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Subject: Final Beluga River Unit Site Characterization and Groundwater Sampling Work Plan

Mr. Anderson,

Susitna Environmental, LLC (Susitna) is pleased to submit the referenced final work plan to Hilcorp Alaska LLC (Hilcorp). This work plan summarizes field activities and groundwater monitoring that is planned to further delineate and to continue monitoring contaminant levels at various pads at the Beluga River Unit in 2023.

Thank you,

M. Mayer

Melissa Mayer, Qualified Environmental Professional
Susitna Environmental, LLC

cc: Peter Campbell, ADEC

Hilcorp Alaska, LLC

Beluga River Unit 2023
Site Characterization and Groundwater Sampling Work Plan

September 2023

Prepared by:

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Table of Contents

TABLE OF CONTENTS (Continued)

SECTION **PAGE**

Figures

Acronyms and Abbreviations

°C	degrees Celsius
µg/L	micrograms per liter
AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
Aleut	Aleut Limited Liability Company
AST	aboveground storage tank
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and total xylenes
BRU	Beluga River Unit
COC	contaminants of concern
CoC	chain-of-custody
DO	dissolved oxygen
DRO	diesel-range organics
ENSR	ENSR Consulting Engineers, Inc.
EPH	extractable petroleum hydrocarbons
ft	feet/foot
GRO	gasoline-range organics
HCl	hydrochloric acid
Hilcorp	Hilcorp Alaska, LLC
HOS	Heated Oil Storage
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
ml	milliliters
mS/cm	millisiemens per centimeter
MS/MSD	matrix spike/matrix spike duplicate
mV	millivolts
NTU	nephelometric units
OilRisk	OilRisk Consultants, Inc.
ORP	oxidation-reduction potential
P&S	parts and supply
PAH	polycyclic aromatic hydrocarbon
PAL	project action limits
PID	photoionization detector
ppm	parts per million
PPE	personal protective equipment
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control

QEP	Qualified Environmental Professional
RCRA	Resource Conservation Recovery Act
RPD	relative percent differences
RRO	residual-range organics
SIM	selective ion monitoring
Susitna	Susitna Environmental LLC
TPH	total petroleum hydrocarbons
USEPA	United States Environmental Protection Agency
VOC	volatile organic compounds
Weston	Weston Solutions, Inc.
YSI	YSI 556 Multiparameter Instrument

1. INTRODUCTION

This work plan has been prepared on behalf of Hilcorp Alaska, LLC (Hilcorp) by Susitna Environmental LLC (Susitna) to detail environmental field activities and groundwater monitoring that is planned to further delineate and to continue monitoring contaminant levels at various pads at the Beluga River Unit (BRU) in 2023. The location of BRU is shown in **Figure 1** and site locations are shown on **Figure 2**.

The work described herein will be conducted in accordance with Alaska Department of Environmental Conservation (ADEC) Alaska Administrative Code (AAC) Title 18, Chapter 75 (18 AAC 75), §§325-390 (ADEC 2023). Figures are attached and referenced below.

1.1. PROJECT OBJECTIVES

This work plan is intended to guide investigation activities at BRU sites during the 2023 field season. Field work will include two types of activity: groundwater monitoring and subsurface soil sampling as described in this plan. The project objectives vary by site and include the following:

- **Beluga River 224-13 (M Pad):** Install two temporary groundwater monitoring wells (**Figure 3**) to establish groundwater flow direction. Collect one round of groundwater samples from the temporary wells and the existing well on-site. Measure depth to water in all three wells and conduct a level-loop survey to determine groundwater gradient and flow direction.
- **Beluga River 221-23 (L Pad):** Determine the source and the vertical and horizontal extent of soil and groundwater contamination. Install four soil borings (**Figure 4**) and collect grab groundwater samples if field observations identify contamination in subsurface soil.
- **Beluga River Pump Area Assessment (E Pad**): Monitor groundwater contaminant concentrations (DRO and PAH) annually for two years (2023 and 2024) downgradient of the source area (**Figure 5**).
- **Beluga River Tank Farm (Parts and Supply [P&S] Yard):** Monitor groundwater contaminant concentrations every three years (2025) downgradient of the source area (**Figure 6**).
- **Abandoned Diesel Tank Farm (A Pad)**: Install one soil boring and possible temporary monitoring well in the source area to determine if contaminated soil or groundwater are present (**Figure 7**).

1.2. ADEC CLEANUP LEVELS

Analytical soil and groundwater sample results will be compared to the most stringent applicable level from 18 AAC 75 Method Two, Table B1/B2 MTGW soil cleanup levels for the Under 40-Inch Zone and Human Health Soil Cleanup Levels for the Under 40-Inch Zone, and Table C groundwater cleanup levels (ADEC 2023).

1.3. CONTAMINANTS OF CONCERN

Site specific contaminants of concern (COCs) and analytical testing methods are listed below:

- **Beluga River 224-13 (M Pad)**

  Gasoline-range organics (GRO) by Alaska Method (AK) 101
  Diesel-range organics (DRO) by AK 102

Residual-range organics (RRO) by AK 103
Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by 8260C
Polycyclic aromatic hydrocarbons (PAHs) by 8270D SIM

- **Beluga River 221-23 (L Pad)**

  GRO by AK 101
  DRO by AK 102
  RRO by AK 103
  Petroleum-volatile organic compounds (VOCs) by 8260C
  PAHs by 8270D SIM
  Resource Conservation Recovery Act (RCRA) metals by 6020A

- **Beluga River Pump Area Assessment (E Pad)**

  DRO by AK 102
  PAHs by 8270D SIM

- **Beluga River Tank Farm (P&S Yard)**

  DRO by AK 102
  Benzene by 8260C

- **Abandoned Diesel Tank Farm (A Pad)**

  GRO by AK 101
  DRO by AK 102
  BTEX by 8260C
  PAHs by 8270D SIM

2. SITE DESCRIPTIONS AND PREVIOUS SITE ACTIVITIES

BRU is located on the northwestern shore of Cook Inlet, approximately 35 nautical miles west of Anchorage, Alaska. (**Figure 1**). Proposed BRU activities include performing work at five active contaminated sites over three years (**Figure 2**). These sites are described below, and proposed field activities are described in Section 3.

2.1. BELUGA RIVER 224-13 (M PAD)

ADEC Hazard ID: 989 | ADEC File Number: 2337.38.021 | Status: Active

Beluga River 224-13 is located on M pad (**Figure 3**), approximately 3.25 miles northeast of the airstrip and west of Beluga River at latitude 61°21'26.03" N and longitude 150°99'18.70" W.

