall-12	189.9 ppm	
Sidewall-13	81.6 ppm	
Sidewall-14	236.6 ppm	✓ SS5
Sidewall-15	137.8 ppm	
Sidewall-16	~~214.1 ppm~~ 192.8 ppm	JL 8/7/22
Sidewall-17	214.1 ppm	
Sidewall-18	217.4 ppm	
Sidewall-19	121.0 ppm	
Sidewall-20	226.0 ppm	✓ SS6
Sidewall-21	429.3 ppm	✓ SS7
Sidewall-22	143.7 ppm	
Sidewall-23	219.7 ppm	

Scale: 1 square = _____ Rite in the Rain

			Screening	ppm
	Sidewall-24	176.4 ppm	Base-8	19.0
	Sidewall-25	150.0 ppm	(5) Base-9	15.0
	Sidewall-26	224.0 ppm	(16) Base-10	11.6
SS8	Sidewall-27	291.8 ppm	(8) Base-11	7.8
	Sidewall-28	175.8 ppm	Base-12	6.8
	Sidewall-29	212.7 ppm	Base-13	6.3
	Sidewall-30	164.5 ppm	Base-14	5.8
	Sidewall-31	221.3 ppm	Base-15	5.3
	Sidewall-32	158.3 ppm		
SS9	Sidewall-33	253.8 ppm ✓		
	Sidewall-34	112.2 ppm		
	Sidewall-35	222.0 ppm		
	Sidewall-36	128.9 ppm ✓	SS10	
	Sidewall-37	53.0 ppm		
	Sidewall-38	91.2 ppm		
	Sidewall-39	42.1 ppm		
	Sidewall-40	95.0 ppm		
	Base-1	45.5 ppm		
	Base-2	15.8 ppm ✓	~~SS11~~ SS12	
	Base-3	60 ppm		
	Base-4	101.4 ppm		
	Base-5	112.0 ppm ✓	SS11,	SS911
	Base-6	131.6 ppm ✓	SS13	
	Base-7	110.5 ppm	SS14,	

→1605 Soil sample 22NEC-S15-SS03 collected from west sidewall at 12'-15' ft bgs

→1615 soil sample 22NEC-S15-SS04 collected from west sidewall at 12'-15' ft bgs

→1630 Soil sample 22NEC-S15-SS05 collected from southwest corner of sidewall 12'-15' bgs.

→1700 soil sample 22NEC-S15-SS06 collected from southwest/central sidewall 12'-15' bgs.

→1800 soil sample 22NEC-S15-SS07 collected from northwest corner of sidewall 12'-15' bgs.

→1805 soil sample 22NEC-S15-SS08 collected from northwest ~~corner~~ side of sidewall 12'-15' bgs.

→1810 soil sample 22NEC-S15-SS09 collected from north central sidewall of excavation. 22NEC-S15-SS909 collected @ 1910 (Duplicate), 12'-15'

→1815 soil sample 22NEC-S15-SS10 collected from northeast sidewall 12'-15' bgs of excavation

→1920 soil sample 22NEC-S15-SS11 collected from base of westernmost area of excavation. 22NEC-S15-SS911 collected 1920 (Duplicate)

→1930 soil sample 22NEC-S15-SS12 collected from SW corner of excavation from bottom/base adj. SS11 location.

Rite in the Rain

8/7/22 Sunday

→1840 NEC22-S15-SS13 soil confirmation sample collected from excavation base at west central area @15 ft

→1845 NEC22-S15-SS14 soil confirmation sample collected from N central excavation from base at 15'

→1850 NEC22-S15-SS15 soil confirmation sample collected from S central excavation area from base at 15'

→1855 NEC22-S15-SS16 with m/mod base soil sample collected from central excavation location at 15'

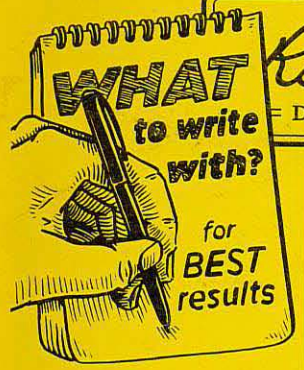
→1900 ~~NEC22-S15-SS17 m/mod~~ NEC22-S15-SS17 base sample ~~collected from~~ collected from central base location of excavation, 15'

→1905 NEC22-S15-SS18 base soil sample collected from sidewall 12'-15' bgs

EOD

JA 8/7/22

Scale: 1 square = _____



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The *Rite in the Rain* story began a century ago in the forests of the Great Pacific Northwest. Entrepreneur Jerry Darling recognized the logging industry's need for a durable material that could be written on and survive in poor weather conditions. Jerry developed a special coating that created a unique moisture shield on the hand-dipped sheets of paper that he and his wife, Mary, processed at their home. From these humble beginnings our first all-weather paper was born. Over the many years we've perfected and patented our environmentally responsible coating process. Still located in Tacoma, our continued mission is to provide innovative products for professionals and enthusiasts who brave the outdoors.

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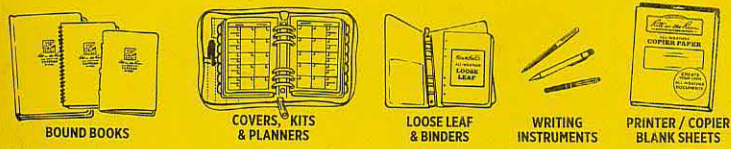

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CONTENTS

PAGE	REFERENCE	DATE

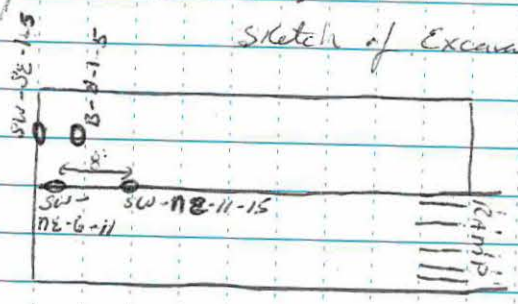
8/9/22 Tuesday

→ 0630 health and safety meeting w/ same crew

→ 0700 C.C, sample tracking updated, sample cooler packing by AG, SC, and myself. DC, AP, MW transport supersacks from Site 15 MOC to barge landing area on beach

→ 0845 MG, CA, PS, and myself on MOC continuing excavation and sampling (confirmation samples of sidewalls and base of excavation). PID BESC043 zero calibrated, then span calibrated 105.7 ppm. Southeast area of excavation east sidewall and adjacent base flow of excavation.

Sketch of Excavation



PID field screenings:

Sidewall - SE-1	121.6 ppm
Sidewall - SE-2	136.5 ppm
Sidewall - SE-3	179.7 ppm

Scale: 1 square =

Scale: 1 square =

8/9/22 Tuesday

PID Field screenings cont.

Sidewall - SE - 4	107.5 ppm
Sidewall - SE - 5	156.5 ppm
Base - E - 1	44.1 ppm
Base - E - 2	75.9 ppm ✓
Base - E - 3	55.5 ppm
Base - E - 4	58.2 ppm ✓
Base - E - 5	105.5 ppm ✓
Sidewall - NE - 6	10.7 ppm
Sidewall - NE - 7	5.9 ppm
Sidewall - NE - 8	67.8 ppm
Sidewall - NE - 9	45.1 ppm
Sidewall - NE - 10	124.9 ppm ✓
Sidewall - NE - 11	47.4 ppm
Sidewall - NE - 12	148.0 ppm
Sidewall - NE - 13	147.6 ppm
Sidewall - NE - 14	713 ppm
Sidewall - NE - 15	281.0 ppm ✓

→ 0940

Sample 22NEC - S15 - SS19 collected from southeast sidewall 12'-15' bgs with PID reading 179.7 ppm (field screening ID Sidewall - SE - 3).

→ 0945 soil grab sample 22NEC - S15 - SS20 collected from SE base of excavation at Site 15 (field screening ID Base - E - 2) PID reading 75.9 ppm

→ 0950 soil sample 22NEC-S15-SS21 collected from SE base of excavation at Site 15 (field screening ID Base - E - 4) PID reading 58.2 ppm.

→ 0955 soil sample 22NEC-S15-SS22 collected from SE base of excavation at site 15 (field screening ID Base - E - 5) PID reading 105.5 ppm

→ 1000 soil sample 22NEC-S15-SS23 collected from NE sidewall 12'-15' bgs of excavation at Site 15 (field screening ID ~~Base~~ JJ 8/12/22 Sidewall - NE - 10) with PID reading of 124.9 ppm. MS/MSD collected.

→ 1005 soil sample 22NEC-S15-SS24 collected from NE sidewall 12'-15' bgs at excavation at site 15 (field screening ID Sidewall - NE - 15) PID reading of 281.0 ppm. Duplicate 22NEC-S15-SS924 collected at 1105.

→ 1115 JS return to camp, pack coolers and prepare for sample shipment. ~~He aftern~~ assisted by AG, and SC.

→ 1200 lunch

→ 1300 Decontaminate excavator tracks and prepare for dredging at site 28.

→ 1900
EOD

JA 8/9/22

8/10/22 Wednesday

→ 0630 health and safety meeting with same crew

→ 0730 Calibrated Turbidimeter (JS)

120 NTU	100 NTU standard
24.2 NTU	20 NTU standard
0.13 NTU	<0.1 NTU standard
867 NTU	800 NTU standard

→ 0745 CA, DC, PS, AP, SC, AG and myself arrive on site MOC to prepare for dredging.

→ 0815 JS collect turbidity measurements

from surface water locations prior to start of dredging.

→ 0817	22NEC-S28-SW-01	25.8 NTU
→ 0822	22NEC-S28-SW-02	16.1 NTU
→ 0825	22NEC-S28-SW-03	11.5 NTU
→ 0829	22NEC-S28-SW-04	26.4 NTU
→ 0838	22NEC-S28-SW-05	16.1 NTU

→ See MG's notes

JA 8/10/22

→ 1841	22NEC-S28-SW-01	29.2 NTU
→ 1845	22NEC-S28-SW02	44.3 NTU
→ 1847	22NEC-S28-SW03	40.5 NTU

 8/10/22 Wednesday

→1850 22nEC - S28 - SW05 97.8 nTU
→1853 22nEC - S28 - SW04 127.0 nTU
→1900
EOD

JS 8/10/22

8/11/22 Thursday

→0630 health and safety meeting including MG, CA, DC, PS, MW, SC, AG, CB, JK, and myself along with EMT Alaska minerals crew.
→0730 Calibrated Turbidimeter (JS)

20 nTU standard	21.6 nTU
<0.1 nTU standard	0.18 nTU
100 nTU standard	94.9 nTU
800 nTU standard	812.0 nTU

→0800 SC, AG, myself, MW, PS, CA, DC, CB, JK arrive at MOC to prepare for dredging.

→0815 collect water turbidity measurements from surface sample water locations prior to start of dredging.

→0820 22nEC - S28 - SW - 01 12.7 nTU
→0825 22nEC - S28 - SW - 02 15.5 nTU
→0828 22nEC - S28 - SW - 03 17.5 nTU
→0832 22nEC - S28 - SW - 05 23.9 nTU
→0838 22nEC - S28 - SW - 04 16.0 nTU
→0900 dredging prep continues, followed by completion of dredge activities - see MG's notes

→1710 JS begins collection of water turbidity at surface water sample locations #1 thru #5 following dredge activities at area 3 and and area 4.

→1717 22nEC - S28 - SW - 01 12.8 nTU
→1725 22nEC - S28 - SW - 02 18.2 nTU
→1728 22nEC - S28 - SW - 03 22.6 nTU
→1731 22nEC - S28 - SW - 05 35.3 nTU
→1734 22nEC - S28 - SW - 04 58.3 nTU

→1745 assist with misc. MOC clean-up activities

→1900
EOD

JS 8/11/22

→ 0630 health and safety meeting

→ 0715 Aqua Troll bump test (AG, SC, JS)

Conductivity	8,116.3 uS/cm
pH	7.11 pH
ORP	217.4 mV
Temp.	11.58°C
RDO	12.43 mg/L

→ 0730 Tubidity Calibration (JS)

20 nTu standard	21.1 nTu
100 nTu standard	103.0 nTu
<0.1 nTu standard	0.10 nTu
800 nTu standard	803.0 nTu

→ 0745 I arrive on MOC with CA, DC, PS, MW, AG, SC, JK, and CB who arrived on MOC at 0730 to prepare for dredging and re-secure Geotube

→ 0820 collect surface water turbidity from surface water locations #1 through #5 prior to dredging activities.

→ 0823	22nEC-S28-SW-01	13.0 nTu
→ 0824	22nEC-S28-SW-02	10.4 nTu
→ 0826	22nEC-S28-SW-03	11.7 nTu
→ 0828	22nEC-S28-SW-05	16.6 nTu
→ 0830	22nEC-S28-SW-04	17.0 nTu

→ 0845 SC and JS collect surface water sample 22nEC-S28-SW-06 at 22nEC-S28-SW-01 and recorded the following parameters with Aqua Troll:

Temp. 48.13°F
pH 6.77 pH
Specific Conductivity 247.42 uS/cm
ORP 59.0 mV
Tubidity 7.07 nTu
RDO 8.98 mg/L
RDO saturation 78.57 %
Total dissolved solids 0.16 ppt

→ 0915 SC and JS collect surface water sample 22nEC-S28-SW-07 at 22nEC-S28-SW-03 and recorded the following parameters with Aqua Troll:

Temp. 47.91°F pH 6.58
Specific Conductivity 238.98 ORP 44.30 mV

Rite in the Rain

Turbidity 9.66 nTU RDO 8.58 mg/L
RDO % saturation 74.36
TDS 0.15 ppt

→ 0945 SC and JS collect surface water sample 22nEC-S28-SW-08 at 22nEC-S28-SW-05 location and recorded the following parameters with Aqua Troll:
Temp. 47.28 pH 6.82
Specific Conductivity 237.05
ORP 25.6
Turbidity 13.88 nTU
RDO 9.68 RDO% saturation 83.18
TDS 0.15 ppt

→ 1000 SC and JS collect surface water sample 22nEC-S28-SW-09 at 22nEC-S28-SW-04 location and recorded the following parameters with Aqua Troll:
Temp. 49.04 F pH 7.20
Specific Conductivity 250.86
ORP 2.31
Turbidity 13.91

RDO 9.53 RDO% saturation 83.82
TDS 0.16
Duplicate sample 22nEC-S28-SW-09 @ 1100 was also collected from surface water sampling location 22nEC-S28-SW-04.

→ 1025 JS return to camp to update sample tracking log and prepare cooler for shipment/pack with ice.

→ 1200 lunch

→ 1300 update sample tracking log and inspect landfill cap.

→ 1600 JS returns to MOC, stationed @ pond #2 for dredging

→ 1830 Collect surface water turbidity from surface water locations #1 thru #5 ~~and to~~ after dredging activities, (AG and SC) JS 8/12/22

→ 1850 22nEC-S28-SW-01 12.8 nTU
→ 1855 22nEC-S28-SW-02 11.7 nTU
→ 1858 22nEC-S28-SW-03 25.3 nTU
→ 1800 22nEC-S28-SW-04 128.0 nTU
→ 1910 22nEC-S28-SW-05 108.0 nTU

Rite in the Rain

→ 0630 health and safety meeting with same crew

→ 0730 At MOC (CA, CB, SC, AG, MW, PS, JK, JS) calibrate turbidimeter.

20 nTU standard	30.4 nTU
failed calibration	
value out of range	24.2 nTU
	23.2 nTU
100 nTU standard	105.0 nTU
<0.1 nTU standard	0.41 nTU
800 nTU standard	834.0 nTU

→ 0755 collect surface water turbidity from surface water locations #1 thru #5 prior to dredging activities (JS)

→ 0800	22nEC-S28-SW-01	9.67 nTU
→ 0803	22nEC-S28-SW-02	8.39 nTU
→ 0808	22nEC-S28-SW-03	9.17 nTU
→ 0815	22nEC-S28-SW-05	13.6 nTU
→ 0823	22nEC-S28-SW-04	17.9 nTU

→ 0830 Dredging starts (JS) monitor pond #2 while operating pump. Following stream dredging, five ponds

are also dredged and shorted where ponds lack water but sediment present. Refer to MG's notes

→ 1750 collect surface water turbidity from surface water locations #1 thru #5 following dredging activities (JS)

→ 1751	22nEC-S28-SW-01	15.5 nTU
→ 1754	22nEC-S28-SW-02	14.6 nTU
→ 1755	22nEC-S28-SW-03	15.6 nTU
→ 1757	22nEC-S28-SW-05	18.0 nTU
→ 1759	22nEC-S28-SW-04	17.6 nTU

→ 1815 update sample tracking log, record waste characterization samples

→ 1900 EOD

JA 8/13/22

Rite in the

→ 0630 health and safety meeting with same crew

→ 0730 update project tracking, prepare sample coolers for shipment, make COC for the two sample coolers (waste characterization and surface water samples), edit SOP document (JS and MG), also scan field notes

→ 1200 lunch

→ 1300 return to MOC re-bagging remaining material from excavation (CA, DC, PS, AG, SC, MW, JK, and myself)

→ 1315	nec22-s-68	9,850 lbs
→ 1320	nec22-s-69	12,000 lbs
→ 1325	nec22-s-70	10,150 lbs
→ 1330	nec22-s-71	10,350 lbs
→ 1340	nec22-s-72	10,450 lbs
→ 1345	nec22-s-73	9,950 lbs
→ 1355	nec22-s-74	10,000 lbs
→ 1400	nec22-s-75	10,300 lbs
→ 1405	nec22-s-76	11,000 lbs
→ 1410	nec22-s-77	10,900 lbs

→ 1415	nec22-s-78	11,850 lbs
→ 1420	nec22-s-79	9,600 lbs
→ 1430	nec22-s-80	11,000 lbs
→ 1435	nec22-s-81	10,050 lbs
→ 1445	nec22-s-82	11,350 lbs
→ 1450	nec22-s-83	10,700 lbs
→ 1455	nec22-s-84	10,950 lbs
→ 1500	nec22-s-85	9,400 lbs
→ 1510	nec22-s-86	10,550 lbs
→ 1520	nec22-s-87	10,050
→ 1530	nec22-s-88	9,700
→ 1535	nec22-s-89	12,150
→ 1543	nec22-s-90	11,150
→ 1550	nec22-s-91	11,100
→ 1555	nec22-s-92	12,600
→ 1600	nec22-s-93	12,500

Rite in the Rain

*→ 0745 SC and AG calibrate turbid. meter

20 nTU standard (STD)	21.1 nTU
100 nTU STD	107 nTU
800 nTU STD	837 nTU
<0.1 nTU STD	0.1 nTU

→ 0830 SC and AG collect surface water turbidity from surface water locations #1 thru #5 at site 28.

→ 0830	22NEC-S28-SW-01	11.4 nTU
→ 0835	22NEC-S28-SW-02	7.13 nTU
→ 0840	22NEC-S28-SW-03	7.52 nTU
→ 0845	22NEC-S28-SW-05	8.69 nTU
→ 0850	22NEC-S28-SW-04	13.1 nTU

CA, PS, MW, AG, SC, DC, and CB fill supersacks with remaining base and sidewall material from excavation (5 cy supersacks).

→ 0850	NEC22-S-52	11,800 lbs
→ 1000	NEC22-S-53	10,550 lbs
→ 1015	NEC22-S-54	10,450 lbs
→ 1030	NEC22-S-55	9,950 lbs
→ 1035	NEC22-S-56	10,850 lbs
→ 1040	NEC22-S-57	10,800 lbs
→ 1050	NEC22-S-58	11,800 lbs

→ 1100 NEC22 - S - 59 10880 lbs
→ 1110 NEC22 - S - 60 10900 lbs
→ 1115 NEC22 - S - 61 11,400 lbs
→ 1120 NEC22 - S - 62 11,300 lbs
→ 1130 NEC22 - S - 63 9,850 lbs
→ 1135 NEC22 - S - 64 10,580 lbs
→ 1145 NEC22 - S - 65 10,160 lbs
→ 1150 NEC22 - S - 66 11,330 lbs
→ 1155 NEC22 - S - 66 11,750 lbs

→ Refer to MG's notes

8/14/22

→ 0630 health and safety meeting with same crew including Jake

→ 0730 JS and AG prepare for groundwater and surface water sampling

→ 0915 groundwater sample 22NEC-MOC-MW10-1-2 collected from monitoring well MW10-1 for PAH analysis. Water samples packaged in two 100 mL non-preserved amber glass jars.

→ 0945 groundwater sample ~~22NEC-MOC-MW~~ 22NEC-MOC-14MW02-2 collected from monitoring well 14MW02 for PAH analysis. Water samples packaged in two 100 mL non-preserved amber glass jars.

→ 1030 groundwater sample 22NEC-MOC-14MW05-2 collected from monitoring well 14MW05 for PAH analysis. Water samples packaged in two 100 mL non-preserved

amber glass jars.

→ 1110 groundwater sample
22NEC-MOC-14MW04-2 collected from monitoring well 14MW04 for PAH analysis. Water samples packaged in two 100 mL non-preserved amber glass jars.
Duplicate 22NEC-MOC-14MW04-92 was collected from 14MW04 at time 1210.

→ 1145 Surface water sample
22NEC-S28-SW-10 from surface water sample location 22NEC-S28-SW-04 and recorded the following parameters with Aqua Troll:
Temp. 41.77°F
pH 6.89
specific Conductivity 302.88
ORP -8.8
Turbidity 31.55
RDO 11.21

TDS 0.2
RDO % saturation 89.05%

→ 1200 lunch

→ 1300 AG, JS, and JK leave camp and arrive at MOC to continue water sampling and site clean-up.

→ 1330 AG and JS collect surface water sample 22NEC-S28-SW-11 from water sample location 22NEC-S28-SW-05 and recorded the following parameters with Aqua Troll:
Temp. 41.90°F
pH 6.77
Specific Conductivity 272.05
ORP 11.4
Turbidity 9.87 nTu
RDO 11.20
TDS 0.18
RDO % saturation 88.92%

→1345 AG and JS collect surface water sample 22NEC-S28-SW-12 from surface water location 22NEC-S28-SW-03 (03) and recorded the following parameters with Aqua Troll:

Temp 41.45°F
pH 6.62
Specific Conductivity 230.04
ORP 30.7
Turbidity 5.66 nTU
RDO 11.03
TDS 0.15
RDO% saturation 86.8%

→1400 AG and JS collect surface water sample 22NEC-S28-SW-13 from surface water location 22NEC-S28-SW-01 and recorded the following parameters with Aqua Troll:

Temp. 41.56°F
pH 6.64
Specific conductivity 230.88
ORP 53.7
Turbidity 15.20
RDO 11.84

TDS 0.15
RDO% saturation 93.45

→1420 AG and JS return to camp to complete CoC and update sample tracking, and prepare sample cooler PACE-22NEC-W007 for shipment.

→1830 AG calibrates turbidity

→1845 22NEC-S28-SW-02 7.77 nTU

*0839 AG ~~and SC~~ JA 8/15/22 complete bump check for Aqua Troll:

Temp 5.71°C pH 7.17 pH
Conductivity 7,912.5 uS/cm
ORP 215.1 mV
RDO 12.83 mg/L

Rite in the Rain

8/15/22 Monday

→1900 EOD

JA 8/15/22

8/16/22 Tuesday

→0630 health and safety meeting with same crew

→0715 JS calibrated PID BESC043 97.9 ppm

→ Refer to MG's notes —

JA 8/16/22

Scale: 1 square = _____

Scale: 1 square = _____

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Northeast Cape FUDS
Site 28 Sediment Removal and Various
Follow-up Actions
W911KB-20-D-002
25 July 2022 - 10 August 2022

INCH

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1

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CONTENTS

PAGE	REFERENCE	DATE

Monday 25 July 2022 Rainy, fog 40°F

0630. Breakfast. Site safety Meeting

0715. Crew goes over daily plan, splits into three crews:

Chad Armintrout (CA)
Scotty Mann (SM)
Andrew Platt (AP)
Dave Clifford (DC)
to work on GAC system and supplies.

Dylan Hickey (DH)
Patrick Schick (PS)
to survey

Monte Garrotte (MG)
Greg Filbey (GF)
Tigan Donaldson (TD)
Michael Williams (MW)
to review QC checklists, DQCRs, then perform ISM sampling.

0730. MG + crew to site is stockpile footprint area to ISM sample.

Crew lays out a 200 ft X 250 ft area for sampling. Sampling area is divided into 30 grid cells.

Random area selected in first cell —

other 2 increments are to the right and above of the random area.

1005. ISM sample 22NEC-S15-DU1-SS01, DRO.

1010. ISM 22NEC-S15-DU1-SS02 for DRO

1015. ISM 22NEC-S15-DU1-SS03 for DRO

1030. Crew prepares to set up for ISM at containment area; inspects geotubes and containment basins - available area for working is approx. 140 X 230 ft., with a smaller area of 100 ft. X 230.

Area will be 1 ISM sample, with 8 x 4 cells.

1230. Lunch. Crew discussed operations.

1300. Crew mob to MOC to continue setup and ISM.

— Random part of cell selected for sampling , dup. and triplicate to right and above.

1305. Sample 22NEC-S28-DU1-SD01

1310. sample 22NEC-S28-DU1-SD02

1320. sample 22NEC-S28-DU1-SD03

all 3 samples ISM DRO, RRO, PAH.

1330. Crew begins preparing Diaphragm pumps for dredging system - then placing pump and solid pipe runs, and check floats along run.

25 July 2022

1600. SM stops by camp, Internet is working. SM contacts client and arranges next flights out.

1610. Crew begins filling sand bags and GAC vessels.

1700. MG, TD, MW, PS to complete sample paperwork and dailies at camp, SM, CA, DC, GF to fill GAC vessels.

1900. Crew back at camp, GAC vessels are filled.

Appended Notes -

1417. Photo CM190001, facing SE, photo of ISM sample 22NEC-S28-DU1-SD01 pre-containment area. footprint.

1418. Photo CM190002, facing South, ISM sample 22NEC-S15-DU1-SS01, the site 15 stockpile footprint.

End of Day

Matt Comerford 7/25/22

Tuesday
26 July 2022. Clear, windy, 38°F

0700. Site safety Meeting. Daily planning. Flight is expected around 1300 with EMT and 1 Brice Personnel (Jane Sutey), and a tribal representative from Gambell (Curtis Sikox).

0730. Crew Mobs to MOC. MG stays at camp to complete paperwork. Crew is setting up dredge containment and GAC vessels.

1030. MG back to MOC. Crew is setting up containment area. First containment area is designed as follows:

1. 40 mil HDPE liner layflat
2. Felt Geofabric
3. 40 mil HDPE Permpac containment.

Containment area slopes slightly downhill towards Site 28, oriented towards N-S on long side.

1105. Photo CM190003, facing NE, setup of S28 containment berm.

1200. Crew heads to camp for lunch.

1207. Photo CM190004, facing east. Camp setup nearly complete at Site 6.

1230. Crew shifts rooms in prep for incoming crew, then continues to build containment and fill the sand filter vessels.

26 July 2022

1400. Crew sets up second containment area. Bering Air charter arrives. with Jane Suhey (JS) and Beacon EMT Craig Perry.

1445. Crew finishes second containment area. Crew cleans up and goes to finish sand bagging.

1535. Photo CM190005, facing SE, Both containment areas set up, first with the large (45' L) Geotube.

1535. Photo CM190006 facing SE, Site is pre-excavation.

1536. Photo CM190007, Facing NW, Sediment dredging area nearest the dewatering area.

1537. Photo CM190008, facing SE, Project laydown area at the MOC

1538. Photo CM190009, facing SE, Sand filters for dewatering system.

1538. Photo CM190010, facing NE, GAC vessels for dewatering system, not yet installed.

1545. MG+SM to build flocculant system mount, Rest of crew

26 July 2022

1645. MG+SM finish flocculant frame, Jane Suhey (JS) to MOC.

1700. MW, TD, PS finish sand bags - Will mob to camp and set up environmental container. CA, DC, AP, GF setting up GAC. GAC has moved so that vessels are too close together for the top manifold to fit. Crew will work to fix - appears GAC vessels were bent during transport.

1900. Crew back to camp. Dinner.

2000. MG+CA to inspect LUC signs. Sign at airport is completely gone. Sign at barge landing is down but may be able to be ripped off. End of day.

Matt Cerutti 7/26/22

Wednesday 27 July 2022 Sun, 50°

0700. Site safety. Crew will continue S28 Setup and Surface water Sampling.

0730. MG, TD, PS, MW to go over DQCR, review workplan and set up sampling equipment. Rest of crew to set up GAC system.

1000. MG, TD, PS to Surface water Sample, MW to help set up floc. system with GF.

1030. Sample 22NEC-S28-SW-01 and field duplicate 22NEC-S28-SW-901. Surface water samples collected from furthest north 2013 location. DRO/RRO, BTEX, PAH. Parameters:

ORP: 57.8 mV
DO: 83.11%
Temp: 11.35°C
PH: 7.46
Conductivity: 181.58 µS/cm
Turbidity: 2.32 NTU

1050. Sample 22NEC-S28-SW-02 MS/MSD for DRO/RRO, BTEX, and PAH.

ORP: 54.1 DO: 85.82% Temp: 11.19
PH: 6.80 Cond: 190.19 µS/cm Turb: 2.22

1105. Sample 22NEC-S28-SW-03, surface water sample for DRO/RRO, BTEX, and PAH. ORP:
DO: 72.59% Temp: 9.51°C PH: 6.39 Cond: 192.57
Turb: 5.81

27 July 2022

1120. Sample 22NEC-S28-SW-04 surface water for DRO/RRO, BTEX, PAH.

DO: 90.53% Temp: 10.11°C pH: 6.68
Cond: 205.47 Turb. 5.26 ORP: 49.8

1130. MG + MW to pack cooler of surface water, at Camp. TD and JS to ISM discharge area.

1135. Upon arrival at Camp, observed that the camp manager had spilled a small amount of fuel while refueling. Spill was immediately stopped, absorbents were applied from spill kit, and crew was alerted. Crew returned with a skid steer /w loader bucket to dig up dirt around impacted area, estimated approx 1 gallon. Soil was removed until no odor or staining was observed.

1230. Lunch.

1300. Crew returns to MOC to continue ISM at discharge area and rest of crew to finish dewatering area.

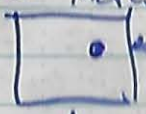
1336. Photo CM180001. Facing SE. Treated water discharge area pre-discharge, ISM sample.

1345. Crew is ISM sampling at discharge area.

1350. ISM sample 22NEC-S28-DU2-SD01 MS/MSD for DRO/RRO, PAH. →

27 July 2022

1350. ISM DU is 21'W x 34'L, 30 increments -



← random location within each cell.

1500. Aaron Showman arrives on air charter, also cargo arrives. MG + SM. Pick up Aaron and unload supplies.

1600. Drop off Aaron and unload supplies.

1645. Aaron Showman USACE Rep (AS) arrives on site, introduced to crew.

1700. MG + SM decide to conduct first dredging at Area 6. This will eliminate several variables at the further away Area 9. Team set up at Area 6, all set up except for Floc system and Final GAC fittings.

1600. TD and JS to Camp to Cooler Pack and QC paperwork.

1700. End of day.

Matt Gorath 7/27/22

Thursday 28 July 2022. Fog, 45°

0700. Site safety. Crew to perform pilot study today.

0730. MG review DQCR with AS. MW, TD, JS Pack coolers.

0900. MG at MOC. Crew nearly set up at Area 6, Site 28.

0915. CA, DC hauling rock to Site 15 laydown, MW, JS, TD picking debris.

0945. MG, AS review surface water sample locations. Debris picked from Site 15 ~0.25 CY.

1030. MG, TD, JS set up GW well leveling.

1045. Team reviews Dredging AHA, goes over hazards. Cold water, engines, refueling. Discuss layout and processes. Will start with 3 people at dredge, 2 at floc, geotube system. System illustration on next page.

1100. Team sets up for pilot study.

1121. Photo CM190011, Containment and dewatering system, set up. Facing East.

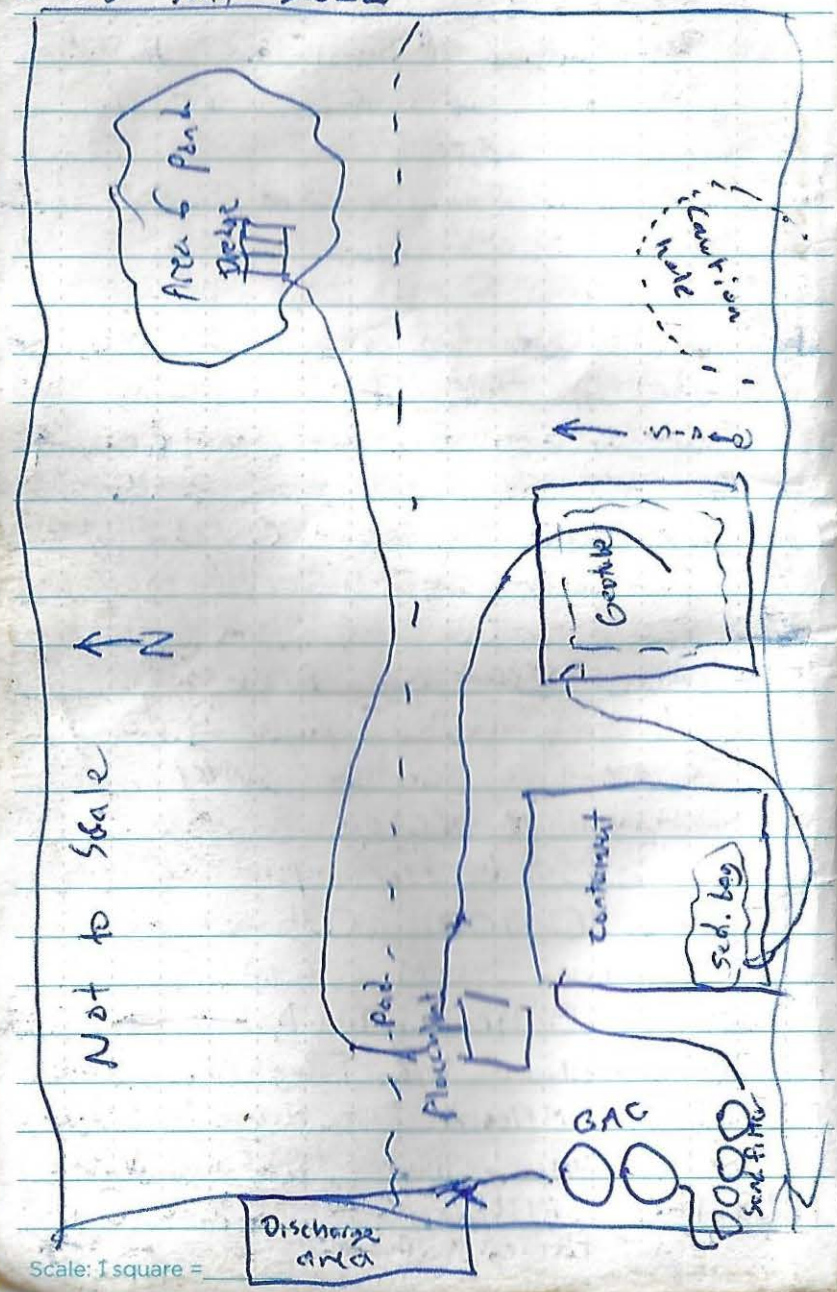
1121. Photo CM190012, Tiyan D. ~~Water Samp~~ MG 7/28 opening well at MOC, Facing N.

1124. Photo CM190013, Team reviewing dredge setup before pilot study, Facing N.

1128. Photo CM190014, Site 28 area 6 pilot. Facing Northwest.

Rite in the Rain

28 July 2022



28 July 2022

1135. Begin dredging. Adjusting flow rate and floc rate. Keeping floc at a minimum while flow adjusts.

1155. Stop dredging. Team will put on dry diving suits and reset after lunch.

1230. Lunch.

1300. Team sets up for continuing pilot test, team in Dry suits.
MG + GF test flow rates from floc pump. Sheal set at 20 speed, 30 stroke for starting pump rate, 12 GPM freshwater input.

1430. Change fish tote freshwater tank.

1500. Photo CM190015, facing East. Brice sampling dewatering system discharge of treated water.

1500. Sample 22NEC-528-WQ-01, for BTEX and PAH. from GAC treatment system. Water was clear, no odor.

1520. Crew shuts down Area 6 pilot test. Will reevaluate system and try setting up at rivulets (Area 9+). Will separate the jet and dredge intake, will set up more water at floc system, will shorten the length behind the dredge, add in line pump

Rite in the Rain

28 July 2022

1616. Photo (CM190016), facing east, Pulling dredge to Area 9. Team set up BMPs (silt fence) along site 28 between stilling area, Sugi., and Area 9.

1708. Photo (CM190017), facing NE, Silt fence by Sugi R. Confluence.

1715. Clean up site. Total dewatered - approx 3444 gallons. from flowmeter, plus ~800 gallons freshwater for 4244 gallons treated. Turbidity = 10.2 NTU.

1800. End of day.

Matt Smith 7/25/22

Friday

29 July 2022 partly cloudy, 0-10mph, 50°F

0700. Site safety. Team to set up at site 28, Area 9. Will finish DOCR with AS at lunch.

0730 Crew sets up Area 9 Dredging Pilot. Moves ponds so that next in-line pump intake.

Area 9 setup has 3 ponds - 2500 gal each, with diaphragm pumps on the end of each, approx. 300 ft apart. First pond is ~250 ft from dredge, with ~5 foot elevation change.

0930. Discussed surface water locations, with USACE Aaron, will check 2013 report for 4th location.

- Set up a second recirc. trash pump at 1st containment, set up second geotube in second containment.

1000. Set up for pilot test - Will go from Area 9 - start with 3 at dredge -

1040. Begin Pilot test.

1050. Dredge is primed - running at full throttle

1055. First pond is full - Starting diaphragm pump.

1056. Shut down. Diaphragm pump leaking, Will fix and pump out first pond.

Rite in the Rain

29 July 2022

1100. MG + As to office to look at surface water locations. We will need to adjust a surface water location to match the 2013 report, location 28-SW-01B.

1200. Crew takes lunch, SM + GF to check all diaphragm pumps.

1230. SM + GF to camp, all pumps checked.

1300. Crew sets up for next pilot test.

1350. Set up dredge.

1355. Begin pumping at dredge. Pump rate at dredge is ~25% throttle, somewhat ideal for matching Pond 1, Pump 1 at diaphragm pump at 75% throttle.

1403. Photo (CM190018) Area 9 dredging. Facing east

1415. Photo (CM190019) facing south. dredge next to Area 9, Pond 1 in background

1418. In-line Pump 3 may be switched out to reduce surging prior to floce system.

1425. Dredge clogged, stopped pumping to fix.

29 July 2022

1429. Restart dredging — using round stinger head.

1438. Clogged dredge, switching out with clean one + water break.

1445. Restart dredging. Strong odor and sheen on surface water

1457. Stop dredging to switch to square head and brace pond 2.

1550. Adding foot screen to pond 2 intake.

1555. Restart dredging. System at this distance takes 4-8 people. 3 at dredge, 1 each in-line pump, 2 at containment area.

1609. Clogged dredge. Stopped to unclog.

1615. Start dredging

1617. Clogged, switch out

1617. Photo (CM190021). Facing East. Crew unclogging. Clogged stinger. Note: photo (CM190020), facing East, mistake photo while cleaning camera.

1624. Clogged dredge — cleaning. MG to pad to go over clogging options. May remove screen from stinger. Crew at pad has dialed in the

Rite in the Rain

29 July 2022

1624. Cont. floc system, Geotube is swelling.

1641. photo CM190022, flocculant recirculation system.

1641. photo CM190023, Geotube in containment full of water.

1730. End dredging and clean up. Meet with Crew to discuss Pilot study. Go over details. Need to make sure Ponds are on Solid ground and reinforce where needed. Will take down freshwater Pond and put liner down. Notes on Pond 3: 3" trash Pump Set at approx 30% which was exactly 65 GPM. Floc Meter Was 50 speed / 50 stroke, with 8 GPM on fresh flow Meters / floc Mixer. Total on flowmeter = 8817.4636. Freshwater used = ~2000 gallons. MG. collect background turbidity from tundra Pond - 45.6 NTU. Collected turbidity from treated water = 15.6 NTU. No odor or color, clear.

29 July 2022

1800. TD and PS to office to complete DQCR/Photo log.

1830. Team Cleans up site to prepare for next activities while awaiting water treatment results.

1900. Team back to Camp.

Measured sizes of containment:

1st Containment - Bottom HDPE liner is 32' Wide x 59' Long
- Containment is 28.5' wide x 55' L
- Geotube (bottom) is 25' wide x 45' Long.

2nd Containment - Bottom HDPE Liner is 28' W x 59' L,
Containment is 29' w x 55' L
Geotube (bottom) is 25' wide x 35' Long.

End of day.

Mont Smith 7/29/22

Rite in the Rain

Saturday
30 July 2022 Fog, 0-10 mph, 38°F

0700. Site safety, Review day.
MW, JS, PS to Pack coolers.
TD to bump check the turbidimeter.

0715. MG, GF, SM, CA meet with USACE QAR Aaron Shewman to discuss site 28 dredging. SM Identified that the primary Material between Stream and hardpan is Organics and not settled soil. Organics are causing filter and dewatering system issues. AS identified that Brice may need to Rake vegetation out of the stream would be one solution. Brice did not entirely account for raking stream. Brice will add Sorbent booms to stream intakes and outlets. Dredging will start upstream and move down in next Phase, AS pointed out the veg. counts to quantities, but it causes dewatering system issues. If vegetation/organics is removed, we can add to supersacks and Count to quantities. Brice discussed Organics screens for Midpoint. Also raking Material into the bass boat before dredging. Considered shaker plant on tundra mats. As identified that we must prepare Creek Prior to dredging to avoid intake of floating organics. Brice will take

0715. cont. a good core to include annotations of where sediment is present.

0900. USACE pointed out workplan states 430 cy will be excavated at ~~500~~ MG 7/30, site 15, want to clarify that SOW identifies 500 tons and 330 bcy. Team agreed that 500 tons is the Project goal. approx. 50 x 9 cy bags. Crew will place liner below bags if needed, but will not sample ISM.
For site 8, need to adjust scale.

1000. Team sets up to backflush GAC system, Rest of crew set up Site 15 laydown area.

1200. Lunch

1230. Team sets up at 14MW07.

1500. Plane arrives - Scotty Mann and Greg Filbey depart. Logan Sides (LS) arrives at site.

1515. Locals arrive on site from Savoonga, 6 people, all on ATVs. Crew refills their fuel.

1530. MG, TD, PS, MW, JS to sample 14MW07. See field forms.

~~1900~~ MG 7/30 1700. TD, PS, MW, JS to next well. Rest of crew backwash sand pots.

30 July 2022

1730. Solenoids working, team setting up at next well.

1750. Visited area adjacent to site 21 with AS that will be sampled for background TOC and DRO w/silica gel.

1815. Completed Backwash of sand pot system - 1 minute backwash, 20 second delay. Pumped backwash water (from clean source) into containment 1. Backwash was tan-color with some organics. Total treated = ~3000 gallons

1400. Back to camp. end of day

[signature] 7/30/22

Sunday
31 July 2022 Fog, 0 - mph, 38°F.

0700. Site safety.

0730. Crew at site - survey, prep for drilling, laydown stockpile area site 15.

0930. Crew sets up liner for site 15 stockpiles. area is 120'x80' lined with 12 mil Duraserim - reinforced.

1000. Crew gathers for excavation AHA. Crew walks route to pick up last bits of metal.

1100. Aaron Shewman asked that top layer of site 15, when backfilled, is clean backfill or the original top layer being excavated first.

1105. Operation has 1 rock truck, 1 Dump, loading with 350 excavator, starting on west (uphill side) of excav. area.

1110. First dump truck being loaded, top layer has mixed boulders, large rock. 0-2 ft bgs. Crew sets up a boulder area (lined) next to excavation.

1120. MG to site 8. MW to screen site 15.

1122. MG + LS, JS, PS go over drilling safety. Begin drilling at Northern road at fork. Complete SB102. Excavation PID at 2' bgs = 30.2

1200. Start SB102. Lunch.

Rite in the Rain

31 July 2022

1330. Excavation PID = 17.6 ppm at 2' bgs. Drill crew continues soil borings at Site 8. TD groundwater monitoring.

1355. Removing debris from excav. including ~50 feet steel cable, 4' large steel pipe, Fiber fabric. Segregated and placed in pile to be put in a supersack.

1420. Photo CM190024. Removing clean backfill/overburden from Site 15.

1421. Photo CM190025, loading dump truck at site 15 with overburden.

1453. PID headspace of gray soil ~3 ft bgs = 108.7 ppm.

1455. Set up debris bag at Site 15 - 22NEC-D-1. A 5-CY IP2 supersack.

1458. Photo CM190026, Brice sampling well MW88-1.

1500. Spoke to TD, well 88-1 has a blockage at 6.3 ft bgs - the water level barely fits past it to water - the submersible pump could not. Will try a 1" PVC rod.

1510. Photo CM190027. Facing North.

31 July 2022.

1510, cont. → Boulders removed from Site 15 in top 3 feet.

1512. Photo CM190028. Facing Northeast. Site 15 stockpile with ~3 ft. removed from excavation.

1517. Site 15 excavation continues to east side at ~3 ft bgs. Gray soil with POL-like odor present along excav. base. PID Headspace = 117.9 ppm at 3' bgs.

1630. Moving east at site 15 - PID headspace = 224.2 ppm.

1755. Footprint of excavation removed to ~3 ft bgs. PID headspace at east end of excav. base = 159.5 ppm.

1815. Crew stops excavation to cover stockpiles. Total excavated =

17 rock truck loads x ~~20~~ 17 MG 7/31 = ~~340~~ MG 289

14 ~~16~~ MG 7/31 dump truck loads x 10 = ~~160~~ MG 7/31 140

Total ~500 CY excavated.

Crew covers stockpile.

1900. End of day

Matt [illegible] 7/31/22

Rite in the Rain

Monday 1 August 2022 rain, fog, 38°F - 0 mph

0700. Site safety. Plane may come in tomorrow. TD groundwater monitoring and development (see forms). JS and PS, LS Drilling at site 8 (see PS+JS notes). CA, MW, AP, DC continuing Site 15 excav.

0900. PS+JS drilling east side of road - starting at outside edges and stepping in or out.

0915. Crew continuing excav at site 15 - set up safety barriers and removing to 4' bgs before benching. Will place swing ties to locate excav. center. PID=2.2ppM

1015. Talked to USACE QAR about GWM MNA parameters - we have not been monitoring ferrous iron and nitrates, they have 48 hr hold times so we need field tests. Will order reagent pillows for colorimeter.

1030. PID at center excav base = 432.2 ppm.

1200 Lunch

1230. Crew continues excavation, GWM, and site 8 drilling.

1300. Site 15 excav. reaches west side, 0-4 ft along footprint.

1315. Begin benching along north side of excav. Fuel odors present along base, PID = 2.2, PID = 54.9 at SW corner.

1500 Drill crew continue along SE side of site 8. Marshy ground requires hand auger along creek, will complete after drilling other areas. No contamination identified along far east side.

1558. Photo (CM190029). Facing north. Beginning benching along north side of site 15 excavation.

1607. Photo (CM190030). Facing southeast, stockpile for overburden at site 15.

1638. PID from bench base at NW corner = 7.9 ppM

1900. Total excavated at site 15 = 24 rock truck loads x 17 cy. = 408
21 Dump truck loads x 10 cy = 210
End of day.

Mark Kenworth 8/1/22

Tuesday 2 August 2022 Clear, 40°F 0 mph

0700. Site safety. TD to GW sample, PS, JS, LS to continue drilling at Site 8. Site 15 crew will continue excavation activities.

0900. Site 15 crew paused to place Site 28 floc system into containment for next dredging phase. Site 15 bench PID = 32.2 ppm.

1000 - Crew continues Site 15 backfill excavation. Water (GW) has been exposed at NE corner.

1200. Lunch. Plane will leave soon from OME. Tiyan Donaldson out, 2 ADEC (Curtis Dumond, Erika Blake) in from Aug. 2-4.

1300. Plane [illegible], some supplies + materials, 2 ADEC in, TD out. Sent 2 water coolers.

1330. MG to Site 8. Crew is finishing delineation.

1340. ADEC on site, MG gives tour of site 8, then site 28, and site 15.

1730. ADEC off site.

1830. Whole crew covers stockpile at Site 15 -

Rock trucks - 17 x 17 = 289

Dump trucks - 13 x 10 = 130, total = 419

1900. End of day.

Scale: 1 square =

Wednesday 3 August 2022 38°F, fog

0700. Site safety. Will continue Site 15 excavation. Benching is complete. Will dig to within original boundaries to reach deeper locations - Concerns are groundwater exposure, will slope or bench where needed for trench stability. Drillers at Site 8 will finish borings and hand auger to complete delineation, then will move to well repairs - taking care to measure PVC removed.

0900. Site 8 crew LS, JS, PS finishing last borings and beginning hand auger locations by Sugi river.

0915. Site 15 crew finished benching - water exposed at NE corner of bench - at approx. 5' bgs. Will proceed to remove soil to 8' bgs at SE corner and move west.

Excavation bench PID: East - 0.9 ppm, Center = 36.1 ppm, West = 0.4 ppm.

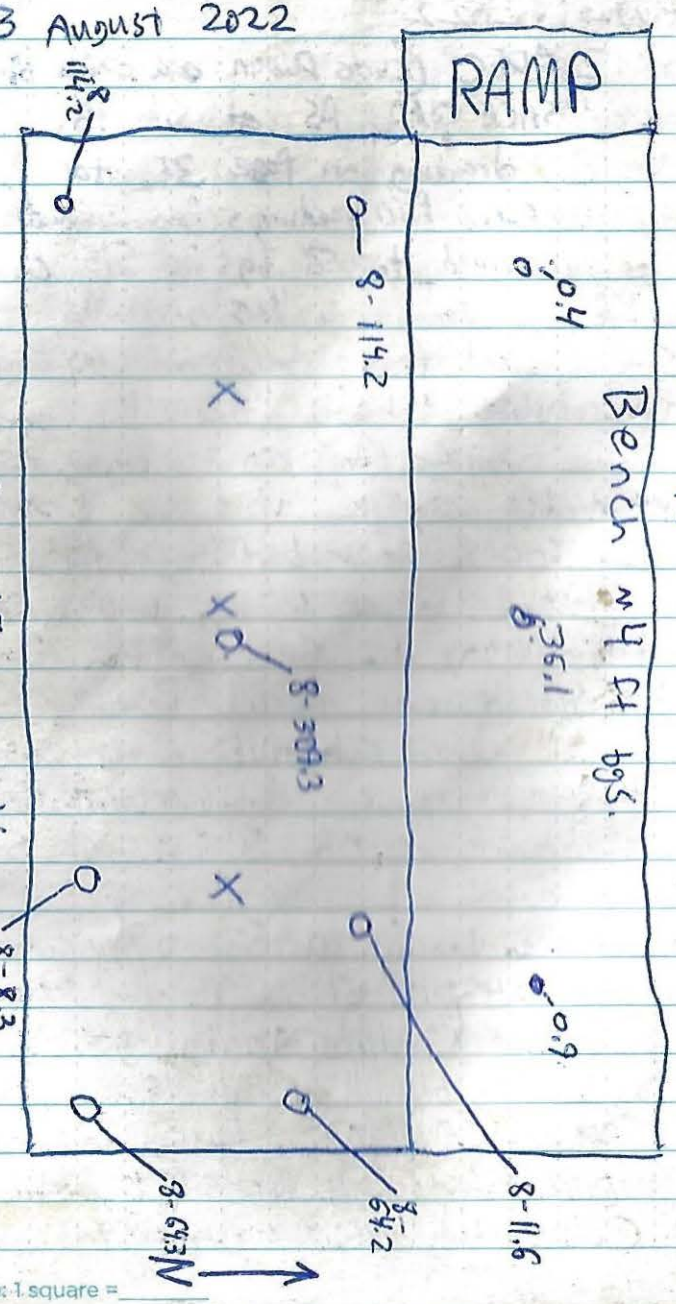
photo CM190031. Facing loading backfill at Site 15.

photo CM190032. Facing building stockpile for Site 15 overburden.

0950. Crew noticed that creek by quarry is dry.

Scale: 1 square =

3 August 2022



Scale: 1 square = _____

3 August 2022

1010. 2 ADEC (Curtis Duskin and Erica Blake) and USACE QAR AS at Site 15.

1015. Note drawing on Page 30 for Headspace PID readings from excavation. Soils observed to 8' bgs at S15 consist of large cobbles, boulders, unsorted, with mixed fines - brown or gray, with some POL odor with gray stained soil. Consistent with local geology / Quarry and site history of Mix clean backfill and previously excavated Material <SSCL.

1030. Site 8 at Boring 29. Will complete boring 30 on road, then will hand auger 2 wet locations that drill rig cannot access.

1120. Site 15 - NE side of excav. Compacted, gray, area of strong POL odor exposed - 8' bgs. dry. PID headspace = 11.6 ppm.

1200. Lunch

1230. Crew back to site

1355. LS to repair wells - cut down PVC at MW88-1 - removed 4 5/8" PVC, now -4" bgs

1400. Inspected MW88-3. Casing has frost jacked. Well cover bolts are rusted but may be usable.

Scale: 1 square = _____

Rite in the Rain

3 August 2022

1405. Inspected well 14MW05. Flush mount is frost jacked, could be pulled up by hand.

1430. Found out we need unpreserved bottles for dissolved metals. Will resample wells.

1509. Removed 3.50" of PVC from MW88-3. Re-tapped the flush mount threads. Flush mount is repaired.

1520. Inspected 14MW01 - Casing and mount are frost jacked. Pulled mount out. Will repair. Removed 7" of PVC.

1528. Inspected 14MW02 - Ice plug present at ~9.5 ft bgs. Mount + Casing good condition. Cleaned casing out with decontaminated steel rod - no obstruction present, likely just small amount of ice.

1530. M6 + LS to camp for supplies for well repair.

1715. 14MW05 repaired - Casing not cut.

1714: Photo CM180050. Well 14MW05 monument re-mounted.

1718. Well 14MW01 repaired - Casing reduced by 7-inches.

1720. Site 15 excavation reaching 12 →

0700. cont. ft bgs. At 12, drastic change in color and groundwater is reached.

1726. Photo CM180051. Reaching 12 feet bgs at NE corner of site 15 excavation. Facing SE.

1730. Crew prepares for bagging soil - will need to containerize soil from approx. ~10.5-11ft bgs to ensure all exceeding soil is containerized.

1746. Photo CM180052. Facing NE. Repaired flush mount for well 14MW01

1749. Photo CM180053. Facing SE. Site 15 overburden stockpiles.

1830. Crew covers site 15 stockpile.
Total added to stockpile -
Rock truck 28 @ 17 cy = 476 cy
Dump truck 29 @ 10 cy = 290 cy
total = 766 cy

1900. End of day

Monti Gamble 8/3

Thursday 4 August 2022

0700. Site Safety. Will conduct refueling, vehicle maintenance, then prep for Site 15 excavation. If plane comes in, LS is out, and Curtis Dunkin and Erica Blake (ADEC) will be out. Two Brice and the Gambell Rep. will be in.

0730. MG+JS pack coolers, rest of crew refueling and maintenance.

1200. Plane delayed at Nome. Bering Air. Will update when plane arrives in Nome.

1200. Lunch

1230. Crew continues refuel + prep for Site 15 excavation. MW + MG, JS to groundwater sample.

1727. Photo (CM190033). Facing South. Brice sampling groundwater monitoring wells.

1753. Photo (CM190034). Sample coolers packed for shipping. Facing SW.

1830. Plane arrives. Curtis Dunkin and Erica Blake out, Samantha Carter (SC) and Alessa Green (AG), and Curtis Silcok (CS) arrive. CS is Gambell Representative. AG + SC are Scientists/Engineers.

1900. End of day. Matt Barnett 8/4/22

Friday 5 August Rain, 40°F, 0

0700. Site Safety.

0730. Crew to MOC. Stockpiles need more sandbags, crew repairs.

1030. Crew sets up at Site 15 excav. MW + AG groundwater monitoring.

1045. Photo (CM190034). Facing SE. First bag loaded at Site 15.

1045. used 9 cy bags for first bag at site 15, may be too heavy.

1047. Photo (CM190035). Facing NE. Brice crew + Gambell rep. groundwater sampling by site 28 containment.

1150. Equipment cannot lift 9 cy bags.

1200. Lunch. Will switch to 5 cy bags

1425. First bag NEC22-S-1, 5 cy. bag - 8100 lbs. See J.S. Notes for excavation activities.

1841. IP2 supersacks staged after loading. Photo (CM190038). Facing south.

1900. Crew does stockpile maintenance and vehicle + equipment cleanup. End of day.

Appended Notes:

1154. Photo (CM190037). Facing west. Decon area outside of site 15 ramp.

Matt Barnett 8/5

Rite in the Rain

Saturday 6 August 2022 Clear, sunny 0-15

0700. Site safety. Heavy equipment safety. Packing coolers. Flight in today.

0730. MG to mark sample locations. See J.S. notes for Site 15 excavation. A.G. to sample groundwater field parameters. See MW notes for stockpile ISM sampling for Site 15 overburden.

1043. Photo CM190039. Site 15 excavation, reaching 15 feet bgs at eastern sample location.

1100. Plane will leave Nome at approx 1200.

1200. Lunch. Plane left Nome at 1200.

1245. Curtis Silook, Aaron Sherman to airstrip to fly out. Eric Barnhill (EB) to arrive as USACE QAR.

1300. Plane lands. AS briefs EB on site.

1335. Plane takes off. MG to unpack supplies.

1438. Photo CM190040. ISM sampling grid for Site 15 stockpile 2.

1520. MW finishes ISM at stockpiles.

1600. EB on site - MG gives site tour site 15, 28, MOC.

1800. MG + AG to collect background samples.

1812. Photo CM190041. Facing east. Background locations.

1815. Sample 22NEC-BG-1, DRO w/w/out silica, TOC, from 1 ft. bgs. Silty organic soil, gray-brown to black. Sulphur odor. Frozen at 1 ft.

1825. Sample 22NEC-BG-2, DRO w/w/out silica, TOC, 1 ft bgs. Silty organic soil w/some sand. Brown to gray. Frozen at 1 ft.

1840. Sample 22NEC-BG-3, DRO w/w/out silica gel, TOC, 1 ft bgs, frozen. Silty organic soil with medium/coarse sand.

MG 6/22

~~1842. Sample 22NEC-B~~

1842. Photo CM190042. Facing North. Background sample 22NEC-BG-3.

1843. Photo CM190043. Facing East. Background sample 22NEC-BG-2.

1843. Photo CM190044. Facing East. Background sample 22NEC-BG-1.

1900. Crew packs up, puts tools away.

1950. End of day

Matt Gulli 8/6/22

Rite in the Rain

Sunday 7 August 2022. Overcast, windy 10-15

0700. Safety tailgate. Extremely high winds last night likely caused some stockpile cover damage. Crew will check Dredge and stockpiles.

0730. Crew at site. Small tear in stockpile top cover. Will repair. Several containments at dredge system have folded slightly and be fixed. Crew also modifying bag stand to ensure bag tops are not torn. Also repaired caution tape around excavation.

0920. Crew (AG+MW) completed last GW field parameters well sampling. Note that well MW10-1 had a broken well cap, we will order one to replace + lock.

0930. MG+AG to background sample

0950. Sample 22NEC-BG-4. Background sample, 1.5 ft. bgs. Silty organic soil, brown with medium sand, Ice crystals.

1020. Sample 22NEC-BG-5. Background sample, 1 ft. bgs, frozen. Same as BG-4.

1025. Sample 22NEC-BG-6. Same as BG-5.

1030. Sample 22NEC-BG-7. Same as BG-6.

1045. Sample 22NEC-BG-8. Background

1045. Cont → sample, collected at base of mountain, brown silt + coarse sand, no odor.

1100. Sample 22NEC-BG-9. Same as BG-8.

1115. Sample 22NEC-BG-10: same as BG-9.

1116. Photo CM190045. Background sample BG-10, facing SE.

1117. Photo CM190046. Background sample BG-9, facing SE.

1118. Photo CM190047. Background sample BG-8, facing SE

1122. Photo CM190048. BG sample BG-7, facing SE.

1123. Photo CM190049. BG sample BG-6, NW.

1124. Photo CM190050. BG sample BG-5, N.

1125. Photo CM190051. BG sample BG-4, N.

1130. Brice Crew finishing bracing construction for dredge ponds.

1200. Lunch. CA+MG discuss next phase of site is excavation - Soil is underwater and some is too saturated for bagging - we will remove soil to beach with a bottom liner to drain back into the excavation, then bag after draining.

1230. MG marks landfill site 7 depressions for fill.

7 August 2022

1300. MG, JS, SC, CA to continue at Site 15 – will remove to 15' and stockpile and Collect Confirmation Samples. See J.S. Notes.

MG 8/7 ~~1645~~. 1620. Photo (CM190053). Bags loaded for transport to barge landing.

1800. site 15 to 15' bgs along all of excavation except for NE corner. Some oil floating – Sorbents and boom deployed to retrieve. Soil too saturated to bag – Placed soil on lined ramp in bench to drain as much as possible. Liner 12 mil duraseirm. Groundwater at 12 ft bgs.

1855. Photo (CM190054). Site 15 excavated soil on ramp for dewatering.

1920. End of day.

Appended Notes:

1442. Photo (CM190052) East half of Site 15 excavation excavated to 15 feet bgs.

Matt Bennett 8/7

Monday 8 August 2022 overcast, windy, rain, 38°F

0700. Site safety. Snow on mountain to ½ way down. Crew still waiting for Site 15 stockpile to dry before bagging – Crew will move dredge to Area 3 to begin upstream dredging. DC, MW, PS to move bags from MOC to barge landing. Pilot study changes to be implemented.

0730. Crew at site – begin adding agitator following floc injection. Other crew moving dredge and assoc. to Area 3, and moving bags, but first filling water supply for floc, injection. Crew also switching diaphragm pumps for recently arrived 3" trash pumps.

1000. Crew used diaphragm pumps to pump water, did not work. will use a 2" trash pump.

1100. Crew set up at Area 3 – has shallow riffles and fast water upwelling from a spring/several springs. The dredge, when primed, sucked the stream dry immediately, and plugged the second time. The loose sediment, as understood by survey, is not recoverable without manual agitation – an excavator would be able to make the sediment accessible. Will speak to QAR about use of excavator.

1200. Lunch. Discussed situation with →

8 August 2022

1200 cont. → QAR Eric. We asked that we track the excavator to the stream to remove the Matted Material into bags, because it can not be dredged. Eric indicated he would call Aaron to discuss.

1300. Crew Moves tundra Mats from barge landing to MOC and CA tracks the volvo Excavator from the quarry to the MOC. Crew checks for 3.5 cy bags on site, only 5 cy available for use, Crew removes fuel tank from Marooka to put Bag stack on Marooka.

1400. QAR Eric contacts us to let us know that if the Mattech Material is not loose then it doesn't Meet the definition of sediment and should not be removed. Therefore excavator should not be necessary to remove sediment. Eric has scheduled a call for 8/9 to discuss dredging situation and steps forward.

1410. Crew continues to Move bags, prep for dredging upkeep on stockpile.

1900. End of day.

[illegible] 8/8

Tuesday 9 August 2022

0700. Site safety.

0730. CA + MG call with Scotty Mann. JS, AG, SC to pack coolers. Ryan air flight coming in at 1000, to demob. drill rig. Bering air flight coming at noon to drop off Cargo + Pick up coolers. DC, AP MW to add cap Material to Site 7 and doze flat.

0900. MG, JS, CA to finish excavation at Site 15 NE Corner and collect last confirmation samples. Stirred the ramp of Stockpiled soil - it is still very wet at the center. See JS. Notes for Confirmation samples.

1000. Ryan Air arrives to demob. drill rig.

1015. Drill rig will not start, Crew goes to the airstrip to try to Jump.

1100 Rig still not Starting, loading Ryan Air, With other supplies, coolers.

1200. Ryan air flight departs.

1300. Bering Air arrives with coolers and some supplies.

1330. Crew unloads supplies. Continues working on drill rig.

1400. Crew decons excavator at Site 15.

9 August 2022.

1430. Crew begins adding cap Material to site 7 landfill.

1515. MG, CA, EB have call with Aaron Shewman and Scotty Mann. EB and MG describe dredging observations and conditions, and plans to work with what is present. MG and EB agree with surveyed yardage may be overestimated based on root mat depths counted towards sediment. Aaron S. requested several photos, measurements, and a written description of observations and recommendations at site 28.

1600. MG, CA back to site. CA inspects landfill 7 cap and will add more rock to get a proper graded surface.

1625. Photo CM190057 Matted material with no sediment that is dredgable.

1630. Photo CM190058. Sediment over matted roots - sed. is 0.15 ft thick, water 0.05 over sediment.

1630. Photo CM190059 Little recoverable sediment in Area 3.

1634. Photo CM190060. Vegetative mat.

1900. MG types up observations. End of day.

[signature] 8/9

Wednesday 10 Aug. 2022 Wind, Fog 40°F

0700 Site safety. Crew preps for dredging. Weather is very windy, Plane won't make it if it doesn't improve. Andrew Platt (Brize) will depart if plane comes. 2 Brize Crew will arrive.

0730. Crew to prep for dredging site 28. MG to revise site 28 recommendations and submit.

0900. Crew sets up for dredging site 28 Area 3. Set up 4th Pond near dredge. Move trash pumps. Set up 2" dredge in bucket, laying on its side. Other crew raking, shoveling, and skimming upstream to dredge "sump". Have silt curtains, booms behind sump to raise water level and trap sediment.

0942. Start dredge

0944. Dredge primed. Pumping heavily sedimented Material from sump.

0950. Pumping to Pond 2 - from new Pond.

1000. Dredging stopped - air issue.

1005. Dredge running. Subarea is mostly cleaned up, crew to sweep around sump.

Rite in the Rain

10 August 2022

1010. To keep vegetation out of dredge, the dredger sweeps in front of sump with a rake.

1015. Cleanup step at the sump — Sweep around the sump and pump until upper stream less turbid, and area around sump is clear, and pump until veg. clotting. Note - need to set outlet fitting at downhill side of the pond.

1025. 3" trash pump - broken down.

1113. Pumping at subarea 2.

1200. Lunch. Crew sets up for dredging.

1320. Pumping subarea 2. Raking and skimming. AG packing w/c. coolers

1515. Plane on its way.

1530. Bering Air arrives. A. Platt out to home, Chris Beach (CB) - Brice labor/operator, and Joe Knapik (JK) scientist, arrive.

1610. MG drops off CB, JK at camp to get situated, unloads AK Minerals supplies and drops off supplies at MOC.

1630. SC to pick up CB, JK + Bring to site. Crew is successfully dredging.

1640. MG to give site tour to new staff. PPE set up, Orientation, safety.

1700. CB, JK to dredge at Area 3. CB to run dredge pump + watch Pond 1, DC to watch pond 2 and run pump, SC to watch Pond 3 and run last trash pump. AG to track flow and direct SC. CA to adjust floc and flow to geotubes and control pumps through system to second geotube and to sand pots and GAC. ~~Aggregator~~ MG 8/10 ~~/Agitator~~ set up in system after floc injector to mix slurry/floc.

1710. Crew finishes subarea 2 dredging. Sets up second 2" dredge to help with clogged primary - primary set aside until it can be unclogged. Crew sets up new silt fencing at natural dip in stream for subarea 3. MW noted that QAR Eric identified sediment in subarea 1 that needs more work, but subarea 2 looks complete.

10 August 2022.

1840. Photo CM190084, Orange sediment in Area 3.

1842. Photo CM190085, Orange sediment removed for inspection.

1843. Depth of root mat measured in Area 3 – in 3 places, 1.6, 1.4, 1.95 ft. Sediment present above root mat from 0 – 2 inches thick, average 1 inch. Some thick layers up to 12 inches thick, in limited dips. Solid base too hard, dense to inspect.

1850. Photo CM190086 Black sediment removed for inspection, from base of Pond, above root mat. Pond has approx 12 inch thick sed. layer in some places.

1903. Photo CM190087 Geotube after dredging activities. Crew goes to dinner.

2100. CA + MG check containments, Pump out water. End of Day.

[illegible] 8/10

Scale: 1 square =

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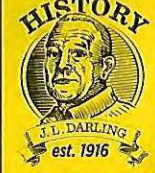

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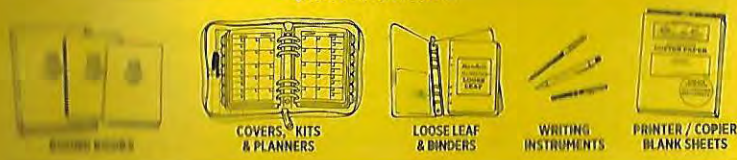

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Thursday 11 August 2022 Fog → Sunny, 38-58F

0700. Site safety. DC, JK to get water.

0930. Meeting on dredging.

1010. Photo CM190088. facing SE.
New well cap on MW10-1.
Combo is "0911".

1030. Crew is dredging at Site 28 Area 3. Crew at dredge is
Michael Williams (MW),
Joe Knapik (JK),
Chris Bosch (CB),
Jane Shirley (JS),
Patrick Schick (PS).
Crew is doing cleanup on the stream section (area 3), dredging at a low area in front of silt fencing which creates a coffer dam effect. Crew is agitating the sediment to the sump and shoveling drier sediment into buckets and into a supersack. Dredging has picked up most of the mobile material and shoveling is being used to pick up the rest.

1100. Crew ~~has~~ MG 8/11 is preparing to dredge at Area 4 - Moving 4" Dredge, setting up pump at →

1100. Cont. → Pond 1, and draining the rest of the mobile pond.
MOC pad dewatering area is pumping when Ponds 2 and 3 are full.

1200. Lunch.

1230. Crew finishes setup and priming at Area 4. Chad Armintrout (CA), Alissa Green (AG), Samantha Carter (SC) at MOC pad and Pump 3.

1442. Begin dredging at Area 4, just downstream of Area 3 subarea 1. Dredge intake is screened (round hole), inside a bucket with holes. A sorbent boom is wrapped around the surface to prevent floating veg. from entering the pump.

1444. Photo CM190089. Dredging intake at Area 4.

1445. Photo CM190090. Crew raking loose sediment to dredge intake.

1500. Dredge clogged - stopping to clear. Screen was easy to clear.

1505. Dredge starting again. Agitator is working.

1525. Most of upstream end of Area 4 is dredged to hardpack.

11 August 2022

1530. Talked to QAR Eric. He asked us to make sure to spray stream shoulders with agitator to wash down the loose sediment. Crew is reaching up as far as possible into Area 3 to wash shoulders.

1500. Crew finishes pumping at upstream of area 4. Will reposition. Geotube is ~~very full~~ MG still getting full.

1607. Photo CM190090. Crew sets up at second subarea of area 4.

1620. Dredging begins at subarea 2 of area 4.

1700. Dredging stopped to deal with full geotubes, prep for backwash, and tie down second Geotube.

1659. Photo CM190092. Geotube at dewatering area with water + sediment.

1710. Crew gets dump truck ready to haul water. Rest of crew cleans up.

1900. Dinner.

2100. MG + Chad Armintrout (CA) pump containments with Geotube.

2130. End of day

Matt Gemmill 8/11

Friday
12 August 2022 Fog, 38°F

0700. Site safety. CB, JK, DC to get backwash water, stage air compressor. JS to surface water sample, parameters, turbidity.

0928. Backwash the sand pots - 2 min cycle, used approx ~~5000~~ MG 3500 gallons of freshwater, pumped back into containment for treatment.

0930. Weighed supersack NEC22-S-51 - 6800 lbs. Produced from excavator decon.

0930. MG collected WC sample from sediment pumped out of pond - composited from dry pools, supersacks shoveled out. 22NEC-WC-4.

1030. Filled 1pz soy supersack with soil shoveled from Site 28 - bag number NEC22-E-1. Only filled 3/5 full.

Note: Air compressor (Dewalt) quit working during first attempt at backwash. Replaced with backup and tagged for repair/eval.

1045. Backwash of GAC. Approx. gal. used in backwash.

1200. Lunch.

1300. Crew sets up for dredging - Area 4 Subarea 2. JS to do landfill checklist.

~~1405~~ MG 8/12 1353. Photo CM190093. Pond 1 and trash pump.

1353. Photo CM190094. Dredge outflow to Pond 1.

12 August 2022

1354. Photo CM190095. Crew finishing dredging at Area 4 subarea 2.

1405. Crew Moving downstream to Area 4 subarea 3. Sheen appears on Surface when crew tracks through. Sorbent Pads and booms deployed across area and at downstream pond exit.

1410. Dredging begins at Area 4 subarea 3.

1415. Photo CM190096. Sheen on Area 4 subarea 3.

1430. Attempting to actively dredge Pond 4 by moving dredge intake - using Pole and Keeping Sorbent boom on Surface to deter. Veg.

1445. Nearly out of freshwater feed for floc - MG+PC to get water truck + Fill.

1700. High backpressure from treatment System - Shutting down dredge + Ponds to address before removing any more water.

1730. Set up 1000 gal tank to pump Containment. Crew to Check Sand Pots and GAC vessels.

1740. Sand pots are gummed up by floc.

12 August 2022

1740. Crew will switch out sand pots to Just treat with GAC.

1830. GAC hooked up, Pumping from containments successfully.

1900. Dinner

2100. MG+CA Check geotube Containments, drain each.

2130. End of day.

Appended notes:

1438. Photo CM190097. Skimmer implements fabricated for Sediment removal.

Monte Everett 8/12/22

Rite in the Rain

Saturday 13 August 2022 overcast, Fog 38-45

0700. Site Safety. Crew to finish Area 9 at site 28, then move to lakes. MG+DC to start getting freshwater.

0910. Crew Dredging Area 9.

1000. Crew finished Area 9. Will pack up, Clean out first Plastic pond of ~12 inches accumulated sediment, break down Pond and vestage at lakes.

1200. Lunch.

1245. Teleconference w/ MG+CA + Scotty Mann to review project progress.

1330. crew set up to dredge Area

1338. Photo CM190098. Area pre dredging.

1345. Photo CM190099. Area while Crew is dredging

1400. Area dredging complete. Area is veg. Mat on sides or hard on bottom. Will move to Area 8.

1413. Photo CM190100. Area 8 pre-dredging.

1415. Crew set up to dredge Area 8. Area appears to be a sunken tundra area that is occasionally underwater. Several sediment areas are currently dry. Crew will shovel these areas and →

1415 cont. → dredge at the shallow pond.

1445. Dredging at Area 8 complete. Crew moving to Area 2.

1449. Photo CM190101 Area 2 predredging.

1450. Photo CM190102 Area 8 post dredging.

1488. Crew dredging at Area 2. Strong Sheen and odor in pond, silt at base. dredge is sucking dry. Photo CM190103.

1505. Deploy sorbents into Area 2.

1530. Crew finishes shoveling sediment from Area 2. Moves to Area 6.

1600. Crew starts dredging Area 6.

1549. Photo CM190104 Area 6 Pre-dredging.

1603. Photo CM190105 Area 2 post dredging. Sorbents will be collected during site 28 cleanup.

1623. Photo CM190106. Area 5N, Pre-shoot.

1700. Crew finishes at Area 6. MG+PS finish removal of sediment at Area 5N. Crew begins dredging cleanup, breakdown, and decon. Crew is decontaminating dredge + tubing + assoc. into containment then running through large GAC.

1713. Photo CM190107 Facing W. Area 6 post-dredging.

Rite in the Rain

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1714. Photo CM190108. Area 5N post-removal.

1715. Crew continues to decon, Pumps out remaing sediment at base of Plastic ponds using 2" ~~trash~~ pump supplying water and 3" removing. Crew weighs bag NECZZ-E-1-6800lbs, bag from shoveled Site 28 Material.

1900. End of day-dinner, will check containments later.

2140. AG + SC to drain geotube containments

2210. End of day.

Monte Carouette 8/13

0700. Site safety. Crew will finish site 28 decon, then bag excavated Material from Site 15. AG, SC to collect Site 28 turbidity.

0730. Crew to decon site 28 equipment, MG, JS to pack coolers.

0830. Crew begins loading Site 15 supersacks. First bag is NECZZ-5-52.

0930. MG + CB packing up site 28 tubing.

1200. Lunch. Crew resumes Site 15 bagging. Soil has dried significantly since excavation.

1403. Photo CM190110. Steep drop/depression on tundra near Area 7.

1404. Photo CM190111. Brice Crew filling Hazardous Steep depression on tundra with clean fill. Dry Path used by skid steer to avoid wet tundra - no damage by skid steer use.

1420. Steep depression filled - approx 3 yards added. Fill contoured to match grade.

1422. Photo CM190112. Depression filled and contoured to match grade.

1500. Bering Air lands. Jake Austin (surveyor) arrives, and Survey materials. Drop off 2 copies.

1613. Crew finished bagging site 15 Materials from ramp. Photo CM190113. Ramp of excavated Material removed from Site 15.

14 August 2022

1630. MG+JA site orientation. Mob to airport to fly UX-11 UAV.
Crew continues Site 28 cleanup and bag loading.

1915. UX-11 UAV flight complete. End of day.

Appended Notes:

1004. Photo CM190109. Bagging excavated Site 15 Material from drying ramp.

[signature] 8/14

15 Monday August 2022 Rain, 38-45°F

0700. site safety meeting. Crew to continue moving bags, recollect GW samples at 4 wells, Collect SW samples, continue decon. and breakdown at site 28.

0730. AG+JS to do QC check of sample FDs and MS/MSD; before final sample effort.

0900. CB, JK, CA, SC to clean up site 28.

0930. MG+SC to hang LUC signs.

1115. MG pointed out a well casing to QAR E. Barnhill. QAR recommended decom. in accordance with the WP. MG+SC get supplies to remove and decom. casing.

1124. Photo CM190114. unidentified well casing in MOC Pad. MG+SC attempt to pull casing with sling and shovels - ground is too compacted to move. Bentonite added to well to ~6 inches then gravel added on top. Area will be surveyed.

1130. Photo CM190115. Decommissioned unknown well casing. MG+SC to continue sign hanging.

1200. Lunch.

1338. Photo CM190116. LUC Signposts, in condition upon field team arrival at Airstrip.

1545. Photo CM190117. Airstrip LUC Signs, installed. Facing SE.

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1545. Photo ~~CM190118~~ CM190118. LUC Sign installed at Airstrip. Facing N.

1559. Photo CM190119. LUC sign installed at fish camp. Facing S.

1605. Photo CM190120. LUC Sign installed, at fish camp. Facing N. MG+SC back to MOC.

1700. CA using quarry rock to fill in hazardous area at MOC.

1701. Photo CM190121. Partially filled safety hazardous dip at MOC.

1803. Photo CM190122. Completely filled Safety-hazard dip at MOC. 85 cy added. Crew continues site 28 cleanup and bag loading. Geotubes are drying out, may bag sediment tomorrow.

1900. End of day.

Matt Carovillo 8/15

Tuesday 16 August 2022

0700. Site safety. MG, JA, JS to sediment survey. CA, JK, CB, AG, SC to bag sediment, PS, DC, MW to move bags.

0930. Crew (MG, JA, JS) set up transects, at site 28 - first is at Sagi confluence "P01".

0940. Photo CM190123. First 3 transects on site 28.

0945. Photo CM190124. Shovel test of P01. sediment to solid base.

0945. Sample 22NEC-S28-SD01. DRO/RRO with and without silica gel, PAH (limited compounds), TOC.

0949. Start P02

0958. Photo CM190125. Transect P02 south end - sediment layer exposed with shovel to veg. mat - Surveyor using Rod with RTK for elevations of each layer, measuring veg mat to solid base.

1001. Start P03. Crew uses coring tool and clam shovels to identify layers.

1005. Sample 22NEC-S28-SD02

1007. Note: that the coring tool recovers 0-5% in this substrate, will not use if shovel test is effective.

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1011. Transect P04. Photo CM190126. transect is entirely veg. Mat. No sediment depths collected. Start P05.

1015. Sample 22NEC-S28-SD03. Sample is from Veg. Mat, no sediment present.

1017. Photo CM190127. Sample Material from SD03 location - veg. Mat.

1020. Ryan Air plane arrives to demob. drill rig.

1030. Sample 22NEC-S28-SD04. From Substrate under veg. Mat. No loose sediment above veg. mat.

1033. Sample 22NEC-S28-SD05. Sediment below water. From transect P06. Slight HRO odor.

1035. Start P07. Eric Barnhill (QAR) indicates that Brice can backfill site is :

1045. Sample 22NEC-S28-SD06. From P07. Start P08.

1050. Sample 22NEC-S28-SD07 from P08.

1052. Sample 22NEC-S28-SD08 from P08. and dup 22NEC-S28-SD908, sub at 1052.

1056. P09 has a raised hump in middle of veg. Mat, will measure each side.

16 August 2022

1100. Ryan Air leaves airstrip.

1103. Crew observes that horsetails do not usually grow in veg. Mat.

1105. Sample 22NEC-S28-SD09. from P09. Start P10.

1107. Photo CM190128 Transect P09 with raised veg mat in center.

1110. Sample 22NEC-S28-SD10. Start P11.

1118. P11 = veg mat

1122. Sample 22NEC-S28-SD11. MS/MSD.

1125. Photo CM190129. Transect P11 which is entirely veg mat. Start P12.

1126. Sample 22NEC-S28-SD12.

1127. Photo CM190130. Sediment from area at SD12 location.

1136. Moved to Area 9 - in northern removal area the sump location has filled in since dredging - crew will remove.

1142. Removed all sediment from dredge sump.

1145. Sample 22NEC-S28-SD13, from solid silt layer below where loose sediment was removed.

1150. Sample 22NEC-S28-SD14. Area 9

1155. Sample 22NEC-S28-SD15. Area 9.

1200. Lunch.

Rite in the Rain

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1300. Crew back at site 28. Other crews moving supersacks and bagging sediment. Received site is stockpile results - all <CUL. Can begin backfilling when ready.

1340. Sample 22NEC-S28-SD16. Pol. shear

1342. Sample 22NEC-S28-SD17

1345. Sample 22NEC-S28-SD18.
For samples SD16-18, sample is from hard-pack solid base made up of gray clay and silt. This base is present in Area 9 pond.

1348. Sample 22NEC-S28-SD19. Clay/silt

1350 Sample 22NEC-S28-SD20. Veg Mat.

1400. Sample 22NEC-S28 SD52. Clay/silt hard pack. Using same sample numbers as historical.

1405. Sample 22NEC-S28-SD21. and Field duplicate 22NEC-S28-921. submit as 1505.

1407. Photo CM190131. Solid clay/silt layer at base, collected from near SD21.

1410. Sample 22NEC-S28-SD22. Clay/silt.

1418. Sample 22NEC-S28-SD23. Veg mat - and sediment. Area 4 at base of stream.

15 August 2022

1427. Sample 22NEC-S28-SD24. From Area 3. below Veg Mat.

1430. Sample 22NEC-S28-SD25. Clay/silt.

1434. Sample 22NEC-S28-SD26. MS/MSD.

1440. Sample 22NEC-S28-SD27. Peat root mat from 2ft wide pond ~~east~~ west of area 3.

1445. Sample 22NEC-S28-SD28. Area 3 - below peat.

1447. Sample 22NEC-S28-SD29.

1450. Sample 22NEC-S28-SD30.

1451. Photo CM190132. Root mat from sample SD-30 location.

1455. Sample 22NEC-S28-SD31. silt under Root mat

1500. Sample 22NEC-S28-SD32.

1503. Sample 22NEC-S28-SD33.

1505. Sample 22NEC-S28-SD34. and Field dup 22NEC-S28-SD934. Submitted as 1605

1510. Sample 22NEC-S28-SD35. Top of Area 3.

1521. Sample 22NEC-S28-SD36. Area 5N.

1528. Sample 22NEC-S28-SD37. Material under root mat. Area 5N.

Rite in the Rain

16 August 2022.

1532. Photo CM190133. Crew loading geotubes into 5 cy supersack. 41

* 1543. Sample 22NEC-528-SD38. Area 5

1600. sample 22NEC-528-SD44

1604. Sample 22NEC-528-SD45

1609. Sample 22NEC-528-SD46

all from Area 6 pond.

1613. Area 1, Sample 22NEC-528-SD47

1615. Sample 22NEC-528-SD48 area 1

1618. Sample 22NEC-528-SD49 area 1, MS/MSD

1620. sample 22NEC-528-SD50. area 1

1630 Sample 22NEC-528-SD51 area 1

1633. Sample 22NEC-528-SD54. Area 1

1635. sample 22NEC-528-SD43.

1640. Sample 22NEC-528-SD42. Area 8.

and Field duplicate 22NEC-528-SD942.

Submitted as 1740.

1647. Sample 22NEC-528-SD38

and field duplicate 22NEC-528-SD938.

Submitted as 1747. Area 7

1652. Sample 22NEC-528-SD40. Area 7

1655. Sample 22NEC-528-SD53. Area 7

and Field dup. 22NEC-528-SD953. Area 7

1700. sample 22NEC-528-SD39. Area 7.

1730. Crew Packs up rest of site 28.

1800. Crew finished with packing Geotubes into 5 cy bags. Sediment bags from Site 28 are labeled NEC22-E+1 through NEC22-E-6

two bags were double-bagged into 7p2 5cy containers E-4, and E-5, and may need stabilization.

HDPE Containments were placed in debris bags NEC22-D-2 and NEC22-D-3. Final water flow meter = 64094 gal.

[illegible] 8/16/22

Rite in the Rain

Wednesday August 17, 2022

0700. Site safety. Crew will fly out - AG, SC, CA, Eric Barnhill, PS. Out today. Crew will uncover stockpile and begin Site 15 backfill.

0955. Plane arrived. One cooler on plane

1015. Plane leaves.

1120. MG + JK sediment sampling at Site 28.

1130. Sample 22NEC-S28-SD55. DRO/RRO with and without silica gel cleanup, TOC, PAH sublist. Material was below Veg-Mat, clay + silt, gray, with Medium gravel + Peat. Area

1135. Photo (CM190134) Sample location for SD-55.

1140. Sample 22NEC-S28-SD56. Orange sediment

1145. Photo (CM190135). Orange sediment in creek downstream of 5N.

1150. Sample 22NEC-S28-SD57. From Area 4, at solid base black silt/~~clay~~ MG 8/17, organics

1154. Sample 22NEC-S28-SD58. Between area 4 and 9. Silt black clay/organics at base

1200. Sample 22NEC-S28-SD59. Area 3. Silty Peat under veg mat just above solid base (frozen?). POL odor.

1207. Sample 22NEC-S28-SD60. Area 6.

1219. Photo (CM190136) Well 17MW1 frostjacked. MG + JK repaired and cut down 5'0 off casing

1230. Lunch.

1300. Crew continues S15 backfill. JK, JA to level wells. JS to continue cooler packing.

1437. Photo (CM190137). Removing stockpile SP-2 from liner and placing in rock truck to backfill.

1532. Photo (CM190138). Survey crew leveling wells.

1550. SP-2 placed back in Site 15, moving to SP-1.

1630. MG set up ISM Grid at Site 28 DU1 (dewatering pad) and Site 28 DU2 (discharge Area) - Same corners and grid as pre-activity DUs. 32 increments in DU1, 30 in DU2.

DU1 random cell location =

DU2 Random cell location =

1700. ISM sample 22NEC-S28-DU1-SS04

1710. ISM sample 22NEC-S28-DU1-SS05.

1720. ISM sample 22NEC-S28-DU1-SS06

1730. ISM sample 22NEC-S28-DU2-SS02. MS/MSD

Rite in the Rain

17 August 2022

1755. Photo CM190139. Site 28 discharge area (ISM DU 2) boundary.

1756. Photo CM190140. Site 28 Dewatering area (ISM DU 1) boundary.

1815. MG + JA to survey DU corners, Decom. wells, sediment samples.

1900. End of day.

Thursday
18 August 2022

0700. Tailgate site safety. Crew to finish backfill, at site 15, MG, JS to pack up office and start inventory. Plane will come in around 1300 today.

0730. Crew backfilling site 15. Using excavator at SP1, dozer grading material into excavation, running rock truck and dump truck.
J.S. sample packing + QC.
MG project QC.

1200. Lunch.

1300. Bering Air arrives. Craig Perry (Beacon medic) leaves. AK Minerals takedown crew arrives.

1345. Plane leaves.

1451. Photo CM190141. Site 15 excavation being backfilled with stockpiled soil.

1452. Photo CM190142. Site 28 Dewatering pad restored to original condition.

1453. Photo CM190143. Removing stockpile 2 at site 15.

1800. Stockpile 2 completely removed. MG + MW to ISM sample stockpile area. DU random cell location = [illegible]

18 August 2022

ISM sample 22NEC-S15-DU1-SS04

ISM sample 22NEC-S15-DU1-SS05, DRO.

ISM 22NEC-S15-DU1-SS06. All DRO.

Crew continues demob activities.

1930. End of day. MW, JS, MG, JA to demob tomorrow. Will be packed.

Matt Cavanaugh 8/18/22

Friday 19 August 2022.

0700 Site safety. Plane to arrive at 1000, then a second plane will arrive. MG, JS, MW, JA, and Cook Diana will depart.

0730. Crew adds top cover to Site 15 with clean backfill, from the quarry.

0953. Photo CM190144. Last load from quarry.
Total was 5 x 17cy rock truck loads and 5 x 10 cy dump truck loads, for a total of 135 cy added.

0959. Photo CM190145. Quarry after final removal.

1015. Photo CM190146. Site 15 restored condition.

1050. Bering Air arrives - MW, JS depart. They will drop off at Nome then come back. 6 coolers (Site 28 Sediment + ISM and Site 15 ISM) sent out as well.

1100. Crew remaining - JK, CB, DC moving supersacks and materials with trailer and loader.

1200. Lunch

1330. Plane arrives. MG, JA depart with

Rite in the Rain

19 August 2022

1330. cont. 1 AK Minerals employee

1430. MG, JA coordinate last coolers and supplies, then depart to Anchorage. CB, JA, DC continue moving supplies to barge landing

2100. End of day.

Mark Smith 8/19/22

Saturday -
20 August 2022

0700. CB, DC, JA continue moving supplies. Site safety meeting.

1200. Lunch. CB calls MG to indicate Job will be finished on 21 August. MG cordinates flight with Bering Air.

2130. End of day.

Mark Smith 8/20/22

Sunday 21 August 2022

0700. CB, DC, JA finishing barge preparation and refueling.

1130. Bering air arrives = CB, DC, JA offsite, 3 AK Minerals still on site.

1700. Second Bering Air Charter arrives. Last of AK Minerals crew demobs. End of Mobilization.

Matt Garrett 8/21/22

Rite in the Rain

Groundwater Sampling Forms

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GROUNDWATER SAMPLING DATA FORM

Well ID: ~~14MW01~~ AG 14MW01

Project Name:	NE Cape 2022	Date:	8/2/2022
Project Number:		Start Time:	1000
Sampling Team:	TD	End Time:	1110
Sample ID:	22NEC - MDC - 14MW01	Time: 1045	primary (circled) dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:

Depth to Top of Product (BTOC):	NA	Total Depth (BTOC):	22.19
Depth to Oil/Water Interface (BTOC):	NA	Depth to Water (BTOC)	17.42
Casing Diameter:	*1 in.* / *2 in.* (circled) / *4 in.*	Water Column (ft)	4.77
gal/ft of casing:	*0.041* / *0.163* / *0.653*	Casing Volume (gal)	0.78
Pump Intake Depth:	18.50	Screen Interval	TBD
Stable DTW (BTOC):	17.70	Measured Stick-up	Flush mount

Method of Purging (circle one):

Pump: SUB (circled) BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.112	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time: 25	Vol. Purged (gal):

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L) %Saturation TD	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1010	0	17.42	0	3.19	5.53	83.05	43.2	47.88	280
1015	0.50	17.88	0.46	2.62	6.38	298.6	25.6	17.88	715
1020	1.10	17.68	0.26	2.42	6.71	257.45	21.2	44.41	503
1025	1.7	17.66	0.24	3.44	6.64	200.45	35.9	51.27	203
1030	2.25	17.65	0.23	3.37	6.67	237.21	42.0	25.22	117
1035	2.8	17.71	0.29	3.16	6.45	68.10	57.0	23.09	183

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber (TD), Tan, Brown, Gray (TD), Milky White (circled), Other

Odor: None (circled) Low, Medium, High, Very Strong, H2S, Fuel-Like, Chemical ?, Unknown

Turbidity: None, Low, Medium (circled), High, Very Turbid, Heavy Silts

Comments:
- Sulfate Concentration read via Colorimeter 15.5 mg/L
- Unable to seat well lid, well slightly frost jacked.
- Nitrate Concentration read via ~~a~~ Colorimeter at 0.9 mg/L
- Ferrous Iron Concentration read AG via Test Kit IR-18C at 2.5 mg/L

GROUNDWATER SAMPLING DATA FORM

Well ID: 14 MW02

Project Name:	NE Cape 2022	Date:	8/2/22
Project Number:		Start Time:	1115
Sampling Team:	TD	End Time:	1200
Sample ID:	No sample collected	Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Depth to Top of Product (BTOC):		Total Depth (BTOC):	16.92
Depth to Oil/Water Interface (BTOC):		Depth to Water (BTOC)	12.50
Casing Diameter:	*1 in.* *2 in.* *4 in.*	Water Column (ft)	4.42
gal/ft of casing:	*0.041* *0.163* *0.653*	Casing Volume (gal)	0.72
Pump Intake Depth:		Screen Interval	TBD
Stable DTW (BTOC):		Measured Stick-up	Flush mount

Method of Purging (circle one):

Pump: SUB BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm):	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time:	Vol. Purged (gal):

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
Unable to pump due to blockage at 9.5 ft BTOC									

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber, Tan, Brown, Gray, 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:
- Outer well casing filled with water
- Unable to get submersible pump past a blockage at 9.5 ft BTOC. Attempted to clear blockage with a pointed PVC pipe. Did not collect sample. Small amount of ice was found on the pump

GROUNDWATER SAMPLING DATA FORM

Well ID: 14MW-02

Project Name:	NEC FUD	Date:	08/05/22
Project Number:		Start Time:	1400
Sampling Team:	Michael W. Alli	End Time:	1530
Sample ID:	22NEC-MOC-14MW02	Time: 1445	primary dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Depth to Top of Product (BTOC):		Total Depth (BTOC):	16.84
Depth to Oil/Water Interface (BTOC):		Depth to Water (BTOC)	12.50
Casing Diameter:	*1 in.* *2 in.* *4 in.*	Water Column (ft)	4.34
gal/ft of casing:	*0.041* *0.163* *0.653*	Casing Volume (gal)	0.71 x 2.12
Pump Intake Depth:		Screen Interval	unknown
Stable DTW (BTOC):		Measured Stick-up	N/A

Method of Purging (circle one):

Pump: SUB BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Mega Manipulator Flow Rate (gpm):	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time:	Vol. Purged (gal):

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1426	1	12.97	0.47	1.47	5.90	291.83	237.9	0.52	81.26
1431	2	13.40	0.9	1.15	5.83	293.10	228.2	0.00	19.09
1436	2.25	12.83	0.33	1.57	5.71	291.58	224.3	0.00	80.02
1441	2.5	12.83	0.33	1.80	5.59	291.12	224.2	0.00	13.73

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber, Tan, Brown, Gray, 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:

- Sulfate measured with colorimeter, Read 11.6 mg/L
- Ferrous Iron was measured with test kit. Read 1.5 mg/L
- Nitrate measured with colorimeter Read 1.1 mg/L

GROUNDWATER SAMPLING DATA FORM

Well ID: 14MW03

Project Name:	NE cape 2022	Date:	8/1/2022
Project Number:		Start Time:	1450
Sampling Team:	TD	End Time:	1635
Sample ID:	22NEC-MOC-14MW03	Time: 1600	primary / dup / other:
Sample ID:	22NEC-MOC-14MW903	Time: 1615	primary / dup / other:
Sample ID:		Time:	primary / dup / other:
Depth to Top of Product (BTOC):	NA	Total Depth (BTOC):	24.00
Depth to Oil/Water Interface (BTOC):	NA	Depth to Water (BTOC)	13.17
Casing Diameter:	*1 in.* / *2 in.* / *4 in.*	Water Column (ft)	10.83
gal/ft of casing:	*0.041* / *0.163* / *0.653*	Casing Volume (gal)	1.77
Pump Intake Depth:	~~TD~~ 14.50	Screen Interval	TBD
Stable DTW (BTOC):	14.10	Measured Stick-up	Flushmount

Method of Purging (circle one):

Pump: SUB BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.10	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time: 50 minutes	Vol. Purged (gal):

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L) % sat.	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1500	0	13.20	0	5.57	6.51	178.66	140.4	101.53	73.3
1505	0.50	13.62	0.42	3.14	6.42	219.45	128.9	72.09	49.2
1310	1.00	13.49	0.79	2.61	6.34	206.66	123.5	81.99	86.5
1315	1.50	13.44	0.74	2.69	6.33	266.22	113.0	27.06	81.3
1320	2.00	14.00	0.80	3.12	6.23	181.91	112.7	63.60	63.2
1325	2.50	14.02	0.32	3.04	6.12	164.24	108.5	49.73	51.9
1330	3.00	14.06	0.86	3.33	6.04	237.24	110.5	35.59	40.6
1335	3.50	14.10	0.90	3.26	5.48	92.46	107.8	46.68	36.4
1340	4.00	14.18	0.98	2.45	5.95	181.37	107.7	37.40	20.6
1345	4.50	14.20	1.00	2.72	5.92	168.40	105.5	30.71	31.4

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber, Tan, Brown, Gray, 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:

- Primary sample sulfate concentration via colorimeter 11.0 mg/L
- Duplicate " 10.7 mg/L
- Nitrate concentration via colorimeter at 0.0 mg/L
- Ferrous Iron concentration read via test kit IR-18C at 2.5 mg/L

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1550	5.00	14.06	0.86	3.40	5.94	172.57	107.4	31.87	31.2
					✓		✓	✓	
					3 Parameters stabilized				

GROUNDWATER SAMPLING DATA FORM

Well ID: 14MW-02

Project Name:	NEC FUD	Date:	08/05/22
Project Number:		Start Time:	0946
Sampling Team:	Michael Williams / Allie Green	End Time:	11:40
Sample ID:	22NEC-MOC-14MW03	Time: 1040	primary / dup / other:
Sample ID:	22NEC-MOC-14MW904	Time: 1140	primary / dup / other:
Sample ID:		Time:	primary / dup / other:
Depth to Top of Product (BTOC):		Total Depth (BTOC):	15.04
Depth to Oil/Water Interface (BTOC):		Depth to Water (BTOC)	4.31
Casing Diameter:	*1 in.* / *2 in.* / *4 in.*	Water Column (ft)	~~15.04~~ 10.73
gal/ft of casing:	*0.041* / *0.163* / *0.653*	Casing Volume (gal)	1.75 x3 = 5.25
Pump Intake Depth:		Screen Interval	N/A
Stable DTW (BTOC):		Measured Stick-up	N/A

Method of Purging (circle one):

Pump: SUB BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.5 gpm	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time:	Vol. Purged (gal): 2

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1003	3gal	4.31	0	3.87	6.15	204.25	214.9	8.34	377.98
1013	5	4.31	0	3.54	5.85	188.11	229.2	3.09	46.81
1018	7	4.31	0	3.54	5.75	177.17	235.5	3.17	43.37
1023	9	4.31	0	3.80	5.64	174.40	~~3.21~~ 240.8	3.21	32.04

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber, Tan, Brown, Gray, 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:

1120 Measured Sulfate with Colorimeter. Read 6.0 mg/L

1130 Ferrous Iron was measured with Test Kit Reagent at 0.0 mg/L

1140 12.7 mg/L ; Nitrate measured by colorimeter

GROUNDWATER SAMPLING DATA FORM

Well ID: 14 mW 05

Project Name:	NEC FUD	Date:	08/05/22
Project Number:		Start Time:	1600
Sampling Team:	Michael W., Ali G.	End Time:	
Sample ID:	22NEC-MOC-14mW05	Time:	primary (circled) dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Depth to Top of Product (BTOC):		Total Depth (BTOC):	13.95
Depth to Oil/Water Interface (BTOC):		Depth to Water (BTOC)	3.94
Casing Diameter:	*1 in.* *2 in.* (circled) *4 in.*	Water Column (ft)	10.01
gal/ft of casing:	*0.041* *0.163* *0.653*	Casing Volume (gal)	1.63 x3 = 4.89
Pump Intake Depth:		Screen Interval	Unknown
Stable DTW (BTOC):		Measured Stick-up	N/A

Method of Purging (circle one):

Pump: SUB (circled) BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Mega Monsoon Pro Flow Rate (gpm):	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time:	Vol. Purged (gal):

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1623	~~0.25~~ 1.5	5.17	1.23	3.06	5.62	167.15	197.9	1.76	59.36
1628	2	5.50	1.56	2.52	5.57	181.08	185.8	0.10	24.21
1633	3	5.42	1.48	2.52	5.56	178.09	173.2	0.15	14.85
1638	4.5	5.01	1.07	2.63	5.58	175.91	163.5	0.16	16.67

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber, Tan, Brown, Gray, 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:
- Sulfate measured with colorimeter, read 4.5 mg/L
- Ferrous Iron measured at 2.0 mg/L
- Nitrate read 0.1 mg/L

GROUNDWATER SAMPLING DATA FORM

Well ID: 14MW06

Project Name:	NECape 22	Date:	8/1/2022
Project Number:		Start Time:	1700
Sampling Team:	TD	End Time:	1600
Sample ID:	22NEC-MCC-14MW06	Time: 1735	primary dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Depth to Top of Product (BTOC):	NA	Total Depth (BTOC):	14.69
Depth to Oil/Water Interface (BTOC):	NA	Depth to Water (BTOC)	5.21
Casing Diameter:	*1 in.* *2 in.* *4 in.*	Water Column (ft)	9.48
gal/ft of casing:	*0.041* *0.163* *0.653*	Casing Volume (gal)	1.55
Pump Intake Depth:	6.50	Screen Interval	TBD
Stable DTW (BTOC):	5.70	Measured Stick-up	Flushmount

Method of Purging (circle one):

Pump: SUB BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.09	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time: 20 minutes	Vol. Purged (gal):

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1714	0	5.25	0	5.21	6.68	167.12	134.4	90.68	28.0
1720	0.50	5.81	0.56	3.85	6.60	229.01	137.8	73.47	10.8
1725	0.90	5.66	0.41	4.11	6.58	212.07	140.6	48.67	7.31
	Three parameters stable →				✓		✓		✓
1730	1.50	5.80	0.55	4.04	6.53	232.01	131.1	57.71	6.24

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber, Tan, Brown, Gray, 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: Sulfate concentration read via Colorimeter 1.6 mg/L
Nitrate Concentration read via Colorimeter at 0.0 mg/L
Ferrous Iron Concentration read via Test Kit IR-18C at ~~0.0~~ 0.5 mg/L

GROUNDWATER SAMPLING DATA FORM

Well ID: 14MW07

Project Name:	NE Cape 2022	Date:	7/30/22
Project Number:		Start Time:	1330
Sampling Team:	TD	End Time:	1615
Sample ID:	22NEC-MOC-14MW07	Time: 1600	primary dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Depth to Top of Product (BTOC):	NA	Total Depth (BTOC):	33.19'
Depth to Oil/Water Interface (BTOC):	NA	Depth to Water (BTOC)	28.44'
Casing Diameter:	*1 in.* *2 in.* *4 in.*	Water Column (ft)	4.75'
gal/ft of casing:	*0.041* *0.163* *0.653*	Casing Volume (gal)	0.77 x3 = 2.31 gal.
Pump Intake Depth:	29.50	Screen Interval	TBD
Stable DTW (BTOC):	30.00	Measured Stick-up	Flush Mount

Method of Purging (circle one):

Pump: SUB BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.27	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time: 15	Vol. Purged (gal):

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1540	1.5	30.73	2.29	37.8	5.77	165.97	194.2	78.38	237.90
1545	3	32.08	3.64	40.40	5.66	160.48	229.5	101.54	384.66
1548		EMPTY							
1551	4	30.4	1.96	39.36	5.61	~~0.09~~ 162.74 ?	235.267	100.43	13.48

clear/ brown brown

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber, Tan, Brown, Gray, 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:

@1610 sulfate result obtained with HACH instrument 15.1 mg/L.

Red mark reference on well casing

1548 well dry — pumped for 10 min. 3½ gal pumped total, will wait for a recharge and sample directly. Minimum pump rate was ~300 mL/min.

Nitrate Concentration read via colorimeter at 0.9 mg/L

Ferrous Iron Concentration read via Test Kit IR-18C at 0.0 mg/L

Reference: ADEC, 2013. Monitoring Well Guidance, September.

GROUNDWATER SAMPLING DATA FORM

Well ID: 17MW 1

Project Name:	NF Cap 2022	Date:	7/30/22
Project Number:		Start Time:	1650
Sampling Team:	TD, JS, MG, MW, BS	End Time:	1800
Sample ID:	22NFC-MOC-17MW1	Time: 1730	primary (circled) dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Depth to Top of Product (BTOC):	NA	Total Depth (BTOC):	15.68
Depth to Oil/Water Interface (BTOC):	NA	Depth to Water (BTOC)	14.87
Casing Diameter:	*1 in.* / *2 in.* (circled) / *4 in.*	Water Column (ft)	0.81
gal/ft of casing:	*0.041* / *0.163* / *0.653*	Casing Volume (gal)	0.13 × 3 = 0.396 gal
Pump Intake Depth:	15.90	Screen Interval	TBD
Stable DTW (BTOC):	14.90	Measured Stick-up	flush mount

Method of Purging (circle one):

Pump: SUB (circled) BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.3	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time: 15 minutes	Vol. Purged (gal):

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
~~1650~~		~~14.87~~		37.1					
1702 (milky brown)	2	14.90	0.03	~~58.9~~	5.6	204.8	247.6	10.17	492.9
1710 (clear)	3.5	14.90	0.03	36.52	5.58	208.53	249.3	10.25	87.25
1714	4.5	14.91	0.04	36.22	5.61	208.73	251.9	10.32	90.93

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear (circled), Amber, Tan, Brown, Gray, Milky White, Other

Odor: None (circled), Low, Medium, High, Very Strong, H2S, Fuel-Like, Chemical ?, Unknown

Turbidity: None (circled), Low, Medium, High, Very Turbid, Heavy Silts

Comments:

sulfate reagent result 10.4 mg/L obtained at 1748
Nitrate Concentration read via colorimeter at 0.0 mg/L
Ferrous Iron Concentration read via colorimeter at 0.0 mg/L
Water color milky brown → clear
black mark reference on well casing, frost-jacked observed at well
*ice attached to pump noticed when pump removed from well

GROUNDWATER SAMPLING DATA FORM

Well ID: 20MW1

Project Name:	NE Cape 2022	Date:	7/31/2022
Project Number:		Start Time:	1335
Sampling Team:	TD	End Time:	
Sample ID:	22NEC-MOC-20MW1	Time: 1400	(primary) dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Depth to Top of Product (BTOC):	NA	Total Depth (BTOC):	29.00
Depth to Oil/Water Interface (BTOC):	NA	Depth to Water (BTOC)	25.53
Casing Diameter:	*1 in.* (2 in.) *4 in.*	Water Column (ft)	3.47
gal/ft of casing:	*0.041 0.163 0.653*	Casing Volume (gal)	0.57
Pump Intake Depth:	26.50 ft BTOC	Screen Interval	TBD
Stable DTW (BTOC):		Measured Stick-up	Flush mount

Method of Purging (circle one):

Pump: (SUB) BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.13	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time: 15 minutes	Vol. Purged (gal): 2.0

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or (°C))	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1340	0	25.53	0	5.23	6.17	173.67	226.7	90.67	688.56
1345	0.75	25.89	0.36	3.58	5.94	178.92	241.3	91.90	488.73
1349	1.5	25.95	0.42	3.80	5.97	178.49	233.0	91.82	284.00
1354	2.0	26.00	0.47	3.77	5.97	178.93	237.4	91.35	180.74

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, (Amber, Tan,) Brown, Gray, 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: Sulfate concentration via colorimeter of 15.4 mg/L
Nitrate Concentration read via colorimeter at 0.0 mg/L
Ferrous Iron Concentration read via Test Kit IR-18C at 0.0 mg/L

GROUNDWATER SAMPLING DATA FORM

Well ID: 22MW2

Project Name:	NE Cape 22	Date:	7/31/2022
Project Number:		Start Time:	1055
Sampling Team:	TD	End Time:	~~1~~ TD 1135
Sample ID:	22NEC-MOC-22MW2	Time: 1125	primary (circled) dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Depth to Top of Product (BTOC):	NA	Total Depth (BTOC):	34.64
Depth to Oil/Water Interface (BTOC):	NA	Depth to Water (BTOC)	30.23
Casing Diameter:	*1 in.* / *2 in.* (circled) / *4 in.*	Water Column (ft)	4.41
gal/ft of casing:	*0.041* / *0.163* / *0.653*	Casing Volume (gal)	0.72
Pump Intake Depth:	31.2~~0~~	Screen Interval	TBD
Stable DTW (BTOC):	30.4~~0~~	Measured Stick-up	Flush mount

Method of Purging (circle one):

Pump: SUB (circled) BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.2	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time: 20 minutes	Vol. Purged (gal): ~~8~~ TD

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down (Ft)	Temp. (°F or °C) (circled)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. ~~(%sat)~~ (mg/L) TD	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1110	0	30.23	0	4.52	5.65	7.85	253.1	101.54	621.90
1115	2.5	30.39	0.16	3.73	5.54	210.96	258.7	101.21	26.80
1118	4.0	30.40	0.17	3.75	5.57	210.99	258.7	101.51	21.16

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear (circled), Amber, Tan, Brown, Gray, Milky White, Other

Odor: None (circled), Low, Medium, High, Very Strong, H2S, Fuel-Like, Chemical ?, Unknown

Turbidity: None, Low (circled), Medium, High, Very Turbid, Heavy Silts

Comments: Sulfate concentration read via colorimeter of 18.6 mg/L
Nitrate Concentration read via Colorimeter at 1.1 mg/L
Ferrous Iron Concentration read via Test Kit IR-18C at 0.0 mg/L

GROUNDWATER SAMPLING DATA FORM

Well ID: 26MW1

Project Name:	NE Cape 2022	Date:	7/31/2022
Project Number:		Start Time:	0930
Sampling Team:	TD	End Time:	1010
Sample ID:	22NEC-MOC-26MW1	Time: 1000	primary dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Depth to Top of Product (BTOC):	NA	Total Depth (BTOC):	42.10'
Depth to Oil/Water Interface (BTOC):	NA	Depth to Water (BTOC)	39.13'
Casing Diameter:	*1 in.* / *2 in.* / *4 in.*	Water Column (ft)	2.97
gal/ft of casing:	*0.041* / *0.163* / *0.653*	Casing Volume (gal)	0.48
Pump Intake Depth:	40.00 ft BTOC	Screen Interval	TBD
Stable DTW (BTOC):	39.20	Measured Stick-up	Flush mount

Method of Purging (circle one):

Pump: SUB BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.3	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time: 25 minutes	Vol. Purged (gal): ~~6~~ TD 8

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. ~~(mg/L)~~ TD % sat	Turbidity (NTU)
				±3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
0945	0	39.13	0	3.73 ~~7.22~~ TD	6.75	169.96	196.8	13 ~~102.32~~ ~~63~~ TD	302.54
0950	3	39.21	0.08	2.52	6.11	172.22	210.0	101.77	29.2
		~~39.25~~ TD							

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber, Tan, Brown, Gray, 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: Sulfate concentration read via ~~Colorimeter~~ TD colorimeter of 15.7 mg/L
Nitrate Concentration read via Colorimeter at 0.7 mg/L
Ferrous Iron Concentration read via Test Kit HC IR-18C at 0.0 mg/L

GROUNDWATER SAMPLING DATA FORM

Well ID: MW10-1

Project Name:	NEC FuDs	Date:	08/04/22
Project Number:		Start Time:	1615
Sampling Team:	Michael Williams Jane Sudley	End Time:	
Sample ID:	22NEC-MUC-MW10-1	Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Depth to Top of Product (BTOC):		Total Depth (BTOC):	11.3
Depth to Oil/Water Interface (BTOC):		Depth to Water (BTOC)	6.77
Casing Diameter:	*1 in.* *2 in.* *4 in.*	Water Column (ft)	4.53
gal/ft of casing:	*0.041* *0.163* *0.653*	Casing Volume (gal)	0.74 x 3 2.2 gal.
Pump Intake Depth:		Screen Interval	—
Stable DTW (BTOC):		Measured Stick-up	

Method of Purging (circle one):

Pump: SUB BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm):	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time:	Vol. Purged (gal):

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1695	2	7.33	0.56	4.54	5.73	91.71	195.6	47.08	249.34
1700	4	8.4	1.63	4.96	5.63	92.44	220.6	30.79	227.29
1705	5	8.93	2.13	4.49	5.59	93.12	228.3	16.32	291.20

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber, Tan, Brown, Gray, 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:

1805 Sulfide Colorimeter read 2.7 mg/L

- Nitrate Concentration read via Colorimeter at 0.1 mg/L
- Ferrous Iron Concentration read via Test Kit IR-18C at 0.0 mg/L

GROUNDWATER SAMPLING DATA FORM

Well ID: MW88-1

Project Name:	NE Cape 2022	Date:	7/31/2022
Project Number:		Start Time:	1455
Sampling Team:	TD	End Time:	1605
Sample ID:	~~22NEC-MOC-MW-88~~ TD	Time: 1600	primary dup other:
Sample ID:	22NEC-MOC-MW88-1	Time:	primary dup other:
Sample ID:		Time:	primary dup other:
Depth to Top of Product (BTOC):	NA	Total Depth (BTOC):	23.31
Depth to Oil/Water Interface (BTOC):	NA	Depth to Water (BTOC)	19.81
Casing Diameter:	*1 in.* *2 in.* *4 in.*	Water Column (ft)	3.50
gal/ft of casing:	*0.041* *0.163* *0.653*	Casing Volume (gal)	0.57
Pump Intake Depth:	20.80	Screen Interval	TBD
Stable DTW (BTOC):	19.85	Measured Stick-up	Flush mount

Method of Purging (circle one):

Pump: SUB BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.13	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time: 25 minutes	Vol. Purged (gal): 3.25

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1530	0	19.81	0	8.06	6.06	145.97	238.0	83.55	858.36
1535	~~0.75~~ 0.75	19.92	0.11	2.22	5.64	125.03	257.6	71.88	322.10
1540	1.50	20.06	0.25	2.00	5.49	18.07	268.8	48.59	73.67
1545	2.25	19.88	0.07	2.26	5.49	41.37	272.7	67.78	42.26
1550	3.00	19.82	0.01	3.09	5.40	165.32	283.1	37.80	16.75

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber, Tan, Brown, Gray, 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: Blockage at 6.29 ft BTOC in well. No water detected; hard hit with gauge. Initially unable to fit Submersible pump past the blockage. Used 10ft 1inch PVC pipe to try to remove blockage, which was apparently a layer of ice. Continued sampling procedures.

- Well is frost jacked; unable to close lid
- Sulfate concentration read via colorimeter of 11.2 mg/L
- Nitrate concentration read via colorimeter at 0.0 mg/L
- Ferrous Iron Concentration read via Test Kit IR-18C at 0.0 mg/L

GROUNDWATER SAMPLING DATA FORM

Well ID: MW88-3

Project Name:	NE Cape 2022	Date:	8/1/2022
Project Number:		Start Time:	1300
Sampling Team:	TD	End Time:	1430
Sample ID:	22NEC-MOC-MW88-3	Time: 1350	primary dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:

Depth to Top of Product (BTOC):	NA			Total Depth (BTOC):	19.45
Depth to Oil/Water Interface (BTOC):	NA			Depth to Water (BTOC)	14.91
Casing Diameter:	*1 in.*	*2 in.*	*4 in.*	Water Column (ft)	4.54
gal/ft of casing:	*0.041*	*0.163*	*0.653*	Casing Volume (gal)	0.74
Pump Intake Depth:	16.00			Screen Interval	TBD
Stable DTW (BTOC):	15.20			Measured Stick-up	Flush mount

Method of Purging (circle one):

Pump: SUB BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.096	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time: 25 minutes	Vol. Purged (gal):

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. % (mg/L) Sat.	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1318	0	14.95	0	3.36	6.15	126.42	172.0	98.59	468
1324	0.50	15.14	0.19	3.28	6.10	119.86	178.1	89.88	235
1330	1.00	15.16	0.21	3.02	6.02	106.93	178.0	85.49	125
1335	1.50	15.19	0.24	2.91	5.81	125.44	187.7	75.30	88.7
1339	2.00	15.20	0.25	2.84	5.69	38.96	193.3	33.46	57.8
1342	2.30	15.27	0.32	2.38	5.79	50.86	189.7	62.55	44.4

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: Clear, Amber, Tan, Brown, Gray, 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:
- Sulfate concentration read via colorimeter of 8.6 mg/L
- MS/MSD collected
- Nitrate concentration read via colorimeter at 0.0 mg/L
- Ferrous Iron concentration read via Test Kit IR-18C at 0 mg/L

GROUNDWATER SAMPLING DATA FORM

Well ID: MW88-10

Project Name:	NE Cape 2022	Date:	7/31/2022
Project Number:		Start Time:	1655
Sampling Team:	TO	End Time:	1750
Sample ID:	22NEC-MW-MW88-10	Time: 1735	(primary) dup other:
Sample ID:		Time:	primary dup other:
Sample ID:		Time:	primary dup other:

Depth to Top of Product (BTOC):	NA			Total Depth (BTOC):	25.75
Depth to Oil/Water Interface (BTOC):	NA			Depth to Water (BTOC)	23.28
Casing Diameter:	*1 in.*	(2 in.)	*4 in.*	Water Column (ft)	2.47
gal/ft of casing:	*0.041*	*0.163*	*0.653*	Casing Volume (gal)	0.40
Pump Intake Depth:	24.30 ft BTOC			Screen Interval	TBD
Stable DTW (BTOC):	23.50			Measured Stick-up	Flush mount

Method of Purging (circle one):

Pump: (SUB) BLDR PERIST OTHER:	Bailer: TEFLON SS OTHER:
Pump Type: Flow Rate (gpm): 0.11	Required Pulls: Bailer Vol. (gal): 0.25 / 0.33
Pump Time: 20 minutes	Vol. Purged (gal): 2.25

WELL STABILIZATION DATA

Time	Total Volume Purged (gallons)	Water Level (ft BTOC)	Draw Down	Temp. (°F or (°C))	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (%Sat) (mg/L)	Turbidity (NTU)
				± 3%	± 0.1	± 3%	± 10mV	± 10%	± 10% or <10 NTU
1710	0	23.28	0	3.71	5.75	42.58	249.2	52.46	8.34
1715	0.50	23.77	0.49	2.91	5.75	64.70	244.1	89.27	33.94
1720	1.25	23.93	0.65	3.17	5.58	188.02	242.7	33.54	6.64
1725	1.75	23.89	0.61	3.13	5.56	170.77	241.9	13.75	8.21
1730	2.25	23.54	0.26	2.95	5.47	185.71	243.6	12.39	22.97

Notes: Drawdown should be less than 0.3 feet from the original DTW. Minimal drawdown achieved and measured by: 1) pumping at a low rate (approx. 1 liter/3 minutes or 0.26 gallons/3 minutes or 50-500 mL/min) **and** 2) continually measuring water levels in the well.
Sample after 1) removing min. of 3 casing volumes **or** 2) min. of 3 parameters stabilize (4, if using temp.), **or** 3) for low yield wells, entire well casing is evacuated (ADEC, 2013).

Sensory Observations

Color: (Clear,) Amber, Tan, Brown, Gray, 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:
- Sulfate Concentration read via colorimeter of 16.3 mg/L
- Nitrate Concentration read via colorimeter at 0.4 mg/L
- Ferrous Iron Concentration read via Test Kit IR-18C at 0.0 mg/L

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Well Development Monday 1 August 2022 Site: NE Cape

Well ID: MW10-1 Start time: 0812
DTW: 6.73 ft BTOC End time: 1020
TD: Hard hit at 11.30 ft BTOC, potentially ice
Casing Diameter: 2"
Borehole Diameter: 6"

Borehole Volume = 0.555 gal/ft * 4.57 ft = 2.54 gal

Min purge volume =
Pump type: Peristaltic

Purging Information:

Time	Volume Purged (gal)	Temperature (°C)	Conductivity (µS/cm)	DO (% Saturation)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft BTOC)
~~30~~ 0843	0	No Data						~~6.75~~
~~0845~~	0.25	8.18	0.84	102.57	5.86	215.4	2561.0	6.83
0850	0.75	6.37	2.18	100.79	~~5.86~~ TD 5.86	242.1	1155.0	~~6.83~~ TD 6.87
0855	1.00	5.55	1.35	96.85	5.72	265.0	712.30	6.96
0855	SURGE							
0900	1.00	6.20	0.29	97.65	5.68	223.8	~~12.86~~ 7,222.2 TD	6.95
0905	1.50	4.92	59.29	94.72	5.58	249.6	8,022.2	7.02
0910	2.00	4.84	60.06	91.10	5.41	265.3	7,272.3	7.100
0915	2.50	4.82	60.32	87.57	5.31	280.7	2,481.7	7.16
0920	3.00	4.77	58.20	82.32	5.19	299.3	863.92	7.35
0920	SURGE							
0925	3.06	5.29	49.26	88.65	5.19	299.8	7905.2	7.25
0930	3.50	4.75	48.70	87.32	5.16	307.3	8,220.7	7.35
0935	4.00	4.62	26.88	83.39	5.17	316.5	8,275.7	7.43
0955	6.00	4.86	91.02	45.62	5.07	327.6	429.55	7.95
1000	6.50	4.87	9.62	40.97	5.07	328.4	210.33	8.12
1000	7.50	5.02	69.14	92.42	5.40	326.2	147.46	8.15

1015 Stop purging at 8.00 gallons. Water is clear and shows no to little turbidity. Aquatroll reading of turbidity 147.85 NTU likely overestimate due to residual silt in the flow-through cell.

Scale: 1 square = _____

Rite in the Rain

Well Development Monday 1 August 2022 NE Cape

Well ID: 14MW04 Start Time: 1036

DTW: 4.13 ft BTOC End Time:

TD: 15.00 ft BTOC Pump Type: peristaltic

Casing Diameter: 2"

Borehole Diameter: 6"

Purge Information

Surge at 1045

Time	Gallons Purged (gal)	Temperature (°C)	Conductivity (mS/cm)	DO (% saturation)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft BTOC)
1050	0	6.26	176.85	100.71	5.96	176.9	5602.4	4.28
1100	1.25	3.40	228.85	33.04	5.76	188.2	371.40	4.31
1105	2.0	3.43	220.79	32.02	5.75	192.4	269.60	4.31
1105	SURGE							
1110	2.0	4.01	213.56	57.66	5.93	168.5	6788.3	4.36
1120	3.25	3.70	198.19	36.30	5.63	187.8	552.78	4.46
1140	5.50	3.65	181.38	28.28	5.73	196.2	204.86	4.36

stop purging at 1145. Turbidity reading via aquatroll 212.11 NTU likely overestimate due to residual silt. Water was notably clear.

Scale: 1 square = _____

Attachment E-2

Summarized Analytical Results and Trend Plots

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SUMMARIZED ANALYTICAL RESULTS AND TREND PLOTS

This attachment presents tables and plots for groundwater parameters at the MOC monitoring well network. The selected parameters include groundwater elevation, MNA parameter concentrations, contaminant concentrations compared to respective SSCLs and ADEC Table C groundwater cleanup levels, and results of statistical analyses performed for DRO concentration trends. When possible, data from select historic wells (MW88-4 and MW88-5) is included for comparison.

Groundwater elevation measurements have been collected at the monitoring well network from 2002 to 2022. The data is depicted in Plot E2-1 and expressed as feet above mean sea level (msl) over time.

MNA parameters were collected at the monitoring well network annually between 2010 and 2016, once in 2018, and once in 2022. Table E2-2 presents a table of natural attenuation parameters, which include concentrations of sulfate, methane, nitrate, ferrous iron, manganese, and DO, and temperature, specific conductivity, and ORP. These parameters in each monitoring well from 2010 to 2022 are summarized in Table E2-2 and plotted in Plots E2-2a through E2-2l.

Analytical groundwater samples were collected intermittently from currently serviceable monitoring wells and select historical monitoring wells (MW88-4 and MW88-5) beginning in 2002 and continuing through 2022. Table E2-3 presents COC concentrations exceeding SSCLs and/or ADEC Table C groundwater cleanup levels. Plots E2-3a through E2-3q display concentrations of contaminants of concern over time relative to SSCLs. Plots E2-3r through E2-3hh display naphthalene, 1-methynlaphthalene, and 2-methylnaphthalene concentrations over time relative to ADEC Table C groundwater cleanup levels because these analytes historically exceeded the cleanup levels at monitoring wells across the MOC but lack DD-specified SSCLs.

Statistical trends for the natural attenuation of DRO are presented in Attachment E2-4. In previous analyses, only monitoring wells with 2018 exceedances of the DRO SSCL (wells 14MW01, 14MW02, 14WM04, and 14MW05) were selected for the Mann-Kendall trend test. 14MW06 was included in the 2022 trend analysis due to a DRO SSCL exceedance in 2022. Tables E2-4a through E2-4f present the results of the Mann-Kendall trend test for monitoring wells 14MW01, 14MW02, 14WM04, 14MW05, and 14MW06. Geometric regression was completed for wells 14MW04 and 14MW05 because the Mann-Kendall trend test indicated a decreasing DRO concentration trend for each well. Geometric regression for monitoring wells is presented in Plots E2-4a and E2-4b, and Tables E2-4g through E2-4j.

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ATTACHMENT E2-1
GROUNDWATER ELEVATION OVER TIME

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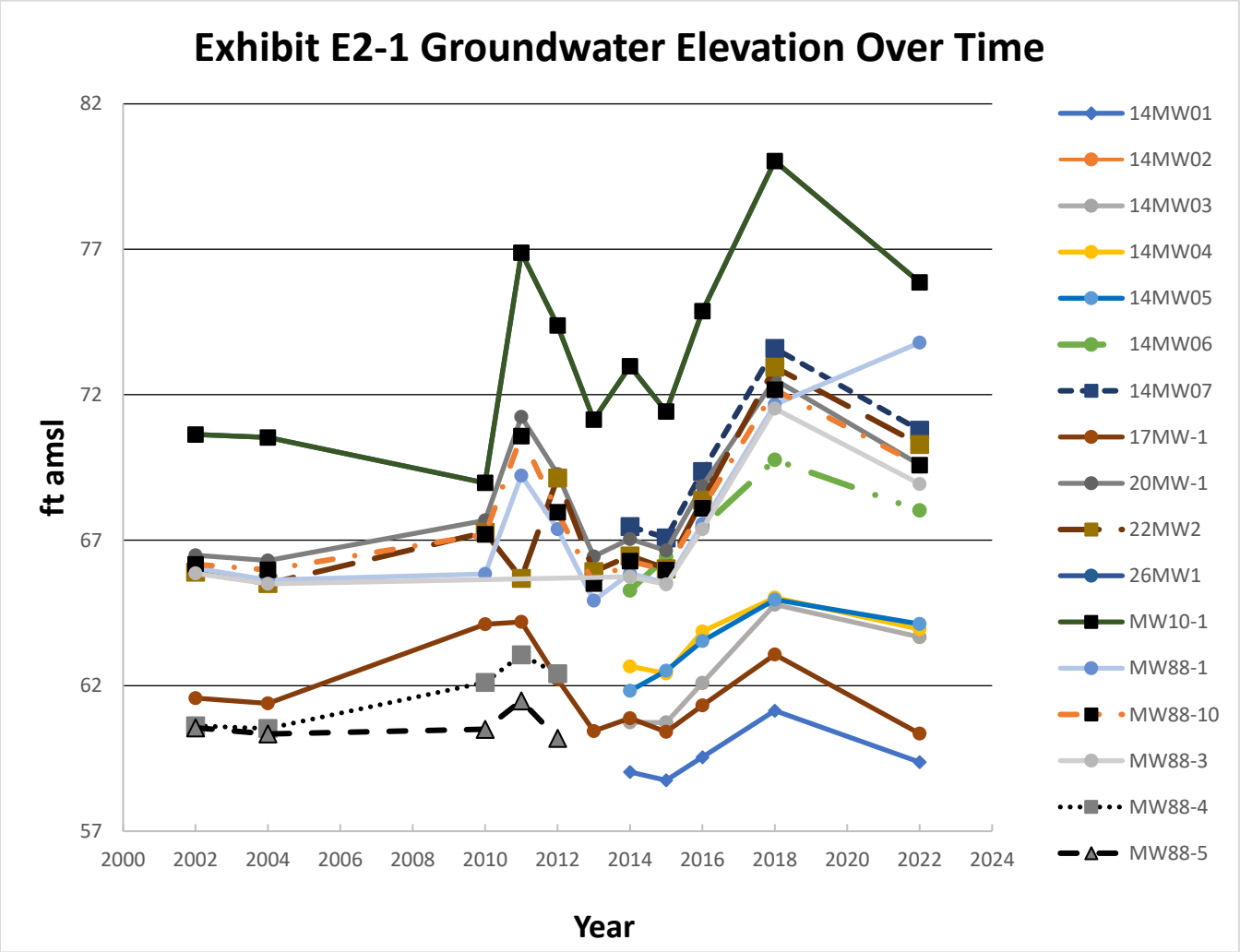

Notes:

ft amsl = feet above mean sea level

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ATTACHMENT E2-2
MNA PARAMETERS OVER TIME

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Table E2-2 MNA Parameters Over Time

Monitoring Well	Year	Ferrous Iron mg/L	Manganese mg/L	Sulfate mg/L	Nitrate mg/L	Alkalinity mg/L	Temperature °C	Conductivity µS/cm	pH	ORP mV	DO mg/L	Methane µg/L
14MW01	2014	0.85	0	7	0	80	2.89	--	6.51	-191.9	3.78	83
14MW01	2015	0.09	0.2	8	0.02	0	2.06	135	6.32	32.7	0.77	54
14MW01	2016	10	0.916	17.7	0	18.7	4.37	94	6.02	0.6	0.53	24
14MW01	2018	>10	0.84	25.3	0	33	3.39	105	6.06	26.2	1.46	34
14MW01	2022	2.5	1.74	62.7	0.9	19.3	3.16	68.1	6.45	57	2.12	103
14MW02	2014	0.86	0.9	3	0	80	1.38	--	6.39	-103.8	1.17	200
14MW02	2015	3.3	1.1	7	0.01	40	2.5	164	6.26	-64	0.15	240
14MW02	2016	10	1.86	14.7	0	40	6.84	123	5.88	11.6	0.51	23
14MW02	2018	>10	0.807	20.1	0	31.6	3.66	108	5.78	29.9	4.28	21
14MW02	2022	1.5	1.78	44.5	1.1	636	1.8	291.12	5.59	224.2	0	10.9
14MW03	2014	0.89	0.9	8	--	180	3.41	--	6.65	-404.9	8.03	47
14MW03	2015	2.17	0.4	6	<0.4	40	3.89	189	6.63	-193.9	0.37	88
14MW03	2016	10	1.36	16.9	0	28	4.14	93	5.99	26.7	0.6	8.2
14MW03	2018	>10	1.47	17.3	0	46.6	4.36	109	6.15	31	0.81	15
14MW03	2022	2.5	1.38	42.8	0	33.9	3.4	172.57	5.94	107.4	2.93	254.4
14MW04	2014	0.81	0.6	12	0	140	5.9	819	5.92	27.3	0.33	25
14MW04	2015	0.51	0.4	27	0.02	40	5.57	294	5.97	-118.1	1.05	110
14MW04	2016	3.5	1.71	31.2	0	91	7.66	203	6.05	91.4	0.62	20
14MW04	2018	1	1.15	23.9	0	44.4	9.03	125	5.6	175.2	0.66	15
14MW04	2022	0	0.458	27.4	12.7	37.3	3.8	174.4	5.64	240.8	0.3	35.3
14MW05	2014	0.95	0.7	6	0	--	3.61	--	6.23	-39.3	3.5	33
14MW05	2015	2.8	2.2	10	0.03	40	3.81	138	6.21	31.8	0.32	99
14MW05	2016	10	2.71	23.1	0	47	6.82	127	5.87	74.6	0.46	10
14MW05	2018	>10	3.48	9.9	0	74.3	7.95	158	6.14	35.8	0.97	62
14MW05	2022	2	2.85	23.2	0.1	39.2	2.63	175.91	5.58	163.5	0.16	70.4
14MW06	2014	1.75	1.6	3	0	--	2.57	--	6.21	-68.5	0.32	160
14MW06	2015	0.09	0.5	6	0.02	80	5.95	222	6.61	24.9	0.18	110
14MW06	2016	2	1.28	15.3	0.2	140	9.33	235	6.57	47.2	0.45	8.3
14MW06	2018	0.3	0.6	12	0	105	8.55	167	6.28	131.7	0.65	8.5
14MW06	2022	0.5	0.41	15.1	0	123	4.04	232.01	6.53	131.1	5.31	<6
14MW07	2014	0.25	0.3	1	<0.01	40	6.49	--	6.9	-385.4	4.52	30
14MW07	2015	0.07	0.4	4	0.09	0	3.4	56	6.36	125.9	8.47	1.6 J
14MW07	2016	<0.03	0.0359	12.7	0.1	11.7	3.74	52	5.42	187.7	10.09	ND (0.63)
14MW07	2018	2	0.0144	17.6	0	10.3	3.57	68	5.66	195.5	12.82	ND (1.0)
14MW07	2022	0	0.0707	48.4	0.9	8.96	4.09	162.74	5.61	235.27	9.24	<6

Table E2-2 MNA Parameters Over Time

Monitoring Well	Year	Ferrous Iron mg/L	Manganese mg/L	Sulfate mg/L	Nitrate mg/L	Alkalinity mg/L	Temperature °C	Conductivity µS/cm	pH	ORP mV	DO mg/L	Methane µg/L
17MW1	2010	0.01	<0.2	16	0.2	0	3.09	68	5.76	160.8	7.32	ND (0.19)
17MW1	2011	0.06	0.1	15	0.7	40	2.73	67	5.78	237.1	4.47	ND (0.29)
17MW1	2012	<0.03	<0.2	16	0.19	40	2.74	108	5.45	205.5	9.22	ND (0.29)
17MW1	2013	0.01	0.3	20	0.11	37	3.45	65	5.45	149.2	9.77	ND (0.37)
17MW1	2014	--	0	5	0.11	60	2.35	--	5.65	166.6	11.15	ND (0.37)
17MW1	2015	0.06	0.2	10	0.08	0	2.47	99	5.83	164	10.52	ND (0.80)
17MW1	2016	<0.03	0.00156	16.9	0.2	10	3.94	56	5.45	223.4	10.31	ND (0.63)
17MW1	2018	<1	0.0021	23.6	0.2	8.5	3.18	74	5.54	155.9	10.96	8.2
17MW1	2022	0	0.0595	66.5	0	11.6	2.34	208.73	5.61	251.9	10.32	<6
20MW1	2010	--	--	--	--	--	3.61	63	6.29	101.4	3.96	ND (0.19)
20MW1	2011	<0.01	<0.2	24	1.3	80	2.33	82	5.89	125.8	10.78	ND (0.29)
20MW1	2012	<0.03	0.3	16	0.23	40	3.39	143	5.76	231.5	9.04	ND (0.29)
20MW1	2013	ND	0.2	22	0.26	45	3.58	83	5.65	62.4	10.45	ND (0.37)
20MW1	2014	--	0	6	0.2	80	2.37	--	5.68	180	11.85	ND (0.37)
20MW1	2015	0.32	0.3	14	0.22	0	2.11	87	5.93	-155.3	11.2	ND (0.80)
20MW1	2016	<0.03	0.00321	19.6	0.1	21	4.63	73	5.6	222.5	11.65	ND (0.63)
20MW1	2018	<1	0.0202	19	0.4	7.9	3.86	72	5.9	243.1	12.4	ND (1.0)
20MW1	2022	0	0.0312	54.8	0	11.1	3.77	178.93	5.97	237.4	8.4	<6
22MW2	2010	<0.01	<0.2	12	0.6	0	3.9	65	6.09	234.2	10.07	0.8
22MW2	2011	<0.01	<0.2	7	1	40	6.4	60	5.63	53.7	10.99	ND (0.29)
22MW2	2012	<0.03	0.1	12	0.34	40	3.54	108	5.79	204.6	12.45	ND (0.29)
22MW2	2013	0.01	0.2	16	0.16	30	5.42	69	5.92	129.5	14.82	ND (0.37)
22MW2	2014	0.02	0	6	0.08	60	2.85	--	5.75	165.3	13.14	ND (0.37)
22MW2	2015	0.06	0	13	0.06	0	3.29	55	5.89	-73.5	10.78	ND (0.80)
22MW2	2016	<0.03	0.000535	15.4	0.1	7	4.5	55	5.52	230.6	12.15	ND (0.63)
22MW2	2018	<1	0.0012 J	18.4	0	8.5 QN	5.36	86	5.75	176.5	11.22	ND (1.0)
22MW2	2022	0	0.00841	66	1.1	10	3.75	210.99	5.57	258.7	9.34	<6
26MW1	2010	<0.01	<0.2	6	0.3	0	3.01	47	6.77	202.1	11.5	0.44
26MW1	2011	0.05	0.2	10	1.3	40	3.47	61	5.74	202.8	12.63	ND (0.29)
26MW1	2012	<0.03	0.2	6	0.26	40	3.22	84	5.79	197.2	12.4	ND (0.29)
26MW1	2013	0.05	0.5	10	0.12	40	4.19	50	5.49	222.7	13.99	ND (0.37)
26MW1	2014	0.02	0.2	6	0.05	80	2.83	--	5.63	230.1	13.47	ND (0.37)
26MW1	2015	0.05	0.2	9	0.06	0	2.54	75	6.05	160.9	13.67	ND (0.80)
26MW1	2016	<0.03	0.000754	13.6	0	6.3	4.54	50	5.48	231.4	12.98	ND (0.63)
26MW1	2018	<1	0.0033	17.6	0.4	3	4.7	78	5.76	132.6	14.4	ND (1.0)
26MW1	2022	0	0.0252	55.5	0.7	10	2.52	172.22	6.11	210	9.36	<6

Table E2-2 MNA Parameters Over Time

Monitoring Well	Year	Ferrous Iron mg/L	Manganese mg/L	Sulfate mg/L	Nitrate mg/L	Alkalinity mg/L	Temperature °C	Conductivity µS/cm	pH	ORP mV	DO mg/L	Methane µg/L
MW10-1	2010	<0.01	<0.2	3	0.3	0	6.59	63	5.63	202.5	5.58	0.48
MW10-1	2011	0.09	0.1	4	0.4	40	6.03	56	5.45	85.5	4.74	0.29 J
MW10-1	2012	<0.03	<0.2	3	<0.01	40	4.42	0.153	5.37	251.6	2.93	0.85
MW10-1	2013	0.23	0.2	3	0.11	50	3.79	78	5.43	68.9	1.26	26
MW10-1	2014	0	0.1	3	0.07	--	6.62	--	5.35	185.1	2.83	1 J
MW10-1	2015	0.09	0.5	5	0.16	0	7.02	99	5.52	-101.1	2.44	ND (0.80)
MW10-1	2016	<0.3	0.00344	7.37	0.2	17	10.03	39	5.25	225.1	4.75	ND (0.63)
MW10-1	2018	2	0.519	6.5	0	38.4	10.04	106	5.83	140.8	0.73	7.4
MW10-1	2022	0	0.0446	6.71	0.1	21.4	4.49	93.12	5.59	228.3	1.5	<6
MW88-1	2010	<0.01	0.3	7	0.3	40	2.85	68	5.59	190.1	1.26	0.34
MW88-1	2011	0.04	0.3	8	1.5	40	2.3	60	5.75	70.9	2.09	0.44 J
MW88-1	2012	<0.03	<0.2	8	bc	40	3.27	111	5.52	225.9	1.58	0.37 J
MW88-1	2013	0.03	0.4	9	0.29	40	2.66	68	5.31	114.3	2.23	ND (0.37)
MW88-1	2014	0.03	0	3	0.07	40	2.18	--	5.38	231.6	6.43	ND (0.37)
MW88-1	2015	0	0	9	0.16	0	2.46	92	5.5	-136	6.49	ND (0.80)
MW88-1	2016	0.1	0.291	14.1	0.2	13	6.15	58	5.23	183.7	4.09	ND (0.63)
MW88-1	2018	<1	0.058	24.6	0.2	7.9	4.45	81	5.7	264.7	5.9	ND (1.0)
MW88-1	2022	0	0.038	41.1	0	19.9	3.09	165.32	5.4	283.1	3.48	<6
MW88-10	2010	<0.01	1	6	0.1	40	2.89	65	7.58	146	0.81	0.4
MW88-10	2011	0.02	0.4	8	0.9	40	4.43	61	5.78	47.7	1.55	1.8
MW88-10	2012	0.49	1	16	0.56	40	1.61	124	5.74	146.6	0.66	32
MW88-10	2013	1.04	2.9	8	0.03	70	3.64	75	5.82	129.6	0.37	54
MW88-10	2014	--	0.2	5	0.02	40	2.86	--	5.55	148.7	1.63	14
MW88-10	2015	0.05	0.4	6	0.05	0	3.86	96	5.67	-158.2	1.64	6.2
MW88-10	2016	0.2	0.203	17.8	0.1	17.7	4.5	62	5.54	184.6	1.06	3.6
MW88-10	2018	<1	0.363	18.6	0.2	15.4	4.52	74	5.95	222.1	1.41	7.3
MW88-10	2022	0	0.351	56	0.4	13.2	2.95	185.71	5.47	243.6	1.14	<6
MW88-3	2014	0.11	0	4	0.03	70	2.89	--	5.36	175.5	4.73	1.8 J
MW88-3	2015	0.06	0.5	8	0.17	0	2.62	53	5.66	155.1	4.43	1.6 J
MW88-3	2016	<0.3	0.364	14.8	0	16	3.25	57	5	218.1	4.7	ND (0.63)
MW88-3	2018	<1	0.42	16.8	NR	11.2	10.77	84	5.5	205	1.79	ND (1.0)
MW88-3	2022	0	0.963	38.2	0	16.4	2.38	50.86	5.79	189.7	5.75	6
MW88-4	2010	21.4	0.3	4	2	120	3.28	190	6.93	-72.1	0.68	1900
MW88-4	2011	3.3	0.4	1	0.2	180	1.16	173	6.8	-86.2	0.27	2100
MW88-4	2012	12.25	1.1	3	<0.01	80	2.01	230	6.41	-51.7	0.35	2300

Table E2-2 MNA Parameters Over Time

Monitoring Well	Year	Ferrous Iron mg/L	Manganese mg/L	Sulfate mg/L	Nitrate mg/L	Alkalinity mg/L	Temperature °C	Conductivity µS/cm	pH	ORP mV	DO mg/L	Methane µg/L
MW88-5	2010	45.5	0.2	6	0.3	80	2.21	221	8.25	-69.3	0.81	99
MW88-5	2011	3.3	0.3	46	0.9	180	2.59	241	6.64	-100.3	0.58	630
MW88-5	2012	11.45	1.3	18	0.02	80	2.63	262	6.18	-25.4	0.49	360

Notes:

For data qualifiers, refer to the data quality assessment in Attachment E-2.

-- not reported

°C – degrees Celsius

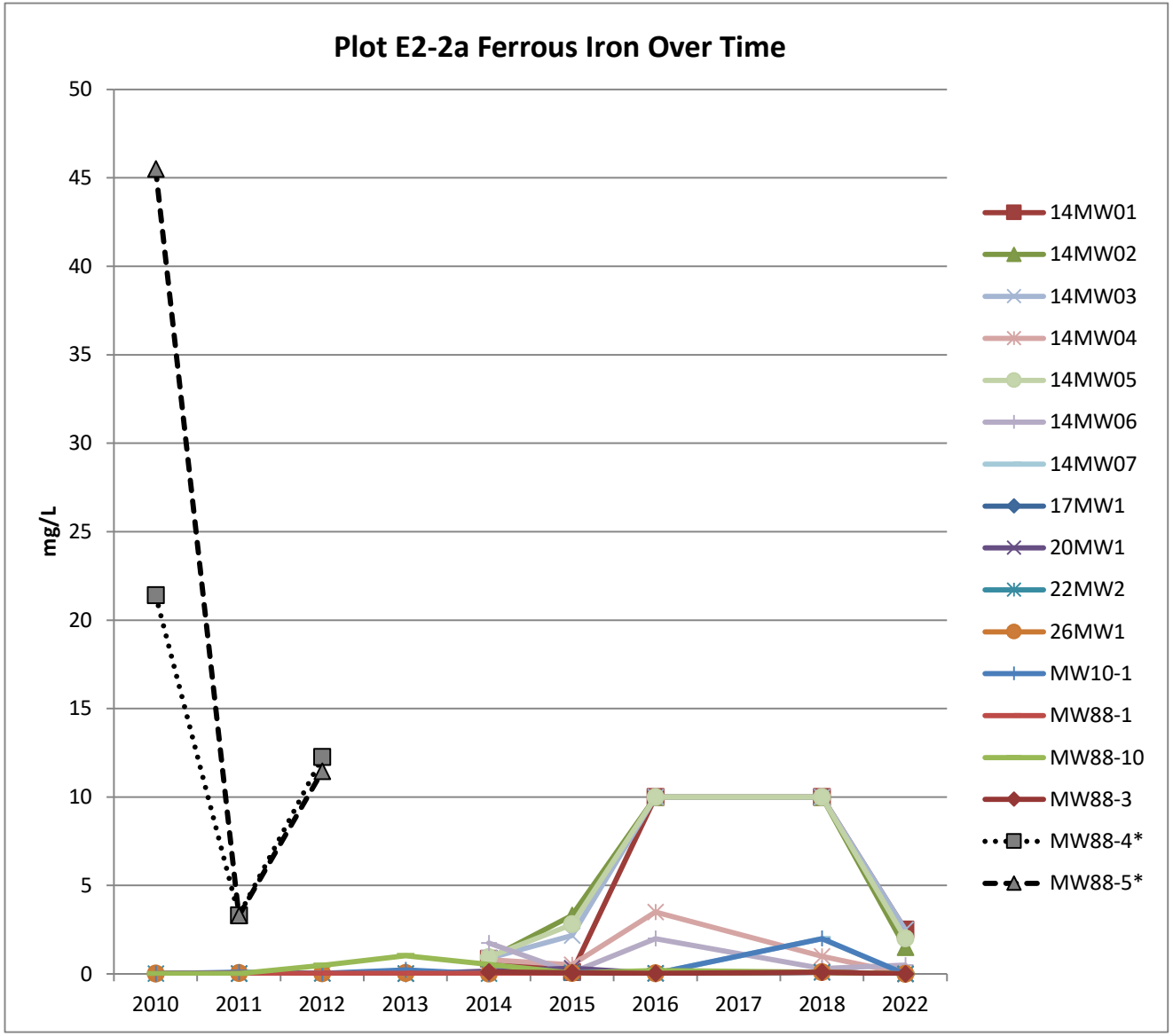
µS/cm – microsiemen per centimeter

µg/L – microgram per liter

ORP – oxidation-reduction potential

mV – millivolt

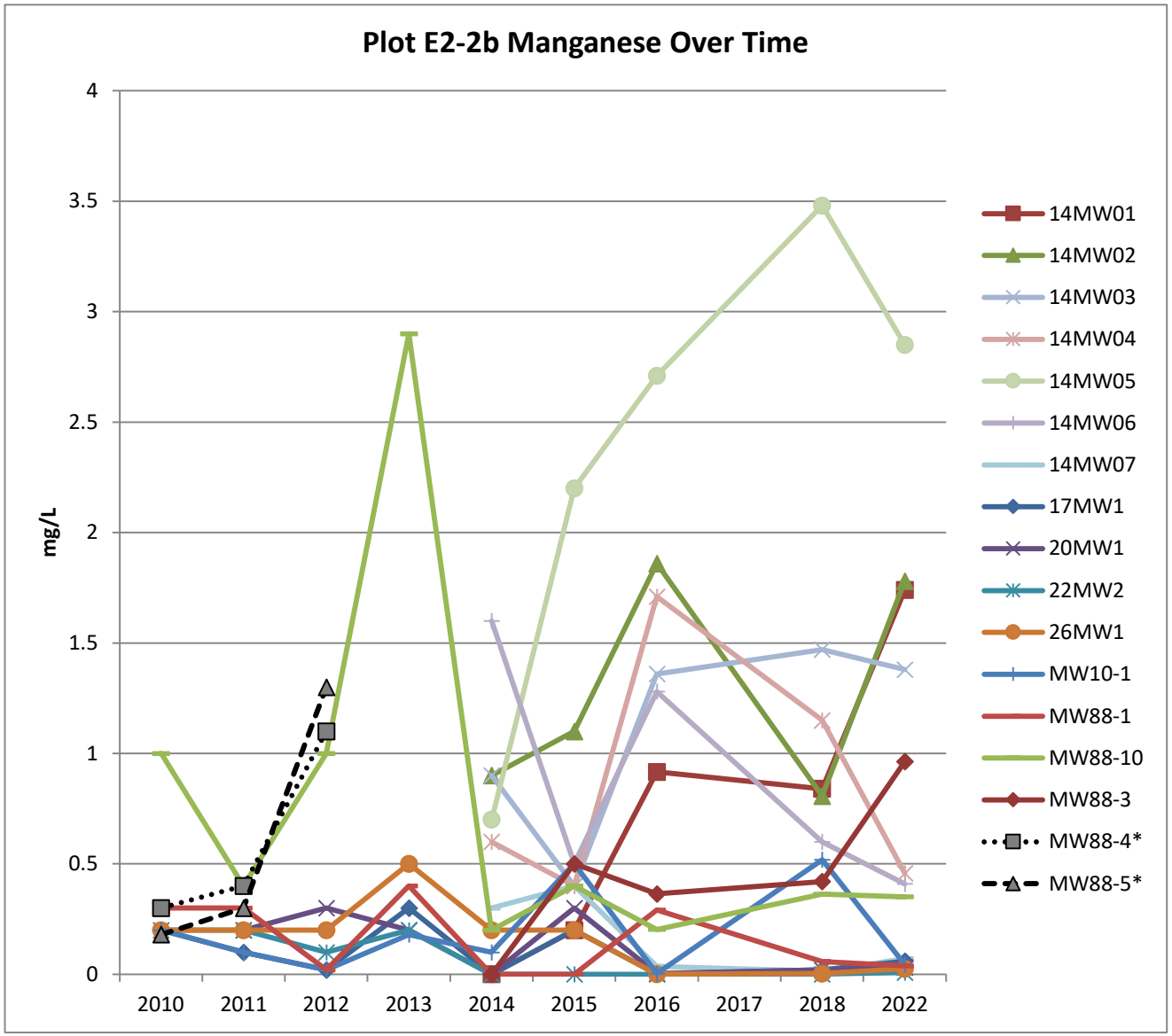
ND – not detected



Notes:

*Monitoring well no longer part of monitoring well network

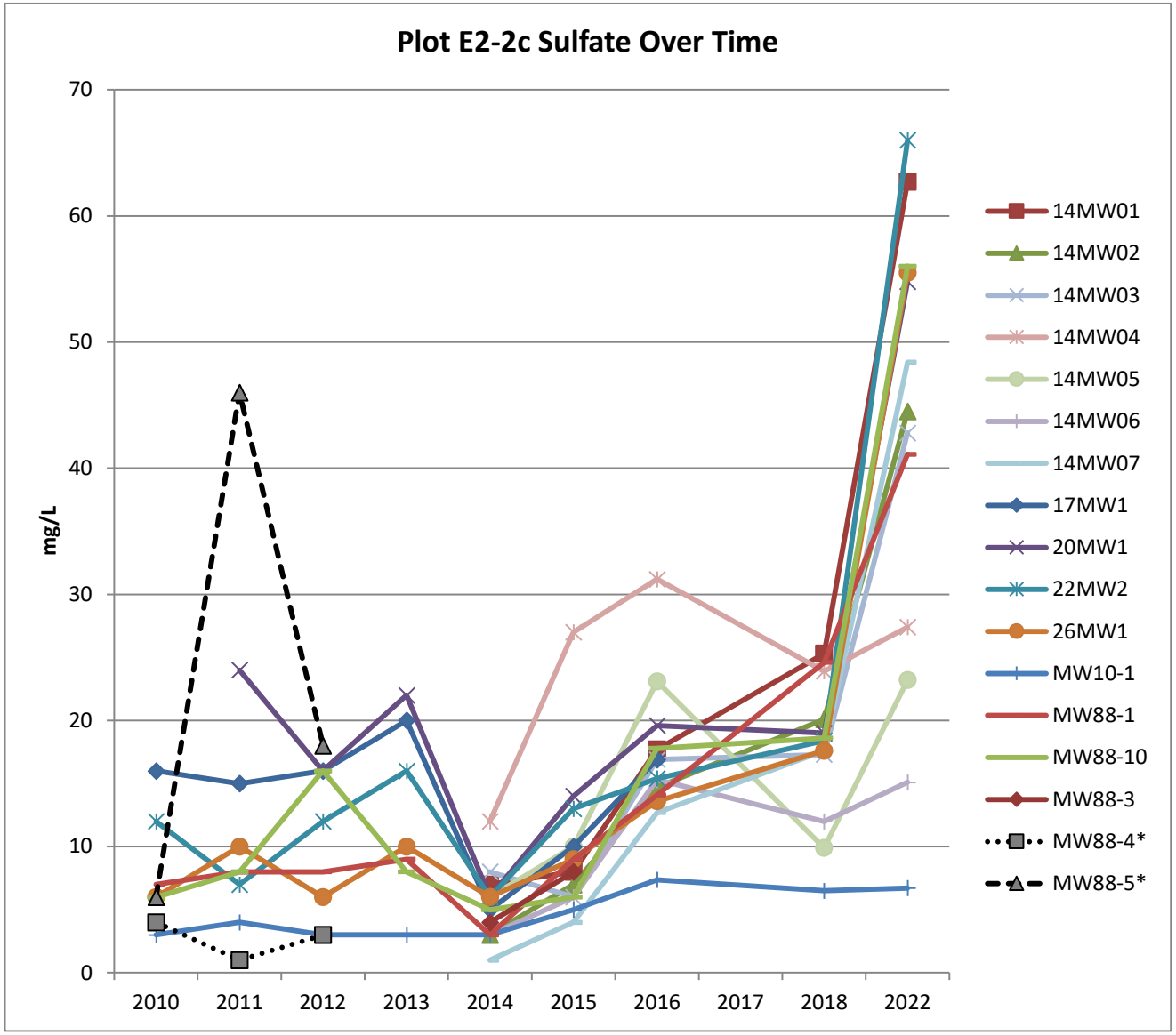
mg/L – milligram per liter



Notes:

*Monitoring well no longer part of monitoring well network

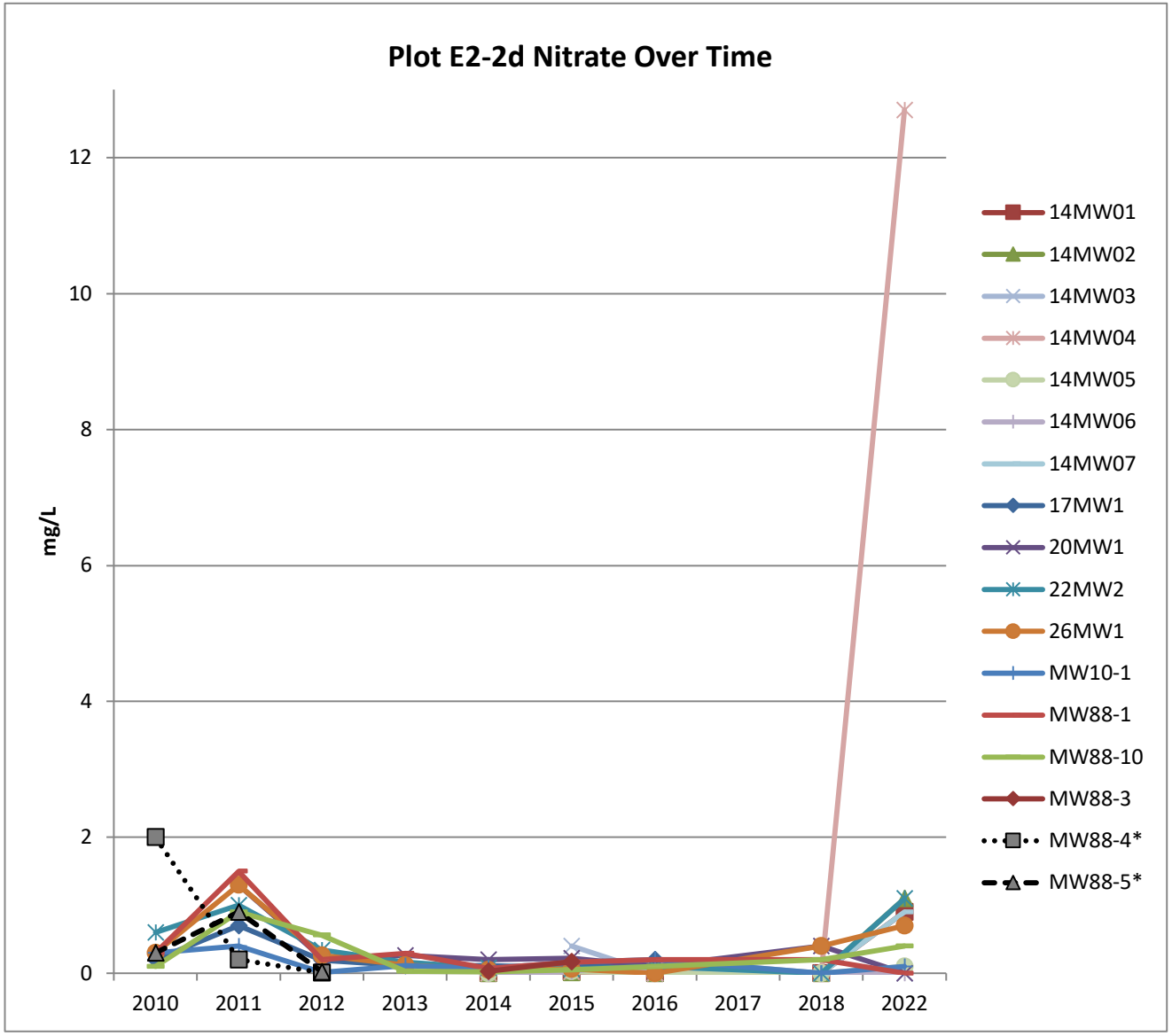
mg/L – milligram per liter



Notes:

*Monitoring well no longer part of monitoring well network

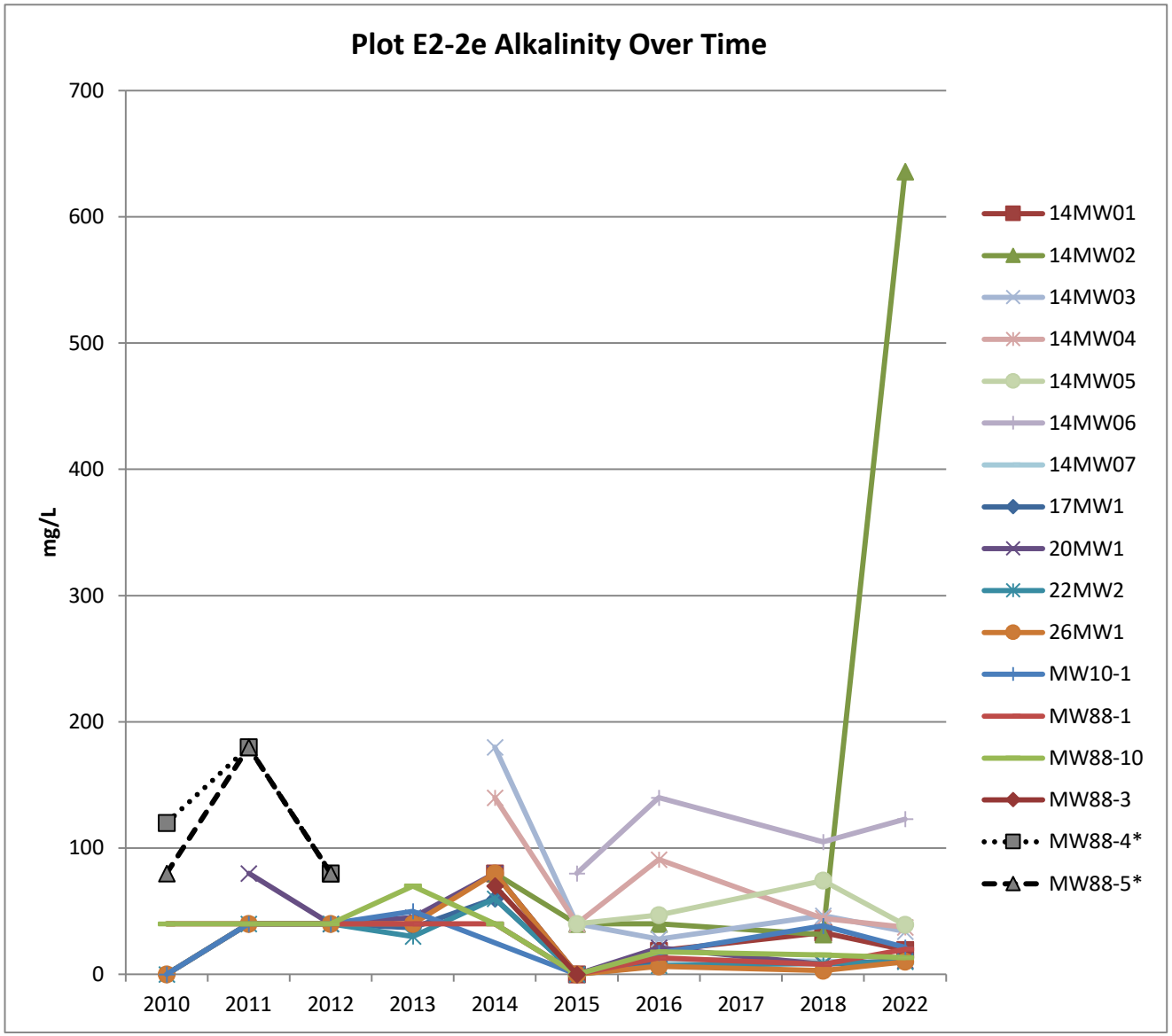
mg/L – milligram per liter



Notes:

*Monitoring well no longer part of monitoring well network

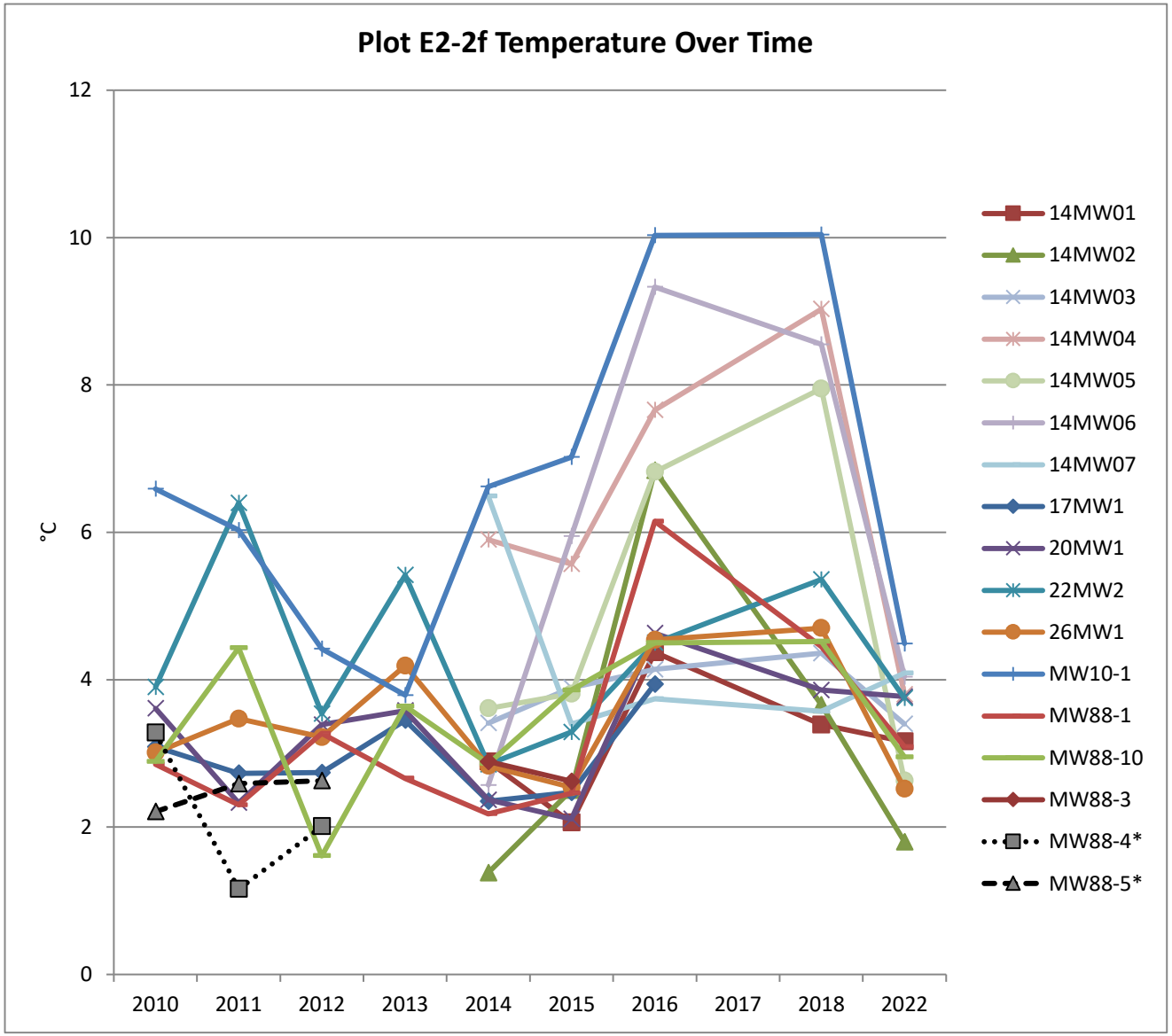
mg/L – milligram per liter



Notes:

*Monitoring well no longer part of monitoring well network

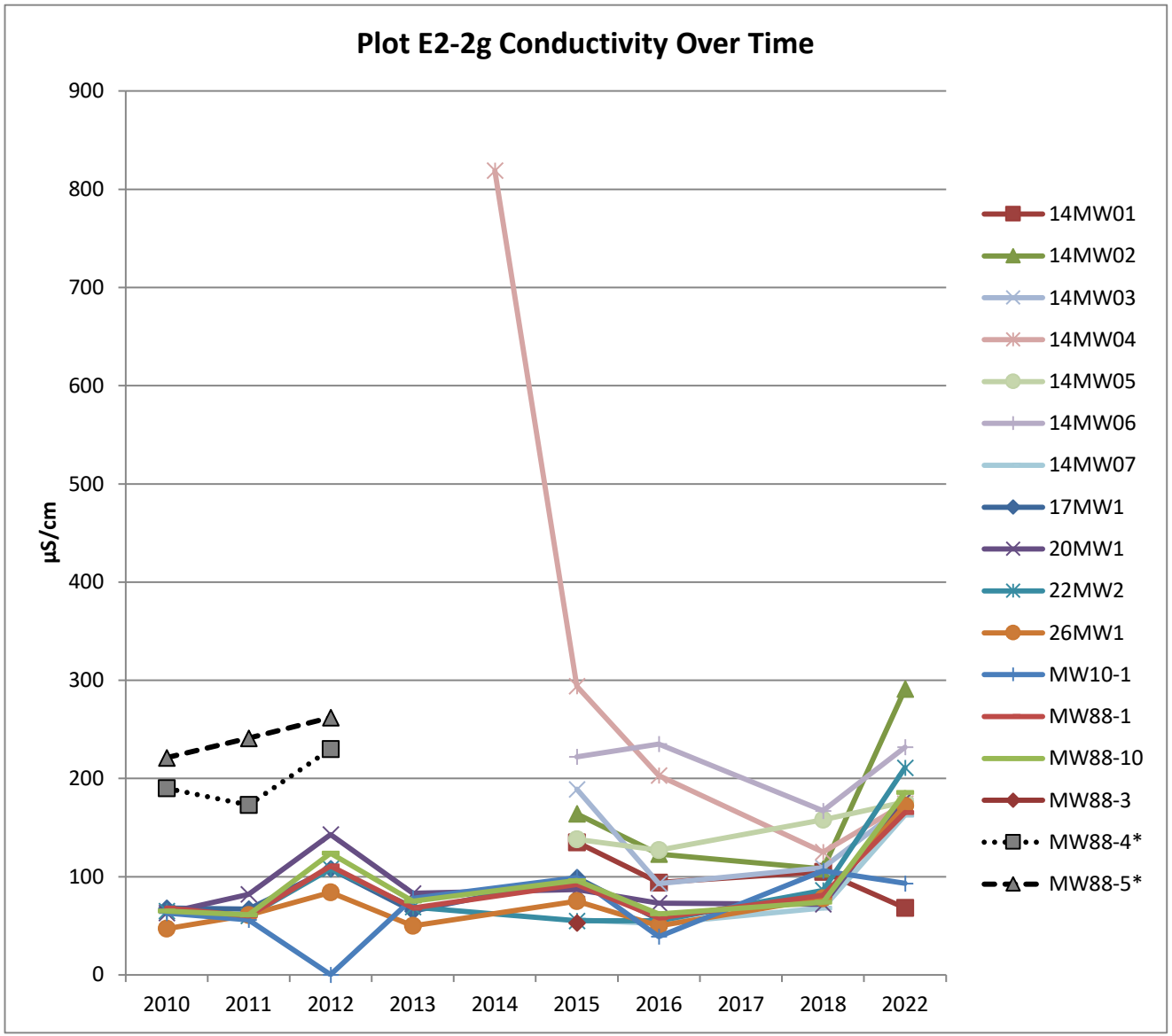
mg/L – milligram per liter



Notes:

*Monitoring well no longer part of monitoring well network

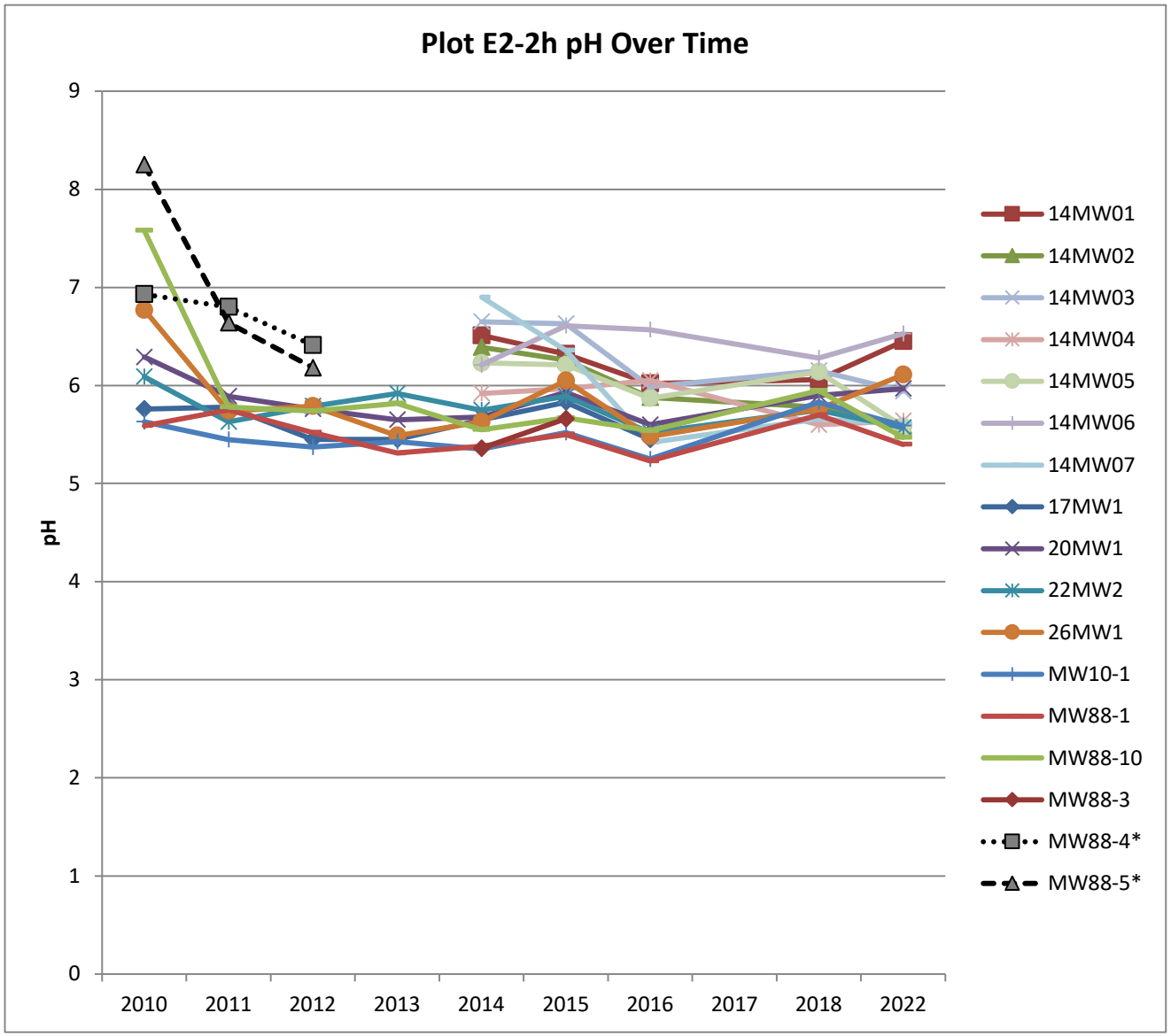
°C – degrees Celsius



Notes:

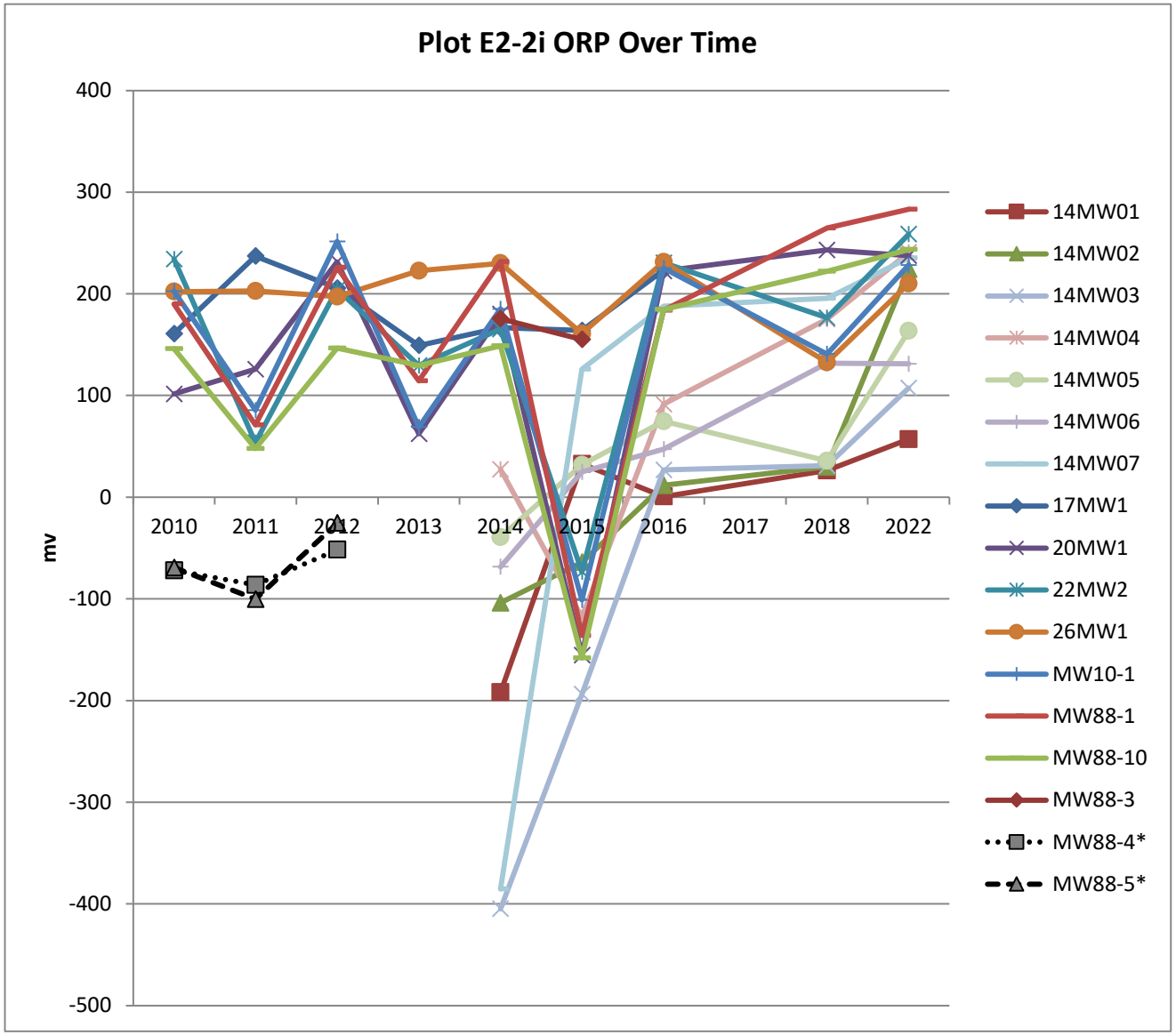
*Monitoring well no longer part of monitoring well network

µS/cm – microsiemen per centimeter



Notes:

*Monitoring well no longer part of monitoring well network

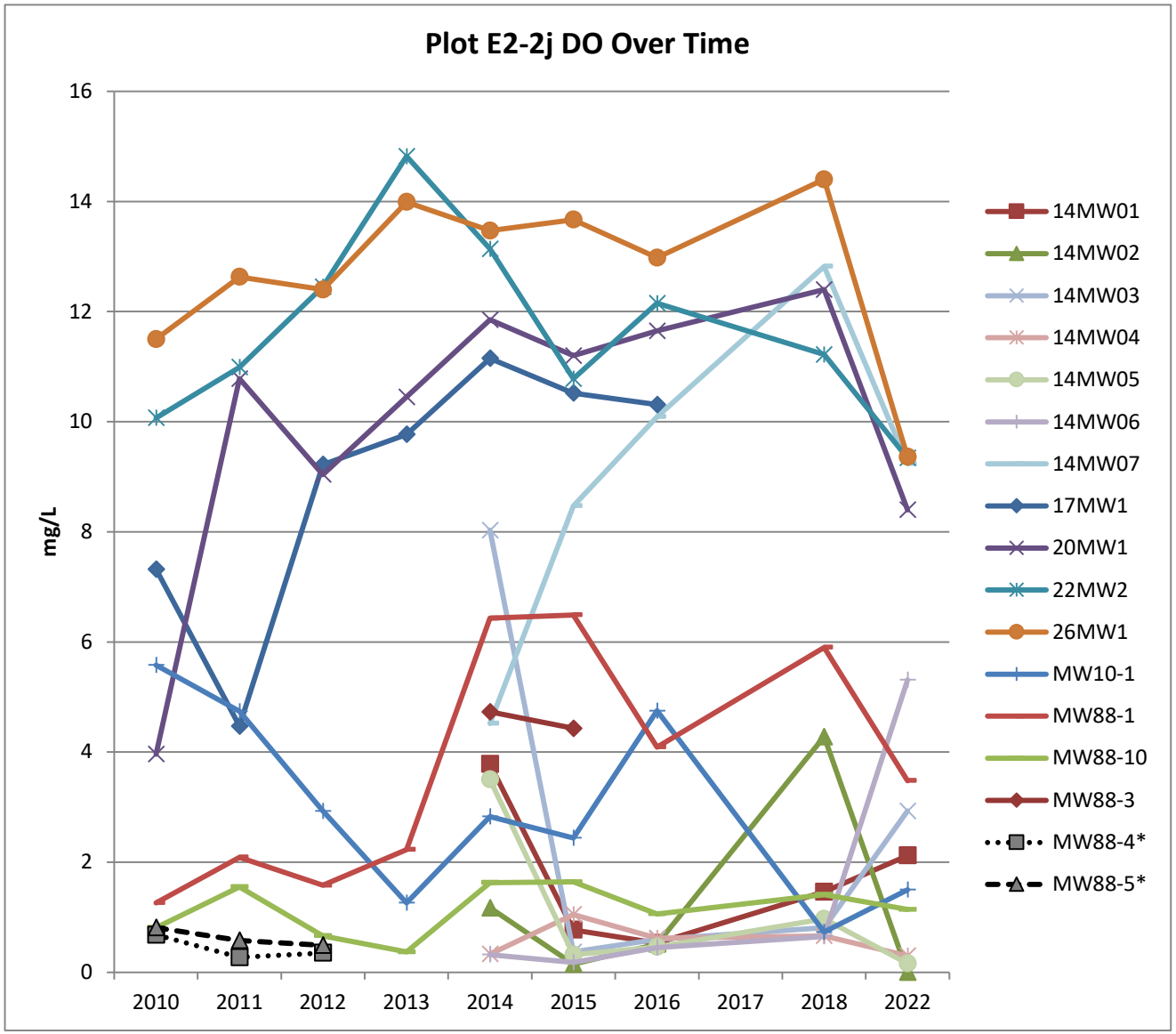


Notes:

*Monitoring well no longer part of monitoring well network

ORP – oxidation-reduction potential

mV – millivolt

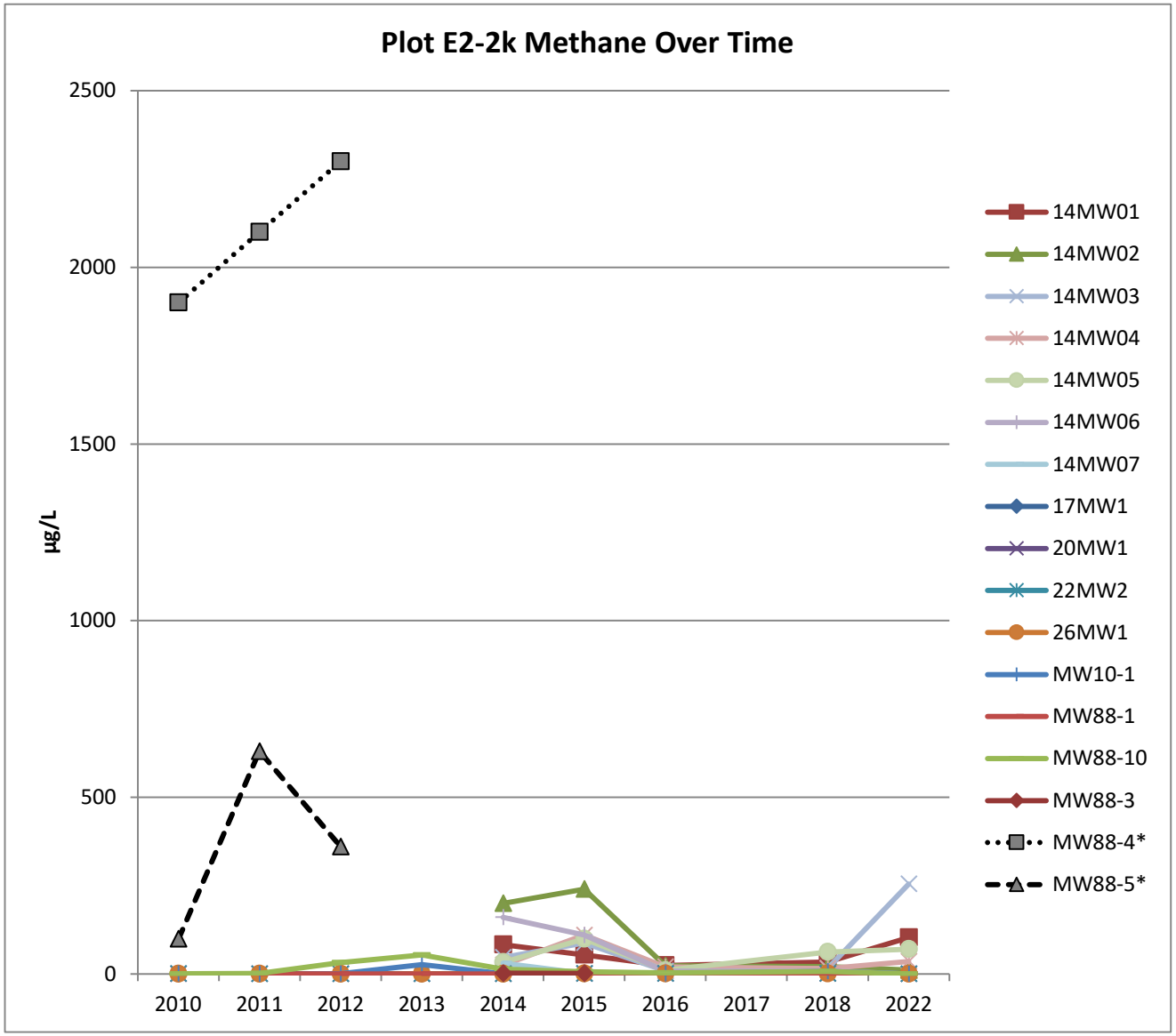


Notes:

*Monitoring well no longer part of monitoring well network

DO – dissolved oxygen

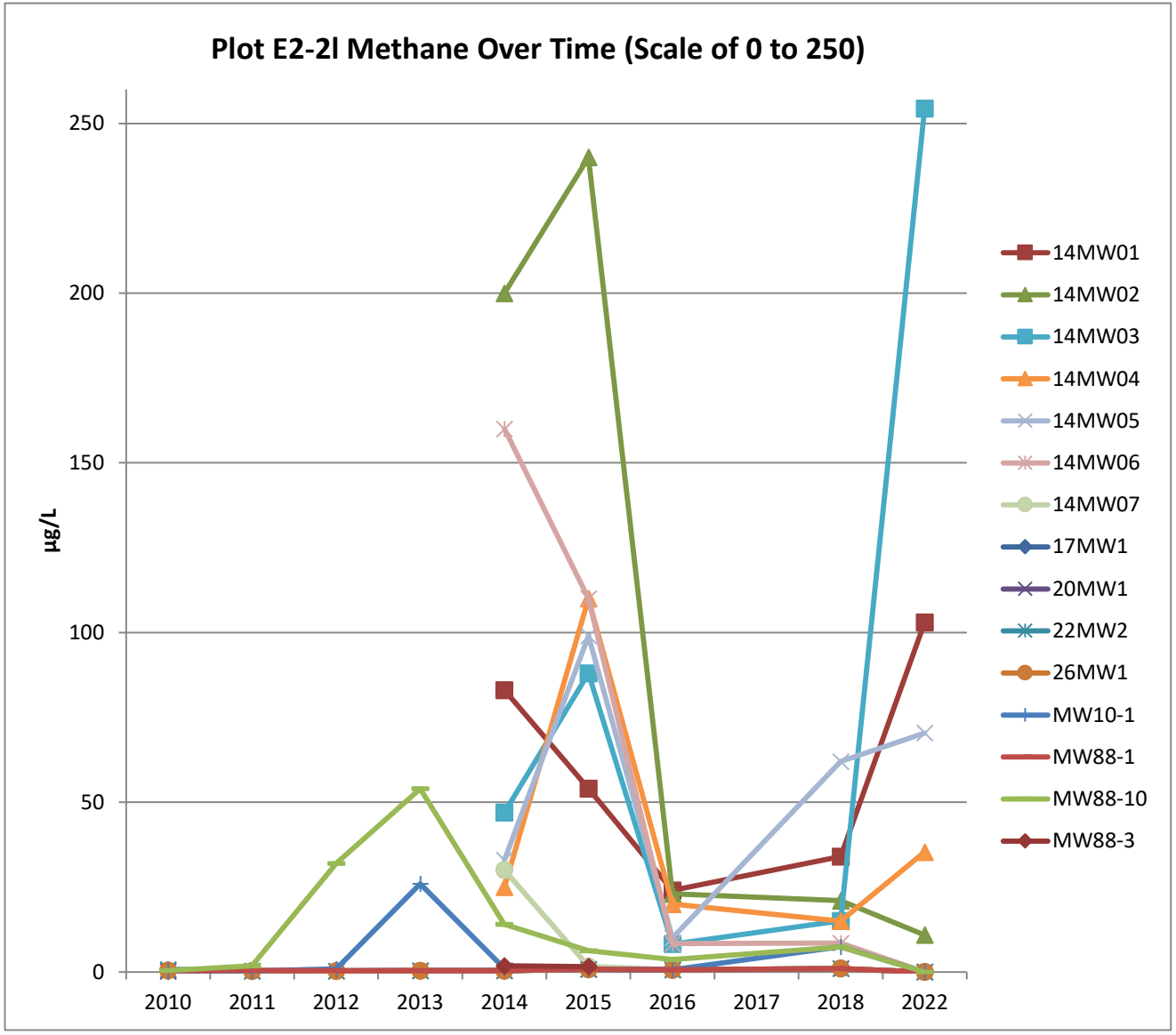
mg/L – milligram per liter



Notes:

*Monitoring well no longer part of monitoring well network

µg/L – microgram per liter



Notes:

*Monitoring well no longer part of monitoring well network

µg/L – microgram per liter

ATTACHMENT E2-3
RESULTS ABOVE SSCLS AND 2016 ADEC CRITERIA

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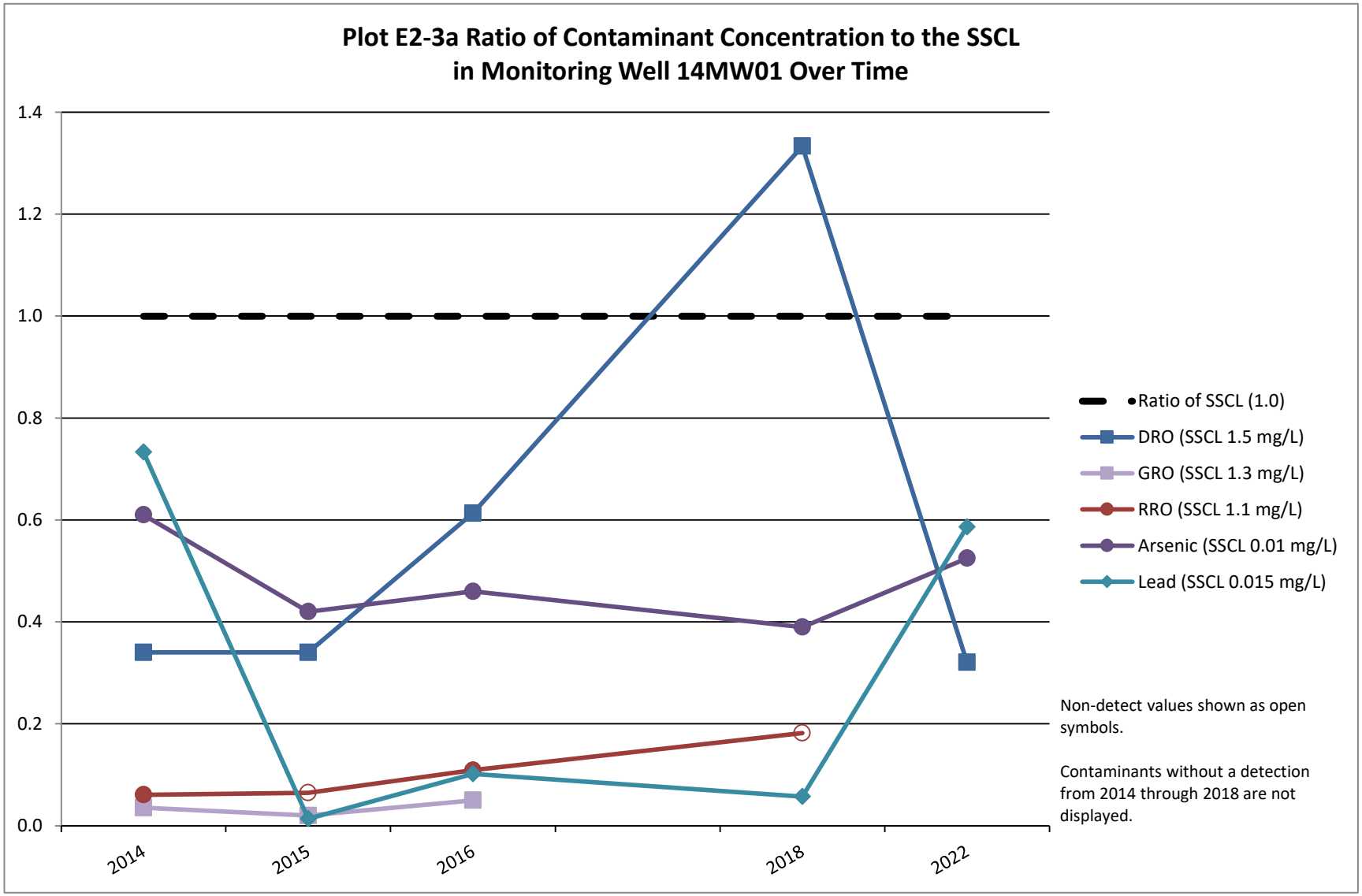
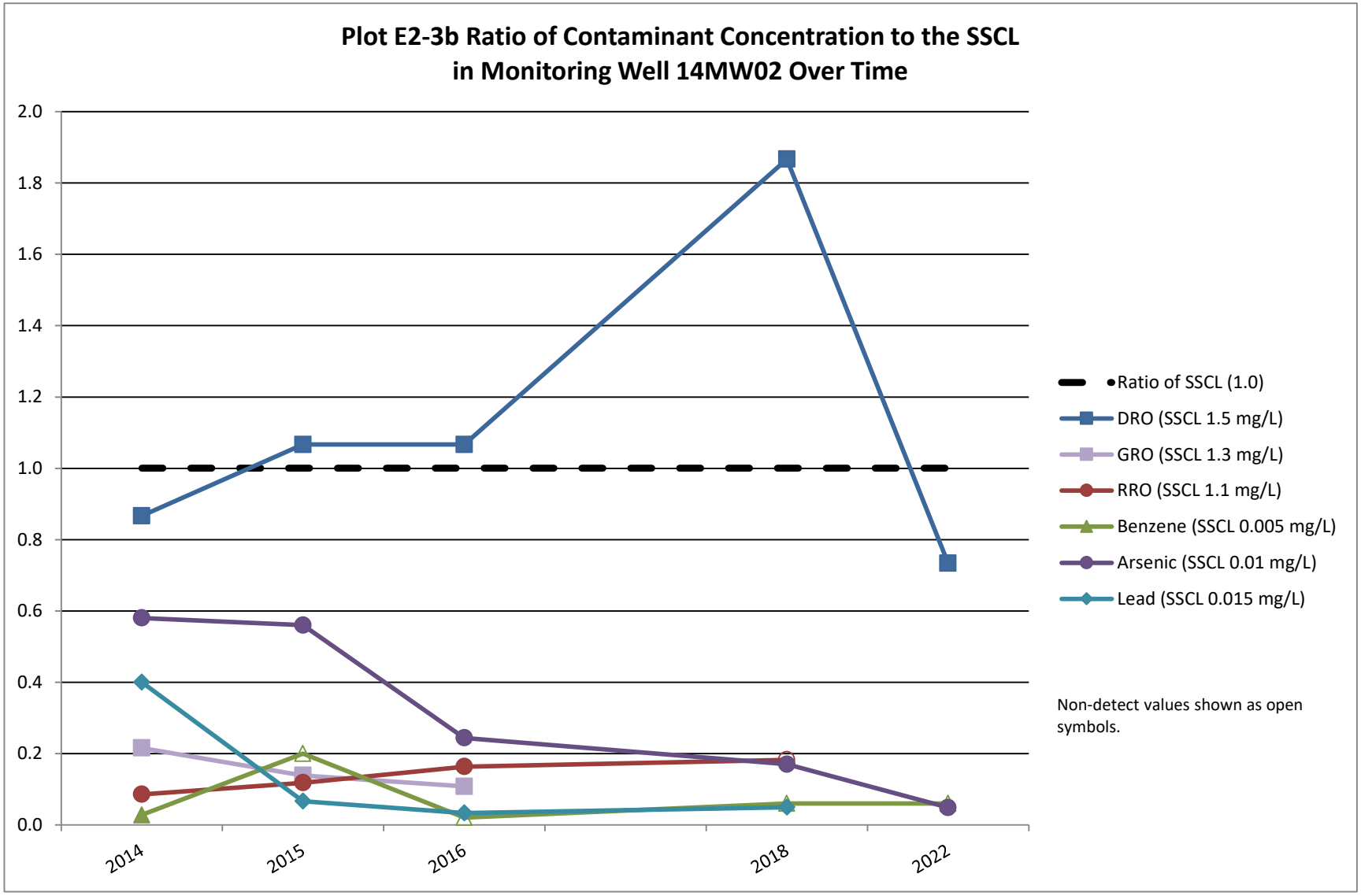
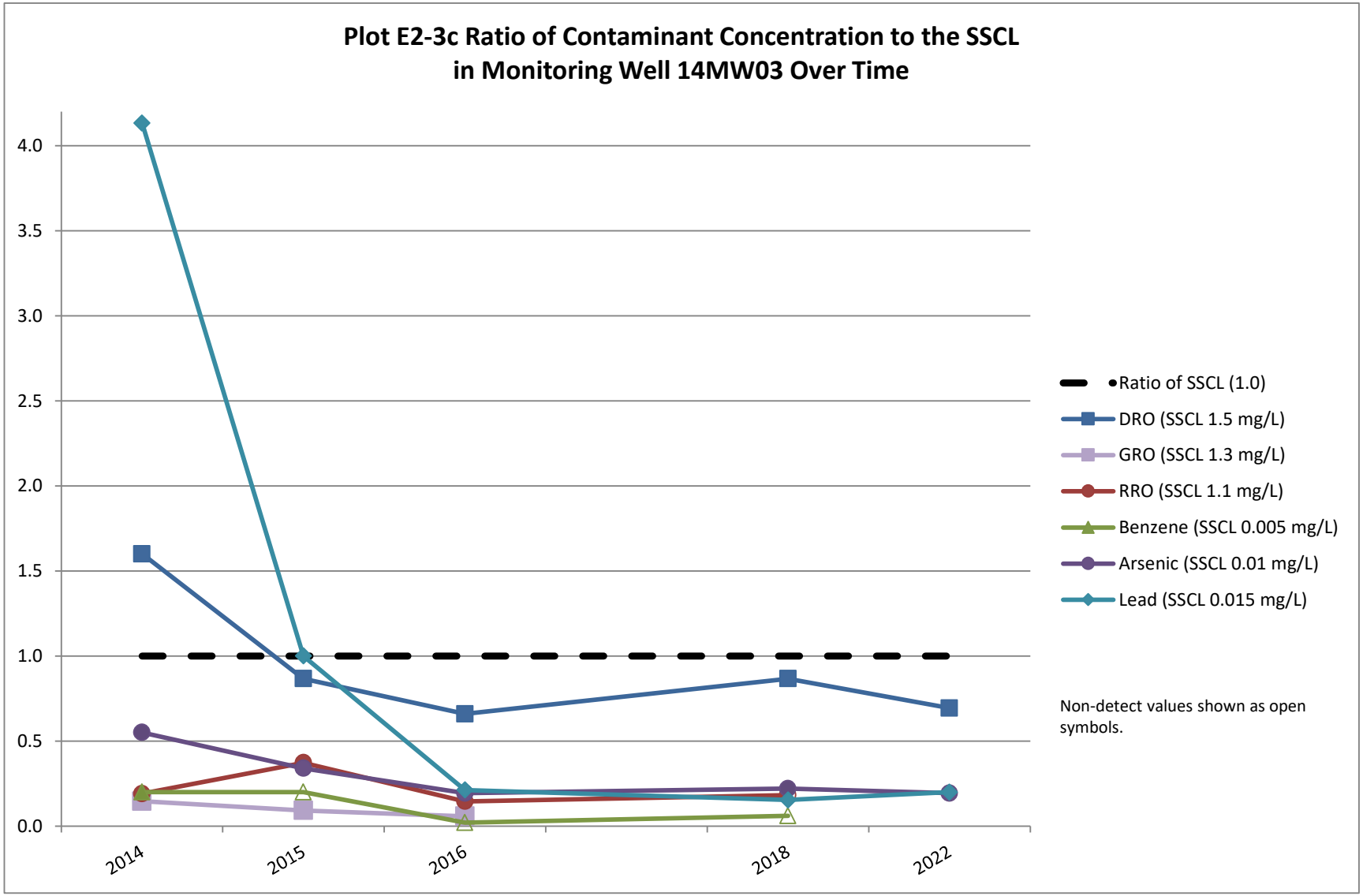


For definitions, refer to the Acronyms and Abbreviations section in Appendix E.



For definitions, refer to the Acronyms and Abbreviations section in Appendix E.



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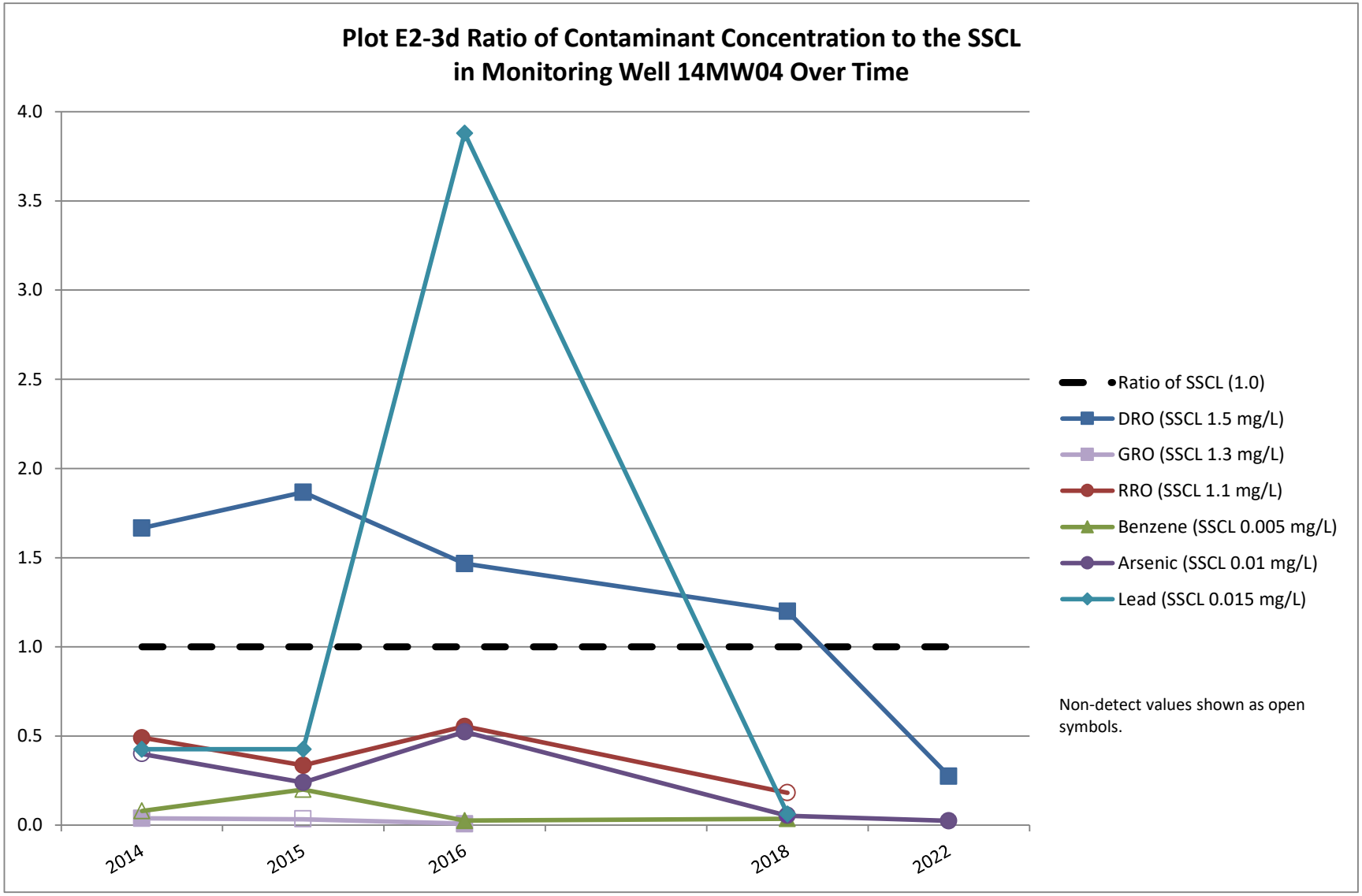

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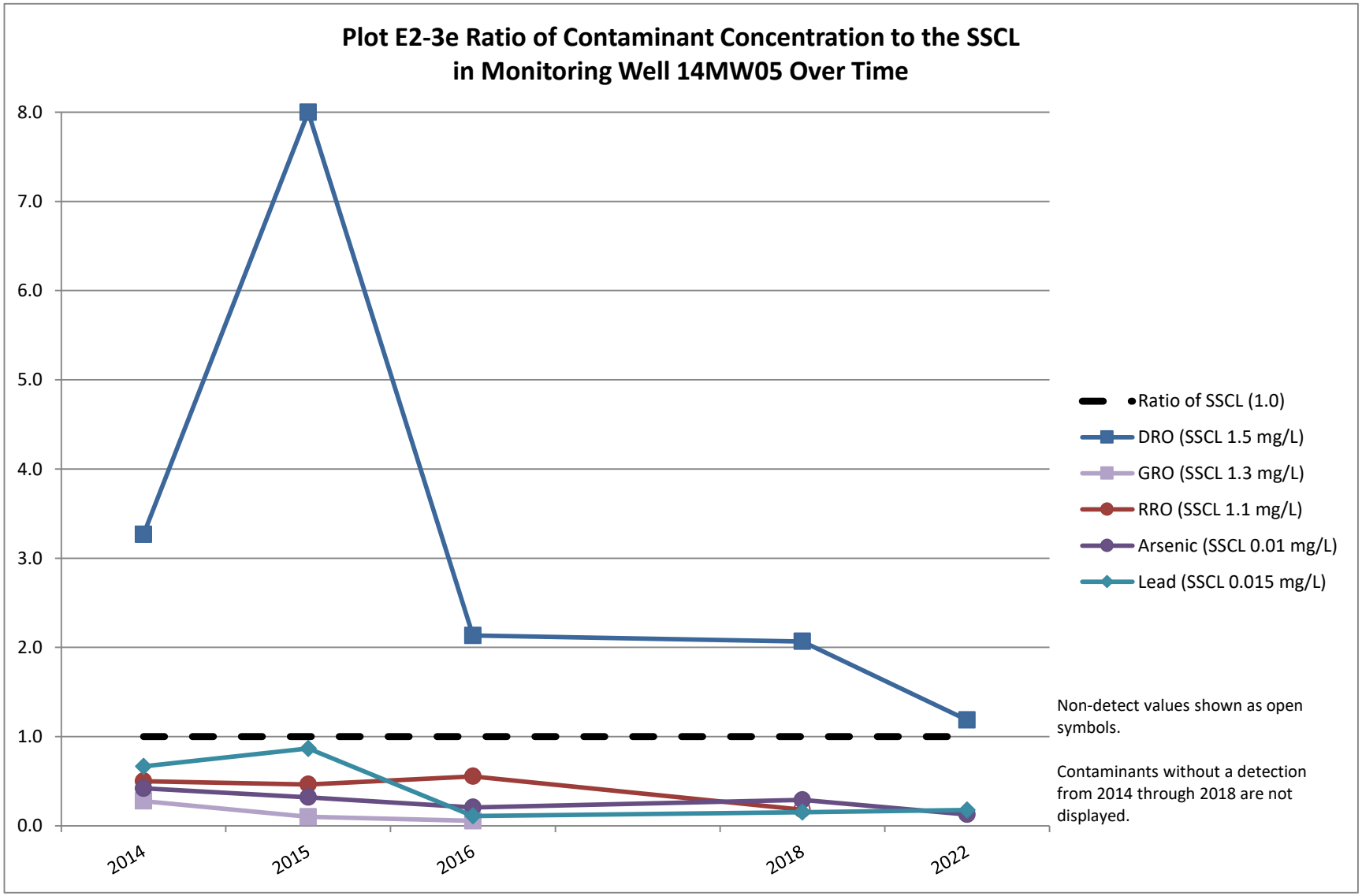

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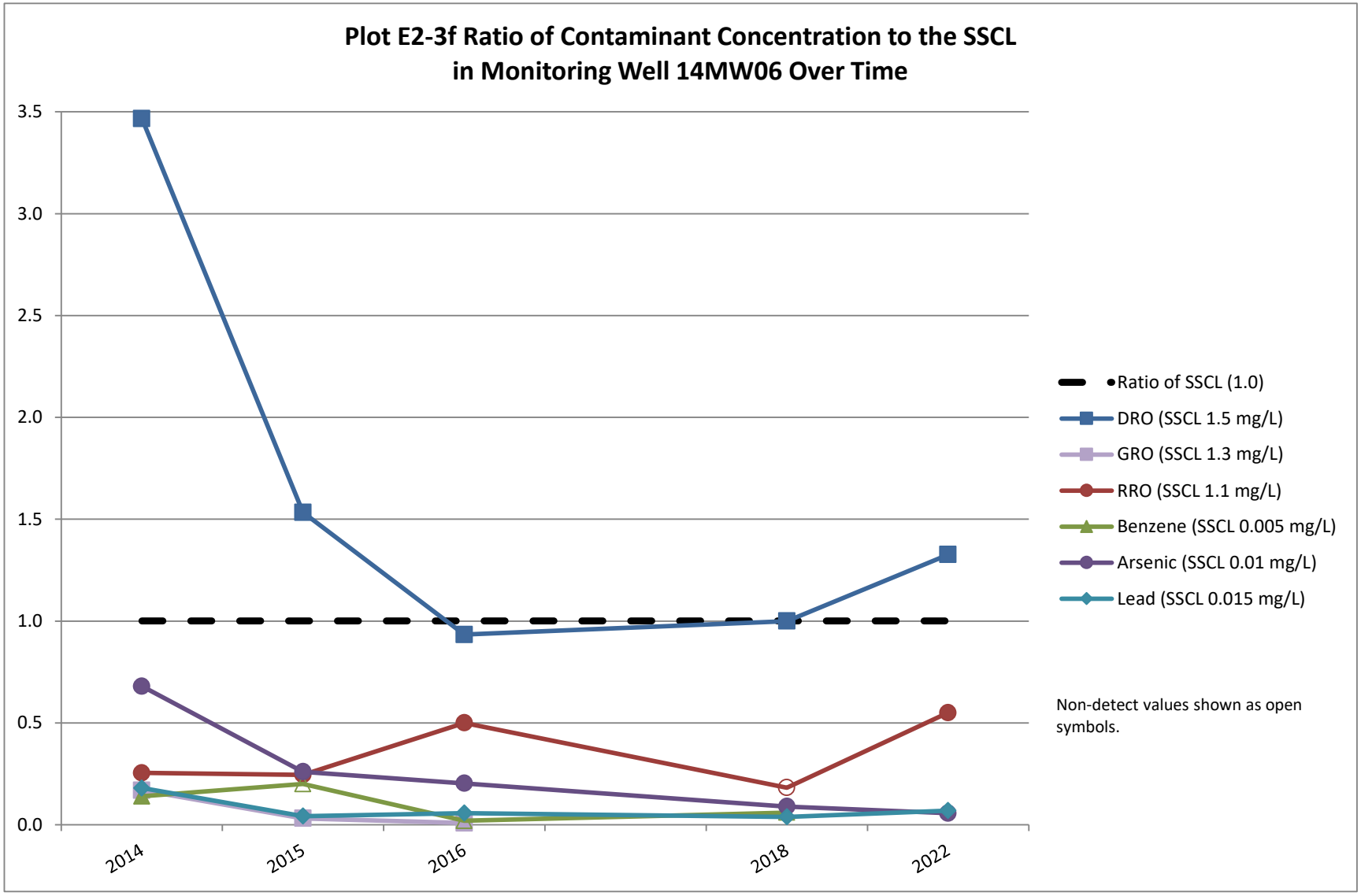

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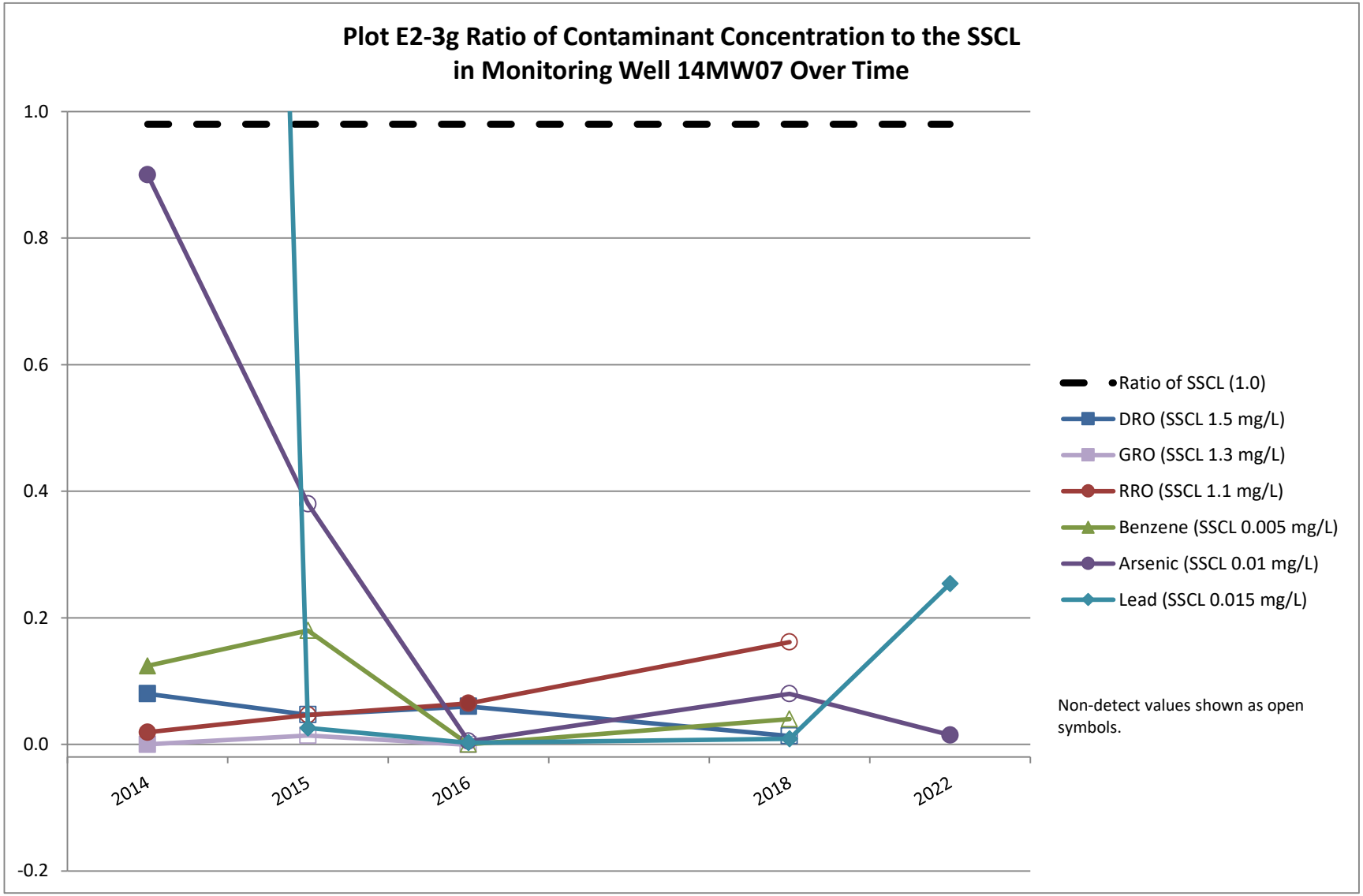

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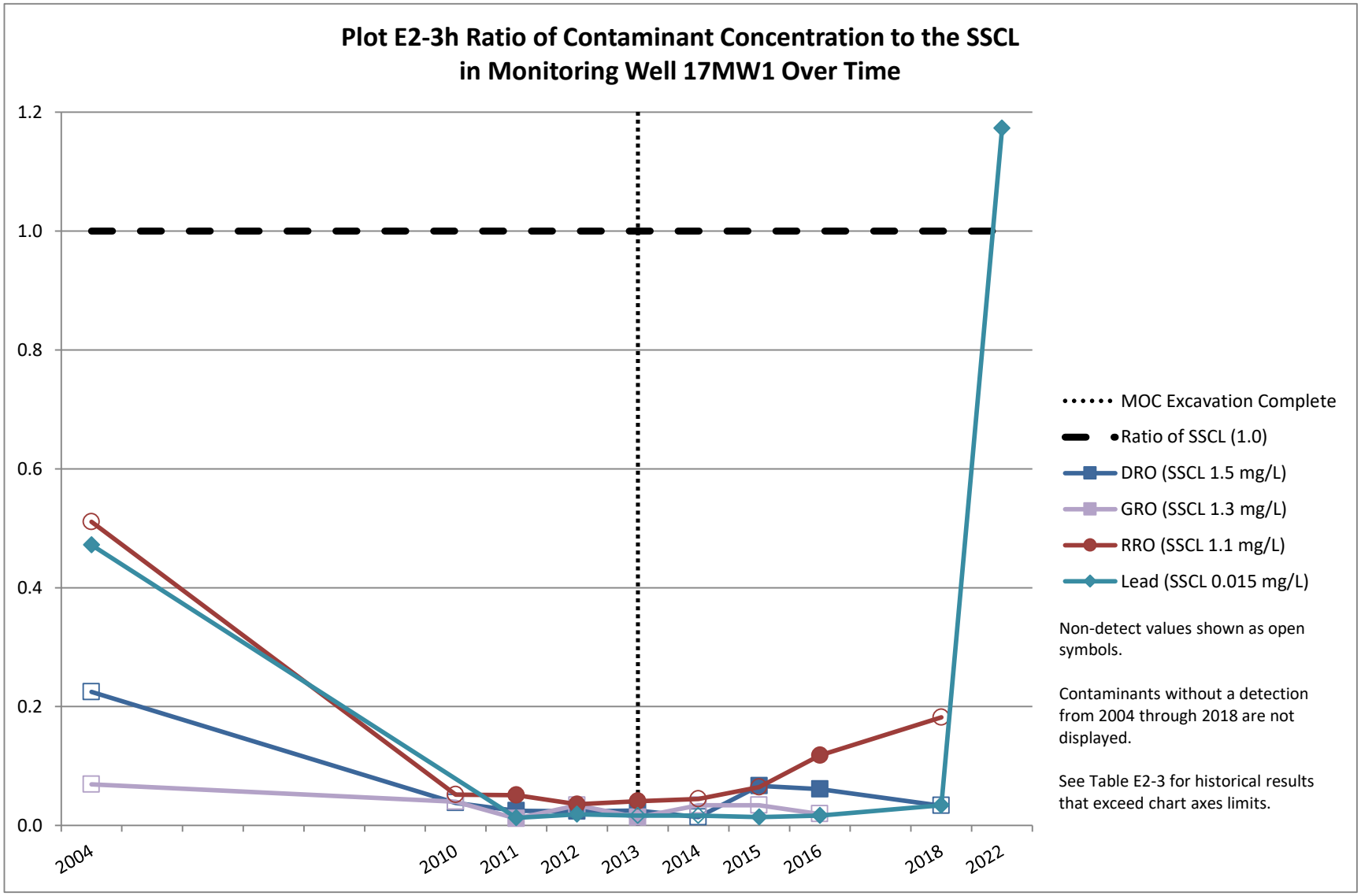

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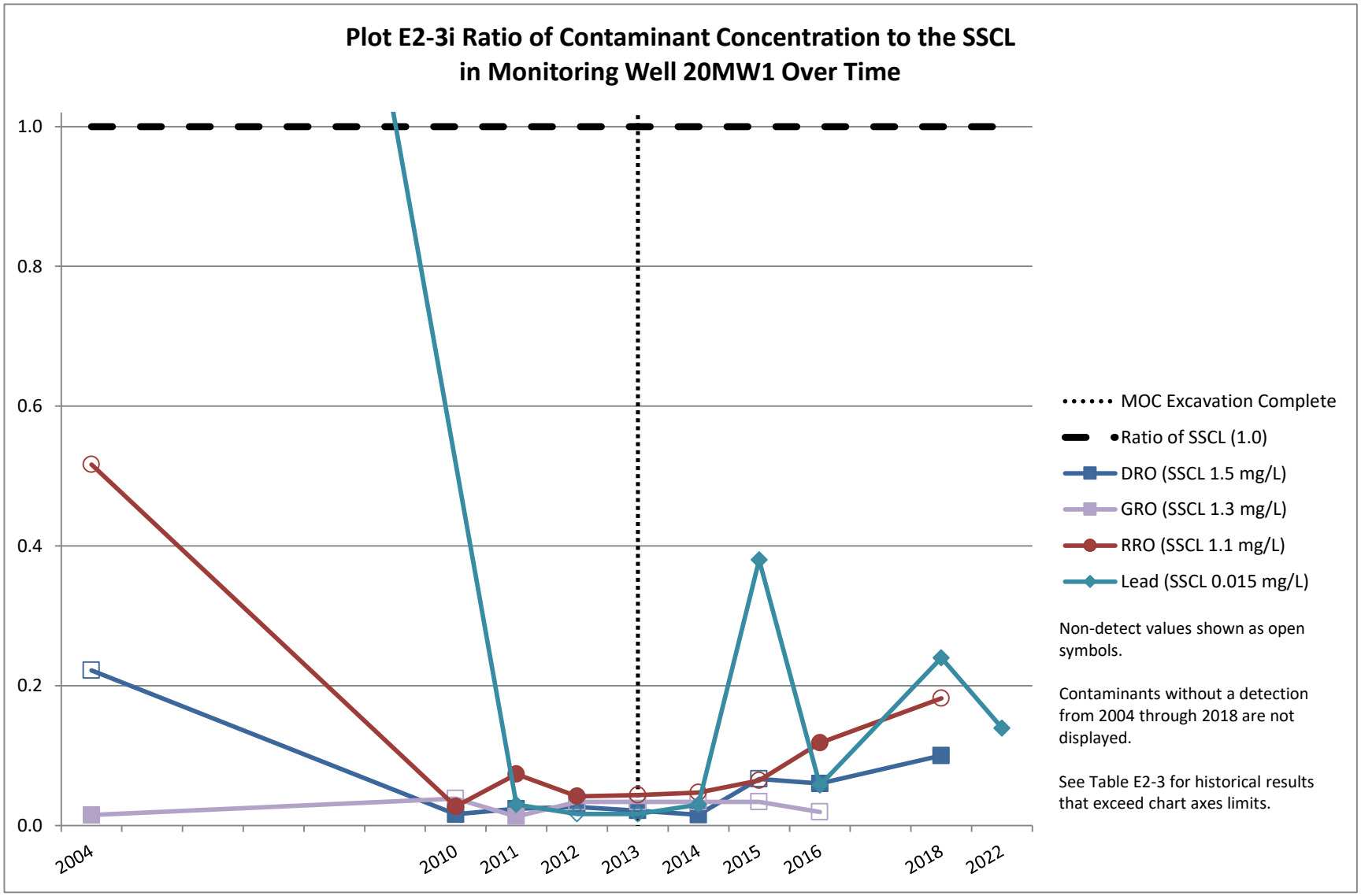

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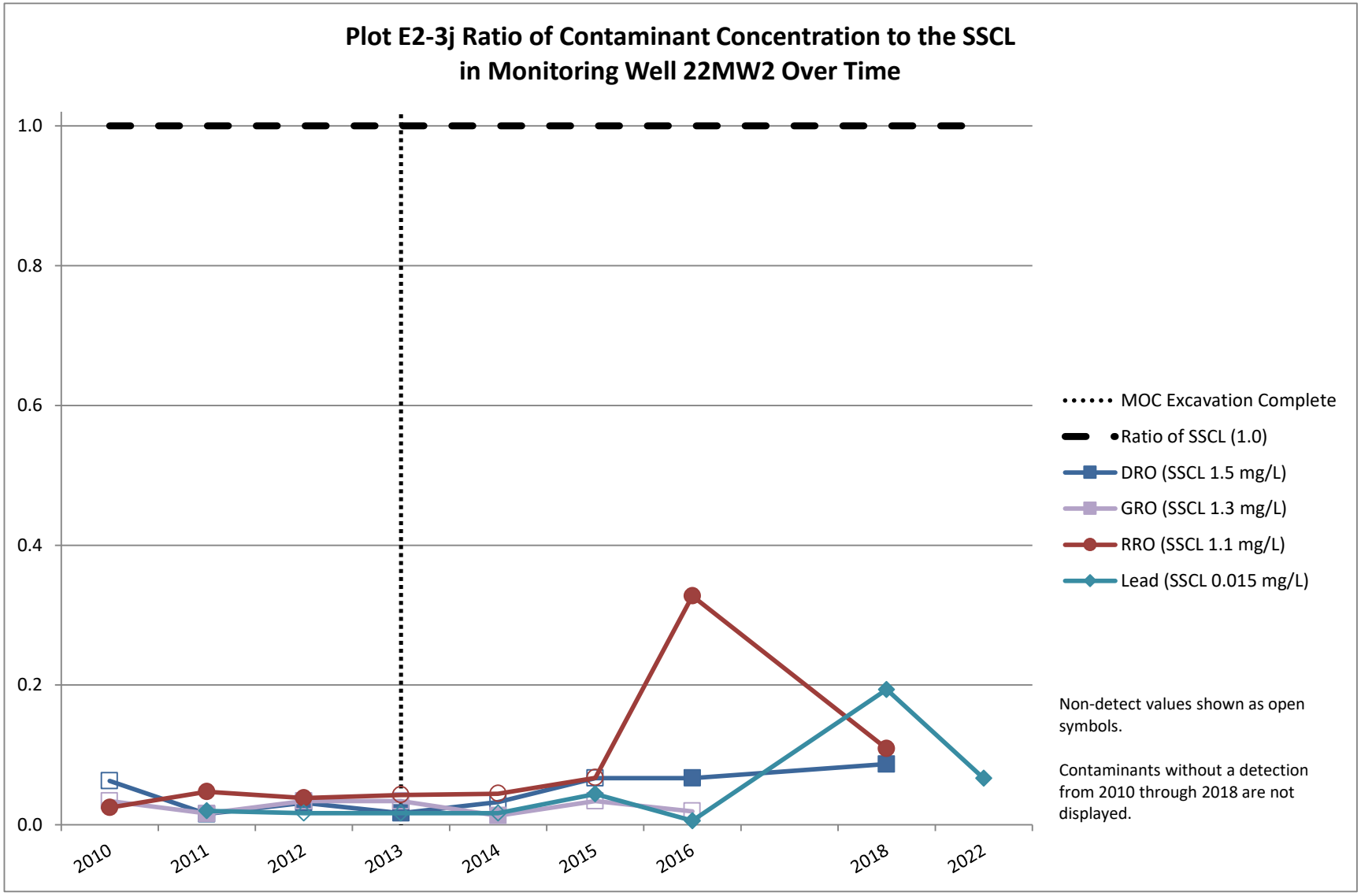

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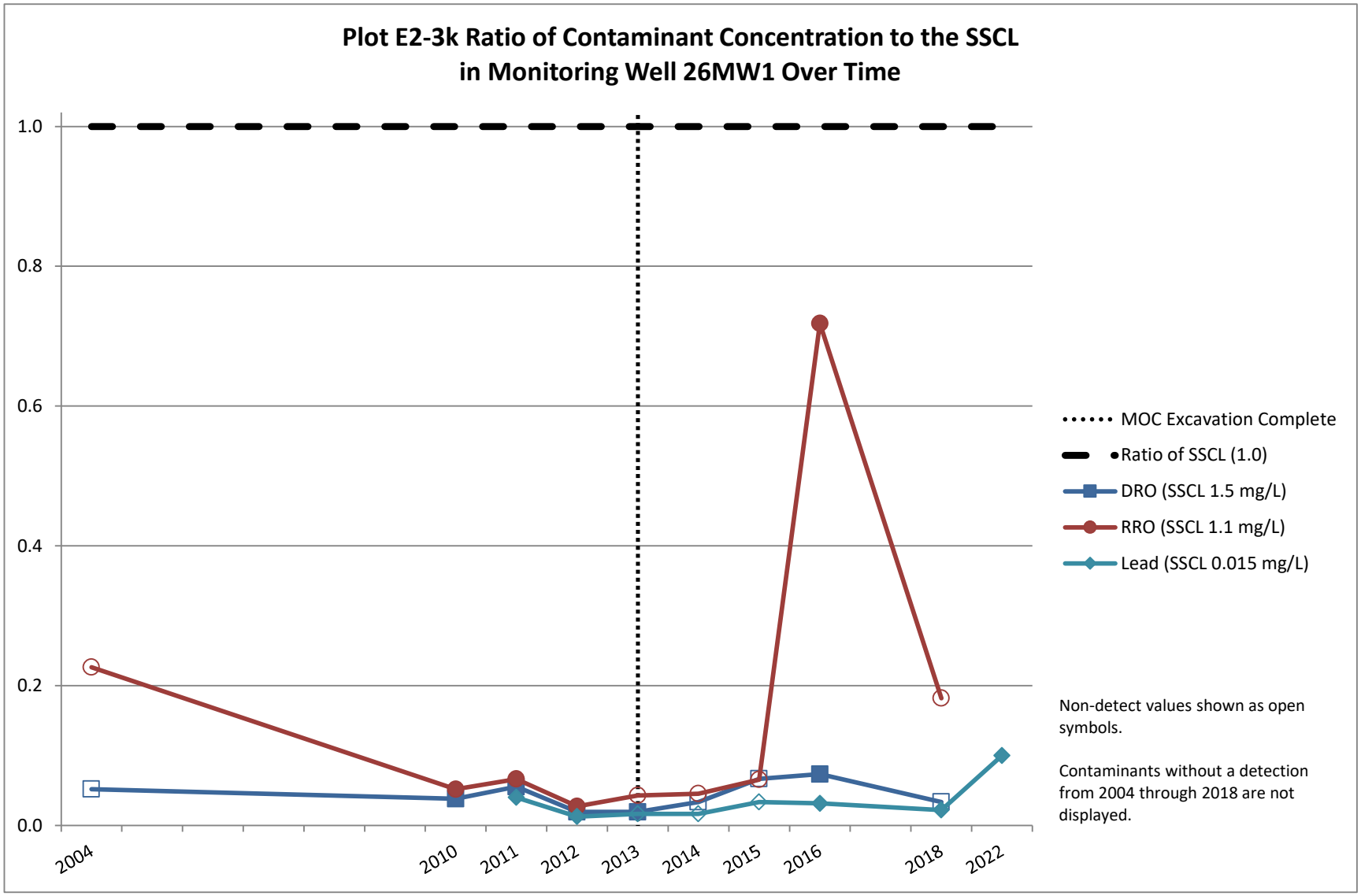

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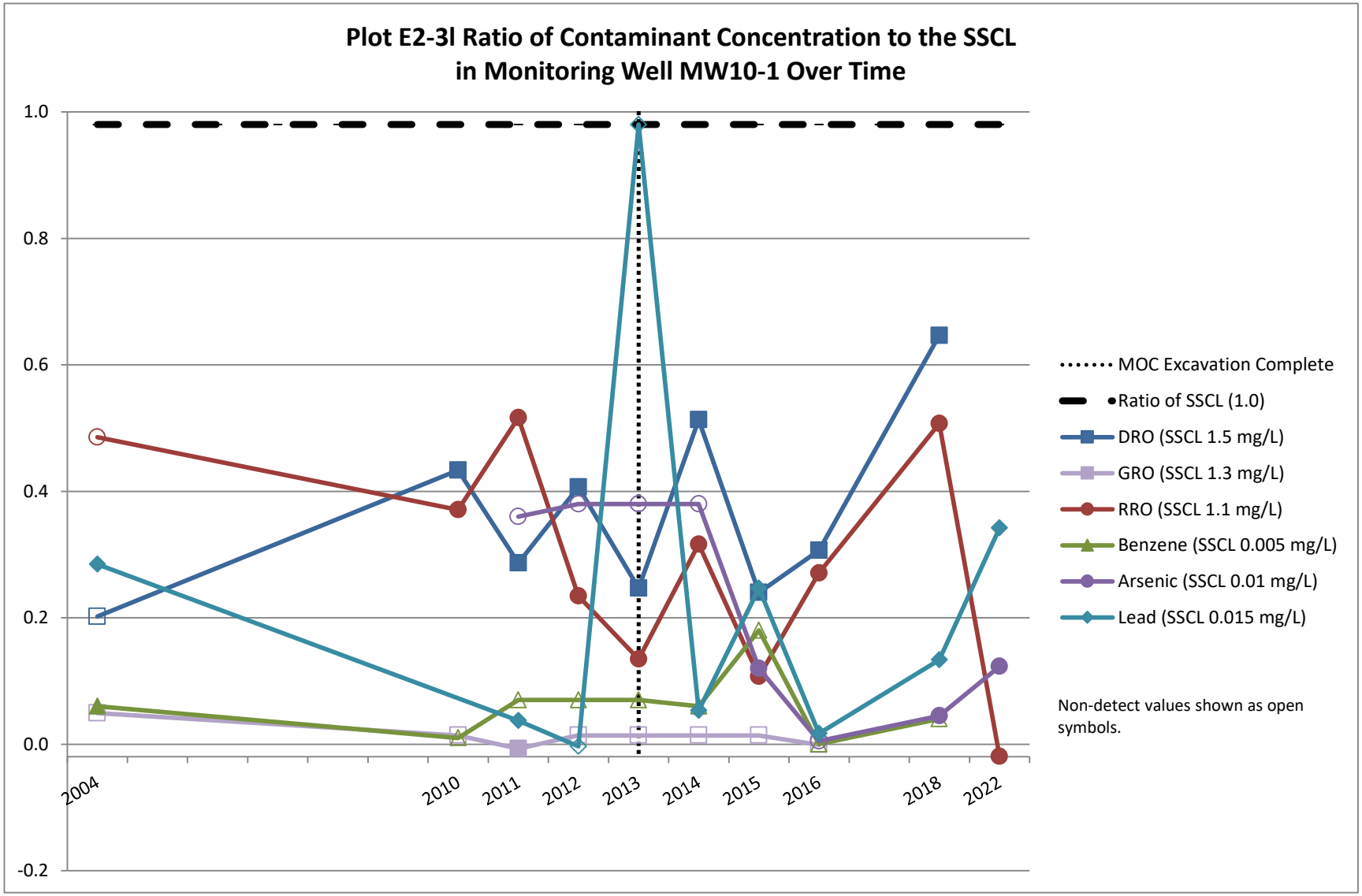

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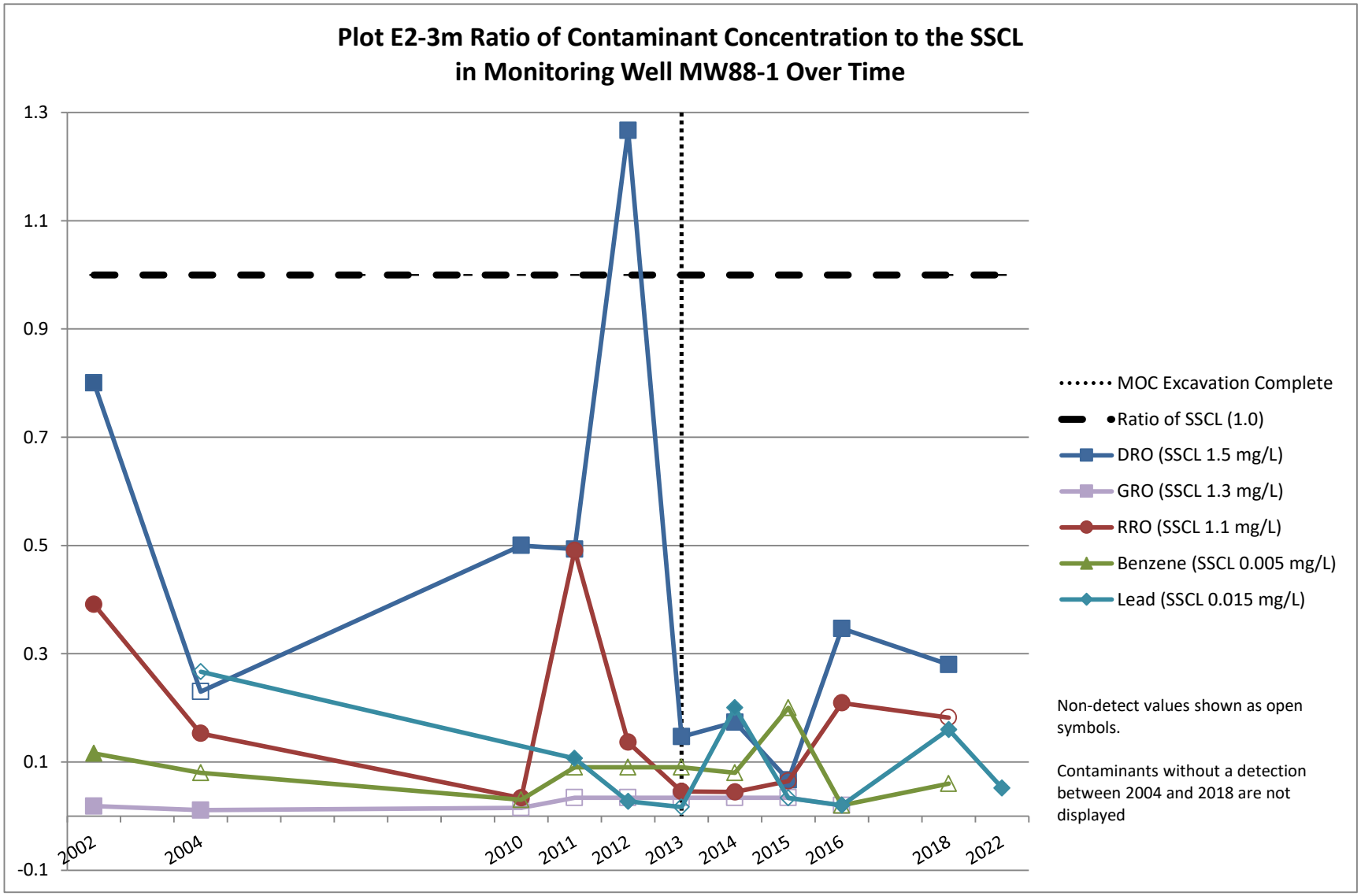

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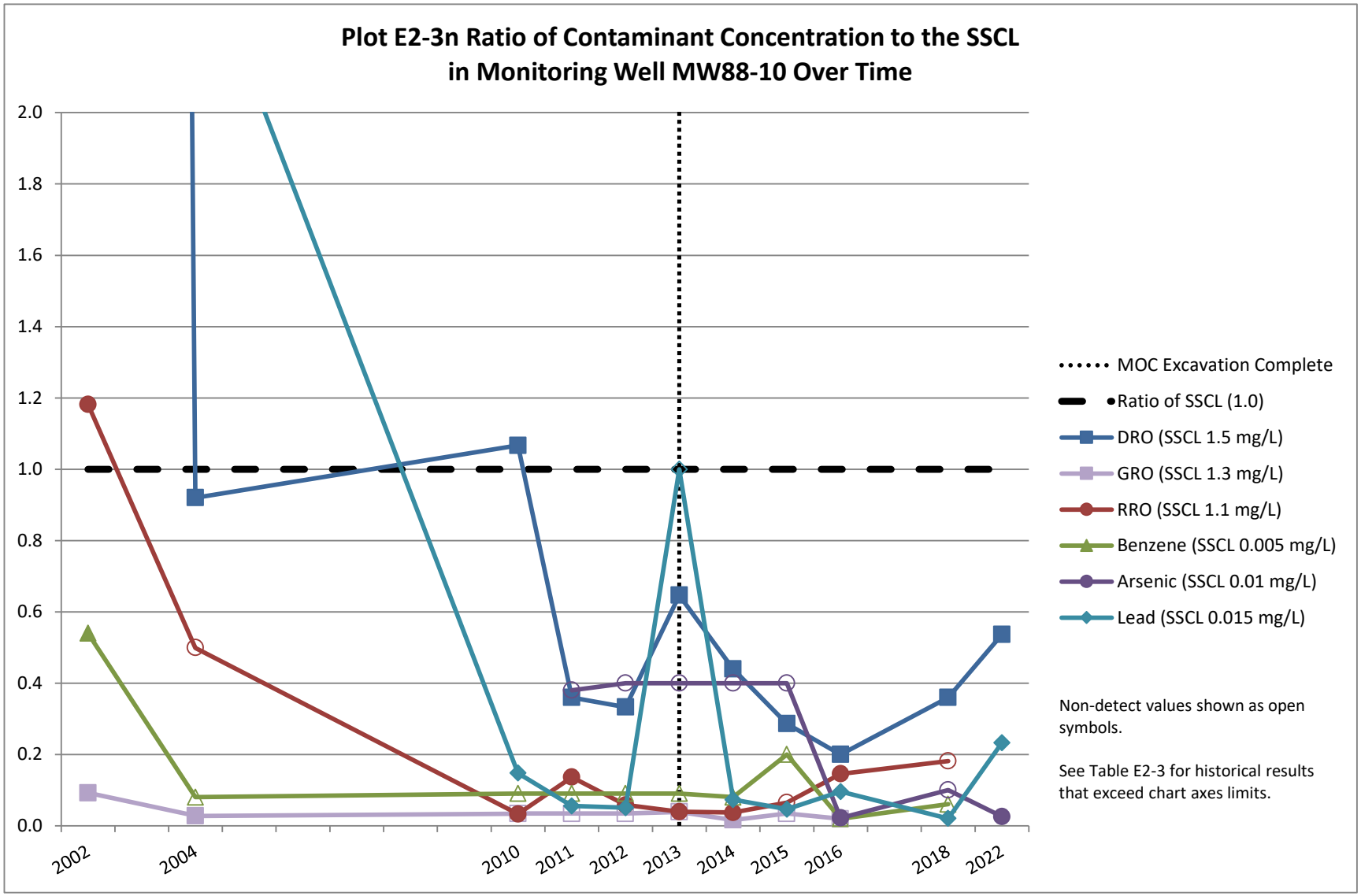

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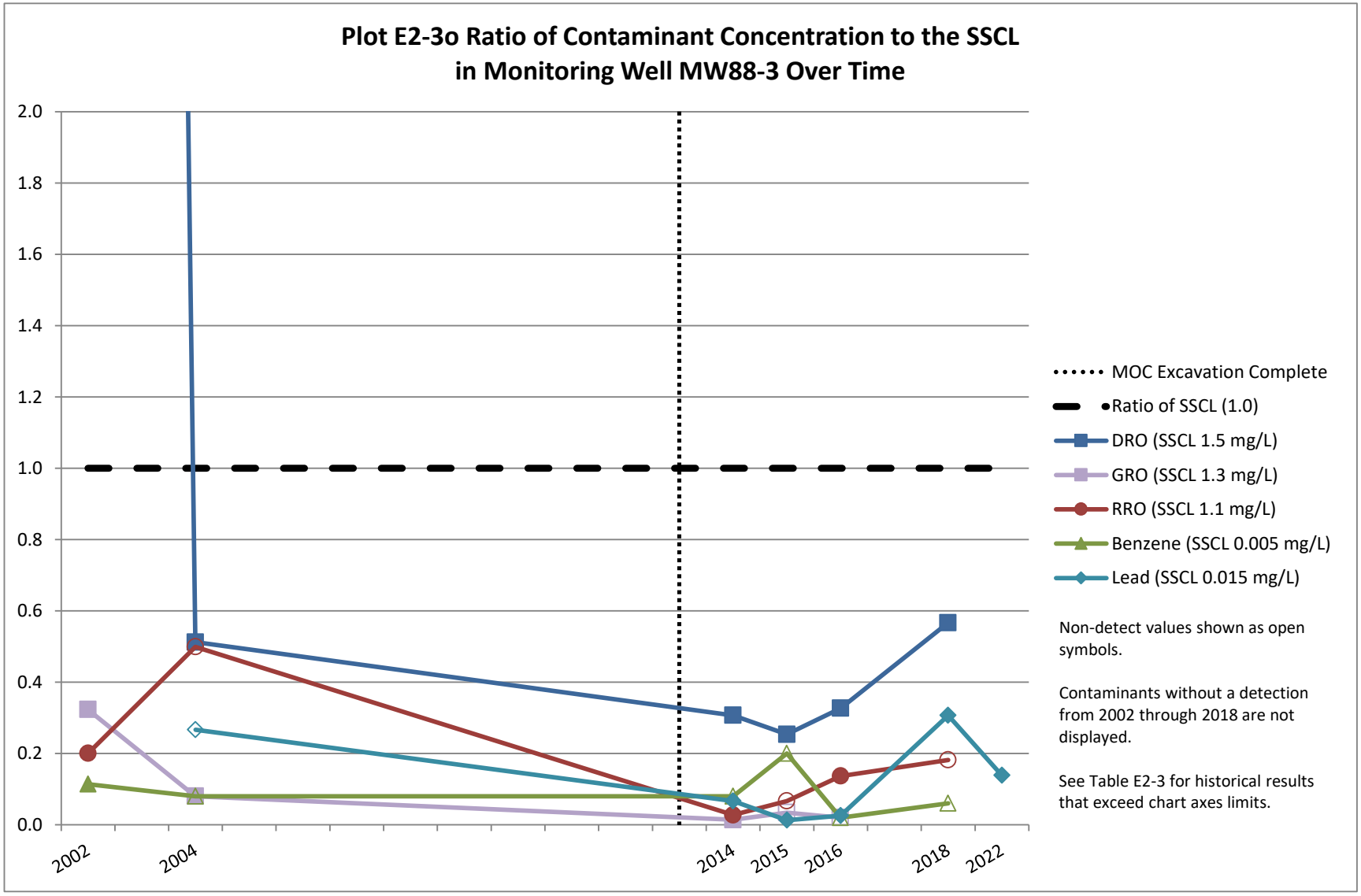

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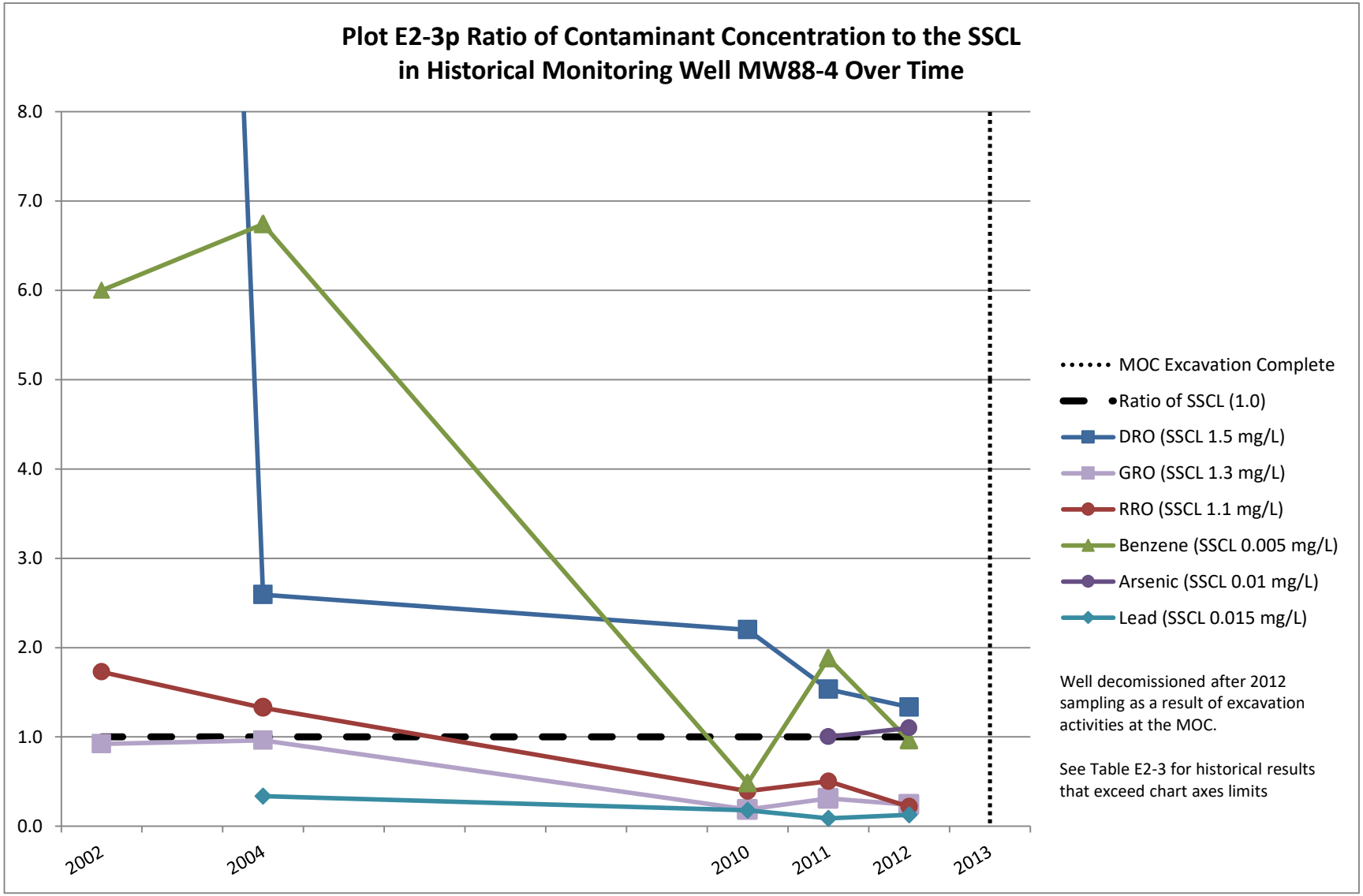
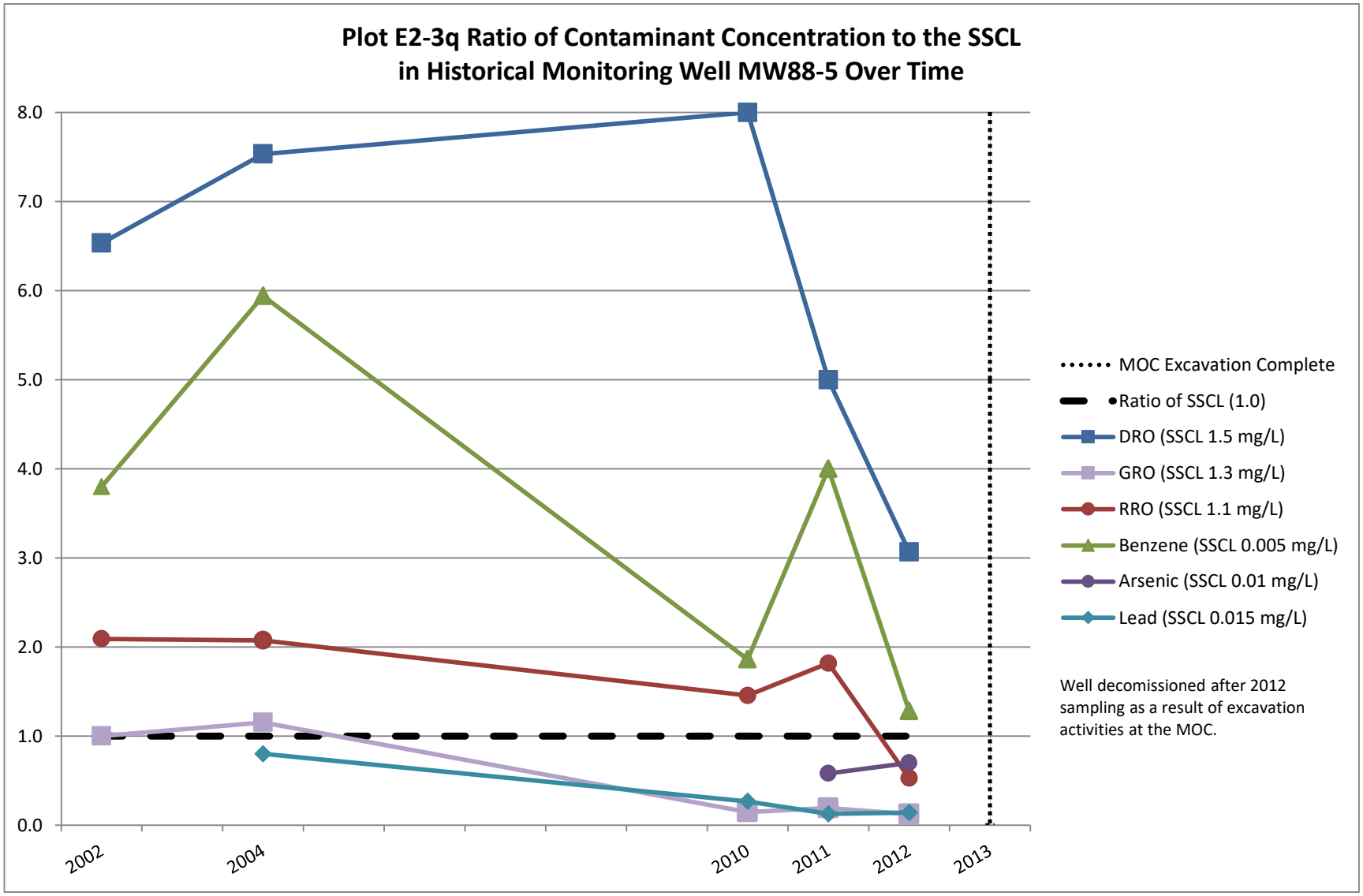
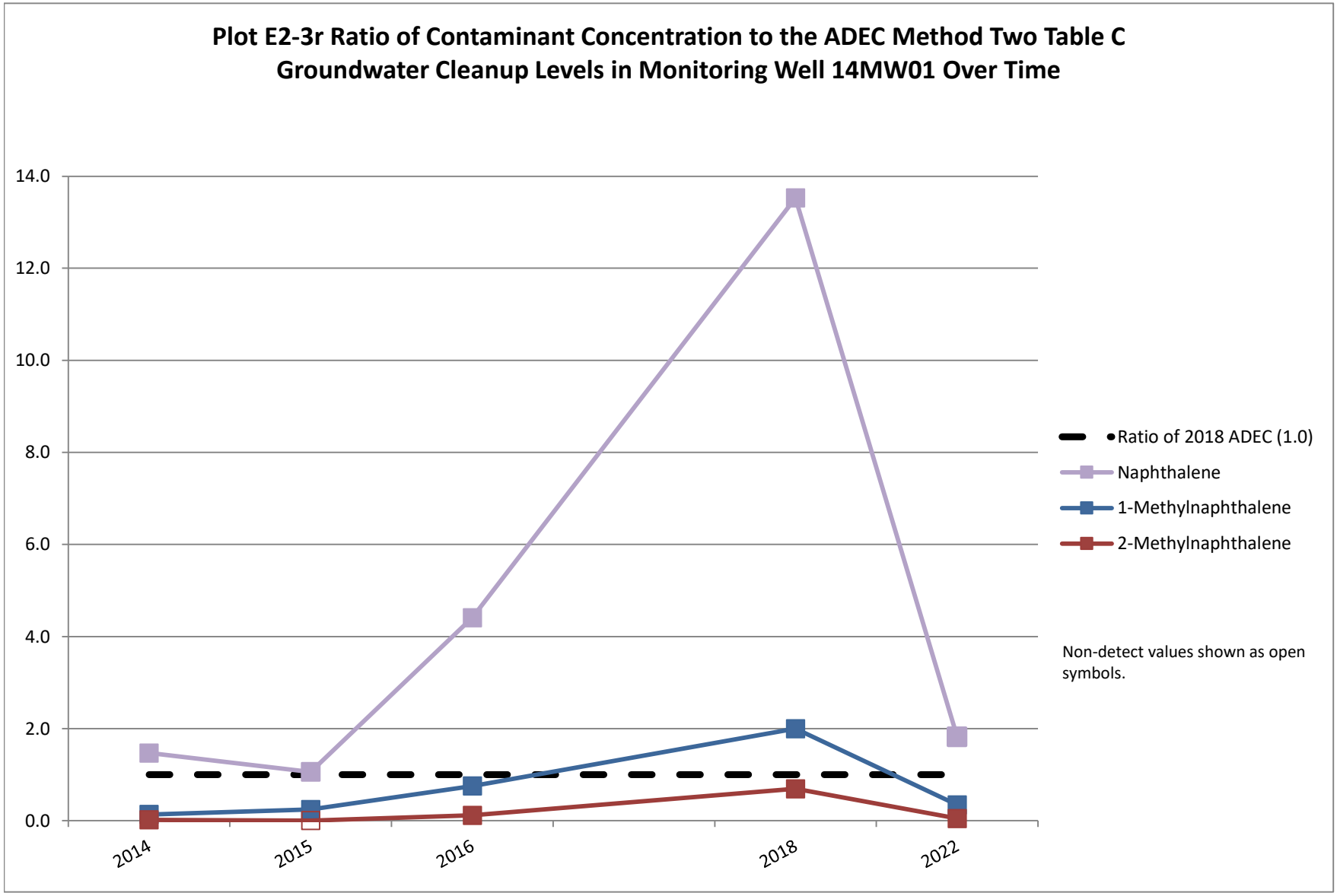


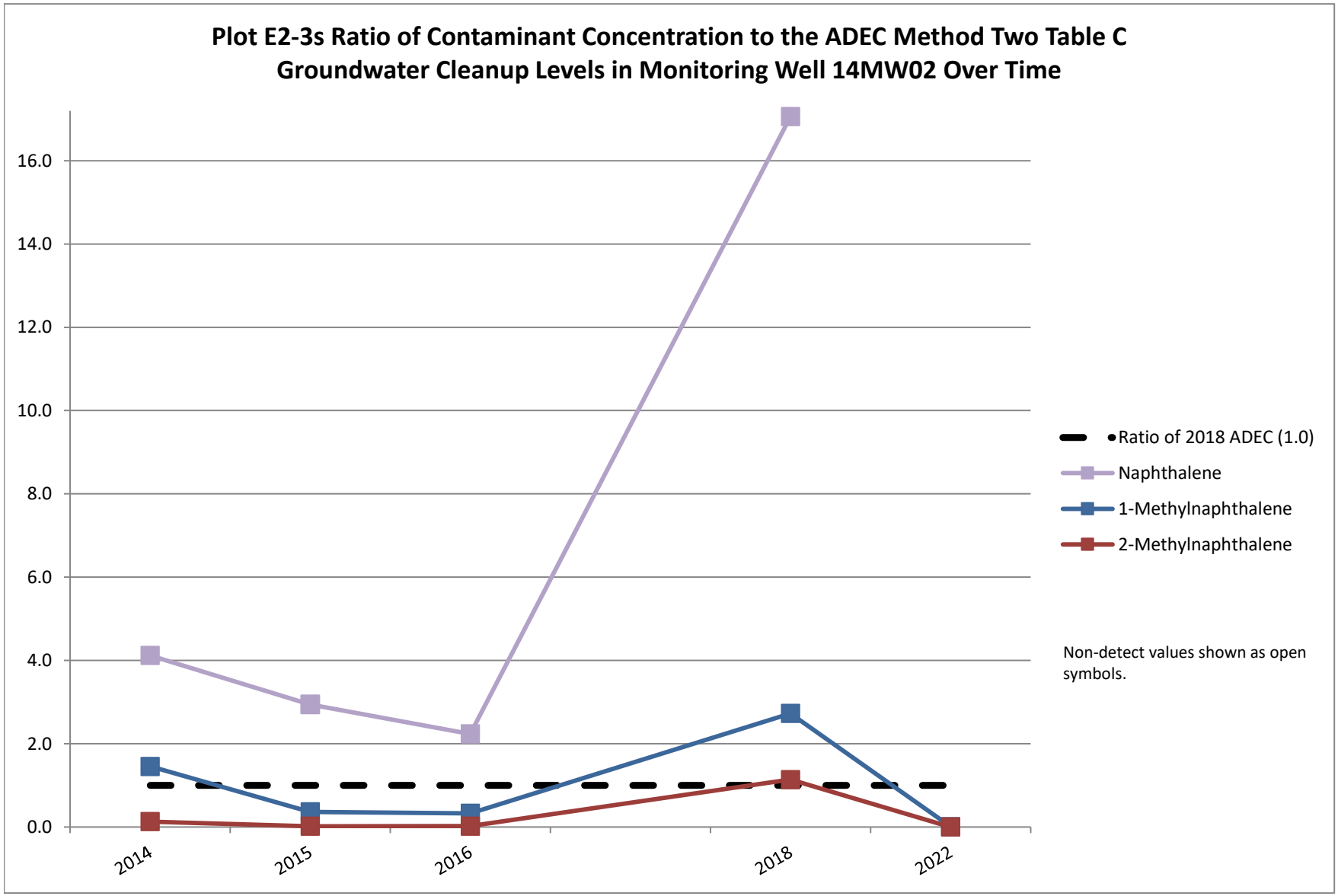
For definitions, refer to the Acronyms and Abbreviations section in Appendix E.



