THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Environmental Conservation

Division of Spill Prevention and Response
Contaminated Sites Program

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January 4, 2017

Dave Hanneman
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222 W. 7th Avenue, Box 14
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Re: Decision Document - FAA Biorka Island Station, Alaska

Site Names:
FAA Biorka Island Station LQ, File No. 1542.38.001, Hazard ID: 901;
FAA Biorka Island Station (VORTAC), File No. 1542.38.001, Hazard ID: 1761;
FAA Biorka Island Station VORTAC Unpermitted Landfill, File No. 1542.38.001, Hazard ID: 25751;

Location:
15 Mi. SW of Sitka
Sitka, AK 99835

DEC Site Identifiers:
File No: 1542.38.001
Hazard ID: 901
Hazard ID: 1761
Hazard ID: 25751

Name and Mailing Address of Contact Party:
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Regulatory Authority for Determination:
18 AAC 75, 18 AAC 78

Document Purpose and Organization

This decision document covers all AOCs identified by the FAA throughout Biorka Island over the history of FAA cleanup activities, and its intent is to consolidate and record the status of all AOCs in a single document. Some of the AOCs have already received some form of closure letter from DEC. The AOCs have been generally organized into three categories: 1) "Not an AOC"; 2) "Cleanup Complete"; and 3) "Cleanup Complete with Institutional Controls (ICs)". The status for each AOC is identified in the "Comprehensive Site Status Summary for All Biorka Island Areas of Concern" list, below.

The main body of the decision document is organized by the AOCs which have status or decision document updates. The AOCs in the Living Quarters section of Biorka Island (DEC file no. 1542.38.001 Hazard ID: 901) are addressed first, followed by the AOCs at the VORTAC (DEC file no. 1542.38.001 Hazard ID: 1761), and the VORTAC Unpermitted Landfill (DEC file no. 1542.38.001 Hazard ID: 25751).

This decision document includes sufficient detail to understand the history and results of cleanup activities associated with each AOC and to support the decisions. Additional information is available in the site files. The document includes Site Descriptions and Backgrounds, Cleanup Levels & Contaminants of Concern, Characterization and Cleanup Activities, Cumulative Risk Evaluation, Exposure Pathway Evaluation, and the DEC Decision.

Comprehensive Site Status Summary for All Biorka Island Areas of Concern

The following identifies DEC site status determinations for all Areas of Concern (AOCs) on Biorka Island. For clarity, this list includes AOCs which are not addressed in this letter. Specific details for each AOC and file references are available within the text or in the referenced document. This list was modified from the February 9, 2012 DEC Decision Document "FAA Biorka Island Station Living Quarters Summary of Evaluations and Determinations."

AOCs Addressed in this letter:

- Cleanup Complete
  - Building 601/300 ASTs (BKA QS AOC5)
  - Pipeline 47-P-10 (BKA QS AOC10)
  - Contaminated Soil at Beach Tank Farm Fill Valve (BKA QS AOC19)
  - Diesel AST Near Building 402 (BKA VORTAC AOC7)
  - Storage Shed and Drum Storage Area (BKA VORTAC AOC1)
  - Unpermitted Landfill Under Helipad (BKA VORTAC AOC9)
- Cleanup Complete with ICs
  - Wood Crib/Culvert near Building 300 (BKA QS AOC9)

AOC Addressed in the January 7, 2010 DEC Decision Document FAA Biorka Island RCAG, Record of Decision:

- Cleanup Complete
  - FAA Biorka Island RCAG

AOCs Addressed in the February 9, 2012 DEC Decision Document FAA Biorka Island Station Living Quarters Summary of Evaluations and Determinations:

- Cleanup Complete:
  - 2.5 Inch Cross Island Aboveground Pipeline
  - Former Pipeline 47-P-09
  - Gasoline Spill at Building 300
  - Petroleum Contamination at Buildings 100-102
  - Lead Contamination at Buildings 100-102
  - Living Quarters Former Tank Farm
  - Dry Well at Building 302

    - Cell Phone Tower Facility
    - Former Diesel AST 47-D-2
- Cleanup Complete – LUST:
    - Former UST 47-D-1 and Potentially Contaminated Soil Disposal Area
- Not an AOC:
    - Former Soil Stockpile near Road
    - Former Transformer Pad near Dock
    - US Coast Guard Transformer near Building 300

AOCs Addressed in the February 9, 2012 DEC Decision Document FAA Biorka Island Station VORTAC Summary of Evaluations and Determinations:

- Cleanup Complete
    - 3.5 Inch Fuel Pipeline
    - ¾ inch Supply and Return Pipeline
- Cleanup Complete – LUST
    - Diesel Tank Farm USTs 47-A-2, 47-A-3, 47-A-4
    - Gasoline UST 47-A-1
    - Diesel UST 47-C-01
- Not an AOC
    - Former Transformer Pad
    - Transformer #141870
    - Small Vehicle Leak (Stain #2)

Biorka Island General Description and Background

Biorka Island Living Quarters Site
The FAA, formerly known as the Civil Aeronautics Administration (CAA), and the US Coast Guard began activities on the Biorka Island property in 1951. In 1956, the CAA obtained a 155-acre parcel of land around the docks. A 24-acre native allotment parcel near the docks was also transferred. The Living Quarters and Dock facilities are located within the former 24-acre native allotment, at the head of Symonds Bay. The facility operations have been ongoing with buildings alternately constructed, remodeled, or demolished over the years. Most of this facility is covered by pad fill and grass. With the exception of the Living Quarters Tank Farm area, the topography of the facility is flat with an average slope of less than 1 percent.

Biorka Island VORTAC and VORTAC Unpermitted Landfill Sites
The CAA began activities on the Biorka Island property in 1940. The FAA has a permit from the U.S. Forest Service for an 11 acre parcel for the Very High Frequency Omnidirectional Range with Tactical Air Navigation (VORTAC) facility. The VORTAC was built between 1957 and 1959 on a small rise surrounded by wetlands. The site consists of a navigation antenna, Building 402 and attached garage, a storage shed, a helicopter landing pad, and a septic tank and leach field.

Currently, there are no year-round residents on Biorka Island at either the Living Quarters or the VORTAC. Several facility buildings and the facility grounds at the Living Quarters are used by Southeast Alaska Regional Health Consortium (SEARHC) Community Health Service of Sitka, as

the Raven's Way mental health treatment center. Frequent visitors to the island include treatment groups (generally consisting of 10 teenagers and 7 adult staff), and FAA personnel performing maintenance on generators and air navigational aids.

Contaminants of Concern

The following contaminants of concern were identified above approved cleanup levels during the course of the site investigations summarized in the Characterization and Cleanup Activities sections in this decision letter. This list covers all of the COCs that have been detected above cleanup levels at the Biorka Island AOCs, although not all of these compounds are present in every AOC. Lead has been removed from the COC list because none of the remaining AOCs have detected lead releases.

- Gasoline Range Organics (GRO)
- Diesel Range Organics (DRO)
- Benzene
- Ethylbenzene
- Toluene
- Xylenes
- Benzo(a)anthracene
- Benzo(a)pyrene
- 2-Methylnaphthalene
- Polychlorinated Biphenyls (PCBs)

Cleanup Levels

For AOCs that have been or will be evaluated under 18 AAC 75.340 Method Two, the applicable cleanup levels are those in the "Over 40 Inch Zone" under the ""Human Health", "Ingestion", and "Inhalation" columns of Tables B1 and B2 in 18 AAC 75.341. The "Over 40 Inch Zone" refers to the number of inches of rainwater the area receives each year. In addition to the COCs listed below, per 18 AAC 75.340(k), for a cleanup conducted under methods two and three, any chemical that is detected at one-tenth or more of the Table B1 human health cleanup levels must be included when calculating cumulative risk.

The Department approved Method 3 alternative cleanup levels for DRO, GRO and Benzene, as well as Method 2 Migration to Groundwater Cleanup levels for BTEX and PCBs. Use of the approved Alternative Cleanup Levels at this site would require long term monitoring and maintenance, therefore FAA and DEC have discussed other ways to ensure protectiveness at some of the sites where contamination remains above migration to groundwater cleanup levels. Groundwater and surface water investigations were used at sites near the beach to evaluate whether migration from contamination levels left in place was migrating or had potential to migrate. A demonstration that the remaining COC concentrations are below Method 2, over 40 inch zone, Human Health, Inhalation and Ingestion cleanup levels, and that both groundwater and surface water are not being impacted, will be used for some site closures.

Table 1. Biorka Island Contaminants of Concern Cleanup Levels

Contaminants	Alternative Cleanup Levels (mg/kg)	Method 2 Above 40 Inch Zone Cleanup Levels (mg/kg)					Groundwater Cleanup Levels (mg/L)
		Migration to Groundwater	Ingestion	Inhalation	Human Health	Maximum Allowable Concentrations	
Gasoline Range Organics (GRO)	1,400	260	1400	1400	-	1400	2.2
Diesel Range Organics (DRO)	1,860	230	8250	12,500	-	12,500	1.5
Residual Range Organics (RRO)	N/A	9,700	8,300	22,000	-	22,000	1.1
Benzene	0.0401	0.022	-	-	8.1	-	0.0046
Toluene	N/A	6.7	-	-	200	-	1.1
Ethylbenzene	N/A	0.13	-	-	35	-	0.015
Xylenes	N/A	1.5	-	-	57	-	0.19
Benzo(a)anthracene	N/A	0.28	-	-	1.7	-	0.00012
Benzo(a)pyrene	N/A	0.27	-	-	0.17	-	0.000034
1-Methylnaphthalene	N/A	0.41	-	-	68	-	0.011
2-Methylnaphthalene	N/A	1.3	-	-	250	-	0.036
Polychlorinated Biphenyls (PCBs)	N/A	-	-	-	1	-	0.0005

mg/kg – milligrams per kilogram
mg/L – milligrams per liter

AOCs with a Cleanup Complete Determination

The Building 601/300 ASTs (BKA QS AOC5), the Pipeline 47-P-10 (BKA QS AOC10), the Contaminated Soil at Beach Tank Farm Fill Valve (BKA QS AOC19), the Diesel AST Near Building 402 (BKA VORTAC AOC7), and the Storage Shed and Drum Storage Area (BKA VORTAC AOC1) AOCs meet the requirements for a Cleanup Complete determination. Site descriptions, AOC COCs and associated cleanup levels, characterization and cleanup activities, cumulative risk evaluations, exposure pathway evaluations, and DEC decisions are included in the individual AOC sections below.

Building 601/300 ASTs (BKA QS AOC5)

Site Description and Background

This site is located in the main FAA facility adjacent to Symonds Bay. The sources of contamination at the Building 601 AOC are historical petroleum surface releases, three 500-gallon ASTs, and one 500-gallon lube oil AST located adjacent to Building 601. Building 601 formerly served as the power plant for the Quarters/Dock Area and very high frequency (VHF) facilities. This area now contains a pre-fabricated Butler structure that was constructed by Southeast Alaska Regional Health Consortium (SEARHC) and is currently used as a maintenance shop.

Contaminants of Concern and Cleanup Levels

Petroleum contamination has been historically detected at this site. DRO is the only contaminant which has been detected at this site above the most stringent cleanup levels during the most recent sampling events. 2-Methylnaphthalene was historically detected above cleanup levels at one location adjacent to Building 601. See *Table 1*, above, for cleanup levels and FAA Biorka Island COCs.

Characterization and Cleanup Activities

This AOC was first investigated in 1990 when the four ASTs were inspected. All four ASTs were removed in 1994 along with approximately 3 cubic yards of petroleum-contaminated soil. In 2001, groundwater in this area was observed containing trace amounts of DRO, GRO, RRO, and VOC contaminants. Contaminated soil was removed in 2004; all but five confirmation samples from the excavation were less than the DRO ACLs. During the 2013 RA/RI, an additional 372 cubic yards of contaminated soil were removed. In the excavated area, confirmation samples ranged from non-detect to 1,970 mg/kg for DRO. One PAH compound, 2-methylnaphthalene, was also detected in two soil samples at concentrations of 6.78 mg/kg and 9.4 mg/kg, exceeding the most stringent ADEC Method Two, Over 40-Inch Zone cleanup level. In one sample collected from a test pit outside of the excavation area adjacent to Building 601 at a depth of 6 feet bgs, DRO was detected at a concentration of 5,140 mg/kg indicating that potentially impacted soil was located beneath the building. In 2015, 15 UVOST probes were advanced at an area adjacent to Building 601. A total of six borings were also advanced to collect PID field screening and analytical soil samples to confirm the UVOST readings and further delineate the vertical and horizontal extent of contamination at this AOC. All PAH concentrations in the six soil samples and one field duplicate collected at the Building 601 AOC were less than the most stringent ADEC Method Two, Over 40-Inch Zone cleanup levels. All UVOST and PID screening indicated the area where 5,140 mg/kg DRO was detected was de minimis in mass.

Groundwater was monitored at the site in three wells in 2014. DRO and 2-Methylnaphthalene were detected below cleanup levels, and all other contamination was below cleanup levels. One beach porewater sample was collected in 2015. Total Aromatic Hydrocarbons (TAH) and Total Aqueous Hydrocarbons (TAqH) were below the surface water criteria (0.01 and 0.015 mg/L) in the porewater sample. Maximum remaining concentrations in the groundwater and soil at the site are summarized in the table below.

Table 2. Contamination Remaining at Building 601/300 ASTs (BKA QS AOC5)

Contaminants	Soil (mg/kg)	GW (mg/L)	Surface Water Criteria TAH/TAqH (mg/L)
Diesel Range Organics (DRO)	1,790	0.27	0.00230/0.00259
2-Methylnaphthalene	9.4	0.0068	

Concentrations in red indicate an exceedance of the most stringent cleanup level
GW – Groundwater
TAH – Total Aromatic Hydrocarbons
TAqH – Total Aqueous Hydrocarbons
mg/kg – milligrams per kilogram
mg/L – milligrams per liter

DRO and 2-Methylnaphthalene remain at the site in soil above migration to groundwater cleanup levels, but are below all human health/inhalation/ingestion CULs. No contaminants have been detected in groundwater above the 18 AAC 75.345 Table C cleanup levels.

Porewater samples and groundwater monitoring has indicated that surface water criteria are not exceeded by the remaining contamination leaching from the site.

Cumulative Risk Evaluation
Pursuant to 18 AAC 75.325(g), 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 noncarcinogenic 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 and cleanup at the site, exposure to the remaining contaminants was evaluated using ADEC'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 below.

Table 3. Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	Pathway Incomplete	Contamination in surface soil was removed and is not present (0 to 2 feet below ground surface).
Sub-Surface Soil Contact	De-Minimis Exposure	Contamination remains in the sub-surface, but is below ingestion and human health cleanup levels.
Inhalation – Outdoor Air	De-Minimis Exposure	Contamination remains in the sub-surface, but is below inhalation and human health cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	De-Minimis Exposure	UVOST, PID, and soil data collected near Building 601 confirmed that residual concentrations are de minimis and not an inhalation risk.
Groundwater Ingestion	De-Minimis Exposure	Groundwater sampling has indicated that contamination will not migrate to groundwater at concentrations above Table C concentrations or surface water criteria.
Surface Water Ingestion	Pathway Incomplete	Surface water in the vicinity of the site is saltwater and will not be used as a drinking water source. Porewater sediment samples indicated contamination is below surface water criteria.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminants of concern do not have the potential to bioaccumulate in plants or animals.
Exposure to Ecological Receptors	Pathway Incomplete	Contamination remaining in the sub-surface is below ingestion and human health cleanup levels. Contamination does not leach from the site at

		concentrations above surface water criteria or cleanup levels.

Notes to Table 2: "De-Minimis Exposure" means that in ADEC's judgment receptors are unlikely to be adversely affected by the minimal volume or concentration of remaining contamination. "Pathway Incomplete" means that in ADEC'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

DEC has determined that the Building 601/300 ASTs (BKA QS AOC5) be issued a Cleanup Complete determination. At this site, petroleum contamination remains in soil at concentrations below the inhalation, ingestion, and human health cleanup levels, but above the Method 2 Migration to Groundwater cleanup levels. Sampling has confirmed that groundwater has not been impacted above cleanup levels or surface water criteria. Sufficient site characterization has been completed and the contaminated sites program (CSP) has determined that contaminants in soil have achieved steady-state equilibrium and will not migrate to groundwater. This site will receive a "Cleanup Complete" designation on the Contaminated Sites Database.

Standard Conditions

1. Any proposal to transport soil or groundwater off-site requires DEC approval in accordance with 18 AAC 75.325. A "site" [as defined by 18 AAC 75.990 (115)] means an area that is contaminated, including areas contaminated by the migration of hazardous substances from a source area, regardless of property ownership.

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 in the state of Alaska is protected for aquaculture use. In the event that an aquaculture facility uses groundwater from this site in the future, additional testing may be required to ensure that aquatic life criteria under 18 AAC 70 are not exceeded.

This determination is in accordance with 18 AAC 75.380 and does not preclude DEC from requiring additional assessment and/or cleanup action if future information indicates that this site may pose an unacceptable risk to human health or 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, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99811-1800, 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, 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.

Building 201 / Pipeline 47-P-10 (BKA QS AOC10)

Site Description and Background
The Building 201 AOC is located north of the Wood Crib/Culvert AOC and Building 601 AOC. The source of contamination at the Building 201 AOC was likely vertical migration of a plume from past surface releases and a shallow buried pipeline (47-P-10). The pipeline ran between Buildings 200 and 201 and continued north of Building 201.

Contaminants of Concern and Cleanup Levels
Petroleum hydrocarbons were historically detected at this site. During the most recent sampling events, DRO and PAHs are the only site-related contaminants which has been detected at this site above the applicable cleanup levels. See *Table 1*, above, for cleanup levels and FAA Biorka Island COCs.

Characterization and Cleanup Activities
The pipeline was removed along with 10 cubic yards of contaminated soil in 2004 and four test pits were dug to delineate the remaining contamination. Downgradient sediment samples collected in 2006 indicated sediments were not affected by upgradient contaminants. During the 2013 RA/RI, approximately 246 cubic yards of contaminated soil was excavated from around the pipeline and Building 201. The excavation depth ranged from 1 to 5.75 feet bgs, and contaminated soil was excavated to the depth of groundwater. Excavation was limited towards the north due to live underground utilities, and to the southeast due to the presence of shallow groundwater and large boulders. Analytical soil samples from the excavation limits indicated DRO ranging from 1,900 to 19,500 mg/kg in five samples. Five additional soil samples contained DRO at concentrations greater than the ADEC Method Two, Over 40-Inch Zone, Migration to Groundwater cleanup level. One PAH soil sample collected at 4.5 feet bgs during the installation of monitoring well MW-201-3 had benzo(a)anthracene and benzo(a)pyrene concentrations exceeding the most stringent Method Two, Over 40-Inch Zone cleanup levels, at 7.44 and 3.74 mg/kg, respectively. PAH concentrations in two other samples collected at depths of 2.5 and 10 feet bgs during the installation of MW-201-3 were non-detect or were detected at concentrations less than the most stringent ADEC Method Two, Over 40-Inch Zone cleanup levels. All other PAH concentrations were less than the most stringent ADEC Method Two, Over 40-Inch Zone cleanup level. All BTEX, GRO, and RRO concentrations collected at Building 201 were less than the ADEC Method Two, Over 40-Inch Zone Direct Contact, Inhalation, and Ingestion cleanup levels. Four monitoring wells (MW-201-1, MW-201-2, MW-201-3, and MW-201-4) were installed during the 2013 RA/RI. Monitoring wells were installed to bedrock at depths ranging from 5 to 10 feet bgs. Groundwater samples collected in 2014 indicated soil contamination had not migrated to groundwater.

In 2015, UVOST probes and soil borings were advanced north of the 2013 RA/RI excavation area near previous sample location 2-12, which had a DRO concentration of 19,500 mg/kg, greater than the ADEC Method Two Maximum Allowable Concentration. UVOST and PID readings within five feet of location 2-12 indicates that the contamination detected at 2-12 is de minimis and is not migrating to groundwater. The maximum remaining DRO concentration is at B06, with a concentration of 1,970 mg/kg. The 2015 investigation results also ruled out the existing tank farm as a potential separate source area. In addition, it appears that the elevated benzo(a)anthracene and benzo(a)pyrene concentrations detected during the 2013 RA/RI installation of MW-201-3 are de-

minimis and are not representative of site conditions. Ten soil samples were collected from seven borings advanced adjacent to and downgradient of MW-201-3. Benzo(a)anthracene and benzo(a)pyrene concentrations in these seven borings were one to two orders of magnitude less than the 2013 results and all benzo(a)anthracene and benzo(a)pyrene concentrations in soil samples collected during the 2015 SI were less than the most stringent ADEC Method Two, Over 40-Inch Zone cleanup levels. Therefore, it appears that the PAH contamination detected during the 2013 RA/RI at the Building 201 AOC is de-minimis.

Groundwater was monitored at the site in four wells in 2014 and in two wells in 2015. All contamination was either non-detect or below cleanup levels. One beach porewater sample was collected in 2015. Total Aromatic Hydrocarbons (TAH) and Total Aqueous Hydrocarbons (TAqH) were below the surface water criteria (0.01 and 0.015 mg/L) in the porewater sample, and in all groundwater samples. Maximum remaining concentrations in the groundwater and soil at the site are summarized in the table below.

Table 4. Contamination Remaining at Building 201 / Pipeline 47-P-10 (BKA QS AOC10)

Contaminants	Soil (mg/kg)	GW (mg/L)	Surface Water Criteria TAH/TAqH (mg/L)
Diesel Range Organics (DRO)	1,970	ND	0.00328/0.00614
Benzo(a)anthracene	0.384	ND	
Benzo(a)pyrene	0.154	ND	
2-Methylnaphthalene	0.0103	0.000191	

Concentrations in red indicate an exceedance of the most stringent cleanup level
GW – Groundwater
TAH – Total Aromatic Hydrocarbons
TAqH – Total Aqueous Hydrocarbons
mg/kg – milligrams per kilogram
mg/L – milligrams per liter

DRO and benzo(a)anthracene remain at the site in soil above migration to groundwater cleanup levels, but are below all human health/inhalation/ingestion CULs. No contaminants have been detected in groundwater above the 18 AAC 75.345 Table C cleanup levels. Porewater samples and groundwater monitoring has indicated that surface water criteria are not exceeded by the remaining contamination leaching from the site.

Cumulative Risk Evaluation

Pursuant to 18 AAC 75.325(g), 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 noncarcinogenic 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 and cleanup at the site, exposure to the remaining contaminants was evaluated using ADEC'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 below.

Table 5. Exposure Pathway Evaluation

Pathway	**Result**	**Explanation**
Surface Soil Contact	Pathway Incomplete	Contamination in surface soil was removed and is not present (0 to 2 feet below ground surface).
Sub-Surface Soil Contact	De-Minimis Exposure	Contamination remains in the sub-surface, but is below ingestion and human health cleanup levels.
Inhalation – Outdoor Air	De-Minimis Exposure	Contamination remains in the sub-surface, but is below inhalation and human health cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	De-Minimis Exposure	UVOST, PID, and soil data confirmed that residual concentrations are de minimis and not an inhalation risk.
Groundwater Ingestion	De-Minimis Exposure	Groundwater sampling has indicated that contamination will not migrate to groundwater at concentrations above Table C concentrations or surface water criteria.
Surface Water Ingestion	Pathway Incomplete	Surface water in the vicinity of the site is saltwater and will not be used as a drinking water source. Porewater sediment samples indicated contamination is below surface water criteria.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminants of concern do not have the potential to bioaccumulate in plants or animals.
Exposure to Ecological Receptors	Pathway Incomplete	Contamination remaining in the sub-surface is below ingestion and human health cleanup levels. Contamination does not leach from the site at concentrations above surface water criteria or cleanup levels.

Notes to Table 2: "De-Minimis Exposure" means that in ADEC's judgment receptors are unlikely to be adversely affected by the minimal volume or concentration of remaining contamination. "Pathway Incomplete" means that in ADEC'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

DEC has determined that the Building 201 / Pipeline 47-P-10 (BKA QS AOC10) be issued a Cleanup Complete determination. At this site, petroleum contamination remains in soil at concentrations below the inhalation, ingestion, and human health cleanup levels, but above the Method 2 Migration to Groundwater cleanup levels. Sampling has confirmed that groundwater has not been impacted above cleanup levels or surface water criteria. Cleanup has been conducted to the

maximum extent practicable, sufficient site characterization has been completed, and the contaminated sites program (CSP) has determined that contaminants in soil have achieved steady-state equilibrium and will not migrate to groundwater. This site will receive a "Cleanup Complete" designation on the Contaminated Sites Database.

Standard Conditions

1. Any proposal to transport soil or groundwater off-site requires DEC approval in accordance with 18 AAC 75.325. A "site" [as defined by 18 AAC 75.990 (115)] means an area that is contaminated, including areas contaminated by the migration of hazardous substances from a source area, regardless of property ownership.

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 in the state of Alaska is protected for aquaculture use. In the event that an aquaculture facility uses groundwater from this site in the future, additional testing may be required to ensure that aquatic life criteria under 18 AAC 70 are not exceeded.

This determination is in accordance with 18 AAC 75.380 and does not preclude DEC from requiring additional assessment and/or cleanup action if future information indicates that this site may pose an unacceptable risk to human health or 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, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99811-1800, 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, 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.

Contaminated Soil at Beach Tank Farm Fill Valve (BKA QS AOC19)

Site Description and Background

The Tank Farm Fill Valve AOC is located at the north end of the FAA Station Biorka Island. It is located just below the point where the fuel barge connects its flexible line to the hard pipeline that fills the five 20,000-gallon tanks, which provide fuel to the prime power generators. In 2006, while attempting to install a shelter over the fill valve at station 0+00 on the fuel pipeline, contaminated soil was discovered in the excavation. A records search found a historical photograph showing several ASTs in approximately the same location as the valve. It is possible that the ASTs are the source of the contamination. The ASTs likely contained diesel fuel, although there are no records to confirm this assumption.

Contaminants of Concern and Cleanup Levels

Petroleum hydrocarbons were historically detected at this site. During the most recent sampling events, DRO and PAHs are the only site-related contaminants which has been detected at this site above the applicable cleanup levels. See *Table 1*, above, for cleanup levels and FAA Biorka Island COCs.

Characterization and Cleanup Activities

During the 2013 RA/RI, approximately 20 cubic yards of contaminated soil was removed from the Tank Farm Fill Valve AOC. Field observations and analytical results indicated DRO concentrations in soil from 2 to 6.5 feet bgs (depth of bedrock) exceeded ADEC Method Two, Over 40- Inch Zone, Migration to Groundwater cleanup levels. DRO concentrations ranged from 137 to 3,500 milligrams per kilogram (mg/kg). All benzene, toluene, ethylbenzene, and total xylenes (BTEX), gasoline range organics (GRO), residual range organics (RRO), and PAH concentrations were less than the most stringent ADEC Method Two, Over 40-Inch Zone cleanup levels. To evaluate the lateral extent of contamination, three exploratory test pits (TP1, TP2, and TP3) were excavated during the 2013 RA/RI. TP1 was advanced 21 feet to the north of Tank Farm Fill Valve to 4 feet bgs. TP2 was advanced 19 feet to the northeast of the Tank Farm Fill Valve to 5 feet bgs. TP3 was advanced 36 feet to the northeast of the Tank Farm Fill Valve to 4 feet bgs. Field observations (strong hydrocarbon odor and soil staining) indicated petroleum-impacted soil was present from the ground surface to 4 feet bgs and 5 feet bgs in TP1 and TP2, respectively. Field observations indicated no impacted soil was present at TP3.