In 1990, hydrocarbon contamination was identified in soil because of a dehydration building contactor sump spill and unrelated diesel spills on site. Multiple samples exceeded ADEC cleanup levels for DRO and yielded total petroleum hydrocarbon readings as high as 2,200 milligrams per kilogram (mg/kg). An unknown quantity of contaminated sand and gravel was excavated and stockpiled for remediation (ARCO 1991). A closure request was submitted to ADEC in 1995; however, closure was dependent on long-term groundwater monitoring. ADEC has no record that groundwater monitoring sampling was conducted. Available records indicate that two monitoring wells were installed at the site in 2000: one in the northwest portion of the pad near the contactor building and another at the central southern portion of the pad west of the wellhead building. Groundwater results from these monitoring wells are not included in the available documentation; however, the soil concentrations indicate two separate areas of soil contamination with petroleum hydrocarbon concentrations greater than 1,000 mg/kg.

Only one well was located and confirmed during the 2021 and 2022 sampling events. Monitoring well 224-13-2 was sampled in June 2021 and May 2022 for GRO, DRO, RRO, BTEX, and PAHs. All sample results were below the applicable cleanup levels.

2.2. BELUGA RIVER 221-23 FORMER NORTH STOCKPILE SITE (L PAD)

ADEC Hazard ID: 656 | ADEC File Number: 2337.38.026 | Status: Active

The Former North Stockpile site was the location for stockpiling impacted material from a nearby spill. The footprint is located on L Pad, 2.6 miles northeast of the airstrip and 2.5 miles west of Beluga River at latitude 61°12'31.60" N and longitude 151°01'22.28" W (**Figure 4**). The well is out of production, and the gravel pad is used for materials storage to support activities throughout the BRU.

Historical DRO and total petroleum hydrocarbons (TPH) contamination in surface (0-2 feet [ft] below ground surface [bgs]) and subsurface (4-5 ft bgs) soil was identified at Beluga River L Pad (221-23) in the 1990's (Susitna 2023). The source of subsurface contamination near the former north stockpile area has not been determined; however, it may be associated with historical well drilling and/or maintenance activities. There are no analytical sample results representing the zone from 2 to 4 ft bgs, and no current evidence connecting the surface contamination to the subsurface contamination. Historically, DRO contamination in soil ranged from 161 to 3,500 mg/kg and in groundwater ranged from 0.4 to 2.5 milligrams per liter (mg/L) (including silica gel cleanup results).

2.3. BELUGA RIVER PUMP AREA ASSESSMENT (E PAD)

ADEC Hazard ID: 990 | ADEC File Number: 2337.38.031 | Status: Active

The Beluga River Pump Area Assessment Site (also known as the Former Beluga River Fuel Pump Area) is located on E Pad (**Figure 5**), along the eastern side of Beluga Airstrip runway 18-36, at the BRU Office Building Pad and entrance to E Pad (Drill Site 212-35). The site is located at approximately 61°10'38.14" N latitude and 151°2'13.12" W longitude (Weston Solutions, Inc [Weston] 2013a). The Beluga River Pump Area Assessment Site is a former set of fuel (gasoline and diesel) dispenser pumps connected by pipelines to the former Fuel Tank Farm (the current location of the Heated Oil Storage [HOS] Building) (Weston 2013a).

Excavations, a treatment system, and groundwater monitoring have been conducted at the site since 1991 (Susitna 2023). Groundwater on the western portion of the site trends to the northeast and bends towards the southeast at wells FG-14 and FG-21. Two groundwater plumes were previously identified at the site, the highest concentrations of one plume being near FG-08 along the eastern edge of the runway and the other concentrated in the vicinity of monitoring wells FG-24 and FG-25. There is no nearby surface water and no apparent risk to the integrity of the monitoring wells.

In 2021, seven monitoring wells were sampled at the Pump Area Assessment (FG-3, FG-10, FG-14, FG-20, FG-21, FG-23, and FG-24), and in 2022, eight monitoring wells were sampled (previous list plus FG-25). In 2021, all seven monitoring wells sampled had detectable concentrations of DRO that were below the project action limit (PAL) of 1,500 micrograms per liter (µg/L). In 2022, one well (FG-24) contained DRO above the PAL. Concentrations of all other analytes in all site monitoring wells were below applicable PALs. Because concentrations have decreased significantly in all wells compared to previous sampling event results, continued monitoring at the wells that had results below PALs is not necessary.

2.4. BELUGA RIVER TANK FARM (P&S YARD)

ADEC Hazard ID: 991 | ADEC File Number: 2337.38.029 | Status: Active

Beluga River Tank Farm is located on the P&S Storage Yard (**Figure 6**) at the HOS building site, immediately northeast of the Beluga airstrip. The site is located at approximately 61°10'31.10" N latitude and 151°2'17.85" W longitude. Prior to 1987, a tank farm with an impoundment dike was located at the site of the current HOS building. The tank farm was comprised of two 10,000-gallon diesel aboveground storage tanks (ASTs), two 6,000-gallon diesel ASTs, and a 10,000-gallon gasoline AST (Weston 2013c). In 1988, the tank farm was removed, and the impoundment dike was leveled for construction of the 30- by 40-foot HOS building (Weston 2013b).

A hydrocarbon plume was centered north and east of the former tank farm facility. The plume appears to have originated from the former diesel pump building. In 1991, soil contamination was fully delineated and in 1993, groundwater was investigated with the installation of 13 monitoring wells (Weston 2013b). Benzene was detected in three of the 13 wells above ADEC Table C cleanup levels (Weston 2013b).

Groundwater was sampled in 2000 and two monitoring wells (HOS-1 and HOS-5) had concentrations of benzene that exceeded the ADEC cleanup level. In-source monitoring well (HOS-C) was sampled for

PAHs, but all analytes were below 18 AAC 75 Table C cleanup levels (OilRisk Consultants, Inc. [OilRisk], 2003). Since PAH concentrations were detected below applicable cleanup levels from the source area, PAHs are not COCs for this site.

In 2018, Hilcorp installed a water line near the P&S Yard contaminant plume. Seven potholes were dug to identify contamination boundaries along the pipeline section near this site. Strong hydrocarbon odor was present and two analytical soil samples were collected from approximately 10-inches bgs. GRO, DRO, ethylbenzene and total xylenes were detected above ADEC migration to groundwater cleanup levels (Weston, 2019). These samples were located to the west and northwest of the HOS building, coinciding with the known contamination plume associated with this site based on soil and groundwater samples collected in 1991, 1993, and 2000.