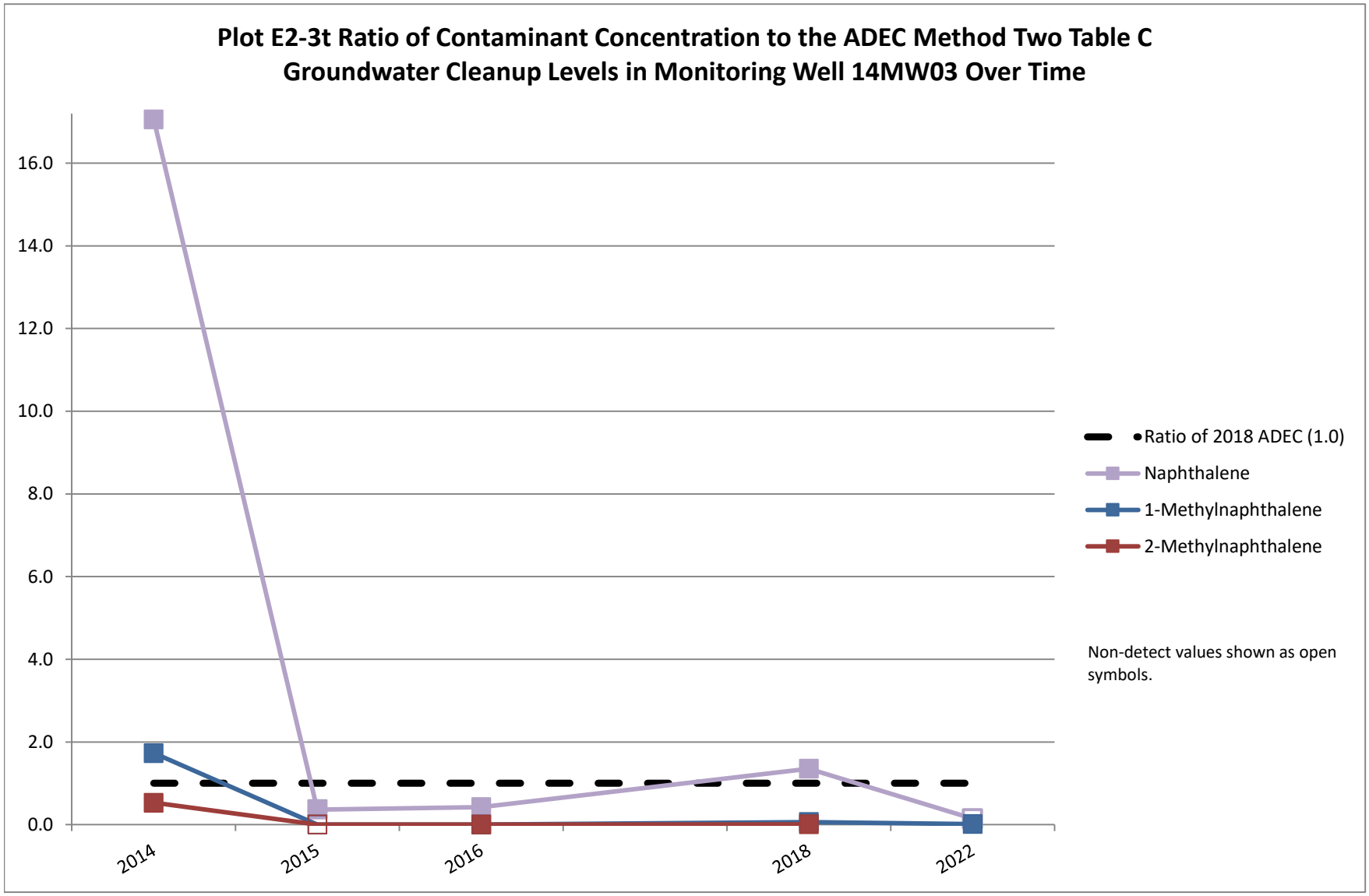
For definitions, refer to the Acronyms and Abbreviations section in Appendix E.



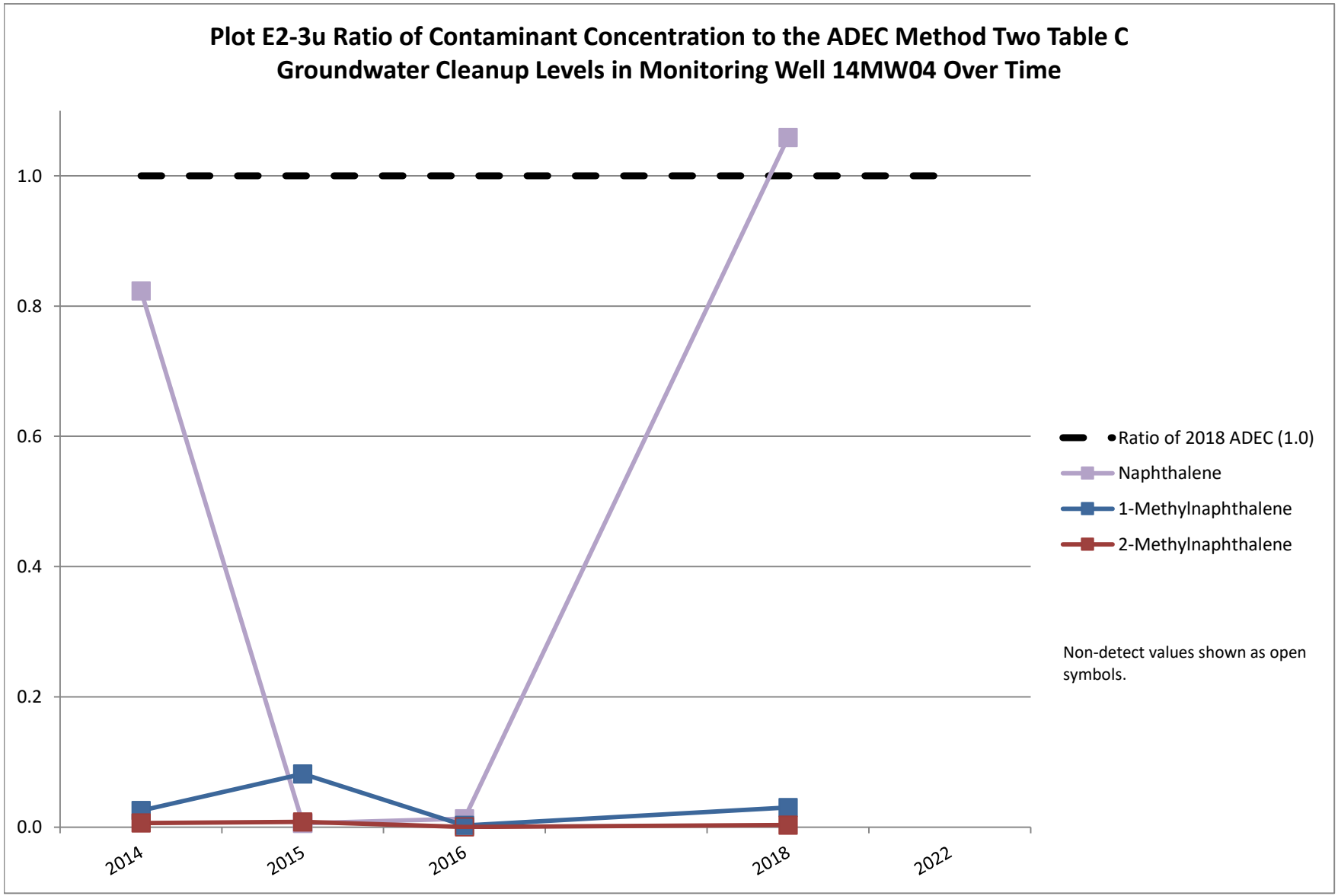
For definitions, refer to the Acronyms and Abbreviations section in Appendix E.



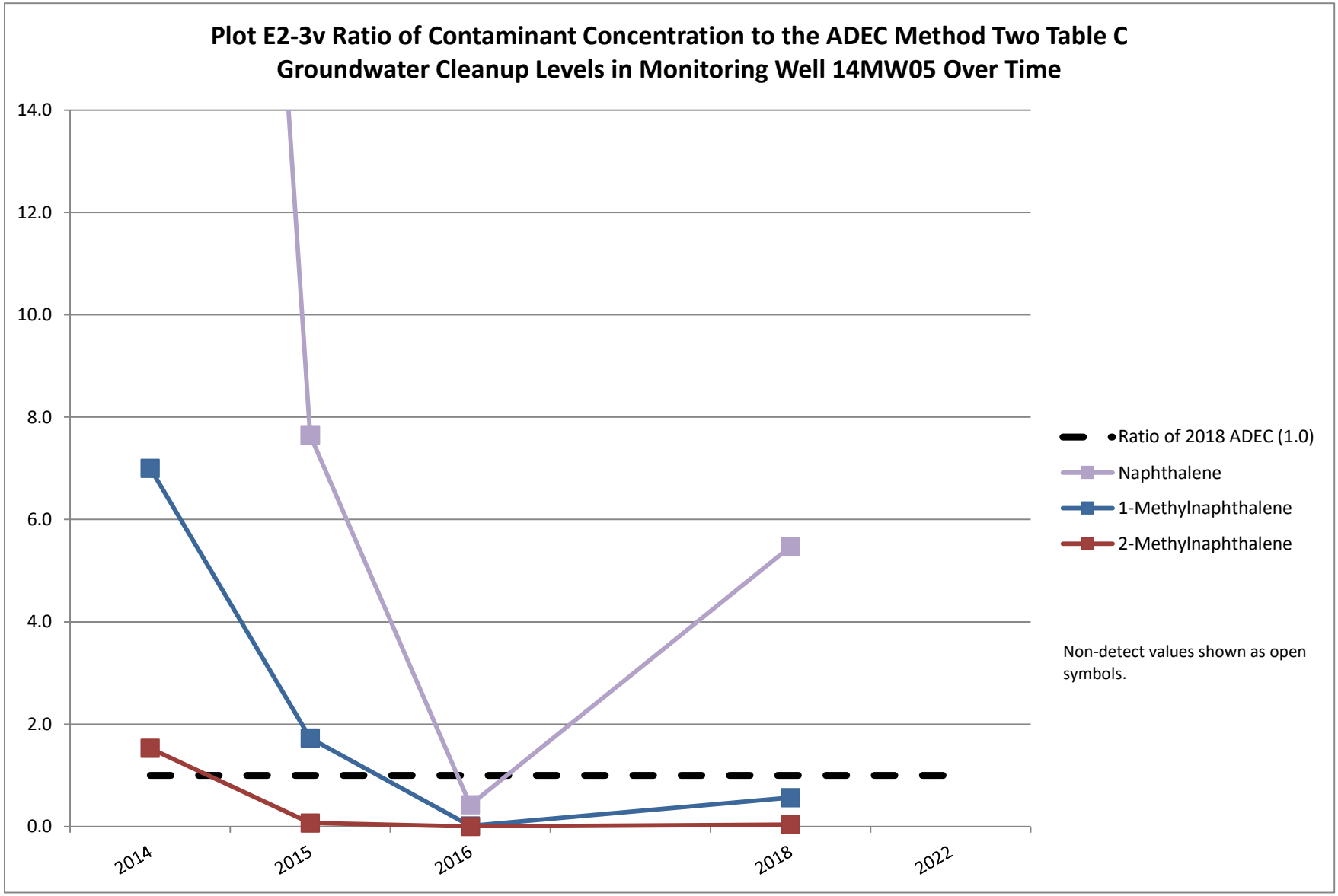
For definitions, refer to the Acronyms and Abbreviations section in Appendix E.



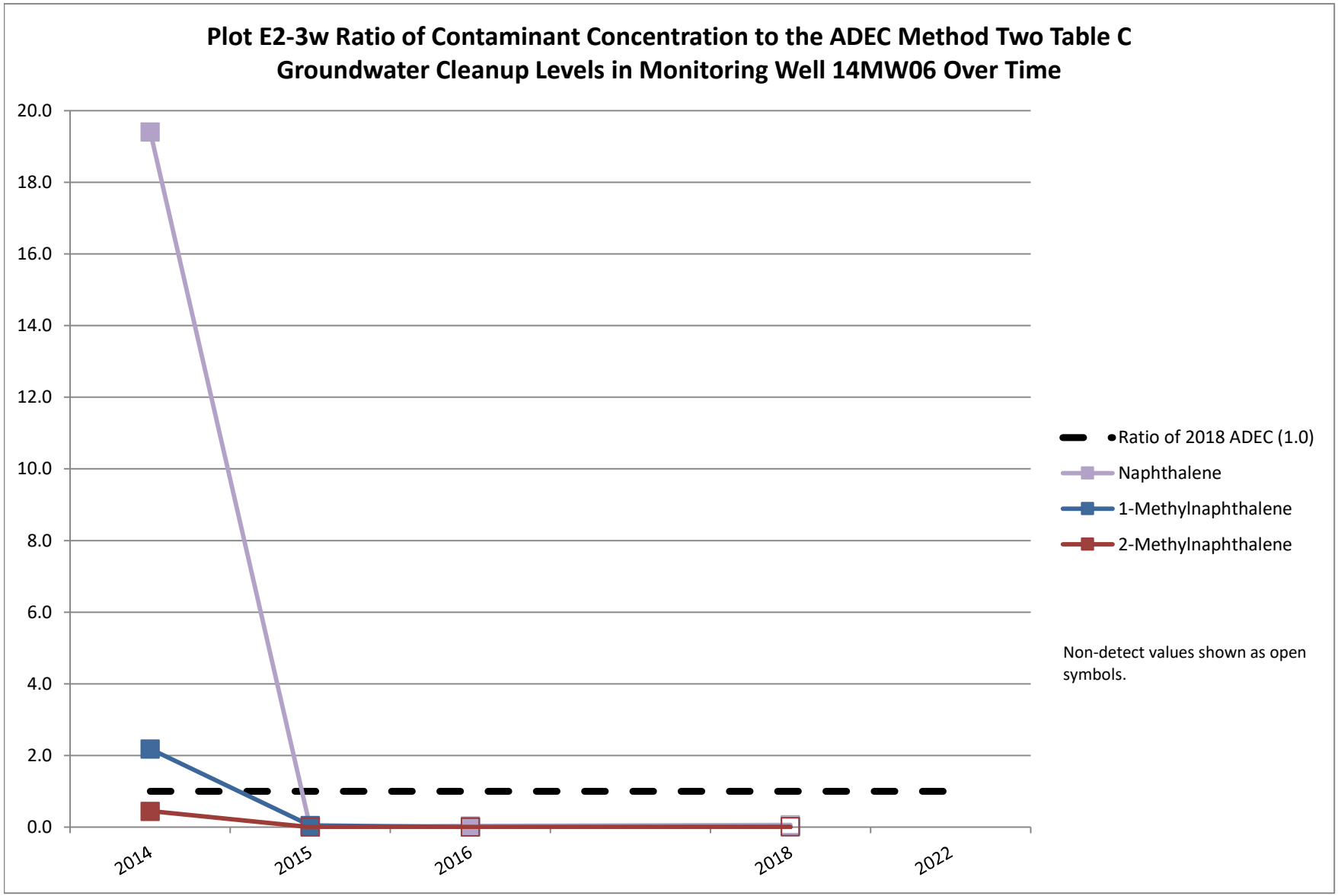
For definitions, refer to the Acronyms and Abbreviations section in Appendix E.



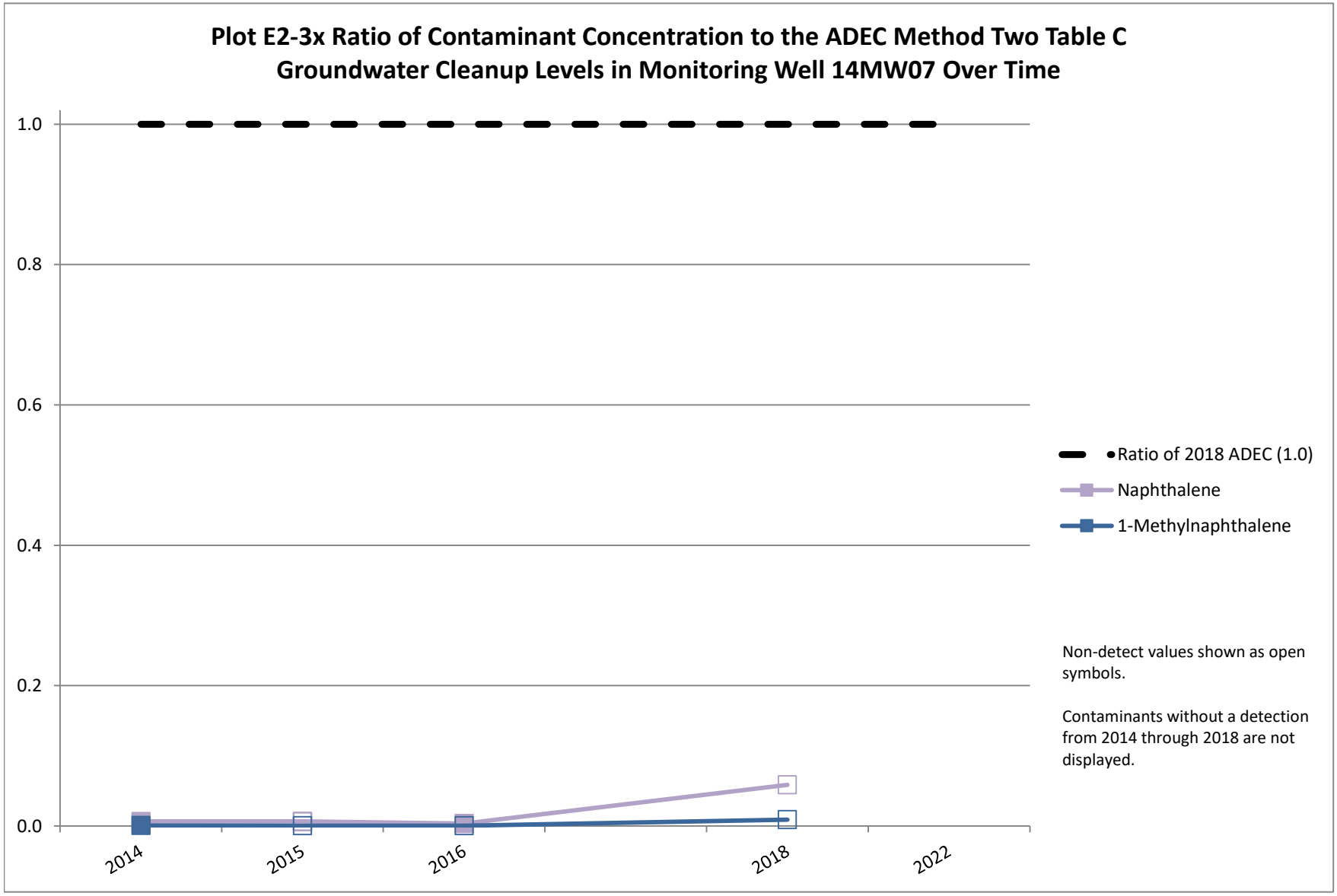
For definitions, refer to the Acronyms and Abbreviations section in Appendix E.



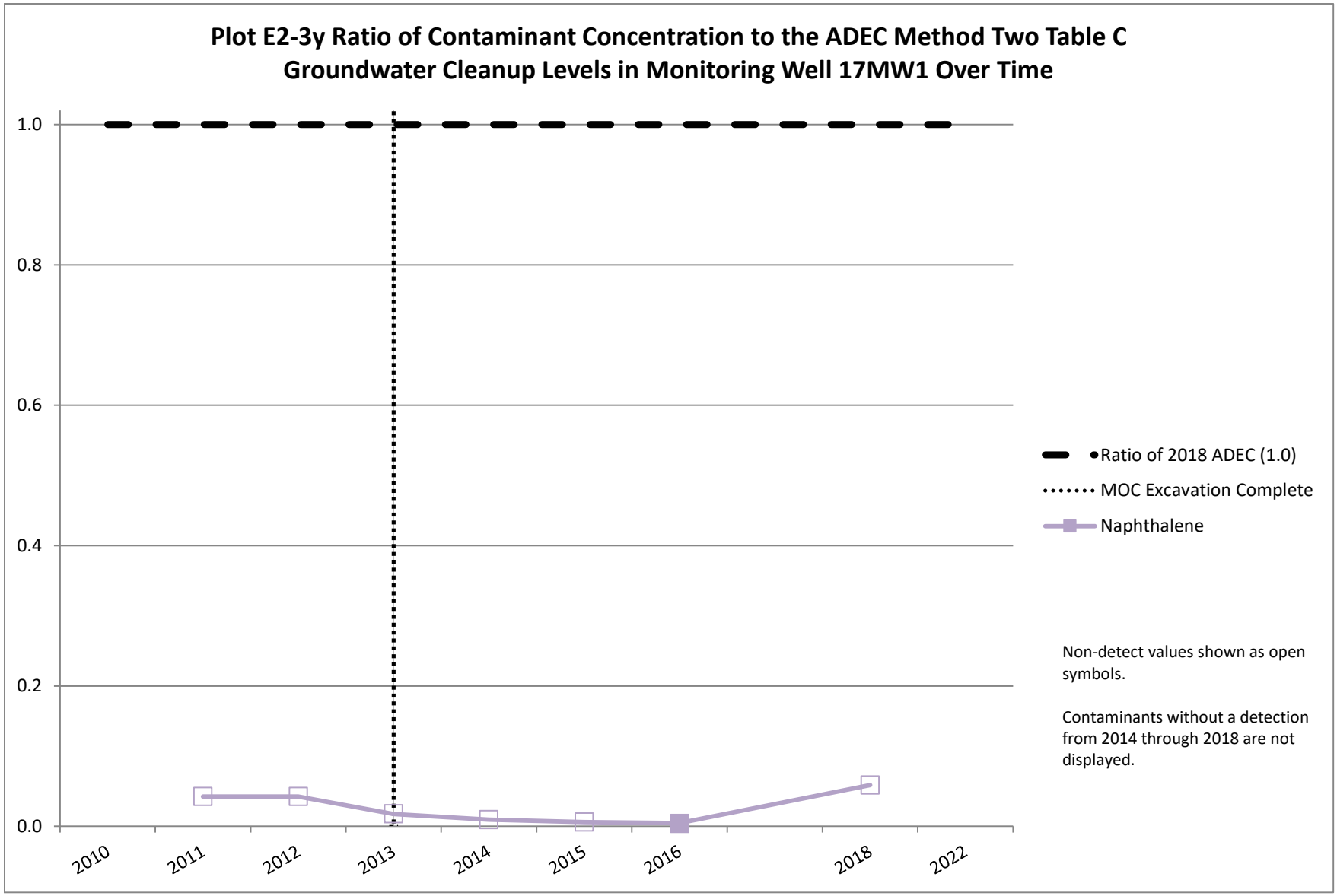
For definitions, refer to the Acronyms and Abbreviations section in Appendix E.



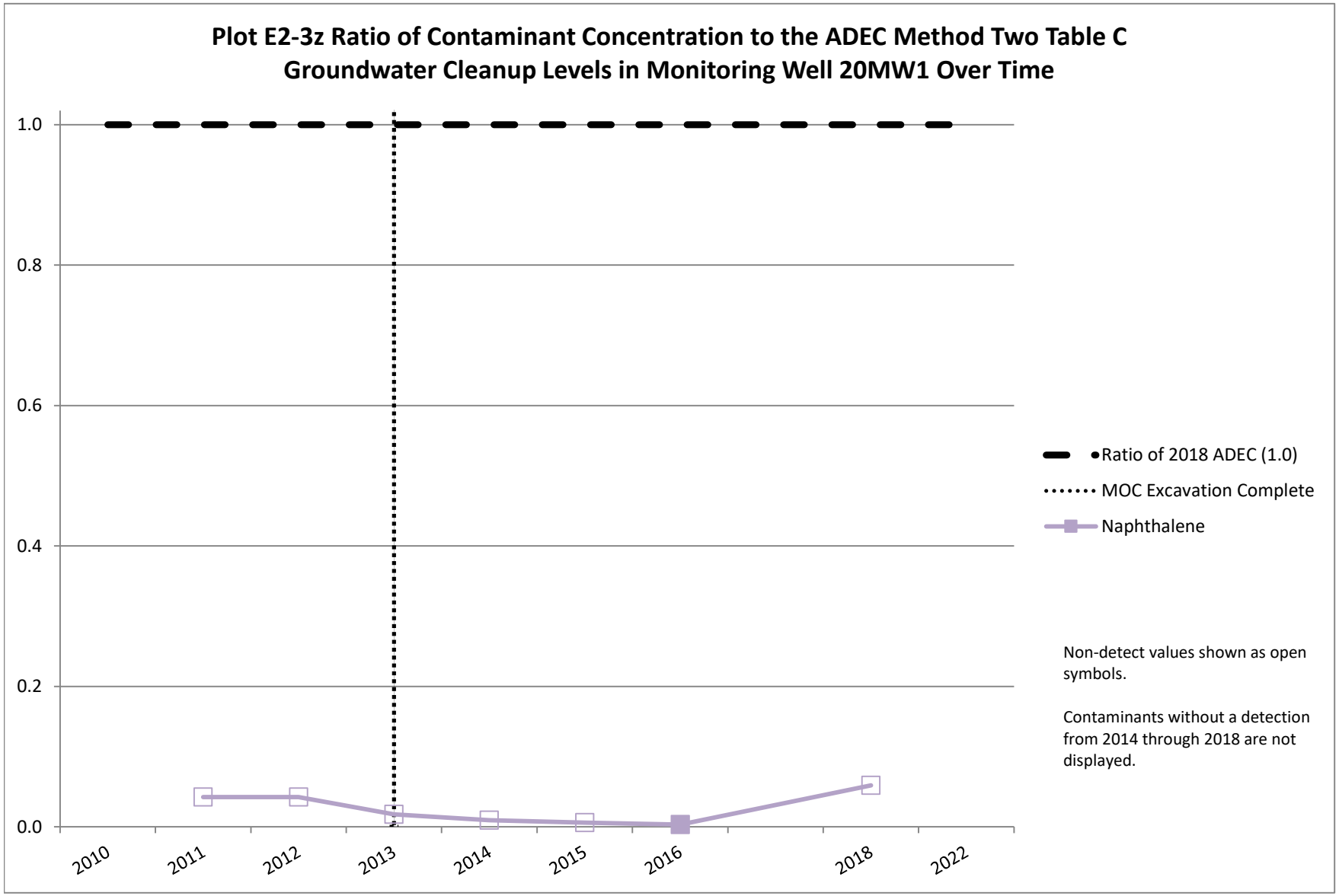
For definitions, refer to the Acronyms and Abbreviations section in Appendix E.



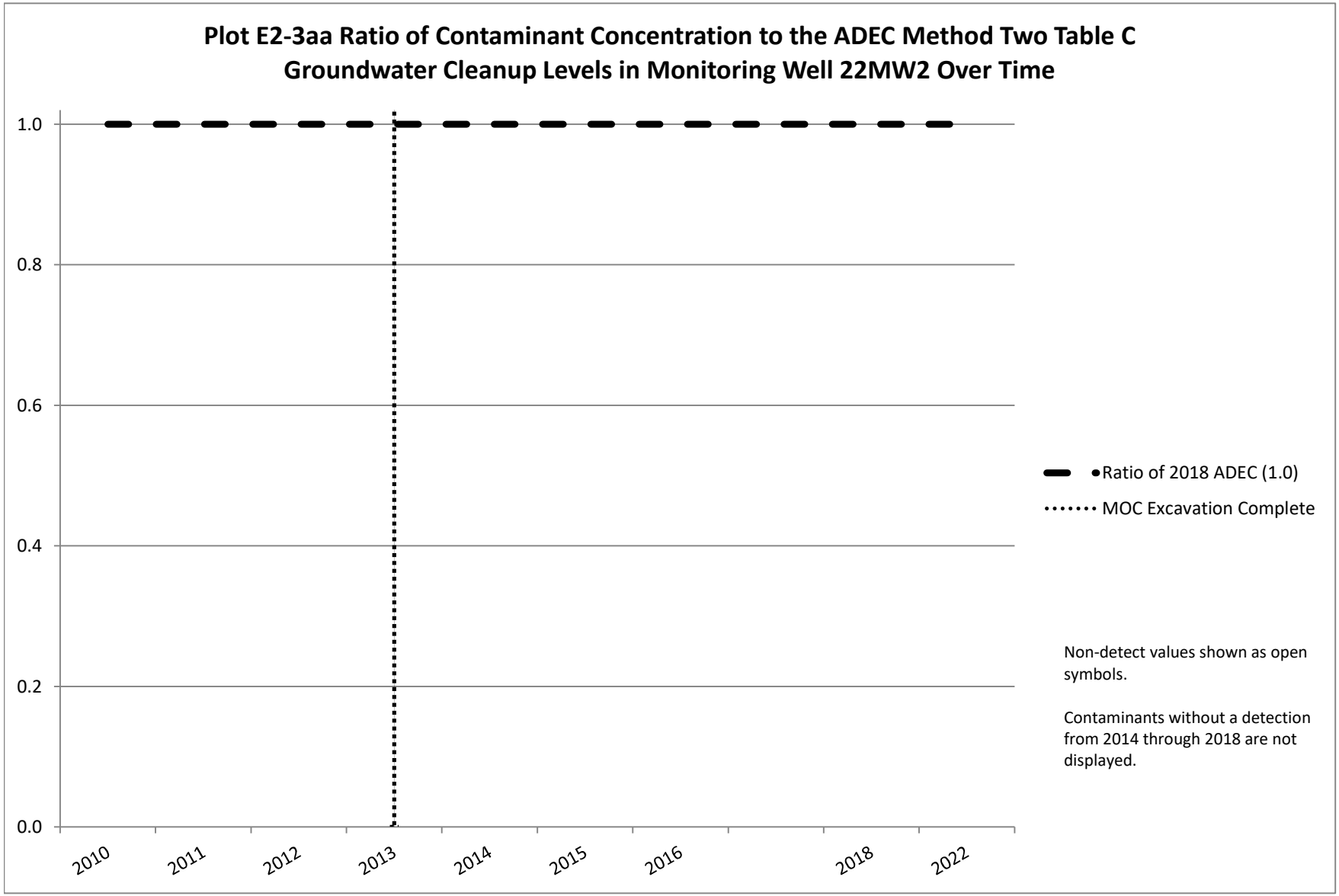
For definitions, refer to the Acronyms and Abbreviations section in Appendix E.



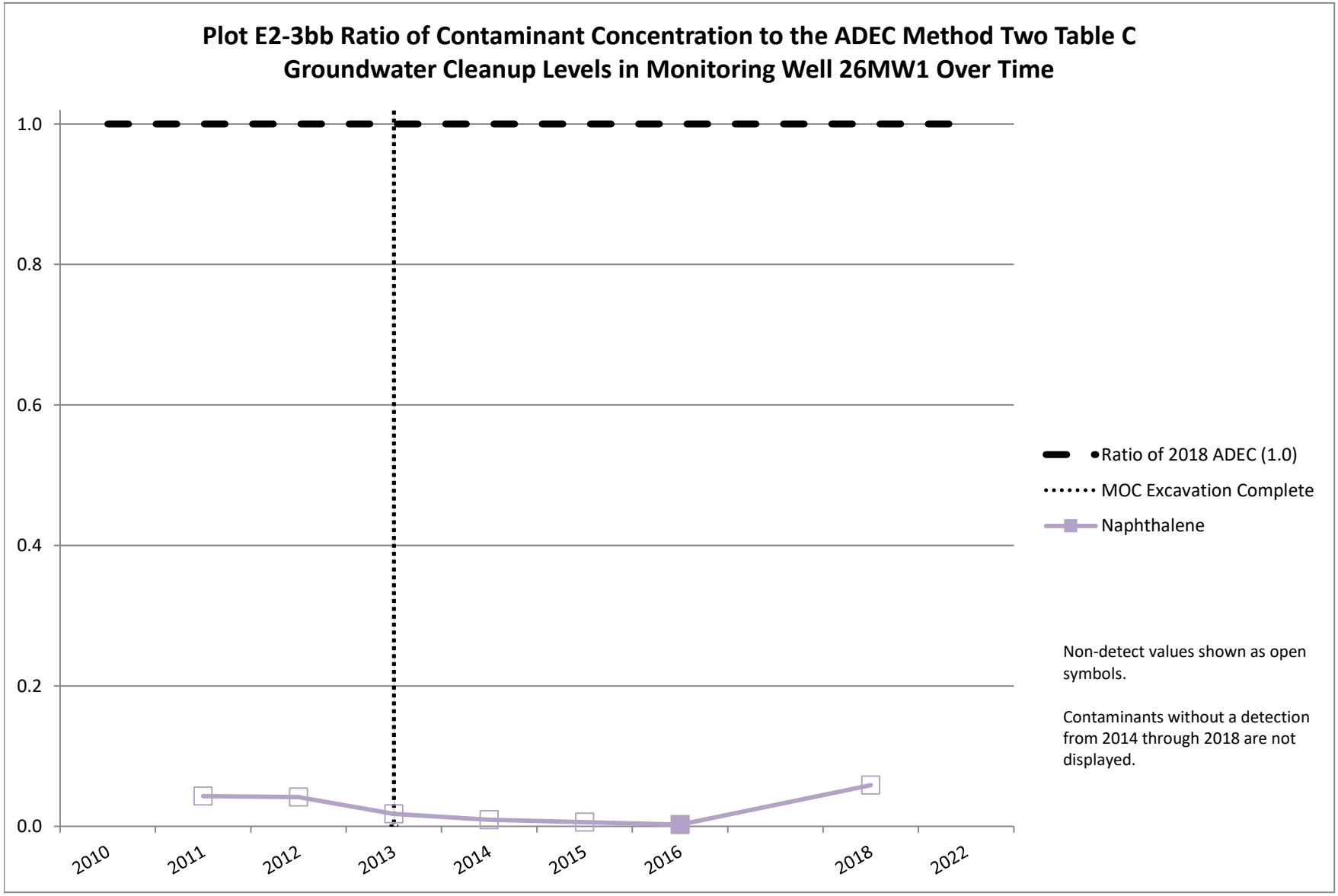
For definitions, refer to the Acronyms and Abbreviations section in Appendix E.



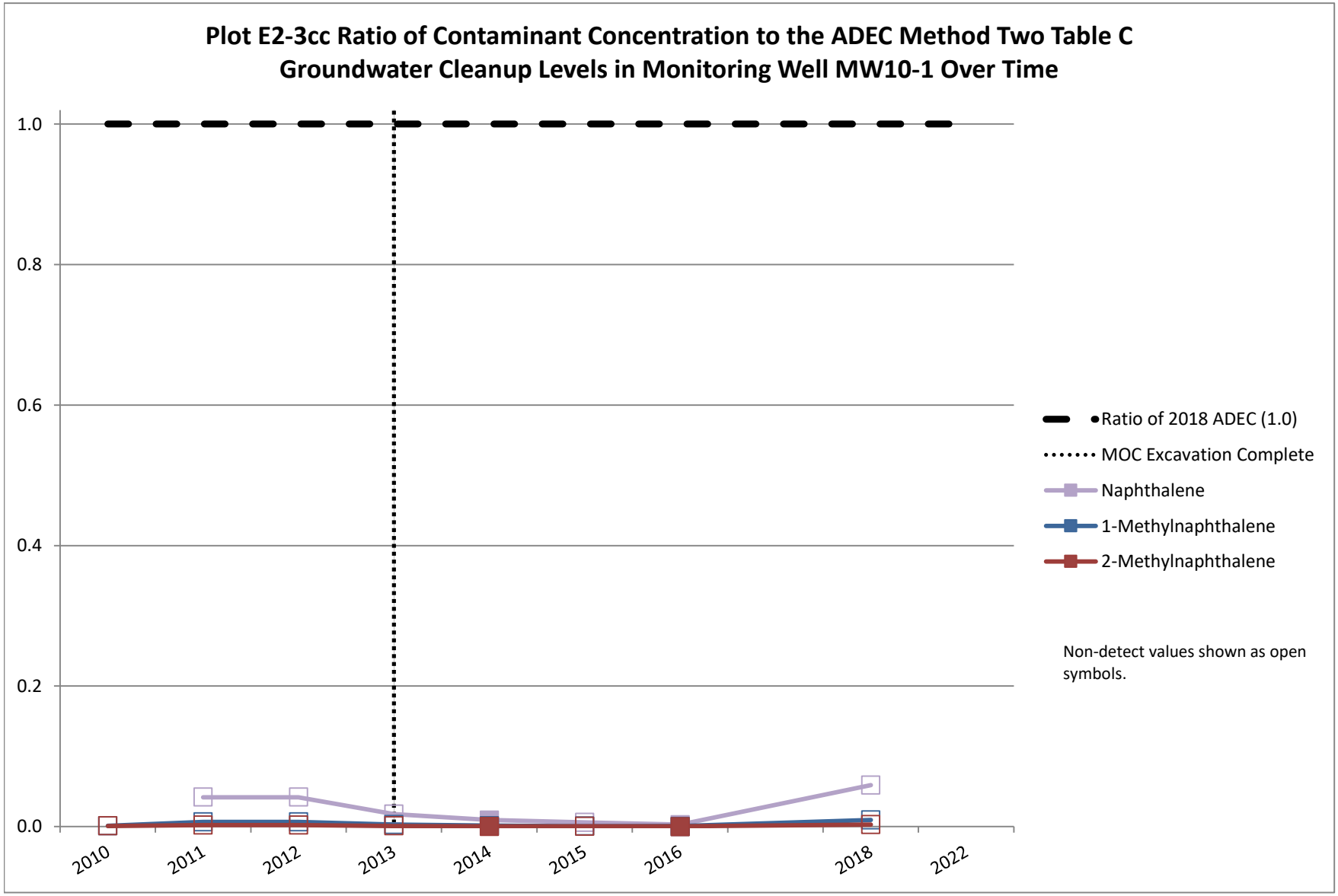
For definitions, refer to the Acronyms and Abbreviations section in Appendix E.



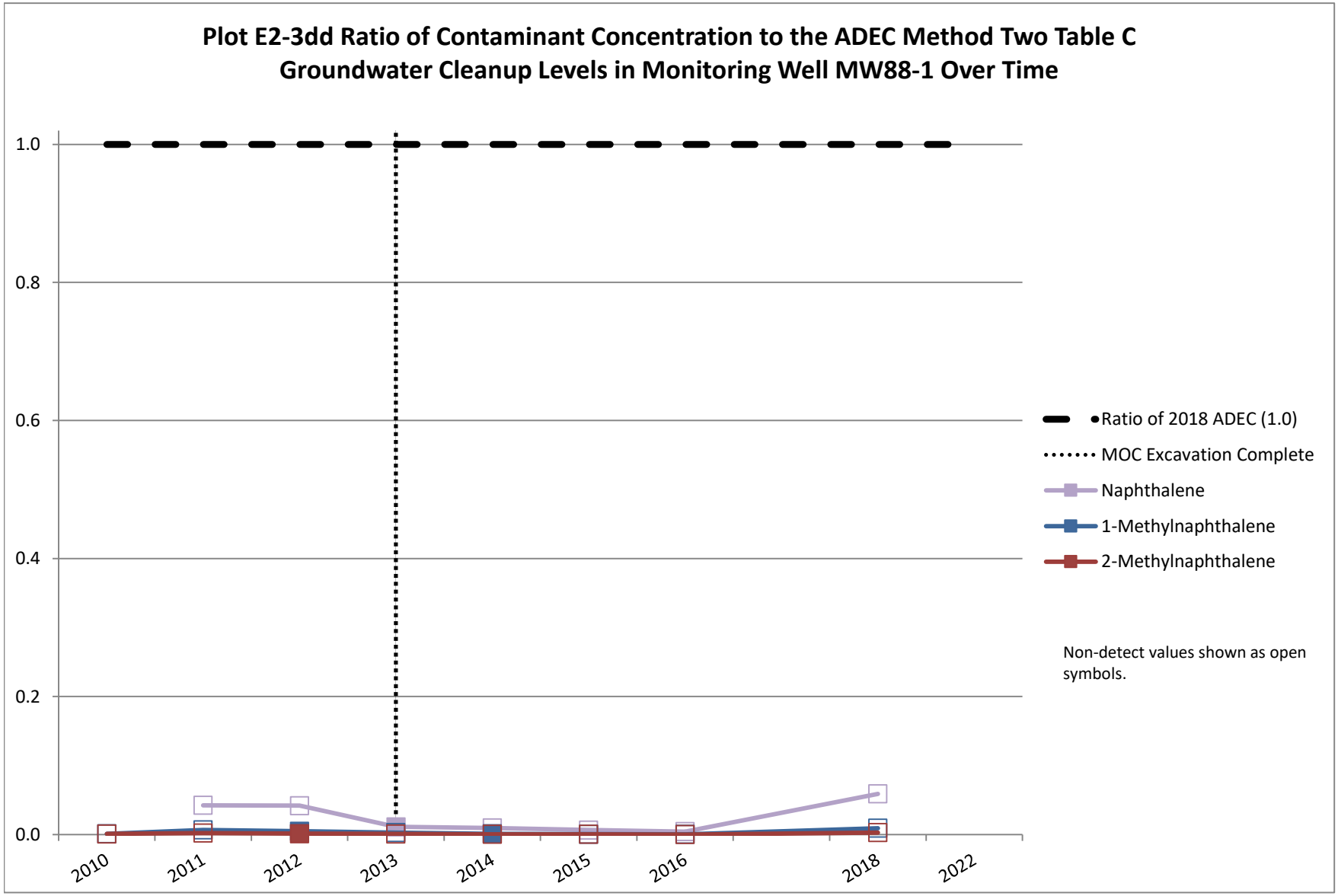
For definitions, refer to the Acronyms and Abbreviations section in Appendix E.



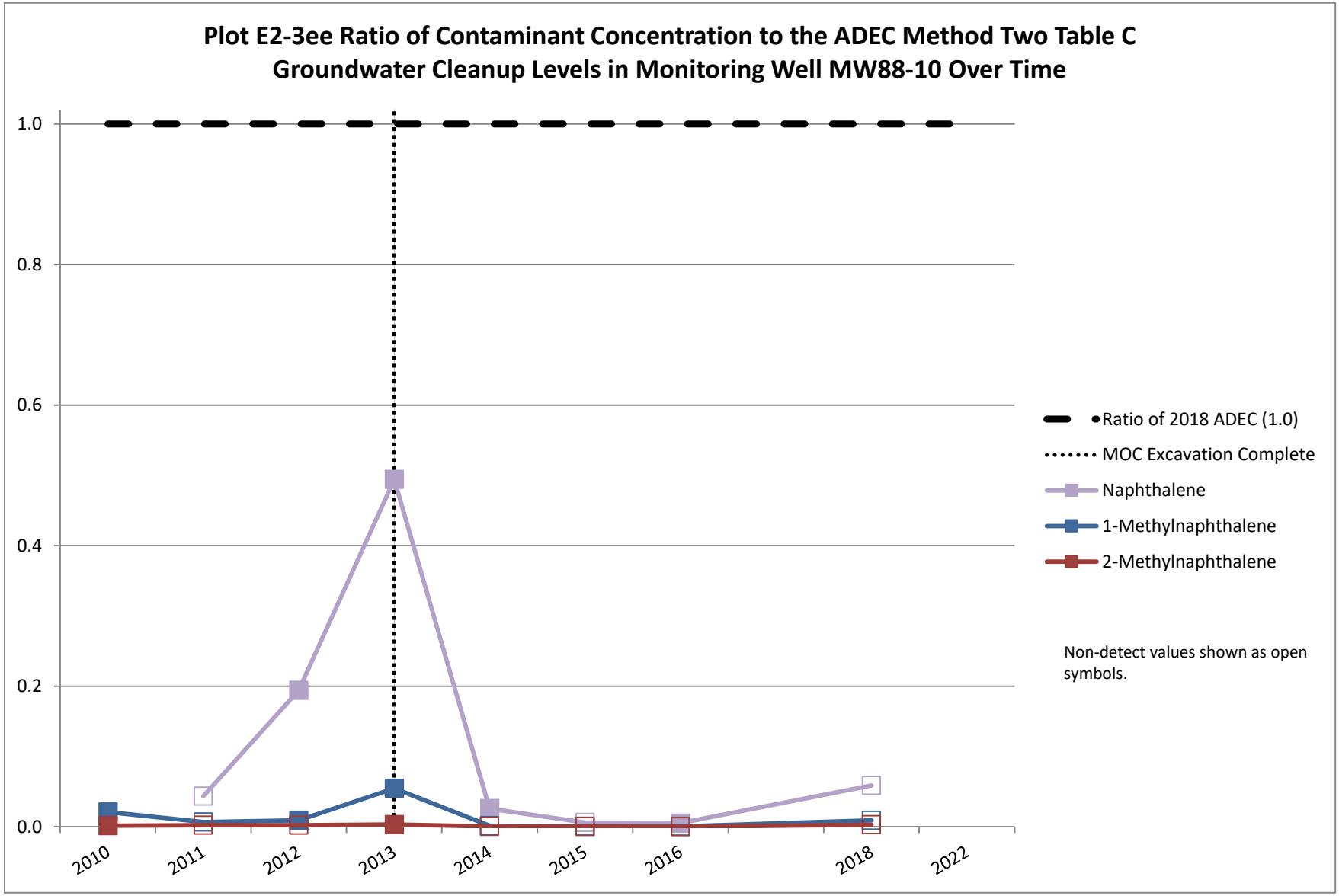
For definitions, refer to the Acronyms and Abbreviations section in Appendix E.



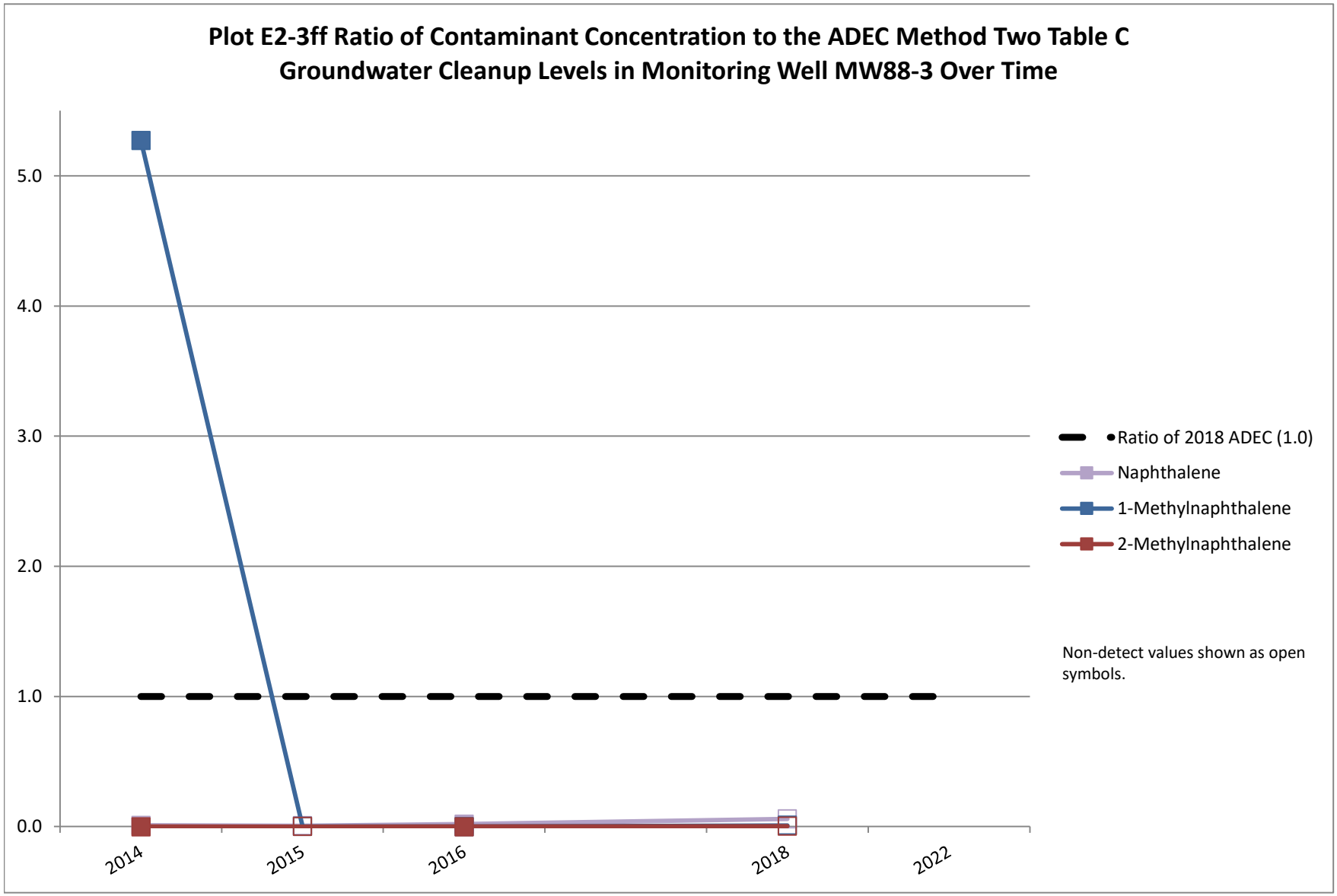
For definitions, refer to the Acronyms and Abbreviations section in Appendix E.



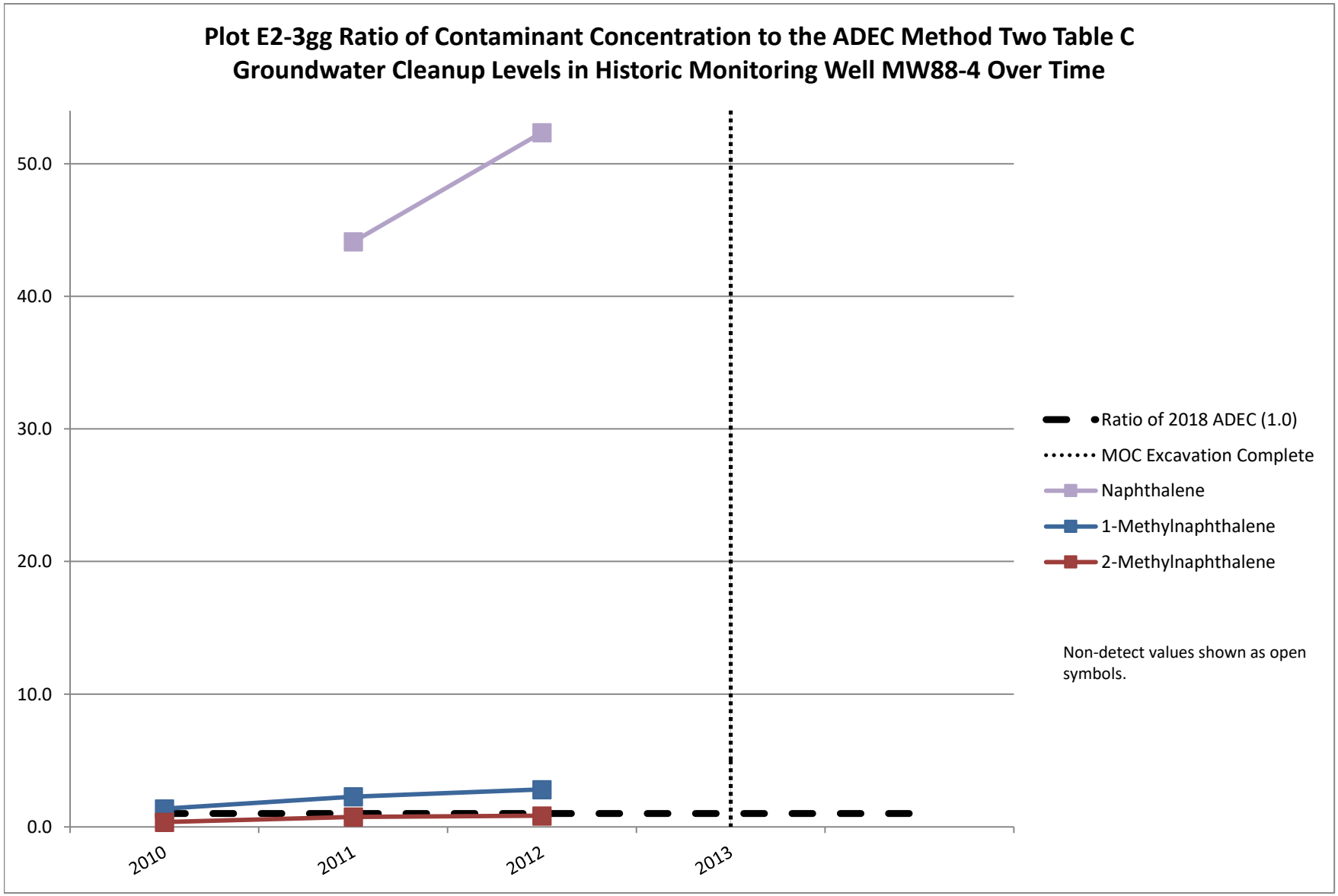
For definitions, refer to the Acronyms and Abbreviations section in Appendix E.



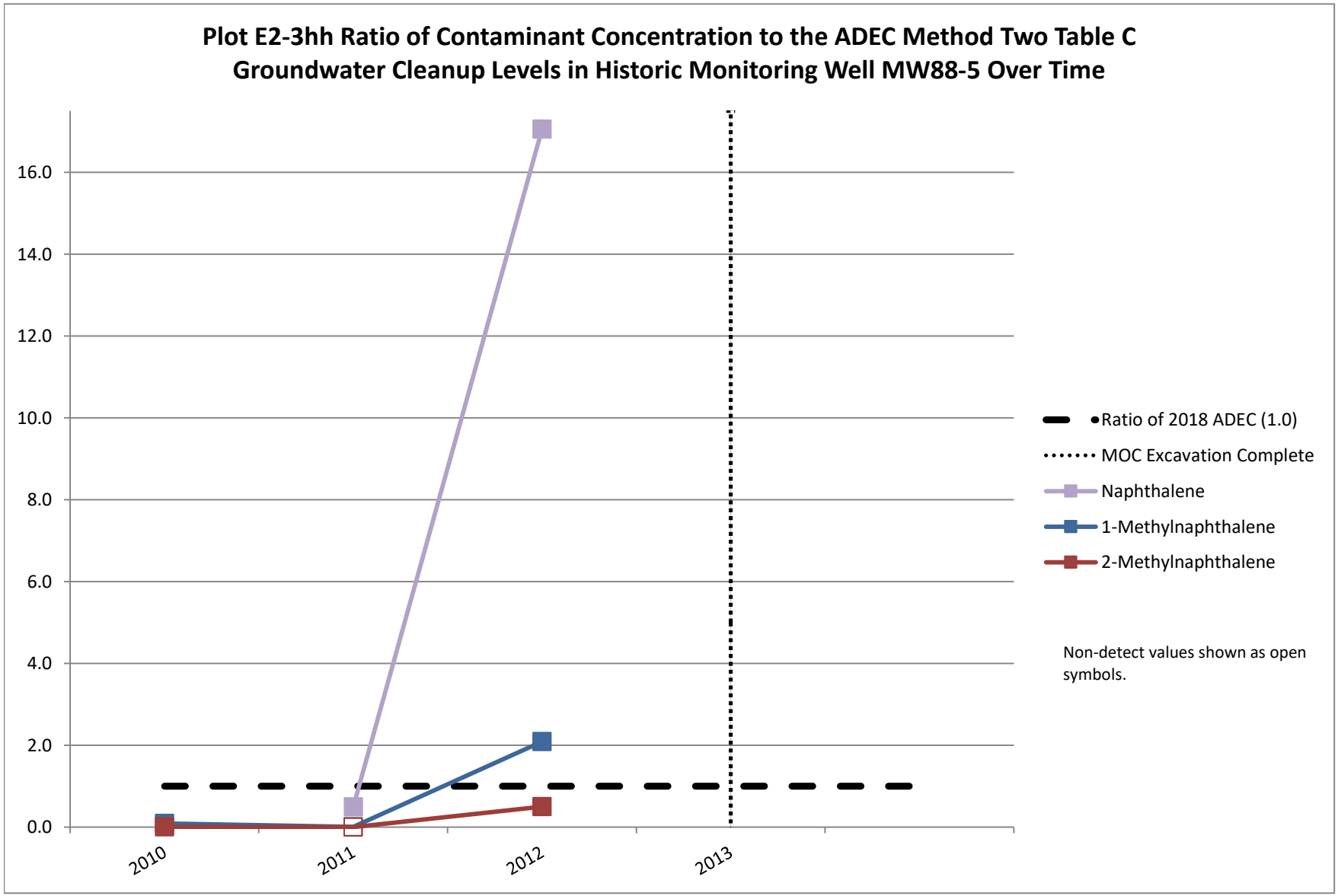
For definitions, refer to the Acronyms and Abbreviations section in Appendix E.



For definitions, refer to the Acronyms and Abbreviations section in Appendix E.



For definitions, refer to the Acronyms and Abbreviations section in Appendix E.



For definitions, refer to the Acronyms and Abbreviations section in Appendix E.

ATTACHMENT E2-4
DRO TRENDS OVER TIME

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Table E2-4a Input Data

Mann-Kendall Input Data					
Well	**14MW01**	**14MW02**	**14MW04**	**14MW05**	**14MW06**
Year	**DRO (mg/L)**				
2014	0.51	1.3	2.5	4.9	5.2
2015	0.51	1.6	2.8	12	2.3
2016	0.92	1.6	2.2	3.2	1.4
2018	2	2.8	1.8	3.1	1.5
2022	0.481	1.1	0.414	1.78	1.99

Notes:

DRO – diesel range organics

mg/L – milligram per liter

Table E2-4b Trend Test Analysis 14MW01 DRO

Mann-Kendall Trend Test Analysis

User Selected Options	
Date/Time of Computation	ProUCL 5.110/26/2022 11:02:05 AM
From File	3.4.1.1-3.4.1.6_Input Table_DRO_2022.xls
Full Precision	OFF
Confidence Coefficient	0.95
Level of Significance	0.05

14MW01 - DRO

General Statistics

Number of Events Reported (m)	5
Number of Missing Events	0
Number or Reported Events Used	5
Number Values Reported (n)	5
Minimum	0.481
Maximum	2
Mean	0.884
Geometric Mean	0.745
Median	0.51
Standard Deviation	0.65
Coefficient of Variation	0.735

Mann-Kendall Test

M-K Test Value (S)	1
Tabulated p-value	0.592
Standard Deviation of S	3.958
Standardized Value of S	0
Approximate p-value	0.5

Insufficient evidence to identify a significant trend at the specified level of significance.

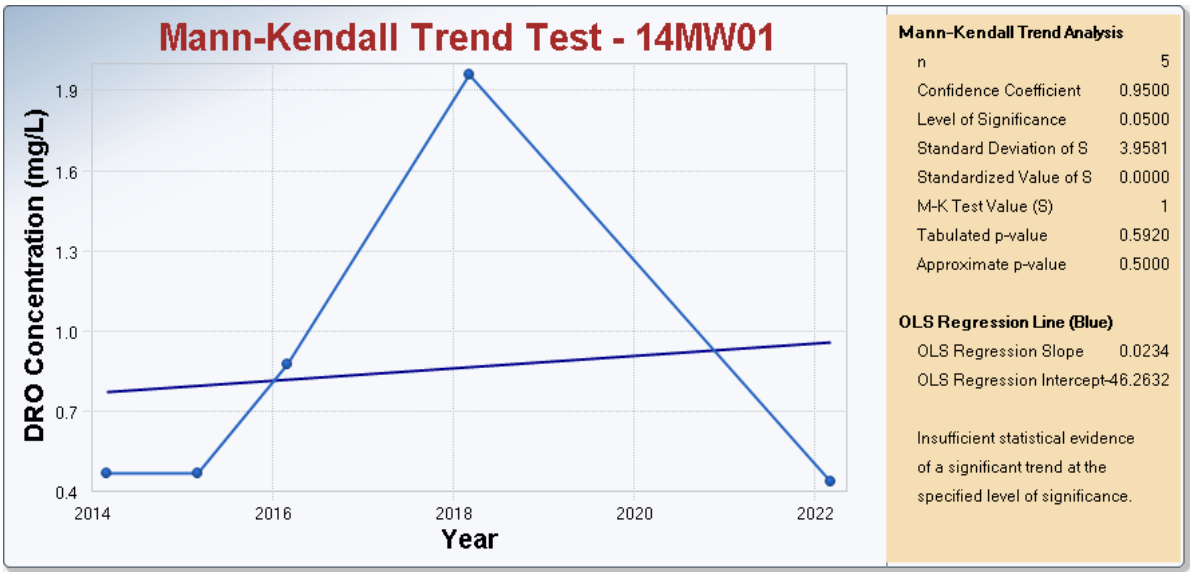


Table E2-4c Trend Test Analysis 14MW02 DRO

Mann-Kendall Trend Test Analysis

User Selected Options	
Date/Time of Computation	ProUCL 5.110/26/2022 11:05:46 AM
From File	3.4.1.1-3.4.1.6_Input Table_DRO_2022_a.xls
Full Precision	OFF
Confidence Coefficient	0.95
Level of Significance	0.05

14MW02 - DRO

General Statistics

Number of Events Reported (m)	5
Number of Missing Events	0
Number or Reported Events Used	5
Number Values Reported (n)	5
Minimum	1.1
Maximum	2.8
Mean	1.68
Geometric Mean	1.593
Median	1.6
Standard Deviation	0.661
Coefficient of Variation	0.393

Mann-Kendall Test

M-K Test Value (S)	1
Tabulated p-value	0.592
Standard Deviation of S	3.958
Standardized Value of S	0
Approximate p-value	0.5

Insufficient evidence to identify a significant trend at the specified level of significance.

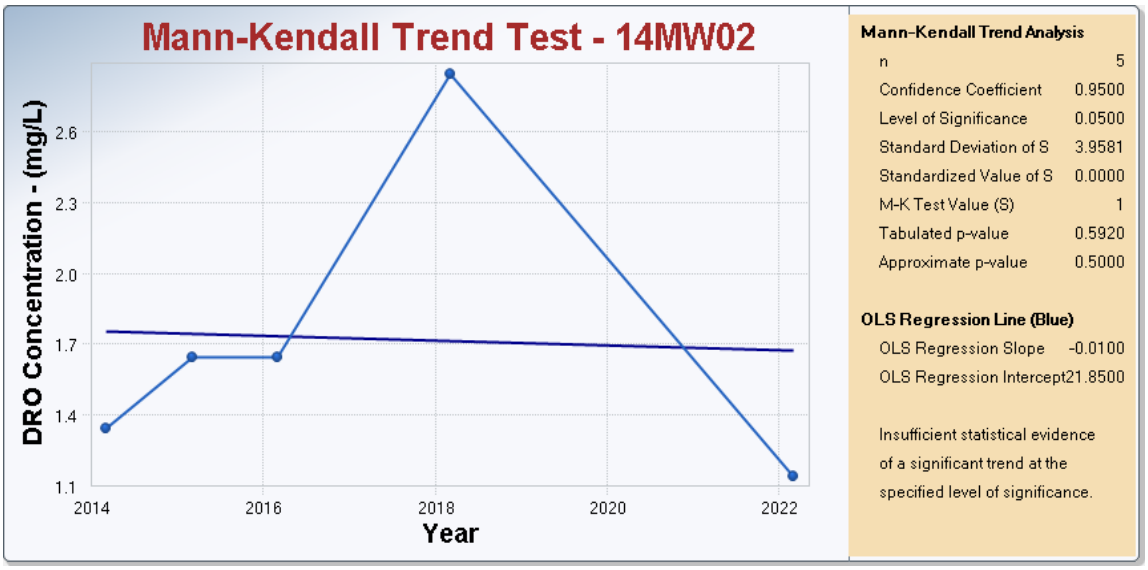


Table E2-4d Trend Test Analysis 14MW04 DRO

Mann-Kendall Trend Test Analysis

User Selected Options	
Date/Time of Computation	ProUCL 5.110/26/2022 12:49:20 PM
From File	3.4.1.1-3.4.1.6_Input Table_DRO_2022_b.xls
Full Precision	OFF
Confidence Coefficient	0.95
Level of Significance	0.05

14MW04 -DRO

General Statistics

Number of Events Reported (m)	5
Number of Missing Events	0
Number or Reported Events Used	5
Number Values Reported (n)	5
Minimum	0.414
Maximum	2.8
Mean	1.943
Geometric Mean	1.629
Median	2.2
Standard Deviation	0.931
Coefficient of Variation	0.479

Mann-Kendall Test

M-K Test Value (S)	-8
Tabulated p-value	0.042
Standard Deviation of S	4.082
Standardized Value of S	-1.715
Approximate p-value	0.0432

Statistically significant evidence of a decreasing trend at the specified level of significance.

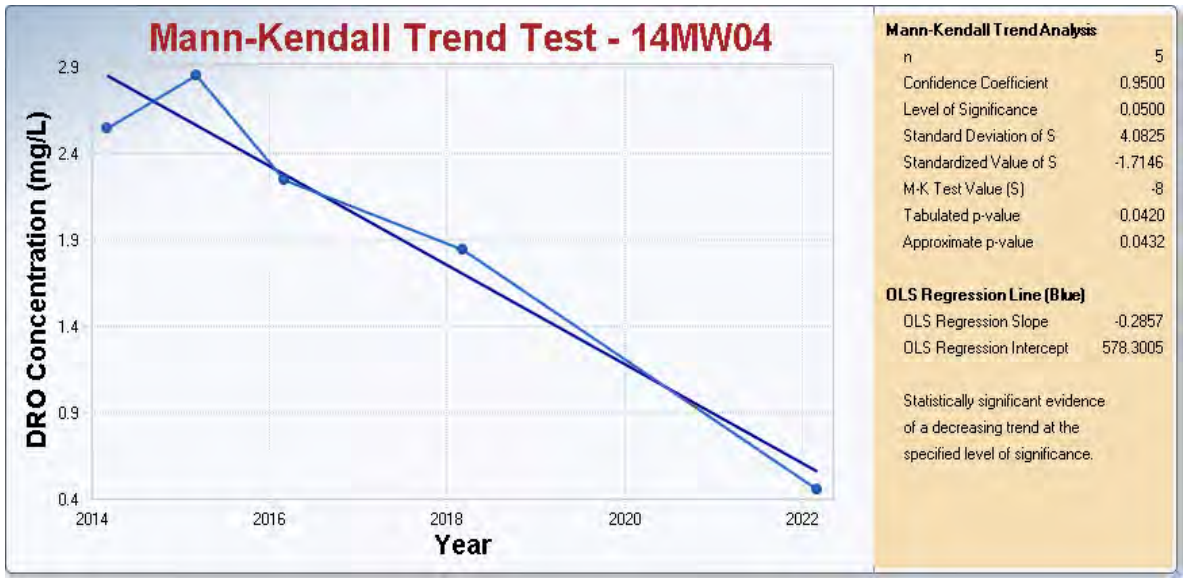


Table E2-4e Trend Test Analysis 14MW05 DRO

Mann-Kendall Trend Test Analysis

User Selected Options	
Date/Time of Computation	ProUCL 5.110/26/2022 12:52:56 PM
From File	3.4.1.1-3.4.1.6_Input Table_DRO_2022_c.xls
Full Precision	OFF
Confidence Coefficient	0.95
Level of Significance	0.05

14MW05 - DRO

General Statistics

Number of Events Reported (m)	5
Number of Missing Events	0
Number or Reported Events Used	5
Number Values Reported (n)	5
Minimum	1.78
Maximum	12
Mean	4.996
Geometric Mean	4.011
Median	3.2
Standard Deviation	4.069
Coefficient of Variation	0.814

Mann-Kendall Test

M-K Test Value (S)	-8
Tabulated p-value	0.042
Standard Deviation of S	4.082
Standardized Value of S	-1.715
Approximate p-value	0.0432

Statistically significant evidence of a decreasing trend at the specified level of significance.

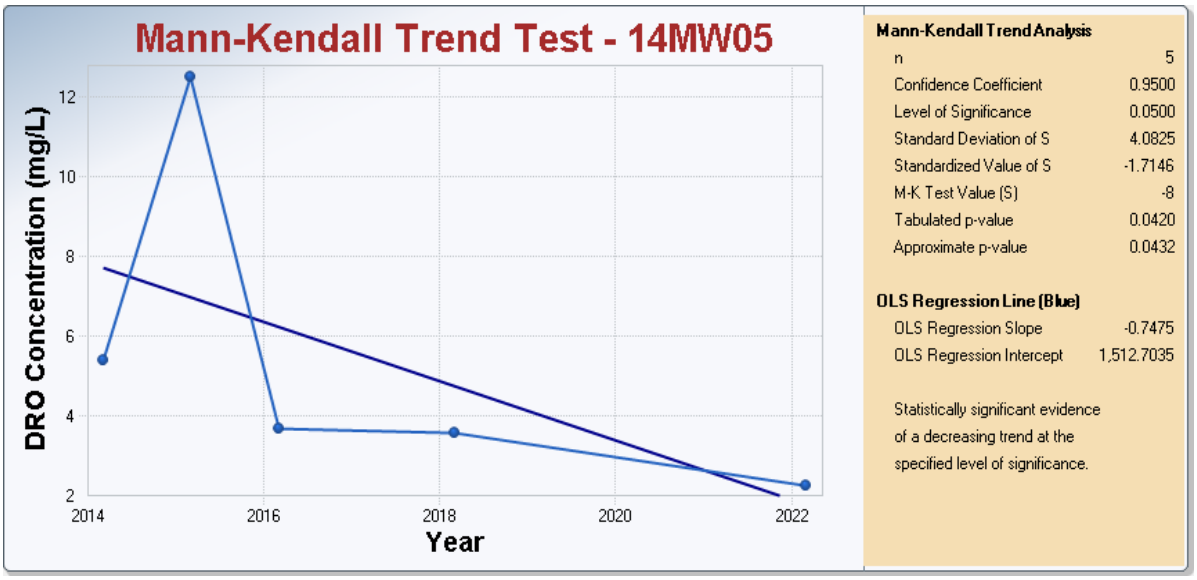


Table E2-4f Trend Test Analysis 14MW06 DRO

Mann-Kendall Trend Test Analysis

User Selected Options	
Date/Time of Computation	ProUCL 5.110/26/2022 4:48:10 PM
From File	3.4.1.1-3.4.1.6_Input Table_DRO_2022_d.xls
Full Precision	OFF
Confidence Coefficient	0.75
Level of Significance	0.25

14MW06 - DRO

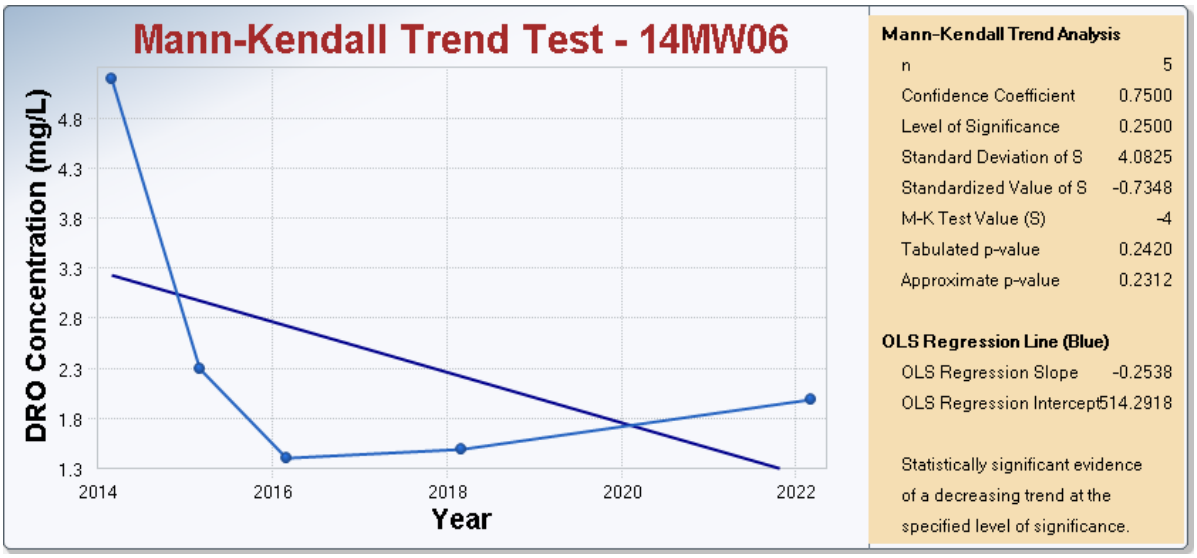
General Statistics

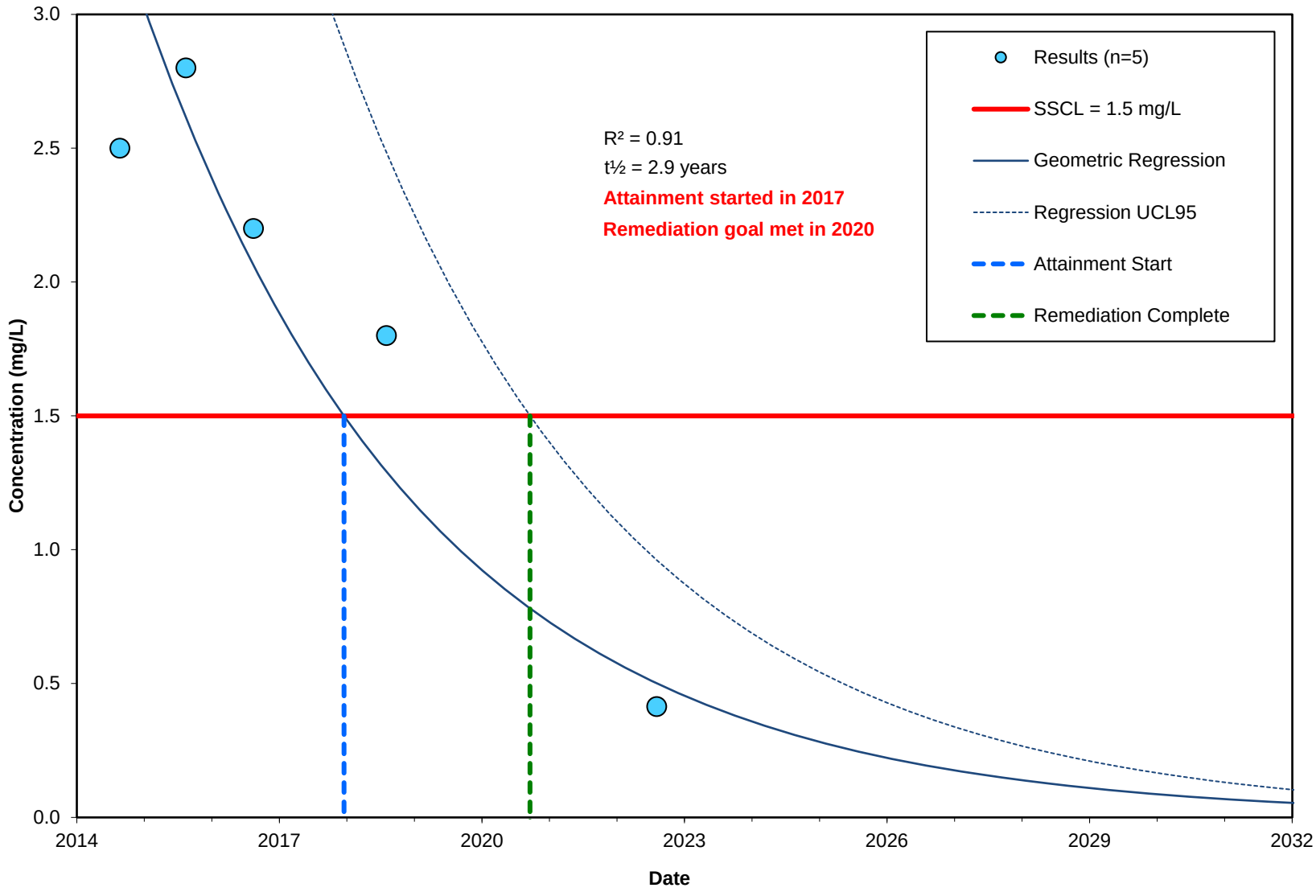
Number of Events Reported (m)	5
Number of Missing Events	0
Number or Reported Events Used	5
Number Values Reported (n)	5
Minimum	1.4
Maximum	5.2
Mean	2.478
Geometric Mean	2.187
Median	1.99
Standard Deviation	1.565
Coefficient of Variation	0.632

Mann-Kendall Test

M-K Test Value (S)	-4
Tabulated p-value	0.242
Standard Deviation of S	4.082
Standardized Value of S	-0.735
Approximate p-value	0.231

Statistically significant evidence of a decreasing trend at the specified level of significance.





DATE:	PROJECT MANAGER:		Plot NO:
26 OCT 2022	S. MANN	WELL 14MW04 DRO GEOMETRIC REGRESSION 2022 MNA ANNUAL GROUNDWATER SAMPLING REPORT NORTHEAST CAPE MOC	E2-4a

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Table E2-4g Input Data

Statistical Geometric Regression to Evaluate Natural Attenuation

T. Donaldson; Brice Engineering October 2022

Plot Limits	Year	X	Max Y
Start	2012	40910	3
End	2040	51138	2.8

NEC			
14MW04			
DRO			
Date	mg/L	Qualifer	Log mg/L
Included			13
8/23/2014	2.5		0.40
8/15/2015	2.8	QN	0.45
8/15/2016	2.2	QL	0.34
8/4/2018	1.8		0.26
8/5/2022	0.414		-0.38
			#N/A
			#N/A
			#N/A
			#N/A
			#N/A
			#N/A
			#N/A
			#N/A
			#N/A
			#N/A
Excluded			
8/15/2015	1.6	QL QN	0.20
			#N/A

LinEst of Log COCs		
-2.82E-04	12.32	m (1/day), b
5.25E-05	2.25	se(m), se(b)
0.91	0.12	r^2, se (y intercept)
28.88	3	F,degrees of freedom
0.42	0.04	regression sum of squares, residual sum of squares
	0.12	Standard Deviation
	2.35	Student's t for one-tailed 95% confidence interval
	0.28	± for 95% CI

Table E2-4g Input Data

Cleanup Level	
Date	DRO
1/2/2012	1.5
1/3/2040	1.5

Goal Seek for Cleanup Dates

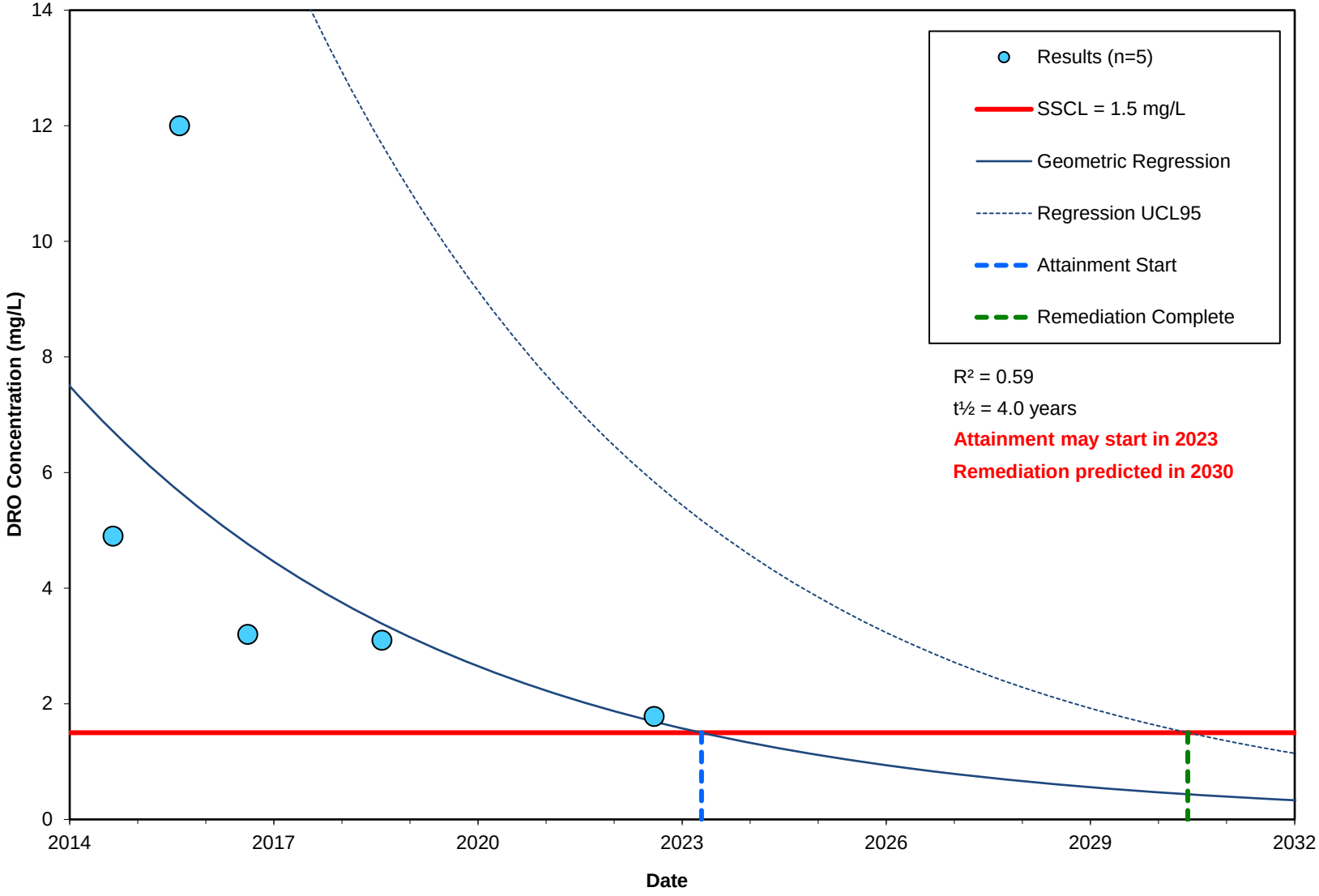
		Log			Linear			GoalSeek
Phase	Date	-95%	Trend	+95%	-95%	Trend	+95%	Target
Remed	9/18/2020	-0.39	-0.11	0.18	4.06E-01	7.81E-01	1.50E+00	0.999999
Attain	12/17/2017	-0.11	0.18	0.46	7.81E-01	1.50E+00	2.88E+00	1.000000

Table E2-4h Curve Data

Date	14MW04					
	Log			Linear		
	-95%	Trend	+95%	-95%	Trend	+95%
1/2/2012	0.51	0.79	1.07	3.20719492	6.161433871	11.8369068
5/5/2012	0.47	0.75	1.04	2.957741566	5.682201899	10.91624055
9/7/2012	0.44	0.72	1.00	2.727690517	5.240244251	10.06718308
1/10/2013	0.40	0.68	0.97	2.515532677	4.832661757	9.284164691
5/14/2013	0.37	0.65	0.93	2.319876323	4.456780741	8.562048923
9/16/2013	0.33	0.61	0.90	2.139437982	4.110135484	7.896098809
1/19/2014	0.30	0.58	0.86	1.973034008	3.790452051	7.281945824
5/24/2014	0.26	0.54	0.83	1.819572817	3.49563337	6.715561224
9/25/2014	0.22	0.51	0.79	1.678047729	3.223745477	6.193229618
1/28/2015	0.19	0.47	0.76	1.547530363	2.973004832	5.711524596
6/2/2015	0.15	0.44	0.72	1.427164545	2.741766617	5.267286249
10/5/2015	0.12	0.40	0.69	1.316160695	2.528513947	4.857600447
2/6/2016	0.08	0.37	0.65	1.213790647	2.33184792	4.479779718
6/10/2016	0.05	0.33	0.62	1.119382868	2.150478436	4.131345617
10/13/2016	0.01	0.30	0.58	1.03231806	1.983215743	3.810012475
2/14/2017	-0.02	0.26	0.55	0.95202509	1.828962624	3.513672397
6/19/2017	-0.06	0.23	0.51	0.877977252	1.686707204	3.240381441
10/22/2017	-0.09	0.19	0.48	0.809688802	1.55551631	2.988346863
2/24/2018	-0.13	0.16	0.44	0.746711779	1.434529351	2.755915356
6/28/2018	-0.16	0.12	0.41	0.688633064	1.322952672	2.541562207
10/31/2018	-0.20	0.09	0.37	0.635071671	1.220054348	2.343881295
3/5/2019	-0.23	0.05	0.33	0.585676246	1.125159383	2.161575864
7/8/2019	-0.27	0.02	0.30	0.540122761	1.037645281	1.993450021
11/9/2019	-0.30	-0.02	0.26	0.498112395	0.956937965	1.838400888
3/13/2020	-0.34	-0.05	0.23	0.459369564	0.882508006	1.695411366
7/16/2020	-0.37	-0.09	0.19	0.423640124	0.813867157	1.563543468
11/18/2020	-0.41	-0.12	0.16	0.390689695	0.750565145	1.441932162
3/22/2021	-0.44	-0.16	0.12	0.360302127	0.692186718	1.329779698
7/25/2021	-0.48	-0.19	0.09	0.332278082	0.638348925	1.226350372
11/27/2021	-0.51	-0.23	0.05	0.306433727	0.588698596	1.130965707
3/31/2022	-0.55	-0.27	0.02	0.282599529	0.542910036	1.042999994
8/3/2022	-0.58	-0.30	-0.02	0.260619137	0.500682877	0.961876191
12/6/2022	-0.62	-0.34	-0.05	0.240348365	0.461740116	0.887062141
4/10/2023	-0.65	-0.37	-0.09	0.221654239	0.425826296	0.818067075
8/12/2023	-0.69	-0.41	-0.12	0.204414129	0.392705828	0.754438396
12/15/2023	-0.72	-0.44	-0.16	0.188514942	0.362161446	0.695758711
4/18/2024	-0.76	-0.48	-0.19	0.173852383	0.333992785	0.64164309
8/21/2024	-0.79	-0.51	-0.23	0.160330268	0.308015062	0.591736544
12/23/2024	-0.83	-0.55	-0.26	0.147859893	0.284057868	0.545711694
4/27/2025	-0.87	-0.58	-0.30	0.136359455	0.261964048	0.503266624
8/30/2025	-0.90	-0.62	-0.33	0.125753513	0.24158867	0.464122901
1/2/2026	-0.94	-0.65	-0.37	0.115972494	0.222798074	0.42802375
5/6/2026	-0.97	-0.69	-0.40	0.106952235	0.205468997	0.394732365
9/8/2026	-1.01	-0.72	-0.44	0.098633566	0.189487764	0.364030361
1/11/2027	-1.04	-0.76	-0.47	0.090961917	0.174749539	0.335716337
5/15/2027	-1.08	-0.79	-0.51	0.083886963	0.161157644	0.309604557
9/17/2027	-1.11	-0.83	-0.54	0.077362294	0.148622916	0.285523734
1/20/2028	-1.15	-0.86	-0.58	0.07134511	0.137063131	0.263315899
5/24/2028	-1.18	-0.90	-0.61	0.065795938	0.126402457	0.242835375

Table E2-4h Curve Data

Date	14MW04					
	Log			Linear		
	-95%	Trend	+95%	-95%	Trend	+95%
9/25/2028	-1.22	-0.93	-0.65	0.060678376	0.116570963	0.223947811
1/28/2029	-1.25	-0.97	-0.69	0.055958855	0.107504156	0.206529309
6/2/2029	-1.29	-1.00	-0.72	0.051606415	0.099142559	0.190465605
10/5/2029	-1.32	-1.04	-0.76	0.047592504	0.091431321	0.175651325
2/6/2030	-1.36	-1.07	-0.79	0.043890793	0.084319857	0.161989289
6/11/2030	-1.39	-1.11	-0.83	0.040476998	0.077761518	0.149389876
10/14/2030	-1.43	-1.14	-0.86	0.037328726	0.071713282	0.137770437
2/15/2031	-1.46	-1.18	-0.90	0.034425324	0.066135474	0.12705475
6/20/2031	-1.50	-1.21	-0.93	0.031747746	0.060991504	0.117172522
10/23/2031	-1.53	-1.25	-0.97	0.029278429	0.056247628	0.108058926
2/25/2032	-1.57	-1.29	-1.00	0.027001174	0.051872727	0.099654179
6/28/2032	-1.60	-1.32	-1.04	0.024901041	0.047838103	0.091903147
10/31/2032	-1.64	-1.36	-1.07	0.022964256	0.044117289	0.084754985
3/5/2033	-1.67	-1.39	-1.11	0.021178112	0.040685877	0.078162802
7/8/2033	-1.71	-1.43	-1.14	0.019530894	0.037521359	0.072083355
11/9/2033	-1.74	-1.46	-1.18	0.018011795	0.034602974	0.066476763
3/14/2034	-1.78	-1.50	-1.21	0.01661085	0.031911579	0.061306247
7/17/2034	-1.81	-1.53	-1.25	0.01531887	0.029429519	0.05653789
11/19/2034	-1.85	-1.57	-1.28	0.014127379	0.027140512	0.052140413
3/23/2035	-1.89	-1.60	-1.32	0.013028561	0.025029542	0.048084969
7/26/2035	-1.92	-1.64	-1.35	0.012015209	0.023082762	0.044344954
11/28/2035	-1.96	-1.67	-1.39	0.011080675	0.021287401	0.040895835
3/31/2036	-1.99	-1.71	-1.42	0.010218828	0.019631682	0.037714986
8/3/2036	-2.03	-1.74	-1.46	0.009424014	0.018104744	0.034781541
12/6/2036	-2.06	-1.78	-1.49	0.008691021	0.016696569	0.032076257
4/10/2037	-2.10	-1.81	-1.53	0.00801504	0.015397922	0.029581388
8/12/2037	-2.13	-1.85	-1.56	0.007391636	0.014200283	0.027280569
12/15/2037	-2.17	-1.88	-1.60	0.006816719	0.013095795	0.025158706
4/19/2038	-2.20	-1.92	-1.63	0.00628652	0.012077213	0.023201879
8/22/2038	-2.24	-1.95	-1.67	0.005797559	0.011137856	0.021397253
12/24/2038	-2.27	-1.99	-1.70	0.005346629	0.010271561	0.01973299
4/28/2039	-2.31	-2.02	-1.74	0.004930772	0.009472647	0.018198172
8/31/2039	-2.34	-2.06	-1.78	0.00454726	0.008735871	0.016782731
1/3/2040	-2.38	-2.09	-1.81	0.004193577	0.008056401	0.015477382



DATE:	PROJECT MANAGER:		Plot NO:
26 OCT 2022	S. MANN	WELL 14MW05 DRO GEOMETRIC REGRESSION 2022 MNA ANNUAL GROUNDWATER SAMPLING REPORT NORTHEAST CAPE MOC	E2-4b

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Table E2-4i Input Data

Statistical Geometric Regression to Evaluate Natural Attenuation

T. Donaldson; Brice Engineering October 2022

Plot Limits	Year	X	Max Y
Start	2012	40910	3
End	2040	51138	12

NEC			
14MW05			
DRO			
Date	mg/L	Qualifer	Log mg/L
Included			13
8/23/2014	4.9		0.69
8/15/2015	12		1.08
8/15/2016	3.2	QL	0.51
8/5/2018	3.1		0.49
8/5/2022	1.78		0.25
			#N/A
			#N/A
			#N/A
			#N/A
			#N/A
			#N/A
			#N/A
			#N/A
			#N/A
			#N/A
Excluded			
8/15/2015	11		1.04
			#N/A

LinEst of Log COCs		
-2.06E-04	9.46	m (day^{-1}), b
9.95E-05	4.28	se(m), se(b)
0.59	0.23	r^2, se(y intercept)
4.29	3	F,degrees of freedom
0.22	0.16	regression sum of squares, residual sum of squares
	0.23	Standard Deviation
	2.35	Student's t for one-tailed 95% confidence interval
	0.54	± for 95% CI

Cleanup Level	
Date	DRO
1/2/2012	1.5
1/3/2040	1.5

Table E2-4i Input Data

Goal Seek for Cleanup Dates

Phase	Date	Log			Linear			GoalSeek
		-95%	Trend	+95%	-95%	Trend	+95%	Target
Remed	6/7/2030	-0.90	-0.36	0.18	1.26E-01	4.35E-01	1.50E+00	1.000000
Attain	4/16/2023	-0.36	0.18	0.71	4.35E-01	1.50E+00	5.17E+00	1.000000

Table E2-4j Input Data

Date	14MW05					
	Log			Linear		
	-95%	Trend	+95%	-95%	Trend	+95%
1/2/2012	0.49	1.03	1.56	3.075054542	10.60768499	36.59219025
5/5/2012	0.46	1.00	1.54	2.898324375	9.998037938	34.48915637
9/7/2012	0.44	0.97	1.51	2.731751281	9.423428646	32.50698849
1/10/2013	0.41	0.95	1.49	2.57475151	8.881843418	30.63874017
5/14/2013	0.39	0.92	1.46	2.426774862	8.371384288	28.8778642
9/16/2013	0.36	0.90	1.43	2.287302758	7.89026237	27.21818965
1/19/2014	0.33	0.87	1.41	2.155846424	7.436791589	25.65390026
5/24/2014	0.31	0.85	1.38	2.031945175	7.009382775	24.17951403
9/25/2014	0.28	0.82	1.36	1.915164805	6.606538087	22.78986403
1/28/2015	0.26	0.79	1.33	1.805096059	6.226845772	21.48008028
6/2/2015	0.23	0.77	1.31	1.701353208	5.868975212	20.24557269
10/5/2015	0.21	0.74	1.28	1.603572686	5.531672263	19.08201498
2/6/2016	0.18	0.72	1.25	1.511411827	5.213754858	17.98532949
6/10/2016	0.15	0.69	1.23	1.424547656	4.914108867	16.95167294
10/13/2016	0.13	0.67	1.20	1.342675761	4.631684192	15.97742291
2/14/2017	0.10	0.64	1.18	1.265509223	4.365491086	15.05916518
6/19/2017	0.08	0.61	1.15	1.192777617	4.114596685	14.19368174
10/22/2017	0.05	0.59	1.13	1.124226057	3.878121739	13.37793955
2/24/2018	0.03	0.56	1.10	1.059614306	3.655237529	12.60907985
6/28/2018	0.00	0.54	1.07	0.998715935	3.445162967	11.88440823
10/31/2018	-0.03	0.51	1.05	0.941317527	3.247161853	11.20138507
3/5/2019	-0.05	0.49	1.02	0.887217933	3.060540299	10.55761677
7/8/2019	-0.08	0.46	1.00	0.836227561	2.884644298	9.950847247
11/9/2019	-0.10	0.43	0.97	0.788167719	2.718857428	9.378950109
3/13/2020	-0.13	0.41	0.95	0.742869982	2.562598695	8.839921161
7/16/2020	-0.15	0.38	0.92	0.700175606	2.415320497	8.331871395
11/18/2020	-0.18	0.36	0.90	0.659934969	2.276506701	7.85302037
3/22/2021	-0.21	0.33	0.87	0.622007051	2.14567084	7.401689969
7/25/2021	-0.23	0.31	0.84	0.586258934	2.022354404	6.976298522
11/27/2021	-0.26	0.28	0.82	0.55256534	1.906125236	6.57535526
3/31/2022	-0.28	0.25	0.79	0.520808191	1.796576015	6.197455091
8/3/2022	-0.31	0.23	0.77	0.490876196	1.693322829	5.841273678
12/6/2022	-0.33	0.20	0.74	0.462664458	1.596003831	5.505562797
4/10/2023	-0.36	0.18	0.72	0.436074112	1.504277971	5.18914596
8/12/2023	-0.39	0.15	0.69	0.411011971	1.417823798	4.890914297
12/15/2023	-0.41	0.13	0.66	0.387390206	1.336338338	4.609822665
4/18/2024	-0.44	0.10	0.64	0.365126037	1.259536026	4.34488599
8/21/2024	-0.46	0.07	0.61	0.344141438	1.187147713	4.095175809
12/23/2024	-0.49	0.05	0.59	0.324362871	1.118919715	3.859817023
4/27/2025	-0.51	0.02	0.56	0.305721021	1.054612931	3.637984826
8/30/2025	-0.54	0.00	0.54	0.28815056	0.994002	3.428901815
1/2/2026	-0.57	-0.03	0.51	0.271589911	0.936874513	3.231835265
5/6/2026	-0.59	-0.05	0.48	0.25598104	0.883030269	3.046094564
9/8/2026	-0.62	-0.08	0.46	0.241269245	0.832280571	2.871028791
1/11/2027	-0.64	-0.11	0.43	0.22740297	0.784447571	2.706024435
5/15/2027	-0.67	-0.13	0.41	0.214333619	0.739363639	2.550503242
9/17/2027	-0.69	-0.16	0.38	0.202015394	0.69687078	2.403920196
1/20/2028	-0.72	-0.18	0.36	0.190405123	0.65682008	2.2657616
5/24/2028	-0.75	-0.21	0.33	0.179462121	0.619071181	2.135543284

Table E2-4j Input Data

Date	14MW05					
	Log			Linear		
	-95%	Trend	+95%	-95%	Trend	+95%
9/25/2028	-0.77	-0.23	0.30	0.169148037	0.583491795	2.012808901
1/28/2029	-0.80	-0.26	0.28	0.159426726	0.549957234	1.897128334
6/2/2029	-0.82	-0.29	0.25	0.150264121	0.518349979	1.788096185
10/5/2029	-0.85	-0.31	0.23	0.14162811	0.488559263	1.685330353
2/6/2030	-0.87	-0.34	0.20	0.13348843	0.460480684	1.588470701
6/11/2030	-0.90	-0.36	0.18	0.125816556	0.434015844	1.497177786
10/14/2030	-0.93	-0.39	0.15	0.118585601	0.409071996	1.411131677
2/15/2031	-0.95	-0.41	0.12	0.111770225	0.385561726	1.330030827
6/20/2031	-0.98	-0.44	0.10	0.105346544	0.363402643	1.253591022
10/23/2031	-1.00	-0.47	0.07	0.099292045	0.342517092	1.181544381
2/25/2032	-1.03	-0.49	0.05	0.093585513	0.322831879	1.11363842
6/28/2032	-1.05	-0.52	0.02	0.088206947	0.304278019	1.049635164
10/31/2032	-1.08	-0.54	0.00	0.083137499	0.28679049	0.989310316
3/5/2033	-1.11	-0.57	-0.03	0.078359404	0.270308008	0.93245247
7/8/2033	-1.13	-0.59	-0.06	0.073855916	0.254772811	0.87886237
11/9/2033	-1.16	-0.62	-0.08	0.069611253	0.240130456	0.828352211
3/14/2034	-1.18	-0.65	-0.11	0.065610541	0.226329629	0.780744983
7/17/2034	-1.21	-0.67	-0.13	0.061839759	0.213321966	0.735873847
11/19/2034	-1.23	-0.70	-0.16	0.058285691	0.201061882	0.693581554
3/23/2035	-1.26	-0.72	-0.18	0.054935884	0.189506412	0.653719892
7/26/2035	-1.29	-0.75	-0.21	0.051778598	0.178615061	0.616149168
11/28/2035	-1.31	-0.77	-0.24	0.048802767	0.168349659	0.580737716
3/31/2036	-1.34	-0.80	-0.26	0.045997965	0.158674233	0.547361439
8/3/2036	-1.36	-0.83	-0.29	0.04335436	0.149554875	0.51590337
12/6/2036	-1.39	-0.85	-0.31	0.04086269	0.140959626	0.486253265
4/10/2037	-1.41	-0.88	-0.34	0.038514221	0.132858366	0.458307218
8/12/2037	-1.44	-0.90	-0.36	0.036300724	0.125222702	0.431967291
12/15/2037	-1.47	-0.93	-0.39	0.034214441	0.118025878	0.407141178
4/19/2038	-1.49	-0.95	-0.42	0.032248061	0.11124267	0.383741877
8/22/2038	-1.52	-0.98	-0.44	0.030394694	0.104849308	0.361687385
12/24/2038	-1.54	-1.01	-0.47	0.028647844	0.098823387	0.340900413
4/28/2039	-1.57	-1.03	-0.49	0.027001389	0.093143789	0.321308114
8/31/2039	-1.59	-1.06	-0.52	0.02544956	0.08779061	0.302841828
1/3/2040	-1.62	-1.08	-0.54	0.023986918	0.08274509	0.285436841

APPENDIX F
CHEMICAL DATA QUALITY REPORT

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ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
%	percent
%R	percent recovery
µg/L	micrograms per liter
AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
CCV	continuing calibration verification
CDQR	chemical data quality review
CoC	chain-of-custody
DL	detection limit
DoD	U.S. Department of Defense
DQO	data quality objective
DRO	diesel range organics
EPA	U.S. Environmental Protection Agency
FD	field duplicate
FUDS	Formerly Used Defense Site
GC/MS	gas chromatography/mass spectrometry
GW	groundwater
ICV	initial calibration verification
LCL	lower control limit
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
LOD	limit of detection
LOQ	limit of quantitation
MB	method blank
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MS	matrix spike
MSD	matrix spike duplicate
ND	non-detect
Pace TN	Pace National, Mt. Juliet, Tennessee
PAH	polycyclic aromatic hydrocarbon
PSL	project screening level
QA	quality assurance
QC	quality control
QSM	Quality Systems Manual
RPD	relative percent difference
RRO	residual range organics
SDG	sample delivery group

ACRONYMS AND ABBREVIATIONS (CONTINUED)

SED	sediment
SIM	selected ion monitoring
SO	soil
SOP	standard operating procedure
SW	solid waste
TB	trip blank
TOC	total organic carbon
UCL	upper control limit
USACE	U.S. Army Corps of Engineers
WW	wastewater

1.0 INTRODUCTION

This quality assurance (QA)/quality control (QC) report summarizes the evaluation of laboratory data collected during the Site 28 Sediment Removal and Various Follow-Up Actions at Northeast Cape Formerly Used Defense Site (FUDS), Saint Lawrence Island, Alaska. These data have been reviewed to evaluate compliance with acceptance criteria based on data quality objectives (DQOs) specified in the approved Final Work Plan Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS F10AK096903 (U.S. Army Corps of Engineers [USACE] 2022) hereafter referred to as the Work Plan.

This chemical data quality review (CDQR) includes the report narrative; a sample summary, including all samples collected and submitted to the laboratory for the associated sample delivery group (SDG) in Attachment F-1; complete analytical results presented in crosstab format in Attachment F-2; and the Alaska Department of Environmental Conservation (ADEC) Laboratory Data Review Checklists in Attachment F-3.

2.0 DATA VERIFICATION, DATA QUALITY REVIEW, AND QUALIFICATION

Pace Analytical of Mt. Juliet, TN (Pace TN) was the primary laboratory for this project. Pace TN holds current ADEC laboratory approval and U.S. Department of Defense (DoD) Environmental Laboratory Accreditation Program certifications for all requested analyses, and chemical analyses for all parameters were performed in accordance with the DoD Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.4 (DoD 2021a), hereafter referred to as the QSM. Samples were prepared and analyzed in accordance with analytical methods specified in *Test Methods for Evaluating Solid Waste SW-846* (U.S. Environmental Protection Agency [EPA] 2022); *Underground Storage Tanks Procedures Manual* (ADEC 2017); and laboratory standard operating procedures (SOPs).

The data quality review and assessment were performed by an experienced QA chemist independent of the analytical laboratory. This evaluation included completion of the ADEC Laboratory Data Review Checklist and review of analytical data including QC sample results, field and laboratory documentation, and all data submittals for each SDG. Soil, sediment, groundwater, and surface water analytical results were compared to project screening levels (PSLs). For soil, PSLs were defined as the most conservative of Title 18 of the Alaska Administrative Code (AAC), Chapter 75, Method Two, Table B2, Ingestion, Inhalation, and Migration to Groundwater cleanup levels for the Under 40-Inch Zone except for diesel range organics (DRO), residual range organics (RRO), and naphthalene, which were site-specific cleanup levels defined in the Northeast Cape FUDS, St. Lawrence Island Feasibility Study (USACE 2007). For sediment, the PSLs are the Washington Administrative Code (WAC) 173-204-520, Table III, Sediment Minimum Cleanup Levels (WAC 1995). For surface water, the PSLs were defined as the ADEC Surface Water Standards Table Tech memo 18.02 (ADEC 2019). For groundwater, the PSLs were defined as the 18 AAC 75 Table C Groundwater Cleanup Levels (ADEC 2023) except for DRO, RRO, arsenic and lead, which were defined in the Northeast Cape FUDS, St. Lawrence Island Feasibility Study (USACE 2007).

All project data were reviewed on an analytical-batch basis by assessing QC samples and associated field sample results. Data quality review and usability assessment were performed using the acceptance criteria defined in QSM (DoD 2021a); DoD General Data Validation Guidelines (DoD 2019); DoD Data Validation Guidelines Module 1: Data Validation Procedure for Organic Analysis by GC/MS (DoD 2020);

Data Validation Guidelines Module 4: Data Validation Procedure for Organic Analysis by GC (DoD 2021b); *Technical Memorandum 22-001 Guidelines for Data Reporting* (ADEC 2022); specific method guidance, such as the ADEC *Underground Storage Tanks Procedures Manual* (ADEC 2017); *Test Methods for Evaluating Solid Waste SW-846* (EPA 2022); and the laboratory SOPs, in that order.

The following information was reviewed as part of the data quality review and assessment:

- Sample handling and chain-of-custody (CoC)
- Sample preservation and holding time compliance
- Field QC samples, including trip blanks (TBs) and field duplicates (FDs)
- Laboratory reporting limits, including limits of detection (LODs) and limits of quantitation (LOQs)
- Method blanks (MBs)
- Laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) recoveries
- Surrogate spike recoveries
- Matrix spike (MS) and matrix spike duplicate (MSD) recoveries
- Initial and continuing calibration summary information
- Internal standards performance (gas chromatography/mass spectrometry [GC/MS])
- Precision, including relative percent difference (RPD) values for duplicate analyses
- Case narrative review, laboratory flagging review, and other analytical method-specific criteria

The data quality review and assessment identified results requiring qualification and potential effects on data usability based on the acceptance criteria defined in the Work Plan. The following acceptance criteria were used for this data quality review and assessment:

- **Precision** is a measure of the reproducibility of measurements, which can be used to verify laboratory procedures, determine matrix effect, or sample homogeneity. Precision was measured by the RPD between LCS and LCSDs, MS and MSDs, or primary and FD results.
- **Accuracy** is a measure of the correctness or closeness to the true value. Accuracy was evaluated by reviewing the following elements: calibrations, surrogates, LCS, LCSD, MS, MSD, MBs, relative response factors and relative standard deviations, tune criteria, second column confirmations, and internal standards.
- **Representativeness** is a measure of the degree to which the samples reflect the site characteristics. Representativeness was measured by reviewing sampling design, sampling procedures, sample documentation, holding times, and preservations.
- **Completeness** is a measure of the amount of valid data obtained compared to the amount that was expected to be obtained under correct, normal conditions. For completeness requirements, valid results were all results not rejected and determined to be usable in the context of the DQOs. Completeness was evaluated for each analytical method for a particular sampling event with respect to each DQO or end data use. The completeness goal is 95 percent (%) for this project.
- **Comparability** is a measure of the confidence with which one data set can be compared to another. The following were reviewed to ensure comparability: use of standard methods for sampling and analysis, reporting in standard units, operating instruments within calibrated ranges, and using standard and comprehensive reporting formats.

- **Sensitivity** is a measure of the ability of a method or instrument to detect the target analyte at the level of interest. The laboratory-specific limits were evaluated against the project PSLs to determine whether the analytical methods and/or laboratory procedures were able to meet the project DQOs.

The qualifiers listed in Table 1 were applied to the analytical data set, as appropriate. Direction of bias was indicated when possible. When multiple QC failures resulted in conflicting qualifiers, the most conservative flag was retained as the final qualifier. The qualifiers in Table 1 are ranked in order of most to least severe.

Table 1 Data Qualifiers

QUALIFIER	DESCRIPTION
ND [LOD]	The analyte was not detected and was reported as less than the LOD the LOD has been adjusted for any dilution or concentration of the sample.
QL	The result is an estimated quantity, but the result may be biased low.
H	Analyte result is considered a low estimate due to a holding time exceedance.
QN	The result is an estimated quantity, with an unknown bias.
J	Analyte is considered an estimated value because the result is greater than or equal to the DL and less than the LOQ.
QH	The result is an estimated quantity, but the result may be biased high.
B	Analyte result is considered a high estimated value due to contamination present in an associated blank (e.g., MB or TB).
R	The result is rejected due to serious deficiencies in the ability to meet published method and project QC criteria.

Notes:
For definitions, refer to the Acronyms and Abbreviations section.

Qualification may not be required in the following circumstances:

- Surrogate or MS recoveries were outside QC limits, and dilution of the sample resulted in surrogate or spike dilution to a level beyond quantitation.
- MS recoveries were outside QC limits, and the spiked concentration was less than that of the parent sample.
- An analyte was detected in the associated blank, but there was no detection in the associated sample.
- MS/MSD or LCS/LCSD recoveries exceeded upper control limits (UCLs) and there was no detection in the sample(s).

Data quality exceptions that do not result in qualifications are not discussed in this report and are addressed in the associated ADEC Laboratory Data Review Checklists (Attachment F-3).

3.0 CHEMICAL DATA QUALITY REVIEW

The data verification and CDQR were performed to assess the overall quality and usability of the data collected to support sampling activities for Site 28 Sediment Removal and Various Follow-Up Actions.

Complete details for the review and evaluation of field samples and associated QC samples are included in this CDQR and in the ADEC Laboratory Data Review Checklists (Attachment F-3). During the data quality review, analytical results or recoveries that fell outside acceptance criteria were identified and qualifiers were applied to the results, where appropriate, in accordance with the project Work Plan. Qualified results are considered estimated, and whenever possible, direction of potential bias was assigned and effects on usability are discussed.

3.1 Analytical Sample and Field Quality Control Sample Summary

A total of 88 primary soil samples, 9 FD soil samples, 57 primary sediment samples, 6 FD sediment samples, 19 primary groundwater samples, 3 FD groundwater samples, 13 primary surface water samples, 2 FD surface water samples, and 7 TBs were collected and analyzed in support of project activities. The sample summary table in Attachment F-1 includes all field samples submitted to the analytical laboratory.

The overall project-required frequency of one FD for every 10 or fewer primary samples, per analyte, per matrix, was met. Although FDs were not collected every day in the field that samples were collected, FD samples were collected and submitted to the laboratory on a regular, near daily, basis throughout the field effort.

MS/MSDs were collected and submitted to the laboratory at the project-required frequency of one set for every 20 or fewer project samples (5%) and one for every preparatory batch, except for surface water. An MS/MSD was not collected for surface water. Additionally, the laboratory often logged in the samples for one cooler/CoC as a separate SDG when multiple coolers were received at the same time and split samples between preparatory batches. As a result, some SDGs and laboratory batches did not include MS/MSD samples.

Trip blanks were included in each cooler containing samples for volatile analyses (SW8260D).

3.2 Sample Handling and Chain-of-Custody

CoC forms and laboratory case narratives were reviewed to assess sample handling procedures that may affect the integrity of the samples and quality of the resulting data. Copies of CoCs and cooler receipt forms are included in the final laboratory report. Samples were required to be maintained at 0 to 6 degrees Celsius (°C) following collection, during storage, and upon receipt at the laboratory.

Samples were packed with frozen gel packs in accordance with the Work Plan and the packaging and shipping SOP, BE-SOP-03 Labeling, Packaging, and Shipping Samples. Samples were shipped to Nashville, TN, via Alaska Air Cargo Goldstreak where they were picked up by Pace TN Analytical personnel and transported to the laboratory in Mt. Juliet, TN. However, during the project some shipping delays were experienced with Alaska Air Cargo, so sample shipments were switched to Fed Ex overnight, where they were delivered directly to Pace TN Analytical in Mt. Juliet, TN. All sample coolers were received with temperature blank and ambient cooler temperatures between 0 and 6°C.

The following discrepancies were documented in the cooler receipt information:

- **L1520822 and L1520826:** The original CoCs submitted with these SDGs were missing the project name and number. A revised CoC was submitted by the project chemist on the day of receipt at the laboratory.
- **L1524088:** The original CoC submitted with this SDG requested DRO/RRO with silica gel clean up. A revised CoC was submitted by the project chemist at lab receipt to correct the request to DRO only, with silica gel cleanup.

3.3 Sample Preservation and Holding Time Compliance

Samples were extracted and/or analyzed within the recommended holding times and were properly preserved for the analytical procedures used for this project, except the following.

L1523831: Sample 22NEC-MOC-14MW01 was analyzed one day past the allowed holding time for Alkalinity by SM2320B. All reported results were qualified H for possible low bias. Alkalinity does not have an associated PSL, so data usability was not affected.

L1522883: Sample 22NEC-S08-SS33 was analyzed seven days past the allowable holding time for total organic carbon (TOC) by Walkley-Black. The TOC result was qualified H for possible low bias. TOC does not have an associated PSL, so data usability was not affected.

L1525127: Cooler PACE-22NEC-W005 was delayed by four days during transit by Alaska Air Cargo Goldstreak then diverted to the incorrect destination. Pace TN Analytical personnel were able to retrieve the cooler in St. Louis, MO, re-ice samples, and ship Fed Ex overnight to the lab in Mt. Juliet, TN. However, all samples were received on the day of or after expiration of holding time for polycyclic aromatic hydrocarbon (PAH) by SW8270D-SIM. The lab proceeded with the analysis, with hold time exceedances ranging from four to five days. The affected results were qualified H for possible low bias. PAH was resampled at the affected locations and submitted to the lab in a new SDG, L1527447. The recollected samples were analyzed within holding time, so data usability was not affected. Results were comparable.

All samples were collected with the proper containers and preservatives as outlined in the approved Work Plan, except the dissolved metals groundwater aliquots. The approved project work plan required dissolved metals be field filtered and collected in a 250-mL high density polyethylene (HDPE) container preserved with nitric acid. However, project plans also specified that dissolved metals samples would be filtered at the lab, which would require that samples be collected unpreserved. Unpreserved 250-mL HDPE containers were obtained for this purpose, but some samples were collected according to the original work plan guidance. This was caught prior to sample receipt at the laboratory, and it was determined that an unpreserved aliquot could be obtained from one of the other unpreserved containers. Corrected CoCs were submitted for the following SDGs to request dissolved metals and a lab filter be performed on a sample aliquot from the unpreserved 125-mL HDPE containers shared with sulfate: L1521707, L1521959, L1522831. The remaining dissolved metals aliquots were collected in the 250-mL HDPE unpreserved containers intended for this analysis. Data quality and usability were not affected.

3.4 Sample Limits of Detection and Limits of Quantitation

Sample LOQs and LODs for non-detects (NDs) were compared to PSLs to determine whether the laboratory data met the acceptance criteria for sensitivity. All reported LODs for ND results met acceptance criteria for sensitivity, except as noted below.

The LODs for ND results for all SW8082A analytes exceeded the PSLs in all groundwater samples due to limitations in the sensitivity of the analytical method. Approximately half of the reported Aroclors were expected to meet sensitivity requirements in the SAP, however due to periodic detection limit checks/recalculation, the laboratory detection limits for SW8082A were raised after the SAP was written. The reported laboratory DLs are less than the established PSLs for these analytes. PCBs should be included in at least one more future groundwater MNA event to confirm absence of these analytes. Attention should be paid to PCB detection limits to ensure adequate laboratory sensitivity to reliably achieve the ADEC groundwater cleanup level.

The ND LOD for 2-methylnaphthalene exceeded the PSL in sediment FD 22NEC-S28-SD942 due to sample dilution. The ND LOD in the primary sample 22NEC-S28-SS42 met sensitivity criteria, so data usability was not affected.

In addition, the LODs for ND results for AK103 analyte RRO exceeded the PSL in surface water samples 22NEC-S28-SW-07 and 22NEC-S28-SW-08 due to slightly reduced sample volume and limitations in the sensitivity of the laboratory method.

ND results with LODs that exceed the PSLs are highlighted yellow in the data summary tables. These results cannot be used to verify the absence of these analytes less than the PSL.

3.5 Analytical Methods

The following sections describe the results of the review and assessment of data for each analytical method. QC parameters met acceptance criteria and QSM criteria except where noted. A complete summary of qualified results is presented in Table 3, located at the end of this report.

3.5.1 Diesel Range Organics and Residual Range Organics – ADEC Method AK102/AK103

3.5.1.1 Method Blank Analysis

An MB was included with each preparatory batch of 20 or fewer samples, as required. MB detections are indicative of laboratory cross-contamination.

The following analytes were detected greater than the detection limit (DL) in an MB and had associated project sample detections less than 10 times the blank concentration:

L1522829: RRO was detected in the MB and the following associated soil result was qualified B for possible high bias: 22NEC-S08-SS15. The qualified results are significantly less than the PSL and usability was not affected.

L1522883: RRO was detected in the MB and the following associated soil results were qualified B for possible high bias: 22NEC-S08-SS31, 22NEC-S08-SS32, 22NEC-S08-SS34, and FD 22NEC-S08-SS933. The affected results were significantly less than the PSL, so data usability was not affected.

3.5.1.2 Laboratory Control Sample/Laboratory Control Sample Duplicate Analysis

An LCS and LCSD were included with each preparatory batch, as required. LCS and LCSD percent recovery (%R) and LCS/LCSD RPD were compared to the acceptance criteria. All LCS/LCSD recoveries were within method control limits and LCS/LCSD precision was within the RPD limit, except as noted below.

L1520826: RRO recovery was greater than the UCL in the LCSD. Additionally, the LCS/LCSD RPDs for DRO and RRO were greater than the control limit. The following surface water samples were qualified QN for possible indeterminate bias due to the DRO RPD failure: 22NEC-S28-SW-03 and 22NEC-S28-SW-04. All other results were ND and were not affected by the recovery and RPD failures. The affected DRO results were significantly less than the PSL, so data usability was not affected.

L1521707: RRO recovery was greater than the UCL in the LCS and LCSD. Project sample 22NEC-MOC-14MW06 was qualified QH for possible high bias. All other associated samples were ND so were not affected by the LCS/LCSD failures. The affected result was significantly less than the PSL, so data usability was not affected.

L1521959: RRO recovery was greater than the UCL in the LCSD. RRO was not detected in any associated project samples, so project samples were not affected by the high recovery. Data qualification was not required, and usability was not affected.

L1522831: RRO recovery was greater than the UCL in the LCSD. RRO was not detected in any associated project samples, so project samples were not affected by the high recovery. Data qualification was not required, and usability was not affected.

L1524088: DRO recovery was greater than the UCL in the LCS and LCSD. DRO detections in in samples 22NEC-BG-6 and 22NEC-BG-7 were qualified QH for possible high bias. The affected results were significantly less than the PSL, so usability was not affected. All other results were ND, so were not affected.

L1527447: DRO and RRO recoveries were greater than the UCL in the LCS and LCSD. The following associated positive detections were qualified QH for possible high bias:

- DRO: 22NEC-MOC-SW-10, 22NEC-MOC-SW-11, 22NEC-MOC-SW-12, and 22NEC-MOC-SW-13
- RRO: 22NEC-MOC-SW-13

All other associated results were ND so were not affected by the possible high bias. The qualified results were all significantly less than the PSL, so data usability was not affected.

L1528321: RRO recovery in the LCS was less than the lower control limit (LCL) and LCSD RPD exceeded the control limit. The following samples were qualified QL for possible low bias: 22NEC-S28-SD28, 22NEC-S28-SD29, 22NEC-S28-SD30, 22NEC-S28-SD31, 22NEC-S28-SD32, 22NEC-S28-SD33, 22NEC-S28-SD34, 22NEC-S28-SD35, 22NEC-S28-SD36, 22NEC-S28-SD37, 22NEC-S28-SD38, 22NEC-S28-SD39, 22NEC-S28-SD49, FD 22NEC-S28-SD934, and FD 22NEC-S28-SD938. The affected results were significantly less than the PSL, except 22NEC-S28-SD29 which was slightly less than the PSL. Data usability for 22NEC-S28-SD29 may be affected.

3.5.1.3 Matrix Spike/Matrix Spike Duplicate Analysis

MS/MSD samples were collected and submitted at the project-required frequency of one for each preparatory batch and one MS/MSD per 20 or fewer samples. MS and MSD samples were prepared and analyzed for each laboratory batch with the following exceptions: WG1904475, WG1905767,

WG1908113, WG1910103, WG1912269, WG1913461, WG1911217, WG1915900, WG1915717, and WG1915720.

LCSs and LCSDs or MS and MSDs unrelated to the project site were prepared and analyzed for each of these batches, and recoveries met acceptance criteria for accuracy and precision unless otherwise noted.

MS/MSD recoveries and MS/MSD RPD were compared to acceptance criteria and met the criteria with the following exceptions. MS/MSD failures for batch QC performed on samples not related to the project site are not discussed here and are addressed in the Laboratory Data Review Checklists in Attachment F-3.

L1520822: DRO recovery was less than the LCL in the MS/MSD prepared from sample 22NEC-S28-DU2-SD01. Additionally, RRO recovery was less than the lower cutoff in the MS/MSD The parent sample results for DRO and RRO were qualified QL for possible low bias.

L1522829: DRO recovery was greater than the UCL in the MS performed for project sample 22NEC-S08-SS07. Additionally, RRO recovery was 0% in both the MS and MSD performed for this sample. Subsequent analysis of the MS/MSD on 22NEC-S08-SS07 after silica gel clean up resulted in RRO recoveries of less than 10% in the MS and MSD. The case narrative indicated that matrix interference was present. DRO was not detected in parent sample 22NEC-S08-SS07, so the parent sample was not affected by the high recovery in the MS. RRO and RRO with silica gel cleanup were qualified QL for possible low bias due to the low recovery in both MS/MSDs. The affected RRO results were significantly less than the PSL, so data usability was not affected.

L1522883: RRO recovered at 0% in the MS and MSD performed for project sample 22NEC-S08-SS26. RRO recovery was also less than the LCL in the MS and MSD performed on this sample after silica gel cleanup. The MSD RPDs for RRO both before and after silica gel cleanup exceeded the control limit. However, the parent sample concentration was greater than four times the spike amount, so the MS/MSD could not be used to assess matrix effect. Data qualification was not required, and usability was not affected.

L1524088: DRO recovery was less than the LCL in the MSD performed for 22NEC-BG-8. The DRO result in primary sample 22NEC-BG-8 was qualified QL for possible low bias. The affected result was significantly less than the PSL, so data usability was not affected.

L1524107: DRO recovery was 0% in the MS and less than the LCL in the MSD performed for project sample 22NEC-S15-SS16, which indicates possible low bias. Additionally, DRO RPD was greater than the control limit, which indicates a possible indeterminate bias. A final qualifier of QL was assigned, as this is the most conservative flag and has the most significant impact on usability. The affected DRO result was significantly less than the PSL, so data usability was not affected.

DRO recovery was less than the lower cutoff in the MS and MSD performed for project sample 22NEC-S15-SS23, which indicates possible low bias. Additionally, DRO RPD was greater than the control limit, which indicates possible indeterminate bias. A final qualifier of QL was assigned, as this is the most conservative flag and has the most significant impact on usability. The affected DRO result was significantly less than the PSL, so data usability was not affected.

L1528321: DRO and RRO recoveries were greater than the UCL in the MS and/or MSD performed with and without silica gel cleanup for sample 22NEC-S28-SD26. Additionally, the MSD RPDs were greater than the control limit for DRO and RRO both with and without silica gel cleanup. The recovery failures indicate possible high bias and the RPD failures indicate possible indeterminate bias. A final qualifier of QN was assigned, for indeterminate bias, as this is the most conservative of the applicable flags. The affected results were significantly less than the PSL, so data usability was not affected.

DRO recoveries were less than the LCL in the MS and MSD performed without silica gel cleanup for sample 22NEC-S28-SD49 and greater than the UCL in the MS and MSD performed with silica gel cleanup. The parent sample concentrations were greater than four times the spike amount, so the MS/MSD could not be used to assess matrix effect. Data qualification was not required, and usability was not affected. Additionally, RRO recovery was 0% in the MS and greater than the UCL in the MSD performed with silica gel cleanup. The result in parent sample 22NEC-S28-SD49 was assigned a final qualifier QL, for possible low bias, as this is the most conservative flag for the applicable failures. The affected result was significantly less than the PSL, so data usability was not affected.

DRO recovered at 0% in the MS and MSD performed for project sample 22NEC-S28-SD52. However, the parent sample concentration was greater than four times the spike amount, so the MS/MSD could not be used to assess matrix effect. Additionally, RRO recovery was less than the LCL in the MSD. RRO also had and MSD RPD greater than the control limit in the MS/MSD performed for project sample 22NEC-S28-SD52. The recovery failure indicates a possible low bias and the RPD failure indicates a possible indeterminate bias. A final qualifier of QL was applied, as this is the most conservative of the applicable qualifiers. The affected result was significantly less than the PSL, so data usability was not affected.

DRO recoveries were greater than the UCL in the MS and MSD performed with silica gel cleanup for sample 22NEC-S28-SD49. The MSD RPD for DRO also exceeded the control limit in the MSDs with and without silica gel cleanup. The parent sample was ND for DRO, so data qualification was not required, and usability was not affected. In addition, the MSD RPD for RRO was greater than the control limit in the MSD performed both with and without silica gel cleanup. The parent sample concentration for the analysis without silica gel cleanup was greater than four times the spike amount, so data qualification was not required. The RRO result with silica gel cleanup was qualified QN for possible indeterminate bias due to the RPD failure in the MSD. The affected result was significantly less than the PSL, so data usability was not affected.

DRO and RRO recovered at 0% in the MS and MSD performed with silica gel cleanup for sample 22NEC-S28-SD54. In addition, the MSD RPD for RRO was greater than the control limit. Both analyte concentrations in the parent sample were greater than four times the spike amount so the MS/MSD could not be used to assess matrix effect. Data qualification was not required, and usability was not affected.

3.5.1.4 Surrogate Spike Recoveries

Surrogates were included with all laboratory QC and field samples, as required. Surrogate recoveries were reviewed and compared to method control limits. All surrogate recoveries were within method control limits for laboratory QC and field samples, except as noted below.

L1520826: Surrogate o-terphenyl recovery was greater than the UCL in the LCS and n-triacontane-d62 was less than the LCL in the LCSD. All surrogate recoveries in project samples were acceptable, so data qualification was not required.

L1521707: Surrogates o-terphenyl and n-triacontane-d62 recovered greater than the UCL in the LCS and or LCSD. Surrogate recovery was acceptable in all project samples, so data qualification was not required and usability was not affected.

L1522829: Numerous surrogate failures were documented in project samples and batch QC. In general, the batch QC failures did not result in qualification of project samples. The following project samples had surrogate recovery failures:

- **22NEC-S08-SS02:** Surrogates n-triacontane-d62 and o-terphenyl recovered at 0% in the 20x dilution analysis. Qualification for surrogate failures resulting from dilutions greater than 5x was not required.
- **22NEC-S08-SS15:** Surrogate n-triacontane-d62 recovered less than the LCL in the AK103 and AK103 with silica gel cleanup analysis. Both affected RRO results were qualified QL for possible low bias.

The affected results were significantly less than the PSL, so data usability was not affected.

L1522831: Surrogate n-triacontane-d62 recovery was less than the LCL in project sample 22NEC-MOC-14MW01. The associated RRO result was qualified QL for possible low bias. The result was slightly less than the PSL; data usability may be affected. Additionally, o-terphenyl recovery was greater than the UCL in the LCS and LCSD. Surrogate recovery for o-terphenyl was acceptable in project samples, so data qualification was not required.

L1522883: Surrogate n-triacontane-d62 recovery was less than the LCL in project samples 22NEC-S08-SS16, 22NEC-S08-SS30, 22NEC-S08-SS32, 22NEC-S08-SS33, 22NEC-S08-SS34, 22NEC-S08-SS35, and FD 22NEC-S08-SS933. RRO was qualified QL for possible low bias in the affected samples. The qualified results were significantly less than the PSL, so data usability was not affected.

L1524088: Surrogate recovery for o-terphenyl was greater than the UCL in the MB, LCS, LCSD, MS, and MSD with silica gel cleanup. Surrogate recovery was acceptable in all associated project samples, so data qualification was not required. Usability was not affected.

L1524091: Surrogate recovery for o-terphenyl was greater than the UCL in project sample 22NEC-SP2-DU1-01. The positive detection for DRO in 22NEC-SP2-DU1-01 was qualified QH for possible high bias. The affected result was significantly less than the PSL, so data usability was not affected.

L1524107: Surrogate recovery for o-terphenyl was less than the LCL in samples 22NEC-S15-SS10, 22NEC-S15-SS19, 22NEC-S15-SS24, FD 22NEC-S15-SS924, and the MS/MSD performed for 22NEC-S15-S23. DRO results in samples 22NEC-S15-SS10, 22NEC-S15-SS19, 22NEC-S15-SS24, and FD 22NEC-S15-SS924 were qualified QL for possible low bias. Surrogate recovery was acceptable in parent sample 22NEC-S15-SS23, so qualification was not required for the MS and MSD surrogate failures. The affected DRO results were significantly less than the LCL, so data usability was not affected.

L1527447: Surrogate n-triacontane-d62 recovery was less than the LCL in project samples 22NEC-S28-SW11, 22NEC-S28-SW12, and the MB. The ND results for RRO in project samples 22NEC-S28-SW11 and 22NEC-S28-SW12 were qualified QL for possible low bias. Additional qualification was not required for the MB surrogate failure. The affected results were significantly less than the PSL, so data usability was not affected.

L1528321: Numerous surrogate failures were documented in project samples and batch QC. In general, the batch QC failures did not result in qualification of project samples. The following project samples had surrogate recovery failures:

- **22NEC-S28-SD02:** Surrogate n-triacontane-d62 recovery was less than the LCL. The associated RRO result was qualified QL for possible low bias. The affected result was significantly less than the PSL, so data usability was not affected.

- **22NEC-S28-SD05:** Surrogate n-triacontane-d62 recovery was less than the LCL. The associated RRO result was qualified QL for possible low bias. The affected result was significantly less than the PSL, so data usability was not affected.
- **22NEC-S28-SD20:** Surrogate o-terphenyl recovery was greater than the UCL. The sample was diluted 10x, so data qualification was not required.
- **22NEC-S28-SD24:** Surrogate o-terphenyl recovery was less than the LCL. The associated DRO result was qualified QL for possible low bias. The affected result was significantly less than the PSL, so data usability was not affected.
- **22NEC-S28-SD25:** Surrogate n-triacontane-d62 recovery was less than the LCL. The associated RRO result was qualified QL for possible low bias. The affected result was significantly less than the PSL, so data usability was not affected.
- **22NEC-S28-SD29:** Surrogate n-triacontane-d62 recovery was less than the LCL in the silica gel clean up analysis. The associated RRO result was qualified QL for possible low bias. The affected result was slightly less than the PSL, data usability may be affected. Additionally, o-terphenyl recovery was less than the LCL in the analysis with silica gel cleanup. In both cases, the sample was diluted 5x or more, so data qualification was not required.
- **22NEC-S28-SD33:** Surrogate o-terphenyl recovery was less than the LCL in the analysis performed with silica gel cleanup. The associated DRO result was qualified QL for possible low bias. The affected result was significantly less than the PSL, so data usability was not affected.
- **22NEC-S28-SD35:** Surrogates o-terphenyl and n-triacontane-d62 recoveries were less than the LCL in the analysis performed with silica gel cleanup. The associated results for DRO and RRO were qualified QL for possible low bias. The affected DRO result was significantly greater than the PSL and the RRO result was significantly less than the PSL. Usability of both results were not affected.
- **22NEC-S28-SD42:** Surrogate n-triacontane-d62 recovery was greater than the UCL in the analysis performed without silica gel cleanup and 0% in the analysis performed with silica gel cleanup. In both cases, the sample was diluted 5x or more, so data qualification was not required.
- **22NEC-S28-SD43:** Surrogate o-terphenyl recovery was less than the LCL. The sample was diluted 5x, so data qualification was not required.
- **22NEC-S28-SD44:** Surrogates o-terphenyl and n-triacontane-d62 recoveries were less than the LCL. The associated results for DRO and RRO were qualified QL for possible low bias. The affected DRO result was significantly greater than the PSL and the RRO result was significantly less than the PSL. Usability of both results were not affected.
- **22NEC-S28-SD45:** Surrogate o-terphenyl recovery was less than the LCL. The associated DRO result was qualified QL for possible low bias. The affected result was significantly greater than the PSL, so data usability was not affected.
- **22NEC-S28-SD46:** Surrogate o-terphenyl recovery was less than the LCL. The sample was diluted 5x, so data qualification was not required.
- **22NEC-S28-SD47:** Surrogate o-terphenyl recovery was less than the LCL. The sample was diluted 5x, so data qualification was not required.
- **22NEC-S28-SD49:** Surrogates o-terphenyl and n-triacontane-d62 exceeded the control limits in the parent sample as well as the MS and/or MSD for 22NEC-S28-SD49. In all cases, data qualification was not required as the sample was diluted 5x.

- **22NEC-S28-SD50:** Surrogate o-terphenyl recovery was less than the LCL. The sample was diluted 10x, so data qualification was not required.
- **22NEC-S28-SD51:** Surrogate o-terphenyl recovery was less than the LCL in the analyses performed both with and without silica gel cleanup. The sample was diluted 10x, so data qualification was not required.
- **22NEC-S28-SD54:** Surrogate n-triacontane-d62 recovery was less than the LCL. The sample was diluted 5x, so data qualification was not required.
- **22NEC-S28-SD55:** Surrogate n-triacontane-d62 recovery was less than the LCL. The associated RRO result was qualified QL for possible low bias.
- **22NEC-S28-SD57:** Surrogate n-triacontane-d62 recovery was less than the LCL. The associated RRO result was qualified QL for possible low bias. The affected result was significantly less than the PSL, so data usability was not affected.
- **22NEC-S28-SD59:** Surrogate n-triacontane-d62 recovery was less than the LCL. The sample was diluted 5x, so data qualification was not required.
- **22NEC-S28-SD921:** Surrogate n-triacontane-d62 recovery was less than the LCL in the analysis performed with silica gel cleanup. The associated RRO result was qualified QL for possible low bias. The affected result was significantly less than the PSL, so data usability was not affected.
- **22NEC-S28-SD938:** Surrogate n-triacontane-d62 recovery was greater than the UCL. The sample was diluted 5x, so data qualification was not required.
- **22NEC-S28-SD942:** Surrogates n-triacontane-d62 and o-terphenyl exceeded control limits in either the analysis performed with or without silica gel cleanup. In all cases, the sample was diluted by 5x or more, so data qualification was not required.

3.5.1.5 Initial Calibration Verification/Continuing Calibration Verification

Second source initial calibration verification (ICV) and all continuing calibration verifications (CCVs) met acceptance criteria of less than 20% difference, except the following.

L1521707: RRO recovery in CCV 0805_040 was slightly greater than the UCL. The following associated groundwater samples were qualified QH for possible high bias: 22NEC-MOC-MW88-10, 22NEC-MOC-14MW03, 22NEC-MOC-14MW06, and FD 22NEC-MOC-14MW903. The affected results were significantly less than the PSL, so data usability was not affected.

3.5.1.6 Other Quality Control Items

The DRO result for 22NEC-S28-SD35 was originally omitted from the final report due to laboratory error. DRO was analyzed as part of the AK102/AK103 analysis performed, but the result was greater than the calibration range for the analyte (about 20% greater than the highest calibration point). The DRO result was qualified QN for possible indeterminate bias. The result was significantly greater than (approximately 10x), which is consistent with the result reported for DRO after silica gel cleanup, so data usability was not affected.

3.5.2 Sulfate – EPA Method 300.0

3.5.2.1 Method Blank Analysis

An MB was included with each preparatory batch of 20 or fewer samples, as required. MB detections are indicative of laboratory cross-contamination.

No target analytes were detected in the MBs.

3.5.2.2 Laboratory Control Sample/Laboratory Control Sample Duplicate Analysis

An LCS or LCS/LCSD pair was included with each preparatory batch, as required. LCS %R and LCS/LCSD RPD were compared to the acceptance criteria. All LCS/LCSD recoveries were within control limits and LCS/LCSD precision was within the RPD limit.

3.5.2.3 Matrix Spike/Matrix Spike Duplicate Analysis

Project-specific MS/MSD samples were collected and submitted at the project-required frequency of one for each preparatory batch and one MS/MSD per 20 or fewer samples. MS and MSD samples were prepared and analyzed for each laboratory batch.

MS/MSD recoveries and MS/MSD RPD were compared to acceptance criteria and met the criteria. MS/MSD failures for batch QC performed on samples not related to the project site are not discussed here and are addressed in the Laboratory Data Review Checklists in Attachment F-3.

3.5.2.4 Initial Calibration Verification/Continuing Calibration Verification

All ICVs and CCVs met the QSM acceptance criteria of less than 20% difference.

3.5.2.5 Other Quality Control Items

No additional QC items that required data qualification were identified.

3.5.3 Methane – RSK175

3.5.3.1 Method Blank Analysis

An MB was included with each preparatory batch of 20 or fewer samples, as required. MB detections are indicative of laboratory cross-contamination.

No target analytes were detected in the MBs.

3.5.3.2 Laboratory Control Sample/Laboratory Control Sample Duplicate Analysis

An LCS or LCS/LCSD pair was included with each preparatory batch, as required. LCS %R and LCS/LCSD RPD were compared to the acceptance criteria. All LCS/LCSD recoveries were within control limits and LCS/LCSD precision was within the RPD limit.

3.5.3.3 Matrix Spike/Matrix Spike Duplicate Analysis

Project-specific MS/MSD samples were collected and submitted at the project-required frequency of one for each preparatory batch and one MS/MSD per 20 or fewer samples. MS and MSD samples were prepared and analyzed for each laboratory batch with the following exceptions: WG1905758 and WG1906135. These batches did include a site-specific lab duplicate.

MS/MSD recoveries and MS/MSD RPD were compared to acceptance criteria and met the criteria.

3.5.3.4 Surrogate Spike Recoveries

Surrogates were included with all laboratory QC and field samples, as required. Surrogate recoveries were reviewed and compared to acceptance criteria. All surrogate recoveries were within control limits for laboratory QC and field samples.

3.5.3.5 Initial Calibration Verification/Continuing Calibration Verification

All ICVs and CCVs met the QSM acceptance criteria of less than 20% difference.

3.5.3.6 Other Quality Control Items

No additional QC items that required data qualification were identified.

3.5.4 Alkalinity – Standard Method 2320B

3.5.4.1 Method Blank Analysis

An MB was included with each preparatory batch of 20 or fewer samples, as required. MB detections are indicative of laboratory cross-contamination.

No target analytes were detected in the MBs.

3.5.4.2 Laboratory Control Sample/Laboratory Control Sample Duplicate Analysis

An LCS or LCS/LCSD pair was included with each preparatory batch, as required. LCS %R and LCS/LCSD RPD were compared to the acceptance criteria. All LCS/LCSD recoveries were within control limits and LCS/LCSD precision was within the RPD limit.

3.5.4.3 Matrix Spike/Matrix Spike Duplicate Analysis

Project-specific MS/MSD samples were collected and submitted at the project-required frequency of one for each preparatory batch and one MS/MSD per 20 or fewer samples. MS and MSD samples were prepared and analyzed for each laboratory batch with the following exceptions: WG1908185, WG1909198, WG1912103.

Lab duplicates not related to the project site were prepared and analyzed for each of these batches and met acceptance criteria for accuracy and precision.

MS/MSD recoveries and MS/MSD RPD were compared to acceptance criteria and met the criteria. MS/MSD failures for batch QC performed on samples not related to the project site are not discussed here and are addressed in the Laboratory Data Review Checklists in Attachment F-3.

3.5.4.4 Initial Calibration Verification/Continuing Calibration Verification

All ICVs and CCVs met the QSM acceptance criteria of less than 20% difference.

3.5.4.5 Other Quality Control Items

No additional QC items that required data qualification were identified.

3.5.5 Total and Dissolved Metals – EPA Method SW6020B

3.5.5.1 Method Blank Analysis

An MB was included with each preparatory batch of 20 or fewer samples, as required. MB detections are indicative of laboratory cross-contamination.

The following analytes were detected greater than the DL in an MB and had associated project sample detections less than 10 times the blank concentration:

L1521707: Lead was detected in the MB and the following associated groundwater results were qualified B for possible high bias: 22NEC-MOC-14MW03, 22NEC-MOC-14MW06, 22NEC-MOC-14MW07, 22NEC-MOC-MW88-10, and FD 22NEC-MOC-14MW903. The qualified results are significantly less than the PSL and usability was not affected.

3.5.5.2 Laboratory Control Sample/Laboratory Control Sample Duplicate Analysis

An LCS or LCS/LCSD pair was included with each preparatory batch, as required. LCS %R and LCS/LCSD RPD were compared to the acceptance criteria. All LCS/LCSD recoveries were within control limits and LCS/LCSD precision was within the RPD limit.

3.5.5.3 Matrix Spike/Matrix Spike Duplicate Analysis

Project-specific MS/MSD samples were collected and submitted at the project-required frequency of one for each preparatory batch and one MS/MSD per 20 or fewer samples. MS and MSD samples were prepared and analyzed for each laboratory batch with the following exceptions: WG1907571, WG1907689.

LCSs and LCSDs or MS and MSDs unrelated to the project site were prepared and analyzed for each of these batches, and recoveries met acceptance criteria for accuracy and precision.

MS/MSD recoveries and MS/MSD RPD were compared to acceptance criteria and met the criteria. MS/MSD failures for batch QC performed on samples not related to the project site are not discussed here and are addressed in the Laboratory Data Review Checklists in Attachment F-3.

3.5.5.4 Initial Calibration Verification/Continuing Calibration Verification

All ICVs and CCVs met the QSM acceptance criteria of less than 20% difference.

3.5.5.5 Other Quality Control Items

No additional QC items that required data qualification were identified.

3.5.6 Total and Dissolved Mercury – EPA Method SW7470A

3.5.6.1 Method Blank Analysis

An MB was included with each preparatory batch of 20 or fewer samples, as required. MB detections are indicative of laboratory cross-contamination.

No target analytes were detected in the MBs.

3.5.6.2 Laboratory Control Sample/Laboratory Control Sample Duplicate Analysis

An LCS or LCS/LCSD pair was included with each preparatory batch, as required. LCS %R and LCS/LCSD RPD were compared to the acceptance criteria. All LCS/LCSD recoveries were within control limits and LCS/LCSD precision was within the RPD limit.

3.5.6.3 Matrix Spike/Matrix Spike Duplicate Analysis

Project-specific MS/MSD samples were collected and submitted at the project-required frequency of one for each preparatory batch and one MS/MSD per 20 or fewer samples. MS and MSD samples were prepared and analyzed for each laboratory batch with the following exceptions: WG1905700, WG1905703.

LCSs and LCSDs or MS and MSDs unrelated to the project site were prepared and analyzed for each of these batches, and recoveries met acceptance criteria for accuracy and precision.

MS/MSD recoveries and MS/MSD RPD were compared to acceptance criteria and met the criteria. MS/MSD failures for batch QC performed on samples not related to the project site are not discussed here and are addressed in the Laboratory Data Review Checklists in Attachment F-3.

3.5.6.4 Initial Calibration Verification/Continuing Calibration Verification

All ICVs and CCVs met the QSM acceptance criteria of less than 20% difference.

3.5.6.5 Other Quality Control Items

No additional QC items that required data qualification were identified.

3.5.7 Polychlorinated Biphenyls – EPA Method SW8082A

3.5.7.1 Method Blank Analysis

An MB was included with each preparatory batch of 20 or fewer samples, as required. MB detections are indicative of laboratory cross-contamination.

No target analytes were detected in the MBs.

3.5.7.2 Laboratory Control Sample/Laboratory Control Sample Duplicate Analysis

An LCS or LCS/LCSD pair was included with each preparatory batch, as required. LCS %R and LCS/LCSD RPD were compared to the acceptance criteria. All LCS/LCSD recoveries were within control limits and LCS/LCSD precision was within the RPD limit.

3.5.7.3 Matrix Spike/Matrix Spike Duplicate Analysis

Project-specific MS/MSD samples were collected and submitted at the project-required frequency of one for each preparatory batch and one MS/MSD per 20 or fewer samples. MS and MSD samples were prepared and analyzed for each laboratory batch with the following exceptions: WG1905771, WG1906415, WG1907151, WG1910670.

LCSs were prepared and analyzed for each of these batches and recoveries met acceptance criteria for accuracy.

MS/MSD recoveries and MS/MSD RPD were compared to acceptance criteria and met the criteria. MS/MSD failures for batch QC performed on samples not related to the project site are not discussed here and are addressed in the Laboratory Data Review Checklists in Attachment F-3.

3.5.7.4 Surrogate Spike Recoveries

Surrogates were included with all laboratory QC and field samples, as required. Surrogate recoveries were reviewed and compared to acceptance criteria. All surrogate recoveries were within control limits for laboratory QC and field samples.

3.5.7.5 Initial Calibration Verification/Continuing Calibration Verification

All ICVs and CCVs met the QSM acceptance criteria of less than 20% difference.

3.5.7.6 Other Quality Control Items

The following additional QC items were identified.

L1522831: Confirmatory column RPD for Aroclor 1016 exceeded the control limit in the MSD performed for project sample 22NEC-MOC-MW88-3. Confirmatory column RPDs were acceptable in the parent sample, so data qualification was not required.

3.5.8 Benzene, Toluene, Ethylbenzene, and Total Xylenes – EPA Methods SW8260D

3.5.8.1 Method Blank Analysis

An MB was included with each preparatory batch of 20 or fewer samples, as required. MB detections are indicative of laboratory cross-contamination.

No target analytes were detected in the MBs.

3.5.8.2 Laboratory Control Sample/Laboratory Control Sample Duplicate Analysis

An LCS or LCS/LCSD pair was included with each preparatory batch, as required. LCS and LCSD %R and LCS/LCSD RPD were compared to the acceptance criteria. All LCS/LCSD recoveries were within control limits and LCS/LCSD precision was within the RPD limit.

3.5.8.3 Matrix Spike/Matrix Spike Duplicate Analysis

Project-specific MS/MSD samples were collected and submitted at the project-required frequency of one for each preparatory batch and one MS/MSD per 20 or fewer samples. MS and MSD samples were prepared and analyzed for each laboratory batch with the following exceptions: WG1904670, WG1905713, WG1905982, WG1906338, WG1912885, WG1912919, and WG1913716.

LCSs/LCSDs or MS/MSDs unrelated to the project site were prepared and analyzed for each of these batches and recoveries met acceptance criteria for accuracy and precision.

MS/MSD recoveries and MS/MSD RPD were compared to acceptance criteria and met the criteria, except as noted below. MS/MSD failures for batch QC performed on samples not related to the project site are not discussed here and are addressed in the Laboratory Data Review Checklists in Attachment F-3.

L15228321: Analytes benzene, ethylbenzene, toluene, and xylenes recovered less than the LCL in the MS and had MSD RPDs that exceeded the control limit in the MS/MSD performed for project sample 22NEC-MOC-MW88-3. The low MS recovery indicated a possible low bias and results were qualified QL. The RPD failures indicated a possible indeterminate bias. The QL flag was retained as the final qualifier as it is the most conservative flag. All affected results were significantly less than the PSL, so data usability was not affected.

3.5.8.4 Surrogate Spike Recoveries

Surrogates were included with all laboratory QC and field samples, as required. Surrogate recoveries were reviewed and compared to acceptance criteria. All surrogate recoveries were within control limits for laboratory QC and field samples, except as noted below.

L1526336: Surrogate 1,2-dichloroethane-d4 recovered greater than the UCL in project samples 22NEC-S28-SW07, 22NEC-S28-SW08, and TB 22NEC-TB06. Recoveries of the two other surrogates met acceptance criteria. This indicates a potential high bias, and all associated results were ND; therefore, qualification was not required, and data usability was not affected.

L1527447: Surrogate 1,2-dichloroethane-d4 recovered greater than the UCL in samples 22NEC-S28-SW-10, 22NEC-S28-SW-11, and 22NEC-S28-SW-12. In addition, toluene-d8 recovered greater than the UCL in TB 22NEC-TB-07. The positive detection for xylenes in sample 22NEC-S28-SW10 was qualified QH for possible high bias. All other results were ND, so were not affected by the high bias. The affected result was significantly less than the PSL, so data usability was not affected.

3.5.8.5 Trip Blank Sample Analysis

A TB was included with each cooler containing volatile samples, as required. TB detections are indicative of shipment and storage cross-contamination.

No target analytes were detected in the TBs, except as noted below.

L1521969: Benzene was detected in the TB 22NEC-TB03 for cooler Pace-22NEC-W003. This indicates a potential high bias and all associated sample results were ND for this analyte; therefore, qualification was not required, and data usability was not affected.

3.5.8.6 Initial Calibration Verification/Continuing Calibration Verification

ICV and all CCVs met the QSM acceptance criteria of less than 20% difference (less than 50% for end of analytical batch CCV).

3.5.8.7 Other Quality Control Items

No additional QC items that required data qualification were identified.

3.5.9 Polycyclic Aromatic Hydrocarbons – EPA Method SW8270D/E SIM

3.5.9.1 Method Blank Analysis

An MB was included with each preparatory batch of 20 or fewer samples, as required. MB detections are indicative of laboratory cross-contamination.

The following analytes were detected greater than the DL in an MB and had associated project sample detections less than 10 times the blank concentration:

L1520826: Analytes 1-methylnaphthalene, 2-methylnaphthalene, and fluoranthene were detected in the MB at concentrations greater than the DL but less than the LOQ. The following results were qualified B for possible high bias:

- **1-Methylnaphthalene:** 22NEC-S28-SW-04 and 22NEC-S28-SW-05
- **2-Methylnaphthalene:** 22NEC-S28-SW-05
- **Fluoranthene:** 22NEC-S28-SW-01, 22NEC-S28-SW-03, and 22NEC-S28-SW-05

All affected results were less than the PSL, so data usability was not affected.

L1521707: Anthracene was detected in the MB and the following groundwater samples were qualified B for possible high bias: 22NEC-MOC-14MW03, 22NEC-MOC-14MW06, 22NEC-MOC-14MW07, 22NEC-MOC-MW88-10, 22NEC-MOC-17MW1, and FD 22NEC-MOC-14MW903. All affected results were significantly less than the PSL, so data usability was not affected.

L1521959: Anthracene was detected in the MB and the following groundwater samples were qualified B for possible high bias: 22NEC-MOC-26MW1 and 22NEC-MOC-MW88-1. The affected results were significantly less than the PSL, so data usability was not affected.

L1522831: Phenanthrene was detected in the MB and the following groundwater samples were qualified B for possible high bias: 22NEC-MOC-14MW01. The affected results were significantly less than the PSL, so data usability was not affected.

L1525127: Analytes fluoranthene and pyrene were detected in the MB and the following groundwater samples were qualified B for possible high bias:

- **Fluoranthene:** 22NEC-MOC-14MW02, 22NEC-MOC-14MW04, & 22NEC-MOC-14MW05
- **Pyrene:** 22NEC-MOC-14MW02, 22NEC-MOC-14MW904, & 22NEC-MOC-14MW05

All affected results were significantly less than the PSLs, so data usability was not affected.

L1526336: Analytes 1-methylnaphthalene, 2-methylnaphthalene, fluoranthene, and indeno(1,2,3-cd)pyrene were detected in the MB and the following project samples were qualified B for possible high bias:

- **1-Methylnaphthalene:** 22NEC-S28-SW-06, 22NEC-S28-SW-08, and 22NEC-S28-SW-09
- **2-Methylnaphthalene:** 22NEC-S28-SW-06 & 22NEC-S28-SW-09
- **Fluoranthene:** 22NEC-S28-SW-06 & 22NEC-S28-SW-09
- **Indeno(1,2,3-cd)pyrene:** 22NEC-S28-SW-06

All affected results were significantly less than the PSLs, so data usability was not affected.

3.5.9.2 Laboratory Control Sample/Laboratory Control Sample Duplicate Analysis

An LCS or LCS/LCSD pair was included with each preparatory batch, as required. LCS and LCSD %R and LCS/LCSD RPD were compared to the acceptance criteria. All LCS/LCSD recoveries were within control limits and LCS/LCSD precision was within the RPD limit.

3.5.9.3 Matrix Spike/Matrix Spike Duplicate Analysis

Project-specific MS/MSD samples were collected and submitted at the project-required frequency of one for each preparatory batch and one MS/MSD per 20 or fewer samples. MS and MSD samples were prepared and analyzed for each laboratory batch with the following exceptions: WG1905790, WG1907979, WG1917194, and WG1918636.

LCSs and LCSDs were prepared and analyzed for each of these batches and LCS/LCSD recoveries met acceptance criteria for accuracy and precision.

MS/MSD recoveries and MS/MSD RPD were compared to acceptance criteria and met the criteria, except as noted below. MS/MSD failures for batch QC performed on samples not related to the project site are not discussed here and are addressed in the Laboratory Data Review Checklists in Attachment F-3.

L1520822: Numerous analytes recovered less than the LCL in the MS and/or MSD performed from sample 22NEC-S28-DU2-SD01. Additionally, analytes fluoranthene and pyrene had an MS/MSD RPD that exceeded the control limit of 40%. The parent sample results for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene were qualified QL for possible low bias. Fluoranthene and pyrene were also affected by the RPD failure (possible indeterminate bias), but the QL qualifier was retained as it is the most conservative. All affected results were significantly less than the PSL, so data usability was not affected.

L1522829: Analytes benzo(a)anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, and pyrene had recoveries less than the LCL in the MS performed for project sample 22NEC-S08-SS07. The case narrative indicated that the sample matrix interfered with spike recovery. The affected analytes were qualified QL in parent sample 22NEC-S08-SS07 for possible low bias. The affected results were significantly less than the PSLs so data usability was not affected.

L1522831: Analytes benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-c,d)pyrene, and pyrene had recoveries less than the LCL in the MS and/or MSD performed for 22NEC-MOC-MW88-3. These analytes also had MSD RPDs that exceeded the control limit. The low recovery failures indicate possible

low bias and the RPD failures indicate possible indeterminate bias. A final qualifier of QL was assigned, as the possible low bias is the most conservative had has the most significant impact on usability.

L1522883: Analytes benzo(g,h,i)perylene and benzo(k)fluoranthene had recoveries less than the LCL in the MSD performed for project sample 22NEC-S08-SS26. The affected analytes were qualified QL in parent sample 22NEC-S08-SS26 for possible low bias. The affected results were significantly less than the PSL, so data usability was not affected.

L1528288: Analytes benzo(a)anthracene, chrysene, fluoranthene, and pyrene recovered greater than the UCL in the MSD performed for project sample 22NEC-S28-DU2-SS02, which indicates possible high bias. Additionally, chrysene and fluoranthene had MSD RPDs that exceeded the control limit, which indicates possible indeterminate bias. The positive detections for benzo(a)anthracene and pyrene were qualified QH for possible high bias. The positive detections for chrysene and fluoranthene were qualified QN for both the high recovery and RPD failures. The affected results were significantly less than the PSLs, so data usability was not affected.

L1528321: Numerous analytes recovered less than the LCL in the MS and/or MSD performed for project sample 22NEC-S28-SD11. The following analytes were qualified QL in sample 22NEC-S28-SD11 for possible low bias: 1-methylnaphthalene, 2-chloronaphthalene, 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, dibenzofuran, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene. In addition, MSD RPDs for 2-chloronaphthalene, 2-methylnaphthalene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, and naphthalene exceeded the control limit. The affected analytes were previously qualified QL due to MS/MSD recovery failures; this qualifier was retained as the final qualifier as it is the most conservative. The affected results were significantly less than the PSLs, so data usability was not affected.

Analyte phenanthrene recovered less than the LCL in the MSD performed for project sample 22NEC-S28-SD49. The phenanthrene result in sample 22NEC-S28-SD49 was qualified QL for possible low bias. The affected result was significantly less than the PSL, so data usability was not affected.

Numerous analytes recovered less than the LCL in the MS and/or MSD performed for project sample 22NEC-S28-SD47. Acenaphthene and fluorene recoveries were greater than the UCL in the MS and 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene recovered greater than the UCL in the MSD. Low MS/MSD recovery indicates possible low bias and high recovery indicates possible high bias. The following analytes were qualified QL in sample 22NEC-S28-SD11 for possible low bias: 1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, acenaphthene, fluorene, naphthalene, and pyrene. In cases where both low and high bias were indicated, a final qualifier of QL was assigned, as this is the most conservative and has the most significant impact on usability. The following analytes were qualified R due to recovery less than the lower cutoff: 2-chloronaphthalene and dibenzofuran. Phenanthrene did not require qualification, as the parent sample concentration was greater than four times the spike amount. Additional MSD RPD failures were noted for 1-methylnaphthalene, acenaphthene, dibenzofuran, fluorene, naphthalene, and phenanthrene. The affected analytes were previously qualified QL due to MS/MSD recovery failures; this qualifier was retained as the final qualifier as it is the most conservative. Again, phenanthrene did not require qualification, as the parent sample concentration was greater than four times greater than the spike amount. The affected results for 1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, acenaphthene, fluorene, naphthalene, and

pyrene were either significantly greater than or significantly less than the PSLs, so usability was not affected. The results for 2-chloronaphthalene and dibenzofuran were flagged R. The results are not usable.

3.5.9.4 Surrogate Spike Recoveries

Surrogates were included with all laboratory QC and field samples, as required. Surrogate recoveries were reviewed and compared to acceptance criteria. All surrogate recoveries were within control limits for laboratory QC and field samples, except as noted below.

L1520822: Surrogate recovery for 2-fluorobiphenyl, 2-methylnaphthalene-d10, and p-terphenyl-d14 was less than the LCL in the MB for batch WG1905752. Other batch QC samples had acceptable surrogate recovery, so data qualification was not required. Surrogate recovery for 2-methylnaphthalene-d10 was less than the LCL in sample 22NEC-S28-DU2-SD01 and the MS performed for this sample. Surrogate nitrobenzene-d5 also recovered less than the LCL in project sample 22NEC-S28-DU1-SD01. All analytes in samples 22NEC-S28-DU2-SD01 and 22NEC-S28-DU1-SD01 were qualified QL for possible low bias. All affected results were significantly less than the PSL, so data usability was not affected.

L1520826: Surrogates p-terphenyl-d14 and fluoranthene-d10 recovered less than the LCL in sample 22NEC-S28-WA-01. The case narrative noted that matrix interference was present. All associated target analytes in 22NEC-S28-WA-01 were ND and were qualified QL for possible low bias. The affected results were significantly less than the PSLs, so data usability was not affected.

L1521707: Surrogate p-terphenyl-d14 recovery was less than the LCL in project samples 22NEC-MOC-14MW06, 22NEC-MOC-14MW07, and 22NEC-MOC-17MW1. All associated target analytes were qualified QL for possible low bias. The affected results were significantly less than the PSL, so data usability was not affected.

L1521969: Surrogate p-terphenyl-d14 recovery was less than the LCL in project samples 22NEC-MOC-20MW1, 22NEC-MOC-22MW2, 22NEC-MOC-26MW1, and 22NEC-MOC-MW88-1. Surrogate 2-fluorobiphenyl-d14 also recovered less than the LCL in project sample 22NEC-MOC-26MW1. All associated target analytes were qualified QL for possible low bias. The affected results were significantly less than the PSL, so data usability was not affected.

L1522829: Numerous surrogate failures were documented in project samples and batch QC. In general, the batch QC failures did not result in qualification of project samples. The following project samples had surrogate recovery failures:

- **22NEC-S08-SS01:** Surrogate recoveries for 2-methylnaphthalene-d10 and p-terphenyl-d14 were less than the LCLs.
- **22NEC-S08-SS02:** 2-Fluorobiphenyl, 2-methylnaphthalene-d10, and nitrobenzene-d5 recoveries were greater than the UCLs in the initial analysis. Additionally, p-terphenyl-d14 recovery was less than the LCL in the initial analysis. 2-Fluorobiphenyl, 2-Methylnaphthalene-d10, Nitrobenzene-d5, and p-terphenyl-d14 recovery failures were also noted in dilution analyses ranging from 10-1,000x. Surrogate failures resulting from dilution did not require qualification. Associated results were qualified QL for the surrogate recovery failures in the initial run. While the failures indicate both low and high bias, low bias has the most significant impact on usability, so was selected as the final qualifier.

- **22NEC-S08-SS03:** Nitrobenzene-d5 recovery was greater than the UCL in the initial analysis. Associated positive detections were qualified QH for possible high bias. Additionally, 2-methylnaphthalene-d10 and nitrobenzene-d5 recoveries were noted in the 10x dilution analysis. Surrogate failures resulting from dilution did not require qualification.
- **22NEC-S08-SS05:** Nitrobenzene-d5 recovery was greater than the UCL. Associated positive detections were qualified QH for possible high bias.
- **22NEC-S08-SS06:** 2-Methylnaphthalene-d10, fluoranthene-d10, and p-terphenyl-d14 recoveries were less than the LCL. Associated results were qualified QL for possible low bias.
- **22NEC-S08-SS07:** p-Terphenyl-d14 recovery was less than the LCL. Associated results were qualified QL for possible low bias.
- **22NEC-S08-SS11:** 2-Fluorobiphenyl, 2-methylnaphthalene-d10, fluoranthene-d10, and p-terphenyl-d14 recoveries were less than the LCL. Associated results were qualified QL for possible low bias.
- **22NEC-S08-SS902:** 2-Methylnaphthalene-d10 and nitrobenzene-d5 recoveries were greater than the UCL in the initial analysis. Associated positive detections were qualified QH for possible high bias. Additionally, 2-fluorobiphenyl, 2-methylnaphthalene-d10, fluoranthene-d10, and nitrobenzene-d5 recoveries were less than the LCL for a dilution analysis of 100x. Surrogate failures resulting from dilution did not require qualification.

In all cases, the affected results were significantly greater than or less than the PSLS, so data usability was not affected.

L1522831: Surrogate o-terphenyl-d14 recovery was less than the LCL in the MS performed for sample 22NEC-MOC-MW88-3. Surrogate recovery was acceptable in the parent sample, so data qualification was not required.

L1522883: Numerous surrogate failures were documented in project samples and batch QC. In general, the batch QC failures did not result in qualification of project samples. The following project samples had surrogate recovery failures:

- **22NEC-S08-SS21:** Nitrobenzene-d5 recovered less than the LCL in a dilution analysis. The sample was diluted by a factor of 10x, so data qualification was not required.
- **22NEC-S08-SS22:** Nitrobenezene-d5 recovery was less than the LCL in the initial analysis and the 10x dilution analysis, which indicates possible low bias. 2-methylnaphthalene-d10 recovery was greater than the UCL in the initial analysis and the 10x dilution analysis, which indicates possible high bias. A final qualifier of QL was applied to all associated results, as this is the most conservative qualifier and has the most significant impact on usability.
- **22NEC-S08-SS23:** Nitrobenzene-d5 and 2-methylnaphthalene-d10 recoveries were greater than the UCL in the initial analysis, which indicates possible high bias. Additionally, p-terphenyl-d14, 2-methylnaphthalene-d10, and nitrobenzene-d5 recoveries were less than the LCL in either the initial or 10x dilution analysis, which indicates a possible low bias. A final qualifier of QL was applied to all associated results, as this is the most conservative qualifier and has the most significant impact on usability.
- **22NEC-S08-SS24:** Surrogate nitrobenzene-d5 recovered less than the LCL in a dilution analysis. The sample was diluted by a factor of 10x, so data qualification was not required.

- **22NEC-S08-SS25:** Surrogates nitrobenzene-d5 and p-terphenyl-d14 recovered less than the LCL in the initial analysis and nitrobenzene-d5 also recovered less than the LCL in a dilution analysis. All associated results were qualified QL for possible low bias.
- **22NEC-S08-SS26:** p-Terphenyl-d14 recovery was less than the LCL in the initial analysis, a dilution analysis, the MS, and the MSD performed for 22NEC-S08-SS26. Additionally, 2-fluoronaphthalene-d10 and 2-fluorobiphenyl recoveries were less than the LCL in the MS. All associated results in sample 22NEC-S08-SS26 were qualified QL for possible low bias.
- **22NEC-S08-SS27:** p-terphenyl-d14, 2-methylnaphthalene-d10, and nitrobenzene-d5 recovered less than the LCL in the initial analysis or a dilution analysis, which indicates possible low bias. Additionally, nitrobenzene recovered greater than the UCL in the initial analysis, which indicates possible high bias. A final qualifier of QL was applied to all associated results, as this is the most conservative qualifier and has the most significant impact on usability.
- **22NEC-S08-SS28:** Surrogate nitrobenzene-d5 recovery was less than the LCL in a dilution analysis. The sample was diluted by a factor of 10x, so data qualification was not required.
- **22NEC-S08-SS29:** Surrogate p-terphenyl-d14 recovery was less than the LCL. All associated results were qualified QL for possible low bias.
- **22NEC-S08-SS31:** Surrogates 2-methylnaphthalene-d10 and nitrobenzene-d5 recovered less than the LCL in the initial analysis and subsequent dilution analysis. All associated results were qualified QL for possible low bias.
- **22NEC-S08-SS32:** Surrogates p-terphenyl-d14, 2-fluorobiphenyl, 2-methylnaphthalene-d10, and nitrobenzene-d5 recovered less than the LCL in either the initial analysis or a dilution analysis. All associated results were qualified QL for possible low bias.
- **22NEC-S08-SS33:** Surrogates nitrobenzene-d5 and p-terphenyl-d14 recovered less than the LCL in the initial analysis and a subsequent dilution analysis. All associated results were qualified QL for possible low bias.
- **22NEC-S08-SS34:** Surrogates 2-fluorobiphenyl, 2-methylnaphthalene-d10, and p-terphenyl-d14 recovered less than the LCL in the initial analysis and a subsequent dilution analysis. All associated results were qualified QL for possible low bias.
- **22NEC-S08-SS35:** Surrogate p-terphenyl-d14 recovery was less than the LCL in the initial analysis and a subsequent dilution analysis. All associated results were qualified QL for possible low bias.
- **22NEC-S08-SS933:** Surrogates nitrobenzene-d5 and p-terphenyl-d14 recovered less than the LCL in the initial analysis and/or a subsequent dilution analysis. All associated results were qualified QL for possible low bias.

All affected results were either significantly greater than or significantly less than the PSL, except the following: the 2-methylnaphthalene results in 22NEC-S08-SS22 and 22NEC-S08-SS33 were slightly less than the PSL with possible low bias. Data usability may be affected.

L1527447: Numerous surrogate failures were documented in project samples and batch QC. In general, the batch QC failures did not result in qualification of project samples. The following project samples had surrogate recovery failures:

- **22NEC-MOC-MW10-1-2:** Surrogate recoveries for 2-fluorobiphenyl, 2-methylnaphthalene-d10, nitrobenzene-d5, and p-terphenyl-d14 were less than the LCL. All associated results were qualified QL for possible low bias.

- **22NEC-MOC-14MW02-2:** Surrogate recoveries for 2-fluorobiphenyl, fluoranthene-d10, nitrobenzene-d5, and p-terphenyl-d14 were less than the LCL. All associated results were qualified QL for possible low bias.
- **22NEC-MOC-14MW-05-2:** Surrogate recovery for p-terphenyl-d14 was less than the LCL. All associated results were qualified QL for possible low bias.
- **22NEC-MOC-14MW04-2:** Surrogate recovery for p-terphenyl-d14 was less than the LCL. All associated results were qualified QL for possible low bias.
- **22NEC-S28-SW-11:** Surrogate recovery for p-terphenyl-d14 was less than the LCL. All associated results were qualified QL for possible low bias.
- **22NEC-S28-SW-12:** Surrogate recovery for p-terphenyl-d14 was less than the LCL. All associated results were qualified QL for possible low bias.
- **22NEC-S28-SW-13:** Surrogate recovery for p-terphenyl-d14 was less than the LCL. All associated results were qualified QL for possible low bias.
- **FD 22NEC-MOC-14MW04-92:** Surrogate recovery for p-terphenyl-d14 was less than the LCL. All associated results were qualified QL for possible low bias.

All affected results were significantly less than the PSLs, so data usability was not affected.

L1528288: Surrogate p-terphenyl-d14 recovery was less than the LCL in project sample 22NEC-S28-DU1-SS04. All associated results were qualified QL for possible low bias. The affected results were less than the PSL, so data usability was not affected.

L1528321: Numerous surrogate failures were documented in project samples and batch QC. In general, the batch QC failures did not result in qualification of project samples. The following project samples had surrogate recovery failures:

- **22NEC-S28-SD021:** Surrogate recovery for nitrobenzene-d5 was greater than the UCL. Positive detections were qualified QH for possible high bias. All affected results were either significantly greater than or significantly less than the associated PSL, except fluoranthene, which was slightly greater than the PSL with possible high bias. Data usability was not affected.
- **22NEC-S28-SD07:** Surrogate recovery for 2-methylnaphthalene-d10 was less than the LCL. All associated results were qualified QL for possible low bias. All affected results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD08:** Surrogate recovery for 2-methylnaphthalene-d10 was less than the LCL. All associated results were qualified QL for possible low bias. All affected results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD10:** Surrogate recoveries for 2-fluorobiphenyl and 2-methylnaphthalene-d10 were less than the LCL. All associated results were qualified QL for possible low bias. All affected results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD11:** Surrogate recoveries for 2-fluorobiphenyl and 2-methylnaphthalene-d10 were less than the LCL in 22NEC-S28-SD11 and the MSD performed for this sample. All associated results were qualified QL for possible low bias. All affected results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD12:** Surrogate recovery for 2-methylnaphthalene-d10 was less than the LCL. All associated results were qualified QL for possible low bias. All affected results were significantly

less than the associated PSL, except 2-methylnaphthalene, which was slightly greater than the PSL with possible low bias. Data usability was not affected.

- **22NEC-S28-SD14:** Surrogate recovery for nitrobenzene-d5 was less than the LCL. All associated results were qualified QL for possible low bias. All affected results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD16:** Surrogate recovery for nitrobenzene-d5 was greater than the UCL. Positive detections were qualified QH for possible high bias. All affected results were significantly greater than or significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD17:** Surrogate recoveries for 2-methylnapthalene-d10 and 2-fluorobiphenyl were less than the LCL. All associated results were qualified QL for possible low bias. All affected results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD18:** Surrogates 2-fluorobiphenyl, 2-methylnaphthalene-d10, and nitrobenzene-d5 recoveries exceeded the control limits in the initial analysis and/or dilution analysis. Some failures indicated possible low bias and others indicated possible high bias. A final qualifier of QL was assigned to all associated results as this had the most significant impact on usability. Qualified results were either significantly greater than or significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD19:** Surrogate recovery for nitrobenzene-d5 was greater than the UCL. Positive detections were qualified QH for possible high bias. Qualified results were either significantly greater than or significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD20:** Numerous surrogate failures were noted in both the initial analysis and dilution analysis. The most significant failures were recoveries of 0% for both 2-methylnaphthalene-d10 and nitrobenzene-d5 in the initial analysis. As a result, positive detections were qualified QL and the ND result for anthracene was qualified R. The anthracene result is considered unusable for project decision-making. All other qualified results were either significantly greater than or significantly less than the PSL, so data usability was not affected.
- **22NEC-S28-SD22:** Surrogates 2-fluorobiphenyl, 2-methylnaphthalene-d10, and nitrobenzene-d5 recoveries were less than the LCL. All associated results were qualified QL for possible low bias. All affected results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD24:** Surrogate recovery for 2-fluorobiphenyl was less than the LCL. All associated results were qualified QL for possible low bias. All qualified results were either significantly greater than or significantly less than the PSL, so data usability was not affected.
- **22NEC-S28-SD25:** Surrogate recovery for nitrobenzene-d5 was greater than the UCL. Positive detections were qualified QH for possible high bias. Qualified results were all less than the PSL, so data usability was not affected.
- **22NEC-S28-SD27:** Surrogates 2-methylnaphthalene-d10 and nitrobenzene-d5 recoveries were less than the LCL. All associated results were qualified QL for possible low bias. All affected results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD28:** Nitrobenzene-d5 recovered at 0%. All associated detections were qualified QL for possible low bias and ND results were qualified R. ND results for 2-chloronaphthalene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene are considered unusable for project decision-making. The other affected

results are either significantly greater than the PSL or less than the PSL, so data usability was not affected.

- **22NEC-S28-SD29:** Numerous surrogate failures were noted in both the initial analysis and dilution analysis. The most significant failures were recoveries of 0% for both 2-methylnaphthalene-d10 and nitrobenzene-d5 in the initial analysis. As a result, positive detections were qualified QL and ND results were qualified R. ND results for anthracene, benzo(a)anthracene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene are considered unusable for project decision-making. The remaining qualified results were less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD30:** Surrogates 2-fluorobiphenyl and p-terphenyl-d14 recoveries were less than the LCL and nitrobenzene-d5 recovered at 0%. Associated positive detections were qualified QL and ND results were qualified R. ND results for 2-chloronaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, dibenzofuran, indeno(1,2,3-cd)pyrene, and pyrene are considered unusable for project decision-making. All other qualified results were significantly less than the PSL and data usability was not affected.
- **22NEC-S28-SD31:** Surrogate nitrobenzene-d5 recovery was greater than the UCL in the initial analysis. Associated positive detections were qualified QH for possible high bias. Surrogates 2-methylnaphthalene-d10 and nitrobenzene-d5 recovered at 0% in a subsequent dilution analysis, but qualification was not required as the sample was diluted by at least 5x. The qualified results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD32:** Surrogates 2-methylnaphthalene-d10 and nitrobenzene-d5 recovered greater than the UCL in the initial analysis and nitrobenzene-d5 also recovered greater than the UCL in a subsequent dilution. Associated positive detections were qualified QH for possible high bias. The qualified results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD33:** Surrogate recovery for nitrobenzene-d5 was greater than the UCL in the initial analysis. Associated positive detections were qualified QH for possible high bias. Additional surrogate failures were noted for 2-methylnaphthalene-d10 and nitrobenzene-d5 in a subsequent dilution analysis, but data qualification was not required as the sample was diluted by at least 5x. The qualified results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD34:** Surrogate recovery for 2-fluorobiphenyl was less than the LCL. All associated results were qualified QL for possible low bias. The qualified results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD35:** Surrogate recovery for nitrobenzene-d5 was greater than the UCL in the initial analysis. Associated positive detections were qualified QH for possible high bias. Additional surrogate failures were noted for 2-methylnaphthalene-d10 and nitrobenzene-d5 in a subsequent dilution analysis, but data qualification was not required as the sample was diluted by at least 5x. The qualified results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD36:** Surrogate recovery for 2-fluorobiphenyl was 0% in a dilution analysis. The sample was diluted at least 5x, so data qualification was not required.

- **22NEC-S28-SD38:** Surrogate recovery for nitrobenzene-d5 was greater than the UCL in the initial analysis. Associated positive detections were qualified QH for possible high bias. Additional surrogate failures were noted for 2-methylnaphthalene-d10 and nitrobenzene-d5 in a subsequent dilution analysis, but data qualification was not required as the sample was diluted by at least 5x. The qualified results were either significantly greater than or significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD39:** Surrogate recovery for p-terphenyl-d14 was less than the LCL. All associated results were qualified QL for possible low bias. The qualified results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD40:** Surrogate recovery for nitrobenzene-d5 was greater than the UCL in the initial analysis. Associated positive detections were qualified QH for possible high bias. Additional surrogate failures were noted for 2-methylnaphthalene-d10 and nitrobenzene-d5 in a subsequent dilution analysis, but data qualification was not required as the sample was diluted by at least 5x. The qualified results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD43:** Surrogate recoveries for nitrobenzene-d5 and 2-methylnaphthalene-d10 were greater than the UCL in the initial analysis. Associated positive detections were qualified QH for possible high bias. Additional surrogate failures were noted for 2-methylnaphthalene-d10 and nitrobenzene-d5 in a subsequent dilution analysis, but data qualification was not required as the sample was diluted by at least 5x. The qualified results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD44:** Surrogate 2-fluorobiphenyl recovery was less than the LCL in the initial analysis. Surrogates 2-methylnaphthalene-d10 and nitrobenzene-d5 were also greater than the UCL in the initial analysis. The low recovery indicates possible low bias and high recovery indicates possible high bias. A final qualifier of QL was assigned to all associated results as this has the most significant impact on usability. Additional surrogate failures for 2-fluorobiphenyl, 2-methylnaphthalene-d10, and nitrobenzene-d5 were noted in subsequent dilution analysis but additional qualification was not required, as the sample was diluted by at least 5x. The qualified results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD45:** Surrogate recovery for nitrobenzene-d5 was greater than the UCL in the initial analysis and a dilution. Associated positive detections were qualified QH for possible high bias. The qualified results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD46:** Surrogate recoveries for nitrobenzene-d5 and 2-methylnaphthalene-d10 were greater than the UCL in the initial analysis. Associated positive detections were qualified QH for possible high bias. Additional surrogate failures were noted for 2-methylnaphthalene-d10 and nitrobenzene-d5 in a subsequent dilution analysis, but data qualification was not required as the sample was diluted by at least 5x. The qualified results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD47:** Surrogate 2-fluorobiphenyl recovery was greater than the UCL in the initial analysis. Surrogates 2-methylnaphthalene-d10 and nitrobenzene-d5 recovered at 0% in the initial analysis. The low recovery indicates possible low bias and high recovery indicates possible high bias. A final qualifier of QL for positive detections and R for NDs (2-chloronaphthalene, anthracene, dibenzo[a,h]anthracene) was applied, as this has the most significant impact on usability. Additional surrogate failures for 2-fluorobiphenyl, 2-methylnaphthalene-d10, and nitrobenzene-d5 were noted in subsequent dilution analysis

as well as the MS and MSD performed for this sample, but additional qualification was not required, as the sample was diluted by at least 5x and the parent sample was already qualified consistent with the failures observed. The results qualified R are not usable for decision-making at the project site. The remaining qualified results were either significantly greater than or significantly less than the PSL, so data usability was not affected.

- **22NEC-S28-SD48:** Surrogate nitrobenzene-d5 recovered at 0% and 2-fluorobiphenyl was less than the LCL in the initial analysis. The low recovery indicates possible low bias and high recovery indicates possible high bias. A final qualifier of QL for positive detections and R for NDs (2-chloronaphthalene, acenaphthylene, benzo[g,h,i]perylene, benzo[k]fluoranthene, dibenzo[a,h]anthracene, and indeno[1,2,3-cd]perylene) was applied, as this has the most significant impact on usability. Additional surrogate failures for 2-fluorobiphenyl and 2-methylnaphthalene-d10 were noted in subsequent dilution analysis as well as the MS and MSD performed for this sample, but additional qualification was not required, as the sample was diluted by at least 5x. The results qualified R are not usable for decision-making at the project site. The remaining qualified results were either significantly greater than or significantly less than the PSL, so data usability was not affected.
- **22NEC-S28-SD49:** Numerous surrogates recovered at 0% in the initial analysis and MS/MSD performed for this sample. All positive detections were qualified QL for possible low bias and NDs were qualified R. The ND results for anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene are not usable for project decision-making. All other qualified results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD50:** Surrogate recoveries for 2-fluorobiphenyl and 2-methylnaphthalene-d10 were less than the LCL in the initial analysis. Additionally, nitrobenzene-d5 recovered at 0% in the initial analysis. All positive detections were qualified QL for possible low bias and NDs were qualified R. Additional surrogate failures for 2-fluorobiphenyl and 2-methylnaphthalene-d10 were noted in subsequent dilution analysis but additional qualification was not required, as the sample was diluted by at least 5x. The ND results for anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene are not usable for project decision-making. All other qualified results were either significantly greater than or significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD51:** Numerous surrogates recovered at 0% in the initial analysis and dilution runs. Additional failures less than the LCL were noted. All positive detections were qualified QL for possible low bias and NDs were qualified R. The ND results for anthracene and dibenzo(a,h)anthracene are not usable for project decision-making. All other qualified results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD52:** Nitrobenzene-d5 recovery was 0% in the initial analysis. All positive detections were qualified QL for possible low bias and NDs were qualified R. The following ND results are not usable for project decision-making: 2-chloronaphthalene, acenaphthylene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene. All other qualified results were either significantly greater than or significantly less than the PSLs, so data usability was not affected.

- **22NEC-S28-SD53:** Nitrobenzene-d5 recovery was 0% in the initial analysis. All positive detections were qualified QL for possible low bias and NDs were qualified R. The following ND results are not usable for project decision-making: 2-chloronaphthalene, acenaphthylene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene. All other qualified results were either significantly greater than or significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD54:** Nitrobenzene-d5 and 2-methylnaphthalene recoveries were 0%. All positive detections were qualified QL for possible low bias and NDs were qualified R. The following ND results are not usable for project decision-making: anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene. All other qualified results were either significantly greater than or significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD57:** Surrogate recovery for nitrobenzene-d5 was less than the LCL. All associated results were qualified QL for possible low bias. All qualified results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD58:** Numerous surrogate recoveries were less than the LCL. All associated results were qualified QL for possible low bias. All qualified results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD59:** Nitrobenzene-d5 and 2-methylnaphthalene recoveries were 0%. All positive detections were qualified QL for possible low bias and NDs were qualified R. The following ND results are considered unusable for project decision-making: 2-Chloronaphthalene, Acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene. All other qualified results were either significantly greater than or significantly less than the PSL, so data usability was not affected.
- **22NEC-S28-SD60:** Nitrobenzene-d5 recovery was 0% in the initial analysis. All positive detections were qualified QL for possible low bias and NDs were qualified R. The following ND results are considered unusable for project decision-making: 2-Chloronaphthalene, Acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene. All other qualified results were either significantly greater than or significantly less than the PSL, so data usability was not affected.
- **22NEC-S28-SD921:** Surrogate recovery for nitrobenzene-d5 was greater than the UCL in the initial analysis. Associated positive detections were qualified QH for possible high bias. All qualified results were either significantly greater than or significantly less than the PSL, so data usability was not affected.
- **22NEC-S28-SD934:** Surrogate recoveries for 2-fluorobiphenyl and 2-methylnaphthalene were less than the LCL. All associated results were qualified QL for possible low bias. The qualified results were significantly less than the PSLs, so data usability was not affected.
- **22NEC-S28-SD938:** Surrogate recovery for nitrobenzene-d5 was greater than the UCL in the initial analysis. Associated positive detections were qualified QH for possible high bias. Additional surrogate failures were noted in subsequent dilution analyses, but the sample was

diluted by at least 5x, so qualification was not required. All qualified results were either significantly greater than or significantly less than the PSL, so data usability was not affected.

- **22NEC-S28-SD942:** Surrogate recovery for 2-methylnaphthalene-d10 was greater than the UCL in the initial analysis. Associated positive detections were qualified QH for possible high bias. Additional surrogate failures were noted in subsequent dilution analyses, but the sample was diluted by at least 5x, so qualification was not required. All qualified results were either significantly greater than or significantly less than the PSL, so data usability was not affected.
- **22NEC-S28-SD953:** Nitrobenzene-d5 recovery was 0% and 2-fluorobiphenyl recovery was less than the LCL in the initial analysis. All positive detections were qualified QL for possible low bias and NDs were qualified R. 2-Methylnaphthalene recovery failed in a subsequent dilution, but the sample was diluted by at least 5x, so data qualification was not required. The following ND results are not usable for project decision-making: 2-chloronaphthalene, acenaphthylene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene. All other qualified results were either significantly greater than or significantly less than the PSL, so data usability was not affected.

3.5.9.5 Initial Calibration Verification/Continuing Calibration Verification

ICV and all CCVs met the QSM acceptance criteria of less than 20% difference (less than 50% for end of analytical batch CCV).

3.5.9.6 Other Quality Control Items

No additional QC items that required data qualification were identified.

3.5.10 Total Organic Carbon – Walkley-Black Method

3.5.10.1 Method Blank Analysis

An MB was included with each preparatory batch of 20 or fewer samples, as required. MB detections are indicative of laboratory cross-contamination.

No target analytes were detected in the MBs.

3.5.10.2 Laboratory Control Sample/Laboratory Control Sample Duplicate Analysis

An LCS or LCS/LCSD pair was included with each preparatory batch, as required. LCS and LCSD %R and LCS/LCSD RPD were compared to the acceptance criteria. All LCS/LCSD recoveries were within control limits and LCS/LCSD precision was within the RPD limit.

3.5.10.3 Laboratory Duplicate

Laboratory duplicates met acceptance criteria, except as noted below.

L1522829: Duplicate RPD for the lab duplicate performed on project sample 22NEC-S08-SS06 exceeded the control limit. The reported result for TOC in sample 22NEC-S08-SS06 was qualified QN for possible indeterminate bias. TOC does not have an associated PSL, so data usability was not affected.

3.5.10.4 Matrix Spike/Matrix Spike Duplicate Analysis

Project-specific MS/MSD samples were collected and submitted at the project-required frequency of one for each preparatory batch and one MS/MSD per 20 or fewer samples.

MS/MSD recoveries and MS/MSD RPD were compared to acceptance criteria and met the criteria, except as noted below. MS/MSD failures for batch QC performed on samples not related to the project site are not discussed here and are addressed in the Laboratory Data Review Checklists in Attachment F-3.

L1522883: TOC recovery was less than the LCL in the MS and MSD performed for project sample 22NEC-S08-SS26. The TOC result in parent sample 22NEC-S08-SS26 was qualified QL for possible low bias. TOC does not have a PSL, so data usability was not affected.

3.5.10.5 Other Quality Control Items

No additional QC items that required data qualification were identified.

3.6 Field Duplicate Precision

FD precision was evaluated by calculating the RPD between the parent sample result and the FD result when both results were greater than the LOQ, and when one results fell between the LOD and the LOQ. Acceptance criteria were less than 50% for soil/sediment results and 30% for water results. Results were also qualified when one result was greater than the LOQ and one result was ND.

A total of 9 FD samples were submitted and analyzed for 88 primary soil samples, 6 FD samples were submitted and analyzed for 57 primary sediment samples, 3 FD samples were submitted and analyzed for 19 primary groundwater samples, and 2 FD samples were submitted and analyzed for 13 primary groundwater samples. FD pairs were analyzed for one or more of the following methods:

- **Soil:** AK102/AK103, AK102/AK103 with silica gel cleanup, SW8270D-SIM, and TOC by Walkley-Black
- **Sediment:** AK102/AK103, AK102/AK103 with silica gel cleanup, SW8270D-SIM, and TOC by Walkley-Black
- **Groundwater:** AK102/AK103, EPA 300.0, SM2320B, SW6020B, SW7470A, SW8082A, RSK175, SW8260D, SW8270D/E-SIM
- **Surface water:** AK102/AK103, SW8260D, SW8270D-SIM

Table 2, located at the end of this report, summarizes the FD results that exceeded the RPD criteria used in precision evaluations. Significant matrix effect contributed to a high frequency of FD RPD exceedances for sediment samples. In all cases of unacceptable precision, the higher of the two reported results will be used for decision-making at the project site.

3.7 Biogenic Interference and Silica Gel Cleanup

Methods AK102 and AK103 report a total hydrocarbon result that does not differentiate between anthropogenic/biogenic sources of hydrocarbons. Historical investigations at the project site documented exceedances of both the DRO and RRO PSLs in soil and sediment samples, however, in some cases no anthropogenic sources could be identified for the contaminant and peat/organic matter were documented in soil and sediment at the site. Methods AK102 and AK103 were analyzed both with and without silica gel cleanup for sites with suspected biogenic interference, per ADEC Technical

Memorandum 21-001 (ADEC 2021). Both pre- and post-silica gel cleanup chromatograms were reviewed as part of this data evaluation to determine whether biogenic interference is present at each of the areas of concern. In addition, field notes and photographs were reviewed to provide additional information about the sample matrix. The data tables in Attachment F-2 for sites S08 and S28 were amended to include a description of the likely DRO/RRO source.

During review it was noted that aliquots of sample were extracted separately for the pre- and post-silica gel AK102/AK103 analysis. The ADEC Technical Memorandum requires that sample extracts be prepared as a single batch and then divided for the pre-analysis and silica gel cleanup procedure. While this does not significantly impact data usability, it may contribute to increased variability between pre- and post-silica gel cleanup results.

3.7.1 Site 8 Supplemental Soil Investigation

In most cases, the pre- and post-silica gel cleanup chromatograms showed similar hydrocarbon patterns. Samples with low concentrations of DRO and no distinct alkane peaks in the chromatogram, were identified as primarily biogenic, likely peat. Chromatograms with suspected biogenic interference were compared to the background sample chromatograms pre- and post-silica gel cleanup and had similar patterns.

All samples identified as petrogenic sources showed minimal removal of DRO hydrocarbons post-silica gel cleanup, further supporting the source determination. Some removal of RRO hydrocarbons was observed, indicating that there may be some biogenic material present. However, it should be noted that samples with high levels of naturally occurring organic material may exceed the silica gel capacity to remove polar and semi-polar hydrocarbons during the cleanup process. In some cases, biogenic patterns were also evident (likely peat), in which case the source was identified as a mixture. Pre- and post-silica gel cleanup chromatograms for samples 22NEC-S08-SS22, 22NEC-S08-SS23, and 22NEC-S08-SS27 were consistent with diesel fuel. Chromatograms for 22NEC-S08-SS25, 22NEC-S08-SS29, 22NEC-S08-SS31, and FD 22NEC-S08-SS925 were consistent with weathered diesel. Several samples including 22NEC-S08-SS02 and FD 22NEC-S08-SS902 had elevated DRO detections with peak patterns that were determined to be likely petrogenic, but a source material could not be identified from the chromatograms.

3.7.2 Site 28 Sediment Removal

In most cases, the pre- and post-silica gel cleanup chromatograms showed similar hydrocarbon patterns. Samples with low concentrations of DRO and no distinct alkane peaks in the chromatogram, were identified as primarily biogenic, likely peat. Chromatograms with suspected biogenic interference were compared to the background sample chromatograms pre- and post-silica gel cleanup.

Several samples reported higher detections of DRO and/or RRO post-silica gel cleanup including: 22NEC-S28-SD14, 22NEC-S28-SD15, 22NEC-S28-SD23, 22NEC-S28-SD24, 22NEC-S28-SD32, 22NEC-S28-SD33, FD 22NEC-S28-SD934, 22NEC-S28-SD35, 22NEC-S28-SD37, 22NEC-S28-SD39, 22NEC-S28-SD42, FD 22NEC-S28-SD942, 22NEC-S28-SD43, 22NEC-S28-SD44, and 22NEC-S28-SD45. In most cases, the pre- and post-silica gel cleanup chromatogram patterns were consistent, and the differences were attributed to sample heterogeneity due to preparation of separate extracts.

Most samples with petrogenic sources were attributed to diesel or weathered diesel. Some chromatograms showed evidence of both diesel/weathered diesel and peat, in which case the source was considered a mixture. Sample 22NEC-S28-SD13 had a pattern consistent with weathered diesel but saw considerable removal of hydrocarbons with the silica gel cleanup. There were no obvious signs of organic

material in the chromatogram pattern and the sample was noted to be solid silt layer in the field notes. The source was identified as petrogenic and evidence of polar hydrocarbons is likely a result of fuel degradation. Sample 22NEC-S28-SD42 and FD 22NEC-S28-SD942 was identified as petrogenic, but unlike other samples at this area of concern the source was identified as likely hydraulic or vacuum oil, as evidenced by the large RRO peak.

4.0 COMPLETENESS

Completeness is a measure of the amount of valid data obtained compared with the amount that was expected to be obtained under correct, normal conditions. For completeness requirements, valid results are all results not rejected and determined to be usable in the context of project DQOs.

Completeness was evaluated for each method, matrix, and analyte using the formula below. The goal for completeness was 95% for all methods and matrices.

$$\%\ Completeness\ =\ 100\ x\ (\frac{V}{n})$$

Where: V = number of measurements judged valid
n = total number of measurements

A total of 66 sediment samples were submitted for SW8270D-SIM analysis, but there were numerous surrogate failures less than the lower cutoff due to matrix interference. Affected ND results were R qualified and excluded in accordance with the Work Plan. The following analytes had calculated completeness less than the project goal for sediment: acenaphthylene (89%), anthracene (83%), benzo(a)anthracene (86%), benzo(a)pyrene (86%), benzo(b)fluoranthene (92%), benzo(g,h,i)perylene (82%), benzo(k)fluoranthene (82%), 2-chloronaphthalene (86%), chrysene (92%), dibenzo(a,h)anthracene (79%), and indeno(1,2,3-cd)pyrene (82%). However, the overall completeness calculated for the project was approximately 97.7%.

5.0 OVERALL DATA QUALITY AND USABILITY ASSESSMENT

In general, the overall quality of the project data was acceptable and completeness goals were met except for several SW8270D-SIM analytes for sediment, due to surrogate failures below the lower cutoff. A total of 108 ND results were excluded due to this failure and are not usable for project decision-making. Affected samples include: 22NEC-S28-SD20, 22NEC-S28-SD28, 22NEC-S28-SD29, 22NEC-S28-SD30, 22NEC-S28-SD47, 22NEC-S28-SD48, 22NEC-S28-SD49, 22NEC-S28-SD50, 22NEC-S28-SD51, 22NEC-S28-SD52, 22NEC-S28-SD53, 22NEC-S28-SD54, 22NEC-S28-SD59, 22NEC-S28-SD60, and FD 22NEC-S28-SD953.

The most significant issue identified during the data quality review and assessment was that ND LODs for all SW8082A analytes exceeded the PSL. As a result, it cannot be confirmed that these analytes are absent at the PSL.

Qualified data are considered acceptable for use with the limitations discussed within this QA/QC report and the ADEC Laboratory Data Review Checklists regarding the qualifiers applied to the results.

Tables 3 includes all qualified results and reasons for qualification.

6.0 REFERENCES

Alaska Department of Environmental Conservation (ADEC). 2017. *Underground Storage Tanks Procedures Manual, Guidance for Treatment of Petroleum-Contaminated Soil and Standard Sampling Procedures.* March.

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USACE. 2022. *Site 28 and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews Work Plan.* June.

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Table 2 Results Qualified Due to Field Duplicate Imprecision

SDG	METHOD	ANALYTE	PRIMARY SAMPLE	RESULT	UNITS	FIELD DUPLICATE	RESULT	UNITS	RPD	QUALIFIER
L1522829	AK102/103	DRO	22NEC-S08-SS02	169,000	mg/kg	22NEC-S08-SS902	27,900	mg/kg	143%	QN
L1522829	AK102/103	RRO	22NEC-S08-SS02	5,780	mg/kg	22NEC-S08-SS902	1,550 J	mg/kg	115%	QN
L1522829	AK102/103 SG	DRO	22NEC-S08-SS02	143,000	mg/kg	22NEC-S08-SS902	27,200	mg/kg	136%	QN
L1522829	AK102/103 SG	RRO	22NEC-S08-SS02	3,950	mg/kg	22NEC-S08-SS902	993 J	mg/kg	124%	QN
L1522829	SW8270D-SIM	1-methylnaphthalene	22NEC-S08-SS02	946	mg/kg	22NEC-S08-SS902	128	mg/kg	152%	QN
L1522829	SW8270D-SIM	2-methylnaphthalene	22NEC-S08-SS02	1,290	mg/kg	22NEC-S08-SS902	230	mg/kg	139%	QN
L1522829	SW8270D-SIM	Acenaphthene	22NEC-S08-SS02	25.3	mg/kg	22NEC-S08-SS902	3.61	mg/kg	150%	QN
L1522829	SW8270D-SIM	Dibenzofuran	22NEC-S08-SS02	11.7	mg/kg	22NEC-S08-SS902	1.91	mg/kg	144%	QN
L1522829	SW8270D-SIM	Fluoranthene	22NEC-S08-SS02	0.0672	mg/kg	22NEC-S08-SS902	0.0106 J	mg/kg	146%	QN
L1522829	SW8270D-SIM	Fluorene	22NEC-S08-SS02	29.2	mg/kg	22NEC-S08-SS902	4.72	mg/kg	144%	QN
L1522829	SW8270D-SIM	Naphthalene	22NEC-S08-SS02	897	mg/kg	22NEC-S08-SS902	126	mg/kg	151%	QN
L1522829	SW8270D-SIM	Phenanthrene	22NEC-S08-SS02	7.76	mg/kg	22NEC-S08-SS902	1.31	mg/kg	142%	QN
L1522829	SW8270D-SIM	Pyrene	22NEC-S08-SS02	0.0482	mg/kg	22NEC-S08-SS902	0.0119 J	mg/kg	121%	QN
L1522829	Walkley-Black	TOC	22NEC-S08-SS02	501,000	mg/kg	22NEC-S08-SS902	169,000	mg/kg	99%	QN
L1522883	AK102/103 SG	DRO	22NEC-S08-SS25	339	mg/kg	22NEC-S08-SS925	171 J	mg/kg	66%	QN
L1522883	SW8270D-SIM	1-methylnaphthalene	22NEC-S08-SS25	0.0140 J	mg/kg	22NEC-S08-SS925	0.0276	mg/kg	65%	QN
L1522883	AK102/103	DRO	22NEC-S08-SS33	573	mg/kg	22NEC-S08-SS933	199 J	mg/kg	97%	QN
L1522883	AK102/103	RRO	22NEC-S08-SS33	7,230	mg/kg	22NEC-S08-SS933	1,830	mg/kg	119%	QN
L1522883	AK102/103 SG	RRO	22NEC-S08-SS33	2,530	mg/kg	22NEC-S08-SS933	505	mg/kg	133%	QN
L1522883	SW8270D-SIM	1-methylnaphthalene	22NEC-S08-SS33	0.731	mg/kg	22NEC-S08-SS933	0.135	mg/kg	138%	QN
L1522883	SW8270D-SIM	2-methylnaphthalene	22NEC-S08-SS33	1.18	mg/kg	22NEC-S08-SS933	0.153	mg/kg	154%	QN
L1522883	SW8270D-SIM	Fluorene	22NEC-S08-SS33	0.0602	mg/kg	22NEC-S08-SS933	0.0143 J	mg/kg	123%	QN
L1522883	SW8270D-SIM	Naphthalene	22NEC-S08-SS33	0.318	mg/kg	22NEC-S08-SS933	0.0249 J	mg/kg	171%	QN
L1522883	Walkley-Black	TOC	22NEC-S08-SS33	356,000	mg/kg	22NEC-S08-SS933	75,000	mg/kg	130%	QN
L1522883	Walkley-Black	TOC	22NEC-S08-SS20	11,100	mg/kg	22NEC-S08-SS920	21,800	mg/kg	65%	QN
L1524107	AK102/103	DRO	22NEC-S15-SS11	668	mg/kg	22NEC-S15-SS911	381	mg/kg	55%	QN
L1528321	SW8270DSIM	Acenaphthylene	22NEC-S28-SD021	0.0679	mg/kg	22NEC-S28-SD921	ND	mg/kg	--	QN

Table 2 Results Qualified Due to Field Duplicate Imprecision

SDG	METHOD	ANALYTE	PRIMARY SAMPLE	RESULT	UNITS	FIELD DUPLICATE	RESULT	UNITS	RPD	QUALIFIER
L1528321	SW8270DSIM	Benzo(a)anthracene	22NEC-S28-SD021	0.177	mg/kg	22NEC-S28-SD921	0.0416	mg/kg	124%	QN
L1528321	SW8270DSIM	Benzo(a)pyrene	22NEC-S28-SD021	0.0571	mg/kg	22NEC-S28-SD921	0.00905 J	mg/kg	145%	QN
L1528321	SW8270DSIM	Benzo(b)fluoranthene	22NEC-S28-SD021	0.159	mg/kg	22NEC-S28-SD921	0.0182 J	mg/kg	159%	QN
L1528321	SW8270DSIM	Benzo(k)fluoranthene	22NEC-S28-SD021	0.0633	mg/kg	22NEC-S28-SD921	0.00786 J	mg/kg	156%	QN
L1528321	SW8270DSIM	Chrysene	22NEC-S28-SD021	0.466	mg/kg	22NEC-S28-SD921	0.0675	mg/kg	149%	QN
L1528321	SW8270DSIM	Fluoranthene	22NEC-S28-SD021	2.05	mg/kg	22NEC-S28-SD921	0.572	mg/kg	113%	QN
L1528321	SW8270DSIM	Phenanthrene	22NEC-S28-SD021	1.66	mg/kg	22NEC-S28-SD921	0.963	mg/kg	53%	QN
L1528321	SW8270DSIM	Pyrene	22NEC-S28-SD021	1.29	mg/kg	22NEC-S28-SD921	0.347	mg/kg	115%	QN
L1528321	AK102/103	DRO	22NEC-S28-SD38	18,000	mg/kg	22NEC-S28-SD938	7,160	mg/kg	86%	QN
L1528321	SW8270DSIM	1-Methylnaphthalene	22NEC-S28-SD38	8.56	mg/kg	22NEC-S28-SD938	24.9	mg/kg	98%	QN
L1528321	SW8270DSIM	2-Methylnaphthalene	22NEC-S28-SD38	15.1	mg/kg	22NEC-S28-SD938	44.7	mg/kg	99%	QN
L1528321	SW8270DSIM	Acenaphthene	22NEC-S28-SD38	0.217	mg/kg	22NEC-S28-SD938	0.659	mg/kg	101%	QN
L1528321	SW8270DSIM	Dibenzofuran	22NEC-S28-SD38	0.133	mg/kg	22NEC-S28-SD938	0.390 J	mg/kg	98%	QN
L1528321	SW8270DSIM	Fluorene	22NEC-S28-SD38	0.363	mg/kg	22NEC-S28-SD938	1.3	mg/kg	113%	QN
L1528321	SW8270DSIM	Naphthalene	22NEC-S28-SD38	3.77	mg/kg	22NEC-S28-SD938	11	mg/kg	98%	QN
L1528321	SW8270DSIM	Phenanthrene	22NEC-S28-SD38	0.227	mg/kg	22NEC-S28-SD938	0.58	mg/kg	87%	QN
L1528321	WBLACK	Total Organic Carbon	22NEC-S28-SD38	213,000	mg/kg	22NEC-S28-SD938	121,000	mg/kg	55%	QN
L1528321	AK102/103	DRO	22NEC-S28-SD42	3,390	mg/kg	22NEC-S28-SD942	9,640	mg/kg	96%	QN
L1528321	AK102/103	RRO	22NEC-S28-SD42	24,600	mg/kg	22NEC-S28-SD942	82,200	mg/kg	108%	QN
L1528321	AK102/103SGT	DRO	22NEC-S28-SD42	7,820	mg/kg	22NEC-S28-SD942	15,700	mg/kg	67%	QN
L1528321	AK102/103SGT	RRO	22NEC-S28-SD42	66,600	mg/kg	22NEC-S28-SD942	133,000	mg/kg	67%	QN
L1528321	SW8270DSIM	Chrysene	22NEC-S28-SD42	0.0111 J	mg/kg	22NEC-S28-SD942	0.0542	mg/kg	132%	QN
L1528321	SW8270DSIM	Phenanthrene	22NEC-S28-SD42	0.0271 J	mg/kg	22NEC-S28-SD942	0.0906	mg/kg	108%	QN
L1528321	SW8270DSIM	Pyrene	22NEC-S28-SD42	0.0391	mg/kg	22NEC-S28-SD942	0.0903	mg/kg	79%	QN
L1528321	SW8270DSIM	1-Methylnaphthalene	22NEC-S28-SD53	8.53	mg/kg	22NEC-S28-SD953	47.3	mg/kg	139%	QN
L1528321	SW8270DSIM	2-Methylnaphthalene	22NEC-S28-SD53	16.8	mg/kg	22NEC-S28-SD953	82.2	mg/kg	132%	QN
L1528321	SW8270DSIM	Acenaphthene	22NEC-S28-SD53	0.271	mg/kg	22NEC-S28-SD953	1.54	mg/kg	140%	QN

Table 2 Results Qualified Due to Field Duplicate Imprecision

SDG	METHOD	ANALYTE	PRIMARY SAMPLE	RESULT	UNITS	FIELD DUPLICATE	RESULT	UNITS	RPD	QUALIFIER
L1528321	SW8270DSIM	Anthracene	22NEC-S28-SD53	0.00949 J	mg/kg	22NEC-S28-SD953	0.0513	mg/kg	138%	QN
L1528321	SW8270DSIM	Dibenzofuran	22NEC-S28-SD53	0.173	mg/kg	22NEC-S28-SD953	1	mg/kg	141%	QN
L1528321	SW8270DSIM	Fluoranthene	22NEC-S28-SD53	0.0109 J	mg/kg	22NEC-S28-SD953	0.0366	mg/kg	108%	QN
L1528321	SW8270DSIM	Fluorene	22NEC-S28-SD53	0.437	mg/kg	22NEC-S28-SD953	2.22	mg/kg	134%	QN
L1528321	SW8270DSIM	Naphthalene	22NEC-S28-SD53	5.93	mg/kg	22NEC-S28-SD953	29.5	mg/kg	133%	QN
L1528321	SW8270DSIM	Phenanthrene	22NEC-S28-SD53	0.444	mg/kg	22NEC-S28-SD953	1.66	mg/kg	116%	QN
L1528321	SW8270DSIM	Pyrene	22NEC-S28-SD53	0.00977 J	mg/kg	22NEC-S28-SD953	0.0346	mg/kg	112%	QN

Notes:
For definitions, refer to the Acronyms and Abbreviations section.