In 2015, Six UVOST probes (UV14-UV19) and 15 soil borings (B19-B33) were advanced at the Tank Farm Fill Valve AOC. Seven analytical soil samples were collected from the borings and analyzed for DRO and RRO. Four of these samples were also analyzed for GRO and BTEX, and the sample collected from the location with the highest PID field screening result was also analyzed for PAH to better characterize contamination in this AOC. All DRO, RRO, GRO, BTEX, and PAH concentrations were less than the ADEC Method Two, Over 40-Inch Zone Direct Contact, Inhalation, and Ingestion cleanup levels. The DRO result associated with the sample collected from B33 at 6-8 feet bgs, the depth interval with the highest PID result, was 1,350 mg/kg.

During the 2015 SI, one new monitoring well (MW-19) was installed in the Tank Farm Fill Valve AOC. The new monitoring well was installed at boring B33 to a depth of approximately 9 feet bgs. One groundwater sample and a field duplicate were collected from MW-19 and analyzed for DRO, RRO, GRO, BTEX, and PAH. No wells were previously installed in this AOC. One pore water sample was collected north-northeast of the Tank Farm Fill Valve on the shoreline near Symonds Bay during low tide. Based on the surface topography and steep slope from the Tank Farm Fill Valve AOC towards the shoreline, this pore water sample location appeared to be downgradient of MW- 19. One pore water sample and a field duplicate were collected for BTEX and PAH analyses for calculation of TAH and TAqH. No analytes were detected at concentrations greater than the ADEC 18 AAC 75 Table C groundwater cleanup levels in the primary and field duplicate samples collected from MW-19. TAH and TAqH results were calculated for the primary and field duplicate pore water samples collected nearshore and downgradient of B33/MW-19. All BTEX results were non-detect, with a calculated TAH result of 0.00278 milligrams per liter (mg/L). The calculated TAqH results were 0.00335 mg/L and 0.00452 mg/L. These TAH and TAqH are an order of magnitude less than the surface water quality criteria listed in 18 AAC 70.020 of 0.01 mg/L TAH and 0.015 mg/L TAqH.

Table 6. Contamination Remaining at Contaminated Soil at Beach Tank Farm Fill Valve (BKA QS AOC19)

Contaminants	Soil (mg/kg)	GW (mg/L)	Surface Water Criteria TAH/TAqH (mg/L)
Diesel Range Organics (DRO)	4,400	0.765	0.00278/0.00452
Benzene	0.0639	0.00036 J	

Concentrations in red indicate an exceedance of the most stringent cleanup level
GW – Groundwater
TAH – Total Aromatic Hydrocarbons
TAqH – Total Aqueous Hydrocarbons
mg/kg – milligrams per kilogram
mg/L – milligrams per liter

DRO and benzene remains at the site above migration to groundwater cleanup levels, but are below human health and inhalation and ingestion CULs. No contaminants have been detected in groundwater above the 18 AAC 75.345 Table C cleanup levels. Porewater samples and groundwater monitoring has indicated that surface water criteria are not exceeded by the remaining contamination leaching from the site.

Cumulative Risk Evaluation
Pursuant to 18 AAC 75.325(g), 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 noncarcinogenic 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 and cleanup at the site, exposure to the remaining contaminants was evaluated using ADEC'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 below.

Table 7. Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	Pathway Incomplete	Contamination in surface soil was removed and is not present (0 to 2 feet below ground surface).
Sub-Surface Soil Contact	De-Minimis Exposure	Contamination remains in the sub-surface, but is below ingestion and human health cleanup levels.
Inhalation – Outdoor Air	De-Minimis Exposure	Contamination remains in the sub-surface, but is below inhalation and human health cleanup levels.

Inhalation – Indoor Air (vapor intrusion)	De-Minimis Exposure	UVOST, PID, and soil data confirmed that residual concentrations are de minimis and not an inhalation risk.
Groundwater Ingestion	De-Minimis Exposure	Groundwater sampling has indicated that contamination will not migrate to groundwater at concentrations above Table C concentrations or surface water criteria.
Surface Water Ingestion	Pathway Incomplete	Surface water in the vicinity of the site is saltwater and will not be used as a drinking water source. Porewater sediment samples indicated contamination is below surface water criteria.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminants of concern do not have the potential to bioaccumulate in plants or animals.
Exposure to Ecological Receptors	Pathway Incomplete	Contamination remaining in the sub-surface is below ingestion and human health cleanup levels. Contamination does not leach from the site at concentrations above surface water criteria or cleanup levels.

Notes to Table 2: "De-Minimis Exposure" means that in ADEC's judgment receptors are unlikely to be adversely affected by the minimal volume or concentration of remaining contamination. "Pathway Incomplete" means that in ADEC'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

DEC has determined that the Contaminated Soil at Beach Tank Farm Fill Valve (BKA QS AOC19) be issued a Cleanup Complete determination. At this site, DRO contamination remains in soil at concentrations below the inhalation, ingestion, and human health cleanup levels, but above the Method 2 Migration to Groundwater cleanup levels. Sampling has confirmed that groundwater has not been impacted above cleanup levels or surface water criteria. Cleanup has been conducted to the maximum extent practicable, sufficient site characterization has been completed, and the contaminated sites program (CSP) has determined that contaminants in soil have achieved steady-state equilibrium and will not migrate to groundwater. This site will receive a "Cleanup Complete" designation on the Contaminated Sites Database.

Standard Conditions

1. Any proposal to transport soil or groundwater off-site requires DEC approval in accordance with 18 AAC 75.325. A "site" [as defined by 18 AAC 75.990 (115)] means an area that is contaminated, including areas contaminated by the migration of hazardous substances from a source area, regardless of property ownership.

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 in the state of Alaska is protected for aquaculture use. In the event that an aquaculture facility uses groundwater from this site in the future, additional testing may be

required to ensure that aquatic life criteria under 18 AAC 70 are not exceeded.

This determination is in accordance with 18 AAC 75.380 and does not preclude DEC from requiring additional assessment and/or cleanup action if future information indicates that this site may pose an unacceptable risk to human health or 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, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99811-1800, 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, 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.

Diesel AST Near Building 402 (BKA VORTAC AOC7)

Site Description and Background
A 1000-gallon diesel AST was placed next to the Storage Shed (Building 203) to provide fuel for the back-up generator located in Building 402 at the VORTAC facility. Leaking valves and piping have been observed multiple times near the AST.

Contaminants of Concern and Cleanup Levels
Prior to the 2013 excavation, DRO and benzene had been detected in the AST area above migration to groundwater CULs. See *Table 1*, above, for cleanup levels and FAA Biorka Island COCs.

Characterization and Cleanup Activities
In 2002, a leaking anti-siphon valve was observed at the AOC, and soil below the leak (approximately 0.5 feet deep and 4 feet in diameter) was excavated and transported to the long term stockpile which was later removed from the island and disposed of properly. A confirmation sample was collected at the limits of the excavation and analyzed for DRO, GRO, BTEX, and PAHs. All results were verified to be below ADEC cleanup levels. In 2006, the AST was inspected and fuel was noted on the ground below the piping again. The AST was removed from the island, and 4 cubic yards (cy) of DRO-contaminated soils were excavated, containerized, and transported off the island. Confirmation samples at the limits of excavation indicated DRO and benzene contamination remained above the applicable cleanup levels. In 2013, DRO-impacted soil located to the north, east, and west of the Storage Shed was removed. Two test pits were advanced to the southwest and southeast respectively of the Storage Shed. Field screening observations verified no impacts were present on the south side of the Storage Shed. Therefore, prior to continuing excavation, the Storage Shed was removed to excavate the remaining DRO-impacted soil located beneath the building. A total of 3 cy of DRO-impacted soils were removed and placed in Super Sacks on June 21, 2013. On July 9 and 10, 2013, after the Storage Shed was removed, excavation of the remaining DRO-impacted soil in the footprint of the former Storage Shed was completed. An additional 17 cy of DRO-impacted soils were removed from the Storage Shed area for a combined total of 20 cy. Field

observations and analytical results verified that excavation efforts removed all petroleum impacted soil from the Diesel AST near Building 402 (BKA VORTAC AOC7).

Table 8. Contamination Remaining at Diesel AST Near Building 402 (BKA VORTACAOC7)

Contaminants	Soil (mg/kg)
Diesel Range Organics (DRO)	95.7
Benzene	ND

mg/kg – milligrams per kilogram

Cumulative Risk Evaluation

Pursuant to 18 AAC 75.325(g), 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 noncarcinogenic 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 and cleanup at the site, exposure to the remaining contaminants was evaluated using ADEC'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 below.

Table 9. Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	Pathway Incomplete	Contamination in surface soil was removed and is not present (0 to 2 feet below ground surface).
Sub-Surface Soil Contact	Pathway Incomplete	Contamination did not reach the subsurface.
Inhalation – Outdoor Air	De-Minimis Exposure	Contamination is below inhalation and human health cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	All contamination was removed. Residual contamination will not cause an inhalation risk.
Groundwater Ingestion	Pathway Incomplete	Groundwater was not encountered during excavation and all contamination was removed.
Surface Water Ingestion	Pathway Incomplete	All contamination was removed. Residual contamination will not migrate to surface water.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminants of concern do not have the potential to bioaccumulate in plants or animals.

Exposure to Ecological Receptors	Pathway Incomplete	All contamination was removed. Residual contamination is not an ecological risk.

Notes to Table 2: "De-Minimis Exposure" means that in ADEC's judgment receptors are unlikely to be adversely affected by the minimal volume or concentration of remaining contamination. "Pathway Incomplete" means that in ADEC'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
Remaining petroleum contamination in soil is below all applicable cleanup levels. 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. A "site" [as defined by 18 AAC 75.990 (115)] means an area that is contaminated, including areas contaminated by the migration of hazardous substances from a source area, regardless of property ownership.

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 in the state of Alaska is protected for aquaculture use. In the event that an aquaculture facility uses groundwater from this site in the future, additional testing may be required to ensure that aquatic life criteria under 18 AAC 70 are not exceeded.

This determination is in accordance with 18 AAC 75.380 and does not preclude DEC from requiring additional assessment and/or cleanup action if future information indicates that this site may pose an unacceptable risk to human health or 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, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99811-1800, 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, 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.

Storage Shed and Drum Storage Area (BKA VORTAC AOC1)

Site Description and Background

This area of concern is located at the VORTAC facility, adjacent to the Helipad and former diesel AST near Building 402. The Storage Shed and Drum Storage Area AOC at the VORTAC facility was identified in the 1994 Site Cleanup and Investigation Report as "Stain Area 1".

Contaminants of Concern and Cleanup Levels
Petroleum hydrocarbons and PCBs were detected at this site in 1994. See *Table 1*, above, for cleanup levels and FAA Biorka Island COCs.

Characterization and Cleanup Activities
This AOC was first defined in 1994 by collecting soil samples in and at the limits of the stained area (0-2.5 feet bgs). Surface samples reported elevated concentrations of petroleum hydrocarbons and PCBs (Aroclor 1242). PCBs were reported at a concentration of 2.8 mg/kg and 3.2 mg/kg. After sampling was completed, approximately 3 cy of contaminated soils were removed and placed in the landfarm at the long range radio aid to navigation (LORAN) site. One confirmation sample was collected in the center of the former stained area after excavation at approximately 12 inches bgs and was analyzed for BTEX, DRO, total recoverable petroleum hydrocarbons (TRPH), and volatile petroleum hydrocarbon (VPH) for petroleum, oil, and lubricant (POL) characterization. All detected compounds were below ADEC cleanup levels. The confirmation sample was not analyzed for PCBs. The excavation was fertilized, backfilled, re-fertilized, and seeded. On July 9, 2013, an RI was conducted at the Storage Shed and Drum Storage Area (BKA VORTAC AOC1). Three exploratory test pits (TP1, TP2, and TP3) were excavated in the location of the historical "Stain Area 1" excavation conducted during the 1994 RA. The objective of the test pits was to observe and verify that the 1994 excavation completely removed all of the PCB-impacted soils. Between 1994 and 2013, a concrete pad was installed within the proximity of the historic 1994 excavation limits. Field observations and review of historical data suggested that the concrete pad had minimal coverage of the historic excavation limits. Therefore TP1 was advanced in the historic excavation limits to the west of the concrete pad to 28 inches bgs. TP2 was advanced in the historic excavation limits to the north of the concrete pad to 27 inches bgs. TP3 was advanced in the historic excavation limits to the east of the concrete pad to 30 inches bgs. A total of 5 PID field screening samples were collected from the limits of each test pit to confirm no petroleum-impacted soil was present. One confirmation sample was collected from each test pit where the 1994 RA indicated petroleum and PCB impacts were present and sent to the laboratory for PCB analysis on rush TAT. Field observations indicated the field screening and confirmation sampling were conducted in non-disturbed native soil below the depth of the previous excavation and imported backfill. Test pits, analytical samples, and field observations verified that impacted soils were removed in 1994 from the Storage Shed and Drum Storage Area (BKA VORTAC AOC1) at the FAA Station on Biorka Island.

Table 10. Contamination Remaining at Storage Shed and Drum Storage Area (BKA VORTAC AOC1)

Contaminants	Soil (mg/kg)
Diesel Range Organics (DRO)	ND
Benzene	ND
PCBs	ND

mg/kg – milligrams per kilogram

Cumulative Risk Evaluation

Pursuant to 18 AAC 75.325(g), 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 noncarcinogenic risk standard at a hazard index of one across all exposure pathways. At this site, no detectable contamination remains.

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 and cleanup at the site, exposure to the remaining contaminants was evaluated using ADEC'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 below.

Table 11. Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	Pathway Incomplete	Contamination in surface soil was removed and is not present (0 to 2 feet below ground surface).
Sub-Surface Soil Contact	Pathway Incomplete	Contamination did not reach the subsurface.
Inhalation – Outdoor Air	De-Minimis Exposure	All contamination was removed.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	All contamination was removed.
Groundwater Ingestion	Pathway Incomplete	Groundwater was not encountered during excavation and all contamination was removed.
Surface Water Ingestion	Pathway Incomplete	All contamination was removed. Residual contamination will not migrate to surface water.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminants of concern do not have the potential to bioaccumulate in plants or animals.
Exposure to Ecological Receptors	Pathway Incomplete	All contamination was removed. Residual contamination is not an ecological risk.

Notes to Table 2: "De-Minimis Exposure" means that in ADEC's judgment receptors are unlikely to be adversely affected by the minimal volume or concentration of remaining contamination. "Pathway Incomplete" means that in ADEC'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

Remaining petroleum contamination in soil is below all approved cleanup levels. 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. A "site" [as defined by 18 AAC 75.990 (115)] means an area that is contaminated, including areas contaminated by the migration of hazardous substances from a source area, regardless of property ownership.

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 in the state of Alaska is protected for aquaculture use. In the event that an aquaculture facility uses groundwater from this site in the future, additional testing may be required to ensure that aquatic life criteria under 18 AAC 70 are not exceeded.

This determination is in accordance with 18 AAC 75.380 and does not preclude DEC from requiring additional assessment and/or cleanup action if future information indicates that this site may pose an unacceptable risk to human health or 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, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99811-1800, 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, 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.

Unpermitted Landfill Under Helipad (BKA VORTAC AOC9)

Site Description and Background

An unpermitted solid waste landfill was developed in the area of the VORTAC and was eventually covered with soil to be used as a helicopter landing area. An oblique aerial photograph taken south of the VORTAC site shows that in 1964, neither the helicopter landing pad nor debris was present. This information dates the landfill as having been active from sometime after 1964 until it was finally closed and covered in 1985. The helicopter landing pad has been used since at least 1979 (Baker, 1997). It was constructed by placing fill in layers over landfill material on the natural grade. Landfill debris generally consisted of construction debris such as wood, concrete, and rebar, and also contained electronic equipment that was deposited in the landfill during VORTAC modifications in the mid-1980s (Baker, 1997). Additional cover has been added since 1979 to expand the helicopter landing pad and level out the landfill area, with the last cover material added in 1996.

Contaminants of Concern and Cleanup Levels
Petroleum COCs were detected on the surface of the landfill helipad in 1990. See *Table 1*, above, for COCs and cleanup levels at FAA Biorka Island facilities. All contamination was removed during the same field effort. Sampling indicated that no CERCLA contaminants were present at the site or downgradient.

Characterization and Cleanup Activities
Robert Baker, a retired FAA employee, provided detailed information on waste types and disposal activities related to the VORTAC landfill, including the following points:

- The FAA and USCG both used this facility until the departure of the USCG in the 1980s.
- No "wet garbage" such as household or food wastes was ever dumped directly into the landfill. This waste was first burned in an onsite incinerator, and then the ashes and non-combustible residue were placed in the landfill.
- Capacitors (possibly containing polychlorinated biphenyls [PCBs]) and relays (possibly containing mercury) were pulled out and disposed of elsewhere before electronic equipment was placed in the landfill.
- Antennas (mostly aluminum) from former USCG and FAA facilities and a large assortment of nuts and bolts used in the frames were buried in the landfill.
- Mechanics assigned to the VORTAC were called "fuzzy packrats" because they made a habit of pulling all capacitors and relays before electronic equipment was dumped. This procedure was implemented because of difficulty in obtaining spare parts and supplies for this remote location. The practice was continued even after transportation improvements made equipment resupply easier because the staff had been made aware of the environmental hazards related to the disposal of certain types of equipment.
- The landfill received final cover and was closed after a second generation VORTAC was installed at the site in 1985.

In 1990, Hart Crowser, Inc., conducted a preliminary assessment (PA) of the Biorka Island FAA station. Site history and conditions were described. During the 1994 summer field season, E&E performed an expanded site investigation (ESI) and interim cleanup (IC) at the VORTAC. ESI activities included inspection and sampling and a geophysical survey; IC activities included the removal of water. During the geophysical survey electromagnetic inductive and magnetic anomalies were found in the eastern half of the helicopter landing pad, indicating buried debris. The results of the geophysical survey substantiate Mr. Baker's statement that metallic debris was placed in the eastern portion of the helicopter landing pad. Surface staining was found around the VORTAC building, and five ash-filled drums and stained soil were found around the perimeter of the helicopter landing pad. Surface and subsurface soil and surface water were sampled upgradient of the helicopter landing pad. Sediment and surface water also were sampled sidegradient and downgradient of the pad. E&E removed the five ash-filled drums and other waste items. Surface stains related to petroleum contamination also were scraped up from around the peripheral building and helicopter landing pad.

AEI Pacific of Anchorage performed demolition and cleanup of a number of decommissioned FAA facilities on Biorka Island in 1996. One minor facet of the AEI project included remedial cleanup at the VORTAC landfill. About 30 to 50 cubic yards of metal debris and wood was removed from

around the toe of the embankment (AEI, 1997). About 50 cubic yards of fill was then placed on the shoulder and embankment slopes. The slope was seeded to decrease erosion.

In 1998, the boundaries of the landfill were estimated through visual observations of areas that appeared filled and geophysical survey results. Field observations indicated that the landfill is an area of about 6,000 square feet adjacent to the VORTAC building. The cap was also inspected and was deemed stable and sufficiently thick.

In a letter dated February 9, 2012, titled "Federal Aviation Administration (FAA) Biorka Island VORTAC Summary of Evaluations and Determinations", ADEC specified that the landfill AOC had been sufficiently characterized to reach a cleanup complete with ICs determination, provided that the FAA complete a survey and install monuments to relate GPS coordinates from the 1998 report, produce a deed notice to inform future users of the landfill under the helipad, and prohibit digging into or developing over the site. It was also specified that the implementation of institutional controls would require landowner concurrence with the remedy.

A land survey was completed at the former landfill site on July 25, 2013. Two monuments (Monument 1 and Monument 2) were installed to relate GPS coordinates from the 1998 CH2-OH Landfill Closure report. Two survey points provided from the 1998 report were used to locate the extents of the landfill. The monuments were installed at ground level with a 2-foot piece of rebar steel anchor driven into the ground with a 2-inch polyethylene cap set in cement measuring 1-foot deep by 1-foot in diameter. The monuments installed are permanent in nature, and will not interfere with the FAA's current use of the area. It was recommended that a deed notice be filed to complete the "Cleanup Complete" determination requirements.

Cumulative Risk Evaluation

Pursuant to 18 AAC 75.325(g), 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 noncarcinogenic risk standard at a hazard index of one across all exposure pathways. At this site, no detectable contamination remains.

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 and cleanup at the site, exposure to the remaining contaminants was evaluated using ADEC'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 below.

Table 14. Exposure Pathway Evaluation

Pathway	Result	Explanation

Surface Soil Contact	Pathway Incomplete	Contamination in surface soil was removed and is not present (0 to 2 feet below ground surface).
Sub-Surface Soil Contact	Pathway Incomplete	Sampling has indicated that there is no contamination remaining in the subsurface.
Inhalation – Outdoor Air	Pathway Incomplete	All contamination has been removed.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	There is no indoor air concern as all contamination has been removed.
Groundwater Ingestion	Pathway Incomplete	Groundwater was not encountered in the area and all contamination was removed.
Surface Water Ingestion	Pathway Incomplete	Sampling indicated that contamination is not leaching from the landfill.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Sampling indicated that contamination is not leaching from the landfill.
Exposure to Ecological Receptors	Pathway Incomplete	Sampling indicated that contamination is not leaching from the landfill.

Notes to Table 2: "De-Minimis Exposure" means that in ADEC's judgment receptors are unlikely to be adversely affected by the minimal volume or concentration of remaining contamination. "Pathway Incomplete" means that in ADEC'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

Sampling has indicated that contamination has been removed from the landfill surface and leaching is not occurring. A permanent marker at the site (monument) has been installed, the cap is in place, and the landfill has been surveyed. 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. A "site" [as defined by 18 AAC 75.990 (115)] means an area that is contaminated, including areas contaminated by the migration of hazardous substances from a source area, regardless of property ownership.

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 in the state of Alaska is protected for aquaculture use. In the event that an aquaculture facility uses groundwater from this site in the future, additional testing may be required to ensure that aquatic life criteria under 18 AAC 70 are not exceeded.

This determination is in accordance with 18 AAC 75.380 and does not preclude DEC from requiring additional assessment and/or cleanup action if future information indicates that this site may pose an unacceptable risk to human health or the environment. It is recommended that FAA

continue to track the location of this landfill internally.

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, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99811-1800, 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, 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.

AOCs with a Cleanup Complete with ICs Determination

One site in this decision document will be closed with Institutional Controls (ICs) that will require periodic reporting and additional work in the future to remove the ICs. This AOC is The Wood Crib/Culvert near Building 300 (BKA QS AOC9).

Contamination left in place at a site may be a risk to groundwater or surface water contamination if the site is disturbed. A site description, COCs and associated cleanup levels, characterization and cleanup activities, cumulative risk evaluation, exposure pathway evaluation, and DEC decision is included below.

Wood Crib/Culvert near Building 300 (BKA QS AOC9)

Site Description and Background
The Wood Crib/Culvert is located on the west side of the road at edge of the slope/surf break sloping downward toward the beach and Symonds Bay. This AOC was discovered in 2004 during contaminated soil removal in the area. The culvert was thought to be a dry well and 3 cubic yards of DRO-contaminated soil were removed. In 2006, it was determined that the culvert was not a dry well, but was a wooden culvert-like structure. The source of the contamination was apparently from the B300 area. Fill material consisting of large cobbles and boulders are present along the surf break-slope making for extremely rough drilling conditions.

Contaminants of Concern and Cleanup Levels
Petroleum hydrocarbons were historically detected at this site. During the most recent sampling events, DRO, RRO, xylenes, and 1-methylnaphthalene were the only site-related contaminants detected at this site above the applicable cleanup levels. See *Table 1*, above, for cleanup levels and FAA Biorka Island COCs.

Characterization and Cleanup Activities
During the 2013 RA/RI, an 18-inch galvanized steel culvert was removed from the Wood Crib/Culvert AOC along with approximately 4 cubic yards of contaminated soil. One analytical sample was collected from the excavation limits; DRO was detected at 8,430 mg/kg at a depth of 5.5 feet bgs, exceeding the ADEC Method Two, Over 40-Inch Zone, Migration to Groundwater

cleanup level. All BTEX, GRO, RRO, PAH, and PCB concentrations were less than the ADEC Method Two, Over 40-Inch Zone Direct Contact, Inhalation, and Ingestion cleanup levels.

In 2015, a total of 12 UVOST probes were advanced at this AOC; eight on the slope on the west side of the road and four on the beach downgradient of the Wood Crib/Culvert. A total of four borings were advanced to confirm the UVOST readings and to collect PID field screening and analytical soil samples to delineate the vertical and horizontal extent of petroleum contamination at this AOC. DRO was detected at concentrations greater than the ADEC Method Two, Over 40-Inch Zone Ingestion cleanup levels in one soil sample and the associated field duplicate sample. RRO was also detected at concentrations greater than the ADEC Method Two, Over 40-Inch Zone Ingestion cleanup levels in three soil samples and the field duplicate sample. DRO concentrations were 10,800 mg/kg and 11,000 mg/kg and RRO concentrations were 17,100 mg/kg and 17,400 mg/kg in the primary and field duplicate samples (respectively) collected from boring B13 at 4-7 feet bgs. RRO was also detected at 12,900 mg/kg in the sample collected from boring B14 at 4-6 feet bgs and 8,510 mg/kg in the sample collected from boring B15 at 2-4 feet bgs. All of the DRO and RRO concentrations are less than the ADEC Method Two Inhalation cleanup levels and Maximum Allowable Concentrations identified in 18 AAC 75, Table B2 for DRO and RRO. Xylenes and 1-methylnaphthalene were detected at concentrations greater than the most stringent migration to groundwater cleanup levels, but less than the ADEC Method Two, Over 40-Inch Zone human health cleanup levels. The remaining soil contamination is located in an inaccessible area between a roadbed and surf break-slope, where large cobbles and boulders are present. Removal of this remaining contamination is currently impracticable.

One monitoring well (MW-89) is located at the Wood Crib/Culvert AOC and was sampled during the 2015 SI. The groundwater sample collected from MW-89 was analyzed for DRO, RRO, GRO, BTEX, and PAH. One pore water sample (PW-MC-01) was collected east of the Wood Crib/Culvert AOC on the shoreline near Symonds Bay during low tide. Based on the surface topography and steep slope from the Wood Crib/Culvert AOC towards the shoreline, this pore water sample location appeared to be downgradient of B13 and MW-89. This pore water sample was analyzed for BTEX and PAH for calculation of TAH and TAqH. All DRO, RRO, GRO, BTEX, and PAH concentrations in groundwater were non-detect, or were detected at concentrations less than the ADEC 18 AAC 75 Table C groundwater cleanup levels in the groundwater sample collected from MW-89. The calculated TAH and TAqH results for the pore water sample collected nearshore and downgradient of the Wood Crib/Culvert AOC were 0.0049 mg/L and 0.00567 mg/L, respectively. These TAH and TAqH are an order of magnitude less than the surface water quality criteria listed in 18 AAC 70.020.

Table 12. Contamination Remaining at Contaminated Soil at the Wood Crib/Culvert near Building 300 (BKA QS AOC9)

Contaminants	Soil (mg/kg)	GW (mg/L)	Surface Water Criteria TAH/TAqH (mg/L)
Diesel Range Organics (DRO)	11,000 J-	0.265 J	0.0049/0.00567
Residual Range Organics (RRO)	17,400 J-	ND (0.15)	
Xylenes	1.754	0.00335 J	
1-Methylnaphthalene	7.75	ND	

Concentrations in red indicate an exceedance of the most stringent cleanup level

Concentrations highlighted yellow exceed ingestion cleanup levels
GW – Groundwater
TAH – Total Aromatic Hydrocarbons
TAqH – Total Aqueous Hydrocarbons
mg/kg – milligrams per kilogram
mg/L – milligrams per liter

Cumulative Risk Evaluation
Pursuant to 18 AAC 75.325(g), 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 noncarcinogenic risk standard at a hazard index of one across all exposure pathways. At this site, no detectable contamination remains.

