



THE STATE
of **ALASKA**
GOVERNOR BILL WALKER

**Department of
Environmental Conservation**

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

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File: 465.26.001

December 11, 2017

Stephen Krause, USAF Remedial Project Manager
USAF - Elmendorf
611 CES/CEAR
10471 20th Street, Ste. 348
Elmendorf AFB, JBER, Alaska 99506-2201

**Re: Decision Document: Cape Lisburne LRRS and Cape Lisburne LRRS (LUST-OT617)
Cleanup Complete Determination**

Dear Mr. Krause:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (DEC) has completed a review of the environmental records associated with the Cape Lisburne LRRS and Cape Lisburne LRRS (LUST-OT617) located at Cape Lisburne, Point Hope. Based on the information provided to date, it has been determined that the contaminant concentrations remaining on site do not pose an unacceptable risk to human health or the environment and no further remedial action will be required unless new information becomes available that indicates residual contaminants may pose an unacceptable risk.

This Cleanup Complete determination is based on the administrative record for the Cape Lisburne LRRS and Cape Lisburne LRRS (LUST-OT617), which is located in the DEC office in Fairbanks, Alaska. This decision letter summarizes the site history, cleanup actions and levels, and standard site closure conditions that apply.

Site Name and Location:

Cape Lisburne LRRS and
Cape Lisburne LRRS (LUST-OT617)
Point Hope, AK 99766

Name and Mailing Address of Contact Party:

Stephen Krause
USAF - Elmendorf
611 CES/CEAR
10471 20th Street, Ste. 348
Elmendorf AFB, JBER, Alaska 99506-2201

DEC Site Identifiers:

File No: 465.26.001
Hazard ID: 1412

Regulatory Authority for Determination:

18 AAC 78 and 18 AAC 75

Site Description and Background

The Cape Lisburne Long Range Radar Station (LRRS) consists of 1,125 acres of land along the coastline of the Chukchi Sea. The current military mission of Cape Lisburne LRRS is the continued operation of the AN/FPS-117 minimally attended radar unit, which supports aircraft control and warning missions in Alaska as part of the North American Aerospace Defense Command, North Warning System.

Site OT617 resides in the Lower Camp at Cape Lisburne LRRS and consists of the Water Pump House Building 130 (pump house) where a powered water pump was once fueled by a 300 gallon underground storage tank (UST) located on the south side of the building. The UST was reported to contain either diesel or MOGAS (motor gasoline) fuel. In 1991, the former UST was removed and reportedly replaced with a 300 gallon, unleaded MOGAS aboveground storage tank (AST). The replacement AST was last documented onsite in 1998.

During UST removal, the former tank and piping systems were removed, crushed, and placed in the LRRS landfill. The excavation footprint for the former 300 gallon UST was eight feet wide, 10 feet long, and three feet deep. During excavation, soils were placed on a plastic liner. After analytical samples had been collected, a plastic liner was placed in the excavation and the excavated soils were replaced. A second plastic liner was placed over the soils, and the remainder of the excavation was backfilled with clean fill on top of the liner. Discrete soil samples were collected from the excavation of the former 300 gallon UST and submitted for laboratory analysis for diesel fuel. Analytical results indicated the presence of extractable petroleum hydrocarbons at 516 parts per million.

Past leaks and spills associated with fuel storage near the former UST and general waste disposal may have occurred in the vicinity of the pump house. The sources of contamination at Site OT617 were anticipated to be petroleum hydrocarbons including diesel range organics (DRO) and gasoline-range organics (GRO), potentially from leaks or spills as a result of transfer or refueling activities at the UST. Areas of interest included immediately north, east, and south of the pump house building; the west side of the pump house is occupied by two 500,000-gallon water tanks (Water Tank 1 and 2). Figure 1 shows an overview of Site OT617.

Contaminants of Concern

Petroleum hydrocarbons were a Potential Chemical of Concern and have been assessed and not detected above cleanup levels (CULs). Contaminants identified above CULs include arsenic in soil and arsenic, barium, and thallium in suprapermafrost water; however, the source of metals is determined to be naturally occurring and unrelated to the contamination in question.

Cleanup Levels

The more restrictive of either the inhalation or ingestion cleanup levels for the Arctic Zone established in 18 AAC 75.341 (d), Table B1 and B2 apply to this site.

Characterization and Cleanup Activities

Site inspection sampling of soil and supra-permafrost water was conducted at Site OT617 in August 2012. Analytical results obtained indicated that petroleum hydrocarbons, volatile organic compounds (VOCs), and metals were detected in surface and subsurface soils, but petroleum hydrocarbons and VOCs were below CULs. SVOCs were not detected in soil. Exceedance of the CULs for arsenic, cobalt, iron, and manganese were detected in surface and/or subsurface soil samples but believed to be attributable to background or naturally occurring concentrations in soil.