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Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1520822	22NEC-S28-DU1	22NEC-S28-DU1-SD01	SO	SW8270DSIM	Benzo(a)anthracene	0.00455	mg/kg	J,QL	Sur<LCL
L1520822	22NEC-S28-DU1	22NEC-S28-DU1-SD01	SO	SW8270DSIM	Benzo(a)pyrene	0.00575	mg/kg	J,QL	Sur<LCL
L1520822	22NEC-S28-DU1	22NEC-S28-DU1-SD01	SO	SW8270DSIM	Benzo(b)fluoranthene	0.00881	mg/kg	J,QL	Sur<LCL
L1520822	22NEC-S28-DU1	22NEC-S28-DU1-SD01	SO	SW8270DSIM	Benzo(g,h,i)perylene	0.00448	mg/kg	J,QL	Sur<LCL
L1520822	22NEC-S28-DU1	22NEC-S28-DU1-SD01	SO	SW8270DSIM	Benzo(k)fluoranthene	0.00314	mg/kg	J,QL	Sur<LCL
L1520822	22NEC-S28-DU1	22NEC-S28-DU1-SD01	SO	SW8270DSIM	Chrysene	0.00645	mg/kg	J,QL	Sur<LCL
L1520822	22NEC-S28-DU1	22NEC-S28-DU1-SD01	SO	SW8270DSIM	Indeno(1,2,3-cd)pyrene	0.00507	mg/kg	J,QL	Sur<LCL
L1520822	22NEC-S28-DU1	22NEC-S28-DU1-SD01	SO	SW8270DSIM	Phenanthrene	0.00892	mg/kg	J,QL	Sur<LCL
L1520822	22NEC-S28-DU1	22NEC-S28-DU1-SD01	SO	SW8270DSIM	1-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1520822	22NEC-S28-DU1	22NEC-S28-DU1-SD01	SO	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1520822	22NEC-S28-DU1	22NEC-S28-DU1-SD01	SO	SW8270DSIM	2-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1520822	22NEC-S28-DU1	22NEC-S28-DU1-SD01	SO	SW8270DSIM	Acenaphthene	ND	mg/kg	QL	Sur<LCL
L1520822	22NEC-S28-DU1	22NEC-S28-DU1-SD01	SO	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1520822	22NEC-S28-DU1	22NEC-S28-DU1-SD01	SO	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1520822	22NEC-S28-DU1	22NEC-S28-DU1-SD01	SO	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1520822	22NEC-S28-DU1	22NEC-S28-DU1-SD01	SO	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	Sur<LCL
L1520822	22NEC-S28-DU1	22NEC-S28-DU1-SD01	SO	SW8270DSIM	Fluoranthene	0.0113	mg/kg	QL	Sur<LCL
L1520822	22NEC-S28-DU1	22NEC-S28-DU1-SD01	SO	SW8270DSIM	Fluorene	ND	mg/kg	QL	Sur<LCL
L1520822	22NEC-S28-DU1	22NEC-S28-DU1-SD01	SO	SW8270DSIM	Naphthalene	ND	mg/kg	QL	Sur<LCL
L1520822	22NEC-S28-DU1	22NEC-S28-DU1-SD01	SO	SW8270DSIM	Pyrene	0.0134	mg/kg	QL	Sur<LCL
L1520822	22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	SO	AK102/103	DRO	92.4	mg/kg	J,QL	MS<LCL|MSD<LCL
L1520822	22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	SO	SW8270DSIM	Benzo(a)anthracene	0.00790	mg/kg	J,QL	MS<LCL|Sur<LCL
L1520822	22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	SO	SW8270DSIM	Benzo(a)pyrene	0.00869	mg/kg	J,QL	MS<LCL|Sur<LCL
L1520822	22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	SO	SW8270DSIM	Benzo(g,h,i)perylene	0.00561	mg/kg	J,QL	MS<LCL|Sur<LCL
L1520822	22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	SO	SW8270DSIM	Benzo(k)fluoranthene	0.00410	mg/kg	J,QL	MS<LCL|Sur<LCL
L1520822	22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	SO	SW8270DSIM	Indeno(1,2,3-cd)pyrene	0.00598	mg/kg	J,QL	MS<LCL|Sur<LCL
L1520822	22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	SO	SW8270DSIM	Phenanthrene	0.00850	mg/kg	J,QL	MS<LCL|Sur<LCL
L1520822	22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	SO	AK102/103	RRO	796	mg/kg	QL	MS<LCutoff|MSD<LCutoff
L1520822	22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	SO	SW8270DSIM	1-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1520822	22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	SO	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1520822	22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	SO	SW8270DSIM	2-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1520822	22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	SO	SW8270DSIM	Acenaphthene	ND	mg/kg	QL	Sur<LCL
L1520822	22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	SO	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1520822	22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	SO	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1520822	22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	SO	SW8270DSIM	Benzo(b)fluoranthene	0.0121	mg/kg	QL	MS<LCL|Sur<LCL
L1520822	22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	SO	SW8270DSIM	Chrysene	0.0113	mg/kg	QL	MS<LCL|Sur<LCL
L1520822	22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	SO	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1520822	22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	SO	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	Sur<LCL
L1520822	22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	SO	SW8270DSIM	Fluoranthene	0.0157	mg/kg	QL	MS<LCL|MSD>RPD|Sur<LCL
L1520822	22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	SO	SW8270DSIM	Fluorene	ND	mg/kg	QL	Sur<LCL
L1520822	22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	SO	SW8270DSIM	Naphthalene	ND	mg/kg	QL	Sur<LCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1520822	22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	SO	SW8270DSIM	Pyrene	0.0178	mg/kg	QL	MS<LCL|MSD>RPD|Sur<LCL
L1520826	22NEC-S28-SW-01	22NEC-S28-SW-01	SW	SW8270DSIM	Fluoranthene	0.0133	µg/L	J,B	MB
L1520826	22NEC-S28-SW-03	22NEC-S28-SW-03	SW	SW8270DSIM	Fluoranthene	0.0143	µg/L	J,B	MB
L1520826	22NEC-S28-SW-03	22NEC-S28-SW-03	SW	AK102/103	DRO	222	µg/L	J,QN	LCSD>RPD
L1520826	22NEC-S28-SW-04	22NEC-S28-SW-04	SW	SW8270DSIM	1-Methylnaphthalene	0.0258	µg/L	J,B	MB
L1520826	22NEC-S28-SW-04	22NEC-S28-SW-04	SW	AK102/103	DRO	239	µg/L	J,QN	LCSD>RPD
L1520826	22NEC-S28-SW-05	22NEC-S28-SW-05	SW	SW8270DSIM	1-Methylnaphthalene	0.0827	µg/L	J,B	MB
L1520826	22NEC-S28-SW-05	22NEC-S28-SW-05	SW	SW8270DSIM	2-Methylnaphthalene	0.0689	µg/L	J,B	MB
L1520826	22NEC-S28-SW-05	22NEC-S28-SW-05	SW	SW8270DSIM	Fluoranthene	0.0176	µg/L	J,B	MB
L1520826	22NEC-S28-WA-01	22NEC-S28-WA-01	WW	SW8270DSIM	1-Methylnaphthalene	ND	µg/L	QL	Sur<LCL
L1520826	22NEC-S28-WA-01	22NEC-S28-WA-01	WW	SW8270DSIM	2-Chloronaphthalene	ND	µg/L	QL	Sur<LCL
L1520826	22NEC-S28-WA-01	22NEC-S28-WA-01	WW	SW8270DSIM	2-Methylnaphthalene	ND	µg/L	QL	Sur<LCL
L1520826	22NEC-S28-WA-01	22NEC-S28-WA-01	WW	SW8270DSIM	Acenaphthene	ND	µg/L	QL	Sur<LCL
L1520826	22NEC-S28-WA-01	22NEC-S28-WA-01	WW	SW8270DSIM	Acenaphthylene	ND	µg/L	QL	Sur<LCL
L1520826	22NEC-S28-WA-01	22NEC-S28-WA-01	WW	SW8270DSIM	Anthracene	ND	µg/L	QL	Sur<LCL
L1520826	22NEC-S28-WA-01	22NEC-S28-WA-01	WW	SW8270DSIM	Benzo(a)anthracene	ND	µg/L	QL	Sur<LCL
L1520826	22NEC-S28-WA-01	22NEC-S28-WA-01	WW	SW8270DSIM	Benzo(a)pyrene	ND	µg/L	QL	Sur<LCL
L1520826	22NEC-S28-WA-01	22NEC-S28-WA-01	WW	SW8270DSIM	Benzo(b)fluoranthene	ND	µg/L	QL	Sur<LCL
L1520826	22NEC-S28-WA-01	22NEC-S28-WA-01	WW	SW8270DSIM	Benzo(g,h,i)perylene	ND	µg/L	QL	Sur<LCL
L1520826	22NEC-S28-WA-01	22NEC-S28-WA-01	WW	SW8270DSIM	Benzo(k)fluoranthene	ND	µg/L	QL	Sur<LCL
L1520826	22NEC-S28-WA-01	22NEC-S28-WA-01	WW	SW8270DSIM	Chrysene	ND	µg/L	QL	Sur<LCL
L1520826	22NEC-S28-WA-01	22NEC-S28-WA-01	WW	SW8270DSIM	Dibenzo(a,h)anthracene	ND	µg/L	QL	Sur<LCL
L1520826	22NEC-S28-WA-01	22NEC-S28-WA-01	WW	SW8270DSIM	Fluoranthene	ND	µg/L	QL	Sur<LCL
L1520826	22NEC-S28-WA-01	22NEC-S28-WA-01	WW	SW8270DSIM	Fluorene	ND	µg/L	QL	Sur<LCL
L1520826	22NEC-S28-WA-01	22NEC-S28-WA-01	WW	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	µg/L	QL	Sur<LCL
L1520826	22NEC-S28-WA-01	22NEC-S28-WA-01	WW	SW8270DSIM	Naphthalene	ND	µg/L	QL	Sur<LCL
L1520826	22NEC-S28-WA-01	22NEC-S28-WA-01	WW	SW8270DSIM	Phenanthrene	ND	µg/L	QL	Sur<LCL
L1520826	22NEC-S28-WA-01	22NEC-S28-WA-01	WW	SW8270DSIM	Pyrene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW03	22NEC-MOC-14MW03	GW	SW6020B	Lead	2.99	µg/L	J,B	MB
L1521707	22NEC-MOC-14MW03	22NEC-MOC-14MW03	GW	SW8270ESIM	Anthracene	0.0226	µg/L	J,B	MB
L1521707	22NEC-MOC-14MW03	22NEC-MOC-14MW03	GW	AK102/103	RRO	ND	µg/L	QH	CCV>UCL
L1521707	22NEC-MOC-14MW06	22NEC-MOC-14MW06	GW	SW6020B	Lead	1.04	µg/L	J,B	MB
L1521707	22NEC-MOC-14MW06	22NEC-MOC-14MW06	GW	AK102/103	RRO	605	µg/L	J,QH	LCS>UCL|CCV>UCL
L1521707	22NEC-MOC-14MW06	22NEC-MOC-14MW06	GW	SW8270ESIM	Anthracene	0.0236	µg/L	JBQL	MB|Sur<LCL
L1521707	22NEC-MOC-14MW06	22NEC-MOC-14MW06	GW	SW8270ESIM	2-Chloronaphthalene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW06	22NEC-MOC-14MW06	GW	SW8270ESIM	2-Methylnaphthalene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW06	22NEC-MOC-14MW06	GW	SW8270ESIM	Acenaphthene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW06	22NEC-MOC-14MW06	GW	SW8270ESIM	Acenaphthylene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW06	22NEC-MOC-14MW06	GW	SW8270ESIM	Benzo(a)anthracene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW06	22NEC-MOC-14MW06	GW	SW8270ESIM	Benzo(a)pyrene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW06	22NEC-MOC-14MW06	GW	SW8270ESIM	Benzo(b)fluoranthene	ND	µg/L	QL	Sur<LCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1521707	22NEC-MOC-14MW06	22NEC-MOC-14MW06	GW	SW8270ESIM	Benzo(g,h,i)perylene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW06	22NEC-MOC-14MW06	GW	SW8270ESIM	Benzo(k)fluoranthene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW06	22NEC-MOC-14MW06	GW	SW8270ESIM	Chrysene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW06	22NEC-MOC-14MW06	GW	SW8270ESIM	Dibenzo(a,h)anthracene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW06	22NEC-MOC-14MW06	GW	SW8270ESIM	Fluoranthene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW06	22NEC-MOC-14MW06	GW	SW8270ESIM	Fluorene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW06	22NEC-MOC-14MW06	GW	SW8270ESIM	Indeno(1,2,3-cd)pyrene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW06	22NEC-MOC-14MW06	GW	SW8270ESIM	Naphthalene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW06	22NEC-MOC-14MW06	GW	SW8270ESIM	Phenanthrene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW06	22NEC-MOC-14MW06	GW	SW8270ESIM	Pyrene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW07	22NEC-MOC-14MW07	GW	SW6020B	Lead	4.11	µg/L	B	MB
L1521707	22NEC-MOC-14MW07	22NEC-MOC-14MW07	GW	SW8270ESIM	Anthracene	0.0200	µg/L	JBQL	MB|Sur<LCL
L1521707	22NEC-MOC-14MW07	22NEC-MOC-14MW07	GW	SW8270ESIM	2-Chloronaphthalene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW07	22NEC-MOC-14MW07	GW	SW8270ESIM	2-Methylnaphthalene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW07	22NEC-MOC-14MW07	GW	SW8270ESIM	Acenaphthene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW07	22NEC-MOC-14MW07	GW	SW8270ESIM	Acenaphthylene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW07	22NEC-MOC-14MW07	GW	SW8270ESIM	Benzo(a)anthracene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW07	22NEC-MOC-14MW07	GW	SW8270ESIM	Benzo(a)pyrene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW07	22NEC-MOC-14MW07	GW	SW8270ESIM	Benzo(b)fluoranthene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW07	22NEC-MOC-14MW07	GW	SW8270ESIM	Benzo(g,h,i)perylene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW07	22NEC-MOC-14MW07	GW	SW8270ESIM	Benzo(k)fluoranthene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW07	22NEC-MOC-14MW07	GW	SW8270ESIM	Chrysene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW07	22NEC-MOC-14MW07	GW	SW8270ESIM	Dibenzo(a,h)anthracene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW07	22NEC-MOC-14MW07	GW	SW8270ESIM	Fluoranthene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW07	22NEC-MOC-14MW07	GW	SW8270ESIM	Fluorene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW07	22NEC-MOC-14MW07	GW	SW8270ESIM	Indeno(1,2,3-cd)pyrene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW07	22NEC-MOC-14MW07	GW	SW8270ESIM	Naphthalene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW07	22NEC-MOC-14MW07	GW	SW8270ESIM	Phenanthrene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW07	22NEC-MOC-14MW07	GW	SW8270ESIM	Pyrene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-14MW903	22NEC-MOC-14MW903	GW	SW6020B	Lead	3.51	µg/L	B	MB
L1521707	22NEC-MOC-14MW903	22NEC-MOC-14MW903	GW	SW8270ESIM	Anthracene	0.0250	µg/L	J,B	MB
L1521707	22NEC-MOC-14MW903	22NEC-MOC-14MW903	GW	AK102/103	RRO	ND	µg/L	QH	CCV>UCL
L1521707	22NEC-MOC-17MW1	22NEC-MOC-17MW1	GW	SW8270ESIM	Benzo(a)anthracene	0.0978	µg/L	J,QL	Sur<LCL
L1521707	22NEC-MOC-17MW1	22NEC-MOC-17MW1	GW	SW8270ESIM	Benzo(a)pyrene	0.0446	µg/L	J,QL	Sur<LCL
L1521707	22NEC-MOC-17MW1	22NEC-MOC-17MW1	GW	SW8270ESIM	Benzo(g,h,i)perylene	0.0788	µg/L	J,QL	Sur<LCL
L1521707	22NEC-MOC-17MW1	22NEC-MOC-17MW1	GW	SW8270ESIM	Benzo(k)fluoranthene	0.119	µg/L	J,QL	Sur<LCL
L1521707	22NEC-MOC-17MW1	22NEC-MOC-17MW1	GW	SW8270ESIM	Dibenzo(a,h)anthracene	0.0730	µg/L	J,QL	Sur<LCL
L1521707	22NEC-MOC-17MW1	22NEC-MOC-17MW1	GW	SW8270ESIM	Fluoranthene	0.0410	µg/L	J,QL	Sur<LCL
L1521707	22NEC-MOC-17MW1	22NEC-MOC-17MW1	GW	SW8270ESIM	Phenanthrene	0.0248	µg/L	J,QL	Sur<LCL
L1521707	22NEC-MOC-17MW1	22NEC-MOC-17MW1	GW	SW8270ESIM	Pyrene	0.0441	µg/L	J,QL	Sur<LCL
L1521707	22NEC-MOC-17MW1	22NEC-MOC-17MW1	GW	SW8270ESIM	Anthracene	0.0276	µg/L	JBQL	MB|Sur<LCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1521707	22NEC-MOC-17MW1	22NEC-MOC-17MW1	GW	SW8270ESIM	2-Chloronaphthalene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-17MW1	22NEC-MOC-17MW1	GW	SW8270ESIM	2-Methylnaphthalene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-17MW1	22NEC-MOC-17MW1	GW	SW8270ESIM	Acenaphthene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-17MW1	22NEC-MOC-17MW1	GW	SW8270ESIM	Acenaphthylene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-17MW1	22NEC-MOC-17MW1	GW	SW8270ESIM	Benzo(b)fluoranthene	0.149	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-17MW1	22NEC-MOC-17MW1	GW	SW8270ESIM	Chrysene	0.130	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-17MW1	22NEC-MOC-17MW1	GW	SW8270ESIM	Fluorene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-17MW1	22NEC-MOC-17MW1	GW	SW8270ESIM	Indeno(1,2,3-cd)pyrene	0.105	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-17MW1	22NEC-MOC-17MW1	GW	SW8270ESIM	Naphthalene	ND	µg/L	QL	Sur<LCL
L1521707	22NEC-MOC-MW88-10	22NEC-MOC-MW88-10	GW	SW6020B	Lead	3.49	µg/L	B	MB
L1521707	22NEC-MOC-MW88-10	22NEC-MOC-MW88-10	GW	SW8270ESIM	Anthracene	0.0241	µg/L	J,B	MB
L1521707	22NEC-MOC-MW88-10	22NEC-MOC-MW88-10	GW	AK102/103	RRO	ND	µg/L	QH	CCV>UCL
L1521959	22NEC-MOC-20MW1	22NEC-MOC-20MW1	GW	SW8270DSIM	2-Chloronaphthalene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-20MW1	22NEC-MOC-20MW1	GW	SW8270DSIM	2-Methylnaphthalene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-20MW1	22NEC-MOC-20MW1	GW	SW8270DSIM	Acenaphthene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-20MW1	22NEC-MOC-20MW1	GW	SW8270DSIM	Acenaphthylene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-20MW1	22NEC-MOC-20MW1	GW	SW8270DSIM	Anthracene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-20MW1	22NEC-MOC-20MW1	GW	SW8270DSIM	Benzo(a)anthracene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-20MW1	22NEC-MOC-20MW1	GW	SW8270DSIM	Benzo(a)pyrene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-20MW1	22NEC-MOC-20MW1	GW	SW8270DSIM	Benzo(b)fluoranthene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-20MW1	22NEC-MOC-20MW1	GW	SW8270DSIM	Benzo(g,h,i)perylene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-20MW1	22NEC-MOC-20MW1	GW	SW8270DSIM	Benzo(k)fluoranthene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-20MW1	22NEC-MOC-20MW1	GW	SW8270DSIM	Chrysene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-20MW1	22NEC-MOC-20MW1	GW	SW8270DSIM	Dibenzo(a,h)anthracene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-20MW1	22NEC-MOC-20MW1	GW	SW8270DSIM	Fluoranthene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-20MW1	22NEC-MOC-20MW1	GW	SW8270DSIM	Fluorene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-20MW1	22NEC-MOC-20MW1	GW	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-20MW1	22NEC-MOC-20MW1	GW	SW8270DSIM	Naphthalene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-20MW1	22NEC-MOC-20MW1	GW	SW8270DSIM	Phenanthrene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-20MW1	22NEC-MOC-20MW1	GW	SW8270DSIM	Pyrene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-22MW2	22NEC-MOC-22MW2	GW	SW8270DSIM	2-Chloronaphthalene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-22MW2	22NEC-MOC-22MW2	GW	SW8270DSIM	2-Methylnaphthalene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-22MW2	22NEC-MOC-22MW2	GW	SW8270DSIM	Acenaphthene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-22MW2	22NEC-MOC-22MW2	GW	SW8270DSIM	Acenaphthylene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-22MW2	22NEC-MOC-22MW2	GW	SW8270DSIM	Anthracene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-22MW2	22NEC-MOC-22MW2	GW	SW8270DSIM	Benzo(a)anthracene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-22MW2	22NEC-MOC-22MW2	GW	SW8270DSIM	Benzo(a)pyrene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-22MW2	22NEC-MOC-22MW2	GW	SW8270DSIM	Benzo(b)fluoranthene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-22MW2	22NEC-MOC-22MW2	GW	SW8270DSIM	Benzo(g,h,i)perylene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-22MW2	22NEC-MOC-22MW2	GW	SW8270DSIM	Benzo(k)fluoranthene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-22MW2	22NEC-MOC-22MW2	GW	SW8270DSIM	Chrysene	ND	µg/L	QL	Sur<LCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1521959	22NEC-MOC-22MW2	22NEC-MOC-22MW2	GW	SW8270DSIM	Dibenzo(a,h)anthracene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-22MW2	22NEC-MOC-22MW2	GW	SW8270DSIM	Fluoranthene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-22MW2	22NEC-MOC-22MW2	GW	SW8270DSIM	Fluorene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-22MW2	22NEC-MOC-22MW2	GW	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-22MW2	22NEC-MOC-22MW2	GW	SW8270DSIM	Naphthalene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-22MW2	22NEC-MOC-22MW2	GW	SW8270DSIM	Phenanthrene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-22MW2	22NEC-MOC-22MW2	GW	SW8270DSIM	Pyrene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-26MW1	22NEC-MOC-26MW1	GW	SW8270DSIM	Fluoranthene	0.0140	µg/L	J,QL	Sur<LCL
L1521959	22NEC-MOC-26MW1	22NEC-MOC-26MW1	GW	SW8270DSIM	Phenanthrene	0.0185	µg/L	J,QL	Sur<LCL
L1521959	22NEC-MOC-26MW1	22NEC-MOC-26MW1	GW	SW8270DSIM	Anthracene	0.0227	µg/L	JBQL	MB|Sur<LCL
L1521959	22NEC-MOC-26MW1	22NEC-MOC-26MW1	GW	SW8270DSIM	2-Chloronaphthalene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-26MW1	22NEC-MOC-26MW1	GW	SW8270DSIM	2-Methylnaphthalene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-26MW1	22NEC-MOC-26MW1	GW	SW8270DSIM	Acenaphthene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-26MW1	22NEC-MOC-26MW1	GW	SW8270DSIM	Acenaphthylene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-26MW1	22NEC-MOC-26MW1	GW	SW8270DSIM	Benzo(a)anthracene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-26MW1	22NEC-MOC-26MW1	GW	SW8270DSIM	Benzo(a)pyrene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-26MW1	22NEC-MOC-26MW1	GW	SW8270DSIM	Benzo(b)fluoranthene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-26MW1	22NEC-MOC-26MW1	GW	SW8270DSIM	Benzo(g,h,i)perylene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-26MW1	22NEC-MOC-26MW1	GW	SW8270DSIM	Benzo(k)fluoranthene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-26MW1	22NEC-MOC-26MW1	GW	SW8270DSIM	Chrysene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-26MW1	22NEC-MOC-26MW1	GW	SW8270DSIM	Dibenzo(a,h)anthracene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-26MW1	22NEC-MOC-26MW1	GW	SW8270DSIM	Fluorene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-26MW1	22NEC-MOC-26MW1	GW	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-26MW1	22NEC-MOC-26MW1	GW	SW8270DSIM	Naphthalene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-26MW1	22NEC-MOC-26MW1	GW	SW8270DSIM	Pyrene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-MW88-1	22NEC-MOC-MW88-1	GW	SW8270DSIM	Anthracene	0.0194	µg/L	JBQL	MB|Sur<LCL
L1521959	22NEC-MOC-MW88-1	22NEC-MOC-MW88-1	GW	SW8270DSIM	2-Chloronaphthalene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-MW88-1	22NEC-MOC-MW88-1	GW	SW8270DSIM	2-Methylnaphthalene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-MW88-1	22NEC-MOC-MW88-1	GW	SW8270DSIM	Acenaphthene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-MW88-1	22NEC-MOC-MW88-1	GW	SW8270DSIM	Acenaphthylene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-MW88-1	22NEC-MOC-MW88-1	GW	SW8270DSIM	Benzo(a)anthracene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-MW88-1	22NEC-MOC-MW88-1	GW	SW8270DSIM	Benzo(a)pyrene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-MW88-1	22NEC-MOC-MW88-1	GW	SW8270DSIM	Benzo(b)fluoranthene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-MW88-1	22NEC-MOC-MW88-1	GW	SW8270DSIM	Benzo(g,h,i)perylene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-MW88-1	22NEC-MOC-MW88-1	GW	SW8270DSIM	Benzo(k)fluoranthene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-MW88-1	22NEC-MOC-MW88-1	GW	SW8270DSIM	Chrysene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-MW88-1	22NEC-MOC-MW88-1	GW	SW8270DSIM	Dibenzo(a,h)anthracene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-MW88-1	22NEC-MOC-MW88-1	GW	SW8270DSIM	Fluoranthene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-MW88-1	22NEC-MOC-MW88-1	GW	SW8270DSIM	Fluorene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-MW88-1	22NEC-MOC-MW88-1	GW	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-MW88-1	22NEC-MOC-MW88-1	GW	SW8270DSIM	Naphthalene	ND	µg/L	QL	Sur<LCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1521959	22NEC-MOC-MW88-1	22NEC-MOC-MW88-1	GW	SW8270DSIM	Phenanthrene	ND	µg/L	QL	Sur<LCL
L1521959	22NEC-MOC-MW88-1	22NEC-MOC-MW88-1	GW	SW8270DSIM	Pyrene	ND	µg/L	QL	Sur<LCL
L1522829	22NEC-S08-SB01	22NEC-S08-SS01	SO	SW8270DSIM	1-Methylnaphthalene	0.0126	mg/kg	J,QL	Sur<LCL
L1522829	22NEC-S08-SB01	22NEC-S08-SS01	SO	SW8270DSIM	Acenaphthene	0.00995	mg/kg	J,QL	Sur<LCL
L1522829	22NEC-S08-SB01	22NEC-S08-SS01	SO	SW8270DSIM	Benzo(a)anthracene	0.00835	mg/kg	J,QL	Sur<LCL
L1522829	22NEC-S08-SB01	22NEC-S08-SS01	SO	SW8270DSIM	Benzo(a)pyrene	0.00236	mg/kg	J,QL	Sur<LCL
L1522829	22NEC-S08-SB01	22NEC-S08-SS01	SO	SW8270DSIM	Benzo(b)fluoranthene	0.00460	mg/kg	J,QL	Sur<LCL
L1522829	22NEC-S08-SB01	22NEC-S08-SS01	SO	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB01	22NEC-S08-SS01	SO	SW8270DSIM	2-Methylnaphthalene	0.0471	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB01	22NEC-S08-SS01	SO	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB01	22NEC-S08-SS01	SO	SW8270DSIM	Anthracene	0.187	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB01	22NEC-S08-SS01	SO	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB01	22NEC-S08-SS01	SO	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB01	22NEC-S08-SS01	SO	SW8270DSIM	Chrysene	0.0121	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB01	22NEC-S08-SS01	SO	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB01	22NEC-S08-SS01	SO	SW8270DSIM	Dibenzofuran	0.0220	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB01	22NEC-S08-SS01	SO	SW8270DSIM	Fluoranthene	0.0356	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB01	22NEC-S08-SS01	SO	SW8270DSIM	Fluorene	0.0196	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB01	22NEC-S08-SS01	SO	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB01	22NEC-S08-SS01	SO	SW8270DSIM	Naphthalene	0.0894	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB01	22NEC-S08-SS01	SO	SW8270DSIM	Phenanthrene	0.0744	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB01	22NEC-S08-SS01	SO	SW8270DSIM	Pyrene	0.0234	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	SW8270DSIM	Benzo(a)anthracene	0.00966	mg/kg	J,QL	Sur<LCL|Sur>UCL
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	SW8270DSIM	Benzo(a)pyrene	0.00918	mg/kg	J,QL	Sur<LCL|Sur>UCL
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	SW8270DSIM	Benzo(b)fluoranthene	0.00730	mg/kg	J,QL	Sur<LCL|Sur>UCL
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	SW8270DSIM	Chrysene	0.0142	mg/kg	J,QL	Sur<LCL|Sur>UCL
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	SW8270DSIM	Fluoranthene	0.0672	mg/kg	QL	Sur<LCL|Sur>UCL|FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	SW8270DSIM	Phenanthrene	7.76	mg/kg	QL	Sur<LCL|Sur>UCL|FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	SW8270DSIM	Pyrene	0.0482	mg/kg	QL	Sur<LCL|Sur>UCL|FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	AK102/103	DRO	169000	mg/kg	QN	FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	AK102/103	RRO	5780	mg/kg	QN	FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	AK102/103SGT	DRO	143000	mg/kg	QN	FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	AK102/103SGT	RRO	3950	mg/kg	QN	FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	SW8270DSIM	1-Methylnaphthalene	946	mg/kg	QN	FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	SW8270DSIM	2-Methylnaphthalene	1290	mg/kg	QN	FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	SW8270DSIM	Acenaphthene	25.3	mg/kg	QN	FD>RPD

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	SW8270DSIM	Dibenzofuran	11.7	mg/kg	QN	FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	SW8270DSIM	Fluorene	29.2	mg/kg	QN	FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	SW8270DSIM	Naphthalene	897	mg/kg	QN	FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS02	SO	WBLACK	Total Organic Carbon	501000	mg/kg	QN	FD>RPD
L1522829	22NEC-S08-SB03	22NEC-S08-SS03	SO	SW8270DSIM	Fluoranthene	0.00939	mg/kg	J,QH	Sur>UCL
L1522829	22NEC-S08-SB03	22NEC-S08-SS03	SO	SW8270DSIM	Pyrene	0.00989	mg/kg	J,QH	Sur>UCL
L1522829	22NEC-S08-SB03	22NEC-S08-SS03	SO	SW8270DSIM	Acenaphthene	1.07	mg/kg	QH	Sur>UCL
L1522829	22NEC-S08-SB03	22NEC-S08-SS03	SO	SW8270DSIM	Dibenzofuran	0.700	mg/kg	QH	Sur>UCL
L1522829	22NEC-S08-SB03	22NEC-S08-SS03	SO	SW8270DSIM	Fluorene	3.00	mg/kg	QH	Sur>UCL
L1522829	22NEC-S08-SB03	22NEC-S08-SS03	SO	SW8270DSIM	Phenanthrene	1.23	mg/kg	QH	Sur>UCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS05	SO	SW8270DSIM	Fluoranthene	0.00680	mg/kg	J,QH	Sur>UCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS05	SO	SW8270DSIM	2-Methylnaphthalene	0.0659	mg/kg	QH	Sur>UCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS05	SO	SW8270DSIM	Acenaphthene	0.0682	mg/kg	QH	Sur>UCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS05	SO	SW8270DSIM	Fluorene	0.0286	mg/kg	QH	Sur>UCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS05	SO	SW8270DSIM	Phenanthrene	0.0173	mg/kg	QH	Sur>UCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS05	SO	SW8270DSIM	Pyrene	0.0133	mg/kg	QH	Sur>UCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS06	SO	SW8270DSIM	1-Methylnaphthalene	0.00611	mg/kg	J,QL	Sur<LCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS06	SO	SW8270DSIM	Naphthalene	0.0192	mg/kg	J,QL	Sur<LCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS06	SO	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS06	SO	SW8270DSIM	2-Methylnaphthalene	0.0227	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS06	SO	SW8270DSIM	Acenaphthene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS06	SO	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS06	SO	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS06	SO	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS06	SO	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS06	SO	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS06	SO	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS06	SO	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS06	SO	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS06	SO	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS06	SO	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS06	SO	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS06	SO	SW8270DSIM	Fluorene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS06	SO	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS06	SO	SW8270DSIM	Phenanthrene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS06	SO	SW8270DSIM	Pyrene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB06	22NEC-S08-SS06	SO	WBLACK	Total Organic Carbon	3600	mg/kg	QN	LR>RPD
L1522829	22NEC-S08-SB05	22NEC-S08-SS07	SO	AK102/103	RRO	966	mg/kg	QL	MS<10%
L1522829	22NEC-S08-SB05	22NEC-S08-SS07	SO	AK102/103SGT	RRO	432	mg/kg	QL	MS<LCL
L1522829	22NEC-S08-SB05	22NEC-S08-SS07	SO	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	MS<LCL
L1522829	22NEC-S08-SB05	22NEC-S08-SS07	SO	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	MS<LCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1522829	22NEC-S08-SB05	22NEC-S08-SS07	SO	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	QL	MS<LCL
L1522829	22NEC-S08-SB05	22NEC-S08-SS07	SO	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	MS<LCL
L1522829	22NEC-S08-SB05	22NEC-S08-SS07	SO	SW8270DSIM	Chrysene	ND	mg/kg	QL	MS<LCL
L1522829	22NEC-S08-SB05	22NEC-S08-SS07	SO	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	MS<LCL
L1522829	22NEC-S08-SB05	22NEC-S08-SS07	SO	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	MS<LCL
L1522829	22NEC-S08-SB05	22NEC-S08-SS07	SO	SW8270DSIM	Pyrene	ND	mg/kg	QL	MS<LCL
L1522829	22NEC-S08-SB05	22NEC-S08-SS07	SO	SM2540G	Solids	66.5	%	QN	LR>RPD
L1522829	22NEC-S08-SB10	22NEC-S08-SS11	SO	SW8270DSIM	2-Methylnaphthalene	0.00996	mg/kg	J,QL	Sur<LCL
L1522829	22NEC-S08-SB10	22NEC-S08-SS11	SO	SW8270DSIM	Benzo(a)anthracene	0.00252	mg/kg	J,QL	Sur<LCL
L1522829	22NEC-S08-SB10	22NEC-S08-SS11	SO	SW8270DSIM	Chrysene	0.00569	mg/kg	J,QL	Sur<LCL
L1522829	22NEC-S08-SB10	22NEC-S08-SS11	SO	SW8270DSIM	Dibenzofuran	0.00408	mg/kg	J,QL	Sur<LCL
L1522829	22NEC-S08-SB10	22NEC-S08-SS11	SO	SW8270DSIM	Fluorene	0.0111	mg/kg	J,QL	Sur<LCL
L1522829	22NEC-S08-SB10	22NEC-S08-SS11	SO	SW8270DSIM	Naphthalene	0.0109	mg/kg	J,QL	Sur<LCL
L1522829	22NEC-S08-SB10	22NEC-S08-SS11	SO	SW8270DSIM	1-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB10	22NEC-S08-SS11	SO	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB10	22NEC-S08-SS11	SO	SW8270DSIM	Acenaphthene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB10	22NEC-S08-SS11	SO	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB10	22NEC-S08-SS11	SO	SW8270DSIM	Anthracene	0.266	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB10	22NEC-S08-SS11	SO	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB10	22NEC-S08-SS11	SO	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB10	22NEC-S08-SS11	SO	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB10	22NEC-S08-SS11	SO	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB10	22NEC-S08-SS11	SO	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB10	22NEC-S08-SS11	SO	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB10	22NEC-S08-SS11	SO	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB10	22NEC-S08-SS11	SO	SW8270DSIM	Phenanthrene	0.0216	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB10	22NEC-S08-SS11	SO	SW8270DSIM	Pyrene	ND	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB14	22NEC-S08-SS15	SO	AK102/103SGT	RRO	630	mg/kg	B,QL	MB|Sur<LCL
L1522829	22NEC-S08-SB14	22NEC-S08-SS15	SO	AK102/103SGT	DRO	81.8	mg/kg	J,QL	SUR<LCL
L1522829	22NEC-S08-SB14	22NEC-S08-SS15	SO	AK102/103	RRO	1870	mg/kg	QL	Sur<LCL
L1522829	22NEC-S08-SB02	22NEC-S08-SS902	SO	AK102/103	RRO	1550	mg/kg	J,QN	FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS902	SO	AK102/103SGT	RRO	993	mg/kg	J,QN	FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS902	SO	SW8270DSIM	Fluoranthene	0.0106	mg/kg	J,QN	Sur>UCL|FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS902	SO	SW8270DSIM	Pyrene	0.0119	mg/kg	J,QN	Sur>UCL|FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS902	SO	AK102/103	DRO	27900	mg/kg	QN	FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS902	SO	AK102/103SGT	DRO	27200	mg/kg	QN	FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS902	SO	SW8270DSIM	1-Methylnaphthalene	128	mg/kg	QN	FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS902	SO	SW8270DSIM	2-Methylnaphthalene	230	mg/kg	QN	FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS902	SO	SW8270DSIM	Acenaphthene	3.61	mg/kg	QN	Sur>UCL|FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS902	SO	SW8270DSIM	Dibenzofuran	1.91	mg/kg	QN	Sur>UCL|FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS902	SO	SW8270DSIM	Fluorene	4.72	mg/kg	QN	Sur>UCL|FD>RPD

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1522829	22NEC-S08-SB02	22NEC-S08-SS902	SO	SW8270DSIM	Naphthalene	126	mg/kg	QN	FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS902	SO	SW8270DSIM	Phenanthrene	1.31	mg/kg	QN	Sur>UCL|FD>RPD
L1522829	22NEC-S08-SB02	22NEC-S08-SS902	SO	WBLACK	Total Organic Carbon	169000	mg/kg	QN	FD>RPD
L1522831	22NEC-MOC-14MW01	22NEC-MOC-14MW01	GW	SM2320B	Alkalinity, Carbonate as CaCO3	ND	µg/L	H	HT
L1522831	22NEC-MOC-14MW01	22NEC-MOC-14MW01	GW	SM2320B	Alkalinity, Hydroxide as CaCO3	ND	µg/L	H	HT
L1522831	22NEC-MOC-14MW01	22NEC-MOC-14MW01	GW	SW8270DSIM	Phenanthrene	0.0423	µg/L	J,B	MB
L1522831	22NEC-MOC-14MW01	22NEC-MOC-14MW01	GW	SM2320B	Alkalinity, Bicarbonate as CaCO3	19300	µg/L	J,H	HT
L1522831	22NEC-MOC-14MW01	22NEC-MOC-14MW01	GW	SM2320B	Alkalinity, Total	19300	µg/L	J,H	HT
L1522831	22NEC-MOC-14MW01	22NEC-MOC-14MW01	GW	AK102/103	RRO	ND	µg/L	QL	Sur<LCL
L1522831	22NEC-MOC-MW88-3	22NEC-MOC-MW88-3	GW	SW8270DSIM	Fluoranthene	0.0157	µg/L	J,QL	MS<LCL|MSD>RPD
L1522831	22NEC-MOC-MW88-3	22NEC-MOC-MW88-3	GW	SW8260D	Benzene	ND	µg/L	QL	MS<LCL
L1522831	22NEC-MOC-MW88-3	22NEC-MOC-MW88-3	GW	SW8260D	Ethylbenzene	ND	µg/L	QL	MS<LCL
L1522831	22NEC-MOC-MW88-3	22NEC-MOC-MW88-3	GW	SW8260D	Toluene	ND	µg/L	QL	MS<LCL
L1522831	22NEC-MOC-MW88-3	22NEC-MOC-MW88-3	GW	SW8260D	Xylenes (total)	ND	µg/L	QL	MS<LCL
L1522831	22NEC-MOC-MW88-3	22NEC-MOC-MW88-3	GW	SW8270DSIM	Benzo(a)anthracene	ND	µg/L	QL	MS<LCL
L1522831	22NEC-MOC-MW88-3	22NEC-MOC-MW88-3	GW	SW8270DSIM	Benzo(a)pyrene	ND	µg/L	QL	MS<LCL
L1522831	22NEC-MOC-MW88-3	22NEC-MOC-MW88-3	GW	SW8270DSIM	Benzo(b)fluoranthene	ND	µg/L	QL	MS<LCL
L1522831	22NEC-MOC-MW88-3	22NEC-MOC-MW88-3	GW	SW8270DSIM	Benzo(g,h,i)perylene	ND	µg/L	QL	MS<LCL
L1522831	22NEC-MOC-MW88-3	22NEC-MOC-MW88-3	GW	SW8270DSIM	Benzo(k)fluoranthene	ND	µg/L	QL	MS<LCL
L1522831	22NEC-MOC-MW88-3	22NEC-MOC-MW88-3	GW	SW8270DSIM	Chrysene	ND	µg/L	QL	MS<LCL
L1522831	22NEC-MOC-MW88-3	22NEC-MOC-MW88-3	GW	SW8270DSIM	Dibenzo(a,h)anthracene	ND	µg/L	QL	MS<LCL
L1522831	22NEC-MOC-MW88-3	22NEC-MOC-MW88-3	GW	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	µg/L	QL	MS<LCL
L1522831	22NEC-MOC-MW88-3	22NEC-MOC-MW88-3	GW	SW8270DSIM	Pyrene	ND	µg/L	QL	MS<LCL
L1522883	22NEC-S08-SB15	22NEC-S08-SS16	SO	AK102/103	RRO	2410	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB19	22NEC-S08-SS20	SO	WBLACK	Total Organic Carbon	11100	mg/kg	QN	FD>RPD
L1522883	22NEC-S08-SB21	22NEC-S08-SS22	SO	SW8270DSIM	Pyrene	0.00355	mg/kg	J,QL	Sur<10%|Sur>UCL
L1522883	22NEC-S08-SB21	22NEC-S08-SS22	SO	SW8270DSIM	1-Methylnaphthalene	2.74	mg/kg	QH	Sur>UCL
L1522883	22NEC-S08-SB21	22NEC-S08-SS22	SO	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<10%
L1522883	22NEC-S08-SB21	22NEC-S08-SS22	SO	SW8270DSIM	2-Methylnaphthalene	1.25	mg/kg	QL	Sur<10%|Sur>UCL
L1522883	22NEC-S08-SB21	22NEC-S08-SS22	SO	SW8270DSIM	Acenaphthene	0.0638	mg/kg	QL	Sur<10%|Sur>UCL
L1522883	22NEC-S08-SB21	22NEC-S08-SS22	SO	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<10%
L1522883	22NEC-S08-SB21	22NEC-S08-SS22	SO	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<10%
L1522883	22NEC-S08-SB21	22NEC-S08-SS22	SO	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<10%
L1522883	22NEC-S08-SB21	22NEC-S08-SS22	SO	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<10%
L1522883	22NEC-S08-SB21	22NEC-S08-SS22	SO	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<10%
L1522883	22NEC-S08-SB21	22NEC-S08-SS22	SO	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<10%
L1522883	22NEC-S08-SB21	22NEC-S08-SS22	SO	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<10%
L1522883	22NEC-S08-SB21	22NEC-S08-SS22	SO	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<10%
L1522883	22NEC-S08-SB21	22NEC-S08-SS22	SO	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	Sur<10%
L1522883	22NEC-S08-SB21	22NEC-S08-SS22	SO	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	Sur<10%
L1522883	22NEC-S08-SB21	22NEC-S08-SS22	SO	SW8270DSIM	Fluorene	0.118	mg/kg	QL	Sur<10%|Sur>UCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1522883	22NEC-S08-SB21	22NEC-S08-SS22	SO	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<10%
L1522883	22NEC-S08-SB21	22NEC-S08-SS22	SO	SW8270DSIM	Naphthalene	0.335	mg/kg	QL	Sur<10%|Sur>UCL
L1522883	22NEC-S08-SB21	22NEC-S08-SS22	SO	SW8270DSIM	Phenanthrene	0.0775	mg/kg	QL	Sur<10%|Sur>UCL
L1522883	22NEC-S08-SB22	22NEC-S08-SS23	SO	SW8270DSIM	Chrysene	0.00406	mg/kg	J,QL	Sur<LCL|Sur>UCL
L1522883	22NEC-S08-SB22	22NEC-S08-SS23	SO	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB22	22NEC-S08-SS23	SO	SW8270DSIM	2-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB22	22NEC-S08-SS23	SO	SW8270DSIM	Acenaphthene	0.0756	mg/kg	QL	Sur<LCL|Sur>UCL
L1522883	22NEC-S08-SB22	22NEC-S08-SS23	SO	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB22	22NEC-S08-SS23	SO	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB22	22NEC-S08-SS23	SO	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB22	22NEC-S08-SS23	SO	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB22	22NEC-S08-SS23	SO	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB22	22NEC-S08-SS23	SO	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB22	22NEC-S08-SS23	SO	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB22	22NEC-S08-SS23	SO	SW8270DSIM	Dibenzofuran	0.0932	mg/kg	QL	Sur<LCL|Sur>UCL
L1522883	22NEC-S08-SB22	22NEC-S08-SS23	SO	SW8270DSIM	Fluoranthene	0.0169	mg/kg	QL	Sur<LCL|Sur>UCL
L1522883	22NEC-S08-SB22	22NEC-S08-SS23	SO	SW8270DSIM	Fluorene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB22	22NEC-S08-SS23	SO	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB22	22NEC-S08-SS23	SO	SW8270DSIM	Naphthalene	0.182	mg/kg	QL	Sur<LCL|Sur>UCL
L1522883	22NEC-S08-SB22	22NEC-S08-SS23	SO	SW8270DSIM	Phenanthrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB22	22NEC-S08-SS23	SO	SW8270DSIM	Pyrene	0.0182	mg/kg	QL	Sur<LCL|Sur>UCL
L1522883	22NEC-S08-SB24	22NEC-S08-SS25	SO	SW8270DSIM	2-Methylnaphthalene	0.0106	mg/kg	J,QL	Sur<LCL
L1522883	22NEC-S08-SB24	22NEC-S08-SS25	SO	SW8270DSIM	Fluorene	0.00736	mg/kg	J,QL	Sur<LCL
L1522883	22NEC-S08-SB24	22NEC-S08-SS25	SO	SW8270DSIM	Naphthalene	0.00805	mg/kg	J,QL	Sur<LCL
L1522883	22NEC-S08-SB24	22NEC-S08-SS25	SO	SW8270DSIM	Phenanthrene	0.00433	mg/kg	J,QL	Sur<LCL
L1522883	22NEC-S08-SB24	22NEC-S08-SS25	SO	SW8270DSIM	1-Methylnaphthalene	0.0140	mg/kg	J,QN	FD>RPD
L1522883	22NEC-S08-SB24	22NEC-S08-SS25	SO	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB24	22NEC-S08-SS25	SO	SW8270DSIM	Acenaphthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB24	22NEC-S08-SS25	SO	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB24	22NEC-S08-SS25	SO	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB24	22NEC-S08-SS25	SO	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB24	22NEC-S08-SS25	SO	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB24	22NEC-S08-SS25	SO	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB24	22NEC-S08-SS25	SO	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB24	22NEC-S08-SS25	SO	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB24	22NEC-S08-SS25	SO	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB24	22NEC-S08-SS25	SO	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB24	22NEC-S08-SS25	SO	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB24	22NEC-S08-SS25	SO	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB24	22NEC-S08-SS25	SO	SW8270DSIM	Pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB24	22NEC-S08-SS25	SO	AK102/103SGT	DRO	339	mg/kg	QN	FD>RPD

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1522883	22NEC-S08-SB25	22NEC-S08-SS26	SO	AK102/103SGT	RRO	570	mg/kg	QL	MS<LCL|MSD<LCL|MSD>RPD
L1522883	22NEC-S08-SB25	22NEC-S08-SS26	SO	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB25	22NEC-S08-SS26	SO	SW8270DSIM	2-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB25	22NEC-S08-SS26	SO	SW8270DSIM	Acenaphthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB25	22NEC-S08-SS26	SO	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB25	22NEC-S08-SS26	SO	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB25	22NEC-S08-SS26	SO	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB25	22NEC-S08-SS26	SO	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB25	22NEC-S08-SS26	SO	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB25	22NEC-S08-SS26	SO	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	QL	MSD<LCL
L1522883	22NEC-S08-SB25	22NEC-S08-SS26	SO	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB25	22NEC-S08-SS26	SO	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB25	22NEC-S08-SS26	SO	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB25	22NEC-S08-SS26	SO	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB25	22NEC-S08-SS26	SO	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB25	22NEC-S08-SS26	SO	SW8270DSIM	Fluorene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB25	22NEC-S08-SS26	SO	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB25	22NEC-S08-SS26	SO	SW8270DSIM	Naphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB25	22NEC-S08-SS26	SO	SW8270DSIM	Phenanthrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB25	22NEC-S08-SS26	SO	SW8270DSIM	Pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB26	22NEC-S08-SS27	SO	SW8270DSIM	Chrysene	0.00467	mg/kg	J,QL	Sur<LCL|Sur>UCL
L1522883	22NEC-S08-SB26	22NEC-S08-SS27	SO	SW8270DSIM	Fluoranthene	0.00856	mg/kg	J,QL	Sur<LCL|Sur>UCL
L1522883	22NEC-S08-SB26	22NEC-S08-SS27	SO	SW8270DSIM	Pyrene	0.0102	mg/kg	J,QL	Sur<LCL|Sur>UCL
L1522883	22NEC-S08-SB26	22NEC-S08-SS27	SO	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB26	22NEC-S08-SS27	SO	SW8270DSIM	Acenaphthene	0.383	mg/kg	QL	Sur<LCL|Sur>UCL
L1522883	22NEC-S08-SB26	22NEC-S08-SS27	SO	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB26	22NEC-S08-SS27	SO	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB26	22NEC-S08-SS27	SO	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB26	22NEC-S08-SS27	SO	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB26	22NEC-S08-SS27	SO	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB26	22NEC-S08-SS27	SO	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB26	22NEC-S08-SS27	SO	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB26	22NEC-S08-SS27	SO	SW8270DSIM	Dibenzofuran	0.184	mg/kg	QL	Sur<LCL|Sur>UCL
L1522883	22NEC-S08-SB26	22NEC-S08-SS27	SO	SW8270DSIM	Fluorene	0.769	mg/kg	QL	Sur<LCL|Sur>UCL
L1522883	22NEC-S08-SB26	22NEC-S08-SS27	SO	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB26	22NEC-S08-SS27	SO	SW8270DSIM	Naphthalene	2.90	mg/kg	QL	Sur<LCL|Sur>UCL
L1522883	22NEC-S08-SB26	22NEC-S08-SS27	SO	SW8270DSIM	Phenanthrene	0.381	mg/kg	QL	Sur<LCL|Sur>UCL
L1522883	22NEC-S08-SB28	22NEC-S08-SS29	SO	SW8270DSIM	Dibenzofuran	0.0205	mg/kg	J,QL	Sur<LCL
L1522883	22NEC-S08-SB28	22NEC-S08-SS29	SO	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB28	22NEC-S08-SS29	SO	SW8270DSIM	2-Methylnaphthalene	0.809	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB28	22NEC-S08-SS29	SO	SW8270DSIM	Acenaphthene	0.0311	mg/kg	QL	Sur<LCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1522883	22NEC-S08-SB28	22NEC-S08-SS29	SO	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB28	22NEC-S08-SS29	SO	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB28	22NEC-S08-SS29	SO	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB28	22NEC-S08-SS29	SO	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB28	22NEC-S08-SS29	SO	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB28	22NEC-S08-SS29	SO	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB28	22NEC-S08-SS29	SO	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB28	22NEC-S08-SS29	SO	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB28	22NEC-S08-SS29	SO	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB28	22NEC-S08-SS29	SO	SW8270DSIM	Fluorene	0.0693	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB28	22NEC-S08-SS29	SO	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB28	22NEC-S08-SS29	SO	SW8270DSIM	Naphthalene	0.0687	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB28	22NEC-S08-SS29	SO	SW8270DSIM	Phenanthrene	0.0272	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB28	22NEC-S08-SS29	SO	SW8270DSIM	Pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB27	22NEC-S08-SS30	SO	AK102/103	RRO	3990	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB29	22NEC-S08-SS31	SO	AK102/103SGT	RRO	321	mg/kg	B	MB
L1522883	22NEC-S08-SB29	22NEC-S08-SS31	SO	SW8270DSIM	Fluoranthene	0.00411	mg/kg	J,QL	Sur<LCL
L1522883	22NEC-S08-SB29	22NEC-S08-SS31	SO	SW8270DSIM	Pyrene	0.00782	mg/kg	J,QL	Sur<LCL
L1522883	22NEC-S08-SB29	22NEC-S08-SS31	SO	SW8270DSIM	1-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB29	22NEC-S08-SS31	SO	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB29	22NEC-S08-SS31	SO	SW8270DSIM	2-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB29	22NEC-S08-SS31	SO	SW8270DSIM	Acenaphthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB29	22NEC-S08-SS31	SO	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB29	22NEC-S08-SS31	SO	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB29	22NEC-S08-SS31	SO	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB29	22NEC-S08-SS31	SO	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB29	22NEC-S08-SS31	SO	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB29	22NEC-S08-SS31	SO	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB29	22NEC-S08-SS31	SO	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB29	22NEC-S08-SS31	SO	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB29	22NEC-S08-SS31	SO	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB29	22NEC-S08-SS31	SO	SW8270DSIM	Fluorene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB29	22NEC-S08-SS31	SO	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB29	22NEC-S08-SS31	SO	SW8270DSIM	Naphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB29	22NEC-S08-SS31	SO	SW8270DSIM	Phenanthrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB30	22NEC-S08-SS32	SO	AK102/103SGT	RRO	365	mg/kg	B	MB
L1522883	22NEC-S08-SB30	22NEC-S08-SS32	SO	AK102/103	RRO	1060	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB30	22NEC-S08-SS32	SO	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB30	22NEC-S08-SS32	SO	SW8270DSIM	2-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB30	22NEC-S08-SS32	SO	SW8270DSIM	Acenaphthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB30	22NEC-S08-SS32	SO	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1522883	22NEC-S08-SB30	22NEC-S08-SS32	SO	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB30	22NEC-S08-SS32	SO	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB30	22NEC-S08-SS32	SO	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB30	22NEC-S08-SS32	SO	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB30	22NEC-S08-SS32	SO	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB30	22NEC-S08-SS32	SO	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB30	22NEC-S08-SS32	SO	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB30	22NEC-S08-SS32	SO	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB30	22NEC-S08-SS32	SO	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB30	22NEC-S08-SS32	SO	SW8270DSIM	Fluorene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB30	22NEC-S08-SS32	SO	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB30	22NEC-S08-SS32	SO	SW8270DSIM	Naphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB30	22NEC-S08-SS32	SO	SW8270DSIM	Phenanthrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB30	22NEC-S08-SS32	SO	SW8270DSIM	Pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	SW8270DSIM	Acenaphthene	0.0218	mg/kg	J,QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	SW8270DSIM	Phenanthrene	0.0129	mg/kg	J,QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	AK102/103	RRO	7230	mg/kg	QL	Sur<LCL|FD>RPD
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	SW8270DSIM	2-Methylnaphthalene	1.18	mg/kg	QL	Sur<LCL|FD>RPD
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	SW8270DSIM	Fluorene	0.0602	mg/kg	QL	Sur<LCL|FD>RPD
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	SW8270DSIM	Naphthalene	0.318	mg/kg	QL	Sur<LCL|FD>RPD
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	SW8270DSIM	Pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	AK102/103	DRO	573	mg/kg	QN	FD>RPD
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	AK102/103SGT	RRO	2530	mg/kg	QN	FD>RPD
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	SW8270DSIM	1-Methylnaphthalene	0.731	mg/kg	QN	FD>RPD
L1522883	22NEC-S08-SB31	22NEC-S08-SS33	SO	WBLACK	Total Organic Carbon	356000	mg/kg	QNH	HT|FD>RPD
L1522883	22NEC-S08-SB31	22NEC-S08-SS34	SO	AK102/103SGT	RRO	161	mg/kg	J,B	MB
L1522883	22NEC-S08-SB31	22NEC-S08-SS34	SO	AK102/103	RRO	433	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS34	SO	SW8270DSIM	1-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS34	SO	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1522883	22NEC-S08-SB31	22NEC-S08-SS34	SO	SW8270DSIM	2-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS34	SO	SW8270DSIM	Acenaphthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS34	SO	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS34	SO	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS34	SO	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS34	SO	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS34	SO	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS34	SO	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS34	SO	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS34	SO	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS34	SO	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS34	SO	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS34	SO	SW8270DSIM	Fluorene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS34	SO	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS34	SO	SW8270DSIM	Naphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS34	SO	SW8270DSIM	Phenanthrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS34	SO	SW8270DSIM	Pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB32	22NEC-S08-SS35	SO	AK102/103	RRO	4220	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB32	22NEC-S08-SS35	SO	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB32	22NEC-S08-SS35	SO	SW8270DSIM	2-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB32	22NEC-S08-SS35	SO	SW8270DSIM	Acenaphthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB32	22NEC-S08-SS35	SO	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB32	22NEC-S08-SS35	SO	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB32	22NEC-S08-SS35	SO	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB32	22NEC-S08-SS35	SO	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB32	22NEC-S08-SS35	SO	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB32	22NEC-S08-SS35	SO	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB32	22NEC-S08-SS35	SO	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB32	22NEC-S08-SS35	SO	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB32	22NEC-S08-SS35	SO	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB32	22NEC-S08-SS35	SO	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB32	22NEC-S08-SS35	SO	SW8270DSIM	Fluorene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB32	22NEC-S08-SS35	SO	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB32	22NEC-S08-SS35	SO	SW8270DSIM	Naphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB32	22NEC-S08-SS35	SO	SW8270DSIM	Phenanthrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB32	22NEC-S08-SS35	SO	SW8270DSIM	Pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB19	22NEC-S08-SS920	SO	WBLACK	Total Organic Carbon	21800	mg/kg	QN	FD>RPD
L1522883	22NEC-S08-SB24	22NEC-S08-SS925	SO	AK102/103SGT	DRO	171	mg/kg	J,QN	FD>RPD
L1522883	22NEC-S08-SB24	22NEC-S08-SS925	SO	SW8270DSIM	1-Methylnaphthalene	0.0276	mg/kg	QN	FD>RPD
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	AK102/103SGT	RRO	505	mg/kg	B,QN	MB|FD>RPD
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	SW8270DSIM	Acenaphthene	0.00674	mg/kg	J,QL	Sur<LCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	SW8270DSIM	Dibenzofuran	0.00379	mg/kg	J,QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	SW8270DSIM	Naphthalene	0.0249	mg/kg	J,QL	Sur<LCL|FD>RPD
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	SW8270DSIM	Phenanthrene	0.00891	mg/kg	J,QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	AK102/103	DRO	199	mg/kg	J,QN	FD>RPD
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	AK102/103	RRO	1830	mg/kg	QL	Sur<LCL|FD>RPD
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	SW8270DSIM	2-Methylnaphthalene	0.153	mg/kg	QL	Sur<LCL|FD>RPD
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	SW8270DSIM	Fluorene	0.0143	mg/kg	QL	Sur<LCL|FD>RPD
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	SW8270DSIM	Pyrene	ND	mg/kg	QL	Sur<LCL
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	SW8270DSIM	1-Methylnaphthalene	0.135	mg/kg	QN	FD>RPD
L1522883	22NEC-S08-SB31	22NEC-S08-SS933	SO	WBLACK	Total Organic Carbon	75000	mg/kg	QN	FD>RPD
L1524088	22NEC-BG-10	22NEC-BG-10	SO	SM2540G	Solids	73.9	%	QN	LR>RPD
L1524088	22NEC-BG-6	22NEC-BG-6	SO	AK102/103SGT	DRO	277	mg/kg	QHJ	LCS>UCL
L1524088	22NEC-BG-7	22NEC-BG-7	SO	AK102/103SGT	DRO	168	mg/kg	QHJ	LCS>UCL
L1524091	22NEC-SP2-DU1-01	22NEC-SP2-DU1-01	SO	AK102	DRO	1770	mg/kg	QH	Sur>UCL
L1524107	22NEC-S15-SS10	22NEC-S15-SS10	SO	AK102	DRO	285	mg/kg	QL	Surr<LCL
L1524107	22NEC-S15-SS11	22NEC-S15-SS11	SO	AK102	DRO	668	mg/kg	QN	FD>RPD
L1524107	22NEC-S15-SS16	22NEC-S15-SS16	SO	AK102	DRO	408	mg/kg	QL	MS<LCL|MSD>RPD
L1524107	22NEC-S15-SS19	22NEC-S15-SS19	SO	AK102	DRO	2460	mg/kg	QL	Surr<LCL
L1524107	22NEC-S15-SS23	22NEC-S15-SS23	SO	AK102	DRO	339	mg/kg	QL	MS<LCL|MSD>RPD
L1524107	22NEC-S15-SS24	22NEC-S15-SS24	SO	AK102	DRO	646	mg/kg	QL	Surr<LCL
L1524107	22NEC-S15-SS11	22NEC-S15-SS911	SO	AK102	DRO	381	mg/kg	QN	FD>RPD
L1524107	22NEC-S15-SS24	22NEC-S15-SS924	SO	AK102	DRO	847	mg/kg	QL	Surr<LCL
L1525023	NEC22-WC-1	NEC22-WC-1_TCLP	SO	SW8270E TCLP	Pyridine	ND	mg/L	QL	LCS<LCL
L1525023	NEC22-WC-2	NEC22-WC-2_TCLP	SO	SW8270E TCLP	Pyridine	ND	mg/L	QL	LCS<LCL
L1525023	NEC22-WC-3	NEC22-WC-3	SO	SW8082A	Aroclor 1260	0.0140	mg/kg	J,QN	CF>RPD
L1525023	NEC22-WC-3	NEC22-WC-3_TCLP	SO	SW8270E TCLP	1,4-Dichlorobenzene	ND	mg/L	QL	Sur<LCL
L1525023	NEC22-WC-3	NEC22-WC-3_TCLP	SO	SW8270E TCLP	2,4-Dinitrotoluene	ND	mg/L	QL	Sur<LCL
L1525023	NEC22-WC-3	NEC22-WC-3_TCLP	SO	SW8270E TCLP	Hexachlorobenzene	ND	mg/L	QL	Sur<LCL
L1525023	NEC22-WC-3	NEC22-WC-3_TCLP	SO	SW8270E TCLP	Hexachlorobutadiene	ND	mg/L	QL	Sur<LCL
L1525023	NEC22-WC-3	NEC22-WC-3_TCLP	SO	SW8270E TCLP	Hexachloroethane	ND	mg/L	QL	Sur<LCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1525023	NEC22-WC-3	NEC22-WC-3_TCLP	SO	SW8270E TCLP	Nitrobenzene	ND	mg/L	QL	Sur<LCL
L1525023	NEC22-WC-3	NEC22-WC-3_TCLP	SO	SW8270E TCLP	Pyridine	ND	mg/L	QL	LCS<LCL
L1525127	22NEC-MOC-14MW02	22NEC-MOC-14MW02	GW	SW8270DSIM	2-Chloronaphthalene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW02	22NEC-MOC-14MW02	GW	SW8270DSIM	Acenaphthene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW02	22NEC-MOC-14MW02	GW	SW8270DSIM	Acenaphthylene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW02	22NEC-MOC-14MW02	GW	SW8270DSIM	Benzo(a)pyrene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW02	22NEC-MOC-14MW02	GW	SW8270DSIM	Benzo(g,h,i)perylene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW02	22NEC-MOC-14MW02	GW	SW8270DSIM	Benzo(k)fluoranthene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW02	22NEC-MOC-14MW02	GW	SW8270DSIM	Dibenzo(a,h)anthracene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW02	22NEC-MOC-14MW02	GW	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW02	22NEC-MOC-14MW02	GW	SW8270DSIM	Naphthalene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW02	22NEC-MOC-14MW02	GW	SW8270DSIM	Phenanthrene	0.143	µg/L	H	HT
L1525127	22NEC-MOC-14MW02	22NEC-MOC-14MW02	GW	SW8270DSIM	Fluoranthene	0.0450	µg/L	J,BH	HT|MB
L1525127	22NEC-MOC-14MW02	22NEC-MOC-14MW02	GW	SW8270DSIM	Pyrene	0.0525	µg/L	J,BH	HT|MB
L1525127	22NEC-MOC-14MW02	22NEC-MOC-14MW02	GW	SW8270DSIM	1-Methylnaphthalene	0.0817	µg/L	J,H	HT
L1525127	22NEC-MOC-14MW02	22NEC-MOC-14MW02	GW	SW8270DSIM	2-Methylnaphthalene	0.0290	µg/L	J,H	HT
L1525127	22NEC-MOC-14MW02	22NEC-MOC-14MW02	GW	SW8270DSIM	Anthracene	0.0204	µg/L	J,H	HT
L1525127	22NEC-MOC-14MW02	22NEC-MOC-14MW02	GW	SW8270DSIM	Benzo(a)anthracene	0.0324	µg/L	J,H	HT
L1525127	22NEC-MOC-14MW02	22NEC-MOC-14MW02	GW	SW8270DSIM	Benzo(b)fluoranthene	0.0216	µg/L	J,H	HT
L1525127	22NEC-MOC-14MW02	22NEC-MOC-14MW02	GW	SW8270DSIM	Chrysene	0.0287	µg/L	J,H	HT
L1525127	22NEC-MOC-14MW02	22NEC-MOC-14MW02	GW	SW8270DSIM	Fluorene	0.0240	µg/L	J,H	HT
L1525127	22NEC-MOC-14MW04	22NEC-MOC-14MW04	GW	SW8270DSIM	1-Methylnaphthalene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW04	22NEC-MOC-14MW04	GW	SW8270DSIM	2-Chloronaphthalene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW04	22NEC-MOC-14MW04	GW	SW8270DSIM	2-Methylnaphthalene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW04	22NEC-MOC-14MW04	GW	SW8270DSIM	Acenaphthene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW04	22NEC-MOC-14MW04	GW	SW8270DSIM	Acenaphthylene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW04	22NEC-MOC-14MW04	GW	SW8270DSIM	Anthracene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW04	22NEC-MOC-14MW04	GW	SW8270DSIM	Benzo(a)anthracene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW04	22NEC-MOC-14MW04	GW	SW8270DSIM	Benzo(a)pyrene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW04	22NEC-MOC-14MW04	GW	SW8270DSIM	Benzo(b)fluoranthene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW04	22NEC-MOC-14MW04	GW	SW8270DSIM	Benzo(g,h,i)perylene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW04	22NEC-MOC-14MW04	GW	SW8270DSIM	Benzo(k)fluoranthene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW04	22NEC-MOC-14MW04	GW	SW8270DSIM	Chrysene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW04	22NEC-MOC-14MW04	GW	SW8270DSIM	Dibenzo(a,h)anthracene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW04	22NEC-MOC-14MW04	GW	SW8270DSIM	Fluorene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW04	22NEC-MOC-14MW04	GW	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW04	22NEC-MOC-14MW04	GW	SW8270DSIM	Naphthalene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW04	22NEC-MOC-14MW04	GW	SW8270DSIM	Phenanthrene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW04	22NEC-MOC-14MW04	GW	SW8270DSIM	Pyrene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW04	22NEC-MOC-14MW04	GW	SW8270DSIM	Fluoranthene	0.0114	µg/L	J,BH	HT|MB
L1525127	22NEC-MOC-14MW05	22NEC-MOC-14MW05	GW	SW8270DSIM	1-Methylnaphthalene	ND	µg/L	H	HT

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1525127	22NEC-MOC-14MW05	22NEC-MOC-14MW05	GW	SW8270DSIM	2-Chloronaphthalene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW05	22NEC-MOC-14MW05	GW	SW8270DSIM	2-Methylnaphthalene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW05	22NEC-MOC-14MW05	GW	SW8270DSIM	Acenaphthene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW05	22NEC-MOC-14MW05	GW	SW8270DSIM	Acenaphthylene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW05	22NEC-MOC-14MW05	GW	SW8270DSIM	Benzo(a)anthracene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW05	22NEC-MOC-14MW05	GW	SW8270DSIM	Benzo(a)pyrene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW05	22NEC-MOC-14MW05	GW	SW8270DSIM	Benzo(k)fluoranthene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW05	22NEC-MOC-14MW05	GW	SW8270DSIM	Chrysene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW05	22NEC-MOC-14MW05	GW	SW8270DSIM	Dibenzo(a,h)anthracene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW05	22NEC-MOC-14MW05	GW	SW8270DSIM	Fluorene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW05	22NEC-MOC-14MW05	GW	SW8270DSIM	Naphthalene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW05	22NEC-MOC-14MW05	GW	SW8270DSIM	Phenanthrene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW05	22NEC-MOC-14MW05	GW	SW8270DSIM	Fluoranthene	0.0130	µg/L	J,BH	HT|MB
L1525127	22NEC-MOC-14MW05	22NEC-MOC-14MW05	GW	SW8270DSIM	Pyrene	0.0183	µg/L	J,BH	HT|MB
L1525127	22NEC-MOC-14MW05	22NEC-MOC-14MW05	GW	SW8270DSIM	Anthracene	0.0248	µg/L	J,H	HT
L1525127	22NEC-MOC-14MW05	22NEC-MOC-14MW05	GW	SW8270DSIM	Benzo(b)fluoranthene	0.0312	µg/L	J,H	HT
L1525127	22NEC-MOC-14MW05	22NEC-MOC-14MW05	GW	SW8270DSIM	Benzo(g,h,i)perylene	0.0185	µg/L	J,H	HT
L1525127	22NEC-MOC-14MW05	22NEC-MOC-14MW05	GW	SW8270DSIM	Indeno(1,2,3-cd)pyrene	0.0216	µg/L	J,H	HT
L1525127	22NEC-MOC-14MW904	22NEC-MOC-14MW904	GW	SW8270DSIM	1-Methylnaphthalene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW904	22NEC-MOC-14MW904	GW	SW8270DSIM	2-Chloronaphthalene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW904	22NEC-MOC-14MW904	GW	SW8270DSIM	2-Methylnaphthalene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW904	22NEC-MOC-14MW904	GW	SW8270DSIM	Acenaphthene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW904	22NEC-MOC-14MW904	GW	SW8270DSIM	Acenaphthylene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW904	22NEC-MOC-14MW904	GW	SW8270DSIM	Anthracene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW904	22NEC-MOC-14MW904	GW	SW8270DSIM	Benzo(a)anthracene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW904	22NEC-MOC-14MW904	GW	SW8270DSIM	Benzo(a)pyrene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW904	22NEC-MOC-14MW904	GW	SW8270DSIM	Benzo(g,h,i)perylene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW904	22NEC-MOC-14MW904	GW	SW8270DSIM	Benzo(k)fluoranthene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW904	22NEC-MOC-14MW904	GW	SW8270DSIM	Chrysene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW904	22NEC-MOC-14MW904	GW	SW8270DSIM	Dibenzo(a,h)anthracene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW904	22NEC-MOC-14MW904	GW	SW8270DSIM	Fluoranthene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW904	22NEC-MOC-14MW904	GW	SW8270DSIM	Fluorene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW904	22NEC-MOC-14MW904	GW	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW904	22NEC-MOC-14MW904	GW	SW8270DSIM	Naphthalene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW904	22NEC-MOC-14MW904	GW	SW8270DSIM	Phenanthrene	ND	µg/L	H	HT
L1525127	22NEC-MOC-14MW904	22NEC-MOC-14MW904	GW	SW8270DSIM	Pyrene	0.0185	µg/L	J,BH	HT|MB
L1525127	22NEC-MOC-14MW904	22NEC-MOC-14MW904	GW	SW8270DSIM	Benzo(b)fluoranthene	0.0218	µg/L	J,H	HT
L1525127	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1	GW	SW8270DSIM	1-Methylnaphthalene	ND	µg/L	H	HT
L1525127	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1	GW	SW8270DSIM	2-Chloronaphthalene	ND	µg/L	H	HT
L1525127	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1	GW	SW8270DSIM	2-Methylnaphthalene	ND	µg/L	H	HT
L1525127	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1	GW	SW8270DSIM	Acenaphthene	ND	µg/L	H	HT

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1525127	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1	GW	SW8270DSIM	Acenaphthylene	ND	µg/L	H	HT
L1525127	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1	GW	SW8270DSIM	Anthracene	ND	µg/L	H	HT
L1525127	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1	GW	SW8270DSIM	Benzo(a)anthracene	ND	µg/L	H	HT
L1525127	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1	GW	SW8270DSIM	Benzo(a)pyrene	ND	µg/L	H	HT
L1525127	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1	GW	SW8270DSIM	Benzo(b)fluoranthene	ND	µg/L	H	HT
L1525127	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1	GW	SW8270DSIM	Benzo(g,h,i)perylene	ND	µg/L	H	HT
L1525127	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1	GW	SW8270DSIM	Benzo(k)fluoranthene	ND	µg/L	H	HT
L1525127	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1	GW	SW8270DSIM	Chrysene	ND	µg/L	H	HT
L1525127	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1	GW	SW8270DSIM	Dibenzo(a,h)anthracene	ND	µg/L	H	HT
L1525127	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1	GW	SW8270DSIM	Fluoranthene	ND	µg/L	H	HT
L1525127	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1	GW	SW8270DSIM	Fluorene	ND	µg/L	H	HT
L1525127	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1	GW	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	µg/L	H	HT
L1525127	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1	GW	SW8270DSIM	Naphthalene	ND	µg/L	H	HT
L1525127	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1	GW	SW8270DSIM	Phenanthrene	ND	µg/L	H	HT
L1525127	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1	GW	SW8270DSIM	Pyrene	ND	µg/L	H	HT
L1526336	22NEC-S28-SW-01	22NEC-S28-SW-06	SW	SW8270DSIM	1-Methylnaphthalene	0.0462	µg/L	J,B	MB
L1526336	22NEC-S28-SW-01	22NEC-S28-SW-06	SW	SW8270DSIM	2-Methylnaphthalene	0.0596	µg/L	J,B	MB
L1526336	22NEC-S28-SW-01	22NEC-S28-SW-06	SW	SW8270DSIM	Fluoranthene	0.0373	µg/L	J,B	MB
L1526336	22NEC-S28-SW-01	22NEC-S28-SW-06	SW	SW8270DSIM	Indeno(1,2,3-cd)pyrene	0.0346	µg/L	J,B	MB
L1526336	22NEC-S28-SW-05	22NEC-S28-SW-08	SW	SW8270DSIM	1-Methylnaphthalene	0.0253	µg/L	J,B	MB
L1526336	22NEC-S28-SW-04	22NEC-S28-SW-09	SW	SW8270DSIM	1-Methylnaphthalene	0.0224	µg/L	J,B	MB
L1526336	22NEC-S28-SW-04	22NEC-S28-SW-09	SW	SW8270DSIM	2-Methylnaphthalene	0.0309	µg/L	J,B	MB
L1526336	22NEC-S28-SW-04	22NEC-S28-SW-09	SW	SW8270DSIM	Fluoranthene	0.0118	µg/L	J,B	MB
L1527447	22NEC-MOC-14MW02	22NEC-MOC-14MW02-2	GW	SW8270DSIM	1-Methylnaphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW02	22NEC-MOC-14MW02-2	GW	SW8270DSIM	2-Chloronaphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW02	22NEC-MOC-14MW02-2	GW	SW8270DSIM	2-Methylnaphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW02	22NEC-MOC-14MW02-2	GW	SW8270DSIM	Acenaphthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW02	22NEC-MOC-14MW02-2	GW	SW8270DSIM	Acenaphthylene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW02	22NEC-MOC-14MW02-2	GW	SW8270DSIM	Anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW02	22NEC-MOC-14MW02-2	GW	SW8270DSIM	Benzo(a)anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW02	22NEC-MOC-14MW02-2	GW	SW8270DSIM	Benzo(a)pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW02	22NEC-MOC-14MW02-2	GW	SW8270DSIM	Benzo(b)fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW02	22NEC-MOC-14MW02-2	GW	SW8270DSIM	Benzo(g,h,i)perylene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW02	22NEC-MOC-14MW02-2	GW	SW8270DSIM	Benzo(k)fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW02	22NEC-MOC-14MW02-2	GW	SW8270DSIM	Chrysene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW02	22NEC-MOC-14MW02-2	GW	SW8270DSIM	Dibenzo(a,h)anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW02	22NEC-MOC-14MW02-2	GW	SW8270DSIM	Fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW02	22NEC-MOC-14MW02-2	GW	SW8270DSIM	Fluorene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW02	22NEC-MOC-14MW02-2	GW	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW02	22NEC-MOC-14MW02-2	GW	SW8270DSIM	Naphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW02	22NEC-MOC-14MW02-2	GW	SW8270DSIM	Phenanthrene	ND	µg/L	QL	Sur<LCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1527447	22NEC-MOC-14MW02	22NEC-MOC-14MW02-2	GW	SW8270DSIM	Pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-2	GW	SW8270DSIM	2-Chloronaphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-2	GW	SW8270DSIM	2-Methylnaphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-2	GW	SW8270DSIM	Acenaphthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-2	GW	SW8270DSIM	Acenaphthylene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-2	GW	SW8270DSIM	Anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-2	GW	SW8270DSIM	Benzo(a)anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-2	GW	SW8270DSIM	Benzo(a)pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-2	GW	SW8270DSIM	Benzo(b)fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-2	GW	SW8270DSIM	Benzo(g,h,i)perylene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-2	GW	SW8270DSIM	Benzo(k)fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-2	GW	SW8270DSIM	Chrysene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-2	GW	SW8270DSIM	Dibenzo(a,h)anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-2	GW	SW8270DSIM	Fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-2	GW	SW8270DSIM	Fluorene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-2	GW	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-2	GW	SW8270DSIM	Naphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-2	GW	SW8270DSIM	Phenanthrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-2	GW	SW8270DSIM	Pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-92	GW	SW8270DSIM	2-Chloronaphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-92	GW	SW8270DSIM	2-Methylnaphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-92	GW	SW8270DSIM	Acenaphthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-92	GW	SW8270DSIM	Acenaphthylene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-92	GW	SW8270DSIM	Anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-92	GW	SW8270DSIM	Benzo(a)anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-92	GW	SW8270DSIM	Benzo(a)pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-92	GW	SW8270DSIM	Benzo(b)fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-92	GW	SW8270DSIM	Benzo(g,h,i)perylene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-92	GW	SW8270DSIM	Benzo(k)fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-92	GW	SW8270DSIM	Chrysene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-92	GW	SW8270DSIM	Dibenzo(a,h)anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-92	GW	SW8270DSIM	Fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-92	GW	SW8270DSIM	Fluorene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-92	GW	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-92	GW	SW8270DSIM	Naphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-92	GW	SW8270DSIM	Phenanthrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW04	22NEC-MOC-14MW04-92	GW	SW8270DSIM	Pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW05	22NEC-MOC-14MW05-2	GW	SW8270DSIM	Fluoranthene	0.0147	µg/L	J,QL	Sur<LCL
L1527447	22NEC-MOC-14MW05	22NEC-MOC-14MW05-2	GW	SW8270DSIM	2-Chloronaphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW05	22NEC-MOC-14MW05-2	GW	SW8270DSIM	2-Methylnaphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW05	22NEC-MOC-14MW05-2	GW	SW8270DSIM	Acenaphthene	ND	µg/L	QL	Sur<LCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1527447	22NEC-MOC-14MW05	22NEC-MOC-14MW05-2	GW	SW8270DSIM	Acenaphthylene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW05	22NEC-MOC-14MW05-2	GW	SW8270DSIM	Anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW05	22NEC-MOC-14MW05-2	GW	SW8270DSIM	Benzo(a)anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW05	22NEC-MOC-14MW05-2	GW	SW8270DSIM	Benzo(a)pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW05	22NEC-MOC-14MW05-2	GW	SW8270DSIM	Benzo(b)fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW05	22NEC-MOC-14MW05-2	GW	SW8270DSIM	Benzo(g,h,i)perylene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW05	22NEC-MOC-14MW05-2	GW	SW8270DSIM	Benzo(k)fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW05	22NEC-MOC-14MW05-2	GW	SW8270DSIM	Chrysene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW05	22NEC-MOC-14MW05-2	GW	SW8270DSIM	Dibenzo(a,h)anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW05	22NEC-MOC-14MW05-2	GW	SW8270DSIM	Fluorene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW05	22NEC-MOC-14MW05-2	GW	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW05	22NEC-MOC-14MW05-2	GW	SW8270DSIM	Naphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW05	22NEC-MOC-14MW05-2	GW	SW8270DSIM	Phenanthrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-14MW05	22NEC-MOC-14MW05-2	GW	SW8270DSIM	Pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1-2	GW	SW8270DSIM	1-Methylnaphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1-2	GW	SW8270DSIM	2-Chloronaphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1-2	GW	SW8270DSIM	2-Methylnaphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1-2	GW	SW8270DSIM	Acenaphthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1-2	GW	SW8270DSIM	Acenaphthylene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1-2	GW	SW8270DSIM	Anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1-2	GW	SW8270DSIM	Benzo(a)anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1-2	GW	SW8270DSIM	Benzo(a)pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1-2	GW	SW8270DSIM	Benzo(b)fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1-2	GW	SW8270DSIM	Benzo(g,h,i)perylene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1-2	GW	SW8270DSIM	Benzo(k)fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1-2	GW	SW8270DSIM	Chrysene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1-2	GW	SW8270DSIM	Dibenzo(a,h)anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1-2	GW	SW8270DSIM	Fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1-2	GW	SW8270DSIM	Fluorene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1-2	GW	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1-2	GW	SW8270DSIM	Naphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1-2	GW	SW8270DSIM	Phenanthrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1-2	GW	SW8270DSIM	Pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-04	22NEC-MOC-SW-10	GW	AK102/103	DRO	437	µg/L	J,QH	LCS>UCL
L1527447	22NEC-S28-SW-04	22NEC-MOC-SW-10	GW	SW8260D	Xylenes (total)	0.180	µg/L	J,QH	Sur>UCL
L1527447	22NEC-S28-SW-05	22NEC-MOC-SW-11	GW	AK102/103	DRO	290	µg/L	J,QH	LCS>UCL
L1527447	22NEC-S28-SW-05	22NEC-MOC-SW-11	GW	AK102/103	RRO	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-05	22NEC-MOC-SW-11	GW	SW8270DSIM	2-Chloronaphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-05	22NEC-MOC-SW-11	GW	SW8270DSIM	2-Methylnaphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-05	22NEC-MOC-SW-11	GW	SW8270DSIM	Acenaphthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-05	22NEC-MOC-SW-11	GW	SW8270DSIM	Acenaphthylene	ND	µg/L	QL	Sur<LCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1527447	22NEC-S28-SW-05	22NEC-MOC-SW-11	GW	SW8270DSIM	Anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-05	22NEC-MOC-SW-11	GW	SW8270DSIM	Benzo(a)anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-05	22NEC-MOC-SW-11	GW	SW8270DSIM	Benzo(a)pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-05	22NEC-MOC-SW-11	GW	SW8270DSIM	Benzo(b)fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-05	22NEC-MOC-SW-11	GW	SW8270DSIM	Benzo(g,h,i)perylene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-05	22NEC-MOC-SW-11	GW	SW8270DSIM	Benzo(k)fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-05	22NEC-MOC-SW-11	GW	SW8270DSIM	Chrysene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-05	22NEC-MOC-SW-11	GW	SW8270DSIM	Dibenzo(a,h)anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-05	22NEC-MOC-SW-11	GW	SW8270DSIM	Fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-05	22NEC-MOC-SW-11	GW	SW8270DSIM	Fluorene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-05	22NEC-MOC-SW-11	GW	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-05	22NEC-MOC-SW-11	GW	SW8270DSIM	Naphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-05	22NEC-MOC-SW-11	GW	SW8270DSIM	Phenanthrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-05	22NEC-MOC-SW-11	GW	SW8270DSIM	Pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-03	22NEC-MOC-SW-12	GW	AK102/103	DRO	309	µg/L	J,QH	LCS>UCL
L1527447	22NEC-S28-SW-03	22NEC-MOC-SW-12	GW	SW8270DSIM	2-Chloronaphthalene	0.0146	µg/L	J,QL	Sur<LCL
L1527447	22NEC-S28-SW-03	22NEC-MOC-SW-12	GW	AK102/103	RRO	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-03	22NEC-MOC-SW-12	GW	SW8270DSIM	2-Methylnaphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-03	22NEC-MOC-SW-12	GW	SW8270DSIM	Acenaphthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-03	22NEC-MOC-SW-12	GW	SW8270DSIM	Acenaphthylene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-03	22NEC-MOC-SW-12	GW	SW8270DSIM	Anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-03	22NEC-MOC-SW-12	GW	SW8270DSIM	Benzo(a)anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-03	22NEC-MOC-SW-12	GW	SW8270DSIM	Benzo(a)pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-03	22NEC-MOC-SW-12	GW	SW8270DSIM	Benzo(b)fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-03	22NEC-MOC-SW-12	GW	SW8270DSIM	Benzo(g,h,i)perylene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-03	22NEC-MOC-SW-12	GW	SW8270DSIM	Benzo(k)fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-03	22NEC-MOC-SW-12	GW	SW8270DSIM	Chrysene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-03	22NEC-MOC-SW-12	GW	SW8270DSIM	Dibenzo(a,h)anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-03	22NEC-MOC-SW-12	GW	SW8270DSIM	Fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-03	22NEC-MOC-SW-12	GW	SW8270DSIM	Fluorene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-03	22NEC-MOC-SW-12	GW	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-03	22NEC-MOC-SW-12	GW	SW8270DSIM	Naphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-03	22NEC-MOC-SW-12	GW	SW8270DSIM	Phenanthrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-03	22NEC-MOC-SW-12	GW	SW8270DSIM	Pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-01	22NEC-MOC-SW-13	GW	AK102/103	DRO	390	µg/L	J,QH	LCS>UCL
L1527447	22NEC-S28-SW-01	22NEC-MOC-SW-13	GW	AK102/103	RRO	559	µg/L	J,QH	LCS>UCL
L1527447	22NEC-S28-SW-01	22NEC-MOC-SW-13	GW	SW8270DSIM	2-Chloronaphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-01	22NEC-MOC-SW-13	GW	SW8270DSIM	2-Methylnaphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-01	22NEC-MOC-SW-13	GW	SW8270DSIM	Acenaphthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-01	22NEC-MOC-SW-13	GW	SW8270DSIM	Acenaphthylene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-01	22NEC-MOC-SW-13	GW	SW8270DSIM	Anthracene	ND	µg/L	QL	Sur<LCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1527447	22NEC-S28-SW-01	22NEC-MOC-SW-13	GW	SW8270DSIM	Benzo(a)anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-01	22NEC-MOC-SW-13	GW	SW8270DSIM	Benzo(a)pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-01	22NEC-MOC-SW-13	GW	SW8270DSIM	Benzo(b)fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-01	22NEC-MOC-SW-13	GW	SW8270DSIM	Benzo(g,h,i)perylene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-01	22NEC-MOC-SW-13	GW	SW8270DSIM	Benzo(k)fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-01	22NEC-MOC-SW-13	GW	SW8270DSIM	Chrysene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-01	22NEC-MOC-SW-13	GW	SW8270DSIM	Dibenzo(a,h)anthracene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-01	22NEC-MOC-SW-13	GW	SW8270DSIM	Fluoranthene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-01	22NEC-MOC-SW-13	GW	SW8270DSIM	Fluorene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-01	22NEC-MOC-SW-13	GW	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-01	22NEC-MOC-SW-13	GW	SW8270DSIM	Naphthalene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-01	22NEC-MOC-SW-13	GW	SW8270DSIM	Phenanthrene	ND	µg/L	QL	Sur<LCL
L1527447	22NEC-S28-SW-01	22NEC-MOC-SW-13	GW	SW8270DSIM	Pyrene	ND	µg/L	QL	Sur<LCL
L1528288	22NEC-S28-DU1	22NEC-S28-DU1-SS04	SO	SW8270DSIM	Benzo(a)anthracene	0.00293	mg/kg	J,QL	Sur<LCL
L1528288	22NEC-S28-DU1	22NEC-S28-DU1-SS04	SO	SW8270DSIM	Benzo(a)pyrene	0.00390	mg/kg	J,QL	Sur<LCL
L1528288	22NEC-S28-DU1	22NEC-S28-DU1-SS04	SO	SW8270DSIM	Benzo(b)fluoranthene	0.00492	mg/kg	J,QL	Sur<LCL
L1528288	22NEC-S28-DU1	22NEC-S28-DU1-SS04	SO	SW8270DSIM	Benzo(g,h,i)perylene	0.00302	mg/kg	J,QL	Sur<LCL
L1528288	22NEC-S28-DU1	22NEC-S28-DU1-SS04	SO	SW8270DSIM	Chrysene	0.00398	mg/kg	J,QL	Sur<LCL
L1528288	22NEC-S28-DU1	22NEC-S28-DU1-SS04	SO	SW8270DSIM	Fluoranthene	0.00703	mg/kg	J,QL	Sur<LCL
L1528288	22NEC-S28-DU1	22NEC-S28-DU1-SS04	SO	SW8270DSIM	Indeno(1,2,3-cd)pyrene	0.00358	mg/kg	J,QL	Sur<LCL
L1528288	22NEC-S28-DU1	22NEC-S28-DU1-SS04	SO	SW8270DSIM	Phenanthrene	0.00442	mg/kg	J,QL	Sur<LCL
L1528288	22NEC-S28-DU1	22NEC-S28-DU1-SS04	SO	SW8270DSIM	Pyrene	0.00765	mg/kg	J,QL	Sur<LCL
L1528288	22NEC-S28-DU1	22NEC-S28-DU1-SS04	SO	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1528288	22NEC-S28-DU1	22NEC-S28-DU1-SS04	SO	SW8270DSIM	2-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1528288	22NEC-S28-DU1	22NEC-S28-DU1-SS04	SO	SW8270DSIM	Acenaphthene	ND	mg/kg	QL	Sur<LCL
L1528288	22NEC-S28-DU1	22NEC-S28-DU1-SS04	SO	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1528288	22NEC-S28-DU1	22NEC-S28-DU1-SS04	SO	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1528288	22NEC-S28-DU1	22NEC-S28-DU1-SS04	SO	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528288	22NEC-S28-DU1	22NEC-S28-DU1-SS04	SO	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1528288	22NEC-S28-DU1	22NEC-S28-DU1-SS04	SO	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	Sur<LCL
L1528288	22NEC-S28-DU1	22NEC-S28-DU1-SS04	SO	SW8270DSIM	Fluorene	ND	mg/kg	QL	Sur<LCL
L1528288	22NEC-S28-DU1	22NEC-S28-DU1-SS04	SO	SW8270DSIM	Naphthalene	ND	mg/kg	QL	Sur<LCL
L1528288	22NEC-S28-DU2	22NEC-S28-DU2-SS02	SO	SW8270DSIM	Benzo(a)anthracene	0.0143	mg/kg	QH	MSD>UCL
L1528288	22NEC-S28-DU2	22NEC-S28-DU2-SS02	SO	SW8270DSIM	Pyrene	0.0229	mg/kg	QH	MSD>UCL
L1528288	22NEC-S28-DU2	22NEC-S28-DU2-SS02	SO	SW8270DSIM	Chrysene	0.0177	mg/kg	QN	MSD>UCL|MSD>RPD
L1528288	22NEC-S28-DU2	22NEC-S28-DU2-SS02	SO	SW8270DSIM	Fluoranthene	0.0187	mg/kg	QN	MSD>UCL|MSD>RPD
L1528321	22NEC-S28-SD02	22NEC-S28-SD02	SED	AK102/103	RRO	543	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD21	22NEC-S28-SD021	SED	SW8270DSIM	Benzo(g,h,i)perylene	0.0209	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD21	22NEC-S28-SD021	SED	SW8270DSIM	Dibenzo(a,h)anthracene	0.00561	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD21	22NEC-S28-SD021	SED	SW8270DSIM	2-Methylnaphthalene	0.743	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD21	22NEC-S28-SD021	SED	SW8270DSIM	Acenaphthene	0.161	mg/kg	QH	Sur>UCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1528321	22NEC-S28-SD21	22NEC-S28-SD021	SED	SW8270DSIM	Anthracene	0.119	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD21	22NEC-S28-SD021	SED	SW8270DSIM	Dibenzofuran	0.147	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD21	22NEC-S28-SD021	SED	SW8270DSIM	Fluorene	0.266	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD21	22NEC-S28-SD021	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	0.0310	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD21	22NEC-S28-SD021	SED	SW8270DSIM	Naphthalene	0.277	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD21	22NEC-S28-SD021	SED	SW8270DSIM	Acenaphthylene	0.0679	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD21	22NEC-S28-SD021	SED	SW8270DSIM	Benzo(a)anthracene	0.177	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD21	22NEC-S28-SD021	SED	SW8270DSIM	Benzo(a)pyrene	0.0571	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD21	22NEC-S28-SD021	SED	SW8270DSIM	Benzo(b)fluoranthene	0.159	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD21	22NEC-S28-SD021	SED	SW8270DSIM	Benzo(k)fluoranthene	0.0633	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD21	22NEC-S28-SD021	SED	SW8270DSIM	Chrysene	0.466	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD21	22NEC-S28-SD021	SED	SW8270DSIM	Fluoranthene	2.05	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD21	22NEC-S28-SD021	SED	SW8270DSIM	Phenanthrene	1.66	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD21	22NEC-S28-SD021	SED	SW8270DSIM	Pyrene	1.29	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD05	22NEC-S28-SD05	SED	AK102/103	RRO	653	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD07	22NEC-S28-SD07	SED	SW8270DSIM	Fluoranthene	0.00755	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD07	22NEC-S28-SD07	SED	SW8270DSIM	Phenanthrene	0.0120	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD07	22NEC-S28-SD07	SED	SW8270DSIM	Pyrene	0.00683	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD07	22NEC-S28-SD07	SED	SW8270DSIM	1-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD07	22NEC-S28-SD07	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD07	22NEC-S28-SD07	SED	SW8270DSIM	2-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD07	22NEC-S28-SD07	SED	SW8270DSIM	Acenaphthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD07	22NEC-S28-SD07	SED	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD07	22NEC-S28-SD07	SED	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD07	22NEC-S28-SD07	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD07	22NEC-S28-SD07	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD07	22NEC-S28-SD07	SED	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD07	22NEC-S28-SD07	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD07	22NEC-S28-SD07	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD07	22NEC-S28-SD07	SED	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD07	22NEC-S28-SD07	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD07	22NEC-S28-SD07	SED	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD07	22NEC-S28-SD07	SED	SW8270DSIM	Fluorene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD07	22NEC-S28-SD07	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD07	22NEC-S28-SD07	SED	SW8270DSIM	Naphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD08	22NEC-S28-SD08	SED	SW8270DSIM	Fluoranthene	0.0387	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD08	22NEC-S28-SD08	SED	SW8270DSIM	Phenanthrene	0.0205	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD08	22NEC-S28-SD08	SED	SW8270DSIM	Pyrene	0.0244	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD08	22NEC-S28-SD08	SED	SW8270DSIM	1-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD08	22NEC-S28-SD08	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD08	22NEC-S28-SD08	SED	SW8270DSIM	2-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1528321	22NEC-S28-SD08	22NEC-S28-SD08	SED	SW8270DSIM	Acenaphthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD08	22NEC-S28-SD08	SED	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD08	22NEC-S28-SD08	SED	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD08	22NEC-S28-SD08	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD08	22NEC-S28-SD08	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD08	22NEC-S28-SD08	SED	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD08	22NEC-S28-SD08	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD08	22NEC-S28-SD08	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD08	22NEC-S28-SD08	SED	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD08	22NEC-S28-SD08	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD08	22NEC-S28-SD08	SED	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD08	22NEC-S28-SD08	SED	SW8270DSIM	Fluorene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD08	22NEC-S28-SD08	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD08	22NEC-S28-SD08	SED	SW8270DSIM	Naphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD10	22NEC-S28-SD10	SED	SW8270DSIM	1-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD10	22NEC-S28-SD10	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD10	22NEC-S28-SD10	SED	SW8270DSIM	2-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD10	22NEC-S28-SD10	SED	SW8270DSIM	Acenaphthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD10	22NEC-S28-SD10	SED	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD10	22NEC-S28-SD10	SED	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD10	22NEC-S28-SD10	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD10	22NEC-S28-SD10	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD10	22NEC-S28-SD10	SED	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD10	22NEC-S28-SD10	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD10	22NEC-S28-SD10	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD10	22NEC-S28-SD10	SED	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD10	22NEC-S28-SD10	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD10	22NEC-S28-SD10	SED	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD10	22NEC-S28-SD10	SED	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD10	22NEC-S28-SD10	SED	SW8270DSIM	Fluorene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD10	22NEC-S28-SD10	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD10	22NEC-S28-SD10	SED	SW8270DSIM	Naphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD10	22NEC-S28-SD10	SED	SW8270DSIM	Phenanthrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD10	22NEC-S28-SD10	SED	SW8270DSIM	Pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD11	22NEC-S28-SD11	SED	SW8270DSIM	1-Methylnaphthalene	ND	mg/kg	QL	MS<LCL|Sur<LCL
L1528321	22NEC-S28-SD11	22NEC-S28-SD11	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	MS<LCL|Sur<LCL
L1528321	22NEC-S28-SD11	22NEC-S28-SD11	SED	SW8270DSIM	2-Methylnaphthalene	ND	mg/kg	QL	MS<LCL|Sur<LCL
L1528321	22NEC-S28-SD11	22NEC-S28-SD11	SED	SW8270DSIM	Acenaphthene	ND	mg/kg	QL	MS<LCL|MSD<LCL|Sur<LCL
L1528321	22NEC-S28-SD11	22NEC-S28-SD11	SED	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	MS<LCL|Sur<LCL
L1528321	22NEC-S28-SD11	22NEC-S28-SD11	SED	SW8270DSIM	Anthracene	ND	mg/kg	QL	MS<LCL|Sur<LCL
L1528321	22NEC-S28-SD11	22NEC-S28-SD11	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	MS<LCL|Sur<LCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1528321	22NEC-S28-SD11	22NEC-S28-SD11	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	MS<LCL|Sur<LCL
L1528321	22NEC-S28-SD11	22NEC-S28-SD11	SED	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	MS<LCL|MSD<LCL|Sur<LCL
L1528321	22NEC-S28-SD11	22NEC-S28-SD11	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	QL	MS<LCL|Sur<LCL
L1528321	22NEC-S28-SD11	22NEC-S28-SD11	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	MS<LCL|Sur<LCL
L1528321	22NEC-S28-SD11	22NEC-S28-SD11	SED	SW8270DSIM	Chrysene	ND	mg/kg	QL	MS<LCL|Sur<LCL
L1528321	22NEC-S28-SD11	22NEC-S28-SD11	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	MS<LCL|Sur<LCL
L1528321	22NEC-S28-SD11	22NEC-S28-SD11	SED	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	MS<LCL|Sur<LCL
L1528321	22NEC-S28-SD11	22NEC-S28-SD11	SED	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	MS<LCL|MSD<LCL|Sur<LCL
L1528321	22NEC-S28-SD11	22NEC-S28-SD11	SED	SW8270DSIM	Fluorene	ND	mg/kg	QL	MS<LCL|Sur<LCL
L1528321	22NEC-S28-SD11	22NEC-S28-SD11	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	MS<LCL|Sur<LCL
L1528321	22NEC-S28-SD11	22NEC-S28-SD11	SED	SW8270DSIM	Naphthalene	ND	mg/kg	QL	MS<LCL|Sur<LCL
L1528321	22NEC-S28-SD11	22NEC-S28-SD11	SED	SW8270DSIM	Phenanthrene	ND	mg/kg	QL	MS<LCL|MSD<LCL|Sur<LCL
L1528321	22NEC-S28-SD11	22NEC-S28-SD11	SED	SW8270DSIM	Pyrene	ND	mg/kg	QL	MS<LCL|MSD<LCL|Sur<LCL
L1528321	22NEC-S28-SD12	22NEC-S28-SD12	SED	SW8270DSIM	Anthracene	0.0226	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD12	22NEC-S28-SD12	SED	SW8270DSIM	Benzo(a)anthracene	0.0373	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD12	22NEC-S28-SD12	SED	SW8270DSIM	Benzo(a)pyrene	0.0334	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD12	22NEC-S28-SD12	SED	SW8270DSIM	Benzo(g,h,i)perylene	0.0415	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD12	22NEC-S28-SD12	SED	SW8270DSIM	Benzo(k)fluoranthene	0.0221	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD12	22NEC-S28-SD12	SED	SW8270DSIM	Chrysene	0.0479	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD12	22NEC-S28-SD12	SED	SW8270DSIM	Dibenzo(a,h)anthracene	0.0103	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD12	22NEC-S28-SD12	SED	SW8270DSIM	Fluorene	0.0236	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD12	22NEC-S28-SD12	SED	SW8270DSIM	1-Methylnaphthalene	0.400	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD12	22NEC-S28-SD12	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD12	22NEC-S28-SD12	SED	SW8270DSIM	2-Methylnaphthalene	0.642	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD12	22NEC-S28-SD12	SED	SW8270DSIM	Acenaphthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD12	22NEC-S28-SD12	SED	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD12	22NEC-S28-SD12	SED	SW8270DSIM	Benzo(b)fluoranthene	0.0721	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD12	22NEC-S28-SD12	SED	SW8270DSIM	Dibenzofuran	0.110	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD12	22NEC-S28-SD12	SED	SW8270DSIM	Fluoranthene	0.0626	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD12	22NEC-S28-SD12	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	0.0472	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD12	22NEC-S28-SD12	SED	SW8270DSIM	Naphthalene	0.441	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD12	22NEC-S28-SD12	SED	SW8270DSIM	Phenanthrene	0.183	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD12	22NEC-S28-SD12	SED	SW8270DSIM	Pyrene	0.0642	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD14	22NEC-S28-SD14	SED	SW8270DSIM	Acenaphthene	0.0190	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD14	22NEC-S28-SD14	SED	SW8270DSIM	Dibenzofuran	0.00876	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD14	22NEC-S28-SD14	SED	SW8270DSIM	Fluorene	0.0249	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD14	22NEC-S28-SD14	SED	SW8270DSIM	Phenanthrene	0.0176	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD14	22NEC-S28-SD14	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD14	22NEC-S28-SD14	SED	SW8270DSIM	2-Methylnaphthalene	0.115	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD14	22NEC-S28-SD14	SED	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD14	22NEC-S28-SD14	SED	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1528321	22NEC-S28-SD14	22NEC-S28-SD14	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD14	22NEC-S28-SD14	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD14	22NEC-S28-SD14	SED	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD14	22NEC-S28-SD14	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD14	22NEC-S28-SD14	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD14	22NEC-S28-SD14	SED	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD14	22NEC-S28-SD14	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD14	22NEC-S28-SD14	SED	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD14	22NEC-S28-SD14	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD14	22NEC-S28-SD14	SED	SW8270DSIM	Naphthalene	0.0793	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD14	22NEC-S28-SD14	SED	SW8270DSIM	Pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD16	22NEC-S28-SD16	SED	SW8270DSIM	Anthracene	0.0229	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD16	22NEC-S28-SD16	SED	SW8270DSIM	2-Methylnaphthalene	1.10	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD16	22NEC-S28-SD16	SED	SW8270DSIM	Acenaphthene	0.152	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD16	22NEC-S28-SD16	SED	SW8270DSIM	Fluoranthene	0.0278	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD16	22NEC-S28-SD16	SED	SW8270DSIM	Fluorene	0.204	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD16	22NEC-S28-SD16	SED	SW8270DSIM	Naphthalene	0.349	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD16	22NEC-S28-SD16	SED	SW8270DSIM	Phenanthrene	0.148	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD16	22NEC-S28-SD16	SED	SW8270DSIM	Pyrene	0.0318	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD17	22NEC-S28-SD17	SED	SW8270DSIM	1-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD17	22NEC-S28-SD17	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD17	22NEC-S28-SD17	SED	SW8270DSIM	2-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD17	22NEC-S28-SD17	SED	SW8270DSIM	Acenaphthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD17	22NEC-S28-SD17	SED	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD17	22NEC-S28-SD17	SED	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD17	22NEC-S28-SD17	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD17	22NEC-S28-SD17	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD17	22NEC-S28-SD17	SED	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD17	22NEC-S28-SD17	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD17	22NEC-S28-SD17	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD17	22NEC-S28-SD17	SED	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD17	22NEC-S28-SD17	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD17	22NEC-S28-SD17	SED	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD17	22NEC-S28-SD17	SED	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD17	22NEC-S28-SD17	SED	SW8270DSIM	Fluorene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD17	22NEC-S28-SD17	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD17	22NEC-S28-SD17	SED	SW8270DSIM	Naphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD17	22NEC-S28-SD17	SED	SW8270DSIM	Phenanthrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD17	22NEC-S28-SD17	SED	SW8270DSIM	Pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD18	22NEC-S28-SD18	SED	SW8270DSIM	Benzo(a)pyrene	0.0155	mg/kg	J,QL	Sur<LCL|Sur>UCL
L1528321	22NEC-S28-SD18	22NEC-S28-SD18	SED	SW8270DSIM	Benzo(b)fluoranthene	0.0271	mg/kg	J,QL	Sur<LCL|Sur>UCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1528321	22NEC-S28-SD18	22NEC-S28-SD18	SED	SW8270DSIM	Benzo(g,h,i)perylene	0.00678	mg/kg	J,QL	Sur<LCL|Sur>UCL
L1528321	22NEC-S28-SD18	22NEC-S28-SD18	SED	SW8270DSIM	Benzo(k)fluoranthene	0.00803	mg/kg	J,QL	Sur<LCL|Sur>UCL
L1528321	22NEC-S28-SD18	22NEC-S28-SD18	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	0.00809	mg/kg	J,QL	Sur<LCL|Sur>UCL
L1528321	22NEC-S28-SD18	22NEC-S28-SD18	SED	SW8270DSIM	1-Methylnaphthalene	7.05	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD18	22NEC-S28-SD18	SED	SW8270DSIM	2-Methylnaphthalene	9.22	mg/kg	QL	Sur<LCL|Sur>UCL
L1528321	22NEC-S28-SD18	22NEC-S28-SD18	SED	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD18	22NEC-S28-SD18	SED	SW8270DSIM	Benzo(a)anthracene	0.0303	mg/kg	QL	Sur<LCL|Sur>UCL
L1528321	22NEC-S28-SD18	22NEC-S28-SD18	SED	SW8270DSIM	Chrysene	0.0399	mg/kg	QL	Sur<LCL|Sur>UCL
L1528321	22NEC-S28-SD18	22NEC-S28-SD18	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD18	22NEC-S28-SD18	SED	SW8270DSIM	Fluoranthene	0.212	mg/kg	QL	Sur<LCL|Sur>UCL
L1528321	22NEC-S28-SD18	22NEC-S28-SD18	SED	SW8270DSIM	Naphthalene	2.88	mg/kg	QL	Sur<LCL|Sur>UCL
L1528321	22NEC-S28-SD18	22NEC-S28-SD18	SED	SW8270DSIM	Phenanthrene	1.02	mg/kg	QL	Sur<LCL|Sur>UCL
L1528321	22NEC-S28-SD18	22NEC-S28-SD18	SED	SW8270DSIM	Pyrene	0.237	mg/kg	QL	Sur<LCL|Sur>UCL
L1528321	22NEC-S28-SD19	22NEC-S28-SD19	SED	SW8270DSIM	Anthracene	0.0121	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD19	22NEC-S28-SD19	SED	SW8270DSIM	Benzo(a)pyrene	0.0103	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD19	22NEC-S28-SD19	SED	SW8270DSIM	Benzo(b)fluoranthene	0.0216	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD19	22NEC-S28-SD19	SED	SW8270DSIM	Benzo(k)fluoranthene	0.00696	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD19	22NEC-S28-SD19	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	0.00515	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD19	22NEC-S28-SD19	SED	SW8270DSIM	2-Methylnaphthalene	2.62	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD19	22NEC-S28-SD19	SED	SW8270DSIM	Acenaphthene	0.128	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD19	22NEC-S28-SD19	SED	SW8270DSIM	Benzo(a)anthracene	0.0312	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD19	22NEC-S28-SD19	SED	SW8270DSIM	Chrysene	0.0315	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD19	22NEC-S28-SD19	SED	SW8270DSIM	Dibenzofuran	0.0565	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD19	22NEC-S28-SD19	SED	SW8270DSIM	Fluoranthene	0.215	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD19	22NEC-S28-SD19	SED	SW8270DSIM	Fluorene	0.164	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD19	22NEC-S28-SD19	SED	SW8270DSIM	Naphthalene	2.43	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD19	22NEC-S28-SD19	SED	SW8270DSIM	Phenanthrene	0.228	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD19	22NEC-S28-SD19	SED	SW8270DSIM	Pyrene	0.197	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD20	22NEC-S28-SD20	SED	SW8270DSIM	Benzo(g,h,i)perylene	0.0132	mg/kg	J,QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD20	22NEC-S28-SD20	SED	SW8270DSIM	Benzo(k)fluoranthene	0.0193	mg/kg	J,QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD20	22NEC-S28-SD20	SED	SW8270DSIM	Dibenzo(a,h)anthracene	0.00656	mg/kg	J,QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD20	22NEC-S28-SD20	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	0.0160	mg/kg	J,QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD20	22NEC-S28-SD20	SED	SW8270DSIM	Benzo(a)anthracene	0.0594	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD20	22NEC-S28-SD20	SED	SW8270DSIM	Benzo(a)pyrene	0.0519	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD20	22NEC-S28-SD20	SED	SW8270DSIM	Benzo(b)fluoranthene	0.0420	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD20	22NEC-S28-SD20	SED	SW8270DSIM	Chrysene	0.0735	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD20	22NEC-S28-SD20	SED	SW8270DSIM	Fluoranthene	0.407	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD20	22NEC-S28-SD20	SED	SW8270DSIM	Phenanthrene	3.89	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD20	22NEC-S28-SD20	SED	SW8270DSIM	Pyrene	0.400	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD20	22NEC-S28-SD20	SED	SW8270DSIM	Anthracene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD22	22NEC-S28-SD22	SED	SW8270DSIM	2-Methylnaphthalene	0.0304	mg/kg	J,QL	Sur<LCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1528321	22NEC-S28-SD22	22NEC-S28-SD22	SED	SW8270DSIM	Naphthalene	0.0384	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD22	22NEC-S28-SD22	SED	SW8270DSIM	1-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD22	22NEC-S28-SD22	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD22	22NEC-S28-SD22	SED	SW8270DSIM	Acenaphthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD22	22NEC-S28-SD22	SED	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD22	22NEC-S28-SD22	SED	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD22	22NEC-S28-SD22	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD22	22NEC-S28-SD22	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD22	22NEC-S28-SD22	SED	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD22	22NEC-S28-SD22	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD22	22NEC-S28-SD22	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD22	22NEC-S28-SD22	SED	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD22	22NEC-S28-SD22	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD22	22NEC-S28-SD22	SED	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD22	22NEC-S28-SD22	SED	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD22	22NEC-S28-SD22	SED	SW8270DSIM	Fluorene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD22	22NEC-S28-SD22	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD22	22NEC-S28-SD22	SED	SW8270DSIM	Phenanthrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD22	22NEC-S28-SD22	SED	SW8270DSIM	Pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD24	22NEC-S28-SD24	SED	SW8270DSIM	Dibenzofuran	0.0479	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD24	22NEC-S28-SD24	SED	SW8270DSIM	Phenanthrene	0.0246	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD24	22NEC-S28-SD24	SED	AK102/103	DRO	1360	mg/kg	QL	Surr<LCL
L1528321	22NEC-S28-SD24	22NEC-S28-SD24	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD24	22NEC-S28-SD24	SED	SW8270DSIM	2-Methylnaphthalene	5.29	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD24	22NEC-S28-SD24	SED	SW8270DSIM	Acenaphthene	0.137	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD24	22NEC-S28-SD24	SED	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD24	22NEC-S28-SD24	SED	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD24	22NEC-S28-SD24	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD24	22NEC-S28-SD24	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD24	22NEC-S28-SD24	SED	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD24	22NEC-S28-SD24	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD24	22NEC-S28-SD24	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD24	22NEC-S28-SD24	SED	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD24	22NEC-S28-SD24	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD24	22NEC-S28-SD24	SED	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD24	22NEC-S28-SD24	SED	SW8270DSIM	Fluorene	0.146	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD24	22NEC-S28-SD24	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD24	22NEC-S28-SD24	SED	SW8270DSIM	Naphthalene	3.93	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD24	22NEC-S28-SD24	SED	SW8270DSIM	Pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD25	22NEC-S28-SD25	SED	SW8270DSIM	Pyrene	0.00533	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD25	22NEC-S28-SD25	SED	SW8270DSIM	2-Methylnaphthalene	0.521	mg/kg	QH	Sur>UCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1528321	22NEC-S28-SD25	22NEC-S28-SD25	SED	SW8270DSIM	Acenaphthene	0.117	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD25	22NEC-S28-SD25	SED	SW8270DSIM	Dibenzofuran	0.0357	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD25	22NEC-S28-SD25	SED	SW8270DSIM	Fluorene	0.118	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD25	22NEC-S28-SD25	SED	SW8270DSIM	Naphthalene	0.189	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD25	22NEC-S28-SD25	SED	SW8270DSIM	Phenanthrene	0.100	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD25	22NEC-S28-SD25	SED	AK102/103	RRO	387	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD26	22NEC-S28-SD26	SED	AK102/103SGT	RRO	194	mg/kg	J,QN	MSD>UCL|MSD>RPD
L1528321	22NEC-S28-SD26	22NEC-S28-SD26	SED	AK102/103	DRO	1260	mg/kg	QN	MS>UCL|MSD>UCL|MSD>RPD
L1528321	22NEC-S28-SD26	22NEC-S28-SD26	SED	AK102/103SGT	DRO	715	mg/kg	QN	MS>UCL|MSD>RPD
L1528321	22NEC-S28-SD27	22NEC-S28-SD27	SED	SW8270DSIM	1-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD27	22NEC-S28-SD27	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD27	22NEC-S28-SD27	SED	SW8270DSIM	2-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD27	22NEC-S28-SD27	SED	SW8270DSIM	Acenaphthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD27	22NEC-S28-SD27	SED	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD27	22NEC-S28-SD27	SED	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD27	22NEC-S28-SD27	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD27	22NEC-S28-SD27	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD27	22NEC-S28-SD27	SED	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD27	22NEC-S28-SD27	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD27	22NEC-S28-SD27	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD27	22NEC-S28-SD27	SED	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD27	22NEC-S28-SD27	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD27	22NEC-S28-SD27	SED	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD27	22NEC-S28-SD27	SED	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD27	22NEC-S28-SD27	SED	SW8270DSIM	Fluorene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD27	22NEC-S28-SD27	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD27	22NEC-S28-SD27	SED	SW8270DSIM	Naphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD27	22NEC-S28-SD27	SED	SW8270DSIM	Phenanthrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD27	22NEC-S28-SD27	SED	SW8270DSIM	Pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD28	22NEC-S28-SD28	SED	AK102/103SGT	RRO	218	mg/kg	J,QL	LCSD>RPD|LCS<LCL
L1528321	22NEC-S28-SD28	22NEC-S28-SD28	SED	SW8270DSIM	Fluoranthene	0.00542	mg/kg	J,QL	Sur<10%
L1528321	22NEC-S28-SD28	22NEC-S28-SD28	SED	SW8270DSIM	Pyrene	0.00527	mg/kg	J,QL	Sur<10%
L1528321	22NEC-S28-SD28	22NEC-S28-SD28	SED	SW8270DSIM	2-Methylnaphthalene	3.51	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD28	22NEC-S28-SD28	SED	SW8270DSIM	Acenaphthene	0.125	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD28	22NEC-S28-SD28	SED	SW8270DSIM	Dibenzofuran	0.0499	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD28	22NEC-S28-SD28	SED	SW8270DSIM	Fluorene	0.232	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD28	22NEC-S28-SD28	SED	SW8270DSIM	Naphthalene	1.31	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD28	22NEC-S28-SD28	SED	SW8270DSIM	Phenanthrene	0.144	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD28	22NEC-S28-SD28	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD28	22NEC-S28-SD28	SED	SW8270DSIM	Acenaphthylene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD28	22NEC-S28-SD28	SED	SW8270DSIM	Anthracene	ND	mg/kg	R	Sur<10%

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1528321	22NEC-S28-SD28	22NEC-S28-SD28	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD28	22NEC-S28-SD28	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD28	22NEC-S28-SD28	SED	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD28	22NEC-S28-SD28	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD28	22NEC-S28-SD28	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD28	22NEC-S28-SD28	SED	SW8270DSIM	Chrysene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD28	22NEC-S28-SD28	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD28	22NEC-S28-SD28	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD29	22NEC-S28-SD29	SED	SW8270DSIM	Benzo(a)pyrene	0.00660	mg/kg	J,QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD29	22NEC-S28-SD29	SED	SW8270DSIM	Benzo(b)fluoranthene	0.00575	mg/kg	J,QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD29	22NEC-S28-SD29	SED	SW8270DSIM	Chrysene	0.0116	mg/kg	J,QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD29	22NEC-S28-SD29	SED	AK102/103SGT	RRO	3420	mg/kg	QL	LCSD>RPD|LCS<LCL|Sur<LCL
L1528321	22NEC-S28-SD29	22NEC-S28-SD29	SED	SW8270DSIM	Fluoranthene	0.0714	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD29	22NEC-S28-SD29	SED	SW8270DSIM	Phenanthrene	2.88	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD29	22NEC-S28-SD29	SED	SW8270DSIM	Pyrene	0.0548	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD29	22NEC-S28-SD29	SED	SW8270DSIM	Anthracene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD29	22NEC-S28-SD29	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD29	22NEC-S28-SD29	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD29	22NEC-S28-SD29	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD29	22NEC-S28-SD29	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD29	22NEC-S28-SD29	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD30	22NEC-S28-SD30	SED	SW8270DSIM	Fluoranthene	0.00525	mg/kg	J,QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD30	22NEC-S28-SD30	SED	SW8270DSIM	Naphthalene	0.0309	mg/kg	J,QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD30	22NEC-S28-SD30	SED	SW8270DSIM	Phenanthrene	0.00892	mg/kg	J,QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD30	22NEC-S28-SD30	SED	AK102/103SGT	RRO	ND	mg/kg	QL	LCS<LCL
L1528321	22NEC-S28-SD30	22NEC-S28-SD30	SED	SW8270DSIM	2-Methylnaphthalene	0.0827	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD30	22NEC-S28-SD30	SED	SW8270DSIM	Fluorene	0.0262	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD30	22NEC-S28-SD30	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD30	22NEC-S28-SD30	SED	SW8270DSIM	Acenaphthene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD30	22NEC-S28-SD30	SED	SW8270DSIM	Acenaphthylene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD30	22NEC-S28-SD30	SED	SW8270DSIM	Anthracene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD30	22NEC-S28-SD30	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD30	22NEC-S28-SD30	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD30	22NEC-S28-SD30	SED	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD30	22NEC-S28-SD30	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD30	22NEC-S28-SD30	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD30	22NEC-S28-SD30	SED	SW8270DSIM	Chrysene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD30	22NEC-S28-SD30	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD30	22NEC-S28-SD30	SED	SW8270DSIM	Dibenzofuran	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD30	22NEC-S28-SD30	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD30	22NEC-S28-SD30	SED	SW8270DSIM	Pyrene	ND	mg/kg	R	Sur<LCL|Sur<10%

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1528321	22NEC-S28-SD31	22NEC-S28-SD31	SED	SW8270DSIM	Acenaphthene	0.0115	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD31	22NEC-S28-SD31	SED	SW8270DSIM	Acenaphthylene	0.0134	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD31	22NEC-S28-SD31	SED	SW8270DSIM	Dibenzofuran	0.0172	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD31	22NEC-S28-SD31	SED	SW8270DSIM	Fluorene	0.0221	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD31	22NEC-S28-SD31	SED	SW8270DSIM	Phenanthrene	0.0129	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD31	22NEC-S28-SD31	SED	AK102/103SGT	RRO	ND	mg/kg	QL	LCS<LCL
L1528321	22NEC-S28-SD32	22NEC-S28-SD32	SED	SW8270DSIM	Dibenzofuran	0.0183	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD32	22NEC-S28-SD32	SED	AK102/103SGT	RRO	139	mg/kg	J,QL	LCSD>RPD|LCS<LCL
L1528321	22NEC-S28-SD32	22NEC-S28-SD32	SED	SW8270DSIM	Acenaphthene	0.0222	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD32	22NEC-S28-SD32	SED	SW8270DSIM	Fluorene	0.0326	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD32	22NEC-S28-SD32	SED	SW8270DSIM	Phenanthrene	0.0228	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD33	22NEC-S28-SD33	SED	AK102/103SGT	RRO	174	mg/kg	J,QL	LCSD>RPD|LCS<LCL
L1528321	22NEC-S28-SD33	22NEC-S28-SD33	SED	SW8270DSIM	Acenaphthene	0.0688	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD33	22NEC-S28-SD33	SED	SW8270DSIM	Dibenzofuran	0.0424	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD33	22NEC-S28-SD33	SED	SW8270DSIM	Fluorene	0.0592	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD33	22NEC-S28-SD33	SED	SW8270DSIM	Phenanthrene	0.0306	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD33	22NEC-S28-SD33	SED	AK102/103SGT	DRO	6340	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD34	SED	AK102/103SGT	RRO	ND	mg/kg	QL	LCS<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD34	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD34	SED	SW8270DSIM	2-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD34	SED	SW8270DSIM	Acenaphthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD34	SED	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD34	SED	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD34	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD34	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD34	SED	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD34	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD34	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD34	SED	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD34	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD34	SED	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD34	SED	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD34	SED	SW8270DSIM	Fluorene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD34	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD34	SED	SW8270DSIM	Naphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD34	SED	SW8270DSIM	Phenanthrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD34	SED	SW8270DSIM	Pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD35	22NEC-S28-SD35	SED	SW8270DSIM	Benzo(a)pyrene	0.0228	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD35	22NEC-S28-SD35	SED	SW8270DSIM	Fluoranthene	0.00872	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD35	22NEC-S28-SD35	SED	SW8270DSIM	Pyrene	0.00690	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD35	22NEC-S28-SD35	SED	SW8270DSIM	Acenaphthene	0.419	mg/kg	QH	Sur>UCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1528321	22NEC-S28-SD35	22NEC-S28-SD35	SED	SW8270DSIM	Dibenzofuran	0.243	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD35	22NEC-S28-SD35	SED	SW8270DSIM	Fluorene	0.705	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD35	22NEC-S28-SD35	SED	SW8270DSIM	Phenanthrene	0.486	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD35	22NEC-S28-SD35	SED	AK102/103SGT	DRO	14700	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD35	22NEC-S28-SD35	SED	AK102/103SGT	RRO	681	mg/kg	QL	LCSD>RPD|LCS<LCL|Sur<LCL
L1528321	22NEC-S28-SD35	22NEC-S28-SD35	SED	AK102/103	DRO	25600	mg/kg	QN	>CALR
L1528321	22NEC-S28-SD36	22NEC-S28-SD36	SED	AK102/103SGT	RRO	1370	mg/kg	QL	LCSD>RPD|LCS<LCL
L1528321	22NEC-S28-SD37	22NEC-S28-SD37	SED	AK102/103SGT	RRO	982	mg/kg	QL	LCSD>RPD|LCS<LCL
L1528321	22NEC-S28-SD38	22NEC-S28-SD38	SED	SW8270DSIM	Fluoranthene	0.0128	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD38	22NEC-S28-SD38	SED	SW8270DSIM	Pyrene	0.0135	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD38	22NEC-S28-SD38	SED	AK102/103SGT	RRO	1080	mg/kg	QL	LCSD>RPD|LCS<LCL
L1528321	22NEC-S28-SD38	22NEC-S28-SD38	SED	AK102/103	DRO	18000	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD38	22NEC-S28-SD38	SED	SW8270DSIM	1-Methylnaphthalene	8.56	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD38	22NEC-S28-SD38	SED	SW8270DSIM	2-Methylnaphthalene	15.1	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD38	22NEC-S28-SD38	SED	SW8270DSIM	Acenaphthene	0.217	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD38	22NEC-S28-SD38	SED	SW8270DSIM	Dibenzofuran	0.133	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD38	22NEC-S28-SD38	SED	SW8270DSIM	Fluorene	0.363	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD38	22NEC-S28-SD38	SED	SW8270DSIM	Naphthalene	3.77	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD38	22NEC-S28-SD38	SED	SW8270DSIM	Phenanthrene	0.227	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD38	22NEC-S28-SD38	SED	WBLACK	Total Organic Carbon	213000	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD39	22NEC-S28-SD39	SED	AK102/103SGT	RRO	236	mg/kg	J,QL	LCSD>RPD|LCS<LCL
L1528321	22NEC-S28-SD39	22NEC-S28-SD39	SED	SW8270DSIM	Acenaphthene	0.00839	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD39	22NEC-S28-SD39	SED	SW8270DSIM	Fluorene	0.0127	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD39	22NEC-S28-SD39	SED	SW8270DSIM	Naphthalene	0.0391	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD39	22NEC-S28-SD39	SED	SW8270DSIM	Phenanthrene	0.00839	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD39	22NEC-S28-SD39	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD39	22NEC-S28-SD39	SED	SW8270DSIM	2-Methylnaphthalene	0.204	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD39	22NEC-S28-SD39	SED	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD39	22NEC-S28-SD39	SED	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD39	22NEC-S28-SD39	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD39	22NEC-S28-SD39	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD39	22NEC-S28-SD39	SED	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD39	22NEC-S28-SD39	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD39	22NEC-S28-SD39	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD39	22NEC-S28-SD39	SED	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD39	22NEC-S28-SD39	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD39	22NEC-S28-SD39	SED	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD39	22NEC-S28-SD39	SED	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD39	22NEC-S28-SD39	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD39	22NEC-S28-SD39	SED	SW8270DSIM	Pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD40	22NEC-S28-SD40	SED	SW8270DSIM	Benzo(a)anthracene	0.00833	mg/kg	J,QH	Sur>UCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1528321	22NEC-S28-SD40	22NEC-S28-SD40	SED	SW8270DSIM	Benzo(a)pyrene	0.00660	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD40	22NEC-S28-SD40	SED	SW8270DSIM	Benzo(b)fluoranthene	0.00858	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD40	22NEC-S28-SD40	SED	SW8270DSIM	Chrysene	0.0185	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD40	22NEC-S28-SD40	SED	SW8270DSIM	Acenaphthene	0.278	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD40	22NEC-S28-SD40	SED	SW8270DSIM	Dibenzofuran	0.205	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD40	22NEC-S28-SD40	SED	SW8270DSIM	Fluoranthene	0.0371	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD40	22NEC-S28-SD40	SED	SW8270DSIM	Fluorene	0.425	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD40	22NEC-S28-SD40	SED	SW8270DSIM	Phenanthrene	0.550	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD40	22NEC-S28-SD40	SED	SW8270DSIM	Pyrene	0.0302	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD42	22NEC-S28-SD42	SED	SW8270DSIM	Chrysene	0.0111	mg/kg	J,QN	FD>RPD
L1528321	22NEC-S28-SD42	22NEC-S28-SD42	SED	SW8270DSIM	Phenanthrene	0.0271	mg/kg	J,QN	FD>RPD
L1528321	22NEC-S28-SD42	22NEC-S28-SD42	SED	AK102/103	DRO	3390	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD42	22NEC-S28-SD42	SED	AK102/103	RRO	24600	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD42	22NEC-S28-SD42	SED	AK102/103SGT	DRO	7820	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD42	22NEC-S28-SD42	SED	AK102/103SGT	RRO	66600	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD42	22NEC-S28-SD42	SED	SW8270DSIM	Pyrene	0.0391	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD43	22NEC-S28-SD43	SED	SW8270DSIM	Benzo(a)anthracene	0.0154	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD43	22NEC-S28-SD43	SED	SW8270DSIM	Benzo(g,h,i)perylene	0.0127	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD43	22NEC-S28-SD43	SED	SW8270DSIM	Benzo(k)fluoranthene	0.00407	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD43	22NEC-S28-SD43	SED	SW8270DSIM	Dibenzo(a,h)anthracene	0.00361	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD43	22NEC-S28-SD43	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	0.0112	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD43	22NEC-S28-SD43	SED	SW8270DSIM	Benzo(a)pyrene	0.0240	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD43	22NEC-S28-SD43	SED	SW8270DSIM	Benzo(b)fluoranthene	0.0228	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD43	22NEC-S28-SD43	SED	SW8270DSIM	Chrysene	0.0310	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD43	22NEC-S28-SD43	SED	SW8270DSIM	Fluoranthene	0.0455	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD43	22NEC-S28-SD43	SED	SW8270DSIM	Phenanthrene	0.723	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD43	22NEC-S28-SD43	SED	SW8270DSIM	Pyrene	0.0540	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD44	22NEC-S28-SD44	SED	SW8270DSIM	Benzo(a)pyrene	0.0273	mg/kg	J,QL	Sur<LCL|Sur>UCL
L1528321	22NEC-S28-SD44	22NEC-S28-SD44	SED	SW8270DSIM	Benzo(g,h,i)perylene	0.0221	mg/kg	J,QL	Sur<LCL|Sur>UCL
L1528321	22NEC-S28-SD44	22NEC-S28-SD44	SED	SW8270DSIM	Benzo(k)fluoranthene	0.0201	mg/kg	J,QL	Sur<LCL|Sur>UCL
L1528321	22NEC-S28-SD44	22NEC-S28-SD44	SED	SW8270DSIM	Dibenzo(a,h)anthracene	0.00704	mg/kg	J,QL	Sur<LCL|Sur>UCL
L1528321	22NEC-S28-SD44	22NEC-S28-SD44	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	0.0164	mg/kg	J,QL	Sur<LCL|Sur>UCL
L1528321	22NEC-S28-SD44	22NEC-S28-SD44	SED	AK102/103	DRO	5230	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD44	22NEC-S28-SD44	SED	AK102/103	RRO	1920	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD44	22NEC-S28-SD44	SED	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD44	22NEC-S28-SD44	SED	SW8270DSIM	Benzo(a)anthracene	0.0711	mg/kg	QL	Sur<LCL|Sur>UCL
L1528321	22NEC-S28-SD44	22NEC-S28-SD44	SED	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD44	22NEC-S28-SD44	SED	SW8270DSIM	Chrysene	0.188	mg/kg	QL	Sur<LCL|Sur>UCL
L1528321	22NEC-S28-SD44	22NEC-S28-SD44	SED	SW8270DSIM	Fluoranthene	0.433	mg/kg	QL	Sur<LCL|Sur>UCL
L1528321	22NEC-S28-SD44	22NEC-S28-SD44	SED	SW8270DSIM	Phenanthrene	1.83	mg/kg	QL	Sur<LCL|Sur>UCL
L1528321	22NEC-S28-SD44	22NEC-S28-SD44	SED	SW8270DSIM	Pyrene	0.289	mg/kg	QL	Sur<LCL|Sur>UCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1528321	22NEC-S28-SD45	22NEC-S28-SD45	SED	SW8270DSIM	Benzo(a)anthracene	0.0130	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD45	22NEC-S28-SD45	SED	SW8270DSIM	Benzo(b)fluoranthene	0.00721	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD45	22NEC-S28-SD45	SED	SW8270DSIM	Chrysene	0.0173	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD45	22NEC-S28-SD45	SED	SW8270DSIM	Acenaphthene	0.364	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD45	22NEC-S28-SD45	SED	SW8270DSIM	Dibenzofuran	0.253	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD45	22NEC-S28-SD45	SED	SW8270DSIM	Fluoranthene	0.0901	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD45	22NEC-S28-SD45	SED	SW8270DSIM	Fluorene	0.656	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD45	22NEC-S28-SD45	SED	SW8270DSIM	Phenanthrene	0.739	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD45	22NEC-S28-SD45	SED	SW8270DSIM	Pyrene	0.0547	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD45	22NEC-S28-SD45	SED	AK102/103	DRO	4260	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD46	22NEC-S28-SD46	SED	SW8270DSIM	Benzo(a)pyrene	0.0216	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD46	22NEC-S28-SD46	SED	SW8270DSIM	Benzo(k)fluoranthene	0.0138	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD46	22NEC-S28-SD46	SED	SW8270DSIM	Dibenzo(a,h)anthracene	0.0103	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD46	22NEC-S28-SD46	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	0.0203	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD46	22NEC-S28-SD46	SED	SW8270DSIM	Anthracene	0.0963	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD46	22NEC-S28-SD46	SED	SW8270DSIM	Benzo(a)anthracene	0.0695	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD46	22NEC-S28-SD46	SED	SW8270DSIM	Benzo(b)fluoranthene	0.0462	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD46	22NEC-S28-SD46	SED	SW8270DSIM	Chrysene	0.134	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD46	22NEC-S28-SD46	SED	SW8270DSIM	Fluoranthene	0.366	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD46	22NEC-S28-SD46	SED	SW8270DSIM	Phenanthrene	1.04	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD46	22NEC-S28-SD46	SED	SW8270DSIM	Pyrene	0.261	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD47	22NEC-S28-SD47	SED	SW8270DSIM	Benzo(a)pyrene	0.0104	mg/kg	J,QL	Sur<10%|Sur>UCL
L1528321	22NEC-S28-SD47	22NEC-S28-SD47	SED	SW8270DSIM	Benzo(g,h,i)perylene	0.0156	mg/kg	J,QL	Sur<10%|Sur>UCL
L1528321	22NEC-S28-SD47	22NEC-S28-SD47	SED	SW8270DSIM	Benzo(k)fluoranthene	0.0122	mg/kg	J,QL	Sur<10%|Sur>UCL
L1528321	22NEC-S28-SD47	22NEC-S28-SD47	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	0.0115	mg/kg	J,QL	Sur<10%|Sur>UCL
L1528321	22NEC-S28-SD47	22NEC-S28-SD47	SED	SW8270DSIM	1-Methylnaphthalene	8.90	mg/kg	QL	MS<10%|MSD>UCL
L1528321	22NEC-S28-SD47	22NEC-S28-SD47	SED	SW8270DSIM	2-Methylnaphthalene	6.63	mg/kg	QL	MS<10%|MSD>UCL
L1528321	22NEC-S28-SD47	22NEC-S28-SD47	SED	SW8270DSIM	Acenaphthene	0.928	mg/kg	QL	MS>UCL|MSD<LCL
L1528321	22NEC-S28-SD47	22NEC-S28-SD47	SED	SW8270DSIM	Benzo(a)anthracene	0.0257	mg/kg	QL	Sur<10%|Sur>UCL
L1528321	22NEC-S28-SD47	22NEC-S28-SD47	SED	SW8270DSIM	Benzo(b)fluoranthene	0.0353	mg/kg	QL	Sur<10%|Sur>UCL
L1528321	22NEC-S28-SD47	22NEC-S28-SD47	SED	SW8270DSIM	Chrysene	0.0484	mg/kg	QL	Sur<10%|Sur>UCL
L1528321	22NEC-S28-SD47	22NEC-S28-SD47	SED	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	MSD<10%|MSD RPD
L1528321	22NEC-S28-SD47	22NEC-S28-SD47	SED	SW8270DSIM	Fluoranthene	0.107	mg/kg	QL	Sur<10%|Sur>UCL
L1528321	22NEC-S28-SD47	22NEC-S28-SD47	SED	SW8270DSIM	Fluorene	1.58	mg/kg	QL	MS>UCL|MSD<10%
L1528321	22NEC-S28-SD47	22NEC-S28-SD47	SED	SW8270DSIM	Naphthalene	4.24	mg/kg	QL	MS<10%|MSD>UCL
L1528321	22NEC-S28-SD47	22NEC-S28-SD47	SED	SW8270DSIM	Phenanthrene	0.754	mg/kg	QL	Sur<10%|Sur>UCL
L1528321	22NEC-S28-SD47	22NEC-S28-SD47	SED	SW8270DSIM	Pyrene	0.129	mg/kg	QL	MS<LCL|MSD<LCL|Sur<10%|Sur>UCL
L1528321	22NEC-S28-SD47	22NEC-S28-SD47	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	R	MS<10%|MSD<10%
L1528321	22NEC-S28-SD47	22NEC-S28-SD47	SED	SW8270DSIM	Anthracene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD47	22NEC-S28-SD47	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	R	Sur<10%

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1528321	22NEC-S28-SD48	22NEC-S28-SD48	SED	SW8270DSIM	Benzo(a)anthracene	0.00537	mg/kg	J,QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD48	22NEC-S28-SD48	SED	SW8270DSIM	Benzo(a)pyrene	0.00434	mg/kg	J,QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD48	22NEC-S28-SD48	SED	SW8270DSIM	Benzo(b)fluoranthene	0.00721	mg/kg	J,QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD48	22NEC-S28-SD48	SED	SW8270DSIM	Chrysene	0.0127	mg/kg	J,QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD48	22NEC-S28-SD48	SED	SW8270DSIM	Acenaphthene	0.971	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD48	22NEC-S28-SD48	SED	SW8270DSIM	Anthracene	0.285	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD48	22NEC-S28-SD48	SED	SW8270DSIM	Dibenzofuran	0.565	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD48	22NEC-S28-SD48	SED	SW8270DSIM	Fluoranthene	0.0399	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD48	22NEC-S28-SD48	SED	SW8270DSIM	Fluorene	1.69	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD48	22NEC-S28-SD48	SED	SW8270DSIM	Phenanthrene	0.850	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD48	22NEC-S28-SD48	SED	SW8270DSIM	Pyrene	0.0390	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD48	22NEC-S28-SD48	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD48	22NEC-S28-SD48	SED	SW8270DSIM	Acenaphthylene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD48	22NEC-S28-SD48	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD48	22NEC-S28-SD48	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD48	22NEC-S28-SD48	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD48	22NEC-S28-SD48	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD49	22NEC-S28-SD49	SED	SW8270DSIM	Benzo(a)anthracene	0.00562	mg/kg	J,QL	Sur<10%
L1528321	22NEC-S28-SD49	22NEC-S28-SD49	SED	SW8270DSIM	Benzo(b)fluoranthene	0.00462	mg/kg	J,QL	Sur<10%
L1528321	22NEC-S28-SD49	22NEC-S28-SD49	SED	SW8270DSIM	Chrysene	0.00946	mg/kg	J,QL	Sur<10%
L1528321	22NEC-S28-SD49	22NEC-S28-SD49	SED	AK102/103	DRO	30900	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD49	22NEC-S28-SD49	SED	AK102/103	RRO	2090	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD49	22NEC-S28-SD49	SED	AK102/103SGT	RRO	1220	mg/kg	QL	LCSD>RPD|LCS<LCL|MS<LCL|MSD>UCL|MSD>RPD
L1528321	22NEC-S28-SD49	22NEC-S28-SD49	SED	SW8270DSIM	Fluoranthene	0.0327	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD49	22NEC-S28-SD49	SED	SW8270DSIM	Phenanthrene	0.294	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD49	22NEC-S28-SD49	SED	SW8270DSIM	Pyrene	0.0302	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD49	22NEC-S28-SD49	SED	SW8270DSIM	Anthracene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD49	22NEC-S28-SD49	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD49	22NEC-S28-SD49	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD49	22NEC-S28-SD49	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD49	22NEC-S28-SD49	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD49	22NEC-S28-SD49	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD50	22NEC-S28-SD50	SED	SW8270DSIM	Benzo(b)fluoranthene	0.00368	mg/kg	J,QL	Sur<LCL|Sur<10%|Sur>UCL
L1528321	22NEC-S28-SD50	22NEC-S28-SD50	SED	SW8270DSIM	Chrysene	0.00610	mg/kg	J,QL	Sur<LCL|Sur<10%|Sur>UCL
L1528321	22NEC-S28-SD50	22NEC-S28-SD50	SED	SW8270DSIM	1-Methylnaphthalene	2.31	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD50	22NEC-S28-SD50	SED	SW8270DSIM	2-Methylnaphthalene	3.61	mg/kg	QL	Sur<LCL|Sur<10%|Sur>UCL
L1528321	22NEC-S28-SD50	22NEC-S28-SD50	SED	SW8270DSIM	Fluoranthene	0.0251	mg/kg	QL	Sur<LCL|Sur<10%|Sur>UCL
L1528321	22NEC-S28-SD50	22NEC-S28-SD50	SED	SW8270DSIM	Naphthalene	4.44	mg/kg	QL	Sur<LCL|Sur<10%|Sur>UCL
L1528321	22NEC-S28-SD50	22NEC-S28-SD50	SED	SW8270DSIM	Phenanthrene	0.184	mg/kg	QL	Sur<LCL|Sur<10%|Sur>UCL
L1528321	22NEC-S28-SD50	22NEC-S28-SD50	SED	SW8270DSIM	Pyrene	0.0249	mg/kg	QL	Sur<LCL|Sur<10%|Sur>UCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1528321	22NEC-S28-SD50	22NEC-S28-SD50	SED	SW8270DSIM	Anthracene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD50	22NEC-S28-SD50	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD50	22NEC-S28-SD50	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD50	22NEC-S28-SD50	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD50	22NEC-S28-SD50	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD50	22NEC-S28-SD50	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD50	22NEC-S28-SD50	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD51	22NEC-S28-SD51	SED	SW8270DSIM	Benzo(g,h,i)perylene	0.0196	mg/kg	J,QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD51	22NEC-S28-SD51	SED	SW8270DSIM	Benzo(k)fluoranthene	0.0137	mg/kg	J,QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD51	22NEC-S28-SD51	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	0.0206	mg/kg	J,QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD51	22NEC-S28-SD51	SED	SW8270DSIM	Benzo(a)anthracene	0.0516	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD51	22NEC-S28-SD51	SED	SW8270DSIM	Benzo(a)pyrene	0.0395	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD51	22NEC-S28-SD51	SED	SW8270DSIM	Benzo(b)fluoranthene	0.0411	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD51	22NEC-S28-SD51	SED	SW8270DSIM	Chrysene	0.0678	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD51	22NEC-S28-SD51	SED	SW8270DSIM	Fluoranthene	0.166	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD51	22NEC-S28-SD51	SED	SW8270DSIM	Phenanthrene	4.35	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD51	22NEC-S28-SD51	SED	SW8270DSIM	Pyrene	0.184	mg/kg	QL	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD51	22NEC-S28-SD51	SED	SW8270DSIM	Anthracene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD51	22NEC-S28-SD51	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	R	Sur<LCL|Sur<10%
L1528321	22NEC-S28-SD52	22NEC-S28-SD52	SED	SW8270DSIM	Anthracene	0.00634	mg/kg	J,QL	Sur<10%
L1528321	22NEC-S28-SD52	22NEC-S28-SD52	SED	SW8270DSIM	Benzo(a)anthracene	0.0134	mg/kg	J,QL	Sur<10%
L1528321	22NEC-S28-SD52	22NEC-S28-SD52	SED	SW8270DSIM	Benzo(a)pyrene	0.00437	mg/kg	J,QL	Sur<10%
L1528321	22NEC-S28-SD52	22NEC-S28-SD52	SED	SW8270DSIM	Benzo(b)fluoranthene	0.0110	mg/kg	J,QL	Sur<10%
L1528321	22NEC-S28-SD52	22NEC-S28-SD52	SED	SW8270DSIM	Chrysene	0.0213	mg/kg	J,QL	Sur<10%
L1528321	22NEC-S28-SD52	22NEC-S28-SD52	SED	AK102/103	RRO	708	mg/kg	QL	MSD<LCL|MSD RPD
L1528321	22NEC-S28-SD52	22NEC-S28-SD52	SED	SW8270DSIM	2-Methylnaphthalene	1.71	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD52	22NEC-S28-SD52	SED	SW8270DSIM	Acenaphthene	0.151	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD52	22NEC-S28-SD52	SED	SW8270DSIM	Dibenzofuran	0.109	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD52	22NEC-S28-SD52	SED	SW8270DSIM	Fluoranthene	0.121	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD52	22NEC-S28-SD52	SED	SW8270DSIM	Fluorene	0.222	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD52	22NEC-S28-SD52	SED	SW8270DSIM	Naphthalene	1.10	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD52	22NEC-S28-SD52	SED	SW8270DSIM	Phenanthrene	0.308	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD52	22NEC-S28-SD52	SED	SW8270DSIM	Pyrene	0.0921	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD52	22NEC-S28-SD52	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD52	22NEC-S28-SD52	SED	SW8270DSIM	Acenaphthylene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD52	22NEC-S28-SD52	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD52	22NEC-S28-SD52	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD52	22NEC-S28-SD52	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD52	22NEC-S28-SD52	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD53	22NEC-S28-SD53	SED	SW8270DSIM	Anthracene	0.00949	mg/kg	J,QL	Sur<10%|FD>RPD
L1528321	22NEC-S28-SD53	22NEC-S28-SD53	SED	SW8270DSIM	Fluoranthene	0.0109	mg/kg	J,QL	Sur<10%|FD>RPD

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1528321	22NEC-S28-SD53	22NEC-S28-SD53	SED	SW8270DSIM	Pyrene	0.00977	mg/kg	J,QL	Sur<10%|FD>RPD
L1528321	22NEC-S28-SD53	22NEC-S28-SD53	SED	SW8270DSIM	2-Methylnaphthalene	16.8	mg/kg	QL	Sur<10%|FD>RPD
L1528321	22NEC-S28-SD53	22NEC-S28-SD53	SED	SW8270DSIM	Acenaphthene	0.271	mg/kg	QL	Sur<10%|FD>RPD
L1528321	22NEC-S28-SD53	22NEC-S28-SD53	SED	SW8270DSIM	Dibenzofuran	0.173	mg/kg	QL	Sur<10%|FD>RPD
L1528321	22NEC-S28-SD53	22NEC-S28-SD53	SED	SW8270DSIM	Fluorene	0.437	mg/kg	QL	Sur<10%|FD>RPD
L1528321	22NEC-S28-SD53	22NEC-S28-SD53	SED	SW8270DSIM	Naphthalene	5.93	mg/kg	QL	Sur<10%|FD>RPD
L1528321	22NEC-S28-SD53	22NEC-S28-SD53	SED	SW8270DSIM	Phenanthrene	0.444	mg/kg	QL	Sur<10%|FD>RPD
L1528321	22NEC-S28-SD53	22NEC-S28-SD53	SED	SW8270DSIM	1-Methylnaphthalene	8.53	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD53	22NEC-S28-SD53	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD53	22NEC-S28-SD53	SED	SW8270DSIM	Acenaphthylene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD53	22NEC-S28-SD53	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD53	22NEC-S28-SD53	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD53	22NEC-S28-SD53	SED	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD53	22NEC-S28-SD53	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD53	22NEC-S28-SD53	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD53	22NEC-S28-SD53	SED	SW8270DSIM	Chrysene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD53	22NEC-S28-SD53	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD53	22NEC-S28-SD53	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD54	22NEC-S28-SD54	SED	SW8270DSIM	Benzo(b)fluoranthene	0.00504	mg/kg	J,QL	Sur<10%
L1528321	22NEC-S28-SD54	22NEC-S28-SD54	SED	SW8270DSIM	Chrysene	0.00755	mg/kg	J,QL	Sur<10%
L1528321	22NEC-S28-SD54	22NEC-S28-SD54	SED	AK102/103	DRO	43300	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD54	22NEC-S28-SD54	SED	AK102/103	RRO	3720	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD54	22NEC-S28-SD54	SED	SW8270DSIM	Fluoranthene	0.0284	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD54	22NEC-S28-SD54	SED	SW8270DSIM	Naphthalene	5.70	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD54	22NEC-S28-SD54	SED	SW8270DSIM	Phenanthrene	0.689	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD54	22NEC-S28-SD54	SED	SW8270DSIM	Pyrene	0.0250	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD54	22NEC-S28-SD54	SED	SW8270DSIM	Anthracene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD54	22NEC-S28-SD54	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD54	22NEC-S28-SD54	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD54	22NEC-S28-SD54	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD54	22NEC-S28-SD54	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD54	22NEC-S28-SD54	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD54	22NEC-S28-SD54	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD55	22NEC-S28-SD55	SED	AK102/103	RRO	549	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD57	22NEC-S28-SD57	SED	AK102/103	RRO	336	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD57	22NEC-S28-SD57	SED	SW8270DSIM	Acenaphthene	0.0192	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD57	22NEC-S28-SD57	SED	SW8270DSIM	Acenaphthylene	0.00738	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD57	22NEC-S28-SD57	SED	SW8270DSIM	Dibenzofuran	0.0171	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD57	22NEC-S28-SD57	SED	SW8270DSIM	Fluoranthene	0.0221	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD57	22NEC-S28-SD57	SED	SW8270DSIM	Fluorene	0.0221	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD57	22NEC-S28-SD57	SED	SW8270DSIM	Pyrene	0.0191	mg/kg	J,QL	Sur<LCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1528321	22NEC-S28-SD57	22NEC-S28-SD57	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD57	22NEC-S28-SD57	SED	SW8270DSIM	2-Methylnaphthalene	0.285	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD57	22NEC-S28-SD57	SED	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD57	22NEC-S28-SD57	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD57	22NEC-S28-SD57	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD57	22NEC-S28-SD57	SED	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD57	22NEC-S28-SD57	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD57	22NEC-S28-SD57	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD57	22NEC-S28-SD57	SED	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD57	22NEC-S28-SD57	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD57	22NEC-S28-SD57	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD57	22NEC-S28-SD57	SED	SW8270DSIM	Naphthalene	0.122	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD57	22NEC-S28-SD57	SED	SW8270DSIM	Phenanthrene	0.0324	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD58	22NEC-S28-SD58	SED	SW8270DSIM	1-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD58	22NEC-S28-SD58	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD58	22NEC-S28-SD58	SED	SW8270DSIM	2-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD58	22NEC-S28-SD58	SED	SW8270DSIM	Acenaphthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD58	22NEC-S28-SD58	SED	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD58	22NEC-S28-SD58	SED	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD58	22NEC-S28-SD58	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD58	22NEC-S28-SD58	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD58	22NEC-S28-SD58	SED	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD58	22NEC-S28-SD58	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD58	22NEC-S28-SD58	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD58	22NEC-S28-SD58	SED	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD58	22NEC-S28-SD58	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD58	22NEC-S28-SD58	SED	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD58	22NEC-S28-SD58	SED	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD58	22NEC-S28-SD58	SED	SW8270DSIM	Fluorene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD58	22NEC-S28-SD58	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD58	22NEC-S28-SD58	SED	SW8270DSIM	Naphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD58	22NEC-S28-SD58	SED	SW8270DSIM	Phenanthrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD58	22NEC-S28-SD58	SED	SW8270DSIM	Pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD59	22NEC-S28-SD59	SED	SW8270DSIM	Benzo(b)fluoranthene	0.00313	mg/kg	J,QL	Sur<10%
L1528321	22NEC-S28-SD59	22NEC-S28-SD59	SED	SW8270DSIM	Chrysene	0.00508	mg/kg	J,QL	Sur<10%
L1528321	22NEC-S28-SD59	22NEC-S28-SD59	SED	SW8270DSIM	Fluoranthene	0.0181	mg/kg	J,QL	Sur<10%
L1528321	22NEC-S28-SD59	22NEC-S28-SD59	SED	AK102/103	DRO	7450	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD59	22NEC-S28-SD59	SED	AK102/103	RRO	1550	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD59	22NEC-S28-SD59	SED	SW8270DSIM	Acenaphthene	0.841	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD59	22NEC-S28-SD59	SED	SW8270DSIM	Dibenzofuran	0.510	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD59	22NEC-S28-SD59	SED	SW8270DSIM	Fluorene	1.58	mg/kg	QL	Sur<10%

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1528321	22NEC-S28-SD59	22NEC-S28-SD59	SED	SW8270DSIM	Naphthalene	6.08	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD59	22NEC-S28-SD59	SED	SW8270DSIM	Phenanthrene	0.832	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD59	22NEC-S28-SD59	SED	SW8270DSIM	Pyrene	0.0189	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD59	22NEC-S28-SD59	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD59	22NEC-S28-SD59	SED	SW8270DSIM	Acenaphthylene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD59	22NEC-S28-SD59	SED	SW8270DSIM	Anthracene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD59	22NEC-S28-SD59	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD59	22NEC-S28-SD59	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD59	22NEC-S28-SD59	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD59	22NEC-S28-SD59	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD59	22NEC-S28-SD59	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD59	22NEC-S28-SD59	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD60	22NEC-S28-SD60	SED	AK102/103	RRO	381	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD60	22NEC-S28-SD60	SED	SW8270DSIM	Fluoranthene	0.0131	mg/kg	J,QL	Sur<10%
L1528321	22NEC-S28-SD60	22NEC-S28-SD60	SED	SW8270DSIM	Pyrene	0.0129	mg/kg	J,QL	Sur<10%
L1528321	22NEC-S28-SD60	22NEC-S28-SD60	SED	SW8270DSIM	2-Methylnaphthalene	0.394	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD60	22NEC-S28-SD60	SED	SW8270DSIM	Acenaphthene	0.116	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD60	22NEC-S28-SD60	SED	SW8270DSIM	Acenaphthylene	0.0605	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD60	22NEC-S28-SD60	SED	SW8270DSIM	Dibenzofuran	0.0630	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD60	22NEC-S28-SD60	SED	SW8270DSIM	Fluorene	0.237	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD60	22NEC-S28-SD60	SED	SW8270DSIM	Naphthalene	0.185	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD60	22NEC-S28-SD60	SED	SW8270DSIM	Phenanthrene	0.209	mg/kg	QL	Sur<10%
L1528321	22NEC-S28-SD60	22NEC-S28-SD60	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD60	22NEC-S28-SD60	SED	SW8270DSIM	Anthracene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD60	22NEC-S28-SD60	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD60	22NEC-S28-SD60	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD60	22NEC-S28-SD60	SED	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD60	22NEC-S28-SD60	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD60	22NEC-S28-SD60	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD60	22NEC-S28-SD60	SED	SW8270DSIM	Chrysene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD60	22NEC-S28-SD60	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD60	22NEC-S28-SD60	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD21	22NEC-S28-SD921	SED	AK102/103SGT	RRO	261	mg/kg	J,QL	Sur<LCL
L1528321	22NEC-S28-SD21	22NEC-S28-SD921	SED	SW8270DSIM	Benzo(a)pyrene	0.00905	mg/kg	J,QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD21	22NEC-S28-SD921	SED	SW8270DSIM	Benzo(b)fluoranthene	0.0182	mg/kg	J,QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD21	22NEC-S28-SD921	SED	SW8270DSIM	Benzo(k)fluoranthene	0.00786	mg/kg	J,QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD21	22NEC-S28-SD921	SED	SW8270DSIM	2-Methylnaphthalene	0.852	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD21	22NEC-S28-SD921	SED	SW8270DSIM	Anthracene	0.0949	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD21	22NEC-S28-SD921	SED	SW8270DSIM	Dibenzofuran	0.144	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD21	22NEC-S28-SD921	SED	SW8270DSIM	Fluorene	0.245	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD21	22NEC-S28-SD921	SED	SW8270DSIM	Naphthalene	0.308	mg/kg	QH	Sur>UCL

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1528321	22NEC-S28-SD21	22NEC-S28-SD921	SED	SW8270DSIM	Acenaphthene	0.153	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD21	22NEC-S28-SD921	SED	SW8270DSIM	Benzo(a)anthracene	0.0416	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD21	22NEC-S28-SD921	SED	SW8270DSIM	Chrysene	0.0675	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD21	22NEC-S28-SD921	SED	SW8270DSIM	Fluoranthene	0.572	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD21	22NEC-S28-SD921	SED	SW8270DSIM	Phenanthrene	0.963	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD21	22NEC-S28-SD921	SED	SW8270DSIM	Pyrene	0.347	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD34	22NEC-S28-SD934	SED	AK102/103SGT	RRO	ND	mg/kg	QL	LCS<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD934	SED	SW8270DSIM	1-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD934	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD934	SED	SW8270DSIM	2-Methylnaphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD934	SED	SW8270DSIM	Acenaphthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD934	SED	SW8270DSIM	Acenaphthylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD934	SED	SW8270DSIM	Anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD934	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD934	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD934	SED	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD934	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD934	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD934	SED	SW8270DSIM	Chrysene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD934	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD934	SED	SW8270DSIM	Dibenzofuran	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD934	SED	SW8270DSIM	Fluoranthene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD934	SED	SW8270DSIM	Fluorene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD934	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD934	SED	SW8270DSIM	Naphthalene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD934	SED	SW8270DSIM	Phenanthrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD34	22NEC-S28-SD934	SED	SW8270DSIM	Pyrene	ND	mg/kg	QL	Sur<LCL
L1528321	22NEC-S28-SD38	22NEC-S28-SD938	SED	SW8270DSIM	Benzo(a)pyrene	0.0217	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD38	22NEC-S28-SD938	SED	SW8270DSIM	Fluoranthene	0.0177	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD38	22NEC-S28-SD938	SED	SW8270DSIM	Pyrene	0.0152	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD38	22NEC-S28-SD938	SED	SW8270DSIM	Dibenzofuran	0.390	mg/kg	J,QN	FD>RPD
L1528321	22NEC-S28-SD38	22NEC-S28-SD938	SED	AK102/103	RRO	2640	mg/kg	QH	Sur>UCL
L1528321	22NEC-S28-SD38	22NEC-S28-SD938	SED	AK102/103SGT	RRO	1010	mg/kg	QL	LCSD>RPD|LCS<LCL
L1528321	22NEC-S28-SD38	22NEC-S28-SD938	SED	AK102/103	DRO	7160	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD38	22NEC-S28-SD938	SED	SW8270DSIM	1-Methylnaphthalene	24.9	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD38	22NEC-S28-SD938	SED	SW8270DSIM	2-Methylnaphthalene	44.7	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD38	22NEC-S28-SD938	SED	SW8270DSIM	Acenaphthene	0.659	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD38	22NEC-S28-SD938	SED	SW8270DSIM	Fluorene	1.30	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD38	22NEC-S28-SD938	SED	SW8270DSIM	Naphthalene	11.0	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD38	22NEC-S28-SD938	SED	SW8270DSIM	Phenanthrene	0.580	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD38	22NEC-S28-SD938	SED	WBLACK	Total Organic Carbon	121000	mg/kg	QN	FD>RPD

Table 3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1528321	22NEC-S28-SD942	22NEC-S28-SD942	SED	SW8270DSIM	Benzo(a)anthracene	0.0201	mg/kg	J,QH	Sur>UCL
L1528321	22NEC-S28-SD942	22NEC-S28-SD942	SED	AK102/103	DRO	9640	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD942	22NEC-S28-SD942	SED	AK102/103	RRO	82200	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD942	22NEC-S28-SD942	SED	AK102/103SGT	DRO	15700	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD942	22NEC-S28-SD942	SED	AK102/103SGT	RRO	133000	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD942	22NEC-S28-SD942	SED	SW8270DSIM	Chrysene	0.0542	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD942	22NEC-S28-SD942	SED	SW8270DSIM	Phenanthrene	0.0906	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD942	22NEC-S28-SD942	SED	SW8270DSIM	Pyrene	0.0903	mg/kg	QN	Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD53	22NEC-S28-SD953	SED	SW8270DSIM	Acenaphthene	1.54	mg/kg	QL	Sur<10%|Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD53	22NEC-S28-SD953	SED	SW8270DSIM	Anthracene	0.0513	mg/kg	QL	Sur<10%|Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD53	22NEC-S28-SD953	SED	SW8270DSIM	Dibenzofuran	1.00	mg/kg	QL	Sur<10%|Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD53	22NEC-S28-SD953	SED	SW8270DSIM	Fluoranthene	0.0366	mg/kg	QL	Sur<10%|Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD53	22NEC-S28-SD953	SED	SW8270DSIM	Fluorene	2.22	mg/kg	QL	Sur<10%|Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD53	22NEC-S28-SD953	SED	SW8270DSIM	Phenanthrene	1.66	mg/kg	QL	Sur<10%|Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD53	22NEC-S28-SD953	SED	SW8270DSIM	Pyrene	0.0346	mg/kg	QL	Sur<10%|Sur>UCL|FD>RPD
L1528321	22NEC-S28-SD53	22NEC-S28-SD953	SED	SW8270DSIM	1-Methylnaphthalene	47.3	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD53	22NEC-S28-SD953	SED	SW8270DSIM	2-Methylnaphthalene	82.2	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD53	22NEC-S28-SD953	SED	SW8270DSIM	Naphthalene	29.5	mg/kg	QN	FD>RPD
L1528321	22NEC-S28-SD53	22NEC-S28-SD953	SED	SW8270DSIM	2-Chloronaphthalene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD53	22NEC-S28-SD953	SED	SW8270DSIM	Acenaphthylene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD53	22NEC-S28-SD953	SED	SW8270DSIM	Benzo(a)anthracene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD53	22NEC-S28-SD953	SED	SW8270DSIM	Benzo(a)pyrene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD53	22NEC-S28-SD953	SED	SW8270DSIM	Benzo(b)fluoranthene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD53	22NEC-S28-SD953	SED	SW8270DSIM	Benzo(g,h,i)perylene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD53	22NEC-S28-SD953	SED	SW8270DSIM	Benzo(k)fluoranthene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD53	22NEC-S28-SD953	SED	SW8270DSIM	Chrysene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD53	22NEC-S28-SD953	SED	SW8270DSIM	Dibenzo(a,h)anthracene	ND	mg/kg	R	Sur<10%
L1528321	22NEC-S28-SD53	22NEC-S28-SD953	SED	SW8270DSIM	Indeno(1,2,3-cd)pyrene	ND	mg/kg	R	Sur<10%

Notes:

For definitions, refer to the Acronyms and Abbreviations section.

B – The result is potentially biased high due to contamination present in the M or TB

>CALR – result reported above the calibration range.

CCV>UCL – Continuing calibration recovery greater than the upper control limit

CF>RPD – Confirmation result relative percent difference greater than the control limit

FD>RPD – Field duplicate relative percent difference criteria exceeded

HT – Holding time exceeded

J – Result is an estimated value because it is greater than or equal to the DL and less than the LOQ

MB – Method blank contamination less than the reporting limit

LCS<LCL – Laboratory control sample recovery less than the lower control limit

LCS>UCL – Laboratory control sample recovery greater than the upper control limit

LCSD>RPD – Laboratory control sample duplicate relative percent difference criteria exceeded

LR>RPD – Laboratory duplicate relative percent difference criteria exceeded

MB – Method blank concentration less than the reporting limit

MS<10%/MSD<10% – Matrix spike/matrix spike duplicate recovery less than the lower cutoff

MS<LCL/MSD<LCL – Matrix spike/matrix spike duplicate recovery less than the lower control limit

MS>UCL/MSD>UCL – Matrix spike/matrix spike duplicate recovery greater than the upper control limit

MSD>RPD – Matrix spike relative percent difference criteria exceeded

QN/QL/QH – Result is an estimated value as the result of a QC failure. When possible, direction of bias indicated.

R – The result is rejected due to serious deficiencies.

Sur<10% – Surrogate recovery less than the lower cutoff

Sur<LCL – Surrogate recovery less than the lower control limit

Sur>UCL – Surrogate recovery greater than the upper control limit

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Attachment F-1
Sample Summary

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ATTACHMENT F-1
SAMPLE SUMMARY TABLE
2022 Northeast Cape FUDS

SAMPLE ID	LOCATION ID	LAB ID	COLLECTION DATE	MATRIX	QC TYPE	SAMPLER	START DEPTH	END DEPTH	DEPTH UNITS	LAB SDG	LAB	TAT	COOLER(S)	DRO/RRO AK102/103	DRO/RRO Silica Gel AK102/103SGT	Sulfate EPA 300.0	Methane RSK175	Alkalinity SM2320B	Total Metals SW6020B	Diss Metals SW6020B	Total Mercury SW7470A	Diss Mercury SW7470A	PCBs SW8082A	BTEX SW8260D	PAH SW8270DSIM	TOC Walkley-Black	TCLP Metals SW1311/SW6010D	TCLP Mercury SW1311/SW7470A	TCLP VOC SW1311/SW8260D	TCLP SVOC SW1311/SW8270E
22NEC-S15-DU1-SS01	22NEC-S15-DU1	L1520822-01	07/25/22 10:05	ISM SO	N	MG	0	0.5	ft	L1520822	Pace	10-day	PACE-22NEC-001	X																
22NEC-S15-DU1-SS02	22NEC-S15-DU1	L1520822-02	07/25/22 10:10	ISM SO	N	MG	0	0.5	ft	L1520822	Pace	10-day	PACE-22NEC-001	X																
22NEC-S15-DU1-SS03	22NEC-S15-DU1	L1520822-03	07/25/22 10:15	ISM SO	N	MG	0	0.5	ft	L1520822	Pace	10-day	PACE-22NEC-001	X																
22NEC-S28-DU1-SD01	22NEC-S28-DU1	L1520822-04	07/25/22 13:05	ISM SO	N	MG	0	0.5	ft	L1520822	Pace	10-day	PACE-22NEC-001	X											X					
22NEC-S28-DU1-SD02	22NEC-S28-DU1	L1520822-05	07/25/22 13:10	ISM SO	N	MG	0	0.5	ft	L1520822	Pace	10-day	PACE-22NEC-001	X											X					
22NEC-S28-DU1-SD03	22NEC-S28-DU1	L1520822-06	07/25/22 13:20	ISM SO	N	MG	0	0.5	ft	L1520822	Pace	10-day	PACE-22NEC-001	X											X					
22NEC-S28-DU2-SD01	22NEC-S28-DU2-SD01	L1520822-07	07/27/22 13:50	ISM SO	N	TD	0	0.5	ft	L1520822	Pace	10-day	PACE-22NEC-001	X											X					
22NEC-S28-SW-01	22NEC-S28-SW-01	L1520826-01	07/27/22 10:30	SW	N	MG	0	1	ft	L1520826	Pace	10-day	PACE-22NEC-W001	X										X	X					
22NEC-S28-SW-901	22NEC-S28-SW-01	L1520826-02	07/27/22 11:30	SW	FD of 22NEC-S28-SW-01	MG	0	1	ft	L1520826	Pace	10-day	PACE-22NEC-W001	X										X	X					
22NEC-S28-SW-05	22NEC-S28-SW-05	L1520826-03	07/29/22 13:30	SW	N	MG	0	1	ft	L1520826	Pace	10-day	PACE-22NEC-W001	X										X	X					
22NEC-S28-SW-03	22NEC-S28-SW-03	L1520826-04	07/27/22 11:05	SW	N	MG	0	1	ft	L1520826	Pace	10-day	PACE-22NEC-W001	X										X	X					
22NEC-S28-SW-04	22NEC-S28-SW-04	L1520826-05	07/27/22 11:20	SW	N	MG	0	1	ft	L1520826	Pace	10-day	PACE-22NEC-W001	X										X	X					
22NEC-TB01	NA	L1520826-06	07/27/22 07:00	WQ	TB	--	--	--	--	L1520826	Pace	10-day	PACE-22NEC-W001											X						
22NEC-S28-WA-01	22NEC-S28-WA-01	L1520826-07	07/28/22 17:00	WW	N	SM	--	--	--	L1520826	Pace	2-day	PACE-22NEC-W001	X										X	X					
22NEC-MOC-14MW07	22NEC-MOC-14MW07	L1521707-01	07/30/22 16:00	GW	N	TD	29.5	29.5	ft-btoc	L1521707	Pace	10-day	PACE-22NEC-W002	X		X	X	X	X	X	X	X	X	X	X*					
22NEC-MOC-17MW1	22NEC-MOC-17MW1	L1521707-02	07/30/22 17:30	GW	N	TD	15.9	15.9	ft-btoc	L1521707	Pace	10-day	PACE-22NEC-W002	X		X	X	X	X	X	X	X	X	X	X*					
22NEC-TB02	NA	L1521707-03	07/30/22 07:00	WQ	TB	--	--	--	--	L1521707	Pace	10-day	PACE-22NEC-W002											X						
22NEC-MOC-MW88-10	22NEC-MOC-MW88-10	L1521707-04	07/31/22 17:35	GW	N	TD	24.3	24.3	ft-btoc	L1521707	Pace	10-day	PACE-22NEC-W002	X		X	X	X	X	X	X	X	X	X	X*					
22NEC-MOC-14MW903	22NEC-MOC-14MW903	L1521707-05	08/01/22 16:15	GW	FD of 22NEC-MOC-14MW03	TD	14.5	14.5	ft-btoc	L1521707	Pace	10-day	PACE-22NEC-W002	X		X	X	X	X	X	X	X	X	X	X*					
22NEC-MOC-14MW06	22NEC-MOC-14MW06	L1521707-06	08/01/22 17:35	GW	N	TD	6.5	6.5	ft-btoc	L1521707	Pace	10-day	PACE-22NEC-W002	X		X	X	X	X	X	X	X	X	X	X*					
22NEC-MOC-14MW03	22NEC-MOC-14MW03	L1521707-07	08/01/22 16:00	GW	N	TD	14.5	14.5	ft-btoc	L1521707	Pace	10-day	PACE-22NEC-W002	X		X	X	X	X	X	X	X	X	X	X*					
22NEC-TB03	NA	L1521959-01	07/31/22 07:00	WQ	TB	--	--	--	--	L1521959	Pace	10-day	PACE-22NEC-W003											X						
22NEC-MOC-26MW1	22NEC-MOC-26MW1	L1521959-02	07/31/22 10:00	GW	N	TD	40	40	ft-btoc	L1521959	Pace	10-day	PACE-22NEC-W003	X		X	X	X	X	X	X	X	X	X	X					
22NEC-MOC-20MW1	22NEC-MOC-20MW1	L1521959-03	07/31/22 14:00	GW	N	TD	26.5	26.5	ft-btoc	L1521959	Pace	10-day	PACE-22NEC-W003	X		X	X	X	X	X	X	X	X	X	X					
22NEC-MOC-MW88-1	22NEC-MOC-MW88-1	L1521959-04	07/31/22 16:00	GW	N	TD	20.8	20.8	ft-btoc	L1521959	Pace	10-day	PACE-22NEC-W003	X		X	X	X	X	X	X	X	X	X	X					
22NEC-MOC-22MW2	22NEC-MOC-22MW2	L1521959-05	07/31/22 11:25	GW	N	TD	31.2	31.2	ft-btoc	L1521959	Pace	10-day	PACE-22NEC-W003	X		X	X	X	X	X	X	X	X	X	X					
22NEC-S08-SS01	22NEC-S08-SB01	L1522829-01	07/31/22 11:55	SO	N	JS	4	8	ft	L1522829	Pace	10-day	PACE-22NEC-002	X	X										X	X				
22NEC-S08-SS02	22NEC-S08-SB02	L1522829-02	07/31/22 13:45	SO	N	JS	4	6	ft	L1522829	Pace	10-day	PACE-22NEC-002	X	X										X	X				
22NEC-S08-SS902	22NEC-S08-SB02	L1522829-03	07/31/22 14:45	SO	FD of 22NEC-S08-SS02	JS	4	6	ft	L1522829	Pace	10-day	PACE-22NEC-002	X	X										X	X				
22NEC-S08-SS03	22NEC-S08-SB03	L1522829-04	07/31/22 14:30	SO	N	JS	6	8	ft	L1522829	Pace	10-day	PACE-22NEC-002	X	X										X	X				
22NEC-S08-SS04	22NEC-S08-SB04	L1522829-05	07/31/22 15:10	SO	N	JS	4	6	ft	L1522829	Pace	10-day	PACE-22NEC-002	X	X										X	X				
22NEC-S08-SS05	22NEC-S08-SB06	L1522829-06	07/31/22 16:50	SO	N	JS	8	10	ft	L1522829	Pace	10-day	PACE-22NEC-002	X	X										X	X				
22NEC-S08-SS06	22NEC-S08-SB06	L1522829-07	07/31/22 17:00	SO	N	JS	16	18	ft	L1522829	Pace	10-day	PACE-22NEC-002	X	X										X	X				
22NEC-S08-SS07	22NEC-S08-SB05	L1522829-08	07/31/22 17:25	SO	N/MS/MSD	JS	6	10	ft	L1522829	Pace	10-day	PACE-22NEC-002	X	X										X	X				
22NEC-S08-SS08	22NEC-S08-SB07	L1522829-09	07/31/22 18:15	SO	N	JS	4	6	ft	L1522829	Pace	10-day	PACE-22NEC-002	X	X										X	X				
22NEC-S08-SS09	22NEC-S08-SB08	L1522829-10	08/01/22 09:25	SO	N	JS	4	6	ft	L1522829	Pace	10-day	PACE-22NEC-002	X	X										X	X				
22NEC-S08-SS10	22NEC-S08-SB09	L1522829-11	08/01/22 10:50	SO	N	JS	14	16	ft	L1522829	Pace	10-day	PACE-22NEC-002	X	X										X	X				
22NEC-S08-SS11	22NEC-S08-SB10	L1522829-12	08/01/22 11:45	SO	N	JS	6	8	ft	L1522829	Pace	10-day	PACE-22NEC-002	X	X										X	X				
22NEC-S08-SS12	22NEC-S08-SB11	L1522829-13	08/01/22 13:50	SO	N	JS	4	6	ft	L1522829	Pace	10-day	PACE-22NEC-002	X	X										X	X				
22NEC-S08-SS13	22NEC-S08-SB12	L1522829-14	08/01/22 15:25	SO	N	JS	6	8	ft	L1522829	Pace	10-day	PACE-22NEC-002	X	X										X	X				
22NEC-S08-SS14	22NEC-S08-SB13	L1522829-15	08/01/22 16:30	SO	N	JS	12	14	ft	L1522829	Pace	10-day	PACE-22NEC-002	X	X										X	X				
22NEC-S08-SS15	22NEC-S08-SB14	L1522829-16	08/01/22 17:30	SO	N	JS	2	4	ft	L1522829	Pace	10-day	PACE-22NEC-002	X	X										X	X				
22NEC-MOC-MW88-3	22NEC-MOC-MW88-3	L1522831-01	08/01/22 13:50	GW	N	TD	16	16	ft-btoc	L1522831	Pace	10-day	PACE-22NEC-W004	X		X	X	X	X	X	X	X	X	X	X					
22NEC-MOC-14MW01	22NEC-MOC-14MW01	L1522831-02	08/02/22 10:45	GW	N	TD	18.5	18.5	ft-btoc	L1522831	Pace	10-day	PACE-22NEC-W004	X		X	X	X	X	X	X	X	X	X	X					
22NEC-TB-04	NA	L1522831-03	08/01/22 07:00	WQ	TB	--	--	--	--	L1522831	Pace	10-day	PACE-22NEC-W004											X						
22NEC-S08-SS16	22NEC-S08-SB15	L1522883-01	08/01/22 18:00	SO	N	JS	2	4	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-S08-SS17	22NEC-S08-SB16	L1522883-02	08/01/22 19:00	SO	N	JS	2	4	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-S08-SS18	22NEC-S08-SB17	L1522883-03	08/02/22 09:25	SO	N	JS	8	10	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-S08-SS19	22NEC-S08-SB18	L1522883-04	08/02/22 10:15	SO	N	JS	6	8	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-S08-SS20	22NEC-S08-SB19	L1522883-05	08/02/22 11:30	SO	N	JS	8	10	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-S08-SS920	22NEC-S08-SB19	L1522883-06	08/02/22 12:30	SO	FD of 22NEC-S08-SS20	JS	8	10	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-S08-SS21	22NEC-S08-SB20	L1522883-07	08/02/22 13:45	SO	N	JS	8	10	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-S08-SS22	22NEC-S08-SB21	L1522883-08	08/02/22 14:30	SO	N	JS	6	8	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-S08-SS23	22NEC-S08-SB22	L1522883-09	08/02/22 15:30	SO	N	JS	6	8	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-S08-SS24	22NEC-S08-SB23	L1522883-10	08/02/22 16:50	SO	N	JS	6	8	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-S08-SS25	22NEC-S08-SB24	L1522883-11	08/02/22 17:35	SO	N	JS	4	6	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-S08-SS925	22NEC-S08-SB24	L1522883-12	08/02/22 18:35	SO	FD of 22NEC-S08-SS25	JS	4	6	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-S08-SS26	22NEC-S08-SB25	L1522883-13	08/02/22 18:25	SO	N/MS/MSD	JS	2	4	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-S08-SS27	22NEC-S08-SB26	L1522883-14	08/03/22 09:00	SO	N	JS	4	6	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-S08-SS28	22NEC-S08-SB26	L1522883-15	08/03/22 09:10	SO	N	JS	10	12	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-S08-SS29	22NEC-S08-SB28	L1522883-16	08/03/22 10:15	SO	N	JS	1	2	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-S08-SS30	22NEC-S08-SB27	L1522883-17	08/03/22 10:20	SO	N	JS	4	6	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-S08-SS31	22NEC-S08-SB29	L1522883-18	08/03/22 11:30	SO	N	JS	2	4	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-S08-SS32	22NEC-S08-SB30	L1522883-19	08/03/22 11:53	SO	N	JS	1	2	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-S08-SS33	22NEC-S08-SB31	L1522883-20	08/03/22 12:30	SO	N	JS	4	6	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-S08-SS933	22NEC-S08-SB31	L1522883-21	08/03/22 13:30	SO	FD of 22NEC-S08-SS33	JS	4	6	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-S08-SS34	22NEC-S08-SB31	L1522883-22	08/03/22 12:35	SO	N	JS	10	12	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-S08-SS35	22NEC-S08-SB32	L1522883-23	08/03/22 16:30	SO	N	JS	3	4	ft	L1522883	Pace	10-day	PACE-22NEC-003	X	X										X	X				
22NEC-BG-1	22NEC-BG-1	L1524088-01	08/06/22 18:15	SO	N	MG, AGr	0	1	ft	L1524088	Pace	10-day	PACE-22NEC-006	X												X				
22NEC-BG-901	22NEC-BG-1	L1524088-02	08/06/22 19:15	SO	FD of 22NEC-BG-01	MG, AGr	0	1	ft	L1524088	Pace	10-day	PACE-22NEC-006	X												X				
22NEC-BG-2	22NEC-BG-2	L1524088-03	08/06/22 18:25	SO	N	MG, AGr	0	1	ft	L1524088	Pace	10-day	PACE-22NEC-006	X												X				
22NEC-BG-3	22NEC-BG-3	L1524088-04	08/06/22 18:40	SO	N	MG, AGr	0	1	ft	L1524088	Pace	10-day	PACE-22NEC-006	X												X				
22NEC-BG-4	22NEC-BG-4	L1524088-05	08/07/22 09:50	SO	N	MG, AGr	0	1.5	ft	L1524088	Pace	10-day	PACE-22NEC-006	X												X				
22NEC-BG-5	22NEC-BG-5	L1524088-06	08/07/22 10:20	SO	N	MG, AGr	0	1	ft	L1524088	Pace	10-day	PACE-22NEC-006	X												X				
22NEC-BG-6	22NEC-BG-6	L1524088-07	08/07/22 10:25	SO	N	MG, AGr	0	1	ft	L1524088	Pace	10-day	PACE-22NEC-006	X												X				
22NEC-BG-7	22NEC-BG-7	L1524088-08	08/07/22 10:30	SO	N	MG, AGr	0	1	ft	L1524088	Pace	10-day	PACE-22NEC-006	X												X				
22NEC-BG-8	22NEC-BG-8	L1524088-09	08/07/22 10:45	SO	N	MG, AGr	0	1	ft	L1524088	Pace	10-day	PACE-22NEC-006	X												X				
22NEC-BG-9	22NEC-BG-9	L1524088-10	08/07/22 11:00	SO	N	MG, AGr	0	1	ft	L1524088	Pace	10-day	PACE-22NEC-006	X												X				
22NEC-BG-10	22NEC-BG-10	L1524088-11	08/07/22 11:15	SO	N	MG, AGr	0	1	ft	L1524088	Pace	10-day	PACE-22NEC-006	X												X				
22NEC-SP1-DU1-01	22NEC-SP1-DU1-01	L1524091-01	08/06/22 10:30	ISM SO	N	MW	0	0.5	ft	L1524091	Pace	3-day	PACE-22NEC-005	X																
22NEC-SP1-DU1-02	22NEC-SP1-DU1-02	L1524091-02	08/06/22 10:35	ISM SO	FD OF 22NEC-SP1-DU1-01	MW	0	0.5	ft	L1524091	Pace	3-day	PACE-22NEC-005	X																
22NEC-SP1-DU1-03	22NEC-SP1-DU1-03	L1524091-03	08/06/22 10:40	ISM SO	FT OF 22NEC-SP1-DU1-01	MW	0	0.5	ft	L1524091	Pace	3-day	PACE-22NEC-005	X																
22NEC-SP1-DU2-01	22NEC-SP1-DU2-01	L1524091-04	08/06/22 11:15	ISM SO	N	MW	0	0.5	ft	L1524091	Pace	3-day	PACE-22NEC-005	X																
22NEC-SP1-DU3-01	22NEC-SP1-DU3-01	L1524091-05	08/06/22 13:00	ISM SO	N	MW	0	0.5	ft	L1524091	Pace	3-day	PACE-22NEC-005	X																
22NEC-SP2-DU1-01	22NEC-SP2-DU1-01	L1524091-06	08/06/22 14:15	ISM SO	N	MW	0	0.5	ft	L1524091	Pace	3-day	PACE-22NEC-005	X																
22NEC-SP2-DU2-01	22NEC-SP2-DU2-01	L1524091-07	08/06/22 14:30	ISM SO	N	MW	0	0.5	ft	L1524091	Pace	3-day	PACE-22NEC-005	X																
22NEC-S15-SS01	22NEC-S15-SS01	L1524107-01	08/06/22 11:40	SO	N	JS, SC	15	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS02	22NEC-S15-SS02	L1524107-02	08/06/22 11:45	SO	N	JS, SC	12	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS03	22NEC-S15-SS03	L1524107-03	08/07/22 16:05	SO	N	JS, SC	12	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS04	22NEC-S15-SS04	L1524107-04	08/07/22 16:15	SO	N	JS, SC	12	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS05	22NEC-S15-SS05	L1524107-05	08/07/22 16:30	SO	N	JS, SC	12	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS06	22NEC-S15-SS06	L1524107-06	08/07/22 17:00	SO	N	JS, SC	12	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS07	22NEC-S15-SS07	L1524107-07	08/07/22 18:00	SO	N	JS, SC	12	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																

ATTACHMENT F-1
SAMPLE SUMMARY TABLE
2022 Northeast Cape FUDS

SAMPLE ID	LOCATION ID	LAB ID	COLLECTION DATE	MATRIX	QC TYPE	SAMPLER	START DEPTH	END DEPTH	DEPTH UNITS	LAB SDG	LAB	TAT	COOLER(S)	DRO/RRO AK102/103	DRO/RRO Silica Gel AK102/103SGT	Sulfate EPA 300.0	Methane RSK175	Alkalinity SM2320B	Total Metals SW6020B	Diss Metals SW6020B	Total Mercury SW7470A	Diss Mercury SW7470A	PCBs SW8082A	BTEX SW8260D	PAH SW8270DSIM	TOC Walkley-Black	TCLP Metals SW1311/SW6010D	TCLP Mercury SW1311/SW7470A	TCLP VOC SW1311/SW8260D	TCLP SVOC SW1311/SW8270E
22NEC-S15-SS08	22NEC-S15-SS08	L1524107-08	08/07/22 18:05	SO	N	JS, SC	12	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS09	22NEC-S15-SS09	L1524107-09	08/07/22 18:10	SO	N	JS, SC	12	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS909	22NEC-S15-SS09	L1524107-10	08/07/22 19:10	SO	FD of 22NEC-S15-SS09	JS, SC	12	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS10	22NEC-S15-SS10	L1524107-11	08/07/22 18:15	SO	N	JS, SC	12	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS11	22NEC-S15-SS11	L1524107-12	08/07/22 18:20	SO	N	JS, SC	12	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS911	22NEC-S15-SS11	L1524107-13	08/07/22 19:20	SO	FD of 22NEC-S15-SS11	JS, SC	15	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS12	22NEC-S15-SS12	L1524107-14	08/07/22 18:30	SO	N	JS, SC	15	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS13	22NEC-S15-SS13	L1524107-15	08/07/22 18:40	SO	N	JS, SC	15	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS14	22NEC-S15-SS14	L1524107-16	08/07/22 18:45	SO	N	JS, SC	15	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS15	22NEC-S15-SS15	L1524107-17	08/07/22 18:50	SO	N	JS, SC	15	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS16	22NEC-S15-SS16	L1524107-18	08/07/22 18:55	SO	N/MS/MSD	JS, SC	15	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS17	22NEC-S15-SS17	L1524107-19	08/07/22 19:00	SO	N	JS, SC	15	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS18	22NEC-S15-SS18	L1524107-20	08/07/22 19:05	SO	N	JS, SC	12	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS19	22NEC-S15-SS19	L1524107-21	08/09/22 09:40	SO	N	MG, JS	12	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS20	22NEC-S15-SS20	L1524107-22	08/09/22 09:45	SO	N	MG, JS	15	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS21	22NEC-S15-SS21	L1524107-23	08/09/22 09:50	SO	N	MG, JS	15	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS22	22NEC-S15-SS22	L1524107-24	08/09/22 09:55	SO	N	MG, JS	15	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS23	22NEC-S15-SS23	L1524107-25	08/09/22 10:00	SO	N/MS/MSD	MG, JS	12	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS24	22NEC-S15-SS24	L1524107-26	08/09/22 10:05	SO	N	MG, JS	12	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
22NEC-S15-SS924	22NEC-S15-SS24	L1524107-27	08/09/22 11:05	SO	FD of 22NEC-S15-SS24	MG, JS	12	15	ft	L1524107	Pace	2-day	PACE-22NEC-004	X																
NEC22-WC-1	NEC22-WC-1	L1525023-01,02,03	08/05/22 09:00	WC	N	JS, SC	--	--	--	L1525023	Pace	3-day	PACE-22NEC-007										X				X	X	X	X
NEC22-WC-2	NEC22-WC-2	L1525023-04,05,06	08/06/22 08:00	WC	N	JS, SC	--	--	--	L1525023	Pace	3-day	PACE-22NEC-007										X				X	X	X	X
NEC22-WC-3	NEC22-WC-3	L1525023-07,08,09	08/10/22 13:40	WC	N	MG	--	--	--	L1525023	Pace	3-day	PACE-22NEC-007										X				X	X	X	X
22NEC-MOC-MW10-1	22NEC-MOC-MW10-1	L1525127-01	08/04/22 16:15	GW	N	MW, JS	8.22	8.22	ft-btoc	L1525127	Pace	10-day	PACE-22NEC-W005	X		X	X	X	X	X	X	X	X	X	X					
22NEC-MOC-14MW04	22NEC-MOC-14MW04	L1525127-02	08/05/22 10:40	GW	N	MW, AGr	4.31	4.31	ft-btoc	L1525127	Pace	10-day	PACE-22NEC-W005	X		X	X	X	X	X	X	X	X	X	X					
22NEC-MOC-14MW904	22NEC-MOC-14MW904	L1525127-03	08/05/22 11:40	GW	FD of 22NEC-MOC-14MW04	MW, AGr	4.31	4.31	ft-btoc	L1525127	Pace	10-day	PACE-22NEC-W005	X		X	X	X	X	X	X	X	X	X	X					
22NEC-MOC-14MW05	22NEC-MOC-14MW05	L1525127-04	08/05/22 16:45	GW	N	MW, AGr	5.28	5.28	ft-btoc	L1525127	Pace	10-day	PACE-22NEC-W005	X		X	X	X	X	X	X	X	X	X	X					
22NEC-MOC-14MW02	22NEC-MOC-14MW02	L1525127-05	08/05/22 14:45	GW	N	MW, AGr	13.0	13.0	ft-btoc	L1525127	Pace	10-day	PACE-22NEC-W005	X		X	X	X	X	X	X	X	X	X	X					
22NEC-TB-05	NA	L1525127-06	08/05/22 09:46	WQ	TB	--	--	--	--	L1525127	Pace	10-day	PACE-22NEC-W005											X						
22NEC-WC-4	22NEC-WC-4	L1526252-01,02	08/12/22 09:25	WC	N	MG	--	--	--	L1526252	Pace	1-day	PACE-22NEC-008										X				X	X	X	X
22NEC-S28-SW-06	22NEC-S28-SW-01	L1526336-01	08/12/22 08:45	SW	N	JS, SC	0	1	ft	L1526336	Pace	10-day	PACE-22NEC-W006	X										X	X					
22NEC-S28-SW-07	22NEC-S28-SW-03	L1526336-02	08/12/22 09:15	SW	N	JS, SC	0	1	ft	L1526336	Pace	10-day	PACE-22NEC-W006	X										X	X					
22NEC-S28-SW-08	22NEC-S28-SW-05	L1526336-03	08/12/22 09:45	SW	N	JS, SC	0	1	ft	L1526336	Pace	10-day	PACE-22NEC-W006	X										X	X					
22NEC-S28-SW-09	22NEC-S28-SW-04	L1526336-04	08/12/22 10:00	SW	N	JS, SC	0	1	ft	L1526336	Pace	10-day	PACE-22NEC-W006	X										X	X					
22NEC-S28-SW-909	22NEC-S28-SW-04	L1526336-05	08/12/22 11:00	SW	FD of 22NEC-S28-SW-09	JS, SC	0	1	ft	L1526336	Pace	10-day	PACE-22NEC-W006	X										X	X					
22NEC-TB-06	NA	L1526336-06	08/05/22 09:46	WQ	TB	--	--	--	--	L1526336	Pace	10-day	PACE-22NEC-W006											X						
22NEC-MOC-MW10-1-2	22NEC-MOC-MW10-1	L1527447-01	08/15/22 09:15	GW	N	AGr, JS	8.22	8.22	ft-btoc	L1527447	Pace	10-day	PACE-22NEC-W007												X					
22NEC-MOC-14MW02-2	22NEC-MOC-14MW02	L1527447-02	08/15/22 09:45	GW	N	AGr, JS	13.0075	13.0075	ft-btoc	L1527447	Pace	10-day	PACE-22NEC-W007												X					
22NEC-MOC-14MW05-2	22NEC-MOC-14MW05	L1527447-03	08/15/22 10:30	GW	N	AGr, JS	5.275	5.275	ft-btoc	L1527447	Pace	10-day	PACE-22NEC-W007												X					
22NEC-MOC-14MW04-2	22NEC-MOC-14MW04	L1527447-04	08/15/22 11:10	GW	N	AGr, JS	4.31	4.31	ft-btoc	L1527447	Pace	10-day	PACE-22NEC-W007												X					
22NEC-MOC-14MW04-92	22NEC-MOC-14MW04	L1527447-05	08/15/22 12:10	GW	FD of 22NEC-MOC-14MW04-2	AGr, JS	4.31	4.31	ft-btoc	L1527447	Pace	10-day	PACE-22NEC-W007												X					
22NEC-S28-SW-10	22NEC-S28-SW-04	L1527447-06	08/15/22 11:45	SW	N	AGr, JS	0	1	ft	L1527447	Pace	10-day	PACE-22NEC-W007	X										X	X					
22NEC-S28-SW-11	22NEC-S28-SW-05	L1527447-07	08/15/22 13:30	SW	N	AGr, JS	0	1	ft	L1527447	Pace	10-day	PACE-22NEC-W007	X										X	X					
22NEC-S28-SW-12	22NEC-S28-SW-03	L1527447-08	08/15/22 13:45	SW	N	AGr, JS	0	1	ft	L1527447	Pace	10-day	PACE-22NEC-W007	X										X	X					
22NEC-S28-SW-13	22NEC-S28-SW-01	L1527447-09	08/15/22 14:00	SW	N	AGr, JS	0	1	ft	L1527447	Pace	10-day	PACE-22NEC-W007	X										X	X					
22NEC-S28-TB-07	NA	L1527447-10	08/15/22 07:00	WQ	TB	--	--	--	--	L1527447	Pace	10-day	PACE-22NEC-W007											X						
22NEC-S28-DU1-SS04	22NEC-S28-DU1	L1528288-01	08/17/22 17:00	ISM SO	N	MG	0	0.5	ft	L1528288	Pace	10-day	PACE-22NEC-010	X											X					
22NEC-S28-DU1-SS05	22NEC-S28-DU1	L1528288-02	08/17/22 17:10	ISM SO	N	MG	0	0.5	ft	L1528288	Pace	10-day	PACE-22NEC-010	X											X					
22NEC-S28-DU1-SS06	22NEC-S28-DU1	L1528288-03	08/17/22 17:20	ISM SO	N	MG	0	0.5	ft	L1528288	Pace	10-day	PACE-22NEC-010	X											X					
22NEC-S28-DU2-SS02	22NEC-S28-DU2	L1528288-04	08/17/22 17:30	ISM SO	N	MG	0	0.5	ft	L1528288	Pace	10-day	PACE-22NEC-010	X											X					
22NEC-S15-DU1-SS04	22NEC-S15-DU104	L1528288-05	08/18/22 18:40	ISM SO	N	MG	0	0.5	ft	L1528288	Pace	10-day	PACE-22NEC-010	X																
22NEC-S15-DU1-SS05	22NEC-S15-DU105	L1528288-06	08/18/22 18:50	ISM SO	N	MG	0	0.5	ft	L1528288	Pace	10-day	PACE-22NEC-010	X																
22NEC-S15-DU1-SS06	22NEC-S15-DU106	L1528288-07	08/18/22 19:00	ISM SO	N	MG	0	0.5	ft	L1528288	Pace	10-day	PACE-22NEC-010	X																
22NEC-S28-SD01	22NEC-S28-SD01	L1528321-01	08/16/22 09:45	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-01	X	X										X	X				
22NEC-S28-SD02	22NEC-S28-SD02	L1528321-02	08/16/22 10:05	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-01	X	X										X	X				
22NEC-S28-SD03	22NEC-S28-SD03	L1528321-03	08/16/22 10:15	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-01	X	X										X	X				
22NEC-S28-SD04	22NEC-S28-SD04	L1528321-04	08/16/22 10:30	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-01	X	X										X	X				
22NEC-S28-SD05	22NEC-S28-SD05	L1528321-05	08/16/22 10:33	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-01	X	X										X	X				
22NEC-S28-SD06	22NEC-S28-SD06	L1528321-06	08/16/22 10:45	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-01	X	X										X	X				
22NEC-S28-SD07	22NEC-S28-SD07	L1528321-07	08/16/22 10:50	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-01	X	X										X	X				
22NEC-S28-SD08	22NEC-S28-SD08	L1528321-08	08/16/22 10:52	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-01	X	X										X	X				
22NEC-S28-SD09	22NEC-S28-SD09	L1528321-09	08/16/22 11:05	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-01	X	X										X	X				
22NEC-S28-SD908	22NEC-S28-SD08	L1528321-10	08/16/22 11:52	SED	FD of 22NEC-S28-SD08	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-01	X	X										X	X				
22NEC-S28-SD10	22NEC-S28-SD10	L1528321-11	08/16/22 11:10	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-01	X	X										X	X				
22NEC-S28-SD11	22NEC-S28-SD11	L1528321-12	08/16/22 11:22	SED	N/MS/MSD	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-01	X	X										X	X				
22NEC-S28-SD12	22NEC-S28-SD12	L1528321-13	08/16/22 11:26	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-01	X	X										X	X				
22NEC-S28-SD14	22NEC-S28-SD14	L1528321-14	08/16/22 11:50	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-02	X	X										X	X				
22NEC-S28-SD15	22NEC-S28-SD15	L1528321-15	08/16/22 11:55	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-02	X	X										X	X				
22NEC-S28-SD16	22NEC-S28-SD16	L1528321-16	08/16/22 13:40	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-02	X	X										X	X				
22NEC-S28-SD17	22NEC-S28-SD17	L1528321-17	08/16/22 13:42	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-02	X	X										X	X				
22NEC-S28-SD18	22NEC-S28-SD18	L1528321-18	08/16/22 13:45	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-02	X	X										X	X				
22NEC-S28-SD19	22NEC-S28-SD19	L1528321-19	08/16/22 13:48	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-02	X	X										X	X				
22NEC-S28-SD20	22NEC-S28-SD20	L1528321-20	08/16/22 13:50	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-02	X	X										X	X				
22NEC-S28-SD021	22NEC-S28-SD21	L1528321-21	08/16/22 14:05	SED	N	MG / JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-02	X	X										X	X				
22NEC-S28-SD921	22NEC-S28-SD21	L1528321-22	08/16/22 15:05	SED	FD of 22NEC-S28-SD021	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-02	X	X										X	X				
22NEC-S28-SD22	22NEC-S28-SD22	L1528321-23	08/16/22 14:10	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-02	X	X										X	X				
22NEC-S28-SD23	22NEC-S28-SD23	L1528321-24	08/16/22 14:18	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-02	X	X										X	X				
22NEC-S28-SD24	22NEC-S28-SD24	L1528321-25	08/16/22 14:27	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-03	X	X										X	X				
22NEC-S28-SD25	22NEC-S28-SD25	L1528321-26	08/16/22 14:30	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-03	X	X										X	X				
22NEC-S28-SD26	22NEC-S28-SD26	L1528321-27	08/16/22 14:34	SED	N/MS/MSD	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-03	X	X										X	X				
22NEC-S28-SD27	22NEC-S28-SD27	L1528321-28	08/16/22 14:40	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-03	X	X										X	X				
22NEC-S28-SD28	22NEC-S28-SD28	L1528321-29	08/16/22 14:45	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-03	X	X										X	X				
22NEC-S28-SD29	22NEC-S28-SD29	L1528321-30	08/16/22 14:47	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-03	X	X										X	X				
22NEC-S28-SD30	22NEC-S28-SD30	L1528321-31	08/16/22 14:50	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-03	X	X										X	X				
22NEC-S28-SD31	22NEC-S28-SD31	L1528321-32	08/16/22 14:55	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-03	X	X										X	X				
22NEC-S28-SD32	22NEC-S28-SD32	L1528321-33	08/16/22 15:00	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-03	X	X										X	X				
22NEC-S28-SD33	22NEC-S28-SD33	L1528321-34	08/16/22 15:03	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-03	X	X										X	X				
22NEC-S28-SD34	22NEC-S28-SD34	L1528321-35	08/16/22 15:05	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-03	X	X										X	X				
22NEC-S28-SD934	22NEC-S28-SD34	L1528321-36	08/16/22 16:05	SED	FD of 22NEC-S28-SD34	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-03	X	X										X	X				
22NEC-S28-SD35	22NEC-S28-SD35	L1528321-37	08/16/22 15:10	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-03	X	X										X	X				
22NEC-S28-SD36	22NEC-S28-SD36	L1528321-38	08/16/22 15:21	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-03	X	X										X	X				
22NEC-S28-SD37	22NEC-S28-SD37	L1528321-39	08/16/22 15:28	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-05	X	X										X	X				
22NEC-S28-SD38	22NEC-S28-SD38	L1528321-40	08/16/22 16:47	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-05	X	X										X	X				

ATTACHMENT F-1
SAMPLE SUMMARY TABLE
2022 Northeast Cape FUDS

SAMPLE ID	LOCATION ID	LAB ID	COLLECTION DATE	MATRIX	QC TYPE	SAMPLER	START DEPTH	END DEPTH	DEPTH UNITS	LAB SDG	LAB	TAT	COOLER(S)	DRO/RRO AK102/103	DRO/RRO Silica Gel AK102/103SGT	Sulfate EPA 300.0	Methane RSK175	Alkalinity SM2320B	Total Metals SW6020B	Diss Metals SW6020B	Total Mercury SW7470A	Diss Mercury SW7470A	PCBs SW8082A	BTEX SW8260D	PAH SW8270DSIM	TOC Walkley-Black	TCLP Metals SW1311/SW6010D	TCLP Mercury SW1311/SW7470A	TCLP VOC SW1311/SW8260D	TCLP SVOC SW1311/SW8270E
22NEC-S28-SD938	22NEC-S28-SD38	L1528321-41	08/16/22 17:47	SED	FD of 22NEC-S28-SD38	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-05	X	X										X	X				
22NEC-S28-SD39	22NEC-S28-SD39	L1528321-42	08/16/22 17:00	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-05	X	X										X	X				
22NEC-S28-SD40	22NEC-S28-SD40	L1528321-43	08/16/22 16:52	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-05	X	X										X	X				
22NEC-S28-SD41	22NEC-S28-SD41	L1528321-44	08/16/22 15:43	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-05	X	X										X	X				
22NEC-S28-SD42	22NEC-S28-SD42	L1528321-45	08/16/22 16:40	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-05	X	X										X	X				
22NEC-S28-SD942	22NEC-S28-SD942	L1528321-46	08/16/22 17:40	SED	FD of 22NEC-S28-SD42	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-05	X	X										X	X				
22NEC-S28-SD43	22NEC-S28-SD43	L1528321-47	08/16/22 16:35	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-05	X	X										X	X				
22NEC-S28-SD44	22NEC-S28-SD44	L1528321-48	08/16/22 16:00	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-05	X	X										X	X				
22NEC-S28-SD45	22NEC-S28-SD45	L1528321-49	08/16/22 16:04	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-05	X	X										X	X				
22NEC-S28-SD46	22NEC-S28-SD46	L1528321-50	08/16/22 16:09	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-05	X	X										X	X				
22NEC-S28-SD47	22NEC-S28-SD47	L1528321-51	08/16/22 16:13	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-05	X	X										X	X				
22NEC-S28-SD48	22NEC-S28-SD48	L1528321-52	08/16/22 16:15	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-04	X	X										X	X				
22NEC-S28-SD49	22NEC-S28-SD49	L1528321-53	08/16/22 16:18	SED	N/MS/MSD	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-04	X	X										X	X				
22NEC-S28-SD50	22NEC-S28-SD50	L1528321-54	08/16/22 16:20	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-04	X	X										X	X				
22NEC-S28-SD51	22NEC-S28-SD51	L1528321-55	08/16/22 16:30	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-04	X	X										X	X				
22NEC-S28-SD52	22NEC-S28-SD52	L1528321-56	08/16/22 14:00	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-04	X	X										X	X				
22NEC-S28-SD53	22NEC-S28-SD53	L1528321-57	08/16/22 16:55	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-04	X	X										X	X				
22NEC-S28-SD953	22NEC-S28-SD53	L1528321-58	08/16/22 17:55	SED	FD of 22NEC-S28-SD53	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-04	X	X										X	X				
22NEC-S28-SD54	22NEC-S28-SD54	L1528321-59	08/16/22 16:33	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-04	X	X										X	X				
22NEC-S28-SD55	22NEC-S28-SD55	L1528321-60	08/17/22 11:30	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-04	X	X										X	X				
22NEC-S28-SD56	22NEC-S28-SD56	L1528321-61	08/17/22 11:40	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-04	X	X										X	X				
22NEC-S28-SD57	22NEC-S28-SD57	L1528321-62	08/17/22 11:50	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-04	X	X										X	X				
22NEC-S28-SD58	22NEC-S28-SD58	L1528321-63	08/17/22 11:54	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-04	X	X										X	X				
22NEC-S28-SD59	22NEC-S28-SD59	L1528321-64	08/17/22 12:00	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-04	X	X										X	X				
22NEC-S28-SD60	22NEC-S28-SD60	L1528321-65	08/17/22 12:07	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-04	X	X										X	X				
22NEC-S28-SD13	22NEC-S28-SD13	L1528321-66	08/16/22 11:45	SED	N	MG, JS	0	1.5	ft	L1528321	Pace	10-day	PACE-22NEC-009-01	X	X										X	X				
													SO/SED Container & Preservative:	4-oz w/ TLC, 4°C	4-oz w/ TLC, 4°C	--	--	--	--	--	--	--	--	--	4-oz w/ TLC, 4°C	4-oz w/ TLC, 4°C	8-oz w/ TLC, 4°C packed full	8-oz w/ TLC	8-oz w/ TLC	8-oz w/ TLC
													GW/SW Container & Preservative:	2 100-mL AG w/ TLC, HCl 4°C	--	125-mL HDPE, 4°C	2 40-mL VOA, HCL 4°C	125-mL HDPE, 4°C	250-mL HDPE, 4°C	250-mL HDPE, HNO3 4°C	250-mL HDPE, HNO3 4°C	250-mL HDPE, HNO3 4°C	2 100-mL AG w/ TLC, 4°C	3 40-mL VOA, HCL 4°C	2 100-mL AG w/ TLC, 4°C	--	--	--	--	--

Notes:
*PAH was analyzed by SW8270DSIM for all samples, except 22NEC-MOC-14MW03, 22NEC-MOC-14MW903, 22NEC-MOC-14MW06, 22NEC-MOC-14MW07, 22NEC-MOC-17MW1, and 22NEC-MOC-MW88-10, which were analyzed by SW8270ESIM.
All samples for the Northeast Cape FUDS project were submitted under NPDL 22-015.

[1]Total metals include arsenic, barium, cadmium, chromium, lead, selenium, silver, nickel, vanadium, and zinc
[2]Dissolved metals include arsenic, barium, cadmium, chromium, lead, selenium, silver, manganese, nickel, vanadium, and zinc.

°C – degrees Celsius
AG – amber glass
AGr – Ali Green
BTEX – benzene, toluene, ethylbenzene, and xylenes
btoc – below top of case
COC – chain-of-custody
DRO – diesel range organics
FD – field duplicate
GW – groundwater
HCl – hydrochloric acid
HDPE – high density polyethylene
HNO3 – nitric acid
ISM – incremental sampling methodology
JS – Jane Suhey
MG – Monte Garroutte
mL – milliliter
MS/MSD – matrix spike/matrix spike duplicate
MW – Michael Williams
N – normal environmental sample
NPDL – north pacific division laboratory
oz – ounce
Pace – Pace National of Mt. Juliet, TN
PAH – polycyclic aromatic hydrocarbons
PCBs – polychlorinated biphenyls
QC – quality control
SC – Samantha Carter
SDG – sample delivery group
SED – sediment
SIM – selected ion monitoring
SM – Scotty Mann
SO – soil
SVOCs – semi-volatile organic compounds
SW – surface water
TB – trip blank
TCLP – Toxicity characteristic leaching procedure
TD – Tigan Donaldson
TLC – Teflon lined cap
VOA – volatile organic analysis
VOCs – volatile organic compounds
WC – waste characterization

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Attachment F-2
Data Summary Table

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ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for Background Soil

			SAMPLE ID	22NEC-BG-1	22NEC-BG-901	22NEC-BG-10	22NEC-BG-2	22NEC-BG-3	22NEC-BG-4	22NEC-BG-5	22NEC-BG-6
			LOCATION ID	22NEC-BG-1	22NEC-BG-1	22NEC-BG-10	22NEC-BG-2	22NEC-BG-3	22NEC-BG-4	22NEC-BG-5	22NEC-BG-6
			LAB SDG	L1524088	L1524088	L1524088	L1524088	L1524088	L1524088	L1524088	L1524088
			COLLECTION DATE	8/6/2022 6:15:00 PM	8/6/2022 7:15:00 PM	8/7/2022 11:15:00 AM	8/6/2022 6:25:00 PM	8/6/2022 6:40:00 PM	8/7/2022 9:50:00 AM	8/7/2022 10:20:00 AM	8/7/2022 10:25:00 AM
			MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
			QC TYPE	Primary	FD of 22NEC-BG-1	Primary	Primary	Primary	Primary	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**								
AK102/103	Diesel Range Organics	9200	mg/kg	ND [229]	ND [210]	ND [135]	ND [263]	164 [251] J	ND [176]	112 [151] J	ND [186]
AK102/103SGT	Diesel Range Organics	9200	mg/kg	ND [229]	ND [210]	ND [135]	ND [263]	ND [251]	ND [176]	ND [151]	277 [186] J,QH
WBLACK	Total Organic Carbon	NS	mg/kg	104000 [1140]	76900 [1050]	15400 [135]	155000 [1310]	235000 [1260]	70100 [880]	81200 [679]	148000 [929]
SM2540G	Solids	NS	%	43.7 [0.200]	47.7 [0.200]	73.9 [0.200] QN	38.1 [0.200]	39.8 [0.200]	56.8 [0.200]	66.3 [0.200]	53.8 [0.200]

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for Background Soil

			SAMPLE ID	22NEC-BG-7	22NEC-BG-8	22NEC-BG-9
			LOCATION ID	22NEC-BG-7	22NEC-BG-8	22NEC-BG-9
			LAB SDG	L1524088	L1524088	L1524088
			COLLECTION DATE	8/7/2022 10:30:00 AM	8/7/2022 10:45:00 AM	8/7/2022 11:00:00 AM
			MATRIX	Soil	Soil	Soil
			QC TYPE	Primary	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**			
AK102/103	Diesel Range Organics	9200	mg/kg	ND [232]	ND [114]	ND [116]
AK102/103SGT	Diesel Range Organics	9200	mg/kg	168 [232] J,QH	ND [114]	ND [116]
WBLACK	Total Organic Carbon	NS	mg/kg	218000 [1160]	6890 [515]	5740 [580]
SM2540G	Solids	NS	%	43.1 [0.200]	87.4 [0.200]	86.2 [0.200]

Notes:

[1]PSLs for soil are the 18 AAC 75 B1 & B2 most stringent of the Under 40-inch and Migration to Groundwater cleanup levels except for DRO, RRO, and naphthalene; which were defined in the Northeast Cape FUDS, St. Lawrence Island Feasibility study.

Bold/red indicates that a detected result exceeds the PSL.

Yellow/Bold indicates the LOD for a non-detect results exceeds the PSL.

LOD shown in brackets [ ]

B – the result is biased high due to contamination present in an associated blank

DL – detection limit

FD – field duplicate

H – the result is considered a low estimate due to a hold time exceedance

J – the result is an estimated value greater than or equal to the DL and below the LOQ

LOD – limit of detection

LOQ – limit of quantitation

mg/kg – milligrams per kilogram

MS/MSD – matrix spike/matrix spike duplicate

ND – not detected

NS – not specified

QC – quality control

QH/QL/QN – the result is an estimated value, bias high/low/indeterminate, due to a QC failure

SDG – sample delivery group

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for Groundwater

			SAMPLE ID	22NEC-MOC-14MW01	22NEC-MOC-14MW02	22NEC-MOC-14MW02-2	22NEC-MOC-14MW03	22NEC-MOC-14MW903	22NEC-MOC-14MW04	22NEC-MOC-14MW904	22NEC-MOC-14MW04-2	22NEC-MOC-14MW04-92	22NEC-MOC-14MW05
			LOCATION ID	22NEC-MOC-14MW01	22NEC-MOC-14MW02	22NEC-MOC-14MW02	22NEC-MOC-14MW03	22NEC-MOC-14MW903	22NEC-MOC-14MW04	22NEC-MOC-14MW904	22NEC-MOC-14MW04	22NEC-MOC-14MW04	22NEC-MOC-14MW05
			LAB SDG	L1522831	L1525127	L1527447	L1521707	L1521707	L1525127	L1525127	L1527447	L1527447	L1525127
			COLLECTION DATE	8/2/2022 10:45:00 AM	8/5/2022 2:45:00 PM	8/15/2022 9:45:00 AM	8/1/2022 4:00:00 PM	8/1/2022 4:15:00 PM	8/5/2022 10:40:00 AM	8/5/2022 11:40:00 AM	8/15/2022 11:10:00 AM	8/15/2022 12:10:00 PM	8/5/2022 4:45:00 PM
			MATRIX	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
			QC TYPE	Primary	Primary	Primary	Primary	FD of 22NEC-MOC-14MW03	Primary	FD of 22NEC-MOC-14MW04	Primary	FD of 22NEC-MOC-14MW04	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**										
AK102/103	Diesel Range Organics	1500	µg/L	481 [420] J	1100 [400]	--	1040 [400]	974 [400]	414 [400] J	488 [400] J	--	--	**1780 [400]**
AK102/103	Residual Range Organics	1100	µg/L	ND [1050] QL	ND [600]	--	ND [1000] QH	ND [1000] QH	ND [600]	ND [600]	--	--	ND [600]
E300.0	Sulfate	NS	µg/L	62700 [2500]	44500 [2500]	--	42800 [2500]	43400 [2500]	27400 [2500]	24900 [2500]	--	--	23200 [2500]
SM2320B	Alkalinity, Bicarbonate as CaCO3	NS	µg/L	19300 [10000] J,H	636000 [10000]	--	33900 [10000]	32300 [10000]	37300 [10000]	42300 [10000]	--	--	39200 [10000]
SM2320B	Alkalinity, Carbonate as CaCO3	NS	µg/L	ND [10000] H	ND [10000]	--	ND [10000]	ND [10000]	ND [10000]	ND [10000]	--	--	ND [10000]
SM2320B	Alkalinity, Hydroxide as CaCO3	NS	µg/L	ND [10000] H	ND [10000]	--	ND [10000]	ND [10000]	ND [10000]	ND [10000]	--	--	ND [10000]
SM2320B	Alkalinity, Total	NS	µg/L	19300 [10000] J,H	636000 [10000]	--	33900 [10000]	32300 [10000]	37300 [10000]	42300 [10000]	--	--	39200 [10000]
SW6020B	Arsenic	10	µg/L	5.25 [0.500]	0.484 [0.500] J	--	1.94 [0.500]	1.89 [0.500]	0.250 [0.500] J	0.216 [0.500] J	--	--	1.28 [0.500]
SW6020B	Arsenic,Dissolved	10	µg/L	4.47 [0.500]	0.508 [0.500]	--	1.90 [0.500]	1.85 [0.500]	0.235 [0.500]	0.220 [0.500]	--	--	1.30 [0.500]
SW6020B	Barium	3800	µg/L	46.2 [2.50]	45.9 [2.50]	--	22.8 [2.50]	24.7 [2.50]	19.5 [2.50]	18.6 [2.50]	--	--	37.7 [2.50]
SW6020B	Barium,Dissolved	3800	µg/L	44.0 [2.50]	47.1 [2.50]	--	24.2 [2.50]	24.0 [2.50]	18.6 [2.50]	19.2 [2.50]	--	--	38.9 [2.50]
SW6020B	Cadmium	9.2	µg/L	ND [0.500]	0.311 [0.500] J	--	ND [0.500]	ND [0.500]	0.186 [0.500] J	0.180 [0.500] J	--	--	0.413 [0.500] J
SW6020B	Cadmium,Dissolved	9.2	µg/L	ND [0.500]	0.329 [0.500]	--	ND [0.500]	ND [0.500]	0.190 [0.500]	0.203 [0.500]	--	--	0.459 [0.500]
SW6020B	Chromium	22000	µg/L	ND [15.0]	ND [15.0]	--	ND [15.0]	ND [15.0]	ND [15.0]	ND [15.0]	--	--	ND [15.0]
SW6020B	Chromium,Dissolved	22000	µg/L	ND [15.0]	ND [15.0]	--	ND [15.0]	ND [15.0]	ND [15.0]	ND [15.0]	--	--	ND [15.0]
SW6020B	Lead	15	µg/L	8.80 [1.50]	ND [1.50]	--	2.99 [1.50] J,B	3.51 [1.50] B	ND [1.50]	ND [1.50]	--	--	2.65 [1.50] J
SW6020B	Lead, Dissolved	15	µg/L	7.50 [1.50]	0.742 [1.50]	--	3.25 [1.50]	2.96 [1.50] J	0.657 [1.50]	ND [1.50]	--	--	2.96 [1.50]
SW6020B	Manganese,Dissolved	NS	µg/L	1740 [2.50]	1780 [2.50]	--	1380 [2.50]	1350 [2.50]	458 [2.50]	493 [2.50]	--	--	2850 [2.50]
SW6020B	Nickel	390	µg/L	3.20 [2.00] J	2.42 [2.00] J	--	4.90 [2.00]	5.46 [2.00]	3.20 [2.00] J	3.18 [2.00] J	--	--	6.75 [2.00]
SW6020B	Nickel,Dissolved	390	µg/L	2.60 [2.00] J	2.62 [2.00]	--	5.02 [2.00]	5.28 [2.00]	3.12 [2.00]	3.30 [2.00]	--	--	6.92 [2.00]
SW6020B	Selenium	100	µg/L	ND [1.00]	ND [1.00]	--	ND [1.00]	ND [1.00]	ND [1.00]	ND [1.00]	--	--	ND [1.00]
SW6020B	Selenium,Dissolved	100	µg/L	ND [1.00]	ND [1.00]	--	ND [1.00]	ND [1.00]	ND [1.00]	ND [1.00]	--	--	ND [1.00]
SW6020B	Silver	94	µg/L	ND [0.500]	ND [0.500]	--	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	--	--	ND [0.500]
SW6020B	Silver,Dissolved	94	µg/L	ND [0.500]	ND [0.500]	--	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	--	--	ND [0.500]
SW6020B	Vanadium	86	µg/L	4.73 [2.50] J	ND [2.50]	--	1.02 [2.50] J	1.29 [2.50] J	0.484 [2.50] J	ND [2.50]	--	--	0.809 [2.50] J
SW6020B	Vanadium,Dissolved	86	µg/L	3.21 [2.50] J	ND [2.50]	--	1.11 [2.50] J	1.09 [2.50] J	ND [2.50]	ND [2.50]	--	--	0.757 [2.50]
SW6020B	Zinc	6000	µg/L	24.1 [20.0] J	13.9 [20.0] J	--	8.18 [20.0] J	10.6 [20.0] J	16.2 [20.0] J	15.2 [20.0] J	--	--	23.8 [20.0] J
SW6020B	Zinc,Dissolved	6000	µg/L	13.7 [20.0] J	28.7 [20.0]	--	8.96 [20.0] J	8.27 [20.0] J	27.6 [20.0]	33.4 [20.0]	--	--	52.8 [20.0]
SW7470A	Mercury	0.52	µg/L	ND [0.200]	ND [0.200]	--	ND [0.200]	ND [0.200]	ND [0.200]	ND [0.200]	--	--	ND [0.200]
SW7470A	Mercury,Dissolved	0.52	µg/L	ND [0.200]	ND [0.200]	--	ND [0.200]	ND [0.200]	ND [0.200]	ND [0.200]	--	--	ND [0.200]
SW8082A	Aroclor 1016	0.44	µg/L	***ND [0.750]***	***ND [0.750]***	--	***ND [0.750]***	***ND [0.750]***	***ND [0.750]***	***ND [0.750]***	--	--	***ND [0.750]***
SW8082A	Aroclor 1221	0.44	µg/L	***ND [0.750]***	***ND [0.750]***	--	***ND [0.750]***	***ND [0.750]***	***ND [0.750]***	***ND [0.750]***	--	--	***ND [0.750]***
SW8082A	Aroclor 1232	0.44	µg/L	***ND [0.750]***	***ND [0.750]***	--	***ND [0.750]***	***ND [0.750]***	***ND [0.750]***	***ND [0.750]***	--	--	***ND [0.750]***
SW8082A	Aroclor 1242	0.44	µg/L	***ND [0.750]***	***ND [0.750]***	--	***ND [0.750]***	***ND [0.750]***	***ND [0.750]***	***ND [0.750]***	--	--	***ND [0.750]***
SW8082A	Aroclor 1248	0.44	µg/L	***ND [0.500]***	***ND [0.500]***	--	***ND [0.500]***	***ND [0.500]***	***ND [0.500]***	***ND [0.500]***	--	--	***ND [0.500]***
SW8082A	Aroclor 1254	0.44	µg/L	***ND [0.500]***	***ND [0.500]***	--	***ND [0.500]***	***ND [0.500]***	***ND [0.500]***	***ND [0.500]***	--	--	***ND [0.500]***
SW8082A	Aroclor 1260	0.44	µg/L	***ND [0.500]***	***ND [0.500]***	--	***ND [0.500]***	***ND [0.500]***	***ND [0.500]***	***ND [0.500]***	--	--	***ND [0.500]***
SW8082A	Aroclor 1262	0.44	µg/L	***ND [0.500]***	***ND [0.500]***	--	***ND [0.500]***	***ND [0.500]***	***ND [0.500]***	***ND [0.500]***	--	--	***ND [0.500]***
SW8082A	Aroclor 1268	0.44	µg/L	***ND [0.500]***	***ND [0.500]***	--	***ND [0.500]***	***ND [0.500]***	***ND [0.500]***	***ND [0.500]***	--	--	***ND [0.500]***
RSK175	Methane	NS	µg/L	103 [6.00]	10.9 [6.00] J	--	25.4 [6.00]	22.5 [6.00]	35.3 [6.00]	39.8 [6.00]	--	--	70.4 [6.00]
SW8260D	Benzene	5	µg/L	ND [0.500]	ND [0.500]	--	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	--	--	ND [0.500]
SW8260D	Ethylbenzene	700	µg/L	0.379 [0.500] J	ND [0.500]	--	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	--	--	ND [0.500]
SW8260D	Toluene	1100	µg/L	ND [0.600]	ND [0.600]	--	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]	--	--	ND [0.600]
SW8260D	Xylenes (total)	190	µg/L	0.312 [1.50] J	ND [1.50]	--	ND [1.50]	ND [1.50]	ND [1.50]	ND [1.50]	--	--	ND [1.50]
SW8270DSIM*	1-Methylnaphthalene	11	µg/L	3.80 [0.250]	0.0817 [0.250] J,H	ND [0.250] QL	0.135 [0.250] J	0.0426 [0.250] J	ND [0.250] H	ND [0.250] H	ND [0.250]	ND [0.250]	ND [0.250] H
SW8270DSIM*	2-Chloronaphthalene	NS	µg/L	0.0239 [0.250] J	ND [0.250] H	ND [0.250] QL	ND [0.250]	ND [0.250]	ND [0.250] H	ND [0.250] H	ND [0.250] QL	ND [0.250] QL	ND [0.250] H
SW8270DSIM*	2-Methylnaphthalene	36	µg/L	1.68 [0.250]	0.0290 [0.250] J,H	ND [0.250] QL	ND [0.250]	ND [0.250]	ND [0.250] H	ND [0.250] H	ND [0.250] QL	ND [0.250] QL	ND [0.250] H
SW8270DSIM*	Acenaphthene	530	µg/L	0.380 [0.0500]	ND [0.0500] H	ND [0.0500] QL	0.151 [0.0500]	0.176 [0.0500]	ND [0.0500] H	ND [0.0500] H	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] H
SW8270DSIM*	Acenaphthylene	260	µg/L	ND [0.0500]	ND [0.0500] H	ND [0.0500] QL	ND [0.0500]	ND [0.0500]	ND [0.0500] H	ND [0.0500] H	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] H
SW8270DSIM*	Anthracene	43	µg/L	ND [0.0500]	0.0204 [0.0500] J,H	ND [0.0500] QL	0.0226 [0.0500] J,B	0.0250 [0.0500] J,B	ND [0.0500] H	ND [0.0500] H	ND [0.0500] QL	ND [0.0500] QL	0.0248 [0.0500] J,H
SW8270DSIM*	Benzo(a)anthracene	0.3	µg/L	ND [0.0500]	0.0324 [0.0500] J,H	ND [0.0500] QL	ND [0.0500]	ND [0.0500]	ND [0.0500] H	ND [0.0500] H	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] H
SW8270DSIM*	Benzo(a)pyrene	0.25	µg/L	ND [0.0500]	ND [0.0500] H	ND [0.0500] QL	ND [0.0500]	ND [0.0500]	ND [0.0500] H	ND [0.0500] H	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] H
SW8270DSIM*	Benzo(b)fluoranthene	2.5	µg/L	ND [0.0500]	0.0216 [0.0500] J,H	ND [0.0500] QL	ND [0.0500]	ND [0.0500]	ND [0.0500] H	0.0218 [0.0500] J,H	ND [0.0500] QL	ND [0.0500] QL	0.0312 [0.0500] J,H

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for Groundwater

			SAMPLE ID	22NEC-MOC-14MW05-2	22NEC-MOC-14MW06	22NEC-MOC-14MW07	22NEC-MOC-17MW1	22NEC-MOC-20MW1	22NEC-MOC-22MW2	22NEC-MOC-26MW1	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1-2	22NEC-MOC-MW88-1	22NEC-MOC-MW88-10
			LOCATION ID	22NEC-MOC-14MW05	22NEC-MOC-14MW06	22NEC-MOC-14MW07	22NEC-MOC-17MW1	22NEC-MOC-20MW1	22NEC-MOC-22MW2	22NEC-MOC-26MW1	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1	22NEC-MOC-MW88-1	22NEC-MOC-MW88-10
			LAB SDG	L1527447	L1521707	L1521707	L1521707	L1521959	L1521959	L1521959	L1525127	L1527447	L1521959	L1521707
			COLLECTION DATE	8/15/2022 10:30:00 AM	8/1/2022 5:35:00 PM	7/30/2022 4:00:00 PM	7/30/2022 5:30:00 PM	7/31/2022 2:00:00 PM	7/31/2022 11:25:00 AM	7/31/2022 10:00:00 AM	8/4/2022 4:15:00 PM	8/15/2022 9:15:00 AM	7/31/2022 4:00:00 PM	7/31/2022 5:35:00 PM
			MATRIX	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
			QC TYPE	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**											
AK102/103	Diesel Range Organics	1500	µg/L	--	**1990 [420]**	ND [420]	ND [400]	ND [420]	ND [400]	ND [420]	ND [400]	--	ND [420]	805 [400]
AK102/103	Residual Range Organics	1100	µg/L	--	605 [1050] J,QH	ND [1050]	ND [1000]	ND [1050]	ND [1000]	ND [1050]	758 [600] J	--	ND [1050]	ND [1000] QH
E300.0	Sulfate	NS	µg/L	--	15100 [2500]	48400 [2500]	66500 [2500]	54800 [2500]	66000 [2500]	55500 [2500]	6710 [2500]	--	41100 [2500]	56000 [2500]
SM2320B	Alkalinity, Bicarbonate as CaCO3	NS	µg/L	--	123000 [10000]	8960 [10000] J	11600 [10000] J	11100 [10000] J	ND [10000]	ND [10000]	21400 [10000]	--	19900 [10000] J	13200 [10000] J
SM2320B	Alkalinity, Carbonate as CaCO3	NS	µg/L	--	ND [10000]	ND [10000]	ND [10000]	ND [10000]	ND [10000]	ND [10000]	ND [10000]	--	ND [10000]	ND [10000]
SM2320B	Alkalinity, Hydroxide as CaCO3	NS	µg/L	--	ND [10000]	ND [10000]	ND [10000]	ND [10000]	ND [10000]	ND [10000]	ND [10000]	--	ND [10000]	ND [10000]
SM2320B	Alkalinity, Total	NS	µg/L	--	123000 [10000]	8960 [10000] J	11600 [10000] J	11100 [10000] J	ND [10000]	ND [10000]	21400 [10000]	--	19900 [10000] J	13200 [10000] J
SW6020B	Arsenic	10	µg/L	--	0.561 [0.500] J	0.348 [0.500] J	1.98 [0.500]	0.463 [0.500] J	ND [0.500]	0.667 [0.500] J	1.43 [0.500]	--	ND [0.500]	0.259 [0.500] J
SW6020B	Arsenic,Dissolved	10	µg/L	--	0.650 [0.500] J	0.369 [0.500] J	1.19 [0.500]	0.304 [0.500] J	ND [0.500]	0.241 [0.500] J	0.752 [0.500]	--	ND [0.500]	0.232 [0.500] J
SW6020B	Barium	3800	µg/L	--	48.7 [2.50]	16.0 [2.50]	45.7 [2.50]	24.7 [2.50]	16.5 [2.50]	10.5 [2.50]	50.7 [2.50]	--	9.71 [2.50]	25.2 [2.50]
SW6020B	Barium,Dissolved	3800	µg/L	--	51.6 [2.50]	17.0 [2.50]	41.0 [2.50]	25.4 [2.50]	16.2 [2.50]	11.6 [2.50]	41.1 [2.50]	--	10.3 [2.50]	26.0 [2.50]
SW6020B	Cadmium	9.2	µg/L	--	0.175 [0.500] J	ND [0.500]	0.246 [0.500] J	0.435 [0.500] J	ND [0.500]	0.343 [0.500] J	ND [0.500]	--	ND [0.500]	0.477 [0.500] J
SW6020B	Cadmium,Dissolved	9.2	µg/L	--	ND [0.500]	ND [0.500]	0.221 [0.500] J	0.374 [0.500] J	ND [0.500]	ND [0.500]	ND [0.500]	--	0.180 [0.500] J	0.475 [0.500] J
SW6020B	Chromium	22000	µg/L	--	ND [15.0]	ND [15.0]	13.6 [15.0] J	ND [15.0]	ND [15.0]	56.4 [15.0]	6.86 [15.0] J	--	ND [15.0]	ND [15.0]
SW6020B	Chromium,Dissolved	22000	µg/L	--	ND [15.0]	ND [15.0]	5.90 [15.0] J	ND [15.0]	ND [15.0]	47.6 [15.0]	ND [15.0]	--	ND [15.0]	ND [15.0]
SW6020B	Lead	15	µg/L	--	1.04 [1.50] J,B	4.11 [1.50] B	**17.6 [1.50]**	2.09 [1.50] J	0.996 [1.50] J	1.50 [1.50] J	5.43 [1.50]	--	0.778 [1.50] J	3.49 [1.50] B
SW6020B	Lead, Dissolved	15	µg/L	--	1.06 [1.50] J	4.70 [1.50]	10.3 [1.50]	2.08 [1.50] J	0.843 [1.50] J	1.45 [1.50] J	5.61 [1.50]	--	0.923 [1.50] J	3.00 [1.50] J
SW6020B	Manganese,Dissolved	NS	µg/L	--	410 [2.50]	70.7 [2.50]	59.5 [2.50]	31.2 [2.50]	8.41 [2.50]	25.2 [2.50]	44.6 [2.50]	--	38.0 [2.50]	351 [2.50]
SW6020B	Nickel	390	µg/L	--	1.17 [2.00] J	22.8 [2.00]	10.6 [2.00]	2.96 [2.00] J	0.936 [2.00] J	31.4 [2.00]	5.89 [2.00]	--	1.19 [2.00] J	4.08 [2.00]
SW6020B	Nickel,Dissolved	390	µg/L	--	1.23 [2.00] J	21.7 [2.00]	6.03 [2.00]	2.33 [2.00] J	0.926 [2.00] J	26.4 [2.00]	4.01 [2.00]	--	1.18 [2.00] J	3.72 [2.00] J
SW6020B	Selenium	100	µg/L	--	ND [1.00]	ND [1.00]	ND [1.00]	ND [1.00]	ND [1.00]	0.645 [1.00] J	ND [1.00]	--	ND [1.00]	ND [1.00]
SW6020B	Selenium,Dissolved	100	µg/L	--	ND [1.00]	ND [1.00]	ND [1.00]	ND [1.00]	ND [1.00]	ND [1.00]	ND [1.00]	--	ND [1.00]	ND [1.00]
SW6020B	Silver	94	µg/L	--	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	--	ND [0.500]	ND [0.500]
SW6020B	Silver,Dissolved	94	µg/L	--	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	--	ND [0.500]	ND [0.500]
SW6020B	Vanadium	86	µg/L	--	1.10 [2.50] J	1.43 [2.50] J	7.15 [2.50]	1.27 [2.50] J	0.534 [2.50] J	1.19 [2.50] J	9.74 [2.50]	--	0.510 [2.50] J	1.08 [2.50] J
SW6020B	Vanadium,Dissolved	86	µg/L	--	1.10 [2.50] J	1.14 [2.50] J	4.67 [2.50] J	0.911 [2.50] J	ND [2.50]	0.771 [2.50] J	5.34 [2.50]	--	ND [2.50]	0.752 [2.50] J
SW6020B	Zinc	6000	µg/L	--	ND [20.0]	15.3 [20.0] J	43.5 [20.0]	65.2 [20.0]	9.80 [20.0] J	12.2 [20.0] J	34.1 [20.0] J	--	14.6 [20.0] J	36.7 [20.0] J
SW6020B	Zinc,Dissolved	6000	µg/L	--	ND [20.0]	14.5 [20.0] J	38.3 [20.0] J	66.3 [20.0]	ND [20.0]	12.6 [20.0] J	48.8 [20.0]	--	35.2 [20.0] J	34.8 [20.0] J
SW7470A	Mercury	0.52	µg/L	--	ND [0.200]	ND [0.200]	ND [0.200]	ND [0.200]	ND [0.200]	ND [0.200]	ND [0.200]	--	ND [0.200]	ND [0.200]
SW7470A	Mercury,Dissolved	0.52	µg/L	--	ND [0.200]	ND [0.200]	ND [0.200]	ND [0.200]	ND [0.200]	ND [0.200]	ND [0.200]	--	ND [0.200]	ND [0.200]
SW8082A	Aroclor 1016	0.44	µg/L	--	***ND [0.750]***	***ND [0.833]***	***ND [0.833]***	***ND [0.750]***	***ND [1.50]***	***ND [0.750]***	***ND [0.750]***	--	***ND [0.750]***	***ND [0.750]***
SW8082A	Aroclor 1221	0.44	µg/L	--	***ND [0.750]***	***ND [0.833]***	***ND [0.833]***	***ND [0.750]***	***ND [1.50]***	***ND [0.750]***	***ND [0.750]***	--	***ND [0.750]***	***ND [0.750]***
SW8082A	Aroclor 1232	0.44	µg/L	--	***ND [0.750]***	***ND [0.833]***	***ND [0.833]***	***ND [0.750]***	***ND [1.50]***	***ND [0.750]***	***ND [0.750]***	--	***ND [0.750]***	***ND [0.750]***
SW8082A	Aroclor 1242	0.44	µg/L	--	***ND [0.750]***	***ND [0.833]***	***ND [0.833]***	***ND [0.750]***	***ND [1.50]***	***ND [0.750]***	***ND [0.750]***	--	***ND [0.750]***	***ND [0.750]***
SW8082A	Aroclor 1248	0.44	µg/L	--	***ND [0.500]***	***ND [0.555]***	***ND [0.555]***	***ND [0.500]***	***ND [1.00]***	***ND [0.500]***	***ND [0.500]***	--	***ND [0.500]***	***ND [0.500]***
SW8082A	Aroclor 1254	0.44	µg/L	--	***ND [0.500]***	***ND [0.555]***	***ND [0.555]***	***ND [0.500]***	***ND [1.00]***	***ND [0.500]***	***ND [0.500]***	--	***ND [0.500]***	***ND [0.500]***
SW8082A	Aroclor 1260	0.44	µg/L	--	***ND [0.500]***	***ND [0.555]***	***ND [0.555]***	***ND [0.500]***	***ND [1.00]***	***ND [0.500]***	***ND [0.500]***	--	***ND [0.500]***	***ND [0.500]***
SW8082A	Aroclor 1262	0.44	µg/L	--	***ND [0.500]***	***ND [0.555]***	***ND [0.555]***	***ND [0.500]***	***ND [1.00]***	***ND [0.500]***	***ND [0.500]***	--	***ND [0.500]***	***ND [0.500]***
SW8082A	Aroclor 1268	0.44	µg/L	--	***ND [0.500]***	***ND [0.555]***	***ND [0.555]***	***ND [0.500]***	***ND [1.00]***	***ND [0.500]***	***ND [0.500]***	--	***ND [0.500]***	***ND [0.500]***
RSK175	Methane	NS	µg/L	--	ND [6.00]	ND [6.00]	ND [6.00]	ND [6.00]	ND [6.00]	ND [6.00]	ND [6.00]	--	ND [6.00]	ND [6.00]
SW8260D	Benzene	5	µg/L	--	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	--	ND [0.500]	ND [0.500]
SW8260D	Ethylbenzene	700	µg/L	--	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	--	ND [0.500]	ND [0.500]
SW8260D	Toluene	1100	µg/L	--	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]	--	ND [0.600]	ND [0.600]
SW8260D	Xylenes (total)	190	µg/L	--	ND [1.50]	ND [1.50]	ND [1.50]	ND [1.50]	ND [1.50]	ND [1.50]	ND [1.50]	--	ND [1.50]	ND [1.50]
SW8270DSIM*	1-Methylnaphthalene	11	µg/L	ND [0.250]	ND [0.250]	ND [0.250]	ND [0.250]	ND [0.250]	ND [0.250]	ND [0.250]	ND [0.250] H	ND [0.250] QL	ND [0.250]	ND [0.250]
SW8270DSIM*	2-Chloronaphthalene	NS	µg/L	ND [0.250] QL	ND [0.250] QL	ND [0.250] QL	ND [0.250] QL	ND [0.250] QL	ND [0.250] QL	ND [0.250] QL	ND [0.250] H	ND [0.250] QL	ND [0.250] QL	ND [0.250]
SW8270DSIM*	2-Methylnaphthalene	36	µg/L	ND [0.250] QL	ND [0.250] QL	ND [0.250] QL	ND [0.250] QL	ND [0.250] QL	ND [0.250] QL	ND [0.250] QL	ND [0.250] H	ND [0.250] QL	ND [0.250] QL	ND [0.250]
SW8270DSIM*	Acenaphthene	530	µg/L	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] H	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500]
SW8270DSIM*	Acenaphthylene	260	µg/L	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] H	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500]
SW8270DSIM*	Anthracene	43	µg/L	ND [0.0500] QL	0.0236 [0.0500] JBQL	0.0200 [0.0500] JBQL	0.0276 [0.0500] JBQL	ND [0.0500] QL	ND [0.0500] QL	0.0227 [0.0500] JBQL	ND [0.0500] H	ND [0.0500] QL	0.0194 [0.0500] JBQL	0.0241 [0.0500] J,B
SW8270DSIM*	Benzo(a)anthracene	0.3	µg/L	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	0.0978 [0.0500] J,QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] H	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500]
SW8270DSIM*	Benzo(a)pyrene	0.25	µg/L	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	0.0446 [0.0500] J,QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] H	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500]
SW8270DSIM*	Benzo(b)fluoranthene	2.5	µg/L	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	0.149 [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] H	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500]

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for Groundwater

			SAMPLE ID	22NEC-MOC-MW88-3	22NEC-MOC-TB-07	22NEC-TB02	22NEC-TB03	22NEC-TB-04	22NEC-TB-05
			LOCATION ID	22NEC-MOC-MW88-3	NA	NA	NA	NA	NA
			LAB SDG	L1522831	L1527447	L1521707	L1521959	L1522831	L1525127
			COLLECTION DATE	8/1/2022 1:50:00 PM	8/15/2022 7:00:00 AM	7/30/2022 7:00:00 AM	7/31/2022 7:00:00 AM	8/1/2022 7:00:00 AM	8/5/2022 9:46:00 AM
			MATRIX	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
			QC TYPE	Primary/MS/MSD	Primary	Trip Blank	Trip Blank	Trip Blank	Trip Blank
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**						
AK102/103	Diesel Range Organics	1500	µg/L	ND [400]	--	--	--	--	--
AK102/103	Residual Range Organics	1100	µg/L	ND [1000]	--	--	--	--	--
E300.0	Sulfate	NS	µg/L	38200 [2500]	--	--	--	--	--
SM2320B	Alkalinity, Bicarbonate as CaCO3	NS	µg/L	16400 [10000] J	--	--	--	--	--
SM2320B	Alkalinity, Carbonate as CaCO3	NS	µg/L	ND [10000]	--	--	--	--	--
SM2320B	Alkalinity, Hydroxide as CaCO3	NS	µg/L	ND [10000]	--	--	--	--	--
SM2320B	Alkalinity, Total	NS	µg/L	16400 [10000] J	--	--	--	--	--
SW6020B	Arsenic	10	µg/L	0.536 [0.500] J	--	--	--	--	--
SW6020B	Arsenic,Dissolved	10	µg/L	0.340 [0.500] J	--	--	--	--	--
SW6020B	Barium	3800	µg/L	27.2 [2.50]	--	--	--	--	--
SW6020B	Barium,Dissolved	3800	µg/L	26.4 [2.50]	--	--	--	--	--
SW6020B	Cadmium	9.2	µg/L	0.251 [0.500] J	--	--	--	--	--
SW6020B	Cadmium,Dissolved	9.2	µg/L	0.252 [0.500] J	--	--	--	--	--
SW6020B	Chromium	22000	µg/L	ND [15.0]	--	--	--	--	--
SW6020B	Chromium,Dissolved	22000	µg/L	ND [15.0]	--	--	--	--	--
SW6020B	Lead	15	µg/L	2.08 [1.50] J	--	--	--	--	--
SW6020B	Lead, Dissolved	15	µg/L	1.09 [1.50] J	--	--	--	--	--
SW6020B	Manganese,Dissolved	NS	µg/L	963 [2.50]	--	--	--	--	--
SW6020B	Nickel	390	µg/L	5.63 [2.00]	--	--	--	--	--
SW6020B	Nickel,Dissolved	390	µg/L	5.19 [2.00]	--	--	--	--	--
SW6020B	Selenium	100	µg/L	ND [1.00]	--	--	--	--	--
SW6020B	Selenium,Dissolved	100	µg/L	ND [1.00]	--	--	--	--	--
SW6020B	Silver	94	µg/L	ND [0.500]	--	--	--	--	--
SW6020B	Silver,Dissolved	94	µg/L	ND [0.500]	--	--	--	--	--
SW6020B	Vanadium	86	µg/L	1.82 [2.50] J	--	--	--	--	--
SW6020B	Vanadium,Dissolved	86	µg/L	0.906 [2.50] J	--	--	--	--	--
SW6020B	Zinc	6000	µg/L	35.7 [20.0] J	--	--	--	--	--
SW6020B	Zinc,Dissolved	6000	µg/L	34.0 [20.0] J	--	--	--	--	--
SW7470A	Mercury	0.52	µg/L	ND [0.200]	--	--	--	--	--
SW7470A	Mercury,Dissolved	0.52	µg/L	ND [0.200]	--	--	--	--	--
SW8082A	Aroclor 1016	0.44	µg/L	***ND [0.750]***	--	--	--	--	--
SW8082A	Aroclor 1221	0.44	µg/L	***ND [0.750]***	--	--	--	--	--
SW8082A	Aroclor 1232	0.44	µg/L	***ND [0.750]***	--	--	--	--	--
SW8082A	Aroclor 1242	0.44	µg/L	***ND [0.750]***	--	--	--	--	--
SW8082A	Aroclor 1248	0.44	µg/L	***ND [0.500]***	--	--	--	--	--
SW8082A	Aroclor 1254	0.44	µg/L	***ND [0.500]***	--	--	--	--	--
SW8082A	Aroclor 1260	0.44	µg/L	***ND [0.500]***	--	--	--	--	--
SW8082A	Aroclor 1262	0.44	µg/L	***ND [0.500]***	--	--	--	--	--
SW8082A	Aroclor 1268	0.44	µg/L	***ND [0.500]***	--	--	--	--	--
RSK175	Methane	NS	µg/L	ND [6.00]	--	--	--	--	--
SW8260D	Benzene	5	µg/L	ND [0.500] QL	ND [0.500]	ND [0.500]	0.125 [0.500] J	ND [0.500]	ND [0.500]
SW8260D	Ethylbenzene	700	µg/L	ND [0.500] QL	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	Toluene	1100	µg/L	ND [0.600] QL	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]
SW8260D	Xylenes (total)	190	µg/L	ND [1.50] QL	ND [1.50]	ND [1.50]	ND [1.50]	ND [1.50]	ND [1.50]
SW8270DSIM*	1-Methylnaphthalene	11	µg/L	ND [0.250]	--	--	--	--	--
SW8270DSIM*	2-Chloronaphthalene	NS	µg/L	ND [0.250]	--	--	--	--	--
SW8270DSIM*	2-Methylnaphthalene	36	µg/L	ND [0.250]	--	--	--	--	--
SW8270DSIM*	Acenaphthene	530	µg/L	ND [0.0500]	--	--	--	--	--
SW8270DSIM*	Acenaphthylene	260	µg/L	ND [0.0500]	--	--	--	--	--
SW8270DSIM*	Anthracene	43	µg/L	ND [0.0500]	--	--	--	--	--
SW8270DSIM*	Benzo(a)anthracene	0.3	µg/L	ND [0.0500] QL	--	--	--	--	--
SW8270DSIM*	Benzo(a)pyrene	0.25	µg/L	ND [0.0500] QL	--	--	--	--	--
SW8270DSIM*	Benzo(b)fluoranthene	2.5	µg/L	ND [0.0500] QL	--	--	--	--	--

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for Groundwater

			SAMPLE ID	22NEC-MOC-14MW01	22NEC-MOC-14MW02	22NEC-MOC-14MW02-2	22NEC-MOC-14MW03	22NEC-MOC-14MW903	22NEC-MOC-14MW04	22NEC-MOC-14MW904	22NEC-MOC-14MW04-2	22NEC-MOC-14MW04-92	22NEC-MOC-14MW05
			LOCATION ID	22NEC-MOC-14MW01	22NEC-MOC-14MW02	22NEC-MOC-14MW02	22NEC-MOC-14MW03	22NEC-MOC-14MW903	22NEC-MOC-14MW04	22NEC-MOC-14MW904	22NEC-MOC-14MW04	22NEC-MOC-14MW04	22NEC-MOC-14MW05
			LAB SDG	L1522831	L1525127	L1527447	L1521707	L1521707	L1525127	L1525127	L1527447	L1527447	L1525127
			COLLECTION DATE	8/2/2022 10:45:00 AM	8/5/2022 2:45:00 PM	8/15/2022 9:45:00 AM	8/1/2022 4:00:00 PM	8/1/2022 4:15:00 PM	8/5/2022 10:40:00 AM	8/5/2022 11:40:00 AM	8/15/2022 11:10:00 AM	8/15/2022 12:10:00 PM	8/5/2022 4:45:00 PM
			MATRIX	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
			QC TYPE	Primary	Primary	Primary	Primary	FD of 22NEC-MOC-14MW03	Primary	FD of 22NEC-MOC-14MW04	Primary	FD of 22NEC-MOC-14MW04	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**										
SW8270DSIM*	Benzo(g,h,i)perylene	0.26	µg/L	ND [0.0500]	ND [0.0500] H	ND [0.0500] QL	ND [0.0500]	ND [0.0500]	ND [0.0500] H	ND [0.0500] H	ND [0.0500] QL	ND [0.0500] QL	0.0185 [0.0500] J,H
SW8270DSIM*	Benzo(k)fluoranthene	0.8	µg/L	ND [0.125]	ND [0.125] H	ND [0.125] QL	ND [0.125]	ND [0.125]	ND [0.125] H	ND [0.125] H	ND [0.125] QL	ND [0.125] QL	ND [0.125] H
SW8270DSIM*	Chrysene	2	µg/L	ND [0.0500]	0.0287 [0.0500] J,H	ND [0.0500] QL	ND [0.0500]	ND [0.0500]	ND [0.0500] H	ND [0.0500] H	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] H
SW8270DSIM*	Dibenzo(a,h)anthracene	0.25	µg/L	ND [0.0500]	ND [0.0500] H	ND [0.0500] QL	ND [0.0500]	ND [0.0500]	ND [0.0500] H	ND [0.0500] H	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] H
SW8270DSIM*	Fluoranthene	260	µg/L	ND [0.0250]	0.0450 [0.0250] J,BH	ND [0.0250] QL	ND [0.0250]	0.0111 [0.0250] J	0.0114 [0.0250] J,BH	ND [0.0250] H	ND [0.0250] QL	ND [0.0250] QL	0.0130 [0.0250] J,BH
SW8270DSIM*	Fluorene	290	µg/L	0.597 [0.0500]	0.0240 [0.0500] J,H	ND [0.0500] QL	0.253 [0.0500]	0.292 [0.0500]	ND [0.0500] H	ND [0.0500] H	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] H
SW8270DSIM*	Indeno(1,2,3-cd)pyrene	0.19	µg/L	ND [0.0400]	ND [0.0400] H	ND [0.0400] QL	ND [0.0400]	ND [0.0400]	ND [0.0400] H	ND [0.0400] H	ND [0.0400] QL	ND [0.0400] QL	0.0216 [0.0400] J,H
SW8270DSIM*	Naphthalene	1.7	µg/L	**3.10 [0.500]**	ND [0.500] H	ND [0.500] QL	0.240 [0.500] J	0.279 [0.500] J	ND [0.500] H	ND [0.500] H	ND [0.500] QL	ND [0.500] QL	ND [0.500] H
SW8270DSIM*	Phenanthrene	170	µg/L	0.0423 [0.0500] J,B	0.143 [0.0500] H	ND [0.0500] QL	0.0234 [0.0500] J	0.0188 [0.0500] J	ND [0.0500] H	ND [0.0500] H	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] H
SW8270DSIM*	Pyrene	120	µg/L	ND [0.0500]	0.0525 [0.0500] J,BH	ND [0.0500] QL	ND [0.0500]	ND [0.0500]	ND [0.0500] H	0.0185 [0.0500] J,BH	ND [0.0500] QL	ND [0.0500] QL	0.0183 [0.0500] J,BH

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for Groundwater

			SAMPLE ID	22NEC-MOC-14MW05-2	22NEC-MOC-14MW06	22NEC-MOC-14MW07	22NEC-MOC-17MW1	22NEC-MOC-20MW1	22NEC-MOC-22MW2	22NEC-MOC-26MW1	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1-2	22NEC-MOC-MW88-1	22NEC-MOC-MW88-10
			LOCATION ID	22NEC-MOC-14MW05	22NEC-MOC-14MW06	22NEC-MOC-14MW07	22NEC-MOC-17MW1	22NEC-MOC-20MW1	22NEC-MOC-22MW2	22NEC-MOC-26MW1	22NEC-MOC-MW10-1	22NEC-MOC-MW10-1	22NEC-MOC-MW88-1	22NEC-MOC-MW88-10
			LAB SDG	L1527447	L1521707	L1521707	L1521707	L1521959	L1521959	L1521959	L1525127	L1527447	L1521959	L1521707
			COLLECTION DATE	8/15/2022 10:30:00 AM	8/1/2022 5:35:00 PM	7/30/2022 4:00:00 PM	7/30/2022 5:30:00 PM	7/31/2022 2:00:00 PM	7/31/2022 11:25:00 AM	7/31/2022 10:00:00 AM	8/4/2022 4:15:00 PM	8/15/2022 9:15:00 AM	7/31/2022 4:00:00 PM	7/31/2022 5:35:00 PM
			MATRIX	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
			QC TYPE	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**											
SW8270DSIM*	Benzo(g,h,i)perylene	0.26	µg/L	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	0.0788 [0.0500] J,QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] H	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500]
SW8270DSIM*	Benzo(k)fluoranthene	0.8	µg/L	ND [0.125] QL	ND [0.125] QL	ND [0.125] QL	0.119 [0.125] J,QL	ND [0.125] QL	ND [0.125] QL	ND [0.125] QL	ND [0.125] H	ND [0.125] QL	ND [0.125] QL	ND [0.125]
SW8270DSIM*	Chrysene	2	µg/L	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	0.130 [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] H	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500]
SW8270DSIM*	Dibenzo(a,h)anthracene	0.25	µg/L	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	0.0730 [0.0500] J,QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] H	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500]
SW8270DSIM*	Fluoranthene	260	µg/L	0.0147 [0.0250] J,QL	ND [0.0250] QL	ND [0.0250] QL	0.0410 [0.0250] J,QL	ND [0.0250] QL	ND [0.0250] QL	0.0140 [0.0250] J,QL	ND [0.0250] H	ND [0.0250] QL	ND [0.0250] QL	ND [0.0250]
SW8270DSIM*	Fluorene	290	µg/L	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] H	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500]
SW8270DSIM*	Indeno(1,2,3-cd)pyrene	0.19	µg/L	ND [0.0400] QL	ND [0.0400] QL	ND [0.0400] QL	0.105 [0.0400] QL	ND [0.0400] QL	ND [0.0400] QL	ND [0.0400] QL	ND [0.0400] H	ND [0.0400] QL	ND [0.0400] QL	ND [0.0400]
SW8270DSIM*	Naphthalene	1.7	µg/L	ND [0.500] QL	ND [0.500] QL	ND [0.500] QL	ND [0.500] QL	ND [0.500] QL	ND [0.500] QL	ND [0.500] QL	ND [0.500] H	ND [0.500] QL	ND [0.500] QL	ND [0.500]
SW8270DSIM*	Phenanthrene	170	µg/L	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	0.0248 [0.0500] J,QL	ND [0.0500] QL	ND [0.0500] QL	0.0185 [0.0500] J,QL	ND [0.0500] H	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500]
SW8270DSIM*	Pyrene	120	µg/L	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	0.0441 [0.0500] J,QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] H	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500]

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for Groundwater

			SAMPLE ID	22NEC-MOC-MW88-3	22NEC-MOC-TB-07	22NEC-TB02	22NEC-TB03	22NEC-TB-04	22NEC-TB-05
			LOCATION ID	22NEC-MOC-MW88-3	NA	NA	NA	NA	NA
			LAB SDG	L1522831	L1527447	L1521707	L1521959	L1522831	L1525127
			COLLECTION DATE	8/1/2022 1:50:00 PM	8/15/2022 7:00:00 AM	7/30/2022 7:00:00 AM	7/31/2022 7:00:00 AM	8/1/2022 7:00:00 AM	8/5/2022 9:46:00 AM
			MATRIX	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
			QC TYPE	Primary/MS/MSD	Primary	Trip Blank	Trip Blank	Trip Blank	Trip Blank
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**						
SW8270DSIM*	Benzo(g,h,i)perylene	0.26	µg/L	ND [0.0500] QL	--	--	--	--	--
SW8270DSIM*	Benzo(k)fluoranthene	0.8	µg/L	ND [0.125] QL	--	--	--	--	--
SW8270DSIM*	Chrysene	2	µg/L	ND [0.0500] QL	--	--	--	--	--
SW8270DSIM*	Dibenzo(a,h)anthracene	0.25	µg/L	ND [0.0500] QL	--	--	--	--	--
SW8270DSIM*	Fluoranthene	260	µg/L	0.0157 [0.0250] J,QL	--	--	--	--	--
SW8270DSIM*	Fluorene	290	µg/L	ND [0.0500]	--	--	--	--	--
SW8270DSIM*	Indeno(1,2,3-cd)pyrene	0.19	µg/L	ND [0.0400] QL	--	--	--	--	--
SW8270DSIM*	Naphthalene	1.7	µg/L	ND [0.500]	--	--	--	--	--
SW8270DSIM*	Phenanthrene	170	µg/L	ND [0.0500]	--	--	--	--	--
SW8270DSIM*	Pyrene	120	µg/L	ND [0.0500] QL	--	--	--	--	--

Notes:

[1] PSLs for groundwater are the 18 AAC 75 Table C groundwater cleanup levels except for DRO, RRO, arsenic, and lead; which were defined in the Northeast Cape FUDS, St. Lawrence Island Feasibility study

*PAH was analyzed by SW8270DSIM for all samples, except 22NEC-MOC-14MW03, 22NEC-MOC-14MW903, 22NEC-MOC-14MW06, 22NEC-MOC-14MW07, 22NEC-MOC-17MW1, and 22NEC-MOC-MW88-10, which were analyzed by SW8270ESIM

Incorrect limits shown, laboratory to revise

Bold/red indicates that a detected result exceeds the PSL.

Yellow/Bold indicates the LOD for a non-detect results exceeds the PSL.