Monitoring well HOS-5 was sampled in 2021 and 2022 and downgradient well HOS-10 was found and sampled in 2022. Monitoring well HOS-5 had concentrations of DRO and benzene above PALs, and HOS-10 had concentrations of DRO that were detected but were below PALs. Concentrations of GRO, ethylbenzene, and total xylenes were also detected in HOS-5 but were below project action limits (PALs).

2.5. BELUGA RIVER ABANDONED DIESEL TANK FARM (A PAD)

ADEC Hazard ID: 1000 | ADEC File Number: 2337.38.015 | Status: Active

Beluga River Abandoned Diesel Tank Farm is located on A Pad **(Figure 7**), one mile southwest of the airstrip at latitude 61°15’83.28” N and longitude 151°05’51.27” W. The site comprised two 44,000-gallon aboveground storage tanks (ASTs), located within a bermed impoundment area measuring approximately 50 ft by 80 ft (Weston Solutions, Inc. [Weston], 2013a). These tanks were taken out of service in 1988; however, it is not clear when the tanks were removed from the site. The pad is in good condition and used for storage of various equipment and supplies. There are no active production wells on this pad.

In 1991, ARCO contracted ENSR Consulting Engineers, Inc. (ENSR) to conduct an initial subsurface assessment of the area. The assessment consisted of the installation of 18 soil borings to a maximum depth of 16 ft bgs. Groundwater was encountered at a depth of approximately 13 ft bgs. Soil samples were analyzed for extractable petroleum hydrocarbons (EPH) and BTEX (Weston, 2013a).

Analytical results from this investigation indicated there may have been two sources of diesel impact to subsurface soils. One source appears to have been the dispenser lines immediately east of the tanks. The second, which occurred roughly 30 ft north of the former tank farm impoundment, does not have a known source. The extent of the above releases appears to cover approximately 6,000 square ft. EPH concentrations were analyzed in soil collected at the water table; the sample just east of the north tank had concentrations of EPH of 2,000 mg/kg, and at the southeast corner of the south tank had concentrations of 1,300 mg/kg. Hydrocarbon impacts were detected in all soil borings collected within the tank impoundment area. EPH values at the water table ranged from 690 to 2,000 mg/kg within the impoundment and measured at 90 mg/kg at the eastern impoundment dike. EPH contamination of 270 mg/kg was found north of the tank impoundment (Weston, 2013a).

In 1993, ARCO submitted a work plan to verify earlier site assessment data, complete delineation of impacted soil and groundwater at the site and collect the data necessary to evaluate the feasibility of

in situ bioremediation for future treatment of the area. ARCO proposed three rounds of sampling and analysis, including installing 12 monitoring wells. Soil and groundwater collected from these wells were to be analyzed for GRO, DRO, and BTEX. In addition, three of the soil samples were to be analyzed for total organic carbon, sieve analysis, microbial populations, total phosphate and ammonium, and pH. The results from these analyses were to be used to evaluate the feasibility of air sparging vapor extraction and bioremediation for in situ treatment of soil and groundwater. It is not known when these work plan activities were conducted. However, a letter dated 5 October 1994 from ARCO to ADEC's Mr. Don Fritz indicated that concentrations of DRO impact to subsurface soil were lower than reported by ENSR. Impact to groundwater by hydrocarbons in both the diesel and gasoline ranges were encountered. A letter dated 21 June 1994 in the ConocoPhillips Alaska, Inc. file indicated DRO was detected up to 13,000 µg/L in groundwater below the tank farm. GRO and BTEX impacts were evident but below cleanup criteria in place at the time (Weston, 2013a).

Three monitoring wells (ATF-3. ATF-8, and ATF-10) were sampled in June 2021 and May 2022. Samples were analyzed for GRO, DRO, BTEX and PAHs. Groundwater flows southeast of the Abandoned Diesel Tank Farm, and all three wells are downgradient from the contaminated site. The monitoring wells sampled indicate that groundwater contamination has attenuated over time. To close this site, Hilcorp will assess the source area to assure that contaminated soil or groundwater are not present.

3. FIELD WORK AND SAMPLING PLAN

Field work will be conducted in 2023 at five sites: Beluga River 224-13, Beluga River 221-23 Former Northern Stockpile, Beluga River Pump Area Assessment, Beluga River Tank Farm (2025) and Beluga River Abandoned Diesel Tank Farm. Logbooks and field form entries will be printed legibly using a waterproof pen. All field forms will be completed daily during field work.

3.1. BELUGA RIVER 224-13 (M PAD)

The currently functional groundwater wells have had results below cleanup levels for all tested analytes for two seasons. However, the groundwater gradient and flow direction has not been determined at this site and there is no current groundwater data from the southern portion of the pad. In preparation for site closure, two new temporary groundwater monitoring wells will be installed to determine contaminant concentrations (if any) and to establish a groundwater flow direction and gradient. The groundwater wells will be placed to triangulate the groundwater direction and will be placed out of traffic lanes as much as possible (proposed well locations are shown in **Figure 3** but may change based on site conditions). If the three wells do not adequately capture a downgradient location after calculating groundwater flow direction and gradient, an additional temporary well will be installed to collect groundwater data downgradient of the well head. Three (or four) groundwater samples will be collected at the site: one sample from each of the temporary wells and one sample from the existing monitoring well (224-13-2). Groundwater will be analyzed for site COCs listed in Section 1.3.

3.2. BELUGA RIVER 221-23 FORMER NORTH STOCKPILE SITE (L PAD)

The source of subsurface soil contamination near the former north stockpile area has not been determined. The purpose of this site characterization will be to determine the current nature and extent of contamination, if any, and assess the potential source of the release. The initial assessment will include soil borings, field screening and visual and olfactory observations.

Four soil borings will be advanced around the well head (proposed boring locations are shown in **Figure 4** but may change based on site conditions), accounting for subsurface infrastructure. Two analytical samples will be collected per boring and analyzed for GRO, DRO/RRO, petroleum-VOCs, PAHs, and RCRA Metals. If staining, olfactory evidence, or PID readings indicate potential contamination in the subsurface, a grab groundwater sample will be collected using Geoprobe Screen Point 16 (SP-16) groundwater sampler and analyzed for the same suite. If groundwater contamination is present with the potential to migrate off pad, a recommendation for an off-pad evaluation will be made.

3.3. BELUGA RIVER PUMP AREA ASSESSMENT (E PAD)

Seven of eight recently monitored wells (FG-3, FG-10, FG-14, FG-20, FG-21, FG-23, and FG-25) have contained concentrations of target analytes that were below applicable PALs. Well FG-24 had DRO above the PAL in 2022.