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 and cleanup at the site, exposure to the remaining contaminants was evaluated using ADEC'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 below.

Table 13. Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	Pathway Incomplete	Contamination in surface soil was removed and is not present (0 to 2 feet below ground surface).
Sub-Surface Soil Contact	Exposure Controlled	DRO and RRO are present in the subsurface at concentrations above ingestion cleanup levels. Institutional Controls require DEC review prior to ground-disturbing activities.
Inhalation – Outdoor Air	De-Minimis Exposure	DRO and RRO are present in the subsurface at concentrations above ingestion cleanup levels, but are below inhalation cleanup levels. Xylenes and 1-methynaphthalene are present below human health cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	There is no indoor air concern as all remaining contamination is located between a road surface and beach.
Groundwater Ingestion	De-Minimis Exposure	Groundwater sampling has indicated that contamination will not migrate to groundwater at concentrations above Table C concentrations or surface water criteria.
Surface Water Ingestion	Pathway Incomplete	Surface water in the vicinity of the site is saltwater and will not be used as a drinking water source.

		Porewater sediment samples indicated contamination is below surface water criteria.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminants of concern do not have the potential to bioaccumulate in plants or animals.
Exposure to Ecological Receptors	Pathway Incomplete	Residual contamination is not an ecological risk.

Notes to Table 2: "De-Minimis Exposure" means that in ADEC's judgment receptors are unlikely to be adversely affected by the minimal volume or concentration of remaining contamination. "Pathway Incomplete" means that in ADEC'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

Petroleum contamination remains at this site above ingestion cleanup levels. Remaining petroleum is located in an inaccessible area between a roadbed and surf break-slope, where large cobbles and boulders are present. Removal of this remaining contamination is currently impracticable. Groundwater monitoring has indicated that groundwater has not been impacted above Table C cleanup levels, and it will not be further impacted by the remaining contamination. Surface water criteria is also not being exceeded in source area groundwater samples or downgradient porewater samples. The remaining contamination encompasses an area of approximately 625 $feet^2$ (~25x25 ft.).

This site has been entered into the FAA FEATS database for future tracking. The FEATS/environmental review process is as follows: Whenever a new project is started by FAA it is reviewed internally by a safety employee and an environmental employee. The environmental employee checks FEATS to insure the new project does not encounter any contamination. If there are no AOCs or other issues in the area the employee signs off on the form allowing FAA to continue with the project. If there are existing AOCs in the area of the new project the employee flags it and requires the project manager to contact an FAA Environmental PM. The environmental employee does not sign the form until the issue with encountering contamination is resolved. Therefore there is a dig permit procedure that would notify the FAA PM prior to disturbing soil in the area of the AOC.

ADEC has also approved the implementation of institutional controls that will limit potential future exposure and risk to human health and the environment.

Institutional controls necessary to support this closure determination include:

1. Remaining petroleum poses an ingestion risk. DEC requires a workplan when excavation work will be conducted in the area of the remaining contamination.
2. The area of contamination will not be used as a residential area.

Standard site closure conditions that apply to all sites include:

1. Any proposal to transport soil or groundwater off-site requires ADEC approval in accordance with 18 AAC 75.325(i). A "site" as defined by 18 AAC 75.990 (115) means an area that is contaminated, including areas contaminated by the migration of hazardous

substances from a source area, regardless of property ownership.

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.

ADEC has determined the cleanup is complete as long as the institutional controls are properly implemented and no new information becomes available that indicates residual contamination may pose an unacceptable risk. The ADEC Contaminated Sites Database will be updated to reflect the change in site status to "Cleanup Complete with Institutional Controls" and will include a description of the contamination remaining at the site.

The institutional controls will be removed in the future if documentation is provided that shows concentrations of all residual hazardous substances remaining at the site are below the levels that allow for unrestricted exposure to, and use of, the contaminated media and that the site does not pose a potential unacceptable risk to human health, safety or welfare, or to the environment. Standard conditions 1-3 above will remain in effect after ICs are removed.

This determination is in accordance with 18 AAC 75.380 and does not preclude ADEC from requiring additional assessment and/or cleanup action if the institutional controls are determined to be ineffective or if new information indicates that contaminants at this site may pose an unacceptable risk to human health or the environment.

***Attachment A* (enclosed) documents that the FAA and the site landowners concur with the terms and conditions of this Cleanup Complete with ICs Determination.**

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.

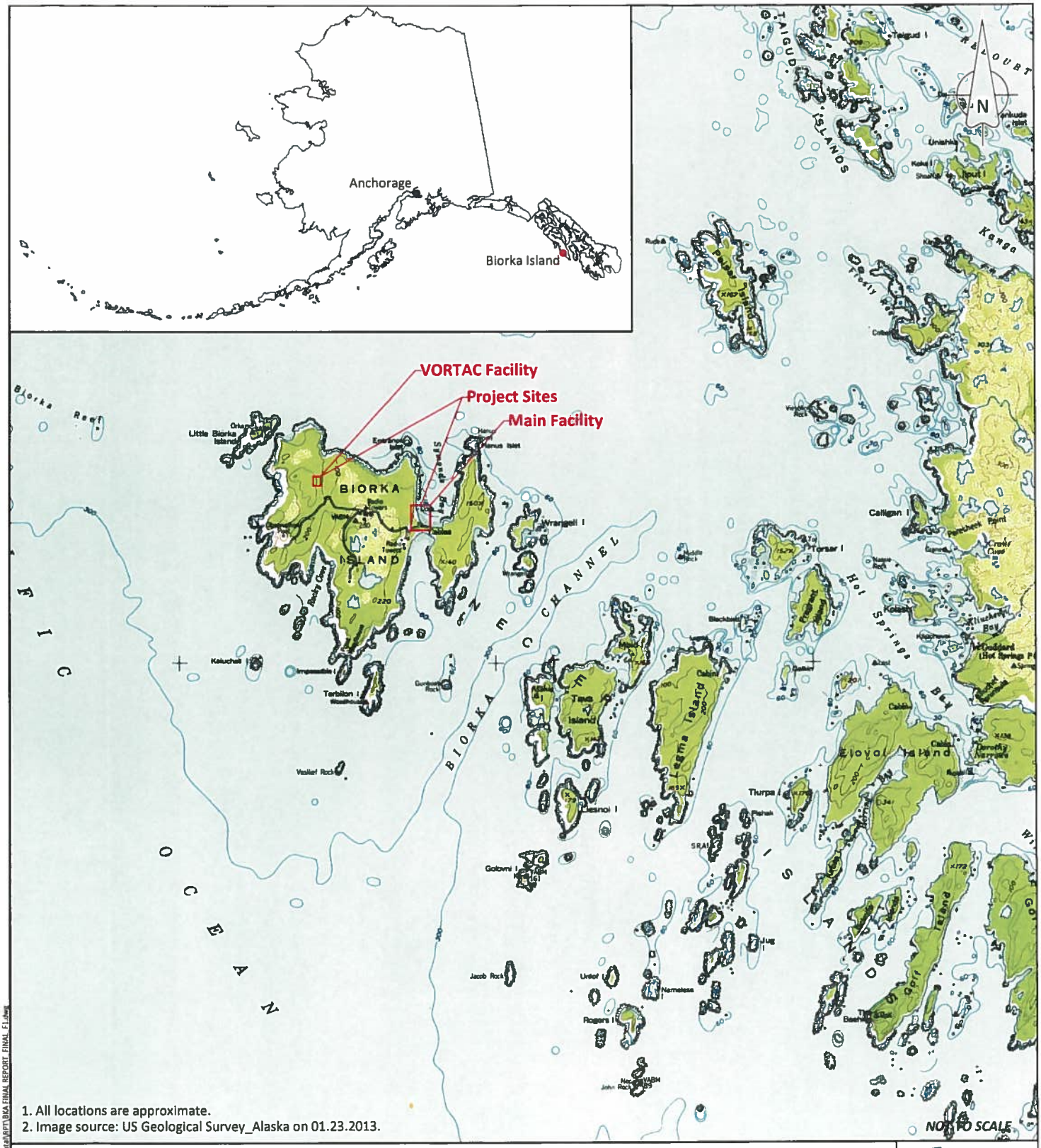
Sincerely,

Monte Garroutte
Environmental Program Specialist

Enclosures:

- Site Figures
- 2002 Alternative Cleanup Levels ROD
- 2010 RCAG Site Closure ROD
- 2012 VORTAC ROD
- 2012 LQ ROD
- Attachment A: FAA Biorka Island Station LQ, Wood Crib/Culvert near Building 300 (BKA QS AOC9) Area of Concern Cleanup Complete-ICs Agreement and Signature Page

CC: Brad Platt, FAA, via email
Kara Kusche, DEC, via email
John Halverson, DEC, via email



Remedial Investigation and Remedial Action Report
FAA Station Biorka Island, Alaska

Ahtna Engineering

State and Site Vicinity Maps

Project Number:	Figure Number:
20125.048	1
Date: 02.05.2015	
Drawn By: G.R.	

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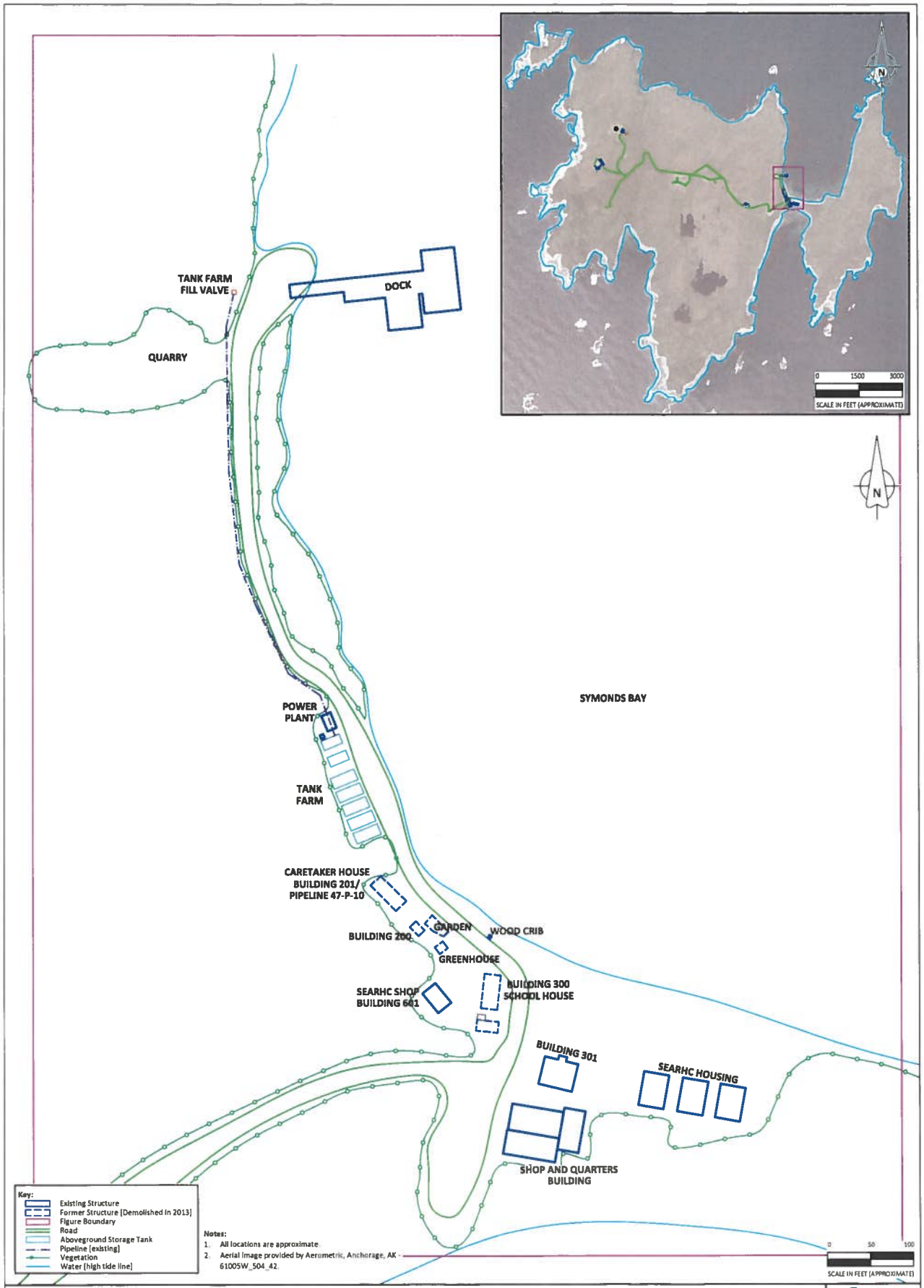
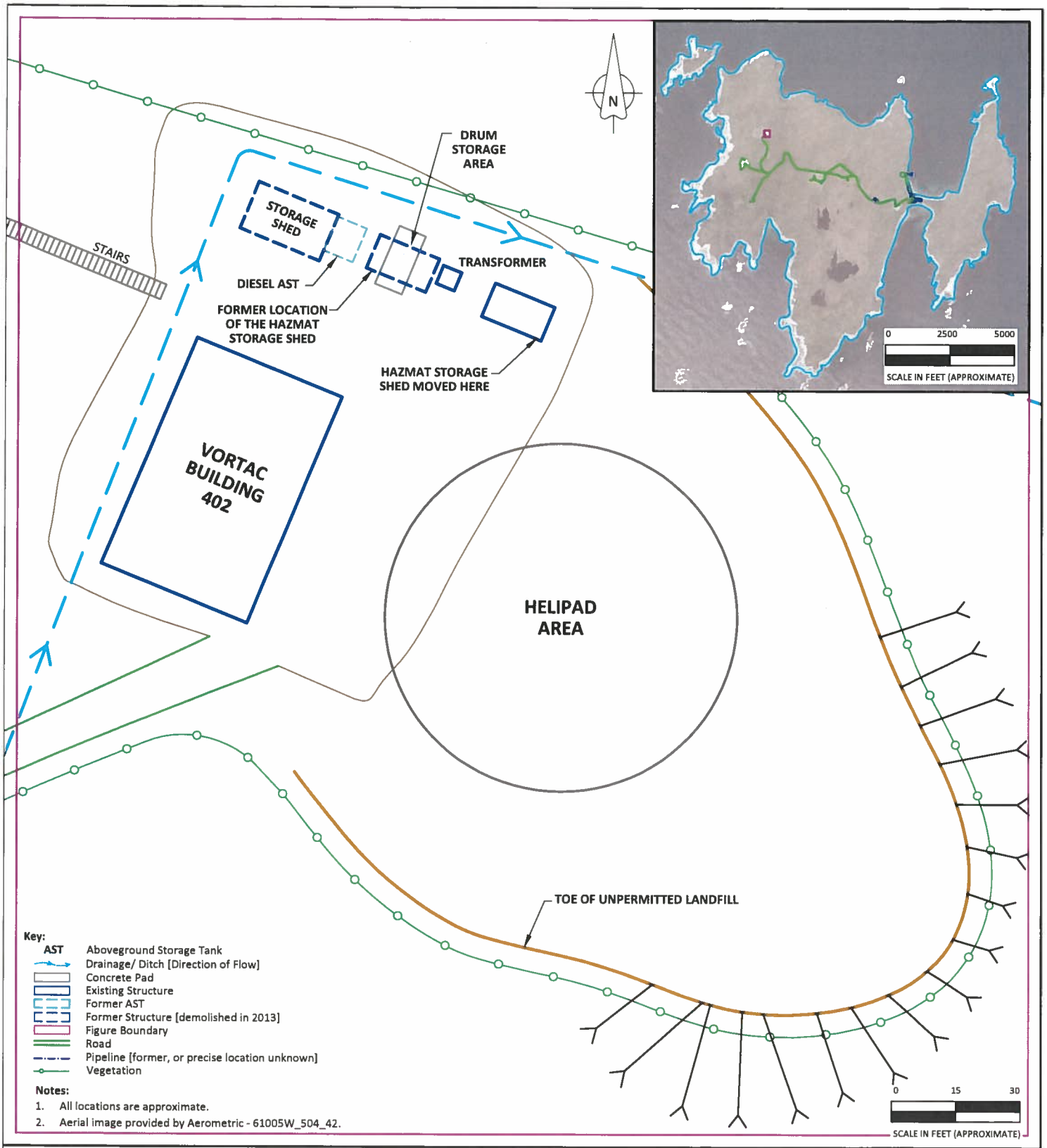


Remedial Investigation and Remedial Action Report
FAA Station Biorka Island, Alaska

Ahtna Engineering

Site Plan
Areas of Concern

Project Number: 20125.048
Date: 01.02.2015
Drawn By: G.R.
Figure Number: 2



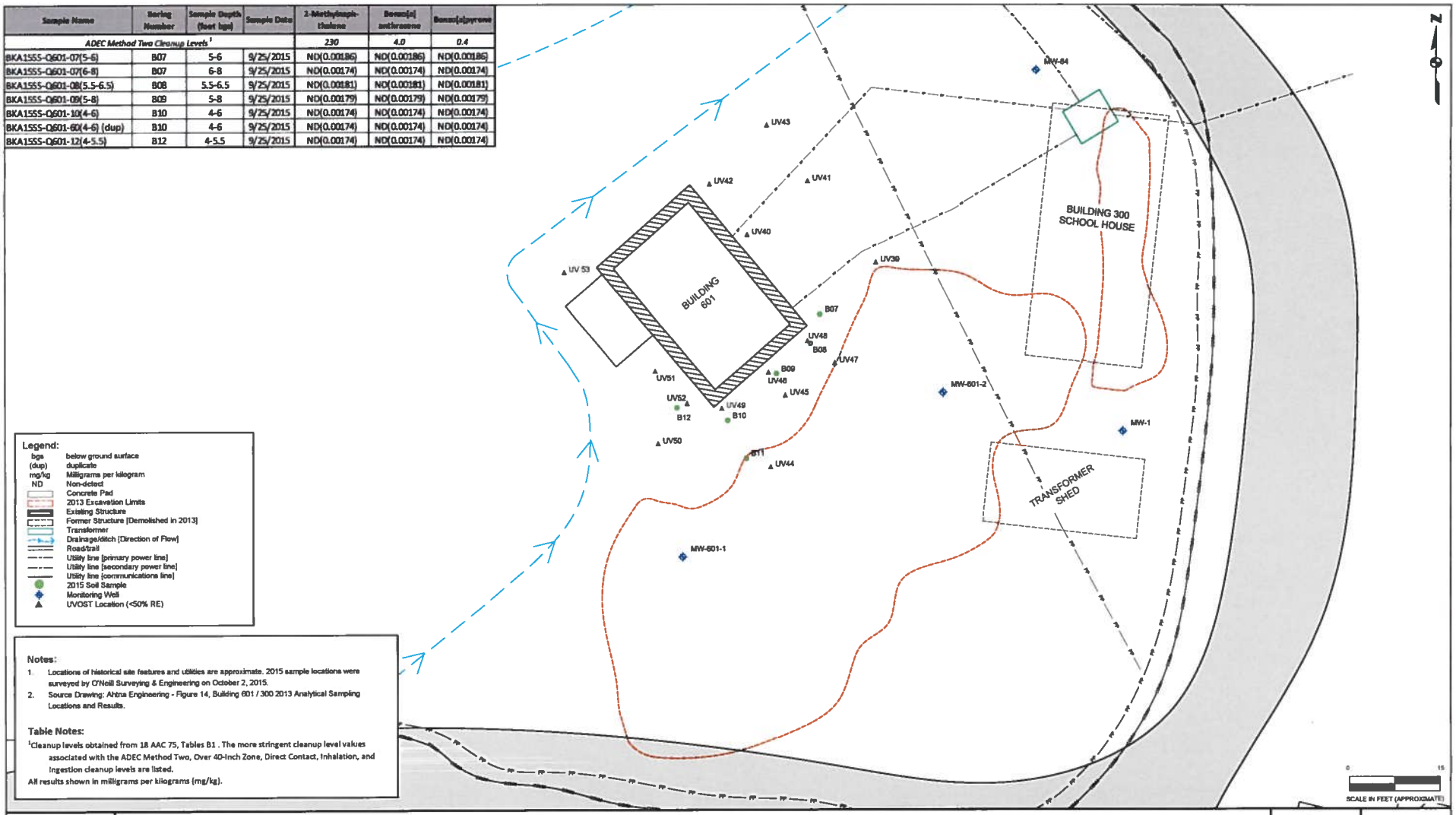
Remedial Investigation and Remedial Action Report
FAA Station Biorka Island, Alaska

Ahtna Engineering

VORTAC - Site Plan

Project Number: 20125.048	Figure Number: 3
Date: 02.02.2015	
Drawn By: G.R.	

Sample Name	Boring Number	Sample Depth (feet bgs)	Sample Date	2-Methylnaphthalene	Benzo[a]anthracene	Benzo[a]pyrene
ADEC Method Two Cleanup Levels[1]				*230*	*4.0*	*0.4*
BKA15SS-Q601-07(5-6)	B07	5-6	9/25/2015	ND(0.00186)	ND(0.00186)	ND(0.00186)
BKA15SS-Q601-07(6-8)	B07	6-8	9/25/2015	ND(0.00174)	ND(0.00174)	ND(0.00174)
BKA15SS-Q601-08(5.5-6.5)	B08	5.5-6.5	9/25/2015	ND(0.00181)	ND(0.00181)	ND(0.00181)
BKA15SS-Q601-09(5-8)	B09	5-8	9/25/2015	ND(0.00179)	ND(0.00179)	ND(0.00179)
BKA15SS-Q601-10(4-6)	B10	4-6	9/25/2015	ND(0.00174)	ND(0.00174)	ND(0.00174)
BKA15SS-Q601-60(4-6) (dup)	B10	4-6	9/25/2015	ND(0.00174)	ND(0.00174)	ND(0.00174)
BKA15SS-Q601-12(4-5.5)	B12	4-5.5	9/25/2015	ND(0.00174)	ND(0.00174)	ND(0.00174)



Legend:

bgs	below ground surface
(dup)	duplicate
mg/kg	Milligrams per kilogram
ND	Non-detect
	Concrete Pad
	2013 Excavation Limits
	Existing Structure
	Former Structure [Demolished in 2013]
	Transformer
	Drainage/ditch [Direction of Flow]
	Road/trail
	Utility line [primary power line]
	Utility line [secondary power line]
	Utility line [communications line]
	2015 Soil Sample
	Monitoring Well
	UVOST Location (<50% RE)

Notes:

1. Locations of historical site features and utilities are approximate. 2015 sample locations were surveyed by O'Neill Surveying & Engineering on October 2, 2015.
2. Source Drawing: Ahtna Engineering - Figure 14, Building 601 / 300 2013 Analytical Sampling Locations and Results.

Table Notes:

[1]Cleanup levels obtained from 18 AAC 75, Tables B1 . The more stringent cleanup level values associated with the ADEC Method Two, Over 40-Inch Zone, Direct Contact, Inhalation, and Ingestion cleanup levels are listed.

All results shown in milligrams per kilograms (mg/kg).

Bryce Environmental Services Corporation
3800 Centerpoint Dr. Ste. 520
Anchorage, AK 99503

SITE INVESTIGATION REPORT

FAA STATION BIORKA ISLAND, ALASKA

BUILDING 601/300

2015 SOIL SAMPLE LOCATIONS AND RESULTS

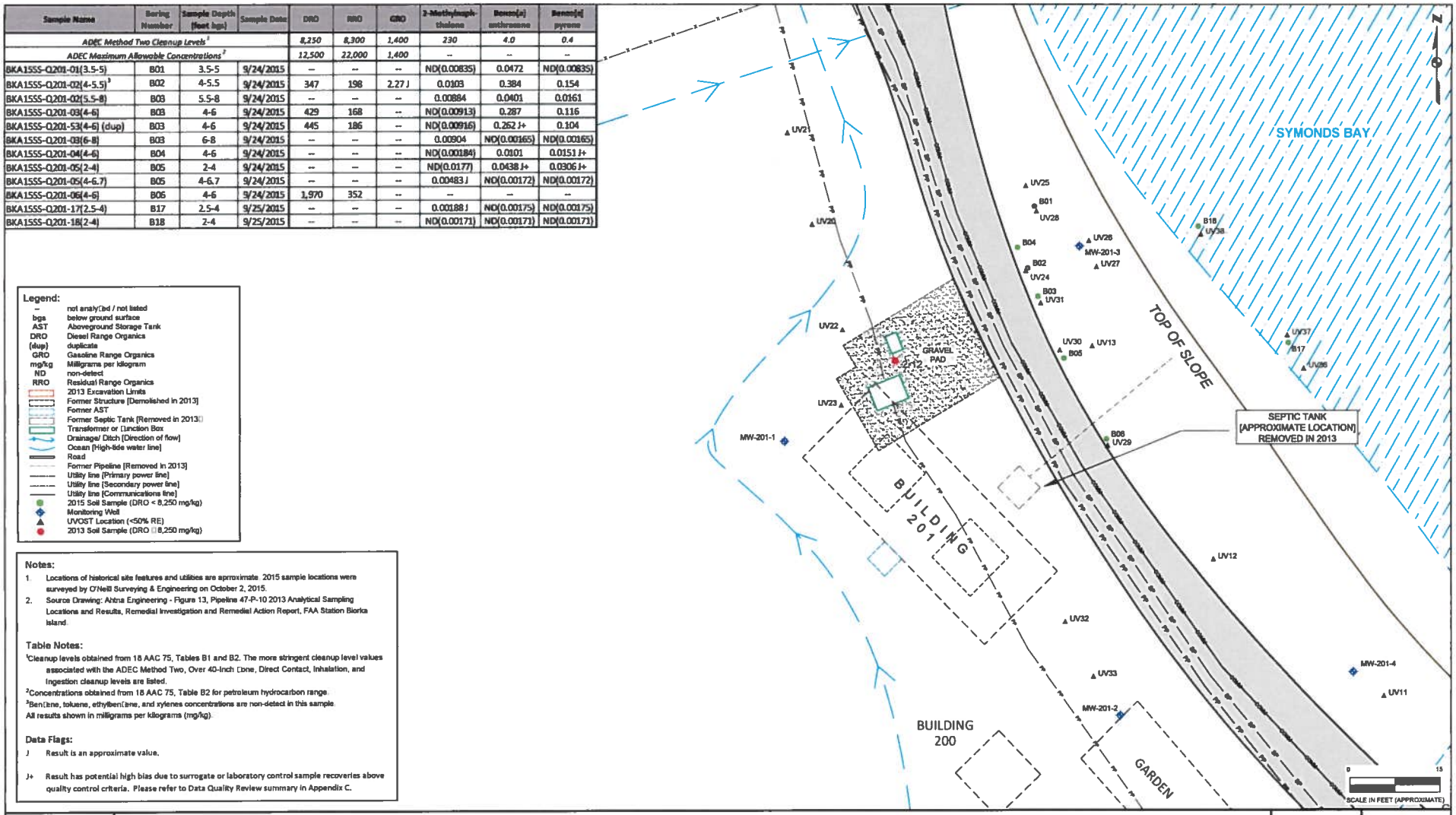
DATE: 12.22.15

P.O.: M.O.

DRAWN: D.H.