LOD shown in brackets [ ]

µg/L – micrograms per liter

B – the result is biased high due to contamination present in an associated blank

DL – detection limit

FD – field duplicate

H – the result is considered a low estimate due to a hold time exceedance

J – the result is an estimated value greater than or equal to the DL and below the LOQ

LOD – limit of detection

LOQ – limit of quantitation

MS/MSD – matrix spike/matrix spike duplicate

ND – not detected

NS – not specified

QC – quality control

QH/QL/QN – the result is an estimated value, bias high/low/indeterminate, due to a QC failure

SDG – sample delivery group

SIM – selected ion monitoring

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S15 ISM Soil

			SAMPLE ID	22NEC-S15-DU1-SS01	22NEC-S15-DU1-SS02	22NEC-S15-DU1-SS03	22NEC-S15-DU1-SS04	22NEC-S15-DU1-SS05	22NEC-S15-DU1-SS06
			LOCATION ID	22NEC-S15-DU1	22NEC-S15-DU1	22NEC-S15-DU1	22NEC-S15-DU104	22NEC-S15-DU105	22NEC-S15-DU106
			LAB SDG	L1520822	L1520822	L1520822	L1528288	L1528288	L1528288
			COLLECTION DATE	7/25/2022 10:05:00 AM	7/25/2022 10:10:00 AM	7/25/2022 10:15:00 AM	8/18/2022 6:40:00 PM	8/18/2022 6:50:00 PM	8/18/2022 7:00:00 PM
			MATRIX	Soil	Soil	Soil	Soil	Soil	Soil
			QC TYPE	Primary	Primary	Primary	Primary	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**						
AK102/103	Diesel Range Organics	9200	mg/kg	29.6 [10.2] J	38.8 [10.2] J	36.5 [10.1] J	85.3 [101] J	197 [101]	146 [101] J
SM2540G	Solids	NS	%	98.5 [0.200]	98.2 [0.200]	98.5 [0.200]	98.8 [0.200]	98.8 [0.200]	98.7 [0.200]

Notes:

[1]PSLs for soil are the 18 AAC 75 B1 & B2 most stringent of the Under 40-inch and Migration to Groundwater cleanup levels except for DRO, RRO, and naphthalene; which were defined in the Northeast Cape FUDS, St. Lawrence

LOD shown in brackets [ ]

DL – detection limit

J – the result is an estimated value greater than or equal to the DL and below the LOQ

LOD – limit of detection

LOQ – limit of quantitation

mg/kg – milligrams per kilogram

ND – not detected

NS – not specified

QC – quality control

SDG – sample delivery group

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ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S08 Soil

			SAMPLE ID	22NEC-S08-SS01	22NEC-S08-SS02	22NEC-S08-SS902	22NEC-S08-SS03	22NEC-S08-SS04	22NEC-S08-SS05	22NEC-S08-SS06	22NEC-S08-SS07	22NEC-S08-SS08	22NEC-S08-SS09	22NEC-S08-SS10
			LOCATION ID	22NEC-S08-SB01	22NEC-S08-SB02	22NEC-S08-SB02	22NEC-S08-SB03	22NEC-S08-SB04	22NEC-S08-SB06	22NEC-S08-SB06	22NEC-S08-SB05	22NEC-S08-SB07	22NEC-S08-SB08	22NEC-S08-SB09
			LAB SDG	L1522829	L1522829	L1522829	L1522829	L1522829	L1522829	L1522829	L1522829	L1522829	L1522829	L1522829
			COLLECTION DATE	7/31/2022 11:55:00 AM	7/31/2022 1:45:00 PM	7/31/2022 2:45:00 PM	7/31/2022 2:30:00 PM	7/31/2022 3:10:00 PM	7/31/2022 4:50:00 PM	7/31/2022 5:00:00 PM	7/31/2022 5:25:00 PM	7/31/2022 6:15:00 PM	8/1/2022 9:25:00 AM	8/1/2022 10:50:00 AM
			MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
			QC TYPE	Primary	Primary	FD of 22NEC-S08-SS02	Primary	Primary	Primary	Primary	Primary/MS/MSD	Primary	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**											
AK102/103	Diesel Range Organics	9200	mg/kg	ND [117]	**169000 [5070] QN**	**27900 [991] QN**	5050 [151]	234 [138] J	6630 [114]	ND [110]	ND [150]	151 [152] J	ND [114]	ND [115]
AK102/103	Residual Range Organics	9200	mg/kg	504 [117]	5780 [2530] QN	1550 [991] J,QN	719 [151]	2790 [138]	221 [114] J	ND [110]	966 [150] QL	1790 [152]	ND [114]	550 [115]
AK102/103SGT	Diesel Range Organics	9200	mg/kg	ND [117]	**143000 [5070] QN**	**27200 [991] QN**	5070 [151]	137 [138] J	6550 [114]	ND [110]	98.4 [150] J	93.6 [152] J	ND [114]	ND [115]
AK102/103SGT	Residual Range Organics	9200	mg/kg	196 [117]	3950 [2530] QN	993 [991] J,QN	238 [151]	1490 [138]	ND [114]	ND [110]	432 [150] QL	825 [152]	ND [114]	234 [115]
AK102/103	Chromatogram Interpretation	--	--	BIO	PET	PET	PET	MIX	PET	--	BIO	MIX	--	BIO
SW8270DSIM	1-Methylnaphthalene	0.41	mg/kg	0.0126 [0.0117] J,QL	**946 [2.53] QN**	**128 [1.98] QN**	**33.7 [0.151]**	ND [0.0138]	0.0560 [0.0114]	0.00611 [0.0110] J,QL	ND [0.0150]	0.0141 [0.0152] J	ND [0.0114]	0.00546 [0.0115] J
SW8270DSIM	2-Chloronaphthalene	NS	mg/kg	ND [0.0117] QL	ND [0.253]	ND [0.0198]	ND [0.0151]	ND [0.0138]	ND [0.0114]	ND [0.0110] QL	ND [0.0150]	ND [0.0152]	ND [0.0114]	ND [0.0115]
SW8270DSIM	2-Methylnaphthalene	1.3	mg/kg	0.0471 [0.0117] QL	**1290 [25.3] QN**	**230 [1.98] QN**	**60.2 [0.151]**	0.00674 [0.0138] J	0.0659 [0.0114] QH	0.0227 [0.0110] QL	ND [0.0150]	0.0234 [0.0152] J	ND [0.0114]	0.00948 [0.0115] J
SW8270DSIM	Acenaphthene	37	mg/kg	0.00995 [0.00587] J,QL	25.3 [0.127] QN	3.61 [0.00991] QN	1.07 [0.00756] QH	ND [0.00689]	0.0682 [0.00572] QH	ND [0.00552] QL	ND [0.00752]	ND [0.00760]	ND [0.00568]	ND [0.00573]
SW8270DSIM	Acenaphthylene	18	mg/kg	ND [0.00587] QL	ND [0.127]	ND [0.00991]	ND [0.00756]	ND [0.00689]	ND [0.00572]	ND [0.00552] QL	ND [0.00752]	ND [0.00760]	ND [0.00568]	ND [0.00573]
SW8270DSIM	Anthracene	390	mg/kg	0.187 [0.00587] QL	ND [0.0127] QL	ND [0.00991]	ND [0.00756]	ND [0.00689]	ND [0.00572]	ND [0.00552] QL	ND [0.00752]	0.00734 [0.00760] J	ND [0.00568]	ND [0.00573]
SW8270DSIM	Benzo(a)anthracene	0.7	mg/kg	0.00835 [0.00587] J,QL	0.00966 [0.0127] J,QL	ND [0.00991]	ND [0.00756]	ND [0.00689]	ND [0.00572]	ND [0.00552] QL	ND [0.00752] QL	0.00781 [0.00760] J	ND [0.00568]	ND [0.00573]
SW8270DSIM	Benzo(a)pyrene	1.5	mg/kg	0.00236 [0.00587] J,QL	0.00918 [0.0127] J,QL	ND [0.00991]	ND [0.00756]	ND [0.00689]	ND [0.00572]	ND [0.00552] QL	ND [0.00752]	0.00682 [0.00760] J	ND [0.00568]	ND [0.00573]
SW8270DSIM	Benzo(b)fluoranthene	15	mg/kg	0.00460 [0.00587] J,QL	0.00730 [0.0127] J,QL	ND [0.00991]	ND [0.00756]	ND [0.00689]	ND [0.00572]	ND [0.00552] QL	ND [0.00752] QL	0.00700 [0.00760] J	ND [0.00568]	ND [0.00573]
SW8270DSIM	Benzo(g,h,i)perylene	2300	mg/kg	ND [0.00587] QL	ND [0.0127] QL	ND [0.00991]	ND [0.00756]	ND [0.00689]	ND [0.00572]	ND [0.00552] QL	ND [0.00752] QL	ND [0.00760]	ND [0.00568]	ND [0.00573]
SW8270DSIM	Benzo(k)fluoranthene	150	mg/kg	ND [0.00587] QL	ND [0.0127] QL	ND [0.00991]	ND [0.00756]	ND [0.00689]	ND [0.00572]	ND [0.00552] QL	ND [0.00752] QL	0.00580 [0.00760] J	ND [0.00568]	ND [0.00573]
SW8270DSIM	Chrysene	600	mg/kg	0.0121 [0.00587] QL	0.0142 [0.0127] J,QL	ND [0.00991]	ND [0.00756]	ND [0.00689]	ND [0.00572]	ND [0.00552] QL	ND [0.00752] QL	0.00789 [0.00760] J	ND [0.00568]	ND [0.00573]
SW8270DSIM	Dibenzo(a,h)anthracene	1.5	mg/kg	ND [0.00587] QL	ND [0.0127] QL	ND [0.00991]	ND [0.00756]	ND [0.00689]	ND [0.00572]	ND [0.00552] QL	ND [0.00752] QL	ND [0.00760]	ND [0.00568]	ND [0.00573]
SW8270DSIM	Dibenzofuran	NS	mg/kg	0.0220 [0.00587] QL	11.7 [0.127] QN	1.91 [0.00991] QN	0.700 [0.00756] QH	0.0163 [0.00689]	ND [0.00572]	ND [0.00552] QL	ND [0.00752]	0.0127 [0.00760] J	ND [0.00568]	ND [0.00573]
SW8270DSIM	Fluoranthene	590	mg/kg	0.0356 [0.00587] QL	0.0672 [0.0127] QL	0.0106 [0.00991] J,QN	0.00939 [0.00756] J,QH	ND [0.00689]	0.00680 [0.00572] J,QH	ND [0.00552] QL	ND [0.00752] QL	0.00631 [0.00760] J	ND [0.00568]	ND [0.00573]
SW8270DSIM	Fluorene	36	mg/kg	0.0196 [0.00587] QL	29.2 [0.127] QN	4.72 [0.00991] QN	3.00 [0.00756] QH	0.00848 [0.00689] J	0.0286 [0.00572] QH	ND [0.00552] QL	ND [0.00752]	0.00328 [0.00760] J	ND [0.00568]	ND [0.00573]
SW8270DSIM	Indeno(1,2,3-cd)pyrene	15	mg/kg	ND [0.00470] QL	ND [0.0101] QL	ND [0.00793]	ND [0.00605]	ND [0.00552]	ND [0.00458]	ND [0.00441] QL	ND [0.00602]	ND [0.00608]	ND [0.00454]	ND [0.00458]
SW8270DSIM	Naphthalene	120	mg/kg	0.0894 [0.0117] QL	**897 [2.53] QN**	**126 [1.98] QN**	30.9 [0.151]	0.0102 [0.0138] J	ND [0.0114]	0.0192 [0.0110] J,QL	ND [0.0150]	0.0137 [0.0152] J	ND [0.0114]	0.00601 [0.0115] J
SW8270DSIM	Phenanthrene	39	mg/kg	0.0744 [0.00587] QL	7.76 [0.0127] QL	1.31 [0.00991] QN	1.23 [0.00756] QH	ND [0.00689]	0.0173 [0.00572] QH	ND [0.00552] QL	ND [0.00752]	0.00991 [0.00760] J	0.00273 [0.00568] J	0.00307 [0.00573] J
SW8270DSIM	Pyrene	87	mg/kg	0.0234 [0.00470] QL	0.0482 [0.0101] QL	0.0119 [0.00793] J,QN	0.00989 [0.00605] J,QH	ND [0.00552]	0.0133 [0.00458] QH	ND [0.00441] QL	ND [0.00602] QL	0.00656 [0.00608] J	ND [0.00454]	ND [0.00458]
WBLACK	Total Organic Carbon	NS	mg/kg	26700 [294]	501000 [6080] QN	169000 [3960] QN	60700 [378]	132000 [3450]	1710 [114]	3600 [55.2] QN	84600 [752]	144000 [4030]	7980 [56.8]	31900 [515]
SM2540G	Solids	NS	%	85.1 [0.200]	39.4 [0.200]	50.5 [0.200]	66.1 [0.200]	72.5 [0.200]	87.4 [0.200]	90.6 [0.200]	66.5 [0.200] QN	65.8 [0.200]	88.0 [0.200]	87.3 [0.200]

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S08 Soil

			SAMPLE ID	22NEC-S08-SS11	22NEC-S08-SS12	22NEC-S08-SS13	22NEC-S08-SS14	22NEC-S08-SS15	22NEC-S08-SS16	22NEC-S08-SS17	22NEC-S08-SS18	22NEC-S08-SS19	22NEC-S08-SS20	22NEC-S08-SS920	22NEC-S08-SS21
			LOCATION ID	22NEC-S08-SB10	22NEC-S08-SB11	22NEC-S08-SB12	22NEC-S08-SB13	22NEC-S08-SB14	22NEC-S08-SB15	22NEC-S08-SB16	22NEC-S08-SB17	22NEC-S08-SB18	22NEC-S08-SB19	22NEC-S08-SB19	22NEC-S08-SB20
			LAB SDG	L1522829	L1522829	L1522829	L1522829	L1522829	L1522883	L1522883	L1522883	L1522883	L1522883	L1522883	L1522883
			COLLECTION DATE	8/1/2022 11:45:00 AM	8/1/2022 1:50:00 PM	8/1/2022 3:25:00 PM	8/1/2022 4:30:00 PM	8/1/2022 5:30:00 PM	8/1/2022 6:00:00 PM	8/1/2022 7:00:00 PM	8/2/2022 9:25:00 AM	8/2/2022 10:15:00 AM	8/2/2022 11:30:00 AM	8/2/2022 12:30:00 PM	8/2/2022 1:45:00 PM
			MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
			QC TYPE	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	FD of 22NEC-S08-SS20	Primary
METHOD	ANALYTE	PSL[1]	UNITS												
AK102/103	Diesel Range Organics	9200	mg/kg	ND [119]	ND [122]	ND [122]	ND [118]	130 [139] J	155 [172] J	158 [147] J	ND [121]	ND [156]	ND [114]	ND [132]	ND [131]
AK102/103	Residual Range Organics	9200	mg/kg	345 [119]	202 [122] J	396 [122]	ND [118]	1870 [139] QL	2410 [172] QL	3020 [147]	ND [121]	1980 [156]	379 [114]	524 [132]	905 [131]
AK102/103SGT	Diesel Range Organics	9200	mg/kg	ND [119]	ND [122]	ND [122]	ND [118]	81.8 [139] J,QL	ND [172]	98.6 [147] J	ND [121]	ND [156]	ND [114]	ND [132]	ND [131]
AK102/103SGT	Residual Range Organics	9200	mg/kg	120 [119] J	202 [122]	150 [122] J	ND [118]	630 [139] B,QL	810 [172]	1590 [147]	ND [121]	929 [156]	165 [114] J	240 [132]	412 [131]
AK102/103	Chromatogram Interpretation	--	--	BIO	BIO	BIO	--	BIO	BIO	BIO	--	BIO	BIO	BIO	BIO
SW8270DSIM	1-Methylnaphthalene	0.41	mg/kg	ND [0.0119] QL	ND [0.0122]	ND [0.0122]	ND [0.0118]	ND [0.0139]	ND [0.0172]	ND [0.0147]	ND [0.0121]	0.00791 [0.0156] J	ND [0.0114]	ND [0.0132]	ND [0.0131]
SW8270DSIM	2-Chloronaphthalene	NS	mg/kg	ND [0.0119] QL	ND [0.0122]	ND [0.0122]	ND [0.0118]	ND [0.0139]	0.0126 [0.0172] J	ND [0.0147]	ND [0.0121]	ND [0.0156]	ND [0.0114]	ND [0.0132]	ND [0.0131]
SW8270DSIM	2-Methylnaphthalene	1.3	mg/kg	0.00996 [0.0119] J,QL	ND [0.0122]	0.00579 [0.0122] J	ND [0.0118]	0.00735 [0.0139] J	ND [0.0172]	0.00666 [0.0147] J	ND [0.0121]	0.0143 [0.0156] J	ND [0.0114]	ND [0.0132]	ND [0.0131]
SW8270DSIM	Acenaphthene	37	mg/kg	ND [0.00593] QL	ND [0.00610]	ND [0.00609]	ND [0.00590]	ND [0.00694]	ND [0.00860]	ND [0.00737]	ND [0.00607]	ND [0.00780]	ND [0.00572]	ND [0.00658]	ND [0.00656]
SW8270DSIM	Acenaphthylene	18	mg/kg	ND [0.00593] QL	ND [0.00610]	ND [0.00609]	ND [0.00590]	ND [0.00694]	ND [0.00860]	ND [0.00737]	ND [0.00607]	ND [0.00780]	ND [0.00572]	ND [0.00658]	ND [0.00656]
SW8270DSIM	Anthracene	390	mg/kg	0.266 [0.00593] QL	ND [0.00610]	ND [0.00609]	ND [0.00590]	ND [0.00694]	0.00615 [0.00860] J	ND [0.00737]	ND [0.00607]	ND [0.00780]	ND [0.00572]	ND [0.00658]	ND [0.00656]
SW8270DSIM	Benzo(a)anthracene	0.7	mg/kg	0.00252 [0.00593] J,QL	ND [0.00610]	ND [0.00609]	ND [0.00590]	ND [0.00694]	0.00473 [0.00860] J	ND [0.00737]	ND [0.00607]	ND [0.00780]	ND [0.00572]	ND [0.00658]	ND [0.00656]
SW8270DSIM	Benzo(a)pyrene	1.5	mg/kg	ND [0.00593] QL	ND [0.00610]	ND [0.00609]	ND [0.00590]	ND [0.00694]	ND [0.00860]	ND [0.00737]	ND [0.00607]	ND [0.00780]	ND [0.00572]	ND [0.00658]	ND [0.00656]
SW8270DSIM	Benzo(b)fluoranthene	15	mg/kg	ND [0.00593] QL	ND [0.00610]	ND [0.00609]	ND [0.00590]	ND [0.00694]	0.00356 [0.00860] J	ND [0.00737]	ND [0.00607]	ND [0.00780]	ND [0.00572]	ND [0.00658]	ND [0.00656]
SW8270DSIM	Benzo(g,h,i)perylene	2300	mg/kg	ND [0.00593] QL	ND [0.00610]	ND [0.00609]	ND [0.00590]	ND [0.00694]	ND [0.00860]	ND [0.00737]	ND [0.00607]	ND [0.00780]	ND [0.0572]	ND [0.0658]	ND [0.0656]
SW8270DSIM	Benzo(k)fluoranthene	150	mg/kg	ND [0.00593] QL	ND [0.00610]	ND [0.00609]	ND [0.00590]	ND [0.00694]	ND [0.00860]	0.00559 [0.00737] J	ND [0.00607]	ND [0.00780]	ND [0.00572]	ND [0.00658]	ND [0.00656]
SW8270DSIM	Chrysene	600	mg/kg	0.00569 [0.00593] J,QL	ND [0.00610]	ND [0.00609]	ND [0.00590]	ND [0.00694]	0.00435 [0.00860] J	ND [0.00737]	ND [0.00607]	ND [0.00780]	ND [0.00572]	ND [0.00658]	ND [0.00656]
SW8270DSIM	Dibenzo(a,h)anthracene	1.5	mg/kg	ND [0.00593] QL	ND [0.00610]	ND [0.00609]	ND [0.00590]	ND [0.00694]	ND [0.00860]	ND [0.00737]	ND [0.00607]	ND [0.00780]	ND [0.00572]	ND [0.00658]	ND [0.00656]
SW8270DSIM	Dibenzofuran	NS	mg/kg	0.00408 [0.00593] J,QL	ND [0.00610]	ND [0.00609]	ND [0.00590]	0.0110 [0.00694] J	0.00598 [0.00860] J	0.00640 [0.00737] J	ND [0.00607]	ND [0.00780]	ND [0.00572]	ND [0.00658]	ND [0.00656]
SW8270DSIM	Fluoranthene	590	mg/kg	ND [0.00593] QL	ND [0.00610]	ND [0.00609]	ND [0.00590]	ND [0.00694]	0.00406 [0.00860] J	ND [0.00737]	ND [0.00607]	ND [0.00780]	ND [0.00572]	ND [0.00658]	ND [0.00656]
SW8270DSIM	Fluorene	36	mg/kg	0.0111 [0.00593] J,QL	ND [0.00610]	ND [0.00609]	ND [0.00590]	0.00478 [0.00694] J	ND [0.00860]	0.00495 [0.00737] J	ND [0.00607]	0.00324 [0.00780] J	ND [0.00572]	ND [0.00658]	ND [0.00656]
SW8270DSIM	Indeno(1,2,3-cd)pyrene	15	mg/kg	ND [0.00474] QL	ND [0.00488]	ND [0.00487]	ND [0.00472]	ND [0.00555]	ND [0.00688]	ND [0.00590]	ND [0.00485]	ND [0.00624]	ND [0.00458]	ND [0.00527]	ND [0.00525]
SW8270DSIM	Naphthalene	120	mg/kg	0.0109 [0.0119] J,QL	ND [0.0122]	ND [0.0122]	ND [0.0118]	ND [0.0139]	ND [0.0172]	ND [0.0147]	ND [0.0121]	ND [0.0156]	ND [0.0114]	ND [0.0132]	ND [0.0131]
SW8270DSIM	Phenanthrene	39	mg/kg	0.0216 [0.00593] QL	ND [0.00610]	0.00498 [0.00609] J	ND [0.00590]	0.00994 [0.00694] J	0.00531 [0.00860] J	0.00593 [0.00737] J	ND [0.00607]	0.00449 [0.00780] J	ND [0.00572]	ND [0.00658]	ND [0.00656]
SW8270DSIM	Pyrene	87	mg/kg	ND [0.00474] QL	ND [0.00488]	ND [0.00487]	ND [0.00472]	ND [0.00555]	0.00416 [0.00688] J	ND [0.00590]	ND [0.00485]	ND [0.00624]	ND [0.00458]	ND [0.00527]	ND [0.00525]
WBLACK	Total Organic Carbon	NS	mg/kg	31600 [593]	21100 [610]	22400 [609]	4170 [59.0]	69600 [694]	151000 [774]	118000 [737]	7140 [60.7]	104000 [858]	11100 [57.2] QN	21800 [658] QN	26600 [722]
SM2540G	Solids	NS	%	84.4 [0.200]	82.0 [0.200]	82.1 [0.200]	84.7 [0.200]	72.0 [0.200]	58.2 [0.200]	67.8 [0.200]	82.4 [0.200]	64.1 [0.200]	87.4 [0.200]	76.0 [0.200]	76.2 [0.200]

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S08 Soil

			SAMPLE ID	22NEC-S08-SS22	22NEC-S08-SS23	22NEC-S08-SS24	22NEC-S08-SS25	22NEC-S08-SS925	22NEC-S08-SS26	22NEC-S08-SS27	22NEC-S08-SS28	22NEC-S08-SS29	22NEC-S08-SS30	22NEC-S08-SS31
			LOCATION ID	22NEC-S08-SB21	22NEC-S08-SB22	22NEC-S08-SB23	22NEC-S08-SB24	22NEC-S08-SB24	22NEC-S08-SB25	22NEC-S08-SB26	22NEC-S08-SB26	22NEC-S08-SB28	22NEC-S08-SB27	22NEC-S08-SB29
			LAB SDG	L1522883	L1522883	L1522883	L1522883	L1522883	L1522883	L1522883	L1522883	L1522883	L1522883	L1522883
			COLLECTION DATE	8/2/2022 2:30:00 PM	8/2/2022 3:30:00 PM	8/2/2022 4:50:00 PM	8/2/2022 5:35:00 PM	8/2/2022 6:35:00 PM	8/2/2022 6:25:00 PM	8/3/2022 9:00:00 AM	8/3/2022 9:10:00 AM	8/3/2022 10:15:00 AM	8/3/2022 10:20:00 AM	8/3/2022 11:30:00 AM
			MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
			QC TYPE	Primary	Primary	Primary	Primary	FD of 22NEC-S08-SS25	Primary/MS/MSD	Primary	Primary	Primary	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**											
AK102/103	Diesel Range Organics	9200	mg/kg	2430 [124]	8740 [166]	ND [111]	396 [126]	246 [134] J	ND [155]	5020 [192]	ND [120]	189 [215] J	383 [134]	1620 [116]
AK102/103	Residual Range Organics	9200	mg/kg	357 [124]	377 [166]	563 [111]	2270 [126]	2720 [134]	1270 [155]	4500 [192]	434 [120]	292 [215] J	3990 [134] QL	744 [116]
AK102/103SGT	Diesel Range Organics	9200	mg/kg	2480 [124]	8840 [166]	60.6 [111] J	339 [126] QN	171 [134] J,QN	ND [155]	5040 [192]	ND [120]	189 [215] J	196 [134] J	1680 [116]
AK102/103SGT	Residual Range Organics	9200	mg/kg	187 [124]	247 [166] J	426 [111]	1120 [126]	1320 [134]	570 [155] QL	2750 [192]	228 [120]	292 [215] J	1440 [134]	321 [116] B
AK102/103	Chromatogram Interpretation	--	--	PET	PET	BIO	MIX	MIX	BIO	MIX	BIO	MIX	BIO	MIX
SW8270DSIM	1-Methylnaphthalene	0.41	mg/kg	**2.74 [0.0124] QH**	ND [0.0166]	ND [0.0111]	0.0140 [0.0126] J,QN	0.0276 [0.0134] QN	ND [0.0155]	**7.00 [0.0192]**	ND [0.0120]	**0.603 [0.0215]**	0.00714 [0.0134] J	ND [0.0116] QL
SW8270DSIM	2-Chloronaphthalene	NS	mg/kg	ND [0.0124] QL	ND [0.0166] QL	ND [0.0111]	ND [0.0126] QL	ND [0.0134]	ND [0.0155] QL	ND [0.0192] QL	ND [0.0120]	ND [0.0215] QL	ND [0.0134]	ND [0.0116] QL
SW8270DSIM	2-Methylnaphthalene	1.3	mg/kg	1.25 [0.0124] QL	ND [0.0166] QL	ND [0.0111]	0.0106 [0.0126] J,QL	0.0194 [0.0134] J	ND [0.0155] QL	**14.1 [0.192]**	ND [0.0120]	0.809 [0.0215] QL	0.00835 [0.0134] J	ND [0.0116] QL
SW8270DSIM	Acenaphthene	37	mg/kg	0.0638 [0.00620] QL	0.0756 [0.00828] QL	ND [0.00557]	ND [0.00632] QL	0.00284 [0.00672] J	ND [0.00777] QL	0.383 [0.00961] QL	ND [0.00601]	0.0311 [0.0107] QL	ND [0.00672]	ND [0.00578] QL
SW8270DSIM	Acenaphthylene	18	mg/kg	ND [0.00620] QL	ND [0.00828] QL	ND [0.00557]	ND [0.00632] QL	ND [0.00672]	ND [0.00777] QL	ND [0.00961] QL	ND [0.00601]	ND [0.0107] QL	ND [0.00672]	ND [0.00578] QL
SW8270DSIM	Anthracene	390	mg/kg	ND [0.00620] QL	ND [0.00828] QL	0.0178 [0.00557]	ND [0.00632] QL	0.00371 [0.00672] J	ND [0.00777] QL	ND [0.00961] QL	ND [0.00601]	ND [0.0107] QL	ND [0.00672]	ND [0.00578] QL
SW8270DSIM	Benzo(a)anthracene	0.7	mg/kg	ND [0.00620] QL	ND [0.00828] QL	ND [0.00557]	ND [0.00632] QL	ND [0.00672]	ND [0.00777] QL	ND [0.00961] QL	ND [0.00601]	ND [0.0107] QL	ND [0.00672]	ND [0.00578] QL
SW8270DSIM	Benzo(a)pyrene	1.5	mg/kg	ND [0.00620] QL	ND [0.00828] QL	ND [0.00557]	ND [0.00632] QL	ND [0.00672]	ND [0.00777] QL	ND [0.00961] QL	ND [0.00601]	ND [0.0107] QL	ND [0.00672]	ND [0.00578] QL
SW8270DSIM	Benzo(b)fluoranthene	15	mg/kg	ND [0.00620] QL	ND [0.00828] QL	ND [0.00557]	ND [0.00632] QL	ND [0.00672]	ND [0.00777] QL	ND [0.00961] QL	ND [0.00601]	ND [0.0107] QL	ND [0.00672]	ND [0.00578] QL
SW8270DSIM	Benzo(g,h,i)perylene	2300	mg/kg	ND [0.0620]	ND [0.0828]	ND [0.0557]	ND [0.0632]	ND [0.0672]	ND [0.0777] QL	ND [0.0961]	ND [0.0601]	ND [0.107]	ND [0.0672]	ND [0.0578]
SW8270DSIM	Benzo(k)fluoranthene	150	mg/kg	ND [0.00620] QL	ND [0.00828] QL	ND [0.00557]	ND [0.00632] QL	ND [0.00672]	ND [0.00777] QL	ND [0.00961] QL	ND [0.00601]	ND [0.0107] QL	ND [0.00672]	ND [0.00578] QL
SW8270DSIM	Chrysene	600	mg/kg	ND [0.00620] QL	0.00406 [0.00828] J,QL	ND [0.00557]	ND [0.00632] QL	ND [0.00672]	ND [0.00777] QL	0.00467 [0.00961] J,QL	ND [0.00601]	ND [0.0107] QL	ND [0.00672]	ND [0.00578] QL
SW8270DSIM	Dibenzo(a,h)anthracene	1.5	mg/kg	ND [0.00620] QL	ND [0.00828] QL	ND [0.00557]	ND [0.00632] QL	ND [0.00672]	ND [0.00777] QL	ND [0.00961] QL	ND [0.00601]	ND [0.0107] QL	ND [0.00672]	ND [0.00578] QL
SW8270DSIM	Dibenzofuran	NS	mg/kg	ND [0.00620] QL	0.0932 [0.00828] QL	ND [0.00557]	ND [0.00632] QL	ND [0.00672]	ND [0.00777] QL	0.184 [0.00961] QL	ND [0.00601]	0.0205 [0.0107] J,QL	ND [0.00672]	ND [0.00578] QL
SW8270DSIM	Fluoranthene	590	mg/kg	ND [0.00620] QL	0.0169 [0.00828] QL	ND [0.00557]	ND [0.00632] QL	ND [0.00672]	ND [0.00777] QL	0.00856 [0.00961] J,QL	ND [0.00601]	ND [0.0107] QL	ND [0.00672]	0.00411 [0.00578] J,QL
SW8270DSIM	Fluorene	36	mg/kg	0.118 [0.00620] QL	ND [0.00828] QL	ND [0.00557]	0.00736 [0.00632] J,QL	0.00714 [0.00672] J	ND [0.00777] QL	0.769 [0.00961] QL	ND [0.00601]	0.0693 [0.0107] QL	0.00987 [0.00672] J	ND [0.00578] QL
SW8270DSIM	Indeno(1,2,3-cd)pyrene	15	mg/kg	ND [0.00496] QL	ND [0.00662] QL	ND [0.00446]	ND [0.00506] QL	ND [0.00538]	ND [0.00622] QL	ND [0.00769] QL	ND [0.00481]	ND [0.00858] QL	ND [0.00538]	ND [0.00462] QL
SW8270DSIM	Naphthalene	120	mg/kg	0.335 [0.0124] QL	0.182 [0.0166] QL	ND [0.0111]	0.00805 [0.0126] J,QL	ND [0.0134]	ND [0.0155] QL	2.90 [0.0192] QL	ND [0.0120]	0.0687 [0.0215] QL	ND [0.0134]	ND [0.0116] QL
SW8270DSIM	Phenanthrene	39	mg/kg	0.0775 [0.00620] QL	ND [0.00828] QL	ND [0.00557]	0.00433 [0.00632] J,QL	0.00624 [0.00672] J	ND [0.00777] QL	0.381 [0.00961] QL	ND [0.00601]	0.0272 [0.0107] QL	ND [0.00672]	ND [0.00578] QL
SW8270DSIM	Pyrene	87	mg/kg	0.00355 [0.00496] J,QL	0.0182 [0.00662] QL	ND [0.00446]	ND [0.00506] QL	ND [0.00538]	ND [0.00622] QL	0.0102 [0.00769] J,QL	ND [0.00481]	ND [0.00858] QL	ND [0.00538]	0.00782 [0.00462] J,QL
WBLACK	Total Organic Carbon	NS	mg/kg	36700 [620]	37200 [828]	1450 [557]	74300 [632]	86200 [739]	119000 [777]	297000 [4610]	16900 [601]	109000 [1070]	92500 [672]	24900 [578]
SM2540G	Solids	NS	%	80.7 [0.200]	60.4 [0.200]	89.7 [0.200]	79.1 [0.200]	74.4 [0.200]	64.4 [0.200]	52.0 [0.200]	83.2 [0.200]	46.6 [0.200]	74.4 [0.200]	86.5 [0.200]

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S08 Soil

			SAMPLE ID	22NEC-S08-SS32	22NEC-S08-SS33	22NEC-S08-SS933	22NEC-S08-SS34	22NEC-S08-SS35
			LOCATION ID	22NEC-S08-SB30	22NEC-S08-SB31	22NEC-S08-SB31	22NEC-S08-SB31	22NEC-S08-SB32
			LAB SDG	L1522883	L1522883	L1522883	L1522883	L1522883
			COLLECTION DATE	8/3/2022 11:53:00 AM	8/3/2022 12:30:00 PM	8/3/2022 1:30:00 PM	8/3/2022 12:35:00 PM	8/3/2022 4:30:00 PM
			MATRIX	Soil	Soil	Soil	Soil	Soil
			QC TYPE	Primary	Primary	FD of 22NEC-S08-SS33	Primary	Primary
METHOD	ANALYTE	PSL[1]	UNITS					
AK102/103	Diesel Range Organics	9200	mg/kg	90.2 [162] J	573 [263] QN	199 [143] J,QN	ND [131]	328 [223] J
AK102/103	Residual Range Organics	9200	mg/kg	1060 [162] QL	7230 [263] QL	1830 [143] QL	433 [131] QL	4220 [223] QL
AK102/103SGT	Diesel Range Organics	9200	mg/kg	ND [162]	268 [263] J	99.4 [143] J	ND [131]	190 [223] J
AK102/103SGT	Residual Range Organics	9200	mg/kg	365 [162] B	2530 [263] QN	505 [143] B,QN	161 [131] J,B	1510 [223]
AK102/103	Chromatogram Interpretation	--	--	BIO	BIO	BIO	BIO	BIO
SW8270DSIM	1-Methylnaphthalene	0.41	mg/kg	ND [0.0162]	**0.731 [0.0263] QN**	0.135 [0.0143] QN	ND [0.0131] QL	ND [0.0223]
SW8270DSIM	2-Chloronaphthalene	NS	mg/kg	ND [0.0162] QL	ND [0.0263] QL	ND [0.0143] QL	ND [0.0131] QL	ND [0.0223] QL
SW8270DSIM	2-Methylnaphthalene	1.3	mg/kg	ND [0.0162] QL	1.18 [0.0263] QL	0.153 [0.0143] QL	ND [0.0131] QL	ND [0.0223] QL
SW8270DSIM	Acenaphthene	37	mg/kg	ND [0.00810] QL	0.0218 [0.0131] J,QL	0.00674 [0.00715] J,QL	ND [0.00653] QL	ND [0.0112] QL
SW8270DSIM	Acenaphthylene	18	mg/kg	ND [0.00810] QL	ND [0.0131] QL	ND [0.00715] QL	ND [0.00653] QL	ND [0.0112] QL
SW8270DSIM	Anthracene	390	mg/kg	ND [0.00810] QL	ND [0.0131] QL	ND [0.00715] QL	ND [0.00653] QL	ND [0.0112] QL
SW8270DSIM	Benzo(a)anthracene	0.7	mg/kg	ND [0.00810] QL	ND [0.0131] QL	ND [0.00715] QL	ND [0.00653] QL	ND [0.0112] QL
SW8270DSIM	Benzo(a)pyrene	1.5	mg/kg	ND [0.00810] QL	ND [0.0131] QL	ND [0.00715] QL	ND [0.00653] QL	ND [0.0112] QL
SW8270DSIM	Benzo(b)fluoranthene	15	mg/kg	ND [0.00810] QL	ND [0.0131] QL	ND [0.00715] QL	ND [0.00653] QL	ND [0.0112] QL
SW8270DSIM	Benzo(g,h,i)perylene	2300	mg/kg	ND [0.0810]	ND [0.131]	ND [0.0715]	ND [0.0653]	ND [0.112]
SW8270DSIM	Benzo(k)fluoranthene	150	mg/kg	ND [0.00810] QL	ND [0.0131] QL	ND [0.00715] QL	ND [0.00653] QL	ND [0.0112] QL
SW8270DSIM	Chrysene	600	mg/kg	ND [0.00810] QL	ND [0.0131] QL	ND [0.00715] QL	ND [0.00653] QL	ND [0.0112] QL
SW8270DSIM	Dibenzo(a,h)anthracene	1.5	mg/kg	ND [0.00810] QL	ND [0.0131] QL	ND [0.00715] QL	ND [0.00653] QL	ND [0.0112] QL
SW8270DSIM	Dibenzofuran	NS	mg/kg	ND [0.00810] QL	ND [0.0131] QL	0.00379 [0.00715] J,QL	ND [0.00653] QL	ND [0.0112] QL
SW8270DSIM	Fluoranthene	590	mg/kg	ND [0.00810] QL	ND [0.0131] QL	ND [0.00715] QL	ND [0.00653] QL	ND [0.0112] QL
SW8270DSIM	Fluorene	36	mg/kg	ND [0.00810] QL	0.0602 [0.0131] QL	0.0143 [0.00715] QL	ND [0.00653] QL	ND [0.0112] QL
SW8270DSIM	Indeno(1,2,3-cd)pyrene	15	mg/kg	ND [0.00648] QL	ND [0.0105] QL	ND [0.00572] QL	ND [0.00522] QL	ND [0.00892] QL
SW8270DSIM	Naphthalene	120	mg/kg	ND [0.0162] QL	0.318 [0.0263] QL	0.0249 [0.0143] J,QL	ND [0.0131] QL	ND [0.0223] QL
SW8270DSIM	Phenanthrene	39	mg/kg	ND [0.00810] QL	0.0129 [0.0131] J,QL	0.00891 [0.00715] J,QL	ND [0.00653] QL	ND [0.0112] QL
SW8270DSIM	Pyrene	87	mg/kg	ND [0.00648] QL	ND [0.0105] QL	ND [0.00572] QL	ND [0.00522] QL	ND [0.00892] QL
WBLACK	Total Organic Carbon	NS	mg/kg	52000 [810]	356000 [6570] QNH	75000 [715] QN	28600 [653]	168000 [1120]
SM2540G	Solids	NS	%	61.7 [0.200]	38.0 [0.200]	69.9 [0.200]	76.6 [0.200]	44.8 [0.200]

Notes:

[1]PSLs for soil are the 18 AAC 75 B1 & B2 most stringent of the Under 40-inch and Migration to Groundwater cleanup levels except for DRO, RRO, and naphthalene; which were defined in the Northeast Cape FUDS, St. Lawrence Island Decision Document.

Bold/red indicates that a detected result exceeds the PSL.

LOD shown in brackets [ ]

B – the result is biased high due to contamination present in an associated blank

BIO – primarily biogenic sources

DL – detection limit

FD – field duplicate

H – the result is considered a low estimate due to a hold time exceedance

J – the result is an estimated value greater than or equal to the DL and below the LOQ

LOD – limit of detection

LOQ – limit of quantitation

mg/kg – milligrams per kilogram

MIX – mixture of petrogenic/biogenic sources

MS/MSD – matrix spike/matrix spike duplicate

ND – not detected

NS – not specified

PET – primarily petrogenic sources

QC – quality control

QH/QL/QN – the result is an estimated value, bias high/low/indeterminate, due to a QC failure

SDG – sample delivery group

SGT – silica gel cleanup

SIM – selected ion monitoring

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S15 Surface Soil

			SAMPLE ID	22NEC-S15-SS01	22NEC-S15-SS02	22NEC-S15-SS03	22NEC-S15-SS04	22NEC-S15-SS05	22NEC-S15-SS06	22NEC-S15-SS07	22NEC-S15-SS08
			LOCATION ID	22NEC-S15-SS01	22NEC-S15-SS02	22NEC-S15-SS03	22NEC-S15-SS04	22NEC-S15-SS05	22NEC-S15-SS06	22NEC-S15-SS07	22NEC-S15-SS08
			LAB SDG	L1524107	L1524107	L1524107	L1524107	L1524107	L1524107	L1524107	L1524107
			COLLECTION DATE	8/6/2022 11:40:00 AM	8/6/2022 11:45:00 AM	8/7/2022 4:05:00 PM	8/7/2022 4:15:00 PM	8/7/2022 4:30:00 PM	8/7/2022 5:00:00 PM	8/7/2022 6:00:00 PM	8/7/2022 6:05:00 PM
			MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
			QC TYPE	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**								
AK102/103	Diesel Range Organics	9200	mg/kg	480 [128]	687 [119]	304 [118]	396 [117]	335 [111]	2380 [118]	1050 [114]	2050 [114]
SM2540G	Solids	NS	%	77.9 [0.200]	83.8 [0.200]	84.8 [0.200]	85.7 [0.200]	89.9 [0.200]	84.5 [0.200]	87.6 [0.200]	87.5 [0.200]

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S15 Surface Soil

			SAMPLE ID	22NEC-S15-SS09	22NEC-S15-SS909	22NEC-S15-SS10	22NEC-S15-SS11	22NEC-S15-SS12	22NEC-S15-SS13	22NEC-S15-SS14	22NEC-S15-SS15
			LOCATION ID	22NEC-S15-SS09	22NEC-S15-SS09	22NEC-S15-SS10	22NEC-S15-SS11	22NEC-S15-SS12	22NEC-S15-SS13	22NEC-S15-SS14	22NEC-S15-SS15
			LAB SDG	L1524107	L1524107	L1524107	L1524107	L1524107	L1524107	L1524107	L1524107
			COLLECTION DATE	8/7/2022 6:10:00 PM	8/7/2022 7:10:00 PM	8/7/2022 6:15:00 PM	8/7/2022 6:20:00 PM	8/7/2022 6:30:00 PM	8/7/2022 6:40:00 PM	8/7/2022 6:45:00 PM	8/7/2022 6:50:00 PM
			MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
			QC TYPE	Primary	FD of 22NEC-S15-SS09	Primary	Primary	Primary	Primary	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**								
AK102/103	Diesel Range Organics	9200	mg/kg	538 [128]	602 [124]	285 [120] QL	668 [118] QN	698 [118]	626 [114]	376 [114]	412 [117]
SM2540G	Solids	NS	%	78.4 [0.200]	80.6 [0.200]	83.6 [0.200]	84.6 [0.200]	84.7 [0.200]	87.4 [0.200]	88.0 [0.200]	85.2 [0.200]

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S15 Surface Soil

			SAMPLE ID	22NEC-S15-SS16	22NEC-S15-SS17	22NEC-S15-SS18	22NEC-S15-SS19	22NEC-S15-SS20	22NEC-S15-SS21	22NEC-S15-SS22	22NEC-S15-SS23
			LOCATION ID	22NEC-S15-SS16	22NEC-S15-SS17	22NEC-S15-SS18	22NEC-S15-SS19	22NEC-S15-SS20	22NEC-S15-SS21	22NEC-S15-SS22	22NEC-S15-SS23
			LAB SDG	L1524107	L1524107	L1524107	L1524107	L1524107	L1524107	L1524107	L1524107
			COLLECTION DATE	8/7/2022 6:55:00 PM	8/7/2022 7:00:00 PM	8/7/2022 7:05:00 PM	8/9/2022 9:40:00 AM	8/9/2022 9:45:00 AM	8/9/2022 9:50:00 AM	8/9/2022 9:55:00 AM	8/9/2022 10:00:00 AM
			MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
			QC TYPE	Primary/MS/MSD	Primary	Primary	Primary	Primary	Primary	Primary	Primary/MS/MSD
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**								
AK102/103	Diesel Range Organics	9200	mg/kg	408 [114] QL	762 [112]	417 [116]	2460 [116] QL	1560 [118]	675 [111]	3630 [116]	339 [122] QL
SM2540G	Solids	NS	%	87.6 [0.200]	89.4 [0.200]	86.3 [0.200]	86.1 [0.200]	84.7 [0.200]	90.2 [0.200]	86.3 [0.200]	82.1 [0.200]

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S15 Surface Soil

			SAMPLE ID	22NEC-S15-SS24	22NEC-S15-SS911	22NEC-S15-SS924
			LOCATION ID	22NEC-S15-SS24	22NEC-S15-SS11	22NEC-S15-SS24
			LAB SDG	L1524107	L1524107	L1524107
			COLLECTION DATE	8/9/2022 10:05:00 AM	8/7/2022 7:20:00 PM	8/9/2022 11:05:00 AM
			MATRIX	Soil	Soil	Soil
			QC TYPE	Primary	FD of 22NEC-S15-SS11	FD of 22NEC-S15-SS24
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**			
AK102/103	Diesel Range Organics	9200	mg/kg	646 [120] QL	381 [117] QN	847 [129] QL
SM2540G	Solids	NS	%	83.4 [0.200]	85.6 [0.200]	77.6 [0.200]

Notes:

[1]PSLs for soil are the 18 AAC 75 B1 & B2 most stringent of the Under 40-inch and Migration to Groundwater cleanup levels except for DRO, RRO, and naphthalene; which were defined in the Northeast Cape FUDS, St. Lawrence Island Feasibility study.

LOD shown in brackets [ ]

DL – detection limit

FD – field duplicate

J – the result is an estimated value greater than or equal to the DL and below the LOQ

LOD – limit of detection

LOQ – limit of quantitation

mg/kg – milligrams per kilogram

MS/MSD – matrix spike/matrix spike duplicate

NS – not specified

QC – quality control

QH/QL/QN – the result is an estimated value, bias high/low/indeterminate, due to a QC failure

SDG – sample delivery group

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S28 ISM

			SAMPLE ID	22NEC-S28-DU1-SD01	22NEC-S28-DU1-SD02	22NEC-S28-DU1-SD03	22NEC-S28-DU2-SD01	22NEC-S28-DU1-SS04	22NEC-S28-DU1-SS05	22NEC-S28-DU1-SS06	22NEC-S28-DU2-SS02
			LOCATION ID	22NEC-S28-DU1	22NEC-S28-DU1	22NEC-S28-DU1	22NEC-S28-DU2-SD01	22NEC-S28-DU1	22NEC-S28-DU1	22NEC-S28-DU1	22NEC-S28-DU2
			LAB SDG	L1520822	L1520822	L1520822	L1520822	L1528288	L1528288	L1528288	L1528288
			COLLECTION DATE	7/25/2022 1:05:00 PM	7/25/2022 1:10:00 PM	7/25/2022 1:20:00 PM	7/27/2022 1:50:00 PM	8/17/2022 5:00:00 PM	8/17/2022 5:10:00 PM	8/17/2022 5:20:00 PM	8/17/2022 5:30:00 PM
			MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
			QC TYPE	Primary	Primary	Primary	Primary/MS/MSD	Primary	Primary	Primary	Primary/MS/MSD
METHOD	**ANALYTE**	**SSCL[1]**	**UNITS**								
AK102/103	Diesel Range Organics	9200	mg/kg	274 [177] J	ND [178]	ND [178]	92.4 [178] J,QL	ND [101]	ND [101]	ND [101]	135 [102] J
AK102/103	Residual Range Organics	9200	mg/kg	532 [152]	239 [152] J	259 [152] J	796 [152] QL	191 [101]	227 [101]	207 [101]	490 [102]
SW8270DSIM	1-Methylnaphthalene	0.41	mg/kg	ND [0.0101]	ND [0.0102]	ND [0.0102]	ND [0.0102] QL	ND [0.0101]	ND [0.0101]	ND [0.0101]	ND [0.0102]
SW8270DSIM	2-Chloronaphthalene	NS	mg/kg	ND [0.0101] QL	ND [0.0102]	ND [0.0102]	ND [0.0102] QL	ND [0.0101] QL	ND [0.0101]	ND [0.0101]	ND [0.0102]
SW8270DSIM	2-Methylnaphthalene	1.3	mg/kg	ND [0.0101] QL	ND [0.0102]	ND [0.0102]	ND [0.0102] QL	ND [0.0101] QL	ND [0.0101]	ND [0.0101]	ND [0.0102]
SW8270DSIM	Acenaphthene	37	mg/kg	ND [0.00507] QL	ND [0.00508]	ND [0.00508]	ND [0.00508] QL	ND [0.00507] QL	ND [0.00507]	ND [0.00507]	ND [0.00509]
SW8270DSIM	Acenaphthylene	18	mg/kg	ND [0.00507] QL	ND [0.00508]	ND [0.00508]	ND [0.00508] QL	ND [0.00507] QL	ND [0.00507]	ND [0.00507]	ND [0.00509]
SW8270DSIM	Anthracene	390	mg/kg	ND [0.00507] QL	0.00903 [0.00508] J	ND [0.00508]	ND [0.00508] QL	ND [0.00507] QL	ND [0.00507]	ND [0.00507]	ND [0.00509]
SW8270DSIM	Benzo(a)anthracene	0.7	mg/kg	0.00455 [0.00507] J,QL	0.0206 [0.00508]	0.00831 [0.00508] J	0.00790 [0.00508] J,QL	0.00293 [0.00507] J,QL	0.00440 [0.00507] J	0.00752 [0.00507] J	0.0143 [0.00509] QH
SW8270DSIM	Benzo(a)pyrene	1.5	mg/kg	0.00575 [0.00507] J,QL	0.0200 [0.00508]	0.0103 [0.00508]	0.00869 [0.00508] J,QL	0.00390 [0.00507] J,QL	0.00553 [0.00507] J	0.00884 [0.00507] J	0.0124 [0.00509]
SW8270DSIM	Benzo(b)fluoranthene	15	mg/kg	0.00881 [0.00507] J,QL	0.0294 [0.00508]	0.0144 [0.00508]	0.0121 [0.00508] QL	0.00492 [0.00507] J,QL	0.00684 [0.00507] J	0.0119 [0.00507]	0.0149 [0.00509]
SW8270DSIM	Benzo(g,h,i)perylene	2300	mg/kg	0.00448 [0.00507] J,QL	0.0144 [0.00508]	0.00692 [0.00508] J	0.00561 [0.00508] J,QL	0.00302 [0.00507] J,QL	0.00372 [0.00507] J	0.00675 [0.00507] J	0.00649 [0.00509] J
SW8270DSIM	Benzo(k)fluoranthene	150	mg/kg	0.00314 [0.00507] J,QL	0.0123 [0.00508]	0.00524 [0.00508] J	0.00410 [0.00508] J,QL	ND [0.00507] QL	0.00258 [0.00507] J	0.00447 [0.00507] J	0.00567 [0.00509] J
SW8270DSIM	Chrysene	600	mg/kg	0.00645 [0.00507] J,QL	0.0286 [0.00508]	0.0131 [0.00508]	0.0113 [0.00508] QL	0.00398 [0.00507] J,QL	0.00679 [0.00507] J	0.0112 [0.00507]	0.0177 [0.00509] QN
SW8270DSIM	Dibenzo(a,h)anthracene	1.5	mg/kg	ND [0.00507] QL	0.00345 [0.00508] J	ND [0.00508]	ND [0.00508] QL	ND [0.00507] QL	ND [0.00507]	ND [0.00507]	0.00188 [0.00509] J
SW8270DSIM	Dibenzofuran	NS	mg/kg	ND [0.00507] QL	ND [0.00508]	ND [0.00508]	ND [0.00508] QL	ND [0.00507] QL	ND [0.00507]	ND [0.00507]	ND [0.00509]
SW8270DSIM	Fluoranthene	590	mg/kg	0.0113 [0.00507] QL	0.0432 [0.00508]	0.0202 [0.00508]	0.0157 [0.00508] QL	0.00703 [0.00507] J,QL	0.00822 [0.00507] J	0.0143 [0.00507]	0.0187 [0.00509] QN
SW8270DSIM	Fluorene	36	mg/kg	ND [0.00507] QL	ND [0.00508]	ND [0.00508]	ND [0.00508] QL	ND [0.00507] QL	ND [0.00507]	ND [0.00507]	ND [0.00509]
SW8270DSIM	Indeno(1,2,3-cd)pyrene	15	mg/kg	0.00507 [0.00405] J,QL	0.0149 [0.00406]	0.00792 [0.00406] J	0.00598 [0.00406] J,QL	0.00358 [0.00406] J,QL	0.00472 [0.00405] J	0.00785 [0.00406] J	0.00812 [0.00407] J
SW8270DSIM	Naphthalene	120	mg/kg	ND [0.0101] QL	ND [0.0102]	ND [0.0102]	ND [0.0102] QL	ND [0.0101] QL	ND [0.0101]	ND [0.0101]	ND [0.0102]
SW8270DSIM	Phenanthrene	39	mg/kg	0.00892 [0.00507] J,QL	0.0268 [0.00508]	0.0149 [0.00508]	0.00850 [0.00508] J,QL	0.00442 [0.00507] J,QL	0.00431 [0.00507] J	0.00810 [0.00507] J	0.00537 [0.00509] J
SW8270DSIM	Pyrene	87	mg/kg	0.0134 [0.00405] QL	0.0476 [0.00406]	0.0223 [0.00406]	0.0178 [0.00406] QL	0.00765 [0.00406] J,QL	0.00966 [0.00405]	0.0166 [0.00406]	0.0229 [0.00407] QH
Calc	Total LPAH[2]	7.8	mg/kg	0.0304	0.0345	0.0305	0.0305	0.0304	0.0304	0.0304	0.0306
Calc	Total HPAH[3]	9.6	mg/kg	0.0649	0.222	0.108	0.0902	0.421	0.055	0.09	0.117
SM2540G	Solids	NS	%	98.7 [0.200]	98.4 [0.200]	98.5 [0.200]	98.5 [0.200]	98.6 [0.200]	98.7 [0.200]	98.6 [0.200]	98.2 [0.200]

Notes:

[1]SSCLs for soil are the 18 AAC 75 B1 & B2 most stringent of the Under 40-inch and Migration to Groundwater cleanup levels except for DRO, RRO, and naphthalene; which were defined in the Northeast Cape FUDS, St. Lawrence Island Feasibility study.

[2] LPAH are the sum of naphthalene, acenaphthene, acenaphthylene, fluorene, phenanthrene, and anthracene. Calculated values for each sample used the LOD for non-detect results in accordance with ADEC guidance (ADEC 2022).

[3] HPAH are the sum of fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene, dibenzo(a,h)anthracene, and indeno(l,2,3-c,d)pyrene. Calculated values for each sample used the LOD for non-detect results in accordance with ADEC guidance (ADEC 2022).

LOD shown in brackets [ ]

DL – detection limit

J – the result is an estimated value greater than or equal to the DL and below the LOQ

LOD – limit of detection

LOQ – limit of quantitation

mg/kg – milligrams per kilogram

MS/MSD – matrix spike/matrix spike duplicate

ND – not detected

NS – not specified

NS – not specified

QC – quality control

QH/QL/QN – the result is an estimated value, bias high/low/indeterminate, due to a QC failure

SDG – sample delivery group

SIM – selected ion monitoring

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ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S28 Sediment

			SAMPLE ID	22NEC-S28-SD01	22NEC-S28-SD02	22NEC-S28-SD03	22NEC-S28-SD04	22NEC-S28-SD05	22NEC-S28-SD06	22NEC-S28-SD07	22NEC-S28-SD08	22NEC-S28-SD908	22NEC-S28-SD09	22NEC-S28-SD10
			LOCATION ID	22NEC-S28-SD01	22NEC-S28-SD02	22NEC-S28-SD03	22NEC-S28-SD04	22NEC-S28-SD05	22NEC-S28-SD06	22NEC-S28-SD07	22NEC-S28-SD08	22NEC-S28-SD08	22NEC-S28-SD09	22NEC-S28-SD10
			LAB SDG	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321
			COLLECTION DATE	8/16/2022 9:45:00 AM	8/16/2022 10:05:00 AM	8/16/2022 10:15:00 AM	8/16/2022 10:30:00 AM	8/16/2022 10:33:00 AM	8/16/2022 10:45:00 AM	8/16/2022 10:50:00 AM	8/16/2022 10:52:00 AM	8/16/2022 11:52:00 AM	8/16/2022 11:05:00 AM	8/16/2022 11:10:00 AM
			MATRIX	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
			QC TYPE	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	FD of 22NEC-S28-SD08	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**											
AK102/103	Diesel Range Organics	3500	mg/kg	504 [198]	408 [175]	151 [288] J	576 [173]	625 [188]	731 [248]	ND [232]	ND [509]	ND [392]	ND [290]	ND [583]
AK102/103	Residual Range Organics	3500	mg/kg	611 [198]	543 [175] QL	372 [288] J	1360 [173]	653 [188] QL	634 [248]	210 [232] J	ND [509]	ND [392]	ND [290]	ND [583]
AK102/103SGT	Diesel Range Organics	3500	mg/kg	ND [198]	149 [175] J	ND [288]	109 [173] J	311 [188]	194 [248] J	121 [232] J	ND [509]	ND [392]	ND [290]	ND [583]
AK102/103SGT	Residual Range Organics	3500	mg/kg	ND [198]	114 [175] J	ND [288]	120 [173] J	186 [188] J	ND [248]	ND [232]	ND [509]	ND [392]	ND [290]	ND [583]
AK102/103	Chromatogram Interpretation	--	--	BIO	BIO	BIO	BIO	BIO	BIO	BIO	--	--	--	--
SW8270DSIM	1-Methylnaphthalene	NS	mg/kg	0.0103 [0.0198] J	ND [0.0175]	ND [0.0288]	ND [0.0173]	0.0262 [0.0188] J	ND [0.0248]	ND [0.0232] QL	ND [0.0509] QL	ND [0.0392]	ND [0.0290]	ND [0.0583] QL
SW8270DSIM	2-Chloronaphthalene	NS	mg/kg	ND [0.0198]	ND [0.0175]	ND [0.0288]	ND [0.0173]	ND [0.0188]	ND [0.0248]	ND [0.0232] QL	ND [0.0509] QL	ND [0.0392]	ND [0.0290]	ND [0.0583] QL
SW8270DSIM	2-Methylnaphthalene	0.6	mg/kg	0.0145 [0.0198] J	ND [0.0175]	ND [0.0288]	ND [0.0173]	0.0174 [0.0188] J	ND [0.0248]	ND [0.0232] QL	ND [0.0509] QL	ND [0.0392]	ND [0.0290]	ND [0.0583] QL
SW8270DSIM	Acenaphthene	0.5	mg/kg	ND [0.00992]	ND [0.00876]	ND [0.0144]	ND [0.00867]	0.00711 [0.00941] J	ND [0.0124]	ND [0.0116] QL	ND [0.0255] QL	ND [0.0196]	0.00618 [0.0145] J	ND [0.0291] QL
SW8270DSIM	Acenaphthylene	NS	mg/kg	ND [0.00992]	ND [0.00876]	ND [0.0144]	ND [0.00867]	ND [0.00941]	ND [0.0124]	ND [0.0116] QL	ND [0.0255] QL	ND [0.0196]	ND [0.0145]	ND [0.0291] QL
SW8270DSIM	Anthracene	NS	mg/kg	ND [0.00992]	ND [0.00876]	ND [0.0144]	ND [0.00867]	ND [0.00941]	ND [0.0124]	ND [0.0116] QL	ND [0.0255] QL	ND [0.0196]	ND [0.0145]	ND [0.0291] QL
SW8270DSIM	Benzo(a)anthracene	NS	mg/kg	ND [0.00992]	ND [0.00876]	ND [0.0144]	ND [0.00867]	ND [0.00941]	ND [0.0124]	ND [0.0116] QL	ND [0.0255] QL	ND [0.0196]	ND [0.0145]	ND [0.0291] QL
SW8270DSIM	Benzo(a)pyrene	NS	mg/kg	ND [0.00992]	ND [0.00876]	ND [0.0144]	ND [0.00867]	ND [0.00941]	ND [0.0124]	ND [0.0116] QL	ND [0.0255] QL	ND [0.0196]	ND [0.0145]	ND [0.0291] QL
SW8270DSIM	Benzo(b)fluoranthene	NS	mg/kg	ND [0.00992]	ND [0.00876]	ND [0.0144]	ND [0.00867]	ND [0.00941]	ND [0.0124]	ND [0.0116] QL	ND [0.0255] QL	ND [0.0196]	ND [0.0145]	ND [0.0291] QL
SW8270DSIM	Benzo(g,h,i)perylene	1.7	mg/kg	ND [0.00992]	ND [0.00876]	ND [0.0144]	ND [0.00867]	ND [0.00941]	ND [0.0124]	ND [0.0116] QL	ND [0.0255] QL	ND [0.0196]	ND [0.0145]	ND [0.0291] QL
SW8270DSIM	Benzo(k)fluoranthene	NS	mg/kg	ND [0.00992]	ND [0.00876]	ND [0.0144]	ND [0.00867]	ND [0.00941]	ND [0.0124]	ND [0.0116] QL	ND [0.0255] QL	ND [0.0196]	ND [0.0145]	ND [0.0291] QL
SW8270DSIM	Chrysene	NS	mg/kg	ND [0.00992]	ND [0.00876]	ND [0.0144]	ND [0.00867]	ND [0.00941]	ND [0.0124]	ND [0.0116] QL	ND [0.0255] QL	ND [0.0196]	ND [0.0145]	ND [0.0291] QL
SW8270DSIM	Dibenzo(a,h)anthracene	NS	mg/kg	ND [0.00992]	ND [0.00876]	ND [0.0144]	ND [0.00867]	ND [0.00941]	ND [0.0124]	ND [0.0116] QL	ND [0.0255] QL	ND [0.0196]	ND [0.0145]	ND [0.0291] QL
SW8270DSIM	Dibenzofuran	NS	mg/kg	ND [0.00992]	ND [0.00876]	ND [0.0144]	ND [0.00867]	ND [0.00941]	ND [0.0124]	ND [0.0116] QL	ND [0.0255] QL	ND [0.0196]	ND [0.0145]	ND [0.0291] QL
SW8270DSIM	Fluoranthene	2	mg/kg	ND [0.00992]	ND [0.00876]	ND [0.0144]	ND [0.00867]	0.0248 [0.00941]	ND [0.0124]	0.00755 [0.0116] J,QL	0.0387 [0.0255] J,QL	ND [0.0196]	ND [0.0145]	ND [0.0291] QL
SW8270DSIM	Fluorene	0.8	mg/kg	ND [0.00992]	ND [0.00876]	ND [0.0144]	ND [0.00867]	0.00775 [0.00941] J	ND [0.0124]	ND [0.0116] QL	ND [0.0255] QL	ND [0.0196]	ND [0.0145]	ND [0.0291] QL
SW8270DSIM	Indeno(1,2,3-cd)pyrene	3.2	mg/kg	ND [0.00794]	ND [0.00701]	ND [0.0115]	ND [0.00694]	ND [0.00753]	ND [0.00991]	ND [0.00929] QL	ND [0.0204] QL	ND [0.0157]	ND [0.0116]	ND [0.0233] QL
SW8270DSIM	Naphthalene	1.7	mg/kg	0.0108 [0.0198] J	ND [0.0175]	ND [0.0288]	ND [0.0173]	0.0118 [0.0188] J	ND [0.0248]	ND [0.0232] QL	ND [0.0509] QL	ND [0.0392]	0.0142 [0.0290] J	ND [0.0583] QL
SW8270DSIM	Phenanthrene	4.8	mg/kg	ND [0.00992]	ND [0.00876]	ND [0.0144]	ND [0.00867]	0.0119 [0.00941] J	ND [0.0124]	0.0120 [0.0116] J,QL	0.0205 [0.0255] J,QL	ND [0.0196]	0.0118 [0.0145] J	ND [0.0291] QL
SW8270DSIM	Pyrene	NS	mg/kg	ND [0.00794]	ND [0.00701]	ND [0.0115]	ND [0.00694]	0.0161 [0.00753]	ND [0.00991]	0.00683 [0.00929] J,QL	0.0244 [0.0204] J,QL	ND [0.0157]	ND [0.0116]	ND [0.0233] QL
Calc	Total LPAH[2]	7.8	mg/kg	0.06	ND [0.0613]	ND [0.101]	ND [0.0606]	0.05738	ND [0.0868]	ND [0.0816]	0.1734	ND [0.137]	0.07568	ND [0.204]
Calc	Total HPAH[3]	9.6	mg/kg	ND [0.0853]	ND [0.0753]	ND [0.124]	ND [0.0745]	0.10489	ND [0.106]	0.09327	0.2365	ND [0.168]	ND [0.125]	ND [0.250]

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S28 Sediment

			SAMPLE ID	22NEC-S28-SD11	22NEC-S28-SD12	22NEC-S28-SD13	22NEC-S28-SD14	22NEC-S28-SD15	22NEC-S28-SD16	22NEC-S28-SD17	22NEC-S28-SD18	22NEC-S28-SD19	22NEC-S28-SD20	22NEC-S28-SD021
			LOCATION ID	22NEC-S28-SD11	22NEC-S28-SD12	22NEC-S28-SD13	22NEC-S28-SD14	22NEC-S28-SD15	22NEC-S28-SD16	22NEC-S28-SD17	22NEC-S28-SD18	22NEC-S28-SD19	22NEC-S28-SD20	22NEC-S28-SD21
			LAB SDG	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321
			COLLECTION DATE	8/16/2022 11:22:00 AM	8/16/2022 11:26:00 AM	8/16/2022 11:45:00 AM	8/16/2022 11:50:00 AM	8/16/2022 11:55:00 AM	8/16/2022 1:40:00 PM	8/16/2022 1:42:00 PM	8/16/2022 1:45:00 PM	8/16/2022 1:48:00 PM	8/16/2022 1:50:00 PM	8/16/2022 2:05:00 PM
			MATRIX	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
			QC TYPE	Primary/MS/MSD	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**											
AK102/103	Diesel Range Organics	3500	mg/kg	ND [438]	ND [564]	3020 [488]	291 [277] J	544 [508] J	**6250 [263]**	ND [746]	**28300 [1490]**	**7270 [1190]**	**41000 [1710]**	1790 [256]
AK102/103	Residual Range Organics	3500	mg/kg	ND [438]	ND [564]	620 [488] J	160 [277] J	ND [508]	1180 [263]	ND [746]	**5950 [1490]**	3000 [1190]	**7860 [1710]**	681 [256]
AK102/103SGT	Diesel Range Organics	3500	mg/kg	ND [438]	ND [564]	2090 [488]	688 [277]	864 [508]	**4680 [263]**	ND [746]	**15000 [297]**	**4890 [238]**	**44100 [3420]**	1010 [256]
AK102/103SGT	Residual Range Organics	3500	mg/kg	ND [438]	ND [564]	279 [488] J	195 [277] J	ND [508]	788 [263]	ND [746]	2690 [297]	1390 [238]	**7480 [342]**	214 [256] J
AK102/103	Chromatogram Interpretation	--	--	--	--	PET?	PET	PET	PET	--	PET	PET	PET	MIX
SW8270DSIM	1-Methylnaphthalene	NS	mg/kg	ND [0.0438] QL	0.400 [0.0564] QL	ND [0.0488]	0.0918 [0.0277]	0.113 [0.0508]	0.975 [0.0263]	ND [0.0746] QL	7.05 [0.0297] QH	1.80 [0.0238]	201 [0.683]	0.451 [0.0256]
SW8270DSIM	2-Chloronaphthalene	NS	mg/kg	ND [0.0438] QL	ND [0.0564] QL	ND [0.0488]	ND [0.0277] QL	ND [0.0508]	ND [0.0263]	ND [0.0746] QL	ND [0.297]	ND [0.0238]	ND [0.683]	ND [0.0256]
SW8270DSIM	2-Methylnaphthalene	0.6	mg/kg	ND [0.0438] QL	**0.642 [0.0564] QL**	ND [0.0488]	0.115 [0.0277] QL	0.141 [0.0508]	**1.10 [0.0263] QH**	ND [0.0746] QL	**9.22 [0.0297] QL**	**2.62 [0.0238] QH**	**258 [6.83]**	**0.743 [0.0256] QH**
SW8270DSIM	Acenaphthene	0.5	mg/kg	ND [0.0219] QL	ND [0.0282] QL	ND [0.0244]	0.0190 [0.0139] J,QL	0.0164 [0.0254] J	0.152 [0.0131] QH	ND [0.0373] QL	**1.05 [0.149]**	0.128 [0.0119] QH	**5.26 [0.342]**	0.161 [0.0128] QH
SW8270DSIM	Acenaphthylene	NS	mg/kg	ND [0.0219] QL	ND [0.0282] QL	ND [0.0244]	ND [0.0139] QL	ND [0.0254]	ND [0.0131]	ND [0.0373] QL	ND [0.149]	ND [0.0119]	ND [0.342]	0.0679 [0.0128] QN
SW8270DSIM	Anthracene	NS	mg/kg	ND [0.0219] QL	0.0226 [0.0282] J,QL	ND [0.0244]	ND [0.0139] QL	ND [0.0254]	0.0229 [0.0131] J,QH	ND [0.0373] QL	ND [0.0149] QL	0.0121 [0.0119] J,QH	R	0.119 [0.0128] QH
SW8270DSIM	Benzo(a)anthracene	NS	mg/kg	ND [0.0219] QL	0.0373 [0.0282] J,QL	ND [0.0244]	ND [0.0139] QL	ND [0.0254]	ND [0.0131]	ND [0.0373] QL	0.0303 [0.0149] QL	0.0312 [0.0119] QH	0.0594 [0.0171] QL	0.177 [0.0128] QN
SW8270DSIM	Benzo(a)pyrene	NS	mg/kg	ND [0.0219] QL	0.0334 [0.0282] J,QL	ND [0.0244]	ND [0.0139] QL	ND [0.0254]	ND [0.0131]	ND [0.0373] QL	0.0155 [0.0149] J,QL	0.0103 [0.0119] J,QH	0.0519 [0.0171] QL	0.0571 [0.0128] QN
SW8270DSIM	Benzo(b)fluoranthene	NS	mg/kg	ND [0.0219] QL	0.0721 [0.0282] QL	ND [0.0244]	ND [0.0139] QL	ND [0.0254]	ND [0.0131]	ND [0.0373] QL	0.0271 [0.0149] J,QL	0.0216 [0.0119] J,QH	0.0420 [0.0171] QL	0.159 [0.0128] QN
SW8270DSIM	Benzo(g,h,i)perylene	1.7	mg/kg	ND [0.0219] QL	0.0415 [0.0282] J,QL	ND [0.0244]	ND [0.0139] QL	ND [0.0254]	ND [0.0131]	ND [0.0373] QL	0.00678 [0.0149] J,QL	ND [0.0119]	0.0132 [0.0171] J,QL	0.0209 [0.0128] J,QH
SW8270DSIM	Benzo(k)fluoranthene	NS	mg/kg	ND [0.0219] QL	0.0221 [0.0282] J,QL	ND [0.0244]	ND [0.0139] QL	ND [0.0254]	ND [0.0131]	ND [0.0373] QL	0.00803 [0.0149] J,QL	0.00696 [0.0119] J,QH	0.0193 [0.0171] J,QL	0.0633 [0.0128] QN
SW8270DSIM	Chrysene	NS	mg/kg	ND [0.0219] QL	0.0479 [0.0282] J,QL	ND [0.0244]	ND [0.0139] QL	ND [0.0254]	ND [0.0131]	ND [0.0373] QL	0.0399 [0.0149] QL	0.0315 [0.0119] QH	0.0735 [0.0171] QL	0.466 [0.0128] QN
SW8270DSIM	Dibenzo(a,h)anthracene	NS	mg/kg	ND [0.0219] QL	0.0103 [0.0282] J,QL	ND [0.0244]	ND [0.0139] QL	ND [0.0254]	ND [0.0131]	ND [0.0373] QL	ND [0.0149] QL	ND [0.0119]	0.00656 [0.0171] J,QL	0.00561 [0.0128] J,QH
SW8270DSIM	Dibenzofuran	NS	mg/kg	ND [0.0219] QL	0.110 [0.0282] QL	ND [0.0244]	0.00876 [0.0139] J,QL	ND [0.0254]	ND [0.0131]	ND [0.0373] QL	0.422 [0.149]	0.0565 [0.0119] QH	2.30 [0.342]	0.147 [0.0128] QH
SW8270DSIM	Fluoranthene	2	mg/kg	ND [0.0219] QL	0.0626 [0.0282] QL	ND [0.0244]	ND [0.0139] QL	ND [0.0254]	0.0278 [0.0131] QH	ND [0.0373] QL	0.212 [0.0149] QL	0.215 [0.0119] QH	0.407 [0.0171] QL	**2.05 [0.0128] QN**
SW8270DSIM	Fluorene	0.8	mg/kg	ND [0.0219] QL	0.0236 [0.0282] J,QL	ND [0.0244]	0.0249 [0.0139] J,QL	0.0254 [0.0254] J	0.204 [0.0131] QH	ND [0.0373] QL	**2.18 [0.149]**	0.164 [0.0119] QH	**9.60 [0.342]**	0.266 [0.0128] QH
SW8270DSIM	Indeno(1,2,3-cd)pyrene	3.2	mg/kg	ND [0.0175] QL	0.0472 [0.0225] QL	ND [0.0195]	ND [0.0111] QL	ND [0.0203]	ND [0.0105]	ND [0.0298] QL	0.00809 [0.0119] J,QL	0.00515 [0.00954] J,QH	0.0160 [0.0137] J,QL	0.0310 [0.0102] QH
SW8270DSIM	Naphthalene	1.7	mg/kg	ND [0.0438] QL	0.441 [0.0564] QL	ND [0.0488]	0.0793 [0.0277] QL	0.0544 [0.0508] J	0.349 [0.0263] QH	ND [0.0746] QL	**2.88 [0.0297] QL**	**2.43 [0.0238] QH**	**117 [0.683]**	0.277 [0.0256] QH
SW8270DSIM	Phenanthrene	4.8	mg/kg	ND [0.0219] QL	0.183 [0.0282] QL	ND [0.0244]	0.0176 [0.0139] J,QL	0.0145 [0.0254] J	0.148 [0.0131] QH	ND [0.0373] QL	1.02 [0.0149] QL	0.228 [0.0119] QH	3.89 [0.0171] QL	1.66 [0.0128] QN
SW8270DSIM	Pyrene	NS	mg/kg	ND [0.0175] QL	0.0642 [0.0225] QL	ND [0.0195]	ND [0.0111] QL	ND [0.0203]	0.0318 [0.0105] QH	ND [0.0298] QL	0.237 [0.0119] QL	0.197 [0.00954] QH	0.400 [0.0137] QL	1.29 [0.0102] QN
Calc	Total LPAH[2]	7.8	mg/kg	ND [0.153]	0.5436	ND [0.146]	0.151	0.147	0.741	ND [0.224]	6.2739	2.746	**132.2***	0.8909
Calc	Total HPAH[3]	9.6	mg/kg	ND [0.188]	0.4165	ND [0.210]	ND [0.120]	ND [0.218]	0.1487	ND [0.321]	0.59157	0.53555	1.06956	4.25661

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S28 Sediment

			SAMPLE ID	22NEC-S28-SD921	22NEC-S28-SD22	22NEC-S28-SD23	22NEC-S28-SD24	22NEC-S28-SD25	22NEC-S28-SD26	22NEC-S28-SD27	22NEC-S28-SD28	22NEC-S28-SD29	22NEC-S28-SD30	22NEC-S28-SD31	22NEC-S28-SD32
			LOCATION ID	22NEC-S28-SD21	22NEC-S28-SD22	22NEC-S28-SD23	22NEC-S28-SD24	22NEC-S28-SD25	22NEC-S28-SD26	22NEC-S28-SD27	22NEC-S28-SD28	22NEC-S28-SD29	22NEC-S28-SD30	22NEC-S28-SD31	22NEC-S28-SD32
			LAB SDG	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321
			COLLECTION DATE	8/16/2022 3:05:00 PM	8/16/2022 2:10:00 PM	8/16/2022 2:18:00 PM	8/16/2022 2:27:00 PM	8/16/2022 2:30:00 PM	8/16/2022 2:34:00 PM	8/16/2022 2:40:00 PM	8/16/2022 2:45:00 PM	8/16/2022 2:47:00 PM	8/16/2022 2:50:00 PM	8/16/2022 2:55:00 PM	8/16/2022 3:00:00 PM
			MATRIX	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
			QC TYPE	FD of 22NEC-S28-S021	Primary	Primary	Primary	Primary	Primary/MS/MSD	Primary	Primary	Primary	Primary	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**												
AK102/103	Diesel Range Organics	3500	mg/kg	1180 [278]	ND [613]	1120 [453]	1360 [524] QL	**4400 [252]**	1260 [315] QN	859 [358]	3260 [205]	**74800 [1690]**	1760 [222]	936 [235]	1050 [203]
AK102/103	Residual Range Organics	3500	mg/kg	514 [278]	ND [613]	472 [453] J	ND [524]	387 [252] QL	185 [315] J	244 [358] J	371 [205]	**6360 [1690]**	217 [222] J	ND [235]	ND [203]
AK102/103SGT	Diesel Range Organics	3500	mg/kg	1070 [278]	ND [613]	2870 [453]	**10500 [524]**	3420 [252]	715 [315] QN	1020 [358]	2670 [205]	**39900 [3380]**	356 [222]	397 [235]	3170 [203]
AK102/103SGT	Residual Range Organics	3500	mg/kg	261 [278] J,QL	ND [613]	467 [453] J	1020 [524]	142 [252] J	194 [315] J,QN	197 [358] J	218 [205] J,QL	3420 [338] QL	ND [222] QL	ND [235] QL	139 [203] J,QL
AK102/103	Chromatogram Interpretation	--	--	MIX	--	MIX	MIX	PET	BIO	BIO	PET	PET	BIO	BIO	BIO
SW8270DSIM	1-Methylnaphthalene	NS	mg/kg	0.522 [0.0278]	ND [0.0613] QL	0.463 [0.0453]	3.33 [0.0524]	0.475 [0.0252]	0.0353 [0.0315] J	ND [0.0358] QL	2.79 [0.0205]	79.5 [0.677]	0.127 [0.0222]	ND [0.235]	0.226 [0.203] J
SW8270DSIM	2-Chloronaphthalene	NS	mg/kg	ND [0.0278]	ND [0.0613] QL	ND [0.0453]	ND [0.0524] QL	ND [0.0252]	ND [0.0315]	ND [0.0358] QL	R	ND [0.677]	R	ND [0.0235]	ND [0.0203]
SW8270DSIM	2-Methylnaphthalene	0.6	mg/kg	**0.852 [0.0278] QH**	0.0304 [0.0613] J,QL	**0.617 [0.0453]**	**5.29 [0.0524] QL**	0.521 [0.0252] QH	0.0359 [0.0315] J	ND [0.0358] QL	**3.51 [0.0205] QL**	**89.0 [0.677]**	0.0827 [0.0222] QL	ND [0.235]	0.277 [0.203] J
SW8270DSIM	Acenaphthene	0.5	mg/kg	0.153 [0.0139] QH	ND [0.0307] QL	0.0209 [0.0227] J	0.137 [0.0262] QL	0.117 [0.0126] QH	ND [0.0157]	ND [0.0179] QL	0.125 [0.0103] QL	**3.25 [0.338]**	R	0.0115 [0.0117] J,QH	0.0222 [0.0102] QH
SW8270DSIM	Acenaphthylene	NS	mg/kg	ND [0.0139] QN	ND [0.0307] QL	ND [0.0227]	ND [0.0262] QL	ND [0.0126]	ND [0.0157]	ND [0.0179] QL	R	ND [0.338]	R	0.0134 [0.0117] J,QH	ND [0.0102]
SW8270DSIM	Anthracene	NS	mg/kg	0.0949 [0.0139] QH	ND [0.0307] QL	ND [0.0227]	ND [0.0262] QL	ND [0.0126]	ND [0.0157]	ND [0.0179] QL	R	R	R	ND [0.0117]	ND [0.0102]
SW8270DSIM	Benzo(a)anthracene	NS	mg/kg	0.0416 [0.0139] QN	ND [0.0307] QL	ND [0.0227]	ND [0.0262] QL	ND [0.0126]	ND [0.0157]	ND [0.0179] QL	R	R	R	ND [0.0117]	ND [0.0102]
SW8270DSIM	Benzo(a)pyrene	NS	mg/kg	0.00905 [0.0139] J,QN	ND [0.0307] QL	ND [0.0227]	ND [0.0262] QL	ND [0.0126]	ND [0.0157]	ND [0.0179] QL	R	0.00660 [0.0169] J,QL	R	ND [0.0117]	ND [0.0102]
SW8270DSIM	Benzo(b)fluoranthene	NS	mg/kg	0.0182 [0.0139] J,QN	ND [0.0307] QL	ND [0.0227]	ND [0.0262] QL	ND [0.0126]	ND [0.0157]	ND [0.0179] QL	R	0.00575 [0.0169] J,QL	R	ND [0.0117]	ND [0.0102]
SW8270DSIM	Benzo(g,h,i)perylene	1.7	mg/kg	ND [0.0139]	ND [0.0307] QL	ND [0.0227]	ND [0.0262] QL	ND [0.0126]	ND [0.0157]	ND [0.0179] QL	R	R	R	ND [0.0117]	ND [0.0102]
SW8270DSIM	Benzo(k)fluoranthene	NS	mg/kg	0.00786 [0.0139] J,QN	ND [0.0307] QL	ND [0.0227]	ND [0.0262] QL	ND [0.0126]	ND [0.0157]	ND [0.0179] QL	R	R	R	ND [0.0117]	ND [0.0102]
SW8270DSIM	Chrysene	NS	mg/kg	0.0675 [0.0139] QN	ND [0.0307] QL	ND [0.0227]	ND [0.0262] QL	ND [0.0126]	ND [0.0157]	ND [0.0179] QL	R	0.0116 [0.0169] J,QL	R	ND [0.0117]	ND [0.0102]
SW8270DSIM	Dibenzo(a,h)anthracene	NS	mg/kg	ND [0.0139]	ND [0.0307] QL	ND [0.0227]	ND [0.0262] QL	ND [0.0126]	ND [0.0157]	ND [0.0179] QL	R	R	R	ND [0.0117]	ND [0.0102]
SW8270DSIM	Dibenzofuran	NS	mg/kg	0.144 [0.0139] QH	ND [0.0307] QL	0.0101 [0.0227] J	0.0479 [0.0262] J,QL	0.0357 [0.0126] QH	ND [0.0157]	ND [0.0179] QL	0.0499 [0.0103] QL	1.63 [0.338]	R	0.0172 [0.0117] J,QH	0.0183 [0.0102] J,QH
SW8270DSIM	Fluoranthene	2	mg/kg	0.572 [0.0139] QN	ND [0.0307] QL	ND [0.0227]	ND [0.0262] QL	ND [0.0126]	ND [0.0157]	ND [0.0179] QL	0.00542 [0.0103] J,QL	0.0714 [0.0169] QL	0.00525 [0.0111] J,QL	ND [0.0117]	ND [0.0102]
SW8270DSIM	Fluorene	0.8	mg/kg	0.245 [0.0139] QH	ND [0.0307] QL	0.0347 [0.0227] J	0.146 [0.0262] QL	0.118 [0.0126] QH	0.00768 [0.0157] J	ND [0.0179] QL	0.232 [0.0103] QL	**7.00 [0.338]**	0.0262 [0.0111] QL	0.0221 [0.0117] J,QH	0.0326 [0.0102] QH
SW8270DSIM	Indeno(1,2,3-cd)pyrene	3.2	mg/kg	ND [0.0111]	ND [0.0245] QL	ND [0.0181]	ND [0.0209] QL	ND [0.0101]	ND [0.0126]	ND [0.0143] QL	R	R	R	ND [0.00939]	ND [0.00814]
SW8270DSIM	Naphthalene	1.7	mg/kg	0.308 [0.0278] QH	0.0384 [0.0613] J,QL	0.429 [0.0453]	**3.93 [0.0524] QL**	0.189 [0.0252] QH	ND [0.0315]	ND [0.0358] QL	1.31 [0.0205] QL	**19.2 [0.677]**	0.0309 [0.0222] J,QL	ND [0.235]	0.151 [0.203] J
SW8270DSIM	Phenanthrene	4.8	mg/kg	0.963 [0.0139] QN	ND [0.0307] QL	ND [0.0227]	0.0246 [0.0262] J,QL	0.100 [0.0126] QH	ND [0.0157]	ND [0.0179] QL	0.144 [0.0103] QL	2.88 [0.0169] QL	0.00892 [0.0111] J,QL	0.0129 [0.0117] J,QH	0.0228 [0.0102] QH
SW8270DSIM	Pyrene	NS	mg/kg	0.347 [0.0111] QN	ND [0.0245] QL	ND [0.0181]	ND [0.0209] QL	0.00533 [0.0101] J,QH	ND [0.0126]	ND [0.0143] QL	0.00527 [0.00821] J,QL	0.0548 [0.0135] QL	R	ND [0.00939]	ND [0.00814]
Calc	Total LPAH[2]	7.8	mg/kg	0.8148	0.1228	0.53	4.26	0.449	0.0863	ND [0.107]	R	R	R	0.293	0.226
Calc	Total HPAH[3]	9.6	mg/kg	1.09425	ND [0.264]	ND [0.195]	ND [0.225]	0.104	ND [0.135]	ND [0.154]	R	R	R	ND [0.101]	ND [0.0877]

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S28 Sediment

			SAMPLE ID	22NEC-S28-SD33	22NEC-S28-SD34	22NEC-S28-SD934	22NEC-S28-SD35	22NEC-S28-SD36	22NEC-S28-SD37	22NEC-S28-SD38	22NEC-S28-SD938	22NEC-S28-SD39	22NEC-S28-SD40	22NEC-S28-SD41	22NEC-S28-SD42
			LOCATION ID	22NEC-S28-SD33	22NEC-S28-SD34	22NEC-S28-SD34	22NEC-S28-SD35	22NEC-S28-SD36	22NEC-S28-SD37	22NEC-S28-SD38	22NEC-S28-SD38	22NEC-S28-SD39	22NEC-S28-SD40	22NEC-S28-SD41	22NEC-S28-SD42
			LAB SDG	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321
			COLLECTION DATE	8/16/2022 3:03:00 PM	8/16/2022 3:05:00 PM	8/16/2022 4:05:00 PM	8/16/2022 3:10:00 PM	8/16/2022 3:21:00 PM	8/16/2022 3:28:00 PM	8/16/2022 4:47:00 PM	8/16/2022 5:47:00 PM	8/16/2022 5:00:00 PM	8/16/2022 4:52:00 PM	8/16/2022 3:43:00 PM	8/16/2022 4:40:00 PM
			MATRIX	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
			QC TYPE	Primary	Primary	FD of 22NEC-S28-S34	Primary	Primary	Primary	Primary	FD of 22NEC-S28-SD38	Primary	Primary	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**												
AK102/103	Diesel Range Organics	3500	mg/kg	**4730 [175]**	383 [542] J	469 [522] J	**25600 [304] QN**	468 [450] J	1140 [394]	**18000 [1450] QN**	**7160 [1230] QN**	475 [337] J	**9060 [267]**	ND [439]	3390 [1530] QN
AK102/103	Residual Range Organics	3500	mg/kg	166 [175] J	ND [542]	ND [522]	1750 [304]	1720 [450]	903 [394]	3100 [1450]	2640 [1230] QH	292 [337] J	1710 [267]	1160 [439]	**24600 [1530] QN**
AK102/103SGT	Diesel Range Organics	3500	mg/kg	**6340 [175] QL**	312 [542] J	611 [522] J	**14700 [304] QL**	379 [450] J	1960 [394]	**7170 [290]**	**4840 [247]**	688 [337]	**5960 [267]**	ND [439]	**7820 [305] QN**
AK102/103SGT	Residual Range Organics	3500	mg/kg	174 [175] J,QL	ND [542] QL	ND [522] QL	681 [304] QL	1370 [450] QL	982 [394] QL	1080 [290] QL	1010 [247] QL	236 [337] J,QL	927 [267]	248 [439] J	**66600 [3050] QN**
AK102/103	Chromatogram Interpretation	--	--	PET	PET	PET	PET	BIO	MIX	PET	PET	MIX	PET	BIO	PET
SW8270DSIM	1-Methylnaphthalene	NS	mg/kg	0.351 [0.175]	ND [0.0542]	ND [0.0522] QL	21.7 [0.304]	2.00 [0.450]	0.690 [0.0394]	8.56 [0.290] QN	24.9 [0.494] QN	0.112 [0.0337]	13.7 [0.267]	0.0396 [0.0439] J	ND [0.305]
SW8270DSIM	2-Chloronaphthalene	NS	mg/kg	ND [0.0175]	ND [0.0542] QL	ND [0.0522] QL	ND [0.0304]	ND [0.0450]	ND [0.0394]	ND [0.0290]	ND [0.494]	ND [0.0337] QL	ND [0.0267]	ND [0.0439]	ND [0.0305]
SW8270DSIM	2-Methylnaphthalene	0.6	mg/kg	ND [0.175]	ND [0.0542] QL	ND [0.0522] QL	**40.7 [0.304]**	**2.79 [0.450]**	**1.02 [0.0394]**	**15.1 [0.290] QN**	**44.7 [0.494] QN**	0.204 [0.0337] QL	**25.2 [0.267]**	0.0496 [0.0439] J	ND [0.305]
SW8270DSIM	Acenaphthene	0.5	mg/kg	0.0688 [0.00873] QH	ND [0.0271] QL	ND [0.0261] QL	0.419 [0.0152] QH	0.0382 [0.0225] J	0.0268 [0.0197] J	0.217 [0.0145] QN	**0.659 [0.247] QN**	0.00839 [0.0169] J,QL	0.278 [0.0134] QH	0.0588 [0.0220]	ND [0.0153]
SW8270DSIM	Acenaphthylene	NS	mg/kg	ND [0.00873]	ND [0.0271] QL	ND [0.0261] QL	ND [0.0152]	ND [0.0225]	ND [0.0197]	ND [0.0145]	ND [0.247]	ND [0.0169] QL	ND [0.0134]	ND [0.0220]	0.0139 [0.0153] J
SW8270DSIM	Anthracene	NS	mg/kg	ND [0.00873]	ND [0.0271] QL	ND [0.0261] QL	ND [0.0152]	ND [0.0225]	ND [0.0197]	ND [0.0145]	ND [0.0123]	ND [0.0169] QL	ND [0.0134]	ND [0.0220]	ND [0.0153]
SW8270DSIM	Benzo(a)anthracene	NS	mg/kg	ND [0.00873]	ND [0.0271] QL	ND [0.0261] QL	ND [0.0152]	ND [0.0225]	ND [0.0197]	ND [0.0145]	ND [0.0123]	ND [0.0169] QL	0.00833 [0.0134] J,QH	ND [0.0220]	0.00754 [0.0153] J
SW8270DSIM	Benzo(a)pyrene	NS	mg/kg	ND [0.00873]	ND [0.0271] QL	ND [0.0261] QL	0.0228 [0.0152] J,QH	ND [0.0225]	ND [0.0197]	ND [0.0145]	0.0217 [0.0123] J,QH	ND [0.0169] QL	0.00660 [0.0134] J,QH	ND [0.0220]	ND [0.0153]
SW8270DSIM	Benzo(b)fluoranthene	NS	mg/kg	ND [0.00873]	ND [0.0271] QL	ND [0.0261] QL	ND [0.0152]	ND [0.0225]	ND [0.0197]	ND [0.0145]	ND [0.0123]	ND [0.0169] QL	0.00858 [0.0134] J,QH	ND [0.0220]	ND [0.0153]
SW8270DSIM	Benzo(g,h,i)perylene	1.7	mg/kg	ND [0.00873]	ND [0.0271] QL	ND [0.0261] QL	ND [0.0152]	ND [0.0225]	ND [0.0197]	ND [0.0145]	ND [0.0123]	ND [0.0169] QL	ND [0.0134]	ND [0.0220]	ND [0.0153]
SW8270DSIM	Benzo(k)fluoranthene	NS	mg/kg	ND [0.00873]	ND [0.0271] QL	ND [0.0261] QL	ND [0.0152]	ND [0.0225]	ND [0.0197]	ND [0.0145]	ND [0.0123]	ND [0.0169] QL	ND [0.0134]	ND [0.0220]	ND [0.0153]
SW8270DSIM	Chrysene	NS	mg/kg	ND [0.00873]	ND [0.0271] QL	ND [0.0261] QL	ND [0.0152]	ND [0.0225]	ND [0.0197]	ND [0.0145]	ND [0.0123]	ND [0.0169] QL	0.0185 [0.0134] J,QH	ND [0.0220]	0.0111 [0.0153] J,QN
SW8270DSIM	Dibenzo(a,h)anthracene	NS	mg/kg	ND [0.00873]	ND [0.0271] QL	ND [0.0261] QL	ND [0.0152]	ND [0.0225]	ND [0.0197]	ND [0.0145]	ND [0.0123]	ND [0.0169] QL	ND [0.0134]	ND [0.0220]	ND [0.0153]
SW8270DSIM	Dibenzofuran	NS	mg/kg	0.0424 [0.00873] QH	ND [0.0271] QL	ND [0.0261] QL	0.243 [0.0152] QH	0.0284 [0.0225] J	ND [0.0197]	0.133 [0.0145] QN	0.390 [0.247] J,QN	ND [0.0169] QL	0.205 [0.0134] QH	ND [0.0220]	ND [0.0153]
SW8270DSIM	Fluoranthene	2	mg/kg	ND [0.00873]	ND [0.0271] QL	ND [0.0261] QL	0.00872 [0.0152] J,QH	ND [0.0225]	ND [0.0197]	0.0128 [0.0145] J,QH	0.0177 [0.0123] J,QH	ND [0.0169] QL	0.0371 [0.0134] QH	0.0146 [0.0220] J	0.00962 [0.0153] J
SW8270DSIM	Fluorene	0.8	mg/kg	0.0592 [0.00873] QH	ND [0.0271] QL	ND [0.0261] QL	0.705 [0.0152] QH	0.0887 [0.0225]	0.0493 [0.0197]	0.363 [0.0145] QN	**1.30 [0.247] QN**	0.0127 [0.0169] J,QL	0.425 [0.0134] QH	0.0108 [0.0220] J	ND [0.0153]
SW8270DSIM	Indeno(1,2,3-cd)pyrene	3.2	mg/kg	ND [0.00699]	ND [0.0217] QL	ND [0.0209] QL	ND [0.0122]	ND [0.0180]	ND [0.0158]	ND [0.0116]	ND [0.00988]	ND [0.0135] QL	ND [0.0107]	ND [0.0176]	ND [0.0122]
SW8270DSIM	Naphthalene	1.7	mg/kg	0.180 [0.175] J	ND [0.0542] QL	ND [0.0522] QL	**9.11 [0.304]**	1.06 [0.450]	0.366 [0.0394]	**3.77 [0.290] QN**	**11.0 [0.494] QN**	0.0391 [0.0337] J,QL	**7.19 [0.267]**	0.0483 [0.0439] J	ND [0.305]
SW8270DSIM	Phenanthrene	4.8	mg/kg	0.0306 [0.00873] QH	ND [0.0271] QL	ND [0.0261] QL	0.486 [0.0152] QH	0.0333 [0.0225] J	ND [0.0197]	0.227 [0.0145] QN	0.580 [0.0123] QN	0.00839 [0.0169] J,QL	0.550 [0.0134] QH	ND [0.0220]	0.0271 [0.0153] J,QN
SW8270DSIM	Pyrene	NS	mg/kg	ND [0.00699]	ND [0.0217] QL	ND [0.0209] QL	0.00690 [0.0122] J,QH	ND [0.0180]	ND [0.0158]	0.0135 [0.0116] J,QH	0.0152 [0.00988] J,QH	ND [0.0135] QL	0.0302 [0.0107] QH	0.00988 [0.0176] J	0.0391 [0.0122] QN
Calc	Total LPAH[2]	7.8	mg/kg	0.325	ND [0.163]	ND [0.157]	**10.3**	1.23	0.481	4.37	**13.2**	0.094	**7.92**	0.135	0.364
Calc	Total HPAH[3]	9.6	mg/kg	ND [0.0751]	ND [0.233]	ND [0.224]	0.127	ND [0.193]	ND [0.169]	0.125	0.126	ND [0.145]	0.146	0.174	0.141

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S28 Sediment

			SAMPLE ID	22NEC-S28-SD942	22NEC-S28-SD43	22NEC-S28-SD44	22NEC-S28-SD45	22NEC-S28-SD46	22NEC-S28-SD47	22NEC-S28-SD48	22NEC-S28-SD49	22NEC-S28-SD50	22NEC-S28-SD51	22NEC-S28-SD52
			LOCATION ID	22NEC-S28-SD42	22NEC-S28-SD43	22NEC-S28-SD44	22NEC-S28-SD45	22NEC-S28-SD46	22NEC-S28-SD47	22NEC-S28-SD48	22NEC-S28-SD49	22NEC-S28-SD50	22NEC-S28-SD51	22NEC-S28-SD52
			LAB SDG	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321
			COLLECTION DATE	8/16/2022 5:40:00 PM	8/16/2022 4:35:00 PM	8/16/2022 4:00:00 PM	8/16/2022 4:04:00 PM	8/16/2022 4:09:00 PM	8/16/2022 4:13:00 PM	8/16/2022 4:15:00 PM	8/16/2022 4:18:00 PM	8/16/2022 4:20:00 PM	8/16/2022 4:30:00 PM	8/16/2022 2:00:00 PM
			MATRIX	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
			QC TYPE	FD of 22NEC-S28-SD42	Primary	Primary	Primary	Primary	Primary	Primary	Primary/MS/MSD	Primary	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**											
AK102/103	Diesel Range Organics	3500	mg/kg	**9640 [1620] QN**	**13500 [852]**	**5230 [335] QL**	**4260 [437] QL**	**15600 [1450]**	**57300 [906]**	**20900 [1100]**	**30900 [844] QH**	**16600 [902]**	**74300 [2620]**	**7400 [226]**
AK102/103	Residual Range Organics	3500	mg/kg	**82200 [1620] QN**	**4980 [852]**	1920 [335] QL	3390 [437]	2910 [1450]	**6400 [906]**	1020 [1100] J	2090 [844] QH	554 [902] J	2250 [1310]	708 [226] QL
AK102/103SGT	Diesel Range Organics	3500	mg/kg	**15700 [325] QN**	**23300 [852]**	**60400 [3350]**	**6210 [437]**	**11500 [291]**	**25900 [1810]**	**16600 [2190]**	**22300 [1690]**	**14300 [1800]**	**45800 [2620]**	**6110 [226]**
AK102/103SGT	Residual Range Organics	3500	mg/kg	**133000 [3250] QN**	**7400 [170]**	**16800 [3350]**	1870 [437]	1860 [291]	2940 [181]	931 [219]	1220 [169] QL	554 [180]	1290 [262]	668 [226]
AK102/103	Chromatogram Interpretation	--	--	PET	MIX	MIX	MIX	PET	PET	PET	PET	PET	PET	PET
SW8270DSIM	1-Methylnaphthalene	NS	mg/kg	ND [0.649]	9.15 [0.341]	11.4 [0.671]	9.27 [0.437]	16.3 [0.582]	8.90 [0.362] QL	24.3 [0.219]	11.0 [0.337]	2.31 [0.0180] QH	174 [0.524]	1.57 [0.0226]
SW8270DSIM	2-Chloronaphthalene	NS	mg/kg	ND [0.0325]	ND [0.341]	ND [0.671]	ND [0.0437]	ND [0.582]	R	R	ND [0.337]	ND [0.180]	ND [0.524]	R
SW8270DSIM	2-Methylnaphthalene	0.6	mg/kg	***ND [0.649]***	**10.8 [0.341]**	**14.1 [0.671]**	**16.3 [0.437]**	**27.1 [0.582]**	**6.63 [0.362] QL**	**37.5 [0.219]**	**19.9 [0.337]**	**3.61 [0.0180] QL**	**356 [5.24]**	**1.71 [0.0226] QL**
SW8270DSIM	Acenaphthene	0.5	mg/kg	ND [0.0162]	0.493 [0.170]	**0.946 [0.335]**	0.364 [0.0219] QH	0.497 [0.291] J	**0.928 [0.181] QL**	**0.971 [0.0110] QL**	ND [0.169]	0.402 [0.0902]	**5.05 [0.262]**	0.151 [0.0113] QL
SW8270DSIM	Acenaphthylene	NS	mg/kg	ND [0.0162]	ND [0.170]	ND [0.335]	ND [0.0219]	ND [0.291]	ND [0.181]	R	ND [0.169]	ND [0.0902]	ND [0.262]	R
SW8270DSIM	Anthracene	NS	mg/kg	ND [0.0162]	ND [0.00852]	ND [0.0168] QL	ND [0.0219]	0.0963 [0.0145] QH	R	0.285 [0.0110] QL	R	R	R	0.00634 [0.0113] J,QL
SW8270DSIM	Benzo(a)anthracene	NS	mg/kg	0.0201 [0.0162] J,QH	0.0154 [0.00852] J,QH	0.0711 [0.0168] QL	0.0130 [0.0219] J,QH	0.0695 [0.0145] QH	0.0257 [0.00906] QL	0.00537 [0.0110] J,QL	0.00562 [0.00844] J,QL	R	0.0516 [0.0131] QL	0.0134 [0.0113] J,QL
SW8270DSIM	Benzo(a)pyrene	NS	mg/kg	ND [0.325]	0.0240 [0.00852] QH	0.0273 [0.0168] J,QL	ND [0.0219]	0.0216 [0.0145] J,QH	0.0104 [0.00906] J,QL	0.00434 [0.0110] J,QL	R	R	0.0395 [0.0131] QL	0.00437 [0.0113] J,QL
SW8270DSIM	Benzo(b)fluoranthene	NS	mg/kg	ND [0.325]	0.0228 [0.00852] QH	ND [0.0168] QL	0.00721 [0.0219] J,QH	0.0462 [0.0145] QH	0.0353 [0.00906] QL	0.00721 [0.0110] J,QL	0.00462 [0.00844] J,QL	0.00368 [0.00902] J,QL	0.0411 [0.0131] QL	0.0110 [0.0113] J,QL
SW8270DSIM	Benzo(g,h,i)perylene	1.7	mg/kg	ND [0.325]	0.0127 [0.00852] J,QH	0.0221 [0.0168] J,QL	ND [0.0219]	ND [0.0145]	0.0156 [0.00906] J,QL	R	R	R	0.0196 [0.0131] J,QL	R
SW8270DSIM	Benzo(k)fluoranthene	NS	mg/kg	ND [0.325]	0.00407 [0.00852] J,QH	0.0201 [0.0168] J,QL	ND [0.0219]	0.0138 [0.0145] J,QH	0.0122 [0.00906] J,QL	R	R	R	0.0137 [0.0131] J,QL	R
SW8270DSIM	Chrysene	NS	mg/kg	0.0542 [0.0162] QN	0.0310 [0.00852] QH	0.188 [0.0168] QL	0.0173 [0.0219] J,QH	0.134 [0.0145] QH	0.0484 [0.00906] QL	0.0127 [0.0110] J,QL	0.00946 [0.00844] J,QL	0.00610 [0.00902] J,QL	0.0678 [0.0131] QL	0.0213 [0.0113] J,QL
SW8270DSIM	Dibenzo(a,h)anthracene	NS	mg/kg	ND [0.325]	0.00361 [0.00852] J,QH	0.00704 [0.0168] J,QL	ND [0.0219]	0.0103 [0.0145] J,QH	R	R	R	R	R	R
SW8270DSIM	Dibenzofuran	NS	mg/kg	ND [0.0162]	0.336 [0.170] J	0.785 [0.335]	0.253 [0.0219] QH	0.503 [0.291] J	ND [0.181] QL	0.565 [0.0110] QL	0.241 [0.169] J	0.129 [0.0902] J	2.56 [0.262]	0.109 [0.0113] QL
SW8270DSIM	Fluoranthene	2	mg/kg	ND [0.0162]	0.0455 [0.00852] QH	0.433 [0.0168] QL	0.0901 [0.0219] QH	0.366 [0.0145] QH	0.107 [0.00906] QL	0.0399 [0.0110] QL	0.0327 [0.00844] QL	0.0251 [0.00902] QL	0.166 [0.0131] QL	0.121 [0.0113] QL
SW8270DSIM	Fluorene	0.8	mg/kg	ND [0.0162]	**0.995 [0.170]**	**2.24 [0.335]**	0.656 [0.0219] QH	**1.27 [0.291]**	**1.58 [0.181] QL**	**1.69 [0.0110] QL**	0.624 [0.169]	0.610 [0.0902]	**7.54 [0.262]**	0.222 [0.0113] QL
SW8270DSIM	Indeno(1,2,3-cd)pyrene	3.2	mg/kg	ND [0.260]	0.0112 [0.00682] J,QH	0.0164 [0.0134] J,QL	ND [0.0175]	0.0203 [0.0116] J,QH	0.0115 [0.00725] J,QL	R	R	R	0.0206 [0.0105] J,QL	R
SW8270DSIM	Naphthalene	1.7	mg/kg	ND [0.649]	**1.96 [0.341]**	**4.96 [0.671]**	**5.42 [0.437]**	**11.2 [0.582]**	**4.24 [0.362] QL**	**22.1 [0.219]**	**7.68 [0.337]**	**4.44 [0.0180] QL**	**127 [0.524]**	1.10 [0.0226] QL
SW8270DSIM	Phenanthrene	4.8	mg/kg	0.0906 [0.0162] QN	0.723 [0.00852] QH	1.83 [0.0168] QL	0.739 [0.0219] QH	1.04 [0.0145] QH	0.754 [0.00906] QL	0.850 [0.0110] QL	0.294 [0.00844] QL	0.184 [0.00902] QL	4.35 [0.0131] QL	0.308 [0.0113] QL
SW8270DSIM	Pyrene	NS	mg/kg	0.0903 [0.0130] QN	0.0540 [0.00682] QH	0.289 [0.0134] QL	0.0547 [0.0175] QH	0.261 [0.0116] QH	0.129 [0.00725] QL	0.0390 [0.00876] QL	0.0302 [0.00675] QL	0.0249 [0.00721] QL	0.184 [0.0105] QL	0.0921 [0.00905] QL
Calc	Total LPAH[2]	7.8	mg/kg	0.714	3.63	**8.5**	6.48	**13.3**	R	R	R	R	R	R
Calc	Total HPAH[3]	9.6	mg/kg	1.51	0.22	1.07	0.265	0.943	R	R	R	R	R	R

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S28 Sediment

			SAMPLE ID	22NEC-S28-SD53	22NEC-S28-SD953	22NEC-S28-SD54	22NEC-S28-SD55	22NEC-S28-SD56	22NEC-S28-SD57	22NEC-S28-SD58	22NEC-S28-SD59	22NEC-S28-SD60
			LOCATION ID	22NEC-S28-SD53	22NEC-S28-SD53	22NEC-S28-SD54	22NEC-S28-SD55	22NEC-S28-SD56	22NEC-S28-SD57	22NEC-S28-SD58	22NEC-S28-SD59	22NEC-S28-SD60
			LAB SDG	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321
			COLLECTION DATE	8/16/2022 4:55:00 PM	8/16/2022 5:55:00 PM	8/16/2022 4:33:00 PM	8/17/2022 11:30:00 AM	8/17/2022 11:40:00 AM	8/17/2022 11:50:00 AM	8/17/2022 11:54:00 AM	8/17/2022 12:00:00 PM	8/17/2022 12:07:00 PM
			MATRIX	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
			QC TYPE	Primary	FD of 22NEC-S28-SD53	Primary	Primary	Primary	Primary	Primary	Primary	Primary
METHOD	ANALYTE	PSL[1]	UNITS									
AK102/103	Diesel Range Organics	3500	mg/kg	**20200 [310]**	**16900 [283]**	**43300 [1270] QL**	ND [116]	ND [306]	806 [324]	ND [632]	**7450 [947] QL**	**12000 [417]**
AK102/103	Residual Range Organics	3500	mg/kg	803 [310]	828 [283]	**3720 [1270] QL**	549 [116] QL	ND [306]	336 [324] J,QL	ND [632]	1550 [947] QL	381 [417] J,QL
AK102/103SGT	Diesel Range Organics	3500	mg/kg	**7350 [310]**	**11300 [283]**	**25200 [2530]**	ND [116]	ND [306]	883 [324]	ND [632]	**8580 [189]**	**13900 [417]**
AK102/103SGT	Residual Range Organics	3500	mg/kg	ND [310]	207 [283] J	2010 [253]	211 [116]	ND [306]	ND [324]	ND [632]	1060 [189]	ND [417]
AK102/103	Chromatogram Interpretation	--	--	PET	PET	PET	BIO	--	MIX	--	PET	PET
SW8270DSIM	1-Methylnaphthalene	NS	mg/kg	8.53 [0.0310] QN	47.3 [0.283] QN	22.0 [0.253]	0.00669 [0.0116] J	ND [0.0306]	0.199 [0.0324]	ND [0.0632] QL	18.9 [0.189]	0.622 [0.0417]
SW8270DSIM	2-Chloronaphthalene	NS	mg/kg	R	R	ND [0.253]	ND [0.0116]	ND [0.0306]	ND [0.0324] QL	ND [0.0632] QL	R	R
SW8270DSIM	2-Methylnaphthalene	0.6	mg/kg	**16.8 [0.155] QL**	**82.2 [0.283] QN**	**23.2 [0.253]**	0.00836 [0.0116] J	ND [0.0306]	0.285 [0.0324] QL	ND [0.0632] QL	**26.5 [0.189]**	0.394 [0.0417] QL
SW8270DSIM	Acenaphthene	0.5	mg/kg	0.271 [0.0155] QL	**1.54 [0.0142] QL**	**1.18 [0.127]**	ND [0.00582]	ND [0.0153]	0.0192 [0.0162] J,QL	ND [0.0316] QL	**0.841 [0.00947] QL**	0.116 [0.0209] QL
SW8270DSIM	Acenaphthylene	NS	mg/kg	R	R	ND [0.127]	ND [0.00582]	ND [0.0153]	0.00738 [0.0162] J,QL	ND [0.0316] QL	R	0.0605 [0.0209] QL
SW8270DSIM	Anthracene	NS	mg/kg	0.00949 [0.0155] J,QL	0.0513 [0.0142] QL	R	ND [0.00582]	ND [0.0153]	ND [0.0162] QL	ND [0.0316] QL	R	R
SW8270DSIM	Benzo(a)anthracene	NS	mg/kg	R	R	R	ND [0.00582]	ND [0.0153]	ND [0.0162] QL	ND [0.0316] QL	R	R
SW8270DSIM	Benzo(a)pyrene	NS	mg/kg	R	R	R	ND [0.00582]	ND [0.0153]	ND [0.0162] QL	ND [0.0316] QL	R	R
SW8270DSIM	Benzo(b)fluoranthene	NS	mg/kg	R	R	0.00504 [0.0127] J,QL	ND [0.00582]	ND [0.0153]	ND [0.0162] QL	ND [0.0316] QL	0.00313 [0.00947] J,QL	R
SW8270DSIM	Benzo(g,h,i)perylene	1.7	mg/kg	R	R	R	ND [0.00582]	ND [0.0153]	ND [0.0162] QL	ND [0.0316] QL	R	R
SW8270DSIM	Benzo(k)fluoranthene	NS	mg/kg	R	R	R	ND [0.00582]	ND [0.0153]	ND [0.0162] QL	ND [0.0316] QL	R	R
SW8270DSIM	Chrysene	NS	mg/kg	R	R	0.00755 [0.0127] J,QL	ND [0.00582]	ND [0.0153]	ND [0.0162] QL	ND [0.0316] QL	0.00508 [0.00947] J,QL	R
SW8270DSIM	Dibenzo(a,h)anthracene	NS	mg/kg	R	R	R	ND [0.00582]	ND [0.0153]	ND [0.0162] QL	ND [0.0316] QL	R	R
SW8270DSIM	Dibenzofuran	NS	mg/kg	0.173 [0.0155] QL	1.00 [0.0142] QL	0.519 [0.127]	ND [0.00582]	ND [0.0153]	0.0171 [0.0162] J,QL	ND [0.0316] QL	0.510 [0.00947] QL	0.0630 [0.0209] QL
SW8270DSIM	Fluoranthene	2	mg/kg	0.0109 [0.0155] J,QL	0.0366 [0.0142] QL	0.0284 [0.0127] QL	ND [0.00582]	ND [0.0153]	0.0221 [0.0162] J,QL	ND [0.0316] QL	0.0181 [0.00947] J,QL	0.0131 [0.0209] J,QL
SW8270DSIM	Fluorene	0.8	mg/kg	0.437 [0.0155] QL	**2.22 [0.0142] QL**	**1.81 [0.127]**	ND [0.00582]	ND [0.0153]	0.0221 [0.0162] J,QL	ND [0.0316] QL	**1.58 [0.00947] QL**	0.237 [0.0209] QL
SW8270DSIM	Indeno(1,2,3-cd)pyrene	3.2	mg/kg	R	R	R	ND [0.00466]	ND [0.0122]	ND [0.0129] QL	ND [0.0253] QL	R	R
SW8270DSIM	Naphthalene	1.7	mg/kg	**5.93 [0.0310] QL**	**29.5 [0.283] QN**	**5.70 [0.0253] QL**	ND [0.0116]	ND [0.0306]	0.122 [0.0324] QL	ND [0.0632] QL	**6.08 [0.0189] QL**	0.185 [0.0417] QL
SW8270DSIM	Phenanthrene	4.8	mg/kg	0.444 [0.0155] QL	1.66 [0.0142] QL	0.689 [0.0127] QL	ND [0.00582]	ND [0.0153]	0.0324 [0.0162] QL	ND [0.0316] QL	0.832 [0.00947] QL	0.209 [0.0209] QL
SW8270DSIM	Pyrene	NS	mg/kg	0.00977 [0.0124] J,QL	0.0346 [0.0113] QL	0.0250 [0.0101] QL	ND [0.00466]	ND [0.0122]	0.0191 [0.0129] J,QL	ND [0.0253] QL	0.0189 [0.00758] QL	0.0129 [0.0167] J,QL
Calc	Total LPAH[2]	7.8	mg/kg	R	R	R	ND [0.0349]	ND [0.0918]	0.187	ND [0.190]	R	R
Calc	Total HPAH[3]	9.6	mg/kg	R	R	R	ND [0.0501]	ND [0.131]	0.151	ND [0.272]	R	R

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S28 Sediment

			SAMPLE ID	22NEC-S28-SD01	22NEC-S28-SD02	22NEC-S28-SD03	22NEC-S28-SD04	22NEC-S28-SD05	22NEC-S28-SD06	22NEC-S28-SD07	22NEC-S28-SD08	22NEC-S28-SD908	22NEC-S28-SD09	22NEC-S28-SD10
			LOCATION ID	22NEC-S28-SD01	22NEC-S28-SD02	22NEC-S28-SD03	22NEC-S28-SD04	22NEC-S28-SD05	22NEC-S28-SD06	22NEC-S28-SD07	22NEC-S28-SD08	22NEC-S28-SD08	22NEC-S28-SD09	22NEC-S28-SD10
			LAB SDG	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321
			COLLECTION DATE	8/16/2022 9:45:00 AM	8/16/2022 10:05:00 AM	8/16/2022 10:15:00 AM	8/16/2022 10:30:00 AM	8/16/2022 10:33:00 AM	8/16/2022 10:45:00 AM	8/16/2022 10:50:00 AM	8/16/2022 10:52:00 AM	8/16/2022 11:52:00 AM	8/16/2022 11:05:00 AM	8/16/2022 11:10:00 AM
			MATRIX	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
			QC TYPE	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	FD of 22NEC-S28-SD08	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**											
WBLACK	Total Organic Carbon	NS	mg/kg	58600 [992]	42800 [876]	115000 [1300]	44400 [781]	28600 [941]	78200 [1110]	83800 [1050]	83600 [2800]	66200 [1760]	65300 [1590]	160000 [2620]
SM2540G	Solids	NS	%	50.4 [0.200]	57.0 [0.200]	34.7 [0.200]	57.7 [0.200]	53.1 [0.200]	40.4 [0.200]	43.1 [0.200]	19.6 [0.200]	25.5 [0.200]	34.5 [0.200]	17.2 [0.200]

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S28 Sediment

			SAMPLE ID	22NEC-S28-SD11	22NEC-S28-SD12	22NEC-S28-SD13	22NEC-S28-SD14	22NEC-S28-SD15	22NEC-S28-SD16	22NEC-S28-SD17	22NEC-S28-SD18	22NEC-S28-SD19	22NEC-S28-SD20	22NEC-S28-SD021
			LOCATION ID	22NEC-S28-SD11	22NEC-S28-SD12	22NEC-S28-SD13	22NEC-S28-SD14	22NEC-S28-SD15	22NEC-S28-SD16	22NEC-S28-SD17	22NEC-S28-SD18	22NEC-S28-SD19	22NEC-S28-SD20	22NEC-S28-SD21
			LAB SDG	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321
			COLLECTION DATE	8/16/2022 11:22:00 AM	8/16/2022 11:26:00 AM	8/16/2022 11:45:00 AM	8/16/2022 11:50:00 AM	8/16/2022 11:55:00 AM	8/16/2022 1:40:00 PM	8/16/2022 1:42:00 PM	8/16/2022 1:45:00 PM	8/16/2022 1:48:00 PM	8/16/2022 1:50:00 PM	8/16/2022 2:05:00 PM
			MATRIX	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
			QC TYPE	Primary/MS/MSD	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**											
WBLACK	Total Organic Carbon	NS	mg/kg	52000 [2410]	92200 [2540]	106000 [4640]	159000 [1390]	205000 [2790]	137000 [1310]	70700 [4100]	98000 [1640]	122000 [1070]	325000 [3590]	130000 [1150]
SM2540G	Solids	NS	%	22.9 [0.200]	17.7 [0.200]	20.5 [0.200]	36.1 [0.200]	19.7 [0.200]	38.1 [0.200]	13.4 [0.200]	33.6 [0.200]	41.9 [0.200]	29.3 [0.200]	39.0 [0.200]

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S28 Sediment

			SAMPLE ID	22NEC-S28-SD921	22NEC-S28-SD22	22NEC-S28-SD23	22NEC-S28-SD24	22NEC-S28-SD25	22NEC-S28-SD26	22NEC-S28-SD27	22NEC-S28-SD28	22NEC-S28-SD29	22NEC-S28-SD30	22NEC-S28-SD31	22NEC-S28-SD32
			LOCATION ID	22NEC-S28-SD21	22NEC-S28-SD22	22NEC-S28-SD23	22NEC-S28-SD24	22NEC-S28-SD25	22NEC-S28-SD26	22NEC-S28-SD27	22NEC-S28-SD28	22NEC-S28-SD29	22NEC-S28-SD30	22NEC-S28-SD31	22NEC-S28-SD32
			LAB SDG	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321
			COLLECTION DATE	8/16/2022 3:05:00 PM	8/16/2022 2:10:00 PM	8/16/2022 2:18:00 PM	8/16/2022 2:27:00 PM	8/16/2022 2:30:00 PM	8/16/2022 2:34:00 PM	8/16/2022 2:40:00 PM	8/16/2022 2:45:00 PM	8/16/2022 2:47:00 PM	8/16/2022 2:50:00 PM	8/16/2022 2:55:00 PM	8/16/2022 3:00:00 PM
			MATRIX	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
			QC TYPE	FD of 22NEC-S28-S021	Primary	Primary	Primary	Primary	Primary/MS/MSD	Primary	Primary	Primary	Primary	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**												
WBLACK	Total Organic Carbon	NS	mg/kg	155000 [1390]	151000 [2760]	221000 [2040]	278000 [2360]	108000 [1260]	198000 [1570]	147000 [1790]	58300 [1030]	336000 [3550]	60900 [1110]	61500 [1170]	133000 [1020]
SM2540G	Solids	NS	%	36.0 [0.200]	16.3 [0.200]	22.1 [0.200]	19.1 [0.200]	39.8 [0.200]	31.8 [0.200]	27.9 [0.200]	48.7 [0.200]	29.6 [0.200]	45.0 [0.200]	42.6 [0.200]	49.1 [0.200]

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S28 Sediment

			SAMPLE ID	22NEC-S28-SD33	22NEC-S28-SD34	22NEC-S28-SD934	22NEC-S28-SD35	22NEC-S28-SD36	22NEC-S28-SD37	22NEC-S28-SD38	22NEC-S28-SD938	22NEC-S28-SD39	22NEC-S28-SD40	22NEC-S28-SD41	22NEC-S28-SD42
			LOCATION ID	22NEC-S28-SD33	22NEC-S28-SD34	22NEC-S28-SD34	22NEC-S28-SD35	22NEC-S28-SD36	22NEC-S28-SD37	22NEC-S28-SD38	22NEC-S28-SD38	22NEC-S28-SD39	22NEC-S28-SD40	22NEC-S28-SD41	22NEC-S28-SD42
			LAB SDG	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321
			COLLECTION DATE	8/16/2022 3:03:00 PM	8/16/2022 3:05:00 PM	8/16/2022 4:05:00 PM	8/16/2022 3:10:00 PM	8/16/2022 3:21:00 PM	8/16/2022 3:28:00 PM	8/16/2022 4:47:00 PM	8/16/2022 5:47:00 PM	8/16/2022 5:00:00 PM	8/16/2022 4:52:00 PM	8/16/2022 3:43:00 PM	8/16/2022 4:40:00 PM
			MATRIX	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
			QC TYPE	Primary	Primary	FD of 22NEC-S28-S34	Primary	Primary	Primary	Primary	FD of 22NEC-S28-SD38	Primary	Primary	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**												
WBLACK	Total Organic Carbon	NS	mg/kg	68900 [873]	115000 [2440]	127000 [2610]	206000 [1520]	259000 [4730]	276000 [1580]	213000 [1310] QN	121000 [617] QN	208000 [1690]	215000 [1340]	273000 [2200]	178000 [1530]
SM2540G	Solids	NS	%	57.3 [0.200]	18.5 [0.200]	19.1 [0.200]	32.9 [0.200]	22.2 [0.200]	25.4 [0.200]	34.5 [0.200]	40.5 [0.200]	29.7 [0.200]	37.4 [0.200]	22.8 [0.200]	32.8 [0.200]

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S28 Sediment

			SAMPLE ID	22NEC-S28-SD942	22NEC-S28-SD43	22NEC-S28-SD44	22NEC-S28-SD45	22NEC-S28-SD46	22NEC-S28-SD47	22NEC-S28-SD48	22NEC-S28-SD49	22NEC-S28-SD50	22NEC-S28-SD51	22NEC-S28-SD52
			LOCATION ID	22NEC-S28-SD42	22NEC-S28-SD43	22NEC-S28-SD44	22NEC-S28-SD45	22NEC-S28-SD46	22NEC-S28-SD47	22NEC-S28-SD48	22NEC-S28-SD49	22NEC-S28-SD50	22NEC-S28-SD51	22NEC-S28-SD52
			LAB SDG	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321
			COLLECTION DATE	8/16/2022 5:40:00 PM	8/16/2022 4:35:00 PM	8/16/2022 4:00:00 PM	8/16/2022 4:04:00 PM	8/16/2022 4:09:00 PM	8/16/2022 4:13:00 PM	8/16/2022 4:15:00 PM	8/16/2022 4:18:00 PM	8/16/2022 4:20:00 PM	8/16/2022 4:30:00 PM	8/16/2022 2:00:00 PM
			MATRIX	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
			QC TYPE	FD of 22NEC-S28-SD42	Primary	Primary	Primary	Primary	Primary	Primary	Primary/MS/MSD	Primary	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**											
WBLACK	Total Organic Carbon	NS	mg/kg	260000 [1620]	86600 [937]	341000 [1840]	356000 [2190]	165000 [1450]	75500 [906]	155000 [1100]	136000 [928]	94600 [1890]	254000 [1310]	110000 [1130]
SM2540G	Solids	NS	%	30.8 [0.200]	58.7 [0.200]	29.8 [0.200]	22.9 [0.200]	34.4 [0.200]	55.2 [0.200]	45.6 [0.200]	59.3 [0.200]	55.5 [0.200]	38.2 [0.200]	44.2 [0.200]

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S28 Sediment

			SAMPLE ID	22NEC-S28-SD53	22NEC-S28-SD953	22NEC-S28-SD54	22NEC-S28-SD55	22NEC-S28-SD56	22NEC-S28-SD57	22NEC-S28-SD58	22NEC-S28-SD59	22NEC-S28-SD60
			LOCATION ID	22NEC-S28-SD53	22NEC-S28-SD53	22NEC-S28-SD54	22NEC-S28-SD55	22NEC-S28-SD56	22NEC-S28-SD57	22NEC-S28-SD58	22NEC-S28-SD59	22NEC-S28-SD60
			LAB SDG	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321	L1528321
			COLLECTION DATE	8/16/2022 4:55:00 PM	8/16/2022 5:55:00 PM	8/16/2022 4:33:00 PM	8/17/2022 11:30:00 AM	8/17/2022 11:40:00 AM	8/17/2022 11:50:00 AM	8/17/2022 11:54:00 AM	8/17/2022 12:00:00 PM	8/17/2022 12:07:00 PM
			MATRIX	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
			QC TYPE	Primary	FD of 22NEC-S28-SD53	Primary	Primary	Primary	Primary	Primary	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**									
WBLACK	Total Organic Carbon	NS	mg/kg	272000 [3100]	208000 [3120]	137000 [2790]	15600 [582]	46900 [1530]	64600 [3400]	30300 [6000]	87800 [947]	199000 [2300]
SM2540G	Solids	NS	%	32.2 [0.200]	35.3 [0.200]	39.5 [0.200]	85.8 [0.200]	32.7 [0.200]	30.9 [0.200]	15.8 [0.200]	52.8 [0.200]	24.0 [0.200]

Notes:

[1]PSLs for sediment are the Washington Administrative Code 173-204-520, Table III, Sediment Minimum Cleanup Levels.

[2] LPAH are the sum of naphthalene, acenaphthene, acenaphthylene, fluorene, phenanthrene, and anthracene. Calculated values for each sample used the LOD for non-detect results in accordance with ADEC guidance (ADEC 2022).

[3] HPAH are the sum of fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene, dibenzo(a,h)anthracene, and indeno(l,2,3-c,d)pyrene. Calculated values for each sample used the LOD for non-detect results in accordance with ADEC guidance (ADEC 2022).

*A nondetect result included in this summation had serious quality deficiencies. The LOD used is considered acceptable for screening purposes.

Bold/red indicates that a detected result exceeds the PSL.

Yellow/Bold indicates the LOD for a non-detect results exceeds the PSL.

LOD shown in brackets [ ]

B – the result is biased high due to contamination present in an associated blank

BIO – primarily biogenic sources

DL – detection limit

FD – field duplicate

H – the result is considered a low estimate due to a hold time exceedance

J – the result is an estimated value greater than or equal to the DL and below the LOQ

LOD – limit of detection

LOQ – limit of quantitation

mg/kg – milligrams per kilogram

MIX – mixture of petrogenic/biogenic sources

MS/MSD – matrix spike/matrix spike duplicate

ND – not detected

NS – not specified

PET – primarily petrogenic sources

QC – quality control

QH/QL/QN – the result is an estimated value, bias high/low/indeterminate, due to a QC failure

R – the result is rejected due to serious deficiencies

SDG – sample delivery group

SGT – silica gel cleanup

SIM – selected ion monitoring

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S28 Surface Water

			SAMPLE ID	22NEC-S28-SW-01	22NEC-S28-SW-901	22NEC-S28-SW-03	22NEC-S28-SW-04	22NEC-S28-SW-05	22NEC-S28-SW-06	22NEC-S28-SW-07	22NEC-S28-SW-08	22NEC-S28-SW-09	22NEC-S28-SW-909
			LOCATION ID	22NEC-S28-SW-01	22NEC-S28-SW-01	22NEC-S28-SW-03	22NEC-S28-SW-04	22NEC-S28-SW-05	22NEC-S28-SW-01	22NEC-S28-SW-03	22NEC-S28-SW-05	22NEC-S28-SW-04	22NEC-S28-SW-04
			LAB SDG	L1520826	L1520826	L1520826	L1520826	L1520826	L1526336	L1526336	L1526336	L1526336	L1526336
			COLLECTION DATE	7/27/2022 10:30:00 AM	7/27/2022 11:30:00 AM	7/27/2022 11:05:00 AM	7/27/2022 11:20:00 AM	7/29/2022 1:30:00 PM	8/12/2022 8:45:00 AM	8/12/2022 9:15:00 AM	8/12/2022 9:45:00 AM	8/12/2022 10:00:00 AM	8/12/2022 11:00:00 AM
			MATRIX	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
			QC TYPE	Primary	FD of 22NEC-S28-SW-01	Primary	Primary	Primary	Primary	Primary	Primary	Primary	FD of 22NEC-S28-SW-09
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**										
AK102/103	Diesel Range Organics	1500	µg/L	ND [400]	ND [400]	222 [420] J,QN	239 [420] J,QN	ND [400]	ND [400]	190 [444] J	ND [444]	ND [400]	194 [400] J
AK102/103	Residual Range Organics	1100	µg/L	ND [1000]	ND [1000]	ND [1050]	ND [1050]	ND [1000]	ND [1000]	***ND [1110]***	***ND [1110]***	ND [1000]	ND [1000]
SW8260D	Benzene	5	µg/L	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	Ethylbenzene	700	µg/L	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	Toluene	1000	µg/L	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]
SW8260D	Xylenes (total)	10000	µg/L	ND [1.50]	ND [1.50]	ND [1.50]	0.174 [1.50] J	ND [1.50]	ND [1.50]	ND [1.50]	ND [1.50]	ND [1.50]	ND [1.50]
SW8270DSIM	1-Methylnaphthalene	NS	µg/L	ND [0.250]	ND [0.250]	ND [0.250]	0.0258 [0.250] J,B	0.0827 [0.250] J,B	0.0462 [0.250] J,B	ND [0.250]	0.0253 [0.250] J,B	0.0224 [0.250] J,B	ND [0.250]
SW8270DSIM	2-Chloronaphthalene	NS	µg/L	ND [0.250]	ND [0.250]	ND [0.250]	0.0129 [0.250] J	ND [0.250]	0.0539 [0.250] J	ND [0.250]	0.0275 [0.250] J	0.0202 [0.250] J	ND [0.250]
SW8270DSIM	2-Methylnaphthalene	NS	µg/L	ND [0.250]	ND [0.250]	ND [0.250]	ND [0.250]	0.0689 [0.250] J,B	0.0596 [0.250] J,B	ND [0.250]	ND [0.250]	0.0309 [0.250] J,B	ND [0.250]
SW8270DSIM	Acenaphthene	NS	µg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]	0.0313 [0.0500] J	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
SW8270DSIM	Acenaphthylene	NS	µg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]	0.0185 [0.0500] J	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
SW8270DSIM	Anthracene	NS	µg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]	0.0261 [0.0500] J	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
SW8270DSIM	Benzo(a)anthracene	NS	µg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]	0.0371 [0.0500] J	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
SW8270DSIM	Benzo(a)pyrene	NS	µg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]	0.0218 [0.0500] J	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
SW8270DSIM	Benzo(b)fluoranthene	NS	µg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]	0.0309 [0.0500] J	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
SW8270DSIM	Benzo(g,h,i)perylene	NS	µg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]	0.0286 [0.0500] J	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
SW8270DSIM	Benzo(k)fluoranthene	NS	µg/L	ND [0.125]	ND [0.125]	ND [0.125]	ND [0.125]	ND [0.125]	0.0313 [0.125] J	ND [0.125]	ND [0.125]	ND [0.125]	ND [0.125]
SW8270DSIM	Chrysene	NS	µg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]	0.0338 [0.0500] J	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
SW8270DSIM	Dibenzo(a,h)anthracene	NS	µg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]	0.0299 [0.0500] J	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
SW8270DSIM	Fluoranthene	NS	µg/L	0.0133 [0.0250] J,B	ND [0.0250]	0.0143 [0.0250] J,B	ND [0.0250]	0.0176 [0.0250] J,B	0.0373 [0.0250] J,B	ND [0.0250]	ND [0.0250]	0.0118 [0.0250] J,B	ND [0.0250]
SW8270DSIM	Fluorene	NS	µg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	0.0173 [0.0500] J	0.0256 [0.0500] J	0.0359 [0.0500] J	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
SW8270DSIM	Indeno(1,2,3-cd)pyrene	NS	µg/L	ND [0.0400]	ND [0.0400]	ND [0.0400]	ND [0.0400]	ND [0.0400]	0.0346 [0.0400] J,B	ND [0.0400]	ND [0.0400]	ND [0.0400]	ND [0.0400]
SW8270DSIM	Naphthalene	NS	µg/L	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8270DSIM	Phenanthrene	NS	µg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]	0.0351 [0.0500] J	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
SW8270DSIM	Pyrene	120	µg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]	0.0367 [0.0500] J	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
Calc	TAH[2]	10	µg/L	ND [3.1]	ND [3.1]	ND [3.1]	1.77	ND [3.1]	ND [3.1]	ND [3.1]	ND [3.1]	ND [3.1]	ND [3.1]
Calc	TAqH[2]	15	µg/L	5.12	ND [5.14]	5.12	3.32	4.7598	4.2286	ND [5.14]	4.6928	4.45	ND [5.14]

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S28 Surface Water

			SAMPLE ID	22NEC-S28-SW-10	22NEC-S28-SW-11	22NEC-S28-SW-12	22NEC-S28-SW-13	22NEC-TB01	22NEC-TB-06	22NEC-MOC-TB-07
			LOCATION ID	22NEC-S28-SW-04	22NEC-S28-SW-05	22NEC-S28-SW-03	22NEC-S28-SW-01	NA	NA	NA
			LAB SDG	L1527447	L1527447	L1527447	L1527447	L1520826	L1526336	L1527447
			COLLECTION DATE	8/15/2022 11:45:00 AM	8/15/2022 1:30:00 PM	8/15/2022 1:45:00 PM	8/15/2022 2:00:00 PM	7/27/2022 7:00:00 AM	8/5/2022 9:46:00 AM	8/15/2022 7:00:00 AM
			MATRIX	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Groundwater	Groundwater
			QC TYPE	Primary	Primary	Primary	Primary	Trip Blank	Trip Blank	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**							
AK102/103	Diesel Range Organics	1500	µg/L	437 [400] J,QH	290 [400] J,QH	309 [400] J,QH	390 [444] J,QH	--	--	--
AK102/103	Residual Range Organics	1100	µg/L	ND [600]	ND [600] QL	ND [600] QL	559 [666] J,QH	--	--	--
SW8260D	Benzene	5	µg/L	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	Ethylbenzene	700	µg/L	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	Toluene	1000	µg/L	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]	ND [0.600]
SW8260D	Xylenes (total)	10000	µg/L	0.180 [1.50] J,QH	ND [1.50]	ND [1.50]	ND [1.50]	ND [1.50]	ND [1.50]	ND [1.50]
SW8270DSIM	1-Methylnaphthalene	NS	µg/L	0.0249 [0.250] J	ND [0.250]	ND [0.250]	ND [0.250]	--	--	--
SW8270DSIM	2-Chloronaphthalene	NS	µg/L	ND [0.250]	ND [0.250] QL	0.0146 [0.250] J,QL	ND [0.250] QL	--	--	--
SW8270DSIM	2-Methylnaphthalene	NS	µg/L	ND [0.250]	ND [0.250] QL	ND [0.250] QL	ND [0.250] QL	--	--	--
SW8270DSIM	Acenaphthene	NS	µg/L	ND [0.0500]	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	--	--	--
SW8270DSIM	Acenaphthylene	NS	µg/L	ND [0.0500]	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	--	--	--
SW8270DSIM	Anthracene	NS	µg/L	ND [0.0500]	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	--	--	--
SW8270DSIM	Benzo(a)anthracene	NS	µg/L	ND [0.0500]	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	--	--	--
SW8270DSIM	Benzo(a)pyrene	NS	µg/L	ND [0.0500]	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	--	--	--
SW8270DSIM	Benzo(b)fluoranthene	NS	µg/L	ND [0.0500]	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	--	--	--
SW8270DSIM	Benzo(g,h,i)perylene	NS	µg/L	ND [0.0500]	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	--	--	--
SW8270DSIM	Benzo(k)fluoranthene	NS	µg/L	ND [0.125]	ND [0.125] QL	ND [0.125] QL	ND [0.125] QL	--	--	--
SW8270DSIM	Chrysene	NS	µg/L	ND [0.0500]	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	--	--	--
SW8270DSIM	Dibenzo(a,h)anthracene	NS	µg/L	ND [0.0500]	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	--	--	--
SW8270DSIM	Fluoranthene	NS	µg/L	0.0123 [0.0250] J	ND [0.0250] QL	ND [0.0250] QL	ND [0.0250] QL	--	--	--
SW8270DSIM	Fluorene	NS	µg/L	ND [0.0500]	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	--	--	--
SW8270DSIM	Indeno(1,2,3-cd)pyrene	NS	µg/L	ND [0.0400]	ND [0.0400] QL	ND [0.0400] QL	ND [0.0400] QL	--	--	--
SW8270DSIM	Naphthalene	NS	µg/L	ND [0.500]	ND [0.500] QL	ND [0.500] QL	ND [0.500] QL	--	--	--
SW8270DSIM	Phenanthrene	NS	µg/L	ND [0.0500]	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	--	--	--
SW8270DSIM	Pyrene	120	µg/L	ND [0.0500]	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	--	--	--
Calc	TAH[2]	10	µg/L	1.78	ND [3.1]	ND [3.1]	ND [3.1]	--	--	--
Calc	TAqH[2]	15	µg/L	3.58	ND [5.14]	4.90	ND [5.14]	--	--	--

Notes:
[1] PSLs for surface water are the ADEC Surface Water Standards as defined in the ADEC Tech Memo 18.02.
[2] Total aromatic hydrocarbons (TAH) is the sum of the BTEX compounds (benzene, toluene, ethylbenzene, and xylenes) and total aqueous hydrocarbons (TAqH) is the sum of TAH plus the 16 PAHs listed in EPA Method 610. TAH and TAqH were calculated for each sample using the LOD values for non-detect results in accordance with ADEC guidance (ADEC 2022).

Incorrect limits shown, laboratory to revise

Bold/red indicates that a detected result exceeds the PSL.

Yellow/Bold indicates the LOD for a non-detect results exceeds the PSL.

LOD shown in brackets [ ]

µg/L – micrograms per liter

ADEC – Alaska Department of Environmental Conservation

B – the result is biased high due to contamination present in an associated blank

DL – detection limit

FD – field duplicate

H – the result is considered a low estimate due to a hold time exceedance

J – the result is an estimated value greater than or equal to the DL and below the LOQ

LOD – limit of detection

LOQ – limit of quantitation

ND – not detected

NS – not specified

QC – quality control

QH/QL/QN – the result is an estimated value, bias high/low/indeterminate, due to a QC failure

SDG – sample delivery group

SIM – selected ion monitoring

ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for S28 Treated Water

			SAMPLE ID	22NEC-S28-WA-01
			LOCATION ID	22NEC-S28-WA-01
			LAB SDG	L1520826
			COLLECTION DATE	7/28/2022 5:00:00 PM
			MATRIX	Wastewater
			QC TYPE	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**	
AK102/103	Diesel Range Organics	1500	µg/L	ND [400]
AK102/103	Residual Range Organics	1100	µg/L	ND [1000]
SW8260D	Benzene	5	µg/L	ND [0.500]
SW8260D	Ethylbenzene	700	µg/L	ND [0.500]
SW8260D	Toluene	1000	µg/L	ND [0.600]
SW8260D	Xylenes (total)	10000	µg/L	ND [1.50]
SW8270DSIM	1-Methylnaphthalene	NS	µg/L	ND [0.250] QL
SW8270DSIM	2-Chloronaphthalene	NS	µg/L	ND [0.250] QL
SW8270DSIM	2-Methylnaphthalene	NS	µg/L	ND [0.250] QL
SW8270DSIM	Acenaphthene	NS	µg/L	ND [0.0500] QL
SW8270DSIM	Acenaphthylene	NS	µg/L	ND [0.0500] QL
SW8270DSIM	Anthracene	NS	µg/L	ND [0.0500] QL
SW8270DSIM	Benzo(a)anthracene	NS	µg/L	ND [0.0500] QL
SW8270DSIM	Benzo(a)pyrene	NS	µg/L	ND [0.0500] QL
SW8270DSIM	Benzo(b)fluoranthene	NS	µg/L	ND [0.0500] QL
SW8270DSIM	Benzo(g,h,i)perylene	NS	µg/L	ND [0.0500] QL
SW8270DSIM	Benzo(k)fluoranthene	NS	µg/L	ND [0.125] QL
SW8270DSIM	Chrysene	NS	µg/L	ND [0.0500] QL
SW8270DSIM	Dibenzo(a,h)anthracene	NS	µg/L	ND [0.0500] QL
SW8270DSIM	Fluoranthene	NS	µg/L	ND [0.0250] QL
SW8270DSIM	Fluorene	NS	µg/L	ND [0.0500] QL
SW8270DSIM	Indeno(1,2,3-cd)pyrene	NS	µg/L	ND [0.0400] QL
SW8270DSIM	Naphthalene	NS	µg/L	ND [0.500] QL
SW8270DSIM	Phenanthrene	NS	µg/L	ND [0.0500] QL
SW8270DSIM	Pyrene	NS	µg/L	ND [0.0500] QL
Calc	TAH[2]	10	µg/L	ND [3.1]
Calc	TAqH[2]	15	µg/L	ND [5.14]

Notes:

[1] PSLs for treated water are the ADEC Surface Water Standards as defined in the ADEC Tech Memo 18.02.

[2] Total aromatic hydrocarbons (TAH) is the sum of the BTEX compounds (benzene, toluene, ethylbenzene, and xylenes) and total aqueous hydrocarbons (TAqH) is the sum of TAH plus the 16 PAHs listed in EPA Method 610. TAH and TAqH were calculated for each sample using the LOD values for non-detect results in accordance with ADEC guidance (ADEC 2022).

LOD shown in brackets [ ]

µg/L – micrograms per liter

ADEC – Alaska Department of Environmental Conservation

DL – detection limit

LOD – limit of detection

LOQ – limit of quantitation

ND – not detected

NS – not specified

QC – quality control

QH/QL/QN – the result is an estimated value, bias high/low/indeterminate, due to a QC failure

SDG – sample delivery group

SIM – selected ion monitoring

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ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for Stockpile ISM Soil

			SAMPLE ID	22NEC-SP1-DU1-01	22NEC-SP1-DU1-02	22NEC-SP1-DU1-03	22NEC-SP1-DU2-01	22NEC-SP1-DU3-01	22NEC-SP2-DU1-01	22NEC-SP2-DU2-01
			LOCATION ID	22NEC-SP1-DU1-01	22NEC-SP1-DU1-02	22NEC-SP1-DU1-03	22NEC-SP1-DU2-01	22NEC-SP1-DU3-01	22NEC-SP2-DU1-01	22NEC-SP2-DU2-01
			LAB SDG	L1524091	L1524091	L1524091	L1524091	L1524091	L1524091	L1524091
			COLLECTION DATE	8/6/2022 10:30:00 AM	8/6/2022 10:35:00 AM	8/6/2022 10:40:00 AM	8/6/2022 11:15:00 AM	8/6/2022 1:00:00 PM	8/6/2022 2:15:00 PM	8/6/2022 2:30:00 PM
			MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil
			QC TYPE	Primary	FD of 22NEC-SP1-DU1-01	FT of 22NEC-SP1-DU1-01	Primary	Primary	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**							
AK102/103	Diesel Range Organics	9200	mg/kg	70.4 [101] J	65.8 [101] J	70.7 [101] J	155 [101]	180 [102]	1770 [102] QH	527 [102]
SM2540G	Solids	NS	%	98.7 [0.200]	98.8 [0.200]	98.7 [0.200]	98.6 [0.200]	98.4 [0.200]	98.2 [0.200]	97.6 [0.200]

Notes:

[1]PSLs for soil are the 18 AAC 75 B1 & B2 most stringent of the Under 40-inch and Migration to Groundwater cleanup levels except for DRO, RRO, and naphthalene; which were defined in the Northeast Cape FUDS, St. Lawrence Island Feasibility study.

LOD shown in brackets [ ]

DL – detection limit

FD – field duplicate

FT – field triplicate

J – the result is an estimated value greater than or equal to the DL and below the LOQ

LOD – limit of detection

LOQ – limit of quantitation

mg/kg – milligrams per kilogram

ND – not detected

NS – not specified

QC – quality control

QH/QL/QN – the result is an estimated value, bias high/low/indeterminate, due to a QC failure

SDG – sample delivery group

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ATTACHMENT F-2
DATA SUMMARY TABLE
Northeast Cape FUDS – 2022 Analytical Results for Waste

			SAMPLE ID	NEC22-WC-1	NEC22-WC-2	NEC22-WC-3	22NEC-WC-4
			LOCATION ID	NEC22-WC-1	NEC22-WC-2	NEC22-WC-3	22NEC-WC-4
			LAB SDG	L1525023	L1525023	L1525023	L1526252
			COLLECTION DATE	8/5/2022 9:00:00 AM	8/6/2022 8:00:00 AM	8/10/2022 1:40:00 PM	8/12/2022 9:25:00 AM
			MATRIX	Soil	Soil	Soil	Soil
			QC TYPE	Primary	Primary	Primary	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**				
SW6010D TCLP	Arsenic	5	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
SW6010D TCLP	Barium	100	mg/L	0.547 [0.0500]	0.597 [0.0500]	0.505 [0.0500]	0.494 [0.0500]
SW6010D TCLP	Cadmium	1	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
SW6010D TCLP	Chromium	5	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
SW6010D TCLP	Lead	5	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
SW6010D TCLP	Selenium	1	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
SW6010D TCLP	Silver	5	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
SW7470A TCLP	Mercury	0.2	mg/L	ND [0.00500]	ND [0.00500]	ND [0.00500]	ND [0.00500]
SW8082A	Aroclor 1016	50	mg/kg	ND [0.0290]	ND [0.0296]	ND [0.0290]	ND [0.0746]
SW8082A	Aroclor 1221	50	mg/kg	ND [0.0290]	ND [0.0296]	ND [0.0290]	ND [0.0746]
SW8082A	Aroclor 1232	50	mg/kg	ND [0.0290]	ND [0.0296]	ND [0.0290]	ND [0.0746]
SW8082A	Aroclor 1242	50	mg/kg	ND [0.0290]	ND [0.0296]	ND [0.0290]	ND [0.0746]
SW8082A	Aroclor 1248	50	mg/kg	ND [0.0174]	ND [0.0178]	ND [0.0174]	ND [0.0448]
SW8082A	Aroclor 1254	50	mg/kg	ND [0.0174]	ND [0.0178]	ND [0.0174]	ND [0.0448]
SW8082A	Aroclor 1260	50	mg/kg	ND [0.0174]	ND [0.0178]	0.0140 [0.0174] J,QN	ND [0.0448]
SW8082A	Aroclor 1262	50	mg/kg	ND [0.0174]	ND [0.0178]	ND [0.0174]	ND [0.0448]
SW8082A	Aroclor 1268	50	mg/kg	ND [0.0174]	ND [0.0178]	ND [0.0174]	ND [0.0448]
SW8260D TCLP	1,1-Dichloroethene	0.7	mg/L	ND [0.0250]	ND [0.0250]	ND [0.0250]	ND [0.0250]
SW8260D TCLP	1,2-Dichloroethane	0.5	mg/L	ND [0.0250]	ND [0.0250]	ND [0.0250]	ND [0.0250]
SW8260D TCLP	2-Butanone	200	mg/L	ND [0.250]	ND [0.250]	ND [0.250]	ND [0.250]
SW8260D TCLP	Benzene	0.5	mg/L	ND [0.0250]	ND [0.0250]	ND [0.0250]	ND [0.0250]
SW8260D TCLP	Carbon tetrachloride	0.5	mg/L	ND [0.0250]	ND [0.0250]	ND [0.0250]	ND [0.0250]
SW8260D TCLP	Chlorobenzene	100	mg/L	ND [0.0250]	ND [0.0250]	ND [0.0250]	ND [0.0250]
SW8260D TCLP	Chloroform	6	mg/L	ND [0.125]	ND [0.125]	ND [0.125]	ND [0.125]
SW8260D TCLP	Tetrachloroethene	0.7	mg/L	ND [0.0250]	ND [0.0250]	ND [0.0250]	ND [0.0250]
SW8260D TCLP	Trichloroethene	0.5	mg/L	ND [0.0250]	ND [0.0250]	ND [0.0250]	ND [0.0250]
SW8260D TCLP	Vinyl chloride	0.2	mg/L	ND [0.0250]	ND [0.0250]	ND [0.0250]	ND [0.0250]
SW8270E TCLP	1,4-Dichlorobenzene	7.5	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500] QL	ND [0.0500]
SW8270E TCLP	2,4,5-Trichlorophenol	400	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
SW8270E TCLP	2,4,6-Trichlorophenol	2	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
SW8270E TCLP	2,4-Dinitrotoluene	0.13	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500] QL	ND [0.0500]
SW8270E TCLP	2-Methylphenol	200	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
SW8270E TCLP	3-Methylphenol/4-Methylphenol Coelution	200	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
SW8270E TCLP	Hexachlorobenzene	0.13	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500] QL	ND [0.0500]
SW8270E TCLP	Hexachlorobutadiene	0.5	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500] QL	ND [0.0500]
SW8270E TCLP	Hexachloroethane	3	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500] QL	ND [0.0500]
SW8270E TCLP	Nitrobenzene	2	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500] QL	ND [0.0500]
SW8270E TCLP	Pentachlorophenol	100	mg/L	ND [0.0500]	ND [0.0500]	ND [0.0500]	ND [0.0500]
SW8270E TCLP	Pyridine	5	mg/L	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500] QL	ND [0.0500]
SM2540G	Solids	NS	%	86.3 [0.200]	84.4 [0.200]	86.3 [0.200]	33.5 [0.200]

Notes:

[1] PSLs are defined as the RCRA maximum concentration for toxicity characteristic, Table 1, 40 CFR §261.24 and for PCBs, the TSCA regulatory concentration, 40 CFR §761.

Bold/red indicates that a detected result exceeds the PSL.

Yellow/Bold indicates the LOD for a non-detect results exceeds the PSL.

LOD shown in brackets [ ]

DL – detection limit

EPA – U.S. Environmental Protection Agency

J – the result is an estimated value greater than or equal to the DL and below the LOQ

LOD – limit of detection

LOQ – limit of quantitation

mg/L – milligrams per liter

mg/kg – milligrams per kilogram

ND – not detected

NS – not specified

PSL – project screening level

QC – quality control

QH/QL/QN – the result is an estimated value, bias high/low/indeterminate, due to a QC failure

RCRA – resource conservation and recovery act

SDG – sample delivery group

TCLP – toxicity characteristic leaching procedure

TSCA – toxic substances control act

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Attachment F-3
ADEC Laboratory Data Review Checklists

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Laboratory Data Review Checklist

Completed By:

Jillian Janssen

Title:

Chemist

Date:

August 25, 2022

Consultant Firm:

Brice Engineering

Laboratory Name:

Pace Analytical National

Laboratory Report Number:

L1520822

Laboratory Report Date:

8/2/2022

CS Site Name:

St Law NEC Facility

ADEC File Number:

475.38.013

Hazard Identification Number:

207

L1520822

Laboratory Report Date:

8/2/2022

CS Site Name:

St Law NEC Facility

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

1. Laboratory

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

   Yes☒ No☐ N/A☐ Comments:

   Samples were received and analyzed by Pace Analytical National of Mount Juliet, TN. CS Approval 17-026

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   All analyses performed at Pace Analytical National, Mount Juliet, TN.

2. Chain of Custody (CoC)

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

   Yes☒ No☐ N/A☐ Comments:

   Initially, the project information was missing from the CoC, but a corrected version was supplied by the project chemist on 8/2/2022

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

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

   Yes☒ No☐ N/A☐ Comments:

   Cooler Pace-22NEC-001 was received at 1.8° C

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

   Yes☒ No☐ N/A☐ Comments:

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8/2/2022

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No discrepancies noted.

e. Data quality or usability affected?

Comments:

No impact to data quality or usability.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

QC failures are identified in the case narrative and discussed in the applicable section of this checklist.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

No corrective actions were documented or performed.

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

Comments:

Effects on data quality and usability are discussed in the applicable sections of this checklist.

L1520822

Laboratory Report Date:

8/2/2022

CS Site Name:

St Law NEC Facility

5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

Reported LODs were compared to the project screening level (PSL) to determine if method sensitivity was acceptable for the project. The PSLs for soil are the 18 AAC 75 B1 & B2 most stringent of the Under 40-inch and Migration to Groundwater cleanup levels except for DRO, RRO, and naphthalene; which were defined in the Northeast Cape FUDS, St. Lawrence Island Feasibility study. The PSLs for sediment are the Washington Administrative Code 173-204-520, Table III, Sediment Minimum Cleanup Levels. All LODs met project sensitivity requirements.

e. Data quality or usability affected?

No impact to data quality or usability.

6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

No target analytes detected in the MBs.

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

Yes☐ No☐ N/A☒ Comments:

v. Data quality or usability affected?

Comments:

No impact to data quality or usability.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No metals/inorganics included in this SDG.

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

Yes☒ No☐ N/A☐ Comments:

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8/2/2022

CS Site Name:

St Law NEC Facility

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

All %R and RPD met acceptance criteria.

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

No impact to data quality or usability.

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

Note: Leave blank if not required for project

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No metals/inorganics included in this SDG.

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CS Site Name:

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

Yes☐ No☒ N/A☐ Comments:

AK102/103: DRO recovery was less than the LCL in the MS and MSD performed for project sample 22NEC-S28-DU2-SD01. Additionally, RRO recovery was less than the lower cutoff in the MS and MSD.
SW8270D-SIM: numerous analytes recovered less than the LCL in the MS performed for 22NEC-S28-DU2-SD01 including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene.

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

Yes☐ No☒ N/A☐ Comments:

SW8270D-SIM: analytes fluoranthene and pyrene had an RPD that exceeded the control limit in the MS/MSD performed for 22NEC-S28-DU2-SD01.

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

Comments:

22NEC-S28-DU2-SD01 is affected by the failures noted above.

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

Yes☒ No☐ N/A☐ Comments:

22NEC-S28-DU2-SD01 results for DRO, RRO, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene were qualified QL for potential low bias due to the MS/MSD %R failures. The additional SW8270D-SIM analytes with RPD failures retained the QL qualifier for the %R failures, as this is the most conservative qualifier and has the most significant impact on usability.

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8/2/2022

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

Comments:

All affected analytes were significantly less than the PSLs, so data usability was not affected.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☒ N/A☐ Comments:

SW8270D-SIM surrogate failures were noted in the following samples:

- MB R3823504-2: 2-fluorobiphenyl, 2-methylnaphthalene-d10, and p-terphenyl-d14 %R were less than the LCL in the MB. Other batch QC samples had acceptable surrogate recovery, so data quality and usability were not affected by these failures.
- 22NEC-S28-DU2-SD01: 2-methylnaphthalene-d10 %R in 22NEC-S28-DU2-SD01 and the MS were less than the LCL.
- 22NEC-S28-DU01-SD01: nitrobenzene-d5 %R was less than the LCL.

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:

SW8270D-SIM: Positive detections and non-detect results in samples 22NEC-S28-DU2-SD01 and 22NEC-S28-DU01-SD01 were qualified QL for potential low bias.

iv. Data quality or usability affected?

Comments:

All affected results were significantly less than the PSL, so data usability was not affected.

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Laboratory Report Date:

8/2/2022

CS Site Name:

St Law NEC Facility

e. Trip Blanks

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

Yes☐ No☐ N/A☒ Comments:

No volatiles included in this SDG.

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

Yes☐ No☐ N/A☒ Comments:

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

N/A

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

f. Field Duplicate

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

Yes☐ No☐ N/A☒ Comments:

This SDG included ISM replicates, which do not have the sample field duplicate requirements. ISM replicate precision is addressed in the main report.

ii. Submitted blind to lab?

Yes☐ No☐ N/A☒ Comments:

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Laboratory Report Date:

8/2/2022

CS Site Name:

St Law NEC Facility

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☐ No☐ N/A☒ Comments:

Field replicate precision for ISM samples is addressed in the main report.

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

N/A – no impact to data quality or usability.

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

Yes☐ No☐ N/A☒ Comments:

Equipment blanks were not required in the approved project WP.

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

Yes☐ No☐ N/A☒ Comments:

ii. If above LOQ or project specified objectives, what samples are affected?
Comments:

iii. Data quality or usability affected?
Comments:

No impact to data quality or usability.

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St Law NEC Facility

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

   a. Defined and appropriate?

      Yes☐ No☐ N/A☒ Comments:

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Laboratory Data Review Checklist

Completed By:

Jillian Janssen

Title:

Chemist

Date:

August 26, 2022

Consultant Firm:

Brice Engineering

Laboratory Name:

Pace Analytical National

Laboratory Report Number:

L1520826

Laboratory Report Date:

August 26, 2022

CS Site Name:

St Law NEC Facility

ADEC File Number:

475.38.013

Hazard Identification Number:

207

L1520826

Laboratory Report Date:

August 26, 2022

CS Site Name:

St Law NEC Facility

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

1. Laboratory

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

   Yes☒ No☐ N/A☐ Comments:

   Samples were received and analyzed by Pace Analytical National of Mount Juliet, TN. CS Approval 17-026

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   All analyses performed at Pace Analytical National, Mount Juliet, TN.

2. Chain of Custody (CoC)

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

   Yes☒ No☐ N/A☐ Comments:

   The original CoC was missing the project name & number, but a corrected version was submitted by the project chemist the day samples were received (8/2/2022)

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

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

   Yes☒ No☐ N/A☐ Comments:

   Cooler PACE-22NEC-W001 was received at 5.3° C

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

   Yes☒ No☐ N/A☐ Comments:

L1520826

Laboratory Report Date:

August 26, 2022

CS Site Name:

St Law NEC Facility

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No discrepancies noted.

e. Data quality or usability affected?

Comments:

No impact to data quality or usability.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

QC failures are identified in the case narrative and discussed in the applicable section of this checklist.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

No corrective actions were documented or performed.

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

Comments:

Effects on data quality and usability are discussed in the applicable sections of this checklist.

L1520826

Laboratory Report Date:

August 26, 2022

CS Site Name:

St Law NEC Facility

5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

No soils included in this SDG.

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

Yes☒ No☐ N/A☐ Comments:

e. Data quality or usability affected?

No impact to data quality or usability.

6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☒ N/A☐ Comments:

1-methylnaphthalene, 2-methylnaphthalene, and fluoranthene were detected in the MB for SW8270D-SIM batch WG1904402.

L1520826

Laboratory Report Date:

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

Comments:

Samples 22NEC-S28-SW-01, 22NEC-S28-SW-03, 22NEC-S28-SW-04, and 22NEC-S28-SW-05 were affected by the MB detections.

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

Yes☐ No☐ N/A☐ Comments:

The following samples had associated detections less than 10x the MB amount and were qualified B for potential high bias:

- 1-methylnaphthalene: 22NEC-S28-SW-04 and 22NEC-S28-SW-05
- 2-methylnaphthalene: 22NEC-S28-SW-05
- Fluoranthene: 22NEC-S28-SW-01, 22NEC-S28-SW-03, and 22NEC-S28-SW-05

v. Data quality or usability affected?

Comments:

The affected results were significantly less than the PSL, so data usability was not affected.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No metals/inorganics included in this SDG.

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

Yes☐ No☒ N/A☐ Comments:

AK103 analyte RRO %R was greater than the UCL in the LCSD for batch WG1904475.

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

Yes☐ No☒ N/A☐ Comments:

LCS/LCSD RPD exceeded the control limit for DRO and RRO in AK102/AK103 batch WG1904475.

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

Comments:

All project samples were non-detect for RRO. Non-detect results are not affected by high %R/bias or RPD failures.
Samples 22NEC-S28-SW-03 and 22NEC-S28-SW-04 had positive detections for DRO, so were affected by the RPD failure. The remaining samples were non-detect and were not affected.

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

Yes☒ No☐ N/A☐ Comments:

Samples 22NEC-S28-SW-03 and 22NEC-S28-SW-04 were qualified QN for possible indeterminate bias.

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

Comments:

The affected results were significantly less than the PSL, so data usability was not affected.

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

Note: Leave blank if not required for project

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

Yes☐ No☒ N/A☐ Comments:

A site-specific MS/MSD was not submitted with this SDG.

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

Yes☐ No☐ N/A☒ Comments:

No metals/inorganics included with this SDG.

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

Yes☐ No☐ N/A☒ Comments:

No site-specific MS/MSD analyzed.

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

Yes☐ No☐ N/A☒ Comments:

No site-specific MS/MSD analyzed.

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

Comments:

No site-specific MS/MSD analyzed.

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

Site-specific MS/MSDs were not included in the analytical batches in this report. Matrix effects on method performance for these individual batches could not be assessed. Overall matrix effects for each method were assessed with the inclusion of site-specific MS/MSDs at a frequency of 1 per 20 samples.

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:

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

Yes☐ No☒ N/A☐ Comments:

AK102/AK103 surrogate o-Terphenyl %R was greater than the UCL in the LCS and n-Triacontane-d62 %R was less than the LCL in the LCSD for batch WG1904475.
SW8270D-SIM surrogates p-Terphenyl-d14 and Fluoranthene-d10 %R were less than the LCL in project sample 22NEC-S28-WA-01. The case narrative indicated that the failures were due to matrix interference.

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

Yes☒ No☐ N/A☐ Comments:

All target analytes for SW8270D-SIM in 22NEC-S28-WA-01 were non-detect and were qualified QL for potential low bias.

iv. Data quality or usability affected?

Comments:

The affected results were significantly less than the PSL, so data usability was not affected.

e. Trip Blanks

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

All project samples and the TB were transported in cooler PACE-22NEC-W001.

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

Yes☒ No☐ N/A☐ Comments:

No target analytes were detected in the TB.

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

Comments:

N/A

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

f. Field Duplicate

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

Yes☒ No☐ N/A☐ Comments:

One FD pair (22NEC-S28-SW-01/22NEC-S28-SW-901) was submitted for five primary water samples.

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☐ No☐ N/A☒ Comments:

All target analytes were non-detect or were less than the LOQ, so RPD could not be calculated.

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

Comments:

No impact to data quality and usability.

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

Yes☐ No☐ N/A☒ Comments:

Equipment blanks were not required in the approved project WP.

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

iii. Data quality or usability affected?

Comments:

No impact to data quality or usability.

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

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

Laboratory Data Review Checklist

Completed By:

Jillian Janssen

Title:

Chemist

Date:

September 16, 2022

Consultant Firm:

Brice Engineering

Laboratory Name:

Pace Analytical National

Laboratory Report Number:

L1521707

Laboratory Report Date:

September 16, 2022

CS Site Name:

St Law NEC Facility

ADEC File Number:

475.38.013

Hazard Identification Number:

207

L1521707

Laboratory Report Date:

September 16, 2022

CS Site Name:

St Law NEC Facility

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

1. Laboratory

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

   Yes☒ No☐ N/A☐ Comments:

   Samples were received and analyzed by Pace Analytical National of Mount Juliet, TN. CS Approval 17-026

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   All analyses performed at Pace Analytical National, Mount Juliet, TN.

2. Chain of Custody (CoC)

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

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

   The original CoC requested dissolved metals on a nitric-acid preserved HDPE container; however, the samples had not been filtered in the field. A corrected CoC was submitted by the project chemist at the time of lab receipt to request dissolved metals with a lab filter on an unpreserved HDPE container shared with sulfate.

3. Laboratory Sample Receipt Documentation

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

   Yes☒ No☐ N/A☐ Comments:

   Cooler PACE-22NEC-W002 received at 1.6° C

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

   Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No discrepancies noted.

e. Data quality or usability affected?

Comments:

No impact to data quality or usability.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

QC failures are identified in the case narrative and discussed in the applicable section of this checklist.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

No corrective actions were documented or performed.

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

Comments:

Effects on data quality and usability are discussed in the applicable sections of this checklist.

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5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

Soils were not included in this SDG.

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

Yes☐ No☒ N/A☐ Comments:

Reported LODs were compared to the project screening levels (PSLs) to determine if method sensitivity was acceptable for the project. The PSLs for groundwater are the 18 AAC 75 Table C groundwater cleanup levels except for DRO, RRO, arsenic, and lead; which were defined in the Northeast Cape FUDS, St. Lawrence Island Feasibility study. All LODs for all reported SW8082A PCB analytes exceeded the PSLs due to limitations in the sensitivity of the analytical method. Reported LODs were slightly higher than those reported in the SAP due changes in laboratory method capabilities after the SAP was finalized.

e. Data quality or usability affected?

It cannot be determined whether project samples are non-detect for PCBs at the PSL. Data usability is affected.

6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☒ N/A☐ Comments:

The following analytes were detected at a concentration greater than the DL but less than the LOQ:

- SW6020B: lead was detected at a concentration of 0.691 µg/L in the MB for batch WG1910177
- SW8270D SIM: anthracene was detected at a concentration of 0.0217 µg/L in the MB for batch WG1905790

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

Comments:

The following project samples had associated detections less than 10x the MB amount:

- Lead: 22NEC-MOC-14MW03, 22NEC-MOC-14MW06, 22NEC-MOC-14MW07, 22NEC-MOC-MW88-10, and FD 22NEC-MOC-14MW903.
- Anthracene: 22NEC-MOC-14MW03, 22NEC-MOC-14MW06, 22NEC-MOC-14MW07, 22NEC-MOC-MW88-10, 22NEC-MOC-17MW1, and FD 22NEC-MOC-14MW903.

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

Yes☒ No☐ N/A☐ Comments:

Affected results were qualified B for potential high bias.

v. Data quality or usability affected?

Comments:

All affected results were significantly less than the PSLs, so data usability was not affected.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☒ N/A☐ Comments:

AK103 analyte RRO recovered greater than the UCL in the LCS and LCSD for batch WG1905767.

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

Sample 22NEC-MOC-14MW06 was affected by the RRO recovery failure noted in 6.b.iii. All other associated result were non-detect, so were not affected by the high %R

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

Yes☒ No☐ N/A☐ Comments:

RRO was qualified QH, for potential high bias, in project sample 22NEC-MOC-14MW06.

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

Comments:

The affected result was significantly less than the PSL, so data usability was not affected.

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

Note: Leave blank if not required for project

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

Yes☐ No☒ N/A☐ Comments:

A site-specific MS/MSD was not submitted with this SDG.

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

Yes☐ No☒ N/A☐ Comments:

A site-specific MS/MSD was not submitted with this SDG.

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

Yes☐ No☐ N/A☒ Comments:

Site-specific MS/MSDs were not analyzed.

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

Yes☐ No☐ N/A☒ Comments:

Site-specific MS/MSDs were not analyzed.

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

Comments:

Site-specific MS/MSDs were not analyzed.

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

Yes☐ No☐ N/A☒ Comments:

Site-specific MS/MSDs were not analyzed.

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

Comments:

Site-specific MS/MSDs were not included in every analytical batch. Matrix effects on method performance for these individual batches could not be assessed. Overall matrix effects for each method were assessed with the inclusion of site-specific MS/MSDs at a frequency of 1 per 20 samples.

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:

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

Yes☐ No☒ N/A☐ Comments:

The following surrogates exceeded the %R limits:

- AK102/103: o-terphenyl and n-triacontane-d62 %R was greater than the UCL in the LCS and/or LCSD for batch WG1905767.
- SW8270E-SIM: p-terphenyl-d14 %R was less than the LCL in project samples 22NEC-MOC-14MW06, 22NEC-MOC-14MW07, and 22NEC-MOC-17MW1.

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:

Qualification was not required for the AK102/103 surrogate %R failures noted above. %R met acceptance criteria in all project samples.
All SW8270E-SIM results (positive detections and non-detects) were qualified QL, for potential low bias, in project samples 22NEC-MOC-14MW06, 22NEC-MOC-14MW07, and 22NEC-MOC-17MW1.

iv. Data quality or usability affected?

Comments:

All affected results were significantly less than the PSLs, so data usability was not affected.

e. Trip Blanks

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

All samples were transported in 1 cooler.

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

Yes☒ No☐ N/A☐ Comments:

No target analytes were detected in the TB.

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

Comments:

N/A

v. Data quality or usability affected?

Comments:

No impact to data quality or usability.

f. Field Duplicate

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

Yes☒ No☐ N/A☐ Comments:

One FD was submitted for five primary water samples.

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☒ No☐ N/A☐ Comments:

FD RPD was calculated when one or both results were >LOQ. All FD RPDs met acceptance criteria.

Location:	22NEC-MOC-14MW03	22NEC-MOC-14MW03
Sample ID:	22NEC-MOC-14MW03	22NEC-MOC-14MW903
Date Sampled:	8/1/2022	8/1/2022
Sample Type:	**Primary**	**FD**

Analyte	Units			RPD
Acenaphthene	ug/L	0.151	0.176	15.29%
Alkalinity, Bicarbonate as CaCO3	ug/L	33900	32300	4.83%
Alkalinity, Total	ug/L	33900	32300	4.83%
Arsenic, T	ug/L	1.94	1.89	2.61%
Arsenic,Dissolved, D	ug/L	1.90	1.85	2.67%
Barium, T	ug/L	22.8	24.7	8.00%
Barium,Dissolved, D	ug/L	24.2	24	0.83%
Diesel Range Organics	ug/L	1040	974	6.55%
Fluorene	ug/L	0.253	0.292	14.31%
Lead, Dissolved, D	ug/L	3.25	2.96	9.34%
Lead, T	ug/L	2.99	3.51	16.00%
Manganese,Dissolved, D	ug/L	1380	1350	2.20%
Methane	ug/L	25.4	22.5	12.11%
Nickel, T	ug/L	4.90	5.46	10.81%
Nickel,Dissolved, D	ug/L	5.02	5.28	5.05%
Sulfate	ug/L	42800	43400	1.39%

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

Data quality and usability were not affected.

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

Yes☐ No☐ N/A☒ Comments:

Equipment blanks were not required in the approved project WP.

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

N/A

iii. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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

a. Defined and appropriate?

Yes☒ No☐ N/A☐ Comments:

- RRO recovery in CCV 0805_040 was slightly greater than the UCL (126%). The following associated project samples were qualified QH for potential high bias: 22NEC-MOC-MW88-10, 22NEC-MOC-14MW03, 22NEC-MOC-14MW06, and FD 22NEC-MOC-14MW903.

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Laboratory Data Review Checklist

Completed By:

Jillian Janssen

Title:

Chemist

Date:

September 14, 2022

Consultant Firm:

Brice Engineering

Laboratory Name:

Pace Analytical National

Laboratory Report Number:

L1521959

Laboratory Report Date:

September 14, 2022

CS Site Name:

St Law NEC Facility

ADEC File Number:

475.38.013

Hazard Identification Number:

207

L1521959

Laboratory Report Date:

September 14, 2022

CS Site Name:

St Law NEC Facility

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

1. Laboratory

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

   Yes☒ No☐ N/A☐ Comments:

   Samples were received and analyzed by Pace Analytical National of Mount Juliet, TN. CS Approval 17-026

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   All analyses performed at Pace Analytical National, Mount Juliet, TN.

2. Chain of Custody (CoC)

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

   Yes☒ No☐ N/A☐ Comments:

   The original CoC requested dissolved metals on a nitric-acid preserved HDPE container; however, the samples had not been filtered in the field. A corrected CoC was submitted by the project chemist at the time of lab receipt to request dissolved metals with a lab filter on an unpreserved HDPE container shared with sulfate.

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

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

   Yes☒ No☐ N/A☐ Comments:

   Cooler Pace-22NEC-W003 received at 2.8° C

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

   Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No discrepancies noted.

e. Data quality or usability affected?

Comments:

No impact to data quality or usability.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

QC failures are identified in the case narrative and discussed in the applicable section of this checklist.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

No corrective actions were documented or performed.

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

Comments:

Effects on data quality and usability are discussed in the applicable sections of this checklist.

L1521959

Laboratory Report Date:

September 14, 2022

CS Site Name:

St Law NEC Facility

5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

No soils included in this SDG.

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

Yes☐ No☒ N/A☐ Comments:

Reported LODs were compared to the project screening level (PSL) to determine if method sensitivity was acceptable for the project. The PSLs for groundwater are the 18 AAC 75 Table C groundwater cleanup levels except for DRO, RRO, arsenic, and lead; which were defined in the Northeast Cape FUDS, St. Lawrence Island Feasibility study. All LODs for all reported SW8082A PCB analytes exceeded the PSL due to limitations in the sensitivity of the analytical method. Reported LODs were slightly higher than those reported in the SAP due changes in laboratory method capabilities after the SAP was finalized.

e. Data quality or usability affected?

It cannot be determined whether project samples are non-detect for PCBs at the PSL. Data usability is affected.

6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☒ N/A☐ Comments:

SW8270D SIM: anthracene was detected at a concentration of 0.0217 µg/L in the MB for batch WG1905790

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

Comments:

Samples 22NEC-MOC-26MW1 and 22NEC-MOC-MW88-1 had positive detections for anthracene less than 10x the MB amount and were affected by the failure noted above.

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

Yes☒ No☐ N/A☐ Comments:

Anthracene results in 22NEC-MOC-26MW1 and 22NEC-MOC-MW88-1 were qualified B for potential high bias.

v. Data quality or usability affected?

Comments:

The affected results were significantly less than the PSL, so data usability was not affected.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☒ N/A☐ Comments:

AK103 analyte RRO %R was greater than the UCL in the LCSD for batch WG1908113.

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

RRO was not detected in any associated project samples, so were not affected by the high %R noted in 6.b.iii.

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

Yes☐ No☐ N/A☒ Comments:

Data qualification was not required.

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

Comments:

Data quality and usability were not affected.

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

Note: Leave blank if not required for project

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

Yes☐ No☒ N/A☐ Comments:

A site-specific MS/MSD was not submitted with this SDG.

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

Yes☐ No☒ N/A☐ Comments:

A site-specific MS/MSD was not submitted with this SDG.

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

Yes☐ No☐ N/A☒ Comments:

Site-specific MS/MSDs were not analyzed.

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

Yes☐ No☐ N/A☒ Comments:

Site-specific MS/MSDs were not analyzed.

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

Comments:

Site-specific MS/MSDs were not analyzed.

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

Yes☐ No☐ N/A☒ Comments:

Site-specific MS/MSDs were not analyzed.

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

Comments:

Site-specific MS/MSDs were not included in every analytical batch. Matrix effects on method performance for these individual batches could not be assessed. Overall matrix effects for each method were assessed with the inclusion of site-specific MS/MSDs at a frequency of 1 per 20 samples.

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:

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

Yes☐ No☒ N/A☐ Comments:

The following surrogates exceeded the %R limits:

- AK102/103: o-terphenyl %R was greater than the UCL in the LCS and LCSD for batch WG1908113.
- SW8260D: toluene-d8 %R was less than the LCL in the MSD performed for a non-project sample in WG1906338.
- SW8270D-SIM: p-terphenyl-d14 %R was less than the LCL in project samples 22NEC-MOC-20MW1, 22NEC-MOC-22MW2, 22NEC-MOC-26MW1, and 22NEC-MOC-MW88-1. Additionally, 2-fluorobiphenyl-d14 %R was less than the LCL in sample 22NEC-MOC-26MW1.

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:

Qualification was not required for the AK102/103 and SW8260D surrogate %R failures noted above. %R met acceptance criteria in all project samples.
All SW8270D-SIM results (positive detections and non-detects) were qualified QL, for potential low bias, in project samples 22NEC-MOC-20MW1, 22NEC-MOC-22MW2, 22NEC-MOC-26MW1, and 22NEC-MOC-MW88-1.

iv. Data quality or usability affected?

Comments:

All affected results were significantly less than the PSLs, so data usability was not affected.

e. Trip Blanks

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

All samples were transported in one cooler.

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

Yes☒ No☐ N/A☐ Comments:

Benzene was detected at a concentration greater than the DL but less than the LOQ in TB 22NEC-TB03 (0.125 µg/L).

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

Comments:

Benzene was not detected in any associated project samples, so were not affected by the TB detection.

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

f. Field Duplicate

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

Yes☐ No☒ N/A☐ Comments:

A field duplicate was not submitted with this SDG, but overall field duplicate frequency for the project was achieved.

ii. Submitted blind to lab?

Yes☐ No☐ N/A☒ Comments:

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☐ No☐ N/A☒ Comments:

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

Comments:

Data quality and usability were not affected.

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

Yes☐ No☒ N/A☐ Comments:

Equipment blanks were not required in the approved project WP.

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

N/A

iii. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

PCB 1260 recovery in CCV 0807_40, column 1 was slightly greater than the UCL (125%). The following associated project sample, 22NEC-MOC-22MW2, was non-detect for this analyte so was not affected by the failure.

Laboratory Data Review Checklist

Completed By:

Jillian Janssen

Title:

Chemist

Date:

September 21, 2022

Consultant Firm:

Brice Engineering

Laboratory Name:

Pace Analytical National

Laboratory Report Number:

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Laboratory Report Date:

September 19, 2022

CS Site Name:

St Law NEC Facility

ADEC File Number:

475.38.013

Hazard Identification Number:

207

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

1. Laboratory

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

   Yes☒ No☐ N/A☐ Comments:

   Samples were received and analyzed by Pace Analytical National of Mount Juliet, TN. CS Approval 17-026

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   All analyses performed at Pace Analytical National, Mount Juliet, TN.

2. Chain of Custody (CoC)

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

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

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

   Yes☒ No☐ N/A☐ Comments:

   Cooler PACE-22NEC-002 was received at 4.5° C

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

   Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No discrepancies noted.

e. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

QC failures are identified in the case narrative and discussed in the applicable section of this checklist.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

No corrective actions were documented or performed.

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

Comments:

Effects on data quality and usability are discussed in the applicable sections of this checklist.

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5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

Reported LODs were compared to the project screening levels (PSL) to determine if method sensitivity was acceptable for the project. The PSLs for soil are the 18 AAC 75 B1 & B2 most stringent of the Under 40-inch and Migration to Groundwater cleanup levels except for DRO, RRO, and naphthalene; which were defined in the Northeast Cape FUDS, St. Lawrence Island Feasibility study. All LODs for all reported analytes met sensitivity requirements.

e. Data quality or usability affected?

Data quality and usability were not affected.

6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☒ N/A☐ Comments:

AK103 analyte RRO was detected in the MB at a concentration greater than the DL but less than LOQ (71 J mg/kg).

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

Comments:

The positive detection for RRO in sample 22NEC-S08-SS15 was less than 10x the MB amount and was affected. This was the only project sample in the affected batch.

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

Yes☒ No☐ N/A☐ Comments:

The affected RRO result was qualified B for possible high bias.

v. Data quality or usability affected?

Comments:

The affected result was significantly less than the PSL so data usability was not affected.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☒ N/A☐ Comments:

The following Walkley-Black TOC sample duplicates had RPDs that exceeded the control limit: WG1908581 duplicate for project sample 22NEC-S08-SS06 and duplicate R3824871-5 performed for a non-project sample.

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

Comments:

Project sample 22NEC-S08-SS06 was affected by the duplicate RPD failure in batch WG1908581.

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

Yes☒ No☐ N/A☐ Comments:

Project sample 22NEC-S08-SS06 was qualified QN for possible indeterminate bias.

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

Comments:

TOC does not have a PSL, so data usability was not affected.

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

Note: Leave blank if not required for project

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

Yes☒ No☐ N/A☐ Comments:

A site-specific MS/MSD was submitted at the required frequency for all requested analytes. However, the laboratory split samples into separate batches and the following did not include a site-specific MS/MSD: AK102/103 batches WG1910103 (unrelated MS/MSD) and WG1912269 (LCS/LCSD pair).

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

Yes☒ No☐ N/A☐ Comments:

A site-specific MS/MSD was submitted at the required frequency for all requested analytes. However, the laboratory split samples into separate batches and the following did not include a site-specific MS/MSD: Walkley-Black batches WG1914568 and WG1916410. These batches did include an MS/MSD not related to this SDG.

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

Yes☐ No☒ N/A☐ Comments:

AK102 analyte DRO %R was greater than the UCL in the MS and RRO recovery was 0% in both the MS and MSD performed for sample 22NEC-S08-SS07 in batch WG1907967. Additionally, RRO %R were less than 10% in the MS and MSD performed for sample 22NEC-S08-SS07 in batch WG1907968. The case narrative indicated that the sample matrix interfered with spike recovery.

SW8270D-SIM analytes benzo(a)anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, and pyrene %Rs were less than the LCL in the MS performed for 22NEC-S08-SS07 in batch WG1907979. The case narrative indicated that the sample matrix interfered with spike recovery.

%R failures were noted for a MS/MSD performed on a non-project sample (batch WG1914568), but project samples were not affected.

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

Yes☐ No☒ N/A☐ Comments:

The case narrative noted numerous SW8270D-SIM analytes had RPDs that exceeded the control limit in the MS/MSD performed for 22NEC-S08-SS07 in batch WG1907979. The case narrative indicated that the sample matrix interfered with spike recovery. However, the PDF report used more stringent RPD limits for PAH than is required by the DOD QSM. All MS/MSD RPDs met DoD QSM criteria, so data qualification was not required.

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

Comments:

Project sample 22NEC-S08-SS07 was affected by the %R failures noted above.

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

Yes☒ No☐ N/A☐ Comments:

The following qualifications were made due to the MS/MSD failures noted above:

- AK102: DRO was not detected, so was not affected by high bias.
- AK103: RRO and RRO with silica gel cleanup were qualified QL for possible low bias.
- SW8270D-SIM:
  - The following analytes were qualified QL for %R failures: benzo(a)anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, and pyrene

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

Comments:

The affected positive detections and non-detect results were significantly less than the PSLs, so data usability was not affected.

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:

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

Yes☐ No☒ N/A☐ Comments:

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Numerous surrogate failures were noted:

Method	Sample ID	LabBatch	Analyte	%R	LCL	UCL	Status	DF
AK102/103	R3825146-1 MB	WG1907967	n-Triacontane-d62	121	60.0	120	F-H	1
AK102/103	R3825146-2 LCS	WG1907967	n-Triacontane-d62	122	60.0	120	F-H	1
AK102/103	R3825146-3 LCSD	WG1907967	n-Triacontane-d62	126	60.0	120	F-H	1
AK102/103_SG	R3825304-3 LCSD	WG1907968	n-Triacontane-d62	122	60.0	120	F-H	1
8270DSIM	22NEC-S08-SS01	WG1907979	2-Methylnaphthalene-d10	47.0	50.0	150	F-L	1
8270DSIM	22NEC-S08-SS01	WG1907979	p-Terphenyl-d14	50.0	58.0	133	F-L	1
8270DSIM	22NEC-S08-SS02	WG1907979	2-Fluorobiphenyl	247	46.0	115	F-H	1
8270DSIM	22NEC-S08-SS02	WG1907979	2-Methylnaphthalene-d10	246	50.0	150	F-H	1
8270DSIM	22NEC-S08-SS02	WG1907979	Nitrobenzene-d5	824	44.0	125	F-H	1
8270DSIM	22NEC-S08-SS02	WG1907979	p-Terphenyl-d14	54.8	58.0	133	F-L	1
8270DSIM	22NEC-S08-SS02	WG1907979	2-Fluorobiphenyl	0.000	46.0	115	F-L	10
8270DSIM	22NEC-S08-SS02	WG1907979	2-Methylnaphthalene-d10	0.000	50.0	150	F-L	10
8270DSIM	22NEC-S08-SS02	WG1907979	Nitrobenzene-d5	0.000	44.0	125	F-L	10
8270DSIM	22NEC-S08-SS02	WG1907979	2-Fluorobiphenyl	0.000	46.0	115	F-L	100
8270DSIM	22NEC-S08-SS02	WG1907979	2-Methylnaphthalene-d10	0.000	50.0	150	F-L	100
8270DSIM	22NEC-S08-SS02	WG1907979	Nitrobenzene-d5	0.000	44.0	125	F-L	100
8270DSIM	22NEC-S08-SS02	WG1907979	2-Fluorobiphenyl	0.000	46.0	115	F-L	1000
8270DSIM	22NEC-S08-SS02	WG1907979	2-Methylnaphthalene-d10	0.000	50.0	150	F-L	1000
8270DSIM	22NEC-S08-SS02	WG1907979	Fluoranthene-D10	0.000	50.0	150	F-L	1000
8270DSIM	22NEC-S08-SS02	WG1907979	Nitrobenzene-d5	0.000	44.0	125	F-L	1000
8270DSIM	22NEC-S08-SS02	WG1907979	p-Terphenyl-d14	302	58.0	133	F-H	1000
AK102/103	22NEC-S08-SS02	WG1907967	n-Triacontane-d62	0.000	50.0	150	F-L	20
AK102/103	22NEC-S08-SS02	WG1907967	o-Terphenyl	0.000	50.0	150	F-L	20
AK102/103_SG	22NEC-S08-SS02	WG1907968	o-Terphenyl	0.000	50.0	150	F-L	20
8270DSIM	22NEC-S08-SS03	WG1907979	Nitrobenzene-d5	1260	44.0	125	F-H	1
8270DSIM	22NEC-S08-SS03	WG1907979	2-Methylnaphthalene-d10	155	50.0	150	F-H	10
8270DSIM	22NEC-S08-SS03	WG1907979	Nitrobenzene-d5	0.000	44.0	125	F-L	10
8270DSIM	22NEC-S08-SS05	WG1907979	Nitrobenzene-d5	2290	44.0	125	F-H	1
8270DSIM	22NEC-S08-SS06	WG1907979	2-Methylnaphthalene-d10	49.5	50.0	150	F-L	1
8270DSIM	22NEC-S08-SS06	WG1907979	Fluoranthene-D10	48.0	50.0	150	F-L	1
8270DSIM	22NEC-S08-SS06	WG1907979	p-Terphenyl-d14	54.3	58.0	133	F-L	1
8270DSIM	22NEC-S08-SS07	WG1907979	p-Terphenyl-d14	54.1	58.0	133	F-L	1
8270DSIM	22NEC-S08-SS11	WG1907979	2-Fluorobiphenyl	45.8	46.0	115	F-L	1
8270DSIM	22NEC-S08-SS11	WG1907979	2-Methylnaphthalene-d10	47.8	50.0	150	F-L	1

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8270DSIM	22NEC-S08-SS11	WG1907979	Fluoranthene-D10	49.4	50.0	150	F-L	1
8270DSIM	22NEC-S08-SS11	WG1907979	p-Terphenyl-d14	44.6	58.0	133	F-L	1
AK102/103	22NEC-S08-SS15	WG1910103	n-Triacontane-d62	31.5	50.0	150	F-L	1
AK102/103_SG	22NEC-S08-SS15	WG1912269	n-Triacontane-d62	46.6	50.0	150	F-L	1
8270DSIM	22NEC-S08-SS902	WG1907979	2-Methylnaphthalene-d10	351	50.0	150	F-H	1
8270DSIM	22NEC-S08-SS902	WG1907979	Nitrobenzene-d5	9420	44.0	125	F-H	1
8270DSIM	22NEC-S08-SS902	WG1907979	2-Fluorobiphenyl	0.000	46.0	115	F-L	100
8270DSIM	22NEC-S08-SS902	WG1907979	2-Methylnaphthalene-d10	0.000	50.0	150	F-L	100
8270DSIM	22NEC-S08-SS902	WG1907979	Fluoranthene-D10	0.000	50.0	150	F-L	100
8270DSIM	22NEC-S08-SS902	WG1907979	Nitrobenzene-d5	0.000	44.0	125	F-L	100

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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:

The table below summarizes the analyses that required flagging:

Method	Sample ID	Status	DF	Flag
AK102/103	R3825146-1 MB	F-H	1	not required
AK102/103	R3825146-2 LCS	F-H	1	not required
AK102/103	R3825146-3 LCSD	F-H	1	not required
AK102/103_SG	R3825304-3 LCSD	F-H	1	not required
8270DSIM	22NEC-S08-SS01	F-L	1	QL for detects & NDs
8270DSIM	22NEC-S08-SS02	F-H & F-L	1	QL for detects & NDs (most conservative flagging of the failures noted)
8270DSIM	22NEC-S08-SS02	F-L	10	not required - dilution
8270DSIM	22NEC-S08-SS02	F-L	100	not required - dilution
8270DSIM	22NEC-S08-SS02	F-L	1000	not required - dilution
8270DSIM	22NEC-S08-SS02	F-H	1000	not required - dilution
AK102/103	22NEC-S08-SS02	F-L	20	not required - dilution
AK102/103_SG	22NEC-S08-SS02	F-L	20	not required - dilution
8270DSIM	22NEC-S08-SS03	F-H	1	QH for detects
8270DSIM	22NEC-S08-SS03	F-H	10	not required - dilution
8270DSIM	22NEC-S08-SS03	F-L	10	not required - dilution
8270DSIM	22NEC-S08-SS05	F-H	1	QH for detects
8270DSIM	22NEC-S08-SS06	F-L	1	QL for detects & NDs
8270DSIM	22NEC-S08-SS11	F-L	1	QL for detects & NDs
AK102/103	22NEC-S08-SS15	F-L	1	QL for detects & NDs
8270DSIM	22NEC-S08-SS902	F-H	1	QH for detects
8270DSIM	22NEC-S08-SS902	F-L	100	not required - dilution

iv. Data quality or usability affected?

Comments:

The affected results were either significantly greater than or significantly less than the PSLs, so data usability was not affected.

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e. Trip Blanks

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

Yes☐ No☐ N/A☒ Comments:

No volatiles included in this SDG.

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

Yes☐ No☐ N/A☒ Comments:

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

f. Field Duplicate

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

Yes☐ No☒ N/A☐ Comments:

One FD was submitted for 15 primary soil samples. Overall FD frequency for soil was achieved for the project.

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☐ No☒ N/A☐ Comments:

		22NEC-S08-SS02	22NEC-S08-SS902		
ANALYTE	UNITS			RPD	Flag
Diesel Range Organics	mg/kg	169000	27900	143%	QN
Residual Range Organics	mg/kg	5780	1550 J	115%	QN
Diesel Range Organics (SG)	mg/kg	143000	27200	136%	QN
Residual Range Organics (SG)	mg/kg	3950	993 J	124%	QN
1-Methylnaphthalene	mg/kg	946	128	152%	QN
2-Chloronaphthalene	mg/kg	ND	ND	--	
2-Methylnaphthalene	mg/kg	1290	230	139%	QN
Acenaphthene	mg/kg	25.3	3.61	150%	QN
Acenaphthylene	mg/kg	ND	ND	--	
Anthracene	mg/kg	ND	ND	--	
Benzo(a)anthracene	mg/kg	0.00966 J	ND	--	
Benzo(a)pyrene	mg/kg	0.00918 J	ND	--	
Benzo(b)fluoranthene	mg/kg	0.00730 J	ND	--	
Benzo(g,h,i)perylene	mg/kg	ND	ND	--	
Benzo(k)fluoranthene	mg/kg	ND	ND	--	
Chrysene	mg/kg	0.0142 J	ND	--	
Dibenzo(a,h)anthracene	mg/kg	ND	ND	--	
Dibenzofuran	mg/kg	11.7	1.91	144%	QN
Fluoranthene	mg/kg	0.0672	0.0106 J	146%	QN
Fluorene	mg/kg	29.2	4.72	144%	QN
Indeno(1,2,3-cd)pyrene	mg/kg	ND	ND	--	
Naphthalene	mg/kg	897	126	151%	QN
Phenanthrene	mg/kg	7.76	1.31	142%	QN
Pyrene	mg/kg	0.0482	0.0119 J	121%	QN
Total Organic Carbon	mg/kg	501000	169000	99%	QN

Numerous FD RPDs exceeded the control limit of 50% for soils.

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

Comments:

The affected duplicate results were either both significantly greater than the PSL or both significantly less than the PSL, except naphthalene. Napthalene had one result significantly greater than the PSL and one slightly greater than PSL. The higher of the two results will be used for decision-making at the project-site.

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

Yes☐ No☐ N/A☒ Comments:

Equipment blanks were not required in the approved project WP.

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

Yes☐ No☐ N/A☐ Comments:

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

Comments:

iii. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

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Laboratory Data Review Checklist

Completed By:

Jillian Janssen

Title:

Chemist

Date:

September 14, 2022

Consultant Firm:

Brice Engineering

Laboratory Name:

Pace Analytical National

Laboratory Report Number:

L1522831

Laboratory Report Date:

September 14, 2022

CS Site Name:

St Law NEC Facility

ADEC File Number:

475.38.013

Hazard Identification Number:

207

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CS Site Name:

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

1. Laboratory

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

   Yes☒ No☐ N/A☐ Comments:

   Samples were received and analyzed by Pace Analytical National of Mount Juliet, TN. CS Approval 17-026

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   All analyses performed at Pace Analytical National, Mount Juliet, TN.

2. Chain of Custody (CoC)

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

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

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

   Yes☒ No☐ N/A☐ Comments:

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

   Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No discrepancies.

e. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

QC failures are identified in the case narrative and discussed in the applicable section of this checklist.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

No corrective actions were documented or performed.

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

Comments:

Effects on data quality and usability are discussed in the applicable sections of this checklist.

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5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☐ No☒ N/A☐ Comments:

Sample 22NEC-MOC-14MW01 was analyzed one day past the allowable holding time for SM2320B, alkalinity. All analytes were qualified H for potential low bias.

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

No soils included in this SDG.

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

Yes☐ No☒ N/A☐ Comments:

Reported LODs were compared to the project screening level (PSL) to determine if method sensitivity was acceptable for the project. The PSLs for groundwater are the 18 AAC 75 Table C groundwater cleanup levels except for DRO, RRO, arsenic, and lead; which were defined in the Northeast Cape FUDS, St. Lawrence Island Feasibility study. All LODs for all reported SW8082A PCB analytes exceeded the PSL due to limitations in the sensitivity of the analytical method. Reported LODs were slightly higher than those reported in the SAP due changes in laboratory method capabilities after the SAP was finalized.

e. Data quality or usability affected?

It cannot be determined whether project samples are non-detect for PCBs at the PSL. Data usability is affected.

6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☒ N/A☐ Comments:

SW8270D-SIM analyte phenanthrene was detected in the MB at a concentration greater than the DL but less than the LOQ (0.0180 J µg/L).

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

Comments:

Phenanthrene was detected in project sample 22NEC-MOC-14MW01 at a concentration less than 10x the MB amount.

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

Yes☒ No☐ N/A☐ Comments:

22NEC-MOC-14MW01 was qualified B for potential high bias.

v. Data quality or usability affected?

Comments:

The affected result was significantly less than the PSL, so data usability was not affected.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☒ N/A☐ Comments:

AK103 analyte RRO %R was greater than the UCL in the LCSD for batch WG1908113.

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

RRO was not detected in either project sample so were not affected by the high %R.

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

Yes☐ No☐ N/A☒ Comments:

Data qualification was not required.

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

Comments:

Data quality and usability were not affected.

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

Note: Leave blank if not required for project

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

A site-specific MS/MSD was submitted with this SDG for all requested analyses, however, the lab split samples between batches. The following batches did not include an MS/MSD:

- SM2320B WG1912103: included sample duplicates not related to the project site.

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

Yes☐ No☒ N/A☐ Comments:

SW8260D analytes benzene, ethylbenzene, toluene, and xylenes had %Rs that were less than the LCL in the MS for sample 22NEC-MOC-MW88-3.
SW8270D-SIM analytes benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-c,d)pyrene, and pyrene had %Rs that were less than the LCL in the MS and/or MSD for sample 22NEC-MOC-MW88-3.

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

Yes☐ No☒ N/A☐ Comments:

SW8260D analytes benzene, ethylbenzene, toluene, and xylenes had RPDs that exceeded the control limit for the MS/MSD for sample 22NEC-MOC-MW88-3.
Numerous SW8270D-SIM analytes had RPDs that exceeded the control limit in the MS/MSD for sample 22NEC-MOC-MW88-3. However, the PDF report listed more stringent limits for RPD than the DoD QSM requires. The only analytes that exceeded the DoD QSM limits are the following: Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene

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

Comments:

Sample 22NEC-MOC-MW88-3 was affected by the MS/MSD failures noted above.

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

Yes☒ No☐ N/A☐ Comments:

The SW8260D and SW8270D-SIM analytes with %R failures were qualified QL for potential low bias. The analytes with positive detections were qualified QN for the RPD failures, for potential indeterminate bias. The analytes with both %R and RPD failures were assigned a final qualifier of QL, which was determined to be the most conservative qualifier as it has the most significant impact on data usability.

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

Comments:

All analytes had detections or non-detect LODs significantly less than the PSL, so data usability was not affected.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☒ N/A☐ Comments:

AK103: n-triacontane-d62 %R was less than the LCL in sample 22NEC-MOC-14MW01.
AK102: o-terphenyl %R was greater than the UCL in the LCS and LCSD for batch WG1908113.
SW8270D-SIM: p-terphenyl-d14 %R was less than the LCL in the MS performed for sample 22NEC-MOC-MW88-3.

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:

RRO was qualified QL in sample 22NEC-MOC-14MW01 for potential low bias.
Qualification was not required for the AK102 & SW8270D-SIM surrogate failures, as surrogate %R was acceptable in all project samples.

iv. Data quality or usability affected?

Comments:

The affected RRO non-detect result in 22NEC-MOC-14MW01 was slightly less than the PSL with possible low bias. Data usability may be affected.

e. Trip Blanks

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

All samples were transported in one cooler.

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

Yes☒ No☐ N/A☐ Comments:

No target analytes detected in the TB.

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

Comments:

N/A

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

f. Field Duplicate

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

Yes☐ No☒ N/A☐ Comments:

A field duplicate was not submitted with this SDG, but overall field duplicate frequency for the project was achieved.

ii. Submitted blind to lab?

Yes☐ No☐ N/A☒ Comments:

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☐ No☐ N/A☒ Comments:

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

Data quality and usability were not affected.

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

Yes☐ No☒ N/A☐ Comments:

Equipment blanks were not required in the approved project WP.

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

Yes☐ No☐ N/A☒ Comments:

ii. If above LOQ or project specified objectives, what samples are affected?
Comments:

N/A

iii. Data quality or usability affected?
Comments:

Data quality and usability were not affected.

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

   a. Defined and appropriate?

      Yes☐ No☐ N/A☒ Comments:

SW8082A: the confirmatory column RPD for Aroclor/PCB 1016 exceeded the control limit in the MSD performed for sample 22NEC-MOC-MW88-3. The confirmatory column RPD was acceptable in the parent sample so data qualification was not required.

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Laboratory Data Review Checklist

Completed By:

Jillian Janssen

Title:

Chemist

Date:

September 23, 2022

Consultant Firm:

Brice Engineering

Laboratory Name:

Pace Analytical National

Laboratory Report Number:

L1522883

Laboratory Report Date:

September 19, 2022

CS Site Name:

St Law NEC Facility

ADEC File Number:

475.38.013

Hazard Identification Number:

207

L1522883

Laboratory Report Date:

September 19, 2022

CS Site Name:

St Law NEC Facility

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

1. Laboratory

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

   Yes☒ No☐ N/A☐ Comments:

   Samples were received and analyzed by Pace Analytical National of Mount Juliet, TN. CS Approval 17-026

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   All analyses performed at Pace Analytical National, Mount Juliet, TN.

2. Chain of Custody (CoC)

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

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

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

   Yes☒ No☐ N/A☐ Comments:

   Cooler PACE-22NEC-003 received at 5.8° C

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

   Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No discrepancies were noted.

e. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

QC failures are identified in the case narrative and discussed in the applicable section of this checklist.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

No corrective actions were documented or performed.

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

Comments:

Effects on data quality and usability are discussed in the applicable sections of this checklist.

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5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☐ No☒ N/A☐ Comments:

TOC by Walkley-Black was analyzed 7 days past the allowable holding time (28 days) for sample 22NEC-S08-SS33. The TOC result was qualified H for possible low bias.

c. All soils reported on a dry weight basis?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

Reported LODs were compared to the project screening level (PSL) to determine if method sensitivity was acceptable for the project. The PSLs for soil are the 18 AAC 75 B1 & B2 most stringent of the Under 40-inch and Migration to Groundwater cleanup levels except for DRO, RRO, and naphthalene; which were defined in the Northeast Cape FUDS, St. Lawrence Island Feasibility study. All LODs for all reported analytes met sensitivity requirements.

e. Data quality or usability affected?

Data quality and usability were not affected.

6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☒ N/A☐ Comments:

AK103 analyte RRO was detected in the MB at a concentration greater than the DL but less than the LOQ.

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

Comments:

Project samples 22NEC-S08-SS31, 22NEC-S08-SS32, 22NEC-S08-SS34, and FD 22NEC-S08-SS933 had RRO detections less than 10x the MB amount. All other results were either greater than 10x the MB amount or were ND, so were not affected.

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

Yes☒ No☐ N/A☐ Comments:

Samples 22NEC-S08-SS31, 22NEC-S08-SS32, 22NEC-S08-SS34, and FD 22NEC-S08-SS933 were qualified B for possible high bias.

v. Data quality or usability affected?

Comments:

The affected results were significantly less than the PSL, so data usability was not affected.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

All %R and RPD met acceptance criteria.

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

Data quality and usability were not affected.

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

Note: Leave blank if not required for project

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

Yes☒ No☐ N/A☐ Comments:

One MS/MSD was submitted with 20 primary soil samples. All laboratory batches included an MS/MSD except the following:

- AK102/103: WG1910103 included an MS/MSD unrelated to the project site. WG1912269 did not include an MS/MSD but did include an LCS/LCSD.
- SW8270D-SIM: WG1907979 included an MS/MSD unrelated to the project site.

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

Yes☒ No☐ N/A☐ Comments:

One MS/MSD was submitted with 20 primary soil samples. All laboratory batches included an MS/MSD except the following:

- Walkley-black: WG1908654 did not include an MS/MSD but did include a site-specific duplicate. WG1916410 included an MS/MSD unrelated to the project site and a site-specific duplicate. WG1917272 included an MS/MSD and duplicated unrelated to the project site.

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

Yes☐ No☒ N/A☐ Comments:

The following MS/MSD recovery failures were noted:

- Walkley-Black: %Rs for TOC were less than the LCL in the MS and MSD performed for sample 22NEC-S08-SS26.
- AK103: %Rs for RRO were 0% in the MS and MSD performed for project sample 22NEC-S08-SS26 in batch WG1907973. However, the parent sample concentration was greater than 4x the spike amount, so the MS/MSD could not be used to assess matrix effect and data qualification was not required. Additionally, %R for RRO was 0% in the MS and 23.3% (less than the LCL) in the MSD for sample 22NEC-S08-SS26 in batch WG1907975.
- SW8270D-SIM: benzo(g,h,i)perylene & benzo(k)fluoranthene %Rs were less than the LCL in the MSD performed for sample 22NEC-S08-SS26. Additional %R failures were noted in the MS/MSD performed for batch WG1907979, but the parent sample was unrelated to this SDG, so data quality and usability were not affected.

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

Yes☐ No☒ N/A☐ Comments:

- AK103: the RPD for RRO in the MS/MSD performed for 22NEC-S08-SS26 in batch WG1907973 and WG1907975 exceeded the control limit. However, the parent sample amount in batch WG1907973 was greater than 4x the spike amount, so couldn't be used to accurately assess matrix effect.

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

Comments:

Sample 22NEC-S08-SS26 was affected by the MS/MSD failures noted above.

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

Yes☒ No☐ N/A☐ Comments:

The following analytes were qualified in sample 22NEC-S08-SS26:

- TOC, benzo(g,h,i)perylene, and benzo(k)fluoranthene were qualified QL for possible low bias due to %R failures.
- RRO with silica gel cleanup was qualified QL due to the %R failures and QN due to the RPD failure. A final qualifier of QL was assigned, as this is the most conservative of the flags.

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

Comments:

The affected positive detection for RRO was significantly less than the PSL and the ND LODs for benzo(g,h,i)perylene and benzo(k)fluoranthene were significantly less than the PSLs. TOC does not have an associated PSL. Data usability was not affected.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☒ N/A☐ Comments:

The case narrative noted numerous surrogate failures due to matrix interference:

- AK103: n-triacontane-d62 %R was less than the LCL in the following project samples 22NEC-S08-SS16, 22NEC-S08-SS30, 22NEC-S08-SS32, 22NEC-S08-SS33, 22NEC-S08-SS34, 22NEC-S08-SS35, and FD 22NEC-S08-SS933.
- SW8270D-SIM: Surrogate %Rs for p-Terphenyl-d14, 2-fluorobiphenyl, 2-methylnaphthalene-d10, and nitrobenzene-d5 were less than the LCL in one or more of the following samples: 22NEC-S08-SS21, 22NEC-S08-SS22, 22NEC-S08-SS23, 22NEC-S08-SS24, 22NEC-S08-SS26, 22NEC-S08-SS25, 22NEC-S08-SS27, 22NEC-S08-SS28, 22NEC-S08-SS29, 22NEC-S08-SS31, 22NEC-S08-SS32, 22NEC-S08-SS33, 22NEC-S08-SS34, 22NEC-S08-SS35 and FD 22NEC-S08-SS933. Additionally, surrogate %Rs were less than the LCL in the MS and/or MSDs for batches WG1907979 and WG1907981.
  Surrogate 2-methylnaphthalene-d10 was greater than the UCL in samples 22NEC-S08-SS22 and 22NEC-S08-SS23. Surrogate nitrobenzene-d5 %R was greater than the UCL in samples 22NEC-S08-SS23 and 22NEC-S08-SS27.

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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:

The following samples results were qualified due to surrogate %R failures:

- AK103: positive detections for RRO in 22NEC-S08-SS16, 22NEC-S08-SS30, 22NEC-S08-SS32, 22NEC-S08-SS33, 22NEC-S08-SS34, 22NEC-S08-SS35, and FD 22NEC-S08-SS933 were qualified QL for possible low bias.
- SW8270D-SIM: positive detections and non-detect results were qualified QL in the following samples due to low surrogate recovery: 22NEC-S08-SS22, 22NEC-S08-SS23, 22NEC-S08-SS25, 22NEC-S08-SS26, 22NEC-S08-SS27, 22NEC-S08-SS29, 22NEC-S08-SS31, 22NEC-S08-SS32, 22NEC-S08-SS33, FD 22NEC-S08-SS933, 22NEC-S08-SS34, and 22NEC-S08-SS35.
  Samples 22NEC-S08-SS21, 22NEC-S08-SS24, 22NEC-S08-SS28 did not require qualification for low surrogate recovery as the sample was diluted 10x.
  SW8270D-SIM: positive detections in samples 22NEC-S08-SS22, 22NEC-S08-SS23 and 22NEC-S08-SS27 were qualified QH for possible high bias due to high surrogate %R.
  In cases where both QL and QH flags were applied to the same result, a final qualifier if QL was applied as it is the most conservative.

iv. Data quality or usability affected?

Comments:

All affected results were either significantly greater than or significantly less than the PSL, except for the following:
The 2-methylnaphthalene results in 22NEC-S08-SS22 and 22NEC-S08-SS33 were slightly less than the PSL with possible low bias. Data usability for these results may be affected.

e. Trip Blanks

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

Yes☐ No☐ N/A☒ Comments:

No volatiles included in this SDG.

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

Yes☐ No☐ N/A☒ Comments:

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

f. Field Duplicate

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

Yes☒ No☐ N/A☐ Comments:

Three FDs were submitted for 20 primary soil samples.

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☐ No☒ N/A☐ Comments:

	22NEC-S08-SS25	22NEC-S08-SS925		
ANALYTE	mg/kg	mg/kg	RPD	QUAL
Diesel Range Organics	396	246 J	47%	
Residual Range Organics	2270	2720	18%	
Diesel Range Organics (SG)	339	171 J	66%	QN
Residual Range Organics (SG)	1120	1320	16%	
Solids	79.1	74.4	6%	
1-Methylnaphthalene	0.0140 J	0.0276	65%	QN
2-Methylnaphthalene	0.0106 J	0.0194 J	--	
Acenaphthene	ND	0.00284 J	--	
Anthracene	ND	0.00371 J	--	
Fluorene	0.00736 J	0.00714 J	--	
Naphthalene	0.00805 J	ND	--	
Phenanthrene	0.00433 J	0.00624 J	--	
Total Organic Carbon	74300	86200	15%	

	22NEC-S08-SS33	22NEC-S08-SS933		
ANALYTE	mg/kg	mg/kg	RPD	QUAL
Diesel Range Organics	573	199 J	97%	QN
Residual Range Organics	7230	1830	119%	QN
Diesel Range Organics (SG)	268 J	99.4 J	--	
Residual Range Organics (SG)	2530	505	133%	QN
1-Methylnaphthalene	0.731	0.135	138%	QN
2-Methylnaphthalene	1.18	0.153	154%	QN
Acenaphthene	0.0218 J	0.00674 J	--	
Dibenzofuran	ND	0.00379 J	--	
Fluorene	0.0602	0.0143 J	123%	QN
Naphthalene	0.318	0.0249 J	171%	QN
Phenanthrene	0.0129 J	0.00891 J	--	
Total Organic Carbon	356000	75000	130%	QN

	22NEC-S08-SS20	22NEC-S08-SS920		
ANALYTE	mg/kg	mg/kg		
Residual Range Organics	379	524	32%	
Residual Range Organics (SG)	165 J	240	37%	
Solids	87.4	76	14%	
Total Organic Carbon	11100	21800	65%	QN

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

Comments:

All affected duplicate results were significantly less than the LCL except the following:

- 22NEC-S08-SS33/22NEC-S08-SS933: 1-methylnaphthalene was significantly greater than the PSL in the primary sample and significantly less than the PSL in the duplicate sample. The higher of the two results will be used for decision-making at the project site.

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

Yes☐ No☐ N/A☒ Comments:

Equipment blanks were not required in the approved project WP.

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

iii. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

Laboratory Data Review Checklist

Completed By:

Jillian Janssen

Title:

Chemist

Date:

September 23, 2022

Consultant Firm:

Brice Engineering

Laboratory Name:

Pace Analytical National

Laboratory Report Number:

L1524088

Laboratory Report Date:

August 31, 2022

CS Site Name:

St Law NEC Facility

ADEC File Number:

475.38.013

Hazard Identification Number:

207

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

1. Laboratory

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

   Yes☒ No☐ N/A☐ Comments:

   Samples were received and analyzed by Pace Analytical National of Mount Juliet, TN. CS Approval 17-026

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   All analyses performed at Pace Analytical National, Mount Juliet, TN.

2. Chain of Custody (CoC)

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

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☐ No☒ N/A☐ Comments:

   The original CoC requested DRO/RRO with silica gel clean-up. A revised CoC was submitted by the project chemist at sample receipt to correct the request to DRO only, with silica gel cleanup.

3. Laboratory Sample Receipt Documentation

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

   Yes☒ No☐ N/A☐ Comments:

   Cooler PACE-22NEC-006 was received at 4.5° C

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

   Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No discrepancies noted.

e. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

QC failures are identified in the case narrative and discussed in the applicable section of this checklist.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

No corrective actions were documented or performed.

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

Comments:

Effects on data quality and usability are discussed in the applicable sections of this checklist.

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5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

Reported LODs were compared to the project screening level (PSL) to determine if method sensitivity was acceptable for the project. The PSLs for soil are the 18 AAC 75 B1 & B2 most stringent of the Under 40-inch and Migration to Groundwater cleanup levels except for DRO, RRO, and naphthalene; which were defined in the Northeast Cape FUDS, St. Lawrence Island Feasibility study. All LODs for all reported analytes met sensitivity requirements.

e. Data quality or usability affected?

Data quality and usability were not affected.

6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

No target analytes detected in the MBs.

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

Comments:

N/A

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

Yes☐ No☐ N/A☒ Comments:

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☒ N/A☐ Comments:

AK102: LCS & LCSD %R were greater than the UCL for DRO in batches WG1912952 and WG1913461.

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

Positive detections for DRO in samples 22NEC-BG-6 and 22NEC-BG-7 were affected by the LCS/LCSD failures. All other results were ND and were not affected by the possible high bias.

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

Yes☒ No☐ N/A☐ Comments:

Affected results were qualified QH for possible high bias.

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

Comments:

Affected results were significantly less than the PSL, so data usability was not affected.

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

Note: Leave blank if not required for project

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

Yes☐ No☒ N/A☐ Comments:

A site-specific MS/MSD was not requested with this SDG but the laboratory did select project samples as batch QC. All batches included a site-specific MS/MSD except AK102 batch WG1913461. This batch included an LCS/LCSD pair.

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

Yes☐ No☒ N/A☐ Comments:

A site-specific MS/MSD was not requested with this SDG but the laboratory did select project samples as batch QC. All batches included a site-specific MS/MSD except Walkley-Black batch WG1916412. This batch did include an MS/MSD unrelated to the project site.

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

Yes☐ No☒ N/A☐ Comments:

AK102: %R for DRO was less than the LCL in the MSD performed for 22NEC-BG-8.

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

Sample 22NEC-BG-8 was affected by the MSD %R failure.

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

Yes☒ No☐ N/A☐ Comments:

The ND result for DRO in sample 22NEC-BG-8 was qualified QL for possible low bias.

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

Comments:

The ND LOD for DRO was significantly less than the PSL, so data usability was not affected.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☒ N/A☐ Comments:

AK102: surrogate %R for o-terphenyl was greater than the UCL in the MB, LCS, LCSD, MS, and MSD for silica gel cleanup batches WG1912952 and WG1913461. Surrogate recovery was acceptable all project samples.

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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:

Surrogate recovery was acceptable in project samples, so data qualification was not required.

iv. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

e. Trip Blanks

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

Yes☐ No☐ N/A☒ Comments:

No volatiles included in this SDG.

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

Yes☐ No☐ N/A☒ Comments:

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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f. Field Duplicate

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

Yes☒ No☐ N/A☐ Comments:

One FD was submitted for 10 primary soil samples.

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☒ No☐ N/A☐ Comments:

	22NEC-BG-1	22NEC-BG-901	
ANALYTE			RPD
Solids	43.7	47.7	9%
Total Organic Carbon	104000	76900	30%

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

Data quality and usability were not affected.

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

Yes☐ No☐ N/A☒ Comments:

Equipment blanks were not required in the approved project WP.

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

Yes☐ No☐ N/A☐ Comments:

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

Comments:

iii. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

Laboratory Data Review Checklist

Completed By:

Jillian Janssen

Title:

Chemist

Date:

September 23, 2022

Consultant Firm:

Brice Engineering

Laboratory Name:

Pace Analytical National

Laboratory Report Number:

L1524091

Laboratory Report Date:

August 16, 2022

CS Site Name:

St Law NEC Facility

ADEC File Number:

475.38.013

Hazard Identification Number:

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Laboratory Report Date:

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CS Site Name:

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

1. Laboratory

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

   Yes☒ No☐ N/A☐ Comments:

   Samples were received and analyzed by Pace Analytical National of Mount Juliet, TN. CS Approval 17-026

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   All analyses performed at Pace Analytical National, Mount Juliet, TN.

2. Chain of Custody (CoC)

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

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

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

   Yes☒ No☐ N/A☐ Comments:

   Cooler PACE-22NEC-005 was received at 0.1° C

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

   Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No discrepancies noted.

e. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

QC failures are identified in the case narrative and discussed in the applicable section of this checklist.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

No corrective actions were documented or performed.

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

Comments:

Effects on data quality and usability are discussed in the applicable sections of this checklist.

L1524091

Laboratory Report Date:

August 16, 2022

CS Site Name:

St Law NEC Facility

5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

Reported LODs were compared to the project screening level (PSL) to determine if method sensitivity was acceptable for the project. The PSLs for soil are the 18 AAC 75 B1 & B2 most stringent of the Under 40-inch and Migration to Groundwater cleanup levels except for DRO, RRO, and naphthalene; which were defined in the Northeast Cape FUDS, St. Lawrence Island Feasibility study. All LODs for all reported analytes met sensitivity requirements.

e. Data quality or usability affected?

Data quality and usability were not affected.

6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

No target analytes were detected in the MBs.

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

Comments:

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

Yes☐ No☐ N/A☒ Comments:

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No metals/inorganics included in this SDG.

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

A %R and RPD met acceptance criteria.

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

Data quality and usability were not affected.

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

Note: Leave blank if not required for project

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

Yes☐ No☒ N/A☐ Comments:

A site-specific MS/MSD was not submitted with this SDG but overall project frequency for soils was met for the project. Only one batch was included in this SDG and it did not include an MS/MSD. An LCS/LCSD pair was included.

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

Yes☐ No☐ N/A☒ Comments:

No metals/inorganics included in this SDG.

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

Yes☐ No☐ N/A☒ Comments:

Site-specific MS/MSDs were not analyzed.

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

Yes☐ No☐ N/A☒ Comments:

Site-specific MS/MSDs were not analyzed.

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

Comments:

All %R and RPD met acceptance criteria.

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

A site-specific MS/MSD was not included in this analytical batch. Matrix effects on method performance for the individual batch could not be assessed. Overall matrix effects for each method were assessed with the inclusion of site-specific MS/MSDs at a frequency of 1 per 20 samples.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☒ N/A☐ Comments:

AK102 surrogate o-terphenyl %R was greater than the UCL in sample 22NEC-SP2-DU1-01.

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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:

The positive detection for DRO in 22NEC-SP2-DU1-01 was qualified QH for possible high bias.

iv. Data quality or usability affected?

Comments:

The affected DRO detection was significantly less than the PSL, so data usability was not affected.

e. Trip Blanks

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

Yes☐ No☐ N/A☒ Comments:

No volatiles included in this SDG.

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

Yes☐ No☐ N/A☒ Comments:

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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f. Field Duplicate

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

Yes☐ No☒ N/A☐ Comments:

This SDG include ISM replicates, which do not require field duplicates. Replicate precision is discussed in the main report text.

ii. Submitted blind to lab?

Yes☐ No☐ N/A☒ Comments:

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☐ No☐ N/A☒ Comments:

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

Data quality and usability were not affected.

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

Yes☐ No☐ N/A☒ Comments:

Equipment blanks were not required in the approved project WP.

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

Yes☐ No☐ N/A☐ Comments:

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

Comments:

iii. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

Laboratory Data Review Checklist

Completed By:

Jillian Janssen

Title:

Chemist

Date:

September 23, 2022

Consultant Firm:

Brice Engineering

Laboratory Name:

Pace Analytical National

Laboratory Report Number:

L1524107

Laboratory Report Date:

August 19, 2022

CS Site Name:

St Law NEC Facility

ADEC File Number:

475.38.013

Hazard Identification Number:

207

L1524107

Laboratory Report Date:

August 19, 2022

CS Site Name:

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

1. Laboratory

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

   Yes☒ No☐ N/A☐ Comments:

   Samples were received and analyzed by Pace Analytical National of Mount Juliet, TN. CS Approval 17-026

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   All analyses performed at Pace Analytical National, Mount Juliet, TN.

2. Chain of Custody (CoC)

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

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

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

   Yes☒ No☐ N/A☐ Comments:

   Cooler PACE-22NEC-004 was received at 0.2° C

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

   Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No discrepancies noted.

e. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

QC failures are identified in the case narrative and discussed in the applicable section of this checklist.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

No corrective actions were documented or performed.

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

Comments:

Effects on data quality and usability are discussed in the applicable sections of this checklist.

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5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

Reported LODs were compared to the project screening level (PSL) to determine if method sensitivity was acceptable for the project. The PSLs for soil are the 18 AAC 75 B1 & B2 most stringent of the Under 40-inch and Migration to Groundwater cleanup levels except for DRO, RRO, and naphthalene; which were defined in the Northeast Cape FUDS, St. Lawrence Island Feasibility study. All LODs for all reported analytes met sensitivity requirements.

e. Data quality or usability affected?

Data quality and usability were not affected.

6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

No target analytes were detected in the MBs.

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

Comments:

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

Yes☐ No☐ N/A☒ Comments:

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No metals/inorganics included in this SDG.

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

A %R and RPD met acceptance criteria.

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

Data quality and usability were not affected.

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

Note: Leave blank if not required for project

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

Yes☒ No☐ N/A☐ Comments:

Two site-specific MS/MSDs were submitted and analyzed with 24 primary soil samples.

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

Yes☐ No☐ N/A☒ Comments:

No metals/inorganics included in this SDG.

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

Yes☐ No☒ N/A☐ Comments:

DRO %R was 0% in the MS and 53% in the MSD for project sample 22NEC-S15-SS16.
DRO %R was 1.5% in the MS and 0% in the MSD performed for project sample 22NEC-S15-SS23.

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

Yes☐ No☐ N/A☐ Comments:

DRO RPD was greater than the control limit in the MS/MSDs performed for 22NEC-S15-SS16 and 22NEC-S15-SS23.

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

Comments:

Samples 22NEC-S15-SS16 and 22NEC-S15-SS23 were affected by the MS/MSD failures noted above.

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

Yes☒ No☐ N/A☒ Comments:

Samples 22NEC-S15-SS16 and 22NEC-S15-SS23 were qualified QL due to the low %R failures & were qualified QN for the RPD failures. In both cases, the final qualifier was QL, as this is the most conservative of the flags applied.

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

Comments:

The positive detections for DRO in samples 22NEC-S15-SS16 and 22NEC-S15-SS23 were significantly less than the PSL, so data usability was not affected. The case narrative noted that the matrix interfered with the ability to make accurate spike determinations.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☒ N/A☐ Comments:

AK102 surrogate o-terphenyl %R was less than the LCL in samples 22NEC-S15-SS10, 22NEC-S15-SS19, 22NEC-S15-SS24, field duplicate 22NEC-S15-SS924, and the MS/MSDs performed for 22NEC-S15-SS23. The case narrative indicated that matrix interference was suspected.

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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:

Samples 22NEC-S15-SS10, 22NEC-S15-SS19, 22NEC-S15-SS24, and field duplicate 22NEC-S15-SS924 were qualified QL for possible low bias. 22NEC-S15-SS23 had acceptable surrogate recovery, so additional qualification was not required for the MS/MSD surrogate failure.

iv. Data quality or usability affected?

Comments:

The affected DRO detections were significantly less than the PSL, so data usability was not affected.

e. Trip Blanks

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

Yes☐ No☐ N/A☒ Comments:

No volatiles included in this SDG.

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

Yes☐ No☐ N/A☒ Comments:

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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f. Field Duplicate

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

Yes☒ No☐ N/A☐ Comments:

Three FDs were submitted for 24 primary soil samples.

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☐ No☒ N/A☐ Comments:

	22NEC-S15-SS09	22NEC-S15-SS909	
ANALYTE	mg/kg	mg/kg	RPD
Diesel Range Organics	538	602	11%

	22NEC-S15-SS11	22NEC-S15-SS911		
ANALYTE	mg/kg	mg/kg	RPD	QUAL
Diesel Range Organics	668	381	55%	QN

	22NEC-S15-SS24	22NEC-S15-SS924	
ANALYTE	mg/kg	mg/kg	RPD
Diesel Range Organics	646	847	27%

The FD RPD for 22NEC-SS15-SS11/22NEC-SS15-SS911 was greater than the control limit. Both results were qualified QN for possible indeterminate bias.

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

Comments:

The affected results were significantly less than the PSL, so data usability was not affected.

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

Yes☐ No☐ N/A☒ Comments:

Equipment blanks were not required in the approved project WP.

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

iii. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

Laboratory Data Review Checklist

Completed By:

Jillian Janssen

Title:

Chemist

Date:

October 4, 2022

Consultant Firm:

Brice Engineering

Laboratory Name:

Pace Analytical National

Laboratory Report Number:

L1525127

Laboratory Report Date:

October 4, 2022

CS Site Name:

St Law NEC Facility

ADEC File Number:

475.38.013

Hazard Identification Number:

207

L1525127

Laboratory Report Date:

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CS Site Name:

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

1. Laboratory

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

   Yes☒ No☐ N/A☐ Comments:

   Samples were received and analyzed by Pace Analytical National of Mount Juliet, TN. CS Approval 17-026

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   All analyses performed at Pace Analytical National, Mount Juliet, TN.

2. Chain of Custody (CoC)

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

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

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

   Yes☒ No☐ N/A☐ Comments:

   PACE-22NEC-W005 was received at 1.8° C.

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

   Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No discrepancies noted.

e. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

QC failures are identified in the case narrative and discussed in the applicable section of this checklist.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

No corrective actions were documented or performed.

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

Comments:

Effects on data quality and usability are discussed in the applicable sections of this checklist.

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Laboratory Report Date:

October 4, 2022

CS Site Name:

St Law NEC Facility

5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☐ No☒ N/A☐ Comments:

No. All project samples (22NEC-MOC-14MW02, 22NEC-MOC-14MW04, 22NEC-MOC-14MW05, 22NEC-MOC-14MW904, and 22NEC-MOC-MW10-1) were extracted 4-5 days past the method required holding time for SW8270D-SIM/PAH due to shipment delays. Cooler PACE-22NEC-W005 was delayed by AK Air Cargo then diverted to the incorrect location. Pace Analytical intercepted the cooler, re-iced, and transferred to Fed Ex for overnight delivery to the laboratory in TN (custody was properly documented during this diversion). The affected results are reported with an H qualifier to indicate possible low bias. This parameter was also recollected at each of the affected sample locations and reported within hold time in a separate SDG. Both sets of results are included with the final report.

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

No soils included in this SDG.

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

Yes☐ No☒ N/A☐ Comments:

Reported LODs were compared to the project screening level (PSL) to determine if method sensitivity was acceptable for the project. The PSLs for groundwater are the 18 AAC 75 Table C groundwater cleanup levels except for DRO, RRO, arsenic, and lead; which were defined in the Northeast Cape FUDS, St. Lawrence Island Feasibility study. All LODs for all reported SW8082A PCB analytes exceeded the PSL due to limitations in the sensitivity of the analytical method. Reported LODs were slightly higher than those reported in the SAP due changes in laboratory method capabilities after the SAP was finalized.

e. Data quality or usability affected?

It cannot be determined whether project samples are non-detect for PCBs at the PSL. Data usability is affected.

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6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☒ N/A☐ Comments:

SW8270D-SIM analytes fluoranthene (0.0147 J ug/L) and pyrene (0.0185 J ug/L)were detected in the MB for batch WG1911550 at concentrations greater than the DL but less than the LOQ.

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

Comments:

The following project samples had detections less than 10x the amount in the MB:

- Fluoranthene: 22NEC-MOC-14MW02, 22NEC-MOC-14MW04, & 22NEC-MOC-14MW05
- Pyrene: 22NEC-MOC-14MW02, 22NEC-MOC-14MW904, & 22NEC-MOC-14MW05.

All other results were non-detect for these analytes and were not affected.

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

Yes☒ No☐ N/A☐ Comments:

The affected sample results were qualified B for potential high bias.

v. Data quality or usability affected?

Comments:

All affected fluoranthene and pyrene results were significantly less than the PSLs, so data usability was not affected.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

All %R and RPD met acceptance criteria.

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

Data quality and usability were not affected.

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

Note: Leave blank if not required for project

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

Yes☐ No☒ N/A☐ Comments:

An MS/MSD was not submitted with this SDG.

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

Yes☐ No☒ N/A☐ Comments:

An MS/MSD was not submitted with this SDG.

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

Yes☐ No☐ N/A☒ Comments:

Site-specific MS/MSDs were not analyzed.

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

Yes☐ No☐ N/A☒ Comments:

Site-specific MS/MSDs were not analyzed.

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

Comments:

Site-specific MS/MSDs were not analyzed.

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

Yes☐ No☐ N/A☒ Comments:

Site-specific MS/MSDs were not analyzed.

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

Comments:

Site-specific MS/MSDs were not included in every analytical batch. Matrix effects on method performance for these individual batches could not be assessed. Overall matrix effects for each method were assessed with the inclusion of site-specific MS/MSDs at a frequency of 1 per 20 samples.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

All surrogate %R met acceptance criteria.

iv. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

e. Trip Blanks

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

All samples were transported in one cooler.

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

No target analytes were detected in the TB.

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

f. Field Duplicate

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

Yes☒ No☐ N/A☐ Comments:

One FD was submitted for 4 primary GW samples.

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☒ No☐ N/A☐ Comments:

		22NEC-MOC-14MW04	22NEC-MOC-14MW904	
ANALYTE	UNITS			RPD
Diesel Range Organics	µg/L	414 [400] J	488 [400] J	--
Sulfate	µg/L	27400	24900	10%
Methane	µg/L	35.3	39.8	12%
Alkalinity, Bicarbonate as CaCO3	µg/L	37300	42300	13%
Alkalinity, Total	µg/L	37300	42300	13%
Arsenic	µg/L	0.250 [0.500] J	0.216 [0.500] J	--
Arsenic,Dissolved	µg/L	0.235 [0.500] J	0.220 [0.500] J	--
Barium	µg/L	19.5	18.6	5%
Barium,Dissolved	µg/L	18.6	19.2	3%
Cadmium	µg/L	0.186 [0.500] J	0.180 [0.500] J	--
Cadmium,Dissolved	µg/L	0.190 [0.500] J	0.203 [0.500] J	--
Lead, Dissolved	µg/L	0.657 [1.50] J	ND	--
Manganese,Dissolved	µg/L	458	493	7%
Nickel	µg/L	3.20 [2.00] J	3.18 [2.00] J	--
Nickel,Dissolved	µg/L	3.12 [2.00] J	3.30 [2.00] J	--
Vanadium	µg/L	0.484 J	ND	--
Zinc	µg/L	16.2 [20.0] J	15.2 [20.0] J	--
Zinc,Dissolved	µg/L	27.6 [20.0] J	33.4 [20.0] J	--
Benzo(b)fluoranthene	µg/L	ND	0.0218 [0.0500] J	--
Fluoranthene	µg/L	0.0114 [0.0250] B J	ND	--
Pyrene	µg/L	ND	0.0185 [0.0500] B J	--

All FD RPDs met acceptance criteria.

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

Comments:

Data quality and usability were not affected.

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

Yes☐ No☒ N/A☐ Comments:

Equipment blanks were not required in the approved project WP.

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

iii. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

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Laboratory Data Review Checklist

Completed By:

Jillian Janssen

Title:

Chemist

Date:

September 20, 2022

Consultant Firm:

Brice Engineering

Laboratory Name:

Pace Analytical National

Laboratory Report Number:

L1526336

Laboratory Report Date:

August 26, 2022

CS Site Name:

St Law NEC Facility

ADEC File Number:

475.38.013

Hazard Identification Number:

207

L1526336

Laboratory Report Date:

August 26, 2022

CS Site Name:

St Law NEC Facility

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

1. Laboratory

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

   Yes☒ No☐ N/A☐ Comments:

   Samples were received and analyzed by Pace Analytical National of Mount Juliet, TN. CS Approval 17-026

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   All analyses performed at Pace Analytical National, Mount Juliet, TN.

2. Chain of Custody (CoC)

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

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

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

   Yes☒ No☐ N/A☐ Comments:

   Cooler PACE-22NEC-W006 was received at 3.7° C

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

   Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No discrepancies noted.

e. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

QC failures are identified in the case narrative and discussed in the applicable section of this checklist.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

No corrective actions were documented or performed.

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

Comments:

Effects on data quality and usability are discussed in the applicable sections of this checklist.

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5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

No soils included in this SDG.

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

Yes☐ No☒ N/A☐ Comments:

Reported LODs were compared to the project screening level (PSL) to determine if method sensitivity was acceptable for the project. The PSLs for surface water are the ADEC Surface Water Standards as defined in the ADEC Tech Memo 18.02. All LODs for reported analytes met acceptance criteria except AK103 RRO in samples 22NEC-S28-SW-07 and 22NEC-S28-SW-08. The non-detect LODs for this analyte was slightly greater than the PSL due to slightly reduced sample volume.

e. Data quality or usability affected?

For the affected samples, it cannot be definitively stated that RRO is absent at the PSL.

6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☒ N/A☐ Comments:

The following analytes were detected in the SW8270D-SIM MB at a concentration greater than the DL but less than the LOQ: 1-methylnaphthalene (0.0321 J ug/l), 2-methylnaphthalene (0.0280 J ug/L), fluoranthene (0.0137 J ug/L), and indeno(1,2,3-cd)pyrene (0.0278 J ug/L).

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

Comments:

The following samples had associated detections less than 10x the MB amount:

- 1-Methylnaphthalene: 22NEC-S28-SW-06, 22NEC-S28-SW-08, and 22NEC-S28-SW-09
- 2-Methylnaphthalene: 22NEC-S28-SW-06 & 22NEC-S28-SW-09
- Fluoranthene: 22NEC-S28-SW-06 & 22NEC-S28-SW-09
- Indeno(1,2,3-cd)pyrene: 22NEC-S28-SW-06

All other project samples were non-detect for these analytes so were not affected.

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

Yes☒ No☐ N/A☐ Comments:

Affected results are qualified B for possible high bias.

v. Data quality or usability affected?

Comments:

The affected results were significantly less than the PSL, so data usability was not affected.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No metals/inorganics included in this SDG.

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

All LCS/LCSD %R and RPD met acceptance criteria.

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

Data quality and usability were not affected.

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

Note: Leave blank if not required for project

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

Yes☐ No☒ N/A☐ Comments:

An MS/MSD was not submitted with this SDG.

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

Yes☐ No☐ N/A☒ Comments:

No metals/inorganics

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

Yes☐ No☐ N/A☒ Comments:

Site-specific MS/MSDs were not analyzed.

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

Yes☐ No☐ N/A☒ Comments:

Site-specific MS/MSDs were not analyzed.

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

Comments:

Site-specific MS/MSDs were not analyzed.

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

Yes☐ No☐ N/A☒ Comments:

Site-specific MS/MSDs were not analyzed.

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

Comments:

Site-specific MS/MSDs were not included in every analytical batch. Matrix effects on method performance for these individual batches could not be assessed. Overall matrix effects for each method were assessed with the inclusion of site-specific MS/MSDs at a frequency of 1 per 20 samples.

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:

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Laboratory Report Date:

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

Yes☐ No☒ N/A☐ Comments:

SW8260D surrogate 1,2-dichloroethane-d4 %R was greater than the UCL in project samples 22NEC-S28-SW-07 (120%), 22NEC-S28-SW-08 (121%), and trip blank 22NEC-TB06 (119%).

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:

In all cases, the associated target analytes were non-detect. Non-detect results are not affected by possible high bias, so data qualification was not required.

iv. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

e. Trip Blanks

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

All project samples were transported in one cooler.

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

No target analytes were detected in the TB.

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v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

f. Field Duplicate

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

Yes☒ No☐ N/A☐ Comments:

One FD was submitted for 4 primary SW samples.

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☐ No☐ N/A☒ Comments:

	22NEC-S28-SW-09	22NEC-S28-SW-909	
ANALYTE			RPD
Diesel Range Organics	ND	194 [400] J	--
1-Methylnaphthalene	0.0224 [0.250] B J	ND	--
2-Chloronaphthalene	0.0202 [0.250] J	ND	--
2-Methylnaphthalene	0.0309 [0.250] B J	ND	--
Fluoranthene	0.0118 [0.0250] B J	ND	--

All reported results were either ND or were less than the LOQ, so FD RPD could not be calculated.

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

Comments:

Data quality and usability were not affected.

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

Yes☐ No☒ N/A☐ Comments:

Equipment blanks were not required in the approved project WP.

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

iii. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

Laboratory Data Review Checklist

Completed By:

Jillian Janssen

Title:

Chemist

Date:

October 4, 2022

Consultant Firm:

Brice Engineering

Laboratory Name:

Pace Analytical National

Laboratory Report Number:

L1527447

Laboratory Report Date:

October 4, 2022

CS Site Name:

St Law NEC Facility

ADEC File Number:

475.38.013

Hazard Identification Number:

207

L1527447

Laboratory Report Date:

October 4, 2022

CS Site Name:

St Law NEC Facility

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

1. Laboratory

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

   Yes☒ No☐ N/A☐ Comments:

   Samples were received and analyzed by Pace Analytical National of Mount Juliet, TN. CS Approval 17-026

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   All analyses performed at Pace Analytical National, Mount Juliet, TN.

2. Chain of Custody (CoC)

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

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

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

   Yes☒ No☐ N/A☐ Comments:

   Cooler PACE-22NEC-W007 received at 3.7° C

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

   Yes☒ No☐ N/A☐ Comments:

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Laboratory Report Date:

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CS Site Name:

St Law NEC Facility

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No discrepancies noted.

e. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

QC failures are identified in the case narrative and discussed in the applicable section of this checklist.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

No corrective actions were documented or performed.

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

Comments:

Effects on data quality and usability are discussed in the applicable sections of this checklist.

L1527447

Laboratory Report Date:

October 4, 2022

CS Site Name:

St Law NEC Facility

5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

No soils in this SDG.

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

Yes☐ No☒ N/A☐ Comments:

Reported LODs were compared to the project screening level (PSL) to determine if method sensitivity was acceptable for the project. The PSLs for groundwater are the 18 AAC 75 Table C groundwater cleanup levels except for DRO, RRO, arsenic, and lead; which were defined in the Northeast Cape FUDS, St. Lawrence Island Feasibility study. The PSLs for surface water are the ADEC Surface Water Standards as defined in the ADEC Tech Memo 18.02. All LODs for reported analytes met acceptance criteria.

e. Data quality or usability affected?

Data quality and usability were not affected.

6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

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Laboratory Report Date:

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

No target analytes were detected in the MBs.

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

Yes☐ No☐ N/A☒ Comments:

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No metals/inorganics included in this SDG.

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

Yes☐ No☒ N/A☐ Comments:

AK102/103 analytes DRO and RRO %Rs were greater than the UCL in the LCS and/or LCSD for batch WG1914590.

L1527447

Laboratory Report Date:

October 4, 2022

CS Site Name:

St Law NEC Facility

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

Positive detections for DRO in samples 22NEC- S28-SW-10, 22NEC- S28-SW-11, 22NEC- S28-SW-12, and 22NEC- S28-SW-13 were affected by the %R failures. The positive detection for RRO in 22NEC- S28-SW-13 was also affected. Non-detect results are not affected by possible high bias.

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

Yes☒ No☐ N/A☐ Comments:

Affected results were qualified QH for possible high bias.

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

Comments:

The affected results were significantly less than the PSL, so data usability was not affected.

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

Note: Leave blank if not required for project

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

Yes☐ No☒ N/A☐ Comments:

A site-specific MS/MSD was not submitted with this SDG. The laboratory included MS/MSDs unrelated to the project site as batch QC in all batches.

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

Yes☐ No☐ N/A☒ Comments:

No metals/inorganics included with this SDG.

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

Yes☐ No☐ N/A☒ Comments:

Project specific MS/MSDs were not analyzed.

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

Yes☐ No☐ N/A☒ Comments:

Project specific MS/MSDs were not analyzed.

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

Comments:

Project specific MS/MSDs were not analyzed.

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

Yes☐ No☐ N/A☒ Comments:

Project specific MS/MSDs were not analyzed.

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

Comments:

A site-specific MS/MSD was not included in this analytical batch. Matrix effects on method performance for the individual batch could not be assessed. Overall matrix effects for each method were assessed with the inclusion of site-specific MS/MSDs at a frequency of 1 per 20 samples.

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:

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

Yes☐ No☒ N/A☐ Comments:

The following surrogates exceeded the control limits:

- SW8260D: 1,2-dichloroethane-d4 %R was greater than the UCL in samples 22NEC- S28-SW-10, 22NEC- S28-SW-11, and 22NEC- S28-SW-12 and the MS for batch WG1914304. Surrogate toluene-d8 %R was also greater than the UCL in sample 22NEC-TB-07.
- AK103: surrogate n-triacontane-d62 %R was less than the LCL in samples 22NEC-S28-SW-11, 22NEC-S28-SW-12, and the MB for batch WG1914590.
- SW8270D-SIM: numerous surrogates recovered less than the LCL in samples 22NEC-MOC-MW10-1-2, 22NEC-MOC-14MW02-2, 22NEC-MOC-14MW-05-2, 22NEC-MOC-14MW04-2, 22NEC-S28-SW-11, 22NEC- S28-SW-12, 22NEC- S28-SW-13, field duplicate 22NEC-MOC-14MW04-92, and the MS/MSD performed for batch WG1914169.

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:

- SW8260D: The positive detection for total xylenes in sample 22NEC- S28-SW-10 was qualified QH for possible high bias. All other associated results were non-detect in samples 22NEC- S28-SW-10, 22NEC- S28-SW-11, and 22NEC- S28-SW-12, so qualification was not required. The MS was not related to the project site, so additional qualification was not required for this failure.
- AK103: the non-detect results for RRO in samples 22NEC-S28-SW-11 and 22NEC- S28-SW-12 were qualified QL for possible low bias. Additional qualification was not required for the MB surrogate failure.
- SW8270D-SIM: all positive detections and non-detect results in samples 22NEC-MOC-MW10-1-2, 22NEC-MOC-14MW02-2, 22NEC-MOC-14MW-05-2, 22NEC-MOC-14MW04-2, 22NEC- S28-SW-11, 22NEC- S28-SW-12, 22NEC- S28-SW-13, field duplicate 22NEC-MOC-14MW04-92 were qualified QL for possible low bias. The MS/MSD was not related to the project site, so additional qualification was not required for these failures.

iv. Data quality or usability affected?

Comments:

All affected results were significantly less than the PSLs, so data usability was not affected.

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e. Trip Blanks

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

All samples were transported in one cooler.

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

No target analytes were detected in the TB.

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

f. Field Duplicate

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

Yes☒ No☐ N/A☐ Comments:

One field duplicate was submitted for 8 primary water samples.

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☐ No☐ N/A☒ Comments:

All results in primary sample 22NEC-MOC-14MW04-2/field duplicate 22NEC-MOC-14MW04-92 were non-detect so RPDs could not be calculated.

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

Data quality and usability were not affected.

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

Yes☐ No☐ N/A☒ Comments:

Equipment blanks were not required in the approved project WP.

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

Yes☐ No☐ N/A☒ Comments:

ii. If above LOQ or project specified objectives, what samples are affected?
Comments:

iii. Data quality or usability affected?
Comments:

Data quality and usability were not affected.

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

   a. Defined and appropriate?

      Yes☐ No☐ N/A☒ Comments:

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Laboratory Data Review Checklist

Completed By:

Jillian Janssen

Title:

Chemist

Date:

September 27, 2022

Consultant Firm:

Brice Engineering

Laboratory Name:

Pace Analytical National

Laboratory Report Number:

L1528288

Laboratory Report Date:

September 6, 2022

CS Site Name:

St Law NEC Facility

ADEC File Number:

475.38.013

Hazard Identification Number:

207

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Laboratory Report Date:

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

1. Laboratory

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

   Yes☒ No☐ N/A☐ Comments:

   Samples were received and analyzed by Pace Analytical National of Mount Juliet, TN. CS Approval 17-026

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   All analyses performed at Pace Analytical National, Mount Juliet, TN.

2. Chain of Custody (CoC)

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

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

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

   Yes☒ No☐ N/A☐ Comments:

   Cooler PACE-22NEC-010 was received at 3.0° C

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

   Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No discrepancies noted.

e. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

QC failures are identified in the case narrative and discussed in the applicable section of this checklist.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

No corrective actions were documented or performed.

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

Comments:

Effects on data quality and usability are discussed in the applicable sections of this checklist.

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5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

Reported LODs were compared to the project screening level (PSL) to determine if method sensitivity was acceptable for the project. The PSLs for soil are the 18 AAC 75 B1 & B2 most stringent of the Under 40-inch and Migration to Groundwater cleanup levels except for DRO, RRO, and naphthalene; which were defined in the Northeast Cape FUDS, St. Lawrence Island Feasibility study. All LODs for all reported analytes met sensitivity requirements.

e. Data quality or usability affected?

Data quality and usability were not affected.

6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

No target analytes were detected in the MBs.

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

Comments:

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

Yes☐ No☐ N/A☒ Comments:

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No metals/inorganics included in this SDG.

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

A %R and RPD met acceptance criteria.

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

Data quality and usability were not affected.

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

Note: Leave blank if not required for project

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

Yes☒ No☐ N/A☐ Comments:

One MS/MSD was submitted and analyzed for 7 primary soil samples.

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

Yes☐ No☐ N/A☒ Comments:

No metals/inorganics included in this SDG.

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

Yes☐ No☒ N/A☐ Comments:

SW8270D-SIM: several PAH analytes had %R greater than the UCL in the MSD performed for 22NEC-S28-DU2-SS02 including: benzo(a)anthracene, chrysene, fluoranthene, and pyrene.

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

Yes☐ No☒ N/A☐ Comments:

SW8270D-SIM: Chrysene and fluoranthene had MS/MSD RPDs that exceeded the control limit in the MS/MSD performed for 22NEC-S28-DU2-SS02.

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

Comments:

Sample 22NEC-S28-DU2-SS02 was affected by the MS/MSD failures.

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

Yes☒ No☐ N/A☐ Comments:

Positive detections for benzo(a)anthracene, chrysene, fluoranthene, and pyrene were qualified QH in 22NEC-S28-DU2-SS02 due to high %R in the MSD. Chrysene and fluoranthene were also qualified QN for the RPD failures. For chrysene and fluoranthene, a final qualifier of QN was applied, as this is the most conservative of the flags.

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

Comments:

All affected results were significantly less than the PSLs, so data usability was not affected.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☒ N/A☐ Comments:

SW8270D-SIM surrogate p-terphenyl-d14 %R was less than the LCL in sample 22NEC-S28-DU1-SS04.

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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:

Positive detections and non-detect results in 22NEC-S28-DU1-SS04 were qualified QL for possible low bias.

iv. Data quality or usability affected?

Comments:

The affected results were significantly less than the PSL, so data usability was not affected.

e. Trip Blanks

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

Yes☐ No☐ N/A☒ Comments:

No volatiles included in this SDG.

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

Yes☐ No☐ N/A☒ Comments:

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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f. Field Duplicate

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

Yes☐ No☒ N/A☐ Comments:

This SDG include ISM replicates, which do not require field duplicates. Replicate precision is discussed in the main report text.

ii. Submitted blind to lab?

Yes☐ No☐ N/A☒ Comments:

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☐ No☐ N/A☒ Comments:

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

Data quality and usability were not affected.

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

Yes☐ No☐ N/A☒ Comments:

Equipment blanks were not required in the approved project WP.

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

iii. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

Laboratory Data Review Checklist

Completed By:

Jillian Janssen

Title:

Chemist

Date:

October 12, 2022

Consultant Firm:

Brice Engineering

Laboratory Name:

Pace Analytical National

Laboratory Report Number:

L1528321

Laboratory Report Date:

October 12, 2022

CS Site Name:

St Law NEC Facility

ADEC File Number:

475.38.013

Hazard Identification Number:

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Laboratory Report Date:

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

1. Laboratory

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

   Yes☒ No☐ N/A☐ Comments:

   Samples were received and analyzed by Pace Analytical National of Mount Juliet, TN. CS Approval 17-026

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   All analyses performed at Pace Analytical National, Mount Juliet, TN.

2. Chain of Custody (CoC)

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

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

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

   Yes☒ No☐ N/A☐ Comments:

   Cooler PACE-22NEC-009-01: 5.0° C
   Cooler PACE-22NEC-009-02: 0.4° C
   Cooler PACE-22NEC-009-03: 2.3° C
   Cooler PACE-22NEC-009-04: 3.1° C
   Cooler PACE-22NEC-009-05: 5.6° C

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

No discrepancies noted.

e. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

QC failures are identified in the case narrative and discussed in the applicable section of this checklist.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

No corrective actions were documented or performed.

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

Comments:

Effects on data quality and usability are discussed in the applicable sections of this checklist.

5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☒ N/A☐ Comments:

Reported LODs were compared to the site-specific cleanup level (SSCL) to determine if method sensitivity was acceptable for the project. The SSCLs for sediment are the Washington Administrative Code 173-204-520, Table III, Sediment Minimum Cleanup Levels. All LODs for all reported analytes met sensitivity requirements except the ND LOD for 2-methylnaphthalene in field duplicate 22NEC-S28-SD942, due to sample dilution (20x). The ND LOD in the primary sample, 22NEC-S28-SD42, was acceptable.

e. Data quality or usability affected?

The primary sample had an acceptable LOD for 2-methylnapthalene, so data usability was not affected.

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6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

No target analytes were detected in the MBs.

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

Yes☐ No☐ N/A☒ Comments:

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☒ N/A☐ Comments:

AK103: RRO %R in the LCS for batch WG1915714 was less than the LCL.

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

Yes☐ No☐ N/A☐ Comments:

AK103: RRO RPD in the LCS/LCSD for batch WG1915714 was greater than the control limit.

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

Comments:

Samples 22NEC-S28-SD28, 22NEC-S28-SD29, 22NEC-S28-SD30, 22NEC-S28-SD31, 22NEC-S28-SD32, 22NEC-S28-SD33, 22NEC-S28-SD34, 22NEC-S28-SD35, 22NEC-S28-SD36, 22NEC-S28-SD37, 22NEC-S28-SD38, 22NEC-S28-SD39, 22NEC-S28-SD49, field duplicate 22NEC-S28-SD934, and field duplicate 22NEC-S28-SD938 were affected by the LCS/LCSD failures in AK103 batch WG1915714.

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

Yes☒ No☐ N/A☐ Comments:

The LCS %R failure indicates a possible low bias and the RPD failure indicates possible indeterminate bias. Possible low bias has the most significant effect on usability, so all associated samples were qualified QL.

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

Comments:

All affected results for RRO were significantly less than the PSL and were not affected, except 22NEC-S28-SD29, which was slightly less than the SSCL. Data usability for 22NEC-S28-SD29 may be affected.

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

Note: Leave blank if not required for project

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

Yes☒ No☐ N/A☐ Comments:

3 MS/MSDs were submitted and analyzed for 60 primary sediment samples; however, the laboratory split samples into multiple batches and the following did not include a site-specific MS/MSD:

- AK102/103: WG1915717 and WG1915720. These batches included MS/MSDs unrelated to the project site.
- SW8270D-SIM: batches WG1917194 and WG1918636. These batches included MS/MSDs unrelated to the project site.

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

Yes☒ No☐ N/A☐ Comments:

3 MS/MSDs were submitted and analyzed for 60 primary sediment samples; however, the laboratory split samples into multiple batches and the following did not include a site-specific MS/MSD:

- TOC: WG1921783 and WG1924859. WG1921783 did include site-specific duplicates. WG1924859 included and MS/MSD and duplicate not related to the project site.

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

Yes☐ No☒ N/A☐ Comments:

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The following failures were noted for site specific MS/MSDs. The case narrative indicated that matrix interference was present.

Batch	OriginalSampleID	ClientAnalyteName	QCType	%R	LCL	UCL	Flag	Reason
WG1916078	22NEC-S28-SD11	1-Methylnaphthalene	MS	30.4	43.0	111	QL	
WG1916078	22NEC-S28-SD11	2-Chloronaphthalene	MS	29.6	45.0	108	QL	
WG1916078	22NEC-S28-SD11	2-Methylnaphthalene	MS	30.6	39.0	114	QL	
WG1916078	22NEC-S28-SD11	Acenaphthene	MS	30.0	44.0	111	QL	
WG1916078	22NEC-S28-SD11	Acenaphthene	MSD	43.2	44.0	111		
WG1916078	22NEC-S28-SD11	Acenaphthylene	MS	29.8	39.0	116	QL	
WG1916078	22NEC-S28-SD11	Anthracene	MS	33.9	50.0	114	QL	
WG1916078	22NEC-S28-SD11	Benzo(a)anthracene	MS	33.8	54.0	122	QL	
WG1916078	22NEC-S28-SD11	Benzo(a)pyrene	MS	36.1	50.0	125	QL	
WG1916078	22NEC-S28-SD11	Benzo(b)fluoranthene	MS	32.6	53.0	128	QL	
WG1916078	22NEC-S28-SD11	Benzo(b)fluoranthene	MSD	51.7	53.0	128	QL	
WG1916078	22NEC-S28-SD11	Benzo(g,h,i)perylene	MS	32.7	49.0	127	QL	
WG1916078	22NEC-S28-SD11	Benzo(k)fluoranthene	MS	33.8	56.0	123	QL	
WG1916078	22NEC-S28-SD11	Chrysene	MS	37.7	57.0	118	QL	
WG1916078	22NEC-S28-SD11	Dibenzo(a,h)anthracene	MS	34.8	50.0	129	QL	
WG1916078	22NEC-S28-SD11	Dibenzofuran	MS	31.3	35.0	108	QL	
WG1916078	22NEC-S28-SD11	Fluoranthene	MS	33.0	55.0	119	QL	
WG1916078	22NEC-S28-SD11	Fluoranthene	MSD	50.3	55.0	119		
WG1916078	22NEC-S28-SD11	Fluorene	MS	31.9	47.0	114	QL	
WG1916078	22NEC-S28-SD11	Indeno(1,2,3-cd)pyrene	MS	33.6	49.0	130	QL	
WG1916078	22NEC-S28-SD11	Naphthalene	MS	30.6	38.0	111	QL	
WG1916078	22NEC-S28-SD11	Phenanthrene	MS	33.4	49.0	113	QL	
WG1916078	22NEC-S28-SD11	Phenanthrene	MSD	47.6	49.0	113		
WG1916078	22NEC-S28-SD11	Pyrene	MS	34.2	55.0	117	QL	
WG1916078	22NEC-S28-SD11	Pyrene	MSD	50.8	55.0	117		
WG1916080	22NEC-S28-SD49	Phenanthrene	MSD	0.000	49.0	113	QL	
WG1916081	22NEC-S28-SD47	1-Methylnaphthalene	MS	0.000	43.0	111	QL*	
WG1916081	22NEC-S28-SD47	1-Methylnaphthalene	MSD	1860	43.0	111		
WG1916081	22NEC-S28-SD47	2-Chloronaphthalene	MS	0.000	45.0	108	R	
WG1916081	22NEC-S28-SD47	2-Chloronaphthalene	MSD	0.000	45.0	108		
WG1916081	22NEC-S28-SD47	2-Methylnaphthalene	MS	0.000	39.0	114	QL*	
WG1916081	22NEC-S28-SD47	2-Methylnaphthalene	MSD	2160	39.0	114		
WG1916081	22NEC-S28-SD47	Acenaphthene	MS	127	44.0	111	QL*	
WG1916081	22NEC-S28-SD47	Acenaphthene	MSD	3.38	44.0	111		
WG1916081	22NEC-S28-SD47	Dibenzofuran	MSD	2.13	35.0	108	R	
WG1916081	22NEC-S28-SD47	Fluorene	MS	234	47.0	114	QL*	
WG1916081	22NEC-S28-SD47	Fluorene	MSD	0.000	47.0	114		
WG1916081	22NEC-S28-SD47	Naphthalene	MS	0.000	38.0	111	QL*	
WG1916081	22NEC-S28-SD47	Naphthalene	MSD	2910	38.0	111		
WG1916081	22NEC-S28-SD47	Phenanthrene	MS	275	49.0	113	--	>4x spike
WG1916081	22NEC-S28-SD47	Phenanthrene	MSD	0.000	49.0	113		

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WG1916081	22NEC-S28-SD47	Pyrene	MS	42.0	55.0	117	QL	
WG1916081	22NEC-S28-SD47	Pyrene	MSD	49.5	55.0	117		
WG1915723	22NEC-S28-SD26	DRO	MS	445	75.0	125	QH	
WG1915723	22NEC-S28-SD26	DRO	MSD	315	75.0	125		
WG1917700	22NEC-S28-SD49	DRO	MS	0.000	75.0	125	--	Dilution, >4x spike
WG1917700	22NEC-S28-SD49	DRO	MSD	0.000	75.0	125		
WG1917701	22NEC-S28-SD52	DRO	MS	0.000	75.0	125	--	>4x spike
WG1917701	22NEC-S28-SD52	DRO	MSD	0.000	75.0	125		
WG1917701	22NEC-S28-SD52	RRO	MSD	32.0	60.0	120	QL	
WG1915713	22NEC-S28-SD26	DRO - Silica Gel	MS	182	75.0	125	QH	
WG1915713	22NEC-S28-SD26	RRO - Silica Gel	MSD	145	60.0	120	QH	
WG1915714	22NEC-S28-SD49	DRO	MS	5250	75.0	125	--	>4x spike
WG1915714	22NEC-S28-SD49	DRO	MSD	2800	75.0	125		
WG1915714	22NEC-S28-SD49	RRO	MS	0.000	60.0	120	QL*	
WG1915714	22NEC-S28-SD49	RRO	MSD	429	60.0	120		
WG1918102	22NEC-S28-SD41	DRO - Silica Gel	MS	136	75.0	125	--	ND
WG1918102	22NEC-S28-SD41	DRO - Silica Gel	MSD	131	75.0	125		
WG1918104	22NEC-S28-SD54	DRO - Silica Gel	MS	0.000	75.0	125	--	>4x spike
WG1918104	22NEC-S28-SD54	DRO - Silica Gel	MSD	0.000	75.0	125		
WG1918104	22NEC-S28-SD54	RRO - Silica Gel	MS	0.000	60.0	120	--	>4x spike
WG1918104	22NEC-S28-SD54	RRO - Silica Gel	MSD	0.000	60.0	120		

*in cases where multiple failures indicated different directions of bias, the most conservative flag was applied.

Several other MS/MSD failures on non-project samples were noted in the case narrative, but these samples were not related to the project site so data quality was not affected.

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

Yes☐ No☒ N/A☐ Comments:

The following RPD failures were noted for site specific MS/MSDs. The case narrative indicated that matrix interference was present.

Method	Batch	OriginalSampleID	Analyte	RPD	CL	Flag	Reason
8270DSIM	WG1916081	22NEC-S28-SD47	1-Methylnaphthalene	200	40	QN	
8270DSIM	WG1916081	22NEC-S28-SD47	2-Methylnaphthalene	200	40	QN	
8270DSIM	WG1916081	22NEC-S28-SD47	Acenaphthene	66.8	40	QN	
8270DSIM	WG1916081	22NEC-S28-SD47	Dibenzofuran	83.7	40	QN	
8270DSIM	WG1916081	22NEC-S28-SD47	Fluorene	69.7	40	QN	
8270DSIM	WG1916081	22NEC-S28-SD47	Naphthalene	200	40	QN	
8270DSIM	WG1916081	22NEC-S28-SD47	Phenanthrene	53.1	40	--	>4x spike
8270DSIM	WG1916078	22NEC-S28-SD11	2-Chloronaphthalene	43.9	40	QN	
8270DSIM	WG1916078	22NEC-S28-SD11	2-Methylnaphthalene	44.5	40	QN	
8270DSIM	WG1916078	22NEC-S28-SD11	Anthracene	43.5	40	QN	
8270DSIM	WG1916078	22NEC-S28-SD11	Benzo(a)anthracene	51.5	40	QN	
8270DSIM	WG1916078	22NEC-S28-SD11	Benzo(a)pyrene	56.1	40	QN	
8270DSIM	WG1916078	22NEC-S28-SD11	Benzo(b)fluoranthene	45.3	40	QN	
8270DSIM	WG1916078	22NEC-S28-SD11	Benzo(g,h,i)perylene	54.7	40	QN	
8270DSIM	WG1916078	22NEC-S28-SD11	Benzo(k)fluoranthene	59.6	40	QN	
8270DSIM	WG1916078	22NEC-S28-SD11	Chrysene	56.7	40	QN	
8270DSIM	WG1916078	22NEC-S28-SD11	Dibenzo(a,h)anthracene	60.0	40	QN	
8270DSIM	WG1916078	22NEC-S28-SD11	Fluoranthene	41.5	40	QN	
8270DSIM	WG1916078	22NEC-S28-SD11	Indeno(1,2,3-cd)pyrene	57.6	40	QN	
8270DSIM	WG1916078	22NEC-S28-SD11	Naphthalene	59.2	40	QN	
AK102_103	WG1915723	22NEC-S28-SD26	DRO	22.4	20	QN	
AK102_103_SG	WG1915714	22NEC-S28-SD49	DRO	23.1	20	--	>4x spike
AK102_103_SG	WG1915714	22NEC-S28-SD49	RRO	113	20	QN	
AK102_103	WG1917700	22NEC-S28-SD49	DRO	51.2	20	--	Dilution, >4x spike
AK102_103	WG1917700	22NEC-S28-SD49	RRO	29.1	20	--	
AK102_103_SG	WG1915713	22NEC-S28-SD26	DRO - Silica Gel	86.4	20	QN	
AK102_103_SG	WG1915713	22NEC-S28-SD26	RRO - Silica Gel	51.0	20	QN	
AK102_103	WG1917701	22NEC-S28-SD52	RRO	28.1	20	QN	
AK102_103_SG	WG1918104	22NEC-S28-SD54	RRO - Silica Gel	40.5	20	--	>4x spike

Several MS/MSD failures on non-project samples were noted in the case narrative, but these samples were not related to the project site so data quality was not affected.

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

Comments:

Samples 22NEC-S28-SD47, 22NEC-S28-SD11, 22NEC-S28-SD26, 22NEC-S28-SD49, 22NEC-S28-SD52, 22NEC-S28-SD54, and 22NEC-S28-SD41 were affected by the MS/MSD failures noted above.

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

Yes☒ No☐ N/A☐ Comments:

Samples were qualified according to the tables 6.c.iii & iv.

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

Comments:

AK102/103: In all cases, the affected results were significantly less than the PSLs, so data usability was not affected.