Per a letter from ADEC on 8/2/2023, PAH analysis was requested to be added to the list of analytes at this site. Therefore, annual sampling of monitoring well FG-24 for DRO and PAHs will be conducted in 2023 and 2024 (**Figure 5**). Groundwater samples will not be collected from the remaining monitoring wells because contaminant concentrations have decreased significantly in all wells compared to

previous sampling event results. Well FG-10 was below DRO PALs in 2021 and 2022 and so does not need to continue to be sampled for this site. However, for the Beluga River Tank Farm site, well FG-10 will be added as a downgradient well to the site's monitoring list. This is described in more detail in Section 3.4.

3.4. BELUGA RIVER TANK FARM (P&S YARD)

Monitoring well HOS-5 was sampled in 2021 and 2022 and downgradient well HOS-10 was found and sampled in 2022. Monitoring well HOS-5 had concentrations of DRO and benzene above PALs, and detectable concentrations of GRO, ethylbenzene, and total xylenes that were below PALs. Monitoring well HOS-10 had detectable concentrations of DRO that were below PALs.

Groundwater sampling of monitoring wells HOS-5 and HOS-10 will be conducted every three years to monitor concentration trends. Based on the northeast groundwater flow direction, well FG-10 will also be added to act as a downgradient well to the Beluga Tank Farm's monitoring events.

Since groundwater was last collected in 2022, the next sampling event for this site will occur in 2025. Groundwater samples will be analyzed for DRO and benzene in 2025 to monitor concentration trends.

3.5. BELUGA RIVER ABANDONED DIESEL TANK FARM

To move this site towards closure, the source area will be assessed to determine if contaminated soils or groundwater is present. One soil boring will be installed in the source location (southwest end of A Pad) to groundwater (**Figure 7**) in 2023. One soil sample will be collected from the interval with the highest PID field readings and/or from the smear zone. If the interval with the highest field screening result is at the smear zone, then one soil sample will be collected. If staining, olfactory evidence, or PID readings indicate potential contamination in the subsurface, a temporary well will be installed to profile the in-source groundwater contaminant levels. Soil and groundwater will be analyzed for site COCs listed in Section 1.3.

If subsurface soils in the source area do not contain contamination above PAL's, the site will be moved towards closure.

4. DATA QUALITY OBJECTIVES

Soil borings and groundwater samples will be used at BRU sites to delineate the nature and extent of contamination. An ADEC Qualified Environmental Professional (QEP) will be responsible for the collection of field screening and analytical samples, generation of field measurement data according to the methods specified in this work plan, and documentation of borehole properties including soil type and physical properties. The analytical laboratory will analyze the samples, review sample information (e.g., chain-of-custody [CoC] forms) and generate the data packages. All analytical samples will be collected in accordance with ADEC Field Sampling Guidance (ADEC 2022) and contractor standard operating procedures.

4.1. SOIL BORING ADVANCEMENT

The soil boring installed at the Abandoned Diesel Tank Farm will be advanced to the water table and the soil borings installed at Beluga River 221-23 Former North Stockpile Site will be advanced to 3-4 ft bgs. Soil borings will be advanced using a track mounted Geoprobe™ hydraulic percussion drill rig, operated by GeoTek Alaska Inc. (GeoTek). Geotek will advance the soil borings using direct push drilling technologies with the Macro-core soil sampling system. The Macro-core soil collection technology enables continuous logging of the subsurface soil throughout the length of the boring. The Geoprobe™ drill rig uses a 5-ft long, 1.752 5-inch outer diameter (1.68-inch inner diameter) sample barrel for each drive with a disposable polyvinyl chloride (PVC) Macro-core sleeve to contain the sample core. The core barrel will be removed from the drill rig and transported to the decontamination station following each 5-foot drive of the boring. The sample barrels and cutting shoes will be decontaminated between uses to prevent cross contamination (See Section 4.4).

The Macro-core sleeves will be extracted and transferred to the field scientist for logging and sampling. Each 5-ft soil core from each boring will be logged to identify soil types. The boring logs will include a description of the lithology, field screening results and observations, and analytical sample data. The field screenings will include qualitative screening (visual inspection for staining; presence of hydrocarbon odor, etc.) and quantitative screening using a PID. The PID will be used to detect the presence or absence of volatile hydrocarbon compounds in the soil. The field screening results will be documented in the field logbook and on the respective boring logs. Additional information for field PID screening is provided in Section 4.4.1. The location of each boring will be recorded with a Global Position System (GPS) with submeter accuracy and plotted on a map at the end of the investigation. Soil cuttings for this effort will be containerized in a 55-gallon drum and stored on-site until disposed offsite (See Section 4.5). After completion of each boring, the boreholes will be backfilled with bentonite to prevent the potential migration of contaminants.

4.2. TEMPORARY MONITORING WELL INSTALLATION AND GEOPROBE SP-16 SAMPLER

Temporary monitoring wells will be installed at two sites (Beluga River 224-13 and Beluga River Abandoned Diesel Tank Farm) and if groundwater is sampled at Beluga River 221-23 using Geoprobe SP-16 groundwater samplers, it will be conducted as described in this section.

4.2.1. Temporary Monitoring Well Installation

Temporary monitoring wells will be installed using a Geoprobe™ 6620DT direct-push hydraulic percussion drill rig. The temporary monitoring wells will be constructed of ¾-inch diameter PVC well casing. The monitoring well screen intervals will be constructed of a 5-foot-long section of Geoprobe pre-packed well screen. The temporary pre-packed well screens will be constructed with 0.010" slots and the well annulus will be filled with native soils and completed as "stick ups". The temporary monitoring wells will not be developed after installation. However, groundwater will be purged from the wells until the turbidity levels are significantly reduced.

Snow poles will be adhered to each monitoring well PVC stick-up to help prevent them from being struck by a motor vehicle or plowed over during snow removal activities. The temporary wells will be installed outside of the drive lanes as much as practicable.

4.2.2. Geoprobe SP-16 Groundwater Sampler

The Geoprobe SP-16 groundwater sampler is a point-in-time groundwater sampler and is a proprietary direct push system (DPS) tool that uses a protected-screen installation method that is advanced using a Geoprobe DPS drill rig. Basic operation uses a stainless steel or PVC well screen that is encased in an alloy steel sampler sheath. An expendable drive point is placed in the lower end of the sheath while a drive head is attached to the top. O-rings on the drive head and expendable point provide a watertight sheath that keeps contaminants out of the system as the sampler is driven into the soil. The protected well screen is driven to depth and, when it reaches the sampling interval, extension rods equipped with a screen push adapter are inserted down the inside of the probe rods to hold the well screen in place while the tool string is retracted, exposing the well screen to the aquifer. The groundwater from the temporary well point is then sampled. When groundwater sampling is complete, a removable plug in the bottom of the screen allows the boring to be grouted below the sampler as the tool string is retrieved and the well point is abandoned.