FIGURE: 13

Sample Name	Boring Number	Sample Depth (feet bgs)	Sample Date	DRO	RRO	GRO	2-Methylnaphthalene	Benzo[a]anthracene	Benzo[a]pyrene
ADEC Method Two Cleanup Levels[1]				8,250	8,300	1,400	230	4.0	0.4
ADEC Maximum Allowable Concentrations[2]				12,500	22,000	1,400	--	--	--
BKA15SS-Q201-01(3.5-5)	B01	3.5-5	9/24/2015	--	--	--	ND(0.00835)	0.0472	ND(0.00835)
BKA15SS-Q201-02(4-5.5)[3]	B02	4-5.5	9/24/2015	347	198	2.27 J	0.0103	0.384	0.154
BKA15SS-Q201-02(5.5-8)	B03	5.5-8	9/24/2015	--	--	--	0.00884	0.0401	0.0161
BKA15SS-Q201-03(4-6)	B03	4-6	9/24/2015	429	168	--	ND(0.00913)	0.287	0.116
BKA15SS-Q201-53(4-6) (dup)	B03	4-6	9/24/2015	445	186	--	ND(0.00916)	0.262 J+	0.104
BKA15SS-Q201-03(6-8)	B03	6-8	9/24/2015	--	--	--	0.00904	ND(0.00165)	ND(0.00165)
BKA15SS-Q201-04(4-6)	B04	4-6	9/24/2015	--	--	--	ND(0.00184)	0.0101	0.0151 J+
BKA15SS-Q201-05(2-4)	B05	2-4	9/24/2015	--	--	--	ND(0.0177)	0.0438 J+	0.0306 J+
BKA15SS-Q201-05(4-6.7)	B05	4-6.7	9/24/2015	--	--	--	0.00483 J	ND(0.00172)	ND(0.00172)
BKA15SS-Q201-06(4-6)	B06	4-6	9/24/2015	1,970	352	--	--	--	--
BKA15SS-Q201-17(2.5-4)	B17	2.5-4	9/25/2015	--	--	--	0.00188 J	ND(0.00175)	ND(0.00175)
BKA15SS-Q201-18(2-4)	B18	2-4	9/25/2015	--	--	--	ND(0.00171)	ND(0.00171)	ND(0.00171)



Legend:

- – not analyzed / not listed
- bgs below ground surface
- AST Aboveground Storage Tank
- DRO Diesel Range Organics
- (dup) duplicate
- GRO Gasoline Range Organics
- mg/kg Milligrams per kilogram
- ND non-detect
- RRO Residual Range Organics
- 2013 Excavation Limits
- Former Structure (Demolished in 2013)
- Former AST
- Former Septic Tank (Removed in 2013)
- Transformer or Junction Box
- Drainage/ Ditch (Direction of flow)
- Ocean (High-tide water line)
- Road
- Former Pipeline (Removed in 2013)
- Utility line (Primary power line)
- Utility line (Secondary power line)
- Utility line (Communications line)
- 2015 Soil Sample (DRO < 8,250 mg/kg)
- Monitoring Well
- UVOST Location (<50% RE)
- 2013 Soil Sample (DRO ≥ 8,250 mg/kg)

Notes:

1. Locations of historical site features and utilities are approximate. 2015 sample locations were surveyed by O'Neill Surveying & Engineering on October 2, 2015.
2. Source Drawing: Ahtna Engineering - Figure 13, Pipeline 47-P-10 2013 Analytical Sampling Locations and Results, Remedial Investigation and Remedial Action Report, FAA Station Biorka Island.

Table Notes:

[1]Cleanup levels obtained from 18 AAC 75, Tables B1 and B2. The more stringent cleanup level values associated with the ADEC Method Two, Over 40-Inch Zone, Direct Contact, Inhalation, and Ingestion cleanup levels are listed.
[2]Concentrations obtained from 18 AAC 75, Table B2 for petroleum hydrocarbon range.
[3]Benzene, toluene, ethylbenzene, and xylenes concentrations are non-detect in this sample.
All results shown in milligrams per kilograms (mg/kg).

Data Flags:

J Result is an approximate value.

J+ Result has potential high bias due to surrogate or laboratory control sample recoveries above quality control criteria. Please refer to Data Quality Review summary in Appendix C.

Bryce Environmental Services Corporation
3800 Centerpoint Dr. Ste. 520
Anchorage, AK 99503

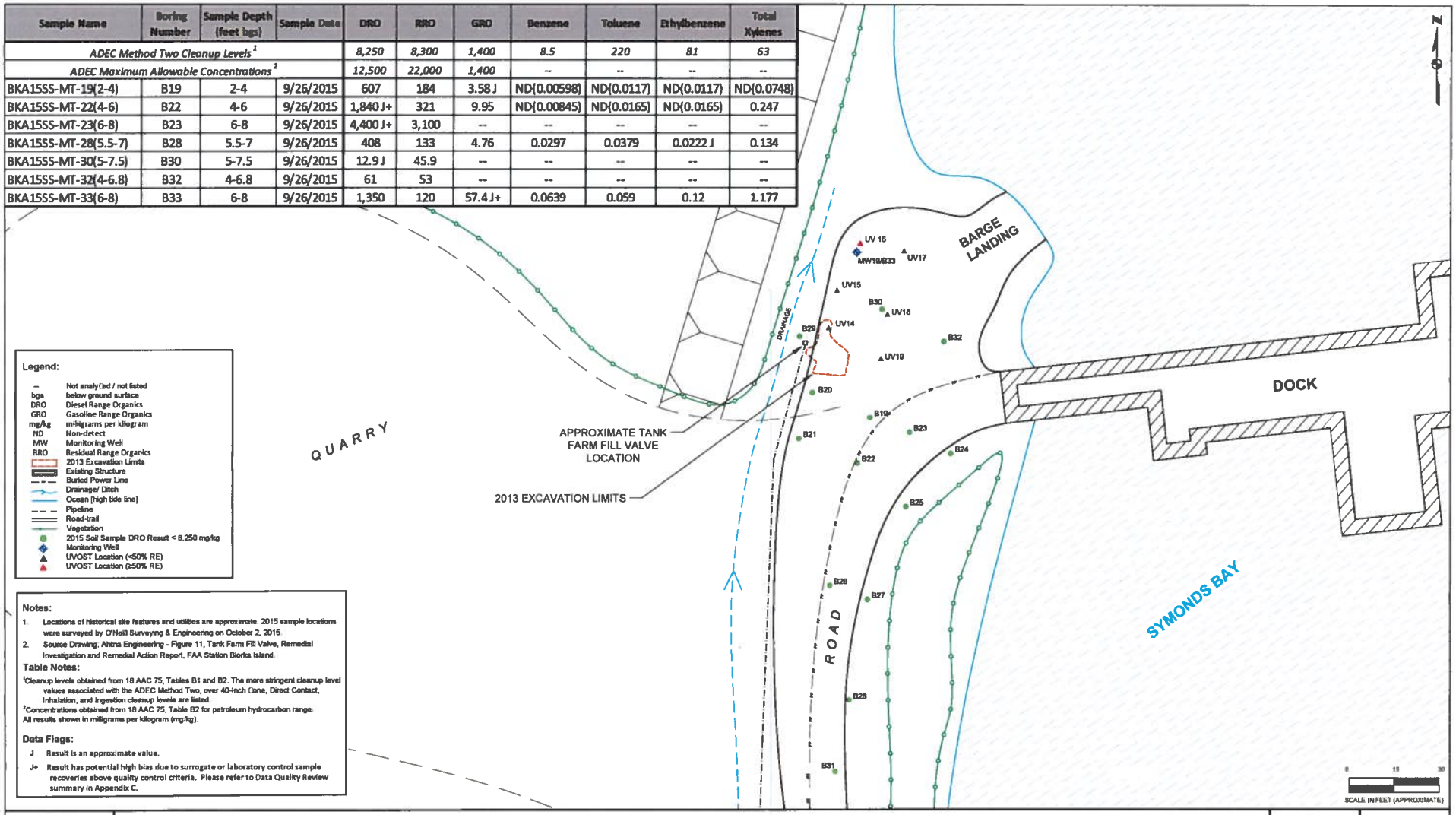
SITE INVESTIGATION REPORT
FAA STATION BIORKA ISLAND, ALASKA

BUILDING 201
2015 SOIL SAMPLE LOCATIONS AND RESULTS

DATE: 12.22.15
P.O.: M.O.
DRAWN: D.H.

FIGURE: 12

Sample Name	Boring Number	Sample Depth (feet bgs)	Sample Date	DRO	RRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes
ADEC Method Two Cleanup Levels[1]				*8,250*	*8,300*	*1,400*	*8.5*	*220*	*81*	*63*
ADEC Maximum Allowable Concentrations[2]				*12,500*	*22,000*	*1,400*	--	--	--	--
BKA15SS-MT-19(2-4)	B19	2-4	9/26/2015	607	184	3.58 J	ND(0.00598)	ND(0.0117)	ND(0.0117)	ND(0.0748)
BKA15SS-MT-22(4-6)	B22	4-6	9/26/2015	1,840 J+	321	9.95	ND(0.00845)	ND(0.0165)	ND(0.0165)	0.247
BKA15SS-MT-23(6-8)	B23	6-8	9/26/2015	4,400 J+	3,100	--	--	--	--	--
BKA15SS-MT-28(5.5-7)	B28	5.5-7	9/26/2015	408	133	4.76	0.0297	0.0379	0.0222 J	0.134
BKA15SS-MT-30(5-7.5)	B30	5-7.5	9/26/2015	12.9 J	45.9	--	--	--	--	--
BKA15SS-MT-32(4-6.8)	B32	4-6.8	9/26/2015	61	53	--	--	--	--	--
BKA15SS-MT-33(6-8)	B33	6-8	9/26/2015	1,350	120	57.4 J+	0.0639	0.059	0.12	1.177



Legend:

--	Not analyzed / not listed
bgs	below ground surface
DRO	Diesel Range Organics
GRO	Gasoline Range Organics
mg/kg	milligrams per kilogram
ND	Non-detect
MW	Monitoring Well
RRO	Residual Range Organics
	2013 Excavation Limits
	Existing Structure
	Buried Power Line
	Drainage/ Ditch
	Ocean [high tide line]
	Pipeline
	Road-trail
	Vegetation
	2015 Soil Sample DRO Result < 8,250 mg/kg
	Monitoring Well
	UVOST Location (<50% RE)
	UVOST Location (≥50% RE)

Notes:

1. Locations of historical site features and utilities are approximate. 2015 sample locations were surveyed by O'Neill Surveying & Engineering on October 2, 2015.
2. Source Drawing: Ahtna Engineering - Figure 11, Tank Farm Fill Valve, Remedial Investigation and Remedial Action Report, FAA Station Biorka Island.

Table Notes:

[1]Cleanup levels obtained from 18 AAC 75, Tables B1 and B2. The more stringent cleanup level values associated with the ADEC Method Two, over 40-inch Zone, Direct Contact, Inhalation, and Ingestion cleanup levels are listed.
[2]Concentrations obtained from 18 AAC 75, Table B2 for petroleum hydrocarbon range.
All results shown in milligrams per kilogram (mg/kg).

Data Flags:

J Result is an approximate value.

J+ Result has potential high bias due to surrogate or laboratory control sample recoveries above quality control criteria. Please refer to Data Quality Review summary in Appendix C.

Bruce AMC Bio
Environmental Services Corporation
3800 Centerpoint Dr. Ste. 520
Anchorage, AK 99503

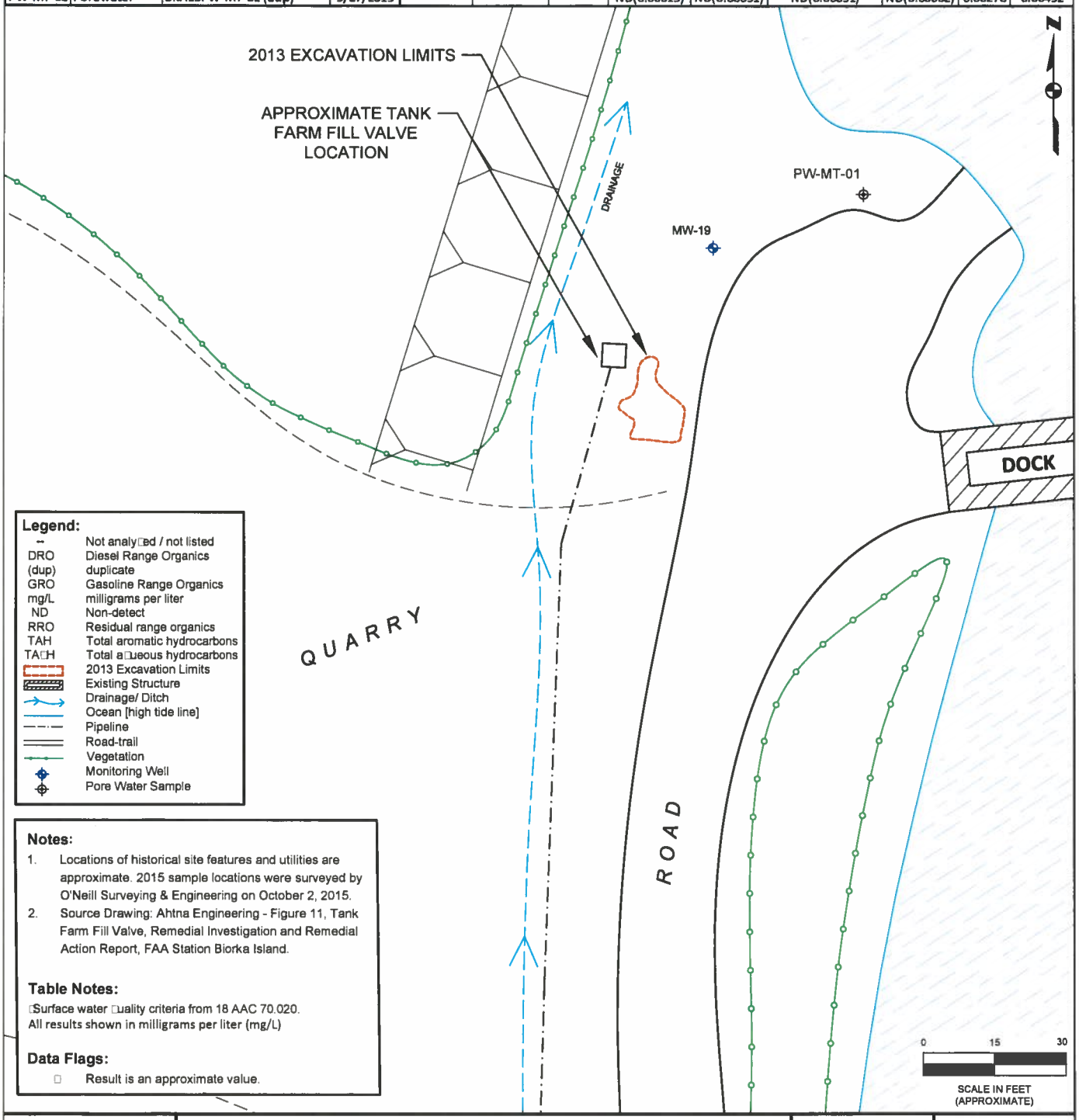
SITE INVESTIGATION REPORT
FAA STATION BIORKA ISLAND, ALASKA

TANK FARM FILL VALVE
2015 SOIL SAMPLE LOCATIONS AND RESULTS

DATE: 05.17.16
P.O.: M.O.
DRAWN: D.H.

FIGURE: 8

Location	Matrix	Sample Name	Sample Date	DRO	RRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	TAH	TAqH
ADEC 18 AAC 75, Table C Cleanup Levels				*1.5*	*1.1*	*2.2*	*0.005*	*1*	*0.7*	*10*	*0.010**	*0.015**
MW-19	Groundwater	BKA15-MW19-1-MT01	9/28/2015	0.765	ND(0.151)	0.093 J	0.00034 J	0.0004 J	ND(0.00031)	0.00102 J	0.00238	0.00399
MW-19	Groundwater	BKA15-MW19-1-MT02 (dup)	9/28/2015	0.47 J	ND(0.154)	0.0958 J	0.00036 J	0.00041 J	0.00032 J	0.00102 J	0.00211	0.00267
PW-MT-01	Porewater	BKA15PW-MT-01	9/27/2015	--	--	--	ND(0.00015)	ND(0.00031)	ND(0.00031)	ND(0.00062)	0.00278	0.00335
PW-MT-01	Porewater	BKA15PW-MT-02 (dup)	9/27/2015	--	--	--	ND(0.00015)	ND(0.00031)	ND(0.00031)	ND(0.00062)	0.00278	0.00452



Legend:

--	Not analy□ed / not listed
DRO	Diesel Range Organics
(dup)	duplicate
GRO	Gasoline Range Organics
mg/L	milligrams per liter
ND	Non-detect
RRO	Residual range organics
TAH	Total aromatic hydrocarbons
TA□H	Total a□ueous hydrocarbons
	2013 Excavation Limits
	Existing Structure
	Drainage/ Ditch
	Ocean [high tide line]
	Pipeline
	Road-trail
	Vegetation
	Monitoring Well
	Pore Water Sample

Notes:

1. Locations of historical site features and utilities are approximate. 2015 sample locations were surveyed by O'Neill Surveying & Engineering on October 2, 2015.
2. Source Drawing: Ahtna Engineering - Figure 11, Tank Farm Fill Valve, Remedial Investigation and Remedial Action Report, FAA Station Biorka Island.

Table Notes:

□Surface water □uality criteria from 18 AAC 70.020.
All results shown in milligrams per liter (mg/L)

Data Flags:

□ Result is an approximate value.

Brice ANC 8(a)
Environmental Services Corporation
3800 Centerpoint Dr. Ste. 520
Anchorage, AK 99503

SITE INVESTIGATION REPORT

FAA STATION BIORKA ISLAND, ALASKA

TANK FARM FILL VALVE

2015 GROUNDWATER AND PORE WATER SAMPLE LOCATIONS & RESULTS

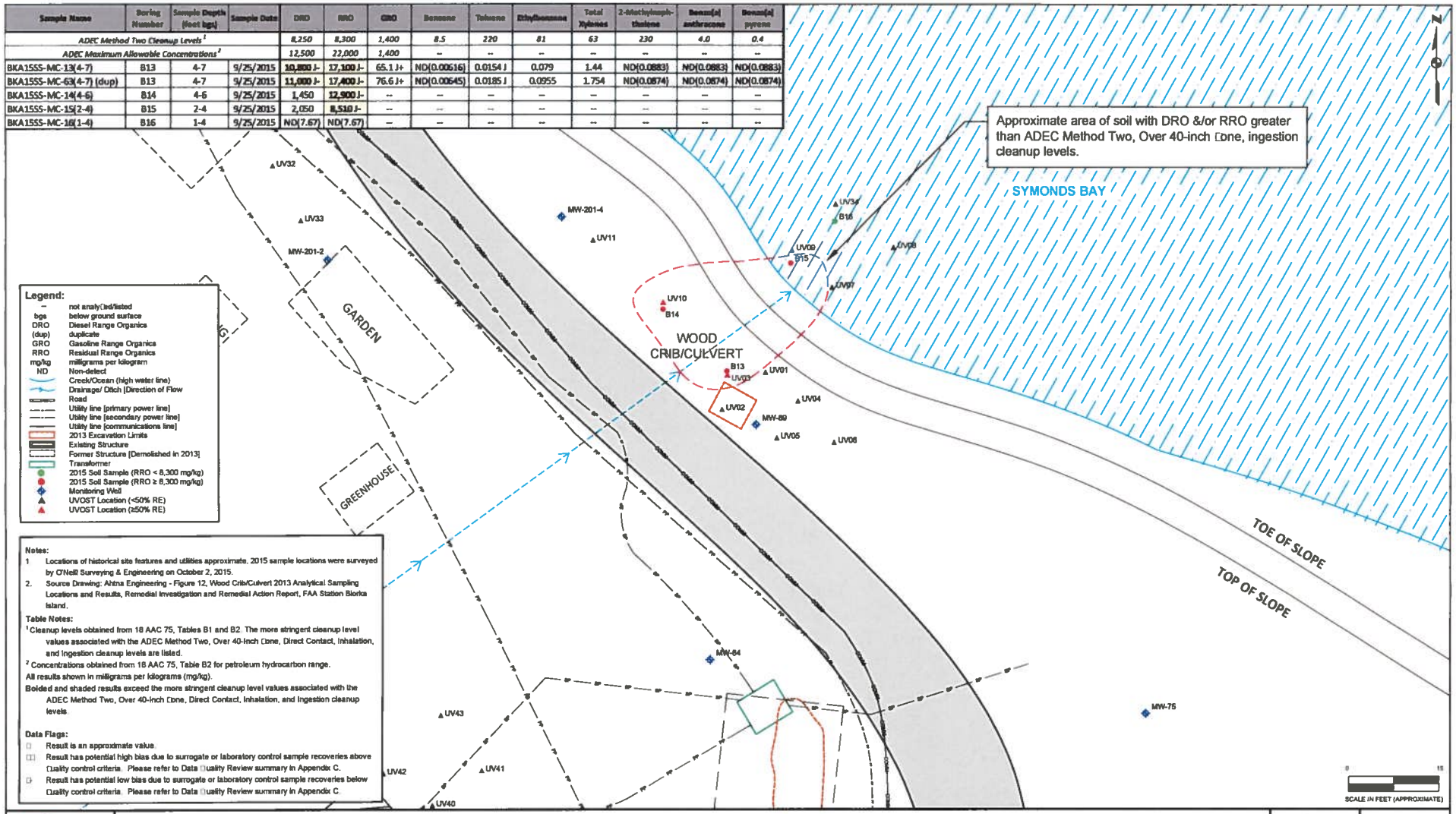
DATE: 05.18.16

P.M.: M.O.

DRAWN: D.H.

FIGURE: 9

Sample Name	Boring Number	Sample Depth (feet bgs)	Sample Date	DRO	RRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	2-Methylnaphthalene	Benzo[a]anthracene	Benzo[a]pyrene
ADEC Method Two Cleanup Levels [1]				*8,250*	*8,300*	*1,400*	*8.5*	*220*	*81*	*63*	*230*	*4.0*	*0.4*
ADEC Maximum Allowable Concentrations [2]				*12,500*	*22,000*	*1,400*	--	--	--	--	--	--	--
BKA15SS-MC-13(4-7)	B13	4-7	9/25/2015	10,800 J-	17,100 J-	65.1 J+	ND(0.00616)	0.0154 J	0.079	1.44	ND(0.0883)	ND(0.0883)	ND(0.0883)
BKA15SS-MC-63(4-7) (dup)	B13	4-7	9/25/2015	11,000 J-	17,400 J-	76.6 J+	ND(0.00645)	0.0185 J	0.0955	1.754	ND(0.0874)	ND(0.0874)	ND(0.0874)
BKA15SS-MC-14(4-6)	B14	4-6	9/25/2015	1,450	12,900 J-	--	--	--	--	--	--	--	--
BKA15SS-MC-15(2-4)	B15	2-4	9/25/2015	2,050	8,510 J-	--	--	--	--	--	--	--	--
BKA15SS-MC-16(1-4)	B16	1-4	9/25/2015	ND(7.67)	ND(7.67)	--	--	--	--	--	--	--	--



Legend:

--	not analyzed/listed
bgs	below ground surface
DRO	Diesel Range Organics
(dup)	duplicate
GRO	Gasoline Range Organics
RRO	Residual Range Organics
mg/kg	milligrams per kilogram
ND	Non-detect
	Creek/Ocean (high water line)
	Drainage/ Ditch [Direction of Flow
	Road
	Utility line [primary power line]
	Utility line [secondary power line]
	Utility line [communications line]
	2013 Excavation Limits
	Existing Structure
	Former Structure [Demolished in 2013]
	Transformer
	2015 Soil Sample (RRO < 8,300 mg/kg)
	2015 Soil Sample (RRO ≥ 8,300 mg/kg)
	Monitoring Well
	UVOST Location (<50% RE)
	UVOST Location (≥50% RE)

Notes:

1. Locations of historical site features and utilities approximate. 2015 sample locations were surveyed by O'Neill Surveying & Engineering on October 2, 2015.
2. Source Drawing: Ahtna Engineering - Figure 12, Wood Crib/Culvert 2013 Analytical Sampling Locations and Results, Remedial Investigation and Remedial Action Report, FAA Station Biorka Island.

Table Notes:

[1] Cleanup levels obtained from 18 AAC 75, Tables B1 and B2. The more stringent cleanup level values associated with the ADEC Method Two, Over 40-inch Zone, Direct Contact, Inhalation, and Ingestion cleanup levels are listed.

[2] Concentrations obtained from 18 AAC 75, Table B2 for petroleum hydrocarbon range.

All results shown in milligrams per kilograms (mg/kg).

Bolded and shaded results exceed the more stringent cleanup level values associated with the ADEC Method Two, Over 40-inch Zone, Direct Contact, Inhalation, and Ingestion cleanup levels.

Data Flags:

- J Result is an approximate value.
- J+ Result has potential high bias due to surrogate or laboratory control sample recoveries above Quality control criteria. Please refer to Data Quality Review summary in Appendix C.
- J- Result has potential low bias due to surrogate or laboratory control sample recoveries below Quality control criteria. Please refer to Data Quality Review summary in Appendix C.

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SITE INVESTIGATION REPORT

FAA STATION BIORKA ISLAND, ALASKA

WOOD CRIB / CULVERT

2015 SOIL SAMPLE LOCATIONS AND RESULTS

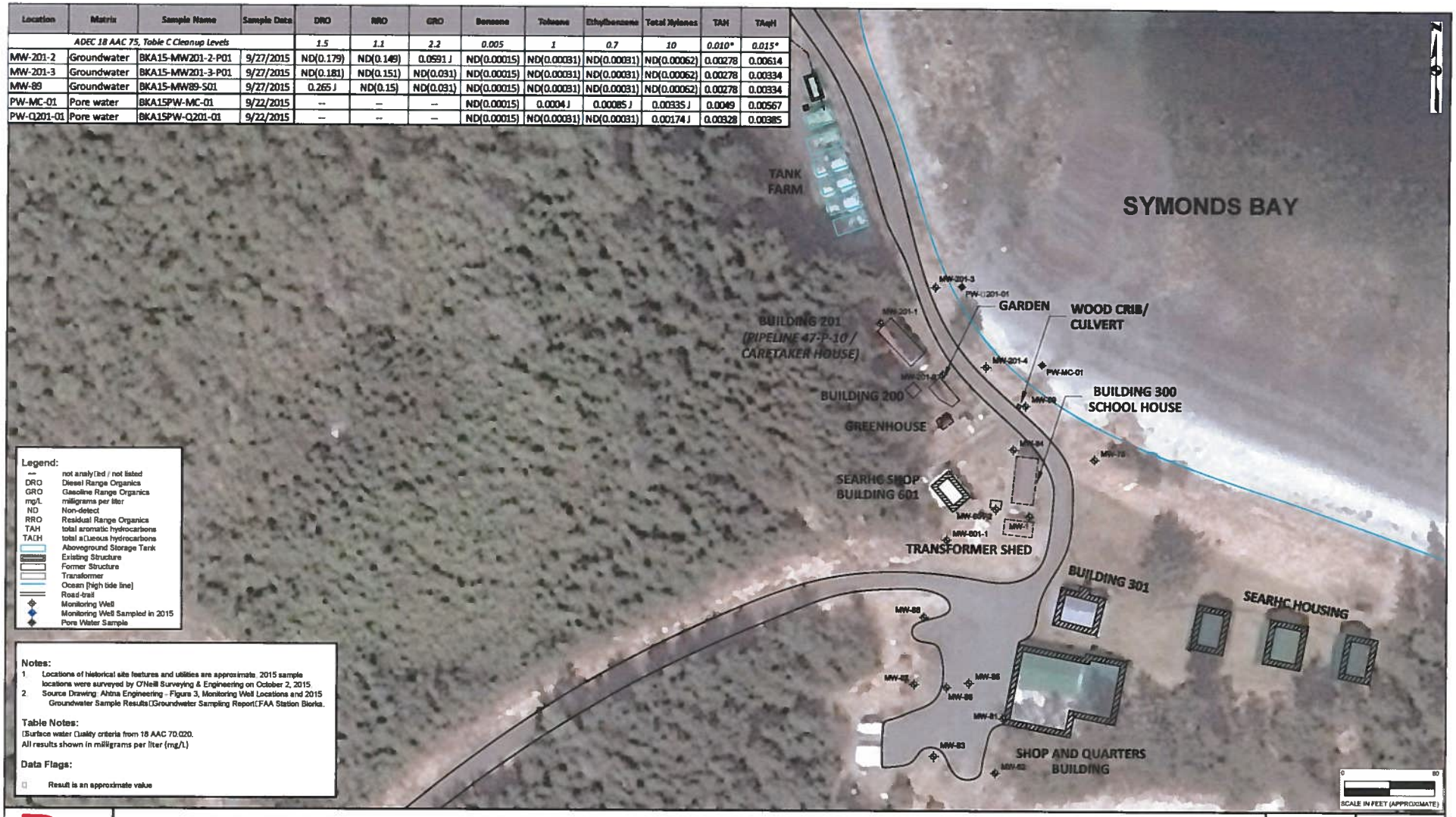
DATE: 12.22.15

P.O.: M.O.