SW8270D-SIM: The 2-chloronaphthalene and dibenzofuran results in 22NEC-S28-SD47 were rejected (R flagged) and are not usable for project decision-making. All other results were significantly less than or significantly greater than the PSL, so data usability was not affected.

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:

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

Yes☐ No☒ N/A☐ Comments:

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Numerous surrogate failures were noted in the case narrative. Overwhelmingly, these were attributed to matrix interference.

Sample ID	Method	Surrogate	%R	LCL	UCL	Flag	Reason
22NEC-S28-SD02	AK102_103	n-Triacontane-d62	48.5	50.0	150	QL	
22NEC-S28-SD021	8270DSIM	Nitrobenzene-d5	138	44.0	125	QH - detects	
22NEC-S28-SD05	AK102_103	n-Triacontane-d62	48.7	50.0	150	QL	
22NEC-S28-SD07	8270DSIM	2-Methylnaphthalene-d10	48.0	50.0	150	QL	
22NEC-S28-SD08	8270DSIM	2-Methylnaphthalene-d10	46.2	50.0	150	QL	
22NEC-S28-SD10	8270DSIM	2-Fluorobiphenyl	27.1	46.0	115	QL	
22NEC-S28-SD10	8270DSIM	2-Methylnaphthalene-d10	26.1	50.0	150		
22NEC-S28-SD11	8270DSIM	2-Fluorobiphenyl	44.2	46.0	115	QL	
22NEC-S28-SD11	8270DSIM	2-Methylnaphthalene-d10	45.4	50.0	150		
22NEC-S28-SD11 MSD	8270DSIM	2-Fluorobiphenyl	44.5	46.0	115	--	Parent already flagged
22NEC-S28-SD11 MSD	8270DSIM	2-Methylnaphthalene-d10	47.6	50.0	150	--	
22NEC-S28-SD12	8270DSIM	2-Methylnaphthalene-d10	48.4	50.0	150	QL	
22NEC-S28-SD14	8270DSIM	Nitrobenzene-d5	25.5	44.0	125	QL	
22NEC-S28-SD16	8270DSIM	Nitrobenzene-d5	146	44.0	125	QH - detects	
22NEC-S28-SD18	8270DSIM	2-Fluorobiphenyl	42.4	46.0	115	QL	
22NEC-S28-SD18	8270DSIM	2-Methylnaphthalene-d10	163	50.0	150	QL*	
22NEC-S28-SD18	8270DSIM	2-Methylnaphthalene-d10	270	50.0	150	--	dilution
22NEC-S28-SD18	8270DSIM	Nitrobenzene-d5	0.000	44.0	125	--	dilution
22NEC-S28-SD18	8270DSIM	Nitrobenzene-d5	465	44.0	125	--	dilution
22NEC-S28-SD19	8270DSIM	Nitrobenzene-d5	176	44.0	125	QH - detects	
22NEC-S28-SD20	8270DSIM	2-Fluorobiphenyl	0.000	46.0	115	--	dilution
22NEC-S28-SD20	8270DSIM	2-Fluorobiphenyl	22.4	46.0	115	QL	
22NEC-S28-SD20	8270DSIM	2-Fluorobiphenyl	833	46.0	115	--	dilution
22NEC-S28-SD20	8270DSIM	2-Methylnaphthalene-d10	0.000	50.0	150	QL/R	
22NEC-S28-SD20	8270DSIM	Nitrobenzene-d5	0.000	44.0	125	QL/R	
22NEC-S28-SD20	8270DSIM	p-Terphenyl-d14	155	58.0	133	--	dilution
22NEC-S28-SD20	AK102_103	o-Terphenyl	152	50.0	150	--	dilution
22NEC-S28-SD22	8270DSIM	2-Fluorobiphenyl	41.1	46.0	115	QL	
22NEC-S28-SD22	8270DSIM	2-Methylnaphthalene-d10	42.9	50.0	150		
22NEC-S28-SD22	8270DSIM	p-Terphenyl-d14	57.9	58.0	133		
22NEC-S28-SD24	8270DSIM	2-Fluorobiphenyl	43.4	46.0	115	QL	
22NEC-S28-SD24	AK102_103	o-Terphenyl	41.2	50.0	150	QL	
22NEC-S28-SD25	8270DSIM	Nitrobenzene-d5	383	44.0	125	QH - detects	
22NEC-S28-SD25	AK102_103	n-Triacontane-d62	49.5	50.0	150	QL	
22NEC-S28-SD27	8270DSIM	2-Methylnaphthalene-d10	42.8	50.0	150	QL	
22NEC-S28-SD27	8270DSIM	Nitrobenzene-d5	39.6	44.0	125		
22NEC-S28-SD28	8270DSIM	Nitrobenzene-d5	0.000	44.0	125	QL/R	
22NEC-S28-SD29	8270DSIM	2-Fluorobiphenyl	24.7	46.0	115	QL	
22NEC-S28-SD29	8270DSIM	2-Fluorobiphenyl	478	46.0	115	--	dilution
22NEC-S28-SD29	8270DSIM	2-Methylnaphthalene-d10	0.000	50.0	150	QL/R	
22NEC-S28-SD29	8270DSIM	Nitrobenzene-d5	0.000	44.0	125		

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22NEC-S28-SD29	AK102_103_SG	n-Triacontane-d62	43.2	50.0	150		
22NEC-S28-SD29	AK102_103_SG	o-Terphenyl	26.9	50.0	150	--	dilution
22NEC-S28-SD29	AK102_103_SG	o-Terphenyl	33.4	50.0	150	--	dilution
22NEC-S28-SD30	8270DSIM	2-Fluorobiphenyl	45.9	46.0	115	QL/R	
22NEC-S28-SD30	8270DSIM	Nitrobenzene-d5	0.000	44.0	125		
22NEC-S28-SD30	8270DSIM	p-Terphenyl-d14	53.8	58.0	133		
22NEC-S28-SD31	8270DSIM	2-Methylnaphthalene-d10	0.000	50.0	150	--	dilution
22NEC-S28-SD31	8270DSIM	Nitrobenzene-d5	0.000	44.0	125	--	dilution
22NEC-S28-SD31	8270DSIM	Nitrobenzene-d5	162	44.0	125	QH - detects	
22NEC-S28-SD32	8270DSIM	2-Methylnaphthalene-d10	153	50.0	150	QH - detects	
22NEC-S28-SD32	8270DSIM	Nitrobenzene-d5	188	44.0	125	--	dilution
22NEC-S28-SD32	8270DSIM	Nitrobenzene-d5	251	44.0	125	QH - detects	
22NEC-S28-SD33	8270DSIM	2-Methylnaphthalene-d10	0.000	50.0	150	--	dilution
22NEC-S28-SD33	8270DSIM	Nitrobenzene-d5	793	44.0	125	QH - detects	
22NEC-S28-SD33	8270DSIM	Nitrobenzene-d5	1020	44.0	125	--	dilution
22NEC-S28-SD33	AK102_103_SG	o-Terphenyl	46.6	50.0	150	QL	
22NEC-S28-SD34	8270DSIM	2-Fluorobiphenyl	42.6	46.0	115	QL	
22NEC-S28-SD35	8270DSIM	2-Methylnaphthalene-d10	0.000	50.0	150	--	dilution
22NEC-S28-SD35	8270DSIM	Nitrobenzene-d5	1360	44.0	125	QH - detects	
22NEC-S28-SD35	8270DSIM	Nitrobenzene-d5	1630	44.0	125	--	dilution
22NEC-S28-SD35	AK102_103_SG	n-Triacontane-d62	40.1	50.0	150	QL	
22NEC-S28-SD35	AK102_103_SG	o-Terphenyl	44.8	50.0	150	QL	
22NEC-S28-SD36	8270DSIM	Nitrobenzene-d5	0.000	44.0	125	--	dilution
22NEC-S28-SD38	8270DSIM	2-Methylnaphthalene-d10	0.000	50.0	150	--	dilution
22NEC-S28-SD38	8270DSIM	Nitrobenzene-d5	490	44.0	125	QH - detects	
22NEC-S28-SD38	8270DSIM	Nitrobenzene-d5	573	44.0	125	--	dilution
22NEC-S28-SD39	8270DSIM	p-Terphenyl-d14	53.1	58.0	133	QL	
22NEC-S28-SD40	8270DSIM	2-Methylnaphthalene-d10	322	50.0	150	--	dilution
22NEC-S28-SD40	8270DSIM	Nitrobenzene-d5	600	44.0	125	QH - detects	
22NEC-S28-SD40	8270DSIM	Nitrobenzene-d5	603	44.0	125	--	dilution
22NEC-S28-SD42	AK102_103	n-Triacontane-d62	580	50.0	150	--	dilution
22NEC-S28-SD42	AK102_103_SG	n-Triacontane-d62	0.000	50.0	150	--	dilution
22NEC-S28-SD43	8270DSIM	2-Methylnaphthalene-d10	0.000	50.0	150	--	dilution
22NEC-S28-SD43	8270DSIM	2-Methylnaphthalene-d10	156	50.0	150	QH - detects	
22NEC-S28-SD43	8270DSIM	Nitrobenzene-d5	1500	44.0	125	QH - detects	
22NEC-S28-SD43	8270DSIM	Nitrobenzene-d5	1740	44.0	125	--	dilution
22NEC-S28-SD43	AK102_103	o-Terphenyl	40.2	50.0	150	--	dilution
22NEC-S28-SD44	8270DSIM	2-Fluorobiphenyl	0.000	46.0	115	--	dilution
22NEC-S28-SD44	8270DSIM	2-Fluorobiphenyl	39.2	46.0	115	QL	
22NEC-S28-SD44	8270DSIM	2-Methylnaphthalene-d10	0.000	50.0	150	--	dilution
22NEC-S28-SD44	8270DSIM	2-Methylnaphthalene-d10	191	50.0	150	QL*	
22NEC-S28-SD44	8270DSIM	Nitrobenzene-d5	303	44.0	125	QL*	
22NEC-S28-SD44	8270DSIM	Nitrobenzene-d5	634	44.0	125	--	dilution
22NEC-S28-SD44	AK102_103	n-Triacontane-d62	47.9	50.0	150	QL	
22NEC-S28-SD44	AK102_103	o-Terphenyl	48.4	50.0	150	QL	

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22NEC-S28-SD45	8270DSIM	Nitrobenzene-d5	197	44.0	125	QH - detects		
22NEC-S28-SD45	8270DSIM	Nitrobenzene-d5	504	44.0	125	--	dilution	
22NEC-S28-SD45	AK102_103	o-Terphenyl	48.5	50.0	150	QL		
22NEC-S28-SD46	8270DSIM	2-Methylnaphthalene-d10	0.000	50.0	150	--	dilution	
22NEC-S28-SD46	8270DSIM	2-Methylnaphthalene-d10	159	50.0	150	QH - detects		
22NEC-S28-SD46	8270DSIM	Nitrobenzene-d5	424	44.0	125			
22NEC-S28-SD46	8270DSIM	Nitrobenzene-d5	470	44.0	125	--	dilution	
22NEC-S28-SD46	AK102_103	o-Terphenyl	40.1	50.0	150	--	dilution	
22NEC-S28-SD47	8270DSIM	2-Fluorobiphenyl	0.000	46.0	115	--	dilution	
22NEC-S28-SD47	8270DSIM	2-Fluorobiphenyl	278	46.0	115	QL/R*		
22NEC-S28-SD47	8270DSIM	2-Methylnaphthalene-d10	0.000	50.0	150			
22NEC-S28-SD47	8270DSIM	Nitrobenzene-d5	0.000	44.0	125			
22NEC-S28-SD47 MS	8270DSIM	2-Fluorobiphenyl	199	46.0	115	--	Parent already flagged	
22NEC-S28-SD47 MS	8270DSIM	2-Methylnaphthalene-d10	0.000	50.0	150			
22NEC-S28-SD47 MS	8270DSIM	Nitrobenzene-d5	0.000	44.0	125			
22NEC-S28-SD47 MSD	8270DSIM	2-Fluorobiphenyl	14.5	46.0	115	--	Parent already flagged	
22NEC-S28-SD47 MSD	8270DSIM	2-Methylnaphthalene-d10	197	50.0	150			
22NEC-S28-SD47 MSD	8270DSIM	Nitrobenzene-d5	0.000	44.0	125			
22NEC-S28-SD47	AK102_103_SG	o-Terphenyl	42.5	50.0	150	--	dilution	
22NEC-S28-SD48	8270DSIM	2-Fluorobiphenyl	0.000	46.0	115	--	dilution	
22NEC-S28-SD48	8270DSIM	2-Fluorobiphenyl	43.1	46.0	115	QL		
22NEC-S28-SD48	8270DSIM	2-Methylnaphthalene-d10	0.000	50.0	150	--	dilution	
22NEC-S28-SD48	8270DSIM	Nitrobenzene-d5	0.000	44.0	125	QL/R		
22NEC-S28-SD49	8270DSIM	2-Fluorobiphenyl	0.000	46.0	115	QL/R		
22NEC-S28-SD49	8270DSIM	2-Methylnaphthalene-d10	0.000	50.0	150			
22NEC-S28-SD49	8270DSIM	Nitrobenzene-d5	0.000	44.0	125			
22NEC-S28-SD49 MS	8270DSIM	2-Fluorobiphenyl	0.000	46.0	115	--	Parent already flagged	
22NEC-S28-SD49 MS	8270DSIM	2-Methylnaphthalene-d10	0.000	50.0	150			
22NEC-S28-SD49 MS	8270DSIM	Nitrobenzene-d5	0.000	44.0	125			
22NEC-S28-SD49 MSD	8270DSIM	2-Methylnaphthalene-d10	0.000	50.0	150	--	Parent already flagged	
22NEC-S28-SD49 MSD	8270DSIM	Nitrobenzene-d5	0.000	44.0	125			
22NEC-S28-SD49	AK102_103	n-Triacontane-d62	185	50.0	150	--	dilution	
22NEC-S28-SD49	AK102_103	o-Terphenyl	44.8	50.0	150	--	dilution	
22NEC-S28-SD49 MSD	AK102_103	n-Triacontane-d62	154	50.0	150	--	dilution	
22NEC-S28-SD49 MSD	AK102_103	n-Triacontane-d62	33.4	50.0	150	--	dilution	
22NEC-S28-SD49 MSD	AK102_103_SG	o-Terphenyl	166	50.0	150	--	dilution	
22NEC-S28-SD50	8270DSIM	2-Fluorobiphenyl	0.000	46.0	115	--	dilution	
22NEC-S28-SD50	8270DSIM	2-Fluorobiphenyl	22.7	46.0	115	QL		
22NEC-S28-SD50	8270DSIM	2-Methylnaphthalene-d10	0.000	50.0	150	--	dilution	
22NEC-S28-SD50	8270DSIM	2-Methylnaphthalene-d10	155	50.0	150	QL/R*		
22NEC-S28-SD50	8270DSIM	Nitrobenzene-d5	0.000	44.0	125			
22NEC-S28-SD50	AK102_103_SG	o-Terphenyl	45.8	50.0	150	--	dilution	
22NEC-S28-SD51	8270DSIM	2-Fluorobiphenyl	0.000	46.0	115	--	dilution	
22NEC-S28-SD51	8270DSIM	2-Fluorobiphenyl	24.8	46.0	115	QL/R		

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22NEC-S28-SD51	8270DSIM	2-Methylnaphthalene-d10	0.000	50.0	150		
22NEC-S28-SD51	8270DSIM	Fluoranthene-D10	0.000	50.0	150	--	dilution
22NEC-S28-SD51	8270DSIM	Nitrobenzene-d5	0.000	44.0	125	QL/R	
22NEC-S28-SD51	AK102_103	o-Terphenyl	44.8	50.0	150	--	dilution
22NEC-S28-SD51	AK102_103_SG	o-Terphenyl	39.8	50.0	150	--	dilution
22NEC-S28-SD52	8270DSIM	Nitrobenzene-d5	0.000	44.0	125	QL/R	
22NEC-S28-SD53	8270DSIM	Nitrobenzene-d5	0.000	44.0	125	QL/R	
22NEC-S28-SD54	8270DSIM	2-Methylnaphthalene-d10	0.000	50.0	150	--	dilution
22NEC-S28-SD54	8270DSIM	Nitrobenzene-d5	0.000	44.0	125	QL/R	
22NEC-S28-SD54	AK102_103	n-Triacontane-d62	48.7	50.0	150	--	dilution
22NEC-S28-SD55	AK102_103	n-Triacontane-d62	32.6	50.0	150	QL	
22NEC-S28-SD57	8270DSIM	Nitrobenzene-d5	28.4	44.0	125	QL	
22NEC-S28-SD57	AK102_103	n-Triacontane-d62	48.1	50.0	150	QL	
22NEC-S28-SD58	8270DSIM	2-Fluorobiphenyl	45.2	46.0	115	QL	
22NEC-S28-SD58	8270DSIM	2-Methylnaphthalene-d10	47.4	50.0	150		
22NEC-S28-SD58	8270DSIM	Fluoranthene-D10	45.7	50.0	150		
22NEC-S28-SD58	8270DSIM	p-Terphenyl-d14	56.2	58.0	133		
22NEC-S28-SD59	8270DSIM	2-Methylnaphthalene-d10	0.000	50.0	150	--	dilution
22NEC-S28-SD59	8270DSIM	Nitrobenzene-d5	0.000	44.0	125	QL/R	
22NEC-S28-SD59	AK102_103	n-Triacontane-d62	45.5	50.0	150	--	dilution
22NEC-S28-SD60	8270DSIM	Nitrobenzene-d5	0.000	44.0	125	QL/R	
22NEC-S28-SD60	AK102_103	n-Triacontane-d62	40.3	50.0	150	QL	
22NEC-S28-SD921	8270DSIM	Nitrobenzene-d5	145	44.0	125	QH - detects	
22NEC-S28-SD921	AK102_103_SG	n-Triacontane-d62	35.1	50.0	150	QL	
22NEC-S28-SD934	8270DSIM	2-Fluorobiphenyl	45.5	46.0	115	QL	
22NEC-S28-SD934	8270DSIM	2-Methylnaphthalene-d10	48.1	50.0	150		
22NEC-S28-SD938	8270DSIM	2-Fluorobiphenyl	0.000	46.0	115	--	dilution
22NEC-S28-SD938	8270DSIM	2-Methylnaphthalene-d10	0.000	50.0	150	--	dilution
22NEC-S28-SD938	8270DSIM	Nitrobenzene-d5	1170	44.0	125	QH - detects	
22NEC-S28-SD938	8270DSIM	Nitrobenzene-d5	1530	44.0	125	--	dilution
22NEC-S28-SD938	AK102_103	n-Triacontane-d62	329	50.0	150	--	dilution
22NEC-S28-SD942	8270DSIM	2-Methylnaphthalene-d10	0.000	50.0	150	--	dilution
22NEC-S28-SD942	8270DSIM	2-Methylnaphthalene-d10	160	50.0	150	QH - detects	
22NEC-S28-SD942	8270DSIM	Nitrobenzene-d5	0.000	44.0	125	--	dilution
22NEC-S28-SD942	AK102_103	n-Triacontane-d62	0.000	50.0	150	--	dilution
22NEC-S28-SD942	AK102_103	o-Terphenyl	49.0	50.0	150	--	dilution
22NEC-S28-SD942	AK102_103_SG	n-Triacontane-d62	0.000	50.0	150	--	dilution
22NEC-S28-SD953	8270DSIM	2-Fluorobiphenyl	140	46.0	115	QL/R	
22NEC-S28-SD953	8270DSIM	2-Methylnaphthalene-d10	258	50.0	150	--	dilution
22NEC-S28-SD953	8270DSIM	Nitrobenzene-d5	0.000	44.0	125	QL/R	
22NEC-S28-SD17	8270DSIM	2-Fluorobiphenyl	37.4	46.0	115	QL	
22NEC-S28-SD17	8270DSIM	2-Methylnaphthalene-d10	37.8	50.0	150	QL	

*in cases where multiple failures indicated different directions of bias, the most conservative flag was applied.

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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:

Samples are flagged as indicated above.

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iv. Data quality or usability affected?

Comments:

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AK102/103: In most cases the affected results were significantly greater than or significantly less than the PSL, so data usability was not affected. In the case of 22NEC-S28-SD29, the affected RRO result was slightly less than the PSL, with possible low bias. Usability of this result may be affected.
SW8270D-SIM: In most cases the affected results were significantly greater than or significantly less than the PSL or the analyte did not have an associated PSL. In those cases, data usability was not affected. However, numerous non-detect results were rejected due to surrogate failures below the lower cutoff. The following results are not usable for project decision-making:

- 22NEC-S28-SD20: Anthracene
- 22NEC-S28-SD28: 2-chloronaphthalene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene
- 22NEC-S28-SD29: anthracene, benzo(a)anthracene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene
- 22NEC-S28-SD30: 2-chloronaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, dibenzofuran, indeno(1,2,3-cd)pyrene, and pyrene
- 22NEC-S28-SD47: 2-chloronaphthalene, anthracene, and dibenzo[a,h]anthracene
- 22NEC-S28-SD48: 2-chloronaphthalene, acenaphthylene, benzo[g,h,i]perylene, benzo[k]fluoranthene, dibenzo[a,h]anthracene, and indeno[1,2,3-cd]perylene
- 22NEC-S28-SD49: anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene
- 22NEC-S28-SD50: anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene
- 22NEC-S28-SD51: anthracene and dibenzo(a,h)anthracene
- 22NEC-S28-SD52: 2-chloronaphthalene, acenaphthylene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene
- 22NEC-S28-SD53: 2-chloronaphthalene, acenaphthylene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene
- 22NEC-S28-SD54: anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene
- 22NEC-S28-SD59: 2-Chloronaphthalene, Acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene
- 22NEC-S28-SD60: 2-Chloronaphthalene, Acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene

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- 22NEC-S28-SD953: 2-chloronaphthalene, acenaphthylene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene

e. Trip Blanks

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

Yes☐ No☐ N/A☒ Comments:

No volatiles included in this SDG.

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

Yes☐ No☐ N/A☒ Comments:

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

v. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

f. Field Duplicate

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

Yes☒ No☐ N/A☐ Comments:

Six field duplicates were submitted and analyzed for 60 primary sediment samples.

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☐ No☒ N/A☐ Comments:

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			SAMPLE ID	22NEC-S28-SD021	22NEC-S28-SD921		
METHOD	ANALYTE	2022 NEC SSCL	UNITS				
AK102/103	DRO	3500	mg/kg	1790	1180	41%	
AK102/103	RRO	3500	mg/kg	681	514	28%	
AK102/103SGT	DRO	3500	mg/kg	1010	1070	6%	
AK102/103SGT	RRO	3500	mg/kg	214 J	261 J	--	
SW8270DSIM	1-Methylnaphthalene	NS	mg/kg	0.451	0.522	15%	
SW8270DSIM	2-Methylnaphthalene	0.6	mg/kg	0.743	0.852	14%	
SW8270DSIM	Acenaphthene	0.5	mg/kg	0.161	0.153	5%	
SW8270DSIM	Acenaphthylene	NS	mg/kg	0.0679	ND	--	QN
SW8270DSIM	Anthracene	NS	mg/kg	0.119	0.0949	23%	
SW8270DSIM	Benzo(a)anthracene	NS	mg/kg	0.177	0.0416	124%	QN
SW8270DSIM	Benzo(a)pyrene	NS	mg/kg	0.0571	0.00905 J	145%	QN
SW8270DSIM	Benzo(b)fluoranthene	NS	mg/kg	0.159	0.0182 J	159%	QN
SW8270DSIM	Benzo(g,h,i)perylene	1.7	mg/kg	0.0209 J	ND	--	
SW8270DSIM	Benzo(k)fluoranthene	NS	mg/kg	0.0633	0.00786 J	156%	QN
SW8270DSIM	Chrysene	NS	mg/kg	0.466	0.0675	149%	QN
SW8270DSIM	Dibenzo(a,h)anthracene	NS	mg/kg	0.00561 J	ND	--	
SW8270DSIM	Dibenzofuran	NS	mg/kg	0.147	0.144	2%	
SW8270DSIM	Fluoranthene	2	mg/kg	2.05	0.572	113%	QN
SW8270DSIM	Fluorene	0.8	mg/kg	0.266	0.245	8%	
SW8270DSIM	Indeno(1,2,3-cd)pyrene	3.2	mg/kg	0.031	ND	--	QN
SW8270DSIM	Naphthalene	1.7	mg/kg	0.277	0.308	11%	
SW8270DSIM	Phenanthrene	4.8	mg/kg	1.66	0.963	53%	QN
SW8270DSIM	Pyrene	NS	mg/kg	1.29	0.347	115%	QN
WBLACK	Total Organic Carbon	NS	mg/kg	130000	155000	18%	

			SAMPLE ID	22NEC-S28-SD08	22NEC-S28-SD908		
METHOD	ANALYTE	2022 NEC SSCL	UNITS				
SW8270DSIM	Fluoranthene	2	mg/kg	0.0387 J	ND	--	
SW8270DSIM	Phenanthrene	4.8	mg/kg	0.0205 J	ND	--	
SW8270DSIM	Pyrene	NS	mg/kg	0.0244 J	ND	--	
WBLACK	Total Organic Carbon	NS	mg/kg	83600	66200	23%	

			SAMPLE ID	22NEC-S28-SD34	22NEC-S28-SD934		

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METHOD	ANALYTE	2022 NEC SSCL	UNITS				
AK102/103	DRO	3500	mg/kg	383 J	469 J	--	
AK102/103SGT	DRO	3500	mg/kg	312 J	611 J	--	
WBLACK	Total Organic Carbon	NS	mg/kg	115000	127000	10%	

			SAMPLE ID	22NEC-S28-SD38	22NEC-S28-SD938		
METHOD	ANALYTE	2022 NEC SSCL	UNITS				
AK102/103	DRO	3500	mg/kg	18000	7160	86%	QN
AK102/103	RRO	3500	mg/kg	3100	2640	16%	
AK102/103SGT	DRO	3500	mg/kg	7170	4840	39%	
AK102/103SGT	RRO	3500	mg/kg	1080	1010	7%	
SW8270DSIM	1-Methylnaphthalene	NS	mg/kg	8.56	24.9	98%	QN
SW8270DSIM	2-Methylnaphthalene	0.6	mg/kg	15.1	44.7	99%	QN
SW8270DSIM	Acenaphthene	0.5	mg/kg	0.217	0.659	101%	QN
SW8270DSIM	Benzo(a)pyrene	NS	mg/kg	ND	0.0217 J	--	
SW8270DSIM	Dibenzofuran	NS	mg/kg	0.133	0.390 J	98%	QN
SW8270DSIM	Fluoranthene	2	mg/kg	0.0128 J	0.0177 J	--	
SW8270DSIM	Fluorene	0.8	mg/kg	0.363	1.3	113%	QN
SW8270DSIM	Naphthalene	1.7	mg/kg	3.77	11	98%	QN
SW8270DSIM	Phenanthrene	4.8	mg/kg	0.227	0.58	87%	QN
SW8270DSIM	Pyrene	NS	mg/kg	0.0135 J	0.0152 J	--	
WBLACK	Total Organic Carbon	NS	mg/kg	213000	121000	55%	QN

			SAMPLE ID	22NEC-S28-SD42	22NEC-S28-SD942		
METHOD	ANALYTE	2022 NEC SSCL	UNITS				
AK102/103	DRO	3500	mg/kg	3390	9640	96%	QN
AK102/103	RRO	3500	mg/kg	24600	82200	108%	QN
AK102/103SGT	DRO	3500	mg/kg	7820	15700	67%	QN
AK102/103SGT	RRO	3500	mg/kg	66600	133000	67%	QN
SW8270DSIM	Acenaphthylene	NS	mg/kg	0.0139 J	ND	--	
SW8270DSIM	Benzo(a)anthracene	NS	mg/kg	0.00754 J	0.0201 J	--	
SW8270DSIM	Chrysene	NS	mg/kg	0.0111 J	0.0542	132%	QN
SW8270DSIM	Fluoranthene	2	mg/kg	0.00962 J	ND	--	
SW8270DSIM	Phenanthrene	4.8	mg/kg	0.0271 J	0.0906	108%	QN

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SW8270DSIM	Pyrene	NS	mg/kg	0.0391	0.0903	79%	QN
WBLACK	Total Organic Carbon	NS	mg/kg	178000	260000	37%	

			SAMPLE ID	22NEC-S28-SD53	22NEC-S28-SD953		
METHOD	**ANALYTE**	**2022 NEC SSCL**	**UNITS**			**RPD**	**Flag**
AK102/103	DRO	3500	mg/kg	20200	16900	18%	
AK102/103	RRO	3500	mg/kg	803	828	3%	
AK102/103SGT	DRO	3500	mg/kg	7350	11300	42%	
AK102/103SGT	RRO	3500	mg/kg	ND	207 J	--	
SW8270DSIM	1-Methylnaphthalene	NS	mg/kg	8.53	47.3	139%	QN
SW8270DSIM	2-Methylnaphthalene	0.6	mg/kg	16.8	82.2	132%	QN
SW8270DSIM	Acenaphthene	0.5	mg/kg	0.271	1.54	140%	QN
SW8270DSIM	Anthracene	NS	mg/kg	0.00949 J	0.0513	138%	QN
SW8270DSIM	Dibenzofuran	NS	mg/kg	0.173	1	141%	QN
SW8270DSIM	Fluoranthene	2	mg/kg	0.0109 J	0.0366	108%	QN
SW8270DSIM	Fluorene	0.8	mg/kg	0.437	2.22	134%	QN
SW8270DSIM	Naphthalene	1.7	mg/kg	5.93	29.5	133%	QN
SW8270DSIM	Phenanthrene	4.8	mg/kg	0.444	1.66	116%	QN
SW8270DSIM	Pyrene	NS	mg/kg	0.00977 J	0.0346	112%	QN
WBLACK	Total Organic Carbon	NS	mg/kg	272000	208000	27%	

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

Comments:

The variation in results is likely attributed to the significant matrix effect observed for the sediment samples in this SDG. In most cases, the qualified results were either significantly above/below the PSL or did not have an associated PSL, so data usability was not affected. However, the following results may be affected:

- 22NEC-S28-SD021/22NEC-S28-SD921: The primary result for fluoranthene was slightly greater than the PSL and the FD result was significantly less than the PSL, both with possible indeterminate bias. The higher result (exceedance) will be used for decision-making at the project site. Data usability was not affected.
- 22NEC-S28-SD38/22NEC-S28-SD938: The primary results for acenaphthene and fluoranthene were significantly less than the PSL and the FD results were significantly greater than the PSL. The higher of the two results (exceedances) will be used for decision-making. Data usability was not affected.
- 22NEC-S28-SD42/22NEC-S28-SD942: The primary result for DRO was slightly less than the PSL and the FD result was significantly greater than the PSL. The higher result (exceedance) will be used for decision-making at the project site. Data usability was not affected.
- 22NEC-S28-SD53/22NEC-S28-SD953: The primary results for acenaphthene and fluorene were significantly less than the PSLs and the FD results were significantly greater than the PSLs. The higher result (exceedances) will be used for decision-making at the project site. Data usability was not affected.

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

Yes☐ No☐ N/A☒ Comments:

Equipment blanks were not required in the approved project WP.

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

Yes☐ No☐ N/A☐ Comments:

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

Comments:

iii. Data quality or usability affected?

Comments:

Data quality and usability were not affected.

L1528321

Laboratory Report Date:

October 12, 2022

CS Site Name:

St Law NEC Facility

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

   a. Defined and appropriate?

      Yes☒ No☐ N/A☐ Comments:

DRO was mistakenly omitted from the report for sample 22NEC-S28-SD35 due to laboratory error. The lab was able to report a result from the analysis performed, but the DRO result was reported above the calibration range (~20% above the highest calibration point). The result was qualified QN for possible indeterminate bias. The affected result is significantly greater than the PSL, as was the DRO result reported with silica gel cleanup, so data usability was not affected.

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Attachment F-4
95% Upper Control Limit and Lower Control Limit Tables

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NSB Total Organic Carbon Soils Data - Site 8

Area of Concern	Boring	Sample Location	Sample Depth (feet)	Sample	TOC (mg/kg)	Method Detection Limit (mg/kg)	foc (stat value weight fraction)	Lithology
Site 8		Road		22NEC-S08-SS01	26700		0.0267	
		Road		22NEC-S08-SS06	3600		0.0036	
		Road		22NEC-S08-SS07	84600		0.0846	
		Tundra		22NEC-S08-SS09	7980		0.00798	
		Tundra		22NEC-S08-SS10	31900		0.0319	
		Tundra		22NEC-S08-SS11	31600		0.0316	
		Tundra		22NEC-S08-SS12	21100		0.0211	
		Tundra		22NEC-S08-SS13	22400		0.0224	
		Tundra		22NEC-S08-SS14	4170		0.00417	
		Tundra		22NEC-S08-SS18	7140		0.00714	
		Road		22NEC-S08-SS19	104000		0.104	
		Road		22NEC-S08-SS20	11100		0.0111	
		Road		22NEC-S08-SS21	26600		0.0266	
		Road		22NEC-S08-SS24	1450		0.00145	
		Tundra		22NEC-S08-SS26	119000		0.119	
		Road		22NEC-S08-SS28	16900		0.0169	
		Road		22NEC-S08-SS34	28600		0.0286	
				NSB Average	**32285**		**0.0323**	

	Standard Deviation	**35507**	**0.0355**			
	Standard Error	**8612**	**0.0086**	**Uses square root of sample number**	**Sample Number:**	17
	1.96X Standard Error	**16879**	**0.0169**		**Degrees of Freedom:**	16
	Coefficient of Variation	**110**	**110**			
	Relative Standard Deviation	**110**	**109.9823698**	**Must be less than 100%**		More than 100
NSB	**95% LCL of the Mean - normal**	**15406**	**0.01541**	**ADEC Default = 0.001**		Use Calculated LCL
	Student T 95% LCL	**14028**	**0.01403**	**Uses T-Value for Degrees of Freedom and N**	Probability = 0.05	Use Calculated LCL
	Chebyshev 95% LCL	**2383**	**0.00238**	**Uses sample number**	Probability = 0.05	Use Calculated LCL
	Max	**119000**	**0.1190**			
	Min	**1450**	**0.0015**			

Notes:
% – percent
foc – fraction organic carbon
mg/kg – milligrams per kilogram
TOC – total organic carbon

NSB Total Organic Carbon Soils Data - Site 28

Area of Concern	Boring	Sample Date	Sample Depth (feet)	Sample	TOC (mg/kg)	Method Detection Limit (mg/kg)	foc (stat value weight fraction)	Lithology
S28			1.5	22NEC-S28-SD08	83600		0.0836	
S28			1.5	22NEC-S28-SD09	65300		0.0653	
S28			1.5	22NEC-S28-SD10	160000		0.16	
S28			1.5	22NEC-S28-SD11	52000		0.052	
S28			1.5	22NEC-S28-SD12	92200		0.0922	
S28			1.5	22NEC-S28-SD17	70700		0.0707	
S28			1.5	22NEC-S28-SD22	151000		0.151	
S28			1.5	22NEC-S28-SD56	46900		0.0469	
S28			1.5	22NEC-S28-SD58	30300		0.0303	
				NSB Average	**83556**		**0.0836**	
			NSB	**Standard Deviation**	**44918**		**0.0449**	
				Standard Error	**14973**		**0.0150**	**Uses square root of sample number**
				1.96X Standard Error	**29347**		**0.0293**	
				Coefficient of Variation	**54**		**54**	
				Relative Standard Deviation	**54**		**53.7587250**	**Must be less than 100%**
				95% LCL of the Mean - normal	**54209**		**0.05421**	**ADEC Default = 0.001**
				Student T 95% LCL	**49028**		**0.04903**	**Uses T-Value for Degrees of Freedom and N**
				Chebyshev 95% LCL	**31568**		**0.03157**	**Uses sample number**
				Max	**160000**		**0.1600**	
				Min	**30300**		**0.0303**	

Sample Number:	9	
Degrees of Freedom:	8	
		Less than 100
		Use Calculated LCL
	Probability = 0.05	Use Calculated LCL
	Probability = 0.05	Use Calculated LCL

Notes:
% – percent
foc – fraction organic carbon
mg/kg – milligrams per kilogram
TOC – total organic carbon

NSB Total Organic Carbon Soils Data - BG

Area of Concern	Boring	Sample Date	Sample Depth (feet)	Sample	TOC (mg/kg)	Method Detection Limit (mg/kg)	foc (stat value weight fraction)	Lithology
		8/6/2022	1	22NEC-BG-1	104000		0.104	OL
		8/6/2022	1	22NEC-BG-2	155000		0.155	OL
		8/6/2022	1	22NEC-BG-3	235000		0.235	OL
		8/7/2022	1	22NEC-BG-4	70100		0.0701	OL
		8/7/2022	1	22NEC-BG-5	81200		0.0812	OL
		8/7/2022	1	22NEC-BG-6	148000		0.148	OL
		8/7/2022	1	22NEC-BG-7	218000		0.218	OL
		8/7/2022	1	22NEC-BG-8	6890		0.00689	OL
		8/7/2022	1	22NEC-BG-9	5740		0.00574	OL
		8/7/2022	1	22NEC-BG-10	15400		0.0154	OL
				NSB Average	**103933**		**0.1039**	

	Standard Deviation	**83864**	**0.0839**			
	Standard Error	**26520**	**0.0265**	**Uses square root of sample number**	**Sample Number:**	10
	1.96X Standard Error	**51979**	**0.0520**		**Degrees of Freedom:**	9
	Coefficient of Variation	**81**	**81**			
	Relative Standard Deviation	**81**	**80.6903239**	**Must be less than 100%**		Less than 100
NSB	**95% LCL of the Mean - normal**	**51954**	**0.05195**	**ADEC Default = 0.001**		Use Calculated LCL
	Student T 95% LCL	**43940**	**0.04394**	**Uses T-Value for Degrees of Freedom and N**	Probability = 0.05	Use Calculated LCL
	Chebyshev 95% LCL	**11852**	**0.01185**	**Uses sample number**	Probability = 0.05	Use Calculated LCL
	Max	**235000**	**0.2350**			
	Min	**5740**	**0.0057**			

Notes:

% – percent

foc – fraction organic carbon

mg/kg – milligrams per kilogram

TOC – total organic carbon

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Site 15 95% UCL Results Table

Sample	Description	Result	Description	DRO (mg/kg)
22NEC-SP1-DU1-01	Stockpile 1 DU1 primary	70.4 [101] J	DRO	70.4
22NEC-SP1-DU1-02	Stockpile 1 DU1 Duplicate	65.8 [101] J	DRO	65.8
22NEC-SP1-DU1-03	Stockpile 1 DU1 triplicate	70.7 [101] J	DRO	70.7
22NEC-SP1-DU2-01	Stockpile 1 DU2 primary	155 [101]	DRO	155
22NEC-SP1-DU3-01	Stockpile 1 DU3 primary	180 [102]	DRO	180
22NEC-SP2-DU1-01	Stockpile 2 DU1 primary	1770 [102]	DRO	1770
22NEC-SP2-DU2-01	Stockpile 2 DU2 primary	527 [102]	DRO	527
22NEC-S15-DU1-SS01	Site 15 Stockpile Footprint DU1 pre primary	29.6 [10.2] J	DRO	29.6
22NEC-S15-DU1-SS02	Site 15 Stockpile Footprint DU1 pre duplicate	38.8 [10.2] J	DRO	38.8
22NEC-S15-DU1-SS03	Site 15 Stockpile Footprint DU1 pre triplicate	36.5 [10.1] J	DRO	36.5
22NEC-S15-DU1-SS04	Site 15 Stockpile Footprint post primary	85.3 [101] J	DRO	85.3
22NEC-S15-DU1-SS05	Site 15 Stockpile Footprint post duplicate	197 [101]	DRO	197
22NEC-S15-DU1-SS06	Site 15 Stockpile Footprint post triplicate	146 [101] J	DRO	146

Site 15 95% UCL ISM Triplicate Table

Analyte	Sample ID	Primary Sample Result	Duplicate Sample Result	Triplicate Sample Result	# of Detections	Standard Deviation	Average	Coefficient of Variation	Student's t 95% UCL	Chebyshev 95% UCL	SSCL	unit	Result
DRO	22NEC-SP1-DU1-01 through -03	70.4	65.8	70.7	3	2.747	69.0	0.040	73.5969	75.8786	9200	mg/kg	73.60
DRO	22NEC-S15-DU1-SS01 through SS03	29.6	38.8	36.5	3	4.788	35.0	0.137	43.0383	47.0158	9200	mg/kg	43.04
DRO	22NEC-S15-DU1-SS04 through SS06	85.3	197	146	3	55.920	142.8	0.392	237.0399	283.4960	9200	mg/kg	283.50

Per the updated 2020 ITRC ISM Guidance, the 95% UCL selected for reporting was based on the coefficient of variation, where COV greater than 0.23 defaults to reporting Chebyshev, rather than a COV of 1.5.

Site 15 95% UCL ISM Single Table

Analyte	Sample ID	Primary Sample Result	Duplicate Sample Result	Triplicate Sample Result	# of Detections	Standard Deviation	Average	Coefficient of Variation	Student's t 95% UCL	Chebyshev 95% UCL	SSCL	unit	Result
DRO	22NEC-SP1-DU2-01	155	NA	NA	1	2.747	155	0.017719438	159.6302	161.9119	9200	mg/kg	159.63
DRO	22NEC-SP1-DU3-01	180	NA	NA	1	2.747	180	0.015258405	184.6302	186.9119	9200	mg/kg	184.63
DRO	22NEC-SP2-DU1-01	1770	NA	NA	1	2.747	1770	0.001551702	1774.6302	1776.9119	9200	mg/kg	1774.63
DRO	22NEC-SP2-DU2-01	527	NA	NA	1	2.747	527	0.0052116	531.6302	533.9119	9200	mg/kg	531.63

Description: Using the standard deviation from the triplicate, and using the primary result in place of the average, 95% UCLs using students t and chebyshev were calcualted for the primary base sample. Per the updated 2020 ITRC ISM Guidance, the 95% UCL selected for reporting was based on the coefficient of variation, where COV greater than 0.23 defaults to reporting Chebyshev.

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Site 28 95% UCL Results Table

			SAMPLE ID	22NEC-S28-DU1-SD01	Values	22NEC-S28-DU1-SD02	Values	22NEC-S28-DU1-SD03	Values	22NEC-S28-DU2-SD01	Values	22NEC-S28-DU1-SS04	Values
			LOCATION ID	22NEC-S28-DU1		22NEC-S28-DU1		22NEC-S28-DU1		22NEC-S28-DU2-SD01		22NEC-S28-DU1	
			LAB SDG	L1520822		L1520822		L1520822		L1520822		L1528288	
			COLLECTION DATE	7/25/2022 1:05:00 PM		7/25/2022 1:10:00 PM		7/25/2022 1:20:00 PM		7/27/2022 1:50:00 PM		8/17/2022 5:00:00 PM	
			MATRIX	Soil		Soil		Soil		Soil		Soil	
			QC TYPE	Primary		Primary		Primary		Primary/MS/MSD		Primary	
METHOD	**ANALYTE**	**SSCL[1]**	**UNITS**		**22NEC-S28-DU1-SD01**		**22NEC-S28-DU1-SD02**		**22NEC-S28-DU1-SD03**		**22NEC-S28-DU2-SD01**		**22NEC-S28-DU1-SS04**
AK102/103	Diesel Range Organics	9200	mg/kg	274 [177] J	274	ND [178]	ND	ND [178]	ND	92.4 [178] J,QL	92.4	ND [101]	ND
AK102/103	Residual Range Organics	9200	mg/kg	532 [152]	532	239 [152] J	239	259 [152] J	259	796 [152] QL	796	191 [101]	191
SW8270DSIM	1-Methylnaphthalene	0.41	mg/kg	ND [0.0101]	ND	ND [0.0102]	ND	ND [0.0102]	ND	ND [0.0102] QL	ND	ND [0.0101]	ND
SW8270DSIM	2-Chloronaphthalene	NS	mg/kg	ND [0.0101] QL	ND	ND [0.0102]	ND	ND [0.0102]	ND	ND [0.0102] QL	ND	ND [0.0101] QL	ND
SW8270DSIM	2-Methylnaphthalene	1.3	mg/kg	ND [0.0101] QL	ND	ND [0.0102]	ND	ND [0.0102]	ND	ND [0.0102] QL	ND	ND [0.0101] QL	ND
SW8270DSIM	Acenaphthene	37	mg/kg	ND [0.00507] QL	ND	ND [0.00508]	ND	ND [0.00508]	ND	ND [0.00508] QL	ND	ND [0.00507] QL	ND
SW8270DSIM	Acenaphthylene	18	mg/kg	ND [0.00507] QL	ND	ND [0.00508]	ND	ND [0.00508]	ND	ND [0.00508] QL	ND	ND [0.00507] QL	ND
SW8270DSIM	Anthracene	390	mg/kg	ND [0.00507] QL	ND	0.00903 [0.00508] J	0.00903	ND [0.00508]	ND	ND [0.00508] QL	ND	ND [0.00507] QL	ND
SW8270DSIM	Benzo(a)anthracene	0.7	mg/kg	0.00455 [0.00507] J,QL	0.00455	0.0206 [0.00508]	0.0206	0.00831 [0.00508] J	0.00831	0.00790 [0.00508] J,QL	0.0079	0.00293 [0.00507] J,QL	0.00293
SW8270DSIM	Benzo(a)pyrene	1.5	mg/kg	0.00575 [0.00507] J,QL	0.00575	0.0200 [0.00508]	0.02	0.0103 [0.00508]	0.0103	0.00869 [0.00508] J,QL	0.00869	0.00390 [0.00507] J,QL	0.0039
SW8270DSIM	Benzo(b)fluoranthene	15	mg/kg	0.00881 [0.00507] J,QL	0.00881	0.0294 [0.00508]	0.0294	0.0144 [0.00508]	0.0144	0.0121 [0.00508] QL	0.0121	0.00492 [0.00507] J,QL	0.00492
SW8270DSIM	Benzo(g,h,i)perylene	2300	mg/kg	0.00448 [0.00507] J,QL	0.00448	0.0144 [0.00508]	0.0144	0.00692 [0.00508] J	0.00692	0.00561 [0.00508] J,QL	0.00561	0.00302 [0.00507] J,QL	0.00302
SW8270DSIM	Benzo(k)fluoranthene	150	mg/kg	0.00314 [0.00507] J,QL	0.00314	0.0123 [0.00508]	0.0123	0.00524 [0.00508] J	0.00524	0.00410 [0.00508] J,QL	0.0041	ND [0.00507] QL	ND
SW8270DSIM	Chrysene	600	mg/kg	0.00645 [0.00507] J,QL	0.00645	0.0286 [0.00508]	0.0286	0.0131 [0.00508]	0.0131	0.0113 [0.00508] QL	0.0113	0.00398 [0.00507] J,QL	0.00398
SW8270DSIM	Dibenzo(a,h)anthracene	1.5	mg/kg	ND [0.00507] QL	ND	0.00345 [0.00508] J	0.00345	ND [0.00508]	ND	ND [0.00508] QL	ND	ND [0.00507] QL	ND
SW8270DSIM	Dibenzofuran	NS	mg/kg	ND [0.00507] QL	ND	ND [0.00508]	ND	ND [0.00508]	ND	ND [0.00508] QL	ND	ND [0.00507] QL	ND
SW8270DSIM	Fluoranthene	590	mg/kg	0.0113 [0.00507] QL	0.0113	0.0432 [0.00508]	0.0432	0.0202 [0.00508]	0.0202	0.0157 [0.00508] QL	0.0157	0.00703 [0.00507] J,QL	0.00703
SW8270DSIM	Fluorene	36	mg/kg	ND [0.00507] QL	ND	ND [0.00508]	ND	ND [0.00508]	ND	ND [0.00508] QL	ND	ND [0.00507] QL	ND
SW8270DSIM	Indeno(1,2,3-cd)pyrene	15	mg/kg	0.00507 [0.00405] J,QL	0.00507	0.0149 [0.00406]	0.0149	0.00792 [0.00406] J	0.00792	0.00598 [0.00406] J,QL	0.00598	0.00358 [0.00406] J,QL	0.00358
SW8270DSIM	Naphthalene	120	mg/kg	ND [0.0101] QL	ND	ND [0.0102]	ND	ND [0.0102]	ND	ND [0.0102] QL	ND	ND [0.0101] QL	ND
SW8270DSIM	Phenanthrene	39	mg/kg	0.00892 [0.00507] J,QL	0.00892	0.0268 [0.00508]	0.0268	0.0149 [0.00508]	0.0149	0.00850 [0.00508] J,QL	0.0085	0.00442 [0.00507] J,QL	0.00442
SW8270DSIM	Pyrene	87	mg/kg	0.0134 [0.00405] QL	0.0134	0.0476 [0.00406]	0.0476	0.0223 [0.00406]	0.0223	0.0178 [0.00406] QL	0.0178	0.00765 [0.00406] J,QL	0.00765
Calc	Total LPAH[2]	7.8	mg/kg	0.0304	0.0304	0.0345	0.0345	0.0305	0.0305	0.0305	0.0305	0.0304	0.0304
Calc	Total HPAH[3]	9.6	mg/kg	0.0649	0.0649	0.222	0.222	0.108	0.108	0.0902	0.0902	0.421	0.421
SM2540G	Solids	NS	%	98.7 [0.200]	98.7	98.4 [0.200]	98.4	98.5 [0.200]	98.5	98.5 [0.200]	98.5	98.6 [0.200]	98.6

Notes:

[1]SSCLs for soil are the 18 AAC 75 B1 & B2 most stringent of the Under 40-inch and Migration to Groundwater cleanup levels except for DRO, RRO, and naphthalene; which were defined in the Northeast Cape FUDS, St. Lawrence Island Feasibility study.

[2] LPAH are the sum of naphthalene, acenaphthene, acenaphthylene, fluorene, phenanthrene, and anthracene. Calculated values for each sample used the LOD for non-detect results in accordance with ADEC guidance (ADEC 2022).

[3] HPAH are the sum of fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene, dibenzo(a,h)anthracene, and indeno(I,2,3-c,d)pyrene. Calculated values for each sample used the LOD for non-detect results in accordance with ADEC guidance (ADEC 2022).

LOD shown in brackets [ ]

DL – detection limit

J – the result is an estimated value greater than or equal to the DL and below the LOQ

LOD – limit of detection

LOQ – limit of quantitation

mg/kg – milligrams per kilogram

MS/MSD – matrix spike/matrix spike duplicate

ND – not detected

NS – not specified

NS – not specified

QC – quality control

high/low/indeterminate, due to a QC failure

SDG – sample delivery group

SIM – selected ion monitoring

Site 28 95% UCL Results Table

			SAMPLE ID	22NEC-S28-DU1-SS05	Values	22NEC-S28-DU1-SS06	Values	22NEC-S28-DU2-SS02	Values
			LOCATION ID	22NEC-S28-DU1		22NEC-S28-DU1		22NEC-S28-DU2	
			LAB SDG	L1528288		L1528288		L1528288	
			COLLECTION DATE	8/17/2022 5:10:00 PM		8/17/2022 5:20:00 PM		8/17/2022 5:30:00 PM	
			MATRIX	Soil		Soil		Soil	
			QC TYPE	Primary		Primary		Primary/MS/MSD	
METHOD	**ANALYTE**	**SSCL[1]**	**UNITS**		**22NEC-S28-DU1-SS05**		**22NEC-S28-DU1-SS06**		**22NEC-S28-DU2-SS02**
AK102/103	Diesel Range Organics	9200	mg/kg	ND [101]	ND	ND [101]	ND	135 [102] J	135
AK102/103	Residual Range Organics	9200	mg/kg	227 [101]	227	207 [101]	207	490 [102]	490
SW8270DSIM	1-Methylnaphthalene	0.41	mg/kg	ND [0.0101]	ND	ND [0.0101]	ND	ND [0.0102]	ND
SW8270DSIM	2-Chloronaphthalene	NS	mg/kg	ND [0.0101]	ND	ND [0.0101]	ND	ND [0.0102]	ND
SW8270DSIM	2-Methylnaphthalene	1.3	mg/kg	ND [0.0101]	ND	ND [0.0101]	ND	ND [0.0102]	ND
SW8270DSIM	Acenaphthene	37	mg/kg	ND [0.00507]	ND	ND [0.00507]	ND	ND [0.00509]	ND
SW8270DSIM	Acenaphthylene	18	mg/kg	ND [0.00507]	ND	ND [0.00507]	ND	ND [0.00509]	ND
SW8270DSIM	Anthracene	390	mg/kg	ND [0.00507]	ND	ND [0.00507]	ND	ND [0.00509]	ND
SW8270DSIM	Benzo(a)anthracene	0.7	mg/kg	0.00440 [0.00507] J	0.0044	0.00752 [0.00507] J	0.00752	0.0143 [0.00509] QH	0.0143
SW8270DSIM	Benzo(a)pyrene	1.5	mg/kg	0.00553 [0.00507] J	0.00553	0.00884 [0.00507] J	0.00884	0.0124 [0.00509]	0.0124
SW8270DSIM	Benzo(b)fluoranthene	15	mg/kg	0.00684 [0.00507] J	0.00684	0.0119 [0.00507]	0.0119	0.0149 [0.00509]	0.0149
SW8270DSIM	Benzo(g,h,i)perylene	2300	mg/kg	0.00372 [0.00507] J	0.00372	0.00675 [0.00507] J	0.00675	0.00649 [0.00509] J	0.00649
SW8270DSIM	Benzo(k)fluoranthene	150	mg/kg	0.00258 [0.00507] J	0.00258	0.00447 [0.00507] J	0.00447	0.00567 [0.00509] J	0.00567
SW8270DSIM	Chrysene	600	mg/kg	0.00679 [0.00507] J	0.00679	0.0112 [0.00507]	0.0112	0.0177 [0.00509] QN	0.0177
SW8270DSIM	Dibenzo(a,h)anthracene	1.5	mg/kg	ND [0.00507]	ND	ND [0.00507]	ND	0.00188 [0.00509] J	0.00188
SW8270DSIM	Dibenzofuran	NS	mg/kg	ND [0.00507]	ND	ND [0.00507]	ND	ND [0.00509]	ND
SW8270DSIM	Fluoranthene	590	mg/kg	0.00822 [0.00507] J	0.00822	0.0143 [0.00507]	0.0143	0.0187 [0.00509] QN	0.0187
SW8270DSIM	Fluorene	36	mg/kg	ND [0.00507]	ND	ND [0.00507]	ND	ND [0.00509]	ND
SW8270DSIM	Indeno(1,2,3-cd)pyrene	15	mg/kg	0.00472 [0.00405] J	0.00472	0.00785 [0.00406] J	0.00785	0.00812 [0.00407] J	0.00812
SW8270DSIM	Naphthalene	120	mg/kg	ND [0.0101]	ND	ND [0.0101]	ND	ND [0.0102]	ND
SW8270DSIM	Phenanthrene	39	mg/kg	0.00431 [0.00507] J	0.00431	0.00810 [0.00507] J	0.0081	0.00537 [0.00509] J	0.00537
SW8270DSIM	Pyrene	87	mg/kg	0.00966 [0.00405]	0.00966	0.0166 [0.00406]	0.0166	0.0229 [0.00407] QH	0.0229
Calc	Total LPAH[2]	7.8	mg/kg	0.0304	0.0304	0.0304	0.0304	0.0306	0.0306
Calc	Total HPAH[3]	9.6	mg/kg	0.055	0.055	0.09	0.09	0.117	0.117
SM2540G	Solids	NS	%	98.7 [0.200]	98.7	98.6 [0.200]	98.6	98.2 [0.200]	98.2

Notes:

[1]SSCLs for soil are the 18 AAC 75 B1 & B2 most stringent of the Under 40-inch and Migration to Groundwater cleanup levels except for DRO, RRO, and naphthalene; which were defined in the Northeast Cape FUDS, St. Lawrence Island Feasibility study.

[2] LPAH are the sum of naphthalene, acenaphthene, acenaphthylene, fluorene, phenanthrene, and anthracene. Calculated values for each sample used the LOD for non-detect results in accordance with ADEC guidance (ADEC 2022).

[3] HPAH are the sum of fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene, dibenzo(a,h)anthracene, and indeno(l,2,3-c,d)pyrene. Calculated values for each sample used the LOD for non-detect results in accordance with ADEC guidance (ADEC 2022).

LOD shown in brackets [ ]

DL – detection limit

J – the result is an estimated value greater than or equal to the DL and below the LOQ

LOD – limit of detection

LOQ – limit of quantitation

mg/kg – milligrams per kilogram

MS/MSD – matrix spike/matrix spike duplicate

ND – not detected

NS – not specified

NS – not specified

QC – quality control

high/low/indeterminate, due to a QC failure

SDG – sample delivery group

SIM – selected ion monitoring

Site 28 95% UCL ISM Triplicate Table

Analyte	Sample ID	Primary Sample Result	Duplicate Sample Result	Triplicate Sample Result	# of Detections	Standard Deviation	Average	Coefficient of Variation	Student's t 95% UCL	Chebyshev 95% UCL	SSCL	unit	Result
Diesel Range Organics	**22NEC-S28-DU1-SD01 to SD03**	274	ND	ND	1	#DIV/0!	274.0	#DIV/0!	NC	NC	9200.000	mg/kg	274
Residual Range Organics	**22NEC-S28-DU1-SD01 to SD04**	532	239	259	3	163.696	343.3	0.477	619.3007	755.2922	9200.000	mg/kg	755.29
1-Methylnaphthalene	**22NEC-S28-DU1-SD01 to SD05**	ND	ND	ND	0	#DIV/0!	#DIV/0!	#DIV/0!	NC	NC	0.410	mg/kg	ND
2-Chloronaphthalene	**22NEC-S28-DU1-SD01 to SD06**	ND	ND	ND	0	#DIV/0!	#DIV/0!	#DIV/0!	NC	NC	NS	mg/kg	ND
2-Methylnaphthalene	**22NEC-S28-DU1-SD01 to SD07**	ND	ND	ND	0	#DIV/0!	#DIV/0!	#DIV/0!	NC	NC	1.300	mg/kg	ND
Acenaphthene	**22NEC-S28-DU1-SD01 to SD08**	ND	ND	ND	0	#DIV/0!	#DIV/0!	#DIV/0!	NC	NC	37.000	mg/kg	ND
Acenaphthylene	**22NEC-S28-DU1-SD01 to SD09**	ND	ND	ND	0	#DIV/0!	#DIV/0!	#DIV/0!	NC	NC	18.000	mg/kg	ND
Anthracene	**22NEC-S28-DU1-SD01 to SD10**	ND	0.00903	ND	1	#DIV/0!	0.0	#DIV/0!	NC	NC	390.000	mg/kg	0.00903
Benzo(a)anthracene	**22NEC-S28-DU1-SD01 to SD11**	0.00455	0.0206	0.00831	3	0.008	0.0	0.753	0.0253	0.0323	0.700	mg/kg	0.03
Benzo(a)pyrene	**22NEC-S28-DU1-SD01 to SD12**	0.00575	0.02	0.0103	3	0.007	0.0	0.606	0.0243	0.0303	1.500	mg/kg	0.03
Benzo(b)fluoranthene	**22NEC-S28-DU1-SD01 to SD13**	0.00881	0.0294	0.0144	3	0.011	0.0	0.607	0.0355	0.0443	15.000	mg/kg	0.04
Benzo(g,h,i)perylene	**22NEC-S28-DU1-SD01 to SD14**	0.00448	0.0144	0.00692	3	0.005	0.0	0.601	0.0173	0.0216	2300.000	mg/kg	0.02
Benzo(k)fluoranthene	**22NEC-S28-DU1-SD01 to SD15**	0.00314	0.0123	0.00524	3	0.005	0.0	0.696	0.0150	0.0190	150.000	mg/kg	0.02
Chrysene	**22NEC-S28-DU1-SD01 to SD16**	0.00645	0.0286	0.0131	3	0.011	0.0	0.708	0.0352	0.0447	600.000	mg/kg	0.04
Dibenzo(a,h)anthracene	**22NEC-S28-DU1-SD01 to SD17**	ND	0.00345	ND	1	#DIV/0!	0.0	#DIV/0!	NC	NC	1.500	mg/kg	0.00345
Dibenzofuran	**22NEC-S28-DU1-SD01 to SD18**	ND	ND	ND	0	#DIV/0!	#DIV/0!	#DIV/0!	NC	NC	NS	mg/kg	ND
Fluoranthene	**22NEC-S28-DU1-SD01 to SD19**	0.0113	0.0432	0.0202	3	0.016	0.0	0.661	0.0527	0.0663	590.000	mg/kg	0.07
Fluorene	**22NEC-S28-DU1-SD01 to SD20**	ND	ND	ND	0	#DIV/0!	#DIV/0!	#DIV/0!	NC	NC	36.000	mg/kg	ND
Indeno(1,2,3-cd)pyrene	**22NEC-S28-DU1-SD01 to SD21**	0.00507	0.0149	0.00792	3	0.005	0.0	0.544	0.0178	0.0220	15.000	mg/kg	0.02
Naphthalene	**22NEC-S28-DU1-SD01 to SD22**	ND	ND	ND	0	#DIV/0!	#DIV/0!	#DIV/0!	NC	NC	120.000	mg/kg	ND
Phenanthrene	**22NEC-S28-DU1-SD01 to SD23**	0.00892	0.0268	0.0149	3	0.009	0.0	0.539	0.0322	0.0398	39.000	mg/kg	0.04
Pyrene	**22NEC-S28-DU1-SD01 to SD24**	0.0134	0.0476	0.0223	3	0.018	0.0	0.639	0.0577	0.0724	87.000	mg/kg	0.07
Diesel Range Organics	**22NEC-S28-DU1-SS04 to SS06**	ND	ND	ND	0	#DIV/0!	#DIV/0!	#DIV/0!	NC	NC	9200.000	mg/kg	ND
Residual Range Organics	**22NEC-S28-DU1-SS04 to SS06**	191	227	207	3	18.037	208.3	0.087	238.7411	253.7255	9200.000	mg/kg	238.74
1-Methylnaphthalene	**22NEC-S28-DU1-SS04 to SS06**	ND	ND	ND	0	#DIV/0!	#DIV/0!	#DIV/0!	NC	NC	0.410	mg/kg	ND
2-Chloronaphthalene	**22NEC-S28-DU1-SS04 to SS06**	ND	ND	ND	0	#DIV/0!	#DIV/0!	#DIV/0!	NC	NC	NS	mg/kg	ND
2-Methylnaphthalene	**22NEC-S28-DU1-SS04 to SS06**	ND	ND	ND	0	#DIV/0!	#DIV/0!	#DIV/0!	NC	NC	1.300	mg/kg	ND
Acenaphthene	**22NEC-S28-DU1-SS04 to SS06**	ND	ND	ND	0	#DIV/0!	#DIV/0!	#DIV/0!	NC	NC	37.000	mg/kg	ND
Acenaphthylene	**22NEC-S28-DU1-SS04 to SS06**	ND	ND	ND	0	#DIV/0!	#DIV/0!	#DIV/0!	NC	NC	18.000	mg/kg	ND
Anthracene	**22NEC-S28-DU1-SS04 to SS06**	ND	ND	ND	0	#DIV/0!	#DIV/0!	#DIV/0!	NC	NC	390.000	mg/kg	ND
Benzo(a)anthracene	**22NEC-S28-DU1-SS04 to SS06**	0.00293	0.0044	0.00752	3	0.002	0.0	0.474	0.0089	0.0108	0.700	mg/kg	0.01
Benzo(a)pyrene	**22NEC-S28-DU1-SS04 to SS06**	0.0039	0.00553	0.00884	3	0.003	0.0	0.413	0.0103	0.0124	1.500	mg/kg	0.01
Benzo(b)fluoranthene	**22NEC-S28-DU1-SS04 to SS06**	0.00492	0.00684	0.0119	3	0.004	0.0	0.457	0.0140	0.0170	15.000	mg/kg	0.02
Benzo(g,h,i)perylene	**22NEC-S28-DU1-SS04 to SS06**	0.00302	0.00372	0.00675	3	0.002	0.0	0.441	0.0078	0.0095	2300.000	mg/kg	0.01
Benzo(k)fluoranthene	**22NEC-S28-DU1-SS04 to SS06**	ND	0.00258	0.00447	2	0.001	0.0	0.379	0.0058	0.0069	150.000	mg/kg	0.01
Chrysene	**22NEC-S28-DU1-SS04 to SS06**	0.00398	0.00679	0.0112	3	0.004	0.0	0.497	0.0135	0.0165	600.000	mg/kg	0.02
Dibenzo(a,h)anthracene	**22NEC-S28-DU1-SS04 to SS06**	ND	ND	ND	0	#DIV/0!	#DIV/0!	#DIV/0!	NC	NC	1.500	mg/kg	ND
Dibenzofuran	**22NEC-S28-DU1-SS04 to SS06**	ND	ND	ND	0	#DIV/0!	#DIV/0!	#DIV/0!	NC	NC	NS	mg/kg	ND
Fluoranthene	**22NEC-S28-DU1-SS04 to SS06**	0.00703	0.00822	0.0143	3	0.004	0.0	0.396	0.0164	0.0197	590.000	mg/kg	0.02
Fluorene	**22NEC-S28-DU1-SS04 to SS06**	ND	ND	ND	0	#DIV/0!	#DIV/0!	#DIV/0!	NC	NC	36.000	mg/kg	ND
Indeno(1,2,3-cd)pyrene	**22NEC-S28-DU1-SS04 to SS06**	0.00358	0.00472	0.00785	3	0.002	0.0	0.411	0.0091	0.0109	15.000	mg/kg	0.01
Naphthalene	**22NEC-S28-DU1-SS04 to SS06**	ND	ND	ND	0	#DIV/0!	#DIV/0!	#DIV/0!	NC	NC	120.000	mg/kg	ND
Phenanthrene	**22NEC-S28-DU1-SS04 to SS06**	0.00442	0.00431	0.0081	3	0.002	0.0	0.385	0.0092	0.0110	39.000	mg/kg	0.01
Pyrene	**22NEC-S28-DU1-SS04 to SS06**	0.00765	0.00966	0.0166	3	0.005	0.0	0.415	0.0192	0.0231	87.000	mg/kg	0.02

Per the updated 2020 ITRC ISM Guidance, the 95% UCL selected for reporting was based on the coefficient of variation, where COV greater than 0.23 defaults to reporting Chebyshev, rather than a COV of 1.5.

Site 15 95% UCL ISM Single Table

Analyte	Sample ID	Primary Sample Result	Duplicate Sample Result	Triplicate Sample Result	# of Detections	Standard Deviation	Average	Coefficient of Variation	Student's t 95% UCL	Chebyshev 95% UCL	SSCL	unit	Result
Diesel Range Organics	**22NEC-S28-DU2-SD01**	92.4	NA	NA	1	NC	92.4	#VALUE!	NC	NC	9200.000	mg/kg	92.4000
Residual Range Organics	**22NEC-S28-DU2-SD01**	796	NA	NA	1	163.696	796	0.205648061	1071.9674	1207.9589	9200.000	mg/kg	1071.9674
1-Methylnaphthalene	**22NEC-S28-DU2-SD01**	ND	NA	NA	0	NC	ND	#VALUE!	NC	NC	0.410	mg/kg	ND
2-Chloronaphthalene	**22NEC-S28-DU2-SD01**	ND	NA	NA	0	NC	ND	#VALUE!	NC	NC	NS	mg/kg	ND
2-Methylnaphthalene	**22NEC-S28-DU2-SD01**	ND	NA	NA	0	NC	ND	#VALUE!	NC	NC	1.300	mg/kg	ND
Acenaphthene	**22NEC-S28-DU2-SD01**	ND	NA	NA	0	NC	ND	#VALUE!	NC	NC	37.000	mg/kg	ND
Acenaphthylene	**22NEC-S28-DU2-SD01**	ND	NA	NA	0	NC	ND	#VALUE!	NC	NC	18.000	mg/kg	ND
Anthracene	**22NEC-S28-DU2-SD01**	ND	NA	NA	0	NC	ND	#VALUE!	NC	NC	390.000	mg/kg	ND
Benzo(a)anthracene	**22NEC-S28-DU2-SD01**	0.0079	NA	NA	1	0.008	0.0079	1.062567817	0.0221	0.0290	0.700	mg/kg	0.0290
Benzo(a)pyrene	**22NEC-S28-DU2-SD01**	0.00869	NA	NA	1	0.007	0.00869	0.83756616	0.0210	0.0270	1.500	mg/kg	0.0270
Benzo(b)fluoranthene	**22NEC-S28-DU2-SD01**	0.0121	NA	NA	1	0.011	0.0121	0.87994617	0.0300	0.0389	15.000	mg/kg	0.0389
Benzo(g,h,i)perylene	**22NEC-S28-DU2-SD01**	0.00561	NA	NA	1	0.005	0.00561	0.921387598	0.0143	0.0186	2300.000	mg/kg	0.0186
Benzo(k)fluoranthene	**22NEC-S28-DU2-SD01**	0.0041	NA	NA	1	0.005	0.0041	1.170389516	0.0122	0.0162	150.000	mg/kg	0.0162
Chrysene	**22NEC-S28-DU2-SD01**	0.0113	NA	NA	1	0.011	0.0113	1.005827254	0.0305	0.0399	600.000	mg/kg	0.0399
Dibenzo(a,h)anthracene	**22NEC-S28-DU2-SD01**	ND	NA	NA	0	#DIV/0!	ND	#DIV/0!	NC	NC	1.500	mg/kg	ND
Dibenzofuran	**22NEC-S28-DU2-SD01**	ND	NA	NA	0	#DIV/0!	ND	#DIV/0!	NC	NC	NS	mg/kg	ND
Fluoranthene	**22NEC-S28-DU2-SD01**	0.0157	NA	NA	1	0.016	0.0157	1.048481938	0.0435	0.0571	590.000	mg/kg	0.0571
Fluorene	**22NEC-S28-DU2-SD01**	ND	NA	NA	0	#DIV/0!	ND	#DIV/0!	NC	NC	36.000	mg/kg	ND
Indeno(1,2,3-cd)pyrene	**22NEC-S28-DU2-SD01**	0.00598	NA	NA	1	0.005	0.00598	0.845741193	0.0145	0.0187	15.000	mg/kg	0.0187
Naphthalene	**22NEC-S28-DU2-SD01**	ND	NA	NA	0	#DIV/0!	ND	#DIV/0!	NC	NC	120.000	mg/kg	ND
Phenanthrene	**22NEC-S28-DU2-SD01**	0.0085	NA	NA	1	0.009	0.0085	1.070808855	0.0238	0.0314	39.000	mg/kg	0.0314
Pyrene	**22NEC-S28-DU2-SD01**	0.0178	NA	NA	1	0.018	0.0178	0.996812451	0.0477	0.0625	87.000	mg/kg	0.0625
Diesel Range Organics	**22NEC-S28-DU2-SD02**	135	NA	NA	1	NC	135	#VALUE!	NC	NC	9200.000	mg/kg	135.0000
Residual Range Organics	**22NEC-S28-DU2-SD02**	490	NA	NA	1	18.037	490	0.036810202	520.4078	535.3921	9200.000	mg/kg	520.4078
1-Methylnaphthalene	**22NEC-S28-DU2-SD02**	ND	NA	NA	0	NC	ND	#VALUE!	NC	NC	0.410	mg/kg	ND
2-Chloronaphthalene	**22NEC-S28-DU2-SD02**	ND	NA	NA	0	NC	ND	#VALUE!	NC	NC	NS	mg/kg	ND
2-Methylnaphthalene	**22NEC-S28-DU2-SD02**	ND	NA	NA	0	NC	ND	#VALUE!	NC	NC	1.300	mg/kg	ND
Acenaphthene	**22NEC-S28-DU2-SD02**	ND	NA	NA	0	NC	ND	#VALUE!	NC	NC	37.000	mg/kg	ND
Acenaphthylene	**22NEC-S28-DU2-SD02**	ND	NA	NA	0	NC	ND	#VALUE!	NC	NC	18.000	mg/kg	ND
Anthracene	**22NEC-S28-DU2-SD02**	ND	NA	NA	0	NC	ND	#VALUE!	NC	NC	390.000	mg/kg	ND
Benzo(a)anthracene	**22NEC-S28-DU2-SD02**	0.0143	NA	NA	1	0.002	0.0143	0.16390958	0.0183	0.0202	0.700	mg/kg	0.0183
Benzo(a)pyrene	**22NEC-S28-DU2-SD02**	0.0124	NA	NA	1	0.003	0.0124	0.202996863	0.0166	0.0187	1.500	mg/kg	0.0166
Benzo(b)fluoranthene	**22NEC-S28-DU2-SD02**	0.0149	NA	NA	1	0.004	0.0149	0.241999439	0.0210	0.0240	15.000	mg/kg	0.0240
Benzo(g,h,i)perylene	**22NEC-S28-DU2-SD02**	0.00649	NA	NA	1	0.002	0.00649	0.305482664	0.0098	0.0115	2300.000	mg/kg	0.0115
Benzo(k)fluoranthene	**22NEC-S28-DU2-SD02**	0.00567	NA	NA	1	0.001	0.00567	0.23570226	0.0079	0.0090	150.000	mg/kg	0.0090
Chrysene	**22NEC-S28-DU2-SD02**	0.0177	NA	NA	1	0.004	0.0177	0.205617379	0.0238	0.0269	600.000	mg/kg	0.0238
Dibenzo(a,h)anthracene	**22NEC-S28-DU2-SD02**	0.00188	NA	NA	1	NC	0.00188	#VALUE!	NC	NC	1.500	mg/kg	0.0019
Dibenzofuran	**22NEC-S28-DU2-SD02**	ND	NA	NA	0	NC	ND	#VALUE!	NC	NC	NS	mg/kg	ND
Fluoranthene	**22NEC-S28-DU2-SD02**	0.0187	NA	NA	1	0.004	0.0187	0.208528039	0.0253	0.0285	590.000	mg/kg	0.0253
Fluorene	**22NEC-S28-DU2-SD02**	ND	NA	NA	0	NC	ND	#VALUE!	NC	NC	36.000	mg/kg	ND
Indeno(1,2,3-cd)pyrene	**22NEC-S28-DU2-SD02**	0.00812	NA	NA	1	0.002	0.00812	0.272282629	0.0118	0.0137	15.000	mg/kg	0.0137
Naphthalene	**22NEC-S28-DU2-SD02**	ND	NA	NA	0	NC	ND	#VALUE!	NC	NC	120.000	mg/kg	ND
Phenanthrene	**22NEC-S28-DU2-SD02**	0.00537	NA	NA	1	0.002	0.00537	0.401695445	0.0090	0.0108	39.000	mg/kg	0.0108
Pyrene	**22NEC-S28-DU2-SD02**	0.0229	NA	NA	1	0.005	0.0229	0.205059073	0.0308	0.0347	87.000	mg/kg	0.0308

Description: Using the standard deviation from the triplicate, and using the primary result in place of the average, 95% UCLs using students t and chebyshev were calcualted for the primary base sample. Per the updated 2020 ITRC ISM Guidance, the 95% UCL selected for reporting was based on the coefficient of variation, where COV greater than 0.23 defaults to reporting Chebyshev.

APPENDIX G
SURVEY DATA

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ATTACHMENTS

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ACRONYMS AND ABBREVIATIONS

Δ	delta
%	percent
±	plus or minus
AKSPZ4	Alaska State Plane Zone 4
FUDS	Formerly Used Defense Sites
GNSS	Global Navigation Satellite System
ID	identification
km	kilometers
mm	millimeters
NAD83	North American Datum of 1983
NAVD88	North American Vertical Datum of 1988
NGS	National Geodetic Survey
NSRS	National Spatial Reference System
OPUS	Online Positioning User System
RMSE	root mean square error
RTK	real-time-kinematic
UAV	Unmanned Aerial Vehicle
USACE	U.S. Army Corps of Engineers
USFT	U.S. Survey Feet

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1.0 PROJECT DESCRIPTION

Surveying for the project at Saint Lawrence Island, Northeast Cape was performed in multiple mobilizations starting in July 2022 and concluding in August 2022. Fieldwork consisted of laying out and collecting positions for dredge sediment removal, boreholes, groundwater monitoring wells, soil samples, excavation limits, establishing survey control and locating certain positions of interest. All survey data were collected and provided in the North American Datum of 1983 (NAD83) Alaska State Plane Zone 8 (AKSPZ8) coordinates in U.S. Survey Feet (USFT). Vertical data were collected in the North American Vertical Datum of 1988 (NAVD88) and reported in USFT. Horizontal and vertical data were established using the National Geodetic Survey (NGS) Online User Positioning Service (OPUS) to produce coordinate values on control points located onsite. No new survey control points were installed; the existing control was updated.

Contract Number: **W911KB20D0002**
FUDS Project Number: **F10AK0969-03**
Project Location: **N 63.33°, W 168.96°**
Horizontal Datum: **NAD83 (2011 [2010.0000])**
Coordinate System: **AKSPZ9**
Vertical Datum: **NAVD88 (Geoid 12B derived)**

2.0 SURVEY CONTROL

Survey control is based on monumentation recovered and set by Lounsbury & Associates, Inc. (Lounsbury) during the Remedial Investigation in 2018. Control information can be referenced in the Lounsbury report "Northeast Cape Remedial Action Topographic Survey".

Control points 1, 603 and 2600, as identified in the Lounsbury survey report, were the basis of control for this survey. Control point 59 was verified at the outset of the project but its proximity to the project areas precluded it being used. Control point 2 was not found and believed to be destroyed.

The initial project stakeout was performed in July 2022 and final surveying in August 2022. Checks between control points 1 and 2600 were sub-tenth in July but nearing two-tenths in August. Control point 2600 is located along the access road between Site 23 and the beach barge landing. Materials excavated at Site 28 were placed in super sacks and relocated to the beach for transport off-site. Multiple trips with heavy equipment and trailers loaded with full super sacks are likely to have caused enough disturbance along the access road to disturb the control point. It was decided that an update to control points 1, 603 and 2600 would be performed.

Multiple static sessions were conducted on control points 1, 603 and 2600. Five OPUS solutions were obtained on control point 1; the three most similar solutions were selected and used to determine a mean position at control point 1. This mean seed position for control point 1 ensures an accurate tie to the National Spatial Reference System (NSRS).

Positions for control points 603 and 2600 were then determined using static GPS techniques. Data was processed using Trimble Business Center (v 5.70) to determine new coordinates.

Control point 603 is an existing monument in the National Geodetic Survey (NGS) database (PID: UW3430). It was selected in the work plan as a monument to tie and submit to the NGS OPUS-shared database. While not used as part of the data collection effort for this survey, it was updated and used to add redundancy to the survey network and perpetuate control for future efforts.

Table 1 Survey Control

Horizontal Datum:	***North American Datum of 1983, realization 2011, epoch 2010 {NAD83(2011)[2010.0000]}***				
Vertical Datum:	***North American Vertical Datum of 1988 (NAVD88)***				
Projection:	***Alaska State Plane Coordinate System Zone 9 (ASPCSZ9)***				
Units:	***US Survey Feet (USFT)***				
POINT	**NORTHING**	**EASTING**	**ELEVATION**	**CODE**	**DESCRIPTION**
1	3,409,053.46	1,809,572.57	28.21	CP 1 RTK BASE	Rebar
	3,409,053.36	1,809,572.56	28.41	Lounsbury Control Values	
603	3,405,703.09	1,814,562.41	78.32	BM B	2" Brass Pipe w/ cap
	3,405,703.10	1,814,562.42	78.45	OPUS Shared Solution Values	
	3,405,703.22	1,814,562.38	78.81	Lounsbury Control Values	
2600	3,404,034.28	1,811,726.18	72.80	2600	Rebar
	3,404,034.34	1,811,726.16	72.92	Lounsbury Control Values	

Table 2 Survey Control

Horizontal Datum:	***North American Datum of 1983, realization 2011, epoch 2010 {NAD83(2011)[2010.0000]}***				
Vertical Datum:	***North American Vertical Datum of 1988 (NAVD88)***				
Units:	***Decimal Degrees***				
POINT	**LATITUDE**	**LONGITUDE**	**ELEVATION**	**CODE**	**DESCRIPTION**
1	N63.32569318	W168.97089905	28.21	CP 1 RTK BASE	Rebar
603	N63.31631019	W168.94088493	78.32	BM B	2" Brass Pipe w/ cap
2600	N63.31187424	W168.95829564	72.80	2600	Rebar

2.1 Temporary Benchmarks

Three temporary benchmarks were set to perpetuate vertical control and aid in future monitor well surveying.

Table 3 Survey Control

Horizontal Datum:	***North American Datum of 1983, realization 2011, epoch 2010 {NAD83(2011)[2010.0000]}***				
Vertical Datum:	***North American Vertical Datum of 1988 (NAVD88)***				
Projection:	***Alaska State Plane Coordinate System Zone 9 (ASPCSZ9)***				
Units:	***US Survey Feet (USFT)***				
POINT	**NORTHING**	**EASTING**	**ELEVATION**	**CODE**	**DESCRIPTION**
12393	3,403,570.23	1,810,951.76	91.99	TBM-MTL3	Foundation rebar
12394	3,403,403.06	1,810,767.95	98.30	TBM-MTL2	Foundation rebar
12395	3,403,484.33	1,810,226.98	81.48	TBM-MTL	Foundation rebar

* Note: Horizontal positions from RTK

12393 "TBM-MTL3"

12394 "TBM-MTL2"

12395 "TBM-MTL"

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Table 4 Survey Check Shot Report

Data Collection Equipment: Trimble R10-2 and R12I GNSS Receivers

BASE LOCATION	CHECK LOCATION	CHECKSHOT NAME	MEASUREMENT TYPE	MEASURED NORTHING	MEASURED EASTING	MEASURED ELEVATION	ΔNORTHING	ΔEASTING	HORIZONTAL PRECISION (95%)	ΔELEVATION	VERTICAL PRECISION (95%)	DATE & TIME
1	2600	VERCHK2600	RTK	3404034.21	1811726.15	72.80	0.07	0.04	0.07	0.00	0.05	8/15/2022 8:28
1	2600	VERCHK2600	RTK	3404034.28	1811726.12	72.82	0.00	0.06	0.03	-0.02	0.05	8/15/2022 8:28
1	2600	VERCHK2600	RTK	3404034.21	1811726.15	72.77	0.06	0.04	0.08	0.03	0.05	8/15/2022 14:53
1	2600	VERCHK2600	RTK	3404034.26	1811726.20	72.85	0.01	-0.02	0.06	-0.05	0.07	8/15/2022 16:36
1	2600	VERCHK2600	RTK	3404034.28	1811726.17	72.84	0.00	0.02	0.04	-0.04	0.04	8/16/2022 8:36
1	2600	VERCHK2600	RTK	3404034.25	1811726.15	72.82	0.03	0.03	0.03	-0.01	0.05	8/16/2022 8:36
1	2600	VERCHK2600	RTK	3404034.27	1811726.15	72.79	0.00	0.03	0.11	0.01	0.04	8/16/2022 13:13
1	2600	VERCHK2600	RTK	3404034.23	1811726.22	72.81	0.05	-0.03	0.06	-0.01	0.05	8/16/2022 18:29
1	2600	VERCHK2600	RTK	3404034.21	1811726.18	72.81	0.07	0.00	0.05	-0.01	0.05	8/17/2022 8:57
1	2600	VERCHK2600	RTK	3404034.25	1811726.19	72.81	0.03	-0.01	0.05	-0.01	0.05	8/17/2022 17:57
1	2600	VERCHK2600	RTK	3404034.20	1811726.17	72.71	0.08	0.01	0.03	0.09	0.04	8/17/2022 18:56
1	2600	VERCHK2600	RTK	3404034.21	1811726.16	72.78	0.06	0.03	0.07	0.02	0.04	8/18/2022 15:04
1	2600	VERCHK2600	RTK	3404034.21	1811726.16	72.80	0.06	0.03	0.04	0.01	0.05	8/18/2022 18:40

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3.0 SITE SURVEYS

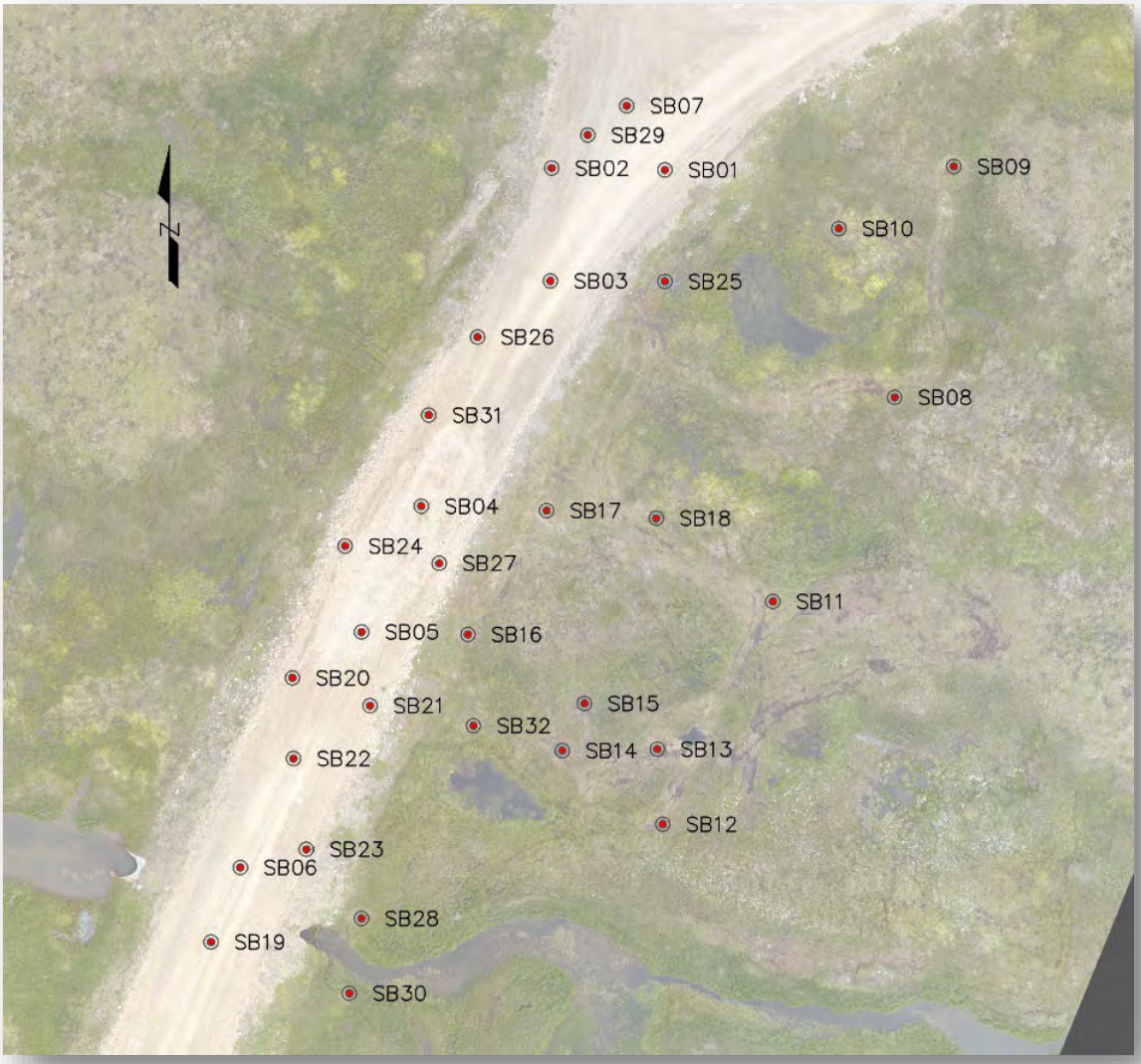
Survey data was collected over a number of sites; Site 07 - Cargo Beach Landfill, Site 08 - Pipeline Break, Site 15 – Main Operations Complex, Site 28 – Drainage Basin, and topographic surveying of the existing runway for potential future improvements. Site surveys were conducted using RTK methodology for horizontal locations and monitoring wells were surveyed using

3.1 Site 07 – Cargo Beach Landfill

Surveying at the cargo beach landfill consisted of topographic and planimetric surveying. The extents of the fill and smoothing were surveyed to define the areas completed. Topographic data was acquired to show uniformity across the filled area.

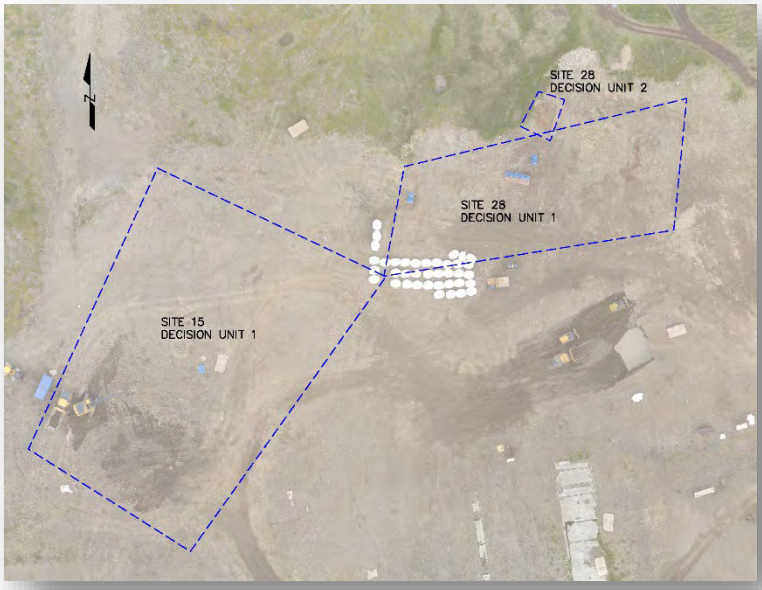
3.2 Site 08 – Pipeline Break

Surveying at Site 08 consisted of collecting sample locations of the 32 soil borings.



3.3 Site 15 – Main Operations Complex

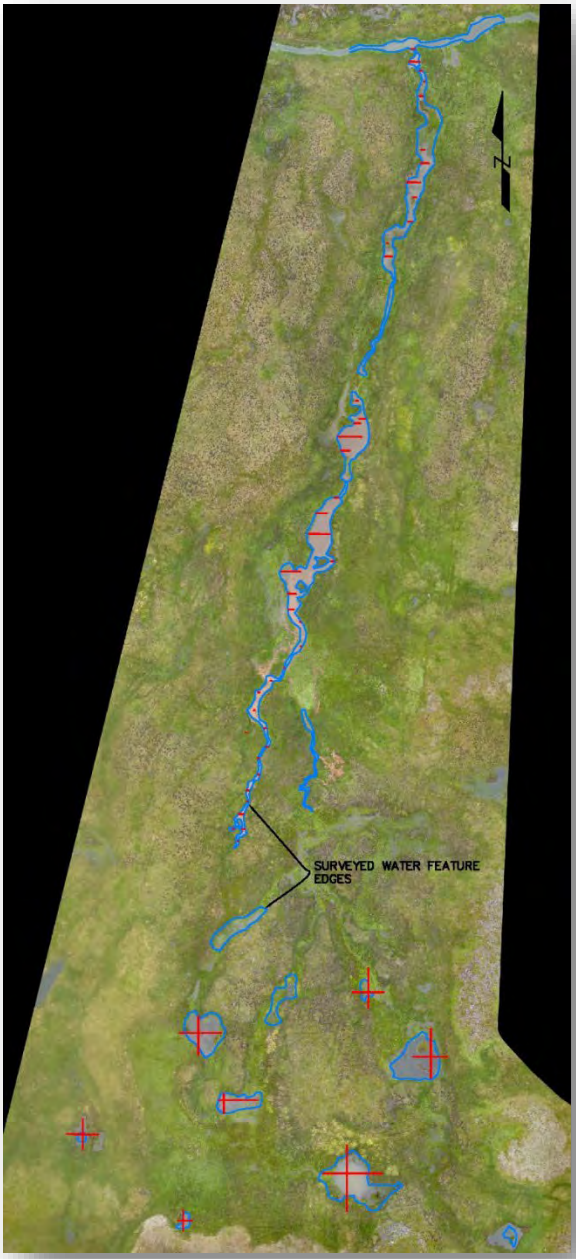
Site 15 surveying consisted of locating decision unit (DU) corners, excavation limits and monitoring well locations.

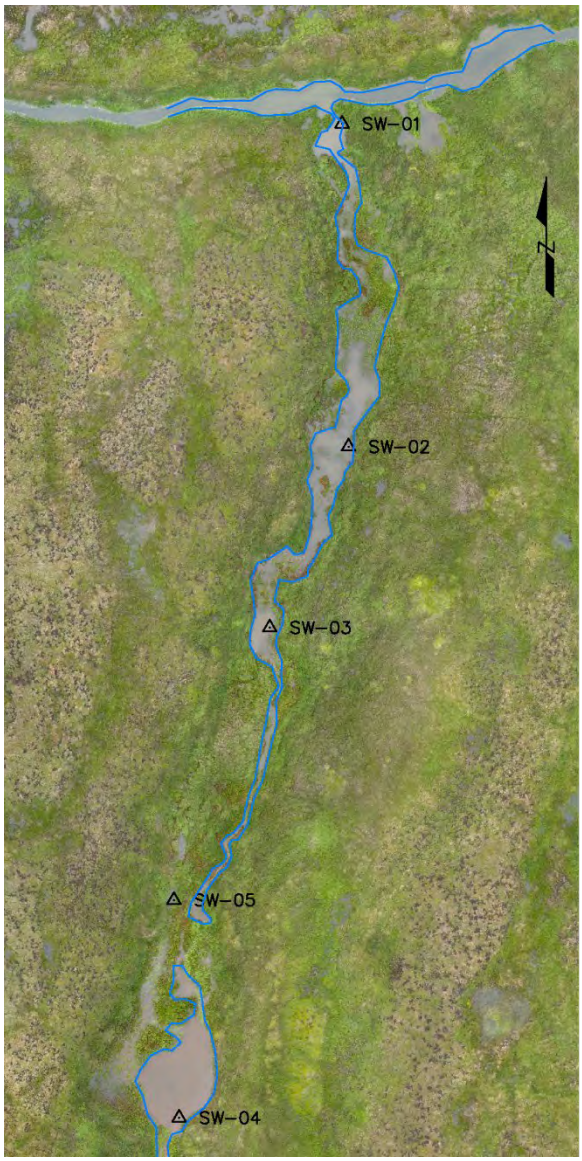


N
22NEC-MOC-14MW04
22NEC-MOC-14MW05
22NEC-MOC-14MW02
22NEC-MOC-14MW01
22NEC-MOC-MW10-1
22NEC-MOC-14MW06
22NEC-MOC-14MW03
22NEC-MOC-MW88-3
22NEC-MOC-17MW1
22NEC-MOC-MW88-1
22NEC-MOC-MW88-10
22NEC-MOC-14MW07
22NEC-MOC-20MW1

3.4 Site 28 – Sediment Removal and Disposal

Site 28 surveying consisted of locating the existing edges of the drainage, ponds, sediment mapping, sediment sampling, and surface water sampling and transect data. Sediment mapping was conducted using RTK methodology. Historical transect locations were resurveyed and mapped at locations where sediment dredging did not occur.





Surface Water Samples

Sediment Samples

3.5 Runway

The runway at Northeast Cape was surveyed using both conventional RTK techniques and a Delair UX-11 Unmanned Aerial Vehicle (UAV). Data from the UAV was post processed using Delair Afterflight software to produce precisely geolocated imagery. The imagery was then processed in Pix4d to produce a DSM from which contours could be generated. Civil3D was used to create surfaces using both RTK and UAV data. These surfaces were compared and merged to produce a single surface from which computations could be made.

An alignment was created down the approximate centerline of the runway. For analysis purposes it was determined that offsetting the alignment 67.5 feet on either side was roughly in line with the shoulder of the runway.

The created alignment was 4,350 feet in length. The south end of the runway is 30.7 feet in elevation with the north end at 30.0' in elevation. At approximately station 21+00 the elevation reaches 35.8 feet.

Various models were analyzed to attempt to minimize the amount of cut and fill to smooth out the runway surface. It was found that following the general contour of the runway along the alignment and using a 2% slope from centerline to the shoulder resulted in a cut of 2,855 yards and a fill of 3,375 yards.

4.0 SURVEY METHODOLOGY

A combination of instruments was used during this survey. Survey grade GNSS equipment, Trimble Dini digital level, DJI Phantom 4 Pro UAV and Delair UX-11 UAV were all used to collect data at the Northeast Cape location. GNSS surveying practices utilized the NGS publication *User Guidelines for Single Base Real Time GNSS Positioning.* Differential levels were performed to meet the Federal Geodetic Data Committee accuracy for third order levels. All data meet or exceed the requirements of the U.S. Army Corp of Engineers (USACE) *Manual of Electronic Deliverables* (2017) specifications.

4.1 GNSS Survey Equipment

Survey-grade GNSS equipment is comprised of a base station receiver, a rover receiver, and a data collector. The two GNSS receivers simultaneously track and collect carrier phase observations from the satellite constellations, over multiple frequencies. Utilizing double differencing between two GNSS receivers, a vector measurement is determinable, with centimeter-level precision. Centimeter positional accuracy is then possible when the three-dimensional vector is measured relative to a known position, such as control point. These accurate measurements can be calculated in real time when the base station receiver is able to continuously transmit data to the rover receiver over radio signal. A Trimble R10 dual frequency GNSS RTK system was used to collect all pertinent features of interest.

The RTK system is capable of real-time centimeter-grade horizontal positioning, and vertical positioning generally ranging between 1 to 3 centimeters. The base station has a 2-watt internal radio to broadcast data to the rover to provide centimeter positioning accuracy in real-time. The range of internal radio varies due to factors such as site topography and battery charge but typically is limited to 2 miles.

4.2 Differential Leveling

Trimble Dini digital level is comprised of a level and digital level rod. The Dini reads the bar-code on the level rod to obtain a height from which elevations are determined. Manual readings are also possible when conditions do not allow a clear reading of the bar, such as taking readings in brush. The Dini has published accuracy of 0.3 millimeter per kilometer (mm/km).

4.3 DJI Phantom 4 Pro

The DJI Phantom 4 Pro is a quadcopter style UAV consisting of the UAV airframe and built-in gimbal mounted 1-inch 20-megapixel sensor. Flying at the Federal Aviation Administration (FAA) maximum allowable flying height of 400 feet above ground level enabled imagery acquisition of approximately 3.5-centimeter pixel resolution. By flying a pre-programmed grid style flight plan and acquiring imagery with 80% forward and sidelap, the images can be loaded into post processing software to produce an orthorectified orthomosaic. The orthomosaic was constrained to ground control point targets set and located using RTK techniques to accurately georeference the image. All processing was performed using Pix4d modeling software.

4.4 Delair UX-11

The Delair UX-11 is a fixed wing UAV consisting of the airframe, 21.4-megapixel camera, and dual-frequency GNSS sensor. Flying at a flying height of 350 feet above ground level enabled imagery acquisition of approximately 1.6-centimeter pixel resolution. Post Process Kinematic (PPK) GPS processing was used to accurately georeference the camera locations for each image. This allows for more accurate and faster processing in Pix4d and eliminates the need for ground control points.

5.0 SURVEY QUALITY

To document the survey quality, the horizontal and vertical vector precisions for GNSS surveyed features are documented in the survey derivation report (*NEC_Point_Derivation_Report.pdf*). Since single baseline measurements do not provide independent redundant measurements, only an estimation of accuracy can be calculated. Relative to the base station, this can be considered a general measure of accuracy relative to the control point, although it does not account for error that exists in the base height measurement, survey rod height and tilt, and vector orientation. All RTK fixed vectors which were the sole source of feature position were within 0.25-foot precision horizontally and vertically, when calculated using root mean square (RMS).

Monitoring well elevation leveling quality is documented as a function of loop misclosure (*NEC_Level_Report.pdf*). Level loop misclosure did not exceed 0.02 feet and met third-order differential leveling misclosure requirements.

All features directly surveyed meet or exceed the survey quality requirements listed in Table 4-3 of the USACE *Alaska District Manual of Electronic Deliverables* (2017).

6.0 DEVIATIONS

No deviations from the workplan.

7.0 SURVEY DATA DELIVERABLES

Survey data is provided in the supplemental data folder. It includes these items:

- Point Comparison Report (PDF)
- OPUS Solution Report(s)
- Photographs
- Point Survey Derivation and Network Adjustment Reports (PDF)
- Raw Survey Data (.T04, .job, and .DAT formats)
- Raw Aerial Imagery
- Scanned Field book(s)
- Survey Data Table (PDF and CSV formats)
- Pix4d Quality Processing Report (PDF)

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Attachment G-1

Survey Data Table

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Northeast Cape
Primary Control

Horizonal Datum: ***World Geographic System of 1984 (WGS84)***
Vertical Datum: ***North American Vertical Datum of 1988 (NAVD88)***
Projection: ***Alaska State Plane Zone 9 (based on NAD83[2011])***
Units: ***US Survey Feet***

Survey_ID	Description	Code	Northing	Easting	Elevation	Latitude (DD)	Longitude (DD)	Latitude (DMS)	Longitude (DMS)	Survey Method	HRMS	VRMS	Date & Time	S/V's
1	Rebar	CP 1 RTK BASE	3409053.46	1809572.57	28.21	63.32569159	-168.97092194	N 63°19'32.48972"	W 168°58'15.31898"	Mean OPUS Solution				
603	Brass Cap Mon	BM B	3405703.09	1814562.41	78.32	63.31630861	-168.94090782	N 63°18'58.71099"	W 168°56'27.26815"	Static Adjustment	0.01	0.03		
2600	Rebar	2600	3404034.28	1811726.18	72.80	63.31187265	-168.95831852	N 63°18'42.74153"	W 168°57'29.94667"	Static Adjustment	0.01	0.02		

Northeast Cape
Check Shots

Horizonal Datum: ***World Geographic System of 1984 (WGS84)***
Vertical Datum: ***North American Vertical Datum of 1988 (NAVD88)***
Projection: ***Alaska State Plane Zone 9 (based on NAD83[2011])***
Units: ***US Survey Feet***

Survey_ID	Description	Code	Northing	Easting	Elevation	Latitude (DD)	Longitude (DD)	Latitude (DMS)	Longitude (DMS)	Survey Method	HRMS	VRMS	Date & Time	S/V's
11001	Check Shot	VERCHK2600	3404034.21	1811726.15	72.80	63.31187247	-168.95831875	N 63°18'42.74089"	W 168°57'29.94749"	RTK	0.07	0.05	8/15/2022 8:28	21
11002	Check Shot	VERCHK2600	3404034.28	1811726.12	72.82	63.31187266	-168.95831892	N 63°18'42.74157"	W 168°57'29.94811"	RTK	0.03	0.05	8/15/2022 8:28	21
11513	Check Shot	VERCHK2600	3404034.21	1811726.15	72.77	63.31187248	-168.95831875	N 63°18'42.74092"	W 168°57'29.94749"	RTK	0.08	0.05	8/15/2022 14:53	25
12002	Check Shot	VERCHK2600	3404034.26	1811726.20	72.85	63.31187262	-168.95831842	N 63°18'42.74143"	W 168°57'29.94631"	RTK	0.06	0.07	8/15/2022 16:36	25
12003	Check Shot	VERCHK2600	3404034.28	1811726.17	72.84	63.31187265	-168.95831862	N 63°18'42.74153"	W 168°57'29.94703"	RTK	0.04	0.04	8/16/2022 8:36	22
12004	Check Shot	VERCHK2600	3404034.25	1811726.15	72.82	63.31187258	-168.95831872	N 63°18'42.74128"	W 168°57'29.94739"	RTK	0.03	0.05	8/16/2022 8:36	22
12151	Check Shot	VERCHK2600	3404034.27	1811726.15	72.79	63.31187264	-168.95831873	N 63°18'42.7415"	W 168°57'29.94742"	RTK	0.11	0.04	8/16/2022 13:13	21
12354	Check Shot	VERCHK2600	3404034.23	1811726.22	72.81	63.31187252	-168.95831832	N 63°18'42.74107"	W 168°57'29.94595"	RTK	0.06	0.05	8/16/2022 18:29	23
12355	Check Shot	VERCHK2600	3404034.21	1811726.18	72.81	63.31187247	-168.95831854	N 63°18'42.74089"	W 168°57'29.94674"	RTK	0.05	0.05	8/17/2022 8:57	17
12360	Check Shot	VERCHK2600	3404034.25	1811726.19	72.81	63.31187257	-168.95831847	N 63°18'42.74125"	W 168°57'29.94649"	RTK	0.05	0.05	8/17/2022 17:57	23
12396	Check Shot	VERCHK2600	3404034.20	1811726.17	72.71	63.31187244	-168.95831859	N 63°18'42.74078"	W 168°57'29.94692"	RTK	0.03	0.04	8/17/2022 18:56	24
12397	Check Shot	VERCHK2600	3404034.21	1811726.16	72.78	63.31187248	-168.95831870	N 63°18'42.74092"	W 168°57'29.94732"	RTK	0.07	0.04	8/18/2022 15:04	23
13079	Check Shot	VERCHK2600	3404034.21	1811726.16	72.80	63.31187248	-168.95831868	N 63°18'42.74092"	W 168°57'29.94724"	RTK	0.04	0.05	8/18/2022 18:40	23

Northeast Cape
Decommissioned Monitoring Wells

Horizonal Datum: ***World Geographic System of 1984 (WGS84)***
Vertical Datum: ***North American Vertical Datum of 1988 (NAVD88)***
Projection: ***Alaska State Plane Zone 9 (based on NAD83[2011])***
Units: ***US Survey Feet***

Survey ID	Description	Code	Northing	Easting	Elevation	Latitude (DD)	Longitude (DD)	Latitude (DMS)	Longitude (DMS)	Survey Method	HRMS	VRMS	Date & Time	S/V's
12367	Decommissioned Monitoring Well	UNK WELL 2	3403908.38	1811038.72	74.07	63.31155890	-168.96251045	N 63°18'41.61204"	W 168°57'45.03761"	RTK	0.05	0.06	8/17/2022 18:16	23
12368	Decommissioned Monitoring Well	UNK WELL 1	3403832.27	1810967.72	76.86	63.31135392	-168.96294953	N 63°18'40.87411"	W 168°57'46.6183"	RTK	0.04	0.06	8/17/2022 18:16	23

Northeast Cape
Excavation Limits

Horizonal Datum: ***World Geographic System of 1984 (WGS84)***
Vertical Datum: ***North American Vertical Datum of 1988 (NAVD88)***
Projection: ***Alaska State Plane Zone 9 (based on NAD83[2011])***
Units: ***US Survey Feet***

Survey ID	Description	Code	Northing	Easting	Elevation	Latitude (DD)	Longitude (DD)	Latitude (DMS)	Longitude (DMS)	Survey Method	HRMS	VRMS	Date & Time	S/V's
11184	Edge of Excavation	TOP4	3403846.12	1810895.61	74.64	63.31139498	-168.96338658	N 63°18'41.02192"	W 168°57'48.19168"	RTK	0.09	0.05	8/15/2022 11:44	25
11185	Edge of Excavation	TOP4	3403832.33	1810873.90	75.21	63.31135823	-168.96351995	N 63°18'40.88962"	W 168°57'48.67182"	RTK	0.09	0.05	8/15/2022 11:45	26
11186	Edge of Excavation	TOP4	3403820.70	1810851.35	75.53	63.31132744	-168.96365815	N 63°18'40.77878"	W 168°57'49.16933"	RTK	0.05	0.05	8/15/2022 11:45	26
11187	Edge of Excavation	TOP4	3403811.62	1810830.20	76.21	63.31130355	-168.96378766	N 63°18'40.69277"	W 168°57'49.63557"	RTK	0.06	0.06	8/15/2022 11:45	25
11188	Edge of Excavation	TOP4	3403801.15	1810807.06	76.32	63.31127594	-168.96392936	N 63°18'40.59338"	W 168°57'50.14569"	RTK	0.06	0.05	8/15/2022 11:45	25
11189	Edge of Excavation	TOP4	3403802.35	1810803.68	76.38	63.31127938	-168.96394976	N 63°18'40.60576"	W 168°57'50.21913"	RTK	0.06	0.05	8/15/2022 11:45	25
11190	Edge of Excavation	TOP4	3403815.21	1810795.94	75.45	63.31131488	-168.96399558	N 63°18'40.73356"	W 168°57'50.38408"	RTK	0.06	0.04	8/15/2022 11:46	25
11191	Edge of Excavation	TOP4	3403826.16	1810791.70	75.45	63.31134500	-168.96402026	N 63°18'40.842"	W 168°57'50.47293"	RTK	0.07	0.04	8/15/2022 11:46	26
11192	Edge of Excavation	TOP4	3403826.94	1810788.85	75.14	63.31134726	-168.96403754	N 63°18'40.85013"	W 168°57'50.53514"	RTK	0.08	0.06	8/15/2022 11:46	26
11288	Edge of Excavation	TOP1 B	3403848.27	1810780.11	74.67	63.31140597	-168.96408858	N 63°18'41.06149"	W 168°57'50.71888"	RTK	0.12	0.10	8/15/2022 13:33	16
11293	Edge of Excavation	TOP2 B	3403852.00	1810779.44	74.24	63.31141619	-168.96409228	N 63°18'41.09828"	W 168°57'50.7322"	RTK	0.04	0.07	8/15/2022 13:34	24
11294	Edge of Excavation	TOP2	3403855.29	1810780.07	74.08	63.31142516	-168.96408814	N 63°18'41.13057"	W 168°57'50.7173"	RTK	0.04	0.06	8/15/2022 13:35	24
11295	Edge of Excavation	TOP2	3403859.71	1810787.51	73.98	63.31143692	-168.96404246	N 63°18'41.17291"	W 168°57'50.55285"	RTK	0.03	0.05	8/15/2022 13:35	24
11296	Edge of Excavation	TOP2	3403865.17	1810798.65	73.67	63.31145135	-168.96397418	N 63°18'41.22485"	W 168°57'50.30704"	RTK	0.04	0.06	8/15/2022 13:35	24
11297	Edge of Excavation	TOP2	3403870.04	1810807.26	73.46	63.31146430	-168.96392134	N 63°18'41.27147"	W 168°57'50.11682"	RTK	0.03	0.05	8/15/2022 13:35	24
11298	Edge of Excavation	TOP2	3403877.83	1810821.87	73.25	63.31148495	-168.96383181	N 63°18'41.34582"	W 168°57'49.79451"	RTK	0.04	0.05	8/15/2022 13:35	24
11299	Edge of Excavation	TOP2	3403885.44	1810834.95	72.80	63.31150518	-168.96375153	N 63°18'41.41864"	W 168°57'49.5055"	RTK	0.03	0.06	8/15/2022 13:36	24
11300	Edge of Excavation	TOP2	3403888.62	1810841.46	72.61	63.31151359	-168.96371165	N 63°18'41.44892"	W 168°57'49.36193"	RTK	0.04	0.06	8/15/2022 13:36	24
11301	Edge of Excavation	TOP2	3403892.55	1810848.99	72.63	63.31152401	-168.96366547	N 63°18'41.48643"	W 168°57'49.19569"	RTK	0.04	0.06	8/15/2022 13:36	24
11302	Edge of Excavation	TOP2	3403898.88	1810861.57	72.41	63.31154074	-168.96358837	N 63°18'41.54666"	W 168°57'48.91813"	RTK	0.03	0.05	8/15/2022 13:36	24
11303	Edge of Excavation	TOP2	3403902.64	1810869.52	72.06	63.31155068	-168.96353968	N 63°18'41.58244"	W 168°57'48.74284"	RTK	0.04	0.06	8/15/2022 13:36	24
11304	Edge of Excavation	TOP2	3403898.63	1810871.86	72.34	63.31153962	-168.96352584	N 63°18'41.54263"	W 168°57'48.69302"	RTK	0.04	0.06	8/15/2022 13:37	24
11305	Edge of Excavation	TOP2	3403894.47	1810874.78	72.79	63.31152810	-168.96350847	N 63°18'41.50115"	W 168°57'48.63049"	RTK	0.03	0.06	8/15/2022 13:37	24
11308	Edge of Excavation	TOP2	3403896.10	1810881.79	72.78	63.31153226	-168.96346571	N 63°18'41.51613"	W 168°57'48.47655"	RTK	0.03	0.06	8/15/2022 13:37	24
11309	Edge of Excavation	TOP2	3403889.94	1810885.87	73.08	63.31151523	-168.96344147	N 63°18'41.45482"	W 168°57'48.38929"	RTK	0.04	0.06	8/15/2022 13:37	23
11312	Edge of Excavation	TOP2	3403882.83	1810888.80	73.30	63.31149567	-168.96342437	N 63°18'41.38441"	W 168°57'48.32773"	RTK	0.04	0.06	8/15/2022 13:38	24
11313	Edge of Excavation	TOP2	3403878.75	1810881.82	73.56	63.31148481	-168.96346720	N 63°18'41.34531"	W 168°57'48.48191"	RTK	0.04	0.06	8/15/2022 13:38	24
11314	Edge of Excavation	TOP2	3403874.62	1810883.73	73.59	63.31147345	-168.96345599	N 63°18'41.30442"	W 168°57'48.44156"	RTK	0.04	0.06	8/15/2022 13:38	24
11315	Edge of Excavation	TOP2	3403865.50	1810888.65	74.11	63.31144828	-168.96342697	N 63°18'41.2138"	W 168°57'48.33709"	RTK	0.04	0.07	8/15/2022 13:38	24
11316	Edge of Excavation	TOP2	3403857.20	1810891.84	74.27	63.31142546	-168.96340841	N 63°18'41.13165"	W 168°57'48.27027"	RTK	0.03	0.06	8/15/2022 13:38	24

Northeast Cape
Excavation Topo

Horizonal Datum: ***World Geographic System of 1984 (WGS84)***
Vertical Datum: ***North American Vertical Datum of 1988 (NAVD88)***
Projection: ***Alaska State Plane Zone 9 (based on NAD83[2011])***
Units: ***US Survey Feet***

Survey ID	Description	Code	Northing	Easting	Elevation	Latitude (DD)	Longitude (DD)	Latitude (DMS)	Longitude (DMS)	Survey Method	HRMS	VRMS	Date & Time	S/V's
11193	Top of Break	TOP4	3403823.92	1810774.95	75.34	63.31133960	-168.96412232	N 63°18'40.82255"	W 168°57'50.84035"	RTK	0.05	0.06	8/15/2022 11:46	25
11194	Top of Break	TOP4	3403819.50	1810760.89	75.15	63.31132814	-168.96420826	N 63°18'40.7813"	W 168°57'51.14973"	RTK	0.04	0.07	8/15/2022 11:46	25
11195	Toe of Break	TOE4	3403827.58	1810773.56	72.73	63.31134969	-168.96413043	N 63°18'40.85888"	W 168°57'50.86954"	RTK	0.03	0.05	8/15/2022 11:46	26
11196	Toe of Break	TOE4	3403829.82	1810787.88	71.26	63.31135516	-168.96404312	N 63°18'40.87857"	W 168°57'50.55523"	RTK	0.04	0.04	8/15/2022 11:47	25
11197	Toe of Break	TOE4	3403830.01	1810793.34	70.59	63.31135546	-168.96400992	N 63°18'40.87965"	W 168°57'50.43571"	RTK	0.04	0.05	8/15/2022 11:47	26
11198	Toe of Break	TOE4	3403827.99	1810794.64	69.47	63.31134987	-168.96400220	N 63°18'40.85953"	W 168°57'50.40792"	RTK	0.06	0.05	8/15/2022 11:47	26
11199	Toe of Break	TOE4	3403816.88	1810798.46	68.21	63.31131933	-168.96398008	N 63°18'40.74958"	W 168°57'50.32828"	RTK	0.04	0.05	8/15/2022 11:47	26
11200	Toe of Break	TOE4	3403811.58	1810800.95	68.42	63.31130472	-168.96396546	N 63°18'40.69699"	W 168°57'50.27565"	RTK	0.04	0.06	8/15/2022 11:47	26
11201	Toe of Break	TOE4	3403805.30	1810803.89	66.24	63.31128742	-168.96394824	N 63°18'40.63471"	W 168°57'50.21366"	RTK	0.07	0.07	8/15/2022 11:47	19
11202	Toe of Break	TOE4	3403805.16	1810807.74	65.50	63.31128688	-168.96392481	N 63°18'40.63276"	W 168°57'50.12931"	RTK	0.06	0.07	8/15/2022 11:48	20
11203	Breakline	BRK2	3403836.14	1810793.43	69.77	63.31137220	-168.96400875	N 63°18'40.93992"	W 168°57'50.4315"	RTK	0.04	0.07	8/15/2022 11:51	26
11204	Breakline	BRK3	3403833.37	1810797.81	66.77	63.31136444	-168.96398243	N 63°18'40.91198"	W 168°57'50.33674"	RTK	0.05	0.08	8/15/2022 11:52	25
11205	Breakline	BRK3	3403839.53	1810819.67	64.39	63.31138032	-168.96384892	N 63°18'40.96915"	W 168°57'49.85611"	RTK	0.07	0.09	8/15/2022 11:52	26
11206	Breakline	BRK2	3403843.75	1810817.76	66.89	63.31139194	-168.96386013	N 63°18'41.01098"	W 168°57'49.89646"	RTK	0.05	0.08	8/15/2022 11:52	26
11207	Breakline	BRK2	3403850.89	1810837.54	65.59	63.31141058	-168.96373917	N 63°18'41.07808"	W 168°57'49.46101"	RTK	0.05	0.08	8/15/2022 11:52	26
11208	Breakline	BRK3	3403846.94	1810839.81	64.25	63.31139968	-168.96372576	N 63°18'41.03884"	W 168°57'49.41273"	RTK	0.06	0.07	8/15/2022 11:53	26
11209	Breakline	BRK3	3403853.60	1810851.43	64.15	63.31141739	-168.96365443	N 63°18'41.1026"	W 168°57'49.15594"	RTK	0.07	0.09	8/15/2022 11:53	25
11210	Breakline	BRK2	3403856.04	1810850.03	65.46	63.31142412	-168.96366275	N 63°18'41.12683"	W 168°57'49.18589"	RTK	0.05	0.08	8/15/2022 11:53	26
11211	Breakline	BRK2	3403861.07	1810852.13	67.05	63.31143780	-168.96364943	N 63°18'41.17608"	W 168°57'49.13794"	RTK	0.05	0.08	8/15/2022 11:53	26
11212	Breakline	BRK3	3403856.94	1810855.44	64.45	63.31142634	-168.96362977	N 63°18'41.13482"	W 168°57'49.06717"	RTK	0.08	0.10	8/15/2022 11:53	25
11213	Breakline	BRK3	3403863.01	1810865.28	64.46	63.31144251	-168.96356933	N 63°18'41.19303"	W 168°57'48.84958"	RTK	0.08	0.11	8/15/2022 11:53	24
11214	Breakline	BRK2	3403866.30	1810862.78	66.76	63.31145162	-168.96358421	N 63°18'41.22583"	W 168°57'48.90315"	RTK	0.05	0.08	8/15/2022 11:53	26
11215	Breakline	BRK2	3403871.89	1810871.09	67.01	63.31146653	-168.96353312	N 63°18'41.2795"	W 168°57'48.71923"	RTK	0.05	0.08	8/15/2022 11:54	26
11216	Breakline	BRK3	3403868.11	1810874.10	64.51	63.31145606	-168.96351518	N 63°18'41.24181"	W 168°57'48.65464"	RTK	0.07	0.09	8/15/2022 11:54	25
11217	Breakline	BRK3	3403870.63	1810881.54	64.49	63.31146263	-168.96346972	N 63°18'41.26546"	W 168°57'48.49099"	RTK	0.08	0.09	8/15/2022 11:54	22
11218	Breakline	BRK2	3403874.61	1810875.61	68.56	63.31147376	-168.96350540	N 63°18'41.30553"	W 168°57'48.61944"	RTK	0.05	0.08	8/15/2022 11:54	26
11219	Breakline	BRK2	3403877.24	1810879.51	70.51	63.31148080	-168.96348142	N 63°18'41.33087"	W 168°57'48.53311"	RTK	0.10	0.09	8/15/2022 11:54	21
11220	Breakline	BRK2	3403882.71	1810873.97	69.09	63.31149597	-168.96351453	N 63°18'41.38549"	W 168°57'48.6523"	RTK	0.09	0.09	8/15/2022 11:54	26
11221	Breakline	BRK4	3403880.51	1810869.79	67.13	63.31149017	-168.96354019	N 63°18'41.36461"	W 168°57'48.74468"	RTK	0.05	0.08	8/15/2022 11:55	26
11222	Breakline	BRK4	3403885.33	1810867.61	67.69	63.31150343	-168.96355298	N 63°18'41.41234"	W 168°57'48.79072"	RTK	0.05	0.08	8/15/2022 11:55	26
11223	Breakline	BRK5	3403888.40	1810866.93	69.06	63.31151185	-168.96355679	N 63°18'41.44266"	W 168°57'48.80444"	RTK	0.09	0.09	8/15/2022 11:55	26
11224	Breakline	BRK5	3403889.28	1810873.19	71.36	63.31151399	-168.96351867	N 63°18'41.45036"	W 168°57'48.66721"	RTK	0.13	0.11	8/15/2022 11:55	21
11225	Breakline	BRK5	3403886.89	1810877.16	72.68	63.31150727	-168.96349473	N 63°18'41.42617"	W 168°57'48.58102"	RTK	0.14	0.12	8/15/2022 11:55	16
11226	Breakline	BRK5	3403883.65	1810880.59	72.71	63.31149826	-168.96347422	N 63°18'41.39373"	W 168°57'48.50719"	RTK	0.14	0.12	8/15/2022 11:55	17
11227	Breakline	BRK4	3403883.90	1810863.15	67.15	63.31149972	-168.96358025	N 63°18'41.39899"	W 168°57'48.8889"	RTK	0.05	0.09	8/15/2022 11:55	26
11228	Breakline	BRK4	3403888.35	1810862.10	67.52	63.31151193	-168.96358615	N 63°18'41.44294"	W 168°57'48.91013"	RTK	0.05	0.08	8/15/2022 11:55	26
11229	Breakline	BRK4	3403891.51	1810866.98	67.53	63.31152035	-168.96355621	N 63°18'41.47326"	W 168°57'48.80235"	RTK	0.05	0.08	8/15/2022 11:56	26
11230	Breakline	BRK4	3403895.49	1810868.65	67.87	63.31153116	-168.96354563	N 63°18'41.51217"	W 168°57'48.76426"	RTK	0.05	0.08	8/15/2022 11:56	26
11231	Breakline	BRK4	3403896.87	1810867.28	67.94	63.31153500	-168.96355386	N 63°18'41.52599"	W 168°57'48.79389"	RTK	0.06	0.08	8/15/2022 11:56	26
11232	Breakline	BRK4	3403895.74	1810864.18	67.84	63.31153204	-168.96357282	N 63°18'41.51534"	W 168°57'48.86215"	RTK	0.05	0.08	8/15/2022 11:56	26
11233	Breakline	BRK4	3403891.82	1810857.80	67.62	63.31152161	-168.96361199	N 63°18'41.47779"	W 168°57'49.00316"	RTK	0.05	0.08	8/15/2022 11:56	26
11234	Breakline	BRK4	3403888.36	1810851.29	67.55	63.31151245	-168.96365188	N 63°18'41.44482"	W 168°57'49.14676"	RTK	0.05	0.08	8/15/2022 11:56	26
11235	Groundshot	GS	3403881.34	1810854.81	67.00	63.31149308	-168.96363116	N 63°18'41.37508"	W 168°57'49.07217"	RTK	0.05	0.08	8/15/2022 11:57	26
11236	Groundshot	GS	3403872.71	1810858.69	66.49	63.31146932	-168.96360841	N 63°18'41.28955"	W 168°57'48.99027"	RTK	0.05	0.08	8/15/2022 11:57	26
11237	Breakline	BRK1 B	3403869.71	1810852.51	66.39	63.31146139	-168.96364630	N 63°18'41.261"	W 168°57'49.12667"	RTK	0.05	0.08	8/15/2022 11:57	26
11238	Breakline	BRK2 B	3403868.28	1810849.26	67.84	63.31145763	-168.96366623	N 63°18'41.24746"	W 168°57'49.19842"	RTK	0.11	0.09	8/15/2022 11:57	25

11239	Breakline	BRK2	3403877.16	1810844.80	69.11	63.31148209	-168.96369247	N 63°18'41.33552"	W 168°57'49.29289"	RTK	0.09	0.08	8/15/2022 11:57	26
11240	Breakline	BRK1	3403878.70	1810847.95	67.15	63.31148618	-168.96367316	N 63°18'41.35024"	W 168°57'49.22337"	RTK	0.05	0.08	8/15/2022 11:58	26
11241	Breakline	BRK1	3403882.13	1810844.64	69.65	63.31149569	-168.96369293	N 63°18'41.38448"	W 168°57'49.29454"	RTK	0.05	0.08	8/15/2022 11:58	26
11242	Breakline	BRK2	3403880.16	1810841.91	70.09	63.31149042	-168.96370972	N 63°18'41.36551"	W 168°57'49.35499"	RTK	0.08	0.08	8/15/2022 11:58	26
11243	Breakline	BRK2	3403883.97	1810839.01	67.97	63.31150098	-168.96372699	N 63°18'41.40352"	W 168°57'49.41716"	RTK	0.08	0.08	8/15/2022 11:58	25
11244	Breakline	BRK1	3403885.58	1810842.92	67.90	63.31150521	-168.96370306	N 63°18'41.41875"	W 168°57'49.33101"	RTK	0.05	0.08	8/15/2022 11:58	26
11245	Breakline	BRK3 B	3403882.85	1810836.24	68.39	63.31149804	-168.96374395	N 63°18'41.39294"	W 168°57'49.47822"	RTK	0.05	0.07	8/15/2022 11:58	26
11246	Breakline	BRK3 B	3403880.32	1810837.69	68.04	63.31149106	-168.96373538	N 63°18'41.36781"	W 168°57'49.44736"	RTK	0.05	0.07	8/15/2022 11:59	26
11247	Breakline	BRK3	3403877.39	1810839.30	66.29	63.31148298	-168.96372583	N 63°18'41.33872"	W 168°57'49.41298"	RTK	0.06	0.07	8/15/2022 11:59	26
11248	Breakline	BRK3	3403873.19	1810840.81	65.58	63.31147141	-168.96371710	N 63°18'41.29707"	W 168°57'49.38155"	RTK	0.05	0.08	8/15/2022 11:59	26
11249	Breakline	BRK3	3403866.18	1810845.40	65.04	63.31145205	-168.96368986	N 63°18'41.22737"	W 168°57'49.28349"	RTK	0.05	0.08	8/15/2022 11:59	26
11250	Groundshot	GS	3403862.44	1810830.76	65.40	63.31144248	-168.96377923	N 63°18'41.19292"	W 168°57'49.60522"	RTK	0.05	0.07	8/15/2022 12:00	26
11251	Toe of Break	TOE	3403875.24	1810823.33	66.24	63.31147781	-168.96382318	N 63°18'41.32011"	W 168°57'49.76344"	RTK	0.05	0.07	8/15/2022 12:00	25
11252	Toe of Break	TOE	3403867.30	1810808.87	68.26	63.31145672	-168.96391187	N 63°18'41.24419"	W 168°57'50.08273"	RTK	0.06	0.09	8/15/2022 12:00	24
11253	Groundshot	GS	3403862.63	1810810.87	66.96	63.31144386	-168.96390013	N 63°18'41.19789"	W 168°57'50.04046"	RTK	0.05	0.07	8/15/2022 12:00	26
11254	Groundshot	GS	3403852.46	1810815.69	67.30	63.31141585	-168.96387185	N 63°18'41.09706"	W 168°57'49.93866"	RTK	0.04	0.06	8/15/2022 12:01	26
11255	Groundshot	GS	3403845.46	1810801.11	68.15	63.31139736	-168.96396117	N 63°18'41.03049"	W 168°57'50.26021"	RTK	0.04	0.06	8/15/2022 12:01	26
11256	Breakline	BRK5	3403857.29	1810802.52	68.33	63.31142965	-168.96395142	N 63°18'41.14674"	W 168°57'50.22511"	RTK	0.13	0.08	8/15/2022 12:01	21
11257	Breakline	BRK5	3403853.30	1810796.22	68.52	63.31141900	-168.96399013	N 63°18'41.1084"	W 168°57'50.36446"	RTK	0.05	0.07	8/15/2022 12:01	24
11258	Breakline	BRK5	3403850.12	1810788.55	69.94	63.31141066	-168.96403709	N 63°18'41.07837"	W 168°57'50.53352"	RTK	0.10	0.06	8/15/2022 12:01	25
11259	Breakline	BRK6	3403853.59	1810787.18	68.28	63.31142019	-168.96404507	N 63°18'41.11268"	W 168°57'50.56225"	RTK	0.10	0.07	8/15/2022 12:01	24
11260	Breakline	BRK6	3403856.11	1810794.78	67.39	63.31142677	-168.96399860	N 63°18'41.13637"	W 168°57'50.39495"	RTK	0.07	0.07	8/15/2022 12:02	25
11261	Breakline	BRK6	3403859.49	1810801.58	67.54	63.31143570	-168.96395691	N 63°18'41.16851"	W 168°57'50.24487"	RTK	0.06	0.07	8/15/2022 12:02	26
11262	Toe of Break	TOE	3403862.58	1810799.92	68.01	63.31144423	-168.96396672	N 63°18'41.19922"	W 168°57'50.28019"	RTK	0.10	0.08	8/15/2022 12:02	26
11263	Toe of Break	TOE	3403859.89	1810793.66	67.84	63.31143713	-168.96400505	N 63°18'41.17366"	W 168°57'50.41817"	RTK	0.07	0.09	8/15/2022 12:02	25
11264	Toe of Break	TOE	3403856.10	1810788.76	67.73	63.31142700	-168.96403519	N 63°18'41.1372"	W 168°57'50.52668"	RTK	0.06	0.10	8/15/2022 12:02	24
11265	Toe of Break	TOE	3403854.27	1810781.66	70.40	63.31142231	-168.96407854	N 63°18'41.12031"	W 168°57'50.68274"	RTK	0.10	0.08	8/15/2022 12:02	23
11266	Toe of Break	TOE	3403849.66	1810782.17	71.23	63.31140968	-168.96407594	N 63°18'41.07484"	W 168°57'50.67338"	RTK	0.12	0.08	8/15/2022 12:02	22
11267	Toe of Break	TOE	3403864.14	1810886.73	65.04	63.31144464	-168.96343879	N 63°18'41.2007"	W 168°57'48.37964"	RTK	0.08	0.09	8/15/2022 13:23	19
11267	Toe of Break	TOE	3403864.14	1810886.73	65.04	63.31144464	-168.96343879	N 63°18'41.2007"	W 168°57'48.37964"	RTK	0.05	0.07	8/15/2022 13:25	20
11268	Toe of Break	TOE	3403856.29	1810890.45	64.25	63.31142302	-168.96341694	N 63°18'41.12287"	W 168°57'48.30098"	RTK	0.07	0.10	8/15/2022 13:25	17
11269	Toe of Break	TOE	3403850.84	1810892.18	64.39	63.31140805	-168.96340697	N 63°18'41.06897"	W 168°57'48.26509"	RTK	0.06	0.09	8/15/2022 13:26	18
11270	Toe of Break	TOE	3403848.67	1810891.12	64.48	63.31140216	-168.96341362	N 63°18'41.04777"	W 168°57'48.28903"	RTK	0.06	0.10	8/15/2022 13:26	19
11271	Toe of Break	TOE	3403836.82	1810871.15	64.11	63.31137063	-168.96353621	N 63°18'40.93426"	W 168°57'48.73035"	RTK	0.05	0.07	8/15/2022 13:26	22
11272	Toe of Break	TOE	3403824.68	1810849.02	64.48	63.31133841	-168.96367195	N 63°18'40.81827"	W 168°57'49.21901"	RTK	0.05	0.08	8/15/2022 13:27	20
11273	Toe of Break	TOE	3403814.80	1810829.02	63.69	63.31131229	-168.96379448	N 63°18'40.72424"	W 168°57'49.66012"	RTK	0.06	0.10	8/15/2022 13:28	18
11274	Toe of Break	TOE	3403821.82	1810825.20	63.94	63.31133164	-168.96381706	N 63°18'40.7939"	W 168°57'49.74141"	RTK	0.04	0.07	8/15/2022 13:28	21
11275	Groundshot	GS	3403827.84	1810830.84	62.64	63.31134788	-168.96378214	N 63°18'40.85236"	W 168°57'49.6157"	RTK	0.03	0.06	8/15/2022 13:29	23
11276	Groundshot	GS	3403836.45	1810843.88	63.66	63.31137084	-168.96370203	N 63°18'40.93502"	W 168°57'49.3273"	RTK	0.04	0.06	8/15/2022 13:29	23
11277	Groundshot	GS	3403843.82	1810856.07	63.23	63.31139045	-168.96362723	N 63°18'41.00561"	W 168°57'49.05802"	RTK	0.04	0.06	8/15/2022 13:29	23
11278	Groundshot	GS	3403849.44	1810865.91	64.17	63.31140539	-168.96356684	N 63°18'41.0594"	W 168°57'48.84062"	RTK	0.04	0.06	8/15/2022 13:30	23
11279	Groundshot	GS	3403856.07	1810877.93	63.27	63.31142298	-168.96349312	N 63°18'41.12272"	W 168°57'48.57523"	RTK	0.04	0.06	8/15/2022 13:30	22
11280	Groundshot	GS	3403848.90	1810853.93	63.16	63.31140442	-168.96363971	N 63°18'41.05591"	W 168°57'49.10295"	RTK	0.04	0.06	8/15/2022 13:30	23
11281	Groundshot	GS	3403844.36	1810841.26	63.66	63.31139256	-168.96371721	N 63°18'41.01321"	W 168°57'49.38195"	RTK	0.03	0.06	8/15/2022 13:31	23
11282	Groundshot	GS	3403835.87	1810821.23	63.72	63.31137025	-168.96383982	N 63°18'40.9329"	W 168°57'49.82335"	RTK	0.04	0.06	8/15/2022 13:31	24
11283	Groundshot	GS	3403833.37	1810814.19	63.62	63.31136373	-168.96388286	N 63°18'40.90942"	W 168°57'49.97829"	RTK	0.04	0.06	8/15/2022 13:32	24
11284	Groundshot	GS	3403827.22	1810814.44	63.60	63.31134690	-168.96388194	N 63°18'40.84883"	W 168°57'49.97498"	RTK	0.04	0.07	8/15/2022 13:32	22
11285	Groundshot	GS	3403820.43	1810812.66	63.48	63.31132842	-168.96389340	N 63°18'40.78231"	W 168°57'50.01623"	RTK	0.04	0.06	8/15/2022 13:32	23
11286	Groundshot	GS	3403814.67	1810810.91	62.67	63.31131274	-168.96390461	N 63°18'40.72586"	W 168°57'50.05659"	RTK	0.06	0.10	8/15/2022 13:32	21
11287	Toe of Break	TOE1 B	3403845.44	1810782.54	70.80	63.31139812	-168.96407405	N 63°18'41.03323"	W 168°57'50.66657"	RTK	0.04	0.07	8/15/2022 13:33	23
11289	Toe of Break	TOE1	3403839.68	1810770.37	72.35	63.31138292	-168.96414860	N 63°18'40.97851"	W 168°57'50.93495"	RTK	0.04	0.07	8/15/2022 13:34	22
11290	Toe of Break	TOP1	3403842.15	1810769.19	74.56	63.31138972	-168.96415558	N 63°18'41.00299"	W 168°57'50.96008"	RTK	0.04	0.07	8/15/2022 13:34	23
11291	Toe of Break	TOP1	3403837.59	1810753.72	74.57	63.31137792	-168.96425006	N 63°18'40.96051"	W 168°57'51.30021"	RTK	0.04	0.07	8/15/2022 13:34	24
11292	Toe of Break	TOE1	3403835.32	1810754.42	74.43	63.31137169	-168.96424605	N 63°18'40.93808"	W 168°57'51.28578"	RTK	0.04	0.07	8/15/2022 13:34	24
11306	Groundshot	GS	3403891.29	1810875.03	70.87	63.31151939	-168.96350729	N 63°18'41.4698"	W 168°57'48.62624"	RTK	0.05	0.06	8/15/2022 13:37	24
11307	Groundshot	GS	3403892.46	1810879.00	71.78	63.31152242	-168.96348305	N 63°18'41.48071"	W 168°57'48.53898"	RTK	0.06	0.06	8/15/2022 13:37	24

11310	Groundshot	GS	3403887.48	1810882.20	72.16	63.31150866	-168.96346404	N 63°18'41.43117"	W 168°57'48.47054"	RTK	0.04	0.06	8/15/2022 13:37	24
11311	Groundshot	GS	3403883.28	1810884.24	71.82	63.31149710	-168.96345209	N 63°18'41.38955"	W 168°57'48.42752"	RTK	0.04	0.06	8/15/2022 13:37	24
11317	Groundshot	GS	3403821.69	1810760.04	74.72	63.31133417	-168.96421320	N 63°18'40.80301"	W 168°57'51.16751"	RTK	0.04	0.06	8/15/2022 13:40	23

Northeast Cape
Monitoring Wells

Horizonal Datum: ***World Geographic System of 1984 (WGS84)***
Vertical Datum: ***North American Vertical Datum of 1988 (NAVD88)***
Projection: ***Alaska State Plane Zone 9 (based on NAD83[2011])***
Units: ***US Survey Feet***

Survey ID	Location ID	Description	Northing	Easting	Elevation	Elevation at Ground	Latitude (DD)	Longitude (DD)	Latitude (DMS)	Longitude (DMS)	Survey Method	HRMS	VRMS	Date & Time	S/V's
12342	22NEC-MOC-14MW01	Monitoring Well	3403888.741	1810440.16	75.55	76.00	63.31153163	-168.96615136	N 63°18'41.51386"	W 168°57'58.14489"	RTK	0.05	0.06	8/16/2022 17:48	23
12343	22NEC-MOC-14MW02	Monitoring Well	3403943.16	1810634.80	71.04	71.38	63.31167184	-168.96496268	N 63°18'42.01862"	W 168°57'53.86564"	RTK	0.04	0.05	8/16/2022 17:51	23
12361	22NEC-MOC-14MW03	Monitoring Well	3403812.258	1810703.57	74.52	74.71	63.31131088	-168.96455743	N 63°18'40.71916"	W 168°57'52.40674"	RTK	0.03	0.04	8/17/2022 18:02	23
12344	22NEC-MOC-14MW04	Monitoring Well	3404032.036	1810856.14	67.68	68.11	63.31190508	-168.96360826	N 63°18'42.85828"	W 168°57'48.98973"	RTK	0.05	0.05	8/16/2022 17:54	23
12337	22NEC-MOC-14MW05	Monitoring Well	3404022.02	1811012.63	67.05	67.40	63.31187077	-168.96265785	N 63°18'42.73477"	W 168°57'45.56825"	RTK	0.03	0.04	8/16/2022 17:37	25
12335	22NEC-MOC-14MW06	Monitoring Well	3403865.079	1811294.15	71.47	71.95	63.31142919	-168.96096177	N 63°18'41.14508"	W 168°57'39.46237"	RTK	0.06	0.05	8/16/2022 17:30	26
12353	22NEC-MOC-14MW07	Monitoring Well	3403552.833	1811024.05	95.42	95.68	63.31058738	-168.96263457	N 63°18'38.11456"	W 168°57'45.48445"	RTK	0.04	0.07	8/16/2022 18:21	22
11321	22NEC-MOC-17MW1	Monitoring Well	3403789.792	1810258.24	73.95	74.16	63.31126909	-168.96726702	N 63°18'40.56872"	W 168°58'2.16127"	RTK	0.04	0.06	8/15/2022 13:45	25
12348	22NEC-MOC-20MW1	Monitoring Well	3403499.35	1810803.89	91.91	92.06	63.31045087	-168.96397827	N 63°18'37.62313"	W 168°57'50.32177"	RTK	0.05	0.07	8/16/2022 18:09	22
12349	22NEC-MOC-22MW2	Monitoring Well	3403230.331	1810680.94	96.30	96.77	63.30972072	-168.96475213	N 63°18'34.99459"	W 168°57'53.10766"	RTK	0.04	0.07	8/16/2022 18:11	22
12351	22NEC-MOC-26MW1	Monitoring Well	3403258.473	1811161.66	109.90	110.45	63.30977642	-168.96182697	N 63°18'35.19511"	W 168°57'42.57709"	RTK	0.05	0.09	8/16/2022 18:18	21
12336	22NEC-MOC-MW10-1	Monitoring Well	3403873.367	1811384.45	74.35	71.81	63.31144785	-168.96041202	N 63°18'41.21226"	W 168°57'37.48327"	RTK	0.05	0.04	8/16/2022 17:33	25
12346	22NEC-MOC-MW88-1	Monitoring Well	3403728.56	1810982.70	84.88	85.20	63.31106969	-168.96286871	N 63°18'39.85088"	W 168°57'46.32735"	RTK	0.04	0.07	8/16/2022 18:03	22
12345	22NEC-MOC-MW88-3	Monitoring Well	3403819.243	1811046.28	80.11	80.49	63.31131483	-168.96247321	N 63°18'40.73338"	W 168°57'44.90355"	RTK	0.03	0.06	8/16/2022 18:00	22
12347	22NEC-MOC-MW88-10	Monitoring Well	3403617.04	1810885.13	89.20	89.56	63.31076908	-168.96347284	N 63°18'38.76868"	W 168°57'48.50222"	RTK	0.04	0.07	8/16/2022 18:06	22

Northeast Cape
Pond Edges

Horizonal Datum: ***World Geographic System of 1984 (WGS84)***
Vertical Datum: ***North American Vertical Datum of 1988 (NAVD88)***
Projection: ***Alaska State Plane Zone 9 (based on NAD83[2011])***
Units: ***US Survey Feet***

Survey ID	Description	Code	Northing	Easting	Elevation	Latitude (DD)	Longitude (DD)	Latitude (DMS)	Longitude (DMS)	Survey Method	HRMS	VRMS	Date & Time	S/V's
11332	Water Edge	WTRED	3404076.19	1810873.09	60.55	63.31202504	-168.96350090	N 63°18'43.29014"	W 168°57'48.60324"	RTK	0.03	0.04	8/15/2022 14:06	26
11333	Water Edge	WTRED	3404077.77	1810876.96	60.44	63.31202920	-168.96347723	N 63°18'43.30511"	W 168°57'48.51802"	RTK	0.04	0.05	8/15/2022 14:06	25
11334	Water Edge	WTRED	3404082.31	1810877.58	60.54	63.31204160	-168.96347301	N 63°18'43.34976"	W 168°57'48.50283"	RTK	0.03	0.04	8/15/2022 14:07	26
11335	Water Edge	WTRED	3404085.81	1810877.98	60.57	63.31205114	-168.96347022	N 63°18'43.3841"	W 168°57'48.49279"	RTK	0.03	0.05	8/15/2022 14:07	26
11336	Water Edge	WTRED	3404089.11	1810876.38	60.37	63.31206025	-168.96347965	N 63°18'43.4169"	W 168°57'48.52674"	RTK	0.03	0.05	8/15/2022 14:07	26
11337	Water Edge	WTRED	3404090.63	1810877.70	60.36	63.31206432	-168.96347148	N 63°18'43.43155"	W 168°57'48.49732"	RTK	0.03	0.05	8/15/2022 14:07	26
11338	Water Edge	WTRED	3404091.41	1810877.75	60.47	63.31206645	-168.96347105	N 63°18'43.43922"	W 168°57'48.49578"	RTK	0.04	0.05	8/15/2022 14:07	26
11339	Water Edge	WTRED	3404094.73	1810875.60	60.60	63.31207565	-168.96348381	N 63°18'43.47233"	W 168°57'48.54171"	RTK	0.04	0.05	8/15/2022 14:07	26
11340	Water Edge	WTRED	3404095.32	1810870.87	60.49	63.31207746	-168.96351249	N 63°18'43.47885"	W 168°57'48.64496"	RTK	0.03	0.05	8/15/2022 14:07	26
11341	Water Edge	WTRED	3404091.39	1810868.71	60.50	63.31206680	-168.96352601	N 63°18'43.44047"	W 168°57'48.69363"	RTK	0.03	0.05	8/15/2022 14:07	26
11342	Water Edge	WTRED	3404085.78	1810867.99	60.56	63.31205151	-168.96353094	N 63°18'43.38543"	W 168°57'48.71138"	RTK	0.03	0.04	8/15/2022 14:08	26
11343	Water Edge	WTRED	3404083.54	1810868.21	60.47	63.31204538	-168.96352981	N 63°18'43.36336"	W 168°57'48.70731"	RTK	0.03	0.04	8/15/2022 14:08	26
11344	Water Edge	WTRED	3404081.81	1810869.12	60.38	63.31204059	-168.96352445	N 63°18'43.34612"	W 168°57'48.68801"	RTK	0.03	0.05	8/15/2022 14:08	26
11345	Water Edge	WTRED	3404080.10	1810867.29	60.55	63.31203601	-168.96353575	N 63°18'43.32963"	W 168°57'48.7287"	RTK	0.03	0.05	8/15/2022 14:08	27
11346	Water Edge	WTRED	3404080.64	1810865.01	60.53	63.31203759	-168.96354956	N 63°18'43.33532"	W 168°57'48.77841"	RTK	0.03	0.05	8/15/2022 14:08	27
11347	Water Edge	WTRED	3404078.10	1810860.34	60.58	63.31203084	-168.96357822	N 63°18'43.31102"	W 168°57'48.88159"	RTK	0.05	0.05	8/15/2022 14:08	27
11348	Water Edge	WTRED	3404075.43	1810862.10	60.53	63.31202346	-168.96356780	N 63°18'43.28445"	W 168°57'48.84407"	RTK	0.06	0.05	8/15/2022 14:08	27
11349	Water Edge	WTRED	3404075.43	1810867.04	60.42	63.31202323	-168.96353777	N 63°18'43.28362"	W 168°57'48.73597"	RTK	0.03	0.05	8/15/2022 14:09	26
11350	Water Edge	WTRED	3404074.77	1810870.32	60.50	63.31202130	-168.96351785	N 63°18'43.27667"	W 168°57'48.66425"	RTK	0.03	0.05	8/15/2022 14:09	27
11351	Water Edge	WTRED	3404192.12	1810745.18	60.59	63.31234769	-168.96426719	N 63°18'44.45168"	W 168°57'51.36188"	RTK	0.05	0.05	8/15/2022 14:10	27
11352	Water Edge	WTRED	3404195.64	1810744.81	60.53	63.31235734	-168.96426906	N 63°18'44.48642"	W 168°57'51.36861"	RTK	0.03	0.05	8/15/2022 14:10	27
11353	Water Edge	WTRED	3404197.35	1810741.77	60.57	63.31236214	-168.96428740	N 63°18'44.5037"	W 168°57'51.43463"	RTK	0.03	0.05	8/15/2022 14:10	26
11354	Water Edge	WTRED	3404196.38	1810737.45	60.65	63.31235969	-168.96431371	N 63°18'44.49488"	W 168°57'51.52935"	RTK	0.03	0.05	8/15/2022 14:10	28
11355	Water Edge	WTRED	3404190.78	1810734.57	60.51	63.31234449	-168.96433180	N 63°18'44.44016"	W 168°57'51.59447"	RTK	0.03	0.05	8/15/2022 14:10	28
11356	Water Edge	WTRED	3404188.55	1810734.60	60.55	63.31233840	-168.96433184	N 63°18'44.41824"	W 168°57'51.59462"	RTK	0.03	0.05	8/15/2022 14:10	28
11357	Water Edge	WTRED	3404185.83	1810737.78	60.47	63.31233081	-168.96431277	N 63°18'44.39091"	W 168°57'51.52597"	RTK	0.03	0.05	8/15/2022 14:10	28
11358	Water Edge	WTRED	3404184.82	1810743.54	60.47	63.31232780	-168.96427787	N 63°18'44.38007"	W 168°57'51.40033"	RTK	0.03	0.05	8/15/2022 14:10	28
11359	Water Edge	WTRED	3404189.27	1810745.71	60.53	63.31233989	-168.96426420	N 63°18'44.4236"	W 168°57'51.35112"	RTK	0.03	0.05	8/15/2022 14:11	28
11360	Water Edge	WTRED	3404315.24	1810877.38	57.75	63.31267848	-168.96345134	N 63°18'45.64252"	W 168°57'48.42482"	RTK	0.05	0.05	8/15/2022 14:12	27
11361	Water Edge	WTRED	3404310.44	1810884.84	57.64	63.31266503	-168.96340642	N 63°18'45.5941"	W 168°57'48.26311"	RTK	0.06	0.05	8/15/2022 14:12	27
11362	Water Edge	WTRED	3404303.61	1810889.91	57.48	63.31264615	-168.96337629	N 63°18'45.52613"	W 168°57'48.15464"	RTK	0.03	0.05	8/15/2022 14:12	27
11363	Water Edge	WTRED	3404297.61	1810893.97	57.62	63.31262956	-168.96335220	N 63°18'45.46641"	W 168°57'48.06792"	RTK	0.04	0.05	8/15/2022 14:12	27
11364	Water Edge	WTRED	3404292.82	1810896.78	57.72	63.31261634	-168.96333560	N 63°18'45.41882"	W 168°57'48.00815"	RTK	0.04	0.06	8/15/2022 14:12	28
11365	Water Edge	WTRED	3404295.18	1810903.32	57.51	63.31262250	-168.96329559	N 63°18'45.441"	W 168°57'47.86412"	RTK	0.03	0.05	8/15/2022 14:12	28
11366	Water Edge	WTRED	3404298.59	1810907.12	57.58	63.31263166	-168.96327214	N 63°18'45.47397"	W 168°57'47.7797"	RTK	0.03	0.05	8/15/2022 14:12	26
11367	Water Edge	WTRED	3404306.36	1810911.40	57.17	63.31265271	-168.96324538	N 63°18'45.54975"	W 168°57'47.68336"	RTK	0.03	0.05	8/15/2022 14:13	28
11368	Water Edge	WTRED	3404317.78	1810920.25	57.52	63.31268355	-168.96319042	N 63°18'45.66078"	W 168°57'47.48551"	RTK	0.03	0.05	8/15/2022 14:13	25
11369	Water Edge	WTRED	3404327.74	1810923.20	57.68	63.31271066	-168.96317153	N 63°18'45.75837"	W 168°57'47.4175"	RTK	0.03	0.05	8/15/2022 14:13	26
11370	Water Edge	WTRED	3404335.35	1810918.01	57.70	63.31273170	-168.96320231	N 63°18'45.83412"	W 168°57'47.52831"	RTK	0.03	0.05	8/15/2022 14:13	26
11371	Water Edge	WTRED	3404343.58	1810915.76	57.67	63.31275428	-168.96321516	N 63°18'45.9154"	W 168°57'47.57457"	RTK	0.04	0.05	8/15/2022 14:13	26
11372	Water Edge	WTRED	3404348.19	1810911.53	57.69	63.31276707	-168.96324048	N 63°18'45.96145"	W 168°57'47.66572"	RTK	0.04	0.05	8/15/2022 14:13	26
11373	Water Edge	WTRED	3404349.63	1810903.34	57.71	63.31277138	-168.96329012	N 63°18'45.97696"	W 168°57'47.84443"	RTK	0.03	0.05	8/15/2022 14:13	26
11374	Water Edge	WTRED	3404345.57	1810895.76	57.46	63.31276062	-168.96333657	N 63°18'45.93823"	W 168°57'48.01165"	RTK	0.04	0.04	8/15/2022 14:14	26
11375	Water Edge	WTRED	3404342.24	1810891.29	57.56	63.31275172	-168.96336409	N 63°18'45.90619"	W 168°57'48.11072"	RTK	0.04	0.05	8/15/2022 14:14	25
11376	Water Edge	WTRED	3404343.76	1810889.53	57.54	63.31275594	-168.96337466	N 63°18'45.92138"	W 168°57'48.14877"	RTK	0.03	0.05	8/15/2022 14:14	25
11377	Water Edge	WTRED	3404348.29	1810886.36	57.61	63.31276846	-168.96339347	N 63°18'45.96645"	W 168°57'48.21649"	RTK	0.03	0.05	8/15/2022 14:14	26

11378	Water Edge	WTRED	3404352.34	1810884.34	57.58	63.31277963	-168.96340534	N 63°18'46.00666"	W 168°57'48.25922"	RTK	0.03	0.04	8/15/2022 14:14	26
11379	Water Edge	WTRED	3404349.12	1810877.27	57.51	63.31277115	-168.96344867	N 63°18'45.97614"	W 168°57'48.41521"	RTK	0.04	0.05	8/15/2022 14:14	26
11380	Water Edge	WTRED	3404340.27	1810871.79	57.56	63.31274717	-168.96348286	N 63°18'45.88981"	W 168°57'48.53829"	RTK	0.04	0.06	8/15/2022 14:14	25
11381	Water Edge	WTRED	3404331.75	1810870.30	57.56	63.31272396	-168.96349273	N 63°18'45.80625"	W 168°57'48.57382"	RTK	0.04	0.05	8/15/2022 14:14	25
11382	Water Edge	WTRED	3404323.14	1810872.03	57.42	63.31270033	-168.96348306	N 63°18'45.72118"	W 168°57'48.53901"	RTK	0.03	0.05	8/15/2022 14:14	26
11383	Water Edge	WTRED	3404484.72	1810967.48	56.65	63.31313793	-168.96288685	N 63°18'47.29654"	W 168°57'46.39265"	RTK	0.03	0.04	8/15/2022 14:16	26
11384	Water Edge	WTRED	3404479.79	1810960.51	56.77	63.31312476	-168.96292972	N 63°18'47.24913"	W 168°57'46.54699"	RTK	0.03	0.05	8/15/2022 14:16	26
11385	Water Edge	WTRED	3404472.26	1810950.09	56.73	63.31310463	-168.96299380	N 63°18'47.17666"	W 168°57'46.77767"	RTK	0.04	0.05	8/15/2022 14:17	26
11386	Water Edge	WTRED	3404470.31	1810943.51	56.77	63.31309958	-168.96303401	N 63°18'47.15848"	W 168°57'46.92243"	RTK	0.04	0.07	8/15/2022 14:17	26
11387	Water Edge	WTRED	3404470.49	1810937.22	56.81	63.31310034	-168.96307224	N 63°18'47.16122"	W 168°57'47.06006"	RTK	0.03	0.04	8/15/2022 14:17	26
11388	Water Edge	WTRED	3404467.66	1810930.27	56.75	63.31309292	-168.96311477	N 63°18'47.13451"	W 168°57'47.21317"	RTK	0.04	0.04	8/15/2022 14:17	26
11389	Water Edge	WTRED	3404459.16	1810920.29	56.78	63.31307011	-168.96317627	N 63°18'47.05239"	W 168°57'47.43457"	RTK	0.04	0.05	8/15/2022 14:17	26
11390	Water Edge	WTRED	3404449.15	1810908.67	56.72	63.31304327	-168.96324793	N 63°18'46.95577"	W 168°57'47.69254"	RTK	0.03	0.05	8/15/2022 14:17	26
11391	Water Edge	WTRED	3404439.66	1810904.30	56.73	63.31301751	-168.96327544	N 63°18'46.86303"	W 168°57'47.79158"	RTK	0.04	0.05	8/15/2022 14:17	26
11392	Water Edge	WTRED	3404431.34	1810908.13	56.63	63.31299458	-168.96325293	N 63°18'46.78048"	W 168°57'47.71054"	RTK	0.04	0.05	8/15/2022 14:17	25
11393	Water Edge	WTRED	3404428.32	1810915.71	56.77	63.31298600	-168.96320715	N 63°18'46.7496"	W 168°57'47.54573"	RTK	0.04	0.05	8/15/2022 14:18	25
11394	Water Edge	WTRED	3404435.91	1810921.05	56.82	63.31300652	-168.96317398	N 63°18'46.82347"	W 168°57'47.42632"	RTK	0.04	0.04	8/15/2022 14:18	25
11395	Water Edge	WTRED	3404446.00	1810929.74	56.88	63.31303371	-168.96312012	N 63°18'46.92135"	W 168°57'47.23243"	RTK	0.04	0.05	8/15/2022 14:18	26
11396	Water Edge	WTRED	3404453.18	1810941.22	56.73	63.31305284	-168.96304964	N 63°18'46.99022"	W 168°57'46.9787"	RTK	0.04	0.06	8/15/2022 14:18	25
11397	Water Edge	WTRED	3404455.52	1810948.79	56.71	63.31305889	-168.96300336	N 63°18'47.012"	W 168°57'46.81209"	RTK	0.03	0.04	8/15/2022 14:18	25
11398	Water Edge	WTRED	3404461.63	1810954.12	56.77	63.31307537	-168.96297036	N 63°18'47.07133"	W 168°57'46.69329"	RTK	0.04	0.04	8/15/2022 14:18	26
11399	Water Edge	WTRED	3404466.46	1810962.78	56.85	63.31308819	-168.96291726	N 63°18'47.11748"	W 168°57'46.50213"	RTK	0.03	0.04	8/15/2022 14:18	25
11400	Water Edge	WTRED	3404471.80	1810967.27	56.85	63.31310260	-168.96288941	N 63°18'47.16936"	W 168°57'46.40187"	RTK	0.04	0.05	8/15/2022 14:19	26
11401	Water Edge	WTRED	3404476.37	1810972.43	56.66	63.31311486	-168.96285757	N 63°18'47.21349"	W 168°57'46.28725"	RTK	0.04	0.05	8/15/2022 14:19	26
11402	Water Edge	WTRED	3404481.00	1810975.92	56.78	63.31312738	-168.96283591	N 63°18'47.25856"	W 168°57'46.20927"	RTK	0.04	0.05	8/15/2022 14:19	25
11403	Water Edge	WTRED	3404338.48	1810973.33	58.27	63.31273780	-168.96286570	N 63°18'45.85608"	W 168°57'46.31652"	RTK	0.04	0.06	8/15/2022 14:20	25
11404	Water Edge	WTRED	3404334.93	1810978.11	58.14	63.31272787	-168.96283695	N 63°18'45.82033"	W 168°57'46.21301"	RTK	0.04	0.06	8/15/2022 14:20	25
11405	Water Edge	WTRED	3404333.51	1810985.50	58.07	63.31272367	-168.96279218	N 63°18'45.80521"	W 168°57'46.05184"	RTK	0.04	0.06	8/15/2022 14:20	25
11406	Water Edge	WTRED	3404337.93	1810993.80	58.03	63.31273538	-168.96274127	N 63°18'45.84736"	W 168°57'45.86857"	RTK	0.03	0.04	8/15/2022 14:20	27
11407	Water Edge	WTRED	3404340.15	1810993.66	57.95	63.31274148	-168.96274188	N 63°18'45.86932"	W 168°57'45.87076"	RTK	0.04	0.05	8/15/2022 14:20	26
11408	Water Edge	WTRED	3404346.71	1810989.88	58.08	63.31275956	-168.96276426	N 63°18'45.93441"	W 168°57'45.95133"	RTK	0.04	0.05	8/15/2022 14:21	25
11409	Water Edge	WTRED	3404354.95	1810988.24	57.94	63.31278216	-168.96277338	N 63°18'46.01577"	W 168°57'45.98416"	RTK	0.04	0.04	8/15/2022 14:21	26
11410	Water Edge	WTRED	3404361.60	1810991.12	58.06	63.31280023	-168.96275527	N 63°18'46.08082"	W 168°57'45.91897"	RTK	0.03	0.05	8/15/2022 14:21	27
11411	Water Edge	WTRED	3404367.38	1810998.52	57.97	63.31281570	-168.96270971	N 63°18'46.13652"	W 168°57'45.75495"	RTK	0.03	0.05	8/15/2022 14:22	25
11412	Water Edge	WTRED	3404367.68	1811007.11	57.86	63.31281616	-168.96265741	N 63°18'46.13817"	W 168°57'45.56667"	RTK	0.04	0.05	8/15/2022 14:22	26
11413	Water Edge	WTRED	3404369.66	1811013.37	57.88	63.31282129	-168.96261918	N 63°18'46.15664"	W 168°57'45.42904"	RTK	0.04	0.05	8/15/2022 14:22	25
11414	Water Edge	WTRED	3404382.71	1811012.41	57.80	63.31285701	-168.96262372	N 63°18'46.28523"	W 168°57'45.44539"	RTK	0.04	0.05	8/15/2022 14:22	24
11415	Water Edge	WTRED	3404392.94	1811013.87	57.69	63.31288490	-168.96261387	N 63°18'46.38564"	W 168°57'45.40993"	RTK	0.04	0.05	8/15/2022 14:22	25
11416	Water Edge	WTRED	3404397.68	1811011.71	57.75	63.31289798	-168.96262654	N 63°18'46.43272"	W 168°57'45.45554"	RTK	0.04	0.05	8/15/2022 14:22	25
11417	Water Edge	WTRED	3404398.63	1811006.48	57.82	63.31290080	-168.96265820	N 63°18'46.44288"	W 168°57'45.56951"	RTK	0.04	0.05	8/15/2022 14:22	26
11418	Water Edge	WTRED	3404393.38	1810999.62	57.73	63.31288676	-168.96270043	N 63°18'46.39233"	W 168°57'45.72154"	RTK	0.04	0.06	8/15/2022 14:22	26
11419	Water Edge	WTRED	3404383.44	1811000.83	57.68	63.31285952	-168.96269404	N 63°18'46.29427"	W 168°57'45.69854"	RTK	0.04	0.05	8/15/2022 14:23	26
11420	Water Edge	WTRED	3404381.21	1810996.77	57.70	63.31285359	-168.96271896	N 63°18'46.27292"	W 168°57'45.78825"	RTK	0.04	0.06	8/15/2022 14:23	26
11421	Water Edge	WTRED	3404381.63	1810988.66	57.70	63.31285510	-168.96276822	N 63°18'46.27836"	W 168°57'45.96559"	RTK	0.04	0.06	8/15/2022 14:23	24
11422	Water Edge	WTRED	3404373.38	1810983.49	57.96	63.31283276	-168.96280046	N 63°18'46.19793"	W 168°57'46.08165"	RTK	0.03	0.04	8/15/2022 14:23	25
11423	Water Edge	WTRED	3404362.03	1810982.27	57.75	63.31280180	-168.96280898	N 63°18'46.08648"	W 168°57'46.11232"	RTK	0.05	0.08	8/15/2022 14:23	26
11424	Water Edge	WTRED	3404350.69	1810980.18	57.89	63.31277089	-168.96282282	N 63°18'45.9752"	W 168°57'46.16215"	RTK	0.04	0.06	8/15/2022 14:23	25
11425	Water Edge	WTRED	3404346.50	1810976.27	57.83	63.31275958	-168.96284698	N 63°18'45.93448"	W 168°57'46.24912"	RTK	0.04	0.07	8/15/2022 14:23	25
11426	Water Edge	WTRED	3404373.94	1811096.70	57.25	63.31282930	-168.96211212	N 63°18'46.18547"	W 168°57'43.60363"	RTK	0.04	0.06	8/15/2022 14:25	25
11427	Water Edge	WTRED	3404368.00	1811096.28	57.14	63.31281307	-168.96211526	N 63°18'46.12705"	W 168°57'43.61493"	RTK	0.04	0.06	8/15/2022 14:25	26
11428	Water Edge	WTRED	3404364.38	1811100.73	57.11	63.31280299	-168.96208858	N 63°18'46.09076"	W 168°57'43.51888"	RTK	0.04	0.05	8/15/2022 14:25	26
11429	Water Edge	WTRED	3404370.85	1811102.51	56.90	63.31282060	-168.96207713	N 63°18'46.15416"	W 168°57'43.47766"	RTK	0.04	0.05	8/15/2022 14:25	25
11430	Water Edge	WTRED	3404370.42	1811110.22	57.11	63.31281907	-168.96203029	N 63°18'46.14865"	W 168°57'43.30904"	RTK	0.04	0.06	8/15/2022 14:25	25
11431	Water Edge	WTRED	3404373.39	1811111.66	57.10	63.31282714	-168.96202125	N 63°18'46.1777"	W 168°57'43.27649"	RTK	0.04	0.07	8/15/2022 14:26	25
11432	Water Edge	WTRED	3404377.90	1811104.89	56.94	63.31283977	-168.96206192	N 63°18'46.22317"	W 168°57'43.42291"	RTK	0.04	0.05	8/15/2022 14:26	25
11433	Water Edge	WTRED	3404383.47	1811105.52	57.05	63.31285496	-168.96205756	N 63°18'46.27785"	W 168°57'43.40721"	RTK	0.04	0.06	8/15/2022 14:26	25

11434	Water Edge	WTRED	3404390.27	1811104.62	56.96	63.31287361	-168.96206237	N 63°18'46.34499"	W 168°57'43.42453"	RTK	0.03	0.05	8/15/2022 14:26	24
11435	Water Edge	WTRED	3404392.12	1811100.08	56.70	63.31287885	-168.96208977	N 63°18'46.36385"	W 168°57'43.52317"	RTK	0.04	0.06	8/15/2022 14:26	25
11436	Water Edge	WTRED	3404390.44	1811096.66	57.15	63.31287443	-168.96211073	N 63°18'46.34794"	W 168°57'43.59862"	RTK	0.04	0.06	8/15/2022 14:26	25
11437	Water Edge	WTRED	3404384.48	1811094.47	57.11	63.31285822	-168.96212461	N 63°18'46.28959"	W 168°57'43.64859"	RTK	0.04	0.05	8/15/2022 14:26	25
11438	Water Edge	WTRED	3404295.49	1811147.27	58.34	63.31261254	-168.96181239	N 63°18'45.40514"	W 168°57'42.5246"	RTK	0.03	0.04	8/15/2022 14:27	25
11439	Water Edge	WTRED	3404287.37	1811138.27	58.14	63.31259076	-168.96186793	N 63°18'45.32673"	W 168°57'42.72454"	RTK	0.04	0.05	8/15/2022 14:27	25
11440	Water Edge	WTRED	3404284.85	1811133.86	58.09	63.31258406	-168.96189494	N 63°18'45.30261"	W 168°57'42.82178"	RTK	0.04	0.05	8/15/2022 14:28	25
11441	Water Edge	WTRED	3404280.32	1811133.25	58.00	63.31257169	-168.96189912	N 63°18'45.25808"	W 168°57'42.83683"	RTK	0.04	0.05	8/15/2022 14:28	25
11442	Water Edge	WTRED	3404276.20	1811137.10	58.06	63.31256027	-168.96187613	N 63°18'45.21697"	W 168°57'42.75406"	RTK	0.04	0.05	8/15/2022 14:28	25
11443	Water Edge	WTRED	3404270.72	1811138.16	58.03	63.31254524	-168.96187023	N 63°18'45.16286"	W 168°57'42.73282"	RTK	0.04	0.05	8/15/2022 14:28	25
11444	Water Edge	WTRED	3404267.86	1811136.68	58.04	63.31253749	-168.96187951	N 63°18'45.13496"	W 168°57'42.76623"	RTK	0.04	0.05	8/15/2022 14:28	25
11445	Water Edge	WTRED	3404265.21	1811145.77	58.24	63.31252981	-168.96182449	N 63°18'45.10731"	W 168°57'42.56816"	RTK	0.04	0.06	8/15/2022 14:28	25
11446	Water Edge	WTRED	3404265.61	1811158.08	58.27	63.31253037	-168.96174962	N 63°18'45.10933"	W 168°57'42.29863"	RTK	0.04	0.06	8/15/2022 14:28	25
11447	Water Edge	WTRED	3404265.08	1811166.47	58.20	63.31252855	-168.96169863	N 63°18'45.10278"	W 168°57'42.11506"	RTK	0.04	0.05	8/15/2022 14:28	24
11448	Water Edge	WTRED	3404263.41	1811171.05	58.15	63.31252379	-168.96167097	N 63°18'45.08564"	W 168°57'42.01549"	RTK	0.04	0.05	8/15/2022 14:28	25
11449	Water Edge	WTRED	3404265.75	1811175.90	58.12	63.31252997	-168.96164123	N 63°18'45.10789"	W 168°57'41.90842"	RTK	0.04	0.05	8/15/2022 14:29	23
11450	Water Edge	WTRED	3404264.23	1811185.09	58.32	63.31252541	-168.96158555	N 63°18'45.09147"	W 168°57'41.70797"	RTK	0.04	0.06	8/15/2022 14:29	25
11451	Water Edge	WTRED	3404269.14	1811191.81	58.24	63.31253854	-168.96154417	N 63°18'45.13874"	W 168°57'41.55901"	RTK	0.04	0.06	8/15/2022 14:29	25
11452	Water Edge	WTRED	3404275.88	1811195.06	58.08	63.31255683	-168.96152374	N 63°18'45.20458"	W 168°57'41.48546"	RTK	0.04	0.06	8/15/2022 14:29	24
11453	Water Edge	WTRED	3404283.52	1811196.27	58.19	63.31257765	-168.96151565	N 63°18'45.27954"	W 168°57'41.45633"	RTK	0.04	0.05	8/15/2022 14:29	24
11454	Water Edge	WTRED	3404293.54	1811195.76	58.18	63.31260507	-168.96151777	N 63°18'45.37825"	W 168°57'41.46397"	RTK	0.04	0.06	8/15/2022 14:29	25
11455	Water Edge	WTRED	3404303.13	1811190.53	58.04	63.31263154	-168.96154861	N 63°18'45.47354"	W 168°57'41.57499"	RTK	0.03	0.05	8/15/2022 14:29	24
11456	Water Edge	WTRED	3404312.18	1811190.16	57.94	63.31265628	-168.96155001	N 63°18'45.5626"	W 168°57'41.58003"	RTK	0.04	0.05	8/15/2022 14:29	24
11457	Water Edge	WTRED	3404315.43	1811184.37	57.98	63.31266544	-168.96158487	N 63°18'45.59558"	W 168°57'41.70553"	RTK	0.03	0.05	8/15/2022 14:30	25
11458	Water Edge	WTRED	3404316.29	1811179.80	57.90	63.31266798	-168.96161253	N 63°18'45.60472"	W 168°57'41.8051"	RTK	0.04	0.06	8/15/2022 14:30	25
11459	Water Edge	WTRED	3404322.31	1811179.23	58.07	63.31268448	-168.96161542	N 63°18'45.66412"	W 168°57'41.81551"	RTK	0.04	0.06	8/15/2022 14:30	24
11460	Water Edge	WTRED	3404325.44	1811174.03	58.02	63.31269327	-168.96164676	N 63°18'45.69577"	W 168°57'41.92833"	RTK	0.04	0.06	8/15/2022 14:30	25
11461	Water Edge	WTRED	3404319.90	1811167.51	57.89	63.31267840	-168.96168693	N 63°18'45.64224"	W 168°57'42.07294"	RTK	0.04	0.05	8/15/2022 14:30	25
11462	Water Edge	WTRED	3404314.60	1811158.95	58.00	63.31266429	-168.96173948	N 63°18'45.59144"	W 168°57'42.26212"	RTK	0.04	0.05	8/15/2022 14:30	25
11463	Water Edge	WTRED	3404309.84	1811154.28	58.14	63.31265148	-168.96176835	N 63°18'45.54532"	W 168°57'42.36605"	RTK	0.04	0.05	8/15/2022 14:30	25
11464	Water Edge	WTRED	3404302.46	1811152.52	58.16	63.31263137	-168.96177980	N 63°18'45.47293"	W 168°57'42.40727"	RTK	0.04	0.06	8/15/2022 14:30	24
11465	Water Edge	WTRED	3404170.16	1811090.02	60.36	63.31227239	-168.96217279	N 63°18'44.1806"	W 168°57'43.82204"	RTK	0.03	0.05	8/15/2022 14:31	24
11466	Water Edge	WTRED	3404175.37	1811085.39	60.23	63.31228684	-168.96220042	N 63°18'44.23262"	W 168°57'43.92151"	RTK	0.04	0.05	8/15/2022 14:32	25
11467	Water Edge	WTRED	3404170.03	1811079.17	60.23	63.31227252	-168.96223875	N 63°18'44.18107"	W 168°57'44.0595"	RTK	0.04	0.05	8/15/2022 14:32	25
11468	Water Edge	WTRED	3404165.22	1811072.12	60.25	63.31225968	-168.96228209	N 63°18'44.13484"	W 168°57'44.21552"	RTK	0.03	0.04	8/15/2022 14:32	25
11469	Water Edge	WTRED	3404165.09	1811066.96	60.21	63.31225956	-168.96231347	N 63°18'44.13441"	W 168°57'44.32849"	RTK	0.03	0.05	8/15/2022 14:32	25
11470	Water Edge	WTRED	3404157.43	1811063.92	60.02	63.31223875	-168.96233273	N 63°18'44.05949"	W 168°57'44.39782"	RTK	0.03	0.05	8/15/2022 14:32	25
11471	Water Edge	WTRED	3404152.23	1811058.61	60.26	63.31222477	-168.96236549	N 63°18'44.00917"	W 168°57'44.51576"	RTK	0.04	0.04	8/15/2022 14:32	25
11472	Water Edge	WTRED	3404149.13	1811049.21	60.07	63.31221670	-168.96242294	N 63°18'43.98012"	W 168°57'44.72258"	RTK	0.04	0.04	8/15/2022 14:32	25
11473	Water Edge	WTRED	3404144.67	1811043.88	60.02	63.31220475	-168.96245582	N 63°18'43.93709"	W 168°57'44.84095"	RTK	0.04	0.05	8/15/2022 14:33	25
11474	Water Edge	WTRED	3404137.39	1811041.38	60.10	63.31218496	-168.96247171	N 63°18'43.86585"	W 168°57'44.89815"	RTK	0.04	0.05	8/15/2022 14:33	24
11475	Water Edge	WTRED	3404132.51	1811050.46	60.15	63.31217121	-168.96241700	N 63°18'43.81635"	W 168°57'44.70119"	RTK	0.04	0.04	8/15/2022 14:33	25
11476	Water Edge	WTRED	3404123.11	1811053.42	60.22	63.31214539	-168.96239992	N 63°18'43.7234"	W 168°57'44.63971"	RTK	0.04	0.06	8/15/2022 14:33	24
11477	Water Edge	WTRED	3404114.77	1811055.62	60.25	63.31212248	-168.96238735	N 63°18'43.64092"	W 168°57'44.59446"	RTK	0.03	0.05	8/15/2022 14:33	25
11478	Water Edge	WTRED	3404110.24	1811067.81	60.29	63.31210954	-168.96231373	N 63°18'43.59434"	W 168°57'44.32942"	RTK	0.04	0.06	8/15/2022 14:33	25
11479	Water Edge	WTRED	3404109.97	1811071.03	60.16	63.31210866	-168.96229414	N 63°18'43.59117"	W 168°57'44.2589"	RTK	0.04	0.05	8/15/2022 14:33	25
11480	Water Edge	WTRED	3404115.29	1811075.49	59.99	63.31212301	-168.96226653	N 63°18'43.64283"	W 168°57'44.1595"	RTK	0.04	0.04	8/15/2022 14:33	25
11481	Water Edge	WTRED	3404116.80	1811086.68	59.90	63.31212666	-168.96219837	N 63°18'43.65597"	W 168°57'43.91413"	RTK	0.03	0.04	8/15/2022 14:34	25
11482	Water Edge	WTRED	3404111.18	1811088.19	59.96	63.31211122	-168.96218973	N 63°18'43.60039"	W 168°57'43.88302"	RTK	0.04	0.05	8/15/2022 14:34	25
11483	Water Edge	WTRED	3404106.95	1811094.96	59.98	63.31209934	-168.96214899	N 63°18'43.55762"	W 168°57'43.73636"	RTK	0.03	0.04	8/15/2022 14:34	25
11484	Water Edge	WTRED	3404106.05	1811100.67	60.13	63.31209663	-168.96211435	N 63°18'43.54786"	W 168°57'43.61166"	RTK	0.04	0.04	8/15/2022 14:34	25
11485	Water Edge	WTRED	3404097.98	1811106.95	60.31	63.31207429	-168.96207693	N 63°18'43.46744"	W 168°57'43.47694"	RTK	0.04	0.05	8/15/2022 14:34	24
11486	Water Edge	WTRED	3404097.74	1811115.72	60.40	63.31207326	-168.96202368	N 63°18'43.46373"	W 168°57'43.28524"	RTK	0.04	0.05	8/15/2022 14:34	24
11487	Water Edge	WTRED	3404104.45	1811121.38	60.32	63.31209133	-168.96198861	N 63°18'43.52878"	W 168°57'43.15899"	RTK	0.03	0.04	8/15/2022 14:34	24
11488	Water Edge	WTRED	3404112.18	1811128.43	60.21	63.31211218	-168.96194497	N 63°18'43.60384"	W 168°57'43.00189"	RTK	0.04	0.04	8/15/2022 14:35	22
11489	Water Edge	WTRED	3404120.45	1811135.03	60.33	63.31213449	-168.96190405	N 63°18'43.68416"	W 168°57'42.85457"	RTK	0.05	0.05	8/15/2022 14:35	22

11490	Water Edge	WTRED	3404124.95	1811143.41	60.11	63.31214643	-168.96185261	N 63°18'43.72714"	W 168°57'42.66939"	RTK	0.04	0.04	8/15/2022 14:35	23
11491	Water Edge	WTRED	3404129.15	1811148.33	60.22	63.31215768	-168.96182234	N 63°18'43.76764"	W 168°57'42.56042"	RTK	0.04	0.05	8/15/2022 14:35	23
11492	Water Edge	WTRED	3404134.10	1811144.11	60.09	63.31217140	-168.96184747	N 63°18'43.81703"	W 168°57'42.65089"	RTK	0.04	0.04	8/15/2022 14:35	24
11493	Water Edge	WTRED	3404129.02	1811139.46	59.91	63.31215773	-168.96187623	N 63°18'43.76782"	W 168°57'42.75442"	RTK	0.04	0.05	8/15/2022 14:35	24
11494	Water Edge	WTRED	3404130.09	1811131.39	60.04	63.31216100	-168.96192520	N 63°18'43.7796"	W 168°57'42.93071"	RTK	0.04	0.04	8/15/2022 14:35	24
11495	Water Edge	WTRED	3404130.01	1811120.00	60.12	63.31216130	-168.96199450	N 63°18'43.78067"	W 168°57'43.1802"	RTK	0.04	0.06	8/15/2022 14:36	24
11496	Water Edge	WTRED	3404130.86	1811110.75	59.93	63.31216404	-168.96205061	N 63°18'43.79054"	W 168°57'43.38219"	RTK	0.04	0.05	8/15/2022 14:36	24
11497	Water Edge	WTRED	3404130.01	1811105.82	59.82	63.31216191	-168.96208067	N 63°18'43.78287"	W 168°57'43.49041"	RTK	0.04	0.05	8/15/2022 14:36	24
11498	Water Edge	WTRED	3404140.56	1811103.58	59.76	63.31219086	-168.96209324	N 63°18'43.88709"	W 168°57'43.53566"	RTK	0.04	0.06	8/15/2022 14:36	23
11499	Water Edge	WTRED	3404147.07	1811106.06	59.78	63.31220855	-168.96207752	N 63°18'43.95078"	W 168°57'43.47907"	RTK	0.04	0.05	8/15/2022 14:36	23
11500	Water Edge	WTRED	3404155.29	1811105.92	60.10	63.31223105	-168.96207758	N 63°18'44.03178"	W 168°57'43.47928"	RTK	0.03	0.04	8/15/2022 14:36	23
11501	Water Edge	WTRED	3404163.92	1811096.93	60.08	63.31225503	-168.96213142	N 63°18'44.1181"	W 168°57'43.67311"	RTK	0.04	0.05	8/15/2022 14:36	23
11502	Water Edge	WTRED	3404067.78	1811276.68	61.70	63.31198420	-168.96104805	N 63°18'43.14311"	W 168°57'39.77297"	RTK	0.04	0.05	8/15/2022 14:39	24
11503	Water Edge	WTRED	3404063.25	1811279.18	61.67	63.31197170	-168.96103330	N 63°18'43.09812"	W 168°57'39.71987"	RTK	0.04	0.05	8/15/2022 14:39	24
11504	Water Edge	WTRED	3404062.54	1811284.14	61.66	63.31196953	-168.96100322	N 63°18'43.0903"	W 168°57'39.61159"	RTK	0.03	0.05	8/15/2022 14:39	24
11505	Water Edge	WTRED	3404056.82	1811288.78	61.65	63.31195369	-168.96097554	N 63°18'43.03328"	W 168°57'39.51194"	RTK	0.03	0.04	8/15/2022 14:39	24
11506	Water Edge	WTRED	3404052.04	1811289.70	61.57	63.31194058	-168.96097044	N 63°18'42.98608"	W 168°57'39.49358"	RTK	0.03	0.04	8/15/2022 14:39	24
11507	Water Edge	WTRED	3404051.69	1811291.28	61.66	63.31193955	-168.96096083	N 63°18'42.98237"	W 168°57'39.45898"	RTK	0.04	0.05	8/15/2022 14:39	24
11508	Water Edge	WTRED	3404057.04	1811292.88	61.68	63.31195412	-168.96095059	N 63°18'43.03483"	W 168°57'39.42212"	RTK	0.04	0.05	8/15/2022 14:39	24
11509	Water Edge	WTRED	3404067.31	1811293.79	61.64	63.31198217	-168.96094403	N 63°18'43.13581"	W 168°57'39.3985"	RTK	0.04	0.05	8/15/2022 14:39	23
11510	Water Edge	WTRED	3404073.15	1811291.26	61.67	63.31199824	-168.96095886	N 63°18'43.19366"	W 168°57'39.45189"	RTK	0.03	0.04	8/15/2022 14:39	23
11511	Water Edge	WTRED	3404077.56	1811284.32	61.70	63.31201060	-168.96100064	N 63°18'43.23816"	W 168°57'39.6023"	RTK	0.03	0.05	8/15/2022 14:39	24
11512	Water Edge	WTRED	3404071.69	1811280.57	61.64	63.31199473	-168.96102398	N 63°18'43.18102"	W 168°57'39.68632"	RTK	0.03	0.05	8/15/2022 14:40	24
11514	Water Edge	WTRED	3404605.91	1811033.17	54.43	63.31346638	-168.96247555	N 63°18'48.47896"	W 168°57'44.91197"	RTK	0.03	0.04	8/15/2022 15:02	25
11515	Water Edge	WTRED	3404606.62	1811034.20	54.31	63.31346827	-168.96246924	N 63°18'48.48577"	W 168°57'44.88926"	RTK	0.04	0.05	8/15/2022 15:02	25
11516	Water Edge	WTRED	3404611.31	1811030.79	52.90	63.31348125	-168.96248948	N 63°18'48.5325"	W 168°57'44.96212"	RTK	0.03	0.04	8/15/2022 15:02	25
11517	Water Edge	WTRED	3404610.08	1811030.49	52.94	63.31347791	-168.96249142	N 63°18'48.52047"	W 168°57'44.96911"	RTK	0.03	0.04	8/15/2022 15:02	25
11518	Water Edge	WTRED	3404611.43	1811024.83	52.26	63.31348184	-168.96252569	N 63°18'48.53462"	W 168°57'45.09248"	RTK	0.04	0.04	8/15/2022 15:02	25
11519	Water Edge	WTRED	3404612.77	1811026.19	52.40	63.31348545	-168.96251729	N 63°18'48.54762"	W 168°57'45.06224"	RTK	0.04	0.04	8/15/2022 15:02	25
11520	Water Edge	WTRED	3404616.16	1811023.89	51.92	63.31349481	-168.96253099	N 63°18'48.58131"	W 168°57'45.11156"	RTK	0.04	0.04	8/15/2022 15:02	24
11521	Water Edge	WTRED	3404613.76	1811022.21	52.03	63.31348833	-168.96254143	N 63°18'48.55798"	W 168°57'45.14914"	RTK	0.03	0.04	8/15/2022 15:03	24
11522	Water Edge	WTRED	3404616.45	1811022.38	51.95	63.31349567	-168.96254011	N 63°18'48.58441"	W 168°57'45.14439"	RTK	0.04	0.05	8/15/2022 15:03	25
11523	Water Edge	WTRED	3404621.31	1811023.64	51.86	63.31350891	-168.96253200	N 63°18'48.63207"	W 168°57'45.1152"	RTK	0.03	0.04	8/15/2022 15:03	24
11524	Water Edge	WTRED	3404621.90	1811025.56	51.83	63.31351044	-168.96252022	N 63°18'48.63758"	W 168°57'45.07279"	RTK	0.04	0.05	8/15/2022 15:03	24
11525	Water Edge	WTRED	3404632.77	1811019.68	51.82	63.31354043	-168.96255490	N 63°18'48.74554"	W 168°57'45.19763"	RTK	0.03	0.04	8/15/2022 15:03	24
11526	Water Edge	WTRED	3404633.13	1811017.14	51.77	63.31354151	-168.96257036	N 63°18'48.74943"	W 168°57'45.25329"	RTK	0.03	0.04	8/15/2022 15:03	25
11527	Water Edge	WTRED	3404638.62	1811018.42	51.59	63.31355648	-168.96256198	N 63°18'48.80332"	W 168°57'45.22312"	RTK	0.04	0.05	8/15/2022 15:03	23
11528	Water Edge	WTRED	3404635.31	1811020.54	51.62	63.31354733	-168.96254943	N 63°18'48.77038"	W 168°57'45.17794"	RTK	0.04	0.05	8/15/2022 15:03	25
11529	Water Edge	WTRED	3404638.14	1811021.63	51.66	63.31355502	-168.96254257	N 63°18'48.79807"	W 168°57'45.15325"	RTK	0.04	0.05	8/15/2022 15:03	25
11530	Water Edge	WTRED	3404635.54	1811025.68	51.33	63.31354773	-168.96251815	N 63°18'48.77182"	W 168°57'45.06533"	RTK	0.04	0.05	8/15/2022 15:03	25
11531	Water Edge	WTRED	3404633.82	1811025.80	51.57	63.31354302	-168.96251759	N 63°18'48.75487"	W 168°57'45.06332"	RTK	0.03	0.04	8/15/2022 15:03	25
11532	Water Edge	WTRED	3404633.03	1811029.80	51.42	63.31354068	-168.96249335	N 63°18'48.74644"	W 168°57'44.97605"	RTK	0.04	0.05	8/15/2022 15:04	26
11533	Water Edge	WTRED	3404636.62	1811029.09	51.35	63.31355054	-168.96249737	N 63°18'48.78194"	W 168°57'44.99053"	RTK	0.03	0.04	8/15/2022 15:04	26
11534	Water Edge	WTRED	3404641.09	1811026.41	51.41	63.31356288	-168.96251321	N 63°18'48.82636"	W 168°57'45.04755"	RTK	0.04	0.05	8/15/2022 15:04	26
11535	Water Edge	WTRED	3404640.98	1811024.94	51.22	63.31356264	-168.96252217	N 63°18'48.8255"	W 168°57'45.07981"	RTK	0.04	0.05	8/15/2022 15:04	26
11536	Water Edge	WTRED	3404645.63	1811023.52	51.16	63.31357543	-168.96253030	N 63°18'48.87154"	W 168°57'45.10907"	RTK	0.03	0.04	8/15/2022 15:04	25
11537	Water Edge	WTRED	3404644.49	1811026.73	51.01	63.31357215	-168.96251090	N 63°18'48.85973"	W 168°57'45.03924"	RTK	0.04	0.04	8/15/2022 15:04	26
11538	Water Edge	WTRED	3404648.75	1811030.86	51.07	63.31358361	-168.96248537	N 63°18'48.90099"	W 168°57'44.94733"	RTK	0.03	0.04	8/15/2022 15:04	24
11539	Water Edge	WTRED	3404650.98	1811030.27	50.91	63.31358974	-168.96248876	N 63°18'48.92306"	W 168°57'44.95953"	RTK	0.04	0.04	8/15/2022 15:04	26
11540	Water Edge	WTRED	3404651.60	1811035.92	50.52	63.31359119	-168.96245431	N 63°18'48.92828"	W 168°57'44.83551"	RTK	0.04	0.05	8/15/2022 15:04	26
11541	Water Edge	WTRED	3404649.80	1811037.93	50.60	63.31358619	-168.96244231	N 63°18'48.91028"	W 168°57'44.79231"	RTK	0.06	0.05	8/15/2022 15:04	26
11542	Water Edge	WTRED	3404655.59	1811039.33	50.61	63.31360195	-168.96243319	N 63°18'48.96701"	W 168°57'44.75948"	RTK	0.04	0.06	8/15/2022 15:05	25
11543	Water Edge	WTRED	3404655.48	1811037.46	50.49	63.31360173	-168.96244457	N 63°18'48.96622"	W 168°57'44.80045"	RTK	0.04	0.05	8/15/2022 15:05	25
11544	Water Edge	WTRED	3404664.32	1811035.54	50.23	63.31362599	-168.96245541	N 63°18'49.05356"	W 168°57'44.83947"	RTK	0.04	0.04	8/15/2022 15:05	25
11545	Water Edge	WTRED	3404664.51	1811036.83	50.14	63.31362644	-168.96244754	N 63°18'49.05518"	W 168°57'44.81114"	RTK	0.03	0.04	8/15/2022 15:05	25
11546	Water Edge	WTRED	3404672.86	1811037.05	49.69	63.31364926	-168.96244536	N 63°18'49.13733"	W 168°57'44.80329"	RTK	0.04	0.05	8/15/2022 15:05	24

11547	Water Edge	WTRED	3404671.45	1811039.28	49.71	63.31364531	-168.96243194	N 63°18'49.12311"	W 168°57'44.75498"	RTK	0.04	0.05	8/15/2022 15:05	25
11548	Water Edge	WTRED	3404673.88	1811041.68	49.79	63.31365185	-168.96241710	N 63°18'49.14665"	W 168°57'44.70156"	RTK	0.04	0.04	8/15/2022 15:05	25
11549	Water Edge	WTRED	3404674.68	1811037.83	49.75	63.31365422	-168.96244042	N 63°18'49.15519"	W 168°57'44.78551"	RTK	0.04	0.04	8/15/2022 15:05	24
11550	Water Edge	WTRED	3404677.35	1811040.97	49.81	63.31366137	-168.96242108	N 63°18'49.18093"	W 168°57'44.71588"	RTK	0.04	0.05	8/15/2022 15:05	24
11551	Water Edge	WTRED	3404676.64	1811037.30	49.62	63.31365959	-168.96244347	N 63°18'49.17452"	W 168°57'44.79649"	RTK	0.04	0.04	8/15/2022 15:05	23
11552	Water Edge	WTRED	3404680.74	1811033.87	49.50	63.31367097	-168.96246396	N 63°18'49.21549"	W 168°57'44.87025"	RTK	0.04	0.05	8/15/2022 15:06	25
11553	Water Edge	WTRED	3404682.71	1811035.46	49.58	63.31367628	-168.96245405	N 63°18'49.2346"	W 168°57'44.83457"	RTK	0.06	0.05	8/15/2022 15:06	24
11554	Water Edge	WTRED	3404686.74	1811033.77	49.31	63.31368737	-168.96246395	N 63°18'49.27453"	W 168°57'44.87022"	RTK	0.04	0.05	8/15/2022 15:06	24
11555	Water Edge	WTRED	3404686.69	1811030.92	49.46	63.31368735	-168.96248126	N 63°18'49.27446"	W 168°57'44.93253"	RTK	0.05	0.05	8/15/2022 15:06	25
11556	Water Edge	WTRED	3404693.17	1811033.15	49.42	63.31370497	-168.96246710	N 63°18'49.33789"	W 168°57'44.88155"	RTK	0.04	0.04	8/15/2022 15:06	25
11557	Water Edge	WTRED	3404691.81	1811036.89	49.30	63.31370110	-168.96244448	N 63°18'49.32396"	W 168°57'44.80012"	RTK	0.04	0.05	8/15/2022 15:06	25
11558	Water Edge	WTRED	3404701.07	1811036.19	49.08	63.31372643	-168.96244783	N 63°18'49.41514"	W 168°57'44.81218"	RTK	0.03	0.04	8/15/2022 15:06	25
11559	Water Edge	WTRED	3404701.10	1811034.21	49.14	63.31372660	-168.96245989	N 63°18'49.41576"	W 168°57'44.8556"	RTK	0.04	0.05	8/15/2022 15:06	25
11560	Water Edge	WTRED	3404706.97	1811033.03	48.57	63.31374271	-168.96246644	N 63°18'49.47375"	W 168°57'44.87918"	RTK	0.04	0.04	8/15/2022 15:06	24
11561	Water Edge	WTRED	3404707.91	1811035.48	48.54	63.31374517	-168.96245149	N 63°18'49.48261"	W 168°57'44.82536"	RTK	0.03	0.04	8/15/2022 15:06	24
11562	Water Edge	WTRED	3404717.12	1811032.13	48.44	63.31377049	-168.96247095	N 63°18'49.57376"	W 168°57'44.89542"	RTK	0.04	0.05	8/15/2022 15:07	24
11563	Water Edge	WTRED	3404710.96	1811026.07	48.42	63.31375394	-168.96250841	N 63°18'49.51418"	W 168°57'45.03027"	RTK	0.08	0.06	8/15/2022 15:07	23
11564	Water Edge	WTRED	3404722.72	1811021.92	48.35	63.31378627	-168.96253245	N 63°18'49.63057"	W 168°57'45.11681"	RTK	0.04	0.05	8/15/2022 15:07	24
11565	Water Edge	WTRED	3404726.24	1811026.76	48.25	63.31379567	-168.96250268	N 63°18'49.66441"	W 168°57'45.00964"	RTK	0.04	0.05	8/15/2022 15:07	24
11566	Water Edge	WTRED	3404736.11	1811023.85	47.74	63.31382279	-168.96251939	N 63°18'49.76204"	W 168°57'45.0698"	RTK	0.04	0.04	8/15/2022 15:07	23
11567	Water Edge	WTRED	3404734.35	1811019.84	47.88	63.31381817	-168.96254397	N 63°18'49.74541"	W 168°57'45.15829"	RTK	0.03	0.04	8/15/2022 15:07	24
12292	Water Edge	WTRED	3404247.64	1810921.58	59.47	63.31249169	-168.96318927	N 63°18'44.97008"	W 168°57'47.48137"	RTK	0.04	0.06	8/16/2022 17:01	24
12293	Water Edge	WTRED	3404246.10	1810917.00	59.43	63.31248771	-168.96321726	N 63°18'44.95575"	W 168°57'47.58213"	RTK	0.04	0.07	8/16/2022 17:01	24
12294	Water Edge	WTRED	3404237.17	1810913.64	59.41	63.31246343	-168.96323852	N 63°18'44.86834"	W 168°57'47.65867"	RTK	0.04	0.06	8/16/2022 17:01	24
12295	Water Edge	WTRED	3404230.58	1810911.99	59.40	63.31244548	-168.96324923	N 63°18'44.80372"	W 168°57'47.69722"	RTK	0.04	0.06	8/16/2022 17:01	24
12296	Water Edge	WTRED	3404225.72	1810914.08	59.30	63.31243210	-168.96323697	N 63°18'44.75556"	W 168°57'47.65309"	RTK	0.04	0.06	8/16/2022 17:01	24
12297	Water Edge	WTRED	3404221.32	1810919.97	59.13	63.31241982	-168.96320164	N 63°18'44.71135"	W 168°57'47.5259"	RTK	0.03	0.06	8/16/2022 17:02	24
12298	Water Edge	WTRED	3404221.81	1810928.83	58.90	63.31242076	-168.96314769	N 63°18'44.71473"	W 168°57'47.33168"	RTK	0.04	0.06	8/16/2022 17:02	23
12299	Water Edge	WTRED	3404225.35	1810938.01	58.74	63.31243004	-168.96309152	N 63°18'44.74814"	W 168°57'47.12947"	RTK	0.04	0.06	8/16/2022 17:02	23
12300	Water Edge	WTRED	3404227.83	1810949.74	59.05	63.31243629	-168.96302000	N 63°18'44.77064"	W 168°57'46.872"	RTK	0.04	0.07	8/16/2022 17:02	23
12301	Water Edge	WTRED	3404228.36	1810959.87	58.57	63.31243729	-168.96295835	N 63°18'44.77424"	W 168°57'46.65006"	RTK	0.04	0.06	8/16/2022 17:03	23
12302	Water Edge	WTRED	3404231.18	1810968.31	59.07	63.31244464	-168.96290676	N 63°18'44.8007"	W 168°57'46.46433"	RTK	0.04	0.06	8/16/2022 17:03	23
12303	Water Edge	WTRED	3404240.90	1810968.97	59.25	63.31247118	-168.96290177	N 63°18'44.89624"	W 168°57'46.44637"	RTK	0.04	0.06	8/16/2022 17:03	23
12304	Water Edge	WTRED	3404247.99	1810968.63	59.13	63.31249057	-168.96290316	N 63°18'44.96605"	W 168°57'46.45137"	RTK	0.04	0.06	8/16/2022 17:03	23
12305	Water Edge	WTRED	3404248.37	1810962.65	58.91	63.31249187	-168.96293945	N 63°18'44.97073"	W 168°57'46.58201"	RTK	0.03	0.05	8/16/2022 17:03	24
12306	Water Edge	WTRED	3404243.74	1810959.11	58.80	63.31247937	-168.96296146	N 63°18'44.92573"	W 168°57'46.66125"	RTK	0.04	0.06	8/16/2022 17:03	24
12307	Water Edge	WTRED	3404240.88	1810949.62	58.73	63.31247197	-168.96301943	N 63°18'44.89909"	W 168°57'46.86994"	RTK	0.04	0.06	8/16/2022 17:03	23
12308	Water Edge	WTRED	3404245.86	1810947.86	58.95	63.31248569	-168.96302964	N 63°18'44.94848"	W 168°57'46.9067"	RTK	0.04	0.06	8/16/2022 17:03	24
12309	Water Edge	WTRED	3404242.52	1810939.66	58.83	63.31247690	-168.96307984	N 63°18'44.91684"	W 168°57'47.08742"	RTK	0.04	0.06	8/16/2022 17:04	24
12310	Water Edge	WTRED	3404245.28	1810932.87	59.06	63.31248475	-168.96312086	N 63°18'44.9451"	W 168°57'47.23509"	RTK	0.04	0.06	8/16/2022 17:04	23
12311	Water Edge	WTRED	3404247.27	1810924.81	59.24	63.31249055	-168.96316962	N 63°18'44.96597"	W 168°57'47.41063"	RTK	0.04	0.06	8/16/2022 17:04	24
12377	Water Edge	WTRED	3404056.87	1810720.53	63.85	63.31197896	-168.96443028	N 63°18'43.12425"	W 168°57'51.949"	RTK	0.03	0.05	8/17/2022 18:32	25
12378	Water Edge	WTRED	3404056.77	1810725.16	63.87	63.31197850	-168.96440217	N 63°18'43.1226"	W 168°57'51.84781"	RTK	0.04	0.06	8/17/2022 18:32	25
12379	Water Edge	WTRED	3404058.81	1810730.02	63.86	63.31198385	-168.96437243	N 63°18'43.14185"	W 168°57'51.74074"	RTK	0.04	0.06	8/17/2022 18:32	25
12380	Water Edge	WTRED	3404063.18	1810731.99	63.81	63.31199572	-168.96436001	N 63°18'43.18459"	W 168°57'51.69603"	RTK	0.04	0.05	8/17/2022 18:32	25
12381	Water Edge	WTRED	3404067.15	1810731.45	63.84	63.31200659	-168.96436293	N 63°18'43.22372"	W 168°57'51.70654"	RTK	0.05	0.05	8/17/2022 18:32	25
12382	Water Edge	WTRED	3404070.79	1810730.16	63.87	63.31201661	-168.96437037	N 63°18'43.25979"	W 168°57'51.73333"	RTK	0.04	0.06	8/17/2022 18:32	25
12383	Water Edge	WTRED	3404073.06	1810728.32	63.84	63.31202289	-168.96438135	N 63°18'43.2824"	W 168°57'51.77285"	RTK	0.04	0.04	8/17/2022 18:33	25
12384	Water Edge	WTRED	3404079.92	1810728.40	63.86	63.31204165	-168.96438018	N 63°18'43.34993"	W 168°57'51.76864"	RTK	0.04	0.05	8/17/2022 18:33	25
12385	Water Edge	WTRED	3404083.73	1810725.07	63.68	63.31205221	-168.96440008	N 63°18'43.38795"	W 168°57'51.84028"	RTK	0.04	0.05	8/17/2022 18:33	25
12386	Water Edge	WTRED	3404086.63	1810723.59	63.74	63.31206019	-168.96440877	N 63°18'43.41668"	W 168°57'51.87157"	RTK	0.03	0.04	8/17/2022 18:33	25
12387	Water Edge	WTRED	3404089.32	1810719.10	63.82	63.31206777	-168.96443583	N 63°18'43.44397"	W 168°57'51.96898"	RTK	0.04	0.06	8/17/2022 18:33	25
12388	Water Edge	WTRED	3404086.33	1810715.72	63.73	63.31205975	-168.96445667	N 63°18'43.4151"	W 168°57'52.04401"	RTK	0.04	0.04	8/17/2022 18:33	25
12389	Water Edge	WTRED	3404077.00	1810717.01	63.75	63.31203416	-168.96444975	N 63°18'43.32297"	W 168°57'52.0191"	RTK	0.04	0.05	8/17/2022 18:33	25
12390	Water Edge	WTRED	3404069.62	1810719.23	63.73	63.31201390	-168.96443696	N 63°18'43.25003"	W 168°57'51.97305"	RTK	0.03	0.04	8/17/2022 18:33	25
12391	Water Edge	WTRED	3404063.23	1810719.11	63.78	63.31199643	-168.96443829	N 63°18'43.18714"	W 168°57'51.97784"	RTK	0.04	0.05	8/17/2022 18:33	25

12392	Water Edge	WTRED	3404059.14	1810718.94	63.78	63.31198526	-168.96443975	N 63°18'43.14693"	W 168°57'51.98309"	RTK	0.04	0.05	8/17/2022 18:33	25

Northeast Cape
Runway Topo

Horizonal Datum: ***World Geographic System of 1984 (WGS84)***
Vertical Datum: ***North American Vertical Datum of 1988 (NAVD88)***
Projection: ***Alaska State Plane Zone 9 (based on NAD83[2011])***
Units: ***US Survey Feet***

Survey ID	Description	Code	Northing	Easting	Elevation	Latitude (DD)	Longitude (DD)	Latitude (DMS)	Longitude (DMS)	Survey Method	HRMS	VRMS	Date & Time	S/V's
12398	Runway Edge	RWED	3411415.67	1810921.23	29.86	63.33209111	-168.96248614	N 63°19'55.52799"	W 168°57'44.9501"	RTK	0.04	0.07	8/18/2022 15:12	23
12399	Runway Edge	RWED	3411482.35	1810824.82	30.02	63.33227769	-168.96306611	N 63°19'56.19968"	W 168°57'47.03799"	RTK	0.05	0.07	8/18/2022 15:12	24
12400	Gravel	GV	3411449.58	1810876.75	31.44	63.33218579	-168.96275342	N 63°19'55.86884"	W 168°57'45.91231"	RTK	0.04	0.08	8/18/2022 15:14	24
12401	Runway Edge	RWED	3408219.72	1808506.25	28.83	63.32345858	-168.97748879	N 63°19'24.45088"	W 168°58'38.95964"	RTK	0.04	0.07	8/18/2022 15:17	23
12402	Runway Edge	RWED	3408151.56	1808600.13	29.73	63.32326810	-168.97692444	N 63°19'23.76515"	W 168°58'36.92798"	RTK	0.04	0.06	8/18/2022 15:18	23
12403	Gravel	GV	3408186.21	1808556.95	31.16	63.32336473	-168.97718372	N 63°19'24.11302"	W 168°58'37.86139"	RTK	0.03	0.06	8/18/2022 15:19	22
12404	Gravel	GV	3408063.45	1808466.34	30.11	63.32303303	-168.97774673	N 63°19'22.9189"	W 168°58'39.88822"	RTK	0.04	0.07	8/18/2022 15:21	22
12405	Ground Shot	GS	3408077.65	1808446.19	29.34	63.32307272	-168.97786789	N 63°19'23.06179"	W 168°58'40.3244"	RTK	0.04	0.07	8/18/2022 15:21	22
12406	Ground Shot	GS	3408092.06	1808425.43	29.08	63.32311303	-168.97799272	N 63°19'23.2069"	W 168°58'40.77379"	RTK	0.04	0.07	8/18/2022 15:22	22
12407	Top of Slope	TOP	3408106.87	1808405.49	28.55	63.32315439	-168.97811261	N 63°19'23.3558"	W 168°58'41.20539"	RTK	0.04	0.07	8/18/2022 15:22	22
12408	Toe of Slope	TOE	3408112.05	1808397.82	27.13	63.32316888	-168.97815873	N 63°19'23.40796"	W 168°58'41.37142"	RTK	0.04	0.07	8/18/2022 15:22	22
12409	Top of Slope	TOP	3408115.29	1808393.22	27.67	63.32317796	-168.97818637	N 63°19'23.44065"	W 168°58'41.47093"	RTK	0.04	0.07	8/18/2022 15:23	22
12410	Top of Slope	TOP	3408119.05	1808387.76	27.36	63.32318846	-168.97821922	N 63°19'23.47845"	W 168°58'41.58919"	RTK	0.04	0.07	8/18/2022 15:23	22
12411	Toe of Slope	TOE	3408125.12	1808379.58	26.10	63.32320542	-168.97826842	N 63°19'23.53951"	W 168°58'41.76631"	RTK	0.04	0.07	8/18/2022 15:23	22
12412	Gravel	GV	3408048.81	1808486.73	30.53	63.32299208	-168.97762412	N 63°19'22.77148"	W 168°58'39.44683"	RTK	0.04	0.07	8/18/2022 15:24	22
12413	Gravel	GV	3408034.46	1808507.09	30.07	63.32295197	-168.97750167	N 63°19'22.62709"	W 168°58'39.00601"	RTK	0.04	0.07	8/18/2022 15:24	22
12414	Gravel	GV	3408024.57	1808521.20	28.76	63.32292432	-168.97741684	N 63°19'22.52755"	W 168°58'38.70062"	RTK	0.04	0.07	8/18/2022 15:24	22
12415	Top of Slope	TOP	3408019.98	1808527.25	27.91	63.32291151	-168.97738044	N 63°19'22.48143"	W 168°58'38.56958"	RTK	0.04	0.07	8/18/2022 15:24	22
12416	Toe of Slope	TOE	3408011.93	1808538.50	23.64	63.32288899	-168.97731283	N 63°19'22.40036"	W 168°58'38.32618"	RTK	0.04	0.07	8/18/2022 15:25	22
12417	Toe of Slope	TOE	3408091.64	1808599.46	22.61	63.32310430	-168.97693434	N 63°19'23.17547"	W 168°58'36.96362"	RTK	0.04	0.08	8/18/2022 15:26	21
12418	Breakline	BRK	3408098.11	1808590.00	26.09	63.32312240	-168.97699121	N 63°19'23.24064"	W 168°58'37.16835"	RTK	0.04	0.08	8/18/2022 15:26	21
12419	Top of Slope	TOP	3408102.43	1808584.02	28.13	63.32313446	-168.97702719	N 63°19'23.28405"	W 168°58'37.29788"	RTK	0.04	0.08	8/18/2022 15:26	21
12420	Gravel	GV	3408108.34	1808575.48	29.53	63.32315099	-168.97707857	N 63°19'23.34356"	W 168°58'37.48285"	RTK	0.04	0.08	8/18/2022 15:26	21
12421	Gravel	GV	3408115.95	1808565.24	29.99	63.32317226	-168.97714011	N 63°19'23.42013"	W 168°58'37.70439"	RTK	0.04	0.08	8/18/2022 15:27	21
12422	Gravel	GV	3408130.32	1808544.37	30.60	63.32321245	-168.97726562	N 63°19'23.56481"	W 168°58'38.15623"	RTK	0.04	0.08	8/18/2022 15:27	21
12423	Gravel	GV	3408144.75	1808524.13	30.73	63.32325280	-168.97738733	N 63°19'23.71007"	W 168°58'38.59438"	RTK	0.04	0.08	8/18/2022 15:27	21
12424	Gravel	GV	3408159.22	1808503.89	29.84	63.32329324	-168.97750905	N 63°19'23.85566"	W 168°58'39.03258"	RTK	0.04	0.08	8/18/2022 15:27	21
12425	Gravel	GV	3408174.27	1808483.52	29.31	63.32333527	-168.97763149	N 63°19'24.00697"	W 168°58'39.47336"	RTK	0.04	0.08	8/18/2022 15:28	21
12426	Top of Slope	TOP	3408185.99	1808466.39	27.93	63.32336808	-168.97773452	N 63°19'24.12508"	W 168°58'39.84427"	RTK	0.04	0.08	8/18/2022 15:28	21
12427	Top of Slope	TOP	3408194.61	1808454.44	26.74	63.32339215	-168.97780638	N 63°19'24.21173"	W 168°58'40.10296"	RTK	0.04	0.08	8/18/2022 15:28	21
12428	Toe of Slope	TOE	3408198.58	1808448.84	25.45	63.32340327	-168.97784005	N 63°19'24.25177"	W 168°58'40.22417"	RTK	0.04	0.08	8/18/2022 15:28	21
12429	Toe of Slope	TOE	3408284.28	1808500.82	25.78	63.32363532	-168.97751556	N 63°19'25.08715"	W 168°58'39.05601"	RTK	0.03	0.06	8/18/2022 15:30	21
12430	Top of Slope	TOP	3408278.83	1808508.40	27.45	63.32362009	-168.97747001	N 63°19'25.03232"	W 168°58'38.89203"	RTK	0.03	0.06	8/18/2022 15:31	21
12431	Top of Slope	TOP	3408271.85	1808518.33	28.35	63.32360058	-168.97741031	N 63°19'24.96208"	W 168°58'38.67711"	RTK	0.04	0.07	8/18/2022 15:31	21
12432	Toe of Slope	TOE	3408268.35	1808523.26	28.24	63.32359080	-168.97738062	N 63°19'24.92687"	W 168°58'38.57023"	RTK	0.03	0.06	8/18/2022 15:31	21
12433	Top of Slope	TOP	3408263.85	1808529.60	29.20	63.32357821	-168.97734251	N 63°19'24.88155"	W 168°58'38.43303"	RTK	0.03	0.06	8/18/2022 15:31	21
12434	Gravel	GV	3408255.31	1808541.37	29.82	63.32355436	-168.97727173	N 63°19'24.79569"	W 168°58'38.17822"	RTK	0.03	0.06	8/18/2022 15:31	21
12435	Gravel	GV	3408240.90	1808561.80	30.76	63.32351406	-168.97714893	N 63°19'24.65061"	W 168°58'37.73614"	RTK	0.04	0.06	8/18/2022 15:32	21
12436	Gravel	GV	3408226.52	1808582.14	31.46	63.32347383	-168.97702661	N 63°19'24.50578"	W 168°58'37.29579"	RTK	0.04	0.06	8/18/2022 15:32	21
12437	Gravel	GV	3408211.96	1808602.52	31.16	63.32343314	-168.97690405	N 63°19'24.3593"	W 168°58'36.85458"	RTK	0.04	0.06	8/18/2022 15:32	21
12438	Gravel	GV	3408197.39	1808622.92	30.35	63.32339241	-168.97678136	N 63°19'24.21267"	W 168°58'36.41289"	RTK	0.04	0.06	8/18/2022 15:33	21
12439	Top of Slope	TOP	3408184.62	1808641.11	28.56	63.32335671	-168.97667197	N 63°19'24.08415"	W 168°58'36.01909"	RTK	0.04	0.07	8/18/2022 15:33	21
12440	Top of Slope	TOP	3408179.01	1808648.84	26.69	63.32334103	-168.97662550	N 63°19'24.0277"	W 168°58'35.8518"	RTK	0.04	0.07	8/18/2022 15:33	21
12441	Toe of Slope	TOE	3408175.04	1808654.34	24.25	63.32332994	-168.97659244	N 63°19'23.98778"	W 168°58'35.73278"	RTK	0.04	0.07	8/18/2022 15:33	21
12442	Toe of Slope	TOE	3408258.24	1808709.98	24.87	63.32355499	-168.97624595	N 63°19'24.79796"	W 168°58'34.48541"	RTK	0.04	0.07	8/18/2022 15:34	21
12443	Top of Slope	TOP	3408264.95	1808700.38	28.64	63.32357375	-168.97630369	N 63°19'24.8655"	W 168°58'34.69328"	RTK	0.04	0.07	8/18/2022 15:34	21

12444	Gravel	GV	3408279.04	1808680.93	31.09	63.32361315	-168.97642060	N 63°19'25.00733"	W 168°58'35.11416"	RTK	0.04	0.07	8/18/2022 15:34	21
12445	Gravel	GV	3408293.39	1808660.38	32.08	63.32365328	-168.97654425	N 63°19'25.1518"	W 168°58'35.55929"	RTK	0.04	0.07	8/18/2022 15:35	21
12446	Gravel	GV	3408307.92	1808640.08	32.26	63.32369389	-168.97666627	N 63°19'25.298"	W 168°58'35.99857"	RTK	0.04	0.07	8/18/2022 15:35	21
12447	Gravel	GV	3408322.36	1808619.61	31.38	63.32373426	-168.97678936	N 63°19'25.44333"	W 168°58'36.44169"	RTK	0.04	0.07	8/18/2022 15:35	21
12448	Gravel	GV	3408336.78	1808599.48	29.98	63.32377458	-168.97691042	N 63°19'25.58848"	W 168°58'36.87751"	RTK	0.04	0.07	8/18/2022 15:35	21
12449	Gravel	GV	3408347.22	1808585.01	28.12	63.32380375	-168.97699743	N 63°19'25.6935"	W 168°58'37.19074"	RTK	0.04	0.08	8/18/2022 15:36	21
12450	Top of Slope	TOP	3408350.97	1808579.55	28.88	63.32381425	-168.97703028	N 63°19'25.73129"	W 168°58'37.309"	RTK	0.04	0.08	8/18/2022 15:36	21
12451	Toe of Slope	TOE	3408354.63	1808574.52	27.84	63.32382447	-168.97706050	N 63°19'25.76809"	W 168°58'37.41779"	RTK	0.04	0.08	8/18/2022 15:36	21
12452	Top of Slope	TOP	3408361.74	1808564.17	27.34	63.32384437	-168.97712277	N 63°19'25.83973"	W 168°58'37.64197"	RTK	0.04	0.08	8/18/2022 15:36	21
12453	Toe of Slope	TOE	3408367.02	1808556.96	26.35	63.32385911	-168.97716609	N 63°19'25.89279"	W 168°58'37.79792"	RTK	0.04	0.08	8/18/2022 15:36	21
12454	Toe of Slope	TOE	3408450.55	1808612.13	26.41	63.32408510	-168.97682244	N 63°19'26.70635"	W 168°58'36.56078"	RTK	0.04	0.08	8/18/2022 15:37	22
12455	Top of Slope	TOP	3408441.85	1808624.23	29.04	63.32406079	-168.97674971	N 63°19'26.61884"	W 168°58'36.29895"	RTK	0.04	0.07	8/18/2022 15:37	22
12456	Ground Shot	GS	3408435.20	1808633.62	29.45	63.32404221	-168.97669321	N 63°19'26.55195"	W 168°58'36.09555"	RTK	0.04	0.07	8/18/2022 15:37	22
12457	Gravel	GV	3408430.13	1808640.79	29.17	63.32402803	-168.97665012	N 63°19'26.5009"	W 168°58'35.94043"	RTK	0.04	0.07	8/18/2022 15:38	22
12458	Gravel	GV	3408418.29	1808657.34	30.99	63.32399493	-168.97655060	N 63°19'26.38174"	W 168°58'35.58215"	RTK	0.04	0.07	8/18/2022 15:38	22
12459	Gravel	GV	3408403.96	1808677.66	32.03	63.32395484	-168.97642838	N 63°19'26.23742"	W 168°58'35.14216"	RTK	0.04	0.07	8/18/2022 15:38	22
12460	Gravel	GV	3408389.39	1808698.06	32.64	63.32391413	-168.97630571	N 63°19'26.09086"	W 168°58'34.70055"	RTK	0.04	0.07	8/18/2022 15:38	22
12461	Gravel	GV	3408374.92	1808718.51	32.07	63.32387366	-168.97618272	N 63°19'25.94517"	W 168°58'34.25779"	RTK	0.04	0.07	8/18/2022 15:39	22
12462	Gravel	GV	3408360.42	1808738.77	31.44	63.32383315	-168.97606092	N 63°19'25.79933"	W 168°58'33.81931"	RTK	0.04	0.07	8/18/2022 15:39	22
12463	Gravel	GV	3408349.61	1808753.80	30.12	63.32380293	-168.97597060	N 63°19'25.69054"	W 168°58'33.49416"	RTK	0.04	0.08	8/18/2022 15:39	22
12464	Top of Slope	TOP	3408345.84	1808759.52	28.99	63.32379237	-168.97593613	N 63°19'25.65253"	W 168°58'33.37006"	RTK	0.04	0.08	8/18/2022 15:39	22
12465	Toe of Slope	TOE	3408339.08	1808768.86	24.91	63.32377348	-168.97587999	N 63°19'25.58452"	W 168°58'33.16796"	RTK	0.04	0.08	8/18/2022 15:39	22
12466	Toe of Slope	TOE	3408419.55	1808828.23	25.71	63.32399090	-168.97551105	N 63°19'26.36723"	W 168°58'31.83977"	RTK	0.04	0.08	8/18/2022 15:40	22
12467	Top of Slope	TOP	3408425.44	1808820.19	29.53	63.32400736	-168.97555941	N 63°19'26.42649"	W 168°58'32.01387"	RTK	0.04	0.07	8/18/2022 15:40	22
12468	Gravel	GV	3408430.59	1808812.51	31.13	63.32402179	-168.97560561	N 63°19'26.47844"	W 168°58'32.18019"	RTK	0.04	0.08	8/18/2022 15:40	21
12469	Gravel	GV	3408441.89	1808796.74	31.61	63.32405336	-168.97570044	N 63°19'26.59209"	W 168°58'32.52158"	RTK	0.04	0.08	8/18/2022 15:41	21
12470	Gravel	GV	3408456.30	1808776.12	31.99	63.32409365	-168.97582446	N 63°19'26.73714"	W 168°58'32.96805"	RTK	0.04	0.08	8/18/2022 15:41	21
12471	Gravel	GV	3408470.89	1808755.90	32.46	63.32413445	-168.97594599	N 63°19'26.88402"	W 168°58'33.40556"	RTK	0.04	0.08	8/18/2022 15:41	20
12472	Gravel	GV	3408485.29	1808735.55	31.73	63.32417470	-168.97606841	N 63°19'27.02892"	W 168°58'33.84627"	RTK	0.04	0.09	8/18/2022 15:42	21
12473	Gravel	GV	3408499.96	1808715.24	31.38	63.32421570	-168.97619051	N 63°19'27.17652"	W 168°58'34.28583"	RTK	0.04	0.08	8/18/2022 15:42	21
12474	Top of Slope	TOP	3408512.69	1808697.12	30.27	63.32425130	-168.97629946	N 63°19'27.30468"	W 168°58'34.67805"	RTK	0.04	0.08	8/18/2022 15:42	21
12475	Toe of Slope	TOE	3408517.06	1808691.05	29.16	63.32426351	-168.97633597	N 63°19'27.34863"	W 168°58'34.80949"	RTK	0.04	0.08	8/18/2022 15:42	21
12476	Top of Slope	TOP	3408521.39	1808684.91	29.33	63.32427563	-168.97637289	N 63°19'27.39226"	W 168°58'34.9424"	RTK	0.04	0.08	8/18/2022 15:43	21
12477	Toe of Slope	TOE	3408528.73	1808674.66	26.73	63.32429613	-168.97643452	N 63°19'27.46606"	W 168°58'35.16427"	RTK	0.04	0.08	8/18/2022 15:43	21
12478	Toe of Slope	TOE	3408610.16	1808732.71	28.21	63.32451625	-168.97607351	N 63°19'28.2585"	W 168°58'33.86463"	RTK	0.05	0.07	8/18/2022 15:43	21
12479	Top of Slope	TOP	3408602.07	1808744.02	29.21	63.32449365	-168.97600554	N 63°19'28.17714"	W 168°58'33.61994"	RTK	0.04	0.07	8/18/2022 15:43	21
12480	Toe of Slope	TOE	3408599.35	1808748.14	28.74	63.32448604	-168.97598071	N 63°19'28.14974"	W 168°58'33.53055"	RTK	0.04	0.07	8/18/2022 15:44	21
12481	Top of Slope	TOP	3408594.35	1808754.95	30.01	63.32447205	-168.97593979	N 63°19'28.09937"	W 168°58'33.38324"	RTK	0.04	0.07	8/18/2022 15:44	21
12482	Gravel	GV	3408581.40	1808773.08	31.77	63.32443584	-168.97583077	N 63°19'27.96902"	W 168°58'32.99077"	RTK	0.04	0.07	8/18/2022 15:44	21
12483	Gravel	GV	3408566.99	1808793.45	32.17	63.32439557	-168.97570827	N 63°19'27.82405"	W 168°58'32.54977"	RTK	0.04	0.08	8/18/2022 15:44	21
12484	Gravel	GV	3408552.39	1808813.88	32.65	63.32435475	-168.97558545	N 63°19'27.67709"	W 168°58'32.10762"	RTK	0.04	0.08	8/18/2022 15:45	21
12485	Gravel	GV	3408537.97	1808834.32	32.33	63.32431442	-168.97546252	N 63°19'27.53191"	W 168°58'31.66507"	RTK	0.04	0.08	8/18/2022 15:45	21
12486	Gravel	GV	3408523.45	1808854.64	31.57	63.32427384	-168.97534035	N 63°19'27.38582"	W 168°58'31.22526"	RTK	0.04	0.07	8/18/2022 15:45	21
12487	Top of Slope	TOP	3408509.36	1808874.19	30.60	63.32423446	-168.97522283	N 63°19'27.24405"	W 168°58'30.80218"	RTK	0.04	0.07	8/18/2022 15:46	21
12488	Toe of Slope	TOE	3408503.74	1808882.24	27.94	63.32421874	-168.97517441	N 63°19'27.18746"	W 168°58'30.62787"	RTK	0.04	0.07	8/18/2022 15:46	21
12489	Ground Shot	GS	3408500.06	1808887.39	27.00	63.32420844	-168.97514343	N 63°19'27.15038"	W 168°58'30.51634"	RTK	0.04	0.07	8/18/2022 15:46	21
12490	Ground Shot	GS	3408582.21	1808944.71	27.39	63.32443058	-168.97478679	N 63°19'27.95008"	W 168°58'29.23244"	RTK	0.04	0.07	8/18/2022 15:47	21
12491	Toe of Slope	TOE	3408585.05	1808940.68	27.66	63.32443851	-168.97481106	N 63°19'27.97863"	W 168°58'29.31981"	RTK	0.04	0.07	8/18/2022 15:47	21
12492	Top of Slope	TOP	3408591.18	1808931.95	29.93	63.32445565	-168.97486356	N 63°19'28.04033"	W 168°58'29.50881"	RTK	0.04	0.07	8/18/2022 15:47	21
12493	Gravel	GV	3408604.97	1808912.64	32.18	63.32449422	-168.97497965	N 63°19'28.17919"	W 168°58'29.92673"	RTK	0.04	0.07	8/18/2022 15:47	22
12494	Gravel	GV	3408619.55	1808892.24	33.00	63.32453497	-168.97510233	N 63°19'28.32589"	W 168°58'30.36838"	RTK	0.04	0.08	8/18/2022 15:48	22
12495	Gravel	GV	3408633.94	1808871.89	32.98	63.32457519	-168.97522470	N 63°19'28.47068"	W 168°58'30.80892"	RTK	0.04	0.08	8/18/2022 15:48	22
12496	Gravel	GV	3408648.52	1808851.52	32.81	63.32461595	-168.97534718	N 63°19'28.61742"	W 168°58'31.24984"	RTK	0.04	0.08	8/18/2022 15:48	22
12497	Gravel	GV	3408662.91	1808831.14	32.38	63.32465619	-168.97546974	N 63°19'28.76228"	W 168°58'31.69106"	RTK	0.04	0.08	8/18/2022 15:48	22
12498	Gravel	GV	3408673.64	1808815.91	30.58	63.32468619	-168.97556133	N 63°19'28.87028"	W 168°58'32.02078"	RTK	0.04	0.08	8/18/2022 15:49	22
12499	Top of Slope	TOP	3408675.71	1808813.10	30.33	63.32469199	-168.97557820	N 63°19'28.89116"	W 168°58'32.08152"	RTK	0.04	0.08	8/18/2022 15:49	22

12500	Toe of Slope	TOE	3408678.72	1808808.97	29.50	63.32470039	-168.97560302	N 63°19'28.9214"	W 168°58'32.17087"	RTK	0.04	0.08	8/18/2022 15:49	22
12501	Ground Shot	GS	3408687.45	1808796.68	28.75	63.32472480	-168.97567692	N 63°19'29.00927"	W 168°58'32.43691"	RTK	0.04	0.08	8/18/2022 15:49	22
12502	Ground Shot	GS	3408605.83	1808962.12	27.31	63.32449439	-168.97467861	N 63°19'28.1798"	W 168°58'28.84299"	RTK	0.03	0.04	8/18/2022 15:58	24
12503	Toe of Slope	TOE	3408608.40	1808958.89	28.20	63.32450158	-168.97469801	N 63°19'28.20568"	W 168°58'28.91283"	RTK	0.03	0.05	8/18/2022 15:58	24
12504	Top of Slope	TOP	3408614.90	1808950.74	31.45	63.32451970	-168.97474696	N 63°19'28.27092"	W 168°58'29.08905"	RTK	0.03	0.04	8/18/2022 15:58	24
12505	Top of Slope	TOP	3408614.80	1808960.13	30.69	63.32451901	-168.97468984	N 63°19'28.26843"	W 168°58'28.88342"	RTK	0.03	0.04	8/18/2022 15:59	24
12506	Ground Shot	GS	3408611.31	1808964.80	29.89	63.32450926	-168.97466176	N 63°19'28.23333"	W 168°58'28.78233"	RTK	0.03	0.04	8/18/2022 15:59	24
12507	Ground Shot	GS	3408617.92	1808971.29	29.85	63.32452706	-168.97462169	N 63°19'28.29741"	W 168°58'28.63808"	RTK	0.03	0.04	8/18/2022 15:59	24
12508	Top of Slope	TOP	3408620.61	1808967.93	30.93	63.32453455	-168.97464185	N 63°19'28.32438"	W 168°58'28.71066"	RTK	0.03	0.05	8/18/2022 15:59	24
12509	Gravel	GV	3408624.54	1808962.61	31.68	63.32454554	-168.97467379	N 63°19'28.36394"	W 168°58'28.82564"	RTK	0.03	0.04	8/18/2022 15:59	24
12510	Gravel	GV	3408627.03	1808958.92	32.06	63.32455249	-168.97469604	N 63°19'28.38896"	W 168°58'28.90574"	RTK	0.03	0.04	8/18/2022 15:59	24
12511	Top of Slope	TOP	3408625.67	1808972.13	30.67	63.32454820	-168.97461582	N 63°19'28.37352"	W 168°58'28.61695"	RTK	0.03	0.04	8/18/2022 16:00	24
12512	Ground Shot	GS	3408624.02	1808975.86	29.29	63.32454353	-168.97459328	N 63°19'28.3567"	W 168°58'28.5358"	RTK	0.03	0.04	8/18/2022 16:00	24
12513	Toe of Slope	TOE	3408629.25	1808979.62	28.04	63.32455767	-168.97456990	N 63°19'28.40761"	W 168°58'28.45164"	RTK	0.03	0.04	8/18/2022 16:00	24
12514	Gravel	GV	3408633.15	1808973.69	30.01	63.32456859	-168.97460558	N 63°19'28.44692"	W 168°58'28.58008"	RTK	0.03	0.04	8/18/2022 16:00	24
12515	Top of Slope	TOP	3408637.40	1808966.52	31.33	63.32458051	-168.97464878	N 63°19'28.48983"	W 168°58'28.7356"	RTK	0.03	0.05	8/18/2022 16:00	24
12516	Ground Shot	GS	3408664.30	1809001.67	28.54	63.32465252	-168.97443237	N 63°19'28.74907"	W 168°58'27.95653"	RTK	0.03	0.05	8/18/2022 16:01	24
12517	Toe of Slope	TOE	3408666.27	1808999.00	28.64	63.32465803	-168.97444839	N 63°19'28.7689"	W 168°58'28.0142"	RTK	0.03	0.04	8/18/2022 16:01	24
12518	Top of Slope	TOP	3408670.49	1808993.18	30.25	63.32466983	-168.97448340	N 63°19'28.81138"	W 168°58'28.14023"	RTK	0.03	0.04	8/18/2022 16:01	24
12519	Gravel	GV	3408672.37	1808990.43	30.56	63.32467511	-168.97449995	N 63°19'28.83039"	W 168°58'28.19981"	RTK	0.03	0.04	8/18/2022 16:01	24
12520	Gravel	GV	3408686.52	1808970.52	32.03	63.32471466	-168.97461968	N 63°19'28.97277"	W 168°58'28.63084"	RTK	0.03	0.04	8/18/2022 16:02	24
12521	Gravel	GV	3408701.08	1808950.18	33.37	63.32475535	-168.97474194	N 63°19'29.11925"	W 168°58'29.07098"	RTK	0.03	0.04	8/18/2022 16:02	24
12522	Gravel	GV	3408715.33	1808929.84	33.77	63.32479520	-168.97486432	N 63°19'29.26271"	W 168°58'29.51155"	RTK	0.03	0.04	8/18/2022 16:02	24
12523	Gravel	GV	3408730.00	1808909.47	33.70	63.32483621	-168.97498679	N 63°19'29.41035"	W 168°58'29.95244"	RTK	0.03	0.04	8/18/2022 16:02	24
12524	Gravel	GV	3408744.48	1808889.02	32.97	63.32487669	-168.97510972	N 63°19'29.55608"	W 168°58'30.39499"	RTK	0.03	0.04	8/18/2022 16:03	24
12525	Gravel	GV	3408752.58	1808877.54	31.95	63.32489934	-168.97517881	N 63°19'29.63762"	W 168°58'30.64371"	RTK	0.03	0.04	8/18/2022 16:03	24
12526	Top of Slope	TOP	3408756.79	1808871.58	32.08	63.32491112	-168.97521462	N 63°19'29.68003"	W 168°58'30.77263"	RTK	0.03	0.04	8/18/2022 16:03	24
12527	Toe of Slope	TOE	3408760.05	1808866.91	30.29	63.32492024	-168.97524272	N 63°19'29.71286"	W 168°58'30.87379"	RTK	0.03	0.04	8/18/2022 16:03	24
12528	Top of Slope	TOP	3408767.54	1808856.32	29.64	63.32494118	-168.97530640	N 63°19'29.78824"	W 168°58'31.10303"	RTK	0.03	0.04	8/18/2022 16:03	24
12529	Toe of Slope	TOE	3408770.52	1808852.50	28.57	63.32494949	-168.97532937	N 63°19'29.81816"	W 168°58'31.18573"	RTK	0.03	0.04	8/18/2022 16:03	24
12530	Toe of Slope	TOE	3408854.59	1808906.55	27.91	63.32517701	-168.97499243	N 63°19'30.63723"	W 168°58'29.97274"	RTK	0.04	0.05	8/18/2022 16:04	24
12531	Top of Slope	TOP	3408851.85	1808910.53	28.82	63.32516935	-168.97496845	N 63°19'30.60966"	W 168°58'29.88642"	RTK	0.03	0.04	8/18/2022 16:04	24
12532	Toe of Slope	TOE	3408844.65	1808920.56	30.57	63.32514922	-168.97490816	N 63°19'30.53719"	W 168°58'29.66937"	RTK	0.03	0.04	8/18/2022 16:04	24
12533	Top of Slope	TOP	3408841.40	1808925.19	32.87	63.32514011	-168.97488031	N 63°19'30.50439"	W 168°58'29.56911"	RTK	0.03	0.05	8/18/2022 16:04	24
12534	Gravel	GV	3408825.84	1808947.03	34.25	63.32509663	-168.97474898	N 63°19'30.34786"	W 168°58'29.09632"	RTK	0.03	0.04	8/18/2022 16:05	24
12535	Gravel	GV	3408811.48	1808967.31	34.93	63.32505649	-168.97462705	N 63°19'30.20336"	W 168°58'28.65738"	RTK	0.03	0.04	8/18/2022 16:05	24
12536	Gravel	GV	3408796.89	1808987.77	34.67	63.32501569	-168.97450400	N 63°19'30.05648"	W 168°58'28.21439"	RTK	0.03	0.04	8/18/2022 16:05	24
12537	Gravel	GV	3408782.51	1809008.09	34.69	63.32497548	-168.97438179	N 63°19'29.91172"	W 168°58'27.77444"	RTK	0.03	0.04	8/18/2022 16:06	24
12538	Gravel	GV	3408767.87	1809028.64	33.95	63.32493455	-168.97425824	N 63°19'29.76438"	W 168°58'27.32966"	RTK	0.03	0.04	8/18/2022 16:06	24
12539	Gravel	GV	3408758.84	1809041.33	32.62	63.32490930	-168.97418195	N 63°19'29.67348"	W 168°58'27.05502"	RTK	0.03	0.05	8/18/2022 16:06	24
12540	Gravel	GV	3408753.47	1809048.71	32.32	63.32489429	-168.97413758	N 63°19'29.61944"	W 168°58'26.89528"	RTK	0.03	0.04	8/18/2022 16:06	24
12541	Top of Slope	TOP	3408750.65	1809052.81	31.60	63.32488639	-168.97411291	N 63°19'29.591"	W 168°58'26.80647"	RTK	0.03	0.04	8/18/2022 16:06	24
12542	Toe of Slope	TOE	3408747.07	1809057.90	28.80	63.32487640	-168.97408229	N 63°19'29.55504"	W 168°58'26.69624"	RTK	0.03	0.04	8/18/2022 16:06	24
12543	Ground Shot	GS	3408744.35	1809061.72	28.42	63.32486880	-168.97405933	N 63°19'29.52767"	W 168°58'26.61358"	RTK	0.03	0.04	8/18/2022 16:07	24
12544	Ground Shot	GS	3408824.38	1809121.71	27.29	63.32508499	-168.97368664	N 63°19'30.30596"	W 168°58'25.2719"	RTK	0.03	0.04	8/18/2022 16:07	25
12545	Toe of Slope	TOE	3408827.82	1809116.94	27.46	63.32509459	-168.97371532	N 63°19'30.34052"	W 168°58'25.37515"	RTK	0.03	0.05	8/18/2022 16:07	25
12546	Top of Slope	TOP	3408834.86	1809106.98	30.88	63.32511429	-168.97377520	N 63°19'30.41144"	W 168°58'25.59072"	RTK	0.03	0.05	8/18/2022 16:08	25
12547	Gravel	GV	3408849.44	1809086.31	33.76	63.32515505	-168.97389952	N 63°19'30.55817"	W 168°58'26.03827"	RTK	0.03	0.05	8/18/2022 16:08	25
12548	Gravel	GV	3408863.92	1809066.07	34.55	63.32519554	-168.97402126	N 63°19'30.70394"	W 168°58'26.47653"	RTK	0.03	0.05	8/18/2022 16:08	25
12549	Gravel	GV	3408878.39	1809045.67	34.98	63.32523599	-168.97414389	N 63°19'30.84956"	W 168°58'26.918"	RTK	0.03	0.05	8/18/2022 16:09	25
12550	Gravel	GV	3408892.85	1809025.26	35.07	63.32527642	-168.97426665	N 63°19'30.99511"	W 168°58'27.35994"	RTK	0.03	0.05	8/18/2022 16:09	24
12551	Gravel	GV	3408907.43	1809004.95	34.55	63.32531719	-168.97438874	N 63°19'31.14188"	W 168°58'27.79946"	RTK	0.03	0.05	8/18/2022 16:09	25
12552	Top of Slope	TOP	3408921.28	1808985.44	33.16	63.32535590	-168.97450606	N 63°19'31.28123"	W 168°58'28.22181"	RTK	0.03	0.04	8/18/2022 16:09	25
12553	Toe of Slope	TOE	3408927.67	1808976.13	30.05	63.32537378	-168.97456207	N 63°19'31.3456"	W 168°58'28.42345"	RTK	0.03	0.05	8/18/2022 16:10	25
12554	Top of Slope	TOP	3408931.81	1808970.53	29.19	63.32538535	-168.97459575	N 63°19'31.38725"	W 168°58'28.54469"	RTK	0.03	0.05	8/18/2022 16:10	25
12555	Toe of Slope	TOE	3408935.55	1808965.16	27.86	63.32539582	-168.97462807	N 63°19'31.42495"	W 168°58'28.66105"	RTK	0.04	0.05	8/18/2022 16:10	25

12556	Toe of Slope	TOE	3409019.29	1809020.18	28.04	63.32562238	-168.97428525	N 63°19'32.24056"	W 168°58'27.4269"	RTK	0.04	0.04	8/18/2022 16:11	25
12557	Top of Slope	TOP	3409014.90	1809026.37	28.86	63.32561011	-168.97424803	N 63°19'32.19639"	W 168°58'27.2929"	RTK	0.03	0.05	8/18/2022 16:11	25
12558	Toe of Slope	TOE	3409012.64	1809029.44	29.45	63.32560378	-168.97422955	N 63°19'32.1736"	W 168°58'27.22637"	RTK	0.03	0.04	8/18/2022 16:11	25
12559	Top of Slope	TOP	3409004.64	1809040.44	32.99	63.32558144	-168.97416341	N 63°19'32.09318"	W 168°58'26.98827"	RTK	0.03	0.05	8/18/2022 16:11	25
12560	Gravel	GV	3408997.78	1809050.43	34.52	63.32556225	-168.97410332	N 63°19'32.02409"	W 168°58'26.77195"	RTK	0.03	0.05	8/18/2022 16:12	25
12561	Gravel	GV	3408988.87	1809062.78	35.07	63.32553732	-168.97402908	N 63°19'31.93435"	W 168°58'26.50468"	RTK	0.03	0.05	8/18/2022 16:12	25
12562	Gravel	GV	3408974.47	1809083.14	35.13	63.32549706	-168.97390667	N 63°19'31.78941"	W 168°58'26.06401"	RTK	0.03	0.05	8/18/2022 16:12	25
12563	Gravel	GV	3408959.91	1809103.59	34.96	63.32545635	-168.97378368	N 63°19'31.64286"	W 168°58'25.62124"	RTK	0.03	0.05	8/18/2022 16:12	25
12564	Gravel	GV	3408945.33	1809123.94	34.83	63.32541562	-168.97366131	N 63°19'31.49623"	W 168°58'25.18071"	RTK	0.03	0.04	8/18/2022 16:12	25
12565	Gravel	GV	3408930.91	1809144.37	33.80	63.32537528	-168.97353844	N 63°19'31.351"	W 168°58'24.73838"	RTK	0.03	0.05	8/18/2022 16:13	25
12566	Gravel	GV	3408921.32	1809157.97	32.37	63.32534846	-168.97345668	N 63°19'31.25445"	W 168°58'24.44404"	RTK	0.03	0.05	8/18/2022 16:13	26
12567	Gravel	GV	3408900.43	1809143.42	32.24	63.32529199	-168.97354723	N 63°19'31.05116"	W 168°58'24.77002"	RTK	0.03	0.05	8/18/2022 16:13	26
12568	Top of Slope	TOP	3408894.51	1809151.56	30.92	63.32527544	-168.97349826	N 63°19'30.99158"	W 168°58'24.59373"	RTK	0.03	0.05	8/18/2022 16:13	26
12569	Gravel	GV	3408888.94	1809158.69	28.57	63.32525990	-168.97345542	N 63°19'30.93563"	W 168°58'24.43951"	RTK	0.03	0.05	8/18/2022 16:14	26
12570	Toe of Slope	TOE	3408884.93	1809164.43	26.95	63.32524868	-168.97342091	N 63°19'30.89524"	W 168°58'24.31527"	RTK	0.03	0.04	8/18/2022 16:14	26
12571	Toe of Slope	TOE	3408890.21	1809174.10	27.38	63.32526269	-168.97336160	N 63°19'30.94568"	W 168°58'24.10176"	RTK	0.03	0.05	8/18/2022 16:14	24
12572	Gravel	GV	3408896.85	1809166.11	28.80	63.32528120	-168.97340952	N 63°19'31.01231"	W 168°58'24.27427"	RTK	0.03	0.05	8/18/2022 16:14	26
12573	Top of Slope	TOP	3408902.15	1809159.78	31.14	63.32529597	-168.97344753	N 63°19'31.06549"	W 168°58'24.4111"	RTK	0.03	0.04	8/18/2022 16:14	26
12574	Top of Slope	TOP	3408908.61	1809165.35	30.78	63.32531339	-168.97341301	N 63°19'31.1282"	W 168°58'24.28683"	RTK	0.03	0.04	8/18/2022 16:14	26
12575	Gravel	GV	3408905.11	1809171.84	28.52	63.32530353	-168.97337390	N 63°19'31.0927"	W 168°58'24.14604"	RTK	0.03	0.04	8/18/2022 16:14	26
12576	Toe of Slope	TOE	3408900.76	1809178.56	26.86	63.32529134	-168.97333343	N 63°19'31.04882"	W 168°58'24.00034"	RTK	0.03	0.05	8/18/2022 16:15	26
12577	Toe of Slope	TOE	3408902.69	1809181.20	26.09	63.32529651	-168.97331718	N 63°19'31.06743"	W 168°58'23.94184"	RTK	0.03	0.05	8/18/2022 16:15	25
12578	Gravel	GV	3408907.00	1809176.41	27.54	63.32530849	-168.97334590	N 63°19'31.11056"	W 168°58'24.04523"	RTK	0.03	0.05	8/18/2022 16:15	26
12579	Gravel	GV	3408909.76	1809174.10	28.08	63.32531614	-168.97335966	N 63°19'31.1381"	W 168°58'24.09477"	RTK	0.03	0.05	8/18/2022 16:15	26
12580	Top of Slope	TOP	3408914.41	1809167.88	30.50	63.32532914	-168.97339706	N 63°19'31.1849"	W 168°58'24.22941"	RTK	0.03	0.04	8/18/2022 16:15	26
12581	Top of Slope	TOP	3408930.73	1809165.79	32.92	63.32537384	-168.97340820	N 63°19'31.34582"	W 168°58'24.26951"	RTK	0.03	0.05	8/18/2022 16:15	26
12582	Gravel	GV	3408923.21	1809177.52	30.39	63.32535277	-168.97333757	N 63°19'31.26997"	W 168°58'24.01525"	RTK	0.03	0.05	8/18/2022 16:16	26
12583	Toe of Slope	TOE	3408920.07	1809181.61	28.41	63.32534401	-168.97331298	N 63°19'31.23843"	W 168°58'23.92672"	RTK	0.03	0.05	8/18/2022 16:16	26
12584	Ground Shot	GS	3408912.87	1809193.07	27.72	63.32532383	-168.97324402	N 63°19'31.16578"	W 168°58'23.67847"	RTK	0.03	0.05	8/18/2022 16:16	25
12585	Ground Shot	GS	3408899.27	1809210.06	27.16	63.32528588	-168.97314201	N 63°19'31.02916"	W 168°58'23.31123"	RTK	0.03	0.05	8/18/2022 16:16	25
12586	Top of Slope	TOP	3408893.36	1809218.13	26.64	63.32526939	-168.97309348	N 63°19'30.9698"	W 168°58'23.13652"	RTK	0.03	0.05	8/18/2022 16:16	25
12587	Toe of Slope	TOE	3408885.31	1809228.44	24.36	63.32524691	-168.97303155	N 63°19'30.88887"	W 168°58'22.91358"	RTK	0.03	0.04	8/18/2022 16:17	25
12588	Toe of Slope	TOE	3408901.01	1809238.78	24.44	63.32528939	-168.97296709	N 63°19'31.0418"	W 168°58'22.68152"	RTK	0.04	0.05	8/18/2022 16:17	25
12589	Ground Shot	GS	3408905.47	1809232.07	24.92	63.32530188	-168.97300750	N 63°19'31.08676"	W 168°58'22.82699"	RTK	0.03	0.05	8/18/2022 16:17	26
12590	Top of Slope	TOP	3408911.21	1809223.83	27.37	63.32531794	-168.97305704	N 63°19'31.14458"	W 168°58'23.00534"	RTK	0.03	0.05	8/18/2022 16:17	26
12591	Ground Shot	GS	3408915.62	1809217.92	28.31	63.32533025	-168.97309258	N 63°19'31.1889"	W 168°58'23.13328"	RTK	0.03	0.05	8/18/2022 16:18	26
12592	Toe of Slope	TOE	3408923.92	1809189.89	28.93	63.32535419	-168.97326228	N 63°19'31.27508"	W 168°58'23.7442"	RTK	0.03	0.05	8/18/2022 16:18	26
12593	Top of Slope	TOP	3408937.65	1809183.25	33.09	63.32539201	-168.97330130	N 63°19'31.41123"	W 168°58'23.88468"	RTK	0.03	0.05	8/18/2022 16:20	25
12594	Gravel	GV	3408941.17	1809182.22	33.39	63.32540169	-168.97330720	N 63°19'31.44608"	W 168°58'23.90591"	RTK	0.03	0.04	8/18/2022 16:22	26
12595	Gravel	GV	3408957.23	1809193.80	33.87	63.32544509	-168.97323524	N 63°19'31.60232"	W 168°58'23.64686"	RTK	0.03	0.05	8/18/2022 16:22	26
12596	Gravel	GV	3408948.18	1809206.31	32.42	63.32541979	-168.97316001	N 63°19'31.51124"	W 168°58'23.37603"	RTK	0.03	0.04	8/18/2022 16:22	26
12597	Gravel	GV	3408942.71	1809214.07	32.01	63.32540451	-168.97311333	N 63°19'31.45623"	W 168°58'23.20798"	RTK	0.03	0.05	8/18/2022 16:22	26
12598	Top of Slope	TOP	3408935.46	1809199.83	31.77	63.32538529	-168.97320067	N 63°19'31.38704"	W 168°58'23.52241"	RTK	0.03	0.04	8/18/2022 16:23	26
12599	Toe of Slope	TOE	3408922.70	1809201.25	28.84	63.32535034	-168.97319325	N 63°19'31.26122"	W 168°58'23.4957"	RTK	0.03	0.05	8/18/2022 16:23	26
12600	Toe of Slope	TOE	3408923.38	1809220.62	28.32	63.32535136	-168.97307542	N 63°19'31.26489"	W 168°58'23.07151"	RTK	0.04	0.05	8/18/2022 16:23	26
12601	Top of Slope	TOP	3408918.89	1809225.74	28.24	63.32533884	-168.97304467	N 63°19'31.21982"	W 168°58'22.96081"	RTK	0.04	0.05	8/18/2022 16:23	26
12602	Toe of Slope	TOE	3408909.99	1809238.45	25.29	63.32531397	-168.97296825	N 63°19'31.13029"	W 168°58'22.6857"	RTK	0.03	0.04	8/18/2022 16:23	26
12603	Top of Slope	TOP	3408935.10	1809219.18	31.17	63.32538346	-168.97308304	N 63°19'31.38045"	W 168°58'23.09894"	RTK	0.04	0.07	8/18/2022 16:24	26
12604	Top of Slope	TOP	3408937.34	1809226.33	31.19	63.32538926	-168.97303929	N 63°19'31.40133"	W 168°58'22.94144"	RTK	0.04	0.06	8/18/2022 16:24	26
12605	Gravel	GV	3408930.53	1809235.51	28.81	63.32537024	-168.97298416	N 63°19'31.33286"	W 168°58'22.74297"	RTK	0.04	0.07	8/18/2022 16:24	26
12606	Top of Slope	TOP	3408928.20	1809239.02	28.16	63.32536373	-168.97296298	N 63°19'31.30942"	W 168°58'22.66672"	RTK	0.03	0.06	8/18/2022 16:24	26
12607	Toe of Slope	TOE	3408925.26	1809243.46	26.17	63.32535549	-168.97293627	N 63°19'31.27976"	W 168°58'22.57057"	RTK	0.04	0.06	8/18/2022 16:24	26
12608	Toe of Slope	TOE	3408941.06	1809259.67	24.75	63.32539798	-168.97283617	N 63°19'31.43272"	W 168°58'22.21021"	RTK	0.04	0.07	8/18/2022 16:24	26
12609	Gravel	GV	3408946.83	1809251.37	28.67	63.32541412	-168.97288610	N 63°19'31.49083"	W 168°58'22.38996"	RTK	0.03	0.05	8/18/2022 16:25	26
12610	Top of Slope	TOP	3408952.29	1809243.84	31.16	63.32542938	-168.97293132	N 63°19'31.54576"	W 168°58'22.55275"	RTK	0.03	0.04	8/18/2022 16:25	26
12611	Gravel	GV	3408963.08	1809228.62	32.25	63.32545956	-168.97302289	N 63°19'31.65441"	W 168°58'22.8824"	RTK	0.03	0.05	8/18/2022 16:25	26