If staining, olfactory evidence, or PID readings indicate potential contamination in the subsurface at 221-23, a grab groundwater sample will be collected using the SP-16 groundwater sampler.

4.3. MONITORING WELL SURVEY

A monitoring well survey will be conducted at the Beluga River 224-13 site for the two temporary monitoring wells and the existing monitoring well to determine the groundwater gradient and flow direction. Each monitoring well location will be recorded with a Trimble® Realtime Kinematic system with submeter accuracy. Susitna will complete a level loop survey (vertical and horizontal) for each monitoring well. The monitoring wells will be gauged and surveyed to prepare a groundwater elevation and contour map. The vertical survey accuracy will be to 0.01 ft.

4.4. ANALYTICAL SAMPLING PROCEDURES

An ADEC Qualified Environmental Professional (QEP) will be responsible for the collection of field screening and analytical samples, generation of field measurement data according to the methods specified in this work plan, and documentation of field work. Samples will be submitted to SGS,

Anchorage, an ADEC-approved laboratory for analysis. The analytical laboratory will analyze the samples, review sample information (e.g., chain-of-custody [CoC] forms) and generate the data packages. All analytical samples will be collected in accordance with ADEC Field Sampling Guidance (ADEC 2022) and contractor standard operating procedures.

4.4.1. PID Soil Screening

The sample cores will be opened using a Macro-core sleeve cutting tool with concealed cutting blades. The field team will screen the soil for evidence of volatile concentrations using a MiniRAE 3000 PID. Heated headspace (HHS) screening samples will be collected every 2-ft to determine areas of contamination. The HHS screenings will be collected directly into sealable containers in accordance with the procedures outlined in the ADEC Field Sampling Guidance. Quart-sized Ziploc® bags with double lock seals will be used for the headspace containers. The Ziploc® bags will be partially filled with soil and immediately sealed to trap the volatile vapors. The headspace samples will then be warmed to at least 40 degrees Fahrenheit (°F) either on vehicle dashboard heaters or in a hot water bath for a period of 10 minutes but not longer than one hour to permit headspace vapors to develop in the bag. The screening samples will be agitated for 15 seconds at the beginning and end of the headspace development to promote volatilization prior to screening with the PID. After sufficient time has passed for the development of vapors, the PID sampling probe will be inserted into the bag to measure the volatile organics. The opening of the bag will be squeezed shut around the probe to prevent escape of volatiles vapors. The PID measurements will be recorded in the field notes or boring logs. The project team will utilize an initial action limit of 20 parts per million (ppm) to guide field determination of evidence of contaminant impact.

Susitna field personnel will calibrate the PID daily in accordance with manufacturer specifications. Calibration results will be recorded in the field logbook. An analytical soil sample will be collected from the depth interval with the highest PID screening result. If there is evidence of soil impact in the smear zone, an additional analytical sample will be collected from that soil horizon.

4.4.2. Soil Sampling

Field personnel will collect one to two soil samples from each boring to support characterization and delineation objectives. The project team will determine the depth of the subsurface sample locations based on the HHS screening results and field observations. At least one sample will be collected from the depth interval with the highest evidence of contaminant impact based on field screenings and/or observations. A second sample may be collected from the smear zone if there is evidence of contamination.

The field team will collect discrete soil samples using clean, dedicated, and disposable sample spoons. The field scientist will collect the samples for volatile analysis (GRO and VOCs) first to minimize the loss of volatile concentrations during the sampling process. For these volatile samples, a minimum of 50 grams of soil will be placed directly into tared 4-ounce jars with a Teflon®-lined septum fused to the lid. Immediately following collection, 25 milliliters (ml) of methanol preservative will be added to the container to completely submerge (and preserve) the volatile soil sample. A trip blank sample will accompany the volatile samples for evaluation of potential cross-contamination during sample

transport and storage. Soil collected for DRO, RRO, PAHs, and RCRA metals analysis will be placed into clean laboratory-provided sample jars without preservative.

Field duplicates will be collected at a minimum frequency of 10% for each analysis per each day of sampling. A matrix spike / matrix spike duplicate (MS/MSD) pair will be collected at a minimum frequency of 20% for each analysis. Immediately following collection, the sample containers will be placed into a cooler with sufficient gel ice to maintain a sample temperature between 0 to 6 degrees Celsius (°C) during transport to the analytical laboratory.

4.4.3. Groundwater Purging and Sampling

Groundwater from the temporary monitoring wells will be purged and sampled using a peristaltic pump (temporary monitoring wells) and/or a submersible pump (existing monitoring wells) with dedicated tubing. Depth to water will be measured from the top of the well casing and documented on field forms prior to purging the well. All depth measurements were taken from a marked measuring point on the well casing so that the flow gradient could be determined.

The field team will purge and sample monitoring wells in accordance with low-flow sampling techniques outlined in the United States Environmental Protection Agency (USEPA) Low Stress (low flow) Purging and Sampling Procedures for the Collection of Ground Water Samples from Monitoring Wells (USEPA 2017) and the ADEC Field Sampling Guidance (ADEC 2022). Grab samples will be obtained when using the SP16 groundwater sampler. Groundwater will be pumped through a flow-through cell connected to a YSI 556 Multiparameter Instrument (YSI) and water quality parameters will be monitored and recorded on field forms. Groundwater is considered stable when three of the following water quality parameters meet the below listed criteria for three successive readings, collected three to five minutes apart.

- Temperature (minimum of ± 0.2 °C)
- ± 0.1 pH units
- ± 3% millisiemens per centimeter (mS/cm) conductivity
- ± 10 millivolts (mV) oxidation-reduction potential (ORP)
- ± 10% dissolved oxygen (DO) for values > 0.5 mg/L
- ± 10% turbidity for values > than 5 nephelometric units (NTUs)

The field team will monitor the depth to water during purging to avoid water level drawdown. If the minimum drawdown requirement of less than 0.3 ft cannot be achieved, three well volumes will be purged prior to sampling. If a low yield well is purged dry before stabilization is achieved, the well will be allowed to recover until approximately 80% of the initial well volume has recharged and then groundwater samples will be collected. In addition to water quality parameters, visual observations (color, odor, sheening, etc.) will be recorded on the groundwater sampling forms. Turbidity measurements, in NTUs, will be measured with a portable Hach Turbidimeter.