DRAWN: D.H.

FIGURE: 10

Location	Matrix	Sample Name	Sample Date	DRO	RRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	TAH	TAqH
ADEC 18 AAC 75, Table C Cleanup Levels				*1.5*	*1.1*	*2.2*	*0.005*	*1*	*0.7*	*10*	*0.010**	*0.015**
MW-201-2	Groundwater	BKA15-MW201-2-P01	9/27/2015	ND(0.179)	ND(0.149)	0.0591 J	ND(0.00015)	ND(0.00031)	ND(0.00031)	ND(0.00062)	0.00278	0.00614
MW-201-3	Groundwater	BKA15-MW201-3-P01	9/27/2015	ND(0.181)	ND(0.151)	ND(0.031)	ND(0.00015)	ND(0.00031)	ND(0.00031)	ND(0.00062)	0.00278	0.00334
MW-89	Groundwater	BKA15-MW89-S01	9/27/2015	0.265 J	ND(0.15)	ND(0.031)	ND(0.00015)	ND(0.00031)	ND(0.00031)	ND(0.00062)	0.00278	0.00334
PW-MC-01	Pore water	BKA15PW-MC-01	9/22/2015	--	--	--	ND(0.00015)	0.0004 J	0.00085 J	0.00335 J	0.0049	0.00567
PW-Q201-01	Pore water	BKA15PW-Q201-01	9/22/2015	--	--	--	ND(0.00015)	ND(0.00031)	ND(0.00031)	0.00174 J	0.00328	0.00385



Legend:

--	not analyzed / not listed
DRO	Diesel Range Organics
GRO	Gasoline Range Organics
mg/L	milligrams per liter
ND	Non-detect
RRO	Residual Range Organics
TAH	total aromatic hydrocarbons
TAqH	total aqueous hydrocarbons
	Aboveground Storage Tank
	Existing Structure
	Former Structure
	Transformer
	Ocean [high tide line]
	Road-trail
	Monitoring Well
	Monitoring Well Sampled in 2015
	Pore Water Sample

Notes:

1. Locations of historical site features and utilities are approximate. 2015 sample locations were surveyed by O'Neill Surveying & Engineering on October 2, 2015
2. Source Drawing: Ahtna Engineering - Figure 3, Monitoring Well Locations and 2015 Groundwater Sample Results/Groundwater Sampling Report/FAA Station Biorka.

Table Notes:

/Surface water quality criteria from 18 AAC 70.020.
All results shown in milligrams per liter (mg/L)

Data Flags:

J Result is an approximate value

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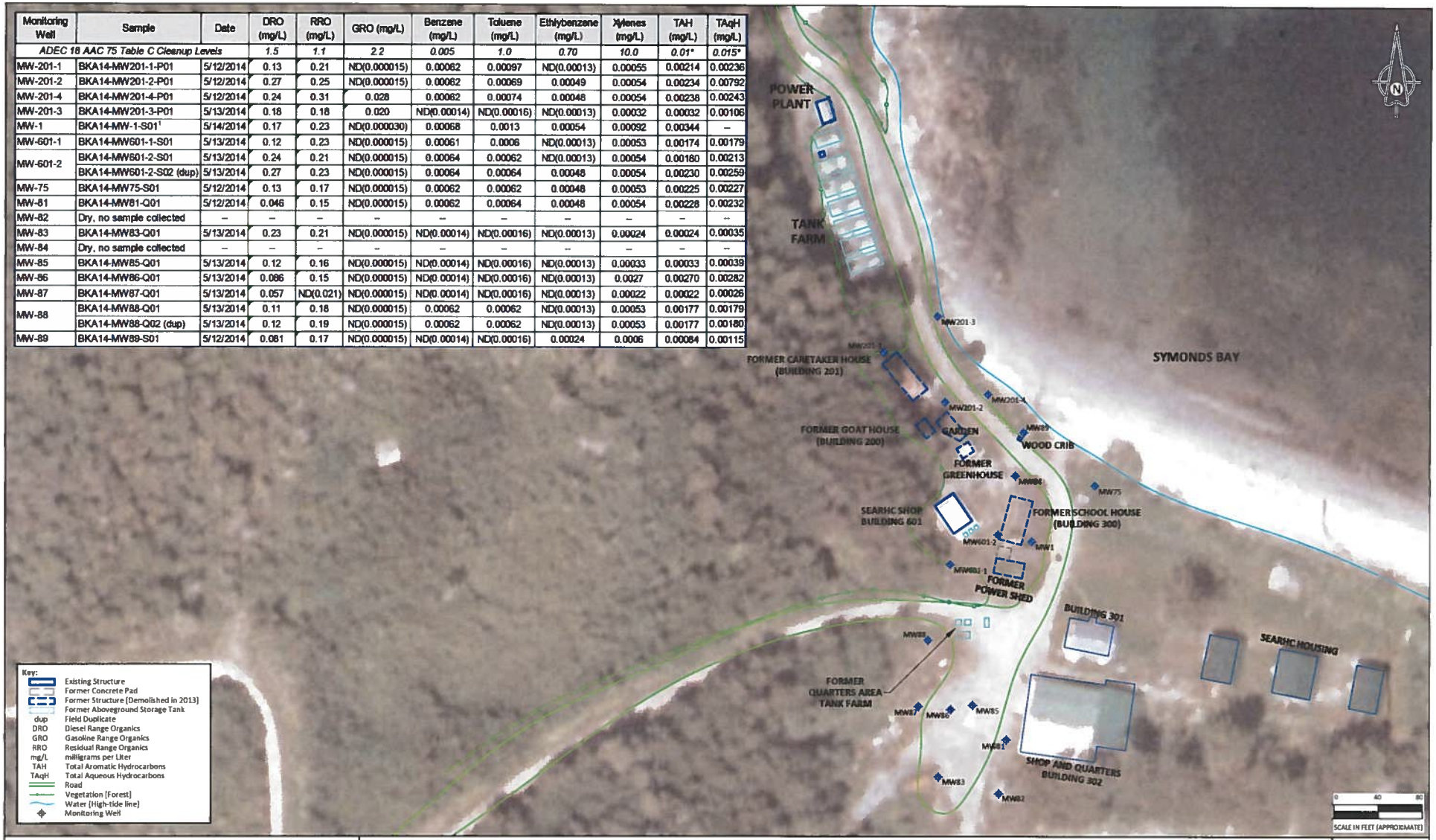
SITE INVESTIGATION REPORT
FAA STATION BIORKA ISLAND, ALASKA

MONITORING WELL LOCATIONS AND 2015 GROUNDWATER AND PORE WATER SAMPLE RESULTS

DATE: 12.22.15
P.O.: M.O.
DRAWN: D.H.

FIGURE: 11

Monitoring Well	Sample	Date	DRO (mg/L)	RRO (mg/L)	GRO (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	TAH (mg/L)	TAqH (mg/L)
ADEC 18 AAC 75 Table C Cleanup Levels			*1.5*	*1.1*	*2.2*	*0.005*	*1.0*	*0.70*	*10.0*	*0.01**	*0.015**
MW-201-1	BKA14-MW201-1-P01	5/12/2014	0.13	0.21	ND(0.000015)	0.00062	0.00097	ND(0.00013)	0.00055	0.00214	0.00236
MW-201-2	BKA14-MW201-2-P01	5/12/2014	0.27	0.25	ND(0.000015)	0.00062	0.00069	0.00049	0.00054	0.00234	0.00792
MW-201-4	BKA14-MW201-4-P01	5/12/2014	0.24	0.31	0.028	0.00062	0.00074	0.00048	0.00054	0.00238	0.00243
MW-201-3	BKA14-MW201-3-P01	5/13/2014	0.18	0.18	0.020	ND(0.00014)	ND(0.00016)	ND(0.00013)	0.00032	0.00032	0.00106
MW-1	BKA14-MW-1-S01[1]	5/14/2014	0.17	0.23	ND(0.000030)	0.00068	0.0013	0.00054	0.00092	0.00344	--
MW-601-1	BKA14-MW601-1-S01	5/13/2014	0.12	0.23	ND(0.000015)	0.00061	0.0006	ND(0.00013)	0.00053	0.00174	0.00179
MW-601-2	BKA14-MW601-2-S01	5/13/2014	0.24	0.21	ND(0.000015)	0.00064	0.00062	ND(0.00013)	0.00054	0.00180	0.00213
	BKA14-MW601-2-S02 (dup)	5/13/2014	0.27	0.23	ND(0.000015)	0.00064	0.00064	0.00048	0.00054	0.00230	0.00259
MW-75	BKA14-MW75-S01	5/12/2014	0.13	0.17	ND(0.000015)	0.00062	0.00062	0.00048	0.00053	0.00225	0.00227
MW-81	BKA14-MW81-Q01	5/12/2014	0.046	0.15	ND(0.000015)	0.00062	0.00064	0.00048	0.00054	0.00228	0.00232
MW-82	Dry, no sample collected	--	--	--	--	--	--	--	--	--	--
MW-83	BKA14-MW83-Q01	5/13/2014	0.23	0.21	ND(0.000015)	ND(0.00014)	ND(0.00016)	ND(0.00013)	0.00024	0.00024	0.00035
MW-84	Dry, no sample collected	--	--	--	--	--	--	--	--	--	--
MW-85	BKA14-MW85-Q01	5/13/2014	0.12	0.16	ND(0.000015)	ND(0.00014)	ND(0.00016)	ND(0.00013)	0.00033	0.00033	0.00039
MW-86	BKA14-MW86-Q01	5/13/2014	0.086	0.15	ND(0.000015)	ND(0.00014)	ND(0.00016)	ND(0.00013)	0.0027	0.00270	0.00282
MW-87	BKA14-MW87-Q01	5/13/2014	0.057	ND(0.021)	ND(0.000015)	ND(0.00014)	ND(0.00016)	ND(0.00013)	0.00022	0.00022	0.00026
MW-88	BKA14-MW88-Q01	5/13/2014	0.11	0.18	ND(0.000015)	0.00062	0.00062	ND(0.00013)	0.00053	0.00177	0.00179
	BKA14-MW88-Q02 (dup)	5/13/2014	0.12	0.19	ND(0.000015)	0.00062	0.00062	ND(0.00013)	0.00053	0.00177	0.00180
MW-89	BKA14-MW89-S01	5/12/2014	0.081	0.17	ND(0.000015)	ND(0.00014)	ND(0.00016)	0.00024	0.0006	0.00084	0.00115



Notes:
1. No PAH sample was collected from MW-1 due to low water volume and slow water recovery.
2. All locations are approximate.
3. Aerial image provided by USDA - 61005W_504_42.
4. Well locations are based on survey data collected by O'Neill Surveying and Engineering on May 13, 2014.
5. Surface water quality criteria from 18 AAC 70.020.

Groundwater Sampling Report
FAA Station Biorka Island, Alaska

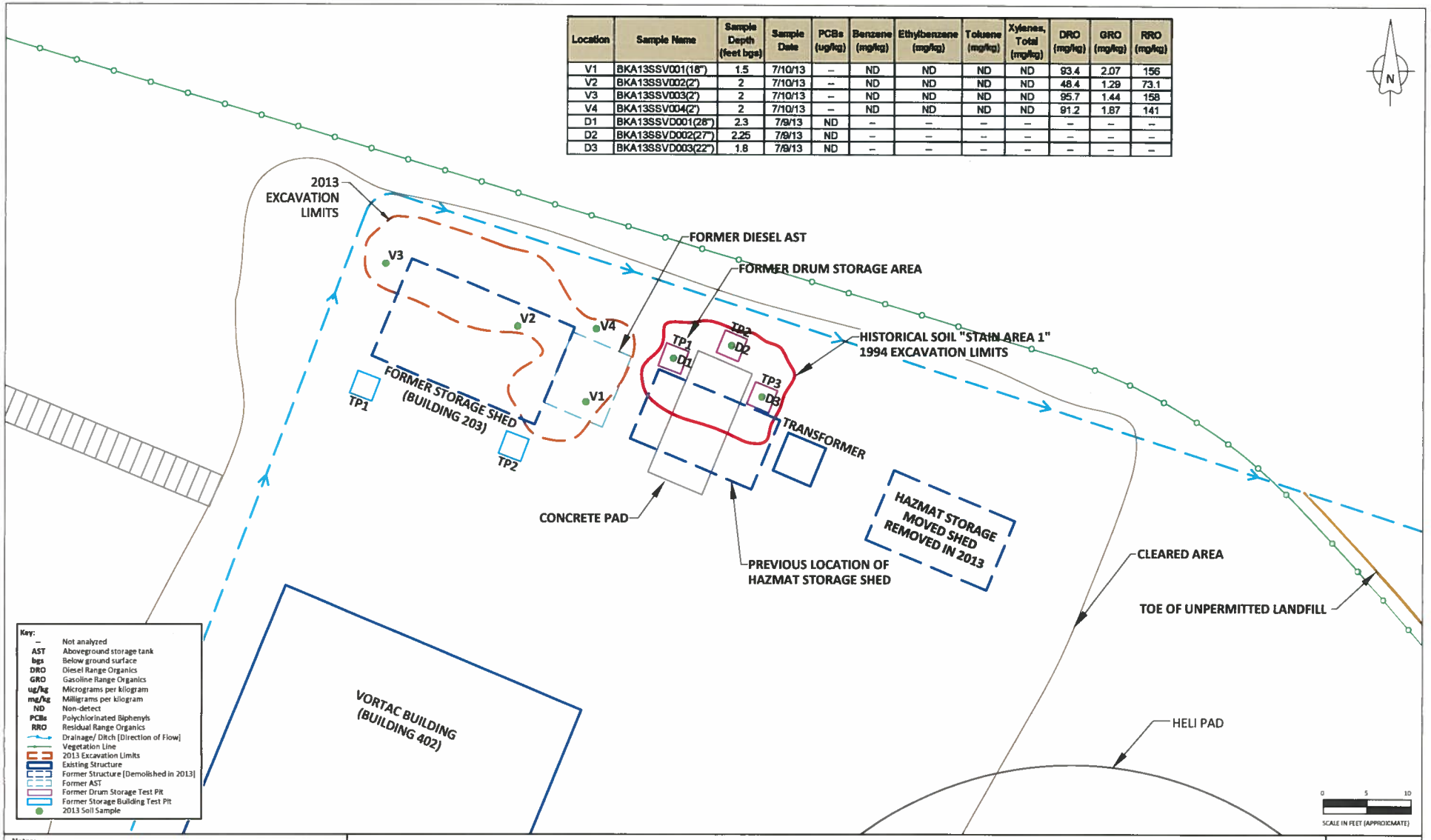
Monitoring Well Locations and Groundwater Sample Results

Ahtna Engineering

Project Number: 20125.073
Date: 11.07.2014
Drawn By: G.R.

Figure Number: 3

Location	Sample Name	Sample Depth (feet bgs)	Sample Date	PCBs (ug/kg)	Benzene (mg/kg)	Ethylbenzene (mg/kg)	Toluene (mg/kg)	Xylenes, Total (mg/kg)	DRO (mg/kg)	GRO (mg/kg)	RRO (mg/kg)
V1	BKA13SSV001(18")	1.5	7/10/13	--	ND	ND	ND	ND	93.4	2.07	156
V2	BKA13SSV002(2')	2	7/10/13	--	ND	ND	ND	ND	48.4	1.29	73.1
V3	BKA13SSV003(2')	2	7/10/13	--	ND	ND	ND	ND	95.7	1.44	158
V4	BKA13SSV004(2')	2	7/10/13	--	ND	ND	ND	ND	91.2	1.87	141
D1	BKA13SSVD001(28")	2.3	7/9/13	ND	--	--	--	--	--	--	--
D2	BKA13SSVD002(27")	2.25	7/9/13	ND	--	--	--	--	--	--	--
D3	BKA13SSVD003(22")	1.8	7/9/13	ND	--	--	--	--	--	--	--



Key:
-- Not analyzed
AST Aboveground storage tank
bgs Below ground surface
DRO Diesel Range Organics
GRO Gasoline Range Organics
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram
ND Non-detect
PCBs Polychlorinated Biphenyls
RRO Residual Range Organics
Drainage/ Ditch [Direction of Flow]
Vegetation Line
2013 Excavation Limits
Existing Structure
Former Structure [Demolished in 2013]
Former AST
Former Drum Storage Test Pit
Former Storage Building Test Pit
2013 Soil Sample

Notes:
1. All locations are approximate.

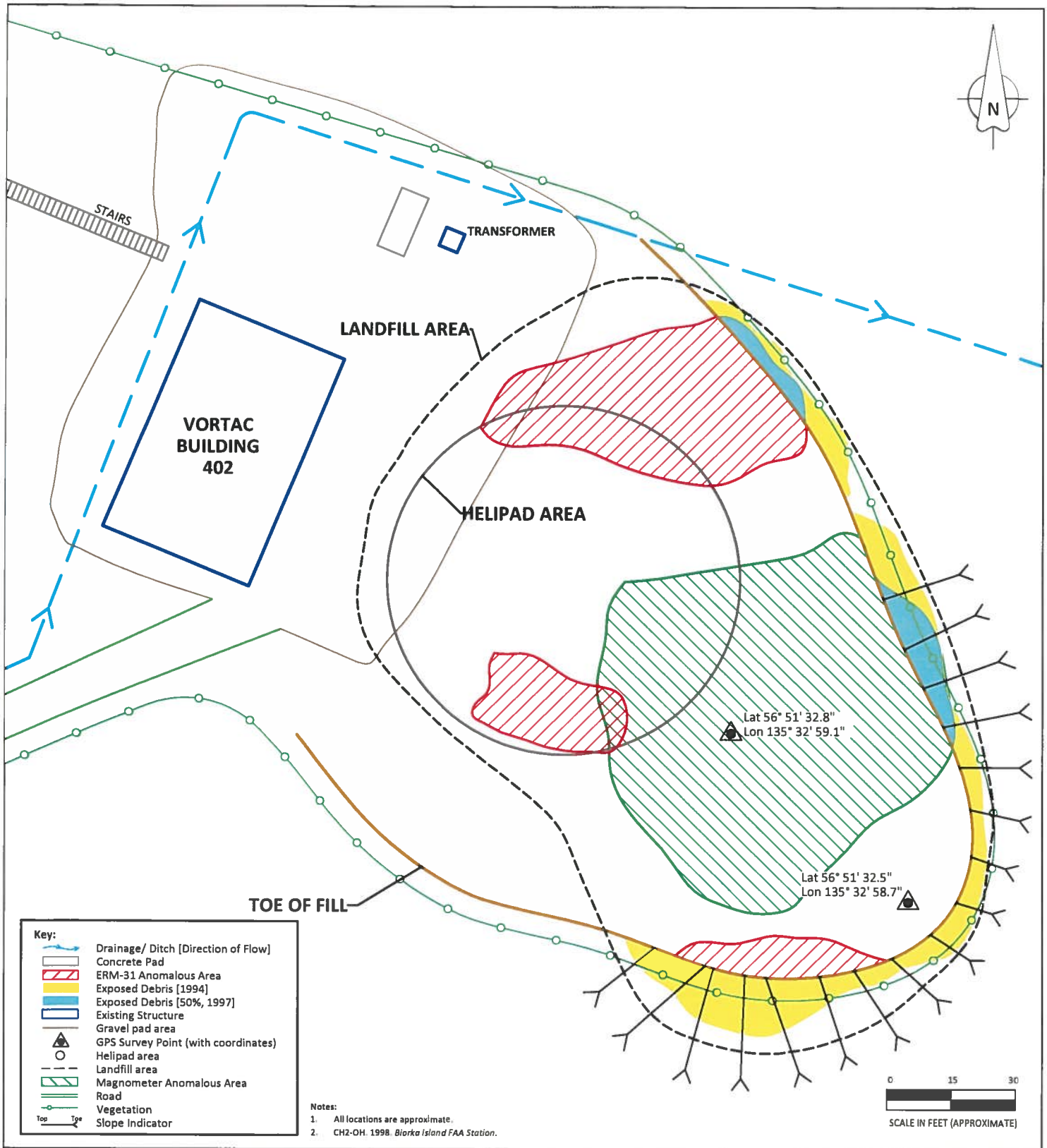
Remedial Investigation and Remedial Action Report
FAA Station Biorka Island, Alaska

VORTAC - Storage Shed and Drum Storage Area and Diesel AST near Building 402
2013 Analytical Sampling Locations and Results

Ahtna Engineering

Project Number: 20125.044
Date: 03.09.2015
Drawn By: G.A.

Figure Number: 10



Remedial Investigation and Remedial Action Report
FAA Station Biorka Island, Alaska

Ahtna Engineering

VORTAC Helipad
2013 Monument Installation Locations

Project Number:	Figure Number:
20125.048	16
Date: 02.02.2015	
Drawn By: G.R.	

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

RECORD OF DECISION
Alternative Soil Cleanup Levels

FAA Biorka Island Living Quarters Tank Farm and Buildings 300 and 601

Summary of ADEC Decision:

The FAA proposed alternative cleanup levels for the Living Quarters Tank Farm and Buildings 300 and 601 based on site-specific conditions under Method Three of 18 AAC 75.340. The parameters they propose to change from the default values using the Department's web-based Method Three calculator include total organic carbon (TOC) and the aquifer thickness.

The Department considers the Living Quarters Tank Farm and Buildings 300 and 601 to comprise one site for the purpose of developing alternative cleanup levels, given their proximity to one another, common site characteristics, and the likelihood of co-mingling of contamination. The Department accepts the aquifer thickness value of 2 meters but does not agree with the TOC values used in calculating cleanup levels. The information regarding this decision is presented below.

Based on the information presented in this decision document, ADEC approves soil cleanup levels for the contaminants of concern as follows: benzene 0.0401 mg/kg, DRO 1860 mg/kg, and GRO 1400 mg/kg. Groundwater cleanup levels for this site are the 18 AAC 75.345 Table C values, as follows: benzene 0.005 mg/L, DRO 1.5 mg/L and GRO 1.3 mg/L.

SITE INFORMATION SUMMARY

Site name and location
The site is located approximately 15 miles southwest of Sitka in the south entrance to Sitka Sound within Section 8, Township 58 East, Range 63 East, Copper River meridian, on the U.S. Geological Survey (USGS) Port Alexander A-5 Quadrangle.

Name and mailing address of responsible person
FAA Alaskan Region, 222 W. 7th Avenue, Box #14, Anchorage, Alaska. Mr. Alan D. Falkenstein is the point of contact for FAA. The project manager is Jim Swalling.

Database Record key
1990120127901

CS file number
File Number: FAA Biorka Island

Regulatory authority
Site Cleanup Rules under 18 AAC 75.325 – 18 AAC 75.390

Site Map
A copy of a Site Plan (Figure 2-3) from the CH2MHILL April 2002 *Draft Pre-Field Planning Report* is provided as Attachment #1.

Physical characteristics of site
Soil at the site consists of sand - gravel mixtures with discontinuous lenses of silts and clays. Groundwater fluctuates from ground surface to bedrock. Bedrock has been found to be between 5 to 7 feet below ground surface (bgs). Based on the topography, the local groundwater flow direction is estimated to be toward Symonds Bay to the northeast and an unnamed cove to the southeast. Symonds Bay and the unnamed cove are the nearest surface waters. The site is on an isthmus in-between the two coves, which are located approximately 330 feet apart. There is no drinking water well present within ½ mile of the site.

Description of contaminants and media impacted
Soil
Chemicals of concern in soil include gasoline-range organic (GRO) hydrocarbons, diesel-range organic (DRO) hydrocarbons, and the benzene, toluene, ethylbenzene, and xylene compounds associated with fuel products.

Groundwater
GRO, DRO, and benzene are the chemicals of concern in groundwater.

Surface Water
Surface water from the streambed below the high water mark of Symonds Bay detected DRO at 0.18mg/L on October 9, 2000. The surface water was not analyzed in accordance with 18 AAC 70.020(b)(2)(C) Water Quality Standards for TAH and TAqH. The cove to the southeast was not sampled.

Prior cleanup actions taken
Four fuel tanks and associated piping at the tank farm and four fuel tanks and associated piping at Building 601 were removed in 1994. Approximately 14 cubic yards of contaminated soil were excavated and placed in a treatment cell at the LORAN Station Area. The status of soils stored in the stockpile is unknown.

Current and expected future land use
FAA maintains several navigation aids on the island. The property houses the living quarters for FAA maintenance staff, a maintenance shop, and storage yard. The Southeast Alaska Regional Health Consortium leases a portion of the property from FAA

to operate the Raven's Way treatment program in the former FAA Buildings 103, 300, 601 and 200.

Determination of current and expected future use of groundwater

The Living Quarters Area drinking water source is surface water via a pipeline from Lower Lake approximately one-mile southwest of the contaminated area. Groundwater and bedrock in the Living Quarters Area are shallow and the groundwater is hydraulically connected to the adjacent surface waters. Groundwater has not been utilized on the property and is not expected to be a drinking water source in the future.

Completed Exposure Pathways

The exposure pathways evaluated under this decision include ingestion, inhalation and migration to groundwater. The contaminants GRO, DRO, and benzene were detected in the groundwater at concentrations exceeding Table C cleanup levels in 2002. Groundwater was analyzed for total aromatic hydrocarbon (TAH) and total aqueous hydrocarbon (TAqH) which were detected and indicate a potential threat to marine surface water at Symonds Bay and the unnamed cove.

SITE INVESTIGATION HISTORY

Environmental Compliance Investigation Report

Ecology and Environment, Inc. prepared the *Environmental Compliance Investigation Report* dated April 1992. The report presents the results of an initial assessment of the presence of petroleum hydrocarbons and other hazardous substances on the property that may impact the soil and groundwater at the site. The report documented petroleum hydrocarbon impacts from on-site sources and recommended additional assessment actions.

Site Cleanup and Investigation Report

Ecology and Environment, Inc. prepared the *Site Cleanup and Investigation Report* dated December 1994. The report presented surface and subsurface soil sampling information. Areas near Buildings 200, 300, 302, and 601 and the tank farm were sampled when nine above ground storage tanks and the associated pipelines were decommissioned.

Release Investigation

CH2-OH prepared the *Draft Release Investigation Report* dated January 2001. The report presented surface and subsurface soil sampling information. Twenty-five soil borings were drilled with nine borings developed into groundwater monitoring wells. Two surface water samples, one upgradient of the site in a stream and one downgradient in the streambed below the high water line of Symonds Bay, were collected and analyzed. Analysis of the upgradient surface water sample resulted in non-detect for fuel constituents. The downgradient surface water sample resulted in a DRO concentration of 0.18 mg/L.