12612	Gravel	GV	3408977.52	1809208.05	33.76	63.32549995	-168.97314660	N 63°19'31.79982"	W 168°58'23.32776"	RTK	0.03	0.04	8/18/2022 16:25	26
12613	Gravel	GV	3408997.94	1809222.61	33.99	63.32555513	-168.97305602	N 63°19'31.99846"	W 168°58'23.00167"	RTK	0.03	0.04	8/18/2022 16:26	26
12614	Gravel	GV	3408986.47	1809238.66	32.34	63.32552308	-168.97295952	N 63°19'31.88308"	W 168°58'22.65427"	RTK	0.03	0.05	8/18/2022 16:26	26
12615	Top of Slope	TOP	3408974.38	1809256.04	30.96	63.32548926	-168.97285501	N 63°19'31.76133"	W 168°58'22.27803"	RTK	0.03	0.05	8/18/2022 16:26	26
12616	Gravel	GV	3408969.70	1809262.64	28.19	63.32547615	-168.97281532	N 63°19'31.71414"	W 168°58'22.13515"	RTK	0.04	0.05	8/18/2022 16:26	26
12617	Gravel	GV	3408964.36	1809269.96	25.40	63.32546124	-168.97277130	N 63°19'31.66046"	W 168°58'21.97668"	RTK	0.03	0.05	8/18/2022 16:27	26
12618	Toe of Slope	TOE	3408960.73	1809275.07	23.81	63.32545109	-168.97274055	N 63°19'31.62392"	W 168°58'21.86597"	RTK	0.03	0.05	8/18/2022 16:27	26
12619	Toe of Slope	TOE	3408975.92	1809289.51	23.88	63.32549201	-168.97265127	N 63°19'31.77123"	W 168°58'21.54457"	RTK	0.04	0.05	8/18/2022 16:27	26
12620	Gravel	GV	3408984.10	1809285.89	26.81	63.32551452	-168.97267246	N 63°19'31.85227"	W 168°58'21.62085"	RTK	0.03	0.04	8/18/2022 16:27	26
12621	Top of Slope	TOP	3408991.10	1809281.16	31.26	63.32553386	-168.97270058	N 63°19'31.92189"	W 168°58'21.72208"	RTK	0.03	0.05	8/18/2022 16:27	26
12622	Top of Slope	TOP	3408995.66	1809284.95	31.41	63.32554618	-168.97267707	N 63°19'31.96624"	W 168°58'21.63745"	RTK	0.04	0.06	8/18/2022 16:28	26
12623	Gravel	GV	3408993.78	1809291.08	28.73	63.32554075	-168.97263998	N 63°19'31.9467"	W 168°58'21.50392"	RTK	0.03	0.05	8/18/2022 16:28	26
12624	Toe of Slope	TOE	3408992.73	1809298.18	24.74	63.32553757	-168.97259685	N 63°19'31.93525"	W 168°58'21.34866"	RTK	0.03	0.04	8/18/2022 16:28	26
12625	Toe of Slope	TOE	3409004.87	1809297.13	24.74	63.32557083	-168.97260210	N 63°19'32.05498"	W 168°58'21.36755"	RTK	0.03	0.05	8/18/2022 16:28	26
12626	Top of Slope	TOP	3409001.81	1809284.97	31.33	63.32556299	-168.97267632	N 63°19'32.02676"	W 168°58'21.63475"	RTK	0.03	0.05	8/18/2022 16:28	26
12627	Top of Slope	TOP	3409008.00	1809281.28	31.48	63.32558006	-168.97269819	N 63°19'32.08821"	W 168°58'21.71348"	RTK	0.03	0.05	8/18/2022 16:28	26
12628	Gravel	GV	3409013.78	1809286.89	26.78	63.32559564	-168.97266348	N 63°19'32.1443"	W 168°58'21.58852"	RTK	0.03	0.04	8/18/2022 16:29	26
12629	Toe of Slope	TOE	3409017.60	1809291.11	25.47	63.32560590	-168.97263744	N 63°19'32.18123"	W 168°58'21.49478"	RTK	0.03	0.05	8/18/2022 16:29	26
12630	Toe of Slope	TOE	3409028.68	1809279.83	24.61	63.32563669	-168.97270500	N 63°19'32.29208"	W 168°58'21.73799"	RTK	0.03	0.05	8/18/2022 16:29	26
12631	Toe of Slope	TOE	3409032.23	1809278.74	24.58	63.32564644	-168.97271125	N 63°19'32.32718"	W 168°58'21.7605"	RTK	0.05	0.06	8/18/2022 16:29	26
12632	Gravel	GV	3409024.02	1809275.29	26.67	63.32562414	-168.97273308	N 63°19'32.2469"	W 168°58'21.83908"	RTK	0.03	0.06	8/18/2022 16:29	26
12633	Gravel	GV	3409029.15	1809271.54	26.76	63.32563833	-168.97275536	N 63°19'32.29798"	W 168°58'21.91929"	RTK	0.03	0.06	8/18/2022 16:29	26
12634	Gravel	GV	3409033.92	1809272.16	26.52	63.32565133	-168.97275111	N 63°19'32.34478"	W 168°58'21.90399"	RTK	0.03	0.06	8/18/2022 16:29	26
12635	Top of Slope	TOP	3409021.63	1809266.58	31.72	63.32561799	-168.97278628	N 63°19'32.22476"	W 168°58'22.0306"	RTK	0.03	0.04	8/18/2022 16:30	26
12636	Top of Slope	TOP	3409030.47	1809259.90	32.30	63.32564244	-168.97282605	N 63°19'32.31278"	W 168°58'22.17378"	RTK	0.03	0.05	8/18/2022 16:30	25
12637	Top of Slope	TOP	3409039.01	1809258.79	32.81	63.32566585	-168.97283198	N 63°19'32.39706"	W 168°58'22.19512"	RTK	0.03	0.04	8/18/2022 16:30	26
12638	Gravel	GV	3409017.16	1809255.93	32.63	63.32560622	-168.97285146	N 63°19'32.18239"	W 168°58'22.26525"	RTK	0.03	0.05	8/18/2022 16:30	26
12639	Gravel	GV	3409026.77	1809242.92	34.39	63.32563307	-168.97292965	N 63°19'32.27905"	W 168°58'22.54673"	RTK	0.03	0.04	8/18/2022 16:31	26
12640	Gravel	GV	3409038.90	1809251.63	33.72	63.32566587	-168.97287552	N 63°19'32.39713"	W 168°58'22.35187"	RTK	0.03	0.05	8/18/2022 16:31	26
12641	Top of Slope	TOP	3409055.17	1809264.53	32.53	63.32570978	-168.97279549	N 63°19'32.5552"	W 168°58'22.06376"	RTK	0.03	0.05	8/18/2022 16:32	26
12642	Top of Slope	TOP	3409062.59	1809256.52	33.11	63.32573043	-168.97284349	N 63°19'32.62954"	W 168°58'22.23656"	RTK	0.04	0.05	8/18/2022 16:32	26
12643	Top of Slope	TOP	3409068.27	1809256.59	33.82	63.32574594	-168.97284248	N 63°19'32.68538"	W 168°58'22.23292"	RTK	0.03	0.06	8/18/2022 16:32	26
12644	Top of Slope	TOP	3409074.24	1809261.49	33.66	63.32576207	-168.97281209	N 63°19'32.74345"	W 168°58'22.12352"	RTK	0.03	0.05	8/18/2022 16:32	26
12645	Top of Slope	TOP	3409071.89	1809266.19	32.50	63.32575542	-168.97278372	N 63°19'32.71951"	W 168°58'22.02139"	RTK	0.04	0.05	8/18/2022 16:32	26
12646	Top of Slope	TOP	3409069.45	1809270.77	31.31	63.32574856	-168.97275610	N 63°19'32.69481"	W 168°58'21.92195"	RTK	0.03	0.04	8/18/2022 16:32	26
12647	Gravel	GV	3409064.82	1809262.68	31.15	63.32573625	-168.97280580	N 63°19'32.65049"	W 168°58'22.10088"	RTK	0.04	0.05	8/18/2022 16:32	25
12648	Gravel	GV	3409066.85	1809263.20	31.18	63.32574178	-168.97280240	N 63°19'32.6704"	W 168°58'22.08864"	RTK	0.03	0.05	8/18/2022 16:32	26
12649	Gravel	GV	3409066.22	1809268.01	31.28	63.32573985	-168.97277324	N 63°19'32.66345"	W 168°58'21.98366"	RTK	0.04	0.05	8/18/2022 16:32	26
12650	Gravel	GV	3409063.43	1809267.40	31.07	63.32573224	-168.97277721	N 63°19'32.63606"	W 168°58'21.99795"	RTK	0.03	0.05	8/18/2022 16:32	26
12651	Toe of Slope	TOE	3409051.62	1809274.84	27.26	63.32569961	-168.97273308	N 63°19'32.51859"	W 168°58'21.83908"	RTK	0.03	0.05	8/18/2022 16:33	26
12652	Ground Shot	GS	3409048.38	1809283.35	25.48	63.32569039	-168.97268165	N 63°19'32.4854"	W 168°58'21.65393"	RTK	0.03	0.05	8/18/2022 16:33	26
12653	Ground Shot	GS	3409055.62	1809286.70	24.83	63.32571005	-168.97266059	N 63°19'32.55617"	W 168°58'21.57812"	RTK	0.03	0.05	8/18/2022 16:33	26
12654	Ground Shot	GS	3409058.55	1809281.20	26.13	63.32571830	-168.97269377	N 63°19'32.58587"	W 168°58'21.69757"	RTK	0.04	0.06	8/18/2022 16:33	24
12655	Toe of Slope	TOE	3409060.93	1809277.26	26.65	63.32572497	-168.97271746	N 63°19'32.60989"	W 168°58'21.78285"	RTK	0.03	0.05	8/18/2022 16:33	26
12656	Ground Shot	GS	3409068.63	1809295.96	24.90	63.32574522	-168.97260297	N 63°19'32.68279"	W 168°58'21.37069"	RTK	0.03	0.05	8/18/2022 16:33	26
12657	Toe of Slope	TOE	3409074.51	1809287.57	26.85	63.32576165	-168.97265345	N 63°19'32.74193"	W 168°58'21.55241"	RTK	0.03	0.06	8/18/2022 16:34	26
12658	Gravel	GV	3409077.90	1809282.83	28.40	63.32577113	-168.97268193	N 63°19'32.77606"	W 168°58'21.65494"	RTK	0.03	0.06	8/18/2022 16:34	26
12659	Top of Slope	TOP	3409083.08	1809275.49	32.72	63.32578560	-168.97272606	N 63°19'32.82816"	W 168°58'21.81381"	RTK	0.03	0.05	8/18/2022 16:34	26
12660	Gravel	GV	3409094.04	1809260.15	33.82	63.32581625	-168.97281835	N 63°19'32.9385"	W 168°58'22.14606"	RTK	0.03	0.05	8/18/2022 16:34	26
12661	Gravel	GV	3409108.43	1809239.79	34.60	63.32585651	-168.97294075	N 63°19'33.08343"	W 168°58'22.58669"	RTK	0.03	0.05	8/18/2022 16:35	26
12662	Gravel	GV	3409122.97	1809219.54	34.57	63.32589715	-168.97306249	N 63°19'33.22974"	W 168°58'23.02496"	RTK	0.03	0.06	8/18/2022 16:35	25
12663	Gravel	GV	3409137.53	1809199.07	34.12	63.32593785	-168.97318562	N 63°19'33.37626"	W 168°58'23.46823"	RTK	0.03	0.05	8/18/2022 16:35	25
12664	Gravel	GV	3409151.97	1809178.72	33.31	63.32597823	-168.97330796	N 63°19'33.52162"	W 168°58'23.90865"	RTK	0.03	0.05	8/18/2022 16:36	25
12665	Top of Slope	TOP	3409154.72	1809174.56	32.87	63.32598591	-168.97333301	N 63°19'33.54927"	W 168°58'23.99883"	RTK	0.03	0.06	8/18/2022 16:36	24
12666	Gravel	GV	3409162.60	1809163.71	30.99	63.32600793	-168.97339826	N 63°19'33.62854"	W 168°58'24.23373"	RTK	0.03	0.05	8/18/2022 16:36	25
12667	Toe of Slope	TOE	3409171.83	1809150.74	29.23	63.32603375	-168.97347627	N 63°19'33.7215"	W 168°58'24.51457"	RTK	0.03	0.05	8/18/2022 16:36	25

12668	Toe of Slope	TOE	3409145.80	1809114.76	28.95	63.32596414	-168.97369765	N 63°19'33.4709"	W 168°58'25.31153"	RTK	0.03	0.05	8/18/2022 16:37	25
12669	Top of Slope	TOP	3409142.34	1809119.56	29.59	63.32595448	-168.97366876	N 63°19'33.43612"	W 168°58'25.20753"	RTK	0.03	0.05	8/18/2022 16:37	25
12670	Toe of Slope	TOE	3409135.79	1809128.93	28.67	63.32593615	-168.97361239	N 63°19'33.37013"	W 168°58'25.0046"	RTK	0.03	0.05	8/18/2022 16:37	25
12671	Gravel	GV	3409128.88	1809138.65	30.65	63.32591683	-168.97355400	N 63°19'33.30058"	W 168°58'24.7944"	RTK	0.03	0.05	8/18/2022 16:37	25
12672	Top of Slope	TOP	3409121.40	1809148.95	32.93	63.32589593	-168.97349207	N 63°19'33.22534"	W 168°58'24.57145"	RTK	0.03	0.04	8/18/2022 16:38	25
12673	Top of Slope	TOP	3409106.77	1809126.63	32.52	63.32585691	-168.97362926	N 63°19'33.08487"	W 168°58'25.06533"	RTK	0.03	0.05	8/18/2022 16:38	25
12674	Gravel	GV	3409111.60	1809119.84	30.85	63.32587042	-168.97367005	N 63°19'33.13351"	W 168°58'25.21218"	RTK	0.03	0.05	8/18/2022 16:38	25
12675	Toe of Slope	TOE	3409115.69	1809114.05	29.41	63.32588185	-168.97370486	N 63°19'33.17466"	W 168°58'25.33749"	RTK	0.03	0.06	8/18/2022 16:38	25
12676	Top of Slope	TOP	3409120.86	1809106.79	29.82	63.32589629	-168.97374852	N 63°19'33.22664"	W 168°58'25.49467"	RTK	0.03	0.05	8/18/2022 16:38	25
12677	Toe of Slope	TOE	3409125.39	1809100.43	28.20	63.32590896	-168.97378679	N 63°19'33.27225"	W 168°58'25.63244"	RTK	0.04	0.06	8/18/2022 16:39	25
12678	Toe of Slope	TOE	3409115.82	1809093.05	28.41	63.32588313	-168.97383261	N 63°19'33.17926"	W 168°58'25.79739"	RTK	0.03	0.05	8/18/2022 16:39	25
12679	Top of Slope	TOP	3409110.53	1809099.05	30.54	63.32586841	-168.97379660	N 63°19'33.12627"	W 168°58'25.66775"	RTK	0.03	0.05	8/18/2022 16:39	25
12680	Top of Slope	TOP	3409107.96	1809102.43	30.63	63.32586122	-168.97377633	N 63°19'33.10039"	W 168°58'25.59478"	RTK	0.03	0.05	8/18/2022 16:39	25
12681	Toe of Slope	TOE	3409105.03	1809106.57	29.00	63.32585303	-168.97375144	N 63°19'33.0709"	W 168°58'25.50518"	RTK	0.03	0.06	8/18/2022 16:39	25
12682	Toe of Slope	TOE	3409102.84	1809109.59	29.26	63.32584692	-168.97373323	N 63°19'33.04891"	W 168°58'25.43962"	RTK	0.03	0.05	8/18/2022 16:40	25
12683	Gravel	GV	3409099.30	1809114.55	31.31	63.32583701	-168.97370346	N 63°19'33.01323"	W 168°58'25.33245"	RTK	0.03	0.06	8/18/2022 16:40	25
12684	Top of Slope	TOP	3409095.50	1809119.97	33.07	63.32582638	-168.97367087	N 63°19'32.97496"	W 168°58'25.21513"	RTK	0.03	0.06	8/18/2022 16:40	25
12685	Top of Slope	TOP	3409085.32	1809106.84	33.28	63.32579913	-168.97375171	N 63°19'32.87686"	W 168°58'25.50615"	RTK	0.03	0.05	8/18/2022 16:40	25
12686	Gravel	GV	3409088.90	1809101.85	32.06	63.32580914	-168.97378168	N 63°19'32.9129"	W 168°58'25.61404"	RTK	0.03	0.05	8/18/2022 16:40	25
12687	Gravel	GV	3409093.02	1809095.87	31.28	63.32582066	-168.97381769	N 63°19'32.95437"	W 168°58'25.74368"	RTK	0.03	0.05	8/18/2022 16:40	24
12688	Top of Slope	TOP	3409098.07	1809088.68	30.50	63.32583479	-168.97386091	N 63°19'33.00524"	W 168°58'25.89927"	RTK	0.03	0.06	8/18/2022 16:41	24
12689	Toe of Slope	TOE	3409101.97	1809083.05	28.38	63.32584568	-168.97389476	N 63°19'33.04444"	W 168°58'26.02113"	RTK	0.03	0.06	8/18/2022 16:41	24
12690	Toe of Slope	TOE	3409098.98	1809079.97	28.31	63.32583765	-168.97391381	N 63°19'33.01553"	W 168°58'26.08971"	RTK	0.03	0.05	8/18/2022 16:41	24
12691	Top of Slope	TOP	3409094.34	1809086.58	30.41	63.32582467	-168.97387405	N 63°19'32.96881"	W 168°58'25.94658"	RTK	0.03	0.05	8/18/2022 16:41	24
12692	Gravel	GV	3409085.63	1809099.17	32.37	63.32580031	-168.97379835	N 63°19'32.88111"	W 168°58'25.67406"	RTK	0.03	0.05	8/18/2022 16:42	24
12693	Top of Slope	TOP	3409081.46	1809105.10	33.66	63.32578866	-168.97376265	N 63°19'32.83917"	W 168°58'25.54553"	RTK	0.03	0.05	8/18/2022 16:42	24
12694	Gravel	GV	3409070.37	1809120.76	34.09	63.32575764	-168.97366846	N 63°19'32.7275"	W 168°58'25.20645"	RTK	0.03	0.05	8/18/2022 16:42	24
12695	Gravel	GV	3409055.89	1809141.14	34.59	63.32571715	-168.97354591	N 63°19'32.58174"	W 168°58'24.76527"	RTK	0.03	0.05	8/18/2022 16:43	24
12696	Gravel	GV	3409041.43	1809161.49	35.22	63.32567673	-168.97342355	N 63°19'32.43622"	W 168°58'24.32478"	RTK	0.03	0.05	8/18/2022 16:43	24
12697	Gravel	GV	3409027.01	1809181.85	34.96	63.32563641	-168.97330112	N 63°19'32.29107"	W 168°58'23.88403"	RTK	0.04	0.06	8/18/2022 16:43	24
12698	Gravel	GV	3409012.45	1809202.47	34.19	63.32559569	-168.97317712	N 63°19'32.14448"	W 168°58'23.43763"	RTK	0.04	0.06	8/18/2022 16:43	25
12699	Toe of Slope	TOE	3409080.95	1809321.91	26.00	63.32577775	-168.97244396	N 63°19'32.7999"	W 168°58'20.79825"	RTK	0.03	0.05	8/18/2022 16:44	25
12700	Top of Slope	TOP	3409087.31	1809312.65	27.97	63.32579554	-168.97249967	N 63°19'32.86394"	W 168°58'20.99881"	RTK	0.03	0.05	8/18/2022 16:45	25
12701	Toe of Slope	TOE	3409093.47	1809304.20	28.89	63.32581277	-168.97255046	N 63°19'32.92597"	W 168°58'21.18165"	RTK	0.03	0.04	8/18/2022 16:45	25
12702	Top of Slope	TOP	3409101.91	1809292.25	33.07	63.32583637	-168.97262231	N 63°19'33.01093"	W 168°58'21.44031"	RTK	0.03	0.05	8/18/2022 16:45	25
12703	Gravel	GV	3409114.24	1809274.54	33.76	63.32587086	-168.97272881	N 63°19'33.13509"	W 168°58'21.82371"	RTK	0.03	0.04	8/18/2022 16:46	25
12704	Gravel	GV	3409134.64	1809289.20	33.85	63.32592599	-168.97263770	N 63°19'33.33356"	W 168°58'21.49572"	RTK	0.03	0.05	8/18/2022 16:46	25
12705	Gravel	GV	3409124.94	1809303.07	33.27	63.32589888	-168.97255425	N 63°19'33.23596"	W 168°58'21.1953"	RTK	0.04	0.06	8/18/2022 16:46	25
12706	Top of Slope	TOP	3409117.27	1809313.67	32.89	63.32587743	-168.97249050	N 63°19'33.15874"	W 168°58'20.96579"	RTK	0.03	0.05	8/18/2022 16:46	25
12707	Gravel	GV	3409108.50	1809325.85	30.11	63.32585291	-168.97241727	N 63°19'33.07047"	W 168°58'20.70217"	RTK	0.03	0.04	8/18/2022 16:47	25
12708	Toe of Slope	TOE	3409102.52	1809334.59	26.54	63.32583618	-168.97236472	N 63°19'33.01024"	W 168°58'20.51299"	RTK	0.03	0.04	8/18/2022 16:47	25
12709	Toe of Slope	TOE	3409122.80	1809349.13	27.00	63.32589099	-168.97227431	N 63°19'33.20756"	W 168°58'20.18751"	RTK	0.03	0.06	8/18/2022 16:47	25
12710	Top of Slope	TOP	3409129.42	1809339.64	30.76	63.32590951	-168.97233134	N 63°19'33.27423"	W 168°58'20.39282"	RTK	0.03	0.04	8/18/2022 16:47	25
12711	Gravel	GV	3409136.17	1809330.28	32.73	63.32592839	-168.97238767	N 63°19'33.3422"	W 168°58'20.59561"	RTK	0.03	0.05	8/18/2022 16:48	26
12712	Gravel	GV	3409140.71	1809324.06	33.38	63.32594105	-168.97242501	N 63°19'33.38777"	W 168°58'20.73003"	RTK	0.03	0.05	8/18/2022 16:48	26
12713	Gravel	GV	3409155.20	1809303.61	34.16	63.32598157	-168.97254801	N 63°19'33.53365"	W 168°58'21.17283"	RTK	0.03	0.05	8/18/2022 16:48	26
12714	Gravel	GV	3409175.29	1809318.05	33.96	63.32603589	-168.97245819	N 63°19'33.7292"	W 168°58'20.84948"	RTK	0.03	0.05	8/18/2022 16:49	26
12715	Gravel	GV	3409161.00	1809338.60	33.20	63.32599590	-168.97233461	N 63°19'33.58524"	W 168°58'20.40459"	RTK	0.03	0.05	8/18/2022 16:49	26
12716	Top of Slope	TOP	3409152.60	1809350.21	31.31	63.32597242	-168.97226480	N 63°19'33.50071"	W 168°58'20.15328"	RTK	0.03	0.05	8/18/2022 16:49	26
12717	Toe of Slope	TOE	3409145.86	1809360.19	26.79	63.32595357	-168.97220480	N 63°19'33.43285"	W 168°58'19.93727"	RTK	0.03	0.05	8/18/2022 16:50	26
12718	Toe of Slope	TOE	3409156.24	1809365.39	26.30	63.32598172	-168.97217214	N 63°19'33.53419"	W 168°58'19.8197"	RTK	0.03	0.05	8/18/2022 16:50	26
12719	Ground Shot	GS	3409158.64	1809359.03	27.91	63.32598857	-168.97221056	N 63°19'33.55885"	W 168°58'19.95801"	RTK	0.03	0.05	8/18/2022 16:50	26
12720	Top of Slope	TOP	3409160.31	1809350.57	31.82	63.32599348	-168.97226185	N 63°19'33.57652"	W 168°58'20.14265"	RTK	0.03	0.05	8/18/2022 16:50	26
12721	Top of Slope	TOP	3409173.74	1809356.92	31.90	63.32602995	-168.97222194	N 63°19'33.70781"	W 168°58'19.99898"	RTK	0.03	0.05	8/18/2022 16:50	26
12722	Gravel	GV	3409178.95	1809349.57	33.14	63.32604449	-168.97226614	N 63°19'33.76016"	W 168°58'20.1581"	RTK	0.03	0.05	8/18/2022 16:50	26
12723	Gravel	GV	3409192.66	1809330.22	34.16	63.32608285	-168.97238251	N 63°19'33.89825"	W 168°58'20.57703"	RTK	0.03	0.04	8/18/2022 16:51	26

12724	Top of Slope	TOP	3409182.41	1809359.96	32.64	63.32605350	-168.97220258	N 63°19'33.7926"	W 168°58'19.92928"	RTK	0.03	0.05	8/18/2022 16:51	26
12725	Top of Slope	TOP	3409186.10	1809370.99	32.37	63.32606313	-168.97213517	N 63°19'33.82726"	W 168°58'19.68661"	RTK	0.03	0.05	8/18/2022 16:51	26
12726	Top of Slope	TOP	3409179.22	1809382.15	31.75	63.32604380	-168.97206794	N 63°19'33.75768"	W 168°58'19.44458"	RTK	0.05	0.05	8/18/2022 16:51	26
12727	Toe of Slope	TOE	3409170.49	1809376.96	27.64	63.32602017	-168.97210035	N 63°19'33.67261"	W 168°58'19.56126"	RTK	0.03	0.05	8/18/2022 16:52	26
12728	Toe of Slope	TOE	3409167.26	1809369.17	27.69	63.32601169	-168.97214808	N 63°19'33.64208"	W 168°58'19.73308"	RTK	0.04	0.04	8/18/2022 16:52	26
12729	Gravel	GV	3409171.78	1809363.69	28.93	63.32602430	-168.97218098	N 63°19'33.68748"	W 168°58'19.85152"	RTK	0.03	0.05	8/18/2022 16:52	26
12730	Gravel	GV	3409173.01	1809367.12	29.14	63.32602748	-168.97215994	N 63°19'33.69892"	W 168°58'19.77578"	RTK	0.05	0.05	8/18/2022 16:52	26
12731	Gravel	GV	3409189.79	1809297.89	34.65	63.32607640	-168.97257941	N 63°19'33.87503"	W 168°58'21.28587"	RTK	0.03	0.05	8/18/2022 16:52	26
12732	Gravel	GV	3409204.45	1809277.39	34.97	63.32611741	-168.97270268	N 63°19'34.02267"	W 168°58'21.72964"	RTK	0.03	0.04	8/18/2022 16:53	26
12733	Gravel	GV	3409218.81	1809256.94	34.30	63.32615756	-168.97282571	N 63°19'34.16721"	W 168°58'22.17255"	RTK	0.03	0.04	8/18/2022 16:53	26
12734	Gravel	GV	3409233.30	1809236.71	33.26	63.32619805	-168.97294736	N 63°19'34.31298"	W 168°58'22.61049"	RTK	0.03	0.04	8/18/2022 16:53	26
12735	Top of Slope	TOP	3409236.86	1809231.74	32.74	63.32620800	-168.97297721	N 63°19'34.3488"	W 168°58'22.71795"	RTK	0.03	0.05	8/18/2022 16:53	26
12736	Gravel	GV	3409242.13	1809224.40	30.88	63.32622275	-168.97302136	N 63°19'34.40189"	W 168°58'22.87689"	RTK	0.03	0.04	8/18/2022 16:54	26
12737	Toe of Slope	TOE	3409245.55	1809219.62	30.00	63.32623231	-168.97305006	N 63°19'34.43631"	W 168°58'22.98021"	RTK	0.03	0.04	8/18/2022 16:54	26
12738	Toe of Slope	TOE	3409222.94	1809208.24	30.03	63.32617098	-168.97312149	N 63°19'34.21552"	W 168°58'23.23736"	RTK	0.03	0.05	8/18/2022 16:54	26
12739	Top of Slope	TOP	3409217.01	1809216.63	32.80	63.32615439	-168.97307104	N 63°19'34.1558"	W 168°58'23.05574"	RTK	0.03	0.04	8/18/2022 16:54	26
12740	Gravel	GV	3409212.92	1809222.27	33.49	63.32614296	-168.97303717	N 63°19'34.11465"	W 168°58'22.93381"	RTK	0.03	0.05	8/18/2022 16:55	26
12741	Gravel	GV	3409192.72	1809207.87	33.43	63.32608836	-168.97312670	N 63°19'33.91809"	W 168°58'23.25611"	RTK	0.03	0.05	8/18/2022 16:55	26
12742	Top of Slope	TOP	3409201.79	1809194.77	32.92	63.32611373	-168.97320550	N 63°19'34.00942"	W 168°58'23.5398"	RTK	0.03	0.05	8/18/2022 16:55	26
12743	Toe of Slope	TOE	3409210.87	1809190.90	29.94	63.32613874	-168.97322818	N 63°19'34.09946"	W 168°58'23.62144"	RTK	0.03	0.05	8/18/2022 16:55	26
12744	Toe of Slope	TOE	3409208.05	1809179.09	29.90	63.32613154	-168.97330030	N 63°19'34.07354"	W 168°58'23.88108"	RTK	0.03	0.04	8/18/2022 16:55	26
12745	Top of Slope	TOP	3409201.47	1809177.88	32.29	63.32611359	-168.97330827	N 63°19'34.00892"	W 168°58'23.90977"	RTK	0.03	0.05	8/18/2022 16:56	26
12746	Toe of Slope	TOE	3409203.37	1809175.49	31.90	63.32611890	-168.97332261	N 63°19'34.02803"	W 168°58'23.96139"	RTK	0.03	0.05	8/18/2022 16:56	26
12747	Toe of Slope	TOE	3409196.82	1809169.37	31.87	63.32610126	-168.97336051	N 63°19'33.96453"	W 168°58'24.09783"	RTK	0.03	0.05	8/18/2022 16:56	26
12748	Top of Slope	TOP	3409194.44	1809172.27	32.79	63.32609462	-168.97334308	N 63°19'33.94063"	W 168°58'24.03508"	RTK	0.03	0.05	8/18/2022 16:56	26
12749	Gravel	GV	3409191.02	1809177.15	33.06	63.32608505	-168.97331374	N 63°19'33.90618"	W 168°58'23.92946"	RTK	0.03	0.05	8/18/2022 16:56	26
12750	Gravel	GV	3409177.15	1809196.63	33.57	63.32604628	-168.97319662	N 63°19'33.7666"	W 168°58'23.50783"	RTK	0.03	0.04	8/18/2022 16:57	26
12751	Toe of Slope	TOE	3409190.26	1809159.64	31.37	63.32608374	-168.97342030	N 63°19'33.90146"	W 168°58'24.31307"	RTK	0.03	0.05	8/18/2022 16:57	26
12752	Top of Slope	TOP	3409185.13	1809164.56	32.10	63.32606950	-168.97339089	N 63°19'33.8502"	W 168°58'24.2072"	RTK	0.03	0.05	8/18/2022 16:57	26
12753	Toe of Slope	TOE	3409182.49	1809157.19	30.09	63.32606262	-168.97343595	N 63°19'33.82543"	W 168°58'24.36942"	RTK	0.03	0.05	8/18/2022 16:57	26
12754	Toe of Slope	TOE	3409166.99	1809153.38	29.32	63.32602040	-168.97346063	N 63°19'33.67343"	W 168°58'24.45826"	RTK	0.04	0.06	8/18/2022 16:57	26
12755	Gravel	GV	3409164.79	1809162.75	30.86	63.32601397	-168.97340387	N 63°19'33.65029"	W 168°58'24.25393"	RTK	0.03	0.05	8/18/2022 16:58	26
12756	Top of Slope	TOP	3409168.44	1809179.41	32.55	63.32602323	-168.97330220	N 63°19'33.68362"	W 168°58'23.88792"	RTK	0.03	0.04	8/18/2022 16:58	26
12757	Toe of Slope	TOE	3409328.32	1809275.71	30.01	63.32645616	-168.97270086	N 63°19'35.24217"	W 168°58'21.72309"	RTK	0.03	0.04	8/18/2022 16:59	26
12758	Top of Slope	TOP	3409324.84	1809280.63	32.08	63.32644643	-168.97267126	N 63°19'35.20714"	W 168°58'21.61653"	RTK	0.03	0.05	8/18/2022 16:59	26
12759	Toe of Slope	TOE	3409323.20	1809282.91	31.85	63.32644185	-168.97265756	N 63°19'35.19066"	W 168°58'21.56721"	RTK	0.03	0.04	8/18/2022 16:59	26
12760	Top of Slope	TOP	3409317.01	1809291.42	33.20	63.32642454	-168.97260638	N 63°19'35.12834"	W 168°58'21.38296"	RTK	0.03	0.04	8/18/2022 16:59	26
12761	Gravel	GV	3409300.37	1809314.98	34.33	63.32637803	-168.97246471	N 63°19'34.9609"	W 168°58'20.87295"	RTK	0.03	0.04	8/18/2022 17:00	26
12762	Gravel	GV	3409285.97	1809335.37	35.19	63.32633776	-168.97234209	N 63°19'34.81593"	W 168°58'20.43152"	RTK	0.03	0.04	8/18/2022 17:00	25
12763	Gravel	GV	3409271.48	1809355.80	34.79	63.32629722	-168.97221925	N 63°19'34.66999"	W 168°58'19.98929"	RTK	0.03	0.05	8/18/2022 17:00	25
12764	Gravel	GV	3409256.99	1809376.24	34.73	63.32625672	-168.97209633	N 63°19'34.52419"	W 168°58'19.54678"	RTK	0.03	0.04	8/18/2022 17:00	25
12765	Gravel	GV	3409242.53	1809396.31	33.73	63.32621632	-168.97197564	N 63°19'34.37875"	W 168°58'19.1123"	RTK	0.03	0.05	8/18/2022 17:01	25
12766	Gravel	GV	3409228.05	1809416.76	33.79	63.32617582	-168.97185268	N 63°19'34.23295"	W 168°58'18.66964"	RTK	0.03	0.04	8/18/2022 17:01	25
12767	Gravel	GV	3409309.42	1809474.69	33.74	63.32639576	-168.97149235	N 63°19'35.02473"	W 168°58'17.37246"	RTK	0.03	0.05	8/18/2022 17:02	25
12768	Gravel	GV	3409324.04	1809454.46	33.67	63.32643662	-168.97161398	N 63°19'35.17183"	W 168°58'17.81032"	RTK	0.03	0.05	8/18/2022 17:02	26
12769	Gravel	GV	3409338.41	1809434.10	34.52	63.32647681	-168.97173639	N 63°19'35.31651"	W 168°58'18.251"	RTK	0.03	0.05	8/18/2022 17:02	26
12770	Gravel	GV	3409352.85	1809413.86	35.06	63.32651717	-168.97185812	N 63°19'35.46181"	W 168°58'18.68923"	RTK	0.03	0.05	8/18/2022 17:02	26
12771	Gravel	GV	3409367.43	1809393.27	35.23	63.32655795	-168.97198197	N 63°19'35.60862"	W 168°58'19.13509"	RTK	0.03	0.05	8/18/2022 17:03	26
12772	Gravel	GV	3409381.94	1809372.88	34.40	63.32659851	-168.97210454	N 63°19'35.75463"	W 168°58'19.57634"	RTK	0.03	0.05	8/18/2022 17:03	26
12773	Gravel	GV	3409396.31	1809352.54	33.07	63.32663870	-168.97222689	N 63°19'35.89931"	W 168°58'20.0168"	RTK	0.03	0.04	8/18/2022 17:03	26
12774	Top of Slope	TOP	3409399.15	1809348.77	32.88	63.32664664	-168.97224951	N 63°19'35.9279"	W 168°58'20.09823"	RTK	0.03	0.04	8/18/2022 17:03	26
12775	Toe of Slope	TOE	3409403.12	1809343.10	32.04	63.32665774	-168.97228364	N 63°19'35.96786"	W 168°58'20.2211"	RTK	0.03	0.04	8/18/2022 17:03	26
12776	Top of Slope	TOP	3409405.80	1809339.22	32.12	63.32666522	-168.97230695	N 63°19'35.99479"	W 168°58'20.30501"	RTK	0.03	0.05	8/18/2022 17:03	26
12777	Toe of Slope	TOE	3409409.06	1809334.64	30.45	63.32667435	-168.97233451	N 63°19'36.02765"	W 168°58'20.40423"	RTK	0.03	0.05	8/18/2022 17:04	26
12778	Toe of Slope	TOE	3409490.03	1809393.80	30.29	63.32689314	-168.97196675	N 63°19'36.8153"	W 168°58'19.0803"	RTK	0.03	0.05	8/18/2022 17:04	26
12779	Top of Slope	TOP	3409487.93	1809396.51	31.41	63.32688729	-168.97195049	N 63°19'36.79424"	W 168°58'19.02176"	RTK	0.03	0.04	8/18/2022 17:04	26

12780	Toe of Slope	TOE	3409484.20	1809401.83	32.29	63.32687685	-168.97191847	N 63°19'36.75665"	W 168°58'18.90649"	RTK	0.03	0.05	8/18/2022 17:04	26
12781	Top of Slope	TOP	3409477.36	1809411.37	34.03	63.32685775	-168.97186114	N 63°19'36.6879"	W 168°58'18.7001"	RTK	0.03	0.04	8/18/2022 17:05	26
12782	Gravel	GV	3409463.48	1809430.82	34.85	63.32681893	-168.97174419	N 63°19'36.54814"	W 168°58'18.27908"	RTK	0.03	0.04	8/18/2022 17:05	26
12783	Gravel	GV	3409448.82	1809451.21	35.30	63.32677794	-168.97162154	N 63°19'36.40058"	W 168°58'17.83754"	RTK	0.03	0.04	8/18/2022 17:05	26
12784	Gravel	GV	3409434.13	1809471.40	35.08	63.32673689	-168.97150021	N 63°19'36.2528"	W 168°58'17.40075"	RTK	0.03	0.05	8/18/2022 17:05	26
12785	Gravel	GV	3409419.93	1809491.96	34.31	63.32669717	-168.97137649	N 63°19'36.10981"	W 168°58'16.95536"	RTK	0.03	0.05	8/18/2022 17:06	26
12786	Gravel	GV	3409405.35	1809512.36	33.33	63.32665642	-168.97125384	N 63°19'35.96311"	W 168°58'16.51382"	RTK	0.03	0.05	8/18/2022 17:06	26
12787	Gravel	GV	3409391.06	1809532.65	32.44	63.32661646	-168.97113185	N 63°19'35.81925"	W 168°58'16.07466"	RTK	0.03	0.04	8/18/2022 17:06	26
12788	Gravel	GV	3409472.44	1809590.70	33.21	63.32683641	-168.97077080	N 63°19'36.61107"	W 168°58'14.77487"	RTK	0.03	0.05	8/18/2022 17:07	26
12789	Gravel	GV	3409487.10	1809570.35	33.85	63.32687741	-168.97089311	N 63°19'36.75867"	W 168°58'15.21519"	RTK	0.03	0.05	8/18/2022 17:07	26
12790	Gravel	GV	3409501.58	1809549.89	34.39	63.32691789	-168.97101617	N 63°19'36.9044"	W 168°58'15.65821"	RTK	0.03	0.04	8/18/2022 17:07	26
12791	Gravel	GV	3409515.94	1809529.66	35.23	63.32695802	-168.97113785	N 63°19'37.04887"	W 168°58'16.09625"	RTK	0.03	0.05	8/18/2022 17:07	26
12792	Gravel	GV	3409530.36	1809509.21	35.62	63.32699837	-168.97126078	N 63°19'37.19413"	W 168°58'16.5388"	RTK	0.03	0.05	8/18/2022 17:08	26
12793	Gravel	GV	3409544.94	1809488.86	35.16	63.32703912	-168.97138318	N 63°19'37.34083"	W 168°58'16.97944"	RTK	0.03	0.04	8/18/2022 17:08	26
12794	Gravel	GV	3409559.62	1809468.28	33.84	63.32708017	-168.97150692	N 63°19'37.48861"	W 168°58'17.42491"	RTK	0.03	0.05	8/18/2022 17:08	26
12795	Top of Slope	TOP	3409562.28	1809464.24	33.33	63.32708762	-168.97153127	N 63°19'37.51543"	W 168°58'17.51257"	RTK	0.03	0.04	8/18/2022 17:08	26
12796	Toe of Slope	TOE	3409569.56	1809454.27	30.11	63.32710795	-168.97159119	N 63°19'37.58861"	W 168°58'17.72828"	RTK	0.03	0.04	8/18/2022 17:09	26
12797	Toe of Slope	TOE	3409528.18	1809425.89	29.83	63.32699606	-168.97176787	N 63°19'37.18581"	W 168°58'18.36433"	RTK	0.03	0.05	8/18/2022 17:09	26
12798	Gravel	GV	3409525.08	1809430.18	31.63	63.32698740	-168.97174205	N 63°19'37.15464"	W 168°58'18.27137"	RTK	0.03	0.05	8/18/2022 17:09	26
12799	Top of Slope	TOP	3409519.32	1809438.42	33.80	63.32697127	-168.97169247	N 63°19'37.09657"	W 168°58'18.09289"	RTK	0.03	0.04	8/18/2022 17:09	27
12800	Toe of Slope	TOE	3409614.55	1809477.23	30.07	63.32722995	-168.97144711	N 63°19'38.02782"	W 168°58'17.20959"	RTK	0.03	0.05	8/18/2022 17:10	27
12801	Top of Slope	TOP	3409611.12	1809482.21	31.62	63.32722036	-168.97141717	N 63°19'37.99329"	W 168°58'17.10181"	RTK	0.03	0.04	8/18/2022 17:10	27
12802	Toe of Slope	TOE	3409609.74	1809483.98	31.62	63.32721650	-168.97140651	N 63°19'37.97939"	W 168°58'17.06343"	RTK	0.03	0.05	8/18/2022 17:10	27
12803	Top of Slope	TOP	3409605.43	1809489.81	33.15	63.32720448	-168.97137151	N 63°19'37.93612"	W 168°58'16.93743"	RTK	0.03	0.05	8/18/2022 17:11	27
12804	Gravel	GV	3409600.06	1809497.40	33.71	63.32718946	-168.97132582	N 63°19'37.88205"	W 168°58'16.77295"	RTK	0.03	0.05	8/18/2022 17:11	27
12805	Toe of Slope	TOE	3409654.66	1809506.92	30.07	63.32733834	-168.97126259	N 63°19'38.41802"	W 168°58'16.54532"	RTK	0.03	0.05	8/18/2022 17:11	27
12806	Top of Slope	TOP	3409651.08	1809511.95	31.96	63.32732832	-168.97123237	N 63°19'38.38195"	W 168°58'16.43653"	RTK	0.03	0.05	8/18/2022 17:11	27
12807	Top of Slope	TOP	3409647.40	1809517.23	33.13	63.32731804	-168.97120063	N 63°19'38.34494"	W 168°58'16.32226"	RTK	0.03	0.05	8/18/2022 17:12	27
12808	Gravel	GV	3409640.83	1809526.28	33.96	63.32729966	-168.97114620	N 63°19'38.27877"	W 168°58'16.12631"	RTK	0.03	0.05	8/18/2022 17:12	27
12809	Gravel	GV	3409626.41	1809546.61	34.88	63.32725935	-168.97102392	N 63°19'38.13365"	W 168°58'15.68611"	RTK	0.03	0.05	8/18/2022 17:12	27
12810	Gravel	GV	3409611.93	1809567.01	35.38	63.32721886	-168.97090128	N 63°19'37.98789"	W 168°58'15.2446"	RTK	0.03	0.05	8/18/2022 17:12	27
12811	Gravel	GV	3409597.37	1809587.57	35.21	63.32717815	-168.97077760	N 63°19'37.84134"	W 168°58'14.79935"	RTK	0.03	0.05	8/18/2022 17:13	27
12812	Gravel	GV	3409583.01	1809607.87	34.41	63.32713799	-168.97065553	N 63°19'37.69676"	W 168°58'14.3599"	RTK	0.03	0.05	8/18/2022 17:13	27
12813	Gravel	GV	3409568.81	1809628.30	33.52	63.32709827	-168.97053267	N 63°19'37.55377"	W 168°58'13.91761"	RTK	0.03	0.05	8/18/2022 17:13	27
12814	Gravel	GV	3409527.80	1809599.46	33.91	63.32698741	-168.97071209	N 63°19'37.15467"	W 168°58'14.56352"	RTK	0.03	0.05	8/18/2022 17:14	27
12815	Gravel	GV	3409513.27	1809619.37	32.86	63.32694679	-168.97059240	N 63°19'37.00844"	W 168°58'14.13263"	RTK	0.03	0.05	8/18/2022 17:14	27
12816	Gravel	GV	3409532.23	1809633.18	32.33	63.32699803	-168.97050654	N 63°19'37.1929"	W 168°58'13.82354"	RTK	0.03	0.05	8/18/2022 17:14	27
12817	Top of Slope	TOP	3409546.57	1809643.22	32.36	63.32703680	-168.97044405	N 63°19'37.33248"	W 168°58'13.59857"	RTK	0.03	0.05	8/18/2022 17:14	27
12818	Toe of Slope	TOE	3409555.15	1809649.80	28.28	63.32705998	-168.97040319	N 63°19'37.41592"	W 168°58'13.45148"	RTK	0.03	0.04	8/18/2022 17:15	27
12819	Toe of Slope	TOE	3409562.37	1809645.38	29.15	63.32707990	-168.97042936	N 63°19'37.48764"	W 168°58'13.54569"	RTK	0.03	0.05	8/18/2022 17:15	27
12820	Top of Slope	TOP	3409562.82	1809638.90	31.94	63.32708141	-168.97046878	N 63°19'37.49307"	W 168°58'13.6876"	RTK	0.03	0.05	8/18/2022 17:15	27
12821	Gravel	GV	3409561.94	1809631.39	33.11	63.32707935	-168.97051454	N 63°19'37.48565"	W 168°58'13.85234"	RTK	0.03	0.04	8/18/2022 17:15	27
12822	Top of Slope	TOP	3409563.27	1809635.52	32.66	63.32708280	-168.97048925	N 63°19'37.49807"	W 168°58'13.7613"	RTK	0.03	0.05	8/18/2022 17:15	27
12823	Toe of Slope	TOE	3409563.11	1809646.20	29.09	63.32708190	-168.97042430	N 63°19'37.49484"	W 168°58'13.52747"	RTK	0.03	0.05	8/18/2022 17:16	27
12824	Toe of Slope	TOE	3409576.11	1809656.52	28.04	63.32711700	-168.97036029	N 63°19'37.6212"	W 168°58'13.29704"	RTK	0.04	0.06	8/18/2022 17:16	27
12825	Gravel	GV	3409579.83	1809650.28	30.95	63.32712743	-168.97039786	N 63°19'37.65874"	W 168°58'13.43229"	RTK	0.03	0.05	8/18/2022 17:16	27
12826	Gravel	GV	3409582.80	1809645.23	31.15	63.32713578	-168.97042832	N 63°19'37.6888"	W 168°58'13.54195"	RTK	0.03	0.05	8/18/2022 17:16	26
12827	Top of Slope	TOP	3409586.80	1809637.83	33.13	63.32714703	-168.97047291	N 63°19'37.7293"	W 168°58'13.70247"	RTK	0.03	0.04	8/18/2022 17:16	26
12828	Top of Slope	TOP	3409599.50	1809645.37	33.08	63.32718143	-168.97042582	N 63°19'37.85314"	W 168°58'13.53295"	RTK	0.03	0.04	8/18/2022 17:17	26
12829	Gravel	GV	3409594.19	1809653.97	30.65	63.32716654	-168.97037405	N 63°19'37.79954"	W 168°58'13.34658"	RTK	0.03	0.05	8/18/2022 17:17	26
12830	Toe of Slope	TOE	3409589.63	1809663.58	27.47	63.32715364	-168.97031601	N 63°19'37.7531"	W 168°58'13.13763"	RTK	0.03	0.05	8/18/2022 17:17	26
12831	Toe of Slope	TOE	3409638.86	1809701.94	27.44	63.32728657	-168.97007787	N 63°19'38.23165"	W 168°58'12.28033"	RTK	0.03	0.05	8/18/2022 17:17	26
12832	Gravel	GV	3409643.28	1809695.45	29.65	63.32729893	-168.97011690	N 63°19'38.27614"	W 168°58'12.42083"	RTK	0.03	0.05	8/18/2022 17:18	26
12833	Top of Slope	TOP	3409649.33	1809686.89	33.12	63.32731586	-168.97016838	N 63°19'38.33709"	W 168°58'12.60616"	RTK	0.03	0.04	8/18/2022 17:18	26
12834	Gravel	GV	3409664.58	1809665.78	34.72	63.32735848	-168.97029530	N 63°19'38.49052"	W 168°58'13.06308"	RTK	0.03	0.04	8/18/2022 17:18	26
12835	Gravel	GV	3409679.05	1809645.43	35.41	63.32739895	-168.97041768	N 63°19'38.63622"	W 168°58'13.50364"	RTK	0.03	0.05	8/18/2022 17:19	26

12836	Gravel	GV	3409693.41	1809625.05	35.92	63.32743910	-168.97054025	N 63°19'38.78075"	W 168°58'13.94489"	RTK	0.03	0.05	8/18/2022 17:19	26
12837	Gravel	GV	3409707.91	1809604.58	35.40	63.32747965	-168.97066333	N 63°19'38.92674"	W 168°58'14.38798"	RTK	0.03	0.04	8/18/2022 17:19	26
12838	Gravel	GV	3409722.62	1809584.29	34.38	63.32752076	-168.97078534	N 63°19'39.07473"	W 168°58'14.82722"	RTK	0.03	0.05	8/18/2022 17:19	26
12839	Top of Slope	TOP	3409725.98	1809579.15	33.95	63.32753017	-168.97081626	N 63°19'39.10861"	W 168°58'14.93853"	RTK	0.03	0.04	8/18/2022 17:19	26
12840	Toe of Slope	TOE	3409730.55	1809572.75	32.67	63.32754296	-168.97085475	N 63°19'39.15465"	W 168°58'15.0771"	RTK	0.03	0.05	8/18/2022 17:20	26
12841	Top of Slope	TOP	3409732.25	1809570.32	32.51	63.32754770	-168.97086939	N 63°19'39.17171"	W 168°58'15.1298"	RTK	0.03	0.05	8/18/2022 17:20	26
12842	Toe of Slope	TOE	3409735.89	1809565.15	30.09	63.32755789	-168.97090044	N 63°19'39.2084"	W 168°58'15.24158"	RTK	0.03	0.05	8/18/2022 17:20	26
12843	Ground Shot	GS	3409815.14	1809626.47	30.07	63.32777188	-168.97051972	N 63°19'39.97876"	W 168°58'13.87099"	RTK	0.03	0.05	8/18/2022 17:21	26
12844	Toe of Slope	TOE	3409812.56	1809630.17	30.37	63.32776467	-168.97049746	N 63°19'39.95281"	W 168°58'13.79085"	RTK	0.03	0.04	8/18/2022 17:21	26
12845	Gravel	GV	3409808.44	1809635.92	32.46	63.32775314	-168.97046288	N 63°19'39.9113"	W 168°58'13.66636"	RTK	0.03	0.04	8/18/2022 17:21	26
12846	Top of Slope	TOP	3409803.90	1809642.33	33.83	63.32774045	-168.97042435	N 63°19'39.86562"	W 168°58'13.52766"	RTK	0.03	0.05	8/18/2022 17:21	26
12847	Gravel	GV	3409789.39	1809662.59	35.09	63.32769990	-168.97030254	N 63°19'39.71963"	W 168°58'13.08914"	RTK	0.03	0.05	8/18/2022 17:21	26
12848	Gravel	GV	3409774.91	1809683.00	35.78	63.32765941	-168.97017975	N 63°19'39.57387"	W 168°58'12.64709"	RTK	0.03	0.05	8/18/2022 17:22	26
12849	Gravel	GV	3409760.45	1809703.46	35.73	63.32761897	-168.97005672	N 63°19'39.42829"	W 168°58'12.20419"	RTK	0.03	0.05	8/18/2022 17:22	26
12850	Gravel	GV	3409745.93	1809723.73	35.10	63.32757837	-168.96993484	N 63°19'39.28213"	W 168°58'11.76542"	RTK	0.03	0.04	8/18/2022 17:22	26
12851	Top of Slope	TOP	3409729.41	1809746.82	33.34	63.32753220	-168.96979601	N 63°19'39.11592"	W 168°58'11.26563"	RTK	0.03	0.04	8/18/2022 17:22	26
12852	Gravel	GV	3409726.44	1809751.30	31.46	63.32752387	-168.96976904	N 63°19'39.08593"	W 168°58'11.16854"	RTK	0.03	0.04	8/18/2022 17:23	26
12853	Gravel	GV	3409722.92	1809756.27	30.94	63.32751402	-168.96973916	N 63°19'39.05047"	W 168°58'11.06097"	RTK	0.03	0.05	8/18/2022 17:23	26
12854	Toe of Slope	TOE	3409718.49	1809762.18	28.68	63.32750164	-168.96970363	N 63°19'39.0059"	W 168°58'10.93306"	RTK	0.03	0.05	8/18/2022 17:23	26
12855	Toe of Slope	TOE	3409851.26	1809661.77	30.06	63.32786908	-168.97030144	N 63°19'40.32868"	W 168°58'13.08518"	RTK	0.05	0.06	8/18/2022 17:30	26
12856	Top of Slope	TOP	3409850.13	1809663.63	31.31	63.32786592	-168.97029028	N 63°19'40.31731"	W 168°58'13.045"	RTK	0.04	0.05	8/18/2022 17:30	27
12857	Toe of Slope	TOE	3409848.72	1809665.33	31.72	63.32786200	-168.97028007	N 63°19'40.3032"	W 168°58'13.00825"	RTK	0.03	0.05	8/18/2022 17:30	27
12858	Top of Slope	TOP	3409844.38	1809671.41	33.89	63.32784986	-168.97024348	N 63°19'40.25949"	W 168°58'12.87652"	RTK	0.03	0.05	8/18/2022 17:31	27
12859	Ground Shot	GS	3409898.69	1809681.37	29.85	63.32799792	-168.97017762	N 63°19'40.79251"	W 168°58'12.63943"	RTK	0.04	0.04	8/18/2022 17:31	27
12860	Toe of Slope	TOE	3409896.83	1809683.98	30.35	63.32799273	-168.97016189	N 63°19'40.77382"	W 168°58'12.5828"	RTK	0.03	0.04	8/18/2022 17:31	27
12861	Top of Slope	TOP	3409892.83	1809689.64	32.42	63.32798153	-168.97012784	N 63°19'40.7335"	W 168°58'12.46022"	RTK	0.03	0.05	8/18/2022 17:32	27
12862	Toe of Slope	TOE	3409890.37	1809693.08	32.62	63.32797465	-168.97010719	N 63°19'40.70874"	W 168°58'12.38588"	RTK	0.03	0.05	8/18/2022 17:32	27
12863	Top of Slope	TOP	3409886.44	1809698.70	34.07	63.32796367	-168.97007340	N 63°19'40.66921"	W 168°58'12.26423"	RTK	0.03	0.05	8/18/2022 17:32	27
12864	Gravel	GV	3409870.99	1809720.46	35.52	63.32792047	-168.96994255	N 63°19'40.51369"	W 168°58'11.79318"	RTK	0.04	0.05	8/18/2022 17:32	27
12865	Gravel	GV	3409856.42	1809740.95	36.05	63.32787972	-168.96981932	N 63°19'40.36699"	W 168°58'11.34955"	RTK	0.04	0.05	8/18/2022 17:33	27
12866	Gravel	GV	3409841.97	1809761.19	35.64	63.32783932	-168.96969757	N 63°19'40.22155"	W 168°58'10.91125"	RTK	0.04	0.05	8/18/2022 17:33	27
12867	Gravel	GV	3409827.45	1809781.71	34.89	63.32779873	-168.96957416	N 63°19'40.07542"	W 168°58'10.46697"	RTK	0.04	0.06	8/18/2022 17:33	27
12868	Gravel	GV	3409813.03	1809801.92	33.33	63.32775839	-168.96945265	N 63°19'39.9302"	W 168°58'10.02953"	RTK	0.03	0.05	8/18/2022 17:33	28
12869	Top of Slope	TOP	3409809.23	1809807.18	32.59	63.32774778	-168.96942102	N 63°19'39.892"	W 168°58'9.91567"	RTK	0.04	0.06	8/18/2022 17:33	28
12870	Gravel	GV	3409805.26	1809812.51	31.06	63.32773670	-168.96938898	N 63°19'39.85212"	W 168°58'9.80032"	RTK	0.04	0.06	8/18/2022 17:34	28
12871	Toe of Slope	TOE	3409802.35	1809816.74	28.94	63.32772857	-168.96936353	N 63°19'39.82285"	W 168°58'9.7087"	RTK	0.04	0.06	8/18/2022 17:34	28
12872	Toe of Slope	TOE	3409885.85	1809872.10	29.19	63.32795442	-168.96901864	N 63°19'40.63591"	W 168°58'8.4671"	RTK	0.04	0.06	8/18/2022 17:34	27
12873	Gravel	GV	3409887.94	1809869.15	29.89	63.32796028	-168.96903635	N 63°19'40.657"	W 168°58'8.53086"	RTK	0.04	0.06	8/18/2022 17:34	28
12874	Top of Slope	TOP	3409892.67	1809862.41	32.29	63.32797350	-168.96907694	N 63°19'40.70459"	W 168°58'8.67698"	RTK	0.03	0.05	8/18/2022 17:35	28
12875	Gravel	GV	3409896.01	1809857.77	33.01	63.32798283	-168.96910480	N 63°19'40.73818"	W 168°58'8.77727"	RTK	0.04	0.06	8/18/2022 17:35	27
12876	Gravel	GV	3409908.90	1809839.49	34.64	63.32801890	-168.96921472	N 63°19'40.86803"	W 168°58'9.17299"	RTK	0.04	0.06	8/18/2022 17:35	27
12877	Gravel	GV	3409923.52	1809819.18	35.33	63.32805976	-168.96933688	N 63°19'41.01513"	W 168°58'9.61276"	RTK	0.04	0.06	8/18/2022 17:35	27
12878	Gravel	GV	3409937.97	1809798.83	35.41	63.32810017	-168.96945923	N 63°19'41.16061"	W 168°58'10.05322"	RTK	0.04	0.06	8/18/2022 17:36	27
12879	Gravel	GV	3409952.48	1809778.42	34.83	63.32814074	-168.96958197	N 63°19'41.30666"	W 168°58'10.49509"	RTK	0.04	0.06	8/18/2022 17:36	26
12880	Gravel	GV	3409966.77	1809758.05	33.89	63.32818070	-168.96970451	N 63°19'41.45051"	W 168°58'10.93623"	RTK	0.04	0.06	8/18/2022 17:36	26
12881	Top of Slope	TOP	3409970.25	1809753.38	33.20	63.32819041	-168.96973254	N 63°19'41.48547"	W 168°58'11.03714"	RTK	0.04	0.06	8/18/2022 17:36	27
12882	Top of Slope	TOP	3409974.02	1809748.13	32.26	63.32820096	-168.96976415	N 63°19'41.52345"	W 168°58'11.15094"	RTK	0.03	0.05	8/18/2022 17:37	26
12883	Toe of Slope	TOE	3409977.32	1809743.47	30.06	63.32821018	-168.96979217	N 63°19'41.55664"	W 168°58'11.25181"	RTK	0.03	0.05	8/18/2022 17:37	27
12884	Toe of Slope	TOE	3409935.75	1809706.96	29.80	63.32809812	-168.97001831	N 63°19'41.15323"	W 168°58'12.06591"	RTK	0.04	0.06	8/18/2022 17:37	26
12885	Top of Slope	TOP	3409931.60	1809712.49	32.24	63.32808655	-168.96998508	N 63°19'41.11158"	W 168°58'11.94628"	RTK	0.04	0.06	8/18/2022 17:37	25
12886	Toe of Slope	TOE	3409930.09	1809714.83	32.17	63.32808230	-168.96997096	N 63°19'41.09627"	W 168°58'11.89545"	RTK	0.04	0.06	8/18/2022 17:37	25
12887	Top of Slope	TOP	3409925.38	1809721.56	33.84	63.32806914	-168.96993049	N 63°19'41.0489"	W 168°58'11.74976"	RTK	0.03	0.05	8/18/2022 17:38	25
12888	Gravel	GV	3409922.00	1809726.11	34.42	63.32805969	-168.96990317	N 63°19'41.01488"	W 168°58'11.65141"	RTK	0.04	0.06	8/18/2022 17:38	25
12889	Toe of Slope	TOE	3410018.49	1809771.99	30.03	63.32832151	-168.96961461	N 63°19'41.95743"	W 168°58'10.61259"	RTK	0.03	0.06	8/18/2022 17:39	24
12890	Top of Slope	TOP	3410014.61	1809777.03	32.37	63.32831068	-168.96958434	N 63°19'41.91844"	W 168°58'10.50362"	RTK	0.03	0.06	8/18/2022 17:39	25
12891	Top of Slope	TOP	3410009.79	1809784.21	33.50	63.32829719	-168.96954118	N 63°19'41.86988"	W 168°58'10.34824"	RTK	0.04	0.06	8/18/2022 17:39	25

12892	Gravel	GV	3410001.00	1809796.28	34.28	63.32827262	-168.96946859	N 63°19'41.78143"	W 168°58'10.08692"	RTK	0.03	0.06	8/18/2022 17:39	24
12893	Gravel	GV	3409993.30	1809807.41	34.78	63.32825107	-168.96940161	N 63°19'41.70385"	W 168°58'9.84579"	RTK	0.04	0.06	8/18/2022 17:40	25
12894	Gravel	GV	3409978.72	1809827.82	35.44	63.32821031	-168.96927889	N 63°19'41.55711"	W 168°58'9.404"	RTK	0.04	0.07	8/18/2022 17:40	25
12895	Gravel	GV	3409964.14	1809848.13	35.07	63.32816955	-168.96915680	N 63°19'41.41037"	W 168°58'8.96448"	RTK	0.03	0.06	8/18/2022 17:40	24
12896	Gravel	GV	3409949.73	1809868.50	34.25	63.32812927	-168.96903426	N 63°19'41.26537"	W 168°58'8.52333"	RTK	0.04	0.06	8/18/2022 17:40	25
12897	Top of Slope	TOP	3409934.52	1809889.87	32.88	63.32808674	-168.96890580	N 63°19'41.11226"	W 168°58'8.06087"	RTK	0.04	0.06	8/18/2022 17:41	25
12898	Gravel	GV	3409930.11	1809896.13	30.68	63.32807440	-168.96886812	N 63°19'41.06783"	W 168°58'7.92523"	RTK	0.04	0.07	8/18/2022 17:41	25
12899	Toe of Slope	TOE	3409923.93	1809905.06	27.72	63.32805709	-168.96881440	N 63°19'41.00552"	W 168°58'7.73184"	RTK	0.04	0.07	8/18/2022 17:41	25
12900	Toe of Slope	TOE	3409963.90	1809934.92	27.32	63.32816509	-168.96862884	N 63°19'41.39432"	W 168°58'7.06382"	RTK	0.04	0.07	8/18/2022 17:42	25
12901	Gravel	GV	3409968.63	1809928.21	29.46	63.32817830	-168.96866919	N 63°19'41.44187"	W 168°58'7.20908"	RTK	0.04	0.07	8/18/2022 17:42	24
12902	Top of Slope	TOP	3409973.90	1809920.86	32.34	63.32819305	-168.96871340	N 63°19'41.49498"	W 168°58'7.36824"	RTK	0.04	0.06	8/18/2022 17:43	25
12903	Gravel	GV	3409981.68	1809909.86	33.73	63.32821481	-168.96877958	N 63°19'41.57331"	W 168°58'7.60648"	RTK	0.04	0.07	8/18/2022 17:43	24
12904	Gravel	GV	3409990.46	1809897.59	34.29	63.32823933	-168.96885335	N 63°19'41.66158"	W 168°58'7.87205"	RTK	0.04	0.06	8/18/2022 17:44	25
12905	Gravel	GV	3410004.81	1809877.01	34.92	63.32827948	-168.96897711	N 63°19'41.80612"	W 168°58'8.31759"	RTK	0.04	0.06	8/18/2022 17:44	25
12906	Gravel	GV	3410019.42	1809856.75	35.21	63.32832033	-168.96909893	N 63°19'41.95318"	W 168°58'8.75614"	RTK	0.04	0.07	8/18/2022 17:44	25
12907	Gravel	GV	3410033.91	1809836.19	34.65	63.32836084	-168.96922257	N 63°19'42.09902"	W 168°58'9.20125"	RTK	0.04	0.06	8/18/2022 17:44	25
12908	Gravel	GV	3410048.46	1809815.99	34.33	63.32840151	-168.96934403	N 63°19'42.24543"	W 168°58'9.6385"	RTK	0.04	0.07	8/18/2022 17:45	25
12909	Top of Slope	TOP	3410056.56	1809804.83	33.60	63.32842415	-168.96941117	N 63°19'42.32693"	W 168°58'9.88021"	RTK	0.04	0.07	8/18/2022 17:45	25
12910	Top of Slope	TOP	3410059.71	1809800.00	32.74	63.32843298	-168.96944024	N 63°19'42.35872"	W 168°58'9.98486"	RTK	0.04	0.06	8/18/2022 17:45	24
12911	Gravel	GV	3410062.16	1809796.57	31.20	63.32843982	-168.96946084	N 63°19'42.38335"	W 168°58'10.05902"	RTK	0.04	0.07	8/18/2022 17:45	24
12912	Toe of Slope	TOE	3410065.00	1809792.68	30.19	63.32844776	-168.96948425	N 63°19'42.41193"	W 168°58'10.14329"	RTK	0.04	0.07	8/18/2022 17:45	25
12913	Toe of Slope	TOE	3410144.28	1809854.35	29.95	63.32866183	-168.96910133	N 63°19'43.18258"	W 168°58'8.76478"	RTK	0.04	0.07	8/18/2022 17:46	25
12914	Gravel	GV	3410141.59	1809857.43	31.51	63.32865434	-168.96908287	N 63°19'43.15562"	W 168°58'8.69833"	RTK	0.04	0.07	8/18/2022 17:46	25
12915	Top of Slope	TOP	3410137.11	1809863.89	33.52	63.32864181	-168.96904401	N 63°19'43.11051"	W 168°58'8.55843"	RTK	0.04	0.07	8/18/2022 17:46	24
12916	Gravel	GV	3410129.89	1809873.87	33.95	63.32862164	-168.96898400	N 63°19'43.0379"	W 168°58'8.3424"	RTK	0.07	0.08	8/18/2022 17:47	24
12917	Gravel	GV	3410115.31	1809894.33	34.32	63.32858086	-168.96886095	N 63°19'42.89109"	W 168°58'7.89941"	RTK	0.04	0.08	8/18/2022 17:47	23
12918	Gravel	GV	3410100.91	1809914.71	35.04	63.32854058	-168.96873842	N 63°19'42.74608"	W 168°58'7.45831"	RTK	0.04	0.07	8/18/2022 17:47	23
12919	Gravel	GV	3410086.38	1809935.07	34.59	63.32849998	-168.96861594	N 63°19'42.59992"	W 168°58'7.01738"	RTK	0.04	0.07	8/18/2022 17:48	24
12920	Gravel	GV	3410072.02	1809955.50	34.02	63.32845982	-168.96849307	N 63°19'42.45535"	W 168°58'6.57505"	RTK	0.04	0.07	8/18/2022 17:48	24
12921	Top of Slope	TOP	3410060.48	1809971.52	32.88	63.32842756	-168.96839677	N 63°19'42.33921"	W 168°58'6.22837"	RTK	0.04	0.07	8/18/2022 17:48	24
12922	Gravel	GV	3410057.24	1809976.14	31.81	63.32841848	-168.96836900	N 63°19'42.30652"	W 168°58'6.12839"	RTK	0.04	0.08	8/18/2022 17:48	24
12923	Toe of Slope	TOE	3410054.18	1809980.34	29.87	63.32840995	-168.96834375	N 63°19'42.27582"	W 168°58'6.0375"	RTK	0.04	0.07	8/18/2022 17:49	24
12924	Top of Slope	TOP	3410049.46	1809987.19	29.21	63.32839671	-168.96830255	N 63°19'42.22815"	W 168°58'5.88918"	RTK	0.04	0.07	8/18/2022 17:49	24
12925	Toe of Slope	TOE	3410046.27	1809991.38	27.83	63.32838782	-168.96827732	N 63°19'42.19615"	W 168°58'5.79835"	RTK	0.04	0.07	8/18/2022 17:49	24
12926	Toe of Slope	TOE	3410087.85	1810019.12	27.80	63.32850028	-168.96810453	N 63°19'42.601"	W 168°58'5.1763"	RTK	0.04	0.07	8/18/2022 17:49	23
12927	Top of Slope	TOP	3410092.44	1810012.97	29.83	63.32851310	-168.96814150	N 63°19'42.64716"	W 168°58'5.3094"	RTK	0.04	0.07	8/18/2022 17:50	24
12928	Top of Slope	TOP	3410097.07	1810006.22	31.29	63.32852606	-168.96818209	N 63°19'42.69381"	W 168°58'5.45552"	RTK	0.04	0.08	8/18/2022 17:50	24
12929	Top of Slope	TOP	3410103.76	1809996.80	32.97	63.32854476	-168.96823872	N 63°19'42.76113"	W 168°58'5.65939"	RTK	0.04	0.07	8/18/2022 17:50	23
12930	Top of Slope	TOP	3410125.74	1810009.18	32.78	63.32860432	-168.96816129	N 63°19'42.97555"	W 168°58'5.38064"	RTK	0.05	0.08	8/18/2022 17:50	23
12931	Gravel	GV	3410121.25	1810015.64	31.50	63.32859177	-168.96812245	N 63°19'42.93037"	W 168°58'5.24082"	RTK	0.04	0.08	8/18/2022 17:50	24
12932	Gravel	GV	3410117.80	1810020.35	29.73	63.32858213	-168.96809413	N 63°19'42.89566"	W 168°58'5.13886"	RTK	0.04	0.08	8/18/2022 17:51	24
12933	Top of Slope	TOP	3410111.73	1810028.88	30.68	63.32856515	-168.96804280	N 63°19'42.83454"	W 168°58'4.95408"	RTK	0.04	0.08	8/18/2022 17:51	23
12934	Toe of Slope	TOE	3410106.42	1810036.52	27.70	63.32855030	-168.96799684	N 63°19'42.78108"	W 168°58'4.78862"	RTK	0.04	0.08	8/18/2022 17:51	24
12935	Toe of Slope	TOE	3410128.89	1810047.85	26.74	63.32861123	-168.96792573	N 63°19'43.00042"	W 168°58'4.53262"	RTK	0.04	0.07	8/18/2022 17:51	24
12936	Top of Slope	TOP	3410131.48	1810044.30	28.46	63.32861849	-168.96794706	N 63°19'43.02656"	W 168°58'4.60941"	RTK	0.05	0.08	8/18/2022 17:52	24
12937	Ground Shot	GS	3410137.37	1810036.00	30.12	63.32863495	-168.96799697	N 63°19'43.08582"	W 168°58'4.78909"	RTK	0.04	0.08	8/18/2022 17:52	24
12938	Toe of Slope	TOE	3410139.61	1810032.79	29.96	63.32864122	-168.96801632	N 63°19'43.10839"	W 168°58'4.85875"	RTK	0.05	0.08	8/18/2022 17:52	23
12939	Gravel	GV	3410142.08	1810029.42	31.64	63.32864810	-168.96803655	N 63°19'43.13316"	W 168°58'4.93157"	RTK	0.05	0.08	8/18/2022 17:52	24
12940	Top of Slope	TOP	3410146.71	1810023.05	33.11	63.32866104	-168.96807486	N 63°19'43.17974"	W 168°58'5.06949"	RTK	0.04	0.07	8/18/2022 17:52	23
12941	Gravel	GV	3410153.50	1810013.39	33.89	63.32868005	-168.96813296	N 63°19'43.24818"	W 168°58'5.27865"	RTK	0.05	0.08	8/18/2022 17:53	24
12942	Gravel	GV	3410168.07	1809993.01	34.35	63.32872078	-168.96825552	N 63°19'43.3948"	W 168°58'5.71987"	RTK	0.04	0.08	8/18/2022 17:53	23
12943	Gravel	GV	3410182.46	1809972.70	34.81	63.32876102	-168.96837763	N 63°19'43.53967"	W 168°58'6.15946"	RTK	0.04	0.08	8/18/2022 17:53	23
12944	Gravel	GV	3410197.00	1809952.23	34.15	63.32880169	-168.96850076	N 63°19'43.68608"	W 168°58'6.60273"	RTK	0.05	0.08	8/18/2022 17:53	23
12945	Gravel	GV	3410211.43	1809931.89	33.71	63.32884202	-168.96862306	N 63°19'43.83127"	W 168°58'7.04301"	RTK	0.05	0.08	8/18/2022 17:54	24
12946	Top of Slope	TOP	3410216.65	1809924.44	33.05	63.32885662	-168.96866786	N 63°19'43.88383"	W 168°58'7.20429"	RTK	0.04	0.08	8/18/2022 17:54	24
12947	Gravel	GV	3410219.68	1809920.40	31.91	63.32886509	-168.96869217	N 63°19'43.91432"	W 168°58'7.29181"	RTK	0.04	0.08	8/18/2022 17:54	24

12948	Toe of Slope	TOE	3410223.44	1809914.98	30.00	63.32887561	-168.96872477	N 63°19'43.95219"	W 168°58'7.40917"	RTK	0.05	0.08	8/18/2022 17:54	24
12949	Toe of Slope	TOE	3410306.05	1809971.24	29.99	63.32909903	-168.96837444	N 63°19'44.7565"	W 168°58'6.14798"	RTK	0.05	0.09	8/18/2022 17:55	23
12950	Top of Slope	TOP	3410302.13	1809976.92	31.99	63.32908804	-168.96834025	N 63°19'44.71694"	W 168°58'6.0249"	RTK	0.05	0.08	8/18/2022 17:55	24
12951	Gravel	GV	3410292.94	1809989.69	33.36	63.32906234	-168.96826349	N 63°19'44.62442"	W 168°58'5.74856"	RTK	0.04	0.08	8/18/2022 17:55	24
12952	Gravel	GV	3410283.99	1810002.41	33.23	63.32903734	-168.96818696	N 63°19'44.53442"	W 168°58'5.47305"	RTK	0.04	0.08	8/18/2022 17:55	24
12953	Gravel	GV	3410278.39	1810010.18	33.87	63.32902167	-168.96814023	N 63°19'44.47801"	W 168°58'5.30482"	RTK	0.04	0.08	8/18/2022 17:56	24
12954	Gravel	GV	3410263.93	1810030.64	34.65	63.32898124	-168.96801721	N 63°19'44.33246"	W 168°58'4.86195"	RTK	0.05	0.08	8/18/2022 17:56	24
12955	Gravel	GV	3410249.40	1810050.95	34.37	63.32894061	-168.96789511	N 63°19'44.18619"	W 168°58'4.42239"	RTK	0.05	0.08	8/18/2022 17:56	23
12956	Gravel	GV	3410235.02	1810071.21	33.63	63.32890039	-168.96777324	N 63°19'44.0414"	W 168°58'3.98366"	RTK	0.05	0.08	8/18/2022 17:56	24
12957	Gravel	GV	3410190.83	1810047.14	33.62	63.32878064	-168.96792401	N 63°19'43.6103"	W 168°58'4.52643"	RTK	0.05	0.09	8/18/2022 17:57	23
12958	Top of Slope	TOP	3410182.83	1810058.57	32.82	63.32875825	-168.96785527	N 63°19'43.52969"	W 168°58'4.27897"	RTK	0.04	0.08	8/18/2022 17:57	24
12959	Gravel	GV	3410178.25	1810064.71	30.65	63.32874545	-168.96781834	N 63°19'43.48361"	W 168°58'4.14602"	RTK	0.05	0.09	8/18/2022 17:57	24
12960	Gravel	GV	3410174.29	1810070.34	27.64	63.32873439	-168.96778448	N 63°19'43.4438"	W 168°58'4.02412"	RTK	0.04	0.08	8/18/2022 17:58	24
12961	Toe of Slope	TOE	3410172.27	1810073.01	26.61	63.32872875	-168.96776843	N 63°19'43.4235"	W 168°58'3.96634"	RTK	0.06	0.08	8/18/2022 17:58	24
12962	Toe of Slope	TOE	3410189.98	1810091.32	26.86	63.32877635	-168.96765534	N 63°19'43.59485"	W 168°58'3.55922"	RTK	0.05	0.07	8/18/2022 17:58	23
12963	Gravel	GV	3410192.17	1810088.31	28.25	63.32878249	-168.96767340	N 63°19'43.61696"	W 168°58'3.62423"	RTK	0.04	0.07	8/18/2022 17:58	22
12964	Top of Slope	TOP	3410200.61	1810077.39	32.87	63.32880605	-168.96773904	N 63°19'43.70177"	W 168°58'3.86054"	RTK	0.04	0.07	8/18/2022 17:58	23
12965	Gravel	GV	3410212.27	1810062.00	33.65	63.32883860	-168.96783149	N 63°19'43.81895"	W 168°58'4.19336"	RTK	0.04	0.07	8/18/2022 17:59	23
12966	Gravel	GV	3410226.30	1810071.16	33.56	63.32887655	-168.96777439	N 63°19'43.95557"	W 168°58'3.9878"	RTK	0.06	0.08	8/18/2022 17:59	22
12967	Top of Slope	TOP	3410213.31	1810082.85	32.12	63.32884053	-168.96770454	N 63°19'43.8259"	W 168°58'3.73634"	RTK	0.04	0.08	8/18/2022 17:59	23
12968	Gravel	GV	3410207.93	1810086.23	30.30	63.32882567	-168.96768454	N 63°19'43.77241"	W 168°58'3.66434"	RTK	0.04	0.08	8/18/2022 17:59	23
12969	Toe of Slope	TOE	3410201.90	1810090.56	27.28	63.32880898	-168.96765879	N 63°19'43.71232"	W 168°58'3.57164"	RTK	0.04	0.07	8/18/2022 17:59	23
12970	Toe of Slope	TOE	3410212.29	1810102.87	27.15	63.32883684	-168.96758287	N 63°19'43.81262"	W 168°58'3.29833"	RTK	0.08	0.08	8/18/2022 18:00	23
12971	Gravel	GV	3410217.57	1810095.84	30.49	63.32885159	-168.96762513	N 63°19'43.86572"	W 168°58'3.45046"	RTK	0.04	0.07	8/18/2022 18:00	23
12972	Top of Slope	TOP	3410221.71	1810089.99	32.58	63.32886317	-168.96766031	N 63°19'43.90741"	W 168°58'3.57711"	RTK	0.05	0.08	8/18/2022 18:00	23
12973	Gravel	GV	3410237.27	1810103.57	32.87	63.32890512	-168.96757618	N 63°19'44.05843"	W 168°58'3.27424"	RTK	0.05	0.08	8/18/2022 18:01	23
12974	Top of Slope	TOP	3410232.61	1810111.93	31.52	63.32889201	-168.96752576	N 63°19'44.01123"	W 168°58'3.09273"	RTK	0.04	0.08	8/18/2022 18:01	23
12975	Toe of Slope	TOE	3410227.42	1810119.75	28.43	63.32887748	-168.96747869	N 63°19'43.95892"	W 168°58'2.92328"	RTK	0.05	0.08	8/18/2022 18:01	23
12976	Toe of Slope	TOE	3410293.50	1810161.65	29.84	63.32905632	-168.96721734	N 63°19'44.60275"	W 168°58'1.98242"	RTK	0.05	0.08	8/18/2022 18:02	22
12977	Top of Slope	TOP	3410298.28	1810155.10	31.46	63.32906967	-168.96725671	N 63°19'44.65081"	W 168°58'2.12415"	RTK	0.04	0.08	8/18/2022 18:02	22
12978	Gravel	GV	3410301.95	1810149.46	32.46	63.32907995	-168.96729065	N 63°19'44.68782"	W 168°58'2.24633"	RTK	0.04	0.08	8/18/2022 18:02	22
12979	Gravel	GV	3410316.39	1810129.31	33.68	63.32912032	-168.96741184	N 63°19'44.83315"	W 168°58'2.68262"	RTK	0.04	0.07	8/18/2022 18:02	22
12980	Gravel	GV	3410324.83	1810117.44	33.52	63.32914394	-168.96748323	N 63°19'44.91818"	W 168°58'2.93962"	RTK	0.04	0.07	8/18/2022 18:03	22
12981	Gravel	GV	3410331.00	1810108.80	34.16	63.32916118	-168.96753514	N 63°19'44.98024"	W 168°58'3.1265"	RTK	0.04	0.07	8/18/2022 18:03	22
12982	Gravel	GV	3410345.39	1810088.53	34.48	63.32920141	-168.96765709	N 63°19'45.12507"	W 168°58'3.56552"	RTK	0.04	0.08	8/18/2022 18:03	22
12983	Gravel	GV	3410359.92	1810068.15	34.16	63.32924203	-168.96777963	N 63°19'45.2713"	W 168°58'4.00666"	RTK	0.04	0.07	8/18/2022 18:03	22
12984	Gravel	GV	3410366.55	1810058.68	33.42	63.32926058	-168.96783659	N 63°19'45.33808"	W 168°58'4.21172"	RTK	0.04	0.08	8/18/2022 18:04	21
12985	Gravel	GV	3410374.40	1810047.71	33.33	63.32928254	-168.96790258	N 63°19'45.41714"	W 168°58'4.44928"	RTK	0.04	0.07	8/18/2022 18:04	22
12986	Top of Slope	TOP	3410382.40	1810036.58	32.44	63.32930490	-168.96796950	N 63°19'45.49763"	W 168°58'4.6902"	RTK	0.04	0.07	8/18/2022 18:04	22
12987	Toe of Slope	TOE	3410386.76	1810030.49	30.90	63.32931708	-168.96800610	N 63°19'45.54148"	W 168°58'4.82195"	RTK	0.04	0.08	8/18/2022 18:04	22
12988	Toe of Slope	TOE	3410466.34	1810091.05	30.13	63.32953203	-168.96762990	N 63°19'46.3153"	W 168°58'3.46763"	RTK	0.04	0.08	8/18/2022 18:05	22
12989	Gravel	GV	3410463.62	1810094.62	31.47	63.32952442	-168.96760841	N 63°19'46.28791"	W 168°58'3.39027"	RTK	0.04	0.08	8/18/2022 18:05	22
12990	Top of Slope	TOP	3410456.79	1810104.44	33.09	63.32950531	-168.96754936	N 63°19'46.21911"	W 168°58'3.17769"	RTK	0.04	0.08	8/18/2022 18:05	22
12991	Gravel	GV	3410441.40	1810126.05	34.20	63.32946228	-168.96741939	N 63°19'46.0642"	W 168°58'2.7098"	RTK	0.04	0.07	8/18/2022 18:06	23
12992	Gravel	GV	3410426.91	1810146.39	34.50	63.32942177	-168.96729709	N 63°19'45.91837"	W 168°58'2.26952"	RTK	0.04	0.07	8/18/2022 18:06	23
12993	Gravel	GV	3410412.37	1810166.80	34.11	63.32938113	-168.96717437	N 63°19'45.77206"	W 168°58'1.82773"	RTK	0.04	0.07	8/18/2022 18:06	23
12994	Gravel	GV	3410397.87	1810187.22	33.59	63.32934057	-168.96705159	N 63°19'45.62605"	W 168°58'1.38572"	RTK	0.04	0.07	8/18/2022 18:06	23
12995	Top of Slope	TOP	3410386.65	1810203.00	33.24	63.32930919	-168.96695665	N 63°19'45.51308"	W 168°58'1.04393"	RTK	0.04	0.08	8/18/2022 18:07	23
12996	Gravel	GV	3410380.97	1810210.85	32.17	63.32929333	-168.96690945	N 63°19'45.45598"	W 168°58'0.87402"	RTK	0.04	0.07	8/18/2022 18:07	23
12997	Toe of Slope	TOE	3410375.56	1810218.59	31.33	63.32927818	-168.96686293	N 63°19'45.40144"	W 168°58'0.70654"	RTK	0.04	0.07	8/18/2022 18:07	23
12998	Toe of Slope	TOE	3410440.13	1810264.05	30.72	63.32945273	-168.96658007	N 63°19'46.02982"	W 168°57'59.68825"	RTK	0.04	0.08	8/18/2022 18:08	23
12999	Gravel	GV	3410445.44	1810258.50	31.44	63.32946750	-168.96661330	N 63°19'46.08299"	W 168°57'59.80788"	RTK	0.05	0.08	8/18/2022 18:08	23
13000	Top of Slope	TOP	3410452.44	1810248.40	33.11	63.32948709	-168.96667405	N 63°19'46.15352"	W 168°58'0.02657"	RTK	0.04	0.07	8/18/2022 18:08	23
13001	Toe of Slope	TOE	3410461.25	1810270.65	30.34	63.32951020	-168.96653780	N 63°19'46.23672"	W 168°57'59.53607"	RTK	0.05	0.08	8/18/2022 18:08	23
13002	Top of Slope	TOP	3410467.71	1810261.47	32.90	63.32952826	-168.96659301	N 63°19'46.30173"	W 168°57'59.73483"	RTK	0.04	0.08	8/18/2022 18:09	23
13003	Gravel	GV	3410479.37	1810245.08	33.54	63.32956086	-168.96669160	N 63°19'46.41909"	W 168°58'0.08975"	RTK	0.04	0.08	8/18/2022 18:09	23

13004	Gravel	GV	3410494.01	1810224.69	33.97	63.32960180	-168.96681419	N 63°19'46.56647"	W 168°58'0.53108"	RTK	0.04	0.07	8/18/2022 18:09	23
13005	Gravel	GV	3410508.43	1810204.37	34.31	63.32964211	-168.96693643	N 63°19'46.71159"	W 168°58'0.97114"	RTK	0.05	0.08	8/18/2022 18:09	23
13006	Gravel	GV	3410522.92	1810183.97	33.98	63.32968263	-168.96705910	N 63°19'46.85746"	W 168°58'1.41276"	RTK	0.05	0.08	8/18/2022 18:10	22
13007	Gravel	GV	3410537.42	1810163.61	33.23	63.32972318	-168.96718154	N 63°19'47.00344"	W 168°58'1.85354"	RTK	0.05	0.08	8/18/2022 18:10	23
13008	Top of Slope	TOP	3410551.89	1810142.95	32.61	63.32976365	-168.96730579	N 63°19'47.14913"	W 168°58'2.30084"	RTK	0.05	0.08	8/18/2022 18:10	23
13009	Toe of Slope	TOE	3410555.04	1810138.83	31.94	63.32977244	-168.96733055	N 63°19'47.18078"	W 168°58'2.38998"	RTK	0.05	0.08	8/18/2022 18:10	23
13010	Toe of Slope	TOE	3410528.60	1810127.39	29.96	63.32970066	-168.96740270	N 63°19'46.92237"	W 168°58'2.64972"	RTK	0.04	0.08	8/18/2022 18:11	23
13011	Gravel	GV	3410525.64	1810132.03	31.00	63.32969236	-168.96737478	N 63°19'46.89249"	W 168°58'2.5492"	RTK	0.04	0.07	8/18/2022 18:11	23
13012	Top of Slope	TOP	3410520.95	1810138.46	32.67	63.32967924	-168.96733611	N 63°19'46.84526"	W 168°58'2.40999"	RTK	0.05	0.08	8/18/2022 18:11	23
13013	Toe of Slope	TOE	3410637.05	1810195.91	29.64	63.32999418	-168.96697523	N 63°19'47.97904"	W 168°58'1.11082"	RTK	0.04	0.07	8/18/2022 18:12	23
13014	Gravel	GV	3410634.14	1810200.11	30.30	63.32998603	-168.96694998	N 63°19'47.9497"	W 168°58'1.01992"	RTK	0.05	0.08	8/18/2022 18:12	23
13015	Top of Slope	TOP	3410628.60	1810207.97	32.58	63.32997054	-168.96690272	N 63°19'47.89394"	W 168°58'0.84979"	RTK	0.04	0.08	8/18/2022 18:12	23
13016	Gravel	GV	3410618.75	1810221.48	33.51	63.32994301	-168.96682150	N 63°19'47.79483"	W 168°58'0.5574"	RTK	0.04	0.08	8/18/2022 18:12	23
13017	Gravel	GV	3410604.37	1810241.82	33.74	63.32990280	-168.96669915	N 63°19'47.65007"	W 168°58'0.11694"	RTK	0.04	0.08	8/18/2022 18:13	23
13018	Gravel	GV	3410589.83	1810262.21	34.09	63.32986213	-168.96657654	N 63°19'47.50366"	W 168°57'59.67554"	RTK	0.05	0.08	8/18/2022 18:13	23
13019	Gravel	GV	3410575.41	1810282.71	33.71	63.32982180	-168.96645325	N 63°19'47.35847"	W 168°57'59.2317"	RTK	0.04	0.08	8/18/2022 18:13	23
13020	Gravel	GV	3410561.03	1810303.02	33.29	63.32978158	-168.96633112	N 63°19'47.21368"	W 168°57'58.79203"	RTK	0.04	0.08	8/18/2022 18:13	23
13021	Top of Slope	TOP	3410546.55	1810323.29	31.93	63.32974111	-168.96620921	N 63°19'47.06799"	W 168°57'58.35315"	RTK	0.04	0.08	8/18/2022 18:14	23
13022	Toe of Slope	TOE	3410543.15	1810328.15	30.66	63.32973160	-168.96617998	N 63°19'47.03376"	W 168°57'58.24792"	RTK	0.04	0.08	8/18/2022 18:14	23
13023	Toe of Slope	TOE	3410504.16	1810296.57	30.33	63.32962637	-168.96637596	N 63°19'46.65493"	W 168°57'58.95345"	RTK	0.04	0.08	8/18/2022 18:14	23
13024	Gravel	GV	3410508.23	1810291.01	31.29	63.32963775	-168.96640938	N 63°19'46.6959"	W 168°57'59.07376"	RTK	0.05	0.08	8/18/2022 18:14	22
13025	Top of Slope	TOP	3410513.15	1810283.94	32.83	63.32965152	-168.96645189	N 63°19'46.74547"	W 168°57'59.2268"	RTK	0.04	0.08	8/18/2022 18:15	22
13026	Gravel	GV	3410520.16	1810274.07	33.39	63.32967113	-168.96651125	N 63°19'46.81606"	W 168°57'59.44049"	RTK	0.04	0.08	8/18/2022 18:15	22
13027	Toe of Slope	TOE	3410588.84	1810350.24	30.55	63.32985553	-168.96604110	N 63°19'47.4799"	W 168°57'57.74796"	RTK	0.04	0.08	8/18/2022 18:15	22
13028	Gravel	GV	3410591.78	1810345.93	31.30	63.32986378	-168.96606705	N 63°19'47.5096"	W 168°57'57.84137"	RTK	0.04	0.08	8/18/2022 18:16	22
13029	Top of Slope	TOP	3410596.96	1810338.80	32.71	63.32987825	-168.96610991	N 63°19'47.5617"	W 168°57'57.99567"	RTK	0.04	0.08	8/18/2022 18:16	22
13030	Gravel	GV	3410601.68	1810332.02	33.21	63.32989145	-168.96615069	N 63°19'47.60921"	W 168°57'58.14248"	RTK	0.04	0.08	8/18/2022 18:16	22
13031	Toe of Slope	TOE	3410626.15	1810383.90	30.46	63.32995607	-168.96583269	N 63°19'47.84185"	W 168°57'56.99768"	RTK	0.05	0.08	8/18/2022 18:16	22
13032	Gravel	GV	3410627.92	1810381.37	31.32	63.32996102	-168.96584791	N 63°19'47.85967"	W 168°57'57.05247"	RTK	0.05	0.08	8/18/2022 18:17	22
13033	Top of Slope	TOP	3410633.35	1810373.67	32.51	63.32997623	-168.96589423	N 63°19'47.91442"	W 168°57'57.21922"	RTK	0.05	0.08	8/18/2022 18:17	22
13034	Gravel	GV	3410642.44	1810360.90	33.11	63.33000164	-168.96597100	N 63°19'48.0059"	W 168°57'57.49559"	RTK	0.05	0.08	8/18/2022 18:17	22
13035	Gravel	GV	3410654.44	1810344.14	33.34	63.33003520	-168.96607178	N 63°19'48.12671"	W 168°57'57.8584"	RTK	0.05	0.09	8/18/2022 18:17	22
13036	Gravel	GV	3410667.54	1810325.92	34.36	63.33007180	-168.96618137	N 63°19'48.25847"	W 168°57'58.25293"	RTK	0.05	0.09	8/18/2022 18:18	22
13037	Gravel	GV	3410671.43	1810320.17	34.39	63.33008270	-168.96621595	N 63°19'48.29771"	W 168°57'58.37741"	RTK	0.05	0.09	8/18/2022 18:18	23
13038	Gravel	GV	3410685.93	1810299.77	34.01	63.33012324	-168.96633865	N 63°19'48.44366"	W 168°57'58.81914"	RTK	0.05	0.09	8/18/2022 18:18	23
13039	Gravel	GV	3410700.38	1810279.46	33.41	63.33016366	-168.96646077	N 63°19'48.58917"	W 168°57'59.25877"	RTK	0.05	0.09	8/18/2022 18:18	23
13040	Top of Slope	TOP	3410709.33	1810266.99	32.16	63.33018868	-168.96653573	N 63°19'48.67924"	W 168°57'59.52862"	RTK	0.05	0.09	8/18/2022 18:19	23
13041	Toe of Slope	TOE	3410718.13	1810254.73	28.52	63.33021327	-168.96660947	N 63°19'48.76777"	W 168°57'59.79409"	RTK	0.05	0.09	8/18/2022 18:19	23
13042	Gravel	GV	3410578.12	1810192.49	33.60	63.32983319	-168.96700186	N 63°19'47.39948"	W 168°58'1.20669"	RTK	0.05	0.09	8/18/2022 18:20	23
13043	Top of Slope	TOP	3410586.97	1810179.88	33.13	63.32985795	-168.96707766	N 63°19'47.48861"	W 168°58'1.47957"	RTK	0.05	0.09	8/18/2022 18:21	24
13044	Gravel	GV	3410591.32	1810174.17	32.03	63.32987008	-168.96711198	N 63°19'47.53228"	W 168°58'1.60312"	RTK	0.05	0.09	8/18/2022 18:21	23
13045	Toe of Slope	TOE	3410593.55	1810170.91	30.88	63.32987634	-168.96713159	N 63°19'47.55482"	W 168°58'1.67372"	RTK	0.05	0.09	8/18/2022 18:21	23
13046	Toe of Slope	TOE	3410798.81	1810313.61	27.89	63.33043127	-168.96624335	N 63°19'49.55257"	W 168°57'58.47606"	RTK	0.05	0.09	8/18/2022 18:22	23
13047	Gravel	GV	3410795.70	1810318.18	29.34	63.33042258	-168.96621589	N 63°19'49.52128"	W 168°57'58.3772"	RTK	0.05	0.09	8/18/2022 18:22	23
13048	Gravel	GV	3410792.74	1810322.36	31.81	63.33041430	-168.96619072	N 63°19'49.49148"	W 168°57'58.28659"	RTK	0.05	0.08	8/18/2022 18:22	23
13049	Top of Slope	TOP	3410789.26	1810326.93	33.01	63.33040459	-168.96616330	N 63°19'49.45652"	W 168°57'58.18788"	RTK	0.05	0.09	8/18/2022 18:23	24
13050	Gravel	GV	3410781.87	1810337.30	33.51	63.33038391	-168.96610092	N 63°19'49.38207"	W 168°57'57.96331"	RTK	0.05	0.09	8/18/2022 18:23	24
13051	Gravel	GV	3410767.55	1810357.75	33.97	63.33034386	-168.96597788	N 63°19'49.23789"	W 168°57'57.52036"	RTK	0.05	0.09	8/18/2022 18:23	24
13052	Gravel	GV	3410752.92	1810378.20	34.44	63.33030296	-168.96585495	N 63°19'49.09065"	W 168°57'57.07781"	RTK	0.05	0.09	8/18/2022 18:23	24
13053	Gravel	GV	3410738.43	1810398.61	34.16	63.33026243	-168.96573218	N 63°19'48.94474"	W 168°57'56.63584"	RTK	0.05	0.08	8/18/2022 18:24	24
13054	Gravel	GV	3410723.95	1810418.98	33.20	63.33022194	-168.96560969	N 63°19'48.79898"	W 168°57'56.19488"	RTK	0.05	0.09	8/18/2022 18:24	24
13055	Gravel	GV	3410713.74	1810433.05	32.73	63.33019341	-168.96552509	N 63°19'48.69627"	W 168°57'55.89032"	RTK	0.05	0.08	8/18/2022 18:24	24
13056	Top of Slope	TOP	3410709.00	1810439.82	32.42	63.33018015	-168.96548436	N 63°19'48.64853"	W 168°57'55.74369"	RTK	0.05	0.08	8/18/2022 18:24	24
13057	Toe of Slope	TOE	3410705.42	1810445.06	31.15	63.33017014	-168.96545286	N 63°19'48.6125"	W 168°57'55.63029"	RTK	0.05	0.08	8/18/2022 18:24	24
13058	Ground Shot	GS	3410702.23	1810449.67	30.85	63.33016119	-168.96542514	N 63°19'48.58028"	W 168°57'55.5305"	RTK	0.05	0.09	8/18/2022 18:25	24
13059	Ground Shot	GS	3410783.43	1810507.64	30.29	63.33038067	-168.96506449	N 63°19'49.37041"	W 168°57'54.23216"	RTK	0.05	0.10	8/18/2022 18:25	23

13060	Toe of Slope	TOE	3410787.14	1810502.57	30.41	63.33039103	-168.96509499	N 63°19'49.4077"	W 168°57'54.34196"	RTK	0.05	0.09	8/18/2022 18:25	24
13061	Top of Slope	TOP	3410790.66	1810497.68	31.47	63.33040088	-168.96512437	N 63°19'49.44316"	W 168°57'54.44773"	RTK	0.05	0.08	8/18/2022 18:26	24
13062	Gravel	GV	3410805.30	1810476.86	33.32	63.33044182	-168.96524957	N 63°19'49.59055"	W 168°57'54.89845"	RTK	0.05	0.08	8/18/2022 18:26	24
13063	Gravel	GV	3410820.05	1810456.44	33.74	63.33048304	-168.96537236	N 63°19'49.73894"	W 168°57'55.34049"	RTK	0.05	0.09	8/18/2022 18:26	24
13064	Gravel	GV	3410834.45	1810435.96	33.89	63.33052332	-168.96549554	N 63°19'49.88395"	W 168°57'55.78394"	RTK	0.05	0.08	8/18/2022 18:26	24
13065	Gravel	GV	3410848.82	1810415.65	33.51	63.33056352	-168.96561770	N 63°19'50.02867"	W 168°57'56.22371"	RTK	0.05	0.09	8/18/2022 18:27	24
13066	Gravel	GV	3410863.38	1810395.28	32.74	63.33060423	-168.96574017	N 63°19'50.17522"	W 168°57'56.66461"	RTK	0.05	0.09	8/18/2022 18:27	24
13067	Top of Slope	TOP	3410872.95	1810381.72	31.06	63.33063099	-168.96582175	N 63°19'50.27156"	W 168°57'56.9583"	RTK	0.05	0.09	8/18/2022 18:27	24
13068	Toe of Slope	TOE	3410879.06	1810373.37	27.42	63.33064807	-168.96587191	N 63°19'50.33305"	W 168°57'57.13887"	RTK	0.05	0.08	8/18/2022 18:27	24
13069	Toe of Slope	TOE	3410960.69	1810431.27	27.17	63.33086871	-168.96551171	N 63°19'51.12735"	W 168°57'55.84215"	RTK	0.05	0.09	8/18/2022 18:28	24
13070	Gravel	GV	3410958.06	1810435.07	28.61	63.33086137	-168.96548883	N 63°19'51.10093"	W 168°57'55.75978"	RTK	0.05	0.09	8/18/2022 18:28	24
13071	Top of Slope	TOP	3410952.52	1810442.52	30.33	63.33084587	-168.96544406	N 63°19'51.04513"	W 168°57'55.59861"	RTK	0.05	0.08	8/18/2022 18:28	24
13072	Gravel	GV	3410944.95	1810453.31	31.75	63.33082470	-168.96537913	N 63°19'50.96892"	W 168°57'55.36486"	RTK	0.05	0.08	8/18/2022 18:28	24
13073	Gravel	GV	3410930.41	1810473.63	33.46	63.33078404	-168.96525694	N 63°19'50.82254"	W 168°57'54.92498"	RTK	0.04	0.08	8/18/2022 18:29	24
13074	Gravel	GV	3410915.87	1810494.12	33.76	63.33074339	-168.96513374	N 63°19'50.6762"	W 168°57'54.48146"	RTK	0.04	0.08	8/18/2022 18:29	24
13075	Gravel	GV	3410901.44	1810514.53	33.53	63.33070302	-168.96501101	N 63°19'50.53087"	W 168°57'54.03963"	RTK	0.05	0.09	8/18/2022 18:29	24
13076	Gravel	GV	3410886.98	1810534.90	33.02	63.33066260	-168.96488846	N 63°19'50.38535"	W 168°57'53.59845"	RTK	0.05	0.09	8/18/2022 18:29	24
13077	Top of Slope	TOP	3410871.97	1810555.99	31.89	63.33062064	-168.96476165	N 63°19'50.2343"	W 168°57'53.14194"	RTK	0.05	0.09	8/18/2022 18:30	24
13078	Toe of Slope	TOE	3410865.10	1810565.35	28.71	63.33060144	-168.96470541	N 63°19'50.16518"	W 168°57'52.93947"	RTK	0.05	0.08	8/18/2022 18:30	24
13080	Gravel	GV	3410948.08	1810578.17	32.52	63.33082774	-168.96461922	N 63°19'50.97986"	W 168°57'52.62919"	RTK	0.03	0.04	8/19/2022 7:46	26
13081	Top of Slope	TOP	3410933.10	1810599.20	30.97	63.33078587	-168.96449275	N 63°19'50.82913"	W 168°57'52.1739"	RTK	0.03	0.04	8/19/2022 7:46	26
13082	Gravel	GV	3410929.30	1810604.70	29.62	63.33077523	-168.96445971	N 63°19'50.79082"	W 168°57'52.05495"	RTK	0.04	0.05	8/19/2022 7:47	26
13083	Toe of Slope	TOE	3410925.07	1810610.45	27.12	63.33076342	-168.96442509	N 63°19'50.74831"	W 168°57'51.93032"	RTK	0.03	0.05	8/19/2022 7:47	26
13084	Toe of Slope	TOE	3410949.21	1810619.77	26.12	63.33082901	-168.96436602	N 63°19'50.98443"	W 168°57'51.71767"	RTK	0.03	0.04	8/19/2022 7:47	26
13085	Gravel	GV	3410951.49	1810616.64	27.19	63.33083537	-168.96438483	N 63°19'51.00733"	W 168°57'51.78538"	RTK	0.04	0.05	8/19/2022 7:47	26
13086	Top of Slope	TOP	3410958.18	1810606.99	31.12	63.33085410	-168.96444290	N 63°19'51.07476"	W 168°57'51.99443"	RTK	0.03	0.04	8/19/2022 7:48	26
13087	Gravel	GV	3410968.42	1810592.61	32.59	63.33088274	-168.96452941	N 63°19'51.17786"	W 168°57'52.30587"	RTK	0.03	0.05	8/19/2022 7:48	26
13088	Gravel	GV	3410982.83	1810572.24	32.80	63.33092304	-168.96465187	N 63°19'51.32294"	W 168°57'52.74673"	RTK	0.03	0.04	8/19/2022 7:48	26
13089	Gravel	GV	3410997.37	1810551.93	33.45	63.33096369	-168.96477401	N 63°19'51.46928"	W 168°57'53.18643"	RTK	0.03	0.05	8/19/2022 7:48	26
13090	Gravel	GV	3411011.84	1810531.56	32.99	63.33100415	-168.96489651	N 63°19'51.61493"	W 168°57'53.62743"	RTK	0.03	0.05	8/19/2022 7:49	26
13091	Gravel	GV	3411026.14	1810511.23	31.83	63.33104414	-168.96501880	N 63°19'51.7589"	W 168°57'54.06767"	RTK	0.03	0.04	8/19/2022 7:49	26
13092	Top of Slope	TOP	3411037.74	1810495.13	30.31	63.33107658	-168.96511561	N 63°19'51.87568"	W 168°57'54.41619"	RTK	0.03	0.05	8/19/2022 7:49	26
13093	Toe of Slope	TOE	3411043.53	1810486.98	27.42	63.33109277	-168.96516461	N 63°19'51.93397"	W 168°57'54.59259"	RTK	0.03	0.04	8/19/2022 7:49	26
13094	Toe of Slope	TOE	3411083.89	1810516.91	27.58	63.33120180	-168.96497858	N 63°19'52.32648"	W 168°57'53.92288"	RTK	0.03	0.04	8/19/2022 7:50	26
13095	Gravel	GV	3411078.90	1810523.53	29.60	63.33118786	-168.96493880	N 63°19'52.27629"	W 168°57'53.77967"	RTK	0.03	0.04	8/19/2022 7:50	26
13096	Top of Slope	TOP	3411074.56	1810529.81	30.51	63.33117571	-168.96490102	N 63°19'52.23255"	W 168°57'53.64367"	RTK	0.03	0.05	8/19/2022 7:50	26
13097	Gravel	GV	3411067.14	1810540.13	31.73	63.33115496	-168.96483898	N 63°19'52.15785"	W 168°57'53.42032"	RTK	0.03	0.05	8/19/2022 7:51	26
13098	Toe of Slope	TOE	3411126.79	1810542.59	26.74	63.33131796	-168.96481812	N 63°19'52.74465"	W 168°57'53.34523"	RTK	0.03	0.05	8/19/2022 7:51	26
13099	Gravel	GV	3411123.82	1810546.69	27.69	63.33130966	-168.96479349	N 63°19'52.71477"	W 168°57'53.25656"	RTK	0.03	0.04	8/19/2022 7:51	26
13100	Gravel	GV	3411121.79	1810549.48	27.93	63.33130398	-168.96477673	N 63°19'52.69432"	W 168°57'53.19622"	RTK	0.03	0.04	8/19/2022 7:51	26
13101	Top of Slope	TOP	3411117.05	1810556.28	29.81	63.33129073	-168.96473580	N 63°19'52.64662"	W 168°57'53.04887"	RTK	0.03	0.05	8/19/2022 7:52	26
13102	Gravel	GV	3411107.89	1810569.16	31.56	63.33126511	-168.96465837	N 63°19'52.55439"	W 168°57'52.77013"	RTK	0.03	0.05	8/19/2022 7:52	26
13103	Gravel	GV	3411096.23	1810585.69	32.16	63.33123250	-168.96455896	N 63°19'52.43699"	W 168°57'52.41225"	RTK	0.03	0.04	8/19/2022 7:52	25
13104	Gravel	GV	3411078.97	1810609.92	33.00	63.33118425	-168.96441323	N 63°19'52.26329"	W 168°57'51.88762"	RTK	0.03	0.05	8/19/2022 7:52	25
13105	Gravel	GV	3411064.31	1810630.27	32.38	63.33114326	-168.96429087	N 63°19'52.11573"	W 168°57'51.44713"	RTK	0.03	0.05	8/19/2022 7:53	25
13106	Gravel	GV	3411049.95	1810650.69	32.14	63.33110308	-168.96416803	N 63°19'51.97108"	W 168°57'51.0049"	RTK	0.03	0.05	8/19/2022 7:53	25
13107	Top of Slope	TOP	3411035.24	1810670.96	30.22	63.33106196	-168.96404619	N 63°19'51.82305"	W 168°57'50.56628"	RTK	0.03	0.04	8/19/2022 7:53	24
13108	Toe of Slope	TOE	3411032.98	1810674.51	28.48	63.33105564	-168.96402482	N 63°19'51.8003"	W 168°57'50.48935"	RTK	0.03	0.04	8/19/2022 7:53	24
13109	Ground Shot	GS	3411028.03	1810681.52	27.56	63.33104179	-168.96398264	N 63°19'51.75044"	W 168°57'50.3375"	RTK	0.03	0.04	8/19/2022 7:54	24
13110	Toe of Slope	TOE	3411109.25	1810739.79	26.77	63.33126131	-168.96362018	N 63°19'52.54071"	W 168°57'49.03264"	RTK	0.03	0.04	8/19/2022 7:54	24
13111	Top of Slope	TOP	3411111.70	1810736.30	27.90	63.33126815	-168.96364112	N 63°19'52.56533"	W 168°57'49.10803"	RTK	0.03	0.04	8/19/2022 7:55	24
13112	Toe of Slope	TOE	3411114.23	1810732.62	28.25	63.33127524	-168.96366327	N 63°19'52.59086"	W 168°57'49.18777"	RTK	0.03	0.05	8/19/2022 7:55	24
13113	Top of Slope	TOP	3411118.08	1810727.36	30.12	63.33128597	-168.96369490	N 63°19'52.62949"	W 168°57'49.30164"	RTK	0.03	0.04	8/19/2022 7:55	24
13114	Gravel	GV	3411119.53	1810725.42	30.24	63.33129004	-168.96370658	N 63°19'52.64414"	W 168°57'49.34368"	RTK	0.03	0.04	8/19/2022 7:55	24
13115	Gravel	GV	3411124.16	1810718.84	31.31	63.33130299	-168.96374612	N 63°19'52.69076"	W 168°57'49.48603"	RTK	0.03	0.05	8/19/2022 7:55	24
13116	Gravel	GV	3411131.35	1810708.62	31.84	63.33132309	-168.96380763	N 63°19'52.76312"	W 168°57'49.70746"	RTK	0.03	0.05	8/19/2022 7:55	24

13117	Gravel	GV	3411145.92	1810688.21	32.23	63.33136384	-168.96393035	N 63°19'52.90982"	W 168°57'50.14925"	RTK	0.03	0.05	8/19/2022 7:56	24
13118	Gravel	GV	3411160.41	1810667.87	32.86	63.33140436	-168.96405266	N 63°19'53.05569"	W 168°57'50.58957"	RTK	0.03	0.05	8/19/2022 7:56	24
13119	Gravel	GV	3411174.91	1810647.42	32.18	63.33144491	-168.96417563	N 63°19'53.20167"	W 168°57'51.03226"	RTK	0.03	0.05	8/19/2022 7:56	24
13120	Gravel	GV	3411189.29	1810627.01	31.32	63.33148514	-168.96429840	N 63°19'53.3465"	W 168°57'51.47423"	RTK	0.03	0.05	8/19/2022 7:57	24
13121	Gravel	GV	3411198.70	1810614.14	29.82	63.33151143	-168.96437576	N 63°19'53.44114"	W 168°57'51.75273"	RTK	0.03	0.04	8/19/2022 7:57	23
13122	Top of Slope	TOP	3411200.40	1810611.50	29.61	63.33151620	-168.96439165	N 63°19'53.45832"	W 168°57'51.80994"	RTK	0.03	0.04	8/19/2022 7:57	24
13123	Toe of Slope	TOE	3411205.33	1810604.71	27.39	63.33152996	-168.96443253	N 63°19'53.50785"	W 168°57'51.9571"	RTK	0.03	0.04	8/19/2022 7:57	24
13124	Gravel	GV	3411207.68	1810601.15	26.74	63.33153656	-168.96445390	N 63°19'53.53161"	W 168°57'52.03403"	RTK	0.03	0.04	8/19/2022 7:57	24
13125	Toe of Slope	TOE	3411288.70	1810659.85	26.13	63.33175549	-168.96408887	N 63°19'54.31976"	W 168°57'50.71993"	RTK	0.03	0.04	8/19/2022 7:58	22
13126	Top of Slope	TOP	3411286.40	1810662.97	27.16	63.33174908	-168.96407011	N 63°19'54.29668"	W 168°57'50.65239"	RTK	0.03	0.06	8/19/2022 7:58	22
13127	Gravel	GV	3411281.12	1810670.53	28.56	63.33173430	-168.96402463	N 63°19'54.24348"	W 168°57'50.48866"	RTK	0.03	0.04	8/19/2022 7:58	22
13128	Gravel	GV	3411270.82	1810685.11	31.22	63.33170548	-168.96393690	N 63°19'54.13972"	W 168°57'50.17283"	RTK	0.03	0.04	8/19/2022 7:59	22
13129	Gravel	GV	3411256.33	1810705.48	31.90	63.33166498	-168.96381441	N 63°19'53.99392"	W 168°57'49.73187"	RTK	0.03	0.04	8/19/2022 7:59	22
13130	Gravel	GV	3411241.93	1810725.81	32.42	63.33162469	-168.96369217	N 63°19'53.84888"	W 168°57'49.29181"	RTK	0.03	0.05	8/19/2022 7:59	22
13131	Gravel	GV	3411227.42	1810746.15	31.92	63.33158411	-168.96356985	N 63°19'53.70279"	W 168°57'48.85145"	RTK	0.03	0.04	8/19/2022 7:59	22
13132	Gravel	GV	3411212.93	1810766.53	31.43	63.33154360	-168.96344729	N 63°19'53.55696"	W 168°57'48.41024"	RTK	0.03	0.04	8/19/2022 8:00	22
13133	Gravel	GV	3411205.61	1810776.92	30.80	63.33152312	-168.96338475	N 63°19'53.48323"	W 168°57'48.18509"	RTK	0.03	0.04	8/19/2022 8:00	22
13134	Top of Slope	TOP	3411199.81	1810785.00	29.55	63.33150690	-168.96333622	N 63°19'53.42484"	W 168°57'48.01039"	RTK	0.03	0.04	8/19/2022 8:00	22
13135	Toe of Slope	TOE	3411196.93	1810788.99	27.86	63.33149885	-168.96331218	N 63°19'53.39586"	W 168°57'47.92384"	RTK	0.03	0.04	8/19/2022 8:00	22
13136	Ground Shot	GS	3411192.81	1810794.74	27.45	63.33148734	-168.96327760	N 63°19'53.35442"	W 168°57'47.79935"	RTK	0.03	0.04	8/19/2022 8:00	22
13137	Toe of Slope	TOE	3411273.57	1810853.87	25.77	63.33170555	-168.96290995	N 63°19'54.13998"	W 168°57'46.47582"	RTK	0.03	0.04	8/19/2022 8:01	22
13138	Top of Slope	TOP	3411280.46	1810844.25	29.65	63.33172482	-168.96296779	N 63°19'54.20935"	W 168°57'46.68404"	RTK	0.03	0.05	8/19/2022 8:01	22
13139	Gravel	GV	3411294.32	1810824.45	31.05	63.33176359	-168.96308688	N 63°19'54.34892"	W 168°57'47.11276"	RTK	0.03	0.04	8/19/2022 8:02	22
13140	Gravel	GV	3411308.90	1810804.08	31.40	63.33180436	-168.96320939	N 63°19'54.49569"	W 168°57'47.5538"	RTK	0.03	0.04	8/19/2022 8:02	22
13141	Gravel	GV	3411323.36	1810783.76	31.96	63.33184479	-168.96333158	N 63°19'54.64124"	W 168°57'47.99368"	RTK	0.03	0.04	8/19/2022 8:02	22
13142	Gravel	GV	3411337.89	1810763.32	31.65	63.33188542	-168.96345452	N 63°19'54.78751"	W 168°57'48.43627"	RTK	0.03	0.04	8/19/2022 8:02	22
13143	Gravel	GV	3411352.36	1810742.84	30.61	63.33192589	-168.96357767	N 63°19'54.9332"	W 168°57'48.87961"	RTK	0.03	0.04	8/19/2022 8:03	22
13144	Top of Slope	TOP	3411360.16	1810731.90	28.91	63.33194770	-168.96364347	N 63°19'55.01172"	W 168°57'49.11649"	RTK	0.03	0.05	8/19/2022 8:03	22
13145	Toe of Slope	TOE	3411363.69	1810726.97	27.12	63.33195757	-168.96367313	N 63°19'55.04725"	W 168°57'49.22326"	RTK	0.03	0.05	8/19/2022 8:03	22
13146	Gravel	GV	3411369.20	1810719.08	26.10	63.33197299	-168.96372055	N 63°19'55.10276"	W 168°57'49.39398"	RTK	0.03	0.04	8/19/2022 8:03	23
13147	Toe of Slope	TOE	3411450.78	1810777.03	26.18	63.33219349	-168.96336001	N 63°19'55.89656"	W 168°57'48.09603"	RTK	0.03	0.04	8/19/2022 8:04	23
13148	Top of Slope	TOP	3411442.58	1810788.62	29.78	63.33217054	-168.96329026	N 63°19'55.81394"	W 168°57'47.84493"	RTK	0.03	0.04	8/19/2022 8:04	23
13149	Gravel	GV	3411433.99	1810800.94	30.31	63.33214652	-168.96321617	N 63°19'55.72747"	W 168°57'47.57821"	RTK	0.03	0.05	8/19/2022 8:04	23
13150	Gravel	GV	3411419.37	1810821.15	31.07	63.33210564	-168.96309465	N 63°19'55.5803"	W 168°57'47.14073"	RTK	0.03	0.04	8/19/2022 8:05	23
13151	Gravel	GV	3411404.92	1810841.64	31.59	63.33206524	-168.96297141	N 63°19'55.43486"	W 168°57'46.69707"	RTK	0.03	0.04	8/19/2022 8:05	23
13152	Gravel	GV	3411390.37	1810861.98	31.07	63.33202454	-168.96284910	N 63°19'55.28834"	W 168°57'46.25675"	RTK	0.03	0.04	8/19/2022 8:05	23
13153	Gravel	GV	3411375.86	1810882.40	30.68	63.33198398	-168.96272632	N 63°19'55.14232"	W 168°57'45.81475"	RTK	0.03	0.04	8/19/2022 8:06	23
13154	Gravel	GV	3411369.32	1810891.76	29.88	63.33196568	-168.96267002	N 63°19'55.07644"	W 168°57'45.61207"	RTK	0.03	0.04	8/19/2022 8:06	23
13155	Top of Slope	TOP	3411363.40	1810899.99	28.34	63.33194912	-168.96262051	N 63°19'55.01683"	W 168°57'45.43383"	RTK	0.03	0.04	8/19/2022 8:06	23
13156	Toe of Slope	TOE	3411358.02	1810907.35	26.02	63.33193409	-168.96257628	N 63°19'54.96272"	W 168°57'45.2746"	RTK	0.03	0.05	8/19/2022 8:06	23
13157	Toe of Slope	TOE	3411370.01	1810916.74	26.53	63.33196645	-168.96251798	N 63°19'55.07922"	W 168°57'45.06472"	RTK	0.03	0.04	8/19/2022 8:07	23
13158	Top of Slope	TOP	3411375.16	1810909.36	28.14	63.33198088	-168.96256234	N 63°19'55.13116"	W 168°57'45.22442"	RTK	0.03	0.04	8/19/2022 8:07	23
13159	Gravel	GV	3411382.54	1810898.92	29.99	63.33200150	-168.96262512	N 63°19'55.20539"	W 168°57'45.45043"	RTK	0.03	0.05	8/19/2022 8:07	23
13160	Gravel	GV	3411388.24	1810891.11	30.70	63.33201745	-168.96267211	N 63°19'55.26282"	W 168°57'45.61959"	RTK	0.03	0.05	8/19/2022 8:07	23
13161	Gravel	GV	3411411.01	1810907.26	30.61	63.33207899	-168.96257157	N 63°19'55.48436"	W 168°57'45.25765"	RTK	0.03	0.04	8/19/2022 8:07	23
13162	Top of Slope	TOP	3411399.74	1810923.17	28.28	63.33204746	-168.96247594	N 63°19'55.37085"	W 168°57'44.91338"	RTK	0.03	0.04	8/19/2022 8:08	23
13163	Toe of Slope	TOE	3411395.67	1810928.95	25.85	63.33203608	-168.96244113	N 63°19'55.32988"	W 168°57'44.78806"	RTK	0.03	0.04	8/19/2022 8:08	24
13164	Ground Shot	GS	3411391.56	1810934.59	24.61	63.33202459	-168.96240725	N 63°19'55.28852"	W 168°57'44.6661"	RTK	0.07	0.05	8/19/2022 8:08	24
13165	Ground Shot	GS	3411407.02	1810947.58	26.11	63.33206629	-168.96232666	N 63°19'55.43864"	W 168°57'44.37597"	RTK	0.06	0.04	8/19/2022 8:08	24
13166	Toe of Slope	TOE	3411410.74	1810946.37	26.08	63.33207652	-168.96233371	N 63°19'55.47547"	W 168°57'44.40135"	RTK	0.03	0.05	8/19/2022 8:09	24
13167	Top of Slope	TOP	3411417.84	1810943.64	28.27	63.33209604	-168.96234957	N 63°19'55.54574"	W 168°57'44.45845"	RTK	0.03	0.05	8/19/2022 8:09	24
13168	Gravel	GV	3411427.66	1810938.64	29.88	63.33212312	-168.96237902	N 63°19'55.64323"	W 168°57'44.56447"	RTK	0.03	0.04	8/19/2022 8:09	24
13169	Gravel	GV	3411435.62	1810955.45	29.50	63.33214413	-168.96227598	N 63°19'55.71886"	W 168°57'44.19352"	RTK	0.03	0.04	8/19/2022 8:09	24
13170	Top of Slope	TOP	3411422.57	1810958.10	28.10	63.33210835	-168.96226115	N 63°19'55.59005"	W 168°57'44.14013"	RTK	0.03	0.05	8/19/2022 8:09	24
13171	Toe of Slope	TOE	3411415.71	1810959.19	26.41	63.33208954	-168.96225523	N 63°19'55.52234"	W 168°57'44.11882"	RTK	0.03	0.04	8/19/2022 8:09	24
13172	Ground Shot	GS	3411407.31	1810959.63	25.13	63.33206654	-168.96225335	N 63°19'55.43954"	W 168°57'44.11205"	RTK	0.03	0.04	8/19/2022 8:10	24

13173	Ground Shot	GS	3411404.17	1810964.77	24.93	63.33205773	-168.96222240	N 63°19'55.40782"	W 168°57'44.00064"	RTK	0.04	0.05	8/19/2022 8:10	24
13174	Toe of Slope	TOE	3411410.37	1810968.31	25.45	63.33207452	-168.96220025	N 63°19'55.46827"	W 168°57'43.92089"	RTK	0.03	0.04	8/19/2022 8:10	24
13175	Top of Slope	TOP	3411422.31	1810976.72	28.87	63.33210681	-168.96214788	N 63°19'55.58451"	W 168°57'43.73236"	RTK	0.03	0.05	8/19/2022 8:10	24
13176	Gravel	GV	3411428.55	1810981.18	29.62	63.33212368	-168.96212013	N 63°19'55.64524"	W 168°57'43.63246"	RTK	0.03	0.04	8/19/2022 8:11	24
13177	Gravel	GV	3411442.96	1810960.71	29.70	63.33216399	-168.96224327	N 63°19'55.79036"	W 168°57'44.07577"	RTK	0.02	0.04	8/19/2022 8:11	24
13178	Gravel	GV	3411457.52	1810940.35	30.25	63.33220470	-168.96236570	N 63°19'55.93691"	W 168°57'44.51651"	RTK	0.03	0.05	8/19/2022 8:11	24
13179	Gravel	GV	3411471.96	1810919.99	30.67	63.33224508	-168.96248815	N 63°19'56.08228"	W 168°57'44.95734"	RTK	0.03	0.04	8/19/2022 8:11	24
13180	Gravel	GV	3411486.42	1810899.54	30.87	63.33228553	-168.96261117	N 63°19'56.2279"	W 168°57'45.40021"	RTK	0.03	0.04	8/19/2022 8:12	24
13181	Gravel	GV	3411500.77	1810879.06	30.47	63.33232566	-168.96273435	N 63°19'56.37237"	W 168°57'45.84366"	RTK	0.03	0.04	8/19/2022 8:12	24
13182	Gravel	GV	3411515.28	1810858.87	30.32	63.33236623	-168.96285574	N 63°19'56.51842"	W 168°57'46.28066"	RTK	0.03	0.05	8/19/2022 8:12	24
13183	Top of Slope	TOP	3411527.62	1810841.60	29.27	63.33240073	-168.96295956	N 63°19'56.64262"	W 168°57'46.65441"	RTK	0.03	0.05	8/19/2022 8:12	24
13184	Gravel	GV	3411530.07	1810838.09	28.23	63.33240757	-168.96298073	N 63°19'56.66725"	W 168°57'46.73062"	RTK	0.03	0.04	8/19/2022 8:13	24
13185	Toe of Slope	TOE	3411533.66	1810833.27	25.69	63.33241761	-168.96300968	N 63°19'56.70339"	W 168°57'46.83484"	RTK	0.03	0.04	8/19/2022 8:13	24
13186	Toe of Slope	TOE	3411614.71	1810891.48	25.78	63.33263667	-168.96264757	N 63°19'57.49201"	W 168°57'45.53125"	RTK	0.03	0.05	8/19/2022 8:13	24
13187	Top of Slope	TOP	3411610.96	1810896.96	28.35	63.33262616	-168.96261455	N 63°19'57.45417"	W 168°57'45.41238"	RTK	0.03	0.05	8/19/2022 8:14	24
13188	Gravel	GV	3411604.10	1810906.82	30.05	63.33260695	-168.96255528	N 63°19'57.38501"	W 168°57'45.199"	RTK	0.03	0.04	8/19/2022 8:14	24
13189	Gravel	GV	3411596.79	1810916.75	30.38	63.33258654	-168.96249555	N 63°19'57.31154"	W 168°57'44.98397"	RTK	0.03	0.05	8/19/2022 8:14	24
13190	Gravel	GV	3411582.39	1810937.21	30.39	63.33254627	-168.96237252	N 63°19'57.16657"	W 168°57'44.54107"	RTK	0.03	0.04	8/19/2022 8:14	24
13191	Gravel	GV	3411568.01	1810957.51	30.69	63.33250604	-168.96225040	N 63°19'57.02174"	W 168°57'44.10143"	RTK	0.03	0.05	8/19/2022 8:15	24
13192	Gravel	GV	3411553.42	1810977.79	30.32	63.33246525	-168.96212848	N 63°19'56.87489"	W 168°57'43.66252"	RTK	0.03	0.05	8/19/2022 8:15	24
13193	Gravel	GV	3411539.02	1810998.32	30.15	63.33242497	-168.96200496	N 63°19'56.72989"	W 168°57'43.21785"	RTK	0.03	0.05	8/19/2022 8:15	24
13194	Gravel	GV	3411524.52	1811018.63	29.67	63.33238441	-168.96188286	N 63°19'56.58387"	W 168°57'42.77829"	RTK	0.03	0.04	8/19/2022 8:15	24
13195	Gravel	GV	3411509.96	1811039.00	29.61	63.33234371	-168.96176039	N 63°19'56.43735"	W 168°57'42.3374"	RTK	0.03	0.04	8/19/2022 8:16	24
13196	Gravel	GV	3411591.47	1811096.98	29.55	63.33256401	-168.96139958	N 63°19'57.23043"	W 168°57'41.03848"	RTK	0.03	0.04	8/19/2022 8:16	25
13197	Gravel	GV	3411605.90	1811076.63	29.71	63.33260437	-168.96152199	N 63°19'57.37573"	W 168°57'41.47916"	RTK	0.03	0.05	8/19/2022 8:17	25
13198	Gravel	GV	3411620.34	1811056.23	30.53	63.33264477	-168.96164464	N 63°19'57.52117"	W 168°57'41.9207"	RTK	0.03	0.04	8/19/2022 8:17	24
13199	Gravel	GV	3411634.83	1811035.82	30.56	63.33268527	-168.96176740	N 63°19'57.66697"	W 168°57'42.36264"	RTK	0.03	0.04	8/19/2022 8:17	24
13200	Gravel	GV	3411649.43	1811015.48	30.79	63.33272610	-168.96188969	N 63°19'57.81396"	W 168°57'42.80288"	RTK	0.03	0.05	8/19/2022 8:17	25
13201	Gravel	GV	3411663.85	1810995.08	30.37	63.33276643	-168.96201243	N 63°19'57.95914"	W 168°57'43.24474"	RTK	0.03	0.04	8/19/2022 8:18	24
13202	Gravel	GV	3411678.37	1810974.65	30.09	63.33280703	-168.96213524	N 63°19'58.1053"	W 168°57'43.68686"	RTK	0.03	0.05	8/19/2022 8:18	24
13203	Top of Slope	TOP	3411690.38	1810957.89	29.18	63.33284061	-168.96223603	N 63°19'58.22619"	W 168°57'44.0497"	RTK	0.03	0.04	8/19/2022 8:18	24
13204	Toe of Slope	TOE	3411695.33	1810950.94	25.98	63.33285444	-168.96227783	N 63°19'58.27598"	W 168°57'44.20018"	RTK	0.03	0.04	8/19/2022 8:18	25
13205	Ground Shot	GS	3411696.44	1810948.74	25.25	63.33285760	-168.96229116	N 63°19'58.28735"	W 168°57'44.24817"	RTK	0.03	0.04	8/19/2022 8:19	24
13206	Top of Slope	TOP	3411734.44	1810982.55	28.70	63.33296000	-168.96208171	N 63°19'58.65599"	W 168°57'43.49415"	RTK	0.03	0.05	8/19/2022 8:19	25
13207	Toe of Slope	TOE	3411739.89	1810974.19	24.10	63.33297526	-168.96213202	N 63°19'58.71093"	W 168°57'43.67527"	RTK	0.03	0.04	8/19/2022 8:19	25
13208	Toe of Slope	TOE	3411757.91	1810989.79	24.00	63.33302385	-168.96203535	N 63°19'58.88585"	W 168°57'43.32726"	RTK	0.03	0.05	8/19/2022 8:20	25
13209	Toe of Slope	TOE	3411762.08	1810994.26	24.02	63.33303505	-168.96200773	N 63°19'58.92617"	W 168°57'43.22782"	RTK	0.03	0.05	8/19/2022 8:20	25
13210	Toe of Slope	TOE	3411761.16	1811003.00	24.04	63.33303216	-168.96195462	N 63°19'58.91577"	W 168°57'43.03663"	RTK	0.05	0.05	8/19/2022 8:20	25
13211	Top of Slope	TOP	3411749.92	1810996.86	28.62	63.33300168	-168.96199310	N 63°19'58.80604"	W 168°57'43.17516"	RTK	0.03	0.04	8/19/2022 8:20	25
13212	Top of Slope	TOP	3411750.70	1811001.96	28.57	63.33300359	-168.96196201	N 63°19'58.81292"	W 168°57'43.06323"	RTK	0.03	0.05	8/19/2022 8:20	25
13213	Top of Slope	TOP	3411743.58	1811020.97	28.66	63.33298328	-168.96184701	N 63°19'58.7398"	W 168°57'42.64923"	RTK	0.03	0.04	8/19/2022 8:21	24
13214	Toe of Slope	TOE	3411751.96	1811027.07	24.12	63.33300593	-168.96180909	N 63°19'58.82134"	W 168°57'42.51272"	RTK	0.04	0.05	8/19/2022 8:21	24
13215	Toe of Slope	TOE	3411737.47	1811047.51	23.97	63.33296541	-168.96168614	N 63°19'58.67547"	W 168°57'42.0701"	RTK	0.06	0.06	8/19/2022 8:21	21
13216	Top of Slope	TOP	3411729.48	1811041.56	28.53	63.33294381	-168.96172316	N 63°19'58.59771"	W 168°57'42.20337"	RTK	0.03	0.05	8/19/2022 8:21	24
13217	Top of Slope	TOP	3411714.65	1811061.80	28.96	63.33290238	-168.96160145	N 63°19'58.44856"	W 168°57'41.76521"	RTK	0.03	0.04	8/19/2022 8:22	23
13218	Toe of Slope	TOE	3411724.10	1811068.55	23.16	63.33292791	-168.96155950	N 63°19'58.54047"	W 168°57'41.61419"	RTK	0.05	0.05	8/19/2022 8:22	24
13219	Toe of Slope	TOE	3411708.18	1811087.98	25.28	63.33288352	-168.96144282	N 63°19'58.38067"	W 168°57'41.19415"	RTK	0.03	0.04	8/19/2022 8:22	23
13220	Top of Slope	TOP	3411701.27	1811082.94	28.75	63.33286486	-168.96147420	N 63°19'58.31349"	W 168°57'41.30711"	RTK	0.03	0.05	8/19/2022 8:23	24
13221	Top of Slope	TOP	3411695.13	1811096.50	28.91	63.33284746	-168.96139229	N 63°19'58.25085"	W 168°57'41.01224"	RTK	0.03	0.05	8/19/2022 8:23	24
13222	Toe of Slope	TOE	3411704.03	1811096.42	25.31	63.33287180	-168.96139188	N 63°19'58.33847"	W 168°57'41.01076"	RTK	0.03	0.04	8/19/2022 8:23	24
13223	Toe of Slope	TOE	3411710.83	1811101.79	25.34	63.33289016	-168.96135857	N 63°19'58.40457"	W 168°57'40.89085"	RTK	0.03	0.04	8/19/2022 8:23	24
13224	Top of Slope	TOP	3411705.14	1811109.95	27.57	63.33287424	-168.96130946	N 63°19'58.34726"	W 168°57'40.71405"	RTK	0.03	0.04	8/19/2022 8:23	24
13225	Top of Slope	TOP	3411696.12	1811122.64	26.70	63.33284902	-168.96123315	N 63°19'58.25647"	W 168°57'40.43933"	RTK	0.03	0.05	8/19/2022 8:24	24
13226	Toe of Slope	TOE	3411691.06	1811129.15	25.54	63.33283490	-168.96119404	N 63°19'58.20564"	W 168°57'40.29854"	RTK	0.03	0.04	8/19/2022 8:24	23
13227	Toe of Slope	TOE	3411684.77	1811130.76	25.28	63.33281762	-168.96118484	N 63°19'58.14343"	W 168°57'40.26542"	RTK	0.03	0.04	8/19/2022 8:24	23
13228	Top of Slope	TOP	3411680.04	1811122.48	27.54	63.33280507	-168.96123573	N 63°19'58.09825"	W 168°57'40.44862"	RTK	0.03	0.04	8/19/2022 8:24	23

13229	Gravel	GV	3411672.97	1811112.45	29.00	63.33278616	-168.96129743	N 63°19'58.03017"	W 168°57'40.67074"	RTK	0.03	0.04	8/19/2022 8:24	23
13230	Gravel	GV	3411667.81	1811121.00	28.59	63.33277168	-168.96124594	N 63°19'57.97804"	W 168°57'40.48538"	RTK	0.03	0.04	8/19/2022 8:25	23
13231	Top of Slope	TOP	3411678.25	1811127.90	26.69	63.33279992	-168.96120291	N 63°19'58.07971"	W 168°57'40.33047"	RTK	0.03	0.05	8/19/2022 8:25	23
13232	Toe of Slope	TOE	3411684.09	1811132.33	24.98	63.33281569	-168.96117539	N 63°19'58.13648"	W 168°57'40.2314"	RTK	0.03	0.04	8/19/2022 8:25	23
13233	Toe of Slope	TOE	3411675.97	1811157.00	20.03	63.33279241	-168.96102609	N 63°19'58.05267"	W 168°57'39.69392"	RTK	0.03	0.04	8/19/2022 8:26	22
13234	Gravel	GV	3411669.12	1811152.22	22.98	63.33277389	-168.96105584	N 63°19'57.986"	W 168°57'39.80102"	RTK	0.03	0.04	8/19/2022 8:26	23
13235	Top of Slope	TOP	3411658.82	1811145.07	26.61	63.33274604	-168.96110034	N 63°19'57.88574"	W 168°57'39.96122"	RTK	0.03	0.04	8/19/2022 8:26	23
13236	Gravel	GV	3411648.32	1811137.30	28.57	63.33271768	-168.96114869	N 63°19'57.78364"	W 168°57'40.13528"	RTK	0.03	0.04	8/19/2022 8:26	23
13237	Gravel	GV	3411681.65	1811099.82	29.70	63.33281045	-168.96137343	N 63°19'58.11761"	W 168°57'40.94434"	RTK	0.03	0.04	8/19/2022 8:27	23
13238	Gravel	GV	3411695.91	1811079.25	29.64	63.33285037	-168.96149718	N 63°19'58.26133"	W 168°57'41.38984"	RTK	0.03	0.04	8/19/2022 8:27	23
13239	Gravel	GV	3411710.58	1811058.95	29.63	63.33289138	-168.96161921	N 63°19'58.40896"	W 168°57'41.82915"	RTK	0.03	0.04	8/19/2022 8:27	23
13240	Gravel	GV	3411724.60	1811038.22	29.31	63.33293063	-168.96174396	N 63°19'58.55026"	W 168°57'42.27825"	RTK	0.03	0.05	8/19/2022 8:28	23
13241	Gravel	GV	3411736.80	1811016.22	29.01	63.33296495	-168.96187658	N 63°19'58.67381"	W 168°57'42.75568"	RTK	0.03	0.05	8/19/2022 8:28	23

Northeast Cape
Site 7 Fill Edges

Horizonal Datum: ***World Geographic System of 1984 (WGS84)***
Vertical Datum: ***North American Vertical Datum of 1988 (NAVD88)***
Projection: ***Alaska State Plane Zone 9 (based on NAD83[2011])***
Units: ***US Survey Feet***

Survey ID	Description	Code	Northing	Easting	Elevation	Latitude (DD)	Longitude (DD)	Latitude (DMS)	Longitude (DMS)	Survey Method	HRMS	VRMS	Date & Time	S/V's
11039	Edge of Fill	EF	3406210.74	1813722.04	78.19	63.31773452	-168.94596697	N 63°19'3.84427"	W 168°56'45.48109"	RTK	0.03	0.05	8/15/2022 8:52	21
11040	Edge of Fill	EF	3406216.52	1813733.91	78.07	63.31774978	-168.94589424	N 63°19'3.8992"	W 168°56'45.21926"	RTK	0.03	0.05	8/15/2022 8:52	21
11041	Edge of Fill	EF	3406220.65	1813745.34	78.20	63.31776057	-168.94582433	N 63°19'3.93805"	W 168°56'44.96758"	RTK	0.04	0.05	8/15/2022 8:52	21
11042	Edge of Fill	EF	3406228.18	1813749.42	78.11	63.31778097	-168.94579874	N 63°19'4.01149"	W 168°56'44.87546"	RTK	0.04	0.05	8/15/2022 8:52	21
11043	Edge of Fill	EF	3406235.03	1813755.55	78.20	63.31779942	-168.94576075	N 63°19'4.07791"	W 168°56'44.7387"	RTK	0.03	0.05	8/15/2022 8:52	21
11044	Edge of Fill	EF	3406243.87	1813750.10	78.23	63.31782384	-168.94579307	N 63°19'4.16582"	W 168°56'44.85505"	RTK	0.04	0.05	8/15/2022 8:52	21
11045	Edge of Fill	EF	3406244.16	1813741.86	78.15	63.31782501	-168.94584312	N 63°19'4.17003"	W 168°56'45.03523"	RTK	0.03	0.05	8/15/2022 8:52	21
11046	Edge of Fill	EF	3406241.05	1813731.06	78.28	63.31781698	-168.94590912	N 63°19'4.14112"	W 168°56'45.27283"	RTK	0.03	0.05	8/15/2022 8:53	21
11047	Edge of Fill	EF	3406234.89	1813719.05	78.38	63.31780067	-168.94598275	N 63°19'4.08241"	W 168°56'45.5379"	RTK	0.04	0.05	8/15/2022 8:53	21
11048	Edge of Fill	EF	3406226.11	1813712.10	78.38	63.31777697	-168.94602590	N 63°19'3.99709"	W 168°56'45.69323"	RTK	0.04	0.05	8/15/2022 8:53	21
11049	Edge of Fill	EF	3406218.60	1813714.13	78.26	63.31775635	-168.94601427	N 63°19'3.92286"	W 168°56'45.65137"	RTK	0.04	0.06	8/15/2022 8:53	21
11050	Edge of Fill	EF	3406212.61	1813717.55	78.10	63.31773982	-168.94599411	N 63°19'3.86335"	W 168°56'45.57879"	RTK	0.04	0.05	8/15/2022 8:53	21
11054	Edge of Fill	EF2	3406265.90	1813750.70	79.06	63.31788403	-168.94578721	N 63°19'4.3825"	W 168°56'44.83395"	RTK	0.03	0.05	8/15/2022 8:54	21
11055	Edge of Fill	EF2	3406264.87	1813755.90	78.87	63.31788099	-168.94575566	N 63°19'4.37156"	W 168°56'44.72037"	RTK	0.04	0.05	8/15/2022 8:54	21
11056	Edge of Fill	EF2	3406269.64	1813761.24	78.97	63.31789380	-168.94572273	N 63°19'4.41768"	W 168°56'44.60182"	RTK	0.04	0.05	8/15/2022 8:54	19
11057	Edge of Fill	EF2	3406283.33	1813757.19	79.21	63.31793141	-168.94574597	N 63°19'4.55307"	W 168°56'44.68549"	RTK	0.04	0.06	8/15/2022 8:54	20
11058	Edge of Fill	EF2	3406294.48	1813749.69	78.95	63.31796224	-168.94579046	N 63°19'4.66406"	W 168°56'44.84565"	RTK	0.03	0.05	8/15/2022 8:55	21
11059	Edge of Fill	EF2	3406308.52	1813741.42	78.86	63.31800099	-168.94583938	N 63°19'4.80356"	W 168°56'45.02176"	RTK	0.04	0.05	8/15/2022 8:55	22
11060	Edge of Fill	EF2	3406305.55	1813733.63	78.76	63.31799324	-168.94588700	N 63°19'4.77566"	W 168°56'45.19319"	RTK	0.03	0.05	8/15/2022 8:55	22
11061	Edge of Fill	EF2	3406302.80	1813724.00	79.01	63.31798614	-168.94594588	N 63°19'4.7501"	W 168°56'45.40516"	RTK	0.04	0.06	8/15/2022 8:55	22
11062	Edge of Fill	EF2	3406291.84	1813726.96	78.68	63.31795602	-168.94592898	N 63°19'4.64167"	W 168°56'45.34432"	RTK	0.03	0.05	8/15/2022 8:55	22
11063	Edge of Fill	EF2	3406281.12	1813732.26	78.97	63.31792649	-168.94589779	N 63°19'4.53536"	W 168°56'45.23204"	RTK	0.04	0.05	8/15/2022 8:55	22
11064	Edge of Fill	EF2	3406274.93	1813740.74	78.84	63.31790918	-168.94584685	N 63°19'4.47304"	W 168°56'45.04866"	RTK	0.03	0.05	8/15/2022 8:55	22
11071	Edge of Fill	EF3	3406511.02	1813778.08	60.65	63.31855304	-168.94559618	N 63°19'6.79094"	W 168°56'44.14624"	RTK	0.04	0.05	8/15/2022 8:57	23
11072	Edge of Fill	EF3	3406516.52	1813768.55	60.21	63.31856849	-168.94565356	N 63°19'6.84656"	W 168°56'44.35281"	RTK	0.03	0.05	8/15/2022 8:57	23
11073	Edge of Fill	EF3	3406513.45	1813762.45	60.70	63.31856038	-168.94569097	N 63°19'6.81736"	W 168°56'44.48749"	RTK	0.03	0.05	8/15/2022 8:58	23
11074	Edge of Fill	EF3	3406506.83	1813754.04	61.67	63.31854265	-168.94574276	N 63°19'6.75353"	W 168°56'44.67393"	RTK	0.03	0.05	8/15/2022 8:58	23
11075	Edge of Fill	EF3	3406495.67	1813746.25	63.58	63.31851250	-168.94579128	N 63°19'6.64499"	W 168°56'44.8486"	RTK	0.04	0.05	8/15/2022 8:58	23
11076	Edge of Fill	EF3	3406480.08	1813741.15	65.66	63.31847009	-168.94582385	N 63°19'6.49232"	W 168°56'44.96586"	RTK	0.05	0.06	8/15/2022 8:58	23
11077	Edge of Fill	EF3	3406476.16	1813755.48	65.74	63.31845875	-168.94573713	N 63°19'6.45149"	W 168°56'44.65366"	RTK	0.04	0.05	8/15/2022 8:58	23
11078	Edge of Fill	EF3	3406483.20	1813762.79	63.97	63.31847766	-168.94569194	N 63°19'6.51957"	W 168°56'44.49098"	RTK	0.03	0.05	8/15/2022 8:58	23
11079	Edge of Fill	EF3	3406489.81	1813773.55	62.57	63.31849523	-168.94562583	N 63°19'6.58282"	W 168°56'44.25298"	RTK	0.04	0.05	8/15/2022 8:58	21
11080	Edge of Fill	EF3	3406496.93	1813786.39	60.61	63.31851415	-168.94554705	N 63°19'6.65093"	W 168°56'43.96937"	RTK	0.03	0.05	8/15/2022 8:58	23
11081	Edge of Fill	EF3	3406506.12	1813788.86	60.64	63.31853916	-168.94553112	N 63°19'6.74097"	W 168°56'43.91203"	RTK	0.04	0.05	8/15/2022 8:59	22

Northeast Cape
Site 7 Topo

Horizonal Datum: ***World Geographic System of 1984 (WGS84)***
Vertical Datum: ***North American Vertical Datum of 1988 (NAVD88)***
Projection: ***Alaska State Plane Zone 9 (based on NAD83[2011])***
Units: ***US Survey Feet***

Survey ID	Description	Code	Northing	Easting	Elevation	Latitude (DD)	Longitude (DD)	Latitude (DMS)	Longitude (DMS)	Survey Method	HRMS	VRMS	Date & Time	S/V's
11051	Fill	FILL	3406221.48	1813721.88	78.50	63.31776390	-168.94596687	N 63°19'3.95004"	W 168°56'45.48073"	RTK	0.03	0.05	8/15/2022 8:53	21
11052	Fill	FILL	3406229.91	1813735.45	78.44	63.31778633	-168.94588349	N 63°19'4.03078"	W 168°56'45.18056"	RTK	0.03	0.05	8/15/2022 8:53	21
11053	Fill	FILL	3406235.76	1813746.30	78.46	63.31780183	-168.94581698	N 63°19'4.08658"	W 168°56'44.94112"	RTK	0.03	0.05	8/15/2022 8:54	21
11065	Fill	FILL	3406273.95	1813751.85	79.29	63.31790600	-168.94577938	N 63°19'4.4616"	W 168°56'44.80576"	RTK	0.04	0.05	8/15/2022 8:56	22
11066	Fill	FILL	3406283.68	1813744.85	79.06	63.31793291	-168.94582101	N 63°19'4.55847"	W 168°56'44.95563"	RTK	0.04	0.05	8/15/2022 8:56	22
11067	Fill	FILL	3406295.99	1813736.79	78.98	63.31796695	-168.94586877	N 63°19'4.68101"	W 168°56'45.12757"	RTK	0.04	0.05	8/15/2022 8:56	22
11068	Fill	FILL	3406483.95	1813750.75	64.78	63.31848026	-168.94576507	N 63°19'6.52893"	W 168°56'44.75425"	RTK	0.04	0.06	8/15/2022 8:57	21
11069	Fill	FILL	3406493.83	1813759.42	63.34	63.31850688	-168.94571137	N 63°19'6.62476"	W 168°56'44.56093"	RTK	0.04	0.06	8/15/2022 8:57	21
11070	Fill	FILL	3406503.93	1813769.39	62.05	63.31853405	-168.94564975	N 63°19'6.72257"	W 168°56'44.3391"	RTK	0.04	0.05	8/15/2022 8:57	22
11082	Fill	FILL	3406499.74	1813784.22	61.47	63.31852192	-168.94555998	N 63°19'6.67891"	W 168°56'44.01592"	RTK	0.04	0.05	8/15/2022 8:59	23
11083	Fill	FILL	3406491.27	1813772.02	62.90	63.31849932	-168.94563498	N 63°19'6.59755"	W 168°56'44.28592"	RTK	0.03	0.05	8/15/2022 8:59	23
11084	Ground Shot	GS	3406518.25	1813840.69	57.55	63.31856999	-168.94521474	N 63°19'6.85196"	W 168°56'42.77306"	RTK	0.04	0.06	8/15/2022 9:00	23
11085	Ground Shot	GS	3406502.06	1813828.41	59.93	63.31852628	-168.94529104	N 63°19'6.6946"	W 168°56'43.04774"	RTK	0.03	0.05	8/15/2022 9:00	23
11086	Ground Shot	GS	3406490.73	1813820.32	60.55	63.31849566	-168.94534133	N 63°19'6.58437"	W 168°56'43.22878"	RTK	0.03	0.05	8/15/2022 9:00	23
11087	Ground Shot	GS	3406473.47	1813804.38	63.99	63.31844919	-168.94544002	N 63°19'6.41708"	W 168°56'43.58407"	RTK	0.04	0.05	8/15/2022 9:00	23
11088	Ground Shot	GS	3406457.18	1813786.01	67.43	63.31840548	-168.94555332	N 63°19'6.25972"	W 168°56'43.99195"	RTK	0.04	0.06	8/15/2022 9:01	23
11089	Ground Shot	GS	3406439.81	1813769.05	70.58	63.31835872	-168.94565822	N 63°19'6.09139"	W 168°56'44.36959"	RTK	0.04	0.06	8/15/2022 9:01	22
11090	Ground Shot	GS	3406421.28	1813751.51	72.84	63.31830887	-168.94576672	N 63°19'5.91193"	W 168°56'44.76019"	RTK	0.03	0.05	8/15/2022 9:01	23
11091	Ground Shot	GS	3406434.52	1813730.02	71.42	63.31834602	-168.94589605	N 63°19'6.04567"	W 168°56'45.22577"	RTK	0.03	0.05	8/15/2022 9:01	23
11092	Ground Shot	GS	3406454.43	1813748.27	69.30	63.31839965	-168.94578314	N 63°19'6.23874"	W 168°56'44.8193"	RTK	0.03	0.05	8/15/2022 9:02	23
11093	Ground Shot	GS	3406469.47	1813765.68	66.20	63.31843998	-168.94567577	N 63°19'6.38392"	W 168°56'44.43277"	RTK	0.03	0.05	8/15/2022 9:02	23
11094	Ground Shot	GS	3406483.63	1813781.53	62.93	63.31847799	-168.94557795	N 63°19'6.52076"	W 168°56'44.08062"	RTK	0.03	0.05	8/15/2022 9:02	23
11095	Ground Shot	GS	3406493.30	1813793.44	60.87	63.31850389	-168.94550457	N 63°19'6.614"	W 168°56'43.81645"	RTK	0.03	0.05	8/15/2022 9:02	23
11096	Ground Shot	GS	3406505.81	1813803.71	60.59	63.31853763	-168.94544083	N 63°19'6.73546"	W 168°56'43.58698"	RTK	0.04	0.06	8/15/2022 9:02	23
11097	Ground Shot	GS	3406515.59	1813810.51	58.17	63.31856409	-168.94539852	N 63°19'6.83072"	W 168°56'43.43467"	RTK	0.04	0.07	8/15/2022 9:03	23
11098	Ground Shot	GS	3406523.80	1813816.78	57.16	63.31858624	-168.94535954	N 63°19'6.91046"	W 168°56'43.29434"	RTK	0.03	0.05	8/15/2022 9:03	23
11099	Ground Shot	GS	3406516.32	1813822.74	57.19	63.31856551	-168.94532408	N 63°19'6.83583"	W 168°56'43.16668"	RTK	0.04	0.05	8/15/2022 9:03	22
11100	Ground Shot	GS	3406537.58	1813797.79	56.82	63.31862476	-168.94547369	N 63°19'7.04913"	W 168°56'43.70528"	RTK	0.04	0.06	8/15/2022 9:03	23
11101	Ground Shot	GS	3406522.84	1813788.30	59.19	63.31858490	-168.94553287	N 63°19'6.90563"	W 168°56'43.91833"	RTK	0.04	0.06	8/15/2022 9:03	22
11102	Ground Shot	GS	3406540.28	1813772.39	56.80	63.31863330	-168.94562785	N 63°19'7.07988"	W 168°56'44.26025"	RTK	0.03	0.05	8/15/2022 9:03	23
11103	Ground Shot	GS	3406529.73	1813765.45	58.40	63.31860475	-168.94567113	N 63°19'6.97709"	W 168°56'44.41606"	RTK	0.04	0.06	8/15/2022 9:04	23
11104	Ground Shot	GS	3406511.16	1813750.26	61.54	63.31855467	-168.94576532	N 63°19'6.79681"	W 168°56'44.75515"	RTK	0.04	0.06	8/15/2022 9:04	23
11105	Ground Shot	GS	3406492.70	1813733.51	64.97	63.31850494	-168.94586907	N 63°19'6.61778"	W 168°56'45.12865"	RTK	0.03	0.05	8/15/2022 9:04	23
11106	Ground Shot	GS	3406474.58	1813717.33	67.64	63.31845613	-168.94596923	N 63°19'6.44206"	W 168°56'45.48922"	RTK	0.03	0.05	8/15/2022 9:04	23
11107	Ground Shot	GS	3406465.64	1813729.73	67.94	63.31843114	-168.94589472	N 63°19'6.3521"	W 168°56'45.22099"	RTK	0.04	0.06	8/15/2022 9:04	23
11108	Ground Shot	GS	3406454.37	1813701.29	69.32	63.31840160	-168.94606883	N 63°19'6.24576"	W 168°56'45.84778"	RTK	0.04	0.06	8/15/2022 9:05	23
11109	Ground Shot	GS	3406443.61	1813716.87	70.62	63.31837147	-168.94597513	N 63°19'6.13729"	W 168°56'45.51046"	RTK	0.04	0.05	8/15/2022 9:05	23
11110	Ground Shot	GS	3406470.64	1813679.70	67.56	63.31844704	-168.94619845	N 63°19'6.40934"	W 168°56'46.31441"	RTK	0.03	0.05	8/15/2022 9:05	22
11111	Ground Shot	GS	3406490.60	1813695.43	64.97	63.31850091	-168.94610080	N 63°19'6.60327"	W 168°56'45.96288"	RTK	0.04	0.06	8/15/2022 9:06	22
11112	Ground Shot	GS	3406509.03	1813712.85	62.80	63.31855052	-168.94599306	N 63°19'6.78187"	W 168°56'45.57501"	RTK	0.04	0.06	8/15/2022 9:06	23
11113	Ground Shot	GS	3406526.06	1813728.83	60.17	63.31859637	-168.94589417	N 63°19'6.94693"	W 168°56'45.21901"	RTK	0.04	0.06	8/15/2022 9:06	23
11114	Ground Shot	GS	3406541.56	1813744.11	57.35	63.31863808	-168.94579971	N 63°19'7.09708"	W 168°56'44.87895"	RTK	0.04	0.06	8/15/2022 9:06	22
11115	Ground Shot	GS	3406558.15	1813758.06	55.45	63.31868279	-168.94571322	N 63°19'7.25804"	W 168°56'44.56759"	RTK	0.04	0.06	8/15/2022 9:06	21
11116	Ground Shot	GS	3406345.43	1813751.03	77.49	63.31810148	-168.94577723	N 63°19'5.16532"	W 168°56'44.79802"	RTK	0.03	0.05	8/15/2022 9:08	21
11117	Ground Shot	GS	3406324.15	1813763.38	78.29	63.31804275	-168.94570427	N 63°19'4.95389"	W 168°56'44.53537"	RTK	0.04	0.05	8/15/2022 9:08	21
11118	Ground Shot	GS	3406302.73	1813775.71	78.81	63.31798363	-168.94563140	N 63°19'4.74106"	W 168°56'44.27303"	RTK	0.04	0.06	8/15/2022 9:08	20

11119	Ground Shot	GS	3406279.79	1813786.36	78.82	63.31792043	-168.94556895	N 63°19'4.51354"	W 168°56'44.04821"	RTK	0.04	0.06	8/15/2022 9:08	20
11120	Ground Shot	GS	3406256.44	1813797.69	78.41	63.31785606	-168.94550239	N 63°19'4.28181"	W 168°56'43.8086"	RTK	0.04	0.06	8/15/2022 9:09	20
11121	Ground Shot	GS	3406243.28	1813779.72	78.61	63.31782089	-168.94561296	N 63°19'4.1552"	W 168°56'44.20665"	RTK	0.04	0.06	8/15/2022 9:09	21
11122	Ground Shot	GS	3406220.50	1813794.08	77.69	63.31775796	-168.94552793	N 63°19'3.92865"	W 168°56'43.90054"	RTK	0.04	0.06	8/15/2022 9:09	20
11123	Ground Shot	GS	3406207.34	1813771.13	78.01	63.31772301	-168.94566881	N 63°19'3.80283"	W 168°56'44.40771"	RTK	0.04	0.06	8/15/2022 9:09	21
11124	Ground Shot	GS	3406193.72	1813748.51	78.11	63.31768679	-168.94580770	N 63°19'3.67244"	W 168°56'44.90771"	RTK	0.04	0.06	8/15/2022 9:09	20
11125	Ground Shot	GS	3406181.21	1813728.27	77.60	63.31765349	-168.94593206	N 63°19'3.55256"	W 168°56'45.35541"	RTK	0.04	0.06	8/15/2022 9:09	21
11126	Ground Shot	GS	3406165.65	1813708.74	77.66	63.31761181	-168.94605234	N 63°19'3.40251"	W 168°56'45.78842"	RTK	0.04	0.06	8/15/2022 9:10	21
11127	Ground Shot	GS	3406184.84	1813690.84	78.11	63.31766509	-168.94615928	N 63°19'3.59432"	W 168°56'46.1734"	RTK	0.04	0.06	8/15/2022 9:10	21
11128	Ground Shot	GS	3406200.04	1813713.92	78.19	63.31770561	-168.94601741	N 63°19'3.74019"	W 168°56'45.66267"	RTK	0.04	0.06	8/15/2022 9:10	21
11129	Ground Shot	GS	3406220.86	1813697.02	77.87	63.31776331	-168.94611812	N 63°19'3.94791"	W 168°56'46.02523"	RTK	0.04	0.06	8/15/2022 9:10	21
11130	Ground Shot	GS	3406214.12	1813686.04	77.66	63.31774537	-168.94618558	N 63°19'3.88333"	W 168°56'46.26808"	RTK	0.04	0.06	8/15/2022 9:10	21
11131	Ground Shot	GS	3406206.28	1813672.64	77.90	63.31772453	-168.94626783	N 63°19'3.8083"	W 168°56'46.56418"	RTK	0.04	0.06	8/15/2022 9:10	21
11132	Ground Shot	GS	3406227.85	1813657.54	77.76	63.31778420	-168.94635746	N 63°19'4.02311"	W 168°56'46.88685"	RTK	0.04	0.06	8/15/2022 9:11	20
11133	Ground Shot	GS	3406242.77	1813675.94	78.51	63.31782416	-168.94624412	N 63°19'4.16697"	W 168°56'46.47883"	RTK	0.04	0.06	8/15/2022 9:11	21
11134	Ground Shot	GS	3406256.86	1813697.48	79.15	63.31786171	-168.94611173	N 63°19'4.30215"	W 168°56'46.00222"	RTK	0.04	0.06	8/15/2022 9:11	21
11135	Ground Shot	GS	3406269.75	1813717.62	79.22	63.31789605	-168.94598799	N 63°19'4.42578"	W 168°56'45.55676"	RTK	0.04	0.07	8/15/2022 9:11	21
11136	Ground Shot	GS	3406290.91	1813703.06	79.06	63.31795457	-168.94607438	N 63°19'4.63645"	W 168°56'45.86776"	RTK	0.04	0.06	8/15/2022 9:11	21
11137	Ground Shot	GS	3406314.63	1813691.08	78.55	63.31801996	-168.94614488	N 63°19'4.87185"	W 168°56'46.12156"	RTK	0.04	0.06	8/15/2022 9:12	21
11138	Ground Shot	GS	3406328.59	1813712.66	78.52	63.31805718	-168.94601224	N 63°19'5.00584"	W 168°56'45.64406"	RTK	0.04	0.07	8/15/2022 9:12	21
11139	Ground Shot	GS	3406337.20	1813731.34	77.89	63.31807986	-168.94589777	N 63°19'5.08749"	W 168°56'45.23197"	RTK	0.04	0.06	8/15/2022 9:12	21
11140	Ground Shot	GS	3406260.35	1813739.60	79.08	63.31786938	-168.94585526	N 63°19'4.32976"	W 168°56'45.07893"	RTK	0.04	0.06	8/15/2022 9:12	21
11141	Ground Shot	GS	3406251.87	1813726.82	79.00	63.31784675	-168.94593377	N 63°19'4.2483"	W 168°56'45.36157"	RTK	0.04	0.06	8/15/2022 9:13	21
11142	Ground Shot	GS	3406241.51	1813711.88	78.91	63.31781910	-168.94602567	N 63°19'4.14876"	W 168°56'45.69241"	RTK	0.04	0.06	8/15/2022 9:13	21
11143	Ground Shot	GS	3406234.33	1813693.78	78.70	63.31780027	-168.94613644	N 63°19'4.08097"	W 168°56'46.09118"	RTK	0.04	0.06	8/15/2022 9:13	21
11144	Ground Shot	GS	3406227.63	1813697.26	78.06	63.31778182	-168.94611597	N 63°19'4.01455"	W 168°56'46.01749"	RTK	0.04	0.06	8/15/2022 9:13	21
11145	Ground Shot	GS	3406221.83	1813680.42	77.23	63.31776670	-168.94621894	N 63°19'3.96011"	W 168°56'46.38818"	RTK	0.04	0.06	8/15/2022 9:13	21
11146	Ground Shot	GS	3406226.01	1813671.84	77.85	63.31777853	-168.94627073	N 63°19'4.0027"	W 168°56'46.57462"	RTK	0.04	0.06	8/15/2022 9:13	19
11147	Ground Shot	GS	3406251.13	1813745.51	78.71	63.31784388	-168.94582023	N 63°19'4.23796"	W 168°56'44.95282"	RTK	0.04	0.07	8/15/2022 9:14	20
11148	Ground Shot	GS	3406253.28	1813757.55	78.75	63.31784923	-168.94574677	N 63°19'4.25722"	W 168°56'44.68837"	RTK	0.04	0.07	8/15/2022 9:14	20
11149	Ground Shot	GS	3406252.55	1813774.57	78.61	63.31784646	-168.94564339	N 63°19'4.24725"	W 168°56'44.3162"	RTK	0.04	0.07	8/15/2022 9:14	20

Northeast Cape
Site 8 Soil Borings

Horizonal Datum: ***World Geographic System of 1984 (WGS84)***
Vertical Datum: ***North American Vertical Datum of 1988 (NAVD88)***
Projection: ***Alaska State Plane Zone 9 (based on NAD83[2011])***
Units: ***US Survey Feet***

Survey ID	Location ID	Description	Northing	Easting	Elevation	Latitude (DD)	Longitude (DD)	Latitude (DMS)	Longitude (DMS)	Survey Method	HRMS	VRMS	Date & Time	S/V's
11179	22NEC-S08-SB01	Soil Boring	3405533.043	1812230.35	49.34	63.31594826	-168.95510489	N 63°18'57.41373"	W 168°57'18.3776"	RTK	0.06	0.12	8/15/2022 10:14	21
11180	22NEC-S08-SB02	Soil Boring	3405533.592	1812198.53	48.96	63.31595118	-168.95529833	N 63°18'57.42424"	W 168°57'19.07398"	RTK	0.06	0.13	8/15/2022 10:15	21
11178	22NEC-S08-SB03	Soil Boring	3405501.82	1812198.19	48.02	63.31586432	-168.95530354	N 63°18'57.11155"	W 168°57'19.09274"	RTK	0.06	0.13	8/15/2022 10:12	21
2001	22NEC-S08-SB04	Soil Boring	3405438.452	1812161.91	45.96	63.31569268	-168.95553040	N 63°18'56.49364"	W 168°57'19.90943"	HH				
2002	22NEC-S08-SB05	Soil Boring	3405403.034	1812145.15	47.25	63.31559658	-168.95563581	N 63°18'56.14768"	W 168°57'20.28891"	HH				
2003	22NEC-S08-SB06	Soil Boring	3405336.749	1812111.08	48.34	63.31541686	-168.95584955	N 63°18'55.50069"	W 168°57'21.05838"	HH				
11182	22NEC-S08-SB07	Soil Boring	3405551.082	1812219.60	50.95	63.31599807	-168.95516848	N 63°18'57.59305"	W 168°57'18.60652"	RTK	0.05	0.10	8/15/2022 10:18	23
11152	22NEC-S08-SB08	Soil Boring	3405469.047	1812294.87	44.58	63.31577041	-168.95471891	N 63°18'56.77347"	W 168°57'16.98807"	RTK	0.05	0.09	8/15/2022 9:46	20
11150	22NEC-S08-SB09	Soil Boring	3405534.043	1812311.49	46.46	63.31594738	-168.95461144	N 63°18'57.41056"	W 168°57'16.60118"	RTK	0.05	0.08	8/15/2022 9:44	20
11151	22NEC-S08-SB10	Soil Boring	3405516.562	1812279.19	44.55	63.31590103	-168.95480958	N 63°18'57.2437"	W 168°57'17.31448"	RTK	0.05	0.09	8/15/2022 9:45	20
11156	22NEC-S08-SB11	Soil Boring	3405411.61	1812260.67	43.36	63.31561488	-168.95493256	N 63°18'56.21356"	W 168°57'17.75721"	RTK	0.07	0.11	8/15/2022 9:52	17
11166	22NEC-S08-SB12	Soil Boring	3405348.919	1812229.75	41.99	63.31544485	-168.95512680	N 63°18'55.60145"	W 168°57'18.45647"	RTK	0.07	0.14	8/15/2022 10:00	19
11165	22NEC-S08-SB13	Soil Boring	3405370.047	1812228.22	42.88	63.31550268	-168.95513402	N 63°18'55.80964"	W 168°57'18.48247"	RTK	0.08	0.15	8/15/2022 10:00	18
11163	22NEC-S08-SB14	Soil Boring	3405369.632	1812201.53	42.05	63.31550274	-168.95529629	N 63°18'55.80986"	W 168°57'19.06664"	RTK	0.07	0.13	8/15/2022 9:58	18
11164	22NEC-S08-SB15	Soil Boring	3405382.905	1812207.75	42.37	63.31553875	-168.95525715	N 63°18'55.9395"	W 168°57'18.92573"	RTK	0.07	0.14	8/15/2022 9:59	17
11161	22NEC-S08-SB16	Soil Boring	3405402.325	1812175.03	42.39	63.31559331	-168.95545422	N 63°18'56.13591"	W 168°57'19.63519"	RTK	0.07	0.13	8/15/2022 9:56	18
11158	22NEC-S08-SB17	Soil Boring	3405437.183	1812197.12	43.80	63.31568764	-168.95531641	N 63°18'56.4755"	W 168°57'19.13907"	RTK	0.07	0.13	8/15/2022 9:53	18
11157	22NEC-S08-SB18	Soil Boring	3405435.035	1812227.92	43.70	63.31568039	-168.95512940	N 63°18'56.4494"	W 168°57'18.46584"	RTK	0.07	0.12	8/15/2022 9:53	18
2004	22NEC-S08-SB19	Soil Boring	3405315.775	1812102.87	48.34	63.31535987	-168.95590154	N 63°18'55.29553"	W 168°57'21.24554"	HH				
11174	22NEC-S08-SB20	Soil Boring	3405390.137	1812125.72	47.25	63.31556218	-168.95575525	N 63°18'56.02384"	W 168°57'20.7189"	RTK	0.06	0.11	8/15/2022 10:09	20
11172	22NEC-S08-SB21	Soil Boring	3405382.272	1812147.52	47.34	63.31553970	-168.95562345	N 63°18'55.94292"	W 168°57'20.24441"	RTK	0.07	0.13	8/15/2022 10:06	20
2005	22NEC-S08-SB22	Soil Boring	3405367.411	1812126.01	48.34	63.31550003	-168.95575575	N 63°18'55.8001"	W 168°57'20.7207"	HH				
11171	22NEC-S08-SB23	Soil Boring	3405341.865	1812129.63	48.34	63.31543002	-168.95573625	N 63°18'55.54807"	W 168°57'20.6505"	RTK	0.07	0.12	8/15/2022 10:05	20
11175	22NEC-S08-SB24	Soil Boring	3405427.211	1812140.53	46.02	63.31566289	-168.95566150	N 63°18'56.3864"	W 168°57'20.38139"	RTK	0.06	0.12	8/15/2022 10:10	20
11183	22NEC-S08-SB25	Soil Boring	3405501.692	1812230.33	44.24	63.31586254	-168.95510812	N 63°18'57.10514"	W 168°57'18.38923"	RTK	0.06	0.11	8/15/2022 10:20	24
11177	22NEC-S08-SB26	Soil Boring	3405486.029	1812177.70	47.41	63.31582206	-168.95542968	N 63°18'56.95941"	W 168°57'19.54684"	RTK	0.06	0.12	8/15/2022 10:12	21
11173	22NEC-S08-SB27	Soil Boring	3405422.341	1812166.95	45.96	63.31564840	-168.95550137	N 63°18'56.33424"	W 168°57'19.80493"	RTK	0.07	0.13	8/15/2022 10:07	20
11169	22NEC-S08-SB28	Soil Boring	3405322.42	1812145.10	41.16	63.31537616	-168.95564408	N 63°18'55.35417"	W 168°57'20.31868"	RTK	0.07	0.13	8/15/2022 10:03	20
11181	22NEC-S08-SB29	Soil Boring	3405542.895	1812208.68	50.08	63.31597617	-168.95523568	N 63°18'57.51421"	W 168°57'18.84844"	RTK	0.06	0.12	8/15/2022 10:16	22
11170	22NEC-S08-SB30	Soil Boring	3405301.353	1812141.69	41.04	63.31531871	-168.95566691	N 63°18'55.14735"	W 168°57'20.40087"	RTK	0.07	0.13	8/15/2022 10:04	20
11176	22NEC-S08-SB31	Soil Boring	3405464.081	1812164.01	46.82	63.31576266	-168.95551510	N 63°18'56.74557"	W 168°57'19.85436"	RTK	0.06	0.12	8/15/2022 10:10	20
11162	22NEC-S08-SB32	Soil Boring	3405376.654	1812176.56	42.07	63.31552305	-168.95544744	N 63°18'55.88298"	W 168°57'19.61078"	RTK	0.07	0.13	8/15/2022 9:57	18

Northeast Cape
Decision Unit Corners

Horizonal Datum: ***World Geographic System of 1984 (WGS84)***
Vertical Datum: ***North American Vertical Datum of 1988 (NAVD88)***
Projection: ***Alaska State Plane Zone 9 (based on NAD83[2011])***
Units: ***US Survey Feet***

Survey ID	Location ID	Description	Northing	Easting	Elevation	Latitude (DD)	Longitude (DD)	Latitude (DMS)	Longitude (DMS)	Survey Method	HRMS	VRMS	Date & Time	S/V's
12366	22NEC-28-DU1-NE	Decision Unit Corner	3404052.634	1810919.79	66.78	63.31195858	-168.96321927	N 63°18'43.05088"	W 168°57'47.58937"	RTK	0.04	0.05	8/17/2022 18:14	23
12363	22NEC-28-DU1-NW	Decision Unit Corner	3403998.987	1810696.85	69.58	63.31182175	-168.96457998	N 63°18'42.5583"	W 168°57'52.48792"	RTK	0.06	0.06	8/17/2022 18:12	23
12365	22NEC-28-DU1-SE	Decision Unit Corner	3403948.883	1810909.55	70.55	63.31167535	-168.96329175	N 63°18'42.03126"	W 168°57'47.85029"	RTK	0.04	0.06	8/17/2022 18:13	23
12364	22NEC-28-DU1-SW	Decision Unit Corner	3403912.485	1810680.75	71.45	63.31158594	-168.96468630	N 63°18'41.70938"	W 168°57'52.87068"	RTK	0.03	0.05	8/17/2022 18:12	23
13248	22NEC-S15-DU1-E	Decision Unit Corner	3403912.112	1810682.32	71.54	63.31158485	-168.96467681	N 63°18'41.70546"	W 168°57'52.83651"	RTK	0.05	0.09	8/19/2022 9:34	20
13247	22NEC-S15-DU1-N	Decision Unit Corner	3403997.697	1810502.02	74.06	63.31182682	-168.96576458	N 63°18'42.57655"	W 168°57'56.75248"	RTK	0.06	0.09	8/19/2022 9:34	16
13245	22NEC-S15-DU1-S	Decision Unit Corner	3403695.433	1810527.92	78.62	63.31099920	-168.96563673	N 63°18'39.59711"	W 168°57'56.29222"	RTK	0.03	0.06	8/19/2022 9:32	21
13246	22NEC-S15-DU1-W	Decision Unit Corner	3403776.139	1810400.06	75.86	63.31122551	-168.96640617	N 63°18'40.41183"	W 168°57'59.06221"	RTK	0.04	0.05	8/19/2022 9:33	20
12339	22NEC-S28-DU2-E	Decision Unit Corner	3404051.725	1810823.43	67.56	63.31196036	-168.96380519	N 63°18'43.05729"	W 168°57'49.69868"	RTK	0.03	0.05	8/16/2022 17:40	25
12338	22NEC-S28-DU2-N	Decision Unit Corner	3404058.13	1810802.85	65.48	63.31197878	-168.96392973	N 63°18'43.1236"	W 168°57'50.14702"	RTK	0.03	0.04	8/16/2022 17:40	25
12340	22NEC-S28-DU2-S	Decision Unit Corner	3404019.351	1810812.09	68.34	63.31187234	-168.96387736	N 63°18'42.74042"	W 168°57'49.95849"	RTK	0.04	0.05	8/16/2022 17:40	25
12341	22NEC-S28-DU2-W	Decision Unit Corner	3404030.76	1810788.50	63.30	63.31190458	-168.96401963	N 63°18'42.85648"	W 168°57'50.47066"	RTK	0.04	0.05	8/16/2022 17:41	25

Northeast Cape
Surface Water Sample

Horizonal Datum: ***World Geographic System of 1984 (WGS84)***
Vertical Datum: ***North American Vertical Datum of 1988 (NAVD88)***
Projection: ***Alaska State Plane Zone 9 (based on NAD83[2011])***
Units: ***US Survey Feet***

Survey ID	Location ID	Description	Northing	Easting	Elevation	Latitude (DD)	Longitude (DD)	Latitude (DMS)	Longitude (DMS)	Survey Method	HRMS	VRMS	Date & Time	S/V's
11997	22NEC-S28-SW-01	Surface Water Sample	3405568.879	1811170.15	37.40	63.31609335	-168.96154789	N 63°18'57.93606"	W 168°57'41.5724"	RTK	0.05	0.04	8/15/2022 16:15	23
11998	22NEC-S28-SW-02	Surface Water Sample	3405404.251	1811173.44	39.57	63.31564306	-168.96154413	N 63°18'56.31501"	W 168°57'41.55886"	RTK	0.06	0.05	8/15/2022 16:17	23
11999	22NEC-S28-SW-03	Surface Water Sample	3405312.033	1811133.25	40.06	63.31539269	-168.96179754	N 63°18'55.41368"	W 168°57'42.47114"	RTK	0.08	0.05	8/15/2022 16:18	23
12000	22NEC-S28-SW-04	Surface Water Sample	3405062.069	1811087.05	42.80	63.31471126	-168.96210310	N 63°18'52.96053"	W 168°57'43.57116"	RTK	0.09	0.05	8/15/2022 16:21	23
12001	22NEC-S28-SW-05	Surface Water Sample	3405173.08	1811084.37	42.21	63.31501492	-168.96210845	N 63°18'54.05371"	W 168°57'43.59041"	RTK	0.06	0.05	8/15/2022 16:20	22

Northeast Cape
Sediment Sample

Horizonal Datum: ***World Geographic System of 1984 (WGS84)***
Vertical Datum: ***North American Vertical Datum of 1988 (NAVD88)***
Projection: ***Alaska State Plane Zone 9 (based on NAD83[2011])***
Units: ***US Survey Feet***

Survey ID	Location ID	Description	Northing	Easting	Elevation	Latitude (DD)	Longitude (DD)	Latitude (DMS)	Longitude (DMS)	Survey Method	HRMS	VRMS	Date & Time	S/V's
12023	22NEC-S28-SD01	Sediment Sample	3405576.947	1811162.15	35.62	63.31611576	-168.96159575	N 63°18'58.01673"	W 168°57'41.74469"	RTK	0.03	0.04	8/16/2022 9:47	22
12042	22NEC-S28-SD02	Sediment Sample	3405560.935	1811161.01	36.95	63.31607203	-168.96160425	N 63°18'57.8593"	W 168°57'41.77529"	RTK	0.10	0.05	8/16/2022 10:06	23
12053	22NEC-S28-SD03	Sediment Sample	3405516.296	1811172.52	37.80	63.31594946	-168.96153866	N 63°18'57.41805"	W 168°57'41.53917"	RTK	0.08	0.05	8/16/2022 10:17	24
12054	22NEC-S28-SD04	Sediment Sample	3405468.294	1811171.90	38.60	63.31581824	-168.96154718	N 63°18'56.94566"	W 168°57'41.56984"	RTK	0.03	0.05	8/16/2022 10:24	25
12064	22NEC-S28-SD05	Sediment Sample	3405448.252	1811175.04	37.82	63.31576330	-168.96153006	N 63°18'56.74788"	W 168°57'41.50821"	RTK	0.08	0.04	8/16/2022 10:31	27
12077	22NEC-S28-SD06	Sediment Sample	3405431.562	1811177.20	37.59	63.31571757	-168.96151854	N 63°18'56.58325"	W 168°57'41.46674"	RTK	0.03	0.05	8/16/2022 10:42	26
12089	22NEC-S28-SD07	Sediment Sample	3405407.249	1811159.11	38.32	63.31565189	-168.96163094	N 63°18'56.3468"	W 168°57'41.87138"	RTK	0.04	0.04	8/16/2022 10:49	27
12090	22NEC-S28-SD08	Sediment Sample	3405406.889	1811169.48	38.00	63.31565045	-168.96156794	N 63°18'56.34161"	W 168°57'41.64458"	RTK	0.03	0.05	8/16/2022 10:50	27
12113	22NEC-S28-SD09	Sediment Sample	3405387.773	1811164.29	38.21	63.31559841	-168.96160136	N 63°18'56.15427"	W 168°57'41.76489"	RTK	0.03	0.05	8/16/2022 11:05	25
12125	22NEC-S28-SD10	Sediment Sample	3405356.756	1811158.49	38.16	63.31551386	-168.96163967	N 63°18'55.84989"	W 168°57'41.90281"	RTK	0.03	0.06	8/16/2022 11:11	24
12129	22NEC-S28-SD11	Sediment Sample	3405318.039	1811134.89	38.87	63.31540904	-168.96178696	N 63°18'55.47254"	W 168°57'42.43305"	RTK	0.09	0.05	8/16/2022 11:19	24
12138	22NEC-S28-SD12	Sediment Sample	3405312.498	1811130.40	38.79	63.31539409	-168.96181485	N 63°18'55.41872"	W 168°57'42.53345"	RTK	0.04	0.05	8/16/2022 11:26	23
12146	22NEC-S28-SD13	Sediment Sample	3405129.081	1811090.95	40.56	63.31489432	-168.96207277	N 63°18'53.61955"	W 168°57'43.46197"	RTK	0.05	0.05	8/16/2022 11:48	28
12147	22NEC-S28-SD14	Sediment Sample	3405105.958	1811101.39	41.92	63.31483063	-168.96201156	N 63°18'53.39026"	W 168°57'43.24161"	RTK	0.03	0.04	8/16/2022 11:49	26
12150	22NEC-S28-SD15	Sediment Sample	3405099.851	1811095.34	40.79	63.31481420	-168.96204896	N 63°18'53.33112"	W 168°57'43.37625"	RTK	0.03	0.04	8/16/2022 11:52	28
12154	22NEC-S28-SD16	Sediment Sample	3405082.848	1811076.33	40.78	63.31476855	-168.96216620	N 63°18'53.16677"	W 168°57'43.79832"	RTK	0.08	0.10	8/16/2022 13:25	25
12155	22NEC-S28-SD17	Sediment Sample	3405067.885	1811085.90	40.28	63.31472722	-168.96210948	N 63°18'53.01799"	W 168°57'43.59412"	RTK	0.08	0.12	8/16/2022 13:28	25
12158	22NEC-S28-SD18	Sediment Sample	3405064.992	1811076.41	41.09	63.31471973	-168.96216750	N 63°18'52.99102"	W 168°57'43.80299"	RTK	0.09	0.14	8/16/2022 13:38	24
12163	22NEC-S28-SD19	Sediment Sample	3404985.429	1811045.15	42.52	63.31450356	-168.96236537	N 63°18'52.21281"	W 168°57'44.51533"	RTK	0.11	0.15	8/16/2022 13:45	23
12166	22NEC-S28-SD20	Sediment Sample	3404958.858	1811051.54	42.01	63.31443063	-168.96232912	N 63°18'51.95026"	W 168°57'44.38483"	RTK	0.10	0.15	8/16/2022 13:50	23
12172	22NEC-S28-SD21	Sediment Sample	3404911.402	1811007.53	42.41	63.31430282	-168.96260141	N 63°18'51.49015"	W 168°57'45.36507"	RTK	0.09	0.15	8/16/2022 13:58	23
12175	22NEC-S28-SD22	Sediment Sample	3404882.874	1811007.17	41.86	63.31422483	-168.96260640	N 63°18'51.20938"	W 168°57'45.38303"	RTK	0.10	0.18	8/16/2022 14:10	22
12178	22NEC-S28-SD23	Sediment Sample	3404847.806	1811018.39	41.85	63.31412845	-168.96254161	N 63°18'50.86241"	W 168°57'45.14979"	RTK	0.10	0.19	8/16/2022 14:16	22
12183	22NEC-S28-SD24	Sediment Sample	3404815.804	1811019.95	43.44	63.31404088	-168.96253528	N 63°18'50.54716"	W 168°57'45.127"	RTK	0.10	0.16	8/16/2022 14:22	24
12188	22NEC-S28-SD25	Sediment Sample	3404768.412	1810977.00	45.37	63.31391319	-168.96280109	N 63°18'50.08748"	W 168°57'46.08392"	RTK	0.10	0.17	8/16/2022 14:26	23
12193	22NEC-S28-SD26	Sediment Sample	3404734.858	1810961.46	45.90	63.31382213	-168.96289889	N 63°18'49.75966"	W 168°57'46.436"	RTK	0.10	0.17	8/16/2022 14:33	22
12198	22NEC-S28-SD27	Sediment Sample	3404706.436	1810949.74	47.41	63.31374494	-168.96297289	N 63°18'49.48178"	W 168°57'46.7024"	RTK	0.11	0.17	8/16/2022 14:39	24
12201	22NEC-S28-SD28	Sediment Sample	3404688.682	1810977.76	48.44	63.31369515	-168.96280432	N 63°18'49.30254"	W 168°57'46.09555"	RTK	0.10	0.17	8/16/2022 14:42	23
12204	22NEC-S28-SD29	Sediment Sample	3404673.56	1810965.25	49.06	63.31365436	-168.96288183	N 63°18'49.15569"	W 168°57'46.37458"	RTK	0.10	0.17	8/16/2022 14:45	23
12207	22NEC-S28-SD30	Sediment Sample	3404652.863	1810966.01	50.52	63.31359774	-168.96287929	N 63°18'48.95186"	W 168°57'46.36544"	RTK	0.10	0.17	8/16/2022 14:49	24
12210	22NEC-S28-SD31	Sediment Sample	3404632.885	1810951.95	51.19	63.31354373	-168.96296673	N 63°18'48.75742"	W 168°57'46.68022"	RTK	0.11	0.18	8/16/2022 14:52	24
12215	22NEC-S28-SD32	Sediment Sample	3404602.392	1810942.26	51.82	63.31346078	-168.96302863	N 63°18'48.4588"	W 168°57'46.90306"	RTK	0.10	0.19	8/16/2022 14:56	23
12218	22NEC-S28-SD33	Sediment Sample	3404583.697	1810934.40	53.14	63.31341001	-168.96307824	N 63°18'48.27603"	W 168°57'47.08166"	RTK	0.11	0.20	8/16/2022 15:00	24
12221	22NEC-S28-SD34	Sediment Sample	3404583.5	1810946.12	53.16	63.31340896	-168.96300704	N 63°18'48.27225"	W 168°57'46.82534"	RTK	0.11	0.22	8/16/2022 15:02	22
12224	22NEC-S28-SD35	Sediment Sample	3404567.666	1810939.30	53.37	63.31336596	-168.96305004	N 63°18'48.11745"	W 168°57'46.98014"	RTK	0.11	0.22	8/16/2022 15:05	23
12229	22NEC-S28-SD36	Sediment Sample	3404388.174	1811101.69	55.37	63.31286800	-168.96208040	N 63°18'46.3248"	W 168°57'43.48943"	RTK	0.07	0.17	8/16/2022 15:21	22
12230	22NEC-S28-SD37	Sediment Sample	3404375.846	1811105.93	56.29	63.31283410	-168.96205583	N 63°18'46.20276"	W 168°57'43.40098"	RTK	0.07	0.18	8/16/2022 15:22	22
12284	22NEC-S28-SD38	Sediment Sample	3404323.13	1810869.10	57.63	63.31270044	-168.96350090	N 63°18'45.72158"	W 168°57'48.60324"	RTK	0.05	0.08	8/16/2022 16:45	23
12287	22NEC-S28-SD39	Sediment Sample	3404326.905	1810898.25	55.13	63.31270947	-168.96332327	N 63°18'45.75409"	W 168°57'47.96377"	RTK	0.05	0.09	8/16/2022 16:47	23
12285	22NEC-S28-SD40	Sediment Sample	3404317.094	1810884.85	56.52	63.31268324	-168.96340570	N 63°18'45.65966"	W 168°57'48.26052"	RTK	0.07	0.09	8/16/2022 16:46	22
12247	22NEC-S28-SD41	Sediment Sample	3404294.017	1811185.55	55.84	63.31260683	-168.96157979	N 63°18'45.38458"	W 168°57'41.68724"	RTK	0.09	0.23	8/16/2022 15:43	20
12279	22NEC-S28-SD42	Sediment Sample	3404174.427	1810754.26	61.17	63.31229892	-168.96421370	N 63°18'44.27611"	W 168°57'51.16931"	RTK	0.07	0.10	8/16/2022 16:22	23
12278	22NEC-S28-SD43	Sediment Sample	3404137.783	1810848.53	59.73	63.31219455	-168.96364414	N 63°18'43.90038"	W 168°57'49.1189"	RTK	0.06	0.11	8/16/2022 16:21	23
12261	22NEC-S28-SD44	Sediment Sample	3404144.334	1811085.14	57.50	63.31220200	-168.96220501	N 63°18'43.92719"	W 168°57'43.93803"	RTK	0.09	0.23	8/16/2022 15:54	21
12262	22NEC-S28-SD45	Sediment Sample	3404142.025	1811074.27	57.59	63.31219617	-168.96227133	N 63°18'43.90621"	W 168°57'44.17678"	RTK	0.09	0.19	8/16/2022 16:02	22
12263	22NEC-S28-SD46	Sediment Sample	3404133.944	1811079.85	57.55	63.31217383	-168.96223816	N 63°18'43.82578"	W 168°57'44.05737"	RTK	0.09	0.19	8/16/2022 16:04	22

12268	22NEC-S28-SD47	Sediment Sample	3404085.781	1810864.60	61.39	63.31205166	-168.96355159	N 63°18'43.38597"	W 168°57'48.78572"	RTK	0.11	0.20	8/16/2022 16:13	23
12269	22NEC-S28-SD48	Sediment Sample	3404078.459	1810870.37	60.04	63.31203138	-168.96351722	N 63°18'43.31296"	W 168°57'48.66199"	RTK	0.13	0.19	8/16/2022 16:14	23
12270	22NEC-S28-SD49	Sediment Sample	3404077.396	1810878.18	61.34	63.31202813	-168.96346981	N 63°18'43.30126"	W 168°57'48.49131"	RTK	0.09	0.18	8/16/2022 16:15	23
12271	22NEC-S28-SD50	Sediment Sample	3404075.855	1810878.15	61.33	63.31202392	-168.96347014	N 63°18'43.28611"	W 168°57'48.4925"	RTK	0.07	0.13	8/16/2022 16:15	23
12272	22NEC-S28-SD51	Sediment Sample	3404077.767	1810862.82	60.21	63.31202982	-168.96356316	N 63°18'43.30735"	W 168°57'48.82737"	RTK	0.09	0.13	8/16/2022 16:15	23
12169	22NEC-S28-SD52	Sediment Sample	3404924.362	1811059.23	42.82	63.31433597	-168.96228574	N 63°18'51.60949"	W 168°57'44.22866"	RTK	0.11	0.16	8/16/2022 13:54	23
12286	22NEC-S28-SD53	Sediment Sample	3404302.258	1810894.47	56.81	63.31264224	-168.96334867	N 63°18'45.51206"	W 168°57'48.05521"	RTK	0.06	0.09	8/16/2022 16:46	22
12273	22NEC-S28-SD54	Sediment Sample	3404090.43	1810873.30	59.60	63.31206398	-168.96349819	N 63°18'43.43032"	W 168°57'48.59348"	RTK	0.13	0.12	8/16/2022 16:16	23
12370	22NEC-S28-SD55	Sediment Sample	3404206.083	1810738.64	60.90	63.31238616	-168.96430556	N 63°18'44.59017"	W 168°57'51.50001"	RTK	0.08	0.06	8/17/2022 18:21	23
12371	22NEC-S28-SD56	Sediment Sample	3404675.192	1811043.14	50.13	63.31365538	-168.96240810	N 63°18'49.15936"	W 168°57'44.66916"	RTK	0.07	0.06	8/17/2022 18:22	20
12373	22NEC-S28-SD57	Sediment Sample	3404896.584	1811030.75	43.37	63.31426127	-168.96246166	N 63°18'51.34057"	W 168°57'44.86197"	RTK	0.08	0.04	8/17/2022 18:25	23
12376	22NEC-S28-SD58	Sediment Sample	3405027.669	1811080.16	43.11	63.31461751	-168.96214833	N 63°18'52.62303"	W 168°57'43.73398"	RTK	0.07	0.06	8/17/2022 18:28	25
12372	22NEC-S28-SD59	Sediment Sample	3404712.885	1810971.13	47.28	63.31376163	-168.96284225	N 63°18'49.54186"	W 168°57'46.23209"	RTK	0.09	0.05	8/17/2022 18:23	23
12369	22NEC-S28-SD60	Sediment Sample	3404107.147	1811083.15	60.37	63.31210041	-168.96222076	N 63°18'43.56147"	W 168°57'43.99473"	RTK	0.14	0.06	8/17/2022 18:19	20

Northeast Cape
Pond Edges

Horizonal Datum: ***World Geographic System of 1984 (WGS84)***
Vertical Datum: ***North American Vertical Datum of 1988 (NAVD88)***
Projection: ***Alaska State Plane Zone 9 (based on NAD83[2011])***
Units: ***US Survey Feet***

Survey ID	Description	Code	Northing	Easting	Elevation	Latitude (DD)	Longitude (DD)	Latitude (DMS)	Longitude (DMS)	Survey Method	HRMS	VRMS	Date & Time	S/V's
11568	Water Edge	WTRED1	3404558.72	1810935.05	54.99	63.31334170	-168.96307673	N 63°18'48.03012"	W 168°57'47.07622"	RTK	0.03	0.04	8/15/2022 15:09	24
11569	Water Edge	WTRED1	3404560.18	1810934.03	55.02	63.31334574	-168.96308279	N 63°18'48.04466"	W 168°57'47.09804"	RTK	0.03	0.04	8/15/2022 15:09	24
11570	Water Edge	WTRED1	3404562.57	1810936.91	54.91	63.31335213	-168.96306509	N 63°18'48.06766"	W 168°57'47.03432"	RTK	0.03	0.04	8/15/2022 15:09	24
11571	Water Edge	WTRED1	3404562.01	1810938.05	54.97	63.31335055	-168.96305822	N 63°18'48.06198"	W 168°57'47.00959"	RTK	0.04	0.05	8/15/2022 15:09	24
11572	Water Edge	WTRED1	3404565.86	1810940.68	54.67	63.31336096	-168.96304180	N 63°18'48.09945"	W 168°57'46.95048"	RTK	0.03	0.05	8/15/2022 15:09	24
11573	Water Edge	WTRED1	3404567.68	1810936.90	54.68	63.31336610	-168.96306464	N 63°18'48.11796"	W 168°57'47.0327"	RTK	0.04	0.04	8/15/2022 15:09	23
11574	Water Edge	WTRED1	3404570.46	1810938.02	54.53	63.31337366	-168.96305752	N 63°18'48.14517"	W 168°57'47.00707"	RTK	0.04	0.05	8/15/2022 15:09	23
11575	Water Edge	WTRED1	3404570.95	1810940.09	54.50	63.31337489	-168.96304489	N 63°18'48.1496"	W 168°57'46.9616"	RTK	0.05	0.05	8/15/2022 15:09	24
11576	Water Edge	WTRED1	3404573.07	1810936.45	54.49	63.31338085	-168.96306684	N 63°18'48.17106"	W 168°57'47.04062"	RTK	0.04	0.04	8/15/2022 15:10	23
11577	Water Edge	WTRED1	3404575.69	1810938.00	54.46	63.31338795	-168.96305713	N 63°18'48.19661"	W 168°57'47.00566"	RTK	0.04	0.04	8/15/2022 15:10	23
11578	Water Edge	WTRED1	3404573.29	1810940.17	54.52	63.31338130	-168.96304422	N 63°18'48.17268"	W 168°57'46.95919"	RTK	0.06	0.04	8/15/2022 15:10	24
11579	Water Edge	WTRED1	3404576.98	1810942.37	54.58	63.31339128	-168.96303043	N 63°18'48.2086"	W 168°57'46.90954"	RTK	0.04	0.05	8/15/2022 15:10	24
11580	Water Edge	WTRED1	3404573.59	1810943.70	54.49	63.31338198	-168.96302269	N 63°18'48.17512"	W 168°57'46.88168"	RTK	0.04	0.04	8/15/2022 15:10	24
11581	Water Edge	WTRED1	3404578.11	1810950.01	54.48	63.31339405	-168.96298392	N 63°18'48.21857"	W 168°57'46.74211"	RTK	0.04	0.05	8/15/2022 15:10	24
11582	Water Edge	WTRED1	3404580.81	1810944.57	54.52	63.31340167	-168.96301669	N 63°18'48.24601"	W 168°57'46.86008"	RTK	0.06	0.05	8/15/2022 15:10	23
11583	Water Edge	WTRED1	3404581.79	1810948.92	54.45	63.31340415	-168.96299016	N 63°18'48.25493"	W 168°57'46.76457"	RTK	0.04	0.05	8/15/2022 15:10	23
11584	Water Edge	WTRED1	3404586.58	1810946.87	54.56	63.31341734	-168.96300213	N 63°18'48.30242"	W 168°57'46.80766"	RTK	0.04	0.05	8/15/2022 15:10	23
11585	Water Edge	WTRED2	3404585.27	1810944.17	54.45	63.31341387	-168.96301872	N 63°18'48.28993"	W 168°57'46.86739"	RTK	0.04	0.05	8/15/2022 15:11	23
11586	Water Edge	WTRED2	3404584.70	1810943.05	54.36	63.31341238	-168.96302555	N 63°18'48.28456"	W 168°57'46.89197"	RTK	0.03	0.04	8/15/2022 15:11	23
11587	Water Edge	WTRED3	3404583.28	1810941.44	54.25	63.31340855	-168.96303549	N 63°18'48.27077"	W 168°57'46.92776"	RTK	0.03	0.04	8/15/2022 15:11	23
11588	Water Edge	WTRED3	3404587.41	1810937.51	53.59	63.31342003	-168.96305896	N 63°18'48.3121"	W 168°57'47.01225"	RTK	0.04	0.05	8/15/2022 15:11	23
11589	Water Edge	WTRED3	3404585.31	1810935.72	53.66	63.31341437	-168.96307005	N 63°18'48.29173"	W 168°57'47.05217"	RTK	0.04	0.04	8/15/2022 15:11	23
11590	Water Edge	WTRED3	3404582.33	1810934.50	53.73	63.31340628	-168.96307777	N 63°18'48.2626"	W 168°57'47.07997"	RTK	0.04	0.05	8/15/2022 15:11	23
11591	Water Edge	WTRED3	3404581.81	1810930.77	53.62	63.31340502	-168.96310049	N 63°18'48.25807"	W 168°57'47.16176"	RTK	0.04	0.04	8/15/2022 15:11	23
11592	Water Edge	WTRED3	3404582.88	1810927.95	53.67	63.31340807	-168.96311756	N 63°18'48.26905"	W 168°57'47.22321"	RTK	0.04	0.05	8/15/2022 15:11	22
11593	Water Edge	WTRED3	3404585.07	1810928.10	53.53	63.31341404	-168.96311644	N 63°18'48.29054"	W 168°57'47.21918"	RTK	0.05	0.04	8/15/2022 15:11	23
11594	Water Edge	WTRED3	3404585.41	1810931.13	53.58	63.31341485	-168.96309798	N 63°18'48.29346"	W 168°57'47.15272"	RTK	0.03	0.04	8/15/2022 15:11	22
11595	Water Edge	WTRED3	3404586.30	1810933.68	53.56	63.31341716	-168.96308239	N 63°18'48.30177"	W 168°57'47.0966"	RTK	0.03	0.04	8/15/2022 15:12	23
11596	Water Edge	WTRED3	3404588.41	1810935.95	53.52	63.31342282	-168.96306836	N 63°18'48.32215"	W 168°57'47.04609"	RTK	0.03	0.04	8/15/2022 15:12	23
11597	Water Edge	WTRED2	3404589.95	1810939.10	53.40	63.31342689	-168.96304909	N 63°18'48.3368"	W 168°57'46.97672"	RTK	0.04	0.04	8/15/2022 15:12	22
11598	Water Edge	WTRED2	3404591.95	1810943.89	53.78	63.31343216	-168.96301976	N 63°18'48.35577"	W 168°57'46.87113"	RTK	0.03	0.04	8/15/2022 15:12	23
11599	Water Edge	WTRED1	3404592.16	1810946.95	53.76	63.31343260	-168.96300113	N 63°18'48.35735"	W 168°57'46.80406"	RTK	0.03	0.04	8/15/2022 15:12	23
11600	Water Edge	WTRED1	3404597.21	1810946.12	52.99	63.31344645	-168.96300567	N 63°18'48.40722"	W 168°57'46.82041"	RTK	0.03	0.04	8/15/2022 15:12	23
11601	Water Edge	WTRED2	3404595.55	1810942.68	52.95	63.31344206	-168.96302672	N 63°18'48.39141"	W 168°57'46.89619"	RTK	0.04	0.04	8/15/2022 15:12	22
11602	Water Edge	WTRED2	3404596.46	1810939.16	52.85	63.31344471	-168.96304805	N 63°18'48.40095"	W 168°57'46.97297"	RTK	0.04	0.05	8/15/2022 15:13	23
11603	Water Edge	WTRED2	3404592.87	1810937.24	53.28	63.31343497	-168.96306008	N 63°18'48.36589"	W 168°57'47.01628"	RTK	0.04	0.04	8/15/2022 15:13	22
11604	Water Edge	WTRED3	3404591.71	1810935.11	53.44	63.31343190	-168.96307316	N 63°18'48.35483"	W 168°57'47.06337"	RTK	0.04	0.04	8/15/2022 15:13	23
11605	Water Edge	WTRED3	3404596.42	1810934.42	53.16	63.31344480	-168.96307687	N 63°18'48.40127"	W 168°57'47.07673"	RTK	0.03	0.04	8/15/2022 15:13	23
11606	Water Edge	WTRED3	3404599.61	1810937.44	52.76	63.31345340	-168.96305818	N 63°18'48.43224"	W 168°57'47.00944"	RTK	0.04	0.05	8/15/2022 15:13	23
11607	Water Edge	WTRED3	3404607.65	1810944.08	52.66	63.31347508	-168.96301702	N 63°18'48.51028"	W 168°57'46.86127"	RTK	0.04	0.05	8/15/2022 15:13	23
11608	Water Edge	WTRED1	3404606.07	1810948.02	52.60	63.31347058	-168.96299325	N 63°18'48.49408"	W 168°57'46.7757"	RTK	0.04	0.05	8/15/2022 15:13	23
11609	Water Edge	WTRED1	3404614.32	1810952.34	52.19	63.31349294	-168.96296614	N 63°18'48.57458"	W 168°57'46.6781"	RTK	0.04	0.04	8/15/2022 15:13	23
11610	Water Edge	WTRED3	3404615.78	1810950.22	52.15	63.31349703	-168.96297893	N 63°18'48.5893"	W 168°57'46.72414"	RTK	0.03	0.04	8/15/2022 15:14	23
11611	Water Edge	WTRED3	3404619.65	1810951.83	52.09	63.31350754	-168.96296876	N 63°18'48.62714"	W 168°57'46.68753"	RTK	0.04	0.05	8/15/2022 15:14	22
11612	Water Edge	WTRED1	3404619.88	1810954.04	51.99	63.31350807	-168.96295527	N 63°18'48.62905"	W 168°57'46.63897"	RTK	0.03	0.04	8/15/2022 15:14	23
11613	Water Edge	WTRED1	3404628.43	1810953.35	51.77	63.31353150	-168.96295866	N 63°18'48.7134"	W 168°57'46.65117"	RTK	0.04	0.04	8/15/2022 15:14	22

11614	Water Edge	WTRED3	3404628.93	1810949.27	51.88	63.31353303	-168.96298340	N 63°18'48.7189"	W 168°57'46.74024"	RTK	0.04	0.04	8/15/2022 15:14	23
11615	Water Edge	WTRED3	3404636.49	1810951.23	51.53	63.31355362	-168.96297072	N 63°18'48.79303"	W 168°57'46.69459"	RTK	0.04	0.04	8/15/2022 15:14	22
11616	Water Edge	WTRED1	3404634.88	1810955.84	51.64	63.31354901	-168.96294287	N 63°18'48.77643"	W 168°57'46.59433"	RTK	0.04	0.05	8/15/2022 15:14	23
11617	Water Edge	WTRED1	3404640.47	1810958.22	51.38	63.31356419	-168.96292786	N 63°18'48.83108"	W 168°57'46.54029"	RTK	0.03	0.04	8/15/2022 15:14	23
11618	Water Edge	WTRED3	3404643.67	1810952.59	51.20	63.31357318	-168.96296174	N 63°18'48.86344"	W 168°57'46.66226"	RTK	0.04	0.04	8/15/2022 15:15	21
11619	Water Edge	WTRED3	3404645.56	1810958.11	51.42	63.31357812	-168.96292804	N 63°18'48.88123"	W 168°57'46.54094"	RTK	0.04	0.05	8/15/2022 15:15	22
11620	Water Edge	WTRED1	3404644.22	1810959.29	51.44	63.31357439	-168.96292100	N 63°18'48.8678"	W 168°57'46.51559"	RTK	0.03	0.04	8/15/2022 15:15	23
11621	Water Edge	WTRED1	3404645.95	1810964.94	51.28	63.31357888	-168.96288647	N 63°18'48.88396"	W 168°57'46.39129"	RTK	0.04	0.04	8/15/2022 15:15	22
11622	Water Edge	WTRED3	3404648.64	1810960.46	51.43	63.31358642	-168.96291341	N 63°18'48.91111"	W 168°57'46.48827"	RTK	0.06	0.04	8/15/2022 15:15	22
11623	Water Edge	WTRED3	3404655.02	1810964.41	51.11	63.31360371	-168.96288878	N 63°18'48.97335"	W 168°57'46.3996"	RTK	0.04	0.04	8/15/2022 15:15	23
11624	Water Edge	WTRED1	3404654.41	1810967.72	51.22	63.31360190	-168.96286870	N 63°18'48.96684"	W 168°57'46.32732"	RTK	0.03	0.04	8/15/2022 15:15	23
11625	Water Edge	WTRED1	3404664.20	1810968.98	50.67	63.31362859	-168.96286012	N 63°18'49.06292"	W 168°57'46.29643"	RTK	0.05	0.07	8/15/2022 15:15	22
11626	Water Edge	WTRED3	3404664.17	1810965.72	50.75	63.31362867	-168.96287990	N 63°18'49.06321"	W 168°57'46.36763"	RTK	0.04	0.05	8/15/2022 15:15	22
11627	Water Edge	WTRED3	3404673.65	1810963.94	49.94	63.31365467	-168.96288980	N 63°18'49.15681"	W 168°57'46.40327"	RTK	0.04	0.05	8/15/2022 15:16	22
11628	Water Edge	WTRED1	3404673.26	1810966.24	50.03	63.31365348	-168.96287585	N 63°18'49.15252"	W 168°57'46.35305"	RTK	0.04	0.05	8/15/2022 15:16	23
11629	Water Edge	WTRED1	3404685.60	1810973.24	49.64	63.31368693	-168.96283208	N 63°18'49.27294"	W 168°57'46.19548"	RTK	0.04	0.05	8/15/2022 15:16	22
11630	Water Edge	WTRED3	3404686.73	1810971.51	49.55	63.31369010	-168.96284248	N 63°18'49.28436"	W 168°57'46.23292"	RTK	0.04	0.05	8/15/2022 15:16	23
11631	Water Edge	WTRED3	3404691.75	1810976.50	49.13	63.31370361	-168.96281168	N 63°18'49.33299"	W 168°57'46.12204"	RTK	0.04	0.05	8/15/2022 15:16	22
11632	Water Edge	WTRED1	3404690.77	1810979.82	49.05	63.31370077	-168.96279160	N 63°18'49.32277"	W 168°57'46.04976"	RTK	0.04	0.05	8/15/2022 15:16	23
11633	Water Edge	WTRED1	3404695.19	1810980.39	48.80	63.31371283	-168.96278767	N 63°18'49.36618"	W 168°57'46.03561"	RTK	0.04	0.05	8/15/2022 15:16	22
11634	Water Edge	WTRED3	3404694.89	1810977.34	48.83	63.31371214	-168.96280622	N 63°18'49.3637"	W 168°57'46.10239"	RTK	0.05	0.05	8/15/2022 15:16	23
11635	Water Edge	WTRED3	3404702.60	1810973.61	48.57	63.31373341	-168.96282815	N 63°18'49.44027"	W 168°57'46.18134"	RTK	0.05	0.05	8/15/2022 15:17	23
11636	Water Edge	WTRED1	3404703.67	1810976.20	48.63	63.31373620	-168.96281232	N 63°18'49.45032"	W 168°57'46.12435"	RTK	0.03	0.05	8/15/2022 15:17	23
11637	Water Edge	WTRED1	3404709.17	1810976.91	47.99	63.31375121	-168.96280747	N 63°18'49.50435"	W 168°57'46.10689"	RTK	0.04	0.05	8/15/2022 15:17	23
11638	Water Edge	WTRED3	3404708.41	1810972.63	48.15	63.31374932	-168.96283355	N 63°18'49.49755"	W 168°57'46.20077"	RTK	0.04	0.05	8/15/2022 15:17	23
11639	Water Edge	WTRED3	3404714.70	1810969.73	47.22	63.31376665	-168.96285057	N 63°18'49.55993"	W 168°57'46.26205"	RTK	0.04	0.05	8/15/2022 15:17	22
11640	Water Edge	WTRED1	3404718.33	1810974.37	47.18	63.31377636	-168.96282199	N 63°18'49.59489"	W 168°57'46.15916"	RTK	0.03	0.05	8/15/2022 15:17	23
11641	Water Edge	WTRED1	3404722.85	1810966.76	46.80	63.31378906	-168.96286784	N 63°18'49.64061"	W 168°57'46.32422"	RTK	0.05	0.05	8/15/2022 15:17	23
11642	Water Edge	WTRED3	3404720.53	1810965.00	46.82	63.31378280	-168.96287878	N 63°18'49.61807"	W 168°57'46.3636"	RTK	0.05	0.05	8/15/2022 15:17	23
11643	Water Edge	WTRED3	3404724.41	1810957.69	46.37	63.31379373	-168.96292281	N 63°18'49.65742"	W 168°57'46.52211"	RTK	0.04	0.05	8/15/2022 15:17	23
11644	Water Edge	WTRED1	3404729.17	1810965.47	46.54	63.31380640	-168.96287506	N 63°18'49.70303"	W 168°57'46.35021"	RTK	0.04	0.05	8/15/2022 15:18	23
11645	Water Edge	WTRED1	3404736.28	1810965.11	46.47	63.31382587	-168.96287655	N 63°18'49.77313"	W 168°57'46.35558"	RTK	0.04	0.05	8/15/2022 15:18	21
11646	Water Edge	WTRED3	3404734.91	1810950.26	46.53	63.31382276	-168.96296698	N 63°18'49.76193"	W 168°57'46.68112"	RTK	0.04	0.06	8/15/2022 15:18	21
11647	Water Edge	WTRED3	3404740.41	1810955.88	46.55	63.31383757	-168.96293226	N 63°18'49.81525"	W 168°57'46.55613"	RTK	0.04	0.06	8/15/2022 15:18	22
11648	Water Edge	WTRED3	3404749.77	1810960.60	46.33	63.31386294	-168.96290260	N 63°18'49.90658"	W 168°57'46.44936"	RTK	0.04	0.06	8/15/2022 15:18	21
11649	Water Edge	WTRED1	3404746.98	1810967.05	46.27	63.31385504	-168.96286369	N 63°18'49.87814"	W 168°57'46.30928"	RTK	0.04	0.06	8/15/2022 15:18	22
11650	Water Edge	WTRED1	3404757.23	1810973.65	46.08	63.31388277	-168.96282256	N 63°18'49.97797"	W 168°57'46.16121"	RTK	0.05	0.07	8/15/2022 15:19	21
11651	Water Edge	WTRED3	3404759.54	1810960.95	46.20	63.31388964	-168.96289955	N 63°18'50.0027"	W 168°57'46.43838"	RTK	0.05	0.06	8/15/2022 15:19	21
11652	Water Edge	WTRED3	3404761.21	1810967.23	46.05	63.31389393	-168.96286121	N 63°18'50.01814"	W 168°57'46.30035"	RTK	0.04	0.05	8/15/2022 15:19	22
11653	Water Edge	WTRED3	3404768.69	1810973.48	46.17	63.31391412	-168.96282246	N 63°18'50.09083"	W 168°57'46.16085"	RTK	0.04	0.05	8/15/2022 15:19	22
11654	Water Edge	WTRED1	3404763.61	1810982.75	46.05	63.31389980	-168.96276661	N 63°18'50.03928"	W 168°57'45.95979"	RTK	0.04	0.05	8/15/2022 15:19	22
11655	Water Edge	WTRED1	3404771.44	1810983.08	45.92	63.31392119	-168.96276383	N 63°18'50.11628"	W 168°57'45.94978"	RTK	0.04	0.05	8/15/2022 15:19	21
11656	Water Edge	WTRED3	3404771.08	1810974.93	45.90	63.31392058	-168.96281340	N 63°18'50.11408"	W 168°57'46.12823"	RTK	0.04	0.06	8/15/2022 15:20	21
11657	Water Edge	WTRED3	3404778.11	1810975.16	45.91	63.31393978	-168.96281134	N 63°18'50.1832"	W 168°57'46.12082"	RTK	0.04	0.05	8/15/2022 15:20	22
11658	Water Edge	WTRED3	3404779.56	1810981.32	45.97	63.31394349	-168.96277374	N 63°18'50.19656"	W 168°57'45.98546"	RTK	0.04	0.06	8/15/2022 15:20	22
11659	Water Edge	WTRED3	3404776.50	1810986.09	46.01	63.31393489	-168.96274504	N 63°18'50.1656"	W 168°57'45.88214"	RTK	0.04	0.05	8/15/2022 15:20	22
11660	Water Edge	WTRED1	3404772.07	1810986.10	45.86	63.31392279	-168.96274540	N 63°18'50.12204"	W 168°57'45.88343"	RTK	0.04	0.05	8/15/2022 15:20	22
11661	Water Edge	WTRED1	3404772.36	1810992.20	45.96	63.31392330	-168.96270828	N 63°18'50.12387"	W 168°57'45.7498"	RTK	0.04	0.05	8/15/2022 15:20	22
11662	Water Edge	WTRED3	3404774.68	1810991.53	45.94	63.31392969	-168.96271211	N 63°18'50.14688"	W 168°57'45.76359"	RTK	0.04	0.05	8/15/2022 15:20	22
11663	Water Edge	WTRED3	3404779.92	1810995.01	45.55	63.31394387	-168.96269043	N 63°18'50.19793"	W 168°57'45.68554"	RTK	0.04	0.05	8/15/2022 15:20	21
11664	Water Edge	WTRED1	3404779.05	1810996.79	45.53	63.31394141	-168.96267969	N 63°18'50.18907"	W 168°57'45.64688"	RTK	0.03	0.05	8/15/2022 15:21	22
11665	Water Edge	WTRED1	3404787.66	1810999.49	45.06	63.31396483	-168.96266247	N 63°18'50.27338"	W 168°57'45.58489"	RTK	0.04	0.06	8/15/2022 15:21	21
11666	Water Edge	WTRED3	3404788.36	1810997.70	45.20	63.31396681	-168.96267324	N 63°18'50.28051"	W 168°57'45.62366"	RTK	0.04	0.05	8/15/2022 15:21	22
11667	Water Edge	WTRED3	3404796.64	1811000.21	44.59	63.31398935	-168.96265719	N 63°18'50.36165"	W 168°57'45.56588"	RTK	0.04	0.06	8/15/2022 15:21	21
11668	Water Edge	WTRED1	3404795.24	1811004.26	44.69	63.31398535	-168.96263271	N 63°18'50.34726"	W 168°57'45.47775"	RTK	0.04	0.06	8/15/2022 15:21	22
11669	Water Edge	WTRED1	3404805.47	1811009.45	44.52	63.31401308	-168.96260011	N 63°18'50.44708"	W 168°57'45.36039"	RTK	0.04	0.06	8/15/2022 15:21	22

11670	Water Edge	WTRED3	3404807.30	1811008.14	44.48	63.31401814	-168.96260794	N 63°18'50.4653"	W 168°57'45.38858"	RTK	0.05	0.06	8/15/2022 15:21	22
11671	Water Edge	WTRED1	3404810.14	1811017.85	44.35	63.31402547	-168.96254858	N 63°18'50.49169"	W 168°57'45.17488"	RTK	0.04	0.06	8/15/2022 15:22	22
11672	Water Edge	WTRED3	3404813.88	1811011.45	44.22	63.31403599	-168.96258714	N 63°18'50.52956"	W 168°57'45.3137"	RTK	0.04	0.06	8/15/2022 15:22	21
11673	Water Edge	WTRED3	3404822.76	1811017.99	44.12	63.31405999	-168.96254654	N 63°18'50.61596"	W 168°57'45.16754"	RTK	0.04	0.06	8/15/2022 15:22	22
11674	Water Edge	WTRED1	3404821.55	1811024.20	44.15	63.31405640	-168.96250886	N 63°18'50.60303"	W 168°57'45.03189"	RTK	0.04	0.06	8/15/2022 15:22	22
11675	Water Edge	WTRED1	3404831.77	1811026.41	44.04	63.31408424	-168.96249440	N 63°18'50.70326"	W 168°57'44.97983"	RTK	0.04	0.06	8/15/2022 15:22	21
11676	Water Edge	WTRED3	3404831.59	1811018.23	43.85	63.31408411	-168.96254419	N 63°18'50.70279"	W 168°57'45.15908"	RTK	0.04	0.06	8/15/2022 15:23	21
11677	Water Edge	WTRED3	3404839.76	1811017.77	43.74	63.31410646	-168.96254619	N 63°18'50.78325"	W 168°57'45.16628"	RTK	0.04	0.06	8/15/2022 15:23	21
11678	Water Edge	WTRED1	3404842.66	1811023.17	43.81	63.31411415	-168.96251306	N 63°18'50.81094"	W 168°57'45.04701"	RTK	0.04	0.06	8/15/2022 15:23	22
11679	Water Edge	WTRED1	3404853.51	1811015.44	43.74	63.31414418	-168.96255902	N 63°18'50.91904"	W 168°57'45.21247"	RTK	0.04	0.06	8/15/2022 15:23	22
11680	Water Edge	WTRED3	3404847.52	1811007.91	43.73	63.31412812	-168.96260538	N 63°18'50.86123"	W 168°57'45.37936"	RTK	0.04	0.06	8/15/2022 15:24	22
11681	Water Edge	WTRED3	3404856.04	1811003.59	43.65	63.31415162	-168.96263081	N 63°18'50.94583"	W 168°57'45.47091"	RTK	0.04	0.06	8/15/2022 15:24	22
11682	Water Edge	WTRED3	3404867.18	1811002.40	43.79	63.31418211	-168.96263694	N 63°18'51.05559"	W 168°57'45.49298"	RTK	0.05	0.06	8/15/2022 15:24	22
11683	Water Edge	WTRED3	3404881.56	1811003.41	43.36	63.31422140	-168.96262938	N 63°18'51.19704"	W 168°57'45.46576"	RTK	0.04	0.06	8/15/2022 15:24	23
11684	Water Edge	WTRED3	3404889.62	1811000.29	43.27	63.31424357	-168.96264754	N 63°18'51.27685"	W 168°57'45.53114"	RTK	0.05	0.08	8/15/2022 15:25	21
11685	Water Edge	WTRED3	3404896.81	1810999.54	43.43	63.31426326	-168.96265140	N 63°18'51.34773"	W 168°57'45.54503"	RTK	0.04	0.07	8/15/2022 15:25	22
11686	Water Edge	WTRED3	3404902.76	1810993.98	43.67	63.31427978	-168.96268465	N 63°18'51.4072"	W 168°57'45.66473"	RTK	0.04	0.06	8/15/2022 15:25	22
11687	Water Edge	WTRED3	3404909.35	1810991.74	43.20	63.31429791	-168.96269761	N 63°18'51.47247"	W 168°57'45.71139"	RTK	0.04	0.06	8/15/2022 15:25	22
11688	Water Edge	WTRED3	3404916.94	1810995.03	43.00	63.31431851	-168.96267687	N 63°18'51.54663"	W 168°57'45.63673"	RTK	0.05	0.07	8/15/2022 15:25	22
11689	Water Edge	WTRED3	3404921.52	1811000.14	43.06	63.31433082	-168.96264532	N 63°18'51.59095"	W 168°57'45.52315"	RTK	0.04	0.06	8/15/2022 15:26	22
11690	Water Edge	WTRED3	3404922.79	1811005.04	43.46	63.31433407	-168.96261539	N 63°18'51.60265"	W 168°57'45.4154"	RTK	0.04	0.06	8/15/2022 15:26	23
11691	Water Edge	WTRED3	3404918.33	1811009.07	43.49	63.31432170	-168.96259135	N 63°18'51.55812"	W 168°57'45.32885"	RTK	0.04	0.07	8/15/2022 15:26	22
11692	Water Edge	WTRED3	3404911.32	1811010.82	43.74	63.31430244	-168.96258141	N 63°18'51.48878"	W 168°57'45.29307"	RTK	0.04	0.07	8/15/2022 15:26	22
11693	Water Edge	WTRED3	3404911.21	1811013.47	43.64	63.31430203	-168.96256529	N 63°18'51.4873"	W 168°57'45.23504"	RTK	0.04	0.06	8/15/2022 15:26	22
11694	Water Edge	WTRED3	3404916.30	1811014.45	43.33	63.31431590	-168.96255880	N 63°18'51.53723"	W 168°57'45.21168"	RTK	0.04	0.06	8/15/2022 15:26	22
11695	Water Edge	WTRED3	3404918.16	1811019.28	43.50	63.31432079	-168.96252929	N 63°18'51.55484"	W 168°57'45.10544"	RTK	0.04	0.06	8/15/2022 15:26	23
11696	Water Edge	WTRED3	3404914.86	1811024.99	43.38	63.31431151	-168.96249492	N 63°18'51.52143"	W 168°57'44.98171"	RTK	0.04	0.07	8/15/2022 15:26	23
11697	Water Edge	WTRED3	3404916.32	1811026.13	43.37	63.31431543	-168.96248780	N 63°18'51.53554"	W 168°57'44.95607"	RTK	0.04	0.06	8/15/2022 15:26	22
11698	Water Edge	WTRED3	3404926.06	1811029.59	43.47	63.31434191	-168.96246585	N 63°18'51.63087"	W 168°57'44.87706"	RTK	0.04	0.07	8/15/2022 15:27	21
11699	Water Edge	WTRED3	3404934.68	1811032.74	43.15	63.31436534	-168.96244581	N 63°18'51.71522"	W 168°57'44.80491"	RTK	0.04	0.06	8/15/2022 15:27	21
11700	Water Edge	WTRED3	3404939.14	1811035.31	43.45	63.31437743	-168.96242976	N 63°18'51.75874"	W 168°57'44.74713"	RTK	0.04	0.06	8/15/2022 15:27	23
11701	Water Edge	WTRED3	3404940.86	1811034.22	43.17	63.31438217	-168.96243622	N 63°18'51.77581"	W 168°57'44.77039"	RTK	0.04	0.06	8/15/2022 15:27	22
11702	Water Edge	WTRED3	3404949.11	1811027.25	43.31	63.31440506	-168.96247779	N 63°18'51.85821"	W 168°57'44.92004"	RTK	0.04	0.06	8/15/2022 15:27	22
11703	Water Edge	WTRED3	3404960.03	1811026.51	43.79	63.31443495	-168.96248118	N 63°18'51.96581"	W 168°57'44.93224"	RTK	0.04	0.06	8/15/2022 15:27	20
11704	Water Edge	WTRED3	3404974.28	1811033.73	43.63	63.31447358	-168.96243592	N 63°18'52.10488"	W 168°57'44.76931"	RTK	0.04	0.06	8/15/2022 15:28	22
11705	Water Edge	WTRED3	3404987.23	1811038.55	43.45	63.31450879	-168.96240535	N 63°18'52.23164"	W 168°57'44.65926"	RTK	0.04	0.06	8/15/2022 15:28	23
11706	Water Edge	WTRED3	3404991.63	1811045.00	43.36	63.31452053	-168.96236564	N 63°18'52.2739"	W 168°57'44.5163"	RTK	0.04	0.06	8/15/2022 15:28	22
11707	Water Edge	WTRED3	3405001.99	1811051.33	42.98	63.31454858	-168.96232616	N 63°18'52.37488"	W 168°57'44.37417"	RTK	0.04	0.06	8/15/2022 15:28	22
11708	Water Edge	WTRED3	3405005.19	1811056.55	43.39	63.31455708	-168.96229411	N 63°18'52.40548"	W 168°57'44.25879"	RTK	0.04	0.06	8/15/2022 15:28	22
11709	Water Edge	WTRED3	3405006.42	1811064.66	43.54	63.31456010	-168.96224467	N 63°18'52.41636"	W 168°57'44.08081"	RTK	0.04	0.06	8/15/2022 15:28	22
11710	Water Edge	WTRED3	3405006.64	1811067.40	43.24	63.31456056	-168.96222800	N 63°18'52.41801"	W 168°57'44.0208"	RTK	0.05	0.08	8/15/2022 15:29	23
11711	Water Edge	WTRED1	3404858.53	1811011.32	43.75	63.31415808	-168.96258357	N 63°18'50.96908"	W 168°57'45.30085"	RTK	0.04	0.06	8/15/2022 15:30	22
11712	Water Edge	WTRED1	3404864.90	1811016.02	43.34	63.31417529	-168.96255436	N 63°18'51.03104"	W 168°57'45.19569"	RTK	0.04	0.06	8/15/2022 15:30	21
11713	Water Edge	WTRED1	3404870.55	1811020.06	43.64	63.31419057	-168.96252923	N 63°18'51.08605"	W 168°57'45.10522"	RTK	0.04	0.07	8/15/2022 15:30	21
11714	Water Edge	WTRED1	3404874.22	1811016.43	43.79	63.31420074	-168.96255096	N 63°18'51.12266"	W 168°57'45.18345"	RTK	0.04	0.07	8/15/2022 15:30	21
11715	Water Edge	WTRED1	3404878.26	1811014.67	43.45	63.31421187	-168.96256123	N 63°18'51.16273"	W 168°57'45.22042"	RTK	0.04	0.07	8/15/2022 15:31	21
11716	Water Edge	WTRED1	3404879.22	1811021.41	43.60	63.31421419	-168.96252016	N 63°18'51.17108"	W 168°57'45.07257"	RTK	0.04	0.06	8/15/2022 15:31	22
11717	Water Edge	WTRED1	3404884.99	1811027.79	43.83	63.31422971	-168.96248081	N 63°18'51.22695"	W 168°57'44.93091"	RTK	0.04	0.06	8/15/2022 15:31	22
11718	Water Edge	WTRED1	3404892.83	1811030.43	43.64	63.31425103	-168.96246399	N 63°18'51.3037"	W 168°57'44.87036"	RTK	0.04	0.06	8/15/2022 15:31	20
11719	Water Edge	WTRED2	3404892.43	1811026.70	43.22	63.31425008	-168.96248669	N 63°18'51.30028"	W 168°57'44.95208"	RTK	0.04	0.07	8/15/2022 15:31	21
11720	Water Edge	WTRED2	3404896.53	1811022.78	43.17	63.31426148	-168.96251013	N 63°18'51.34132"	W 168°57'45.03646"	RTK	0.05	0.08	8/15/2022 15:31	20
11721	Water Edge	WTRED2	3404899.39	1811019.52	43.49	63.31426944	-168.96252966	N 63°18'51.36998"	W 168°57'45.10677"	RTK	0.04	0.07	8/15/2022 15:31	20
11722	Water Edge	WTRED2	3404899.21	1811016.80	43.69	63.31426908	-168.96254620	N 63°18'51.36868"	W 168°57'45.16631"	RTK	0.06	0.07	8/15/2022 15:31	20
11723	Water Edge	WTRED2	3404894.39	1811014.28	43.41	63.31425599	-168.96256201	N 63°18'51.32156"	W 168°57'45.22323"	RTK	0.04	0.06	8/15/2022 15:32	21
11724	Water Edge	WTRED2	3404891.39	1811012.46	43.46	63.31424787	-168.96257338	N 63°18'51.29233"	W 168°57'45.26416"	RTK	0.05	0.07	8/15/2022 15:32	20
11725	Water Edge	WTRED2	3404889.31	1811017.47	43.49	63.31424198	-168.96254314	N 63°18'51.27112"	W 168°57'45.1553"	RTK	0.05	0.09	8/15/2022 15:32	18

11726	Water Edge	WTRED2	3404884.95	1811019.15	43.61	63.31422997	-168.96253337	N 63°18'51.22789"	W 168°57'45.12013"	RTK	0.05	0.08	8/15/2022 15:32	20
11727	Water Edge	WTRED2	3404886.96	1811023.56	43.59	63.31423529	-168.96250633	N 63°18'51.24704"	W 168°57'45.02278"	RTK	0.04	0.07	8/15/2022 15:32	21
11728	Water Edge	WTRED2	3404890.19	1811025.40	43.77	63.31424402	-168.96249482	N 63°18'51.27847"	W 168°57'44.98135"	RTK	0.04	0.07	8/15/2022 15:32	20
11729	Water Edge	WTRED1	3404899.08	1811035.96	43.64	63.31426787	-168.96242971	N 63°18'51.36433"	W 168°57'44.74695"	RTK	0.04	0.07	8/15/2022 15:32	20
11730	Water Edge	WTRED1	3404906.86	1811035.90	43.51	63.31428914	-168.96242932	N 63°18'51.4409"	W 168°57'44.74555"	RTK	0.04	0.06	8/15/2022 15:32	20
11731	Water Edge	WTRED1	3404910.81	1811039.10	43.85	63.31429980	-168.96240950	N 63°18'51.47928"	W 168°57'44.6742"	RTK	0.04	0.07	8/15/2022 15:33	20
11732	Water Edge	WTRED1	3404911.25	1811048.09	43.73	63.31430061	-168.96235477	N 63°18'51.48219"	W 168°57'44.47717"	RTK	0.04	0.06	8/15/2022 15:33	20
11733	Water Edge	WTRED1	3404914.72	1811054.69	43.65	63.31430980	-168.96231432	N 63°18'51.51527"	W 168°57'44.33155"	RTK	0.04	0.06	8/15/2022 15:33	21
11734	Water Edge	WTRED1	3404919.65	1811059.96	43.82	63.31432304	-168.96228177	N 63°18'51.56294"	W 168°57'44.21437"	RTK	0.05	0.07	8/15/2022 15:33	20
11735	Water Edge	WTRED1	3404923.20	1811062.38	43.51	63.31433264	-168.96226672	N 63°18'51.5975"	W 168°57'44.16019"	RTK	0.05	0.06	8/15/2022 15:33	20
11736	Water Edge	WTRED1	3404929.61	1811059.81	43.58	63.31435030	-168.96228176	N 63°18'51.66108"	W 168°57'44.21433"	RTK	0.04	0.07	8/15/2022 15:33	20
11737	Water Edge	WTRED1	3404933.40	1811051.72	43.63	63.31436101	-168.96233055	N 63°18'51.69963"	W 168°57'44.38997"	RTK	0.05	0.07	8/15/2022 15:33	19
11738	Water Edge	WTRED1	3404935.40	1811052.62	43.75	63.31436643	-168.96232488	N 63°18'51.71914"	W 168°57'44.36956"	RTK	0.05	0.07	8/15/2022 15:33	20
11739	Water Edge	WTRED4	3404929.73	1811049.12	43.71	63.31435108	-168.96234673	N 63°18'51.66388"	W 168°57'44.44822"	RTK	0.04	0.07	8/15/2022 15:34	21
11740	Water Edge	WTRED4	3404927.76	1811042.84	43.69	63.31434598	-168.96238507	N 63°18'51.64552"	W 168°57'44.58625"	RTK	0.04	0.07	8/15/2022 15:34	20
11741	Water Edge	WTRED4	3404930.18	1811038.13	43.66	63.31435282	-168.96241349	N 63°18'51.67015"	W 168°57'44.68856"	RTK	0.06	0.08	8/15/2022 15:34	20
11742	Water Edge	WTRED4	3404928.38	1811036.81	43.40	63.31434793	-168.96242168	N 63°18'51.65254"	W 168°57'44.71804"	RTK	0.06	0.09	8/15/2022 15:34	19
11743	Water Edge	WTRED4	3404924.89	1811040.42	43.69	63.31433824	-168.96240007	N 63°18'51.61766"	W 168°57'44.64025"	RTK	0.04	0.08	8/15/2022 15:34	21
11744	Water Edge	WTRED4	3404920.11	1811040.28	43.61	63.31432517	-168.96240144	N 63°18'51.57061"	W 168°57'44.64518"	RTK	0.05	0.08	8/15/2022 15:34	19
11745	Water Edge	WTRED4	3404917.50	1811035.06	43.63	63.31431827	-168.96243342	N 63°18'51.54577"	W 168°57'44.76031"	RTK	0.07	0.08	8/15/2022 15:34	20
11746	Water Edge	WTRED4	3404915.39	1811035.95	43.52	63.31431245	-168.96242821	N 63°18'51.52482"	W 168°57'44.74155"	RTK	0.07	0.07	8/15/2022 15:34	19
11747	Water Edge	WTRED4	3404916.58	1811041.45	43.69	63.31431547	-168.96239464	N 63°18'51.53569"	W 168°57'44.6207"	RTK	0.04	0.07	8/15/2022 15:34	19
11748	Water Edge	WTRED4	3404919.20	1811048.93	43.65	63.31432231	-168.96234889	N 63°18'51.56031"	W 168°57'44.456"	RTK	0.05	0.07	8/15/2022 15:34	20
11749	Water Edge	WTRED4	3404923.90	1811055.04	43.53	63.31433488	-168.96231131	N 63°18'51.60556"	W 168°57'44.32071"	RTK	0.05	0.07	8/15/2022 15:34	19
11750	Water Edge	WTRED4	3404927.16	1811053.82	43.46	63.31434384	-168.96231842	N 63°18'51.63782"	W 168°57'44.34631"	RTK	0.04	0.07	8/15/2022 15:35	20
11751	Water Edge	WTRED1	3404945.98	1811058.00	43.77	63.31439514	-168.96229113	N 63°18'51.8225"	W 168°57'44.24806"	RTK	0.04	0.07	8/15/2022 15:35	20
11752	Water Edge	WTRED1	3404960.18	1811058.11	43.85	63.31443396	-168.96228906	N 63°18'51.96225"	W 168°57'44.24061"	RTK	0.05	0.07	8/15/2022 15:35	20
11753	Water Edge	WTRED1	3404974.13	1811056.22	43.80	63.31447218	-168.96229915	N 63°18'52.09984"	W 168°57'44.27694"	RTK	0.04	0.07	8/15/2022 15:35	20
11754	Water Edge	WTRED1	3404981.06	1811058.66	43.92	63.31449101	-168.96228368	N 63°18'52.16763"	W 168°57'44.22124"	RTK	0.06	0.07	8/15/2022 15:35	20
11755	Water Edge	WTRED1	3404989.85	1811062.36	43.95	63.31451490	-168.96226032	N 63°18'52.25363"	W 168°57'44.13715"	RTK	0.04	0.07	8/15/2022 15:35	20
11756	Water Edge	WTRED1	3404995.98	1811069.01	43.87	63.31453135	-168.96221928	N 63°18'52.31286"	W 168°57'43.9894"	RTK	0.04	0.07	8/15/2022 15:36	21
11757	Water Edge	WTRED1	3404999.86	1811072.31	43.76	63.31454182	-168.96219883	N 63°18'52.35055"	W 168°57'43.91578"	RTK	0.04	0.07	8/15/2022 15:36	20
11758	Water Edge	WTRED1	3405004.43	1811069.60	43.25	63.31455444	-168.96221484	N 63°18'52.39598"	W 168°57'43.97342"	RTK	0.04	0.07	8/15/2022 15:36	21
11759	Water Edge	WTRED1	3405011.76	1811076.02	43.50	63.31457419	-168.96217508	N 63°18'52.46708"	W 168°57'43.83028"	RTK	0.04	0.07	8/15/2022 15:36	20
11760	Water Edge	WTRED3	3405014.12	1811072.54	43.39	63.31458081	-168.96219602	N 63°18'52.49091"	W 168°57'43.90567"	RTK	0.04	0.07	8/15/2022 15:36	20
11761	Water Edge	WTRED3	3405021.37	1811075.75	43.45	63.31460047	-168.96217578	N 63°18'52.56169"	W 168°57'43.8328"	RTK	0.05	0.07	8/15/2022 15:36	20
11762	Water Edge	WTRED1	3405021.44	1811078.62	43.44	63.31460054	-168.96215830	N 63°18'52.56194"	W 168°57'43.76987"	RTK	0.04	0.07	8/15/2022 15:36	20
11763	Water Edge	WTRED1	3405026.54	1811077.89	43.31	63.31461453	-168.96216228	N 63°18'52.6123"	W 168°57'43.7842"	RTK	0.04	0.07	8/15/2022 15:37	20
11764	Water Edge	WTRED3	3405026.62	1811075.79	43.40	63.31461484	-168.96217505	N 63°18'52.61342"	W 168°57'43.83018"	RTK	0.04	0.07	8/15/2022 15:37	19
11765	Water Edge	WTRED3	3405029.17	1811071.37	43.49	63.31462200	-168.96220167	N 63°18'52.63919"	W 168°57'43.92601"	RTK	0.05	0.08	8/15/2022 15:37	19
11766	Water Edge	WTRED3	3405032.45	1811070.21	43.61	63.31463102	-168.96220839	N 63°18'52.67167"	W 168°57'43.9502"	RTK	0.04	0.07	8/15/2022 15:37	19
11767	Water Edge	WTRED3	3405036.36	1811072.80	43.43	63.31464160	-168.96219226	N 63°18'52.70976"	W 168°57'43.89213"	RTK	0.05	0.07	8/15/2022 15:37	20
11768	Water Edge	WTRED3	3405040.33	1811076.04	43.29	63.31465230	-168.96217217	N 63°18'52.74827"	W 168°57'43.81981"	RTK	0.05	0.07	8/15/2022 15:37	19
11769	Water Edge	WTRED1	3405027.25	1811081.70	43.85	63.31461629	-168.96213904	N 63°18'52.61864"	W 168°57'43.70054"	RTK	0.04	0.07	8/15/2022 15:37	19
11770	Water Edge	WTRED1	3405031.72	1811084.97	43.66	63.31462836	-168.96211873	N 63°18'52.66209"	W 168°57'43.62742"	RTK	0.04	0.07	8/15/2022 15:37	19
11771	Water Edge	WTRED1	3405039.05	1811082.08	43.26	63.31464853	-168.96213558	N 63°18'52.7347"	W 168°57'43.68808"	RTK	0.05	0.07	8/15/2022 15:38	19
11772	Water Edge	WTRED1	3405047.98	1811081.10	42.84	63.31467301	-168.96214066	N 63°18'52.82283"	W 168°57'43.70637"	RTK	0.04	0.08	8/15/2022 15:38	19
11773	Water Edge	WTRED3	3405048.45	1811075.62	42.77	63.31467454	-168.96217393	N 63°18'52.82834"	W 168°57'43.82614"	RTK	0.05	0.08	8/15/2022 15:38	19
11774	Water Edge	WTRED3	3405057.02	1811075.43	42.46	63.31469798	-168.96217420	N 63°18'52.91272"	W 168°57'43.82711"	RTK	0.04	0.07	8/15/2022 15:38	20
11775	Water Edge	WTRED1	3405053.67	1811083.42	42.51	63.31468845	-168.96212594	N 63°18'52.87841"	W 168°57'43.65338"	RTK	0.04	0.08	8/15/2022 15:38	19
11776	Water Edge	WTRED1	3405055.26	1811088.38	42.37	63.31469259	-168.96209563	N 63°18'52.89332"	W 168°57'43.54426"	RTK	0.05	0.08	8/15/2022 15:38	20
11777	Water Edge	WTRED1	3405060.41	1811091.62	42.53	63.31470653	-168.96207542	N 63°18'52.9435"	W 168°57'43.47151"	RTK	0.04	0.07	8/15/2022 15:38	20
11778	Water Edge	WTRED1	3405067.12	1811099.75	42.37	63.31472451	-168.96202535	N 63°18'53.00823"	W 168°57'43.29126"	RTK	0.04	0.06	8/15/2022 15:38	21
11779	Water Edge	WTRED1	3405074.28	1811104.76	42.50	63.31474387	-168.96199417	N 63°18'53.07793"	W 168°57'43.17901"	RTK	0.05	0.06	8/15/2022 15:39	20
11780	Water Edge	WTRED1	3405084.19	1811106.45	42.52	63.31477090	-168.96198291	N 63°18'53.17523"	W 168°57'43.13847"	RTK	0.04	0.06	8/15/2022 15:39	20
11781	Water Edge	WTRED1	3405095.98	1811105.43	42.56	63.31480318	-168.96198798	N 63°18'53.29144"	W 168°57'43.15672"	RTK	0.04	0.07	8/15/2022 15:39	20