Supra-permafrost water analytical samples analyzed for petroleum hydrocarbons, VOCs, and SVOCs yielded either not detect results or were detected at concentrations less than the CULs. Exceedances of the CULs for total aluminum, antimony, arsenic, barium, beryllium, cadmium, cobalt, iron, lead, manganese, nickel, and selenium were detected in the supra-permafrost water samples. Detected metals concentrations were believed to be due to naturally occurring background metals concentrations.

A subsequent follow-up site characterization field investigation was performed July 18-23, 2016 and is documented in the Site Characterization Report for Site OT617 at Cape Lisburne LRRS. The contaminants of potential concern (COPCs) for Site OT617, were DRO, residual-range organics (RRO), aluminum, arsenic, barium, cobalt, iron, manganese, and thallium. The SC included a site reconnaissance, soil sampling, and laboratory analysis to further delineate the nature and extent of contamination. The soil sampling locations are shown in the attached figure. The nature and extent of metal contamination was delineated by comparison of the soil sampling data to screening levels based on 1/10th of the 2016 DEC Method Two human health CULs for sites within the Arctic Zone and the EPA RSLs (target cancer risk = 1×10^{-6} and hazard quotient = 0.1).

Analyte concentrations in soils were directly compared to the lower of either the 2016 DEC Method Two CULs or the 2016 EPA RSLs for human health exposure pathways. VOCs and polycyclic aromatic hydrocarbons (PAHs) were not detected above the CULs in any samples analyzed. Only arsenic was detected at concentrations greater than the CULs. However, metals concentrations in soil are variable across the site, and the highest levels are not contiguous or spatially consistent. There does not appear to be a spatial pattern that would suggest site-related releases, but rather, the results suggest naturally occurring sporadic mineralized soil areas at the site.

No petroleum hydrocarbon concentrations exceeding the CULs were detected in any soil samples analyzed from Site OT617, which was the former UST location. Data indicate that the former UST location south of the pump house building is not a source of contamination as previously hypothesized. However, soil in the area northeast of the pump house in surface and shallow subsurface soils (zero to four feet below ground surface) found concentrations of DRO and RRO but they were less than CULs.

Other potential petroleum releases associated with historic use of the site were investigated including former ASTs and fuel distribution lines located adjacent to the pump house. The locations of former ASTs and fuel distribution lines could not be precisely identified; however, soil sampling around the pump house indicated that no other petroleum contamination is present in excess CULs in the immediate vicinity of the building.

Cumulative Risk Evaluation

Pursuant to 18 AAC 75.325(g) and 18 AAC 78.600(d)], when detectable contamination remains on-site following a cleanup, a cumulative risk determination must be made that the risk from hazardous substances does not exceed a cumulative carcinogenic risk standard of 1 in 100,000 across all exposure pathways and does not exceed a cumulative non-carcinogenic risk standard at a hazard index of one across all exposure pathways.

Based on a review of the environmental record, DEC has determined that residual contaminant concentrations meet the human health cumulative risk criteria for residential land use.

Exposure Pathway Evaluation

Following investigation at the site, exposure to the remaining contaminants was evaluated using DEC's Exposure Tracking Model (ETM). Exposure pathways are the conduits by which contamination may reach human or ecological receptors. ETM results show all pathways to be one of the following: De-Minimis

Exposure, Exposure Controlled, or Pathway Incomplete. A summary of this pathway evaluation is included in the following Table.

Table – Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	<i>De Minimis</i> Exposure	Concentrations of petroleum contaminants remain in surface soil below cleanup levels.
Sub-Surface Soil Contact	<i>De Minimis</i> Exposure	Concentrations of petroleum contaminants remain in subsurface soil below cleanup levels.
Inhalation – Outdoor Air	Pathway Incomplete	Concentrations of petroleum contaminants were below inhalation cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	Concentrations of petroleum contaminants were below inhalation cleanup levels.
Groundwater Ingestion	Pathway Incomplete	Supra-permafrost groundwater is not a potential drinking water source and concentrations of metals are naturally occurring.
Surface Water Ingestion	Pathway Incomplete	No contamination identified in surface water, and is not used as a drinking water source in the vicinity of the site.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Concentrations of metals in soils are naturally occurring.
Exposure to Ecological Receptors	Pathway Incomplete	Concentrations of metals in soils are naturally occurring.

Notes to Table 2: “*De minimis* Exposure” means that in DEC’s judgment receptors are unlikely to be adversely affected by the minimal volume or concentration of remaining contamination. “Pathway Incomplete” means that in DEC’s judgment contamination has no potential to contact receptors. “Exposure Controlled” means there is an institutional control in place limiting land or groundwater use and there may be a physical barrier in place that prevents contact with residual contamination.