Site Investigation

CH2MHILL prepared the *Draft Technical Memorandum Biorka Island FAA Quarters/Dock Facility Site Investigation* dated March 28, 2002. The report presented soil sample information to be utilized for site characterization of the pipeline from the tank farm to Buildings 100, 101, and 102. Soil samples were also analyzed in the Tank Farm and Building 300 and 600 area for total organic carbon (TOC) to be utilized in determining proposed alternative cleanup levels.

IDENTIFICATION OF CHEMICALS OF CONCERN

Chemicals of concern include those chemicals found in concentrations greater than the 18 AAC 75.341 Tables B1 & B2 and 18 AAC 75.345 Table C. Chemicals of concern at the FAA Biorka Island Living Quarters Tank Farm and Building 300 and 601 area include the chemicals listed in Table 1 below:

Table 1: Maximum reported concentrations in soil and method two soil cleanup levels for under 40 inch precipitation Zone before removal actions.

Chemical name	Maximum concentration (mg/kg)	Soil Cleanup Level-Ingestion (mg/kg)	Soil Cleanup Level-Inhalation (mg/kg)	Soil Cleanup Level-Migration to Groundwater (mg/kg)
GRO	**4,900**	1400	1400	**260**
DRO	**13,000**	8250	12500	**230**
Benzene	**0.41**	230	6.4	**0.02**

Groundwater Monitoring Results

Groundwater monitoring results obtained during sampling events in 2000 and 2002 are summarized in Table 2 below.

Table 2: Groundwater Monitoring Results

Monitoring Well	GRO (mg/L) Table C Cleanup Level = 1.3 mg/L		DRO (mg/L) Table C Cleanup Level = 1.5 mg/L		RRO (mg/L) Table C Cleanup Level = 1.1 mg/L		Benzene (mg/L) Table C Cleanup Level = 0.005 mg/L		TAH/TaQH units assumed mg/l
	Oct-00	Apr-02	Oct-00	Apr-02	Oct-00	Apr-02	Oct-00	Apr-02	Oct-00
1	ND	NA	0.67	NA	0.27	NA	ND	NA	NA
2	ND	**2.9**	0.67	**3.0**	0.27	0.63	0.0011	ND	NA
3	ND	ND	0.69	0.93	0.45	ND	ND	ND	NA
5	0.22	ND	1.40	**2.50**	0.41	0.85	ND	ND	0.0037
14	ND	ND	0.87	**1.80**	0.30	0.79	**0.015**	0.0023	**5.515**
23	0.43	NA	1.20	NA	ND	NA	ND	NA	NA
25	0.14	0.25	0.60	1.40	ND	ND	ND	ND	NA
35	0.18	ND	0.65	0.91	ND	0.68	**0.0073**	ND	NA
39	0.37	NA	1.00	NA	ND	NA	**0.026**	NA	**0.109**

ADEC COMMENTS TO SITE HISTORY

Requirements and comments regarding issues with groundwater flow direction determination, tidal influence, stockpile location, contaminated soil disposal and sampling, were addressed in the Departments letter dated May 23, 2002 (attached).

COMPLETED REMOVAL ACTIONS

1994 - Contaminated soil Removal

Living Quarters Tank Farm

During the 1994 tank decommissioning of four above ground diesel storage tanks, with a combined capacity of 9,600 gallons, approximately 10 cubic yards of contaminated soil was excavated from two separate pits where surface staining was observed. One excavation was dug to a depth of one foot. Field screening or confirmation samples were not collected. The second excavation was dug to depths of 3 and 4 feet with maximum confirmation sample for DRO 11,000 mg/kg. The maximum DRO contaminant level adjacent to the excavation was 12,000 mg/kg at 2.5 feet below ground surface (bgs). Excavated contaminated soil was transported to a treatment cell at the LORAN site on Biorka Island. The status of that treatment cell and the soils contained therein is unknown.

Building 300 and 601 Area

During the 1994 decommissioning of three above ground diesel storage tanks, with a combined capacity of 1,500 gallons, approximately four cubic yards of contaminated soil were excavated due to the presence of obvious surface staining. The excavation was dug to a depth of two feet. Confirmation samples were not analyzed. One above ground diesel tank located approximately ten feet north of the above mentioned three tanks was also decommissioned. Soil was not excavated and confirmation samples were not collected. Field screening indicates contamination above 18AAC75.340 Table B2 Migration to Groundwater cleanup levels in the area of these four tanks. During the removal of the heating fuel pipeline leading to Building 300 an approximately two-gallon fuel release occurred resulting in the excavation of 4 cubic yards of contaminated soil. Contaminated soil from both of these excavations was transported to a treatment cell at the LORAN site on Biorka Island. The status of that treatment cell and the soils contained therein is unknown

EXTENT OF CONTAMINATION (After Removal Actions)

Living Quarters Tank Farm

The extent of contamination is not completely characterized vertically or horizontally. GRO was detected in additional characterization samples at a maximum level of 330 mg/kg at 1.0-3.0 bgs. DRO were detected at a maximum level of 4,500 mg/kg at 2.0-3.0

feet bgs. Benzene was detected at a maximum level of 0.41 mg/kg at 0.3-1.0 feet bgs. The deepest sample collected with contamination detected had 1,400 mg/kg DRO at 4.0-5.5 feet. These are all above the migration to groundwater Method Two cleanup level of 260 mg/kg for GRO, 230 mg/kg for DRO, and 0.02 for benzene.

Building 300 and 601 Area
The site is not completely characterized vertically or horizontally. Diesel range organics were detected at a maximum level of 13,000 mg/kg at 1.0-2.0 feet bgs. The deepest sample collected with contamination detected had 400 mg/kg DRO at 3.5-5.0 feet. These are above the migration to groundwater Method Two cleanup level of 230 mg/kg for DRO.

PROPOSED CLEANUP LEVELS AND CLEANUP ACTIONS

Proposed Method Three Cleanup Levels
CH2MHILL proposed alternative cleanup levels based on site-specific conditions under Method Three. Total organic carbon (TOC) samples were collected during two separate sampling events. Method Three alternative cleanup levels were calculated utilizing the web-based Method Three calculator and changing site-specific parameters of TOC and aquifer thickness. Aquifer thickness was assumed based on groundwater measurements from surface to bedrock, a depth of approximately two meters.

The proposed alternative cleanup levels for the tank farm area use an average TOC value of 2.309 and an aquifer thickness of ten meters to produce migration to groundwater cleanup levels of 0.0941 mg/kg for benzene, 1,400 mg/kg for GRO and 5,170 mg/kg for DRO. The proposed alternative cleanup level for the Building 300 and 601 area used an average TOC value of 0.972 and an aquifer thickness of 2 meters to produce migration to groundwater cleanup levels of 0.0443 mg/kg for benzene, 1,400 mg/kg for GRO and 2,050 mg/kg for DRO.

Proposed Cleanup Actions
CH2MHILL proposed cleanup actions in the Draft Pre-Field Planning Document dated April 2002. The plan proposed excavation - to a maximum depth of four feet - and removal of a maximum of 400 cubic yards of contaminated soil at the Building 300 and 601 area. It also proposed excavation - to a maximum depth of two feet - and removal of a maximum of 200 cubic yards of contaminated soil at the tank farm area. The contaminated soils will be stockpiled in a lined cell at the location of former Building 100.

ADEC EVALUATION OF PROPOSED CLEANUP LEVELS

The Department does not approve the proposed cleanup levels for the following reasons. The Living Quarters Tank Farm and Buildings 300 and 601 are approximately 70 feet apart. Contaminants may be commingled as shown by two samples 40 feet apart. Both have elevated DRO levels and there are no samples between the two areas with contaminant levels below Method Two Cleanup Levels. Site characteristics, such as

contaminant type, soil type, bedrock depth and groundwater depth, are very similar at the two areas. For these reasons, ADEC considers the two areas as one site for the purposes of establishing alternative cleanup levels.

Table 3 presents the TOC results and justification for not allowing use of several TOC samples in the Method Three Alternative Cleanup Level calculations. The Department's policy regarding use of TOC sample results to calculate alternative cleanup levels is that the samples must be collected from uncontaminated areas that are representative of the soils within the contaminated area. Many TOC samples were not utilized because they were collected from source areas, collected from contaminated areas, collected from areas without associated fuel constituent analysis, or were not representative of the most common soil types or depths impacted by contamination.

Table 3. TOC samples

Depth	TOC	Soil Type	Moisture %	PID	Sample ID	
0.0 - 2.0	0.66	SP	NA	0	71	NOT ACCEPTABLE - No contaminant analysis
0.0 - 2.0	2.51	PT/SP	NA	0	1	NOT ACCEPTABLE - No contaminant analysis
0.5 - 1.0	0.06	SM	NA	0	74	NOT ACCEPTABLE -No Contaminant analysis and contamination found at 2-3.5 feet bgs.
0.5 - 1.0	0.41	SP	5.79	0	3	
0.5 - 1.5	1.58	OL - SM	NA	0	72	
0.5 - 2.0	0.75	SP	NA	0	12	NOT ACCEPTABLE - Located above wood stave pipe from Building 302 dry well.
1.0 - 2.0	4.83	SM-OL	42	0	TOC 3	NOT ACCEPTABLE - DRO 4,400 mg./kg and RRO 1,300 mg/kg
1.2 - 2	1.52	SP	15	0	TOC 5	
1.5 - 1.8	0.425	SM-OL	14	0	TOC 2	
1.5 - 1.9	1.28	SP	18	1.2	TOC 8	
1.8 - 2.8	4.88	SM - OL	34	24	TOC 1	NOT ACCEPTABLE - DRO 570 mg/kg and RRO 570 mg/kg
2.0 - 3.0	1.39	SP-OL	21	38	TOC 4	
2.0 - 3.0	0.61	SP	NA	0	4	NOT ACCEPTABLE - No contaminant analysis - DRO at 3-4 feet 1800 mg/kg
2.0 - 3.0	8.17	SP	NA	0	12	NOT ACCEPTABLE - No contaminant analysis - Located beneath wood stave pipe from Building 302 dry well.
2.0 - 3.5	1.22	SP	12	0	1	DRO 140 mg/kg RRO 330 mg/kg
2.5 - 4.0	0.43	SP	16	69.2	3	NOT ACCEPTABLE - DRO 4200
2.9 - 3.5	0.414	SM-OL	23	1.6	TOC 7	
3.0 - 3.5	0.69	SM	NA	0	73	
3.0 - 3.5	46.89	PT	NA	0	12	NOT ACCEPTABLE - DRO 260 RRO 230 Located beneath wood stave pipe from Building 302 dry well.
3.4 - 4.0	0.251	SM-OL	24	60	TOC 6	
4.0 - 4.2	0.81	SP	NA	0	C11	NOT ACCEPTABLE - DRO 30 RRO 110, sample located in Building 302's shed.
4.0 -4.5	10.7	PT	NA	0	C13	NOT ACCEPTABLE - DRO 45 RRO 690 Located south of Building 302

The Department presents Table 4 Acceptable TOC results.

Table 4. Acceptable TOC Results					
Depth	**TOC**	**Soil Type**	**Moisture %**	**PID**	**Sample ID**
0.5 - 1.0	0.41	SP	5.79	0	3
0.5 - 1.0	0.06	SM	NA	0	74
0.5 - 1.5	1.58	OL - SM	NA	0	72
1.2 - 2	1.52	SP	15	0	TOC 5
1.5 - 1.8	0.425	SM-OL	14	0	TOC 2
1.5 - 1.9	1.28	SP	18	1.2	TOC 8
2.0 - 3.0	1.39	SP-OL	21	38	TOC 4
2.0 - 3.5	1.22	SP	12	0	1
2.9 - 3.5	0.414	SM-OL	23	1.6	TOC 7
3.0 - 3.5	0.69	SM	NA	0	73
3.4 - 4.0	0.251	SM-OL	24	60	TOC 6

The Department utilized the above sample results to calculate the soil cleanup levels for this site. The average TOC value is 0.883 and average foc value is 0.00883. Cleanup levels were calculated using the ADEC Method Three Calculator and selecting the Over 40-inch precipitation zone. The foc and aquifer thickness values were modified to represent estimated values at the site of 0.00883 for foc and two meters for the aquifer thickness. The migration to groundwater pathway is considered a complete pathway and was considered when calculating the cleanup levels.

ADEC DECISION

ADEC Decision on Cleanup Levels

The soil cleanup levels established for this site are:

Table 4 Cleanup Levels for FAA Biorka Island Living Quarters Tank Farm and Buildings 300 and 601 area	
Contaminant	**Migration to Groundwater Cleanup Level, mg/kg**
Benzene	0.04
GRO	1400
DRO	1860

Groundwater cleanup levels for this site are the 18 AAC 75.345 Table C. Groundwater Cleanup Levels.

Table 5 Groundwater Cleanup Levels for FAA Biorka Island Living Quarters Area Farm and Buildings 300 and 601 area	
Contaminant	**Table C. Groundwater Cleanup Levels, mg/L**
Benzene	0.005
GRO	1.3
DRO	1.5

Surface water cleanup levels are established in 18 AAC 70 Alaska Water Quality Standards. Total aqueous hydrocarbons (TAqH) in the water column may not exceed 15 µg/L. Total aromatic hydrocarbons (TAH) in the water column may not exceed 10 µg/L. Four groundwater samples were analyzed for TAqH and TAH in 2000 with a maximum result of 5.515 mg/L (5515 µg/L).

ADEC Decision On Cleanup Actions

The Department does not agree with establishing limitations on soil excavation or sampling and recommends that flexibility be written in the work plan to allow for additional cleanup work if determined necessary during the cleanup. The soil below three feet is not adequately characterized and therefore it may require excavation if it exceeds the established cleanup levels. The site data indicates that no standing water or bedrock is noted to a depth of 3.7 feet bgs and the Department recommends FAA excavate contamination to the maximum extent practicable.

Tidal influence should be determined to assist in excavation planning so that the maximum depth may be reached for excavation of contaminated soils. The influence of tides and tidal flux at the site should also be evaluated to determine if it contributes to potential migration of contamination to soil, groundwater and surface water.

Additional groundwater sampling is necessary to delineate the extent of groundwater contamination and complete site characterization. Groundwater samples collected from monitoring wells closest to surface water should also be analyzed for TAqH and TAH in accordance with 18 AAC 70. Monitoring of all groundwater wells should be conducted on an annual basis, with monitoring reports submitted to the ADEC project manager within 90 days of the completion of the monitoring event.

ADEC Project Manager Approval:

Elizabeth Stergiou, Environmental Specialist — 6-6-02 Date

ADEC Site Remediation Section Manager Approval:

Jim Frechione, Environmental Conservation Manager — 6-7-02 Date

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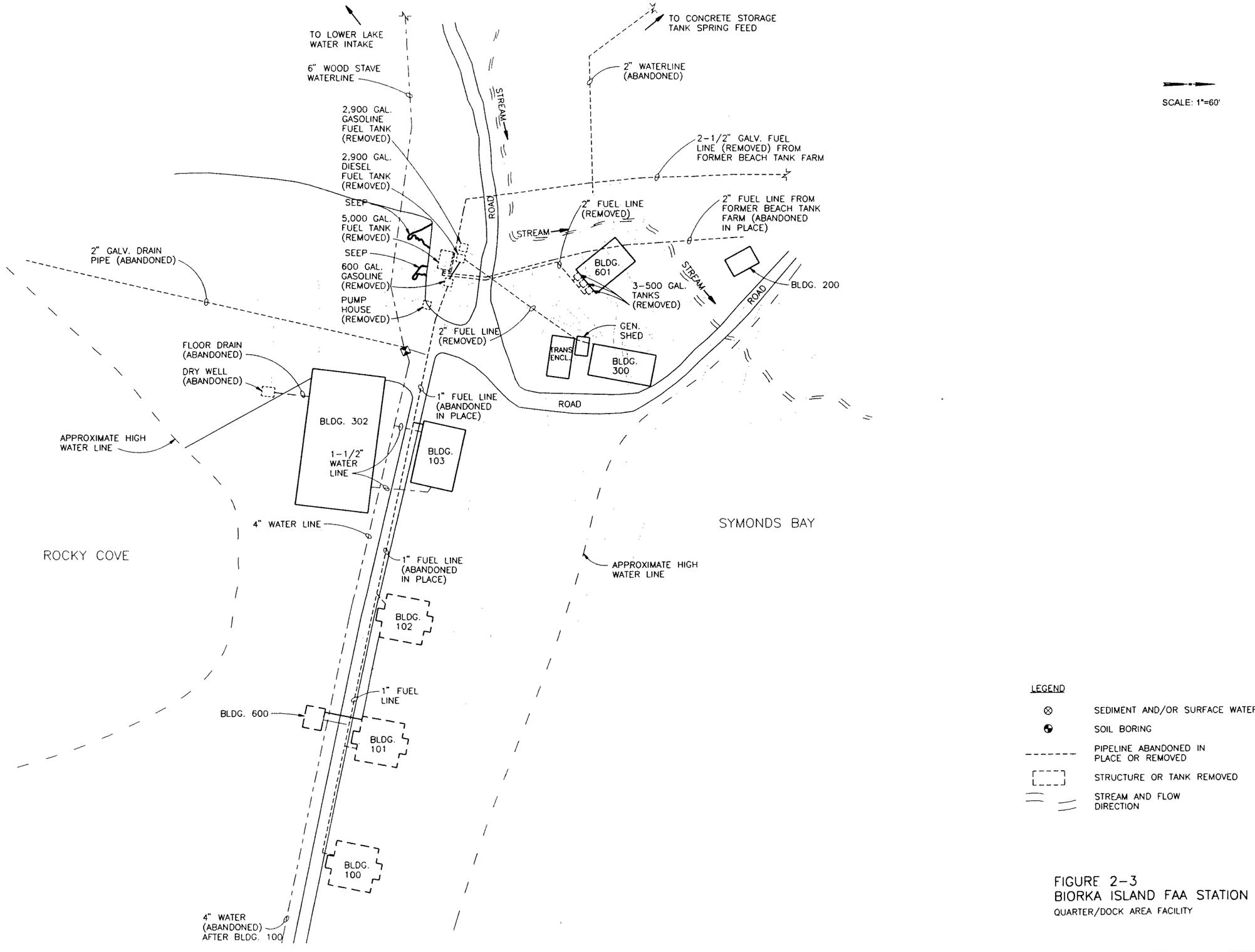

FIGURE 2-3
BIORKA ISLAND FAA STATION
QUARTER/DOCK AREA FACILITY

CH2MHILL
Constructors, Inc.

STATE OF ALASKA

DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
CONTAMINATED SITES PROGRAM

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File: 1542.38.001

January 7, 2010

Scott Berglund
Federal Aviation Administration
Environmental Section
AAL-471, FAA
222 W. 7th Ave, Box 14
Anchorage, AK 99513-7587

Re: **FAA Biorka Island RCAG, Record of Decision (ROD)**
Corrective Action Complete Determination
RecKey # 1996120123701, Hazard ID #2546

Dear Mr. Berglund:

The Alaska Department of Environmental Conservation (DEC), Contaminated Sites Program has completed a review of the environmental records associated with the FAA Biorka Island Remote Center Air/Ground tower (RCAG) or Radar Site located in southeast Alaska in Sitka Sound near Baranof Island. Based on the information provided to date, DEC has determined that the contaminant concentrations remaining on site do not pose an unacceptable risk to human health or the environment, and this site will be closed.

Introduction
This decision is based on the administrative record for FAA Biorka Island, which is located in the offices of the Alaska Department of Environmental Conservation (ADEC) in Fairbanks, Alaska. This letter summarizes the decision process used to determine the environmental status of this site and provides a summary of the regulatory issues considered in the Corrective Action Complete Determination.

Regulatory authority under which the site is being cleaned up:
18 AAC 75 and 18 AAC 78

Background
Underground storage tank (UST) 47-B-01 located southeast of the generator building at the RCAG was removed and decommissioned in August 1996. Five cubic yards of contaminated soil were removed during tank closure. Further excavation in October 1996 removed an additional 35 cubic yards of contaminated soil. Confirmation samples detected residual range organics (RRO) to 196 milligrams per kilogram (mg/kg), toluene to 1.156 mg/kg, and xylenes to 19.51 mg/kg, all sample results were either non-detect, or below the Method 2 Migration to Groundwater Cleanup levels.

DEC issued a closure determination for the UST on December 18, 2001. However, the site remained open because FAA included an area of stained soil from a former drum storage area as part of this site, or "Area of Concern".

Characterization Activities
During a 1990 Site Investigation, stained soil was identified under two 55 gallon drums that were stored at the RCAG site. The drums appeared to contain rainwater and ashes. A 20 square foot area of stained soil was observed below the drums, with staining extended to a depth of one inch. Soil samples were collected for analysis and no polychlorinated biphenyls (PCBs) or hydrocarbon compounds were detected above the most stringent Method 2 cleanup levels. RROs were detected at 50 mg/kg, gasoline and diesel range organics were not detected. Soil from the stained area was submitted for toxicity Characteristic Leaching Procedure (TCLP) analysis. Only trace amounts of barium and lead were detected.

In 1994, the drums and their contents were disposed of in the Sitka landfill, and the stained soil was scarified, fertilized, and re-seeded. In 2002, FAA returned to the area hoping to collect additional samples for analysis of benzene, toluene, ethylbenzene, and xylenes as well as polyaromatic hydrocarbons, but the soil stain could not be located. In 2008, FAA and DEC staff conducted a site visit to Biorka Island. The soil stain could not be located, and it was determined that the area had either revegetated, or been developed over during construction of the Engine Generator Building.

ADEC Decision
The cleanup actions to date have served to remove a potential contaminant source, and adequately characterize the soil. The samples collected from the stained soil indicate that the soil stain and stressed vegetation may have been caused by an alkaline discharge from rainwater leaching through the ashes in the drums; the soil has revegetated and does not pose a risk to human health or the environment. Based on the information available, DEC has determined no further assessment or cleanup action is required, and this site will be designated as cleanup complete on the Department's database.

This determination is in accordance with 18 AAC 78.276(f) and does not preclude DEC from requiring additional assessment and/or cleanup action if future information indicates that this site may pose an unacceptable risk to human health or 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, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99801, 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, Juneau, Alaska 99801, 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 contact the DEC project manager, Kim DeRuyter at (907) 451-2752.

Sincerely,

Fred Vreeman
Environmental Program Manager

STATE OF ALASKA

DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
CONTAMINATED SITES PROGRAM

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Files: 1542.38.001
1542.38.003

February 9, 2012

Scott Berglund
Federal Aviation Administration
Environmental Section
AAL-471, FAA
222 W. 7th Ave, Box 14
Anchorage, AK 99513-7587

Re: **Federal Aviation Administration (FAA) Biorka Island Station VORTAC Summary of Evaluations and Determinations**

Dear Mr. Berglund:

The Alaska Department of Environmental Conservation Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with the FAA Biorka Island Station located in the Necker Islands in southeast Alaska in Sections 7 and 8, Township 58 South, Range 62 East of the Copper River Meridian. Based on the information provided to date, ADEC has determined the site status of each area of concern. The current status of the sites is listed below, and the body of the letter summarizes the history of the site and explains the site status determination for each area of concern. Please note that a separate Record of Decision documents the FAA Biorka Island Station Living Quarters and associated sites.

Comprehensive Site Status Summary for All Biorka Island Areas of Concern
The following identifies ADEC site status determinations for all Areas of Concern (AOCs) on Biorka Island. For clarity, this list includes AOCs which are not addressed in this letter. Specific details for each AOC and file references are available within the text, or in another document.

AOCs Addressed in this letter:

Further Action Required

- Storage Shed and Drum Storage Area

- Unpermitted Landfill under Helipad
- Diesel AST near Building 402

Cleanup Complete

- 3.5 Inch Fuel Pipeline
- ¾ inch Supply and Return Pipeline

Cleanup Complete – LUST

- Diesel Tank Farm USTs 47-A-2, 47-A-3, 47-A-4
- Gasoline UST 47-A-1
- Diesel UST 47-C-01

Not an AOC

- Former Transformer Pad
- Transformer #141870
- Small Vehicle Leak (Stain #2)

AOC with Undetermined Site Cleanup Responsibility

- LORAN Facility

AOC Addressed in the January 7, 2010 ADEC Decision Document FAA Biorka Island RCAG, Record of Decision:

Cleanup Complete

- FAA Biorka Island RCAG

AOCs Addressed in the February 9, 2012 ADEC Decision Document FAA Biorka Island Station Living Quarters Summary of Evaluations and Determinations:

Further action required

- Building 601 ASTs
- Pipeline 47-P-10
- Wood Crib/Culvert near Building 300
- Contaminated Soil at Beach Tank Farm Fill Valve

Cleanup Complete:

- 2.5 Inch Cross Island Aboveground Pipeline
- Former Pipeline 47-P-09
- Gasoline Spill at Building 300
- Petroleum Contamination at Buildings 100-102
- Lead Contamination at Buildings 100-102
- Living Quarters Former Tank Farm
- Dry Well at Building 302
- Cell Phone Tower Facility
- Former Diesel AST 47-D-2

Cleanup Complete – LUST:

- Former UST 47-D-1 and Potentially Contaminated Soil Disposal Area

Not an AOC:

- Former Soil Stockpile near Road
- Former Transformer Pad near Dock
- US Coast Guard Transformer near Building 300

Introduction
These site status decisions are based on the administrative record for the FAA Biorka Island VORTAC site, which is located in the offices of the Alaska Department of Environmental Conservation (ADEC) in Fairbanks, Alaska. This letter summarizes the decision process used to determine the environmental status of the areas of concern at the site and provides a summary of the regulatory issues considered in the determination.

Regulatory authority under which the site is being cleaned up:
18 AAC 75, Article 3 and 18 AAC 78 Article 6

Background
The FAA, formerly known as the Civil Aeronautics Administration, began activities on the Biorka Island property in 1940. The FAA has a permit from the U.S. Forest Service for an 11 acre parcel for the Very High Frequency Omnidirectional Range with Tactical Air Navigation (VORTAC) facility. The VORTAC was built between 1957 and 1959 on a small rise surrounded by wetlands. The site consists of a navigation antenna, Building 402 and attached garage, a storage shed, a helicopter landing pad, and a septic tank and leach field.

Currently, there are no year-round residents on Biorka Island. Several facility buildings and the facility grounds are used by Southeast Alaska Regional Health Consortium (SEARHC) Community Health Service of Sitka; however their activities generally do not involve use of the areas near the VORTAC. FAA personnel occasionally frequent the site to perform maintenance on generators and air navigational aids.

Characterization and Cleanup Activities
The following reports document characterization and cleanup actions at the Biorka Island Station:

- Ecology and Environment Inc. *Environmental Compliance Investigation Report for Biorka Island Navigation Aid Station, Biorka Island.* April 1992.
- Ecology and Environment Inc. *Site Cleanup and Investigation Report, Biorka Island FAA Station, Biorka, Alaska.* December 1994.
- GeoEngineers, Inc. *Final Remedial Action Report for UST and Pipeline Closure, FAA Communications Facilities, Biorka Island, Alaska.* April 1997.
- CH2-OH. *Biorka Island FAA Station Landfill Closure Documentation.* January 1998.
- CH2MHill Inc. *Site Closure Report, VORTAC Facility, Former VHF Area Facility, Radar Facility, Quarters/Dock Facility, Biorka Island, Alaska.* December 2006.
- Bristol Construction Services, LCC. *Groundwater Sampling and Environmental Investigation, Biorka Island, Alaska, Closeout Report Final.* August 2008.

Additional site specific activities are noted in the section ADEC Decision. The attached Compilation of Sample Results for VORTAC Determinations identifies analytical and observational data of special significance for each site. General figures from site investigation reports are also attached to identify the general physical locations of each site.