Following monitoring well purging activities, Susitna will collect groundwater samples for laboratory analysis. The exact analytical sample suite for groundwater will be based on the COCs identified in Section 1.3.

Field personnel will collect the analytical samples in order of the most volatile to least volatile analytes to ensure a minimal loss of volatile concentrations. Samples for GRO and VOC analysis will be collected first into laboratory-provided, 40-ml VOA vials preserved with hydrochloric acid (HCl). The vials will be filled completely to prevent volatilization. The containers will be capped, turned over and tapped to verify no air bubbles are present. Samples submitted for DRO and RRO analysis will be collected into laboratory-provided 250-ml containers preserved with HCl preservative. Samples submitted for PAH analyses will be collected into separate unpreserved laboratory-provided 250-ml containers. Samples collected for RCRA metals will be collected into laboratory-provided 250-ml containers preserved with nitric acid.

The samples will be appropriately labeled, and immediately placed into a cooler with sufficient gel ice to maintain sample temperatures between 0 and 6 degrees °C during transport to SGS North America Inc. for laboratory analysis. Field duplicates will be collected at a minimum frequency of 10% for each analysis per each day of sampling. A MS/MSD pair will be collected at a minimum frequency of 5% for each analysis.

An equipment blank sample will be collected from the submersible pump at the end of sampling activities after decontamination procedures have been completed. An equipment blank sample will be collected by submersing the sampling pump into a new 1-gallon jug of deionized water with the top cut off and pumping the water into clean sample containers. All field instruments utilized for the well development and sampling processes will be calibrated before each workday, if applicable. Operation and maintenance will be performed in accordance with the instrument manufacturer's specifications. Water generated during well purging will be containerized in a 55-gallon drum and stored on-site until the proper disposal method is determined as described in Section 4.5.

4.5. INVESTIGATION-DERIVED WASTE

Water produced during the decontamination, cleaning, purging, and sampling of monitoring wells will be containerized in 55-gallon drums at each site. If the laboratory results indicate the groundwater is non-hazardous, Hilcorp will inject the water into the Class I Well located at BRU. If the groundwater is determined to be hazardous, it will be transported to U.S. Ecology in Anchorage for disposal.

Soil cuttings from subsurface soil sampling will be containerized in a drum on L pad and will be disposed of by BRU field personnel pending analytical results. If the laboratory results indicate the soil is non-hazardous, Hilcorp will inject the soil into the Class I Well located at BRU. If the soil is determined to be hazardous, it will be transported to Alaska Soil Recycling in Anchorage for thermal treatment. Prior to offsite shipment of contaminated soil or groundwater, an ADEC Transport, Treatment, & Disposal Approval Form for Contaminated Media will be completed and submitted to ADEC for review and approval.

Each Macro-core sample barrel will be removed from the drill rig and transported to the decontamination station following each 5-ft drive of the boring. The sample barrels and cutting shoes will be decontaminated between uses to prevent cross contamination. The Macro-core tooling will be

decontaminated between each boring by using a brush and scrubbing with an Alconox and water solution before being rinsed with clean water.

The submersible pump will be decontaminated between monitoring wells to prevent cross contamination. Decontamination of the submersible pump will include the use of a triple rinse system using three PVC tubes. The pump will be placed in the first tube containing an Alconox and tap water solution while cycling the solution through the pump, followed by a tap water rinse in the second tube and a final rinse with deionized water (third tube).

Disposable sample collection equipment and gloves will be placed in plastic bags and disposed of in the general waste stream at BRU.

5. SAMPLE QUALITY ASSURANCE AND QUALITY CONTROL

Applicable sample custody and collection protocols and analytical methods will be used as specified in the Field Sampling Guidance (ADEC 2022). Soil sampling protocol requires the following QC samples:

One field duplicate QC sample for every 10 or fewer primary samples. If sampling occurs over multiple days, a minimum of one field duplicate will be collected per day, if possible. One matrix spike and one matrix spike duplicate sample will be collected for every 20 or fewer primary samples.

Soil and groundwater trip blanks will accompany all sample for volatile analyses. Each trip blank will be documented on the CoC form and submitted to the laboratory for analysis.

6. HEALTH AND SAFETY

Personnel will comply with all Hilcorp and contractor safety policies. Hilcorp will provide access to the site and will provide the site-specific safety briefing, as needed. The contractor will provide level D personal protective equipment (PPE) consisting of hardhats, high-visibility safety vests, safety toed boots, safety glasses, and gloves appropriate to the task. Fire-resistant clothing is also required. When handling sample containers, disposable nitrile gloves will be worn to prevent exposure to sample preservatives and prevent cross-contamination between samples. Prior to sampling and upon the completion of all samples at each well, all reusable sampling equipment and PPE exposed to contamination will be decontaminated to minimize cross-contamination.

7. REPORTING

A report shall be prepared by a QEP and submitted to the ADEC to summarize work performed for 2023. The contents of the report will include a summary of field activities and results of sampling and analysis, as well as figures and a photographic log representative of project activities. The report will demonstrate that the sampling and analyses performed at the sites adequately characterize the nature and extent of contamination in the media being investigated. The report will include recommendations for each site. Each report will also include an assessment of the analytical data quality, including ADEC Laboratory Data Review Checklists. The analytical laboratory data packages will be provided as an appendix to the report.

Report addendum memos will be written for any field work or laboratory data obtained in 2024 and 2025.

Data generated by the laboratory will be reviewed by Aleut Limited Liability Company (Aleut) or other data validation contractor as determined by Hilcorp. The data quality review conducted by Aleut will evaluate precision, accuracy, sensitivity, representativeness, comparability, and completeness of the data by reviewing laboratory-supplied quality assurance/quality control (QA/QC) information as well as conducting independent QA/QC checks on the data. The review will be conducted in accordance with the requirements of the ADEC Technical Memorandum on Data Quality Objectives, Checklists, Quality Assurance Requirements for Laboratory Data, and Sample Handling. Laboratory QC sample recoveries and relative percent differences (RPDs) will be compared to laboratory control limits. Field-duplicate RPDs will be compared to ADEC-recommended measurement quality objectives.

8. REFERENCES

Alaska Department of Environmental Conservation (ADEC). 2023. *Oil and Other Hazardous Substances Pollution Control*. Division of Spill Prevention and Response, Contaminated Sites Program. 18 AAC 75. February.

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Oil Risk Consultants. 2003. *Site Characterization Report, 10 Sites at Beluga River Field, ConcoPhilips Alaska Inc., Anchorage, Alaska*. April.

Susitna Environmental, LLC (Susitna). 2023. *Draft Groundwater Monitoring Report, Beluga River Unit*. May.