11782	Water Edge	WTRED1	3405107.19	1811102.59	42.53	63.31483394	-168.96200417	N 63°18'53.40218"	W 168°57'43.21501"	RTK	0.04	0.06	8/15/2022 15:39	20
11783	Water Edge	WTRED1	3405111.56	1811100.17	42.32	63.31484600	-168.96201840	N 63°18'53.4456"	W 168°57'43.26624"	RTK	0.04	0.06	8/15/2022 15:39	20
11784	Water Edge	WTRED3	3405063.81	1811070.90	42.44	63.31471673	-168.96220107	N 63°18'52.98022"	W 168°57'43.92385"	RTK	0.04	0.06	8/15/2022 15:40	20
11785	Water Edge	WTRED3	3405073.07	1811068.59	42.44	63.31474216	-168.96221424	N 63°18'53.07177"	W 168°57'43.97126"	RTK	0.04	0.07	8/15/2022 15:40	20
11786	Water Edge	WTRED3	3405080.63	1811064.67	42.11	63.31476302	-168.96223733	N 63°18'53.14687"	W 168°57'44.05438"	RTK	0.04	0.06	8/15/2022 15:40	20
11787	Water Edge	WTRED3	3405086.88	1811067.52	42.28	63.31477997	-168.96221939	N 63°18'53.20789"	W 168°57'43.9898"	RTK	0.04	0.06	8/15/2022 15:40	20
11788	Water Edge	WTRED3	3405093.80	1811072.57	42.12	63.31479867	-168.96218800	N 63°18'53.27521"	W 168°57'43.87679"	RTK	0.04	0.06	8/15/2022 15:41	21
11789	Water Edge	WTRED3	3405097.13	1811079.32	42.01	63.31480748	-168.96214660	N 63°18'53.30692"	W 168°57'43.72776"	RTK	0.04	0.06	8/15/2022 15:41	20
11790	Water Edge	WTRED3	3405096.27	1811083.40	41.84	63.31480495	-168.96212192	N 63°18'53.29782"	W 168°57'43.63891"	RTK	0.04	0.06	8/15/2022 15:41	19
11791	Water Edge	WTRED3	3405100.51	1811087.85	41.97	63.31481632	-168.96209442	N 63°18'53.33875"	W 168°57'43.53991"	RTK	0.04	0.06	8/15/2022 15:41	20
11792	Water Edge	WTRED3	3405103.00	1811085.57	42.23	63.31482325	-168.96210803	N 63°18'53.3637"	W 168°57'43.5889"	RTK	0.04	0.06	8/15/2022 15:41	20
11793	Water Edge	WTRED3	3405106.45	1811080.15	42.17	63.31483291	-168.96214068	N 63°18'53.39847"	W 168°57'43.70644"	RTK	0.04	0.06	8/15/2022 15:41	20
11794	Water Edge	WTRED3	3405110.32	1811083.13	42.37	63.31484336	-168.96212218	N 63°18'53.43609"	W 168°57'43.63984"	RTK	0.05	0.08	8/15/2022 15:41	20
11795	Water Edge	WTRED3	3405109.98	1811087.75	42.10	63.31484222	-168.96209408	N 63°18'53.43199"	W 168°57'43.53868"	RTK	0.04	0.06	8/15/2022 15:41	19
11796	Water Edge	WTRED3	3405114.50	1811094.53	41.96	63.31485429	-168.96205242	N 63°18'53.47544"	W 168°57'43.38871"	RTK	0.05	0.06	8/15/2022 15:42	21
11797	Water Edge	WTRED3	3405120.31	1811095.32	42.11	63.31487014	-168.96204704	N 63°18'53.5325"	W 168°57'43.36934"	RTK	0.04	0.06	8/15/2022 15:42	20
11798	Water Edge	WTRED1	3405122.59	1811098.63	41.90	63.31487623	-168.96202671	N 63°18'53.55442"	W 168°57'43.29615"	RTK	0.04	0.06	8/15/2022 15:42	20
11799	Water Edge	WTRED1	3405129.09	1811097.66	42.28	63.31489405	-168.96203195	N 63°18'53.61857"	W 168°57'43.31502"	RTK	0.04	0.06	8/15/2022 15:42	20
11800	Water Edge	WTRED1	3405134.56	1811091.77	41.79	63.31490928	-168.96206725	N 63°18'53.6734"	W 168°57'43.44209"	RTK	0.04	0.06	8/15/2022 15:42	20
11801	Water Edge	WTRED3	3405122.52	1811090.24	42.21	63.31487641	-168.96207775	N 63°18'53.55507"	W 168°57'43.47989"	RTK	0.04	0.07	8/15/2022 15:43	21
11802	Water Edge	WTRED3	3405122.20	1811084.88	42.29	63.31487579	-168.96211034	N 63°18'53.55284"	W 168°57'43.59722"	RTK	0.04	0.06	8/15/2022 15:43	22
11803	Water Edge	WTRED3	3405125.45	1811082.26	42.39	63.31488477	-168.96212594	N 63°18'53.58517"	W 168°57'43.65338"	RTK	0.04	0.07	8/15/2022 15:43	21
11804	Water Edge	WTRED3	3405131.51	1811084.09	42.03	63.31490128	-168.96211424	N 63°18'53.6446"	W 168°57'43.61126"	RTK	0.04	0.06	8/15/2022 15:43	21
11805	Water Edge	WTRED3	3405139.57	1811084.30	42.05	63.31492330	-168.96211216	N 63°18'53.72387"	W 168°57'43.60377"	RTK	0.04	0.06	8/15/2022 15:43	21
11806	Water Edge	WTRED1	3405139.74	1811088.42	42.33	63.31492359	-168.96208709	N 63°18'53.72492"	W 168°57'43.51352"	RTK	0.06	0.07	8/15/2022 15:43	21
11807	Water Edge	WTRED8	3405163.18	1811094.27	41.74	63.31498742	-168.96204924	N 63°18'53.95471"	W 168°57'43.37726"	RTK	0.03	0.06	8/15/2022 15:44	22
11808	Water Edge	WTRED7	3405160.83	1811099.49	41.55	63.31498074	-168.96201770	N 63°18'53.93066"	W 168°57'43.26371"	RTK	0.04	0.06	8/15/2022 15:44	22
11809	Water Edge	WTRED7	3405161.42	1811103.07	41.76	63.31498222	-168.96199590	N 63°18'53.93599"	W 168°57'43.18524"	RTK	0.04	0.06	8/15/2022 15:44	21
11810	Water Edge	WTRED7	3405163.44	1811103.22	41.80	63.31498771	-168.96199477	N 63°18'53.95575"	W 168°57'43.18117"	RTK	0.05	0.06	8/15/2022 15:44	21
11811	Water Edge	WTRED7	3405168.30	1811098.85	41.70	63.31500121	-168.96202084	N 63°18'54.00435"	W 168°57'43.27502"	RTK	0.04	0.07	8/15/2022 15:45	21
11812	Water Edge	WTRED8	3405164.71	1811091.71	41.61	63.31499170	-168.96206461	N 63°18'53.97012"	W 168°57'43.43259"	RTK	0.04	0.06	8/15/2022 15:45	22
11813	Water Edge	WTRED8	3405171.59	1811093.05	41.50	63.31501045	-168.96205578	N 63°18'54.03762"	W 168°57'43.4008"	RTK	0.04	0.06	8/15/2022 15:45	21
11814	Water Edge	WTRED7	3405171.67	1811099.13	41.72	63.31501042	-168.96201883	N 63°18'54.03751"	W 168°57'43.26778"	RTK	0.05	0.07	8/15/2022 15:45	21
11815	Water Edge	WTRED7	3405178.29	1811101.33	41.46	63.31502842	-168.96200483	N 63°18'54.10231"	W 168°57'43.21738"	RTK	0.04	0.06	8/15/2022 15:45	20
11816	Water Edge	WTRED8	3405180.25	1811098.75	41.44	63.31503389	-168.96202027	N 63°18'54.122"	W 168°57'43.27297"	RTK	0.04	0.06	8/15/2022 15:45	22
11817	Water Edge	WTRED8	3405189.19	1811104.35	41.30	63.31505807	-168.96198536	N 63°18'54.20905"	W 168°57'43.14729"	RTK	0.05	0.06	8/15/2022 15:45	21
11818	Water Edge	WTRED7	3405186.62	1811107.42	41.14	63.31505092	-168.96196694	N 63°18'54.18331"	W 168°57'43.08098"	RTK	0.04	0.07	8/15/2022 15:46	22
11819	Water Edge	WTRED7	3405190.18	1811111.63	41.07	63.31506046	-168.96194102	N 63°18'54.21765"	W 168°57'42.98767"	RTK	0.04	0.07	8/15/2022 15:46	20
11820	Water Edge	WTRED8	3405192.23	1811109.77	41.16	63.31506615	-168.96195211	N 63°18'54.23813"	W 168°57'43.02759"	RTK	0.05	0.07	8/15/2022 15:46	20
11821	Water Edge	WTRED8	3405195.27	1811111.12	41.24	63.31507442	-168.96194362	N 63°18'54.26791"	W 168°57'42.99703"	RTK	0.05	0.07	8/15/2022 15:46	20
11822	Water Edge	WTRED7	3405195.19	1811113.87	41.09	63.31507406	-168.96192688	N 63°18'54.26661"	W 168°57'42.93676"	RTK	0.04	0.07	8/15/2022 15:46	20
11823	Water Edge	WTRED7	3405199.10	1811113.22	41.14	63.31508479	-168.96193045	N 63°18'54.30524"	W 168°57'42.94962"	RTK	0.04	0.06	8/15/2022 15:46	20
11824	Water Edge	WTRED8	3405198.40	1811109.84	41.20	63.31508301	-168.96195110	N 63°18'54.29883"	W 168°57'43.02395"	RTK	0.04	0.07	8/15/2022 15:46	21
11825	Water Edge	WTRED8	3405201.99	1811108.35	41.18	63.31509291	-168.96195979	N 63°18'54.33447"	W 168°57'43.05524"	RTK	0.05	0.07	8/15/2022 15:46	20
11826	Water Edge	WTRED7	3405201.71	1811112.57	41.29	63.31509196	-168.96193415	N 63°18'54.33105"	W 168°57'42.96293"	RTK	0.05	0.07	8/15/2022 15:46	20
11827	Water Edge	WTRED7	3405203.59	1811114.13	41.10	63.31509702	-168.96192446	N 63°18'54.34927"	W 168°57'42.92805"	RTK	0.05	0.06	8/15/2022 15:47	21
11828	Water Edge	WTRED8	3405205.85	1811111.43	41.16	63.31510331	-168.96194069	N 63°18'54.37191"	W 168°57'42.98648"	RTK	0.04	0.07	8/15/2022 15:47	20
11829	Water Edge	WTRED8	3405207.11	1811114.56	41.15	63.31510662	-168.96192152	N 63°18'54.38383"	W 168°57'42.91747"	RTK	0.05	0.07	8/15/2022 15:47	20
11830	Water Edge	WTRED7	3405204.04	1811117.25	41.12	63.31509811	-168.96190549	N 63°18'54.35319"	W 168°57'42.85976"	RTK	0.04	0.07	8/15/2022 15:47	20
11831	Water Edge	WTRED7	3405211.58	1811122.05	40.98	63.31511852	-168.96187555	N 63°18'54.42667"	W 168°57'42.75198"	RTK	0.04	0.07	8/15/2022 15:47	21
11832	Water Edge	WTRED8	3405212.90	1811119.46	40.92	63.31512224	-168.96189113	N 63°18'54.44006"	W 168°57'42.80806"	RTK	0.04	0.06	8/15/2022 15:47	20
11833	Water Edge	WTRED8	3405226.04	1811122.37	40.74	63.31515804	-168.96187220	N 63°18'54.56894"	W 168°57'42.73991"	RTK	0.04	0.07	8/15/2022 15:47	20
11834	Water Edge	WTRED7	3405225.21	1811125.40	40.79	63.31515565	-168.96185383	N 63°18'54.56034"	W 168°57'42.67378"	RTK	0.04	0.07	8/15/2022 15:47	20
11835	Water Edge	WTRED7	3405234.01	1811129.58	40.55	63.31517952	-168.96182755	N 63°18'54.64627"	W 168°57'42.57918"	RTK	0.04	0.07	8/15/2022 15:48	20
11836	Water Edge	WTRED8	3405235.06	1811125.88	40.60	63.31518255	-168.96184996	N 63°18'54.65718"	W 168°57'42.65985"	RTK	0.05	0.07	8/15/2022 15:48	20
11837	Water Edge	WTRED8	3405254.29	1811129.22	40.41	63.31523498	-168.96182774	N 63°18'54.84592"	W 168°57'42.57986"	RTK	0.04	0.07	8/15/2022 15:48	20

11838	Water Edge	WTRED7	3405253.44	1811134.29	40.63	63.31523244	-168.96179699	N 63°18'54.83678"	W 168°57'42.46916"	RTK	0.09	0.07	8/15/2022 15:48	20
11839	Water Edge	WTRED7	3405263.31	1811136.92	40.48	63.31525931	-168.96178006	N 63°18'54.93351"	W 168°57'42.40821"	RTK	0.04	0.07	8/15/2022 15:48	18
11840	Water Edge	WTRED8	3405264.63	1811131.52	40.37	63.31526314	-168.96181275	N 63°18'54.9473"	W 168°57'42.5259"	RTK	0.04	0.07	8/15/2022 15:48	20
11841	Water Edge	WTRED8	3405275.98	1811133.52	40.47	63.31529411	-168.96179945	N 63°18'55.05879"	W 168°57'42.47802"	RTK	0.04	0.07	8/15/2022 15:48	20
11842	Water Edge	WTRED7	3405274.37	1811136.46	40.37	63.31528955	-168.96178177	N 63°18'55.04238"	W 168°57'42.41437"	RTK	0.04	0.07	8/15/2022 15:49	21
11843	Water Edge	WTRED7	3405281.73	1811139.60	40.43	63.31530956	-168.96176190	N 63°18'55.11441"	W 168°57'42.34283"	RTK	0.04	0.07	8/15/2022 15:49	20
11844	Water Edge	WTRED8	3405282.02	1811137.93	40.46	63.31531042	-168.96177206	N 63°18'55.11751"	W 168°57'42.37941"	RTK	0.04	0.07	8/15/2022 15:49	20
11845	Water Edge	WTRED8	3405286.27	1811136.17	40.21	63.31532211	-168.96178236	N 63°18'55.15959"	W 168°57'42.41649"	RTK	0.04	0.07	8/15/2022 15:49	20
11846	Water Edge	WTRED7	3405287.68	1811139.14	40.22	63.31532585	-168.96176414	N 63°18'55.17306"	W 168°57'42.3509"	RTK	0.04	0.07	8/15/2022 15:49	21
11847	Water Edge	WTRED8	3405291.98	1811134.45	40.00	63.31533781	-168.96179225	N 63°18'55.21611"	W 168°57'42.4521"	RTK	0.04	0.06	8/15/2022 15:49	22
11848	Water Edge	WTRED7	3405294.81	1811139.50	39.66	63.31534532	-168.96176125	N 63°18'55.24315"	W 168°57'42.34049"	RTK	0.04	0.06	8/15/2022 15:49	20
11849	Water Edge	WTRED7	3405302.62	1811136.43	39.89	63.31536680	-168.96177912	N 63°18'55.32047"	W 168°57'42.40483"	RTK	0.04	0.06	8/15/2022 15:49	21
11850	Water Edge	WTRED8	3405296.30	1811126.53	39.80	63.31534998	-168.96183999	N 63°18'55.25992"	W 168°57'42.62396"	RTK	0.03	0.06	8/15/2022 15:50	22
11851	Water Edge	WTRED8	3405303.03	1811123.09	39.97	63.31536853	-168.96186021	N 63°18'55.3267"	W 168°57'42.69675"	RTK	0.05	0.06	8/15/2022 15:50	21
11852	Water Edge	WTRED8	3405310.58	1811123.46	40.02	63.31538915	-168.96185720	N 63°18'55.40094"	W 168°57'42.68591"	RTK	0.05	0.07	8/15/2022 15:50	20
11853	Water Edge	WTRED8	3405318.66	1811125.83	39.95	63.31541114	-168.96184203	N 63°18'55.4801"	W 168°57'42.6313"	RTK	0.04	0.06	8/15/2022 15:50	21
11854	Water Edge	WTRED8	3405325.39	1811125.10	39.86	63.31542956	-168.96184578	N 63°18'55.54641"	W 168°57'42.6448"	RTK	0.04	0.06	8/15/2022 15:50	21
11855	Water Edge	WTRED7	3405307.08	1811136.71	39.56	63.31537898	-168.96177702	N 63°18'55.36432"	W 168°57'42.39727"	RTK	0.04	0.06	8/15/2022 15:51	21
11856	Water Edge	WTRED7	3405313.72	1811139.83	39.95	63.31539700	-168.96175737	N 63°18'55.42919"	W 168°57'42.32653"	RTK	0.04	0.06	8/15/2022 15:51	21
11857	Water Edge	WTRED7	3405321.02	1811140.50	39.63	63.31541695	-168.96175260	N 63°18'55.50101"	W 168°57'42.30936"	RTK	0.05	0.08	8/15/2022 15:51	21
11858	Water Edge	WTRED7	3405325.64	1811135.68	39.73	63.31542977	-168.96178143	N 63°18'55.54717"	W 168°57'42.41314"	RTK	0.05	0.07	8/15/2022 15:51	21
11859	Water Edge	WTRED7	3405333.11	1811137.22	39.81	63.31545014	-168.96177132	N 63°18'55.6205"	W 168°57'42.37675"	RTK	0.04	0.06	8/15/2022 15:51	20
11860	Water Edge	WTRED8	3405335.97	1811123.41	39.77	63.31545857	-168.96185505	N 63°18'55.65085"	W 168°57'42.67817"	RTK	0.04	0.07	8/15/2022 15:51	19
11861	Water Edge	WTRED8	3405345.05	1811127.11	39.92	63.31548323	-168.96183163	N 63°18'55.73962"	W 168°57'42.59386"	RTK	0.04	0.06	8/15/2022 15:51	21
11862	Water Edge	WTRED7	3405336.38	1811138.01	39.78	63.31545905	-168.96176622	N 63°18'55.65258"	W 168°57'42.35839"	RTK	0.05	0.07	8/15/2022 15:52	20
11863	Water Edge	WTRED7	3405335.18	1811144.88	39.97	63.31545546	-168.96172457	N 63°18'55.63965"	W 168°57'42.20845"	RTK	0.04	0.06	8/15/2022 15:52	21
11864	Water Edge	WTRED7	3405338.33	1811152.76	39.92	63.31546373	-168.96167635	N 63°18'55.66942"	W 168°57'42.03486"	RTK	0.04	0.07	8/15/2022 15:52	19
11865	Water Edge	WTRED7	3405342.04	1811152.86	39.60	63.31547388	-168.96167539	N 63°18'55.70596"	W 168°57'42.0314"	RTK	0.05	0.07	8/15/2022 15:52	21
11866	Water Edge	WTRED8	3405346.85	1811132.63	39.78	63.31548790	-168.96179792	N 63°18'55.75644"	W 168°57'42.47251"	RTK	0.04	0.07	8/15/2022 15:52	20
11867	Water Edge	WTRED8	3405353.43	1811142.13	39.78	63.31550550	-168.96173948	N 63°18'55.8198"	W 168°57'42.26212"	RTK	0.04	0.07	8/15/2022 15:53	21
11868	Water Edge	WTRED8	3405349.55	1811145.37	39.83	63.31549472	-168.96172017	N 63°18'55.78099"	W 168°57'42.19261"	RTK	0.04	0.06	8/15/2022 15:53	21
11869	Water Edge	WTRED8	3405349.35	1811147.88	39.50	63.31549407	-168.96170494	N 63°18'55.77865"	W 168°57'42.13778"	RTK	0.04	0.07	8/15/2022 15:53	20
11870	Water Edge	WTRED8	3405350.41	1811150.77	39.55	63.31549684	-168.96168722	N 63°18'55.78862"	W 168°57'42.07399"	RTK	0.05	0.06	8/15/2022 15:53	22
11871	Water Edge	WTRED7	3405346.37	1811155.76	39.66	63.31548558	-168.96165728	N 63°18'55.74808"	W 168°57'41.9662"	RTK	0.08	0.07	8/15/2022 15:53	20
11872	Water Edge	WTRED8	3405358.40	1811153.40	39.48	63.31551856	-168.96167046	N 63°18'55.86681"	W 168°57'42.01365"	RTK	0.04	0.07	8/15/2022 15:53	22
11873	Water Edge	WTRED7	3405354.94	1811160.40	40.10	63.31550881	-168.96162826	N 63°18'55.83171"	W 168°57'41.86173"	RTK	0.11	0.08	8/15/2022 15:53	19
11874	Water Edge	WTRED8	3405368.29	1811154.83	39.50	63.31554555	-168.96166079	N 63°18'55.96398"	W 168°57'41.97884"	RTK	0.05	0.06	8/15/2022 15:54	21
11875	Water Edge	WTRED7	3405359.14	1811165.01	39.52	63.31552008	-168.96159979	N 63°18'55.87228"	W 168°57'41.75924"	RTK	0.05	0.06	8/15/2022 15:54	20
11876	Water Edge	WTRED7	3405368.83	1811163.05	39.42	63.31554667	-168.96161074	N 63°18'55.96801"	W 168°57'41.79866"	RTK	0.04	0.06	8/15/2022 15:54	21
11877	Water Edge	WTRED7	3405374.73	1811165.78	39.22	63.31556267	-168.96159361	N 63°18'56.02561"	W 168°57'41.73699"	RTK	0.04	0.05	8/15/2022 15:54	21
11878	Water Edge	WTRED8	3405378.64	1811155.16	39.28	63.31557385	-168.96165777	N 63°18'56.06585"	W 168°57'41.96797"	RTK	0.03	0.05	8/15/2022 15:55	21
11879	Water Edge	WTRED8	3405386.98	1811152.29	39.30	63.31559676	-168.96167439	N 63°18'56.14833"	W 168°57'42.0278"	RTK	0.04	0.06	8/15/2022 15:55	20
11880	Water Edge	WTRED8	3405394.87	1811155.26	39.25	63.31561821	-168.96165559	N 63°18'56.22555"	W 168°57'41.96012"	RTK	0.04	0.06	8/15/2022 15:55	21
11881	Water Edge	WTRED8	3405404.63	1811153.84	39.32	63.31564497	-168.96166327	N 63°18'56.32189"	W 168°57'41.98777"	RTK	0.04	0.05	8/15/2022 15:55	21
11882	Water Edge	WTRED8	3405410.93	1811156.65	39.09	63.31566208	-168.96164551	N 63°18'56.38348"	W 168°57'41.92383"	RTK	0.04	0.06	8/15/2022 15:55	21
11883	Water Edge	WTRED8	3405412.92	1811162.25	39.08	63.31566727	-168.96161128	N 63°18'56.40217"	W 168°57'41.8006"	RTK	0.04	0.05	8/15/2022 15:55	19
11884	Water Edge	WTRED8	3405414.42	1811166.99	39.41	63.31567116	-168.96158231	N 63°18'56.41617"	W 168°57'41.69631"	RTK	0.04	0.05	8/15/2022 15:55	20
11885	Water Edge	WTRED8	3405422.48	1811168.60	39.04	63.31569313	-168.96157175	N 63°18'56.49526"	W 168°57'41.65829"	RTK	0.04	0.05	8/15/2022 15:56	21
11886	Water Edge	WTRED8	3405428.22	1811169.93	38.94	63.31570876	-168.96156307	N 63°18'56.55153"	W 168°57'41.62705"	RTK	0.04	0.05	8/15/2022 15:56	20
11887	Water Edge	WTRED8	3405429.74	1811172.22	39.16	63.31571282	-168.96154898	N 63°18'56.56615"	W 168°57'41.57632"	RTK	0.04	0.06	8/15/2022 15:56	21
11888	Water Edge	WTRED8	3405433.41	1811173.94	39.15	63.31572276	-168.96153820	N 63°18'56.60193"	W 168°57'41.53752"	RTK	0.04	0.07	8/15/2022 15:56	21
11889	Water Edge	WTRED8	3405437.94	1811172.03	39.05	63.31573523	-168.96154935	N 63°18'56.64682"	W 168°57'41.57766"	RTK	0.04	0.06	8/15/2022 15:56	20
11890	Water Edge	WTRED8	3405444.09	1811166.71	39.30	63.31575227	-168.96158109	N 63°18'56.70817"	W 168°57'41.69192"	RTK	0.04	0.06	8/15/2022 15:56	20
11891	Water Edge	WTRED8	3405454.68	1811167.63	39.28	63.31578120	-168.96157446	N 63°18'56.81232"	W 168°57'41.66805"	RTK	0.04	0.06	8/15/2022 15:56	21
11892	Water Edge	WTRED8	3405464.47	1811168.25	39.28	63.31580794	-168.96156974	N 63°18'56.90858"	W 168°57'41.65106"	RTK	0.04	0.06	8/15/2022 15:57	20
11893	Water Edge	WTRED8	3405473.85	1811167.19	39.23	63.31583364	-168.96157526	N 63°18'57.0011"	W 168°57'41.67093"	RTK	0.04	0.06	8/15/2022 15:57	21

11894	Water Edge	WTRED8	3405479.36	1811175.03	39.14	63.31584835	-168.96152706	N 63°18'57.05406"	W 168°57'41.49741"	RTK	0.04	0.05	8/15/2022 15:57	22
11895	Water Edge	WTRED8	3405481.27	1811179.11	39.06	63.31585339	-168.96150206	N 63°18'57.0722"	W 168°57'41.40741"	RTK	0.04	0.06	8/15/2022 15:57	21
11896	Water Edge	WTRED8	3405484.40	1811179.54	38.97	63.31586194	-168.96149909	N 63°18'57.10298"	W 168°57'41.39672"	RTK	0.04	0.06	8/15/2022 15:57	20
11897	Water Edge	WTRED8	3405490.09	1811177.93	38.67	63.31587756	-168.96150833	N 63°18'57.15921"	W 168°57'41.42998"	RTK	0.04	0.06	8/15/2022 15:57	20
11898	Water Edge	WTRED8	3405494.51	1811174.56	38.90	63.31588981	-168.96152837	N 63°18'57.20331"	W 168°57'41.50213"	RTK	0.04	0.06	8/15/2022 15:57	20
11899	Water Edge	WTRED8	3405495.29	1811170.59	38.69	63.31589210	-168.96155248	N 63°18'57.21155"	W 168°57'41.58892"	RTK	0.05	0.06	8/15/2022 15:57	20
11900	Water Edge	WTRED7	3405382.33	1811167.54	39.56	63.31558339	-168.96158214	N 63°18'56.1002"	W 168°57'41.6957"	RTK	0.04	0.06	8/15/2022 15:59	22
11901	Water Edge	WTRED7	3405387.56	1811170.94	39.57	63.31559754	-168.96156097	N 63°18'56.15114"	W 168°57'41.61949"	RTK	0.04	0.05	8/15/2022 15:59	21
11902	Water Edge	WTRED7	3405391.28	1811171.47	39.53	63.31560769	-168.96155738	N 63°18'56.18768"	W 168°57'41.60656"	RTK	0.04	0.05	8/15/2022 15:59	21
11903	Water Edge	WTRED7	3405396.40	1811175.49	39.38	63.31562149	-168.96153241	N 63°18'56.23736"	W 168°57'41.51667"	RTK	0.04	0.05	8/15/2022 15:59	21
11904	Water Edge	WTRED7	3405403.91	1811176.11	39.34	63.31564201	-168.96152788	N 63°18'56.31123"	W 168°57'41.50036"	RTK	0.04	0.05	8/15/2022 15:59	22
11905	Water Edge	WTRED7	3405412.45	1811176.12	39.29	63.31566536	-168.96152697	N 63°18'56.39529"	W 168°57'41.49709"	RTK	0.04	0.05	8/15/2022 15:59	21
11906	Water Edge	WTRED7	3405423.24	1811184.01	39.31	63.31569452	-168.96147797	N 63°18'56.50027"	W 168°57'41.32069"	RTK	0.04	0.05	8/15/2022 15:59	21
11907	Water Edge	WTRED7	3405429.81	1811189.04	39.17	63.31571225	-168.96144673	N 63°18'56.56409"	W 168°57'41.20822"	RTK	0.04	0.06	8/15/2022 15:59	22
11908	Water Edge	WTRED7	3405437.93	1811189.30	39.32	63.31573444	-168.96144433	N 63°18'56.64398"	W 168°57'41.19958"	RTK	0.04	0.05	8/15/2022 15:59	21
11909	Water Edge	WTRED7	3405444.85	1811186.64	39.12	63.31575348	-168.96145984	N 63°18'56.71252"	W 168°57'41.25542"	RTK	0.04	0.06	8/15/2022 15:59	22
11910	Water Edge	WTRED7	3405455.10	1811189.27	39.29	63.31578141	-168.96144281	N 63°18'56.81307"	W 168°57'41.19411"	RTK	0.04	0.06	8/15/2022 16:00	20
11911	Water Edge	WTRED7	3405467.52	1811192.75	39.25	63.31581521	-168.96142045	N 63°18'56.93475"	W 168°57'41.11361"	RTK	0.04	0.06	8/15/2022 16:00	21
11912	Water Edge	WTRED7	3405476.85	1811196.77	38.88	63.31584053	-168.96139509	N 63°18'57.0259"	W 168°57'41.02232"	RTK	0.04	0.06	8/15/2022 16:00	20
11913	Water Edge	WTRED7	3405485.48	1811199.08	39.02	63.31586403	-168.96138018	N 63°18'57.1105"	W 168°57'40.96864"	RTK	0.04	0.06	8/15/2022 16:00	21
11914	Water Edge	WTRED7	3405493.37	1811196.65	38.89	63.31588570	-168.96139417	N 63°18'57.18852"	W 168°57'41.01901"	RTK	0.04	0.06	8/15/2022 16:01	21
11915	Water Edge	WTRED7	3405500.92	1811192.76	38.64	63.31590653	-168.96141711	N 63°18'57.2635"	W 168°57'41.10159"	RTK	0.04	0.06	8/15/2022 16:01	21
11916	Water Edge	WTRED7	3405503.79	1811184.20	38.62	63.31591474	-168.96146889	N 63°18'57.29306"	W 168°57'41.288"	RTK	0.04	0.06	8/15/2022 16:01	20
11917	Water Edge	WTRED7	3405507.06	1811178.08	38.54	63.31592397	-168.96150579	N 63°18'57.32629"	W 168°57'41.42084"	RTK	0.04	0.06	8/15/2022 16:01	20
11918	Water Edge	WTRED8	3405499.43	1811167.71	38.64	63.31590356	-168.96156959	N 63°18'57.25281"	W 168°57'41.65052"	RTK	0.04	0.06	8/15/2022 16:01	21
11919	Water Edge	WTRED8	3405505.13	1811167.87	38.42	63.31591913	-168.96156803	N 63°18'57.30886"	W 168°57'41.6449"	RTK	0.04	0.06	8/15/2022 16:01	21
11920	Water Edge	WTRED8	3405512.63	1811168.40	38.58	63.31593963	-168.96156410	N 63°18'57.38266"	W 168°57'41.63076"	RTK	0.06	0.07	8/15/2022 16:02	19
11921	Water Edge	WTRED7	3405511.91	1811176.60	38.44	63.31593728	-168.96151430	N 63°18'57.3742"	W 168°57'41.45148"	RTK	0.03	0.05	8/15/2022 16:02	22
11922	Water Edge	WTRED7	3405522.49	1811176.74	38.36	63.31596621	-168.96151236	N 63°18'57.47835"	W 168°57'41.44449"	RTK	0.04	0.06	8/15/2022 16:02	21
11923	Water Edge	WTRED8	3405521.66	1811166.50	38.51	63.31596439	-168.96157471	N 63°18'57.4718"	W 168°57'41.66895"	RTK	0.04	0.06	8/15/2022 16:02	21
11924	Water Edge	WTRED8	3405528.86	1811170.32	38.61	63.31598391	-168.96155078	N 63°18'57.54207"	W 168°57'41.5828"	RTK	0.04	0.05	8/15/2022 16:02	21
11925	Water Edge	WTRED7	3405528.68	1811180.06	38.30	63.31598299	-168.96149159	N 63°18'57.53876"	W 168°57'41.36972"	RTK	0.03	0.06	8/15/2022 16:02	21
11926	Water Edge	WTRED7	3405537.92	1811178.91	38.47	63.31600830	-168.96149765	N 63°18'57.62988"	W 168°57'41.39154"	RTK	0.04	0.06	8/15/2022 16:03	20
11927	Water Edge	WTRED8	3405537.66	1811173.86	38.32	63.31600781	-168.96152843	N 63°18'57.62811"	W 168°57'41.50234"	RTK	0.06	0.06	8/15/2022 16:03	20
11928	Water Edge	WTRED8	3405543.93	1811172.20	37.91	63.31602504	-168.96153787	N 63°18'57.69014"	W 168°57'41.53633"	RTK	0.07	0.06	8/15/2022 16:03	21
11929	Water Edge	WTRED7	3405546.25	1811176.97	38.08	63.31603116	-168.96150868	N 63°18'57.71217"	W 168°57'41.43124"	RTK	0.03	0.06	8/15/2022 16:03	22
11930	Water Edge	WTRED7	3405553.07	1811168.36	37.50	63.31605020	-168.96156033	N 63°18'57.78071"	W 168°57'41.61718"	RTK	0.04	0.06	8/15/2022 16:03	21
11931	Water Edge	WTRED8	3405552.06	1811166.27	37.65	63.31604752	-168.96157314	N 63°18'57.77107"	W 168°57'41.6633"	RTK	0.04	0.06	8/15/2022 16:03	23
11932	Water Edge	WTRED8	3405555.89	1811163.78	37.33	63.31605812	-168.96158792	N 63°18'57.80923"	W 168°57'41.71651"	RTK	0.05	0.06	8/15/2022 16:04	21
11933	Water Edge	WTRED8	3405557.64	1811156.48	37.38	63.31606322	-168.96163212	N 63°18'57.82759"	W 168°57'41.87563"	RTK	0.05	0.06	8/15/2022 16:04	22
11934	Water Edge	WTRED8	3405564.46	1811159.52	37.29	63.31608174	-168.96161297	N 63°18'57.89426"	W 168°57'41.80669"	RTK	0.04	0.06	8/15/2022 16:04	22
11935	Water Edge	WTRED8	3405565.40	1811162.49	37.28	63.31608416	-168.96159483	N 63°18'57.90297"	W 168°57'41.74138"	RTK	0.04	0.06	8/15/2022 16:04	23
11936	Water Edge	WTRED8	3405571.06	1811166.32	37.45	63.31609949	-168.96157096	N 63°18'57.95816"	W 168°57'41.65545"	RTK	0.04	0.05	8/15/2022 16:04	22
11937	Water Edge	WTRED7	3405554.34	1811167.84	37.48	63.31605369	-168.96156340	N 63°18'57.79328"	W 168°57'41.62823"	RTK	0.04	0.06	8/15/2022 16:05	23
11938	Water Edge	WTRED7	3405555.87	1811170.71	37.35	63.31605776	-168.96154576	N 63°18'57.80793"	W 168°57'41.56473"	RTK	0.04	0.06	8/15/2022 16:05	24
11939	Water Edge	WTRED7	3405561.83	1811168.94	37.28	63.31607414	-168.96155592	N 63°18'57.8669"	W 168°57'41.60131"	RTK	0.04	0.06	8/15/2022 16:05	23
11940	Water Edge	WTRED7	3405569.12	1811170.78	37.35	63.31609399	-168.96154405	N 63°18'57.93836"	W 168°57'41.55857"	RTK	0.04	0.06	8/15/2022 16:05	25
11941	Water Edge	WTRED7	3405572.17	1811167.31	37.36	63.31610246	-168.96156487	N 63°18'57.96885"	W 168°57'41.63353"	RTK	0.04	0.06	8/15/2022 16:05	24
11942	Water Edge	WTRED7	3405574.70	1811165.61	37.19	63.31610947	-168.96157495	N 63°18'57.99409"	W 168°57'41.66981"	RTK	0.04	0.05	8/15/2022 16:05	24
11943	Water Edge	WTRED8	3405574.01	1811164.67	37.26	63.31610763	-168.96158069	N 63°18'57.98746"	W 168°57'41.69048"	RTK	0.03	0.05	8/15/2022 16:05	24
11944	Water Edge	WTRED8	3405576.32	1811159.51	37.20	63.31611417	-168.96161187	N 63°18'58.01101"	W 168°57'41.80273"	RTK	0.04	0.06	8/15/2022 16:05	23
11945	Water Edge	WTRED8	3405578.09	1811156.46	37.28	63.31611913	-168.96163024	N 63°18'58.02886"	W 168°57'41.86886"	RTK	0.04	0.06	8/15/2022 16:05	23
11946	Water Edge	WTRED8	3405575.91	1811149.98	37.25	63.31611345	-168.96166982	N 63°18'58.00842"	W 168°57'42.01135"	RTK	0.04	0.05	8/15/2022 16:06	23
11947	Water Edge	WTRED8	3405573.62	1811143.74	37.33	63.31610748	-168.96170804	N 63°18'57.98692"	W 168°57'42.14894"	RTK	0.04	0.05	8/15/2022 16:06	24
11948	Water Edge	WTRED8	3405572.91	1811128.95	37.32	63.31610618	-168.96179802	N 63°18'57.98224"	W 168°57'42.47287"	RTK	0.04	0.05	8/15/2022 16:06	23
11949	Water Edge	WTRED8	3405575.21	1811122.71	37.31	63.31611275	-168.96183574	N 63°18'58.0059"	W 168°57'42.60866"	RTK	0.05	0.05	8/15/2022 16:06	24

11950	Water Edge	WTRED8	3405576.41	1811113.78	37.32	63.31611644	-168.96188990	N 63°18'58.01918"	W 168°57'42.80363"	RTK	0.04	0.06	8/15/2022 16:06	23
11951	Water Edge	WTRED8	3405577.09	1811102.23	37.23	63.31611880	-168.96196008	N 63°18'58.02767"	W 168°57'43.05628"	RTK	0.04	0.06	8/15/2022 16:07	25
11952	Water Edge	WTRED8	3405576.34	1811092.82	37.30	63.31611717	-168.96201737	N 63°18'58.02181"	W 168°57'43.26253"	RTK	0.05	0.06	8/15/2022 16:07	25
11953	Water Edge	WTRED8	3405572.50	1811081.73	37.26	63.31610716	-168.96208519	N 63°18'57.98577"	W 168°57'43.50668"	RTK	0.05	0.05	8/15/2022 16:07	24
11954	Water Edge	WTRED9	3405576.53	1811080.80	37.26	63.31611823	-168.96209044	N 63°18'58.02562"	W 168°57'43.52558"	RTK	0.05	0.06	8/15/2022 16:07	24
11955	Water Edge	WTRED9	3405581.98	1811093.31	37.33	63.31613257	-168.96201380	N 63°18'58.07725"	W 168°57'43.24967"	RTK	0.04	0.06	8/15/2022 16:07	23
11956	Water Edge	WTRED9	3405580.24	1811103.19	37.30	63.31612736	-168.96195395	N 63°18'58.05849"	W 168°57'43.03422"	RTK	0.05	0.06	8/15/2022 16:08	24
11957	Water Edge	WTRED9	3405580.70	1811113.66	37.35	63.31612815	-168.96189022	N 63°18'58.06133"	W 168°57'42.80479"	RTK	0.06	0.06	8/15/2022 16:08	23
11958	Water Edge	WTRED9	3405580.66	1811123.73	37.36	63.31612761	-168.96182902	N 63°18'58.05939"	W 168°57'42.58447"	RTK	0.06	0.06	8/15/2022 16:08	23
11959	Water Edge	WTRED9	3405585.27	1811131.60	37.36	63.31613988	-168.96178070	N 63°18'58.10356"	W 168°57'42.41051"	RTK	0.05	0.05	8/15/2022 16:08	24
11960	Water Edge	WTRED9	3405586.54	1811136.69	37.35	63.31614311	-168.96174964	N 63°18'58.11519"	W 168°57'42.2987"	RTK	0.06	0.05	8/15/2022 16:08	24
11961	Water Edge	WTRED9	3405585.83	1811148.14	37.34	63.31614068	-168.96168006	N 63°18'58.10644"	W 168°57'42.04821"	RTK	0.05	0.06	8/15/2022 16:09	23
11962	Water Edge	WTRED9	3405590.10	1811155.60	37.36	63.31615202	-168.96163428	N 63°18'58.14727"	W 168°57'41.8834"	RTK	0.05	0.06	8/15/2022 16:09	23
11963	Water Edge	WTRED9	3405590.56	1811164.36	37.30	63.31615287	-168.96158096	N 63°18'58.15033"	W 168°57'41.69145"	RTK	0.06	0.06	8/15/2022 16:09	24
11964	Water Edge	WTRED9	3405587.92	1811169.05	37.29	63.31614546	-168.96155271	N 63°18'58.12365"	W 168°57'41.58975"	RTK	0.06	0.06	8/15/2022 16:09	23
11965	Water Edge	WTRED9	3405585.32	1811171.47	37.27	63.31613824	-168.96153823	N 63°18'58.09766"	W 168°57'41.53762"	RTK	0.06	0.06	8/15/2022 16:09	24
11966	Water Edge	WTRED9	3405584.76	1811179.63	37.32	63.31613635	-168.96148869	N 63°18'58.09086"	W 168°57'41.35928"	RTK	0.06	0.07	8/15/2022 16:09	22
11967	Water Edge	WTRED9	3405586.90	1811190.77	37.38	63.31614172	-168.96142077	N 63°18'58.11019"	W 168°57'41.11477"	RTK	0.05	0.06	8/15/2022 16:09	24
11968	Water Edge	WTRED9	3405590.48	1811204.97	37.37	63.31615087	-168.96133405	N 63°18'58.14313"	W 168°57'40.80258"	RTK	0.06	0.06	8/15/2022 16:10	24
11969	Water Edge	WTRED9	3405589.57	1811211.79	37.34	63.31614808	-168.96129266	N 63°18'58.13308"	W 168°57'40.65357"	RTK	0.06	0.06	8/15/2022 16:10	22
11970	Water Edge	WTRED9	3405592.88	1811216.77	37.38	63.31615691	-168.96126205	N 63°18'58.16487"	W 168°57'40.54337"	RTK	0.06	0.05	8/15/2022 16:10	24
11971	Water Edge	WTRED9	3405594.74	1811225.52	37.35	63.31616161	-168.96120865	N 63°18'58.18179"	W 168°57'40.35114"	RTK	0.05	0.06	8/15/2022 16:10	24
11972	Water Edge	WTRED9	3405595.41	1811231.34	37.35	63.31616317	-168.96117319	N 63°18'58.18741"	W 168°57'40.22348"	RTK	0.06	0.06	8/15/2022 16:10	24
11973	Water Edge	WTRED9	3405597.80	1811232.56	37.40	63.31616965	-168.96116558	N 63°18'58.21073"	W 168°57'40.19608"	RTK	0.04	0.06	8/15/2022 16:10	24
11974	Water Edge	WTRED9	3405606.93	1811236.37	37.38	63.31619445	-168.96114149	N 63°18'58.30001"	W 168°57'40.10936"	RTK	0.07	0.06	8/15/2022 16:10	24
11975	Water Edge	WTRED9	3405610.37	1811245.21	37.39	63.31620345	-168.96108737	N 63°18'58.33242"	W 168°57'39.91453"	RTK	0.06	0.06	8/15/2022 16:10	24
11976	Water Edge	WTRED9	3405616.14	1811253.33	37.41	63.31621889	-168.96103748	N 63°18'58.388"	W 168°57'39.73492"	RTK	0.06	0.06	8/15/2022 16:11	24
11977	Water Edge	WTRED9	3405617.62	1811264.39	37.37	63.31622245	-168.96097005	N 63°18'58.40081"	W 168°57'39.49217"	RTK	0.06	0.06	8/15/2022 16:11	23
11978	Water Edge	WTRED9	3405619.18	1811272.09	37.37	63.31622635	-168.96092308	N 63°18'58.41486"	W 168°57'39.32308"	RTK	0.06	0.06	8/15/2022 16:11	23
11979	Water Edge	WTRED9	3405614.80	1811278.11	37.33	63.31621411	-168.96088694	N 63°18'58.37079"	W 168°57'39.19298"	RTK	0.06	0.06	8/15/2022 16:11	24
11980	Water Edge	WTRED7	3405576.85	1811164.54	37.29	63.31611538	-168.96158123	N 63°18'58.01536"	W 168°57'41.69242"	RTK	0.05	0.04	8/15/2022 16:12	22
11981	Water Edge	WTRED7	3405579.75	1811165.84	37.34	63.31612326	-168.96157306	N 63°18'58.04373"	W 168°57'41.66301"	RTK	0.04	0.04	8/15/2022 16:12	24
11982	Water Edge	WTRED7	3405581.47	1811169.12	37.27	63.31612782	-168.96155290	N 63°18'58.06015"	W 168°57'41.59043"	RTK	0.04	0.04	8/15/2022 16:12	23
11983	Water Edge	WTRED7	3405580.53	1811174.14	37.30	63.31612502	-168.96152247	N 63°18'58.05007"	W 168°57'41.48089"	RTK	0.04	0.04	8/15/2022 16:12	23
11984	Water Edge	WTRED7	3405578.48	1811183.36	37.33	63.31611902	-168.96146664	N 63°18'58.02847"	W 168°57'41.2799"	RTK	0.04	0.04	8/15/2022 16:12	23
11985	Water Edge	WTRED7	3405579.00	1811195.47	37.29	63.31611991	-168.96139293	N 63°18'58.03167"	W 168°57'41.01454"	RTK	0.05	0.05	8/15/2022 16:13	24
11986	Water Edge	WTRED7	3405582.14	1811205.93	37.36	63.31612801	-168.96132902	N 63°18'58.06083"	W 168°57'40.78447"	RTK	0.05	0.04	8/15/2022 16:13	25
11987	Water Edge	WTRED7	3405585.02	1811209.85	37.41	63.31613571	-168.96130492	N 63°18'58.08855"	W 168°57'40.69771"	RTK	0.04	0.04	8/15/2022 16:13	25
11988	Water Edge	WTRED7	3405587.02	1811216.46	37.32	63.31614091	-168.96126454	N 63°18'58.10727"	W 168°57'40.55234"	RTK	0.04	0.05	8/15/2022 16:13	23
11989	Water Edge	WTRED7	3405588.79	1811224.07	37.38	63.31614540	-168.96121805	N 63°18'58.12344"	W 168°57'40.38498"	RTK	0.06	0.06	8/15/2022 16:13	21
11990	Water Edge	WTRED7	3405585.40	1811231.69	37.36	63.31613578	-168.96117206	N 63°18'58.0888"	W 168°57'40.21941"	RTK	0.04	0.05	8/15/2022 16:13	21
11991	Water Edge	WTRED7	3405587.88	1811239.95	37.38	63.31614220	-168.96112160	N 63°18'58.11192"	W 168°57'40.03776"	RTK	0.05	0.05	8/15/2022 16:13	23
11992	Water Edge	WTRED7	3405593.82	1811246.02	37.39	63.31615817	-168.96108410	N 63°18'58.16941"	W 168°57'39.90275"	RTK	0.04	0.04	8/15/2022 16:14	24
11993	Water Edge	WTRED7	3405599.05	1811253.00	37.40	63.31617217	-168.96104113	N 63°18'58.21981"	W 168°57'39.74806"	RTK	0.04	0.04	8/15/2022 16:14	23
11994	Water Edge	WTRED7	3405603.01	1811259.93	37.39	63.31618268	-168.96099862	N 63°18'58.25764"	W 168°57'39.59503"	RTK	0.05	0.05	8/15/2022 16:14	22
11995	Water Edge	WTRED7	3405608.11	1811267.08	37.41	63.31619633	-168.96095462	N 63°18'58.30678"	W 168°57'39.43663"	RTK	0.04	0.05	8/15/2022 16:14	24
11996	Water Edge	WTRED7	3405611.38	1811278.49	37.32	63.31620476	-168.96088491	N 63°18'58.33713"	W 168°57'39.18567"	RTK	0.06	0.05	8/15/2022 16:14	24

Northeast Cape
Temporary Benchmarks

Horizonal Datum: ***World Geographic System of 1984 (WGS84)***
Vertical Datum: ***North American Vertical Datum of 1988 (NAVD88)***
Projection: ***Alaska State Plane Zone 9 (based on NAD83[2011])***
Units: ***US Survey Feet***

Survey ID	Description	Code	Northing	Easting	Elevation	Latitude (DD)	Longitude (DD)	Latitude (DMS)	Longitude (DMS)	Survey Method	HRMS	VRMS	Date & Time	S/V's
12393	Temporary Benchmark	TBM-MTL3	3403570.23	1810951.76	91.99	63.31063814	-168.96307233	N 63°18'38.2973"	W 168°57'47.06038"	RTK	0.03	0.04	8/17/2022 18:47	25
12394	Temporary Benchmark	TBM-MTL2	3403403.06	1810767.95	98.30	63.31018918	-168.96420624	N 63°18'36.68104"	W 168°57'51.14246"	RTK	0.03	0.04	8/17/2022 18:49	24
12395	Temporary Benchmark	TBM-MTL	3403484.33	1810226.98	81.48	63.31043523	-168.96748699	N 63°18'37.56682"	W 168°58'2.95316"	RTK	0.03	0.04	8/17/2022 18:52	24

Northeast Cape
Transect Data

Horizonal Datum: ***World Geographic System of 1984 (WGS84)***
Vertical Datum: ***North American Vertical Datum of 1988 (NAVD88)***
Projection: ***Alaska State Plane Zone 9 (based on NAD83[2011])***
Units: ***US Survey Feet***

Survey ID	Description	Code	Northing	Easting	Elevation	Latitude (DD)	Longitude (DD)	Latitude (DMS)	Longitude (DMS)	Survey Method	HRMS	VRMS	Date & Time	S/V's
12005	Transect	P01-E	3405577.13	1811164.61	37.23	63.31611615	-168.96158079	N 63°18'58.01813"	W 168°57'41.69084"	RTK	0.05	0.08	8/16/2022 8:56	24
12006	Transect	P01-W	3405577.13	1811159.25	37.24	63.31611637	-168.96161339	N 63°18'58.01893"	W 168°57'41.8082"	RTK	0.05	0.09	8/16/2022 8:58	24
12007	Transect	P02-E	3405560.36	1811170.24	37.65	63.31607003	-168.96154821	N 63°18'57.8521"	W 168°57'41.57355"	RTK	0.06	0.11	8/16/2022 9:02	24
12008	Transect	P02-W	3405560.36	1811157.86	37.24	63.31607059	-168.96162344	N 63°18'57.85412"	W 168°57'41.84438"	RTK	0.07	0.11	8/16/2022 9:03	22
12009	Transect	P03-E	3405548.84	1811175.17	38.08	63.31603832	-168.96151937	N 63°18'57.73795"	W 168°57'41.46973"	RTK	0.06	0.11	8/16/2022 9:08	21
12010	Transect	P03-W	3405548.77	1811170.26	37.98	63.31603837	-168.96154918	N 63°18'57.73813"	W 168°57'41.57704"	RTK	0.06	0.11	8/16/2022 9:09	21
12011	Transect	P04-E	3405535.11	1811178.71	38.61	63.31600063	-168.96149919	N 63°18'57.60226"	W 168°57'41.39708"	RTK	0.06	0.12	8/16/2022 9:12	21
12012	Transect	P04-W	3405535.11	1811172.20	38.64	63.31600091	-168.96153873	N 63°18'57.60327"	W 168°57'41.53942"	RTK	0.06	0.11	8/16/2022 9:16	21
12013	Transect	P05-E	3405516.63	1811175.83	38.76	63.31595022	-168.96151849	N 63°18'57.42079"	W 168°57'41.46656"	RTK	0.07	0.12	8/16/2022 9:27	21
12014	Transect	P05-W	3405516.63	1811168.36	38.82	63.31595056	-168.96156394	N 63°18'57.42201"	W 168°57'41.63018"	RTK	0.07	0.12	8/16/2022 9:28	21
12015	Transect	P06-E	3405448.00	1811186.83	39.48	63.31576210	-168.96145836	N 63°18'56.74356"	W 168°57'41.25009"	RTK	0.07	0.12	8/16/2022 9:32	23
12016	Transect	P05-W	3405447.99	1811167.43	39.61	63.31576293	-168.96157632	N 63°18'56.74654"	W 168°57'41.67475"	RTK	0.07	0.12	8/16/2022 9:34	23
12017	Sediment Top	SEDT	3405577.10	1811164.49	37.25	63.31611608	-168.96158151	N 63°18'58.01788"	W 168°57'41.69343"	RTK	0.03	0.04	8/16/2022 9:43	22
12018	Sediment Top	SEDT	3405577.24	1811161.84	36.71	63.31611658	-168.96159760	N 63°18'58.01968"	W 168°57'41.75136"	RTK	0.03	0.05	8/16/2022 9:43	22
12019	Sediment Top	SEDT	3405577.20	1811159.24	37.32	63.31611657	-168.96161339	N 63°18'58.01965"	W 168°57'41.8082"	RTK	0.11	0.05	8/16/2022 9:43	22
12020	Sediment Bottom	SEDB	3405576.93	1811164.43	34.89	63.31611561	-168.96158188	N 63°18'58.01619"	W 168°57'41.69476"	RTK	0.03	0.05	8/16/2022 9:44	22
12021	Sediment Bottom	SEDB	3405577.32	1811161.93	34.68	63.31611679	-168.96159707	N 63°18'58.02044"	W 168°57'41.74945"	RTK	0.03	0.05	8/16/2022 9:45	22
12022	Sediment Bottom	SEDB	3405577.42	1811159.47	34.66	63.31611716	-168.96161199	N 63°18'58.02177"	W 168°57'41.80316"	RTK	0.07	0.05	8/16/2022 9:46	21
12024	Sediment Top	SEDT	3405560.26	1811170.02	37.40	63.31606980	-168.96154955	N 63°18'57.85128"	W 168°57'41.57838"	RTK	0.03	0.04	8/16/2022 9:50	22
12025	Sediment Top	SEDT	3405560.32	1811163.74	36.85	63.31607024	-168.96158770	N 63°18'57.85286"	W 168°57'41.71571"	RTK	0.06	0.04	8/16/2022 9:51	22
12026	Sediment Top	SEDT	3405560.31	1811157.92	37.30	63.31607045	-168.96162312	N 63°18'57.85361"	W 168°57'41.84323"	RTK	0.05	0.04	8/16/2022 9:53	21
12027	Sediment Bottom	SEDB	3405560.29	1811158.03	37.02	63.31607039	-168.96162246	N 63°18'57.8534"	W 168°57'41.84085"	RTK	0.03	0.04	8/16/2022 9:54	21
12028	Solid Bottom	SOLIDB	3405560.20	1811158.01	35.39	63.31607015	-168.96162255	N 63°18'57.85254"	W 168°57'41.84117"	RTK	0.03	0.04	8/16/2022 9:54	21
12029	Sediment Bottom	SEDB	3405560.17	1811163.93	35.74	63.31606982	-168.96158657	N 63°18'57.85135"	W 168°57'41.71165"	RTK	0.03	0.04	8/16/2022 9:55	21
12030	Solid Bottom	SOLIDB	3405560.19	1811163.89	35.47	63.31606985	-168.96158681	N 63°18'57.85145"	W 168°57'41.71251"	RTK	0.03	0.04	8/16/2022 9:56	21
12031	Sediment Bottom	SEDB	3405560.26	1811169.99	37.13	63.31606979	-168.96154971	N 63°18'57.85124"	W 168°57'41.57895"	RTK	0.04	0.04	8/16/2022 9:57	22
12032	Solid Bottom	SOLIDB	3405560.23	1811170.07	35.84	63.31606970	-168.96154923	N 63°18'57.85091"	W 168°57'41.57722"	RTK	0.03	0.04	8/16/2022 9:58	22
12033	Sediment Top	SEDT	3405548.65	1811172.96	37.55	63.31603790	-168.96153281	N 63°18'57.73643"	W 168°57'41.51811"	RTK	0.03	0.04	8/16/2022 10:01	23
12034	Sediment Bottom	SEDB	3405548.64	1811172.92	37.39	63.31603789	-168.96153306	N 63°18'57.7364"	W 168°57'41.51901"	RTK	0.03	0.04	8/16/2022 10:02	23
12035	Solid Bottom	SOLIDB	3405548.65	1811172.94	35.80	63.31603790	-168.96153294	N 63°18'57.73643"	W 168°57'41.51858"	RTK	0.03	0.05	8/16/2022 10:03	23
12036	Sediment Top	SEDT	3405548.62	1811172.26	37.47	63.31603787	-168.96153706	N 63°18'57.73633"	W 168°57'41.53341"	RTK	0.04	0.05	8/16/2022 10:03	23
12037	Sediment Bottom	SEDB	3405548.58	1811172.25	37.05	63.31603776	-168.96153713	N 63°18'57.73593"	W 168°57'41.53366"	RTK	0.03	0.04	8/16/2022 10:03	23
12038	Solid Bottom	SOLIDB	3405548.62	1811172.25	35.75	63.31603787	-168.96153710	N 63°18'57.73633"	W 168°57'41.53355"	RTK	0.03	0.04	8/16/2022 10:03	23
12039	Sediment Top	SEDT	3405548.58	1811171.35	37.68	63.31603779	-168.96154261	N 63°18'57.73604"	W 168°57'41.55339"	RTK	0.03	0.05	8/16/2022 10:04	23
12040	Sediment Bottom	SEDB	3405548.60	1811171.39	37.32	63.31603784	-168.96154238	N 63°18'57.73622"	W 168°57'41.55256"	RTK	0.03	0.04	8/16/2022 10:04	23
12041	Solid Bottom	SOLIDB	3405548.62	1811171.40	35.70	63.31603789	-168.96154229	N 63°18'57.7364"	W 168°57'41.55224"	RTK	0.03	0.05	8/16/2022 10:04	23
12043	Vegetative Mat	VEGM	3405535.05	1811175.68	38.00	63.31600060	-168.96151762	N 63°18'57.60216"	W 168°57'41.46343"	RTK	0.04	0.05	8/16/2022 10:09	23
12044	Sediment Top	SEDT	3405516.46	1811168.85	38.47	63.31595008	-168.96156096	N 63°18'57.42028"	W 168°57'41.61945"	RTK	0.05	0.04	8/16/2022 10:14	25
12045	Sediment Bottom	SEDB	3405516.48	1811168.88	38.32	63.31595014	-168.96156080	N 63°18'57.4205"	W 168°57'41.61888"	RTK	0.04	0.05	8/16/2022 10:14	25
12046	Solid Bottom	SOLIDB	3405516.38	1811168.81	36.39	63.31594984	-168.96156123	N 63°18'57.41942"	W 168°57'41.62042"	RTK	0.05	0.05	8/16/2022 10:14	25
12047	Sediment Top	SEDT	3405516.57	1811169.39	38.06	63.31595035	-168.96155769	N 63°18'57.42126"	W 168°57'41.60768"	RTK	0.03	0.04	8/16/2022 10:15	25
12048	Sediment Bottom	SEDB	3405516.55	1811169.42	37.86	63.31595028	-168.96155747	N 63°18'57.421"	W 168°57'41.60689"	RTK	0.03	0.05	8/16/2022 10:15	25
12049	Solid Bottom	SOLIDB	3405516.54	1811169.41	36.69	63.31595028	-168.96155757	N 63°18'57.421"	W 168°57'41.60725"	RTK	0.03	0.04	8/16/2022 10:15	25
12050	Sediment Top	SEDT	3405516.60	1811170.20	38.08	63.31595039	-168.96155276	N 63°18'57.4214"	W 168°57'41.58993"	RTK	0.04	0.05	8/16/2022 10:15	25
12051	Sediment Bottom	SEDB	3405516.56	1811170.20	37.93	63.31595028	-168.96155272	N 63°18'57.421"	W 168°57'41.58979"	RTK	0.04	0.05	8/16/2022 10:15	25
12052	Solid Bottom	SOLIDB	3405516.56	1811170.22	36.83	63.31595029	-168.96155264	N 63°18'57.42104"	W 168°57'41.5895"	RTK	0.04	0.05	8/16/2022 10:16	25

12055	Sediment Top	SEDT	3405447.76	1811173.61	38.62	63.31576203	-168.96153877	N 63°18'56.7433"	W 168°57'41.53957"	RTK	0.03	0.05	8/16/2022 10:28	27
12056	Sediment Bottom	SEDB	3405447.75	1811173.69	37.36	63.31576199	-168.96153830	N 63°18'56.74316"	W 168°57'41.53788"	RTK	0.03	0.05	8/16/2022 10:28	27
12057	Solid Bottom	SOLIDB	3405447.75	1811173.69	37.09	63.31576198	-168.96153829	N 63°18'56.74312"	W 168°57'41.53784"	RTK	0.03	0.04	8/16/2022 10:28	27
12058	Sediment Top	SEDT	3405447.91	1811176.25	38.14	63.31576230	-168.96152273	N 63°18'56.74428"	W 168°57'41.48182"	RTK	0.11	0.05	8/16/2022 10:28	27
12059	Sediment Bottom	SEDB	3405447.91	1811176.25	37.00	63.31576232	-168.96152272	N 63°18'56.74435"	W 168°57'41.48179"	RTK	0.03	0.04	8/16/2022 10:29	27
12059	Sediment Bottom	SEDB	3405447.91	1811176.25	37.00	63.31576232	-168.96152272	N 63°18'56.74435"	W 168°57'41.48179"	RTK	0.03	0.05	8/16/2022 10:29	27
12060	Solid Bottom	SOLIDB	3405447.92	1811176.26	36.76	63.31576234	-168.96152263	N 63°18'56.74442"	W 168°57'41.48146"	RTK	0.03	0.05	8/16/2022 10:30	27
12061	Sediment Top	SEDT	3405447.95	1811178.64	38.32	63.31576232	-168.96150818	N 63°18'56.74435"	W 168°57'41.42944"	RTK	0.03	0.05	8/16/2022 10:30	27
12062	Sediment Bottom	SEDB	3405447.92	1811178.64	37.32	63.31576222	-168.96150816	N 63°18'56.74399"	W 168°57'41.42937"	RTK	0.03	0.04	8/16/2022 10:30	27
12063	Solid Bottom	SOLIDB	3405447.95	1811178.66	37.14	63.31576231	-168.96150804	N 63°18'56.74431"	W 168°57'41.42894"	RTK	0.03	0.05	8/16/2022 10:30	27
12065	Transect	P07-W	3405431.20	1811173.12	39.43	63.31571675	-168.96154337	N 63°18'56.5803"	W 168°57'41.55613"	RTK	0.04	0.05	8/16/2022 10:36	27
12066	Transect	P07-E	3405431.13	1811188.50	39.40	63.31571588	-168.96144987	N 63°18'56.57716"	W 168°57'41.21953"	RTK	0.04	0.05	8/16/2022 10:38	27
12068	Sediment Top	SEDT	3405431.10	1811187.68	38.92	63.31571584	-168.96145486	N 63°18'56.57702"	W 168°57'41.23749"	RTK	0.03	0.04	8/16/2022 10:39	27
12069	Sediment Bottom	SEDB	3405431.07	1811187.62	37.21	63.31571575	-168.96145522	N 63°18'56.5767"	W 168°57'41.23879"	RTK	0.03	0.05	8/16/2022 10:40	27
12070	Solid Bottom	SOLIDB	3405431.08	1811187.66	36.53	63.31571578	-168.96145497	N 63°18'56.5768"	W 168°57'41.23789"	RTK	0.03	0.06	8/16/2022 10:40	26
12071	Sediment Top	SEDT	3405430.79	1811180.28	38.21	63.31571531	-168.96149990	N 63°18'56.57511"	W 168°57'41.39964"	RTK	0.03	0.05	8/16/2022 10:41	26
12072	Sediment Bottom	SEDB	3405430.75	1811180.27	37.36	63.31571522	-168.96149997	N 63°18'56.57479"	W 168°57'41.39989"	RTK	0.03	0.05	8/16/2022 10:41	26
12073	Solid Bottom	SOLIDB	3405430.75	1811180.27	36.75	63.31571520	-168.96149994	N 63°18'56.57471"	W 168°57'41.39978"	RTK	0.03	0.05	8/16/2022 10:41	26
12074	Sediment Top	SEDT	3405431.23	1811173.94	38.35	63.31571681	-168.96153842	N 63°18'56.58051"	W 168°57'41.53831"	RTK	0.03	0.04	8/16/2022 10:41	26
12075	Sediment Bottom	SEDB	3405431.21	1811173.92	37.36	63.31571674	-168.96153854	N 63°18'56.58026"	W 168°57'41.53874"	RTK	0.03	0.05	8/16/2022 10:42	26
12076	Solid Bottom	SOLIDB	3405431.20	1811173.93	37.15	63.31571673	-168.96153848	N 63°18'56.58022"	W 168°57'41.53852"	RTK	0.03	0.05	8/16/2022 10:42	26
12078	Transect	P08-E	3405407.03	1811174.42	39.39	63.31565063	-168.96153787	N 63°18'56.34226"	W 168°57'41.53633"	RTK	0.04	0.05	8/16/2022 10:44	26
12079	Transect	P08-W	3405407.06	1811155.84	39.44	63.31565151	-168.96165087	N 63°18'56.34543"	W 168°57'41.94313"	RTK	0.03	0.04	8/16/2022 10:45	26
12080	Sediment Top	SEDT	3405407.09	1811156.61	38.80	63.31565157	-168.96164618	N 63°18'56.34565"	W 168°57'41.92624"	RTK	0.03	0.05	8/16/2022 10:46	26
12081	Sediment Bottom	SEDB	3405407.12	1811156.70	37.79	63.31565164	-168.96164559	N 63°18'56.3459"	W 168°57'41.92412"	RTK	0.03	0.05	8/16/2022 10:46	26
12082	Solid Bottom	SOLIDB	3405407.12	1811156.70	37.58	63.31565166	-168.96164561	N 63°18'56.34597"	W 168°57'41.92419"	RTK	0.03	0.05	8/16/2022 10:46	26
12083	Sediment Top	SEDT	3405406.97	1811163.69	38.62	63.31565093	-168.96160310	N 63°18'56.34334"	W 168°57'41.77115"	RTK	0.03	0.04	8/16/2022 10:47	26
12084	Sediment Bottom	SEDB	3405406.98	1811163.74	38.00	63.31565094	-168.96160280	N 63°18'56.34338"	W 168°57'41.77008"	RTK	0.03	0.04	8/16/2022 10:47	26
12085	Solid Bottom	SOLIDB	3405406.97	1811163.75	37.43	63.31565093	-168.96160276	N 63°18'56.34334"	W 168°57'41.76993"	RTK	0.03	0.05	8/16/2022 10:47	26
12086	Sediment Top	SEDT	3405407.02	1811173.05	38.15	63.31565064	-168.96154622	N 63°18'56.3423"	W 168°57'41.56639"	RTK	0.03	0.05	8/16/2022 10:47	26
12087	Sediment Bottom	SEDB	3405407.05	1811173.06	37.00	63.31565072	-168.96154614	N 63°18'56.34259"	W 168°57'41.5661"	RTK	0.03	0.05	8/16/2022 10:48	26
12088	Solid Bottom	SOLIDB	3405407.03	1811173.04	36.73	63.31565068	-168.96154625	N 63°18'56.34244"	W 168°57'41.56649"	RTK	0.03	0.05	8/16/2022 10:48	26
12091	Transect	P09-E	3405387.94	1811168.88	39.40	63.31559867	-168.96157344	N 63°18'56.15521"	W 168°57'41.66438"	RTK	0.03	0.05	8/16/2022 10:53	27
12092	Transect	P09-W	3405387.89	1811153.01	39.47	63.31559923	-168.96166991	N 63°18'56.15722"	W 168°57'42.01167"	RTK	0.06	0.06	8/16/2022 10:54	27
12093	Sediment Top	SEDT	3405387.99	1811153.88	38.69	63.31559946	-168.96166463	N 63°18'56.15805"	W 168°57'41.99266"	RTK	0.04	0.05	8/16/2022 10:56	27
12094	Vegetative Mat	VEGM	3405387.94	1811153.93	38.02	63.31559932	-168.96166435	N 63°18'56.15755"	W 168°57'41.99166"	RTK	0.03	0.05	8/16/2022 10:57	27
12095	Solid Bottom	SOLIDB	3405387.93	1811153.96	37.31	63.31559930	-168.96166415	N 63°18'56.15748"	W 168°57'41.99093"	RTK	0.03	0.05	8/16/2022 10:57	27
12096	Sediment Top	SEDT	3405387.78	1811155.66	38.65	63.31559882	-168.96165384	N 63°18'56.15575"	W 168°57'41.95382"	RTK	0.03	0.06	8/16/2022 10:58	27
12097	Vegetative Mat	VEGM	3405387.78	1811155.72	38.09	63.31559881	-168.96165346	N 63°18'56.15571"	W 168°57'41.95245"	RTK	0.03	0.05	8/16/2022 10:58	27
12098	Solid Bottom	SOLIDB	3405387.80	1811155.70	36.88	63.31559886	-168.96165357	N 63°18'56.15589"	W 168°57'41.95285"	RTK	0.03	0.06	8/16/2022 10:59	27
12099	Sediment Top	SEDT	3405387.60	1811157.68	38.96	63.31559822	-168.96164155	N 63°18'56.15359"	W 168°57'41.90957"	RTK	0.08	0.06	8/16/2022 10:59	27
12100	Vegetative Mat	VEGM	3405387.62	1811157.65	38.61	63.31559828	-168.96164175	N 63°18'56.1538"	W 168°57'41.9103"	RTK	0.03	0.06	8/16/2022 10:59	27
12101	Solid Bottom	SOLIDB	3405387.58	1811157.67	37.68	63.31559817	-168.96164164	N 63°18'56.15341"	W 168°57'41.9099"	RTK	0.03	0.06	8/16/2022 10:59	27
12102	Vegetative Mat	VEGM	3405387.97	1811161.18	39.12	63.31559909	-168.96162025	N 63°18'56.15672"	W 168°57'41.8329"	RTK	0.03	0.05	8/16/2022 11:00	27
12103	Solid Bottom	SOLIDM	3405387.94	1811161.18	38.47	63.31559900	-168.96162027	N 63°18'56.15639"	W 168°57'41.83297"	RTK	0.03	0.05	8/16/2022 11:00	26
12104	Sediment Top	SEDT	3405387.85	1811164.02	38.84	63.31559863	-168.96160301	N 63°18'56.15506"	W 168°57'41.77083"	RTK	0.03	0.06	8/16/2022 11:01	26
12105	Vegetative Mat	VEGM	3405387.84	1811164.05	38.26	63.31559860	-168.96160284	N 63°18'56.15496"	W 168°57'41.77022"	RTK	0.03	0.06	8/16/2022 11:01	26
12106	Solid Bottom	SOLIDB	3405387.86	1811164.06	37.50	63.31559866	-168.96160276	N 63°18'56.15517"	W 168°57'41.76993"	RTK	0.03	0.05	8/16/2022 11:01	26
12107	Sediment Top	SEDT	3405387.93	1811166.24	38.73	63.31559874	-168.96158948	N 63°18'56.15546"	W 168°57'41.72212"	RTK	0.04	0.06	8/16/2022 11:02	26
12108	Vegetative Mat	VEGM	3405387.96	1811166.25	38.25	63.31559884	-168.96158940	N 63°18'56.15582"	W 168°57'41.72184"	RTK	0.03	0.06	8/16/2022 11:02	26
12109	Solid Bottom	SOLIDB	3405387.93	1811166.23	37.40	63.31559876	-168.96158954	N 63°18'56.15553"	W 168°57'41.72234"	RTK	0.03	0.06	8/16/2022 11:02	26
12110	Sediment Top	SEDT	3405387.95	1811167.73	39.17	63.31559874	-168.96158043	N 63°18'56.15546"	W 168°57'41.68954"	RTK	0.03	0.05	8/16/2022 11:03	26
12111	Vegetative Mat	VEGM	3405387.94	1811167.65	38.74	63.31559873	-168.96158089	N 63°18'56.15542"	W 168°57'41.6912"	RTK	0.03	0.05	8/16/2022 11:03	26
12112	Solid Bottom	SOLIDB	3405387.96	1811167.63	37.74	63.31559878	-168.96158105	N 63°18'56.1556"	W 168°57'41.69178"	RTK	0.03	0.05	8/16/2022 11:03	26
12114	Transect	P10-E	3405356.60	1811161.15	39.57	63.31551330	-168.96162354	N 63°18'55.84787"	W 168°57'41.84474"	RTK	0.06	0.05	8/16/2022 11:06	25
12115	Transect	P10-W	3405356.64	1811153.07	39.60	63.31551377	-168.96167264	N 63°18'55.84957"	W 168°57'42.0215"	RTK	0.04	0.05	8/16/2022 11:08	25

12116	Sediment Top	SEDT	3405356.66	1811153.61	39.12	63.31551382	-168.96166934	N 63°18'55.84975"	W 168°57'42.00962"	RTK	0.03	0.05	8/16/2022 11:08	25
12117	Vegetative Mat	VEGM	3405356.75	1811153.60	38.45	63.31551406	-168.96166942	N 63°18'55.85061"	W 168°57'42.00991"	RTK	0.03	0.05	8/16/2022 11:08	25
12118	Solid Bottom	SOLIDB	3405356.67	1811153.57	37.69	63.31551384	-168.96166961	N 63°18'55.84982"	W 168°57'42.01059"	RTK	0.03	0.06	8/16/2022 11:09	25
12119	Sediment Top	SEDT	3405356.83	1811156.66	38.61	63.31551415	-168.96165079	N 63°18'55.85093"	W 168°57'41.94284"	RTK	0.04	0.06	8/16/2022 11:09	25
12120	Vegetative Mat	VEGM	3405356.91	1811156.69	37.61	63.31551435	-168.96165064	N 63°18'55.85166"	W 168°57'41.9423"	RTK	0.03	0.06	8/16/2022 11:10	25
12121	Solid Bottom	SOLIDB	3405356.93	1811156.67	36.82	63.31551442	-168.96165070	N 63°18'55.85191"	W 168°57'41.94252"	RTK	0.03	0.05	8/16/2022 11:10	25
12122	Sediment Top	SEDT	3405356.66	1811160.18	39.27	63.31551351	-168.96162940	N 63°18'55.84863"	W 168°57'41.86583"	RTK	0.08	0.06	8/16/2022 11:10	25
12123	Vegetative Mat	VEGM	3405356.62	1811160.27	39.00	63.31551340	-168.96162890	N 63°18'55.84824"	W 168°57'41.86403"	RTK	0.04	0.06	8/16/2022 11:10	25
12124	Solid Bottom	SOLIDB	3405356.64	1811160.18	36.66	63.31551346	-168.96162940	N 63°18'55.84845"	W 168°57'41.86583"	RTK	0.03	0.05	8/16/2022 11:11	25
12126	Transect	P11-W	3405329.57	1811124.20	39.81	63.31544104	-168.96185085	N 63°18'55.58774"	W 168°57'42.66305"	RTK	0.06	0.06	8/16/2022 11:16	24
12127	Transect	P11-E	3405329.58	1811136.29	39.90	63.31544054	-168.96177737	N 63°18'55.58594"	W 168°57'42.39853"	RTK	0.04	0.06	8/16/2022 11:17	24
12128	Vegetative Mat	VEGM	3405329.43	1811129.20	39.43	63.31544043	-168.96182045	N 63°18'55.58554"	W 168°57'42.55362"	RTK	0.03	0.05	8/16/2022 11:18	24
12130	Transect	P12-E	3405312.39	1811139.19	39.91	63.31539341	-168.96176139	N 63°18'55.41627"	W 168°57'42.341"	RTK	0.03	0.05	8/16/2022 11:21	24
12131	Transect	P12-W	3405312.43	1811123.66	39.97	63.31539421	-168.96185585	N 63°18'55.41915"	W 168°57'42.68106"	RTK	0.03	0.05	8/16/2022 11:23	24
12132	Sediment Top	SEDT	3405312.22	1811125.53	39.31	63.31539354	-168.96184447	N 63°18'55.41674"	W 168°57'42.64009"	RTK	0.05	0.05	8/16/2022 11:23	24
12133	Sediment Bottom	SEDB	3405312.19	1811125.58	38.06	63.31539346	-168.96184419	N 63°18'55.41645"	W 168°57'42.63908"	RTK	0.03	0.05	8/16/2022 11:24	24
12134	Solid Bottom	SOLIDB	3405312.20	1811125.50	37.68	63.31539349	-168.96184465	N 63°18'55.41656"	W 168°57'42.64073"	RTK	0.04	0.06	8/16/2022 11:24	24
12135	Sediment Top	SEDT	3405312.77	1811130.54	38.98	63.31539481	-168.96181396	N 63°18'55.42131"	W 168°57'42.53025"	RTK	0.03	0.05	8/16/2022 11:25	23
12136	Sediment Bottom	SEDB	3405312.76	1811130.56	36.94	63.31539480	-168.96181383	N 63°18'55.42127"	W 168°57'42.52978"	RTK	0.03	0.05	8/16/2022 11:25	23
12137	Solid Bottom	SOLIDB	3405312.77	1811130.57	36.65	63.31539482	-168.96181376	N 63°18'55.42135"	W 168°57'42.52953"	RTK	0.03	0.05	8/16/2022 11:26	23
12139	Sediment Top	SEDT	3405312.62	1811134.24	39.09	63.31539424	-168.96179150	N 63°18'55.41926"	W 168°57'42.4494"	RTK	0.03	0.05	8/16/2022 11:27	23
12140	Sediment Bottom	SEDB	3405312.74	1811134.22	37.16	63.31539458	-168.96179159	N 63°18'55.42048"	W 168°57'42.44972"	RTK	0.03	0.05	8/16/2022 11:27	23
12141	Solid Bottom	SOLIDB	3405312.72	1811134.24	36.79	63.31539451	-168.96179148	N 63°18'55.42023"	W 168°57'42.44932"	RTK	0.03	0.05	8/16/2022 11:27	24
12142	Transect	P13-E	3405128.75	1811095.57	42.62	63.31489322	-168.96204470	N 63°18'53.61559"	W 168°57'43.36092"	RTK	0.03	0.05	8/16/2022 11:31	26
12143	Transect	P13-W	3405128.58	1811085.23	42.62	63.31489320	-168.96210761	N 63°18'53.61552"	W 168°57'43.58739"	RTK	0.03	0.05	8/16/2022 11:32	26
12144	Transect	P14-W	3405105.87	1811089.51	42.68	63.31483092	-168.96208379	N 63°18'53.39131"	W 168°57'43.50164"	RTK	0.03	0.04	8/16/2022 11:41	28
12145	Transect	P14-E	3405105.91	1811102.42	42.73	63.31483044	-168.96200527	N 63°18'53.38958"	W 168°57'43.21897"	RTK	0.04	0.05	8/16/2022 11:42	28
12148	Transect	P15-E	3405100.12	1811104.58	42.63	63.31481452	-168.96199271	N 63°18'53.33227"	W 168°57'43.17375"	RTK	0.04	0.05	8/16/2022 11:50	28
12149	Transect	P15-W	3405099.97	1811088.17	42.70	63.31481485	-168.96209254	N 63°18'53.33345"	W 168°57'43.53314"	RTK	0.03	0.04	8/16/2022 11:51	28
12152	Transect	P16-E	3405082.39	1811105.24	42.67	63.31476602	-168.96199047	N 63°18'53.15767"	W 168°57'43.16569"	RTK	0.06	0.10	8/16/2022 13:22	23
12153	Transect	P16-W	3405082.26	1811065.85	42.66	63.31476741	-168.96222997	N 63°18'53.16267"	W 168°57'44.02789"	RTK	0.05	0.08	8/16/2022 13:24	24
12156	Transect	P17-E	3405064.41	1811094.27	42.63	63.31471734	-168.96205892	N 63°18'52.98242"	W 168°57'43.41211"	RTK	0.08	0.13	8/16/2022 13:34	25
12157	Transect	P17-W	3405064.41	1811069.87	42.57	63.31471842	-168.96220730	N 63°18'52.98631"	W 168°57'43.94627"	RTK	0.08	0.13	8/16/2022 13:36	25
12159	Transect	P18-W	3405005.37	1811060.21	43.97	63.31455743	-168.96227185	N 63°18'52.40674"	W 168°57'44.17866"	RTK	0.08	0.14	8/16/2022 13:40	24
12160	Transect	P18-E	3405005.23	1811074.23	43.91	63.31455641	-168.96218663	N 63°18'52.40307"	W 168°57'43.87186"	RTK	0.08	0.14	8/16/2022 13:41	23
12161	Transect	P19-W	3404985.83	1811038.70	43.95	63.31450495	-168.96240458	N 63°18'52.21781"	W 168°57'44.65648"	RTK	0.09	0.14	8/16/2022 13:43	23
12162	Transect	P19-E	3404985.81	1811060.71	43.99	63.31450391	-168.96227070	N 63°18'52.21407"	W 168°57'44.17452"	RTK	0.08	0.15	8/16/2022 13:45	23
12164	Transect	P20-W	3404959.64	1811026.86	43.86	63.31443386	-168.96247911	N 63°18'51.96189"	W 168°57'44.92479"	RTK	0.08	0.14	8/16/2022 13:47	23
12165	Transect	P20-E	3404959.67	1811057.79	43.85	63.31443256	-168.96229107	N 63°18'51.95721"	W 168°57'44.24785"	RTK	0.08	0.14	8/16/2022 13:49	23
12167	Transect	P21-E	3404924.46	1811060.74	43.84	63.31433617	-168.96227660	N 63°18'51.61021"	W 168°57'44.19575"	RTK	0.09	0.16	8/16/2022 13:51	23
12168	Transect	P21-W	3404924.44	1811055.25	43.85	63.31433635	-168.96230993	N 63°18'51.61085"	W 168°57'44.31574"	RTK	0.09	0.15	8/16/2022 13:52	23
12170	Transect	P22-E	3404911.58	1811037.58	43.68	63.31430197	-168.96241868	N 63°18'51.48709"	W 168°57'44.70724"	RTK	0.10	0.16	8/16/2022 13:55	22
12171	Transect	P22-W	3404911.62	1810990.39	43.81	63.31430418	-168.96270558	N 63°18'51.49504"	W 168°57'45.74008"	RTK	0.09	0.15	8/16/2022 13:57	23
12173	Transect	P23-W	3404883.00	1811004.09	43.70	63.31422532	-168.96262507	N 63°18'51.21115"	W 168°57'45.45025"	RTK	0.10	0.16	8/16/2022 14:06	22
12174	Transect	P23-E	3404883.02	1811024.41	43.73	63.31422446	-168.96250152	N 63°18'51.20805"	W 168°57'45.00547"	RTK	0.13	0.20	8/16/2022 14:08	23
12176	Transect	P24-E	3404863.28	1811019.40	43.77	63.31417072	-168.96253397	N 63°18'51.01459"	W 168°57'45.12229"	RTK	0.10	0.17	8/16/2022 14:12	22
12177	Transect	P24-W	3404863.33	1811002.70	43.83	63.31417159	-168.96263547	N 63°18'51.01772"	W 168°57'45.48769"	RTK	0.11	0.17	8/16/2022 14:15	23
12179	Transect	P25-E	3404847.34	1811021.78	43.79	63.31412701	-168.96252102	N 63°18'50.85723"	W 168°57'45.07567"	RTK	0.10	0.17	8/16/2022 14:19	23
12180	Transect	P25-W	3404847.40	1811008.71	43.74	63.31412775	-168.96260053	N 63°18'50.85989"	W 168°57'45.3619"	RTK	0.10	0.16	8/16/2022 14:20	23
12181	Transect	P26-W	3404816.04	1811011.51	44.35	63.31404188	-168.96258656	N 63°18'50.55076"	W 168°57'45.31161"	RTK	0.10	0.17	8/16/2022 14:21	23
12182	Transect	P26-E	3404816.03	1811021.68	44.20	63.31404142	-168.96252473	N 63°18'50.54911"	W 168°57'45.08902"	RTK	0.10	0.16	8/16/2022 14:22	24
12184	Transect	P27-E	3404788.14	1810999.27	44.84	63.31396615	-168.96266374	N 63°18'50.27813"	W 168°57'45.58946"	RTK	0.10	0.16	8/16/2022 14:24	24
12185	Transect	P27-W	3404788.16	1810998.10	44.94	63.31396626	-168.96267088	N 63°18'50.27853"	W 168°57'45.61516"	RTK	0.10	0.16	8/16/2022 14:24	24
12186	Transect	P28-E	3404772.45	1810985.10	45.70	63.31392387	-168.96275143	N 63°18'50.12593"	W 168°57'45.90514"	RTK	0.10	0.17	8/16/2022 14:25	24
12187	Transect	P28-W	3404772.48	1810975.02	45.78	63.31392441	-168.96281272	N 63°18'50.12787"	W 168°57'46.12579"	RTK	0.10	0.17	8/16/2022 14:26	24
12189	Transect	P29-E	3404757.75	1810971.50	45.85	63.31388428	-168.96283559	N 63°18'49.9834"	W 168°57'46.20812"	RTK	0.10	0.17	8/16/2022 14:28	23

12190	Transect	P29-W	3404757.76	1810965.19	45.89	63.31388458	-168.96287391	N 63°18'49.98448"	W 168°57'46.34607"	RTK	0.10	0.17	8/16/2022 14:28	23
12191	Transect	P30-E	3404734.73	1810964.74	46.32	63.31382164	-168.96287891	N 63°18'49.7579"	W 168°57'46.36407"	RTK	0.10	0.17	8/16/2022 14:29	22
12192	Transect	P30-W	3404734.80	1810952.01	46.30	63.31382238	-168.96295633	N 63°18'49.76056"	W 168°57'46.64278"	RTK	0.10	0.16	8/16/2022 14:32	23
12194	Transect	P31-W	3404712.26	1810970.51	47.22	63.31375995	-168.96284608	N 63°18'49.53581"	W 168°57'46.24588"	RTK	0.10	0.18	8/16/2022 14:36	23
12195	Transect	P31-E	3404712.22	1810976.42	47.35	63.31375956	-168.96281011	N 63°18'49.53441"	W 168°57'46.11639"	RTK	0.10	0.18	8/16/2022 14:37	24
12196	Transect	P32-E	3404706.50	1810950.92	47.60	63.31374506	-168.96296577	N 63°18'49.48221"	W 168°57'46.67677"	RTK	0.09	0.16	8/16/2022 14:38	24
12197	Transect	P32-E	3404706.51	1810948.22	47.58	63.31374519	-168.96298215	N 63°18'49.48268"	W 168°57'46.73573"	RTK	0.09	0.16	8/16/2022 14:39	24
12199	Transect	P33-W	3404688.67	1810974.27	49.11	63.31369526	-168.96282550	N 63°18'49.30293"	W 168°57'46.1718"	RTK	0.10	0.16	8/16/2022 14:42	23
12200	Transect	P33-W	3404688.65	1810978.34	48.87	63.31369504	-168.96280078	N 63°18'49.30214"	W 168°57'46.0828"	RTK	0.10	0.17	8/16/2022 14:42	23
12202	Transect	P34-E	3404673.59	1810966.26	49.69	63.31365439	-168.96287573	N 63°18'49.1558"	W 168°57'46.35262"	RTK	0.11	0.17	8/16/2022 14:44	23
12203	Transect	P34-W	3404673.62	1810964.06	49.64	63.31365456	-168.96288909	N 63°18'49.15641"	W 168°57'46.40072"	RTK	0.11	0.18	8/16/2022 14:44	23
12205	Transect	P35-W	3404653.00	1810964.04	50.96	63.31359819	-168.96289125	N 63°18'48.95348"	W 168°57'46.4085"	RTK	0.10	0.18	8/16/2022 14:47	24
12206	Transect	P35-E	3404652.99	1810967.02	50.97	63.31359803	-168.96287309	N 63°18'48.9529"	W 168°57'46.34312"	RTK	0.10	0.18	8/16/2022 14:49	24
12208	Transect	P36-E	3404632.75	1810953.28	51.51	63.31354331	-168.96295863	N 63°18'48.75591"	W 168°57'46.65106"	RTK	0.10	0.18	8/16/2022 14:51	24
12209	Transect	P36-W	3404632.75	1810950.09	51.54	63.31354346	-168.96297806	N 63°18'48.75645"	W 168°57'46.72101"	RTK	0.10	0.18	8/16/2022 14:51	24
12211	Transect	P37-E	3404618.75	1810953.75	51.83	63.31350500	-168.96295715	N 63°18'48.61799"	W 168°57'46.64573"	RTK	0.10	0.18	8/16/2022 14:54	24
12212	Transect	P37-W	3404618.75	1810951.74	51.86	63.31350510	-168.96296940	N 63°18'48.61836"	W 168°57'46.68983"	RTK	0.10	0.18	8/16/2022 14:54	24
12213	Transect	P38-W	3404602.79	1810939.89	52.44	63.31346197	-168.96304300	N 63°18'48.46309"	W 168°57'46.95479"	RTK	0.10	0.19	8/16/2022 14:55	23
12214	Transect	P38-E	3404602.86	1810946.95	52.44	63.31346184	-168.96300006	N 63°18'48.46262"	W 168°57'46.80021"	RTK	0.10	0.19	8/16/2022 14:56	23
12216	Transect	P39-W	3404584.20	1810927.80	53.35	63.31341167	-168.96311832	N 63°18'48.28201"	W 168°57'47.22595"	RTK	0.11	0.20	8/16/2022 14:58	23
12217	Transect	P39-E	3404584.22	1810934.65	53.25	63.31341142	-168.96307671	N 63°18'48.28111"	W 168°57'47.07615"	RTK	0.11	0.20	8/16/2022 14:59	23
12219	Transect	P40-W	3404583.47	1810941.74	53.98	63.31340907	-168.96303363	N 63°18'48.27265"	W 168°57'46.92106"	RTK	0.11	0.21	8/16/2022 15:01	24
12220	Transect	P40-E	3404583.46	1810949.34	54.17	63.31340870	-168.96298742	N 63°18'48.27131"	W 168°57'46.75471"	RTK	0.11	0.21	8/16/2022 15:02	24
12222	Transect	P41-W	3404567.78	1810937.07	54.34	63.31336636	-168.96306359	N 63°18'48.11889"	W 168°57'47.02892"	RTK	0.10	0.21	8/16/2022 15:04	23
12223	Transect	P41-E	3404567.78	1810940.73	54.35	63.31336620	-168.96304132	N 63°18'48.11831"	W 168°57'46.94875"	RTK	0.11	0.22	8/16/2022 15:05	23
12225	Transect	P51-W	3404376.35	1811080.67	57.05	63.31283658	-168.96220934	N 63°18'46.21168"	W 168°57'43.95362"	RTK	0.10	0.24	8/16/2022 15:16	22
12226	Transect	P51-E	3404375.79	1811125.55	56.96	63.31283309	-168.96193651	N 63°18'46.19912"	W 168°57'42.97143"	RTK	0.10	0.25	8/16/2022 15:18	22
12227	Transect	P50-N	3404406.52	1811105.06	56.69	63.31291802	-168.96205811	N 63°18'46.50487"	W 168°57'43.40919"	RTK	0.06	0.14	8/16/2022 15:19	22
12228	Transect	P50-S	3404360.80	1811105.13	57.13	63.31279300	-168.96206218	N 63°18'46.05479"	W 168°57'43.42384"	RTK	0.07	0.15	8/16/2022 15:20	23
12231	Transect	P48-N	3404325.54	1811184.85	58.15	63.31269305	-168.96158092	N 63°18'45.69498"	W 168°57'41.69131"	RTK	0.07	0.17	8/16/2022 15:25	22
12232	Transect	P48-S	3404264.39	1811184.84	58.18	63.31252585	-168.96158706	N 63°18'45.09306"	W 168°57'41.71341"	RTK	0.07	0.17	8/16/2022 15:25	21
12233	Transect	P49-E	3404293.76	1811196.19	58.11	63.31260567	-168.96151516	N 63°18'45.38041"	W 168°57'41.45457"	RTK	0.07	0.18	8/16/2022 15:27	21
12234	Transect	P49-W	3404294.05	1811145.39	58.02	63.31260871	-168.96182397	N 63°18'45.39135"	W 168°57'42.56629"	RTK	0.07	0.17	8/16/2022 15:29	21
12235	Vegetative Mat	VEGM	3404294.03	1811145.55	57.49	63.31260863	-168.96182299	N 63°18'45.39106"	W 168°57'42.56276"	RTK	0.07	0.19	8/16/2022 15:31	21
12236	Solid Bottom	SOLIDB	3404294.06	1811145.47	56.28	63.31260872	-168.96182345	N 63°18'45.39139"	W 168°57'42.56441"	RTK	0.08	0.19	8/16/2022 15:32	21
12237	Vegetative Mat	VEGM	3404294.23	1811155.50	57.85	63.31260875	-168.96176245	N 63°18'45.3915"	W 168°57'42.34482"	RTK	0.08	0.20	8/16/2022 15:33	21
12238	Solid Bottom	SOLIDB	3404294.19	1811155.53	55.56	63.31260863	-168.96176232	N 63°18'45.39106"	W 168°57'42.34435"	RTK	0.08	0.20	8/16/2022 15:33	21
12239	Vegetative Mat	VEGM	3404293.96	1811165.58	56.61	63.31260756	-168.96170122	N 63°18'45.38721"	W 168°57'42.12439"	RTK	0.09	0.21	8/16/2022 15:34	21
12240	Solid Bottom	SOLIDB	3404293.98	1811165.55	55.26	63.31260762	-168.96170139	N 63°18'45.38743"	W 168°57'42.125"	RTK	0.08	0.21	8/16/2022 15:34	21
12241	Vegetative Mat	VEGM	3404293.94	1811175.47	55.96	63.31260706	-168.96164106	N 63°18'45.38541"	W 168°57'41.90781"	RTK	0.08	0.21	8/16/2022 15:36	21
12242	Solid Bottom	SOLIDB	3404294.01	1811175.46	54.86	63.31260726	-168.96164112	N 63°18'45.38613"	W 168°57'41.90803"	RTK	0.08	0.21	8/16/2022 15:36	21
12243	Vegetative Mat	VEGM	3404293.91	1811185.33	56.22	63.31260655	-168.96158117	N 63°18'45.38357"	W 168°57'41.69221"	RTK	0.09	0.22	8/16/2022 15:37	21
12244	Solid Bottom	SOLIDB	3404293.96	1811185.30	55.20	63.31260669	-168.96158135	N 63°18'45.38408"	W 168°57'41.69285"	RTK	0.09	0.22	8/16/2022 15:38	21
12245	Vegetative Mat	VEGM	3404293.85	1811194.79	57.81	63.31260596	-168.96152365	N 63°18'45.38145"	W 168°57'41.48514"	RTK	0.09	0.22	8/16/2022 15:39	20
12246	Solid Bottom	SOLIDB	3404293.87	1811194.76	56.63	63.31260604	-168.96152381	N 63°18'45.38174"	W 168°57'41.48571"	RTK	0.09	0.23	8/16/2022 15:40	20
12248	Solid Bottom	SOLIDB	3404325.21	1811184.94	57.50	63.31269215	-168.96158046	N 63°18'45.69173"	W 168°57'41.68965"	RTK	0.09	0.23	8/16/2022 15:44	20
12249	Solid Bottom	SOLIDB	3404315.56	1811184.87	56.96	63.31266578	-168.96158178	N 63°18'45.5968"	W 168°57'41.6944"	RTK	0.09	0.23	8/16/2022 15:45	21
12250	Vegetative Mat	VEGM	3404315.49	1811184.86	57.88	63.31266558	-168.96158189	N 63°18'45.59608"	W 168°57'41.6948"	RTK	0.09	0.23	8/16/2022 15:45	21
12251	Vegetative Mat	VEGM	3404305.59	1811184.85	57.04	63.31263850	-168.96158293	N 63°18'45.49859"	W 168°57'41.69854"	RTK	0.09	0.22	8/16/2022 15:46	21
12252	Solid Bottom	SOLIDB	3404305.63	1811184.89	55.77	63.31263862	-168.96158269	N 63°18'45.49903"	W 168°57'41.69768"	RTK	0.08	0.21	8/16/2022 15:46	21
12253	Solid Bottom	SOLIDB	3404295.60	1811184.91	55.42	63.31261120	-168.96158355	N 63°18'45.40031"	W 168°57'41.70078"	RTK	0.08	0.21	8/16/2022 15:46	21
12254	Vegetative Mat	VEGM	3404295.60	1811184.90	55.95	63.31261119	-168.96158361	N 63°18'45.40028"	W 168°57'41.70099"	RTK	0.09	0.21	8/16/2022 15:47	21
12255	Vegetative Mat	VEGM	3404285.63	1811184.83	56.24	63.31258394	-168.96158498	N 63°18'45.30218"	W 168°57'41.70592"	RTK	0.08	0.21	8/16/2022 15:47	21
12256	Solid Bottom	SOLIDB	3404285.67	1811184.84	55.39	63.31258404	-168.96158491	N 63°18'45.30254"	W 168°57'41.70567"	RTK	0.08	0.21	8/16/2022 15:48	21
12257	Vegetative Mat	VEGM	3404275.60	1811184.76	57.66	63.31255651	-168.96158640	N 63°18'45.20343"	W 168°57'41.71103"	RTK	0.09	0.21	8/16/2022 15:48	21
12258	Solid Bottom	SOLIDB	3404275.56	1811184.79	55.49	63.31255640	-168.96158622	N 63°18'45.20303"	W 168°57'41.71039"	RTK	0.09	0.21	8/16/2022 15:48	21

12259	Solid Bottom	SOLIDB	3404266.25	1811184.96	56.67	63.31253094	-168.96158609	N 63°18'45.11138"	W 168°57'41.70992"	RTK	0.09	0.21	8/16/2022 15:49	21
12260	Vegetative Mat	VEGM	3404266.22	1811184.82	57.87	63.31253085	-168.96158694	N 63°18'45.11106"	W 168°57'41.71298"	RTK	0.09	0.22	8/16/2022 15:49	21
12264	Transect	P42-S	3404118.94	1811078.13	60.31	63.31213287	-168.96225011	N 63°18'43.67833"	W 168°57'44.10039"	RTK	0.09	0.19	8/16/2022 16:07	22
12265	Transect	P43-E	3404145.08	1811104.25	60.37	63.31220320	-168.96208871	N 63°18'43.93151"	W 168°57'43.51935"	RTK	0.09	0.19	8/16/2022 16:08	22
12266	Transect	P42-N	3404167.26	1811078.21	60.36	63.31226500	-168.96224484	N 63°18'44.15399"	W 168°57'44.08142"	RTK	0.09	0.18	8/16/2022 16:09	22
12267	Transect	P43-W	3404145.33	1811051.82	60.40	63.31220620	-168.96240748	N 63°18'43.94231"	W 168°57'44.66692"	RTK	0.09	0.18	8/16/2022 16:10	22
12274	Transect	P42E-E	3404084.85	1810878.30	61.11	63.31204850	-168.96346839	N 63°18'43.3746"	W 168°57'48.4862"	RTK	0.08	0.12	8/16/2022 16:18	23
12275	Transect	P42E-N	3404091.59	1810869.26	61.07	63.31206732	-168.96352268	N 63°18'43.44235"	W 168°57'48.68164"	RTK	0.07	0.11	8/16/2022 16:18	23
12276	Transect	P42E-W	3404085.03	1810868.48	61.10	63.31204944	-168.96352806	N 63°18'43.37798"	W 168°57'48.70101"	RTK	0.06	0.11	8/16/2022 16:19	23
12277	Transect	P42E-S	3404073.98	1810869.36	61.12	63.31201918	-168.96352382	N 63°18'43.26904"	W 168°57'48.68575"	RTK	0.06	0.11	8/16/2022 16:20	23
12280	Transect	P44-S	3404179.84	1810741.16	61.38	63.31231429	-168.96429281	N 63°18'44.33144"	W 168°57'51.45411"	RTK	0.05	0.10	8/16/2022 16:24	23
12281	Transect	P43-E	3404194.73	1810749.32	61.30	63.31235465	-168.96424171	N 63°18'44.47674"	W 168°57'51.27015"	RTK	0.06	0.10	8/16/2022 16:24	22
12282	Transect	P44-N	3404219.18	1810741.58	61.29	63.31242183	-168.96428639	N 63°18'44.71858"	W 168°57'51.431"	RTK	0.06	0.10	8/16/2022 16:25	22
12283	Transect	P43-W	3404195.09	1810731.92	61.30	63.31235640	-168.96434750	N 63°18'44.48303"	W 168°57'51.651"	RTK	0.05	0.10	8/16/2022 16:25	23
12288	Transect	P46-N	3404344.76	1810888.53	57.62	63.31275873	-168.96338064	N 63°18'45.93142"	W 168°57'48.1703"	RTK	0.05	0.09	8/16/2022 16:49	22
12289	Transect	P47-W	3404323.91	1810876.08	57.69	63.31270226	-168.96345837	N 63°18'45.72813"	W 168°57'48.45013"	RTK	0.05	0.09	8/16/2022 16:51	22
12290	Transect	P46-S	3404306.09	1810888.48	57.60	63.31265300	-168.96338472	N 63°18'45.55079"	W 168°57'48.18499"	RTK	0.05	0.09	8/16/2022 16:55	23
12291	Transect	P47-E	3404323.90	1810918.19	57.62	63.31270038	-168.96320236	N 63°18'45.72136"	W 168°57'47.52849"	RTK	0.05	0.09	8/16/2022 16:56	24
12313	Transect	P46S-N	3404246.62	1810920.97	59.47	63.31248894	-168.96319304	N 63°18'44.96018"	W 168°57'47.49494"	RTK	0.04	0.05	8/16/2022 17:06	24
12314	Transect	P46S-W	3404238.11	1810915.14	59.54	63.31246594	-168.96322935	N 63°18'44.87738"	W 168°57'47.62566"	RTK	0.03	0.06	8/16/2022 17:07	24
12315	Transect	P46S-S	3404221.94	1810920.97	59.58	63.31242145	-168.96319544	N 63°18'44.71722"	W 168°57'47.50358"	RTK	0.03	0.06	8/16/2022 17:08	23
12316	Transect	P46S-E	3404238.22	1810963.57	59.55	63.31246408	-168.96293490	N 63°18'44.87068"	W 168°57'46.56563"	RTK	0.03	0.06	8/16/2022 17:09	22
12317	Vegetative Mat	VEGM	3404238.21	1810963.25	59.04	63.31246407	-168.96293682	N 63°18'44.87065"	W 168°57'46.57255"	RTK	0.03	0.06	8/16/2022 17:10	23
12318	Solid Bottom	SOLIDB	3404238.25	1810963.27	57.64	63.31246420	-168.96293668	N 63°18'44.87112"	W 168°57'46.57204"	RTK	0.03	0.06	8/16/2022 17:11	23
12319	Vegetative Mat	VEGM	3404237.94	1810953.51	58.25	63.31246376	-168.96299604	N 63°18'44.86953"	W 168°57'46.78574"	RTK	0.04	0.06	8/16/2022 17:18	23
12320	Solid Bottom	SOLIDB	3404238.06	1810953.56	57.23	63.31246411	-168.96299576	N 63°18'44.87079"	W 168°57'46.78473"	RTK	0.04	0.06	8/16/2022 17:18	23
12321	Vegetative Mat	VEGM	3404238.23	1810943.59	58.07	63.31246501	-168.96305632	N 63°18'44.87403"	W 168°57'47.00275"	RTK	0.04	0.06	8/16/2022 17:19	23
12322	Solid Bottom	SOLIDB	3404238.24	1810943.55	56.92	63.31246504	-168.96305662	N 63°18'44.87414"	W 168°57'47.00383"	RTK	0.04	0.06	8/16/2022 17:19	23
12323	Vegetative Mat	VEGM	3404238.15	1810933.68	58.23	63.31246522	-168.96311659	N 63°18'44.87479"	W 168°57'47.21972"	RTK	0.04	0.06	8/16/2022 17:19	23
12324	Solid Bottom	SOLIDB	3404238.14	1810933.63	56.82	63.31246521	-168.96311689	N 63°18'44.87475"	W 168°57'47.2208"	RTK	0.03	0.06	8/16/2022 17:20	23
12325	Vegetative Mat	VEGM	3404238.24	1810923.82	57.88	63.31246590	-168.96317654	N 63°18'44.87723"	W 168°57'47.43554"	RTK	0.04	0.06	8/16/2022 17:20	23
12326	Solid Bottom	SOLIDB	3404238.19	1810923.80	56.39	63.31246576	-168.96317664	N 63°18'44.87673"	W 168°57'47.4359"	RTK	0.04	0.06	8/16/2022 17:20	23
12327	Vegetative Mat	VEGM	3404238.09	1810917.02	58.45	63.31246579	-168.96321788	N 63°18'44.87684"	W 168°57'47.58436"	RTK	0.04	0.06	8/16/2022 17:21	23
12328	Solid Bottom	SOLIDB	3404238.06	1810917.02	56.73	63.31246570	-168.96321792	N 63°18'44.87651"	W 168°57'47.58451"	RTK	0.04	0.06	8/16/2022 17:21	23
12329	Vegetative Mat	VEGM	3404245.62	1810920.98	59.02	63.31248621	-168.96319308	N 63°18'44.95035"	W 168°57'47.49508"	RTK	0.04	0.06	8/16/2022 17:22	23
12330	Solid Bottom	SOLIDB	3404245.64	1810921.05	57.75	63.31248627	-168.96319263	N 63°18'44.95057"	W 168°57'47.49346"	RTK	0.04	0.06	8/16/2022 17:22	24
12331	Vegetative Mat	VEGM	3404236.74	1810920.96	57.73	63.31246193	-168.96319410	N 63°18'44.86294"	W 168°57'47.49876"	RTK	0.04	0.07	8/16/2022 17:23	23
12332	Solid Bottom	SOLIDB	3404236.72	1810920.92	56.38	63.31246186	-168.96319431	N 63°18'44.86269"	W 168°57'47.49951"	RTK	0.04	0.06	8/16/2022 17:23	23
12333	Vegetative Mat	VEGM	3404226.73	1810921.02	58.83	63.31243457	-168.96319472	N 63°18'44.76445"	W 168°57'47.50099"	RTK	0.04	0.06	8/16/2022 17:24	24
12334	Solid Bottom	SOLIDB	3404226.72	1810921.02	57.14	63.31243454	-168.96319470	N 63°18'44.76434"	W 168°57'47.50092"	RTK	0.04	0.06	8/16/2022 17:24	24

Attachment G-2
Sediment Mapping Transects

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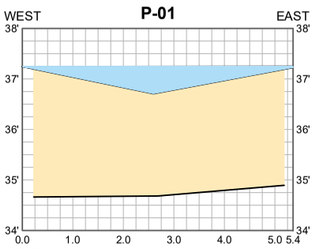
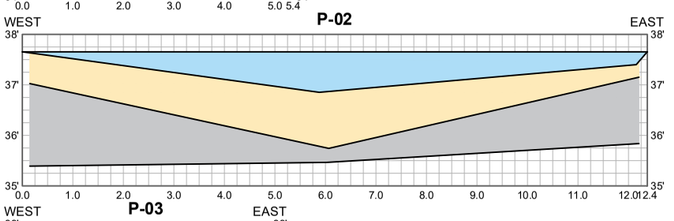
SEDIMENT MAPPING TRANSECTS:

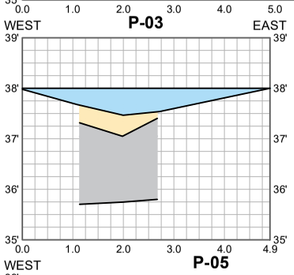
STREAM AREA



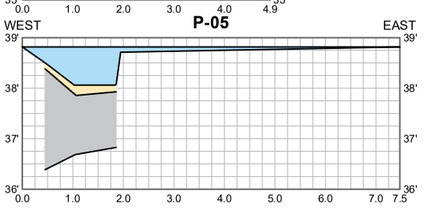
AVERAGE THICKNESS (FT): 2.22'



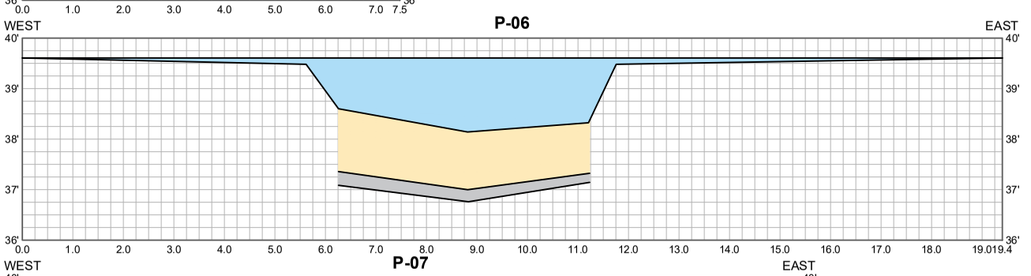
AVERAGE THICKNESS (FT): 0.77'



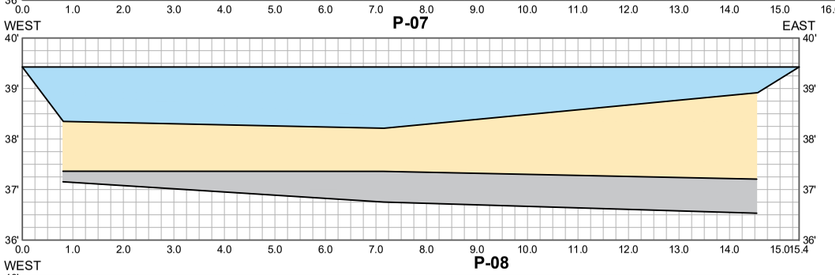
AVERAGE THICKNESS (FT): 0.34'



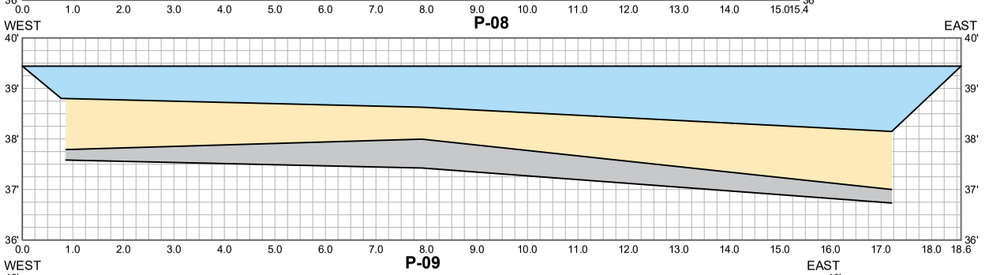
AVERAGE THICKNESS (FT): 0.16'



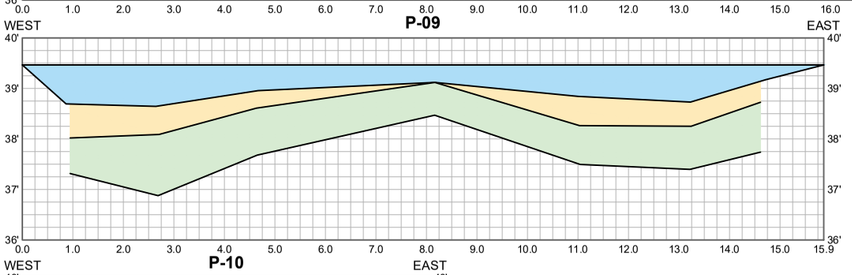
AVERAGE THICKNESS (FT): 1.13'



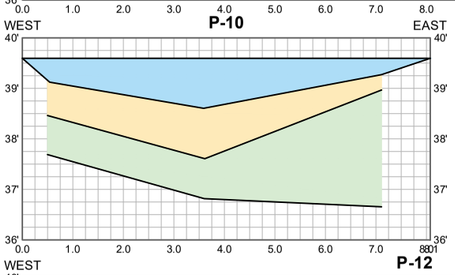
AVERAGE THICKNESS (FT): 1.11'



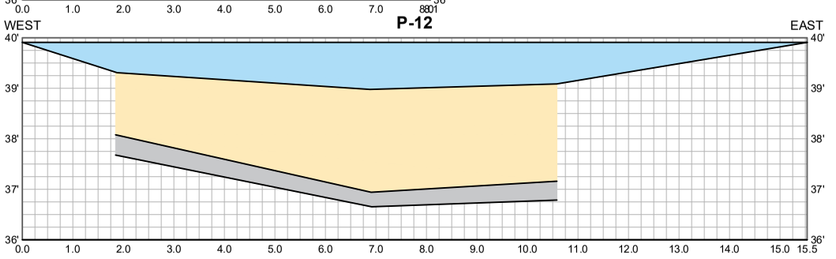
AVERAGE THICKNESS (FT): 0.86'



AVERAGE THICKNESS (FT): 0.38'



AVERAGE THICKNESS (FT): 0.74'



AVERAGE THICKNESS (FT): 1.78'

LEGEND:

SEDIMENT

GRAVEL/ROCK

VEGETATIVE MAT

WATER

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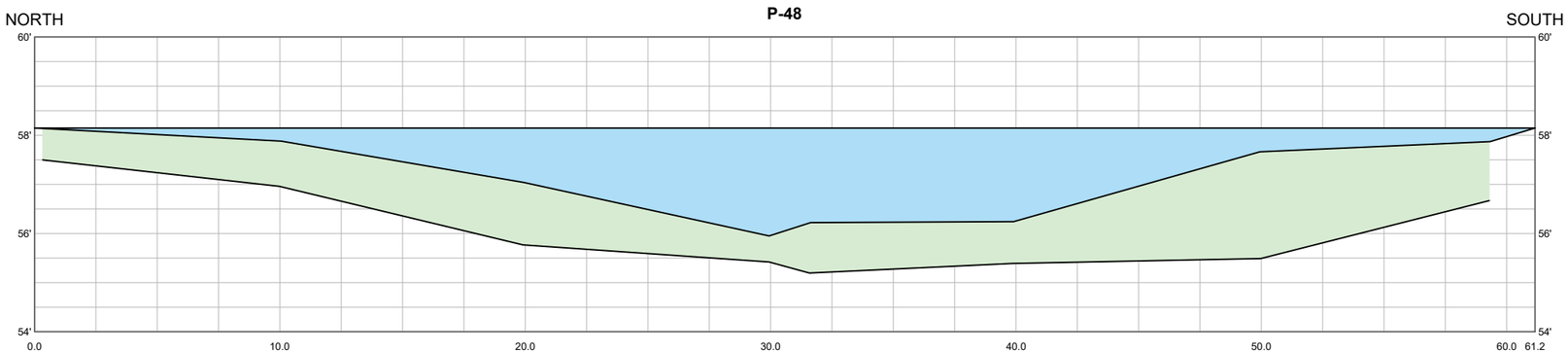
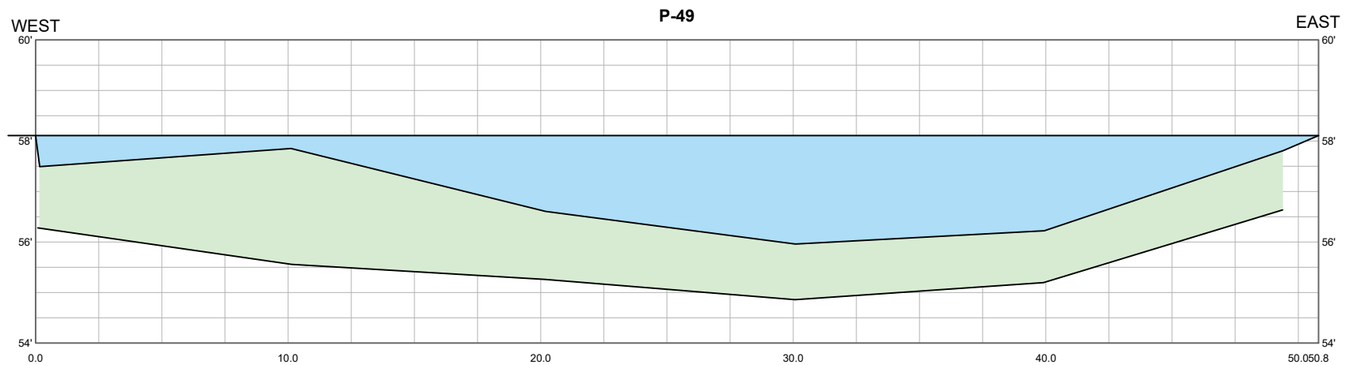
SEDIMENT MAPPING TRANSECTS:

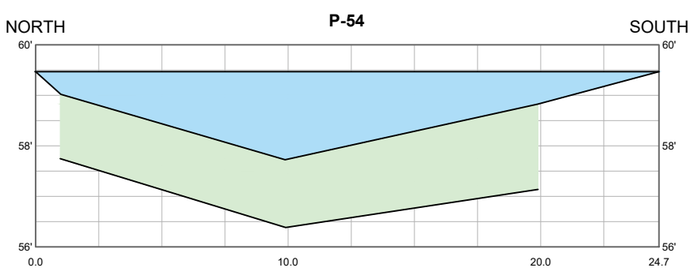
PONDS



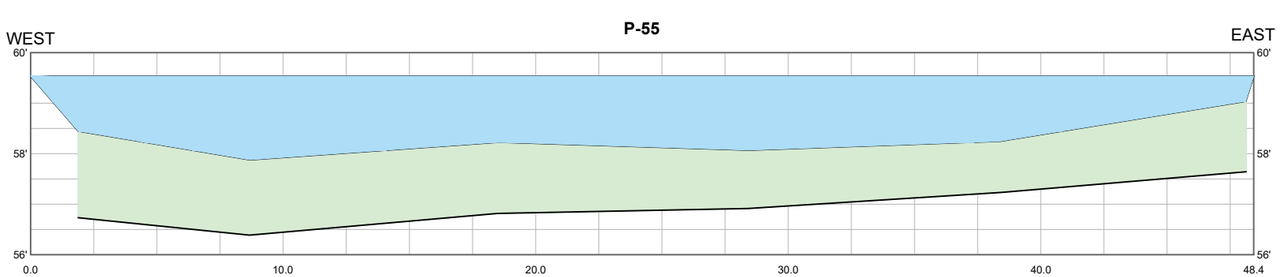
AVERAGE THICKNESS (FT): 0'



AVERAGE THICKNESS (FT): 0'



AVERAGE THICKNESS (FT): 0'



AVERAGE THICKNESS (FT): 0'

LEGEND:

SEDIMENT

GRAVEL/ROCK

VEGETATIVE MAT

WATER

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APPENDIX H
PROGRESS AND QUALITY CONTROL REPORTS

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DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number	UPC/Project Title
W911KB20D0002 / W911KB21F0086	**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**

QC/QA Report Number	Date or Time Period	Location
001	**Tuesday 19 July 2022**	**Northeast Cape, AK**

Weather

Low Temp: 40° F High Temp: 50° F

Wind Speed: 0-15 mph Conditions: Partly overcast, Clear

Subcontractors:

Alaska Minerals

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☒ Pre-Mobilization Site Inspection, Mobilization and Site Setup, Road and Airstrip Repairs

Initial ☐

Follow-up ☐

Field Sampling and Testing **Yes** ☐ **No** ☒

Type of Test	Method/Matrix	Results
NA	NA	NA

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

Laboratory Analytical Sampling **Yes** ☐ **No** ☒

Type of Test	Test Method/Matrix	Quantity of Samples
NA		

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

Notes:

- No samples collected

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☒

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?	**N/A** ☒	**Yes** ☐	**No** ☐
Was a **Job Safety Meeting** held this day? (If yes, attach comments)		**Yes** ☒	**No** ☐
Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report)		**Yes** ☐	**No** ☒
Was **hazardous waste**/materials 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.)

- NA

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Work Activities Performed This Date

Prime

- Brice personnel (5) mobilized to the site on a charter flight.
- Alaska Minerals personnel (6) mobilized to the site on a Brice Marine barge.
- Brice surveyor mobilized to the site on a separate charter flight.
- A charter flight with supplies arrived at the site.
- Held a tailgate safety meeting.
- Performed vehicle and equipment inspections for vehicles and equipment used.
- Brice aided in camp construction and organized supplies.
- Brice set up survey control points.
- Brice performed site orientation for personnel.

Subcontractors

- Alaska Minerals began camp construction.

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	13	Volvo 210 Excavator	Volvo Excavator 1	1
Laborer	1	13	John Deere 380 Excavator	John Deere Excavator 1	1
Surveyor	1	4	Dump Truck	Dump Truck 1	1
Technical Lead/CQC	1	13	John Deere 310e Rock Truck	Rock Truck 1	1
Scientist/Bear Guard	1	12	Morooka Tracked Vehicle	Morooka 1	1
Engineer	1	13	John Deere 650 Dozer	Dozer 1	1
			John Deere 844 Loader	Loader 1	1
			John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	1
			Kawasaki Teryx UTV	Teryx 3	1
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***6***	***68***	***NA***	***NA***	***19***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	0	0	NA	NA	0
Total	***0***	***0***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Laborer	4	12			
Total	***6***	***72***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- All project materials were dropped off at the barge landing on 17 July 2022.

Do the materials comply with the contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Equipment Received to be used on Site:

- All project equipment, listed above, was dropped off at the barge landing on 17 July 2022.

Does the equipment comply with contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☐ **Written** ☒
(Include names, reactions, and remarks.)

- Brice (Scotty Mann) requested via Garmin InReach text to Aaron Shewman, and Monte Garroutte requested via email to Andy Sorum and Aaron Shewman, that the camp be relocated to Site 6 rather than the location proposed in the workplan adjacent to the airstrip. This relocation was requested because of road repairs that would be needed prior to transporting containers to the airstrip to begin construction. Aaron Shewman replied to Scotty Mann via text and to Monte Garroutte via email that the camp relocation was acceptable.

Instructions Given by Contractor to Subcontractors **Verbal** ☒ **Written** ☐
(Include names, reactions, and remarks.

- Discussed camp layout, materials, and schedule with Alaska Minerals' Camp Maintenance.

Scope of Work/Work Plan Variances **Yes** ☒ **No** ☐

- Camp layout was adjusted to the Site 6 location as described above.

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- The poor airstrip condition, road conditions, and bad weather may cause slight delays in the project schedule.

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☒ **No** ☐

- Generators that were supposed to be included in materials delivered were missing from shipment. Also, subcontractor Alaska Minerals identified that a satellite dish and incinerator was missing from the shipment.

Deficiencies Corrected This Day **Yes** ☒ **No** ☐

- Generators, a satellite dish, and an incinerator were sent to via air cargo to Nome for the next charter that is anticipated for 7/22/22.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- NA

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Scotty Mann* **Date** 19 July 2022

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 19 July 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☐ **No** ☐

Additional comments or exceptions:

No QAR on site.

Government Signature _____ **Date**_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☐	
☒	Activity Hazard Analyses	☐	Punchlist	☐	
☒	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☐	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☐		☐	

PREPARATORY PHASE CHECKLIST

(CONTINUED ON SECOND PAGE)

SPEC SECTION	DATE
	7/19/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Pre-Mobilization and Site Inspection	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __0_ HOURS IN ADVANCE: YES ☐ NO ☒

NAME	POSITION	COMPANY/GOVERNMENT
Scotty Mann	Project Manager/QC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering
Greg Filbey	Engineer	Brice Engineering
Timothy Dugenia	Camp Lead	Alaska Minerals

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED? Final Work Plan has been submitted. Discharge permit has been approved.

ARE ALL MATERIALS ON HAND? YES ☐ NO ☒

IF NO, WHAT ITEMS ARE MISSING? Several 2000w and 4000w generators are missing. They will be sent via air cargo on the next available charter flight. Also, the camp incinerator and the Camp internet satellite dish were not packed. They will be sent via air cargo on the next available charter flight.

CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL. (THIS SHOULD BE DONE AS MATERIAL ARRIVES.)

COMMENTS: Materials received matched work plan specifications.

MATERIAL STORAGE

ARE MATERIALS STORED PROPERLY? YES ☒ NO ☐

IF NO, WHAT ACTION IS TAKEN?

SPECIFICATIONS

REVIEW EACH PARAGRAPH OF SPECIFICATIONS. Each paragraph of specification has been reviewed.

DISCUSS PROCEDURE FOR ACCOMPLISHING THE WORK. Procedures to accomplish work have been discussed.

CLARIFY ANY DIFFERENCES/DISCREPANCIES. No discrepancies were identified.

PRELIMINARY WORK & PERMITS

☒ ENSURE PRELIMINARY WORK IS CORRECT AND PERMITS ARE ON FILE.

IF NOT, WHAT ACTION IS TAKEN?

TESTING	IDENTIFY TEST TO BE PERFORMED, FREQUENCY, AND BY WHOM. Tests were discussed. Greg Filbey checked materials against inventory list. Site will be inspected for safe vehicle travel And pedestrian travel. Airstrip will be inspected for safe landing and sufficient airstrip length. WHEN REQUIRED? Inventory, road, and airstrip were inspected upon arrival to the project site. WHERE REQUIRED? Tests will be conducted in the field. REVIEW TESTING PLAN. Testing plan has been reviewed. HAVE TEST FACILITIES BEEN APPROVED? Test facilities are approved.
SAFETY	HAS ACTIVITY HAZARD ANALYSIS BEEN APPROVED? YES ☒ NO ☐ REVIEW APPLICABLE PORTION OF EM 385-1-1. Applicable portion of 385-1-1 has been reviewed.
MEETING COMMENTS	COMMENTS DURING MEETING. Discussed inventory and material expected for site. Discussed expectations for runway condition. Discussed needs for safe road travel.
OTHER ITEMS OR REMARKS	OTHER ITEMS OR REMARKS: None

Scotty Mann — QC MANAGER

7/19/22 — DATE

PREPARATORY PHASE CHECKLIST

(CONTINUED ON SECOND PAGE)

SPEC SECTION	DATE
	7/19/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Mobilization and Site Setup	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __0_ HOURS IN ADVANCE: YES ☐ NO ☒

NAME	POSITION	COMPANY/GOVERNMENT
Scotty Mann	Project Manager/QC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering
Greg Filbey	Engineer	Brice Engineering
Timothy Dugenia	Camp Lead	Alaska Minerals

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED? Final Work Plan has been submitted. Discharge permit has been approved.

ARE ALL MATERIALS ON HAND? YES ☐ NO ☒

IF NO, WHAT ITEMS ARE MISSING? Several 2000w and 4000w generators are missing. They will be sent via air cargo on the next available charter flight. Also, the camp incinerator and the Camp internet satellite dish were not packed. They will be sent via air cargo on the next available charter flight.

CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL. (THIS SHOULD BE DONE AS MATERIAL ARRIVES.)

COMMENTS: Materials received matched work plan specifications.

MATERIAL STORAGE

ARE MATERIALS STORED PROPERLY? YES ☒ NO ☐

IF NO, WHAT ACTION IS TAKEN?

SPECIFICATIONS

REVIEW EACH PARAGRAPH OF SPECIFICATIONS. Each paragraph of specification has been reviewed.

DISCUSS PROCEDURE FOR ACCOMPLISHING THE WORK. Procedures to accomplish work have been discussed.

CLARIFY ANY DIFFERENCES/DISCREPANCIES. No discrepancies were identified.

PRELIMINARY WORK & PERMITS

☒ ENSURE PRELIMINARY WORK IS CORRECT AND PERMITS ARE ON FILE.

IF NOT, WHAT ACTION IS TAKEN?

TESTING	IDENTIFY TEST TO BE PERFORMED, FREQUENCY, AND BY WHOM. Tests were discussed. Greg Filbey checked materials against inventory list.
	WHEN REQUIRED? Inventory was inspected upon arrival to the project site.
	WHERE REQUIRED? Tests will be conducted in the field.
	REVIEW TESTING PLAN. Testing plan has been reviewed.
	HAVE TEST FACILITIES BEEN APPROVED? Test facilities are approved.
SAFETY	HAS ACTIVITY HAZARD ANALYSIS BEEN APPROVED? YES ☒ NO ☐
	REVIEW APPLICABLE PORTION OF EM 385-1-1. Applicable portion of 385-1-1 has been reviewed.
MEETING COMMENTS	COMMENTS DURING MEETING. Discussed inventory and material expected for site. Discussed numbers of consumables, and identified several items that could be sent on the next charter.
OTHER ITEMS OR REMARKS	OTHER ITEMS OR REMARKS: None

Scotty Mann — QC MANAGER

7/19/22 — DATE

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC)
(Use highest code): M

Date: 21 December 2021 Project: NE Cape FUDS

Activity: Mobilization/Demobilization

Activity Location:

Prepared By: Brice Engineering, LLC

Risk Assessment Code Matrix

E = Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

Severity	Probability: Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

Add Identified Hazards

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Unpacking and packing of materials	Cuts, lacerations, pinch points	Wear cut-resistant gloves and cut away from the body	L
X	Site setup	Slips, trips, and falls; back strain/injury	Maintain good housekeeping and keep entrances/exits clear; use proper lifting techniques and use a buddy as needed. Lift boxes and equipment from the legs and keep boxes and equipment close to body during lift.	M

Add Items

	EQUIPMENT	TRAINING	INSPECTION
X			

Involved Personnel:

Acceptance Authority (digital signature): Chad Armintrout 7/19/22

NWW Form 385-1 (Revised) April 2008

PREPARATORY PHASE CHECKLIST

(CONTINUED ON SECOND PAGE)

SPEC SECTION	DATE
	7/19/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Airstrip and Road Repairs	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __0_ HOURS IN ADVANCE: YES ☐ NO ☒

NAME	POSITION	COMPANY/GOVERNMENT
Scotty Mann	Project Manager/QC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering
Greg Filbey	Engineer	Brice Engineering

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED? Final Work Plan has been submitted.

ARE ALL MATERIALS ON HAND? YES ☒ NO ☐

IF NO, WHAT ITEMS ARE MISSING?

CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL. (THIS SHOULD BE DONE AS MATERIAL ARRIVES.)

COMMENTS: Materials received matched work plan specifications.

MATERIAL STORAGE

ARE MATERIALS STORED PROPERLY? YES ☒ NO ☐

IF NO, WHAT ACTION IS TAKEN?

SPECIFICATIONS

REVIEW EACH PARAGRAPH OF SPECIFICATIONS. Each paragraph of specification has been reviewed.

DISCUSS PROCEDURE FOR ACCOMPLISHING THE WORK. Procedures to accomplish work have been discussed.

CLARIFY ANY DIFFERENCES/DISCREPANCIES. No discrepancies were identified.

PRELIMINARY WORK & PERMITS

☒ ENSURE PRELIMINARY WORK IS CORRECT AND PERMITS ARE ON FILE.

IF NOT, WHAT ACTION IS TAKEN?

TESTING	IDENTIFY TEST TO BE PERFORMED, FREQUENCY, AND BY WHOM. Tests were discussed. Site will be inspected for safe vehicle travel and pedestrian travel continuously. Airstrip will be inspected for safe landing and sufficient airstrip length by Bering Air pilots and photographed following repairs. WHEN REQUIRED? Road and airstrip were inspected upon arrival to the project site. Airstrip will be reinspected following completion of repairs. Road will be inspected continuously and prior to Demobilization. WHERE REQUIRED? Tests will be conducted in the field. REVIEW TESTING PLAN. Testing plan has been reviewed. HAVE TEST FACILITIES BEEN APPROVED? Test facilities are approved.
SAFETY	HAS ACTIVITY HAZARD ANALYSIS BEEN APPROVED? YES ☒ NO ☐ REVIEW APPLICABLE PORTION OF EM 385-1-1. Applicable portion of 385-1-1 has been reviewed.
MEETING COMMENTS	COMMENTS DURING MEETING. Discussed expectations for runway condition. Discussed needs for safe road travel.
OTHER ITEMS OR REMARKS	OTHER ITEMS OR REMARKS: None

Scotty Mann — QC MANAGER

7/19/22 — DATE

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
7/19/2022	Northeast Cape	

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Mobilization	Loader, Excavator, Skid Steer	Unknown site conditions, Pinch points, Site traffic	Level D

	Name	Signature	Date	Company
1	Greg Filbey		7/19/2022	Brice Eng
2	A. Platts			
3	Chad Armintrout			Brice ENG
4	Dylan McCoy			
5	Patrick Schick			Brice Eng.
6	Scotty Mann			
7				
8				
9				
10				

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number	UPC/Project Title
W911KB20D0002 / W911KB21F0086	**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**

QC/QA Report Number	Date or Time Period	Location
002	**Wednesday 20 July 2022**	**Northeast Cape, AK**

Weather

Low Temp: 40° F High Temp: 42° F

Wind Speed: 20-30 mph Conditions: Rain

Subcontractors:

Alaska Minerals

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☐

Initial ☒ Pre-Mobilization Site Inspection, Mobilization and Site Setup, Road and Airstrip Repairs

Follow-up ☐

Field Sampling and Testing **Yes** ☐ **No** ☒

Type of Test	Method/Matrix	Results
NA	NA	NA

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

Laboratory Analytical Sampling **Yes** ☐ **No** ☒

Type of Test	Test Method/Matrix	Quantity of Samples
NA		

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

Notes:

- No samples collected

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☒

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?	**N/A** ☒	**Yes** ☐	**No** ☐
Was a **Job Safety Meeting** held this day? (If yes, attach comments)		**Yes** ☒	**No** ☐
Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report)		**Yes** ☐	**No** ☒
Was **hazardous waste**/materials 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.)

- NA

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Work Activities Performed This Date

Prime

- Held a tailgate safety meeting.
- Performed vehicle and equipment inspections for vehicles and equipment used.
- Brice aided in camp construction and organized supplies.
- Brice continued survey marking.
- Brice continued road and airstrip repairs.

Subcontractors

- Alaska Minerals continued camp construction.

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12	Volvo 210 Excavator	Volvo Excavator 1	1
Laborer	1	12	John Deere 380 Excavator	John Deere Excavator 1	1
Surveyor	1	12	Dump Truck	Dump Truck 1	0
Technical Lead/CQC	1	12	John Deere 310e Rock Truck	Rock Truck 1	1
Scientist/Bear Guard	1	12	Morooka Tracked Vehicle	Morooka 1	1
Engineer	1	12	John Deere 650 Dozer	Dozer 1	1
			John Deere 844 Loader	Loader 1	1
			John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	1
			Kawasaki Teryx UTV	Teryx 3	1
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***6***	***72***	***NA***	***NA***	***18***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	0	0	NA	NA	0
Total	***0***	***0***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Laborer	4	12			
Total	***6***	***72***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- No materials were received.

Do the materials comply with the contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Equipment Received to be used on Site:

- No equipment was received.

Does the equipment comply with contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.)

- NA

Instructions Given by Contractor to Subcontractors **Verbal** ☒ **Written** ☐
(Include names, reactions, and remarks.

- Discussed camp layout, materials, and schedule with Alaska Minerals' Camp Maintenance.

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- NA

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- NA

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☒

- NA

Deficiencies Corrected This Day **Yes** ☒ **No** ☐

- Generators, a satellite dish, and an incinerator were sent to via air cargo to Nome for the next charter that is anticipated for 7/22/22.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- NA

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Scotty Mann* **Date** 20 July 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 20 July 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☐ **No** ☐

Additional comments or exceptions:

No QAR on site.

Government Signature _____ **Date**_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☐	
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☒	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☐		☐	

INITIAL PHASE CHECKLIST

SPEC SECTION	DATE
	7/20/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Pre-Mobilization and Site Inspection	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __0 HOURS IN ADVANCE: YES ☐ NO ☒

NAME	POSITION	COMPANY/GOVERNMENT
Scotty Mann	Project Manager/QC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering
Greg Filbey	Engineer	Brice Engineering
Timothy Dugenia	Camp Lead	Alaska Minerals

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Full compliance with procedures is identified. Procedures meet/match specifications, plans, and submittals.

PRELIMINARY WORK

ENSURE PRELIMINARY WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

All preliminary work is complete. Inventory is packaged and present at project site.

WORKMANSHIP

ESTABLISH QUALITY STANDARDS.

WHERE IS WORK LOCATED? Work is located at Northeast Cape, Alaska.

IS SAMPLE PANEL REQUIRED? YES ☐ NO ☒

WILL THE INIITAL WORK BE CONSIDERED AS A SAMPLE? YES ☐ NO ☒

(IF YES, MAINTAIN IN PRESENT CONDITION AS LONG AS POSSIBLE AND DESCRIBE LOCATION OF SAMPLE)

RESOLUTION

RESOLVE ANY DIFFERENCES/DISCREPANCIES.

COMMENTS: A camp incinerator, field generators, and satellite dish were not in delivered supplies. They were ordered and will be sent on the next air charter. Runway needs significant repair for Continued aircraft landing. Road needs significant repairs in several locations.

CHECK SAFETY

REVIEW JOB CONDITIONS USING EM 385-1-1 AND JOB HAZARD ANALYSIS

COMMENTS: Job conditions were reviewed using EM 385-1-1. AHA was reviewed. All job conditions meet safety standards.

OTHER

OTHER ITEMS OR REMARKS

None.

Scotty Mann — QC MANAGER

7/20/22 — DATE

INITIAL PHASE CHECKLIST

SPEC SECTION	DATE
	7/20/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Mobilization and Site Setup	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __0 HOURS IN ADVANCE: YES ☐ NO ☒

NAME	POSITION	COMPANY/GOVERNMENT
Scotty Mann	Project Manager/QC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering
Greg Filbey	Engineer	Brice Engineering
Timothy Dugenia	Camp Lead	Alaska Minerals

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Full compliance with procedures is identified. Procedures meet/match specifications, plans, and submittals.

PRELIMINARY WORK

ENSURE PRELIMINARY WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

All preliminary work is complete. Inventory is packaged and present at project site.

WORKMANSHIP

ESTABLISH QUALITY STANDARDS.

WHERE IS WORK LOCATED? Work is located at Northeast Cape, Alaska.

IS SAMPLE PANEL REQUIRED? YES ☐ NO ☒

WILL THE INIITAL WORK BE CONSIDERED AS A SAMPLE? YES ☐ NO ☒

(IF YES, MAINTAIN IN PRESENT CONDITION AS LONG AS POSSIBLE AND DESCRIBE LOCATION OF SAMPLE)

RESOLUTION

RESOLVE ANY DIFFERENCES/DISCREPANCIES.

COMMENTS: A camp incinerator, field generators, and satellite dish were not in delivered supplies. They were ordered and will be sent on the next air charter.

CHECK SAFETY

REVIEW JOB CONDITIONS USING EM 385-1-1 AND JOB HAZARD ANALYSIS

COMMENTS: Job conditions were reviewed using EM 385-1-1. AHA was reviewed. All job conditions meet safety standards.

OTHER

OTHER ITEMS OR REMARKS

None.

Scotty Mann — QC MANAGER

7/20/22 — DATE

INITIAL PHASE CHECKLIST

SPEC SECTION	DATE
	7/20/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Airstrip and Road Repairs	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __0 HOURS IN ADVANCE: YES ☐ NO ☒

NAME	POSITION	COMPANY/GOVERNMENT
Scotty Mann	Project Manager/QC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering
Greg Filbey	Engineer	Brice Engineering

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Full compliance with procedures is identified. Procedures meet/match specifications, plans, and submittals.

PRELIMINARY WORK

ENSURE PRELIMINARY WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

All preliminary work is complete. Road construction and airstrip repairs can begin.

WORKMANSHIP

ESTABLISH QUALITY STANDARDS.

WHERE IS WORK LOCATED? Work is located at Northeast Cape, Alaska.

IS SAMPLE PANEL REQUIRED? YES ☐ NO ☒

WILL THE INIITAL WORK BE CONSIDERED AS A SAMPLE? YES ☐ NO ☒

(IF YES, MAINTAIN IN PRESENT CONDITION AS LONG AS POSSIBLE AND DESCRIBE LOCATION OF SAMPLE)

RESOLUTION

RESOLVE ANY DIFFERENCES/DISCREPANCIES.

COMMENTS: Airstrip damage may limit the possibility for larger aircraft to land and would require special equipment, material screens, and material that were outside of expected repairs.

Crew will fabricate a dragger to aid in airstrip repairs.

CHECK SAFETY

REVIEW JOB CONDITIONS USING EM 385-1-1 AND JOB HAZARD ANALYSIS

COMMENTS: Job conditions were reviewed using EM 385-1-1. AHA was reviewed. All job conditions meet safety standards.

OTHER

OTHER ITEMS OR REMARKS

None.

Scotty Mann — QC MANAGER

7/20/22 — DATE

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
7/20/2022	Northeast Cape	[illegible]

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Mobilization	Loader, Skid Steer, Excavator,	Site traffic, Slip, trips + falls Strike by machinery	Level D
Camp Setup	Skid Steer, Power tools	Struck by, pinch points, weather.	Level D

	Name	Signature	Date	Company
1	Greg Filbey	[illegible]	7/20/2022	Brice Eng
2	A. Plant			
3	Chad Armintrout	[illegible]		Brice ENV.
4	Dylan McKay	[illegible]		
5	Patrick Schick	[illegible]		Brice Eng.
6	Stanley [illegible]	[illegible]		
7				
8				
9				
10				

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number	UPC/Project Title
W911KB20D0002 / W911KB21F0086	**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**

QC/QA Report Number	Date or Time Period	Location
003	**Thursday 21 July 2022**	**Northeast Cape, AK**

Weather

Low Temp: 35° F High Temp: 40° F

Wind Speed: 20-30 mph Conditions: Rain

Subcontractors:

Alaska Minerals

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☐
Initial ☐
Follow-up ☐

Field Sampling and Testing **Yes** ☐ **No** ☒

Type of Test	Method/Matrix	Results
NA	NA	NA

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

Laboratory Analytical Sampling **Yes** ☐ **No** ☒

Type of Test	Test Method/Matrix	Quantity of Samples
NA		

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

Notes:

- No samples collected

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☒

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?	**N/A** ☒	**Yes** ☐	**No** ☐
Was a **Job Safety Meeting** held this day? (If yes, attach comments)		**Yes** ☒	**No** ☐
Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report)		**Yes** ☐	**No** ☒
Was **hazardous waste**/materials 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.)

- NA

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Work Activities Performed This Date

Prime

- Held a tailgate safety meeting.
- Performed vehicle and equipment inspections for vehicles and equipment used.
- Brice aided in camp construction and organized supplies.
- Brice continued survey marking.
- Brice continued road and airstrip repairs.

Subcontractors

- Alaska Minerals continued camp construction.

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12	Volvo 210 Excavator	Volvo Excavator 1	1
Laborer	1	12	John Deere 380 Excavator	John Deere Excavator 1	1
Surveyor	1	12	Dump Truck	Dump Truck 1	0
Technical Lead/CQC	1	12	John Deere 310e Rock Truck	Rock Truck 1	1
Scientist/Bear Guard	1	12	Morooka Tracked Vehicle	Morooka 1	1
Engineer	1	12	John Deere 650 Dozer	Dozer 1	1
			John Deere 844 Loader	Loader 1	1
			John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	1
			Kawasaki Teryx UTV	Teryx 3	1
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***6***	***72***	***NA***	***NA***	***18***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	0	0	NA	NA	0
Total	***0***	***0***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Laborer	4	12			
Total	***6***	***72***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- No materials were received.

Do the materials comply with the contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Equipment Received to be used on Site:

- No equipment was received.

Does the equipment comply with contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.)

- NA

Instructions Given by Contractor to Subcontractors **Verbal** ☒ **Written** ☐
(Include names, reactions, and remarks.

- Discussed camp layout, materials, and schedule with Alaska Minerals' Camp Maintenance.

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- NA

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- NA

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☒

- NA

Deficiencies Corrected This Day **Yes** ☒ **No** ☐

- Generators, a satellite dish, and an incinerator were sent to via air cargo to Nome for the next charter that is anticipated for 7/22/22.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- NA

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Scotty Mann* **Date** 21 July 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 21 July 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☐ **No** ☐

Additional comments or exceptions:

No QAR on site.

Government Signature _____ **Date**_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☐	
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☐	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☐		☐	

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
7/21/2022	Northeast Cape	

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Mobilization	Loader, Skid Steer, Excavator	Slip trips falls, Struck by, traffic, weather, pinch points	Level D
Runway Repair	Loader, Chain, Chain binder, Dozer	Struck by, Chains under tension, traffic	Level D
Camp Setup	Skid Steer, Power tools, hand tools	Slips, trips, + falls. Pinch Points, weather	Level D
Equipment Fueling	Fuel Pump/Tank, Loader excavator, truck, Side by side	Fuel exposure, spills	Level D

	Name	Signature	Date	Company
1	Greg Filbey		7/21/2022	Brice Eng
2	A Plant			
3	Chad Armistrong			Brice ENV.
4	DYLAN HACKEY			
5	Patrick Schick			Brice Eng.
6	Scotty Sam			
7				
8				
9				
10				

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DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number	UPC/Project Title
W911KB20D0002 / W911KB21F0086	**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**

QC/QA Report Number	Date or Time Period	Location
004	**Friday 22 July 2022**	**Northeast Cape, AK**

Weather

Low Temp: 40° F High Temp: 48° F

Wind Speed: 15-25 mph Conditions: Rain

Subcontractors:

Alaska Minerals

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☐
Initial ☐
Follow-up ☐

Field Sampling and Testing **Yes** ☐ **No** ☒

Type of Test	Method/Matrix	Results
NA	NA	NA

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

Laboratory Analytical Sampling **Yes** ☐ **No** ☒

Type of Test	Test Method/Matrix	Quantity of Samples
NA		

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

Notes:

- No samples collected

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☒

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?	**N/A** ☒	**Yes** ☐	**No** ☐
Was a **Job Safety Meeting** held this day? (If yes, attach comments)		**Yes** ☒	**No** ☐
Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report)		**Yes** ☐	**No** ☒
Was **hazardous waste**/materials 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.)

- NA

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Work Activities Performed This Date

Prime

- Held a tailgate safety meeting.
- Performed vehicle and equipment inspections for vehicles and equipment used.
- Brice aided in camp construction and organized supplies.
- Brice continued survey marking.
- Brice continued road and airstrip repairs.

Subcontractors

- Alaska Minerals continued camp construction.

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12	Volvo 210 Excavator	Volvo Excavator 1	1
Laborer	1	12	John Deere 380 Excavator	John Deere Excavator 1	1
Surveyor	1	12	Dump Truck	Dump Truck 1	0
Technical Lead/CQC	1	12	John Deere 310e Rock Truck	Rock Truck 1	1
Scientist/Bear Guard	1	12	Morooka Tracked Vehicle	Morooka 1	1
Engineer	1	12	John Deere 650 Dozer	Dozer 1	1
			John Deere 844 Loader	Loader 1	1
			John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	1
			Kawasaki Teryx UTV	Teryx 3	1
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***6***	***72***	***NA***	***NA***	***18***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	0	0	NA	NA	0
Total	***0***	***0***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Laborer	4	12			
Total	***6***	***72***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- No materials were received.

Do the materials comply with the contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Equipment Received to be used on Site:

- No equipment was received.

Does the equipment comply with contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.)

- NA

Instructions Given by Contractor to Subcontractors **Verbal** ☒ **Written** ☐
(Include names, reactions, and remarks.

- Discussed camp layout, materials, and schedule with Alaska Minerals' Camp Maintenance.

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- NA

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- Weather prevented a materials supply charter from landing, it was delayed to 7/23/22.

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☒

- NA

Deficiencies Corrected This Day **Yes** ☒ **No** ☐

- Generators, a satellite dish, and an incinerator were sent to via air cargo to Nome for the next charter that is anticipated for 7/23/22.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- NA

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Scotty Mann* **Date** 22 July 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 22 July 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☐ **No** ☐

Additional comments or exceptions:

No QAR on site.

Government Signature _____ **Date**_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☐	
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☐	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☐		☐	

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
7/22/2022	Northeast Cape	[signature]

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Mobilization	Loader, Excavator, Skid Steer	awarness of loader blind spots moving containers, pinch points, weather	Level D
Vehicle Fueling	Fuel pump, Side x Side, trucks, Marooka, Loader	Fuel exposure, Struck by machine.	Level D
Runway Repair	Loader, Chain, Chain binder, Dozer	Chain under tension, Struck by machine	Level D
Road Repair	Dozer, Haul truck,	Vehicle traffic, Struck by	Level D

	Name	Signature	Date	Company
1	Greg Filley	[signature]	7/22/2022	Brice Eng
2	[illegible]	[signature]		
3	Chad Armintrout	[signature]		Brice ENV.
4	Dylan Hickey	[signature]		
5	Patrick Schick	[signature]		Brice Eng.
6	Scotty [illegible]	[signature]		
7				
8				
9				
10				

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DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number	UPC/Project Title
W911KB20D0002 / W911KB21F0086	**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**

QC/QA Report Number	Date or Time Period	Location
005	**Saturday 23 July 2022**	**Northeast Cape, AK**

Weather

Low Temp: 45° F High Temp: 52° F

Wind Speed: 15-25 mph Conditions: Light Rain

Subcontractors:

Alaska Minerals

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☒ Site 28 Pilot Test

Initial ☐

Follow-up ☐

Field Sampling and Testing **Yes** ☐ **No** ☒

Type of Test	Method/Matrix	Results
NA	NA	NA

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

Laboratory Analytical Sampling **Yes** ☐ **No** ☒

Type of Test	Test Method/Matrix	Quantity of Samples
NA		

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

Notes:

- No samples collected

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☒

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?	**N/A** ☒	**Yes** ☐	**No** ☐
Was a **Job Safety Meeting** held this day? (If yes, attach comments)		**Yes** ☒	**No** ☐
Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report)		**Yes** ☐	**No** ☒
Was **hazardous waste**/materials 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.)

- NA

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Work Activities Performed This Date

Prime

- Held a tailgate safety meeting.
- Performed vehicle and equipment inspections for vehicles and equipment used.
- Brice aided in camp construction and organized supplies.
- Brice continued survey marking.
- Brice continued road and airstrip repairs.
- Brice began putting together the dredging and water treatment system for Site 28.

Subcontractors

- Alaska Minerals continued camp construction.

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12	Volvo 210 Excavator	Volvo Excavator 1	1
Laborer	1	12	John Deere 380 Excavator	John Deere Excavator 1	1
Surveyor	1	12	Dump Truck	Dump Truck 1	0
Technical Lead/CQC	1	12	John Deere 310e Rock Truck	Rock Truck 1	1
Scientist/Bear Guard	1	12	Morooka Tracked Vehicle	Morooka 1	1
Engineer	1	12	John Deere 650 Dozer	Dozer 1	1
			John Deere 844 Loader	Loader 1	1
			John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	1
			Kawasaki Teryx UTV	Teryx 3	1
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***6***	***72***	***NA***	***NA***	***18***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	0	0	NA	NA	0
Total	***0***	***0***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Laborer	4	12			
Total	***6***	***72***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- No materials were received.

Do the materials comply with the contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Equipment Received to be used on Site:

- No equipment was received.

Does the equipment comply with contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.)

- NA

Instructions Given by Contractor to Subcontractors **Verbal** ☒ **Written** ☐
(Include names, reactions, and remarks.

- Discussed camp layout, materials, and schedule with Alaska Minerals' Camp Maintenance.

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- NA

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- Weather prevented a materials supply charter from landing. It was delayed to 7/24/22.

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☒

- NA

Deficiencies Corrected This Day **Yes** ☒ **No** ☐

- Generators, a satellite dish, and an incinerator were sent to via air cargo to Nome for the next charter that is anticipated for 7/24/22.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- NA

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Scotty Mann* **Date** 23 July 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 23 July 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☐ **No** ☐

Additional comments or exceptions:

No QAR on site.

Government Signature _____ **Date**_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☐	
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☒	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☐	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☐		☐	

PREPARATORY PHASE CHECKLIST

(CONTINUED ON SECOND PAGE)

SPEC SECTION	DATE
	7/23/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Site 28 Pilot Test	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __0_ HOURS IN ADVANCE: YES ☐ NO ☒

NAME	POSITION	COMPANY/GOVERNMENT
Scotty Mann	Project Manager/QC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering
Greg Filbey	Engineer	Brice Engineering
Patrick Schick	Environmental Scientist	Brice Engineering

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED? Final Work Plan has been submitted. Discharge permit has been approved.

ARE ALL MATERIALS ON HAND? YES ☒ NO ☐

IF NO, WHAT ITEMS ARE MISSING?

CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL. (THIS SHOULD BE DONE AS MATERIAL ARRIVES.)

COMMENTS: Materials received matched work plan specifications.

MATERIAL STORAGE

ARE MATERIALS STORED PROPERLY? YES ☒ NO ☐

IF NO, WHAT ACTION IS TAKEN?

SPECIFICATIONS

REVIEW EACH PARAGRAPH OF SPECIFICATIONS. Each paragraph of specification has been reviewed.

DISCUSS PROCEDURE FOR ACCOMPLISHING THE WORK. Procedures to accomplish work have been discussed.

CLARIFY ANY DIFFERENCES/DISCREPANCIES. No discrepancies were identified.

PRELIMINARY WORK & PERMITS

☒ ENSURE PRELIMINARY WORK IS CORRECT AND PERMITS ARE ON FILE.

IF NOT, WHAT ACTION IS TAKEN?

TESTING	IDENTIFY TEST TO BE PERFORMED, FREQUENCY, AND BY WHOM. Tests were discussed. Dredge efficiency will be evaluated. The pilot test evaluation checklist will be checked. Treated Water will be sampled before discharge.
	WHEN REQUIRED? The pilot test evaluation will be completed at completion of dredging Area 9. Treated water will be tested upon initial treatment.
	WHERE REQUIRED? Tests will be conducted in the field. Laboratory analysis will be conducted at an approved lab, Pace.
	REVIEW TESTING PLAN. Testing plan has been reviewed.
	HAVE TEST FACILITIES BEEN APPROVED? Test facilities are approved.
SAFETY	HAS ACTIVITY HAZARD ANALYSIS BEEN APPROVED? YES ☒ NO ☐
	REVIEW APPLICABLE PORTION OF EM 385-1-1. Applicable portion of 385-1-1 has been reviewed.
MEETING COMMENTS	COMMENTS DURING MEETING. Discussed inventory and material needed for the pilot test. Discussed size of geotube, possible coffer dam setup, treatment system layout.
OTHER ITEMS OR REMARKS	OTHER ITEMS OR REMARKS: None

Scotty Mann — QC MANAGER

7/23/22 — DATE

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
7/23/2022	Northeast Cape	[illegible]

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Mobilization	Trucks, Loader, SidexSide	Traffic, Slip trip & falls, Pinch points, Struck by	Level D
SidexSide track install	Skid Steer, hand tools, Side x Side	Falling vehicle, pinch points,	Level D
Road Repair	Dozer, Rock truck	Traffic, Struck by, steep grade	Level D
Dredge testing	Dredge	Water Submersion, Struck by discharge	Level D

	Name	Signature	Date	Company
1	Greg Filbey	[illegible]	7/23/2022	Brice Eng
2	A. Platt			
3	Chad Armintrout	[illegible]		Brice ENV.
4	Dylan Hickey	[illegible]		
5	Patrick Schick	[illegible]		Brice Eng.
6	Scotty [illegible]	[illegible]		
7				
8				
9				
10				

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DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number	UPC/Project Title
W911KB20D0002 / W911KB21F0086	**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**

QC/QA Report Number	Date or Time Period	Location
006	**Sunday 24 July 2022**	**Northeast Cape, AK**

Weather

Low Temp: 50° F High Temp: 51° F

Wind Speed: 0-5 mph Conditions: Light Rain

Subcontractors:

Alaska Minerals

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☐
Initial ☐
Follow-up ☐

Field Sampling and Testing **Yes** ☐ **No** ☒

Type of Test	Method/Matrix	Results
NA	NA	NA

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

Laboratory Analytical Sampling **Yes** ☐ **No** ☒

Type of Test	Test Method/Matrix	Quantity of Samples
NA		

Have required amount of QC trip blanks and rinsates been achieved? **NA** ☒ **Yes** ☐ **No** ☐

Have appropriate QC laboratory tests been ordered? (matrix spikes, method blanks, surrogates, reference standards, etc.) **NA** ☒ **Yes** ☐ **No** ☐

Have QA and QC samples been collected in the specified quantity? **NA** ☒ **Yes** ☐ **No** ☐

Have samples been properly labeled and packaged? **NA** ☒ **Yes** ☐ **No** ☐

Notes:

- No samples collected

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☒

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? **N/A** ☒ **Yes** ☐ **No** ☐

Was a **Job Safety Meeting** held this day? (If yes, attach comments) **Yes** ☒ **No** ☐

Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report) **Yes** ☐ **No** ☒

Was **hazardous waste**/materials 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.)

- NA

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Work Activities Performed This Date

Prime

- Held a tailgate safety meeting.
- Performed vehicle and equipment inspections for vehicles and equipment used.
- Brice aided in camp construction and organized supplies.
- Brice continued survey marking.
- A personnel charter arrived on site. Four Brice personnel arrived. One Alaska Minerals employee demobilized on the charter.
- A materials supply charter arrived on site.

Subcontractors

- Alaska Minerals continued camp construction.

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12	Volvo 210 Excavator	Volvo Excavator 1	1
Laborer	2	12, 12	John Deere 380 Excavator	John Deere Excavator 1	1
Surveyor	1	12	Dump Truck	Dump Truck 1	0
Technical Lead/CQC	2	12, 11	John Deere 310e Rock Truck	Rock Truck 1	1
Scientist/Bear Guard	1	12	Morooka Tracked Vehicle	Morooka 1	1
Engineer	2	12, 11	John Deere 650 Dozer	Dozer 1	1
Environmental Scientist	1	11	John Deere 844 Loader	Loader 1	1
			John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	1
			Kawasaki Teryx UTV	Teryx 3	1
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***10***	***117***	***NA***	***NA***	***18***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	0	0	NA	NA	0
Total	***0***	***0***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Laborer	3	12			
Total	***5***	***60***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- An incinerator, satellite dish, five generators, space heaters, PPE, and other miscellaneous supplies were received.

Do the materials comply with the contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Equipment Received to be used on Site:

- No equipment was received.

Does the equipment comply with contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.)

- NA

Instructions Given by Contractor to Subcontractors **Verbal** ☒ **Written** ☐
(Include names, reactions, and remarks.

- Discussed camp layout, materials, and schedule with Alaska Minerals' Camp Maintenance.

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- NA

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

-

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☒

- NA

Deficiencies Corrected This Day **Yes** ☐ **No** ☐

- NA

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- NA

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Scotty Mann* **Date** 24 July 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 24 July 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☐ **No** ☐

Additional comments or exceptions:

No QAR on site.

Government Signature _____ **Date**_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☐	
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☐	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☐		☐	

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
7/24/2022	Northeast Cape	[signature]

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Equipment Fueling	Skid Steer, rock truck, Dump truck, Dozer, fuel pump, tank	Fuel exposure, Struck by	Level D
Loading Equipment	Skid Steer, trailer dump truck, chain binders	Struck by, Chain under tension.	Level D
Dredging, running hose	Dredge, hose, hand tools	slips, trips, + falls, pinch points	Level D

	Name	Signature	Date	Company
1	Greg Filbey	[signature]	7/24/2022	Brice Eng
2	A.Plait	[signature]		
3	DYLAN HICKEY	[signature]		
4	Chad Almintrout	[signature]		Brice ENV.
5	Scotty Mann	[signature]		
6				
7				
8				
9				
10				

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DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number	UPC/Project Title
W911KB20D0002 / W911KB21F0086	**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**

QC/QA Report Number	Date or Time Period	Location
007	**Monday 25 July 2022**	**Northeast Cape, AK**

Weather

Low Temp: 50° F High Temp: 51° F

Wind Speed: 0-5 mph Conditions: Light Rain

Subcontractors:

Alaska Minerals

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☒ Site 15 Excavation, Survey Activities

Initial ☐

Follow-up ☐

Field Sampling and Testing **Yes** ☐ **No** ☒

Type of Test	Method/Matrix	Results
NA	NA	NA

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

Laboratory Analytical Sampling **Yes** ☒ **No** ☐

Type of Test	Test Method/Matrix	Quantity of Samples
Pre-stockpile footprint at Site 15	ISM Soil DRO (AK101)	3
Pre-containment footprint at Site 28	ISM Soil DRO/RRO (AK101/AK102), PAH (8270D)	3

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

Notes:

- MS/MSD sample will be collected in the next ISM DU sampled to meet QA/QC frequencies.

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☐

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?	**N/A** ☐	**Yes** ☒	**No** ☐
Was a **Job Safety Meeting** held this day? (If yes, attach comments)		**Yes** ☒	**No** ☐
Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report)		**Yes** ☐	**No** ☒
Was **hazardous waste**/materials 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.)

- NA

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Work Activities Performed This Date

Prime

- Held a tailgate safety meeting.
- Performed vehicle and equipment inspections for vehicles and equipment used.
- Brice aided in camp construction and organized supplies.
- Brice continued survey marking.
- Brice sampled the pre-construction Site 15 stockpile footprint and the pre-construction Site 28 containment area footprint using ISM. DU boundaries were established and surveyed.

Subcontractors

- Alaska Minerals continued camp construction.

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12	Volvo 210 Excavator	Volvo Excavator 1	1
Laborer	2	12	John Deere 380 Excavator	John Deere Excavator 1	1
Surveyor	1	12	Dump Truck	Dump Truck 1	0
Technical Lead/CQC	2	12	John Deere 310e Rock Truck	Rock Truck 1	1
Scientist/Bear Guard	1	12	Morooka Tracked Vehicle	Morooka 1	1
Engineer	2	12	John Deere 650 Dozer	Dozer 1	1
Environmental Scientist	1	12	John Deere 844 Loader	Loader 1	1
			John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	1
			Kawasaki Teryx UTV	Teryx 3	1
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***10***	***120***	***NA***	***NA***	***18***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	0	0	NA	NA	0
Total	***0***	***0***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Laborer	3	12			
Total	***5***	***60***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- No materials were received.

Do the materials comply with the contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Equipment Received to be used on Site:

- No equipment was received.

Does the equipment comply with contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.)

- NA

Instructions Given by Contractor to Subcontractors **Verbal** ☒ **Written** ☐
(Include names, reactions, and remarks.

- Discussed camp layout, materials, and schedule with Alaska Minerals' Camp Maintenance.

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- NA

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- NA

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☒

- NA

Deficiencies Corrected This Day **Yes** ☐ **No** ☐

- NA

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- NA

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Scotty Mann* **Date** 25 July 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 25 July 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☐ **No** ☐

Additional comments or exceptions:

No QAR on site.

Government Signature _____ **Date**_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☐	
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☒	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☐	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☐		☐	

PHOTOGRAPHIC LOG – 25 July 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. CM190001

Description:

Facing southeast, photo of ISM DU for the Site 28 containment area footprint.

Photograph No. CM190002

Description:

Facing south, photo of the ISM DU of the Site 15 stockpile footprint.

PREPARATORY PHASE CHECKLIST

(CONTINUED ON SECOND PAGE)

SPEC SECTION	DATE
	7/25/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Site 15 Excavation	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __0_ HOURS IN ADVANCE: YES ☐ NO ☒

NAME	POSITION	COMPANY/GOVERNMENT
Scotty Mann	Project Manager/QC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering
Greg Filbey	Engineer	Brice Engineering
Patrick Schick	Environmental Scientist	Brice Engineering
Monte Garroutte	Technical Lead/CQC	Brice Engineering

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED? Final Work Plan has been submitted. Discharge permit has been approved.

ARE ALL MATERIALS ON HAND? YES ☒ NO ☐

IF NO, WHAT ITEMS ARE MISSING?

CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL. (THIS SHOULD BE DONE AS MATERIAL ARRIVES.)

COMMENTS: Materials received matched work plan specifications.

MATERIAL STORAGE

ARE MATERIALS STORED PROPERLY? YES ☒ NO ☐

IF NO, WHAT ACTION IS TAKEN?

SPECIFICATIONS

REVIEW EACH PARAGRAPH OF SPECIFICATIONS. Each paragraph of specification has been reviewed.

DISCUSS PROCEDURE FOR ACCOMPLISHING THE WORK. Procedures to accomplish work have been discussed.

CLARIFY ANY DIFFERENCES/DISCREPANCIES. No discrepancies were identified.

PRELIMINARY WORK & PERMITS

☒ ENSURE PRELIMINARY WORK IS CORRECT AND PERMITS ARE ON FILE.

IF NOT, WHAT ACTION IS TAKEN?

TESTING	IDENTIFY TEST TO BE PERFORMED, FREQUENCY, AND BY WHOM. Tests were discussed. Confirmation samples will be collected after removal of 500 tons. Samples will be collected from Overburden stockpiles, and pre-construction samples will be collected from the stockpile footprint. WHEN REQUIRED? Pre-construction samples will be collected from the stockpile footprint before excavation begins. Overburden stockpile samples will be collected following excavation. Confirmation samples will be collected following excavation. WHERE REQUIRED? Tests will be conducted in the field. Laboratory analysis will be conducted at an approved lab, Pace. REVIEW TESTING PLAN. Testing plan has been reviewed. HAVE TEST FACILITIES BEEN APPROVED? Test facilities are approved.
SAFETY	HAS ACTIVITY HAZARD ANALYSIS BEEN APPROVED? YES ☒ NO ☐ REVIEW APPLICABLE PORTION OF EM 385-1-1. Applicable portion of 385-1-1 has been reviewed.
MEETING COMMENTS	COMMENTS DURING MEETING. Discussed inventory of excavation materials, excavation schedule, and size of stockpile footprint.
OTHER ITEMS OR REMARKS	OTHER ITEMS OR REMARKS: None

Scotty Mann — QC MANAGER

7/25/22 — DATE

PREPARATORY PHASE CHECKLIST

(CONTINUED ON SECOND PAGE)

SPEC SECTION	DATE
	7/25/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Survey in accordance with the MED	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED _0_ HOURS IN ADVANCE: YES ☐ NO ☒

NAME	POSITION	COMPANY/GOVERNMENT
Scotty Mann	Technical Lead/CQC	Brice Engineering
Dylan Hickey	Surveyor	Brice Engineering

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED? Final Work Plan has been approved.

ARE ALL MATERIALS ON HAND? YES ☒ NO ☐

IF NO, WHAT ITEMS ARE MISSING?

CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL. (THIS SHOULD BE DONE AS MATERIAL ARRIVES.)

COMMENTS: Material on hand matches approved submittals.

MATERIAL STORAGE

ARE MATERIALS STORED PROPERLY? YES ☒ NO ☐

IF NO, WHAT ACTION IS TAKEN?

SPECIFICATIONS

REVIEW EACH PARAGRAPH OF SPECIFICATIONS. Each paragraph of specifications has been reviewed.

DISCUSS PROCEDURE FOR ACCOMPLISHING THE WORK. Procedures to accomplish work have been discussed.

CLARIFY ANY DIFFERENCES/DISCREPANCIES. No discrepancies were identified.

PRELIMINARY WORK & PERMITS

☒ ENSURE PRELIMINARY WORK IS CORRECT AND PERMITS ARE ON FILE.

IF NOT, WHAT ACTION IS TAKEN?

TESTING	IDENTIFY TEST TO BE PERFORMED, FREQUENCY, AND BY WHOM. Tests were discussed. Dylan Hickey will perform pre-survey checks and check data collection to ensure data is sufficient.
	WHEN REQUIRED? Testing will occur each day when base stations are set up.
	WHERE REQUIRED? Tests will be conducted in the field and will be conducted in the field office on the computer.
	REVIEW TESTING PLAN. Testing plan has been reviewed.
	HAVE TEST FACILITIES BEEN APPROVED? Test facilities are approved.
SAFETY	HAS ACTIVITY HAZARD ANALYSIS BEEN APPROVED? YES ☒ NO ☐
	REVIEW APPLICABLE PORTION OF EM 385-1-1. Applicable portion of 385-1-1 has been reviewed.
MEETING COMMENTS	COMMENTS DURING MEETING. None.
OTHER ITEMS OR REMARKS	OTHER ITEMS OR REMARKS: None

Scotty Mann — QC MANAGER

7/25/22 — DATE

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
7/25/2022	Northeast Cape	Chad Armintout

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Setup Dredge System	Trash pumps, hose, ponds.	Slip, trips + falls, heavy lifting	Level D
Fueling	Fuel pump, fuel can	fuel exposure, slip trips + falls	Level D
Sandbagging	Sand bags	slip, trips, + falls heavy lifting	Level D
GAC System Loading	GAC System, Loader, excavator,	slip, trips + falls, heavy lifting, overhead hazard	Level D

	Name	Signature	Date	Company
1	Greg Filbey		7/25/2022	Brice Eng
2	Patrick Oschick		7	Brice Eng.
3	[illegible]			BEL
4	Monte Garrouette			Brice
5	Chad Armintout			Brice ENV
6	Tigan Donaldson			Brice Eng.
7	DYLAN HILKEY			BRICE ENVIRONMENTAL
8	A. Plott			" "
9	Michael Williams			BEL
10	DAVE Clifford			Brice

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number		UPC/Project Title
W911KB20D0002 / W911KB21F0086		**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**
QC/QA Report Number **008**	Date or Time Period **Tuesday 26 July 2022**	Location **Northeast Cape, AK**

Weather

Low Temp: 50° F High Temp: 60° F

Wind Speed: 10-15 mph Conditions: Partly Cloudy

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☒ LUC Sign Maintenance
Initial ☐
Follow-up ☐

Field Sampling and Testing **Yes** ☐ **No** ☒

Type of Test	Method/Matrix	Results
NA	NA	NA

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

Laboratory Analytical Sampling **Yes** ☐ **No** ☒

Type of Test	Test Method/Matrix	Quantity of Samples

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

Notes:

- No samples collected.

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☐

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?	**N/A** ☒	**Yes** ☐	**No** ☐
Was a **Job Safety Meeting** held this day? (If yes, attach comments)		**Yes** ☒	**No** ☐
Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report)		**Yes** ☐	**No** ☒
Was **hazardous waste**/materials 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.)

- NA

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Work Activities Performed This Date

Prime

- Held a tailgate safety meeting.
- Performed vehicle and equipment inspections for vehicles and equipment used.
- Brice aided in camp construction and organized supplies.
- Brice continued construction of the Site 28 sediment/water processing system.
- The Brice surveyor departed on an air charter.
- One Brice employee, a geologist, arrived on site

Subcontractors

- Alaska Minerals completed camp construction; three members departed for Nome.
- Beacon EMT arrived on site.

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12	Volvo 210 Excavator	Volvo Excavator 1	1
Laborer	2	12	John Deere 380 Excavator	John Deere Excavator 1	1
Surveyor	1	8	Dump Truck	Dump Truck 1	1
Technical Lead/CQC	2	12	John Deere 310e Rock Truck	Rock Truck 1	1
Scientist/Bear Guard	1	12	Morooka Tracked Vehicle	Morooka 1	1
Engineer	2	12	John Deere 650 Dozer	Dozer 1	1
Environmental Scientist	1	12	John Deere 844 Loader	Loader 1	1
Geologist	1	12	John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	1
			Kawasaki Teryx UTV	Teryx 3	1
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***11***	***128***	***NA***	***NA***	***19***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	8	NA	NA	0
Total	***1***	***8***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Laborer	3	12			
Total	***5***	***60***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- No materials were received.

Do the materials comply with the contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Equipment Received to be used on Site:

- No equipment was received.

Does the equipment comply with contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.)

- NA

Instructions Given by Contractor to Subcontractors **Verbal** ☒ **Written** ☐
(Include names, reactions, and remarks.

- Discussed camp layout with Alaska Minerals' Camp Maintenance.

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- NA

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- NA

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☒

- NA

Deficiencies Corrected This Day **Yes** ☐ **No** ☒

- NA

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- NA

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Scotty Mann* **Date** 26 July 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 26 July 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☐ **No** ☐

Additional comments or exceptions:

No QAR on site.

Government Signature _____
Date_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☐	
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☒	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☐	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

PHOTOGRAPHIC LOG – 26 July 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. CM190004

Description:

Photo CM190004. Facing East. Camp setup nearly complete at Site 6.

Photograph No. CM190005

Description:

Photo CM190005. Facing Southeast. Both Site 28 containment areas set up, the first containing the large geotube.

PREPARATORY PHASE CHECKLIST

(CONTINUED ON SECOND PAGE)

SPEC SECTION	DATE
	7/26/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	LUC Sign Maintenance	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __0_ HOURS IN ADVANCE: YES ☐ NO ☒

NAME	POSITION	COMPANY/GOVERNMENT
Scotty Mann	Project Manager/QC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering
Monte Garroutte	Technical Lead	Brice Engineering

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED? Final Work Plan has been submitted.

ARE ALL MATERIALS ON HAND? YES ☒ NO ☐

IF NO, WHAT ITEMS ARE MISSING?

CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL. (THIS SHOULD BE DONE AS MATERIAL ARRIVES.)

COMMENTS: Materials received matched work plan specifications.

MATERIAL STORAGE

ARE MATERIALS STORED PROPERLY? YES ☒ NO ☐

IF NO, WHAT ACTION IS TAKEN?

SPECIFICATIONS

REVIEW EACH PARAGRAPH OF SPECIFICATIONS. Each paragraph of specification has been reviewed.

DISCUSS PROCEDURE FOR ACCOMPLISHING THE WORK. Procedures to accomplish work have been discussed.

CLARIFY ANY DIFFERENCES/DISCREPANCIES. No discrepancies were identified.

PRELIMINARY WORK & PERMITS

☒ ENSURE PRELIMINARY WORK IS CORRECT AND PERMITS ARE ON FILE.

IF NOT, WHAT ACTION IS TAKEN?

TESTING	IDENTIFY TEST TO BE PERFORMED, FREQUENCY, AND BY WHOM. Tests were discussed. Monte Garroutte and Chad Armintrout will evaluate and repair signs, if possible.
	WHEN REQUIRED? The signs will be evaluated when they are inspected.
	WHERE REQUIRED? Tests will be conducted in the field.
	REVIEW TESTING PLAN. Testing plan has been reviewed.
	HAVE TEST FACILITIES BEEN APPROVED? Test facilities are approved.
SAFETY	HAS ACTIVITY HAZARD ANALYSIS BEEN APPROVED? YES ☒ NO ☐
	REVIEW APPLICABLE PORTION OF EM 385-1-1. Applicable portion of 385-1-1 has been reviewed.
MEETING COMMENTS	COMMENTS DURING MEETING. Discussed sign locations. Discussed contingencies if sign mounts or signs are unusable.
OTHER ITEMS OR REMARKS	OTHER ITEMS OR REMARKS: None

Scotty Mann — QC MANAGER

7/26/22 — DATE

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DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number	UPC/Project Title
W911KB20D0002 / W911KB21F0086	**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**

QC/QA Report Number	Date or Time Period	Location
009	**Wednesday, 27 July 2022**	**Northeast Cape, AK**

Weather

Low Temp: 50° F High Temp: 60° F

Wind Speed: 0-15 mph Conditions: Mostly sunny

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☐
Initial ☐
Follow-up ☐

Field Sampling and Testing **Yes** ☒ **No** ☐

Type of Test	Method/Matrix	Results
Parameters	Surface Water	pH, turbidity, conductivity, ORP, DO

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

Laboratory Analytical Sampling **Yes** ☐ **No** ☒

Type of Test	Test Method/Matrix	Quantity of Samples
ISM	Soil/ DRO/RRO, PAH	1 (MS/MSD)
Discrete	Surface Water / DRO/RRO, BTEX, PAH	4 (including Field Duplicate and MS/MSD)

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

Notes:

- The Site 28 dewatering system discharge area soil was sampled using an ISM approach to be analyzed for DRO, RRO, and PAH and four Site 28 surface water locations were sampled for DRO/RRO, BTEX, and PAH and water quality parameters.

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☒

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?	**N/A** ☐	**Yes** ☒	**No** ☐
Was a **Job Safety Meeting** held this day? (If yes, attach comments)		**Yes** ☒	**No** ☐
Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report)		**Yes** ☐	**No** ☒
Was **hazardous waste**/materials 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.)

- See notes below on release of approximately 1 gallon of petroleum.

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Work Activities Performed This Date

Prime

- Mobilized to the site
- Held a tailgate safety meeting.
- USACE QAR Aaron Shewman arrived with freight on a Bering Air Navajo charter.
- Performed vehicle and equipment inspections for vehicles and equipment used.
- Brice continued construction of the Site 28 dredging and sediment/water processing systems.
- Brice collected soil and surface water samples at Site 28.

Subcontractors

- Alaska Minerals continued camp maintenance.
- Beacon medic was on site to handle any medical concerns.

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12	Volvo 210 Excavator	EC210CA0011048	0
Laborer	2	12	Doosan 180 Excavator	DHKHEBG0P70005084	1
Technical Lead/CQC	2	12	John Deere 724 Loader	1DW744KXJAD632455	1
Scientist/Bear Guard	1	12	John Deere 333 Skidsteer	1T0333GMHKF361279	1
Engineer	2	12	Morooka Tracked Vehicle	MST-2200VD	0
Scientist	3	12	John Deere 450 Dozer	1T0450JXABD214128	0
			Kawasaki Teryx UTV	RT800AE065040	1
			Polaris Ranger Crew UTV	4XARVE996J8234	0
			Polaris Ranger XP UTV	3NSRTE879KG815310	1
			Polaris Ranger 6X6 CAB UTV	ENV078	1
			Polaris Ranger 6X6 CAB UTV	ENV081	1
			Kubota Diesel UTV	ENV013	1
			Geoprobe 6620	1	0
			Polaris Ranger UVOST	UVOST	1
Total	***11***	***132***	***NA***	***NA***	***8***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	12	NA	NA	0
Total	***1***	***12***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Total	***2***	***24***	***NA***	***NA***	***0***

Materials Received to be Used on or Incorporated into Site:

- Various materials were received on the Bering Air charter, including several pumps

Do the materials comply with the contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Equipment Received to be used on Site:

- None

Does the equipment comply with contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.)

- None

Instructions Given by Contractor to Subcontractors **Verbal** ☒ **Written** ☐
(Include names, reactions, and remarks.

- Discussed with subcontractor appropriate refueling protocols.

Scope of Work/Work Plan Variances **Yes** ☒ **No** ☐

- For the Site 28 pilot study, sediment will be removed from Area 6 instead of Area 9; discussed with USACE QAR who approved this deviation.

Work Progress

Are there any Contractor caused delays? **Yes** ☐ **No** ☒
Or potential finding of fact? **Yes** ☐ **No** ☒
Are there any Government caused delays? **Yes** ☐ **No** ☒
Or potential finding of fact? **Yes** ☐ **No** ☒
Are there any unforeseeable or weather-related delays? **Yes** ☐ **No** ☒
Does the workmanship comply with the contract? **Yes** ☒ **No** ☐

Comments:

- None

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☒ **No** ☐

- Approximately one gallon of diesel fuel was accidentally released onto the Site 6 gravel pad during refueling activities at camp. Sorbent pads were applied and the crew was contacted. Brice arrived on site with a skid steer and loader bucket, shovels, and buckets. Approximately ¼-cubic yard of impacted soil was removed by-hand and placed on a liner. The soil was then moved to the MOC for later disposal with other petroleum impacted soil that will be excavated from Site 15. Sorbent pads will also be disposed with the impacted soil.

Deficiencies Corrected This Day **Yes** ☒ **No** ☐

- A spill kit was used to immediately contain the diesel fuel spill.
- Proper use and procedures of the fueling tank were discussed with camp staff.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- Contaminated soil due to the diesel fuel spill will be disposed with the Site 15 POL-impacted soil.

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Scotty Mann* **Date** 27 July 2022

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 27 July 2022

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☒ **No** ☐

Additional comments or exceptions:

NE Cape QAR Daily Report Comments
Wednesday, 27 July 2022

Weather: Partly Cloudy/Light breeze. High temp about 60ºF.

USACE QAR, Aaron Shewman, arrived via Bering Air Navajo charter approximately 1500 and familiarized himself with camp operations and then visited Site 28.

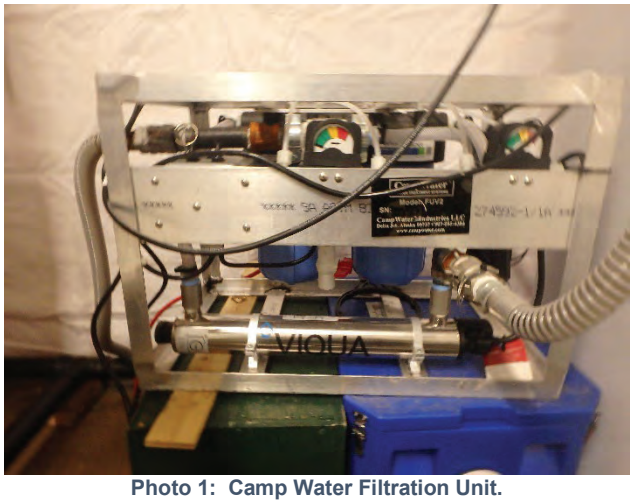


Photo 1: Camp Water Filtration Unit.

Site 28

Brice crew worked to prepare for dredge pilot test at Site 28 tomorrow.

Photo 2: Site 28, Setting up a dredge near sediment removal Area 6, facing Northeast.
Photo 3: Site 28, Geotubes inside water containment area, facing Southwest.

Government Signature SHEWMAN.AARON.F.1387289620 Digitally signed by SHEWMAN.AARON.F.1387289620 Date: 2022.07.29 09:13:52 -08'00' **Date**_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☐	
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☐	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

PHOTOGRAPHIC LOG – 27 July 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. CM180001

Description:

Photo CM180001. Facing Southeast. Treated water discharge area, pre-discharge, ISM sample boundaries.

Photograph No. CM180002

Description:

Photo CM180002. Facing Northwest. Flocculant injection system, mid-construction.

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
7/27/2022	Northeast Cape	[signature]

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
GAC System installation	welder, Excavator, rigging	overhead, Struck by, hot work	Level D, welding shield gloves for welder.
Filling water totes	Trash pumps, Dump truck	Struck by, vehicle traffic,	Level D
Filling Sand bags	Shovels, bags	Heavy lifting	Level D
Testing Dredge System	Trash pumps, hose,	Slip, trips + falls heavy lifting	Level D

	Name	Signature	Date	Company
1	Greg Filbey	[signature]	7/27/2022	Brice Eng
2	Patrick Schick	[signature]		Brice Eng.
3	Michael Williams	[signature]		BEL
4	Dave Clifton	[signature]		Brice
5	Tigan Donaldson	[signature]		Brice Eng.
6	A. Platt	[signature]		Brice
7	Jean Sibey	[signature]		Brice
8	Craig Perry	Craig Perry		Beacon
9	Chad Armstrong	[signature]		Brice ENU
10	Monte Gamonte	[signature]		Brice

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number	UPC/Project Title
W911KB20D0002 / W911KB21F0086	**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**

QC/QA Report Number	Date or Time Period	Location
010	**Thursday, 28 July 2022**	**Northeast Cape, AK**

Weather

Low Temp: 50° F High Temp: 55° F

Wind Speed: 0-15 mph Conditions: Mostly cloudy

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☐
Initial ☒ Site 28 Pilot Study
Follow-up ☐

Field Sampling and Testing **Yes** ☒ **No** ☐

Type of Test	Method/Matrix	Results
Turbidity	Surface Water	0-20 NTU

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

Laboratory Analytical Sampling **Yes** ☐ **No** ☒

Type of Test	Test Method/Matrix	Quantity of Samples
Treated Water Discharge	BTEX, PAH / Water	1

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

Notes:

- Site 28 drainage was sampled for turbidity.
- Treated water from the dewatering system was sampled.

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☒

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?	**N/A** ☐	**Yes** ☒	**No** ☐
Was a **Job Safety Meeting** held this day? (If yes, attach comments)		**Yes** ☒	**No** ☐
Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report)		**Yes** ☐	**No** ☒
Was **hazardous waste**/materials 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.)

- NA

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Work Activities Performed This Date

Prime

- Mobilized to the site
- Held a tailgate safety meeting.
- Brice began the Site 28 Pilot Test and dredged sediment and water from Area 6.
- Brice hauled clean material to Site 15 stockpile area to create berms.
- Brice measured groundwater elevations in all 15 monitoring wells at the MOC.
- Brice installed silt control fences (BMPs) and collected pre-pilot test/dredging turbidity measurements at the Site 28 drainage.
- Brice set up the dredging system at Area 9 of Site 28 to continue Pilot Study.

Subcontractors

- Alaska Minerals continued camp maintenance.
- Beacon continued providing emergency medical support.

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12	Volvo 210 Excavator	Volvo Excavator 1	1
Laborer	2	12	John Deere 380 Excavator	John Deere Excavator 1	1
Technical Lead/CQC	2	12	Dump Truck	Dump Truck 1	1
Scientist/Bear Guard	1	12	John Deere 310e Rock Truck	Rock Truck 1	1
Engineer	2	12	Morooka Tracked Vehicle	Morooka 1	1
Environmental Scientist	1	12	John Deere 650 Dozer	Dozer 1	1
Geologist	1	12	John Deere 844 Loader	Loader 1	1
			John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	1
			Kawasaki Teryx UTV	Teryx 3	1
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***10***	***120***	***NA***	***NA***	***19***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	12	NA	NA	0
Total	***1***	***12***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Total	***2***	***24***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- None

Do the materials comply with the contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Equipment Received to be used on Site:

- None

Does the equipment comply with contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.)

- None

Instructions Given by Contractor to Subcontractors **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.

- None

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- None

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- None

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☒

- None

Deficiencies Corrected This Day **Yes** ☐ **No** ☒

- None

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- None

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Scotty Mann* **Date** 28 July 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 28 July 2022

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☒ **No** ☐

Additional comments or exceptions:

NE Cape QAR Daily Report Comments
Thursday, 28 July 2022

Weather: Mostly Cloudy/Light breeze. High temp about 55ºF.

Site 15

Brice crew setup the soil stockpile area.

Photos 1 and 2: Preparing Soil Stockpile Area Near Site 15, View SW

Site 28

Brice crew pilot tested dredge equipment and methods at Area 6.

Photos 3 and 4: Pilot Test Dredging Area 6, View NW.

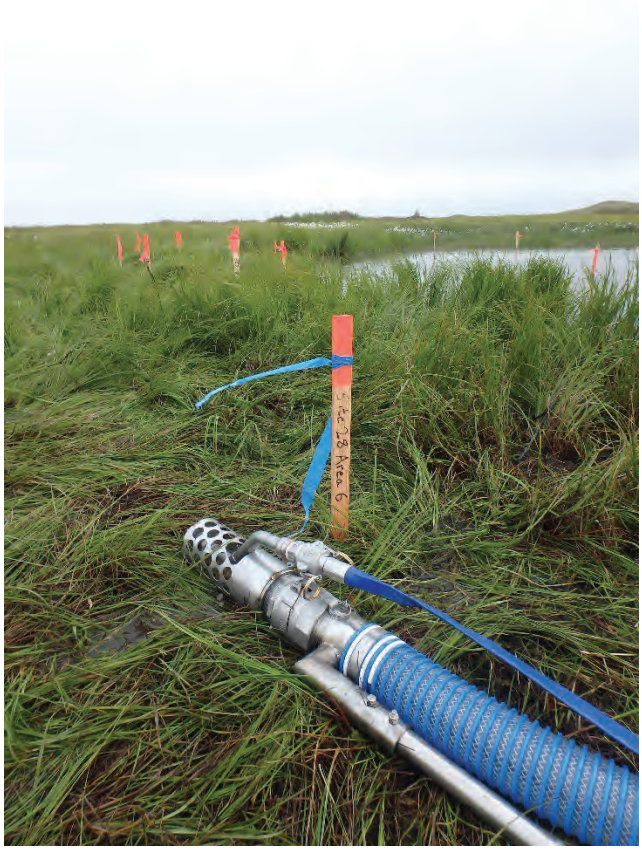


Photo 5: Initial Dredge Nozzle, Close-Up.

Note the circular holes in the intake nozzle. Brice may also test a nozzle with square holes in the intake nozzle. Also note the agitator (water jet). The water jet is meant to loosen sediment material so the material can travel into the intake nozzle.

Miscellaneous

QAR documented a material cache (wood and fuel drums) that belongs to the Toolie Family from Savoonga. This cache is located in the secondary rock/soil material borrow area near the historic rock/soil loadout structure. The USACE has not utilized this borrow area to-date.

Photo 6: Wood and Metal Drum Cache Belonging to Toolie Family, View SE.

QAR documented condition of the large culvert beneath the road between the Borrow Area and MOC.

Photo 7: Large Culvert Beneath Main Road to Borrow Area, View NW

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Signature SHEWMAN.AARON.F.1387289620 Digitally signed by SHEWMAN.AARON.F.1387289620 Date: 2022.07.29 13:27:57 -08'00' **Date**_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☐	
☒	Activity Hazard Analyses	☐	Punchlist	☐	
☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☒	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

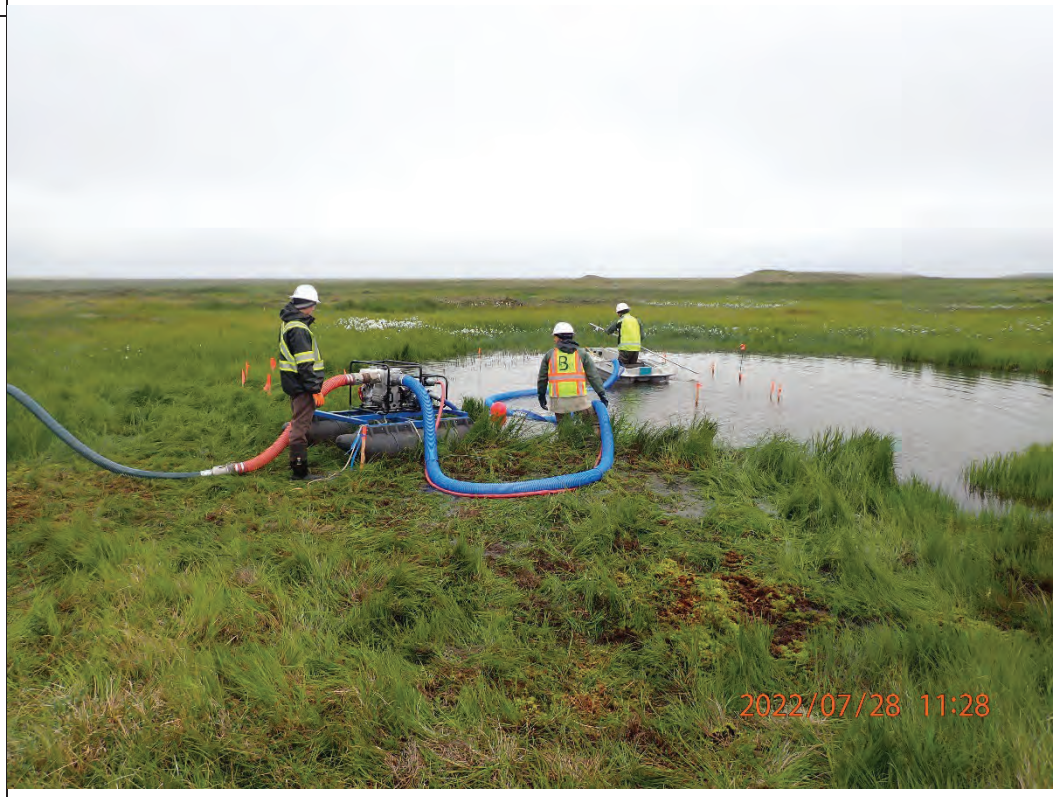
PHOTOGRAPHIC LOG – 28 July 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. CM190014

Description:

Photo CM190014. Facing Northeast. Site 28 Area 6 Pilot Study.



Photograph No. CM190015

Description:

Photo CM190015. Facing East. Brice sampling treated water discharge.

INITIAL PHASE CHECKLIST

SPEC SECTION	DATE
	7/28/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Site 28 Pilot Test	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __24 HOURS IN ADVANCE: YES ☒ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT
Scotty Mann	Project Manager/QC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering
Greg Filbey	Engineer	Brice Engineering
Monte Garroutte	Technical Lead	Brice Engineering

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Full compliance with procedures is identified. Procedures meet/match specifications, plans, and submittals.

PRELIMINARY WORK

ENSURE PRELIMINARY WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

All preliminary work is complete. Inventory is at project site set up.

WORKMANSHIP

ESTABLISH QUALITY STANDARDS.

WHERE IS WORK LOCATED? Work is located at Northeast Cape, Alaska.

IS SAMPLE PANEL REQUIRED? YES ☐ NO ☒

WILL THE INIITAL WORK BE CONSIDERED AS A SAMPLE? YES ☒ NO ☐

(IF YES, MAINTAIN IN PRESENT CONDITION AS LONG AS POSSIBLE AND DESCRIBE LOCATION OF SAMPLE) Initial work will be effectiveness of dredging with current setup, and Subsequent evaluation with the COR.

RESOLUTION

RESOLVE ANY DIFFERENCES/DISCREPANCIES.

COMMENTS: Pilot test was originally planned for Area 9, but Area 6 will allow for fewer variables to be tested at once, Area 9 will be the second phase of testing after the flocculant is calibrated.

CHECK SAFETY

REVIEW JOB CONDITIONS USING EM 385-1-1 AND JOB HAZARD ANALYSIS

COMMENTS: Job conditions were reviewed using EM 385-1-1. AHA was reviewed. All job conditions meet safety standards.

OTHER

OTHER ITEMS OR REMARKS

None.

Scotty Mann — QC MANAGER

7/28/22 — DATE

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC)
(Use highest code): M

Date: 21 December 2021 Project: NE Cape FUDS

Activity: Dredging

Activity Location: Site 28

Prepared By: Brice Engineering, LLC

Risk Assessment Code Matrix

E = Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

Severity	Probability: Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

Add Identified Hazards

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Dredging	slips, trips, and falls; pinch points; communication; noise	Maintain good housekeeping and load according to manufacturer instructions and wear personal flotation device as deemed necessary by the SSHO; wear task appropriate gloves and maintain vigilant awareness of moving parts; establish hand signals and gestures; wear ear protection.	M

Add Items

	EQUIPMENT	TRAINING	INSPECTION
X	Piranha dredge model PS-165E mini dredge (or similar)	Only trained personnel are authorized for use	Daily by operator

Involved Personnel:

Acceptance Authority (digital signature): _____

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
7/28/2022	Northeast Cape	

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Dredging	Dredge, track, pump, hose	Pressurized lines, heavy lifting, slip trips + fall	Level D
Building Berms	Loader, Dozer	Struck by equipment slips, trips, fall, heavy lifting	Level D
Sand bag filling	Shovel, sand bag	Heavy lifting, Slips, trips, + falls	Level D

Name	Signature	Date	Company
1 Greg Filbey		7/28/2022	Brice Eng
2 Dave Chappard		7/28/2022	Brice
3 A. Platt		7/28/2022	Brice
4 Alex Schey		7/28/22	Brice
5 AARON STERNHAGEN		7/28/22	USACE
6 Patrick Schick		7/28/2022	Brice Eng.
7 Chad Acminrout		7/28/2022	Brice ENV.
8 Monte Garrouette		7/28/2022	Brice Env.
9 Tegan Donaldson		7/28/2022	
10 Michael Williams		7/28/2022	BEL
Scotty Mann		7/28/22	BRS

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DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number		UPC/Project Title
W911KB20D0002 / W911KB21F0086		**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**
QC/QA Report Number **0011**	Date or Time Period **Friday 29 July 2022**	Location **Northeast Cape, AK**

Weather

Low Temp: 50° F High Temp: 60° F

Wind Speed: 0-5 mph Conditions: Mostly cloudy

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☐
Initial ☐
Follow-up ☐

Field Sampling and Testing **Yes** ☒ **No** ☐

Type of Test	Method/Matrix	Results
Turbidity	Turbidimeter / Surface Water and Treated Water	5-45 NTU

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

Laboratory Analytical Sampling **Yes** ☒ **No** ☐

Type of Test	Test Method/Matrix	Quantity of Samples
Discrete	BTEX, DRO, PAH / Surface Water	1

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

Notes:

- Site 28 drainage was field sampled for turbidity and one location was sampled for laboratory analysis.
- Treated water from the dewatering system was field sampled for turbidity - odor, and color were also noted.

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☐

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?	**N/A** ☐	**Yes** ☒	**No** ☐
Was a **Job Safety Meeting** held this day? (If yes, attach comments)		**Yes** ☒	**No** ☐
Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report)		**Yes** ☐	**No** ☒
Was **hazardous waste**/materials 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.)

- None

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Work Activities Performed This Date

Prime

- Mobilized to the site.
- Held a tailgate safety meeting.
- Brice continued the Site 28 Pilot Study and dredged water and sediment from Area 9.
- Brice held a post-dredging pilot study review meeting with the crew.
- Brice collected surface water samples at the Site 28 drainage for turbidity and laboratory analysis.
- Brice field sampled discharge water from the dewatering system and nearby background surface water location for turbidity tracking. Odor and color were also noted from the treated water per the discharge permit requirements.

Subcontractors

- Alaska Minerals continued camp maintenance.
- Beacon continued providing emergency medical support.

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12	Volvo 210 Excavator	Volvo Excavator 1	0
Laborer	2	12	John Deere 380 Excavator	John Deere Excavator 1	1
Technical Lead/CQC	2	12	Dump Truck	Dump Truck 1	0
Scientist/Bear Guard	1	12	John Deere 310e Rock Truck	Rock Truck 1	1
Engineer	2	12	Morooka Tracked Vehicle	Morooka 1	1
Environmental Scientist	1	12	John Deere 650 Dozer	Dozer 1	1
Geologist	1	12	John Deere 844 Loader	Loader 1	1
			John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	1
			Kawasaki Teryx UTV	Teryx 3	1
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	0
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***10***	***120***	***NA***	***NA***	***16***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	12	NA	NA	0
Total	***1***	***12***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Total	***2***	***24***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- No materials were received.

Do the materials comply with the contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Equipment Received to be used on Site:

- No equipment was received.

Does the equipment comply with contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.)

- None

Instructions Given by Contractor to Subcontractors **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.

- None

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- None

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- NA

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☒

- None

Deficiencies Corrected This Day **Yes** ☐ **No** ☒

- None

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- None

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Scotty Mann* **Date** 30 July 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 30 July 2022

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☒ **No** ☐
Additional comments or exceptions:

NE Cape QAR Daily Report Comments
Friday, 29 July 2022

Weather: Partly Cloudy/Light breeze. High temp about 55ºF.

Site 15
No work today. Excavation of overburden is expected to begin tomorrow.

Site 28
Brice crew pilot tested dredge equipment and methods at Area 9. Access to Area 9 was via tracked UTV operated along a consistent route that did not disturb active channels or ponds.

Photo 1: Plywood Placed Over Soft Area Along Area 9 Access Route Within Site 28, View N.

Pilot test dredging at Area 9 commenced.

Photos 2 and 3: Pilot Test Dredging Area 9 in Site 28, View S.

Photo 4: Initial Dredge Nozzle, Close-Up.

Note the square holes in the intake nozzle. Also note the agitator (water jet) was disconnected and attached to a metal rod, then the agitator installed on the rod was manipulated near the intake nozzle to break-up the organic layer and loosen sediment beneath the organic layer to enable the material to be drawn into the dredge intake. The dredge intake nozzle frequently plugged with organic material.

Photo 5: Dredge Nozzle for Pilot Test at Area 9 Plugged With Organic Material, Close-Up.

Photo 6: Silt Fence Downstream of Area 9 in Site 28, View N.

Brice initially installed silt fence in two locations downstream from Area 9 to attempt to mitigate water turbidity in Site 28 surface water. Petroleum absorbent booms will be added as a result of the pilot test to mitigate sheen observed on the surface water.

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

SHEWMAN.AARON.F.1387289620 Digitally signed by SHEWMAN.AARON.F.1387289620 Date: 2022.07.31 09:22:17 -08'00'

Government Signature _____

Date_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☐	
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☐	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

PHOTOGRAPHIC LOG – 29 July 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. CM190018

Description:

Photo CM190018. Facing East. Area 9 dredging.

Photograph No. CM190022

Description:

Photo CM190022. Facing Northwest. Flocculant system in operation.

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
7/29/2022	Northeast Cape	[signature]

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Dredging	Dredge, trash pumps, hose, GAC, Sand Pots, Containment	Slips, trips, falls. Pressurized lines, heavy lifting, hearing protection	Level D
↓	Ponds, Sidebyy sides Submerged in cold water	walking on tundra,	Level D

	Name	Signature	Date	Company
1	Greg Filbey	[signature]	7/29/2022	Brice Eng
2	Patrick Schick	[signature]	7/29/2022	Brice Eng.
3	Monte Gorrutte	[signature]	7/29/22	Brice
4	Chad Armintrout	[signature]		Brice ENV.
5	AARON SHEWMAN	[signature]		USACE
6	Craig Perry	Craig Perry		Beacon
7	Tigan Donaldson	[signature]		Brice Eng.
8	Jane Suhey	[signature]		Brice Eng.
9	[illegible]	[signature]		AKMIN
10	Michael Williams	[signature]		BEL
	Dave clifford	[signature]		Brice
	A. Platt	[signature]		Brice
	Scotty Mann	[signature]		Brice

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DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number		UPC/Project Title
W911KB20D0002 / W911KB21F0086		**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**
QC/QA Report Number **0012**	Date or Time Period **Saturday 30 July 2022**	Location **Northeast Cape, AK**

Weather

Low Temp: 50° F High Temp: 60° F

Wind Speed: 0-5 mph Conditions: Partly cloudy

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☒ Site 8 Soil Investigation, Miscellaneous Debris Removal, Groundwater Sampling, Well Maintenance

Initial ☒ LUC Sign Maintenance, Site 15 Excavation

Follow-up ☐

Field Sampling and Testing **Yes** ☒ **No** ☐

Type of Test	Method/Matrix	Results
Turbidity	Aquatroll / Surface Water	5 - 20 NTU
Temperature	Aquatroll / Surface Water	40 - 45 ºF
pH	Aquatroll / Surface Water	6.3 - 6.5
Specific Conductivity	Aquatroll / Surface Water	220 – 225 μS/cm
Oxidation-Reduction Potential	Aquatroll / Surface Water	125 – 145 mV
Dissolved Oxygen	Aquatroll / Surface Water	9.0 – 9.6 mg/L
Sulfate	Colorimeter / Groundwater	10 – 15 mg/L

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

Laboratory Analytical Sampling **Yes** ☒ **No** ☐

Type of Test	Test Method/Matrix	Quantity of Samples
Low-flow Method, Stainless Steel Submersible Pump	DRO, RRO, BTEX, PAH, PCB, RCRA Metals, Nickel, Vanadium, Zinc, Alkalinity, Dissolved Manganese, Sulfate, Methane / Groundwater	2

Have required amount of QC trip blanks and rinsates been achieved? **NA** ☐ **Yes** ☒ **No** ☐

Have appropriate QC laboratory tests been ordered? (matrix spikes, method blanks, surrogates, reference standards, etc.) **NA** ☐ **Yes** ☒ **No** ☐

Have QA and QC samples been collected in the specified quantity? **NA** ☐ **Yes** ☒ **No** ☐

Have samples been properly labeled and packaged? **NA** ☐ **Yes** ☒ **No** ☐

Notes:

- Site 28 drainage was field sampled for water quality parameters for post-dredging Pilot Study monitoring.
- Two monitoring wells (14MW07 and 14MW1) at the MOC were sampled for laboratory analysis.

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☐

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? **N/A** ☐ **Yes** ☒ **No** ☐

Was a **Job Safety Meeting** held this day? (If yes, attach comments) **Yes** ☒ **No** ☐

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report) **Yes** ☐ **No** ☒
Was **hazardous waste**/materials 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.)

- None

Work Activities Performed This Date

Prime

- Mobilized to the site.
- Held a tailgate safety meeting.
- Brice tested sand filter backwash procedures for the Site 28 dredging dewatering system.
- Brice cleaned up the Site 28 dredging area and covered dredging equipment in the Site 28 drainage.
- Brice collected surface water field samples at the Site 28 drainage for water quality parameters.
- Brice sampled two monitoring wells at the MOC for laboratory analysis.
- Brice decommissioned a partially decommissioned monitoring well at Site 19 at the MOC.
- A charter plane carrying personnel and camp supplies arrived on site. One Brice employee arrived. Two Brice personnel demobilized on the charter.

Subcontractors

- Alaska Minerals continued camp maintenance.
- Beacon continued providing emergency medical support.

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12	Volvo 210 Excavator	Volvo Excavator 1	0
Laborer	2	12	John Deere 380 Excavator	John Deere Excavator 1	0
Technical Lead/CQC	2	12/8	Dump Truck	Dump Truck 1	1
Scientist/Bear Guard	1	12	John Deere 310e Rock Truck	Rock Truck 1	1
Engineer	2	12/8	Morooka Tracked Vehicle	Morooka 1	0
Environmental Scientist	1	12	John Deere 650 Dozer	Dozer 1	0
Geologist	1	12	John Deere 844 Loader	Loader 1	0
Driller	1	4	John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	1
			Kawasaki Teryx UTV	Teryx 3	1
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	0
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***11***	***116***	***NA***	***NA***	***13***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	12	NA	NA	0
Total	***1***	***12***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Total	***2***	***24***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- No materials were received.

Do the materials comply with the contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Equipment Received to be used on Site:

- No equipment was received.

Does the equipment comply with contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.)

- None

Instructions Given by Contractor to Subcontractors **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.

- None

Scope of Work/Work Plan Variances **Yes** ☒ **No** ☐

- One partially decommissioned well was completely decommissioned, during removal, the casing was able to be removed to approximately 4.5 feet bgs, but the screen and remaining well components were not accessible by the drill rig. The well annulus was backfilled with bentonite to two feet bgs and filled to the surface with clean sand.

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- None

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☒

- None

Deficiencies Corrected This Day **Yes** ☐ **No** ☒

- None

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- One Brice crew member arrived on the island via Navajo plane, two Brice crew members departed the island.

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Monte Garroutte* **Date** 30 July 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 30 July 2022

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☒ **No** ☐

Additional Comments:

NE Cape QAR Daily Report Comments
Saturday, 30 July 2022

Weather: Cloudy/Foggy/Light breeze in the morning, partial clearing and calm in the evening. High temp about 60ºF.

Site 15
Overburden excavation and stockpiling did not commence today.

Site 28
Brice crew placed plastic over all pumps, engines, and the polymer injection system to protect them from the weather while dredging is temporarily put on-hold.

Brice successfully tested their backflushing method for the sand pot filters that exist between the contaminated water containment and GAC units.

Photo 1: Sand Pot Backflush Setup, View W.

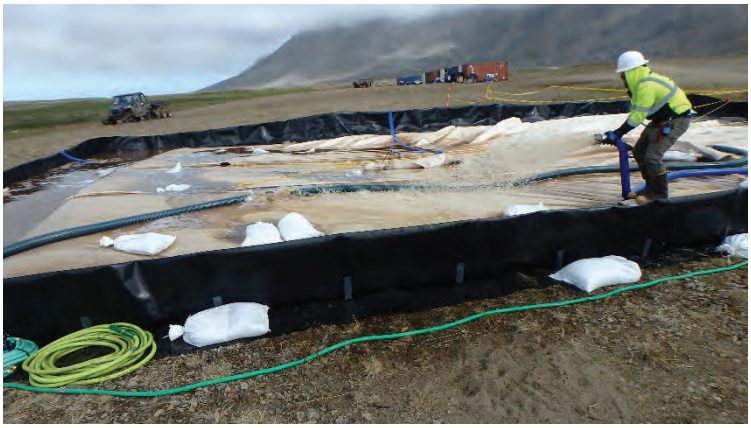

Photo 2: Spraying Geotube with Sand Pot Backflush Water, View E.

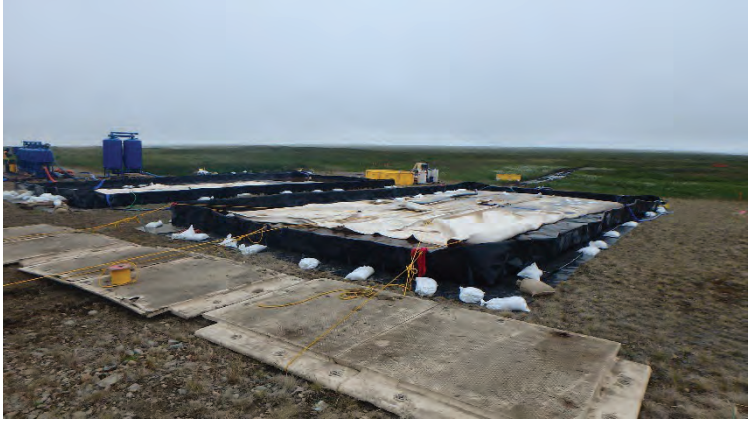

Photo 3: Geotube Anchoring System, View NW.

MOC Activities

MNA Groundwater Sampling

Four Brice crew members were trained on a low-flow groundwater sampling technique by the Brice Field Team Lead, Monte Garroutte. The sampling team collected groundwater samples from monitoring wells 14MW07 and 14MW1 at the MOC.

Photo 4: Brice Crew Training for Groundwater Sample Collection, View S.

Decommissioning Well at Site 19

The Brice driller decommissioned the unidentified monitoring well at Site 19. Approximately 4-feet of PVC well casing was pulled before the casing broke. Then the boring was backfilled using bentonite pellets and sand.

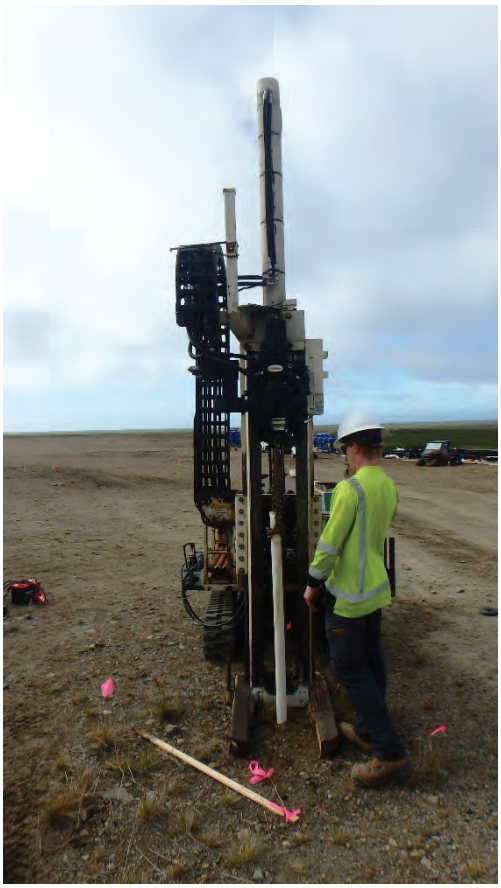

Photo 5: Brice Driller Pulling Unidentified Well Casing at Site 19 During Well Decommissioning, View W.

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

SHEWMAN.AARON.F.1387289620

Digitally signed by SHEWMAN.AARON.F.1387289620
Date: 2022.07.31 16:17:15 -08'00'

Government Signature _____ **Date**_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☐	
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☒	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☒	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

PHOTOGRAPHIC LOG – 30 July 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. CM180010

Description:

Photo CM180010. Facing North. Beginning sampling of monitoring well 17MW1.

Photograph No. CM180012

Description:

Photo CM180012. Facing Southwest. Geoprobe ready to decommission unnamed well.

PREPARATORY PHASE CHECKLIST

(CONTINUED ON SECOND PAGE)

SPEC SECTION	DATE
	7/30/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Miscellaneous Debris Removal	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __24_ HOURS IN ADVANCE: YES ☒ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED? Final Work Plan has been approved.

ARE ALL MATERIALS ON HAND? YES ☒ NO ☐

IF NO, WHAT ITEMS ARE MISSING?

CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL. (THIS SHOULD BE DONE AS MATERIAL ARRIVES.)

COMMENTS: Materials received matched work plan specifications.

MATERIAL STORAGE

ARE MATERIALS STORED PROPERLY? YES ☒ NO ☐

IF NO, WHAT ACTION IS TAKEN?

SPECIFICATIONS

REVIEW EACH PARAGRAPH OF SPECIFICATIONS. Each paragraph of specification has been reviewed.

DISCUSS PROCEDURE FOR ACCOMPLISHING THE WORK. Procedures to accomplish work have been discussed.

CLARIFY ANY DIFFERENCES/DISCREPANCIES. No discrepancies were identified.

PRELIMINARY WORK & PERMITS

☒ ENSURE PRELIMINARY WORK IS CORRECT AND PERMITS ARE ON FILE.

IF NOT, WHAT ACTION IS TAKEN?

TESTING	IDENTIFY TEST TO BE PERFORMED, FREQUENCY, AND BY WHOM. Tests were discussed. Monte Garroutte and Chad Armintrout will track accumulated debris removed. WHEN REQUIRED? The debris will be tracked as it is collected. WHERE REQUIRED? Tests will be conducted in the field. REVIEW TESTING PLAN. Testing plan has been reviewed. HAVE TEST FACILITIES BEEN APPROVED? Test facilities are approved.
SAFETY	HAS ACTIVITY HAZARD ANALYSIS BEEN APPROVED? YES ☒ NO ☐ REVIEW APPLICABLE PORTION OF EM 385-1-1. Applicable portion of 385-1-1 has been reviewed.
MEETING COMMENTS	COMMENTS DURING MEETING. Discussed identifying a specific IP2 bag for debris tracking.
OTHER ITEMS OR REMARKS	OTHER ITEMS OR REMARKS: None

Monte Garroutte — QC MANAGER

7/30/22 — DATE

PREPARATORY PHASE CHECKLIST

(CONTINUED ON SECOND PAGE)

SPEC SECTION	DATE
	7/30/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Groundwater Sampling	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __24_ HOURS IN ADVANCE: YES ☒ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead/CQC	Brice Engineering
Tigan Donaldson	Engineer	Brice Engineering
Michael Williams	Environmental Scientist	Brice Engineering

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED? Final Work Plan has been approved.

ARE ALL MATERIALS ON HAND? YES ☒ NO ☐

IF NO, WHAT ITEMS ARE MISSING?

CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL. (THIS SHOULD BE DONE AS MATERIAL ARRIVES.)

COMMENTS: Materials received matched work plan specifications.

MATERIAL STORAGE

ARE MATERIALS STORED PROPERLY? YES ☒ NO ☐

IF NO, WHAT ACTION IS TAKEN?

SPECIFICATIONS

REVIEW EACH PARAGRAPH OF SPECIFICATIONS. Each paragraph of specification has been reviewed.

DISCUSS PROCEDURE FOR ACCOMPLISHING THE WORK. Procedures to accomplish work have been discussed.

CLARIFY ANY DIFFERENCES/DISCREPANCIES. No discrepancies were identified.

PRELIMINARY WORK & PERMITS

☒ ENSURE PRELIMINARY WORK IS CORRECT AND PERMITS ARE ON FILE.

IF NOT, WHAT ACTION IS TAKEN?

TESTING	IDENTIFY TEST TO BE PERFORMED, FREQUENCY, AND BY WHOM. Tests were discussed. Groundwater analytical samples, field parameters, and field sulfate will be collected. WHEN REQUIRED? Samples will be collected once from each well, parameters will be monitored continuously throughout sampling. WHERE REQUIRED? Laboratory analysis will be conducted at an approved lab, Pace. Field testing will be performed in the field. REVIEW TESTING PLAN. Testing plan has been reviewed. HAVE TEST FACILITIES BEEN APPROVED? Test facilities are approved.
SAFETY	HAS ACTIVITY HAZARD ANALYSIS BEEN APPROVED? YES ☒ NO ☐ REVIEW APPLICABLE PORTION OF EM 385-1-1. Applicable portion of 385-1-1 has been reviewed.
MEETING COMMENTS	COMMENTS DURING MEETING. Discussed well sequence, historical well information.
OTHER ITEMS OR REMARKS	OTHER ITEMS OR REMARKS: None

Monte Garroutte 7/30/22

QC MANAGER DATE

INITIAL PHASE CHECKLIST

SPEC SECTION	DATE
	7/30/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	LUC Sign Maintenance	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __24 HOURS IN ADVANCE: YES ☒ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT
Scotty Mann	Project Manager/QC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering
Monte Garroutte	Technical Lead	Brice Engineering

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Full compliance with procedures is identified. Procedures meet/match specifications, plans, and submittals.

PRELIMINARY WORK

ENSURE PRELIMINARY WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

All preliminary work is complete.

WORKMANSHIP

ESTABLISH QUALITY STANDARDS.

WHERE IS WORK LOCATED? Work is located at Northeast Cape, Alaska.

IS SAMPLE PANEL REQUIRED? YES ☐ NO ☒

WILL THE INIITAL WORK BE CONSIDERED AS A SAMPLE? YES ☐ NO ☒

(IF YES, MAINTAIN IN PRESENT CONDITION AS LONG AS POSSIBLE AND DESCRIBE LOCATION OF SAMPLE)

RESOLUTION

RESOLVE ANY DIFFERENCES/DISCREPANCIES.

COMMENTS: None.

CHECK SAFETY

REVIEW JOB CONDITIONS USING EM 385-1-1 AND JOB HAZARD ANALYSIS

COMMENTS: Job conditions were reviewed using EM 385-1-1. All job conditions meet safety standards.

OTHER

OTHER ITEMS OR REMARKS

None.

Scotty Mann — QC MANAGER

7/30/22 — DATE

PREPARATORY PHASE CHECKLIST

(CONTINUED ON SECOND PAGE)

SPEC SECTION	DATE
	7/30/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Site 8 Soil Investigation	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __24_ HOURS IN ADVANCE: YES ☒ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead/CQC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering
Logan Sanders	Driller	Brice Engineering

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED? Final Work Plan has been approved.

ARE ALL MATERIALS ON HAND? YES ☒ NO ☐

IF NO, WHAT ITEMS ARE MISSING?

CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL. (THIS SHOULD BE DONE AS MATERIAL ARRIVES.)

COMMENTS: Materials received matched work plan specifications.

MATERIAL STORAGE

ARE MATERIALS STORED PROPERLY? YES ☒ NO ☐

IF NO, WHAT ACTION IS TAKEN?

SPECIFICATIONS

REVIEW EACH PARAGRAPH OF SPECIFICATIONS. Each paragraph of specification has been reviewed.

DISCUSS PROCEDURE FOR ACCOMPLISHING THE WORK. Procedures to accomplish work have been discussed.

CLARIFY ANY DIFFERENCES/DISCREPANCIES. No discrepancies were identified.

PRELIMINARY WORK & PERMITS

☒ ENSURE PRELIMINARY WORK IS CORRECT AND PERMITS ARE ON FILE.

IF NOT, WHAT ACTION IS TAKEN?

TESTING	IDENTIFY TEST TO BE PERFORMED, FREQUENCY, AND BY WHOM. Tests were discussed. Soil boring samples will be collected
	WHEN REQUIRED? Soil and/or sediment samples will be collected from each soil boring or hand auger boring.
	WHERE REQUIRED? Laboratory analysis will be conducted at an approved lab, Pace.
	REVIEW TESTING PLAN. Testing plan has been reviewed.
	HAVE TEST FACILITIES BEEN APPROVED? Test facilities are approved.
SAFETY	HAS ACTIVITY HAZARD ANALYSIS BEEN APPROVED? YES ☒ NO ☐
	REVIEW APPLICABLE PORTION OF EM 385-1-1. Applicable portion of 385-1-1 has been reviewed.
MEETING COMMENTS	COMMENTS DURING MEETING. Discussed soil boring placement, drill rig access.
OTHER ITEMS OR REMARKS	OTHER ITEMS OR REMARKS: None

Monte Garroutte 7/30/22

QC MANAGER DATE

INITIAL PHASE CHECKLIST

SPEC SECTION	DATE
	7/30/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Site 15 Excavation	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __24 HOURS IN ADVANCE: YES ☒ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT
Scotty Mann	Project Manager/QC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering
Monte Garroutte	Technical Lead	Brice Engineering

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Full compliance with procedures is identified. Procedures meet/match specifications, plans, and submittals.

PRELIMINARY WORK

ENSURE PRELIMINARY WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

All preliminary work is complete.

WORKMANSHIP

ESTABLISH QUALITY STANDARDS.

WHERE IS WORK LOCATED? Work is located at Northeast Cape, Alaska.

IS SAMPLE PANEL REQUIRED? YES ☐ NO ☒

WILL THE INIITAL WORK BE CONSIDERED AS A SAMPLE? YES ☐ NO ☒

(IF YES, MAINTAIN IN PRESENT CONDITION AS LONG AS POSSIBLE AND DESCRIBE LOCATION OF SAMPLE)

RESOLUTION

RESOLVE ANY DIFFERENCES/DISCREPANCIES.

COMMENTS: None.

CHECK SAFETY

REVIEW JOB CONDITIONS USING EM 385-1-1 AND JOB HAZARD ANALYSIS

COMMENTS: Job conditions were reviewed using EM 385-1-1. AHAs were reviewed. All job conditions meet safety standards.

OTHER

OTHER ITEMS OR REMARKS

None.

Scotty Mann — QC MANAGER

7/30/22 — DATE

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
7/30/22	North East Cape	[illegible]

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Prep for digging Activities	Saw-All Metal Cutting, skid-steer loader-	cuts, struck by, vibration,	Level D
Moving Hoses, Lumber, Generator, pumps	Skid-steer, Side x Side,	Strains, Muscle pull, Back	Level D
Build wood structures 4 holding ponds	Screw gun, screws, lumber	puncture, strains slip, trips, Falls	Level D

	Name	Signature	Date	Company
1	Chad Armistead	[illegible]	7/30/22	Brice ENV.
2	Monte Garoutte	[illegible]	7/30/22	Brice
3	Greg Filhey	[illegible]	7/30/22	Brice Eng
4	Tyler Donaldson	[illegible]	7/30/22	Brice Eng.
5	Aaron Stenmark	[illegible]	7/30/22	USACE
6	Michael Williams	[illegible]	7/30/22	BEL
7	[illegible]	[illegible]	7/30/22	BRice
8	[illegible]	[illegible]	7-30-22	[illegible]
9	Brady Sharp	[illegible]	7-30	AKMin
10	Juan Schely	[illegible]	7/30/22	Brice
	Scotty [illegible]	[illegible]	7/30/22	BRS

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DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number		UPC/Project Title
W911KB20D0002 / W911KB21F0086		**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**
QC/QA Report Number **0013**	Date or Time Period **Sunday 31 July 2022**	Location **Northeast Cape, AK**

Weather

Low Temp: 40° F High Temp: 50° F

Wind Speed: 0-15 mph Conditions: Mostly cloudy

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☒ Well Maintenance

Initial ☒ Site 8 Soil Investigation, Miscellaneous Debris Removal, Groundwater Sampling

Follow-up ☒ Premobilization and Site Inspection, Mobilization

Field Sampling and Testing **Yes** ☒ **No** ☐

Type of Test	Method/Matrix	Results
Sulfate	Colorimeter / Groundwater	10-20 mg/L
PID	Headspace / Soil	0.1 – 288 ppm

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

Laboratory Analytical Sampling **Yes** ☒ **No** ☐

Type of Test	Test Method/Matrix	Quantity of Samples
Low-flow Method, Stainless Steel Submersible Pump	DRO, RRO, BTEX, PAH, PCB, Alkalinity, Manganese, Sulfate, Methane, and both dissolved (lab filtered) and totals RCRA Metals plus Nickel, Vanadium, Zinc / Groundwater	5
Soil sample from soil boring	DRO/RRO (with and without silica gel), PAH / Soil	8

Have required amount of QC trip blanks and rinsates been achieved? **NA** ☐ **Yes** ☒ **No** ☐

Have appropriate QC laboratory tests been ordered? (matrix spikes, method blanks, surrogates, reference standards, etc.) **NA** ☐ **Yes** ☒ **No** ☐

Have QA and QC samples been collected in the specified quantity? **NA** ☐ **Yes** ☒ **No** ☐

Have samples been properly labeled and packaged? **NA** ☐ **Yes** ☒ **No** ☐

Notes:

- Site 8 soil was sampled for laboratory analysis.
- Five monitoring wells at the MOC were sampled for laboratory analysis and field sulfate concentrations.

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☐

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? **N/A** ☐ **Yes** ☒ **No** ☐

Was a **Job Safety Meeting** held this day? (If yes, attach comments) **Yes** ☒ **No** ☐

Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report) **Yes** ☐ **No** ☒

Was **hazardous waste**/materials released into the environment? **Yes** ☐ **No** ☒

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Safety Comments: (Include any infractions of approved safety plan, and include instructions from Government personnel. Specify corrective action taken.)

- None

Work Activities Performed This Date

Prime

- Mobilized to the site.
- Held a tailgate safety meeting.
- Brice constructed a lined stockpile area for overburden soil at Site 15.
- Brice held an AHA/safety meeting for excavation activities.
- Brice began excavating and stockpiling overburden at Site 15. PID screening of overburden soil ranged from 0.1-224.2 ppm.
- Brice started filling an IP2 supersack container with inert debris collected from Northeast Cape sites.
- Brice continued collecting groundwater samples from monitoring wells at the MOC.
- Brice held an AHA review/safety meeting for drilling activities.
- Brice began drilling soil borings and collected soil samples at Site 8.
- Brice removed miscellaneous debris from the MOC ground surface and from the Site 15 excavation.

Subcontractors

- Alaska Minerals continued camp maintenance.
- Beacon continued providing emergency medical support.

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12	Volvo 210 Excavator	Volvo Excavator 1	0
Laborer	2	12	John Deere 380 Excavator	John Deere Excavator 1	1
Technical Lead/CQC	1	12	Dump Truck	Dump Truck 1	1
Scientist/Bear Guard	1	12	John Deere 310e Rock Truck	Rock Truck 1	1
Engineer	1	12	Morooka Tracked Vehicle	Morooka 1	0
Environmental Scientist	1	12	John Deere 650 Dozer	Dozer 1	1
Geologist	1	12	John Deere 844 Loader	Loader 1	1
Driller	1	12	John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	0
			Kawasaki Teryx UTV	Teryx 3	0
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	0
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	1
Total	***9***	***108***	***NA***	***NA***	***15***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	12	NA	NA	0
Total	***1***	***12***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Total	***2***	***24***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- No materials were received.

Do the materials comply with the contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Equipment Received to be used on Site:

- No equipment was received.

Does the equipment comply with contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.)

- None

Instructions Given by Contractor to Subcontractors **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.

- None

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- None

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- None

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☒ **No** ☐

- Field testing for groundwater MNA parameters as written in the workplan includes ferrous iron and nitrates. The appropriate field sampling materials were not brought with the sampling team to collect ferrous iron and nitrates.

Deficiencies Corrected This Day **Yes** ☒ **No** ☐

- Ferrous iron and nitrate sampling reagent “pillows” were ordered for delivery to the project site.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- None

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Monte Garroutte* **Date** 31 July 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 31 July 2022

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☒ **No** ☐

Additional Comments:

NE Cape QAR Daily Report Comments
Sunday, 31 July 2022

Weather: Cloudy/Foggy/Light breeze in the morning. High temp about 55ºF.

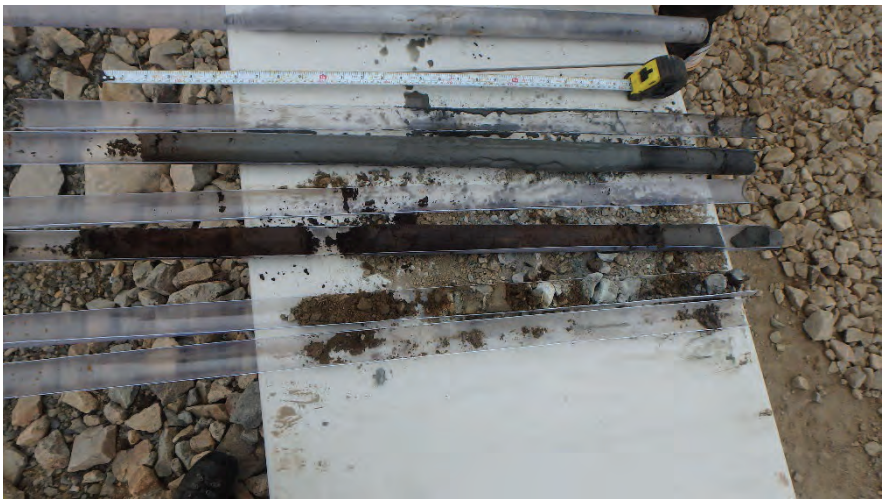
Camp

Camp satellite internet reception is fair. USACE VPN is possible only when Brice crew is away from camp. Camp layout is efficient.

Photo 1 and 2: Camp satellite dish for internet, View west; View of camp at Site 6 from Site 7 Landfill, View northeast.

Site 8

Direct-push soil borings commenced today. Eight borings were installed and soil samples were collected.



Photos 3, 4 and 5: Installing soil borings at Site 8, View southwest, south, and close-up, respectively.

Site 15

The soil stockpile area was lined, and overburden excavation and stockpiling commenced today.

Photos 5 and 6: Excavating soil from Site 15, View west; Placing soil from Site 15 at the Site 15 stockpile area, View north.

Site 28

Dredging is temporarily on-hold while Brice focuses on other activities.

MNA Groundwater Sampling

The sampling team collected groundwater samples from five monitoring wells at the MOC. Note, two wells at the MOC will be developed and allowed to stabilize for at least 48-hours before samples will be collected.

Photo 7: Collecting groundwater sample from a monitoring well at the MOC, View west.

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

SHEWMAN.AARON.F.1387289620 Digitally signed by SHEWMAN.AARON.F.1387289620 Date: 2022.08.01 14:56:19 -08'00'

Government Signature _____ **Date**_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☒	Follow-up Inspection Form
☒	Activity Hazard Analyses	☐	Punchlist	☐	
☒	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☒	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

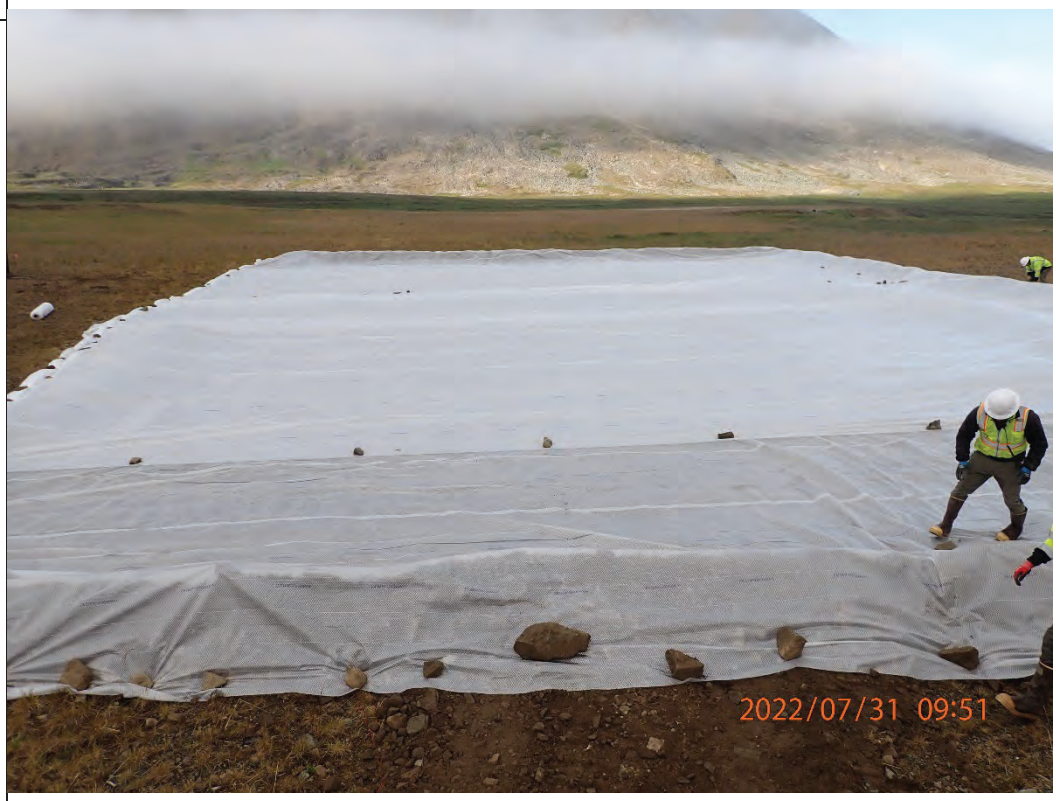
PHOTOGRAPHIC LOG – 31 July 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. CM180013

Description:

Photo CM180013. Facing Southwest. Laying out liner for Site 15 excavation stockpiled soil.



Photograph No. CM190026

Description:

Photo CM190026. Facing East. Brice sampling well MW88-1.

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC)
(Use highest code): H

Date: 21 December 2021 Project: NE Cape FUDS

Activity: Drilling

Activity Location: Site 8

Prepared By: Brice Engineering, LLC

Risk Assessment Code Matrix

E = Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

Severity	Probability: Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

Add Identified Hazards

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Drilling	slips, trips, and falls; uneven terrain; pinch points; overhead hazards; communication; noise	Maintain good housekeeping; wear safety-toed boots and create walkways as necessary; wear task-appropriate gloves and maintain vigilant awareness of moving parts; move drill rig with mast down and wear a hard hat; establish hand signals/gestures; wear ear protection	H

Add Items

	EQUIPMENT	TRAINING	INSPECTION
X	Geoprobe 6620, track mounted, direct push drill rig	Only trained/certified personnel are authorized for operation	Daily by operator

Involved Personnel:

Acceptance Authority (digital signature): _____

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC)
(Use highest code): H

Date: 21 December 2021 Project: NE Cape FUDS

Activity: Heavy Equipment

Activity Location: Site 15

Prepared By: Brice Engineering, LLC

Risk Assessment Code Matrix

E = Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

Severity	Probability: Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

Add Identified Hazards

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Excavation	slips, trips, and falls; pinch points; overhead hazards; communication; noise; rollover	Maintain adequate footing and three points of contact when entering and leaving heavy equipment; use gloves and maintain vigilant awareness of moving parts; wear a hard hat, avoid swing radius, do not enter swing radius when bucket is in motion; establish hand signals and eye-contact to be followed during operations; wear ear protection; take care on uneven terrain.	H

Add Items

	EQUIPMENT	TRAINING	INSPECTION
X	Excavator	Only trained personnel are authorized for operation	Daily

Involved Personnel:

Acceptance Authority (digital signature): Chad Armintrout 7/19/22

NWW Form 385-1 (Revised) April 2008

PREPARATORY PHASE CHECKLIST

(CONTINUED ON SECOND PAGE)

SPEC SECTION	DATE
	7/31/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Well Maintenance	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __24_ HOURS IN ADVANCE: YES ☒ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead/CQC	Brice Engineering
Tigan Donaldson	Engineer	Brice Engineering
Logan Sanders	Driller	Brice Engineering

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED? Final Work Plan has been approved.

ARE ALL MATERIALS ON HAND? YES ☒ NO ☐

IF NO, WHAT ITEMS ARE MISSING?

CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL. (THIS SHOULD BE DONE AS MATERIAL ARRIVES.)

COMMENTS: Materials received matched work plan specifications.

MATERIAL STORAGE

ARE MATERIALS STORED PROPERLY? YES ☒ NO ☐

IF NO, WHAT ACTION IS TAKEN?

SPECIFICATIONS

REVIEW EACH PARAGRAPH OF SPECIFICATIONS. Each paragraph of specification has been reviewed.

DISCUSS PROCEDURE FOR ACCOMPLISHING THE WORK. Procedures to accomplish work have been discussed.

CLARIFY ANY DIFFERENCES/DISCREPANCIES. No discrepancies were identified.

PRELIMINARY WORK & PERMITS

☒ ENSURE PRELIMINARY WORK IS CORRECT AND PERMITS ARE ON FILE.

IF NOT, WHAT ACTION IS TAKEN?

TESTING	IDENTIFY TEST TO BE PERFORMED, FREQUENCY, AND BY WHOM. Tests were discussed. Wells will be surveyed. Well repairs will be inspected and documented. WHEN REQUIRED? Water levels will be surveyed at the end of the project in the field. WHERE REQUIRED? Field testing will be performed in the field. REVIEW TESTING PLAN. Testing plan has been reviewed. HAVE TEST FACILITIES BEEN APPROVED? Test facilities are approved.
SAFETY	HAS ACTIVITY HAZARD ANALYSIS BEEN APPROVED? YES ☒ NO ☐ REVIEW APPLICABLE PORTION OF EM 385-1-1. Applicable portion of 385-1-1 has been reviewed.
MEETING COMMENTS	COMMENTS DURING MEETING. Discussed damaged well information.
OTHER ITEMS OR REMARKS	OTHER ITEMS OR REMARKS: None

Monte Garroutte 7/31/22

QC MANAGER DATE

INITIAL PHASE CHECKLIST

SPEC SECTION	DATE
	7/31/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Miscellaneous Debris Removal	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __24 HOURS IN ADVANCE: YES ☒ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead/CQC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Full compliance with procedures is identified. Procedures meet/match specifications, plans, and submittals.

PRELIMINARY WORK

ENSURE PRELIMINARY WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

All preliminary work is complete.

WORKMANSHIP

ESTABLISH QUALITY STANDARDS.

WHERE IS WORK LOCATED? Work is located at Northeast Cape, Alaska.

IS SAMPLE PANEL REQUIRED? YES ☐ NO ☒

WILL THE INIITAL WORK BE CONSIDERED AS A SAMPLE? YES ☐ NO ☒

(IF YES, MAINTAIN IN PRESENT CONDITION AS LONG AS POSSIBLE AND DESCRIBE LOCATION OF SAMPLE)

RESOLUTION

RESOLVE ANY DIFFERENCES/DISCREPANCIES.

COMMENTS: None.

CHECK SAFETY

REVIEW JOB CONDITIONS USING EM 385-1-1 AND JOB HAZARD ANALYSIS

COMMENTS: Job conditions were reviewed using EM 385-1-1. AHAs were reviewed. All job conditions meet safety standards.

OTHER

OTHER ITEMS OR REMARKS

Crew discussed a naming convention for debris containers and discussed debris tracking.

Monte Garroutte 7/31/22

QC MANAGER DATE

INITIAL PHASE CHECKLIST

SPEC SECTION	DATE
	7/31/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Groundwater Monitoring	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __24 HOURS IN ADVANCE: YES ☒ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead/CQC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering
Tigan Donaldson	Engineer	Brice Engineering

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Full compliance with procedures is identified. Procedures meet/match specifications, plans, and submittals.

PRELIMINARY WORK

ENSURE PRELIMINARY WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

All preliminary work is complete.

WORKMANSHIP

ESTABLISH QUALITY STANDARDS.

WHERE IS WORK LOCATED? Work is located at Northeast Cape, Alaska.

IS SAMPLE PANEL REQUIRED? YES ☒ NO ☐

WILL THE INIITAL WORK BE CONSIDERED AS A SAMPLE? YES ☐ NO ☒

(IF YES, MAINTAIN IN PRESENT CONDITION AS LONG AS POSSIBLE AND DESCRIBE LOCATION OF SAMPLE)

RESOLUTION

RESOLVE ANY DIFFERENCES/DISCREPANCIES.

COMMENTS: None.

CHECK SAFETY

REVIEW JOB CONDITIONS USING EM 385-1-1 AND JOB HAZARD ANALYSIS

COMMENTS: Job conditions were reviewed using EM 385-1-1. AHAs were reviewed. All job conditions meet safety standards.

OTHER

OTHER ITEMS OR REMARKS

None.

Monte Garroutte 7/31/22

QC MANAGER DATE

INITIAL PHASE CHECKLIST

SPEC SECTION	DATE
	7/31/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Site 8 Investigation	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __24 HOURS IN ADVANCE: YES ☒ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead/CQC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering
Logan Sanders	Driller	Brice Engineering

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Full compliance with procedures is identified. Procedures meet/match specifications, plans, and submittals.

PRELIMINARY WORK

ENSURE PRELIMINARY WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

All preliminary work is complete.

WORKMANSHIP

ESTABLISH QUALITY STANDARDS.

WHERE IS WORK LOCATED? Work is located at Northeast Cape, Alaska.

IS SAMPLE PANEL REQUIRED? YES ☒ NO ☐

WILL THE INIITAL WORK BE CONSIDERED AS A SAMPLE? YES ☐ NO ☒

(IF YES, MAINTAIN IN PRESENT CONDITION AS LONG AS POSSIBLE AND DESCRIBE LOCATION OF SAMPLE)

RESOLUTION

RESOLVE ANY DIFFERENCES/DISCREPANCIES.

COMMENTS: None.

CHECK SAFETY

REVIEW JOB CONDITIONS USING EM 385-1-1 AND JOB HAZARD ANALYSIS

COMMENTS: Job conditions were reviewed using EM 385-1-1. AHAs were reviewed. All job conditions meet safety standards.

OTHER

OTHER ITEMS OR REMARKS

None.

Monte Garroutte — QC MANAGER

7/31/22 — DATE

FOLLOW UP PHASE CHECKLIST

SPEC SECTION	DATE
	7/31/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Pre-Mobilization and Site Inspection	

PERSONNEL PRESENT

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead/CQC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering
Brady Sharp	Camp Maintenance	Alaska Minerals

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Project has proceeded in full compliance with procedures identified at preparatory phase. Inventory was inspected, camp setup has been completed, and all personnel have arrived. Airstrip and roads have been repaired to allow for completion of mobilization. Submittals will be included in reporting.

REWORK ITEM COMPLETE

ENSURE ANY REWORK ITEM IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

No rework items were required. Several items were flown in, including the camp incinerator, several job generators, and a satellite dish. Airstrip and roads were repaired to the extent possible.

WORK COMPLETE

ENSURE PRELIMINARY AND FOLLOW UP WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

COMMENTS: Preliminary and follow up work is complete and correct. Inventory has arrived at the work location. In total, six two-sided 20-foot sleeper tents, one 40-foot kitchen tent, one 30-foot washhouse, one 20-foot office, two 10-foot sleeper tents, the camp generator, a 2-sided privy, incinerator, internet, and water storage/treatment system have been set up. The job site Has been prepared for all SOW activities.

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NOT, WHAT ITEMS HAVE NOT BEEN SUBMITTED?

OTHER

OTHER ITEMS OR REMARKS

None.

Monte Garroutte 7/31/22

QC MANAGER DATE

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FOLLOW UP PHASE CHECKLIST

SPEC SECTION	DATE
	7/31/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Mobilization and Site Setup	

PERSONNEL PRESENT

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead/CQC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering
Brady Sharp	Camp Maintenance	Alaska Minerals

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Project has proceeded in full compliance with procedures identified at preparatory phase. Inventory was inspected, camp setup has been completed, and all personnel have arrived. Submittals will be included in reporting.

REWORK ITEM COMPLETE

ENSURE ANY REWORK ITEM IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

No rework items were required. Several items were flown in, including the camp incinerator, several job generators, and a satellite dish.

WORK COMPLETE

ENSURE PRELIMINARY AND FOLLOW UP WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

COMMENTS: Preliminary and follow up work is complete and correct. Inventory has arrived at the work location. In total, six two-sided 20-foot sleeper tents, one 40-foot kitchen tent, one 30-foot washhouse, one 20-foot office, two 10-foot sleeper tents, the camp generator, a 2-sided privy, incinerator, internet, and water storage/treatment system have been set up.

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NOT, WHAT ITEMS HAVE NOT BEEN SUBMITTED?

OTHER

OTHER ITEMS OR REMARKS

None.

Monte Garroutte 7/31/22

QC MANAGER DATE

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DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number		UPC/Project Title
W911KB20D0002 / W911KB21F0086		**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**
QC/QA Report Number	Date or Time Period	Location
0014	**Monday 1 August 2022**	**Northeast Cape, AK**

Weather

Low Temp: 40° F High Temp: 50° F

Wind Speed: 0-15 mph Conditions: Rain, Mostly cloudy

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☐
Initial ☐
Follow-up ☐

Field Sampling and Testing **Yes** ☒ **No** ☐

Type of Test	Method/Matrix	Results
Sulfate	Colorimeter / Groundwater	10-20 mg/L
Turbidity, DO, ORP, Cond., pH, temperature	Aquatroll / Groundwater	Various
PID	Headspace / Soil	0.1 – 288 ppm

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

Laboratory Analytical Sampling **Yes** ☒ **No** ☐

Type of Test	Test Method/Matrix	Quantity of Samples
Low-flow Method, Stainless Steel Submersible Pump	DRO, RRO, BTEX, PAH, PCB, Alkalinity, Manganese, Sulfate, Methane, and both dissolved (lab filtered) and totals RCRA Metals plus Nickel, Vanadium, Zinc / Groundwater	3
Soil sample from soil boring	DRO/RRO (with and without silica gel), PAH / Soil	8

Have required amount of QC trip blanks and rinsates been achieved? **NA** ☐ **Yes** ☒ **No** ☐

Have appropriate QC laboratory tests been ordered? (matrix spikes, method blanks, surrogates, reference standards, etc.) **NA** ☐ **Yes** ☒ **No** ☐

Have QA and QC samples been collected in the specified quantity? **NA** ☐ **Yes** ☒ **No** ☐

Have samples been properly labeled and packaged? **NA** ☐ **Yes** ☒ **No** ☐

Notes:

- Site 8 soil was sampled for laboratory analysis.
- Three monitoring wells at the MOC were sampled for laboratory analysis, field parameters, and field sulfate concentrations.
- Two monitoring wells at the MOC were redeveloped and analyzed for field parameters.

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☐

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? **N/A** ☐ **Yes** ☒ **No** ☐

Was a **Job Safety Meeting** held this day? (If yes, attach comments) **Yes** ☒ **No** ☐

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report) **Yes** ☐ **No** ☒
Was **hazardous waste**/materials 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.)

- None

Work Activities Performed This Date

Prime

- Mobilized to the site.
- Held a tailgate safety meeting.
- Brice continued excavating and stockpiling overburden at Site 15. PID screening of overburden soil ranged from 2.2-432.2 ppm.
- Brice continued filling an IP2 supersack container with inert debris collected from Northeast Cape sites.
- Brice continued collecting groundwater samples from monitoring wells at the MOC.
- Brice redeveloped two monitoring wells at the MOC, after 48 hours they will be sampled.
- Brice continued drilling soil borings and collecting soil samples at Site 8.
- Brice removed miscellaneous debris from the MOC ground surface and from the Site 15 excavation.

Subcontractors

- Alaska Minerals continued camp maintenance.
- Beacon continued providing emergency medical support.

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12	Volvo 210 Excavator	Volvo Excavator 1	0
Laborer	2	12	John Deere 380 Excavator	John Deere Excavator 1	1
Technical Lead/CQC	1	12	Dump Truck	Dump Truck 1	1
Scientist/Bear Guard	1	12	John Deere 310e Rock Truck	Rock Truck 1	1
Engineer	1	12	Morooka Tracked Vehicle	Morooka 1	0
Environmental Scientist	1	12	John Deere 650 Dozer	Dozer 1	1
Geologist	1	12	John Deere 844 Loader	Loader 1	1
Driller	1	12	John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	0
			Kawasaki Teryx UTV	Teryx 3	0
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	0
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	1
Total	***9***	***108***	***NA***	***NA***	***15***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	12	NA	NA	0
Total	***1***	***12***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Total	***2***	***24***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- No materials were received.

Do the materials comply with the contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Equipment Received to be used on Site:

- No equipment was received.

Does the equipment comply with contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.)

- None

Instructions Given by Contractor to Subcontractors **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.

- None

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- None

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- None

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☐

- None.

Deficiencies Corrected This Day **Yes** ☐ **No** ☐

- None.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- None

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Monte Garroutte* **Date** 1 August 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 1 August 2022

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☒ **No** ☐

Additional Comments:

NE Cape QAR Daily Report Comments
Monday, 1 August 2022

Weather: Cloudy/Foggy/Calm in the morning, partial clearing in the evening. High temp about 50ºF.

Site 8

Direct-push soil boring installation and soil sampling continued today.

Photo 1: Identifying future soil boring locations at Site 8, View southeast.

Photo 2: Soil cores at Site 8, View Close-Up.

Site 15

Overburden soil removal and stockpiling continued.

Photos 3 and 4: Excavating overburden soil at Site 15, View northwest; Building soil stockpile from Site 15 overburden, View northwest.

Site 28

Dredging is temporarily on-hold while Brice focuses on other activities.

MNA Groundwater at the MOC

Brice staff developed monitoring wells 14MW04 and MW10-1 and will allow at least 48-hours to pass before collecting groundwater samples from the two wells. Today, samples were collected from three monitoring wells.

Photo 5: Developing monitoring well 14MW04 at the MOC, View northeast.

Photo 6: Collecting a groundwater sample from a monitoring well at the MOC, View east

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

SHEWMAN.AARON.F.1387289620

Digitally signed by SHEWMAN.AARON.F.1387289620
Date: 2022.08.02 09:50:07 -08'00'

Government Signature _____ **Date**_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☐	Follow-up Inspection Form
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☐	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

PHOTOGRAPHIC LOG – 01 August 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. CM190029

Description:

Photo CM190029. Facing North. Beginning benching along north side of Site 15 excavation.

Photograph No. CM180027

Description:

Photo CM180027. Facing Down. SB12.