Contaminants of Concern

The contaminants of concern at the VORTAC facility are:

- Diesel Range Organics (DRO)
- Gasoline Range Organics (GRO)
- Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX)
- Polychlorinated Biphenyls (PCBs)
- Lead

Cleanup Levels

The cleanup levels for the VORTAC facility are drawn from 18 AAC 75.341 Method 2 Migration to Groundwater Cleanup levels.

Contaminant	Method 2 Above 40 Inch Zone Cleanup Levels (mg/kg)				
	Migration to Groundwater	Ingestion	Inhalation	Direct Contact	Outdoor Inhalation
Diesel Range Organics (DRO)	230	8250	12500		
Gasoline Range Organics (GRO)	260	1400	1400		
Benzene	0.025			120	8.5
Toluene	6.5			6600	220
Ethylbenzene	6.9			8300	81
Xylenes	63			16600	63
Polychlorinated Biphenyls (PCBs)				1	
Lead				400	

Pathway Evaluation

The exposure pathways for human health that were evaluated include the following: migration to groundwater, incidental ingestion of soil; inhalation of vapors in indoor and outdoor air, and dermal contact with soil. The migration to groundwater pathway may be complete depending on site specific conditions. Drinking water is obtained from a rainwater cistern, or alternately, from a freshwater lake. Groundwater if it is present, is brackish, and is not used as a drinking water source. Contaminant concentrations exceeding cleanup levels remain *in situ* where indicated in the site specific discussions below. Exposure to these areas will be controlled with institutional controls.

The exposure pathway analysis above was supported by the most recent ADEC Exposure Tracking Model (ETM) ranking. The ETM results showed all pathways for closed sites to be De Minimis Exposure or Pathway Incomplete.

ADEC Further Action Required Determination

ADEC has determined that further action is required to address soil contamination issues at the following sites. These sites are currently designated as separate Source Areas within site 1542.38.001. These Source Areas will remain open and active within the ADEC Database until remediation work is complete.

Storage Shed and Drum Storage Area – This site is listed in the ADEC database as Source Area 78993. The Storage Shed is located approximately 25 feet east of the VORTAC building. Numerous 55 gallon drums were discovered next to the storage shed at the VOR, including two that were tipped onto their sides and contained used oil filters. An approximately 6 foot by 8 foot area of soil was stained to a depth of approximately 2 inches. Numerous samples were collected in 1994 to determine the extent and concentration of the contaminated soil at the stained soil area prior to the excavation. These samples detected DRO up to 5,700 mg/kg and 3.2 mg/kg polychlorinated biphenyls (PCBs). The PCB samples were flagged as estimates by the laboratory. The drums and approximately 3 cubic yards of contaminated soil were removed in 1994 and placed in a land farm at the LORAN site, with a confirmation sample below ADEC cleanup levels for DRO and BTEX. PCBs remain at the former limits of excavation. Soil adjacent to and beneath the storage shed remains at unknown contaminant concentrations. Remaining contaminated soil in the storage yard and near and beneath the storage shed and any remaining concentrations of PCBs must be fully characterized for all contaminants of concern. Contaminated soils must be remediated to below Method 2 Over 40 Inch Zone cleanup levels before a cleanup complete determination can be issued for this site.

Unpermitted Landfill under Helipad – This site is listed in the ADEC database as Source Area 79009. An area of stressed vegetation and debris was identified during investigations in 1990. The surface debris was removed and a geophysical survey of the helipad was conducted in 1994 using an EM-31, a magnetometer, and a metal detector. These surveys revealed two distinct anomalies which are believed to represent areas of buried debris beneath the helipad. The site was also inspected for potential seeps of groundwater, but none were present. The helipad area will require institutional controls (ICs) to inform future site users of the presence of buried waste, and prohibit digging into or developing over the potential contamination. To reach a Cleanup Complete with ICs designation FAA must: complete a survey and install monuments to relate GPS coordinates from the 1998 report, and produce a deed notice to inform future users of the landfill under the helipad and prohibit digging into or developing over

this site. Using Institutional Controls as a final cleanup plan will require land owner concurrence with the remedy.

Diesel AST near Building 402 - This site is listed in the ADEC database as Source Area 78370. A 1,000 gallon AST was installed near VORTAC Building 402 in 1996 to provide fuel for the engine-generator. In 2002 a leaking anti-siphon valve was noticed, and soil below the leak was excavated and transported to a long-term stockpile. The stockpile was later shipped off-site for thermal remediation. A confirmation sample was collected from the limits of the 0.5 foot deep by 4 foot diameter excavation. The sample was analyzed for DRO, GRO, BTEX and PAHs; all results were below the applicable cleanup levels. In 2006, the AST was inspected and fuel was noted on the ground below the piping again. The AST and 4 cubic yards of DRO contaminated soil were transported off the island. Confirmation samples at the limits of the excavation exceed the cleanup level and an estimated 5 cubic yards of contaminated soil remains at the site. FAA must complete the following to reach a Cleanup Complete determination: remove soil with contamination above Method 2 Over 40 Inch Zone cleanup levels and provide confirmation sampling results to demonstrate that contaminant concentrations are below cleanup levels.

ADEC Cleanup Complete Determination

ADEC has determined that a Cleanup Complete determination is appropriate for the following sites. These sites are currently designated as separate Source Areas in site file 1542.38.001. These Source Areas will be reranked within the ADEC Database to document their Cleanup Complete determination.

3.5 Inch Fuel Pipeline – This site is listed in the ADEC database as Source Area 78372. This diesel fuel transfer pipeline is also referred to as the VORTAC Pipeline. The 2.5 Inch Fuel Pipeline was installed in 1984 and ran 1,900 feet from Sitka Sound to the former VORTAC Tank Farm. The pipeline was made of steel and had threaded joint couplings every 20 feet. The pipeline was used only once, and was abandoned due to difficulties caused by the steep terrain. Tanks were subsequently filled via helicopter. All joints were inspected during the pipeline removal in 1996. Six joints were determined to have leaked. Three cubic yards of soil were removed from one location near the VORTAC road. The other 5 releases were along a 200 foot stretch of heavily wooded hillside about 100 feet from the pipeline valve box. Analytical samples from the pipeline releases and a background sample all exceeded the Method One cleanup level for DRO, and two samples exceeded the health based cleanup levels for ingestion and inhalation. No benzene was detected in the samples. Laboratory reports indicate that biogenic interference contributed to the DRO concentrations. A letter in the file from ADEC Program Manager Mike Jaynes suggests that due to the steep and highly vegetated terrain, removal of the contaminated soil may do more

environmental harm than good. In 2008, ADEC Project Manger Sharon Richmond visited the site with representatives from FAA. Ms. Richmond hiked the entire length of the pipeline photographing the few areas of contamination that could still be located, and agreed that the releases were de minimis in size and unlikely to migrate due to the low permeability and highly organic nature of the muskeg soil. A Cleanup Complete designation is approved for the 3.5" pipeline.

¾" Supply and Return Pipeline - This site is listed in the ADEC database as Source Area 78371. The ¾" buried copper supply and return pipeline from the diesel tank farm to the engine generator has been removed. The pipeline was approximately 240 feet long. Contamination was first noted in a 2 foot by 2 foot area adjacent to the building foundation where the piping entered Building 402. This small area of contaminated soil was removed, and the trench was backfilled. The area was re-excavated in 2002 and confirmation sample results for DRO and GRO were below the Method One Category B Cleanup Levels approved for the site, BTEX and polyaromatic hydrocarbon (PAH) results were below the most stringent Migration to Groundwater Cleanup level. A Cleanup Complete designation is approved for the ¾" Supply and Return Pipeline.

ADEC Cleanup Complete – LUST Determination

ADEC has determined that a Cleanup Complete Determination is appropriate for the following LUST sites. These sites are referred to as separate areas of concern (AOCs) in site file 1542.38.001. These Source Areas will be reranked within the ADEC Database to document their Cleanup Complete determination.

Diesel Tank Farm USTs 47-A-2, 47-A-3, 47-A-4 - This site is listed in the ADEC database as Source Area 79007. The Diesel Tank Farm USTs were located south of the VORTAC. In 1996, the three 8,000 gallon USTs (47-A-2, 47-A-3, and 47-A-4) were decommissioned. The above ground portion of the 3.5 inch pipeline was removed. Low concentrations of contaminated soil were detected beneath the diesel USTs. The contaminated soil was excavated, and shipped to TPS Technologies for thermal remediation. Soil confirmation samples beneath the diesel tanks indicate that DRO was below the most stringent Method 2 migration to groundwater cleanup levels. Benzene concentrations were non-detect, and although the detection limits slightly exceeded the ACL for this compound, the extremely low concentrations of DRO in soil at this site would indicate that benzene contamination is not likely to be a concern. A Cleanup Complete designation is approved for the VORTAC diesel tank farm.

Gasoline UST 47-A-1 - This site is listed in the ADEC database as Source Area 78367. The 1,000 gallon gasoline UST 47-A-1 was located at the Northwest of Building 402. It was removed in 1996 along with 83 cubic

yards of potentially contaminated soil. This soil was transported to TPS Technologies for thermal remediation. Confirmation samples collected at the limits of the tank excavation were analyzed for BTEX and GRO, and were found to be below the most stringent Method 2 migration to groundwater cleanup levels. A Cleanup Complete designation is approved for gasoline UST 47-A-1.

Diesel UST 47-C-01 – This site is listed in the ADEC database as Source Area 79108. This former 250 gallon diesel UST was located east of the SBRA facility and was removed in 1994. Analytical sampling indicated that contamination in the excavated soil was present at concentrations below cleanup levels. In 2006, additional samples were collected at this site. These samples indicate that concentrations of contaminants are below the most stringent Method 2 migration to groundwater cleanup levels. A Cleanup Complete designation is approved for diesel UST 47-C-01.

ADEC Not an Area of Concern Determination

ADEC has determined that the following sites are not areas of concern.

Former Transformer Pad – The Former Transformer Pad at the intersection of the VORTAC and LORAN access roads had been inspected in 1990, and there were no indications of leaks or releases of oil from the former transformer. At the request of ADEC, the FAA collected a soil sample adjacent to the pad in 2004. This sample contained a trace of PCBs (0.180mg/kg), below the cleanup level of 1 mg/kg. No cleanup action is required at the Former Transformer Pad.

Transformer #141870 – The transformer next to building 402 was inspected and a sample of the oil was collected during the 1992 environmental inspection. The sample reportedly contained 72 mg/L PCBs. The transformer was in use, and no leaks were observed. The ECIR recommended removal of the PCB oil and conversion to a non PCB transformer. The oil in the transformer was sampled again in 1994. This sample detected 27 mg/kg PCBs. The transformer should be cleaned prior to disposal, and the oil shipped to an approved hazardous waste landfill. At last report, the transformer was in use and was not leaking. As long as the transformer is properly managed; it is not considered an area of concern.

Small Vehicle Leak (Stain #2) – A surface stain was noted in 1994 between the hazardous materials storage shed and the Quonset hut. The exact source of the soil staining is unknown but is consistent with a vehicle leak. Approximately one cubic yard of contaminated soil was removed in 1994. The small soil stain from the vehicle leak was adequately addressed and is not considered to be an area of concern.

Responsibility for the following areas of concern remains unresolved

LORAN Facility – This site is listed in the ADEC Database as Site # 1542.38.003, USCG Biorka Island LORAN. The LORAN facility site includes a tank farm, a fill point area, and a utility pit adjacent to the tank farm. A site investigation conducted in 1990 observed oil stained soils, an oil sheen, and some free-phase product in a wetland to the north of the tank farm. In 1993, FAA personnel responded to a reported fuel release at the cross-island pipeline valve box near the tank farm. Fuel was inadvertently released from the valve box during this response. In 1994, the stained areas north of the tank farm were further investigated. ASTs and the fill point area were removed at this time, with sampling indicating that DRO, VPH, and TRPH were present above cleanup levels. Sediment samples were also collected from the affected areas, with BTEX, DRO, VPH, and TRPH exceeding ADEC cleanup levels. FAA performed soil scarification, fertilization, and reseeding of the estimated 1750 square feet of impacted soil at the recommendation of ADEC. A 2000 investigation was conducted around the fill point. DRO, RRO and GRO contaminated soil and sediments remain at the former tank farm and the former fill point in excess of ADEC cleanup levels.

ADEC records indicate that responsibility for cleanup of this site has not been resolved. Responsibility for cleanup of this site must be resolved. This site will remain open with the expectation of additional work to characterize contamination and remediate to concentrations below ADEC Method 2 Over 40 Inch Cleanup Levels.

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, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99801, 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, Juneau, Alaska 99801, 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 contact the ADEC project manager, Fred Vreeman at (907) 451-2181.

Approved By

Fred Vreeman
Environmental Program Manager I

Recommended By

James Ward
College Intern III

Enclosure: Compilation of Sample Results for VORTAC Determinations
Excerpted figures 3-16 and 3-12 (Bristol Construction Services 2008)
Excerpted figures 3-1 and 3-3 (Ecology and Environment 1994)

cc: Mark Ridgway, US Coast Guard
Michael Wilcox, US Forest Service
Tim Chittenden, US Forest Service

ATTACHMENT 1

SITE SUMMARY TABLE

for: FAA Biorka Island - VORTAC

FIle: 1542.38.001
Hazard ID: 1761

Site	Sample #	Contaminants of Concern DRO (mg/kg)	GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	ethyl benzene (mg/kg)	xylenes (mg/kg)	PCB (mg/kg)	Report
Method 2 Migration to GW Cleanup				0.025	6.5	6.9	63	1	
Method 2 Over 40" Zone		230	260						
Soil Stain and Drum Storage Area (Stain #1) (VOR AOC1) Source Area 78993	1031SL	5,700	ND	ND	ND	ND	ND	3.2	Ecology and Environment Inc, *Site Cleanup and Investigation Report, Biorka Island FAA Station, December 1994*
Decision	Area of concern will remain in open status with the expectation of additional work conducted in 2012. Further action needed: 1) Confirmation sampling for PCBs, 2) further characterization to determine amount of contamination under the Storage Shed.								
Comments									
Unpermitted Landfill under Helipad (Helicopter Landing Pad AOC) Source Area 79009	--	--	--	--	--	--	--	--	CH2-OH, *Biorka Island FAA Station Landfill Closure Documentation, January 1998*
Decision	Helipad/landfill will remain in open status with the expectation of additional work conducted in 2012. Further action needed: 1) Detailed boundary survey of landfill waste and permanent survey markers, and 2) Permanent monument to indicate landfill location								
Comments	The helipad area will require institutional controls (ICs) to inform future site user of the presence of buried waste, and prohibit digging into or developing over the potential contamination. Once the survey is conducted, the site may be given a Cleanup Complete with IC designation. The IC consists of the recordation of a closed land fill status (filed in the Sitka Recording District, January 16, 1998), detailed survey map and permanent boundary/location markers.								
Diesel AST near Building 402 AST Antisyphon Vent (VOR AOC7) Source Area 78370	BKA06SS402V03	1650	18.7 est	0.0652 est	--	--	--	--	Bristol Construction Services, LLC., *Federal Aviation Administration Groundwater Sampling and Environmental Investigation, Biorka Island, Alaska, Closeout Report Final, August 2008*
Decision	The 1,000 gallon diesel AST will remain in open status with the expectation of additional work conducted in 2012.								
Comments	Further action needed: 1) Approximately 5 cubic yards of contaminated soil needs to be excavated and properly disposed, 2) Confirmation sampling conducted to verify removal of contaminated soil.								

SITE SUMMARY TABLE

for: FAA Biorka Island - VORTAC

File: 1542.38.001
Hazard ID: 1761

Site	Sample #	Contaminants of Concern DRO (mg/kg)	GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	ethyl benzene (mg/kg)	xylenes (mg/kg)	PCB (mg/kg)	Report
3 1/2" Fuel Pipeline (VOR AOC3) Source Area 78372	BKA96SS011V01PL	4,830	--	0.667					GeoEngineers, Inc., *Final Remedial Action Report for UST and Pipeline Closure, FAA Communications Facilities, Biorka Island, Alaska, April 30, 1997*
	BKA96SL022V01PL	790	--	--	--	--	--	--	
	BKA96SL023V01PL	39500	--	ND					
	BKA96SL024V01PL	1720	--	0.364					
	BKA96SL025V01PL	41600	--	ND					
	BKA96SL026V01PL	1540	--	--	--	--	--	--	
	BKA96SL027V01PL	691	--	0.266					
	BKA96SL029V01PL Background Sample	1250	--	ND					
Decision	A Cleanup Complete designation is approved for the 3.5 inch pipelne.								
Comments	In 2008, ADEC Project Manager, Sharon Richmond, visited the site with representatives from FAA. Ms. Richmond hiked the entire length of the pipeline photographing the few areas of contamination that could still be located, and agreed that the releases were de minimis in size and unlikely to migrate due to the low permeability and highly organic nature of the muskeg soil.								
3/4" Supply and Return Pipeline (VOR AOC4) Source Area 78371	BKA02SS001V01	34.2	ND	ND	--	--	--	--	CH2MHill Constructors, Inc., *Site Closure Report, VORTAC Facility, Former VHF Area Facility, Radar Facility, Quarters/Doc Facility, Biorka Island, Alaska, December, 2006.*
Decision	A Cleanup Complete designation is approved for the 3/4 inch Supply and Return Pipeline.								
Comments									
Diesel Tank Farm USTs 47-A-2, 47-A-3, 47-A-4 (VORTAC AOC1) Source Area 79007	BKA96ST051V01 Confirmation Sample	57.1	--	ND	--	--	--	--	GeoEngineers, Inc., *Final Remedial Action Report for UST and Pipeline Closure, FAA Communications Facilities, Biorka Island, Alaska, April 30, 1997*
Decision	A Cleanup Complete designation is approved for the VORTAC diesel tank farm, USTs 47-A-2, 47-A-3, 47-A-4.								
Comments	Six confirmation samples were taken at the excavation site. The sample listed above had the highest readings for DRO & BTEX.								
Gasoline UST 47-A-1 (VOR AOC5) Source Area 78367	BKA96ST027V01E Confirmation Sample	--	28.8	0.572	--	--	--	--	GeoEngineers, Inc., *Final Remedial Action Report for UST and Pipeline Closure, FAA Communications Facilities, Biorka Island, Alaska, April 30, 1997*
Decision	A Cleanup Complete designation is approved for the VORTAC gasoline UST 47-A-1.								
Comments									

SITE SUMMARY TABLE

for: FAA Biorka Island - VORTAC

File: 1542.38.001
Hazard ID: 1761

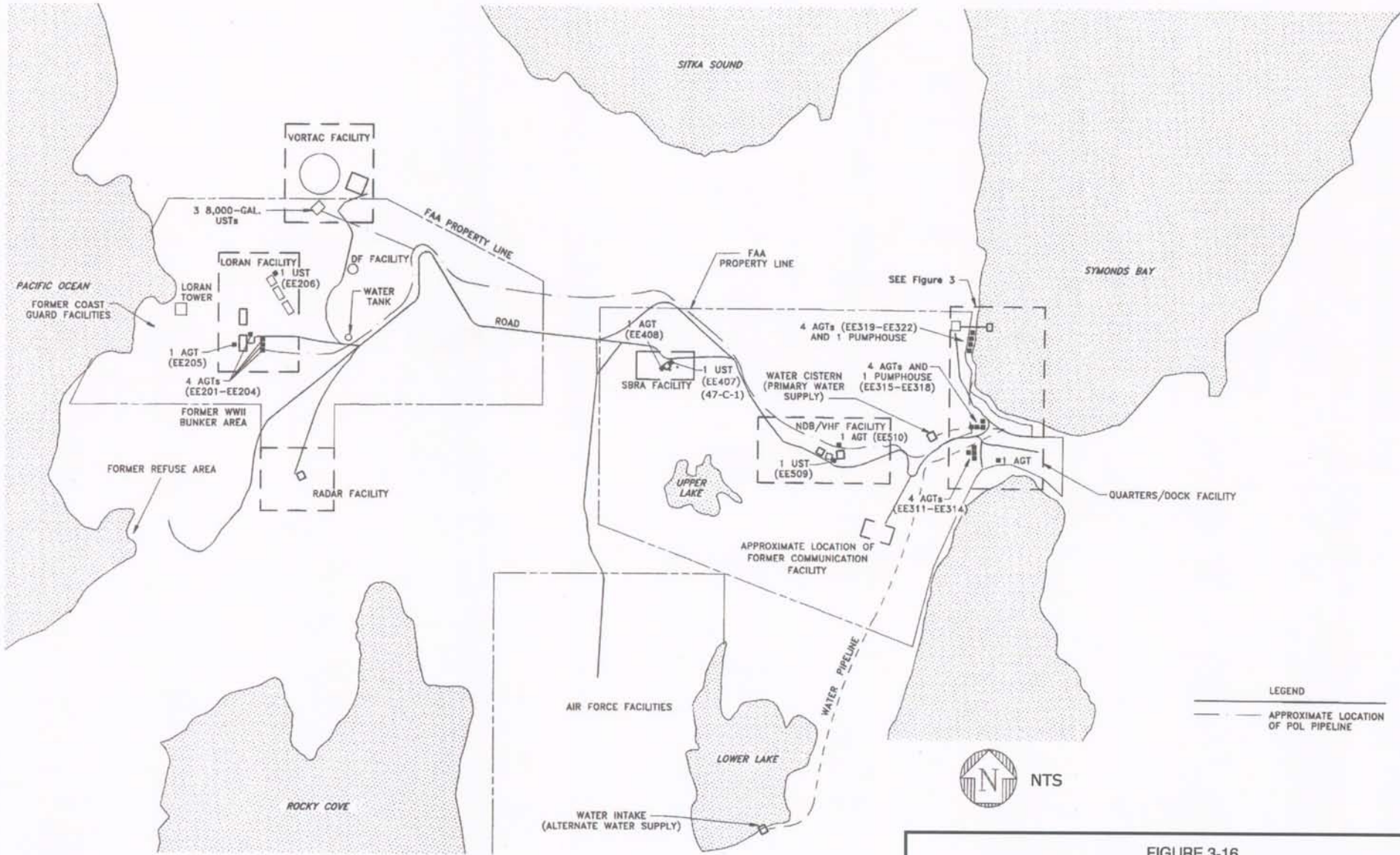
Site	Sample #	Contaminants of Concern DRO (mg/kg)	GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	ethyl benzene (mg/kg)	xylenes (mg/kg)	PCB (mg/kg)	Report
Diesel UST 47-C-01 (SBRA Facility) Source Area 79108	BKA06SS401M01	38.1	ND	ND	--	--	--	--	Bristol Construction Services, LLC., *Federal Aviation Administration Groundwater Sampling and Environmental Investigation, Biorka Island, Alaska, Closeout Report Final, August 2008*
Decision	A Cleanup Complete designation is approved for the SBRA diesel UST 47-C-01								
Comments									
Former Transformer Pad	BKA04SL0010-01	--	--	--	--	--	--	0.18	CH2MHill Constructors, Inc., *Site Closure Report, VORTAC Facility, Former VHF Area Facility, Radar Facility, Quarters/Doc Facility, Biorka Island, Alaska, December, 2006.*
Decision	This site was adequately addressed and is not considered to be an area of concern.								
Comments	There were no indications of leaks or releases of oil from the former transformer during a 1990 inspection. At the request of the FAA, a soll sample was taken.								
Transformer #141870	BKA94IC009OL	--	--	--	--	--	--	27	Ecology and Environment Inc, *Site Cleanup and Investigation Report, Biorka Island FAA Station, December 1994*
Decision	As long as the transformer is in use and properly managed, it is not considered an area of concern.								
Comments	No release has been reported. The transformer should be cleaned prior to disposal, and the oil shipped to an approved hazardous waste landfill.								
Small vehicle leak (Stain #2) (VOR AOC2) Source Area 78993	--	--	--	--	--	--	--	--	Ecology and Environment Inc, *Site Cleanup and Investigation Report, Biorka Island FAA Station, December 1994*
Decision	This site was adequately addressed and is not considered to be an area of concern.								
Comments	Approximately 1 cubic yard of stained soil was removed in 1994.								

SITE SUMMARY TABLE

for: FAA Biorka Island - VORTAC

File: 1542.38.001
Hazard ID: 1761

Site	Sample #	Contaminants of Concern DRO (mg/kg)	GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	ethyl benzene (mg/kg)	xylenes (mg/kg)	PCB (mg/kg)	Report
LORAN Facility (LORAN AOC 1, 2, 4) Site 1542.38.003 USCG Biorka Island LORAN	2010SL	18	4.4	ND	ND	36	46	ND	Ecology and Environment Inc, *Site Cleanup and Investigation Report, Biorka Island FAA Station, December 1994*
	2018SD	1900	7.10	ND	ND	120	ND	ND	
Decision	Responsibility for cleanup of the LORAN facility site (including but not limited to the tanks and fill point area) must be resolved. This area of concern will remain open with the expectation of additional work to characterize and remediate contamination at this site.								
Comments	The LORAN facility site includes a tank farm, a fill point area, and a utility pit adjacent to the tank farm. FAA investigation in 1990 identified oil stained soils, an oil sheen, and free-phase product in a wetland to the north of the tank farm. In 1993, FAA responded to a fuel release near the tank farm. In 1994, the stained wetland north of the tank farm was sampled, scarified, fertilized, and reseeded. Investigation in 2000 indicate that concentrations of DRO, RRO, and GRO remain above ADEC Cleanup Levels.								