United States Environmental Protection Agency (USEPA), 2017. Low Stress (Low Flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells. September.

Weston Solutions, Inc. (Weston). 2013a. *Memorandum for Beluga River Pump Area Assessment Site, Beluga River Unit; ADEC File No. 2337.38.031; Hazard ID: 990.* April.

Weston. 2013b. *Memorandum for Former Beluga River Tank Farm Site; Beluga River Unit; ADEC File No. 2337.38.029; Hazard ID: 991.* April.

Weston. 2019*. Sample Results from Installation of Beluga River Unit Produced Water Line, Cook Inlet, Alaska.* February 8.

Figures

Beluga River Unit
Area of Interest

Knik Arm
Fire Island
ANCHORAGE
Turnagain Arm
Possession, Point
TYONEK
GRANITE POINT TANK FARM (GPTF)
North Foreland
Trading Bay
TRADING BAY PRODUCTION FACILITY (TBPF)
West Foreland
MGS
East Foreland
KPL JCT
Kenai Spur Rd
NIKISKI
Swanson River Rd
Redoubt Bay
DRIFT RIVER TERMINAL
Christy Lee Loading Platform
Kalgin Island
KENAI
Kenai Spur Rd
Sterling Hwy
STERLING
SOLDOTNA
COOPER LANDING
Skilak Lake
Cook Inlet
Sterling Highway
Tustumena Lake
State Waters
Federal Waters
NINILCHIK
Oilwell Rd
ANCHOR POINT
East End Rd
HOMER
Kachemak Bay

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Legend

- Onshore Facilities
- Offshore Platforms
- State/Federal Boundary (3 Mile Limit)
- Oil and Gas Units Operated by HAK
- Oil and Gas Units - Other
- Major Roads

Alaska State Plane Zone 4 NAD 1983 (feet)

0 10 20 Kilometers

0 10 20 Miles

N

Hilcorp Alaska, LLC

3800 Centerpoint Drive, Suite 1400
Anchorage, AK 99503

Date Prepared:	Company Name:	Drawn By:
6/27/2023	Hilcorp Alaska, LLC.	HAK - MRA

LOCATION AND VICINITY

BELUGA RIVER UNIT, COOK INLET, ALASKA

Scale: @ 11x17 map size	Figure No:
1 in = 10 miles	1

Beluga River
Grants Beacon
BRWD-1 (DW-2)
N PAD
Beluga River 224-13 (M PAD)
Beluga River 221-23 (L Pad)
K PAD
J PAD
S013N010W
S013N009W
Beluga River
BELUGA RIVER UNIT
ENSTAR
I PAD
CEA
ALASKA PIPELINE COMPANY
H PAD
G PAD
Cottonwood Beach
F PAD
Beluga River Pump Area Assessment (E Pad)
Beluga River Tank Farm (P&S Yard)
BELUGA AIRSTRIP
Beluga Airport
D PAD
C PAD
KENAI PENINSULA BOROUGH
MATANUSKA SUSITNA BOROUGH
S013N010W
S012N010W
S013N009W
S012N010W
B PAD
Beluga River Abandoned Diesel Tank Farm (A PAD)
CENTRAL WASTE FACILITY
DW-1
Threemile Creek
Threemile Creek
Beluga
Viapan Lake

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Legend

- Well Pads
- Regional_NAD83
- Beluga River Contaminated Sites
- Oil and Gas Units Operated by HAK

Alaska State Plane Zone 4 NAD 1983 (feet)

0 0.5 1 Kilometers

0 0.5 1 Miles

N

Hilcorp Alaska, LLC

3800 Centerpoint Drive, Suite 1400
Anchorage, AK 99503

Date Prepared: 8/22/2023	Company Name: Hilcorp Alaska, LLC.	Drawn By: HAK - MRA

SITE LOCATIONS

BELUGA RIVER UNIT, COOK INLET, ALASKA

Scale: @ 11x17 map size
1 in = 3,000 feet

Figure No: **2**

150°59'38"W 150°59'36"W 150°59'34"W 150°59'32"W 150°59'30"W 150°59'28"W 150°59'26"W 150°59'24"W

61°12'46"N
61°12'45"N
61°12'44"N
61°12'43"N

224-13-2

Beluga River 224-13
Haz ID: 989

BELUGA RIVER 224-13

Beluga River M PAD

Imagery Source: QSI 2017

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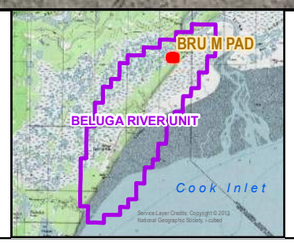

Legend

- Production Well Surface Hole Location
- Active ADEC Contaminated Site
- Water Supply Well Location
- Existing Monitoring Well
- Proposed Temporary Monitoring Well Location

Alaska State Plane Zone 4 NAD 1983 (feet)

0 10 20 Meters

0 50 100 Feet

N

Date Prepared:	Company Name:	Drawn By:
8/24/2023	Hilcorp Alaska, LLC.	NWC

Proposed Temp Well Locations
Beluga River 224-13 (M Pad)

BELUGA RIVER UNIT, COOK INLET, ALASKA

Scale: @ 11x17 map size	Figure No:
1 in = 50 feet	3

151°1'28"W 151°1'26"W 151°1'24"W 151°1'22"W 151°1'20"W

61°12'33"N

61°12'32"N

61°12'31"N

Sample ID	Date	Depth (ft bgs)	Result
N	Jun-93	4-5	DRO = 3100 mg/kg
		5	DRO = 2.6 mg/L (1.3 mg/L silica gel cleanup)

Sample ID	Date	Depth (ft bgs)	Result
B	Oct-92	0.75	TPH = 720 mg/kg
		2	TPH = 1,100 mg/kg

Sample ID	Date	Depth (ft bgs)	Result
F	Jun-93	4-5	DRO = 3600 mg/kg
		5	DRO = 1.8 mg/L (0.4 mg/L silica gel cleanup)

Sample ID	Date	Depth (ft bgs)	Result
FP2	Sep-92	0.75	DRO = 3600 mg/kg
	Oct-92	2	TPH = 270 mg/kg

Closed Reserve Pit

Former North Stockpile

BELUGA RIVER 221-23

Wellhead Building

Beluga River 221-23
Haz ID: 656

Beluga River L PAD

Contactor Building

Inset - Former North Stockpile overlayed on 1991 Imagery

Imagery Source: QSI 2017

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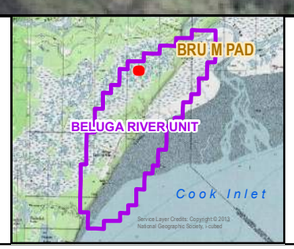

Legend

- Oil-Gas Surface Hole Location
- Historic Sample
- Active ADEC Contaminated Site
- Closed ADEC Contaminated Site
- Former North Stockpile
- Proposed Boring Location
- Closed Reserve Pit

Note:
Historic sample locations were digitized from previous report documents and are considered estimated. No historic survey data was found.