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
8/1/22	North East Cape	

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Excavation of overburden	~~Struck by Cave IN~~, Excavator, Dozer, Dump truck Rock truck	Struck-by, cave IN Falling Rocks	Level D "High Viz"
Drilling	Drill Rig, Pipe wrenches	Pinch points, struck by, noise	Level D "Ear muffs"

	Name	Signature	Date	Company
1	Chad Almington		8/1/22	Brice ENV.
2	Monte Garoutte			Brice
3	Patrick Schick			Brice Eng.
4	Logan Sanders			Brice Env.
5	Tigan Donaldson			Brice Eng.
6	Craig Perry			Beacon
7	Dale Clifford			Brice
8	A. Plan-r			Brice
9	Jane Schay			Brice
10	Michael Williams			BEL
	AARON STEARNAIV			USACE
	Brady Sharp			Akmin

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DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number		UPC/Project Title
W911KB20D0002 / W911KB21F0086		**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**
QC/QA Report Number **0015**	Date or Time Period **Tuesday 2 August 2022**	Location **Northeast Cape, AK**

Weather

Low Temp: 40° F High Temp: 55° F

Wind Speed: 0-15 mph Conditions: Clear, Sunny

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☐
Initial ☐
Follow-up ☐

Field Sampling and Testing **Yes** ☒ **No** ☐

Type of Test	Method/Matrix	Results
Sulfate	Colorimeter / Groundwater	10-20 mg/L
Turbidity, DO, ORP, Cond., pH, temperature	Aquatroll / Groundwater	Various
PID	Headspace / Soil	2.2 – 35.5 ppm

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

Laboratory Analytical Sampling **Yes** ☒ **No** ☐

Type of Test	Test Method/Matrix	Quantity of Samples
Low-flow Method, Stainless Steel Submersible Pump	DRO, RRO, BTEX, PAH, PCB, Alkalinity, Manganese, Sulfate, Methane, and both dissolved (lab filtered) and totals RCRA Metals plus Nickel, Vanadium, Zinc / Groundwater	1
Soil sample from soil boring	DRO/RRO (with and without silica gel), PAH / Soil	9

Have required amount of QC trip blanks and rinsates been achieved? **NA** ☐ **Yes** ☒ **No** ☐

Have appropriate QC laboratory tests been ordered? (matrix spikes, method blanks, surrogates, reference standards, etc.) **NA** ☐ **Yes** ☒ **No** ☐

Have QA and QC samples been collected in the specified quantity? **NA** ☐ **Yes** ☒ **No** ☐

Have samples been properly labeled and packaged? **NA** ☐ **Yes** ☒ **No** ☐

Notes:

- Site 8 soil was sampled for laboratory analysis.
- One monitoring well at the MOC was sampled for laboratory analysis, field parameters, and field sulfate concentrations.

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☐

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? **N/A** ☐ **Yes** ☒ **No** ☐

Was a **Job Safety Meeting** held this day? (If yes, attach comments) **Yes** ☒ **No** ☐

Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report) **Yes** ☐ **No** ☒

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Was **hazardous waste**/materials 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.)

- None

Work Activities Performed This Date

Prime

- Held a tailgate safety meeting.
- Brice continued excavating at Site 15 and stockpiling overburden. PID screening of overburden soil ranged from 2.2-35.5 ppm.
- Brice continued filling an IP2 supersack container with inert debris collected from Northeast Cape sites.
- Brice continued collecting groundwater samples from monitoring wells at the MOC.
- Brice continued drilling soil borings and collecting soil samples at Site 8.
- Two ADEC regulators arrived on site via air charter for a site visit 2 August - 4 August.
- One Brice employee left via air charter.
- Various supplies were received on the air charter.
- Two water sample coolers were sent on the air charter for laboratory analysis.
- Brice and the USACE QAR conducted a site tour for the ADEC regulators.

Item	Scope	Units	Total Completed	Remaining
Site 15 DRO-Contaminated Soil Excavation	500	Tons	0	500
Site 28 Sediment Dredging (estimated)	196	cy	4	192
Site 28 Mapping	1	Each	0	1
Site 28 Sediment Sampling	60	Sediment Samples	0	60
Site 28 Pre- and Post-Treatment Area ISM Samples	2	Sample	1	1
Site 28 Surface Water Samples	12	Sample	4	8
Gravel Airstrip Repair	1	Each	1	0
Gravel Road Repair	1	Each	1	0
Miscellaneous Drums and Debris	5	Tons	1.25	3.75
Site 7 Landfill Cap - add cap material	50	cy	0	50
Site 8 Pipeline Break Soil Borings	30	Samples	25	6
MOC Monitoring Wells Sampled	15	Well	10	5
MOC Monitoring Wells Redeveloped	2	Well	2	0
MOC Monitoring Wells Repaired	3	Well	0	3
MOC Monitoring Wells Decommissioned	1	Well	1	0
Soil Stockpiles			1	
Soil Excavations			1	
Photographs Taken			62	

Subcontractors

- Alaska Minerals continued camp maintenance.
- Beacon continued providing emergency medical support.

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12	Volvo 210 Excavator	Volvo Excavator 1	0
Laborer	2	12	John Deere 380 Excavator	John Deere Excavator 1	1
Technical Lead/CQC	1	12	Dump Truck	Dump Truck 1	1
Scientist/Bear Guard	1	12	John Deere 310e Rock Truck	Rock Truck 1	1
Engineer	1	12	Morooka Tracked Vehicle	Morooka 1	0
Environmental Scientist	1	12	John Deere 650 Dozer	Dozer 1	1
Geologist	1	12	John Deere 844 Loader	Loader 1	1
Driller	1	12	John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	0
			Kawasaki Teryx UTV	Teryx 3	0
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	1
Total	***9***	***108***	***NA***	***NA***	***16***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	12	NA	NA	0
Total	***1***	***12***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Total	***2***	***24***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- Various materials were received via air charter including hand tools, electrical repair supplies, and tire repair supplies.

Do the materials comply with the contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Equipment Received to be used on Site:

- No equipment was received.

Does the equipment comply with contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.)

- None

Instructions Given by Contractor to Subcontractors **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.

- None

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- None

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- None

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☐

- None.

Deficiencies Corrected This Day **Yes** ☐ **No** ☐

- None.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- Brice and the USACE QAR conducted a site tour with the two ADEC CSP regulators.

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Monte Garroutte* **Date** 2 August 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 2 August 2022

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☒ **No** ☐

Additional Comments:

NE Cape QAR Daily Report Comments
Tuesday, 2 August 2022

Weather: Mostly clear, sunny, and calm, becoming breezy in the afternoon. High temp about 65ºF.

Miscellaneous

A Bering Air Navajo aircraft charter with two ADEC representatives, Curtis Dunkin, and Erica Blake, and some freight arrived today. The QAR and Brice Field Team Lead, Monte Garroutte, spent the afternoon discussing the site and leading a tour of the sites where fieldwork is underway.

Photo 1: Touring Site 15 excavation with ADEC representatives, View west.

Photo 2: Touring Site 28 with ADEC representatives, View southwest.

Site 8

Direct-push soil boring installation and soil sampling continued today.

Photo 3: Installing Soil Borings at Site 8, View south.

Photo 4: Soil Cores from Site 8, Close-Up.

Site 15

Overburden soil removal and stockpiling continued.

Photo 5: Excavating overburden soil at Site 15, View west.

Site 28

Dredging is temporarily on-hold while Brice focuses on other activities.

MNA Groundwater at the MOC

Brice staff collected groundwater samples from one well.

Photo 6: Setting up to collect groundwater samples from a monitoring well at the MOC, View west.

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

SHEWMAN.AARON.F.1387289620 Digitally signed by SHEWMAN.AARON.F.1387289620 Date: 2022.08.04 07:57:44 -08'00'

Government Signature _____ **Date**_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☐	Follow-up Inspection Form
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☐	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

PHOTOGRAPHIC LOG – 02 August 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. CM180040

Description:

Photo CM180040. Facing Northeast. Drilling crew examining cores.

Photograph No. CM180041

Description:

Photo CM180041. Facing Down. SB24.

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
8/2/22	North East Cape	Chad Armintrout

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Drilling	Drill Rig - pipe wrenches, Skid-steer, D-con Equipment	Struck By, Noise, crushing Pinching	Level D "Ear plugs - gloves"
Excavation of Soil	Excavator, Dump Truck, Rock Truck, Dozer, Skidsteer Liner, Sand bags	Slip - Trips - Falls Struck By Back Strains	Level D "High Viz - Comms"

	Name	Signature	Date	Company
1	Chad Armintrout	[illegible]	8-2-22	Brice ENV.
2	A. Platt	[illegible]		Brice
3	Dave Clifton	[illegible]		Duke C
4	Jane Schey	[illegible]		Brice
5	Logan Sanders	[illegible]		Brice Env.
6	Craig Perry	Craig Perry		Beacon
7	Michael Williams	[illegible]		BEC
8	Tigan Donaldson	[illegible]		Brice Eng
9	Monte Garoutte	Monte Garoutte		Brice.
10	Patrick Schick	[illegible]		Brice Eng.
	AARON STEUMAN	[illegible]		USACE

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DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number	UPC/Project Title
W911KB20D0002 / W911KB21F0086	**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**

QC/QA Report Number	Date or Time Period	Location
0016	**Wednesday 3 August 2022**	**Northeast Cape, AK**

Weather

Low Temp: 38° F High Temp: 50° F

Wind Speed: 0-25 mph Conditions: Fog, Rain

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☐

Initial ☒ Well Maintenance

Follow-up ☒ Site 28 Pilot Test

Field Sampling and Testing **Yes** ☒ **No** ☐

Type of Test	Method/Matrix	Results
PID	Headspace / Soil	0.4 – 309.3 ppm

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

Laboratory Analytical Sampling **Yes** ☒ **No** ☐

Type of Test	Test Method/Matrix	Quantity of Samples
Soil sample from soil boring	DRO/RRO (with and without silica gel), PAH / Soil	10

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

Notes:

- Site 8 soil was sampled for laboratory analysis and screened with a PID.
- Site 15 overburden soil was screened with a PID as it was excavated.

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☐

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?	**N/A** ☐	**Yes** ☒	**No** ☐
Was a **Job Safety Meeting** held this day? (If yes, attach comments)		**Yes** ☒	**No** ☐
Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report)		**Yes** ☐	**No** ☒
Was **hazardous waste**/materials 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.)

- None

Work Activities Performed This Date

Prime

- Held a tailgate safety meeting.
- Brice continued excavating at Site 15 and stockpiling overburden. PID screening of overburden soil ranged from 0.4-309.3 ppm. The targeted 12 feet bgs depth was exposed at the east side of the excavation – a marker likely left by the previous contractor was exposed at that depth. Groundwater infiltration was observed at approximately 12 feet bgs.
- Brice cut down three frost-jacked monitoring well casings (MW88-1, MW88-3, 14MW01), reseated two frost-jacked flush-mount well monuments (14MW01 and 14MW05), and re-tapped one flush-mount well cover (MW88-3).
- Brice continued filling an IP2 supersack container with inert debris collected from Northeast Cape sites.
- Brice finished drilling soil borings and collecting soil samples at Site 8. Average boring depth was 16 feet. Several locations suggested by USACE and ADEC were included in the delineation. Two hand auger borings were advanced where the drill rig could not access.
- Brice packed several sample coolers for shipment.
- Brice and the USACE QAR completed a Site 28 Dredging Pilot Study Evaluation (attached).
- The USACE QAR continued a site tour for the two ADEC regulators on site.

Item	Scope	Units	Total Completed	Remaining
Site 15 DRO-Contaminated Soil Excavation	500	Tons	0	500
Site 28 Sediment Dredging (estimated)	196	cy	4	192
Site 28 Mapping	1	Each	0	1
Site 28 Sediment Sampling	60	Sediment Samples	0	60
Site 28 Pre- and Post-Treatment Area ISM Samples	2	Sample	1	1
Site 28 Surface Water Samples	12	Sample	4	8
Gravel Airstrip Repair	1	Each	1	0
Gravel Road Repair	1	Each	1	0
Miscellaneous Drums and Debris	5	Tons	1.25	3.75
Site 7 Landfill Cap - add cap material	50	cy	0	50
Site 8 Pipeline Break Soil Borings	30	Samples	35	0
MOC Monitoring Wells Sampled	15	Well	10	5
MOC Monitoring Wells Redeveloped	2	Well	2	0
MOC Monitoring Wells Repaired	3	Well	4	0
MOC Monitoring Wells Decommissioned	1	Well	1	0
Soil Stockpiles			2	
Soil Excavations			1	
Photographs Taken			86	

Subcontractors

- Alaska Minerals continued camp maintenance.
- Beacon continued providing emergency medical support.

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12	Volvo 210 Excavator	Volvo Excavator 1	0
Laborer	2	12	John Deere 380 Excavator	John Deere Excavator 1	1
Technical Lead/CQC	1	12	Dump Truck	Dump Truck 1	1
Scientist/Bear Guard	1	12	John Deere 310e Rock Truck	Rock Truck 1	1
Geologist	1	12	Morooka Tracked Vehicle	Morooka 1	0
Environmental Scientist	1	12	John Deere 650 Dozer	Dozer 1	1
Driller	1	12	John Deere 844 Loader	Loader 1	1
			John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	0
			Kawasaki Teryx UTV	Teryx 3	0
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	1
Total	***8***	***96***	***NA***	***NA***	***16***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	12	NA	NA	0
Total	***1***	***12***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Total	***2***	***24***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- No materials were received.

Do the materials comply with the contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Equipment Received to be used on Site:

- No equipment was received.

Does the equipment comply with contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.)

- None

Instructions Given by Contractor to Subcontractors **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.

- None

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- None

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- None

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☐

- None.

Deficiencies Corrected This Day **Yes** ☐ **No** ☐

- None.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- The USACE QAR continued a site tour with the two ADEC CSP regulators.

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Monte Garroutte* **Date** 3 August 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 3 August 2022

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☒ **No** ☐

Additional Comments:

NE Cape QAR Daily Report Comments
Wednesday, 3 August 2022

Weather: Foggy and calm, becoming partly cloudy and breezy in the afternoon; cloudy and rain in the evening. High temp about 50ºF.

Miscellaneous

The QAR toured multiple locations and sites with the two ADEC representatives, Curtis Dunkin, and Erica Blake.

Photo 1: Toolie Family Materials and Fuel Stash in Former Borrow Area, View west.
Photo 2: Site 7 Landfill Cap, View north.

Photo 3: Soil Borings at Site 8, View south.
Photo 4: Site 9 Landfill Cap, View northeast.

Photo 5: Site 15 DRO-contaminated soil excavation, View west.

Photo 6: Site 25 Direction Finder Building, View east.

Soil boring installation at Site 8 was completed today. The direct-pish drill rig will be dismantled tomorrow and prepared for demobilization via CASA air charter with Ryan Air. Overburden soil excavation at Site 15 continued today. Dredging and groundwater sampling at the MOC are temporarily on-hold while Brice focuses on other activities.

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

SHEWMAN.AARON.F.1387289620 Digitally signed by SHEWMAN.AARON.F.1387289620 Date: 2022.08.04 12:53:26 -08'00'

Government Signature _____ **Date**_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☒	Follow-up Inspection Form
☐	Activity Hazard Analyses	☐	Punchlist	☒	Site 28 Dredging Pilot Study Evaluation
☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☒	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

PHOTOGRAPHIC LOG – 03 August 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. CM180051

Description:

Photo CM180051. Facing Southwest. Reaching 12 feet bgs at NE corner of Site 15 excavation.

Photograph No. CM190032

Description:

Photo CM190032. Facing Southwest. Building stockpile for Site 15 overburden.

INITIAL PHASE CHECKLIST

SPEC SECTION	DATE
	8/3/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Well Maintenance	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __24 HOURS IN ADVANCE: YES ☒ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead/CQC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering
Logan Sanders	Driller	Brice Engineering

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Full compliance with procedures is identified. Procedures meet/match specifications, plans, and submittals.

PRELIMINARY WORK

ENSURE PRELIMINARY WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

All preliminary work is complete.

WORKMANSHIP

ESTABLISH QUALITY STANDARDS.

WHERE IS WORK LOCATED? Work is located at Northeast Cape, Alaska.

IS SAMPLE PANEL REQUIRED? YES ☐ NO ☒

WILL THE INIITAL WORK BE CONSIDERED AS A SAMPLE? YES ☐ NO ☒

(IF YES, MAINTAIN IN PRESENT CONDITION AS LONG AS POSSIBLE AND DESCRIBE LOCATION OF SAMPLE)

RESOLUTION

RESOLVE ANY DIFFERENCES/DISCREPANCIES.

COMMENTS: None.

CHECK SAFETY

REVIEW JOB CONDITIONS USING EM 385-1-1 AND JOB HAZARD ANALYSIS

COMMENTS: Job conditions were reviewed using EM 385-1-1. AHAs were reviewed. All job conditions meet safety standards.

OTHER

OTHER ITEMS OR REMARKS

None.

Monte Garroutte — QC MANAGER

8/3/22 — DATE

FOLLOW UP PHASE CHECKLIST

		SPEC SECTION	DATE 8/3/22
CONTRACT NO W911KB20D0002	DEFINABLE FEATURE OF WORK Site 28 Pilot Study	SCHEDULE ACT NO.	

PERSONNEL PRESENT

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead/CQC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering
Aaron Shewman	USACE QAR	USACE

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Project has proceeded in full compliance with procedures identified at preparatory phase. Pilot study and evaluation is complete. Submittals will be included in reporting.

REWORK ITEM COMPLETE

ENSURE ANY REWORK ITEM IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

No rework items were required. Several improvements were suggested that will be implemented in the full-scale dredging.

WORK COMPLETE

ENSURE PRELIMINARY AND FOLLOW UP WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

COMMENTS: Preliminary and follow up work is complete and correct.

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NOT, WHAT ITEMS HAVE NOT BEEN SUBMITTED?

OTHER

OTHER ITEMS OR REMARKS

None.

Monte Garroutte 8/3/22

QC MANAGER DATE

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Northeast Cape Site 28 Sediment Dredging Pilot Study Evaluation

Performance Factor	Passing Criteria	Evaluation and Notes
Dredging Material Extracted	Sediment removed is 80% or more of the estimated remaining contaminated volume. Area 9 has an estimated remaining volume of 32.15 cy. Area 6 has an estimated remaining volume of 6.4 cy.	Sediment volume in geotubes following the pilot study included an estimated 4 cubic yards of material. This was evaluated by the crew. The reasons for the limited removal volume included: 1 – During dredging with both the square-hole and round-hole screens installed on the dredge intake, both types of screen on the dredge intake would become clogged with dead and live vegetation within one minute of initiating dredging. Once clogged, the remaining material removed during dredging consisted of only the very fine vegetative particles, sediment and water that could fit through the clogged screen. During full-scale implementation, the clogged screen issue will be resolved by removing the screen from the dredge intake, which will allow larger vegetative particles, sediment, and water to be drawn into the dredge system. However, this will also increase the amount of floating and ultra-fine vegetative material that will need to be removed/treated in the sediment removal and water treatment and discharge system. 2 – A large-volume of vegetation was present at the base of the ponds in both Areas 6 and 9. This vegetation may need to be physically removed prior to full-scale dredging of the sediment material which has settled underneath the vegetation. During full-scale implementation, the crew may need to physically rake vegetative material out of the ponds/streams into a container for final disposition using hand tools, or an excavator may access the ponds/streams using tundra mats to excavate vegetation, taking care to not disturb the tundra or drip excavated material. The USACE COR will be consulted before switching to raking or tracking an excavator onto the site. Special care will be taken to confirm that any vegetation present within a designated sediment removal area is not part of the vegetative mat. If the vegetative mat is present in an area designated for dredging, documentation will be collected that indicates vegetative mat is present and therefore dredging is not required. When the dredge crew determines an area designated for dredging is part of the vegetative mat and or identifies any subsurface debris that inhibits dredging, those areas will be marked with distinguishing lath. This will allow consistency in interpretation between the dredge crew and subsequent sediment survey and sampling crew. 3 – In the ponds present within Areas 6 and 9, the dredging crew spent time on difficult to dredge areas near the vegetation mat present around the outer perimeter of the

		ponds, rather than dredging from the center of the ponds outward toward the edges of the ponds. During full-scale implementation, the dredge crew will revise the dredging sequence and begin dredging from the center of the pond and move outward toward the edges of the pond and will take care to not dredge in areas with a vegetative mat. 4-During the pilot test, sediment accumulated in the bottom of the dredge pond/sump that was located nearest the dredge. This accumulated sediment was not successfully pumped into the geotube. During full-scale operation, to ensure the sediment that accumulates in this dredge pond/sump is pumped into the geotube, the field crew member monitoring the water/sediment level in the dredge pond/sump will periodically "sweep" the bottom of the pond/sump using the intake/transfer hose inlet and effectively "vacuum" accumulated sediment from the bottom of the pond/sump and into the geotube. Ponds were repositioned to allow the intake inlet to reach the far side of the pond.
Dredging Flow Rate	Flow rate meets or exceeds expected rate of approximately 10,000 gallons per hour.	Flow rate meets expectations. The geotube did not fill excessively fast with water, and the mixture at the flocculant injection site was controlled with a final in-line trash pump, rather than a more inconsistent diaphragm pump. For full-scale implementation, we are considering a direct freshwater withdrawal from an upgradient creek located approximately 1000' to the south of the sediment removal/water treatment area instead of from a plastic freshwater pond located near the flocculant injection site.
Downgradient Water Quality	Turbidity will be measured before, during and after dredging in two locations. Location 1) immediately upstream of the "Stilling Area" and, Location 2) within Area 11 at 2013 surface water sampling location 28-W-03 immediately upstream of the confluence with the Suqi River. If a turbidity measurement during dredging exceeds 10 NTU at 28-SW-03 (aka "Location 2"), then sediment control measures were adjusted, as necessary, to effectively reduce turbidity below 10 NTU. Turbidity will also be measured during surface water sampling. Silt fencing and other sediment control measures remain in place.	Turbidity did not show a significant increase following dredging except for the surface water location monitored within Area 9 during dredging within Area 9. Increases from 5.1 to 25.8 NTU were observed. The day following dredging, turbidity decreased to baseline levels (4.53 NTU at Area 9). Silt fences installed prior to the pilot test will remain in place. During full-scale dredging implementation, petroleum sorbent booms and pads will be placed at all pond inlets and outlets to collect petroleum sheen that may appear on the water.

Flocculant Injection	Flocculant injection is performing without issue; as measured by use rate from flocculant product, injection rates are within 50% of expected.	Flocculant rates have been adjusted to meet expectations. With a controlled 65-gpm slurry input rate, a 50-speed, 50-stroke rate of the flocculent pump at an 8-gpm freshwater input rate, the flocculant mix is appropriate for curd-formation. This will be adjusted as density of the slurry material increases (i.e., more sediment per volume of water).
Water Management and Geotube Dewatering	Water containment areas are leak-free and constructed appropriately. Geotubes are effectively containing sediment and allowing primarily water to escape through the geotube fabric into the containment.	Water containment areas are leak-free and appropriately constructed. During full-scale implementation, water levels within each containment will be checked each evening and early-morning. Additional checks will be needed during heavy precipitation events. The field team may need to adjust operations to allow a night watch for dewatering and pumping from the first containment cell to the second cell, as well as pumping from the second containment cell through the water treatment system. Geotubes are performing as expected. The water exiting the geotubes contains higher-than-expected floating organics, which the geotubes are not designed to collect. During full-scale implementation, to reduce organics and water discoloration (tan water from organics), an in-line sand, stainless mesh, or sock filter may be added depending on treated water discharge monitoring results. In addition, the sand pots may need to be backflushed more often than anticipated.
Treated Water	Treated water meets ADEC criteria for discharge.	Treated water meets odor (none), sheen (none), and erosion downgradient of the discharge point (no visible erosion) requirements. Treated water TAH and TAqH discharge criteria will be evaluated following receipt of laboratory results, which are expected by 4 August.
Health and Safety	No significant health and safety issues have arisen; safety issues are pointed out and fixed promptly.	No significant health and safety issues have arisen, though several changes have been made to make the system safer for workers. Trip hazards were the primary hazard within the containment area, and these have been mitigated to the extent practicable. If a release of flocculant occurs, then any plastic surface coated with the flocculant will become extremely slippery and require immediate cleanup using absorbent material (e.g., sand). The absorbent material will be placed within the flocculant drum secondary containment and will also be available in a container adjacent to the spill cleanup kit located near the flocculant injection site.

USACE QAR **Date** **Brice Field Lead** **Date**

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DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number		UPC/Project Title
W911KB20D0002 / W911KB21F0086		**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**
QC/QA Report Number **0017**	Date or Time Period **Thursday 4 August 2022**	Location **Northeast Cape, AK**

Weather

Low Temp: 40° F High Temp: 55° F

Wind Speed: 0-15 mph Conditions: Fog, Partly Cloudy

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☐
Initial ☐
Follow-up ☐

Field Sampling and Testing **Yes** ☒ **No** ☐

Type of Test	Method/Matrix	Results
Sulfate	Colorimeter / Groundwater	2.7 mg/L
Turbidity, DO, ORP, Cond., pH, temperature	Aquatroll / Groundwater	Various

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

Laboratory Analytical Sampling **Yes** ☒ **No** ☐

Type of Test	Test Method/Matrix	Quantity of Samples
Low-flow Method, Stainless Steel Submersible Pump	DRO, RRO, BTEX, PAH, PCB, Alkalinity, Manganese, Sulfate, Methane, and both dissolved (lab filtered) and totals RCRA Metals plus Nickel, Vanadium, Zinc / Groundwater	1

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

Notes:

- One monitoring well at the MOC was sampled for laboratory analysis, field parameters, and field sulfate concentrations.

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☐

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?	**N/A** ☐	**Yes** ☒	**No** ☐
Was a **Job Safety Meeting** held this day? (If yes, attach comments)		**Yes** ☒	**No** ☐
Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report)		**Yes** ☐	**No** ☒
Was **hazardous waste**/materials 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.)

- None

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Work Activities Performed This Date

Prime

- Held a tailgate safety meeting.
- Brice prepared for the Site 15 Excavation.
- Brice refueled all vehicles and performed vehicle maintenance.
- Brice refueled and performed maintenance on all equipment.
- Brice refueled the camp fuel tank and the MOC fuel tank.
- Brice continued collecting groundwater samples from monitoring wells at the MOC.
- Two ADEC regulators left the site via air charter.
- One Brice employee left via air charter.
- Two Brice Employees arrived via air charter.
- One representative from Gambell arrived on the air charter (Curtis Silook).
- Various supplies and a sediment sampler were received on the air charter.
- Two soil sample coolers and one water sample cooler were sent on the air charter for laboratory analysis.
- Brice and the USACE QAR concluded a site tour for the ADEC regulators.

Item	Scope	Units	Total Completed	Remaining
Site 15 DRO-Contaminated Soil Excavation	500	Tons	0	500
Site 28 Sediment Dredging (estimated)	196	cy	4	192
Site 28 Mapping	1	Each	0	1
Site 28 Sediment Sampling	60	Sediment Samples	0	60
Site 28 Pre- and Post-Treatment Area ISM Samples	2	Sample	1	1
Site 28 Surface Water Samples	12	Sample	4	8
Gravel Airstrip Repair	1	Each	1	0
Gravel Road Repair	1	Each	1	0
Miscellaneous Drums and Debris	5	Tons	1.25	3.75
Site 7 Landfill Cap - add cap material	50	cy	0	50
Site 8 Pipeline Break Soil Borings	30	Samples	35	0
MOC Monitoring Wells Sampled	15	Well	12	3
MOC Monitoring Wells Redeveloped	2	Well	2	0
MOC Monitoring Wells Repaired	3	Well	4	0
MOC Monitoring Wells Decommissioned	1	Well	1	0
Soil Stockpiles			2	
Soil Excavations			1	
Photographs Taken			64	

Subcontractors

- Alaska Minerals continued camp maintenance.
- Beacon continued providing emergency medical support.

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12	Volvo 210 Excavator	Volvo Excavator 1	0
Laborer	2	12	John Deere 380 Excavator	John Deere Excavator 1	1
Technical Lead/CQC	1	12	Dump Truck	Dump Truck 1	1
Scientist/Bear Guard	1	12	John Deere 310e Rock Truck	Rock Truck 1	1
Engineer	2	12	Morooka Tracked Vehicle	Morooka 1	1
Environmental Scientist	1	12	John Deere 650 Dozer	Dozer 1	1
Geologist	1	12	John Deere 844 Loader	Loader 1	1
Driller	1	12	John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	0
			Kawasaki Teryx UTV	Teryx 3	0
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	1
Total	***10***	***108***	***NA***	***NA***	***17***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	12	NA	NA	0
Total	***1***	***12***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Total	***2***	***24***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- Various materials were received via air charter including hand tools, consumables, and tire repair supplies.

Do the materials comply with the contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Equipment Received to be used on Site:

- A sediment sampler arrived on site via air charter.

Does the equipment comply with contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.)

- None

Instructions Given by Contractor to Subcontractors **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.

- None

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- None

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- None

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☐

- None.

Deficiencies Corrected This Day **Yes** ☐ **No** ☐

- None.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- Brice and the USACE QAR concluded a site tour with the two ADEC CSP regulators.
- The representative from Gambell, Curtis Silook, arrived on site.

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Monte Garroutte* **Date** 4 August 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 4 August 2022

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☒ **No** ☐

Additional Comments:

NE Cape QAR Daily Report Comments
Thursday, 4 August 2022

Weather: Rain overnight followed by partly cloudy skies and a light easterly breeze. High temp about 55ºF.

Miscellaneous

The QAR spent the day with the two ADEC representatives, Curtis Dunkin and Erica Blake, discussing and touring the FUDS. The Brice crew worked on refueling camp and equipment and maintaining vehicles, set up to fill soil bulk bags at Site 15 beginning tomorrow, collected one groundwater sample from an MOC monitoring well (MW10-1), and prepared analytical samples for shipment. The direct-push drill rig was dismantled and prepared to demobilize via CASA aircraft, so it was staged at the airstrip. At 1800, a Bering Air Navajo charter aircraft arrived with two Brice staff, the tribal representative from Gambell, Curtis Sivalook, and freight. The aircraft departed with the two ADEC representatives and one Brice staff member.

Photo 1: Site 15 overburden soil stockpile, View southwest

Photo 2: Preparing to transport the camp fuel tank to Cargo Beach for refilling.

Photo 3: Site 15 DRO-contaminated soil excavation, View southwest.

Photo 4: Collecting a groundwater sample from MW10-1, View south.

Photo 5: Preparing to ship samples.

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Signature SHEWMAN.AARON.F.1387289620 Digitally signed by SHEWMAN.AARON.F.1387289620 Date: 2022.08.06 07:44:54 -08'00' **Date**_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☐	Follow-up Inspection Form
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☐	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

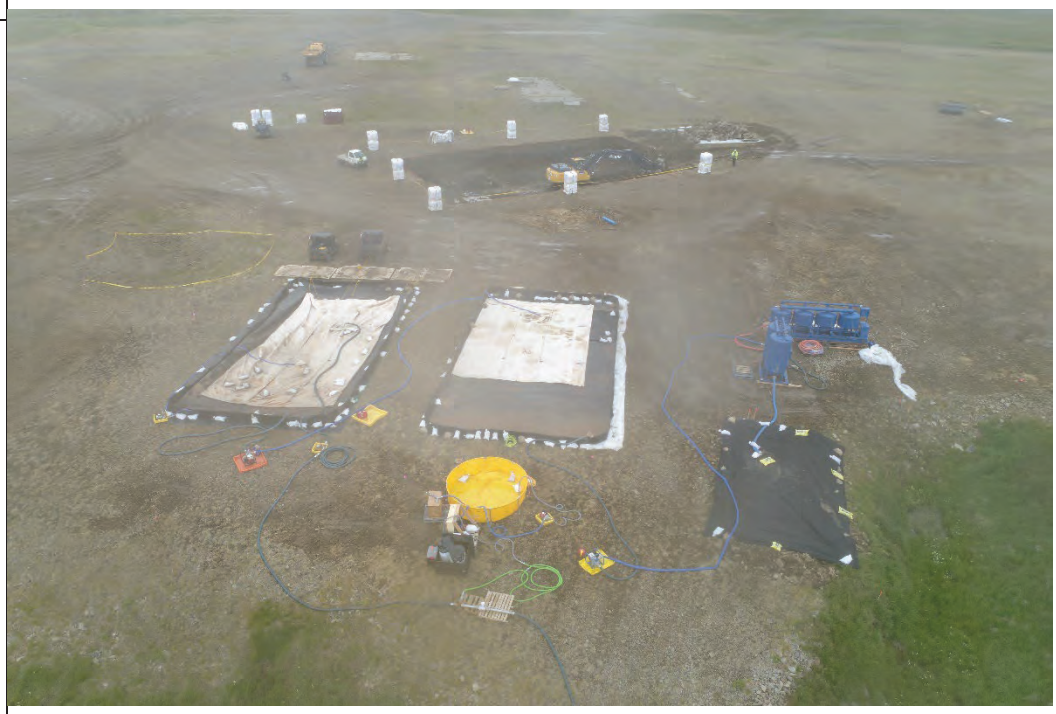
PHOTOGRAPHIC LOG – 04 August 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. DJI_0871

Description:

Photo DJI_0871. Facing West. Aerial photo of Site 15 excavation, Geotubes in containments, and flocculant system.



Photograph No. CM190034

Description:

Photo CM190034. Facing Southeast. Sample coolers waiting for plane.

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
8/4/22	North East Cape	Chad Armintrout

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Bagging of Contaminated Soil	Excavator - Bag Frame - large 9x4 Bags - Shovel	Crushing - pinch points - Struck by - overhead	Level D
Bag Transport & Lifting/Weighing	Dump truck - Trailer - Loader - Straps	Lifting Strap Inspection - Strap Failure - Crushing - pinch points	Level D
Grease Equipment	Grease Gun - Hand Tools - Rags -	pinch points - eye - High pressure -	Level D

	Name	Signature	Date	Company
1	Chad Armintrout	[signature]	8/4/22	Brice ENV.
2	A. Platt	[signature]		Brice
3	Craig Perry	Craig Perry		Beacon
4	AARON SHEWMAN	[signature]		USACE
5	Jane Schay	Jane Schay		Brice
6	Curtis Deinkin	Curtis Deinkin		ADEC
7	Michael Williams	[signature]		BEL
8	Erica Blake	Erica Blake		ADEC
9	Monte Garrouth	Monte Garrouth		Brice
10	Patrick Schick	[signature]		Brice Eng.
	Logan Sanders	BES		Brice Env.

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number		UPC/Project Title
W911KB20D0002 / W911KB21F0086		**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**
QC/QA Report Number **0018**	Date or Time Period **Friday 5 August 2022**	Location **Northeast Cape, AK**

Weather

Low Temp: 40° F High Temp: 55° F

Wind Speed: 0-20 mph Conditions: Rain, Fog

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☐
Initial ☐
Follow-up ☐

Field Sampling and Testing **Yes** ☒ **No** ☐

Type of Test	Method/Matrix	Results
Sulfate, Nitrate, Ferrous Iron	Colorimeter / Groundwater	Various
Turbidity, DO, ORP, Cond., pH, temperature	Aquatroll / Groundwater	Various

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

Laboratory Analytical Sampling **Yes** ☒ **No** ☐

Type of Test	Test Method/Matrix	Quantity of Samples
Low-flow Method, Stainless Steel Submersible Pump	DRO, RRO, BTEX, PAH, PCB, Alkalinity, Manganese, Sulfate, Methane, and both dissolved (lab filtered) and totals RCRA Metals plus Nickel, Vanadium, Zinc / Groundwater	3

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

Notes:

- One monitoring well at the MOC was sampled for laboratory analysis, field parameters, and field sulfate concentrations.

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☐

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?	**N/A** ☐	**Yes** ☒	**No** ☐
Was a **Job Safety Meeting** held this day? (If yes, attach comments)		**Yes** ☒	**No** ☐
Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report)		**Yes** ☐	**No** ☒
Was **hazardous waste**/materials 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.)

- None

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Work Activities Performed This Date

Prime

- Held a tailgate safety meeting.
- Brice performed stockpile maintenance for the Site 15 overburden stockpiles.
- Brice started the Site 15 Excavation and excavated 8 x 5 cubic yard IP2 supersacks, then weighed them and staged them at the MOC for transport to the barge landing.
- Brice began compositing a waste characterization sample from the excavated material.
- Brice completed collecting groundwater samples from monitoring wells at the MOC.
- Brice packed coolers for the next available air charter.

Item	Scope	Units	Total Completed	Remaining
Site 15 DRO-Contaminated Soil Excavation	500	Tons	49.2	450.8
Site 28 Sediment Dredging (estimated)	196	CY	4	192
Site 28 Mapping	1	Each	0	1
Site 28 Sediment Sampling	60	Sediment Samples	0	60
Site 28 Pre- and Post-Treatment Area ISM Samples	2	Sample	1	1
Site 28 Surface Water Samples	12	Sample	4	8
Gravel Airstrip Repair	1	Each	1	0
Gravel Road Repair	1	Each	1	0
Miscellaneous Drums and Debris	5	Tons	1.25	3.75
Site 7 Landfill Cap - add cap material	50	CY	0	50
Site 8 Pipeline Break Soil Borings	30	Samples	35	0
MOC Monitoring Wells Sampled	15	Well	15	0
MOC Monitoring Wells Redeveloped	2	Well	2	0
MOC Monitoring Wells Repaired	3	Well	4	0
MOC Monitoring Wells Decommissioned	1	Well	1	0
Soil Stockpiles			2	
Soil Excavations			1	
Photographs Taken			98	

Subcontractors

- Alaska Minerals continued camp maintenance.
- Beacon continued providing emergency medical support.

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12	Volvo 210 Excavator	Volvo Excavator 1	0
Laborer	2	12	John Deere 380 Excavator	John Deere Excavator 1	1
Technical Lead/CQC	1	12	Dump Truck	Dump Truck 1	1
Scientist/Bear Guard	1	12	John Deere 310e Rock Truck	Rock Truck 1	1
Engineer	2	12	Morooka Tracked Vehicle	Morooka 1	1
Environmental Scientist	1	12	John Deere 650 Dozer	Dozer 1	1
Geologist	1	12	John Deere 844 Loader	Loader 1	1
			John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	0
			Kawasaki Teryx UTV	Teryx 3	0
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***9***	***108***	***NA***	***NA***	***16***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	12	NA	NA	0
Total	***1***	***12***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Total	***2***	***24***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- None received.

Do the materials comply with the contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Equipment Received to be used on Site:

- None received.

Does the equipment comply with contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.)

- None

Instructions Given by Contractor to Subcontractors **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.

- None

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- None

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- None

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☐

- None.

Deficiencies Corrected This Day **Yes** ☐ **No** ☐

- None.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- The representative from Gambell, Curtis Silook, continued his site tour and observing ongoing site work.

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Monte Garroutte* **Date** 5 August 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 5 August 2022

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☒ **No** ☐

Additional Comments:

NE Cape QAR Daily Report Comments
Friday, 5 August 2022

Weather: Rain with a breeze until afternoon, rain dissipated and high winds began in the afternoon and blew through the evening. High temp about 50ºF.

Miscellaneous

QAR and Brice Field Team Lead, Monte Garroutte, visited Site 7 and identified three low areas to be backfilled with borrow area material to ensure positive drainage off the landfill gravel cap. The excavator was successfully refueled within the Site 15 DRO-contaminated soil excavation.

Photos 1 and 2: Refueling excavator in the Site 15 DRO-contaminated soil excavation, View east.

Site 8

Direct-push soil boring installation and soil sampling is complete.

Site 15

DRO-contaminated soil excavation began. Initially, a 9-cubic yard soil bag was filled, but proved to be too heavy for the onsite equipment. As a result, 5-cubic yard soil bags will be filled and used, likely for the duration of the project. For the most efficient operation, soil bags will be temporarily stored on the MOC gravel pad in the ISM-soil sampled area that was not used for a Site 28 water containment cell. High winds caused the overburden soil stockpile cover to loosen and require additional tie-downs.

Photo 3: Installing 5 CY bag in frame at the Site 15 DRO-contaminated soil excavation, View east.
Photo 4: Filling a 5 CY bag at the Site 15 DRO-contaminated soil excavation, View east.

Photo 5: Using a FE Loader to lift a 5 CY bag out of Site 15 DRO-contaminated soil excavation, View east.
Photo 6: Moving a Site 15 soil bag to temporary staging area on MOC, View northwest.

Photo 7: Setting down a soil bag at temporary staging area at the MOC, View northeast.
Photo 8: Site 15 DRO-contaminated soil bags staged at MOC, View Close-Up.

Photo 9: High winds loosened the cover on the Site 15 overburden soil stockpile, View southwest.
Photo 10: Securing the cover on the Site 15 overburden soil stockpile, View east.

Site 28

Dredging is temporarily on-hold while Brice focuses on other activities.

MNA Groundwater at the MOC

Brice staff collected groundwater samples from two monitoring wells at the MOC. As of now, all 15 monitoring wells at the MOC have been sampled. Field measurement of nitrate and manganese were not possible during initial sample collection because the necessary reagents were not on site. During the most recent freight delivery, the reagents were delivered. As a result, a peristaltic pump will be used to go back to each well, collect sufficient water for these field analyses, and these field analyses will be performed and recorded.

Photos 11 and 12: Collecting groundwater samples from two monitoring wells at the MOC, View north and west, respectively.

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Signature Eric Barnhill **Date** 7 August 2022

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☐	Follow-up Inspection Form
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☐	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

PHOTOGRAPHIC LOG – 05 August 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. CM190035

Description:

Photo CM190035. Facing Southeast. First bag loaded at Site 15.

Photograph No. CM190037

Description:

Photo CM190037. Facing Southwest. PPE decontamination at Site 15.

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
8/5/22	North East Cape	Chad Armintrout

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Bag Contaminated Soils	Excavator - loader Bag Frame - Large Soil Bags - Rigging	Struck By - Pinch points Slips, Trips, Falls - Exposure -	Level D
Transport of Bags to the Beach	Dump Truck - Trailer Loader - Straps/Rigging	Road Hazards - Picking Strap Failure -	Level D

	Name	Signature	Date	Company
1	Chad Armintrout	[signature]	8/5/22	Brice ENV.
2	DAVE Clifford	[signature]		Brice Env
3	A. Pratt	[signature]		Brice
4	Monte Garrouette	[signature]		Brice
5	Patrick Schick	[signature]		Brice Eng.
6	Michael Williams	[signature]		BEL
7	Ali Green	[signature]		BEL
8	Sammie Carter	[signature]		BEL
9	Craig Perry	Craig Perry		Beacon
10	AARON SHEWMAN	[signature]		USACE
	Jan Sihy	Jan Sihy		Brice
	Curtis Silvoke	[signature]	8/5/22	Sivuqaq, Inc
	Brady Sharp	Brady Sharp		Akmin

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DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number		UPC/Project Title
W911KB20D0002 / W911KB21F0086		**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**
QC/QA Report Number **0019**	Date or Time Period **Saturday 6 August 2022**	Location **Northeast Cape, AK**

Weather

Low Temp: 40° F High Temp: 55° F

Wind Speed: 0-20 mph Conditions: Rain, Fog

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☐
Initial ☐
Follow-up ☐

Field Sampling and Testing **Yes** ☒ **No** ☐

Type of Test	Method/Matrix	Results
Nitrate, Ferrous Iron	Colorimeter / Groundwater	Various
PID	Headspace / Soil	131.5 – 323.5 ppm

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

Laboratory Analytical Sampling **Yes** ☒ **No** ☐

Type of Test	Test Method/Matrix	Quantity of Samples
Confirmation Soil Sampling	DRO / Soil	1 Sidewall / 1 Base
Waste Characterization Sampling	TCLP VOCs, TCLP SVOCs, TCLP RCRA Metals, Totals PCBs / Soil	2
Background Soil Sampling	DRO with and without Silica Gel, TOC / Soil	3
ISM Stockpile Sampling	DRO / Soil	7

Have required amount of QC trip blanks and rinsates been achieved? **NA** ☐ **Yes** ☒ **No** ☐

Have appropriate QC laboratory tests been ordered? (matrix spikes, method blanks, surrogates, reference standards, etc.) **NA** ☐ **Yes** ☒ **No** ☐

Have QA and QC samples been collected in the specified quantity? **NA** ☐ **Yes** ☒ **No** ☐

Have samples been properly labeled and packaged? **NA** ☐ **Yes** ☒ **No** ☐

Notes:

- NA

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☐

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? **N/A** ☐ **Yes** ☒ **No** ☐

Was a **Job Safety Meeting** held this day? (If yes, attach comments) **Yes** ☒ **No** ☐

Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report) **Yes** ☐ **No** ☒

Was **hazardous waste**/materials released into the environment? **Yes** ☐ **No** ☒

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Safety Comments: (Include any infractions of approved safety plan, and include instructions from Government personnel. Specify corrective action taken.)

- None

Work Activities Performed This Date

Prime

- Held a tailgate safety meeting.
- Brice performed stockpile maintenance for the Site 15 overburden stockpiles.
- Multiples wells at the MOC were sampled for MNA parameters nitrate and ferrous iron.
- Background soil samples were collected from the west side of the facility, which was identified as an appropriate background location by the USACE QAR Aaron Shewman.
- Waste characterization samples were collected from containerized soil at Site 15.
- Confirmation samples were collected from an excavated area at Site 15.
- Overburden stockpiles from Site 15 were split into 5 Decision Units and sampled with ISM.
- Brice continued the Site 15 Excavation and excavated 42 x 5 cubic yard IP2 supersacks, then weighed them and staged them at the MOC for transport to the barge landing.
- An air charter arrived and picked up USACE QAR Aaron Shewman and the Gambell representative Curtis Silook.
- The air charter dropped off several supplies for the project.
- USACE QAR Eric Barnhill arrived on the air charter.
- Brice sent a cooler on the air charter.

Item	Scope	Units	Total Completed	Remaining
Site 15 DRO-Contaminated Soil Excavation	500	Tons	287.4	212.5
Site 15 ISM Stockpile Sampling	1	Each	1	0
Site 28 Sediment Dredging (estimated)	196	CY	4	192
Site 28 Mapping	1	Each	0	1
Site 28 Sediment Sampling	60	Sediment Samples	0	60
Site 28 Pre- and Post-Treatment Area ISM Samples	2	Sample	1	1
Site 28 Surface Water Samples	12	Sample	4	8
Gravel Airstrip Repair	1	Each	1	0
Gravel Road Repair	1	Each	1	0
Miscellaneous Drums and Debris	5	Tons	1.25	3.75
Site 7 Landfill Cap - add cap material	50	CY	0	50
Site 8 Pipeline Break Soil Borings	30	Samples	35	0
MOC Monitoring Wells Sampled	15	Well	15	0
MOC Monitoring Wells Redeveloped	2	Well	2	0
MOC Monitoring Wells Repaired	3	Well	4	0
MOC Monitoring Wells Decommissioned	1	Well	1	0
Soil Stockpiles			2	
Soil Excavations			1	
Photographs Taken			108	

Subcontractors

- Alaska Minerals continued camp maintenance.
- Beacon continued providing emergency medical support.

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12.5	Volvo 210 Excavator	Volvo Excavator 1	0
Laborer	2	12.5	John Deere 380 Excavator	John Deere Excavator 1	1
Technical Lead/CQC	1	12.5	Dump Truck	Dump Truck 1	1
Scientist/Bear Guard	1	12.5	John Deere 310e Rock Truck	Rock Truck 1	1
Engineer	2	12.5	Morooka Tracked Vehicle	Morooka 1	1
Environmental Scientist	1	12.5	John Deere 650 Dozer	Dozer 1	1
Geologist	1	12.5	John Deere 844 Loader	Loader 1	1
			John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	0
			Kawasaki Teryx UTV	Teryx 3	0
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***9***	***112.5***	***NA***	***NA***	***16***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	12	NA	NA	0
Total	***1***	***12***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Total	***2***	***24***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- Various materials and supplies were received.

Do the materials comply with the contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Equipment Received to be used on Site:

- None received.

Does the equipment comply with contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☒ **Written** ☐
(Include names, reactions, and remarks.)

- USACE QAR Aaron Shewman asked that the Field Lead Monte Garroutte show USACE QAR Eric Barnhill the various sites at the facility that will be addressed for the project.

Instructions Given by Contractor to Subcontractors **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.

- None

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- None

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- None

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☐

- None.

Deficiencies Corrected This Day **Yes** ☐ **No** ☐

- None.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- The representative from Gambell, Curtis Silook, concluded his site tour and ongoing site work observations.
- Monte Garroutte gave the USACE QAR Eric Barnhill a tour of Site 15 and Site 28 operations.

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Monte Garroutte* **Date** 6 August 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 6 August 2022

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☒ **No** ☐

Additional Comments:

NE Cape QAR Daily Report Comments
Saturday, 6 August 2022

Weather: Partly sunny light winds. High winds began in the evening and increased in intensity through the night. High temp about 50ºF.

Miscellaneous

New onsite QAR Eric Barnhill arrived in a Bering Air charter at approximately 1400 hours. QAR Aaron Shewman briefed Mr. Barnhill on the site. Time on the ground with the charter was limited so Brice Field Team Lead Monte Garroutte showed Mr. Barnhill the sites including Site 15 and the Site 28 drainage.

Site 8

Direct-push soil boring installation and soil sampling is complete.

Site 15

DRO-contaminated soil excavation continued. The majority of the available “dry” contaminated soil has been bagged. Much of the remaining soil is saturated. Brice will construct a plastic lined ramp in order to attempt to dewater excavated soil back into the excavation.

Photo 1: closing 5 CY bag in frame at the Site 15 DRO-contaminated soil excavation, View south.
Photo 2: Excavator stacking soil that was excavated from below water level View west.

Site 28

Dredging is temporarily on-hold while Brice focuses on other activities.

MNA Groundwater at the MOC

Brice staff collected groundwater samples from two monitoring wells at the MOC. As of now, all 15 monitoring wells at the MOC have been sampled. Field measurement of nitrate and manganese were not possible during initial sample collection because the necessary reagents were not on site. Reagents were received and Brice began collecting water samples from site wells using a peristaltic pump

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Signature _____ **Date**_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☐	Follow-up Inspection Form
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☐	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

PHOTOGRAPHIC LOG – 06 August 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. CM190039

Description:

Photo CM190039. Facing Northeast. Site 15 excavation, reaching 15 feet bgs at eastern sample location.

Photograph No. CM190040

Description:

Photo CM190040. Facing West. ISM sampling grid for Site 15 stockpile 2.

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
8/6/22	North East Cape	Chad Armintrout

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Maint. of stock pile covers	shovels - Sandbags - Rope -	Slips, Trips, Falls Lifting Hazard - Pinch Points	Level D
5yd Bagging opps	Excavator - Loader - Shovels - Sling & chains	Crushing - pinch points overhead - struck by	Level D

	Name	Signature	Date	Company
1	Chad Armintrout	[signature]	8/6	Brice ENV.
2	A. Platt	[signature]		Brice
3	Patrick Schick	[signature]		Brice Eng.
4	Craig Perry	Craig Perry		Beacon
5	Dave Clark	[signature]		Brice
6	Jane Sahey	Jane Sahey		Brice
7	Curtis Silcote	[signature]		Sivugag, Inc
8	Jammie Carter	[signature]		Brice Eng
9	Ali Green	Ali Green		Brice Eng
10	Monte Garrouette	[signature]		Brice
	Brady Sharp	Brady Sharp		Akmin
	Michael Williams	[signature]		BEL
	AARON SHEWMAN	[signature]		USACE

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DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number		UPC/Project Title
W911KB20D0002 / W911KB21F0086		**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**
QC/QA Report Number **0020**	Date or Time Period **Sunday 7 August 2022**	Location **Northeast Cape, AK**

Weather

Low Temp: 38° F High Temp: 50° F

Wind Speed: 0-20 mph Conditions: Cloudy, Rain

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☒ Site 7 Landfill Maintenance, Site 28 Dredging

Initial ☐

Follow-up ☒ Site 8 Soil Investigation

Field Sampling and Testing **Yes** ☒ **No** ☐

Type of Test	Method/Matrix	Results
Nitrate, Ferrous Iron	Colorimeter / Groundwater	Various
PID	Headspace / Soil	5.4 – 422.6 ppm

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

Laboratory Analytical Sampling **Yes** ☒ **No** ☐

Type of Test	Test Method/Matrix	Quantity of Samples
Confirmation Soil Sampling	DRO / Soil	9 Sidewall / 7 Base
Background Soil Sampling	DRO with and without Silica Gel, TOC / Soil	7

Have required amount of QC trip blanks and rinsates been achieved? **NA** ☐ **Yes** ☒ **No** ☐

Have appropriate QC laboratory tests been ordered? (matrix spikes, method blanks, surrogates, reference standards, etc.) **NA** ☐ **Yes** ☒ **No** ☐

Have QA and QC samples been collected in the specified quantity? **NA** ☐ **Yes** ☒ **No** ☐

Have samples been properly labeled and packaged? **NA** ☐ **Yes** ☒ **No** ☐

Notes:

- NA

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☐

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? **N/A** ☐ **Yes** ☒ **No** ☐

Was a **Job Safety Meeting** held this day? (If yes, attach comments) **Yes** ☒ **No** ☐

Were there any **"Lost Time**" accidents this day? (If YES, attach copy of completed accident report) **Yes** ☐ **No** ☒

Was **hazardous waste**/materials 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.)

- None

Work Activities Performed This Date

Prime

- A tailgate safety meeting was held.
- Vehicle and equipment inspections were performed for the vehicles and equipment used.
- Stockpile maintenance was performed for the Site 15 overburden stockpiles.
- Maintenance was performed on the Site 28 containments.
- Site 28 pop-up ponds were strengthened, and hose cribbing was added to support Site 28 dredging operations.
- MNA parameter sampling for nitrate and ferrous iron was completed at the MOC.
- Background soil sampling was completed at the west side of the facility, which was identified as an appropriate background location by the USACE QAR Aaron Shewman.
- Site 15 was excavated to 15 feet bgs across the entire footprint. Some saturated soil could not be bagged and was placed on a lined ramp to drain back into the excavation before containerizing.
- Confirmation samples were collected from the excavated footprint base and sidewalls at Site 15.
- Supersacks were transported from the MOC to the barge landing. 8 supersacks were transported.

Item	Scope	Units	Total Completed	Remaining
Site 15 DRO-Contaminated Soil Excavation	500	Tons	287.4	212.5
Site 15 ISM Stockpile Sampling	1	Each	1	0
Site 28 Sediment Dredging (estimated)	196	CY	4	192
Site 28 Mapping	1	Each	0	1
Site 28 Sediment Sampling	60	Sediment Samples	0	60
Site 28 Pre- and Post-Treatment Area ISM Samples	2	Sample	1	1
Site 28 Surface Water Samples	12	Sample	4	8
Gravel Airstrip Repair	1	Each	1	0
Gravel Road Repair	1	Each	1	0
Miscellaneous Drums and Debris	5	Tons	1.25	3.75
Site 7 Landfill Cap - add cap material	50	CY	0	50
Site 8 Pipeline Break Soil Borings	30	Samples	35	0
Background Soil Samples for TOC, DRO with and without silica gel cleanup	10	Samples	10	0
MOC Monitoring Wells Sampled	15	Well	15	0
MOC Monitoring Wells Redeveloped	2	Well	2	0
MOC Monitoring Wells Repaired	3	Well	4	0
MOC Monitoring Wells Decommissioned	1	Well	1	0
Soil Stockpiles			2	
Soil Excavations			1	
Photographs Taken			120	

Subcontractors

- Alaska Minerals continued camp maintenance.
- Beacon continued providing emergency medical support.

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12.5	Volvo 210 Excavator	Volvo Excavator 1	0
Laborer	2	12	John Deere 380 Excavator	John Deere Excavator 1	1
Technical Lead/CQC	1	12.5	Dump Truck	Dump Truck 1	1
Scientist/Bear Guard	1	12.5	John Deere 310e Rock Truck	Rock Truck 1	1
Engineer	1	12	Morooka Tracked Vehicle	Morooka 1	1
Environmental Scientist	2	12	John Deere 650 Dozer	Dozer 1	1
Geologist	1	12	John Deere 844 Loader	Loader 1	1
			John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	1
			Kawasaki Teryx UTV	Teryx 3	0
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***9***	***109.5***	***NA***	***NA***	***17***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	12	NA	NA	0
Total	***1***	***12***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Total	***2***	***24***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- None received.

Do the materials comply with the contract? (If no, explain) **Yes** ☐ **No** ☒

- NA

Equipment Received to be used on Site:

- None received.

Does the equipment comply with contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☒ **Written** ☐
(Include names, reactions, and remarks.)

- None

Instructions Given by Contractor to Subcontractors **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.

- None

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- None

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- None

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☐

- None.

Deficiencies Corrected This Day **Yes** ☐ **No** ☐

- None.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- A windstorm blew through camp on the night of 8/6. Repairs had to be made on the stockpile covers and Site 28 containment.
- The well cap for Monitoring Well 10-1 had a PVC cap instead of a well cap with lock – it could not be removed by hand, so it had to be cut off to sample the well for MNA parameters. A new, appropriate well cap with a combo lock will be sent out to replace. A bolt was also added to secure the stickup lid.

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

CQC System Manager Signature *Monte Garroutte* **Date** 7 August 2022

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 7 August 2022

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☒ **No** ☐

Additional Comments:

NE Cape QAR Daily Report Comments
Sunday, 7 August 2022

Weather: Rain with a breeze until afternoon, sleet, moderate winds blew through the evening. High temp about 45 ºF.

Miscellaneous

An overnight windstorm caused minor damage the stockpile covers. Brice repaired the stockpile.

Photo 1: Wind damage to stockpile cover, view west
Photo 2: Repaired stockpile cover, view west

Brice continued to collect background samples west/southwest of the former site 21 excavation

Photo 3: Background sample locations marked by lath

Site 8

Direct-push soil boring installation and soil sampling is complete.

Site 15

DRO-contaminated soil excavation continued. No soil was bagged today. Brice concentrated on beginning to move bags to the beach. Additionally, Brice built a sloped and lined area on the bench within the excavation. Brice collected excavation screening soil samples. Brice deployed sorbent pads and boom to the water in the Site 15 excavation.

Photo 4: Loading filled DRO-contaminated bags on transport truck for transport to Cargo Beach laydown, View east.
Photo 5: Unloading DRO-contaminated bulk bag at Caro Beach, View west.

Photo 6: Transporting DRO-contaminated bulk bag to lay down area at Cargo Beach, view east.
Photo 7: DRO-contaminated bulk bag at Cargo Beach lay down area, view east.

Photo 8: Collecting screening soil samples from excavator bucket, view north.
Photo 9: Brice scientists reading bagged heated headspace screening samples, view down.

Photo 10: Building lined and sloped area in Site 15 excavation area in an attempt to drain excess water, view northeast.
Photo 11: Excavated DRO-contaminated soil draining on lined and sloped area , view northeast.

Site 28

Dredging is temporarily on-hold while Brice focuses on other activities. Brice manufactured hose hangers for the hoses associated with the dredge/pump system for Site 28.

Photo 12: Brice crew manufacturing hose hangers for site 28 operations

MNA Groundwater at the MOC

Collecting final groundwater for MNA sampling.

Photos 13: Collecting groundwater for MNA sampling at the MOC, view west.

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Signature _____ **Date**_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☒	Follow-up Inspection Form
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☒	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

PHOTOGRAPHIC LOG – 07 August 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. CM190052

Description:

Photo CM190052. Facing South. Western half of Site 15 excavation reaching 15 feet bgs.

Photograph No. CM180059

Description:

Photo CM180059. Facing West. Supersacks staged on beach.

PREPARATORY PHASE CHECKLIST

(CONTINUED ON SECOND PAGE)

SPEC SECTION	DATE
	8/7/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Site 28 Dredging	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __24_ HOURS IN ADVANCE: YES ☒ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead/CQC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering
Andrew Platt	Laborer	Brice Engineering
Patrick Schick	Environmental Scientist	Brice Engineering

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED? Final Work Plan has been submitted. Discharge permit has been approved.

ARE ALL MATERIALS ON HAND? YES ☒ NO ☐

IF NO, WHAT ITEMS ARE MISSING?

CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL. (THIS SHOULD BE DONE AS MATERIAL ARRIVES.)

COMMENTS: Materials received matched work plan specifications.

MATERIAL STORAGE

ARE MATERIALS STORED PROPERLY? YES ☒ NO ☐

IF NO, WHAT ACTION IS TAKEN?

SPECIFICATIONS

REVIEW EACH PARAGRAPH OF SPECIFICATIONS. Each paragraph of specification has been reviewed.

DISCUSS PROCEDURE FOR ACCOMPLISHING THE WORK. Procedures to accomplish work have been discussed.

CLARIFY ANY DIFFERENCES/DISCREPANCIES. No discrepancies were identified.

PRELIMINARY WORK & PERMITS

☒ ENSURE PRELIMINARY WORK IS CORRECT AND PERMITS ARE ON FILE.

IF NOT, WHAT ACTION IS TAKEN?

TESTING	IDENTIFY TEST TO BE PERFORMED, FREQUENCY, AND BY WHOM. Tests were discussed. Dredge efficiency will be evaluated with confirmation samples.
	WHEN REQUIRED? The confirmation samples will be collected after dredging removal is complete.
	WHERE REQUIRED? Tests will be conducted in the field. Laboratory analysis will be conducted at an approved lab, Pace.
	REVIEW TESTING PLAN. Testing plan has been reviewed.
	HAVE TEST FACILITIES BEEN APPROVED? Test facilities are approved.
SAFETY	HAS ACTIVITY HAZARD ANALYSIS BEEN APPROVED? YES ☒ NO ☐
	REVIEW APPLICABLE PORTION OF EM 385-1-1. Applicable portion of 385-1-1 has been reviewed.
MEETING COMMENTS	COMMENTS DURING MEETING. Discussed inventory and material needed for dredging. Reviewed the pilot study.
OTHER ITEMS OR REMARKS	OTHER ITEMS OR REMARKS: None

Monte Garroutte 8/7/22

QC MANAGER DATE

PREPARATORY PHASE CHECKLIST

(CONTINUED ON SECOND PAGE)

SPEC SECTION	DATE
	8/7/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Site 7 Landfill Cap	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __24_ HOURS IN ADVANCE: YES ☒ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead/CQC	Brice Engineering
Chad Armintrout	Superintendent	Brice Engineering

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED? Final Work Plan has been approved.

ARE ALL MATERIALS ON HAND? YES ☒ NO ☐

IF NO, WHAT ITEMS ARE MISSING?

CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL. (THIS SHOULD BE DONE AS MATERIAL ARRIVES.)

COMMENTS: Materials received matched work plan specifications.

MATERIAL STORAGE

ARE MATERIALS STORED PROPERLY? YES ☒ NO ☐

IF NO, WHAT ACTION IS TAKEN?

SPECIFICATIONS

REVIEW EACH PARAGRAPH OF SPECIFICATIONS. Each paragraph of specification has been reviewed.

DISCUSS PROCEDURE FOR ACCOMPLISHING THE WORK. Procedures to accomplish work have been discussed.

CLARIFY ANY DIFFERENCES/DISCREPANCIES. No discrepancies were identified.

PRELIMINARY WORK & PERMITS

☒ ENSURE PRELIMINARY WORK IS CORRECT AND PERMITS ARE ON FILE.

IF NOT, WHAT ACTION IS TAKEN?

TESTING	IDENTIFY TEST TO BE PERFORMED, FREQUENCY, AND BY WHOM. Tests were discussed.
	WHEN REQUIRED? The landfill will be inspected after cap is added.
	WHERE REQUIRED? Field testing will be performed in the field.
	REVIEW TESTING PLAN. Testing plan has been reviewed.
	HAVE TEST FACILITIES BEEN APPROVED? Test facilities are approved.
SAFETY	HAS ACTIVITY HAZARD ANALYSIS BEEN APPROVED? YES ☒ NO ☐
	REVIEW APPLICABLE PORTION OF EM 385-1-1. Applicable portion of 385-1-1 has been reviewed.
MEETING COMMENTS	COMMENTS DURING MEETING. Discussed depressed areas around the cap that need to be filled.
OTHER ITEMS OR REMARKS	OTHER ITEMS OR REMARKS: None

Monte Garroutte 8/7/22

QC MANAGER DATE

FOLLOW UP PHASE CHECKLIST

SPEC SECTION	DATE
	8/7/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Site 8 Soil	

PERSONNEL PRESENT

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead/CQC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Project has proceeded in full compliance with procedures identified at preparatory phase. Submittals will be included in reporting.

REWORK ITEM COMPLETE

ENSURE ANY REWORK ITEM IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

No rework items were required.

WORK COMPLETE

ENSURE PRELIMINARY AND FOLLOW UP WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

COMMENTS: Preliminary and follow up work is complete and correct.

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NOT, WHAT ITEMS HAVE NOT BEEN SUBMITTED?

OTHER

OTHER ITEMS OR REMARKS

None.

Monte Garroutte 8/7/22

QC MANAGER DATE

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
8/7/22	North East Cape	Chad Armintrout

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Maintenance of stock Piles & containments	Sand bags - Shovels - Knifes - String - Lifting	Strains - cuts - Back - slips, trips, Falls	Level D
Bagging opps - 5yard bags	Excavator - Loader - Rigging/straps	Struck By - pinch points overhead - slips, trips, Falls	Level D
Transport 5yard bags to the beach	Dump truck - trailer - Loader - Excavator - Rigging/straps	Road Hazards/conditions struck by - pinch points Backing up -	Level D

	Name	Signature	Date	Company
1	Chad Armintrout	[illegible]	8/7	[illegible]
2	Dave Gilder	[illegible]		[illegible]
3	Eric Bamhart	[illegible]		USACE
4	Patrick Schick	[illegible]		Brice Eng.
5	Michael Williams	[illegible]		BEL
6	Craig Perry	Craig Perry		Beacon
7	Brady Sharp	[illegible]		AK Min
8	Sammie Carter	[illegible]		BEL
9	Ali Green	Ali Green		BEL
10	Jan Sohy	Jan Sohy		Brice
	Monte Gorrontae	Matt Richardson		Brice

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number		UPC/Project Title
W911KB20D0002 / W911KB21F0086		**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**
QC/QA Report Number **0021**	Date or Time Period **Monday 8 August 2022**	Location **Northeast Cape, AK**

Weather

Low Temp: 38° F High Temp: 50° F

Wind Speed: 10-20 mph Conditions: Cloudy, Rain

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☐
Initial ☒ Site 28 Dredging
Follow-up ☐

Field Sampling and Testing **Yes** ☒ **No** ☐

Type of Test	Method/Matrix	Results
Turbidity	Turbidimeter / Surface Water	10.3 – 18.4

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

Laboratory Analytical Sampling **Yes** ☐ **No** ☒

Type of Test	Test Method/Matrix	Quantity of Samples
NA		

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

Notes:

- NA

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☐

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?	**N/A** ☐	**Yes** ☒	**No** ☐
Was a **Job Safety Meeting** held this day? (If yes, attach comments)		**Yes** ☒	**No** ☐
Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report)		**Yes** ☐	**No** ☒
Was **hazardous waste**/materials 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.)

- None

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Work Activities Performed This Date

Prime

- A tailgate safety meeting was held.
- Vehicle and equipment inspections were performed for the vehicles and equipment used.
- Several changes were made to the Site 28 dredging operation based on the pilot study evaluation.
- A fresh water supply pond was filled for the flocculant injection system for Site 28.
- The dredge was moved to Area 3 of Site 28. Dredging was attempted with the 4” dredge.
- A 2” dredge was set up and deployed at Area 3. Dredging was attempted with the 2” dredge.
- The crew manually raked sediment at Area 3 of Site 28 to attempt to dredge the material.
- Saturated soil at site 15 that could not be bagged because of moisture continued to drain.
- Supersacks were transported from the MOC to the barge landing. 6 supersacks were transported.

Item	Scope	Units	Total Completed	Remaining
Site 15 DRO-Contaminated Soil Excavation	500	Tons	287.4	212.5
Site 15 ISM Stockpile Sampling	1	Each	1	0
Site 28 Sediment Dredging (estimated)	196	CY	4	192
Site 28 Mapping	1	Each	0	1
Site 28 Sediment Sampling	60	Sediment Samples	0	60
Site 28 Pre- and Post-Treatment Area ISM Samples	2	Sample	1	1
Site 28 Surface Water Samples	12	Sample	4	8
Gravel Airstrip Repair	1	Each	1	0
Gravel Road Repair	1	Each	1	0
Miscellaneous Drums and Debris	5	Tons	1.25	3.75
Site 7 Landfill Cap - add cap material	50	CY	0	50
Site 8 Pipeline Break Soil Borings	30	Samples	35	0
Background Soil Samples for TOC, DRO with and without silica gel cleanup	10	Samples	10	0
MOC Monitoring Wells Sampled	15	Well	15	0
MOC Monitoring Wells Redeveloped	2	Well	2	0
MOC Monitoring Wells Repaired	3	Well	4	0
MOC Monitoring Wells Decommissioned	1	Well	1	0
Soil Stockpiles			2	
Soil Excavations			1	
Photographs Taken			123	

Subcontractors

- Alaska Minerals continued camp maintenance.
- Beacon continued providing emergency medical support.

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12	Volvo 210 Excavator	Volvo Excavator 1	1
Laborer	2	12	John Deere 380 Excavator	John Deere Excavator 1	1
Technical Lead/CQC	1	12	Dump Truck	Dump Truck 1	1
Scientist/Bear Guard	1	12	John Deere 310e Rock Truck	Rock Truck 1	1
Engineer	1	12	Morooka Tracked Vehicle	Morooka 1	1
Environmental Scientist	2	12	John Deere 650 Dozer	Dozer 1	1
Geologist	1	12	John Deere 844 Loader	Loader 1	1
			John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	1
			Kawasaki Teryx UTV	Teryx 3	1
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***9***	***108***	***NA***	***NA***	***19***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	12	NA	NA	0
Total	***1***	***12***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Total	***2***	***24***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- None received.

Do the materials comply with the contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Equipment Received to be used on Site:

- None received.

Does the equipment comply with contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☒ **Written** ☐
(Include names, reactions, and remarks.)

- The crew identified that matted, root-laden material comprised the great majority of the material under the water in the area identified for contaminated sediment removal at Area 3. Brice discussed with QAR Eric Barnhill tracking an excavator down to Area 3, using mats on the tundra, excavating the areas identified as sediment to the solid base, and bagging the excavated material. Eric contacted COR Aaron Shewman who relayed that if the sediment was not loose, it is not loose sediment and does not need to be removed, therefore we should not use the excavator to remove the matted material. Following this conversation, Brice and QAR Eric evaluated Site 15 Area 3, and the team identified several areas of loose sediment. In these areas, the loose sediment consisted of a small amount of loose sediment (1-2 inches), with the matted root-laden material below. Brice decided to try dredging this shallow material. To reduce water supply use, the crew put into operation a 2-inch dredge. The crew also tasked 3 people with physically raking the material while dredging, and the agitator was run over the area to break up and loosen the matted dead vegetation. The agitator was unable to break up the matted material, and the dredge plugged the impeller minutes into the operation. To evaluate the substrate, the crew removed a small volume of the root-laden material for examination. Brice then discussed whether the survey of the sediment would have counted this root-laden material as loose sediment, and how to account for it in the follow-up survey, and if dredging volumes would be achievable if this material was considered loose sediment in the survey. Brice and QAR Eric have scheduled a call with COR Aaron on 9 August 2022.

Instructions Given by Contractor to Subcontractors **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.

- None

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- None

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- None

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☐

- None.

Deficiencies Corrected This Day **Yes** ☐ **No** ☐

- None.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- Several attempts were made to dredge at Site 28 Area 3 and little volume was removable. Brice and QAR Eric have scheduled a call with COR Aaron on 9 August 2022.

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Monte Garroutte* **Date** 8 August 2022

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 8 August 2022

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☒ **No** ☐

Additional Comments:

NE Cape QAR Daily Report Comments
Monday, 8 August 2022

Weather: Intermittent sprinkles moderate winds blew through the evening. High temp about 45 ºF.

Miscellaneous

Wind gusts continue to whip around the stockpile covers. Covers are staying on and Brice continues to adjust them as necessary.

Photo 1: Adding ballast to stockpile cover, view northwest

Brice collected clean water for use in the dredge/flocculant system

Photo 2: Collecting clean water from upstream section of the Suqitughneq River, view north

Site 8

Direct-push soil boring installation and soil sampling is complete.

Site 15

DRO-contaminated soil excavation continues. No soil was bagged today. Brice concentrated on beginning to move bags to the beach. Stacked soil continues to dry on sloped lined dewatering area.

Photo 3: Loading filled DRO-contaminated bags on transport truck for transport to Cargo Beach laydown, view, northwest.

Site 28

Dredging activity began to ramp up today. The crew set up the dredge and ponds and hose/hose hangers in an attempt to dredge Area 3. Brice is anchoring the geo tubes in their containment, using wooden tundra mats as ballast – The tubes apparently were moving while filling during the pilot test.

The initial dredge attempt today dewatered the area quickly. Brice was using their larger dredge with a 4" hose. After lunch Brice switched to a smaller dredge with 2" hose and used an agitator that works as a sort of pressure washer by forcing water to the area being dredged and hypothetically loosening material. The agitator along with the natural upwelling water supplied enough water for the smaller dredge. The smaller dredge did, however, plug up fairly quickly and several times until the attempt was abandoned.

Brice will reassess and speak with heir Anchorage office people and have a meeting with COR Aaron Shewman tomorrow.

Photo 4: Site 28 operations; intermediate pond with discharge hose strapped to hose hanger
Photo 5: Brice crew looking for a spot to deploy silt fence

Photo 6: Site 28 operations; Area 3 with dredge hose shown in center
Photo 7: Dredge water intake with screen attached

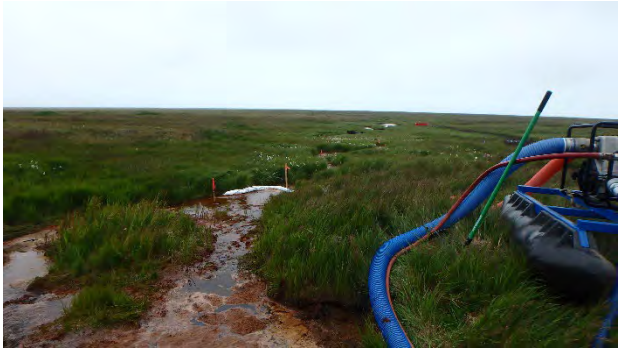


Photo 6: Site 28 operations; View north from Area 3
Photo 7: Dredging upper area of Area 3. Blue hose is from dredge and grey hose is from agitator.

Photo 8: Dredged water discharging into holding pond
Photo 9: Some hand removed vegetation. This vegetation is clogging the dredges and Brice found large rocks in it (circled in red) and gravel below it.

MNA Groundwater at the MOC
MNA sampling has concluded

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Signature _____ **Date**_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☐	Follow-up Inspection Form
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☒	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

PHOTOGRAPHIC LOG – 08 August 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. CM190055

Description:

Photo CM190055. Facing Northwest. Dredging upstream end of Site 28 Area 3.

Photograph No. CM180060

Description:

Photo CM180060. Facing West. Pump pond 2 with hose cradle.

INITIAL PHASE CHECKLIST

SPEC SECTION	DATE
	8/8/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Site 28 Dredging	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __24 HOURS IN ADVANCE: YES ☒ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead/CQC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Full compliance with procedures is identified. Procedures meet/match specifications, plans, and submittals.

PRELIMINARY WORK

ENSURE PRELIMINARY WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

All preliminary work is complete. Inventory is at project site set up.

WORKMANSHIP

ESTABLISH QUALITY STANDARDS.

WHERE IS WORK LOCATED? Work is located at Northeast Cape, Alaska.

IS SAMPLE PANEL REQUIRED? YES ☒ NO ☐

WILL THE INIITAL WORK BE CONSIDERED AS A SAMPLE? YES ☐ NO ☒

(IF YES, MAINTAIN IN PRESENT CONDITION AS LONG AS POSSIBLE AND DESCRIBE LOCATION OF SAMPLE)

RESOLUTION

RESOLVE ANY DIFFERENCES/DISCREPANCIES.

COMMENTS: Changes identified in the pilot study evaluation will be implemented.

CHECK SAFETY

REVIEW JOB CONDITIONS USING EM 385-1-1 AND JOB HAZARD ANALYSIS

COMMENTS: Job conditions were reviewed using EM 385-1-1. AHA was reviewed. All job conditions meet safety standards.

OTHER

OTHER ITEMS OR REMARKS

None.

Monte Garroutte — QC MANAGER

8/8/22 — DATE

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
8/8/22	North East Cape	Chad Armintrout

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Transport of 5 yard bag to the Beach	Loader - Dump Truck - Trailer - Rigging/Straps	Struck By - pinch points - Slips, trips, Falls	Level D
Dredging operation into Geo Tubes	Dredge - pumps - Hoses - Shovels - Ratchet Straps	Water Pressure - Eye - Noise - Uneven Walking Surface - Cold Conditions	Level D

	Name	Signature	Date	Company
1	Chad Armintrout	[signature]	8/8	Brice ENV.
2	A Platt	[signature]		Brice
3	Eric Barnhart	[signature]		USACE
4	Brady Sharp	Brady Sharp		AKMIN
5	Michael Williams	[signature]		BEL
6	Samantha Carter	[signature]		BEL
7	Ali Green	Ali Green		BEL
8	Craig Perry	Craig Perry		Beacon
9	Patrick Schick	[signature]		Brice Eng.
10	DAVE [signature]	[signature]		Brice
	Jane Shay	Jane Shay		Brice
	Monte Carrouette	Monte Carrouette		Brice

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number	UPC/Project Title
W911KB20D0002 / W911KB21F0086	**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**

QC/QA Report Number	Date or Time Period	Location
0022	**Tuesday 9 August 2022**	**Northeast Cape, AK**

Weather

Low Temp: 38° F High Temp: 55° F

Wind Speed: 0-5 mph Conditions: Sunny

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☐

Initial ☒ Site 7 Landfill Maintenance

Follow-up ☒ Groundwater Sampling

Field Sampling and Testing **Yes** ☒ **No** ☐

Type of Test	Method/Matrix	Results
Turbidity	Turbidimeter / Surface Water	8.3 - 22.4
PID	Headspace / Soil	78.2 – 281

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

Laboratory Analytical Sampling **Yes** ☒ **No** ☐

Type of Test	Test Method/Matrix	Quantity of Samples
Confirmation Samples	DRO / Soil	6

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

Notes:

- NA

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☐

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?	**N/A** ☐	**Yes** ☒	**No** ☐
Was a **Job Safety Meeting** held this day? (If yes, attach comments)		**Yes** ☒	**No** ☐
Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report)		**Yes** ☐	**No** ☒
Was **hazardous waste**/materials 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.)

- None

Work Activities Performed This Date

Prime

- A tailgate safety meeting was held.
- Vehicle and equipment inspections were performed for the vehicles and equipment used.
- Final confirmation samples were collected from the base and sidewalls of the Site 15 excavation.
- The excavator tracks at Site 15 were decontaminated to reposition the equipment on the other side of the excavation.
- Saturated soil from Site 15 that could not be bagged because of moisture continued to drain.
- Clean cap material (85 cy) was added to fill in three depressions identified at Site 7. A dozer was used to contour and flatten the clean cap material.
- A meeting was held with USACE COR Aaron Shewman, QAR Eric Barnhill, and Brice staff to discuss project objectives and removal strategies at Site 28. An inspection of Site 28 was conducted with QAR Eric Barnhill following the meeting. Brice drafted a short document on site observations and mapping and removal recommendations.
- Three coolers were sent out via air charter.
- Drill rig materials were demobilized via air charter.

Item	Scope	Units	Total Completed	Remaining
Site 15 DRO-Contaminated Soil Excavation	500	Tons	287.4	212.5
Site 15 ISM Stockpile Sampling	1	Each	1	0
Site 28 Sediment Dredging (estimated)	196	CY	4	192
Site 28 Mapping	1	Each	0	1
Site 28 Sediment Sampling	60	Sediment Samples	0	60
Site 28 Pre- and Post-Treatment Area ISM Samples	2	Sample	1	1
Site 28 Surface Water Samples	12	Sample	4	8
Gravel Airstrip Repair	1	Each	1	0
Gravel Road Repair	1	Each	1	0
Miscellaneous Drums and Debris	5	Tons	1.25	3.75
Site 7 Landfill Cap - add cap material	50	CY	85	0
Site 8 Pipeline Break Soil Borings	30	Samples	35	0
Background Soil Samples for TOC, DRO with and without silica gel cleanup	10	Samples	10	0
MOC Monitoring Wells Sampled	15	Well	15	0
MOC Monitoring Wells Redeveloped	2	Well	2	0
MOC Monitoring Wells Repaired	3	Well	4	0
MOC Monitoring Wells Decommissioned	1	Well	1	0
Soil Stockpiles			2	
Soil Excavations			1	
Photographs Taken			127	

Subcontractors

- Alaska Minerals continued camp maintenance.
- Beacon continued providing emergency medical support.

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12	Volvo 210 Excavator	Volvo Excavator 1	1
Laborer	2	12	John Deere 380 Excavator	John Deere Excavator 1	1
Technical Lead/CQC	1	12	Dump Truck	Dump Truck 1	1
Scientist/Bear Guard	1	12	John Deere 310e Rock Truck	Rock Truck 1	1
Engineer	1	12	Morooka Tracked Vehicle	Morooka 1	1
Environmental Scientist	2	12	John Deere 650 Dozer	Dozer 1	1
Geologist	1	12	John Deere 844 Loader	Loader 1	1
			John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	1
			Kawasaki Teryx UTV	Teryx 3	1
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***9***	***108***	***NA***	***NA***	***19***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	12	NA	NA	0
Total	***1***	***12***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Total	***2***	***24***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- Two coolers were received with surface water sampling glassware.

Do the materials comply with the contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Equipment Received to be used on Site:

- None received.

Does the equipment comply with contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☒ **Written** ☐
(Include names, reactions, and remarks.)

- Brice had a teleconference meeting with USACE COR Aaron Shewman and USACE QAR Eric Barnhill. Scotty Mann (Brice) also called in. Site 28 project objectives, observations, and potential strategies were discussed. Aaron Shewman asked that Brice write an email/document that explains the site observations, potential resolutions, and suggestions for improvements and efficiencies.

Instructions Given by Contractor to Subcontractors **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.

- None

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- None

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- None

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☐

- None.

Deficiencies Corrected This Day **Yes** ☐ **No** ☐

- None.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- The drill rig could not be started to be loaded onto the plane for demobilization, the crew will inspect and repair the rig before final demobilization.

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

CQC System Manager Signature *Monte Garroutte* **Date** 9 August 2022

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 9 August 2022

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☒ **No** ☐

Additional Comments:

NE Cape QAR Daily Report Comments
Tuesday, 9 August 2022

Weather: Sunny with a light wind. High temp about 50 ºF.

Miscellaneous

Wind gusts continue to whip around the stockpile covers. Covers are staying on and Brice continues to adjust them as necessary.

Photo 1: CASA plane from Ryan Air arrived onsite to begin transporting Brice drill rig and equipment , view northwest

Site 8

Direct-push soil boring installation and soil sampling is complete.

Site 15

DRO-contaminated soil excavation continues. No soil was bagged today. Brice decontaminated the excavator to be able to move it to the other side of the lined drying area to prepare for additional bagging. Stacked soil continues to dry on sloped lined dewatering area.

Photo 2: Cleaning excavator tracks prior to tracking around to the west side of the excavation, view, north.
Photo 3: Stacked soil drying out on lined sloped holding area, view, northwest.

Site 28

The Brice field team and Project Manager and the on-site QAR (Eric Barnhill) and the COR (Aaron Shewman) had a teleconference to go over issues with the Site 28 removal and to formulate a plan of attack. The Brice team made the COR aware of the lower levels of true sediment along the stream/ponds. Also discussed was the need to avoid the vegetative mat that underlies what at times is

sparse sediment. Aaron Shewman directed Brice to write up a correspondence detailing the perceived issues and alternate solutions to remove the available sediment.
The Brice crew and QAR walked along the stream. The stream is much clearer today after not having been made turbid by dredging activity. More areas of sediment are apparent then were apparent during the dredge attempt on 8/8/2022. Brice is formulating a plan and will forward this plan to Aaron Shewman as requested.

Photo 4: Area 3 area where vegetative matt (dark brown, underwater) is the only apparent underwater substrate
Photo 5: Area 3, further downstream, orange substance is loose sediment

Photo 6: Area 3, further downstream, orange substance is loose sediment

Site 7 Landfill Cap Maintenance

Photo 7: Low areas in Site 7 landfill cap, upper cap, view west
Photo 8: Low area in Site 7 landfill cap, side of cap, view south

Photo 9: Adding fill to low spots on the Site 7 landfill cap, view west
Photo 10: Track walking and grading fill on Site 7 landfill cap

Photo 10: Adding fill to depression on side of Site 7 landfill, view west

<u>MNA Groundwater at the MOC</u>
MNA sampling has concluded

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Signature _____ **Date**_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☒	Follow-up Inspection Form
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☒	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

PHOTOGRAPHIC LOG – 08 August 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. CM190060

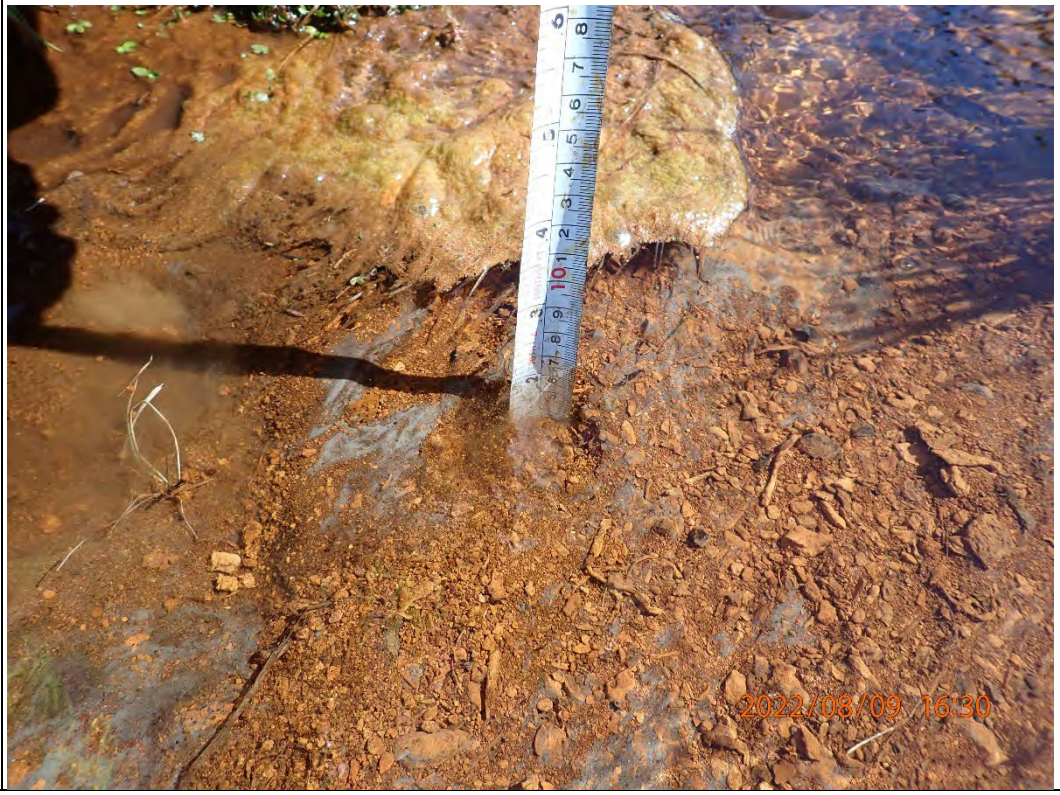
Description:

Photo CM190060. Facing down. Area 3 root mat.

Photograph No. CM190058

Description:

Photo CM180058. Photo CM190058. Facing Down in Area 3. A 0.15-foot layer of sediment above the root-mat, 0.05 feet below the water surface.



FOLLOW UP PHASE CHECKLIST

SPEC SECTION	DATE
	8/9/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Groundwater Monitoring	

PERSONNEL PRESENT

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead/CQC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering
Michael Williams	Environmental Scientist	Brice Engineering

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Project has proceeded in full compliance with procedures identified at preparatory phase. Submittals will be included in reporting.

REWORK ITEM COMPLETE

ENSURE ANY REWORK ITEM IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

No rework items were required.

WORK COMPLETE

ENSURE PRELIMINARY AND FOLLOW UP WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

COMMENTS: Preliminary and follow up work is complete and correct.

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NOT, WHAT ITEMS HAVE NOT BEEN SUBMITTED?

OTHER

OTHER ITEMS OR REMARKS

None.

Monte Garroutte 8/9/22

QC MANAGER DATE

INITIAL PHASE CHECKLIST

SPEC SECTION	DATE
	8/9/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Site 7 Landfill Cap	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __24 HOURS IN ADVANCE: YES ☒ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead/CQC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Full compliance with procedures is identified. Procedures meet/match specifications, plans, and submittals.

PRELIMINARY WORK

ENSURE PRELIMINARY WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

All preliminary work is complete.

WORKMANSHIP

ESTABLISH QUALITY STANDARDS.

WHERE IS WORK LOCATED? Work is located at Northeast Cape, Alaska.

IS SAMPLE PANEL REQUIRED? YES ☐ NO ☒

WILL THE INIITAL WORK BE CONSIDERED AS A SAMPLE? YES ☐ NO ☒

(IF YES, MAINTAIN IN PRESENT CONDITION AS LONG AS POSSIBLE AND DESCRIBE LOCATION OF SAMPLE)

RESOLUTION

RESOLVE ANY DIFFERENCES/DISCREPANCIES.

COMMENTS: None.

CHECK SAFETY

REVIEW JOB CONDITIONS USING EM 385-1-1 AND JOB HAZARD ANALYSIS

COMMENTS: Job conditions were reviewed using EM 385-1-1. AHAs were reviewed. All job conditions meet safety standards.

OTHER

OTHER ITEMS OR REMARKS

None.

Monte Garroutte 8/9/22

QC MANAGER DATE

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
8/9/22	North East Cape	Chad Armintrout

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Collect Samples from Excavation With Excavator	Excavator - Contaminated Soil - Gloves	Struck By - Sharp objects - exposure	Level D
Fix Depression's on Landfill Cap	Rock Truck - Dozer - Excavator -	Roll over - Side Hills - Struck by	Level D "Seat Belts"

	Name	Signature	Date	Company
1	Chad Armintrout	[illegible]	8/9	Brice ENV.
2	Craig Perry	Craig Perry		Beacon
3	Michael Williams	[illegible]		BEL
4	Sammie Carter	[illegible]		BEL
5	Ali Green	Ali Green		BEL
6	A. Plant	[illegible]		Brice
7	Dave Clifford	[illegible]		Brice
8	Eric Bardwell	[illegible]		USACE
9	Brady Sharp	Brady Sharp		AK Mid
10	Patrick Schick	[illegible]		Brice Eng.
	Jane Sharp	Jane Sharp		Brice
	Monte Garoutte	Monte Garoutte		Brice

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DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number	UPC/Project Title
W911KB20D0002 / W911KB21F0086	**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**

QC/QA Report Number	Date or Time Period	Location
0023	**Wednesday 10 August 2022**	**Northeast Cape, AK**

Weather

Low Temp: 38° F High Temp: 60° F

Wind Speed: 0-20 mph Conditions: Fog, Sunny

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☐
Initial ☐
Follow-up ☒ Site 7 Landfill Maintenance

Field Sampling and Testing **Yes** ☒ **No** ☐

Type of Test	Method/Matrix	Results
Turbidity	Turbidimeter / Surface Water and Treated Water	14.5 – 32.8

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

Laboratory Analytical Sampling **Yes** ☐ **No** ☒

Type of Test	Test Method/Matrix	Quantity of Samples
NA		

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

Notes:

- NA

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☐

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?	**N/A** ☐	**Yes** ☒	**No** ☐
Was a **Job Safety Meeting** held this day? (If yes, attach comments)		**Yes** ☒	**No** ☐
Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report)		**Yes** ☐	**No** ☒
Was **hazardous waste**/materials 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.)

- None

Work Activities Performed This Date

Prime

- A tailgate safety meeting was held.
- Vehicle and equipment inspections were performed for the vehicles and equipment used.
- Dredging was conducted at Area 3 of Site 28. Dredging began at the downstream Subarea 2 and moved upstream to Subarea 3. Total sediment dredged from Area 3 from 8/8-8/10 is roughly estimated at 6.05 cy and is currently contained in the geotubes that are dewatering. Additional sediment remains to be removed from Area 3.
- Turbidity was measured at Site 28 surface water sample locations - at the beginning of the day and at the end of the day.
- The treated discharge water from Site 28 was evaluated for sheen, odor, turbidity (14.5 NTU), and erosion. No sheen, odor, or erosion was observed.
- Saturated soil from Site 15 that could not be bagged because of moisture continued to drain.
- One cooler with waste characterization samples was packed and sent out via air charter.
- One Brice employee (laborer) demobilized via air charter, and two Brice employees (laborer and scientist) arrived via air charter.

Item	Scope	Units	Total Completed	Remaining
Site 15 DRO-Contaminated Soil Excavation	500	Tons	530 (287.4 containerized)	0
Site 15 ISM Stockpile Sampling	1	Each	1	0
Site 28 Sediment Dredging (estimated)	196	CY	10.05	185.95
Site 28 Mapping	1	Each	0	1
Site 28 Sediment Sampling	60	Sediment Samples	0	60
Site 28 Pre- and Post-Treatment Area ISM Samples	2	Sample	1	1
Site 28 Surface Water Samples	12	Sample	4	8
Gravel Airstrip Repair	1	Each	1	0
Gravel Road Repair	1	Each	1	0
Miscellaneous Drums and Debris	5	Tons	1.25	3.75
Site 7 Landfill Cap - add cap material	50	CY	85	0
Site 8 Pipeline Break Soil Borings	30	Samples	35	0
Background Soil Samples for TOC, DRO with and without silica gel cleanup	10	Samples	10	0
MOC Monitoring Wells Sampled	15	Well	15	0
MOC Monitoring Wells Redeveloped	2	Well	2	0
MOC Monitoring Wells Repaired	3	Well	4	0
MOC Monitoring Wells Decommissioned	1	Well	1	0
Soil Stockpiles			2	
Soil Excavations			1	
Photographs Taken			156	

Subcontractors

- Alaska Minerals continued camp maintenance.
- Beacon continued providing emergency medical support.

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12	Volvo 210 Excavator	Volvo Excavator 1	0
Laborer	3	12 / 11	John Deere 380 Excavator	John Deere Excavator 1	1
Technical Lead/CQC	1	12	Dump Truck	Dump Truck 1	1
Scientist/Bear Guard	1	12	John Deere 310e Rock Truck	Rock Truck 1	1
Engineer	1	12	Morooka Tracked Vehicle	Morooka 1	1
Environmental Scientist	3	12 / 11	John Deere 650 Dozer	Dozer 1	1
Geologist	1	12	John Deere 844 Loader	Loader 1	1
			John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	1
			Kawasaki Teryx UTV	Teryx 3	1
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***11***	***130***	***NA***	***NA***	***18***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	12	NA	NA	0
Total	***1***	***12***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Total	***2***	***24***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- One cooler was received with empty groundwater PAH jars. New well caps were received. Other various supplies were received.

Do the materials comply with the contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Equipment Received to be used on Site:

- None received.

Does the equipment comply with contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☒ **Written** ☐
(Include names, reactions, and remarks.)

- USACE QAR Eric Barnhill evaluated sediment removal along Area 3 as it progressed. Eric identified that Subarea 1 of Area 3 (the downstream edge of Area 3) most likely needed additional work, and that Subarea 2 of Area 3 (upstream of Subarea 1) appeared to have sediment removed to a satisfactory level.

Instructions Given by Contractor to Subcontractors **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.

- None

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- None

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- None

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☐

- None.

Deficiencies Corrected This Day **Yes** ☐ **No** ☐

- None.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- A 3” trash pump stopped working during dredging. It was tagged and removed to the mechanic’s container for evaluation and repair.
- Because of a canceled flight in Seattle, holding times were exceeded for PAH analysis by one day for the groundwater sample collected from MW10-1, which will likely result in a low bias qualifier (QL flagged) for that analysis. This well will be resampled for PAHs and resubmitted.

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Monte Garroutte* **Date** 10 August 2022

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 10 August 2022

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☒ **No** ☐

Additional Comments:

NE Cape QAR Daily Report Comments
Wednesday, 10 August 2022

Weather: Starting windy and foggy and overcast and then witching to sunny with a light wind. High temp about 50 - 55 ºF.

Miscellaneous

Photo 1: Juvenile fox in the MOC

Site 8
Direct-push soil boring installation and soil sampling is complete.

Site 15
DRO-contaminated soil excavation continues. No soil was bagged or excavated today.

Site 28
The Brice team set up a stepwise system of removing sediment given minimal water and varying amounts of sediment sitting on top of root mass.
Brice is currently working on Area three and has been breaking it up into several smaller pieces/zones for removal. Brice is creating coffer dams with boom and silt fencing. They are then moving the material to the dredge intake. With the limited water this is the best option.

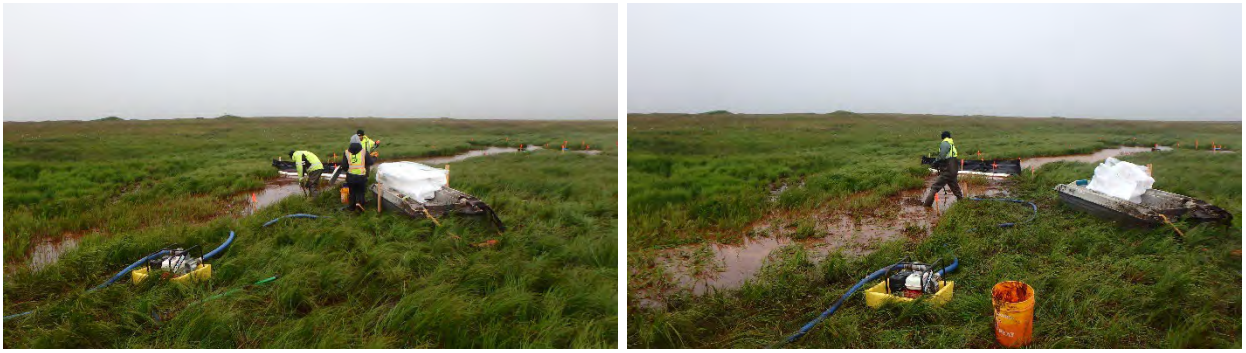

Photo 2: Area 3. Mechanically removing sediment and placing into a 1-yard bag.

Photo 3: Area 3. Pushing sediment that was skimmed off of submerged root matt toward submerged dredge intake.

Photo 4: Overview of removal area
Photo 5: Removed water/sediment slurry prior to pumping up to treatment area

Photo 6: Dewatering bags and flocculant system
Photo 7: Dewatering bags and flocculant system

Photo 8: Filling dewatering bag
Photo 9: Area 3 pre-removal; next area to target

Site 7 Landfill Cap Maintenance

Landfill cap maintenance has been performed

MNA Groundwater at the MOC
MNA sampling has concluded

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Signature _____ **Date**_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☒	Follow-up Inspection Form
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☐	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

PHOTOGRAPHIC LOG – 10 August 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. CM190071

Description:

Photo CM190071. Facing Southwest. Raking sediment slurry into dredge sump.

Photograph No. CM190087

Description:

Photo CM190087. Facing Southwest. Geotube after dredging.

FOLLOW UP PHASE CHECKLIST

		SPEC SECTION	DATE 8/10/22
CONTRACT NO W911KB20D0002	DEFINABLE FEATURE OF WORK Site 7 Landfill Cap	SCHEDULE ACT NO.	

PERSONNEL PRESENT

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead/CQC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Project has proceeded in full compliance with procedures identified at preparatory phase. Submittals will be included in reporting.

REWORK ITEM COMPLETE

ENSURE ANY REWORK ITEM IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

No rework items were required.

WORK COMPLETE

ENSURE PRELIMINARY AND FOLLOW UP WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

COMMENTS: Preliminary and follow up work is complete and correct.

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NOT, WHAT ITEMS HAVE NOT BEEN SUBMITTED?

OTHER

OTHER ITEMS OR REMARKS

None.

Monte Garroutte 8/10/22

QC MANAGER DATE

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
8/10/22	North East Cape	Chad Armintrout

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Sucking/Removal of Sediment From Creek	2" in Suction dredge & Hose - Skimmer's - Shovels	Back - Eye - Noise - Slips, Trips, Falls	Level D "Gloves"
Metal Fabrication - welding - Grinding - drilling	welder, Grinder, drill, Band Saw	Eye - Noise - Hot work - sparks, cuts	Level D "Welding Sheild"

	Name	Signature	Date	Company
1	Chad Armintrout	[signature]	8/10	Brice ENV.
2	Monte Garroutte	[signature]		Brice
3	Ali Green	[signature]		BEL
4	Sammie Carter	[signature]		BEL
5	Brady Sharp	[signature]		AKMIN
6	DAVE CLIFFORD	[signature]		Brice
7	Michael Williams			
8	Eric Burnhill	[signature]		USACE
9	Craig Perry	[signature]		Beacon
10	A. Platt	[signature]		Brice
	Patrick Schick	[signature]		Brice Eng.
	Jim Sohy	[signature]		Brice

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DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number	UPC/Project Title
W911KB20D0002 / W911KB21F0086	**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**

QC/QA Report Number	Date or Time Period	Location
0024	**Thursday 11 August 2022**	**Northeast Cape, AK**

Weather

Low Temp: 40° F High Temp: 60° F

Wind Speed: 0-20 mph Conditions: Sunny

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☐
Initial ☐
Follow-up ☐

Field Sampling and Testing **Yes** ☒ **No** ☐

Type of Test	Method/Matrix	Results
Turbidity	Turbidimeter / Surface Water and Treated Water	12.7 – 58.3

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

Laboratory Analytical Sampling **Yes** ☐ **No** ☒

Type of Test	Test Method/Matrix	Quantity of Samples
NA		

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

Notes:

- NA

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☐

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?	**N/A** ☐	**Yes** ☒	**No** ☐
Was a **Job Safety Meeting** held this day? (If yes, attach comments)		**Yes** ☒	**No** ☐
Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report)		**Yes** ☐	**No** ☒
Was **hazardous waste**/materials 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.)

- None

Work Activities Performed This Date

Prime

- A tailgate safety meeting was held.
- Vehicle and equipment inspections were performed for the vehicles and equipment used.
- Dredging was conducted at Areas 3 and 4 of Site 28. Dredging began at Subarea 3 of Area 3. The crew performed a final sweep of Area 3 with shovels, the agitator, and skimmers/rakes. The dredge was then moved to Subarea 1 of Area 4, just downstream of Area 3. Sediment was raked/pushed from the downstream end of Area 3 and the Area 4 pond to the 4" dredge. The dredge was then moved downstream to Subarea 2 of Area 4 and dredged until the geotube was full. Total sediment dredged from Areas 3 and 4 from 8/8-8/11 is roughly estimated at 15.05 cy and is currently contained in the geotubes that are dewatering.
- Turbidity was measured at Site 28 surface water sample locations - at the beginning of the day and at the end of the day.
- The treated discharge water from Site 28 was evaluated for sheen, odor, turbidity (18.9 NTU), and erosion. No sheen, odor, or erosion was observed.
- Saturated soil from Site 15 that could not be bagged because of moisture continued to drain.
- A new well cap and combo lock with the code "0911" was installed at monitoring well MW10-1.
- Two Brice crew checked the geotube containments in the late evening to ensure draining was performing as expected.

Item	Scope	Units	Total Completed	Remaining
Site 15 DRO-Contaminated Soil Excavation	500	Tons	530 (287.4 containerized)	0
Site 15 ISM Stockpile Sampling	1	Each	1	0
Site 28 Sediment Dredging (estimated)	196	CY	15.05	180.95
Site 28 Mapping	1	Each	0	1
Site 28 Sediment Sampling	60	Sediment Samples	0	60
Site 28 Pre- and Post-Treatment Area ISM Samples	2	Sample	1	1
Site 28 Surface Water Samples	12	Sample	4	8
Gravel Airstrip Repair	1	Each	1	0
Gravel Road Repair	1	Each	1	0
Miscellaneous Drums and Debris	5	Tons	1.25	3.75
Site 7 Landfill Cap - add cap material	50	CY	85	0
Site 8 Pipeline Break Soil Borings	30	Samples	35	0
Background Soil Samples for TOC, DRO with and without silica gel cleanup	10	Samples	10	0
MOC Monitoring Wells Sampled	15	Well	15	0
MOC Monitoring Wells Redeveloped	2	Well	2	0
MOC Monitoring Wells Repaired	3	Well	4	0
MOC Monitoring Wells Decommissioned	1	Well	1	0
Soil Stockpiles			2	
Soil Excavations			1	
Photographs Taken			179	

Subcontractors

- Alaska Minerals continued camp maintenance.
- Beacon continued providing emergency medical support.

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	13	Volvo 210 Excavator	Volvo Excavator 1	0
Laborer	2	12	John Deere 380 Excavator	John Deere Excavator 1	1
Technical Lead/CQC	1	13	Dump Truck	Dump Truck 1	1
Scientist/Bear Guard	1	12	John Deere 310e Rock Truck	Rock Truck 1	1
Engineer	1	12	Morooka Tracked Vehicle	Morooka 1	1
Environmental Scientist	3	12	John Deere 650 Dozer	Dozer 1	1
Geologist	1	12	John Deere 844 Loader	Loader 1	1
			John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	1
			Kawasaki Teryx UTV	Teryx 3	1
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***10***	***122***	***NA***	***NA***	***18***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	12	NA	NA	0
Total	***1***	***12***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Total	***2***	***24***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- None received.

Do the materials comply with the contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Equipment Received to be used on Site:

- None received.

Does the equipment comply with contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☒ **Written** ☐
(Include names, reactions, and remarks.)

- USACE QAR Eric Barnhill evaluated sediment removal along Area 3 as it progressed. Eric asked that Brice make sure to spray the shoulders of the stream with the agitator to remove any loose sediment. Brice used the agitator as far up the stream as possible while the dredge was at Subarea 1 of Area 4, and the crew used the heavy skimmer on the stream shoulders for the rest of the Area.

Instructions Given by Contractor to Subcontractors **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.

- None

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- None

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- None

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☐

- None.

Deficiencies Corrected This Day **Yes** ☐ **No** ☐

- None.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- Locals from Savoonga arrived on site at the end of the day to request to purchase fuel.

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Monte Garroutte* **Date** 11 August 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 11 August 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☒ **No** ☐

Additional Comments:

NE Cape QAR Daily Report Comments
Thursday, 11 August 2022

Weather: Started overcast and calm then switching to sunny with a light wind. High temp about 50 F.

Miscellaneous

Photo 1: Overview of work areas with Site 28 in foreground and MOC/Site 15 in background with clouds cascading down mountain, view south

Site 8

Direct-push soil boring installation and soil sampling is complete.

Site 15

DRO-contaminated soil excavation continues. Soil continues to drain on liner as Brice focuses on Site 28. No soil was bagged or excavated today.

Site 28

The Brice team continues the stepwise removal of Site 28 sediment removal using hand tools, a pressurized water agitator and dredge.

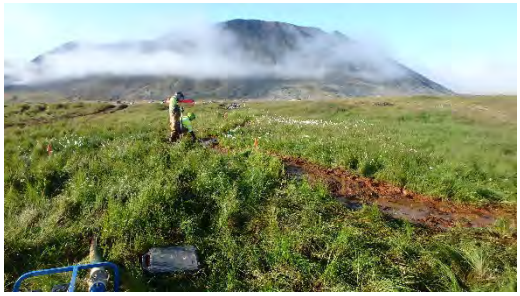

Photo 2: Area 3. Mechanically removing sediment (shoveling), view south
Photo 3: Area 3. Mechanically removing sediment (shoveling), view south

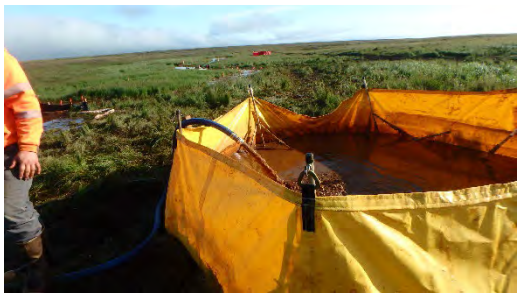

Photo 6: Dredge discharge int intermediate pad prior to pumping up to treatment system, view north
Photo 7: Hand shoveled sediment placed into a one-yard bulk bag, view down

Photo 4: Agitating sediment and dredging loosed sediment downstream, view northwest
Photo 5: Pumping into last intermediate pond being filled prior to pumping, view north

Photo 8: Filling geotube, view southwest
Photo 9: Filling geotube, view north

Site 7 Landfill Cap Maintenance

Landfill cap maintenance has been performed

MNA Groundwater at the MOC
MNA sampling has concluded

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Signature _____ **Date**_____

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☐	Follow-up Inspection Form
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☐	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

PHOTOGRAPHIC LOG – 11 August 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. DJI_0884

Description:

Photo DJI_0884. Facing Down. Site 15 excavation, staged supersacks, geotubes, and stockpiles.

Photograph No. DJI_0889

Description:

Photo DJI_0889. Facing South. Site 28 with MOC in the distance.

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
8/11/22	North East Cape	Chad Armintrout

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Filling 250 Gal totes with Water from Stream & transport	Dump Truck - Trailer - 2" pump - Fish totes	loose hose - Slippery Surface - Slip, trips, Falls	Level D
Dredge Sediment from Stream/pond - Tranfer to Floc System	2", 3", 4" in pumps - skimmers, shovels, Hoses Gas - Oil	Back - Eye - Exposure - Slips, Trips, Falls, High pressure	Level D "Safety Glasses"

	Name	Signature	Date	Company
1	Chad Armintrout	[signature]	8/11	Brice ENV.
2	Chris Bosch	[signature]		Brice
3	Michael Williams	[signature]		BEL
4	Samantha Carter	[signature]		BEL
5	Monte Garrentte	[signature]		Brice
6	DASE Clifford	[signature]		Brice
7	Joe Knopik	[signature]		Brice
8	Craig Perry	Craig Perry		Beacon
9	Eric Barnhill	[signature]		USACE
10	Jane Schey	[signature]		Brice
11	Ali Green	Ali Green		BEL
12	Patrick Schick	[signature]		Brice Eng.

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DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number		UPC/Project Title
W911KB20D0002 / W911KB21F0086		**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**
QC/QA Report Number **0025**	Date or Time Period **Friday 12 August 2022**	Location **Northeast Cape, AK**

Weather

Low Temp: 38° F High Temp: 55° F

Wind Speed: 0-15 mph Conditions: Fog, Overcast

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☐
Initial ☐
Follow-up ☐

Field Sampling and Testing **Yes** ☒ **No** ☐

Type of Test	Method/Matrix	Results
Turbidity	Turbidimeter / Surface Water and Treated Water	10.4 – 128.0
Field Parameters	Conductivity, pH, ORP, DO, Temperature	Various

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

Laboratory Analytical Sampling **Yes** ☒ **No** ☐

Type of Test	Test Method/Matrix	Quantity of Samples
Surface Water	PAH, DRO/RRO, BTEX / Water	4
Waste Characterization	TCLP RCRA Metals, TCLP SVOCs, TCLP VOCs, Total PCBs / Sediment	1

Have required amount of QC trip blanks and rinsates been achieved? **NA** ☐ **Yes** ☒ **No** ☐

Have appropriate QC laboratory tests been ordered? (matrix spikes, method blanks, surrogates, reference standards, etc.) **NA** ☐ **Yes** ☒ **No** ☐

Have QA and QC samples been collected in the specified quantity? **NA** ☐ **Yes** ☒ **No** ☐

Have samples been properly labeled and packaged? **NA** ☐ **Yes** ☒ **No** ☐

Notes:

- Site 28 Surface Water samples were collected during dredging.
- A waste characterization sample was collected from dredged sediment at Site 28.

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☐

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? **N/A** ☐ **Yes** ☒ **No** ☐

Was a **Job Safety Meeting** held this day? (If yes, attach comments) **Yes** ☒ **No** ☐

Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report) **Yes** ☐ **No** ☒

Was **hazardous waste**/materials 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.)

- None

Work Activities Performed This Date

Prime

- A tailgate safety meeting was held.
- Vehicle and equipment inspections were performed for the vehicles and equipment used.
- Sand filters and GAC were backwashed with clean water into containment.
- Dredging was conducted at Area 4 of Site 28. Dredging began at Subarea 2 of Area 4, then progressed to subarea 3 of Area 4, at the downstream end. Following removal of all loose sediment from Area 4, the dredge was moved to Area 9 and set up. Total sediment dredged from Areas 3 and 4 from 8/8-8/12 is roughly estimated at 20.55 cy and is currently contained in the geotubes that are dewatering.
- Turbidity was measured at Site 28 surface water sample locations - at the beginning of the day and at the end of the day.
- The treated discharge water from Site 28 was evaluated for sheen, odor, turbidity, and erosion. No sheen, odor, or erosion was observed.
- Surface Water field parameters and samples were collected from the 4 surface water locations identified in 2013. These are the “during dredging” samples.
- A waste characterization sample was collected from dredged sediment at Site 28.
- The GAC skid 1 (2 x 500-gallon GAC vessels) was switched out for GAC skid 2 (2 x 500-gallon GAC vessels) to resolve reduced GAC outflow.
- Saturated soil from Site 15 that could not be bagged because of moisture continued to drain.
- Two Brice crew checked the geotube containments in the late evening to ensure draining was performing as expected.

Item	Scope	Units	Total Completed	Remaining
Site 15 DRO-Contaminated Soil Excavation	500	Tons	530 (287.4 containerized)	0
Site 15 ISM Stockpile Sampling	1	Each	1	0
Site 28 Sediment Dredging (estimated)	196	CY	20.55	175.45
Site 28 Mapping	1	Each	0	1
Site 28 Sediment Sampling	60	Sediment Samples	0	60
Site 28 Pre- and Post-Treatment Area ISM Samples	2	Sample	1	1
Site 28 Surface Water Samples	12	Sample	4	8
Gravel Airstrip Repair	1	Each	1	0
Gravel Road Repair	1	Each	1	0
Miscellaneous Drums and Debris	5	Tons	1.25	3.75
Site 7 Landfill Cap - add cap material	50	CY	85	0
Site 8 Pipeline Break Soil Borings	30	Samples	35	0
Background Soil Samples for TOC, DRO with and without silica gel cleanup	10	Samples	10	0
MOC Monitoring Wells Sampled	15	Well	15	0
MOC Monitoring Wells Redeveloped	2	Well	2	0
MOC Monitoring Wells Repaired	3	Well	4	0
MOC Monitoring Wells Decommissioned	1	Well	1	0
Soil Stockpiles			2	
Soil Excavations			1	
Photographs Taken			179	

Subcontractors

- Alaska Minerals continued camp maintenance.
- Beacon continued providing emergency medical support.

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	13	Volvo 210 Excavator	Volvo Excavator 1	0
Laborer	2	12	John Deere 380 Excavator	John Deere Excavator 1	1
Technical Lead/CQC	1	13	Dump Truck	Dump Truck 1	1
Scientist/Bear Guard	1	12	John Deere 310e Rock Truck	Rock Truck 1	1
Engineer	1	12	Morooka Tracked Vehicle	Morooka 1	1
Environmental Scientist	3	12	John Deere 650 Dozer	Dozer 1	1
Geologist	1	12	John Deere 844 Loader	Loader 1	1
			John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	1
			Kawasaki Teryx UTV	Teryx 3	1
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***10***	***122***	***NA***	***NA***	***18***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	12	NA	NA	0
Total	***1***	***12***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Total	***2***	***24***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- None received.

Do the materials comply with the contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Equipment Received to be used on Site:

- None received.

Does the equipment comply with contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.)

- None

Instructions Given by Contractor to Subcontractors **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.

- None

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- None

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- None

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☐

- None.

Deficiencies Corrected This Day **Yes** ☐ **No** ☐

- None.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- The cooler "PACE-22NEC-W005", previously delayed in Seattle, was shipped to St. Louis instead of Tennessee, and the groundwater samples in that cooler will now break hold times for PAH for all the 4 wells samples included in the cooler. Brice will plan on resampling all those wells for PAH or all analyses pending cooler temperatures upon receipt.

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Monte Garroutte* **Date** 12 August 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 12 August 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☒ **No** ☐

Additional Comments:

NE Cape QAR Daily Report Comments
Friday, 12 August 2022

Weather: Overcast with a light wind with intermittent sun. High temp about 50° F.

Miscellaneous

Photo 1: Setting up to back flush GAC/sand pot system, view northwest
Photo 2: Collecting GPS points, view north

Site 8
Direct-push soil boring installation and soil sampling is complete.

Site 15
Soil continues to drain on liner as Brice focuses on Site 28. No soil was bagged or excavated today.

Site 28
The Brice team continues the stepwise removal of Site 28 sediment removal using hand tools, a pressurized water agitator and dredge. Surface water samples and sediment samples were collected.

Photo 3: Demonstrating operation of pressure agitator, view southwest
Photo 4: Pushing sediment toward dredge in Site 28, Area 4, view south

Photo 5: Dredge discharge into intermediate pad prior to pumping up to treatment system, view north
Photo 6: Discharge of water/sediment mixture into intermediate pool , view down

Photo 7: Area 4, vegetation remaining on bottom of pond post dredge. Vegetation releasing sheen, view down
Photo 8: Sediment collecting in intermediate pond, view down

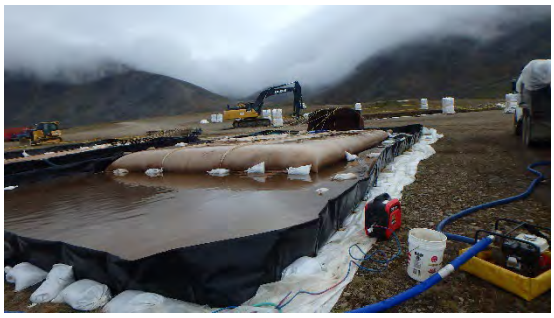

Photo 9: Filling geotube, view southeast
Photo 10: Filling geotube, view north

Site 7 Landfill Cap Maintenance

Landfill cap maintenance has been performed. A landfill cap inspection was performed

MNA Groundwater at the MOC
MNA sampling has concluded

Government Signature Eric Barnhill **Date** 8/12/2022

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☐	Follow-up Inspection Form
☐	Activity Hazard Analyses	☐	Punchlist	☐	

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☐	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

PHOTOGRAPHIC LOG – 12 August 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. CM190093

Description:

Photo CM190093. Facing Northwest. Site 28 - Interim pond between dredge and water treatment system.

Photograph No. CM190095

Description:

Photo CM190095. Facing Southeast. Dredging at Area 4 of Site 28.

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
8/12/22	North East Cape	Chad Armintrout

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Maintance of pumps, Generators	Gas Can, Oil, Duck pond,	Uneven Ground - Spills - Eye - Slip, Trips, Falls	Level D
Backwash of Sand Pots & GAC Vessels	Generator - Air Compressor Extension Cords - Pumps Hoses	High pressure - Electricity -	Level D
Dredging with 4" in Setup	4" Dredge - Shovels - Hoses - pumps - Floc	Lifting - Slippery surfaces, Back, eye	Level D

	Name	Signature	Date	Company
1	Chad Armintrout	[signature]	8/12	Brice ENV.
2	Craig Perry	Craig Perry		Beacon
3	DAVE C[illegible]	[signature]		Brice
4	Eric Barnhill	[signature]		USACE
5	Chris Bosch	[signature]		Brice
6	Michael Williams	[signature]		BEL
7	Jammie Carter	[signature]		BEL
8	Ali Green	[signature]		BEL
9	Jon Sh[illegible]	[signature]		Brice
10	Brady Sharp	Brady Sharp		AKmin
	Joe Knopik	[signature]		Brice
	Monte Gorrontt	[signature]		Brice

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DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number	UPC/Project Title
W911KB20D0002 / W911KB21F0086	**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**

QC/QA Report Number	Date or Time Period	Location
0026	**Saturday 13 August 2022**	**Northeast Cape, AK**

Weather

Low Temp: 38° F High Temp: 48° F

Wind Speed: 10-20 mph Conditions: Fog, Cloudy, Overcast

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☐
Initial ☐
Follow-up ☐

Field Sampling and Testing **Yes** ☒ **No** ☐

Type of Test	Method/Matrix	Results
Turbidity	Turbidimeter / Surface Water and Treated Water	9.67 – 18.0

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

Laboratory Analytical Sampling **Yes** ☐ **No** ☒

Type of Test	Test Method/Matrix	Quantity of Samples
NA		

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

Notes:

- NA

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☐

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?	**N/A** ☐	**Yes** ☒	**No** ☐
Was a **Job Safety Meeting** held this day? (If yes, attach comments)		**Yes** ☒	**No** ☐
Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report)		**Yes** ☐	**No** ☒
Was **hazardous waste**/materials 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.)

- None

Work Activities Performed This Date

Prime

- A tailgate safety meeting was held.
- Vehicle and equipment inspections were performed for the vehicles and equipment used.
- Dredging was conducted at Area 9, Area 7, Area 8, Area 2, Area 6, and Area 5N of Site 28. Dredging began at Area 9. Total sediment dredged from Areas 9, 7, 8, 2, 6, and 5N on 8/13 is roughly estimated at 4 cy and is currently contained in the geotubes that are dewatering.
- Turbidity was measured at Site 28 surface water sample locations - at the beginning of the day and at the end of the day.
- The treated discharge water from Site 28 was evaluated for sheen, odor, turbidity, and erosion. No sheen, odor, or erosion was observed.
- Decontamination activities of equipment and materials used at Site 28.
- Saturated soil from Site 15 that could not be bagged because of moisture continued to drain.
- Two Brice crew checked the geotube containments in the late evening to ensure draining was performing as expected.

Item	Scope	Units	Total Completed	Remaining
Site 15 DRO-Contaminated Soil Excavation	500	Tons	530 (287.4 containerized)	212.567
Site 15 ISM Stockpile Sampling	1	Each	1	0
Site 28 Sediment Dredging (estimated)	196	CY	19.55	176.45
Site 28 Mapping	1	Each	0	1
Site 28 Sediment Sampling	60	Sediment Samples	60	60
Site 28 Pre- and Post-Treatment Area ISM Samples	2	Sample	2	1
Site 28 Surface Water Samples	12	Sample	8	4
Gravel Airstrip Repair	1	Each	1	0
Gravel Road Repair	1	Each	1	0
Miscellaneous Drums and Debris	5	Tons	2	3
Site 7 Landfill Cap - add cap material	50	CY	85	0
Site 8 Pipeline Break Soil Borings	30	Samples	35	0
Background Soil Samples for TOC, DRO with and without silica gel cleanup	10	Samples	10	0
MOC Monitoring Wells Sampled	15	Well	15	0
MOC Monitoring Wells Redeveloped	2	Well	2	0
MOC Monitoring Wells Repaired	3	Well	4	0
MOC Monitoring Wells Decommissioned	1	Well	1	0
Soil Stockpiles			2	
Soil Excavations			1	
Photographs Taken			205	

Subcontractors

- Alaska Minerals continued camp maintenance.
- Beacon continued providing emergency medical support.

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12.5	Volvo 210 Excavator	Volvo Excavator 1	0
Laborer	2	12	John Deere 380 Excavator	John Deere Excavator 1	1
Technical Lead/CQC	1	12.5	Dump Truck	Dump Truck 1	1
Scientist/Bear Guard	1	12	John Deere 310e Rock Truck	Rock Truck 1	1
Engineer	1	12.5	Morooka Tracked Vehicle	Morooka 1	1
Environmental Scientist	3	12 / 12.5	John Deere 650 Dozer	Dozer 1	1
Geologist	1	12	John Deere 844 Loader	Loader 1	1
			John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	1
			Kawasaki Teryx UTV	Teryx 3	1
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***10***	***122***	***NA***	***NA***	***18***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	12	NA	NA	0
Total	***1***	***12***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Total	***2***	***24***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- None received.

Do the materials comply with the contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Equipment Received to be used on Site:

- None received.

Does the equipment comply with contract? (If no, explain) **Yes** ☐ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.)

- None

Instructions Given by Contractor to Subcontractors **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.

- None

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- None

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- None

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☐

- None.

Deficiencies Corrected This Day **Yes** ☐ **No** ☐

- None.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- None

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Monte Garroutte* **Date** 13 August 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 13 August 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☒ **No** ☐

Additional Comments:

NE Cape QAR Daily Report Comments
Saturday, 13 August 2022

Weather: Overcast with a continuous high wind. High temp about 47° F.

Miscellaneous

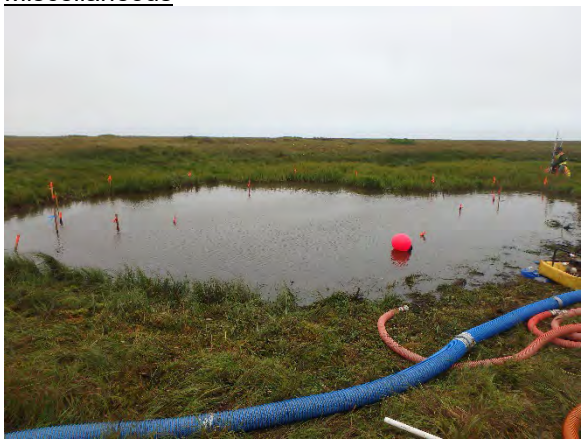
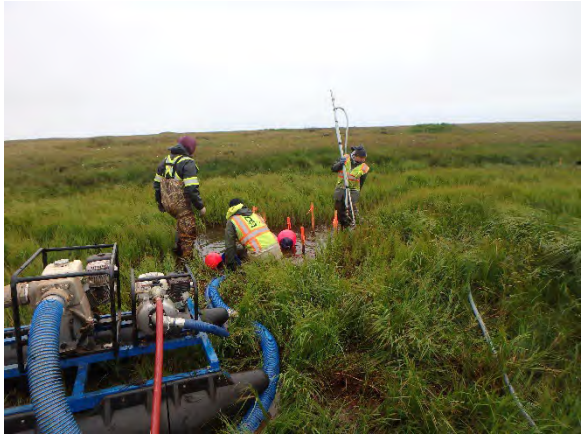

Photo 1: Looking out over Site 28, Area 9 removal area, view northwest
Photo 2: Site 28, Area 9 removal area, view northwest

Photo 3: Dredge screen covered with vegetative material (Area 9), view southwest
Photo 4: Dredge. Looking up Site 28 drainage toward MOC and treatment area, view south

Photo 5: Draining hoses into intermediate collection pond, view southwest
Photo 6: Intermediate collection pond, view down

Photo 7: Dredging Area 8. Vegetative matter on screen. Pond drained down low enough to see that the bottom of the pond was covered by a vegetative mat , view south.
Photo 8: Area 8 previously submerged sediment area notated by lath. Area has not vegetated. Area removed by shovels. view north.

Photo 9: Area 6. Using agitator (pressurized water) and following agitator with suction dredge intake. view east.

Site 8
Direct-push soil boring installation and soil sampling is complete.

Site 15
DRO-contaminated soil excavation continues. Soil continues to drain on liner as Brice focuses on Site 28. No soil was bagged or excavated today.

Site 28
The Brice team continues the stepwise removal of Site 28 sediment removal using hand tools, a pressurized water agitator and dredge.
Brice Finished with the Site 28 Drainage (Areas 3, 4 and 9) and moved to the ponded areas.
Dredge operations are finished. The remainder of the dredged materials in the porta/ble drainage ponds/ will be pumped up to the treatment system (Geotubes, flocculant injection, GAC) on 8/14/2022.

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

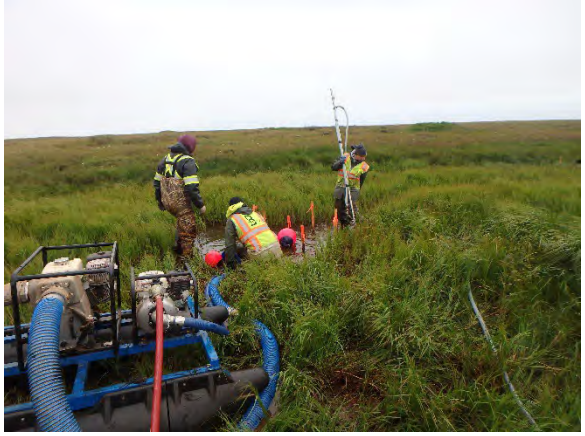

Photo 1: Looking out over Site 28, Area 9 removal area, view northwest
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Photo 3: Dredge screen covered with vegetative material (Area 9), view southwest
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Photo 8: Area 8 previously submerged sediment area notated by lath. Area has not vegetated. Area removed by shovels. view north.

Photo 9: Area 6. Using agitator (pressurized water) and following agitator with suction dredge intake. view east.

Site 7 Landfill Cap Maintenance

Landfill cap maintenance has been performed. A landfill cap inspection was performed

MNA Groundwater at the MOC
MNA sampling has concluded

Government Signature Eric Barnhill **Date** 8/12/2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☐	Follow-up Inspection Form
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☐	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

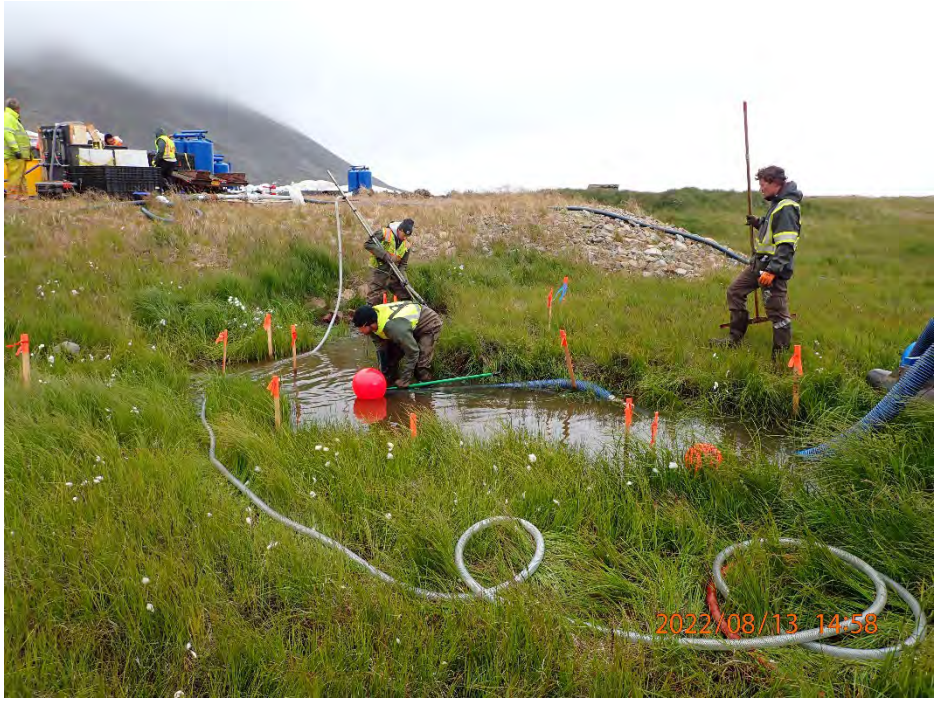
PHOTOGRAPHIC LOG – 13 August 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. CM190103

Description:

Photo CM190103. Facing Southwest. Removing sediment from Site 28 Area 2.



Photograph No. CM180079

Description:

Photo CM180079. Facing Northwest. Sediment in bottom of pumping pond.

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
8/13/22	North East Cape	Chad Armintrout

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Floc System Operations	pumps - Hoses - Floc Add - Pools - GAC -	High Pressure lines - Hot Exhaust - Tripping Haz.!!	Level D Safety Glasses"
Dredge in Ponds	4" dredge - pumps - Holding ponds -	Water Haz - Noise - Pinch points	Level D

	Name	Signature	Date	Company
1	Chad Armintrout	[signature]	8/13	Brice EU -
2	Craig Perry	Craig Perry		Beacon
3	Dale Crifer	[signature]		Brice
4	Joe Knapik	[signature]		Brice
5	Chris Bosch	[signature]		Brice
6	Ali Green	Ali Green		BEL
7	Sammie Carter	[signature]		BEL
8	Brady Sharp	[signature]		Akmin
9	Monte Gaributte	[signature]		Brice
10	Eric Bainbridge	[signature]		USACE

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DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number		UPC/Project Title
W911KB20D0002 / W911KB21F0086		**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**
QC/QA Report Number **0027**	Date or Time Period **Sunday 14 August 2022**	Location **Northeast Cape, AK**

Weather

Low Temp: 34° F High Temp: 45° F

Wind Speed: 10-20 mph Conditions: Fog, Overcast, Sun

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☐
Initial ☒ Survey
Follow-up ☒ Site 28 Dredging

Field Sampling and Testing **Yes** ☒ **No** ☐

Type of Test	Method/Matrix	Results
Turbidity	Turbidimeter / Surface Water and Treated Water	7.13 – 13.1

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

Laboratory Analytical Sampling **Yes** ☐ **No** ☒

Type of Test	Test Method/Matrix	Quantity of Samples
NA		

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

Notes:

- NA

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☐

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?	**N/A** ☐	**Yes** ☒	**No** ☐
Was a **Job Safety Meeting** held this day? (If yes, attach comments)		**Yes** ☒	**No** ☐
Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report)		**Yes** ☐	**No** ☒
Was **hazardous waste**/materials 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.)

- None

Work Activities Performed This Date

Prime

- A tailgate safety meeting was held.
- Vehicle and equipment inspections were performed for the vehicles and equipment used.
- Decontamination activities of equipment and materials at Site 28 continued.
- Turbidity was measured at Site 28 surface water sample locations.
- The treated discharge water from Site 28 was evaluated for sheen, odor, turbidity, and erosion. No sheen, odor, or erosion was observed.
- One Brice employee (surveyor) arrived via air charter. Materials and equipment arrived on the air charter to support survey activities.
- Survey control points were established.
- Several IP2 supersacks were moved to the barge landing.
- A fixed-wing UAV (Delair UX11) was flown over the airstrip in a grid pattern to collect airstrip data.

Item	Scope	Units	Total Completed	Remaining
Site 15 DRO-Contaminated Soil Excavation	500	Tons	517.69	0
Site 15 ISM Stockpile Sampling	1	Each	1	0
Site 28 Sediment Dredging (estimated)	196	CY	19.55	176.45
Site 28 Mapping	1	Each	0	1
Site 28 Sediment Sampling	60	Sediment Samples	60	60
Site 28 Pre- and Post-Treatment Area ISM Samples	2	Sample	2	1
Site 28 Surface Water Samples	12	Sample	8	4
Gravel Airstrip Repair	1	Each	1	0
Gravel Road Repair	1	Each	1	0
Miscellaneous Drums and Debris	5	Tons	2	3
Site 7 Landfill Cap - add cap material	50	CY	85	0
Site 8 Pipeline Break Soil Borings	30	Samples	35	0
Background Soil Samples for TOC, DRO with and without silica gel cleanup	10	Samples	10	0
MOC Monitoring Wells Sampled	15	Well	15	0
MOC Monitoring Wells Redeveloped	2	Well	2	0
MOC Monitoring Wells Repaired	3	Well	5	0
MOC Monitoring Wells Decommissioned	1	Well	1	0
Soil Stockpiles			2	
Soil Excavations			1	
Photographs Taken			210	

Subcontractors

- Alaska Minerals continued camp maintenance.
- Beacon continued providing emergency medical support.

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12.5	Volvo 210 Excavator	Volvo Excavator 1	0
Laborer	2	12	John Deere 380 Excavator	John Deere Excavator 1	1
Technical Lead/CQC	1	12.5	Dump Truck	Dump Truck 1	1
Scientist/Bear Guard	1	12	John Deere 310e Rock Truck	Rock Truck 1	1
Engineer	1	12	Morooka Tracked Vehicle	Morooka 1	1
Environmental Scientist	3	12	John Deere 650 Dozer	Dozer 1	1
Geologist	1	12	John Deere 844 Loader	Loader 1	1
Surveyor	1	6	John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	1
			Kawasaki Teryx UTV	Teryx 3	1
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***11***	***127***	***NA***	***NA***	***18***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	12	NA	NA	0
Total	***1***	***12***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Total	***2***	***24***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- Survey materials

Do the materials comply with the contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Equipment Received to be used on Site:

- Sediment coring tool, shovels, Survey equipment, Fixed-wing UAV

Does the equipment comply with contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.)

- None

Instructions Given by Contractor to Subcontractors **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.

- None

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- None

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- None

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☐

- None.

Deficiencies Corrected This Day **Yes** ☐ **No** ☐

- None.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- None

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Monte Garroutte* **Date** 14 August 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 14 August 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☒ **No** ☐

Additional Comments:

NE Cape QAR Daily Report Comments
Sunday, 14 August 2022

Weather: Overcast with a continuous high wind switching to mostly sunny with a light wind by midafternoon. High temp about 47° F.

Miscellaneous
Midafternoon flight arrived. Brice surveyor, Jake, arrived on site today.

General decontamination and breakdown of unused equipment is beginning.

Brice surveyor used Brice drone to map the runway

Site 8
Direct-push soil boring installation and soil sampling is complete.

Site 15
Brice has received final excavation analytical lab samples. All results were below cleanup level. The remaining excavated soil that has been drying out on a sloped liner was bagged today. Brice continued transporting bags of contaminated soil to Cargo Beach.

Photo 1: Beginning to bag soil that has been sitting on sloped, lined stockpile area for draining, view north
Photo 2: Beginning to bag soil that has been sitting on sloped, lined stockpile area for draining, view north

Photo 3: Placing excavated soil into bulk bag, view west
Photo 4: Site 15; Closing 5-yard bulk bag, view southwest

Photo 5: Overview of Site 15 excavation, view southwest
Photo 6: Overview of Site 15 excavation, view southeast

Site 28

Brice finished pumping the remaining removed sediment up to and through the flocculant / geotube system. The final intermediate pond was moved from the Site 28 area.

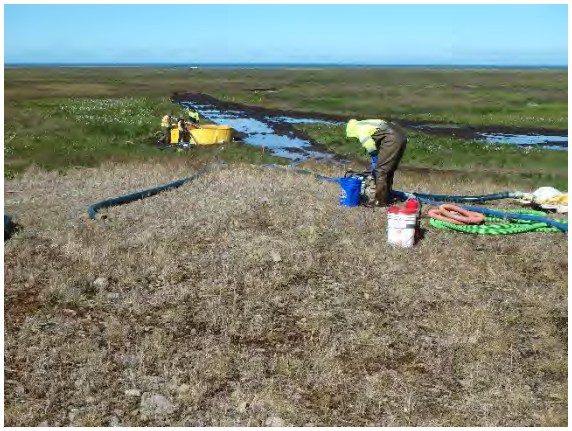

Photo 7: Agitating remaining sediment in final intermediate portable pond and setting up pump for draining, view north
Photo 8: Agitating remaining sediment in final intermediate portable pond, view north

Photo 9: Pushing sediment in portable pool to one side to aid in draining, view northeast
Photo 10: Shoveling remaining sediment out of portable pond, view northeast

Photo 11: Geotubes and flocculant system, view north

Site 7 Landfill Cap Maintenance

Landfill cap maintenance has been performed. A landfill cap inspection was performed

MNA Groundwater at the MOC
MNA sampling has concluded

Government Signature Eric Barnhill **Date** 8/13/2022

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☒	Follow-up Inspection Form
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☒	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

PHOTOGRAPHIC LOG – 14 August 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. CM190111

Description:

Photo CM190111. Facing Southwest. Filling man-made hole from past activity in Site 28.

Photograph No. CM190113

Description:

Photo CM190113. Facing West. Site 15 excavation with draining ramp removed and containerized.

INITIAL PHASE CHECKLIST

SPEC SECTION	DATE
	8/14/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Survey	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __264 HOURS IN ADVANCE: YES ☒ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead	Brice Engineering
Jake Austin	Surveyor	Brice Engineering

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Full compliance with procedures is identified. Procedures meet/match specifications, plans, and submittals.

PRELIMINARY WORK

ENSURE PRELIMINARY WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

All preliminary work is complete. Survey equipment is ready, batteries are charged, team has working vehicle to reach surveying areas.

WORKMANSHIP

ESTABLISH QUALITY STANDARDS.

WHERE IS WORK LOCATED? Work is located at Northeast Cape, St. Lawrence Island, Alaska.

IS SAMPLE PANEL REQUIRED? YES ☐ NO ☒

WILL THE INIITAL WORK BE CONSIDERED AS A SAMPLE? YES ☐ NO ☒

(IF YES, MAINTAIN IN PRESENT CONDITION AS LONG AS POSSIBLE AND DESCRIBE LOCATION OF SAMPLE)

RESOLUTION

RESOLVE ANY DIFFERENCES/DISCREPANCIES.

COMMENTS: There are no differences/discrepancies.

CHECK SAFETY

REVIEW JOB CONDITIONS USING EM 385-1-1 AND JOB HAZARD ANALYSIS

COMMENTS: Job conditions were reviewed using EM 385-1-1. AHA was reviewed. All job conditions meet safety standards.

OTHER

OTHER ITEMS OR REMARKS

None.

Monte Garroutte 8/14/22

QC MANAGER DATE

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FOLLOW UP PHASE CHECKLIST

		SPEC SECTION	DATE 8/14/22
CONTRACT NO W911KB20D0002	DEFINABLE FEATURE OF WORK Site 28 Dredging	SCHEDULE ACT NO.	

PERSONNEL PRESENT

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead/CQC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Project has proceeded in full compliance with procedures identified at preparatory phase. Submittals will be included in reporting.

REWORK ITEM COMPLETE

ENSURE ANY REWORK ITEM IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

No rework items were required.

WORK COMPLETE

ENSURE PRELIMINARY AND FOLLOW UP WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

COMMENTS: Preliminary and follow up work is complete and correct.

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NOT, WHAT ITEMS HAVE NOT BEEN SUBMITTED?

OTHER

OTHER ITEMS OR REMARKS

None.

Monte Garroutte 8/14/22

QC MANAGER DATE

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DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
8/14/22	North East Cape	Chad Armintrout

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
5 yard bagging of Rocky Contaminated Soils	Excavator - Loader - Bag Frame - Bungee Cords Rigging/Straps	Over head - Eye - Crush - Struck By - Wind!!	Level D "Hard Hats"
De-con of Equipment & tools	Pumps - Shovels - Brush - Hoses - Skid-steer	Eye - Slips, Trips, Falls Back - Pinch points	Level D

	Name	Signature	Date	Company
1	Chad Armintrout	[signature]	8/14/22	Brice ENV.
2	Joe Knapik	[signature]		Brice EnG.
3	Eric Bamhill	[signature]		USACE
4	Craig Perry	Craig Perry		Beacon
5	Dave [illegible]	[signature]		Brice
6	Chris Bosch	[signature]		Brice
7	Patrick Schick	[signature]		Brice Eng.
8	Jane Sukey	[signature]		Brice
9	Sammie Carter	[signature]		BEL
10	Ali Green	Ali Green		BEL
	Brady Sharp	Brady Sharp		AKMIN
	Michael Williams	[signature]		BEL
	Monte Garrouette	Monte Garrouette		Brice

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DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number	UPC/Project Title
W911KB20D0002 / W911KB21F0086	**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**

QC/QA Report Number	Date or Time Period	Location
0028	**Monday 15 August 2022**	**Northeast Cape, AK**

Weather

Low Temp: 38° F High Temp: 40° F

Wind Speed: 10-20 mph Conditions: Rain

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☐
Initial ☐
Follow-up ☒ LUC Sign Maintenance

Field Sampling and Testing **Yes** ☒ **No** ☐

Type of Test	Method/Matrix	Results
Turbidity	Turbidimeter / Surface Water and Treated Water	5.66 – 31.55
Field Parameters	Conductivity, pH, ORP, DO, Temperature	Various

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

Laboratory Analytical Sampling **Yes** ☐ **No** ☒

Type of Test	Test Method/Matrix	Quantity of Samples
Groundwater Samples	PAHs / Groundwater	4
Surface Water Samples	PAH, DRO/RRO, BTEX / Water	4

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

Notes:

- Four groundwater wells were resampled for PAHs, where holding times were exceeded in the previous samples collected.
- Post-dredging surface water samples were collected.

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☐

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? **N/A** ☐ **Yes** ☒ **No** ☐
Was a **Job Safety Meeting** held this day? (If yes, attach comments) **Yes** ☒ **No** ☐
Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report) **Yes** ☐ **No** ☒
Was **hazardous waste**/materials 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.)

- None

Work Activities Performed This Date

Prime

- A tailgate safety meeting was held.
- Vehicle and equipment inspections were performed for the vehicles and equipment used.
- Decontamination and demobilization activities of equipment and materials at Site 28 continued.
- Four groundwater monitoring wells were resampled for PAHs, where holding times were exceeded in the previous samples collected.
- Field parameters were collected, and post-dredging surface water samples were collected at four Site 28 surface water sample locations.
- The treated discharge water from Site 28 was evaluated for sheen, odor, turbidity, and erosion. No sheen, odor, or erosion was observed.
- Survey activities were completed at several project sites.
- New Land Use Control signs in English and Yupik were mounted to existing signposts at the airport and the fish camp. Bolts of larger diameter were installed, and extra bolts along the midsection of the signs were added to increase sign strength.
- Several IP2 supersacks were moved to the barge landing.
- An open well casing with no cap or mount was identified in the MOC parking area. Per USACE direction, the well was decommissioned.
- A hazardous dip on the MOC pad near the dewatering area was filled with clean backfill. 85 cy was added.
- The drill rig was repaired and can now be demobilized.

Item	Scope	Units	Total Completed	Remaining
Site 15 DRO-Contaminated Soil Excavation	500	Tons	517.69	0
Site 15 ISM Stockpile Sampling	1	Each	1	0
Site 28 Sediment Dredging (estimated)	196	CY	19.55	176.45
Site 28 Mapping	1	Each	0	1
Site 28 Sediment Sampling	60	Sediment Samples	60	60
Site 28 Pre- and Post-Treatment Area ISM Samples	2	Sample	2	1
Site 28 Surface Water Samples	12	Sample	12	0
Gravel Airstrip Repair	1	Each	1	0
Gravel Road Repair	1	Each	1	0
Miscellaneous Drums and Debris	5	Tons	2	3
Site 7 Landfill Cap - add cap material	50	CY	85	0
Site 8 Pipeline Break Soil Borings	30	Samples	35	0
Background Soil Samples for TOC, DRO with and without silica gel cleanup	10	Samples	10	0
MOC Monitoring Wells Sampled	15	Well	15	0
MOC Monitoring Wells Redeveloped	2	Well	2	0
MOC Monitoring Wells Repaired	3	Well	5	0
MOC Monitoring Wells Decommissioned	1	Well	2	0
Soil Stockpiles			2	
Soil Excavations			1	
Photographs Taken			219	

Subcontractors

- Alaska Minerals continued camp maintenance.
- Beacon continued providing emergency medical support.

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12.5	Volvo 210 Excavator	Volvo Excavator 1	1
Laborer	2	12	John Deere 380 Excavator	John Deere Excavator 1	1
Technical Lead/CQC	1	12.5	Dump Truck	Dump Truck 1	1
Scientist/Bear Guard	1	12	John Deere 310e Rock Truck	Rock Truck 1	1
Engineer	1	12	Morooka Tracked Vehicle	Morooka 1	1
Environmental Scientist	3	12	John Deere 650 Dozer	Dozer 1	1
Geologist	1	12	John Deere 844 Loader	Loader 1	1
Surveyor	1	12	John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	1
			Kawasaki Teryx UTV	Teryx 3	1
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***11***	***133***	***NA***	***NA***	***19***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	12	NA	NA	0
Total	***1***	***12***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Total	***2***	***24***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- Survey materials

Do the materials comply with the contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Equipment Received to be used on Site:

- Sediment coring tool, shovels, Survey equipment, Fixed-wing UAV

Does the equipment comply with contract? (If no, explain) **Yes** ☒ **No** ☐

- NA

Instructions given by the Government to the Contractor **Verbal** ☒ **Written** ☐
(Include names, reactions, and remarks.)

- An uncapped, unidentified PVC casing was observed buried at the MOC pad, with no cap or monument indicating it was a groundwater monitoring well. Monte Garroutte consulted USACE QAR Eric Barnhill about decommissioning the casing as a well, and he agreed that Brice should attempt to decommission the well in accordance with decommissioning procedures identified in the work plan. Brice attempted to pull out the well casing but it was buried in heavily compacted soil and could not be removed. The casing was then backfilled with bentonite and topped with sand and gravel to block surface flow intrusion into the groundwater.

Instructions Given by Contractor to Subcontractors **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.

- None

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- None

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- None

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☐

- None.

Deficiencies Corrected This Day **Yes** ☐ **No** ☐

- None.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- None

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

CQC System Manager Signature *Monte Garroutte* **Date** 15 August 2022

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 15 August 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☒ **No** ☐

Additional Comments:

NE Cape QAR Daily Report Comments
Monday, 15 August 2022

Weather: Overcast with light to moderate rain, slight breeze. High temp about 47° F.

Miscellaneous
Surveyor is collecting data sitewide.

General decontamination and breakdown of unused equipment is continuing.

Brice discovered a broken off pvc pipe, perhaps the remnant of a monitoring well or injection well, in the ground near the edge of the MOC. Brice will fill the broken off pvc piece with bentonite.

Photo 1: Discovered broken, buried piece of PVC, view northeast
Photo 2: Discovered broken, buried piece of PVC, view northeast

Photo 3: Depression in area bordering MOC and Site 28 being backfilled and graded, view north
Photo 4: Affixing Land Use Control (LUC) sign to sign posts near Cargo Beach, view southeast

Photo 5: LUC signs, in English and Yupik near airstrip, view southwest
Photo 6: LUC signs, in English and Yupik near airstrip, near airstrip, view northeast

Site 8
Direct-push soil boring installation and soil sampling is complete.

Site 15
Brice has received final excavation analytical lab samples. All results were below cleanup level. The remaining excavated soil that has been drying out on a sloped liner was bagged today. Brice continued transporting bags of contaminated soil to Cargo Beach.

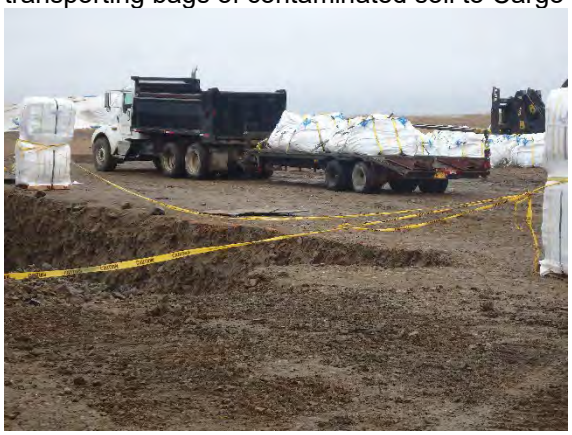

Photo 7: Loading bulk bags onto transport truck, northwest
Photo 8: Transporting bulk bag to Cargo beach, view northeast

Photo 9: Lifting bulk bags off transport truck at Cargo Beach, view west
Photo 10: Loader transporting bag to bag lay down area at Cargo Beach, view west

Photo 11: Setting bulk bag at Cargo Beach lay down area, view east
Photo 12: Cargo Beach lay down area, view southwest

Site 28
Brice finished pumping the remaining removed sediment up to and through the flocculant / geotube system. Brice will continue the site break down and clean up on 8/17/2022.

Site 7 Landfill Cap Maintenance

Landfill cap maintenance has been performed. A landfill cap inspection was performed

MNA Groundwater at the MOC
MNA sampling has concluded

MOC Groundwater Sampling
A cooler was received at the fixed base lab that was within temperature range but beyond acceptable holding times for PAHS for some of the previously sampled wells. Brice re-sampled the affected wells solely for PAHs.

Photo 13: Collecting PAH samples with peristaltic pump, view north
Photo 14: Collecting PAH samples with peristaltic pump, view east

Government Signature Eric Barnhill **Date** 8/15/2022

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☒	Follow-up Inspection Form
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☐	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

PHOTOGRAPHIC LOG – 15 August 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. CM190117

Description:

Photo CM190117. Facing Southwest. LUC sign placed near airport.

Photograph No. CM190122

Description:

Photo CM190122. Facing Northwest. Depression in MOC filled and leveled.

FOLLOW UP PHASE CHECKLIST

		SPEC SECTION	DATE 8/15/22
CONTRACT NO W911KB20D0002	DEFINABLE FEATURE OF WORK LUC Sign Maintenance	SCHEDULE ACT NO.	

PERSONNEL PRESENT

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead/CQC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Project has proceeded in full compliance with procedures identified at preparatory phase. Submittals will be included in reporting.

REWORK ITEM COMPLETE

ENSURE ANY REWORK ITEM IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

No rework items were required.

WORK COMPLETE

ENSURE PRELIMINARY AND FOLLOW UP WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

COMMENTS: Preliminary and follow up work is complete and correct.

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NOT, WHAT ITEMS HAVE NOT BEEN SUBMITTED?

OTHER

OTHER ITEMS OR REMARKS

None.

Monte Garroutte 8/15/22

QC MANAGER DATE

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number		UPC/Project Title
W911KB20D0002 / W911KB21F0086		**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**
QC/QA Report Number **0029**	Date or Time Period **Wednesday 16 August 2022**	Location **Northeast Cape, AK**

Weather

Low Temp: 38° F High Temp: 45° F

Wind Speed: 10-20 mph Conditions: Overcast

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☒ Demobilization

Initial ☐

Follow-up ☒ Road and Airstrip Repairs, Miscellaneous Debris Removal

Field Sampling and Testing **Yes** ☒ **No** ☐

Type of Test	Method/Matrix	Results
NA		

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

Laboratory Analytical Sampling **Yes** ☐ **No** ☒

Type of Test	Test Method/Matrix	Quantity of Samples
Sediment Samples	DRO/RRO with and without silica gel, TOC, PAHs Sublist / Sediment	54

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

Notes:

- Sediment samples were collected from Site 28.

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☐

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?	**N/A** ☐	**Yes** ☒	**No** ☐
Was a **Job Safety Meeting** held this day? (If yes, attach comments)		**Yes** ☒	**No** ☐
Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report)		**Yes** ☐	**No** ☒
Was **hazardous waste**/materials 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.)

- None

Work Activities Performed This Date

Prime

- A tailgate safety meeting was held.
- Vehicle and equipment inspections were performed for the vehicles and equipment used.
- Sediment collected into geotubes at Site 28 was placed into IP2 supersacks. 30 cy were containerized.
- Decontamination and demobilization activities of equipment and materials at Site 28 continued.
- Two IP2 5 cy supersacks were filled with inert debris from Site 28 activities.
- Sediment mapping and sampling were conducted at Site 28 following the updated Sediment Mapping and Sampling SOP. 54 sediment samples out of 60 were collected. Sediment mapping was completed.
- Several IP2 supersacks were moved to the barge landing.
- The drill rig was demobilized on a Ryan Air cargo flight.

Item	Scope	Units	Total Completed	Remaining
Site 15 DRO-Contaminated Soil Excavation	500	Tons	517.69	0
Site 15 ISM Stockpile Sampling	1	Each	1	0
Site 28 Sediment Dredging	196	CY	30.00	0
Site 28 Mapping	1	Each	1	0
Site 28 Sediment Sampling	60	Sediment Samples	54	6
Site 28 Pre- and Post-Treatment Area ISM Samples	2	Sample	2	1
Site 28 Surface Water Samples	12	Sample	12	0
Gravel Airstrip Repair	1	Each	1	0
Gravel Road Repair	1	Each	1	0
Miscellaneous Drums and Debris	5	Tons	2.25	0
Site 7 Landfill Cap - add cap material	50	CY	85	0
Site 8 Pipeline Break Soil Borings	30	Samples	35	0
Background Soil Samples for TOC, DRO with and without silica gel cleanup	10	Samples	10	0
MOC Monitoring Wells Sampled	15	Well	15	0
MOC Monitoring Wells Redeveloped	2	Well	2	0
MOC Monitoring Wells Repaired	3	Well	5	0
MOC Monitoring Wells Decommissioned	1	Well	2	0
Soil Stockpiles			2	
Soil Excavations			1	
Photographs Taken			235	

Subcontractors

- Alaska Minerals continued camp maintenance.
- Beacon continued providing emergency medical support.

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	12.5	Volvo 210 Excavator	Volvo Excavator 1	1
Laborer	2	12	John Deere 380 Excavator	John Deere Excavator 1	1
Technical Lead/CQC	1	12.5	Dump Truck	Dump Truck 1	1
Scientist/Bear Guard	1	12	John Deere 310e Rock Truck	Rock Truck 1	1
Engineer	1	12	Morooka Tracked Vehicle	Morooka 1	1
Environmental Scientist	3	12	John Deere 650 Dozer	Dozer 1	1
Geologist	1	12	John Deere 844 Loader	Loader 1	1
Surveyor	1	12	John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	1
			Kawasaki Teryx UTV	Teryx 3	1
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***11***	***133***	***NA***	***NA***	***19***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	12	NA	NA	0
Total	***1***	***12***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Total	***2***	***24***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- None

Do the materials comply with the contract? (If no, explain) **Yes** ☐ **No** ☒

- NA

Equipment Received to be used on Site:

- None

Does the equipment comply with contract? (If no, explain) **Yes** ☐ **No** ☒

- NA

Instructions given by the Government to the Contractor **Verbal** ☒ **Written** ☐
(Include names, reactions, and remarks.)

- During sediment mapping, instead of using a graduated probe, the surveyor's RTK probe was used to collect highly accurate elevation data at each layer in the Site 28 waterbodies. The RTK probe provides equal to or greater resolution for elevation/depth than the 0.1 ft graduated probe and can also be used to calculate sediment thickness. This deviation was discussed with USACE QAR Eric Barnhill, who agreed with the modified methodology.

Instructions Given by Contractor to Subcontractors **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.

- None

Scope of Work/Work Plan Variances **Yes** ☒ **No** ☐

- See government contractor instructions above.

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- None

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☐

- None.

Deficiencies Corrected This Day **Yes** ☐ **No** ☐

- None.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- None

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Monte Garroutte* **Date** 16 August 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site Superintendent Review and Comments:

Site Superintendent Signature *Chad Armintrout* **Date** 16 August 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☒ **No** ☐

Additional Comments:

NE Cape QAR Daily Report Comments
Tuesday, 15 August 2022

Weather: Overcast, windy with strong gusts. High temp about 45° F.

Miscellaneous

Photo 1: Cross fox near camp, view northwest

Site 8

Direct-push soil boring installation and soil sampling is complete.

Site 15

Overburden stockpile results have come back with results below cleanup levels. Brice will begin backfilling on 8/17/2022

Brice continued transporting bags of contaminated soil to Cargo Beach.

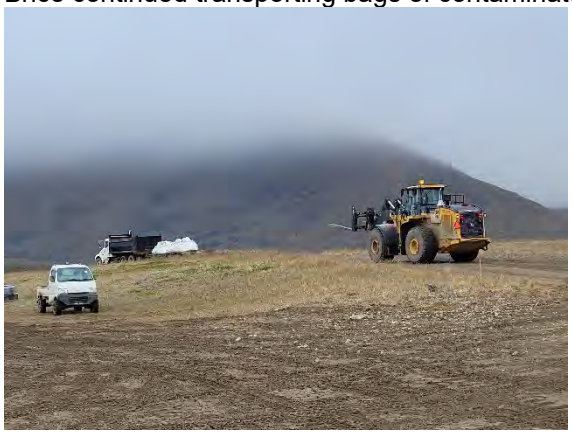

Photo 2: Transporting bulk bags to Cargo Beach, view east

Site 28

Brice continues with Site 28 Break down.
Brice bagged the sediment and tube bodies.
Brice conducted the Site 28 sediment survey.
During sediment mapping, instead of using a graduated probe, the surveyor's RTK probe was used to collect highly accurate elevation data at each layer in the Site 28 waterbodies

Photo 3: Transect marked with pink line, surveyor relocating sample, view west
Photo 4: Performing a shovel test and preparing to collect a sample, view southeast

Photo 5: Collecting sediment sample, view east
Photo 6: collecting GPS data, view northeast

Photo 7: Manipulating geotube in preparation for packaging, view northwest
Photo 8: Geo tube lifted in air with contents emptying into bulk bag, view southwest

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Site 7 Landfill Cap Maintenance

Landfill cap maintenance has been performed. A landfill cap inspection was performed

MNA Groundwater at the MOC
MNA sampling has concluded

Government Signature Eric Barnhill **Date 8-16-2022**

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☒	Follow-up Inspection Form
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☒	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☐	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

PHOTOGRAPHIC LOG – 16 August 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. CM190125

Description:

Photo CM190125. Facing Northwest. Surveying transect P02 south-end sediment layer to vegetation mat.

Photograph No. CM180084

Description:

Photo CM180084. Facing South. Staging supersacks on beach for barge pickup.

PREPARATORY PHASE CHECKLIST

(CONTINUED ON SECOND PAGE)

SPEC SECTION	DATE
	8/16/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Demobilization	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __24_ HOURS IN ADVANCE: YES ☒ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering
Chris Bosch	Operator	Brice Engineering
David Clifford	Operator	Brice Engineering

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED? Final Work Plan has been approved.

ARE ALL MATERIALS ON HAND? YES ☒ NO ☐

IF NO, WHAT ITEMS ARE MISSING?

CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL. (THIS SHOULD BE DONE AS MATERIAL ARRIVES.)

COMMENTS: Materials received matched work plan specifications.

MATERIAL STORAGE

ARE MATERIALS STORED PROPERLY? YES ☒ NO ☐

IF NO, WHAT ACTION IS TAKEN?

SPECIFICATIONS

REVIEW EACH PARAGRAPH OF SPECIFICATIONS. Each paragraph of specification has been reviewed.

DISCUSS PROCEDURE FOR ACCOMPLISHING THE WORK. Procedures to accomplish work have been discussed.

CLARIFY ANY DIFFERENCES/DISCREPANCIES. No discrepancies were identified.

PRELIMINARY WORK & PERMITS

☒ ENSURE PRELIMINARY WORK IS CORRECT AND PERMITS ARE ON FILE.

IF NOT, WHAT ACTION IS TAKEN?

TESTING	IDENTIFY TEST TO BE PERFORMED, FREQUENCY, AND BY WHOM. Tests were discussed. Materials will be inventoried during demobilization.
	WHEN REQUIRED? The materials will be tracked by container as it is loaded to the barge landing.
	WHERE REQUIRED? Tests will be conducted in the field.
	REVIEW TESTING PLAN. Testing plan has been reviewed.
	HAVE TEST FACILITIES BEEN APPROVED? Test facilities are approved.
SAFETY	HAS ACTIVITY HAZARD ANALYSIS BEEN APPROVED? YES ☒ NO ☐
	REVIEW APPLICABLE PORTION OF EM 385-1-1. Applicable portion of 385-1-1 has been reviewed.
MEETING COMMENTS	COMMENTS DURING MEETING. Discussed staging location for containers and equipment.
OTHER ITEMS OR REMARKS	OTHER ITEMS OR REMARKS: None

Monte Garroutte 8/16/22

QC MANAGER DATE

FOLLOW UP PHASE CHECKLIST

		SPEC SECTION	DATE 8/16/22
CONTRACT NO W911KB20D0002	DEFINABLE FEATURE OF WORK Airstrip and Road Repairs	SCHEDULE ACT NO.	

PERSONNEL PRESENT

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead/CQC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Project has proceeded in full compliance with procedures identified at preparatory phase. Submittals will be included in reporting.

REWORK ITEM COMPLETE

ENSURE ANY REWORK ITEM IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

No rework items were required.

WORK COMPLETE

ENSURE PRELIMINARY AND FOLLOW UP WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

COMMENTS: Preliminary and follow up work is complete and correct.

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NOT, WHAT ITEMS HAVE NOT BEEN SUBMITTED?

OTHER

OTHER ITEMS OR REMARKS

None.

Monte Garroutte 8/16/22

QC MANAGER DATE

FOLLOW UP PHASE CHECKLIST

SPEC SECTION	DATE
	8/16/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Miscellaneous Debris Removal	

PERSONNEL PRESENT

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead/CQC	Brice Engineering
Chad Armintrout	Site Superintendent	Brice Engineering

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Project has proceeded in full compliance with procedures identified at preparatory phase. Submittals will be included in reporting.

REWORK ITEM COMPLETE

ENSURE ANY REWORK ITEM IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

No rework items were required.

WORK COMPLETE

ENSURE PRELIMINARY AND FOLLOW UP WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

COMMENTS: Preliminary and follow up work is complete and correct.

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NOT, WHAT ITEMS HAVE NOT BEEN SUBMITTED?

OTHER

OTHER ITEMS OR REMARKS

None.

Monte Garroutte 8/16/22

QC MANAGER DATE

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
8/16/22	North East Cape	Chad Armintrout

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Bagging of Geo Tube material 5 yard Bag	Excavator - Straps/slings Bag Stand - Skidsteer loader	Struck By - Overhead - Rigging Failure - Blowing debris	Level D
Removal of Stockpile Covers & Sand bags	Knife - Skidsteer - [illegible]	Slips, Trips, Falls uneven ground - Cuts - Back	Level D "Gloves"
Transport of 5 yard Bags to Beach Landing	Loader - Dump Truck - Trailer - Loader - Marooka Straps/Rigging	Overhead - Falls - Pinch points Struck by	Level D "Hard Hats"

	Name	Signature	Date	Company
1	Chad Armintrout	[signature]	8/16/22	Brice ENV.
2	Craig Perry	Craig Perry		Beacon
3	Jake Austin	[signature]		BENG
4	Patrick Schick	[signature]		Brice Eng
5	Joe Knapik	[signature]		Brice Eng.
6	Eric Barnhill	[signature]		USACE
7	Sammie Carter	[signature]		BEL
8	Al Green	[signature]		BEL
9	Jane Sukey	[signature]		Brice
10	Michael Williams	[signature]		BEL

DAVE Clifford	[signature]	Brice
Brady Sharp	Brady Sharp	AK Min
Monte Garoutte	Monte Garoutte	Brice
Chris Bosch	[signature]	Brice

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DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Contract Number / Delivery Order Number		UPC/Project Title
W911KB20D0002 / W911KB21F0086		**Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903**
QC/QA Report Number **0030**	Date or Time Period **Wednesday 17 August 2022**	Location **Northeast Cape, AK**

Weather

Low Temp: 38° F High Temp: 45° F

Wind Speed: 10-20 mph Conditions: Overcast

Subcontractors:

Alaska Minerals, Beacon

Quality Control Inspections Performed This Date (Include inspections, results, deficiencies observed, and corrective action.)

Preparatory ☐
Initial ☒ Demobilization
Follow-up ☒ Well Maintenance

Field Sampling and Testing **Yes** ☐ **No** ☒

Type of Test	Method/Matrix	Results
NA		

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

Laboratory Analytical Sampling **Yes** ☒ **No** ☐

Type of Test	Test Method/Matrix	Quantity of Samples
Sediment Samples	DRO/RRO with and without silica gel, TOC, PAHs Sublist / Sediment	6
ISM Samples	DRO/RRO, PAHs / Soil	4

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

Notes:

- The last of 60 Sediment samples were collected from Site 28.
- Post-activitiy samples were collected from the Site 28 dewatering area and the treated water discharge area. One ISM sample was collected in triplicate, for a total of 4 samples from 2 DUs.

Health and Safety

Worker protection levels this date: **Level A** ☐ **Level B** ☐ **Level C** ☐ **Modified Level D** ☒ **Level D** ☒ **N/A** ☐

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?	**N/A** ☐	**Yes** ☒	**No** ☐
Was a **Job Safety Meeting** held this day? (If yes, attach comments)		**Yes** ☒	**No** ☐
Were there any **"Lost Time"** accidents this day? (If YES, attach copy of completed accident report)		**Yes** ☐	**No** ☒
Was **hazardous waste**/materials 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.)

- None

Work Activities Performed This Date

Prime

- A tailgate safety meeting was held.
- Vehicle and equipment inspections were performed for the vehicles and equipment used.
- Decontamination and demobilization activities of equipment and materials at Site 28 concluded. Post-activity ISM samples were collected from the dewatering pad area and the treated water discharge area.
- Sediment sampling was conducted at Site 28. 6 sediment samples (for a total of 60) were collected from Site 28.
- Monitoring Wells in the MOC had elevations surveyed. During surveying, it was observed that well 17MW1 was frost-jacked. The well casing was subsequently cut below the flush mount, surveyed, and rebolted. 5.00” of casing was removed.
- Backfill activities began at Site 15. The stockpile was uncovered and the top cover plastic was placed in an open top container for disposal. Stockpile 2 (approx. 766 cy) was completely backfilled, and the bottom liner was removed for disposal. Stockpile 1 (approx. 1466 cy) is approximately halfway placed back into the excavation. A dozer is being used to regrade the backfill as it is added.
- Various samples and features of interest were surveyed.
- Four Brice employees demobilized on an air charter flight.
- The USACE QAR Eric Barnhill demobilized on an air charter flight.
- Demobilization activities continued. Containers were inventoried and packed.

Item	Scope	Units	Total Completed	Remaining
Site 15 DRO-Contaminated Soil Excavation	500	Tons	517.69	0
Site 15 ISM Stockpile Sampling	1	Each	1	0
Site 28 Sediment Dredging	196	CY	30.00	0
Site 28 Mapping	1	Each	1	0
Site 28 Sediment Sampling	60	Sediment Samples	60	0
Site 28 Pre- and Post-Treatment Area ISM Samples	2	Sample	4	0
Site 28 Surface Water Samples	12	Sample	12	0
Gravel Airstrip Repair	1	Each	1	0
Gravel Road Repair	1	Each	1	0
Miscellaneous Drums and Debris	5	Tons	2.25	0
Site 7 Landfill Cap - add cap material	50	CY	85	0
Site 8 Pipeline Break Soil Borings	30	Samples	35	0
Background Soil Samples for TOC, DRO with and without silica gel cleanup	10	Samples	10	0
MOC Monitoring Wells Sampled	15	Well	15	0
MOC Monitoring Wells Redeveloped	2	Well	2	0
MOC Monitoring Wells Repaired	3	Well	6	0
MOC Monitoring Wells Decommissioned	1	Well	2	0
Soil Stockpiles			2	
Soil Excavations			1	
Photographs Taken			235	

Subcontractors

- Alaska Minerals continued camp maintenance.
- Beacon continued providing emergency medical support.

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Labor and Equipment Used This Date

CONTRACTOR – Brice Engineering

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity /Unit**
Superintendent	1	6	Volvo 210 Excavator	Volvo Excavator 1	0
Laborer	2	12.5	John Deere 380 Excavator	John Deere Excavator 1	1
Technical Lead/CQC	1	12.5	Dump Truck	Dump Truck 1	1
Scientist/Bear Guard	1	6	John Deere 310e Rock Truck	Rock Truck 1	1
Engineer	1	6	Morooka Tracked Vehicle	Morooka 1	1
Environmental Scientist	3	12.5 / 6	John Deere 650 Dozer	Dozer 1	1
Geologist	1	12.5	John Deere 844 Loader	Loader 1	1
Surveyor	1	12.5	John Deere 333 Skid Steer	Skid Steer 1	1
			Kawasaki Teryx UTV	Teryx 1	1
			Kawasaki Teryx UTV	Teryx 2	1
			Kawasaki Teryx UTV	Teryx 3	1
			Suzuki Mini Truck	Mini Truck 1	1
			Suzuki Mini Truck	Mini Truck 2	1
			Suzuki Mini Truck	Mini Truck 3	1
			Suzuki Mini Truck	Mini Truck 4	1
			Suzuki Mini Van	Mini Van 1	1
			Chevrolet 2500 Truck	Chevrolet Truck 1	1
			Chevrolet 1500 Truck	Chevrolet Truck 2	1
			Ford F250 Mechanics Truck	Ford Truck 1	1
			Geoprobe 6610	Geoprobe 1	0
Total	***11***	***111.5***	***NA***	***NA***	***18***

SUBCONTRACTOR – Beacon

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
EMT	1	12	NA	NA	0
Total	***1***	***12***	***NA***	***NA***	***0***

SUBCONTRACTOR – Alaska Minerals

Labor			Equipment		
Classification	**Number**	**Hours**	**Type/Make**	**Number**	**Quantity/Unit**
Camp Maintenance	1	12	NA	NA	0
Camp Cook	1	12			
Total	***2***	***24***	***NA***	***NA***	***0***

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Materials Received to be Used on or Incorporated into Site:

- None

Do the materials comply with the contract? (If no, explain) **Yes** ☐ **No** ☒

- NA

Equipment Received to be used on Site:

- None

Does the equipment comply with contract? (If no, explain) **Yes** ☐ **No** ☒

- NA

Instructions given by the Government to the Contractor **Verbal** ☒ **Written** ☐
(Include names, reactions, and remarks.)

- None

Instructions Given by Contractor to Subcontractors **Verbal** ☐ **Written** ☐
(Include names, reactions, and remarks.

- None

Scope of Work/Work Plan Variances **Yes** ☐ **No** ☒

- None

Work Progress

Are there any Contractor caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any Government caused delays?	**Yes** ☐	**No** ☒
Or potential finding of fact?	**Yes** ☐	**No** ☒
Are there any unforeseeable or weather-related delays?	**Yes** ☐	**No** ☒
Does the workmanship comply with the contract?	**Yes** ☒	**No** ☐

Comments:

- None

Deficiencies Noted This Day **(Include corrective actions taken and anticipated date of correction if carried over past COB)** **Yes** ☐ **No** ☐

- None.

Deficiencies Corrected This Day **Yes** ☐ **No** ☐

- None.

Remarks **(Include any visitors to project and miscellaneous remarks pertinent to work. In addition, provide specific regulatory notifications conducted, including SHPO, ADEC, etc.)**

- USACE QAR Eric Barnhill Left the site today.

Regulatory notifications conducted this day? **Yes** ☐ **No** ☒

The above report is complete and correct, and all work reported is believed, to the best of my knowledge to be in compliance with State and Federal requirements, and the contract

CQC System Manager Signature *Monte Garroutte* **Date** 17 August 2022

DAILY QUALITY ASSURANCE / QUALITY CONTROL REPORT

Government Quality Assurance Comments

Concurs with the QC report? **Yes** ☐ **No** ☐

Additional Comments:

NO USACE QAR on site.

CQC Report Attachments:

☒	Tailgate Safety Meeting Report	☐	Field notes	☒	Follow-up Inspection Form
☐	Activity Hazard Analyses	☐	Punchlist	☐	
☐	Preparatory Inspection Form	☐	Site Orientation Sign-in	☐	
☒	Initial Inspection Form	☐	Stormwater Construction Site Inspection Report	☐	
☐	Equipment Inspections	☐	SWPPP Corrective Action Log	☐	
☐	Chains of Custody	☒	Photo Log	☐	

PHOTOGRAPHIC LOG – 17 August 2022

Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews, FUDS Site F10AK096903

Photograph No. CM190137

Description:

Photo CM190137. Placing backfill from Stockpile 2 into a rock truck.

Photograph No. CM190138

Description:

Photo CM190138. Completing well leveling/survey.

INITIAL PHASE CHECKLIST

SPEC SECTION	DATE
	8/17/22

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.
W911KB20D0002	Demobilization	

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED __24 HOURS IN ADVANCE: YES ☒ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT
Scotty Mann	Technical Lead/QC	Brice Engineering
Chris Bosch	Operator	Brice Engineering
Dave Clifford	Operator	Brice Engineering

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Full compliance with procedures is identified. Procedures meet/match specifications, plans, and submittals.

PRELIMINARY WORK

ENSURE PRELIMINARY WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

All preliminary work is complete.

WORKMANSHIP

ESTABLISH QUALITY STANDARDS.

WHERE IS WORK LOCATED? Work is located at Northeast Cape, Alaska.

IS SAMPLE PANEL REQUIRED? YES ☐ NO ☒

WILL THE INIITAL WORK BE CONSIDERED AS A SAMPLE? YES ☐ NO ☒

(IF YES, MAINTAIN IN PRESENT CONDITION AS LONG AS POSSIBLE AND DESCRIBE LOCATION OF SAMPLE)

RESOLUTION

RESOLVE ANY DIFFERENCES/DISCREPANCIES.

COMMENTS: None.

CHECK SAFETY

REVIEW JOB CONDITIONS USING EM 385-1-1 AND JOB HAZARD ANALYSIS

COMMENTS: Job conditions were reviewed using EM 385-1-1. AHAs were reviewed. All job conditions meet safety standards.

OTHER

OTHER ITEMS OR REMARKS

None.

Monte Garroutte — QC MANAGER

8/17/22 — DATE

FOLLOW UP PHASE CHECKLIST

		SPEC SECTION	DATE 8/17/22
CONTRACT NO W911KB20D0002	DEFINABLE FEATURE OF WORK Well Maintenance	SCHEDULE ACT NO.	

PERSONNEL PRESENT

NAME	POSITION	COMPANY/GOVERNMENT
Monte Garroutte	Technical Lead/CQC	Brice Engineering
Jake Austin	Surveyor	Brice Engineering

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS: Project has proceeded in full compliance with procedures identified at preparatory phase. Submittals will be included in reporting.

REWORK ITEM COMPLETE

ENSURE ANY REWORK ITEM IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

No rework items were required.

WORK COMPLETE

ENSURE PRELIMINARY AND FOLLOW UP WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

COMMENTS: Preliminary and follow up work is complete and correct.

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☒ NO ☐

IF NOT, WHAT ITEMS HAVE NOT BEEN SUBMITTED?

OTHER

OTHER ITEMS OR REMARKS

None.

Monte Garroutte 8/17/22

QC MANAGER DATE

DAILY SITE SAFETY MEETING

Date	Project	Site Safety and Health Officer
8/17/22	North East Cape	Chad Armintrout

Activities to be Performed	Tools, Equipment, Materials to be Used	Possible Injury, Hazards	Required PPE, Controls, Plan
Back fill of Excavation From Stock Pile	Excavator - Dozer - Rock Truck - Dump Truck	Struck By - Collision - Cave IN -	Level D "High Viz"
D-MOB of Stock pile covers - MT sand bags	Knifes - Truck - Plastic	Back - Cuts - Slips, Trips, Falls	Level D

	Name	Signature	Date	Company
1	Chad Armintrout		8/17/22	Brice ENV.
2	Jake Austin			Bay
3	Brady Sharp			Akmin.
4	DAVE Clifford			Brice
5	Chris Bosch			Brice
6	Joe Knapik			Brice Eng.
7	Jane Suber			Brice
8	Michael Williams			BEL
9	Eli Green			BEL
10	Craig Perry			Beacon
	Sammie Carter			BEL
	Patrick Schick			Brice Eng.
	Monte Gorrette			Brice
	Eric Barnhill			USPLE

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APPENDIX I
CONCEPTUAL SITE MODEL

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Conceptual Site Model for Site 7

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Print Form

Appendix I - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name: Northeast Cape FUDS: Site 7

File Number: 475.38.013

Completed by: Brice Engineering, LLC

Introduction

The form should be used to reach agreement with the Alaska Department of Environmental Conservation (DEC) about which exposure pathways should be further investigated during site characterization. From this information, summary text about the CSM and a graphic depicting exposure pathways should be submitted with the site characterization work plan and updated as needed in later reports.

General Instructions: Follow the italicized instructions in each section below.

1. General Information:

Sources *(check potential sources at the site)*

- ☒ USTs
- ☒ ASTs
- ☐ Dispensers/fuel loading racks
- ☒ Drums
- ☐ Vehicles
- ☒ Landfills
- ☒ Transformers
- ☐ Other:

Release Mechanisms *(check potential release mechanisms at the site)*

- ☒ Spills
- ☒ Leaks
- ☐ Direct discharge
- ☐ Burning
- ☐ Other:

Impacted Media *(check potentially-impacted media at the site)*

- ☒ Surface soil (0-2 feet bgs*)
- ☒ Subsurface soil (>2 feet bgs)
- ☒ Air
- ☐ Sediment
- ☐ Groundwater
- ☐ Surface water
- ☐ Biota
- ☐ Other:

Receptors *(check receptors that could be affected by contamination at the site)*

- ☒ Residents (adult or child)
- ☐ Commercial or industrial worker
- ☒ Construction worker
- ☒ Subsistence harvester (i.e. gathers wild foods)
- ☒ Subsistence consumer (i.e. eats wild foods)
- ☒ Site visitor
- ☐ Trespasser
- ☒ Recreational user
- ☐ Farmer
- ☐ Other:

* bgs - below ground surface

2. **Exposure Pathways:** *(The answers to the following questions will identify complete exposure pathways at the site. Check each box where the answer to the question is "yes".)*

a) Direct Contact -

1. Incidental Soil Ingestion

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site-specific basis.) ☒

If the box is checked, label this pathway complete: Complete

Comments:

COCs include DRO, RRO, PCBs, and arsenic

2. Dermal Absorption of Contaminants from Soil

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Can the soil contaminants permeate the skin (see Appendix B in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

Arsenic is credited with dermal absorption.

b) Ingestion -

1. Ingestion of Groundwater

Have contaminants been detected or are they expected to be detected in the groundwater, or are contaminants expected to migrate to groundwater in the future? ☐

Could the potentially affected groundwater be used as a current or future drinking water source? Please note, only leave the box unchecked if DEC has determined the groundwater is not a currently or reasonably expected future source of drinking water according to 18 AAC 75.350. ☐

If both boxes are checked, label this pathway complete: Incomplete

Comments:

Groundwater at the FUDS is not currently or reasonably expected to be a future drinking water source since – as noted in the decision document: land use controls designate areas not suitable for drinking water at Site 7; land use controls limit future groundwater uses at the Main Complex; there is an insufficient volume produced by shallow groundwater in tundra areas to be considered a reasonable source; and abundant surface water is nearby. Therefore, use of groundwater as a potable water source is not expected. PCBs are not expected to migrate to groundwater. DRO, RRO, and As could potentially migrate to groundwater.

2. Ingestion of Surface Water

Have contaminants been detected or are they expected to be detected in surface water, or are contaminants expected to migrate to surface water in the future? ☒

Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). ☐

If both boxes are checked, label this pathway complete: Incomplete

Comments:

The surface water at Site 7 is not considered a potential drinking water source (ADEC 2007).

3. Ingestion of Wild and Farmed Foods

Is the site in an area that is used or reasonably could be used for hunting, fishing, or harvesting of wild or farmed foods? ☒

Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance document)? ☒

Are site contaminants located where they would have the potential to be taken up into biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) ☐

If all of the boxes are checked, label this pathway complete: Incomplete

Comments:

PCBs and arsenic have the potential to bioaccumulate, however no animals are present in the source area that can access contamination.

c) Inhalation-

1. Inhalation of Outdoor Air

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Are the contaminants in soil volatile (see Appendix D in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

Inhalation of outdoor air is considered insignificant due to aerial dispersion and dilution due to windy conditions on St. Lawrence Island.

2. Inhalation of Indoor Air

Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminted soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures) ☒

Are volatile compounds present in soil or groundwater (see Appendix D in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

PCBs are considered volatile from wet surfaces. Lower temperatures cause less volatility, so volatility from dry surfaces isn't an issue on St. Lawrence Island.

3. **Additional Exposure Pathways:** *(Although there are no definitive questions provided in this section, these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)*

Dermal Exposure to Contaminants in Groundwater and Surface Water

Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if:

- Climate permits recreational use of waters for swimming.
- Climate permits exposure to groundwater during activities, such as construction.
- Groundwater or surface water is used for household purposes, such as bathing or cleaning.

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are deemed protective of this pathway because dermal absorption is incorporated into the groundwater exposure equation for residential uses.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Inhalation of Volatile Compounds in Tap Water

Inhalation of volatile compounds in tap water may be a complete pathway if:

- The contaminated water is used for indoor household purposes such as showering, laundering, and dish washing.
- The contaminants of concern are volatile (common volatile contaminants are listed in Appendix D in the guidance document.)

DEC groundwater cleanup levels in 18 AAC 75, Table C are protective of this pathway because the inhalation of vapors during normal household activities is incorporated into the groundwater exposure equation.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Volatile contaminants have not been detected in groundwater.

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- Dust particles are less than 10 micrometers (Particulate Matter - PM_{10}). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Inhalation of outdoor air is considered insignificant due to aerial dispersion and dilution due to windy conditions on St. Lawrence Island.

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

4. Other Comments *(Provide other comments as necessary to support the information provided in this form.)*

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Northeast Cape FUDS: Sites 7

Completed By: Brice Engineering, LLC

Date Completed: 2/16/2023

***Instructions*: Follow the numbered directions below. Do not consider contaminant concentrations or engineering/land use controls when describing pathways.**

(1)
Check the media that could be directly affected by the release.

(2)
For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.

Media / Transport Mechanisms

☑ Surface Soil (0-2 ft bgs)
- Direct release to surface soil — *check soil*
- ☑ *Migration to subsurface* — *check soil*
- ☐ *Migration to groundwater* — *check groundwater*
- ☑ *Volatilization* — *check air*
- ☐ *Runoff or erosion* — *check surface water*
- ☐ *Uptake by plants or animals* — *check biota*
- ☐ *Other (list):*

☑ Subsurface Soil (2-15 ft bgs)
- Direct release to subsurface soil — *check soil*
- ☐ *Migration to groundwater* — *check groundwater*
- ☑ *Volatilization* — *check air*
- ☐ *Uptake by plants or animals* — *check biota*
- ☐ *Other (list):*

☐ Ground-water
- Direct release to groundwater — *check groundwater*
- ☐ *Volatilization* — *check air*
- ☐ *Flow to surface water body* — *check surface water*
- ☐ *Flow to sediment* — *check sediment*
- ☐ *Uptake by plants or animals* — *check biota*
- ☐ *Other (list):*

☑ Surface Water
- Direct release to surface water — *check surface water*
- ☑ *Volatilization* — *check air*
- ☑ *Sedimentation* — *check sediment*
- ☑ *Uptake by plants or animals* — *check biota*
- ☐ *Other (list):*

☑ Sediment
- Direct release to sediment — *check sediment*
- ☑ *Resuspension, runoff, or erosion* — *check surface water*
- ☑ *Uptake by plants or animals* — *check biota*
- ☐ *Other (list):*

(3)
Check all exposure media identified in (2).

(4)
*Check all pathways that could be complete. The pathways identified in this column **must** agree with Sections 2 and 3 of the Human Health CSM Scoping Form.*

(5)
Identify the receptors potentially affected by each exposure pathway: Enter "C" for current receptors, "F" for future receptors, "C/F" for both current and future receptors, or "I" for insignificant exposure.

Current & Future Receptors

Exposure Media	Exposure Pathway/Route	Residents (adults or children)	Commercial or industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other
☑ soil	☑ Incidental Soil Ingestion	F		C/F	C/F	C/F	C/F	
	☑ Dermal Absorption of Contaminants from Soil	F		C/F	C/F	C/F	C/F	
	☐ Inhalation of Fugitive Dust							
☐ groundwater	☐ Ingestion of Groundwater							
	☐ Dermal Absorption of Contaminants in Groundwater							
	☐ Inhalation of Volatile Compounds in Tap Water							
☑ air	☑ Inhalation of Outdoor Air	I		I	I	I	I	
	☑ Inhalation of Indoor Air	F		F	F	F	F	
	☐ Inhalation of Fugitive Dust							
☐ surface water	☐ Ingestion of Surface Water							
	☐ Dermal Absorption of Contaminants in Surface Water							
	☐ Inhalation of Volatile Compounds in Tap Water							
☐ sediment	☐ Direct Contact with Sediment							
☐ biota	☐ Ingestion of Wild or Farmed Foods							

Revised, 10/01/2010

Conceptual Site Model for Sites 8, 28, 15, Gravel Airstrip and Roads, and Main Operations Complex

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Print Form

Appendix I - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name: Northeast Cape FUDS: Site 8

File Number: 475.38.013 Hazard ID 214

Completed by: Brice Engineering, LLC

Introduction

The form should be used to reach agreement with the Alaska Department of Environmental Conservation (DEC) about which exposure pathways should be further investigated during site characterization. From this information, summary text about the CSM and a graphic depicting exposure pathways should be submitted with the site characterization work plan and updated as needed in later reports.

General Instructions: Follow the italicized instructions in each section below.

1. General Information:

Sources *(check potential sources at the site)*

- ☐ USTs
- ☐ ASTs
- ☒ Dispensers/fuel loading racks
- ☐ Drums
- ☐ Vehicles
- ☐ Landfills
- ☐ Transformers
- ☒ Other: Pipeline

Release Mechanisms *(check potential release mechanisms at the site)*

- ☒ Spills
- ☒ Leaks
- ☐ Direct discharge
- ☐ Burning
- ☐ Other:

Impacted Media *(check potentially-impacted media at the site)*

- ☒ Surface soil (0-2 feet bgs*)
- ☒ Subsurface soil (>2 feet bgs)
- ☒ Air
- ☒ Sediment
- ☐ Groundwater
- ☐ Surface water
- ☐ Biota
- ☐ Other:

Receptors *(check receptors that could be affected by contamination at the site)*

- ☒ Residents (adult or child)
- ☐ Commercial or industrial worker
- ☒ Construction worker
- ☒ Subsistence harvester (i.e. gathers wild foods)
- ☒ Subsistence consumer (i.e. eats wild foods)
- ☒ Site visitor
- ☐ Trespasser
- ☒ Recreational user
- ☐ Farmer
- ☐ Other:

* bgs - below ground surface

2. **Exposure Pathways:** *(The answers to the following questions will identify complete exposure pathways at the site. Check each box where the answer to the question is "yes".)*

a) Direct Contact -

1. Incidental Soil Ingestion

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site-specific basis.) ☒

If the box is checked, label this pathway complete: Complete

Comments:

COCs include DRO, 1-Methylnaphthalene, 2-Methylnaphthalene, Naphthalene

2. Dermal Absorption of Contaminants from Soil

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Can the soil contaminants permeate the skin (see Appendix B in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

1-M, 2-M, and naphthalene are evaluated for dermal exposure.

b) Ingestion -

1. Ingestion of Groundwater

Have contaminants been detected or are they expected to be detected in the groundwater, or are contaminants expected to migrate to groundwater in the future? ☒

Could the potentially affected groundwater be used as a current or future drinking water source? Please note, only leave the box unchecked if DEC has determined the groundwater is not a currently or reasonably expected future source of drinking water according to 18 AAC 75.350. ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

Groundwater at the FUDS is not currently or reasonably expected to be a future drinking water source since – as noted in the decision document: There is an insufficient volume produced by shallow groundwater in tundra areas to be considered a reasonable source; and abundant surface water is nearby. Therefore, use of groundwater as a potable water source is not expected.

2. Ingestion of Surface Water

Have contaminants been detected or are they expected to be detected in surface water, or are contaminants expected to migrate to surface water in the future? ☐

Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). ☒

If both boxes are checked, label this pathway complete: Incomplete

Comments:

Surface water samples have not indicated impacts from Site 8.

3. Ingestion of Wild and Farmed Foods

Is the site in an area that is used or reasonably could be used for hunting, fishing, or harvesting of wild or farmed foods? ☒

Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance document)? ☐

Are site contaminants located where they would have the potential to be taken up into biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) ☒

If all of the boxes are checked, label this pathway complete: Incomplete

Comments:

c) Inhalation-

1. Inhalation of Outdoor Air

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Are the contaminants in soil volatile (see Appendix D in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

Inhalation of outdoor air is considered insignificant due to aerial dispersion and dilution due to windy conditions on St. Lawrence Island.

2. Inhalation of Indoor Air

Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminted soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures) ☒

Are volatile compounds present in soil or groundwater (see Appendix D in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

Potentially complete in the future. No buildings are currently present at the site.

3. **Additional Exposure Pathways:** *(Although there are no definitive questions provided in this section, these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)*

Dermal Exposure to Contaminants in Groundwater and Surface Water

Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if:

- Climate permits recreational use of waters for swimming.
- Climate permits exposure to groundwater during activities, such as construction.
- Groundwater or surface water is used for household purposes, such as bathing or cleaning.

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are deemed protective of this pathway because dermal absorption is incorporated into the groundwater exposure equation for residential uses.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Inhalation of Volatile Compounds in Tap Water

Inhalation of volatile compounds in tap water may be a complete pathway if:

- The contaminated water is used for indoor household purposes such as showering, laundering, and dish washing.
- The contaminants of concern are volatile (common volatile contaminants are listed in Appendix D in the guidance document.)

DEC groundwater cleanup levels in 18 AAC 75, Table C are protective of this pathway because the inhalation of vapors during normal household activities is incorporated into the groundwater exposure equation.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- Dust particles are less than 10 micrometers (Particulate Matter - PM_{10}). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Inhalation of outdoor air is considered insignificant due to aerial dispersion and dilution due to windy conditions on St. Lawrence Island.

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed: ☒

Comments:

Climate does not allow for direct contact with sediment.

4. Other Comments *(Provide other comments as necessary to support the information provided in this form.)*

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Northeast Cape FUDS: Site 8

Completed By: Brice Engineering, LLC

Date Completed: 2/16/2023

***~~Instructions~~:* Follow the numbered directions below. Do not consider contaminant concentrations or engineering/land use controls when describing pathways.**

(1) *Check the media that could be directly affected by the release.*

(2) *For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.*

Media / Transport Mechanisms

☑ Surface Soil (0-2 ft bgs)
- ☑ Direct release to surface soil — *check soil*
- ☑ *Migration to subsurface* — *check soil*
- ☑ *Migration to groundwater* — *check groundwater*
- ☑ *Volatilization* — *check air*
- ☐ *Runoff or erosion* — *check surface water*
- ☐ *Uptake by plants or animals* — *check biota*
- ☐ *Other (list):*

☑ Subsurface Soil (2-15 ft bgs)
- ☑ Direct release to subsurface soil — *check soil*
- ☑ *Migration to groundwater* — *check groundwater*
- ☑ *Volatilization* — *check air*
- ☐ *Uptake by plants or animals* — *check biota*
- ☐ *Other (list):*

☐ Ground-water
- ☐ Direct release to groundwater — *check groundwater*
- ☐ *Volatilization* — *check air*
- ☐ *Flow to surface water body* — *check surface water*
- ☐ *Flow to sediment* — *check sediment*
- ☐ *Uptake by plants or animals* — *check biota*
- ☐ *Other (list):*

☐ Surface Water
- ☐ Direct release to surface water — *check surface water*
- ☐ *Volatilization* — *check air*
- ☐ *Sedimentation* — *check sediment*
- ☐ *Uptake by plants or animals* — *check biota*
- ☐ *Other (list):*

☐ Sediment
- ☐ Direct release to sediment — *check sediment*
- ☐ *Resuspension, runoff, or erosion* — *check surface water*
- ☐ *Uptake by plants or animals* — *check biota*
- ☐ *Other (list):*

(3) *Check all exposure media identified in (2).*

(4) *Check all pathways that could be complete. The pathways identified in this column **must** agree with Sections 2 and 3 of the Human Health CSM Scoping Form.*

(5) *Identify the receptors potentially affected by each exposure pathway: Enter "C" for current receptors, "F" for future receptors, "C/F" for both current and future receptors, or "I" for insignificant exposure.*

Exposure Media / Exposure Pathway/Route / Current & Future Receptors

Exposure Media	Exposure Pathway/Route	Residents (adults or children)	Commercial or industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other
☑ soil	☑ Incidental Soil Ingestion	F		C/F	C/F	C/F	C/F	
	☑ Dermal Absorption of Contaminants from Soil	F		C/F	C/F	C/F	C/F	
	☐ Inhalation of Fugitive Dust							
☑ groundwater	☑ Ingestion of Groundwater	F		C/F	C/F	C/F	C/F	
	☑ Dermal Absorption of Contaminants in Groundwater	F		C/F	C/F	C/F	C/F	
	☐ Inhalation of Volatile Compounds in Tap Water							
☑ air	☑ Inhalation of Outdoor Air	I		I	I	I	I	
	☑ Inhalation of Indoor Air	F		F	F	F	F	
	☐ Inhalation of Fugitive Dust							
☐ surface water	☐ Ingestion of Surface Water							
	☐ Dermal Absorption of Contaminants in Surface Water							
	☐ Inhalation of Volatile Compounds in Tap Water							
☑ sediment	☑ Direct Contact with Sediment	F		C/F	C/F	C/F	C/F	
☐ biota	☐ Ingestion of Wild or Farmed Foods							

Revised, 10/01/2010

Print Form

Appendix I - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name: Northeast Cape FUDS: Site 28

File Number: 475.38.013

Completed by: Brice Engineering, LLC

Introduction

The form should be used to reach agreement with the Alaska Department of Environmental Conservation (DEC) about which exposure pathways should be further investigated during site characterization. From this information, summary text about the CSM and a graphic depicting exposure pathways should be submitted with the site characterization work plan and updated as needed in later reports.

General Instructions: Follow the italicized instructions in each section below.

1. General Information:

Sources *(check potential sources at the site)*

- ☐ USTs
- ☒ ASTs
- ☒ Dispensers/fuel loading racks
- ☐ Drums
- ☐ Vehicles
- ☐ Landfills
- ☐ Transformers
- ☐ Other:

Release Mechanisms *(check potential release mechanisms at the site)*

- ☒ Spills
- ☒ Leaks
- ☐ Direct discharge
- ☐ Burning
- ☐ Other:

Impacted Media *(check potentially-impacted media at the site)*

- ☒ Surface soil (0-2 feet bgs*)
- ☒ Subsurface soil (>2 feet bgs)
- ☒ Air
- ☒ Sediment
- ☐ Groundwater
- ☐ Surface water
- ☐ Biota
- ☐ Other:

Receptors *(check receptors that could be affected by contamination at the site)*

- ☒ Residents (adult or child)
- ☐ Commercial or industrial worker
- ☒ Construction worker
- ☒ Subsistence harvester (i.e. gathers wild foods)
- ☒ Subsistence consumer (i.e. eats wild foods)
- ☒ Site visitor
- ☐ Trespasser
- ☒ Recreational user
- ☐ Farmer
- ☐ Other:

* bgs - below ground surface

2. **Exposure Pathways:** *(The answers to the following questions will identify complete exposure pathways at the site. Check each box where the answer to the question is "yes".)*

a) Direct Contact -

1. Incidental Soil Ingestion

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site-specific basis.) ☒

If the box is checked, label this pathway complete: Complete

Comments:

COCs include DRO, RRO, acenaphthene, fluoranthene, fluorene, naphthalene, phenanthrene, and 2-methlynaphthalene.

2. Dermal Absorption of Contaminants from Soil

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Can the soil contaminants permeate the skin (see Appendix B in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

b) Ingestion -

1. Ingestion of Groundwater

Have contaminants been detected or are they expected to be detected in the groundwater, or are contaminants expected to migrate to groundwater in the future? ☒

Could the potentially affected groundwater be used as a current or future drinking water source? Please note, only leave the box unchecked if DEC has determined the groundwater is not a currently or reasonably expected future source of drinking water according to 18 AAC 75.350. ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

Groundwater at the FUDS is not currently or reasonably expected to be a future drinking water source since – as noted in the decision document: there is an insufficient volume produced by shallow groundwater in tundra areas to be considered a reasonable source. Therefore, use of groundwater as a potable water source is not expected.

2. Ingestion of Surface Water

Have contaminants been detected or are they expected to be detected in surface water, or are contaminants expected to migrate to surface water in the future? ☒

Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

3. Ingestion of Wild and Farmed Foods

Is the site in an area that is used or reasonably could be used for hunting, fishing, or harvesting of wild or farmed foods? ☒

Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance document)? ☒

Are site contaminants located where they would have the potential to be taken up into biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) ☒

If all of the boxes are checked, label this pathway complete: Complete

Comments:

PCBs and arsenic have the potential to bioaccumulate.

c) Inhalation-

1. Inhalation of Outdoor Air

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Are the contaminants in soil volatile (see Appendix D in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

Inhalation of outdoor air is considered insignificant due to aerial dispersion and dilution due to windy conditions on St. Lawrence Island.

2. Inhalation of Indoor Air

Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminted soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures) ☒

Are volatile compounds present in soil or groundwater (see Appendix D in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

PCBs are considered volatile from wet surfaces. Lower temperatures cause less volatility; therefore, volatility from dry surfaces isn't an issue on St. Lawrence Island.

3. **Additional Exposure Pathways:** *(Although there are no definitive questions provided in this section, these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)*

Dermal Exposure to Contaminants in Groundwater and Surface Water

Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if:

- Climate permits recreational use of waters for swimming.
- Climate permits exposure to groundwater during activities, such as construction.
- Groundwater or surface water is used for household purposes, such as bathing or cleaning.

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are deemed protective of this pathway because dermal absorption is incorporated into the groundwater exposure equation for residential uses.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

As is credited with dermal absorption.

Inhalation of Volatile Compounds in Tap Water

Inhalation of volatile compounds in tap water may be a complete pathway if:

- The contaminated water is used for indoor household purposes such as showering, laundering, and dish washing.
- The contaminants of concern are volatile (common volatile contaminants are listed in Appendix D in the guidance document.)

DEC groundwater cleanup levels in 18 AAC 75, Table C are protective of this pathway because the inhalation of vapors during normal household activities is incorporated into the groundwater exposure equation.

Check the box if further evaluation of this pathway is needed: ☒

Comments:

Volatile contaminants have been detected in MOC groundwater.

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- Dust particles are less than 10 micrometers (Particulate Matter - PM_{10}). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Inhalation of outdoor air is considered insignificant due to aerial dispersion and dilution due to windy conditions on St. Lawrence Island.

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Ambient temperatures are too low for chronic direct contact with sediment to be an issue.

4. Other Comments *(Provide other comments as necessary to support the information provided in this form.)*

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Northeast Cape FUDS: Site 28

Completed By: Brice Engineering, LLC

Date Completed: 2/16/2023

***Instructions*: Follow the numbered directions below. Do not consider contaminant concentrations or engineering/land use controls when describing pathways.**

(1) *Check the media that could be directly affected by the release.*

(2) *For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.*

Media	Transport Mechanisms	
☑ Surface Soil (0-2 ft bgs)	Direct release to surface soil	check soil
	☑ Migration to subsurface	check soil
	☐ Migration to groundwater	check groundwater
	☑ Volatilization	check air
	☐ Runoff or erosion	check surface water
	☑ Uptake by plants or animals	check biota
	☐ Other (list):	
☑ Subsurface Soil (2-15 ft bgs)	Direct release to subsurface soil	check soil
	☑ Migration to groundwater	check groundwater
	☑ Volatilization	check air
	☑ Uptake by plants or animals	check biota
	☐ Other (list):	
☑ Ground-water	Direct release to groundwater	check groundwater
	☑ Volatilization	check air
	☑ Flow to surface water body	check surface water
	☑ Flow to sediment	check sediment
	☑ Uptake by plants or animals	check biota
	☐ Other (list):	
☑ Surface Water	Direct release to surface water	check surface water
	☑ Volatilization	check air
	☑ Sedimentation	check sediment
	☐ Uptake by plants or animals	check biota
	☐ Other (list):	
☐ Sediment	Direct release to sediment	check sediment
	☐ Resuspension, runoff, or erosion	check surface water
	☐ Uptake by plants or animals	check biota
	☐ Other (list):	

(3) *Check all exposure media identified in (2).*

(4) *Check all pathways that could be complete. The pathways identified in this column **must** agree with Sections 2 and 3 of the Human Health CSM Scoping Form.*

(5) *Identify the receptors potentially affected by each exposure pathway: Enter "C" for current receptors, "F" for future receptors, "C/F" for both current and future receptors, or "I" for insignificant exposure.*

Current & Future Receptors

Exposure Media	Exposure Pathway/Route	Residents (adults or children)	Commercial or industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other
☑ soil	☑ Incidental Soil Ingestion	C/F		C/F	C/F	C/F	C/F	
	☑ Dermal Absorption of Contaminants from Soil	C/F		C/F	C/F	C/F	C/F	
	☐ Inhalation of Fugitive Dust							
☑ groundwater	☑ Ingestion of Groundwater	I		I	I	I	I	
	☑ Dermal Absorption of Contaminants in Groundwater	I		I	I	I	I	
	☑ Inhalation of Volatile Compounds in Tap Water	I		I	I	I	I	
☑ air	☑ Inhalation of Outdoor Air	I		I	I	I	I	
	☑ Inhalation of Indoor Air	I		I	I	I	I	
	☐ Inhalation of Fugitive Dust							
☑ surface water	☐ Ingestion of Surface Water							
	☑ Dermal Absorption of Contaminants in Surface Water	I		I	I	I	I	
	☐ Inhalation of Volatile Compounds in Tap Water							
☑ sediment	☑ Direct Contact with Sediment	F		C/F	C/F	C/F	C/F	
☐ biota	☐ Ingestion of Wild or Farmed Foods							

Revised, 10/01/2010

Print Form

Appendix I - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name: Northeast Cape FUDS: Sites 15 and MOC Groundwater

File Number: 475.38.013

Completed by: Brice Engineering, LLC

Introduction

The form should be used to reach agreement with the Alaska Department of Environmental Conservation (DEC) about which exposure pathways should be further investigated during site characterization. From this information, summary text about the CSM and a graphic depicting exposure pathways should be submitted with the site characterization work plan and updated as needed in later reports.

General Instructions: Follow the italicized instructions in each section below.

1. General Information:

Sources *(check potential sources at the site)*

- ☒ USTs
- ☒ ASTs
- ☒ Dispensers/fuel loading racks
- ☒ Drums
- ☐ Vehicles
- ☐ Landfills
- ☐ Transformers
- ☐ Other:

Release Mechanisms *(check potential release mechanisms at the site)*

- ☒ Spills
- ☒ Leaks
- ☐ Direct discharge
- ☐ Burning
- ☐ Other:

Impacted Media *(check potentially-impacted media at the site)*

- ☐ Surface soil (0-2 feet bgs*)
- ☐ Subsurface soil (>2 feet bgs)
- ☒ Air
- ☒ Sediment
- ☒ Groundwater
- ☒ Surface water
- ☐ Biota
- ☐ Other:

Receptors *(check receptors that could be affected by contamination at the site)*

- ☒ Residents (adult or child)
- ☐ Commercial or industrial worker
- ☒ Construction worker
- ☒ Subsistence harvester (i.e. gathers wild foods)
- ☒ Subsistence consumer (i.e. eats wild foods)
- ☒ Site visitor
- ☐ Trespasser
- ☒ Recreational user
- ☐ Farmer
- ☐ Other:

* bgs - below ground surface

2. **Exposure Pathways:** *(The answers to the following questions will identify complete exposure pathways at the site. Check each box where the answer to the question is "yes".)*

a) Direct Contact -

1. Incidental Soil Ingestion

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site-specific basis.) ☐

If the box is checked, label this pathway complete: Incomplete

Comments:

2. Dermal Absorption of Contaminants from Soil

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☐

Can the soil contaminants permeate the skin (see Appendix B in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Incomplete

Comments:

b) Ingestion -

1. Ingestion of Groundwater

Have contaminants been detected or are they expected to be detected in the groundwater, or are contaminants expected to migrate to groundwater in the future? ☒

Could the potentially affected groundwater be used as a current or future drinking water source? Please note, only leave the box unchecked if DEC has determined the groundwater is not a currently or reasonably expected future source of drinking water according to 18 AAC 75.350. ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

Groundwater at the FUDS is not currently or reasonably expected to be a future drinking water source since – as noted in the decision document: land use controls limit future groundwater uses at the Main Complex; there is an insufficient volume produced by shallow groundwater in tundra areas to be considered a reasonable source. Therefore, use of groundwater as a potable water source is not expected. Petroleum contaminants detected in groundwater (MOC).

2. Ingestion of Surface Water

Have contaminants been detected or are they expected to be detected in surface water, or are contaminants expected to migrate to surface water in the future? ☒

Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

3. Ingestion of Wild and Farmed Foods

Is the site in an area that is used or reasonably could be used for hunting, fishing, or harvesting of wild or farmed foods? ☒

Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance document)? ☐

Are site contaminants located where they would have the potential to be taken up into biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) ☐

If all of the boxes are checked, label this pathway complete: Incomplete

Comments:

c) Inhalation-

1. Inhalation of Outdoor Air

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☐

Are the contaminants in soil volatile (see Appendix D in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Incomplete

Comments:

Inhalation of outdoor air is considered insignificant due to aerial dispersion and dilution due to windy conditions on St. Lawrence Island.

2. Inhalation of Indoor Air

Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminted soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures) ☒

Are volatile compounds present in soil or groundwater (see Appendix D in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

3. **Additional Exposure Pathways:** *(Although there are no definitive questions provided in this section, these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)*

Dermal Exposure to Contaminants in Groundwater and Surface Water

Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if:

- Climate permits recreational use of waters for swimming.
- Climate permits exposure to groundwater during activities, such as construction.
- Groundwater or surface water is used for household purposes, such as bathing or cleaning.

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are deemed protective of this pathway because dermal absorption is incorporated into the groundwater exposure equation for residential uses.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Inhalation of Volatile Compounds in Tap Water

Inhalation of volatile compounds in tap water may be a complete pathway if:

- The contaminated water is used for indoor household purposes such as showering, laundering, and dish washing.
- The contaminants of concern are volatile (common volatile contaminants are listed in Appendix D in the guidance document.)

DEC groundwater cleanup levels in 18 AAC 75, Table C are protective of this pathway because the inhalation of vapors during normal household activities is incorporated into the groundwater exposure equation.

Check the box if further evaluation of this pathway is needed: ☒

Comments:

Volatile contaminants have been detected in MOC groundwater.

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- Dust particles are less than 10 micrometers (Particulate Matter - PM_{10}). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Ambient temperatures are too low for chronic direct contact with sediment to be an issue.

4. Other Comments *(Provide other comments as necessary to support the information provided in this form.)*

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Northeast Cape FUDS: 15 and MOC Groundwater

Completed By: Brice Engineering, LLC

Date Completed: 2/16/2023

***Instructions*: Follow the numbered directions below. Do not consider contaminant concentrations or engineering/land use controls when describing pathways.**

(1)
Check the media that could be directly affected by the release.

(2)
For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.

Media / Transport Mechanisms

- [x] **Surface Soil (0-2 ft bgs)**
  - Direct release to surface soil — *check soil*
  - [x] *Migration to subsurface* — *check soil*
  - [ ] *Migration to groundwater* — *check groundwater*
  - [x] *Volatilization* — *check air*
  - [x] *Runoff or erosion* — *check surface water*
  - [ ] *Uptake by plants or animals* — *check biota*
  - [ ] *Other (list):*
- [x] **Subsurface Soil (2-15 ft bgs)**
  - Direct release to subsurface soil — *check soil*
  - [x] *Migration to groundwater* — *check groundwater*
  - [x] *Volatilization* — *check air*
  - [ ] *Uptake by plants or animals* — *check biota*
  - [ ] *Other (list):*
- [ ] **Ground-water**
  - Direct release to groundwater — *check groundwater*
  - [ ] *Volatilization* — *check air*
  - [ ] *Flow to surface water body* — *check surface water*
  - [ ] *Flow to sediment* — *check sediment*
  - [ ] *Uptake by plants or animals* — *check biota*
  - [ ] *Other (list):*
- [ ] **Surface Water**
  - Direct release to surface water — *check surface water*
  - [ ] *Volatilization* — *check air*
  - [ ] *Sedimentation* — *check sediment*
  - [ ] *Uptake by plants or animals* — *check biota*
  - [ ] *Other (list):*
- [ ] **Sediment**
  - Direct release to sediment — *check sediment*
  - [ ] *Resuspension, runoff, or erosion* — *check surface water*
  - [ ] *Uptake by plants or animals* — *check biota*
  - [ ] *Other (list):*

(3)
Check all exposure media identified in (2).

(4)
*Check all pathways that could be complete. The pathways identified in this column **must** agree with Sections 2 and 3 of the Human Health CSM Scoping Form.*

(5)
Identify the receptors potentially affected by each exposure pathway: Enter "C" for current receptors, "F" for future receptors, "C/F" for both current and future receptors, or "I" for insignificant exposure.

Exposure Media / Exposure Pathway/Route / Current & Future Receptors

Exposure Media	Exposure Pathway/Route	Residents (adults or children)	Commercial or industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other
[x] soil	[ ] Incidental Soil Ingestion							
	[ ] Dermal Absorption of Contaminants from Soil							
	[ ] Inhalation of Fugitive Dust							
[x] groundwater	[x] Ingestion of Groundwater	I		I	I	I	I	
	[x] Dermal Absorption of Contaminants in Groundwater	I		I	I	I	I	
	[x] Inhalation of Volatile Compounds in Tap Water	I		I	I	I	I	
[x] air	[ ] Inhalation of Outdoor Air							
	[x] Inhalation of Indoor Air	I		I	I	I	I	
	[ ] Inhalation of Fugitive Dust							
[x] surface water	[ ] Ingestion of Surface Water							
	[x] Dermal Absorption of Contaminants in Surface Water	I		I	I	I	I	
	[ ] Inhalation of Volatile Compounds in Tap Water							
[ ] sediment	[ ] Direct Contact with Sediment							
[ ] biota	[ ] Ingestion of Wild or Farmed Foods							

Revised, 10/01/2010

APPENDIX J
PILOT STUDY

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OBSERVATIONS AND RECOMMENDATIONS FOR FULL-SCALE DREDGING OF SITE 28 SEDIMENT

Full-scale implementation of Site 28 dredging began on 8 August 2022. Dredging began at Sediment Removal Area 3, which is a channelized and relatively linear water body feature with limited and shallow water flow.

Prior to dredging at Area 3, the field team observed a surface layer of material with a gelatinous consistency, stained orange and black, likely a result of the presence of iron-reducing bacteria (Photographs CM190085 and CM19086). This layer ranged from 0 inches to 2 inches thick throughout most of Area 3, with limited dips and depressions containing thicker layers of the material up to approximately 12 inches thick. Below the gelatinous material, a vegetative root-laden mat, or "root-mat" was present across the channelized water body in a consistent layer above a solid surface (Photograph CM190057). The root-mat generally ranged from 17 to 23 inches thick. The solid surface was found to be a sometimes frozen and/or dense layer consisting of either vegetation or soil, or both, at the base of the water body.

During dredging at Area 3, the gelatinous material was found to be fragile and completely dissipated when dredging was attempted. The underlying root-mat exhibited a high tensile strength (Photograph CM190060), and therefore was not dredge-able. When dredging was attempted within the root-mat, the root-mat material immediately clogged the dredge intake.

At the Northeast Cape FUDS, sediment is defined as all continuously submerged loose mineral and organic material except that which is actively growing vegetation and is part of the vegetative mat. <u>Although the root-mat may contain mineral and organic material, the material is not loose, and therefore does not meet the definition of sediment. As a result, the root-mat material will remain in place.</u> The root-mat is generally continuous throughout water bodies within Site 28. Sediment trapped within the root-mat cannot effectively migrate downstream.

It appears during the 2018 sediment mapping and sampling effort that areas of root-mat were likely misidentified as sediment, as a probe can easily pierce the root-mat and reach the underlying solid surface. The loose sediment observed during the 2022 field effort at Areas 3, 6, and 9 sits on top of the generally continuous root-mat in thicknesses ranging from less than 1-inch (Photograph CM190058) to approximately 12-inches (Photograph CM190086) and is very limited in volume relative to the volume (196 cubic yards) estimated as a result of the 2018 sediment mapping and sampling effort.

To successfully dredge the material that meets the definition of sediment in areas where contaminated sediment was identified during the 2018 sediment mapping and sampling field effort, the field crew has identified the following procedures:

1. Along narrow channels
    a. Natural pools will be identified. A silt fence, wood stakes, sorbent booms, and other necessary BMPs will be placed immediately downstream of each pool to create a temporary coffer dam to increase water levels in the immediate vicinity and enable dredging, and trap sediment that enters the water column during dredging.
    b. In areas where loose sediment is identified on top of the root-mat, rakes, shovels, and skimmers will be dragged across the top of the root-mat upstream of the dredge intake to

cause the loose sediment to become suspended in the water column and enter the dredge intake.

c. Sediment that can be hand-shoveled will be placed into a supersack for disposal. Special care will be taken to not disturb the root-mat or solid surface below the loose sediment.

d. A smaller 2-inch dredge will be used in areas with limited water flow. A 4-inch dredge will be used in areas with sufficient water flow. If needed, the dredge agitator or a small trash pump may be used to recirculate water and cause the loose sediment to become suspended in the water column and enter the dredge intake.

e. The crew will then continue to work upstream until all the loose sediment has been removed.

f. After the pools have been dredged, the areas upstream of the silt fence will be dredged to remove accumulated sediment.

2. In ponded areas

   a. A deep area will be identified as a central dredging location. Silt fencing and sorbent booms will be installed at the exits from each pond, and at the entrances where the sediment is at risk of migrating upstream when disturbed.

   b. A footer will be fabricated and used to suspend the dredge intake above the root-mat layer and mitigate clogging. An effective footer may be constructed with a screened dredge intake inside a bucket with 3/8" holes around the sides, with a sorbent boom wrapped around the dredge intake hose at the water surface to prevent floating vegetation from entering the intake. A stake can be used to hold the footer in place.

   c. As the dredge pumps, the crew will cause the loose sediment in the vicinity of the dredge intake to become suspended in the water column and enter the dredge intake by walking within the pond and using rakes, the agitator, and other hand tools to "sweep" loose material into the dredge intake.

   d. A smaller 2-inch dredge will be used first, to better regulate the intake flow. A 4-inch dredge may be used in larger areas with thicker sediment.

   e. After the pond has been dredged, the areas with silt fence at the exits from each pond will be swept or dredged to remove accumulated sediment.

3. Before/after pictures and physical and visual inspections of the area will be made following dredging to ensure loose sediment has been effectively removed.

For the sediment mapping and sampling SOP, the field team has the following suggested revisions:

1. Include a definition, accompanying photos, and a process for identification of root-mat. Define the root-mat as material that exists beneath the loose sediment, is matted, root-laden, has a high tensile strength, and may contain both live and dead roots, rocks, gravel, organic material, as well as bound sediment. Include example photos of root-mat. Describe how the root-mat can be identified by-hand with a shovel based on its resistance to lifting or prying, and its cohesiveness with the surrounding root-mat. A shovel can also be used to bring the material to the water surface for observation and determination of the presence of sediment versus root-mat. Expand on the current description of the "dense peat layer" (what will now be termed root-mat), which is only briefly mentioned in the current SOP despite its presence throughout the sediment removal areas.

2. Emphasize and define the 4-layers (surface water, loose sediment, root-mat, solid) typically observed in each water body.
3. Add a sediment coring tool to the equipment list. Although sediment cores are mentioned in Section 3.3 of the SOP, a coring tool is not included in the sampling equipment list. The coring tool is necessary to properly identify the layers described above.
4. Suggest using a shovel test, in addition to coring, to properly identify the layers described above. A shovel can easily be used by-hand to identify sediment versus root-mat. The shovel can be inserted into the material present at the bottom of a water body until resistance is felt by the user, then material can be brought to the water surface for visual observation and determination of the presence of sediment versus root-mat.
5. If feasible, have a person familiar with sediment dredging, mapping, and sampling present during the fieldwork.

PHOTOS

Photograph CM190085: Facing Down in Area 3. Gelatinous layer of orange-stained sediment removed for inspection.

Photograph CM190086: Facing Down in Area 3. Gelatinous layer of black-stained sediment removed for inspection.

Photograph CM190057: Facing Down in Area 3. Root-mat visible below the water surface. Little to no recoverable sediment present.

Photograph CM190060: Facing Down in Area 3. Root-mat removed for inspection.

Photograph CM190058: Facing Down in Area 3. A 0.15-foot layer of sediment above the root-mat, 0.05 feet below the water surface.

Northeast Cape Site 28 Sediment Dredging Pilot Study Evaluation

Performance Factor	Passing Criteria	Evaluation and Notes
Dredging Material Extracted	Sediment removed is 80% or more of the estimated remaining contaminated volume. Area 9 has an estimated remaining volume of 32.15 cy. Area 6 has an estimated remaining volume of 6.4 cy.	Sediment volume in geotubes following the pilot study included an estimated 4 cubic yards of material. This was evaluated by the crew. The reasons for the limited removal volume included: 1 – During dredging with both the square-hole and round-hole screens installed on the dredge intake, both types of screen on the dredge intake would become clogged with dead and live vegetation within one minute of initiating dredging. Once clogged, the remaining material removed during dredging consisted of only the very fine vegetative particles, sediment and water that could fit through the clogged screen. During full-scale implementation, the clogged screen issue will be resolved by removing the screen from the dredge intake, which will allow larger vegetative particles, sediment, and water to be drawn into the dredge system. However, this will also increase the amount of floating and ultra-fine vegetative material that will need to be removed/treated in the sediment removal and water treatment and discharge system. 2 – A large-volume of vegetation was present at the base of the ponds in both Areas 6 and 9. This vegetation may need to be physically removed prior to full-scale dredging of the sediment material which has settled underneath the vegetation. During full-scale implementation, the crew may need to physically rake vegetative material out of the ponds/streams into a container for final disposition using hand tools, or an excavator may access the ponds/streams using tundra mats to excavate vegetation, taking care to not disturb the tundra or drip excavated material. The USACE COR will be consulted before switching to raking or tracking an excavator onto the site. Special care will be taken to confirm that any vegetation present within a designated sediment removal area is not part of the vegetative mat. If the vegetative mat is present in an area designated for dredging, documentation will be collected that indicates vegetative mat is present and therefore dredging is not required. When the dredge crew determines an area designated for dredging is part of the vegetative mat and or identifies any subsurface debris that inhibits dredging, those areas will be marked with distinguishing lath. This will allow consistency in interpretation between the dredge crew and subsequent sediment survey and sampling crew. 3 – In the ponds present within Areas 6 and 9, the dredging crew spent time on difficult to dredge areas near the vegetation mat present around the outer perimeter of the

		ponds, rather than dredging from the center of the ponds outward toward the edges of the ponds. During full-scale implementation, the dredge crew will revise the dredging sequence and begin dredging from the center of the pond and move outward toward the edges of the pond and will take care to not dredge in areas with a vegetative mat. 4-During the pilot test, sediment accumulated in the bottom of the dredge pond/sump that was located nearest the dredge. This accumulated sediment was not successfully pumped into the geotube. During full-scale operation, to ensure the sediment that accumulates in this dredge pond/sump is pumped into the geotube, the field crew member monitoring the water/sediment level in the dredge pond/sump will periodically "sweep" the bottom of the pond/sump using the intake/transfer hose inlet and effectively "vacuum" accumulated sediment from the bottom of the pond/sump and into the geotube. Ponds were repositioned to allow the intake inlet to reach the far side of the pond.
Dredging Flow Rate	Flow rate meets or exceeds expected rate of approximately 10,000 gallons per hour.	Flow rate meets expectations. The geotube did not fill excessively fast with water, and the mixture at the flocculant injection site was controlled with a final in-line trash pump, rather than a more inconsistent diaphragm pump. For full-scale implementation, we are considering a direct freshwater withdrawal from an upgradient creek located approximately 1000' to the south of the sediment removal/water treatment area instead of from a plastic freshwater pond located near the flocculant injection site.
Downgradient Water Quality	Turbidity will be measured before, during and after dredging in two locations. Location 1) immediately upstream of the "Stilling Area" and, Location 2) within Area 11 at 2013 surface water sampling location 28-W-03 immediately upstream of the confluence with the Suqi River. If a turbidity measurement during dredging exceeds 10 NTU at 28-SW-03 (aka "Location 2"), then sediment control measures were adjusted, as necessary, to effectively reduce turbidity below 10 NTU. Turbidity will also be measured during surface water sampling. Silt fencing and other sediment control measures remain in place.	Turbidity did not show a significant increase following dredging except for the surface water location monitored within Area 9 during dredging within Area 9. Increases from 5.1 to 25.8 NTU were observed. The day following dredging, turbidity decreased to baseline levels (4.53 NTU at Area 9). Silt fences installed prior to the pilot test will remain in place. During full-scale dredging implementation, petroleum sorbent booms and pads will be placed at all pond inlets and outlets to collect petroleum sheen that may appear on the water.

Flocculant Injection	Flocculant injection is performing without issue; as measured by use rate from flocculant product, injection rates are within 50% of expected.	Flocculant rates have been adjusted to meet expectations. With a controlled 65-gpm slurry input rate, a 50-speed, 50-stroke rate of the flocculent pump at an 8-gpm freshwater input rate, the flocculant mix is appropriate for curd-formation. This will be adjusted as density of the slurry material increases (i.e., more sediment per volume of water).
Water Management and Geotube Dewatering	Water containment areas are leak-free and constructed appropriately. Geotubes are effectively containing sediment and allowing primarily water to escape through the geotube fabric into the containment.	Water containment areas are leak-free and appropriately constructed. During full-scale implementation, water levels within each containment will be checked each evening and early-morning. Additional checks will be needed during heavy precipitation events. The field team may need to adjust operations to allow a night watch for dewatering and pumping from the first containment cell to the second cell, as well as pumping from the second containment cell through the water treatment system. Geotubes are performing as expected. The water exiting the geotubes contains higher-than-expected floating organics, which the geotubes are not designed to collect. During full-scale implementation, to reduce organics and water discoloration (tan water from organics), an in-line sand, stainless mesh, or sock filter may be added depending on treated water discharge monitoring results. In addition, the sand pots may need to be backflushed more often than anticipated.
Treated Water	Treated water meets ADEC criteria for discharge.	Treated water meets odor (none), sheen (none), and erosion downgradient of the discharge point (no visible erosion) requirements. Treated water TAH and TAqH discharge criteria will be evaluated following receipt of laboratory results, which are expected by 4 August.
Health and Safety	No significant health and safety issues have arisen; safety issues are pointed out and fixed promptly.	No significant health and safety issues have arisen, though several changes have been made to make the system safer for workers. Trip hazards were the primary hazard within the containment area, and these have been mitigated to the extent practicable. If a release of flocculant occurs, then any plastic surface coated with the flocculant will become extremely slippery and require immediate cleanup using absorbent material (e.g., sand). The absorbent material will be placed within the flocculant drum secondary containment and will also be available in a container adjacent to the spill cleanup kit located near the flocculant injection site.

Aaron SHewman 08/10/2022

USACE QAR **Date**

Monte Garroutte 8/10/2022

Brice Field Lead **Date**

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APPENDIX K
RESPONSE TO COMMENTS

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From:	Sorum, Andrew C CIV USARMY CEPOA (USA)
To:	Monte Garroutte; Scotty Mann
Cc:	Shewman, Aaron F CIV USARMY CEPOA (USA)
Subject:	FW: DEC responses to comments for the Draft Northeast Cape Report, Saint Lawrence Island, Alaska Dated March 2023
Date:	Friday, June 9, 2023 3:31:54 PM

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Team, see below. Thanks! --Andy

From: Blake, Erica L (DEC) <erica.blake@alaska.gov>
Sent: Friday, June 9, 2023 3:12 PM
To: Sorum, Andrew C CIV USARMY CEPOA (USA) <Andrew.C.Sorum@usace.army.mil>
Cc: Shewman, Aaron F CIV USARMY CEPOA (USA) <Aaron.F.Shewman@usace.army.mil>
Subject: [Non-DoD Source] RE: DEC responses to comments for the Draft Northeast Cape Report, Saint Lawrence Island, Alaska Dated March 2023

Hi Andy,

The proposed text changes and response below do address DEC's concern. Please provide a redline for comment backchecking. Providing a redline with a clean final document is fine.

Thank you,

Erica Blake
Environmental Program Specialist
Alaska Department of Environmental Conservation
Contaminated Sites Program
610 University Ave
Fairbanks, Alaska 99709
Phone: (907) 451-2182
Email: erica.blake@alaska.gov

From: Sorum, Andrew C CIV USARMY CEPOA (USA) <Andrew.C.Sorum@usace.army.mil>
Sent: Thursday, June 8, 2023 1:41 PM
To: Blake, Erica L (DEC) <erica.blake@alaska.gov>
Cc: Shewman, Aaron F CIV USARMY CEPOA (USA) <Aaron.F.Shewman@usace.army.mil>
Subject: FW: DEC responses to comments for the Draft Northeast Cape Report, Saint Lawrence Island, Alaska Dated March 2023

CAUTION: This email originated from outside the State of Alaska mail system. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Erica, see below. Let me know if this addresses your concern.

Andy Sorum

Project Manager
Formerly Used Defense Sites Program
Alaska District, U.S. Army Corps of Engineers
O: 907-753-2575
C: 907-350-2511

From: Monte Garroutte <mgarroutte@bricesolutions.com>
Sent: Tuesday, June 6, 2023 9:25 AM
To: Sorum, Andrew C CIV USARMY CEPOA (USA) <Andrew.C.Sorum@usace.army.mil>; Shewman, Aaron F CIV USARMY CEPOA (USA) <Aaron.F.Shewman@usace.army.mil>
Cc: Scotty Mann <scotty.mann@bricesolutions.com>; Jillian Janssen <JJanssen@briceenvironmental.com>
Subject: [Non-DoD Source] RE: DEC responses to comments for the Draft Northeast Cape Report, Saint Lawrence Island, Alaska Dated March 2023

Hi Andy,
After consulting with the lab, we have the following response to the remaining ADEC comment 14:

Agree. The field sampling guidance does recommend a 1 L sample volume for PCBs, however, Pace's SW8082A method is included in their ADEC CSP scope of approval and allows for aqueous sample collection in both 100 mL and 1 L volumes. The contracted laboratory does not feel that the larger sample volume statistically changes the process/detection limits. The SW8082A limits presented in the project work plan did not meet the DEC GW cleanup level at the LOQ for any analytes and only met the cleanup level in half of the included analytes. The laboratory checks detection limits on a routine basis (monthly or quarterly) and makes adjustments to the LOD/LOQ as a result of statistical analysis of the routine checks. The LODs and LOQs for SW8082A in water were updated due to this process during the time between the approval of the project work plan and the time that samples were submitted for the 2022 field effort. Most reported LODs were slightly greater than the cleanup level at 0.5 ug/L or 0.75 ug/L. One sample also required dilution and reported higher LODs at 1.0 ug/L and 1.5 ug/L.
We understand that use of the DL/MDL is not considered acceptable by DEC for routine reporting of non-detect results, however, as part of ongoing monitoring program this dataset still provides usable information. PCBs were monitored at 2/3 of the groundwater locations in 2018. All 2018 results were non-detect with both LODs and LOQs less than the DEC GW cleanup level. The non-detect results obtained in 2022 support previous evidence that PCBs are not present in GW at the site. We concur that additional sampling is needed and the report recommends additional groundwater monitoring in section 14.4 of the main report text, including PCBs. We propose the following additional text be added to Section 14.4 of the Report and Section 5.0 of Appendix E to clarify the PCB issue: "*PCBs were not detected in any groundwater samples during the 2022 field effort,*

however, due to limitations in laboratory abilities, both the LOD and LOQs reported for individual Aroclors exceeded the ADEC Table C groundwater cleanup level. PCBs should be included in at least one more future groundwater MNA event to confirm absence of these analytes. Attention should be paid to PCB detection limits to ensure adequate laboratory sensitivity to reliably achieve the ADEC groundwater cleanup level."

Furthermore, we propose revising Section 3.4 of the CDQR to state the following, "*The LODs for ND results for all SW8082A analytes exceeded the PSLs in all groundwater samples due to limitations in the sensitivity of the analytical method. Approximately half of the reported Aroclors were expected to meet sensitivity requirements in the SAP, however due to periodic detection limit checks/recalculation the laboratory detection limits for SW8082A were* ~~revised~~ *raised after the SAP was written. The reported laboratory DLs are less than the established PSLs for these analytes. PCBs should be included in at least one more future groundwater MNA event to confirm absence of these analytes. Attention should be paid to PCB detection limits to ensure adequate laboratory sensitivity to reliably achieve the ADEC groundwater cleanup level.* ~~The laboratory reports detections as low as the DL in accordance with QSM requirements, which defines the DL as the smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration with 99% confidence (DoD 2021a). Therefore, the reported PCB results can be viewed with 99% confidence that there are no non-zero PCBs concentrations present.~~"

Attached is a redline draft final of the main text and Appendices E and F with the above changes and other changes identified during the comment process. Please let us know if additional discussion or resolution is needed.

Monte Garroutte
Project Manager/Environmental Scientist
Brice Solutions
907-301-8649 CELL
3700 Centerpoint Drive, Suite 800
Anchorage, Alaska 99503

From: Sorum, Andrew C CIV USARMY CEPOA (USA) <Andrew.C.Sorum@usace.army.mil>
Sent: Wednesday, May 31, 2023 10:14 AM
To: Scotty Mann <scotty.mann@bricesolutions.com>; Monte Garroutte <mgarroutte@bricesolutions.com>
Cc: Shewman, Aaron F CIV USARMY CEPOA (USA) <Aaron.F.Shewman@usace.army.mil>; Sorum, Andrew C CIV USARMY CEPOA (USA) <Andrew.C.Sorum@usace.army.mil>
Subject: FW: DEC responses to comments for the Draft Northeast Cape Report, Saint Lawrence Island, Alaska Dated March 2023

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Team, see attached. --Andy

From: Blake, Erica L (DEC) <erica.blake@alaska.gov>
Sent: Tuesday, May 30, 2023 4:57 PM
To: Sorum, Andrew C CIV USARMY CEPOA (USA) <Andrew.C.Sorum@usace.army.mil>
Subject: [Non-DoD Source] DEC responses to comments for the Draft Northeast Cape Report, Saint Lawrence Island, Alaska Dated March 2023

Dear Mr. Sorum:

See attached response to comments letter for the "Draft Combined Report Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews Formerly Used Defense Site F10AK096903 Northeast Cape, Saint Lawrence Island, Alaska" (dated March 2023). Only one comment (Comment 14) was not accepted. It was recommended from the DEC chemist that the contractor and laboratory have a discussion on the LOQs not being low enough. Let me know if we will need to discuss any of the responses.

Thank you,

Erica Blake
Environmental Program Specialist
Alaska Department of Environmental Conservation
Contaminated Sites Program
610 University Ave
Fairbanks, Alaska 99709
Phone: (907) 451-2182
Email: erica.blake@alaska.gov

THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Environmental Conservation

SPILL PREVENTION & RESPONSE
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File: 475.38.013

May 30, 2023

Electronic Delivery Only
Mr. Andrew Sorum
Alaska District, U.S. Army Corp of Engineers
FUDS Program CEPOA-PM-ESP
P.O. Box 6898
JBER, Alaska 99506-0898

RE: DEC responses to comments for the *Draft Combined Report Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews Formerly Used Defense Site F10AK096903 Northeast Cape, Saint Lawrence Island, Alaska* Dated March 2023

Dear Mr. Sorum:

The Alaska Department of Environmental Conservation (DEC) provided review comments for the above-referenced document on April 14, 2023. Responses to comments were received on May 15, 2023. The document describes remedial action-operation (RA-O) activities performed in the field during 2022 at Northeast Cape (NEC) on Saint Lawrence Island. The RA-O objectives were completed at Site 7, Site 8, Site 28, the Main Operations Complex (MOC) Site 15 and improvements were made to the gravel airstrip and road. Recommendations included preparing an Explanation of Significant Differences (ESD) to document the change from deed notices to environmental covenants under the Uniform Environmental Covenants Act (UECA). Additional monitoring at the sites is needed to continue to monitor concentrations in the groundwater, and ensure contaminated areas are delineated.

DEC reviewed the responses and accepted all but one response (see enclosure). Several comments were responded with a 'Noted' by them. DEC accepted those with the expectation they will be discussed outside this document review with the U.S. Army Corp of Engineers (USACE). Please provide DEC with a redline version of the document for conducting a comment backcheck on, prior to sending any approvals.

If there are questions, please contact me by phone at (907) 451-2182, or by email at erica.blake@alaska.gov.

Sincerely,

Erica Blake
Environmental Program Specialist

Enclosure: 2023.04.14 DEC Cmnt Tbl_RTC 11 May 2023

REVIEW COMMENTS **PROJECT: Northeast Cape, Saint Lawrence Island, AK**
DOCUMENT: Draft Combined Report Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews Formerly Used Defense Site F10AK096903 Northeast Cape, Saint Lawrence Island, Alaska (dated March 2023)

ALASKA DEPT. OF ENVIRONMENTAL CONSERVATION	DATE: 4/14/2023 REVIEWER: Erica Blake PHONE: (907) 451-2182	Action taken on comment by:				
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	Was Site 9 inspected during the 2022 mobilization effort? If yes, please include in this report information on that site inspection.	A	Site 9 was inspected during the 2022 field activities and details of the inspection will be included in the report.	Agree with comment backcheck.	
2	Section 9.5.3, Page 9-11	DEC found the calculated results in Appendix F. Please also include the calculations used to obtain the provided results.	A	The calculations will be included in the submittal in native format in Appendix F-4 in the next submittal. The text will be revised to state, "Appendix F presents the TOC soil data and calculations."	Agree with comment backcheck.	
3	Section 14.4, Page 14-2	When is the next round of groundwater sampling anticipated?	A	To be determined during future programmatic planning.	Agree, DEC expects further discussion with USACE on future groundwater sampling.	
4	Section 14.5, Page 14-2	Petroleum results from SB02 exceed 18 AAC 75.341(d) Table B2 maximum allowable concentration for diesel range organics (DRO). With the 1-methylnaphthalene hot spots, and the maximum allowable exceedance of DRO, DEC recommends excavation and removal of these areas.	A	Noted.	Agree, DEC expects further discussion with USACE on the next steps for Site 8.	
5	Section 14.6, Page 14-2 to 14-3	There are still numerous areas with contamination above DEC cleanup levels at Site 28 north of the Main Operations Complex (MOC) area. Contamination at Area 2, Area 6 and Area 5N are not delineated.	A	To be determined during future programmatic planning.	Agree, DEC expects further discussion with USACE on the next steps for Site 28.	

REVIEW COMMENTS **PROJECT: Northeast Cape, Saint Lawrence Island, AK**
DOCUMENT: Draft Combined Report Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews Formerly Used Defense Site F10AK096903 Northeast Cape, Saint Lawrence Island, Alaska (dated March 2023)

ALASKA DEPT. OF ENVIRONMENTAL CONSERVATION	DATE: 4/14/2023 REVIEWER: Erica Blake PHONE: (907) 451-2182	Action taken on comment by:				
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**
		How is USACE planning to delineate and address the remaining exceedances at Site 28?				
6	Section 15.0 (and Section 6.0 in Appendix E)	Please note, 18 AAC 75 has been updated. Please reference the most current version (dated February 5, 2023).	A	Section 15.0 App E section 6.0, and App F section 6.0 references for 18 AAC 75 will be updated to the current version dated February 5, 2023.	Agree with comment backcheck.	
7	Appendix E	There are two cover pages, one says "Groundwater Monitoring" the other "Groundwater Monitoring Report." Are these duplicate pages?	A	Cover pages and text callouts will be updated to "Groundwater Monitoring Report" in App E and the main report text and the additional cover page titled "Groundwater Monitoring" will be removed from the final PDF submittal.	Agree with comment backcheck.	
8	Appendix E, Section 5.0, Page E-24 (last two bullets)	DEC concurs additional sampling is needed to confirm the concentrations are decreasing.	A	Noted.	Agree.	
9	Appendix E, Section 6.0	Please note, 18 AAC 75 has been updated. Please reference the most current version (dated February 5, 2023). Guidance on data quality has been updated, the most recent tech memo reference combines three outdated guidance documents. The most current tech memo on data reporting guidelines is *Technical Memorandum 22-001 Guidelines for Data Reporting (dated August 15, 2022).* Please update this reference.	A	App E, section 6.0 and App F section 6.0 references for 18 AAC 75 will be updated to the current version dated February 5, 2023. The data quality references will be updated to the new *Technical Memorandum 22-001 Guidelines for Data Reporting.*	Agree with comment backcheck.	

REVIEW COMMENTS **PROJECT: Northeast Cape, Saint Lawrence Island, AK**
DOCUMENT: Draft Combined Report Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews Formerly Used Defense Site F10AK096903 Northeast Cape, Saint Lawrence Island, Alaska (dated March 2023)

ALASKA DEPT. OF ENVIRONMENTAL CONSERVATION	DATE: 4/14/2023 REVIEWER: Erica Blake PHONE: (907) 451-2182	Action taken on comment by:				
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**
10	Appendix E, Figure E-11A	The legend for the color shading says 'Value,' is that supposed to say 'Ferrous Iron in Groundwater?'	A	The legend will be updated to "Ferrous Iron Concentration (mg/L)"	Agree with comment backcheck.	
11	Appendix F, Section 2, Table 1 data Qualifiers	The 'X' flag is used in the data summary tables but is not defined here. Please define what the X flag means.	A	The X flags were used in the pre-draft version of this report, but have been replaced with a final "R" qualifier in the text and included data summary tables. The X flag should no longer be present.	Agree with comment backcheck.	
12	Appendix F, Section 3.5.1.2	The laboratory report for L1528321 is missing and does not seem to be uploaded to the Brice Sharepoint site. Please provide DEC with the L1528321 lab report.	A	The missing SDG will be provided, and will be included in the next draft.	Agree with comment backcheck.	
13	Appendix F, Section 5.0	Samples affected with the data quality issues cannot be used for closure decisions. Based on the levels of contamination remaining at Site 28, additional sampling at the site is recommended. Any additional sampling at Site 28 can confirm the sample results with QC issues.	A	Noted.	Agree, DEC expects further discussion with USACE on the next steps for Site 28.	
14	Appendix F, Attachment F-2 Data Summary Table – Northeast Cape FUDS – 2022 Analytical	With the detection limits for the polychlorinated biphenyls (PCBs) all being above DEC cleanup levels, we can't know for sure if there are any detectable PCB concentrations in the groundwater. Recommend PCBs be re-sampled and a lower detection limit used to verify the ND results in the groundwater.	A	Section 3.4 of Appendix F discusses the impact of the PCB non-detect LOD exceedances in groundwater. Given that the DLs are less than the DEC cleanup levels the PCB results can be viewed with 99% confidence that there are no non-zero concentrations present.	Disagree. The Field Sampling Guidance recommends collecting 1 L samples for PCBs in water. In collecting 1 L most labs are able to get their LOQs below	

ALASKA DEPT. OF ENVIRONMENTAL CONSERVATION	DATE: 4/14/2023 REVIEWER: Erica Blake PHONE: (907) 451-2182	Action taken on comment by:				
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**
	Results for Groundwater, Page 3 of 6				the cleanup level. The work plan points out 0.5 ug/L were being used, however in the reporting the lab has 1.5 ug/L Please verify why the lab LOQs for the report are above the approved LOQs from the work plan. DEC does not accept results at the DL because there is a false negative rate at the DL. When there is a detection at the DL, there is a 99% confidence that the detection is from an analyte and not background. It is not clear from the report what the next steps for PCB sampling are. Given the QC issues, DEC recommends sampling the	

REVIEW COMMENTS **PROJECT: Northeast Cape, Saint Lawrence Island, AK**
DOCUMENT: Draft Combined Report Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews Formerly Used Defense Site F10AK096903 Northeast Cape, Saint Lawrence Island, Alaska (dated March 2023)

ALASKA DEPT. OF ENVIRONMENTAL CONSERVATION	DATE: 4/14/2023 REVIEWER: Erica Blake PHONE: (907) 451-2182	Action taken on comment by:				
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**
					groundwater for PCBs again, collecting 1 L samples and using a lab capable of achieving LOQs to be below the cleanup level.	
15	Appendix F, Attachment F-2 Data Summary Table Northeast Cape FUDS – 2022 Analytical Results for S28 Sediment	For the Total LPAH for Sample 22NEC-S28-SD20, how is this result flagged 'X' when the only 'X' result is a ND value? Since LPAH is used for screening purposes, DEC recommends removing anthracene from the calculation.	A	Appendix F, Attachment F-2 Data Summary Table Analytical Results for S28 Sediment table will be revised for sample 22NEC-S28-SD20 to report the LPAH summation as 132* with a footnote to indicate "A non-detect result included in this summation had serious quality deficiencies. The LOD used is considered acceptable for screening purposes."	Agree with comment backcheck.	
16	End of Comments					

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THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Environmental Conservation

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File: 475.38.013

June 29, 2023

Electronic Delivery Only
Mr. Andrew Sorum
Alaska District, U.S. Army Corp of Engineers
FUDS Program CEPOA-PM-ESP
P.O. Box 6898
JBER, Alaska 99506-0898

RE: DEC approval for the *Final Combined Report Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews Formerly Used Defense Site F10AK096903 Northeast Cape, Saint Lawrence Island, Alaska* Dated June 2023

Dear Mr. Sorum:

The Alaska Department of Environmental Conservation (DEC) provided review comments for the draft version of the above-referenced document on April 14, 2023. Responses to comments were received May 15, 2023 and responded to May 30, 2023. The above-referenced document describes remedial action-operation (RA-O) activities performed in the field during 2022 at Northeast Cape (NEC) on Saint Lawrence Island. The RA-O objectives occurred at Site 7, Site 8, Site 28, the Main Operations Complex (MOC) Site 15 and improvements were made to the gravel airstrip and road. Recommendations included preparing an Explanation of Significant Differences (ESD) to document the change from deed notices to environmental covenants under the Uniform Environmental Covenants Act (UECA). Additional monitoring at the sites is needed to continue to monitor concentrations in the groundwater, and ensure contaminated areas are delineated.

All responses to comments have been accepted and incorporated into the final document as appropriate. The *Final Combined Report Site 28 Sediment Removal and Various Follow-Up Actions from the Second Five-Year and Periodic Reviews Formerly Used Defense Site F10AK096903 Northeast Cape, Saint Lawrence Island, Alaska* (dated June 2023) is now approved. The report is approved with the expectation that the U.S. Army Corp of Engineers and DEC will continue discussions regarding cleanup at Northeast Cape sites where contamination remains above cleanup levels.

If there are questions, please contact me by phone at (907) 451-2182, or by email at erica.blake@alaska.gov.

Sincerely,

Erica Blake
Environmental Program Specialist