DEC Decision

Soil and supra-permafrost contamination at the site are below the approved cleanup levels suitable for residential land use or naturally occurring at the site. This site will receive a “Cleanup Complete” designation on the Contaminated Sites Database, subject to the following standard conditions.

Standard Conditions

1. Any proposal to transport soil or groundwater off-site requires DEC approval in accordance with 18 AAC 75.325(i) and 18 AAC 78.600(h). A “site” as defined by 18 AAC 75.990 (115) and 18 AAC 78.995(134) means an area that is contaminated, including areas contaminated by the migration of hazardous substances from a source area, regardless of property ownership. (See attached site figure.)
2. Movement or use of contaminated material in a manner that results in a violation of 18 AAC 70 water quality standards is prohibited.
3. Groundwater throughout Alaska is protected for use as a water supply for drinking, culinary and food processing, agriculture including irrigation and stock watering, aquaculture, and industrial use. Contaminated site cleanup complete determinations are based on groundwater being

considered a potential drinking water source. In the event that groundwater from this site is to be used for other purposes in the future, such as aquaculture, additional testing and treatment may be required to ensure the water is suitable for its intended use.

This determination is in accordance with 18 AAC 75.380 and 18 AAC 78.276(f) and does not preclude DEC from requiring additional assessment and/or cleanup action if future information indicates that contaminants at this site may pose an unacceptable risk to human health, safety, or welfare or to the environment.

Appeal

Any person who disagrees with this decision may request an adjudicatory hearing in accordance with 18 AAC 15.195 – 18 AAC 15.340 or an informal review by the Division Director in accordance with 18 AAC 15.185. Informal review requests must be delivered to the Division Director, 555 Cordova Street, Anchorage, Alaska 99501-2617, within 15 days after receiving the department's decision reviewable under this section. Adjudicatory hearing requests must be delivered to the Commissioner of the Department of Environmental Conservation, 410 Willoughby Avenue, Suite 303, P.O. Box 111800, Juneau, Alaska 99811-1800, within 30 days after the date of issuance of this letter, or within 30 days after the department issues a final decision under 18 AAC 15.185. If a hearing is not requested within 30 days, the right to appeal is waived.

If you have questions about this closure decision, please feel free to contact me at (907) 451-2166, or email at john.carnahan@alaska.gov.

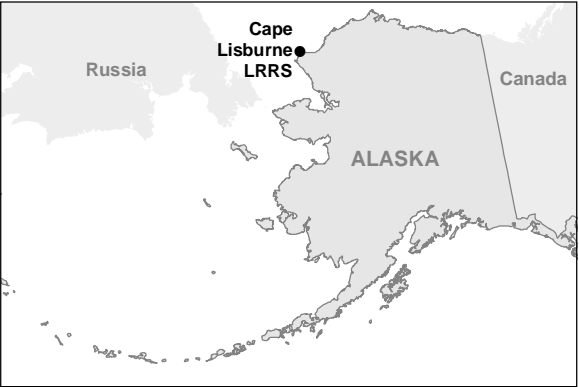
Sincerely,

John Carnahan
Project Manager

Attach: Site Figures

cc: Spill Prevention and Response, Cost Recovery Unit

2017.12.06 DEC CC Lisburne OT617.docx



- Location of Site Characterization
- Airfield Centerline
- Installation Boundary
- Airfield
- Permanent Building
- Portable Building