Alaska State Plane Zone 4 NAD 1983 (feet)

0 7.5 15 Meters

0 30 60 Feet

N

Date Prepared: 8/25/2023	Company Name: Hilcorp Alaska, LLC.	Drawn By: NWC
Proposed Soil Boring Locations Beluga River 221-23 (L Pad)		
BELUGA RIVER UNIT, COOK INLET, ALASKA		
Scale: @ 11x17 map size 1 in = 30 feet	Figure No: 4	

151°2'16"W 151°2'14"W 151°2'12"W 151°2'10"W 151°2'8"W 151°2'6"W 151°2'4"W 151°2'2"W 151°2'0"W 151°1'58"W 151°1'56"W 151°1'54"W 151°1'52"W 151°1'50"W 151°1'48"W 151°1'46"W 151°1'44"W

61°10'39"N
61°10'36"N
61°10'37"N
61°10'36"N
61°10'35"N
61°10'34"N
61°10'33"N
61°10'32"N
61°10'31"N

FG-3
FG-14
FG-10
FG-21
FG-20
FG-24
FG-23
FG-25

BELUGA RIVER 212-35T
Beluga River E PAD
BELUGA RIVER 212-35

102'
100'
98'
96'
94'
92'
90'
88'
86'
84'
82'
80'
78'

Imagery Source: QSI 2017

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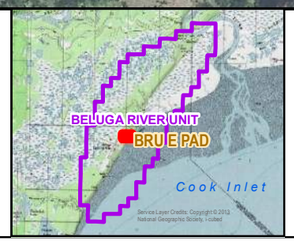

Legend

- Oil-Gas Surface Hole Location
- Water Supply Well Location
- Monitoring Well Usable
- Monitoring Well to be Sampled
- Groundwater Flow Direction
- Groundwater Elevation Contour (2ft)

Note:
Groundwater flow direction based on 2022 Beluga River Pump Area Assessment Monitoring Well Survey Measurements referenced to Above Mean Sea Level (Susitna 2023)

Alaska State Plane Zone 4 NAD 1983 (feet)

0 25 50 Meters

0 100 200 Feet

N

Date Prepared: 8/21/2023	**Company Name:** Hilcorp Alaska, LLC.	**Drawn By:** NWC

Monitoring Wells
Beluga River Pump Area Assessment (E Pad)

BELUGA RIVER UNIT, COOK INLET, ALASKA

Scale: @ 11x17 map size 1 in = 103 feet	**Figure No:** 5

151°2'32"W 151°2'30"W 151°2'28"W 151°2'26"W 151°2'24"W 151°2'22"W 151°2'20"W 151°2'18"W 151°2'16"W 151°2'14"W 151°2'12"W 151°2'10"W 151°2'8"W 151°2'6"W 151°2'4"W 151°2'2"W

61°10'36"N 61°10'35"N 61°10'34"N 61°10'33"N 61°10'32"N 61°10'31"N 61°10'30"N 61°10'29"N 61°10'28"N

HOS-C

Former Diesel Pump

Approximate Location-
Former Tank Farm Facility

Heated Oil
Storage
Building

FG-10

HOS-5

HOS-10

100'

102'

98'

96'

94'

92'

106'

88'

Runway

Beluga River Tank Farm
(P&S Yard)

Imagery Source: QSI 2017

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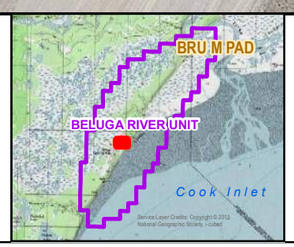

Legend

- Monitoring Well to be Sampled
- Groundwater Flow Direction
- Groundwater Elevation Contour (2ft)

Note:
Groundwater flow direction based on 2022 Beluga River Pump Area Assessment Monitoring Well Survey Measurements referenced to Above Mean Sea Level (Susitna 2023)

Alaska State Plane Zone 4 NAD 1983 (feet)

0 25 50 Meters

0 100 200 Feet

N

Date Prepared: 8/21/2023	Company Name: Hilcorp Alaska, LLC.	Drawn By: NWC

Monitoring Wells
Beluga River Tank Farm
(P&S Yard)

BELUGA RIVER UNIT, COOK INLET, ALASKA

Scale: @ 11x17 map size 1 in = 100 feet	Figure No: 6

151°3'44"W 151°3'42"W 151°3'40"W 151°3'38"W 151°3'36"W 151°3'34"W 151°3'32"W 151°3'30"W 151°3'28"W 151°3'26"W 151°3'24"W 151°3'22"W

61°9'25"N 61°9'24"N 61°9'23"N 61°9'22"N 61°9'21"N 61°9'20"N 61°9'19"N

BELUGA RIVER 244-4

Beluga River A PAD

Approximate Former Location of Diesel Tank Farm

Beluga River Abandoned Diesel Tank Farm Haz ID: 1000

ATF-3

ATF-8

ATF-10

ATF-11

88'

87'

86'

85'

Imagery Source: QSI 2017

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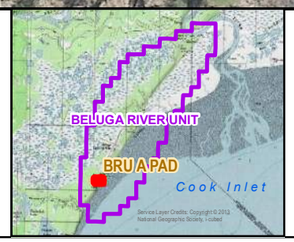

Legend

- Production Well Surface Hole Location
- Active ADEC Contaminated Site
- Monitoring Well
- Proposed In-source Boring Location
- Groundwater Elevation Contour (1 foot)
- Groundwater Flow Direction

Note:
Groundwater flow direction based on 2022 Beluga River Abandoned Diesel Tank Farm Monitoring Well Survey (Susitna 2023).

Alaska State Plane Zone 4 NAD 1983 (feet)

0 10 20 Meters

0 75 150 Feet

N

Date Prepared: 8/21/2023	Company Name: Hilcorp Alaska, LLC.	Drawn By: NWC

Proposed In-Source Soil Boring Location
Beluga River Abandoned Diesel Tank Farm (A Pad)

BELUGA RIVER UNIT, COOK INLET, ALASKA

Scale: @ 11x17 map size	Figure No:
1 in = 75 feet	7