Notes:
LRRS = Long Range Radar Station

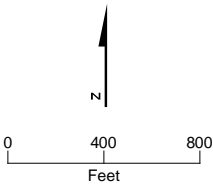
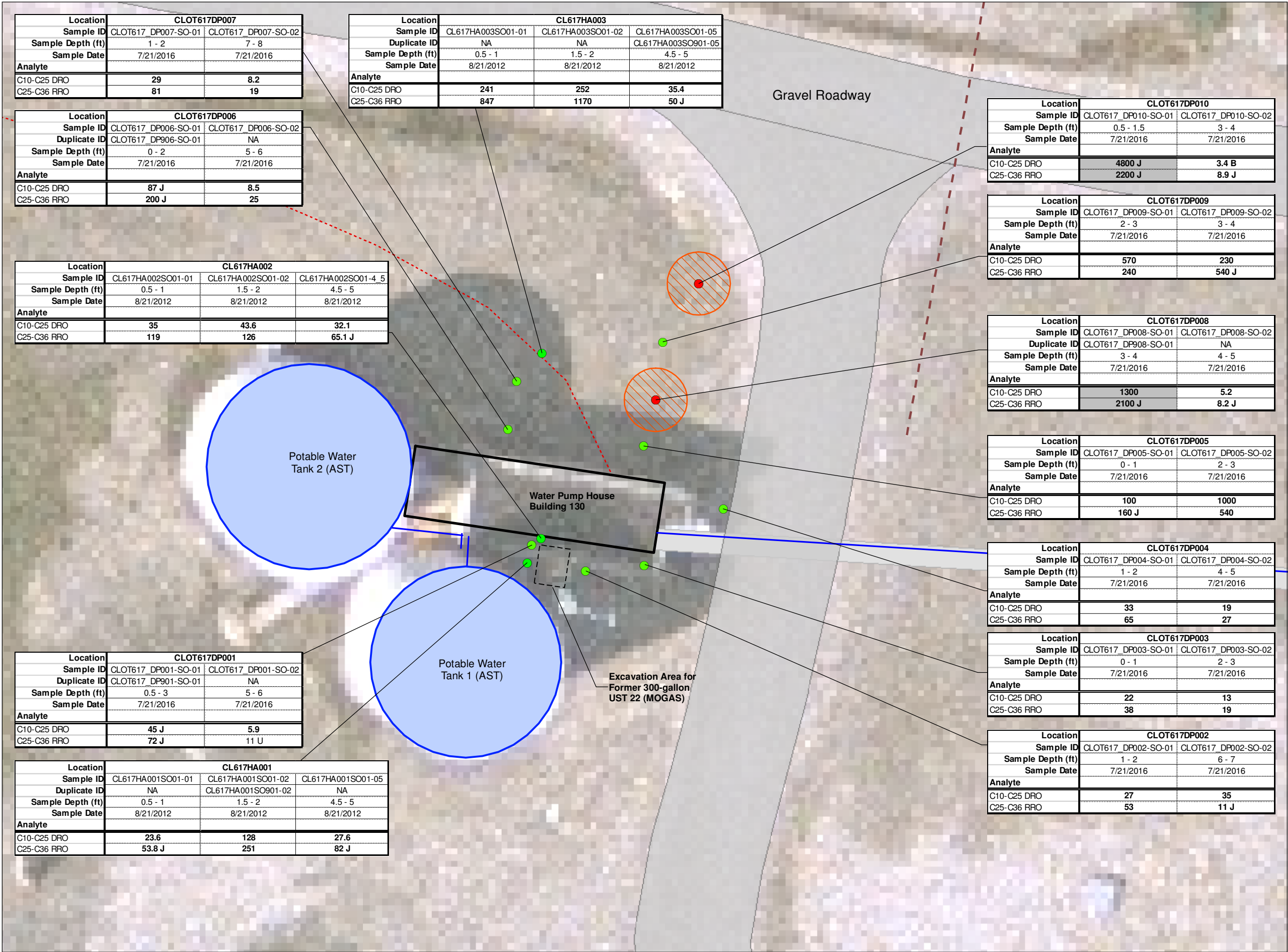


FIGURE 1-1
Installation Map
Site OT617 Site Characterization
Cape Lisburne LRRS, Alaska



- Greater than Screening Levels
- Less than Screening Levels
- - - Abandoned Fuel Line
- ... Abandoned Underground Electrical Line
- In-service Water Main
- ▭ Permanent Building
- ▭ Potable Water AST
- ▭ Utilidor
- ▭ Gravel Roadway
- Estimated Extent of Contamination:
- ▨ DRO/RRO

Notes:
AST = Aboveground Storage Tank
DRO = diesel range organics
MOGAS = Motor Gasoline
RRO = residual range organics
UST = Underground Storage Tank
Bold indicates the analyte was detected.
Shading indicates the result exceeded screening criteria.
Where a duplicate sample was collected, the greatest reported analyte value between the primary and duplicate sample was presented.
NA = Screening level not available
"- -" = Not analyzed
B = The analyte was detected in the associated method and/or calibration blank.
J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was below the reported sample quantitation limit. However, the reported value is approximate.

Analyte	Screening Level	Screening Level Source
C10-C25 DRO	1250	A
C25-C36 RRO	1370	A

Screening Level Source:
A = 1/10th 2016 ADEC Table B2 Method 2 - Arctic Zone Ingestion

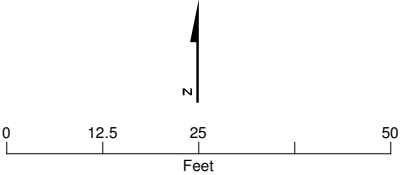


Figure 5-2
Extent of Petroleum Contamination in Soil
Site OT617 Site Characterization
Cape Lisburne LRRS, Alaska