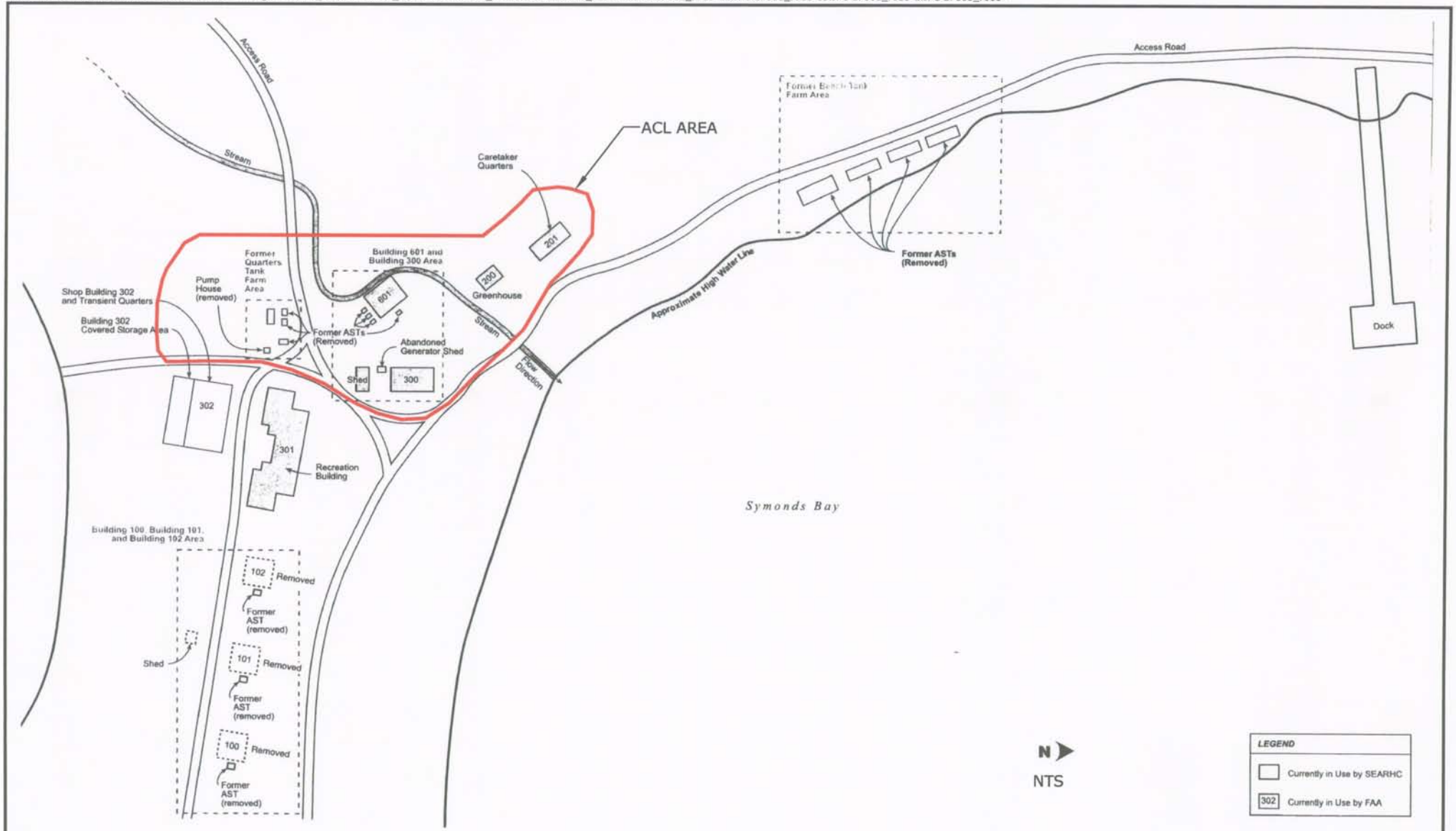


SOURCE: ECOLOGY AND ENVIRONMENT, INC.
FIGURE 2, TANK LOCATION AND INDENTIFICATION MAP
JUNE, 1994

FIGURE 3-16
BIORKA ISLAND FAA STATION
BIORKA ISLAND, ALASKA
SBRA FACILITY LOCATION MAP

Bristol CONSTRUCTION SERVICES, LLC
Phone (907) 563-0013 Fax (907) 563-6713
Project No. 57002

DATUM:	NA
PROJECTION:	NA
DATE	04/21/06
DWN.	MTG
SCALE	SHOWN
APPRVD.	SJ
SHEET	16 of 17



SOURCE: CH2MHILL CONSTRUCTORS, INC.
FIGURE 2-2, QUARTERS/DOCK FACILITY MAP
DECEMBER, 2004

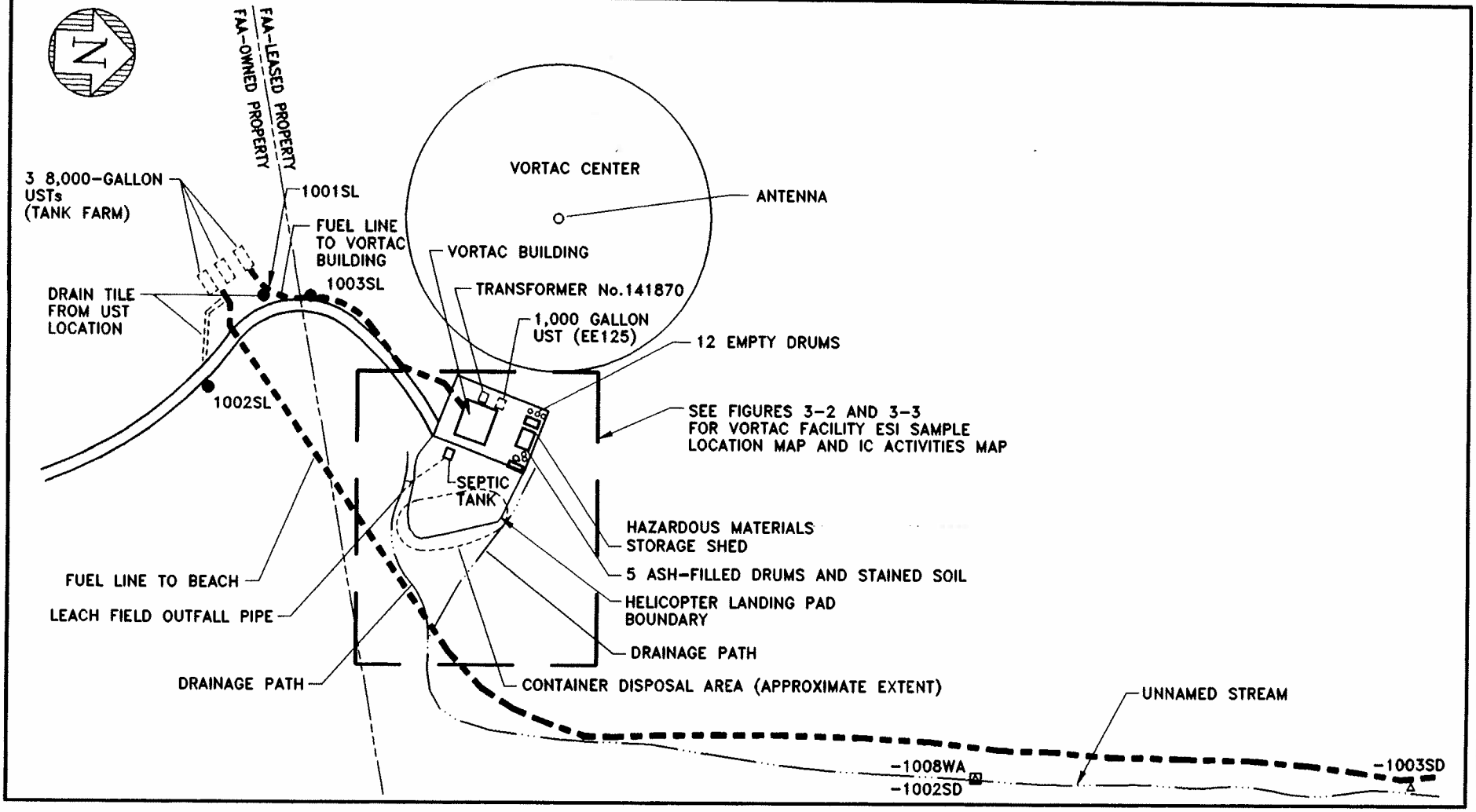
FIGURE 3-12
BIORKA ISLAND FAA STATION
BIORKA ISLAND, ALASKA
ACL SIGN AREA AT FORMER QUARTERS TANK FARM AND BUILDING 300/601 AREAS

Bristol CONSTRUCTION SERVICES, LLC
Phone (907) 563-0013 Fax (907) 563-6713
Project No. 57002

DATUM:	NA
PROJECTION:	NA
DATE	04/21/06
DWN.	MTG
SCALE	SHOWN
APPRVD.	SJ
SHEET	12 of 17

VR7S019A

Source: HART CROWSER, INC. 1991



SCALE IN FEET

0 150 300 450

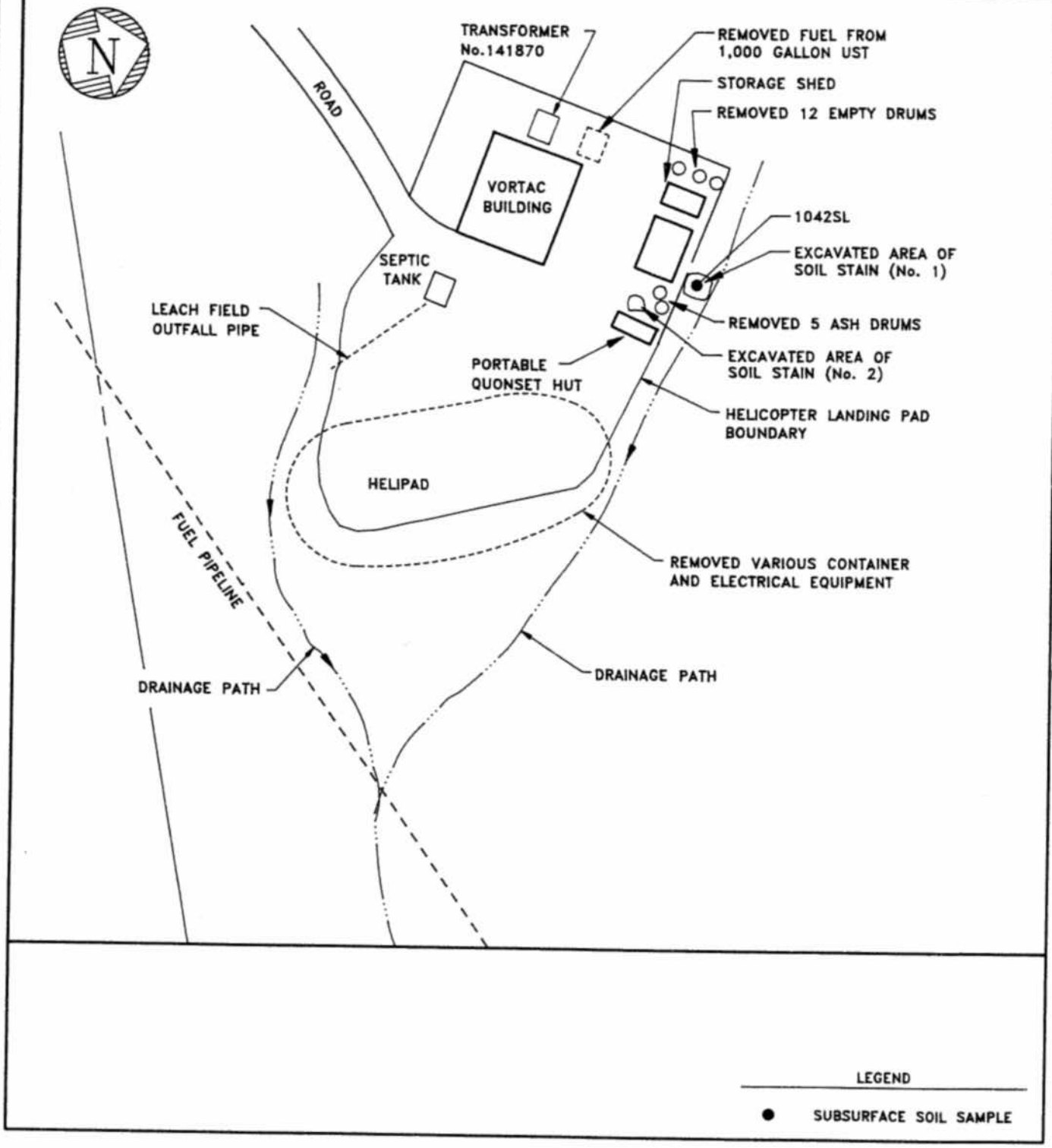
LEGEND

- ● SUBSURFACE SOIL SAMPLE
- ○ SURFACE SOIL
- ⊠ COLLOCATED SURFACE WATER AND SEDIMENT SAMPLE
- △ SURFACE SEDIMENT SAMPLE

Ecology and Environment, Inc.	
Figure: 3-1	Proj. No: VR7000
Date: 8/10/94	Drawn by: MEH
Title: BIORKA ISLAND FAA STATION VORTAC FACILITY SAMPLE LOCATION MAP	

VQ9S033A

Source: HART CROWSER, INC. 1991



SCALE IN FEET

0 50 100 150

Ecology and Environment, Inc.	
Figure: 3-3	Proj. No: VR7000
Date: 8/10/94	Drawn by: MEH
Title: VORTAC FACILITY IC ACTIVITIES	

STATE OF ALASKA

DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
CONTAMINATED SITES PROGRAM

SEAN PARNELL, GOVERNOR
610 University Avenue
Fairbanks, AK 99709-3643
PHONE: (907) 451-2702
FAX: (907) 451-5105
www.dec.state.ak.us

File: 1542.38.001

February 9, 2012

Scott Berglund
Federal Aviation Administration
Environmental Section
AAL-471, FAA
222 W. 7th Ave, Box 14
Anchorage, AK 99513-7587

Re: **Federal Aviation Administration (FAA) Biorka Island Station Living Quarters**
Summary of Evaluations and Determinations

Dear Mr. Berglund:

The Alaska Department of Environmental Conservation Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with the Federal Aviation Administration FAA Biorka Island Station located in the Necker Islands in southeast Alaska in Sections 7 and 8, Township 58 South, Range 62 East of the Copper River Meridian. Based on the information provided to date, ADEC has determined the site status of each of the areas of concern. The current status of the sites is listed below, and the body of the decision document summarizes the history of the site and explains the site status determination for each area of concern. Please note that a separate Record of Decision documents the FAA Biorka Island Station VORTAC and associated sites.

Comprehensive Site Status Summary for All Biorka Island Areas of Concern
The following identifies ADEC site status determinations for all Areas of Concern (AOCs) on Biorka Island. For clarity, this list includes AOCs which are not addressed in this letter. Specific details for each AOC and file references are available within the text, or in another document.

AOCs Addressed in this letter:

Further action required

- Building 601 ASTs
- Pipeline 47-P-10
- Wood Crib/Culvert near Building 300

- Contaminated Soil at Beach Tank Farm Fill Valve

Cleanup Complete:

- 2.5 Inch Cross Island Aboveground Pipeline
- Former Pipeline 47-P-09
- Gasoline Spill at Building 300
- Petroleum Contamination at Buildings 100-102
- Lead Contamination at Buildings 100-102
- Living Quarters Former Tank Farm
- Dry Well at Building 302
- Cell Phone Tower Facility
- Former Diesel AST 47-D-2

Cleanup Complete – LUST:

- Former UST 47-D-1 and Potentially Contaminated Soil Disposal Area

Not an AOC:

- Former Soil Stockpile near Road
- Former Transformer Pad near Dock
- US Coast Guard Transformer near Building 300

AOC Addressed in the January 7, 2010 ADEC Decision Document FAA Biorka Island RCAG, Record of Decision:

Cleanup Complete

- FAA Biorka Island RCAG

AOCs Addressed in the February 9, 2012 ADEC Decision Document FAA Biorka Island Station VORTAC Summary of Evaluations and Determinations:

Further Action Required

- Storage Shed and Drum Storage Area
- Unpermitted Landfill under Helipad
- Diesel AST near Building 402

Cleanup Complete

- 3.5 Inch Fuel Pipeline
- ¾ inch Supply and Return Pipeline

Cleanup Complete – LUST

- Diesel Tank Farm USTs 47-A-2, 47-A-3, 47-A-4
- Gasoline UST 47-A-1
- Diesel UST 47-C-01

Not an AOC

- Former Transformer Pad
- Transformer #141870
- Small Vehicle Leak (Stain #2)

AOC with Undetermined Site Cleanup Responsibility

- LORAN Facility

Introduction

These site status decisions are based on the administrative record for the FAA Biorka Island Living Quarters site, which is located in the offices of ADEC in

Fairbanks, Alaska. This decision document summarizes the decision process used to determine the environmental status of the areas of concern at the site and provides a summary of the regulatory issues considered in the determination.

Regulatory authority under which the site is being cleaned up:
18 AAC 75 and 18 AAC 78

Background
The FAA, formerly known as the Civil Aeronautics Administration (CAA), and the US Coast Guard began activities on the Biorka Island property in 1951. In 1956, the CAA obtained a 155-acre parcel of land around the docks. A 24-acre native allotment parcel near the docks was also transferred. The Living Quarters and Dock facilities are located within the former 24-acre native allotment, at the head of Symonds Bay. The facility operations have been ongoing with buildings alternately constructed, remodeled, or demolished over the years. Most of this facility is covered by pad fill and grass. With the exception of the Living Quarters Tank Farm area, the topography of the facility is flat with an average slope of less than 1 percent.

Currently, there are no year-round residents on Biorka Island. Several facility buildings and the facility grounds are used by Southeast Alaska Regional Health Consortium (SEARHC) Community Health Service of Sitka, as the Raven's Way mental health treatment center. Frequent visitors to the island include treatment groups (generally consisting of 10 teenagers and 7 adult staff), FAA personnel performing maintenance on generators, and air navigational aids.

Characterization and Cleanup Activities
The following reports document characterization and cleanup actions at the Biorka Island Station:

- Ecology and Environment Inc. *Environmental Compliance Investigation Report for Biorka Island Navigation Aid Station, Biorka Island.* April 1992.
- Ecology and Environment Inc. *Site Cleanup and Investigation Report, Biorka Island FAA Station, Biorka, Alaska.* December 1994.
- CH2MHill Inc. *Site Closure Report, Quarters Area Biorka Island, Alaska.* June 2003.
- CH2MHill Inc. *Quarters Area Tank Farm, Biorka Island, Alaska.* July 2003.
- CH2MHill Inc. *Site Closure Report, Building 300 and 601 Area, Biorka Island, Alaska.* March 2006.
- Bristol Construction Services, LCC. *Groundwater Sampling and Environmental Investigation, Biorka Island, Alaska, Closeout Report Final.* August 2008.
- Federal Aviation Administration. *Memorandum for the Record: Lead Contaminated Soils Around the Perimeter of Bldgs 100, 101, 102 at Biorka Island, Alaska.* April 2011.

Additional site specific activities are noted in the section ADEC Decision. The attached Compilation of Sample Results for Living Quarters Determinations

identifies analytical and observational data of special significance for each site. General figures from site investigation reports are also attached to identify the general physical locations of each site.

Contaminants of Concern

The contaminants of concern at the Living Quarters facilities are:

- Diesel Range Organics (DRO)
- Gasoline Range Organics (GRO)
- Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX)
- Polychlorinated Biphenyls (PCBs)
- Lead

Cleanup Levels

The Department approved alternate cleanup levels for DRO, GRO and Benzene, as well as Method 2 Migration to Groundwater Cleanup levels for BTEX, and PCBs. Use of Alternate Cleanup Levels at this site would require long term monitoring and maintenance.

Contaminant	Method 2 Above 40 Inch Zone Cleanup Levels (mg/kg)					
	Alternate Cleanup Levels	Migration to Groundwater	Ingestion	Inhalation	Direct Contact	Outdoor Inhalation
Diesel Range Organics (DRO)	1860	260	8250	12500		
Gasoline Range Organics (GRO)	1400	230	1400	1400		
Benzene	0.0401	0.025			120	8.5
Toluene		6.5			6600	220
Ethylbenzene		6.9			8300	81
Xylenes		63			16600	63
Polychlorinated Biphenyls (PCBs)					1	
Lead					400	

Pathway Evaluation

The exposure pathways for human health that were evaluated include the following: migration to groundwater, incidental ingestion of soil, inhalation of vapors in indoor and outdoor air, and dermal contact with soil. Drinking water is obtained from a rainwater cistern, or alternately, from a freshwater lake. Groundwater, where present, is brackish and is not used as a drinking water source. Contaminant concentrations exceeding cleanup levels remain at the site.

Exposure to these areas will be controlled with institutional controls, until further assessment or remediation actions are taken.

The exposure pathway analysis above was supported by the most recent ADEC Exposure Tracking Model (ETM) ranking. The ETM results showed all pathways for closed sites to be De Minimis Exposure or Pathway Incomplete.

ADEC Further Action Required Determination
ADEC has determined that further action is required to address soil contamination issues at the following sites. These sites are currently designated as separate Source Areas within site 1542.38.001. These Source Areas will remain open and active within the ADEC Database until remediation work is complete.

Building 601 ASTs - This site is listed in the ADEC Database as Source Area 78358. Building 601 was the site of several ASTs and documented soil contamination in association with these tanks. A removal action occurred in 2005. Samples at the limits of the excavation were below alternate cleanup levels in 30 of 34 samples taken, with 8 samples exceeding ADEC Method 2 Migration to Groundwater cleanup levels. With the exception of sidewall sample 601Q32 and its duplicate, samples in excess of ADEC Method 2 Migration to Groundwater cleanup levels were collected from irregular depressions in the bedrock, where further excavation was not possible. Concentrations up to 5800 mg/kg DRO were identified in these irregular bedrock depressions. Sample 601Q32 indicates that additional contamination may exist beneath Building 601. FAA must complete the following to reach a Cleanup Complete determination: identify and remove contaminated soils from beneath Building 601, and confirm that remaining contamination is not likely to migrate to groundwater and is present below ADEC Method 2 Outdoor Inhalation and ADEC Method 2 Ingestion cleanup levels.

Former Pipeline 47-P-10 - This site is listed in the ADEC Database as Source Area 78364. Former Pipeline 47-P-10 was a 2 inch pipeline extending from North-Northwest of Building 200 to East of Building 201. In June of 2004, approximately 10 cubic yards of soil were removed from the southern end of the pipeline, with field screening to confirm successful removal of impacted soils. Six laboratory samples were also collected and submitted for laboratory analysis. Parts of the northern section of the pipeline were determined to be too close to active utilities adjacent to the road. 4 test pits were hand excavated at these locations and a sample was collected from each pit. The test pits documented concentrations of DRO up to 5,600 mg/kg in sample 90Q02. The extent of soil contamination associated with Former Pipeline 47-P-10 in the vicinity of Building 201 is not clear. FAA must complete the following to reach a Cleanup Complete determination: confirm that the extent of petroleum contamination along the section of former Pipeline 47-P-10 near Building 201 is limited in area, and confirm

that remaining contamination in this area is not impacting groundwater and is not likely to migrate to groundwater from this location.

Wood Crib/Culvert near Building 300 - This site is listed in the ADEC Database as Source Area 79109. The Wood Crib/Culvert is located beneath the roadway approximately 30 feet north of Building 300. The Wood Crib/Culvert was discovered during the instillation of Monitoring Well BKA04-89 in 2004. Analytical samples taken during installation of this well measured DRO levels in soil of 12,000 mg/kg at 3 to 4 feet bgs, and 6,000 mg/kg at 5 to 6 feet bgs, with a groundwater sample detecting DRO at 3.1 mg/L. An analytical sample was taken in June 2008 with DRO concentrations of 3,220 mg/kg at 8.5 feet bgs. Arsenic was measured in the 2006 sampling event at concentrations of 5.25 mg/kg, above ADEC Method 2 cleanup levels but consistent with elevated background levels measured in 1994. Contaminants remain at this site in excess of ADEC Method 2 Migration to Groundwater cleanup levels to depths of 8.5 feet. Groundwater sampled at this site exceeds ADEC Table C Groundwater Cleanup Levels for DRO and RRO. FAA must complete the following to reach a Cleanup Complete determination: remediate contaminated soil at the location of the Wood Crib/Culvert to levels below ADEC Method 2 Migration to Groundwater cleanup levels and verify that groundwater is no longer being impacted at this site.

Contaminated Soil at Beach Tank Farm Fill Valve - This site is listed in the ADEC Database as Source Area 79111. The Former Beach Tank Farm area is located north of the Living Quarters area. Work conducted in 2006 at a fill valve near the Beach tanks encountered contaminated soil during an excavation. Historic photography indicated that the location was the site of several ASTs which are the suspected source of contamination. The area has not been characterized and it is uncertain what amount of contamination may exist at this location. FAA must complete the following to reach a Cleanup Complete determination: investigate and characterize contamination at the Fill Valve Area, and remediate contaminated soil at the site to ADEC Method 2 Migration to Groundwater cleanup levels.

ADEC Cleanup Complete Determination

ADEC has determined that a Cleanup Complete determination is appropriate for the following sites. These sites are currently designated as separate Source Areas in site file 1542.38.001. These Source Areas will be reranked within the ADEC Database to document their Cleanup Complete determination.

2.5 Inch Cross Island Aboveground Pipeline - This site is listed in the ADEC Database as Source Area 79017. The 2.5 inch Cross Island Aboveground Pipeline spans from the Beach Tank Farm area to the LORAN tank farm (former Living Quarters Tank Farm). This distance of approximately 2 miles generally paralleled the main road. As part of the 1994 interim cleanup, 36 cuts were made to the pipeline and approximately

350 gallons of diesel fuel were drained from the line. The line was left in place. Twenty locations were field screened for potential leaks, including all low points along the line; three locations were analyzed in the field lab due to high readings. The three locations were examined in 2005, with no indications of stains or stressed vegetation found. ADEC has determined that contamination at this location presents *De Minimis* risk to humans or the environment at this site due to the relatively low potential concentrations, isolated and difficult to reach locations of contamination, and highly organic soil conditions which limit potential migration of contaminants. A Cleanup Complete determination is made for the 2.5 inch Cross Island Aboveground Pipeline.

Former Pipeline 47-P-09 - This site is listed in the ADEC Database as Source Area 78365. Former Pipeline 47-P-09 was a ¾ inch, threaded black iron fuel pipeline traveling between Building 300 and Building 201. Upon excavation and removal of the pipeline, field screening was conducted to characterize possible fuel contamination. Soil adjacent to Building 300 was discovered in excess of Method 2 cleanup levels, with the remainder of the field screening indicating a low risk of significant petroleum contamination associated with the pipeline. In 2005, contaminated soil associated with Building 300 was excavated and removed. The FAA has characterized contamination at this site, and remaining contamination is below ADEC Method 2 cleanup levels. A Cleanup Complete determination is made for Former Pipeline 47-P-09.

Building 300 Gasoline Spill - This site is listed in the ADEC Database as Source Area 78359. In June 2001, an accidental gasoline spill occurred along the roadside near Building 300. FAA personnel were on scene at the time and immediately responded to the spill. Samples were taken in 2002 by excavating 8 test pits, with concentrations below ADEC Method 2 Migration to Groundwater cleanup levels in 4 test pits. In two test pits adjacent to the entrance of Building 300, GRO, benzene, toluene, ethylbenzene, and total xylenes were above ADEC Method 2 Migration to Groundwater Cleanup Levels. Two other test pits near Building 300 slightly exceeded ADEC Method 2 Migration to Groundwater cleanup levels for benzene. In 2008, two test pits were excavated immediately north and south of the entrance to Building 200 and field screened, with one analytical sample taken from the area of the highest field screen results. BTEX was not detected, and concentrations of GRO were measured well below ADEC Method 2 Migration to Groundwater cleanup levels. The FAA has appropriately characterized the contamination related to the 2001 accidental gasoline spill. Contamination which has previously exceeded cleanup levels is limited to a small volume of less than 1 cubic yard, and has been attenuating. ADEC has determined that remaining contamination at this site is *De Minimis*. A Cleanup Complete determination is made for the Gasoline Spill near Building 300.

Lead Contamination at Buildings 100, 101, and 102 - This site is listed in the ADEC Database as Source Area 79025. Former Buildings 100, 101, and 102 were used as residences until their demolition in 2001. Lead based paint was used on the exterior of Buildings 100, 101, and 102. Analytical sampling indicated that lead contamination was limited to within 4 feet of the buildings. In 2001, these buildings were demolished. Demolition activities included the removal of soils around the perimeter of each building, to a depth of 4 inches and 4 feet out from the building wall. Confirmation sampling for lead indicated that concentrations were below ADEC cleanup levels; any residual lead contamination is considered to be *De Minimis* in concentration and volume. A Cleanup Complete determination is made for the lead contamination at former Buildings 100, 101, and 102.

Petroleum Contamination at Buildings 100, 101, and 102 - This site is listed in the ADEC Database as Source Areas 79356. A fuel line supplied heating fuel to these buildings until the mid 1970s, when an AST was installed at each building. These three ASTS were removed in 2002 along with approximately 900 cubic yards of soil. Confirmation sampling indicated that one sample at the Building 102 excavation exceeded ADEC Method 2 Migration to Groundwater cleanup levels for DRO, but did not exceed Ingestion and Inhalation cleanup levels. Based on results from excavations at former Buildings 100 and 101, ADEC has determined that soil characteristics at this location will retard migration of DRO to groundwater at former Building 102. ADEC has determined that remaining petroleum contamination at the former Buildings 100, 101, and 102 is *De Minimis* in concentration and volume. A Cleanup Complete determination is made for the petroleum contamination at former Buildings 100, 101, and 102.

Living Quarters Former Tank Farm - This site is listed in the ADEC Database as Source Area 78360. The former Living Quarters Tank Farm included a 5,000 gallon AST, two 2,000 gallon ASTs, and a 600 gallon gasoline AST. These tanks were removed in 1994, at which time approximately 500 sq ft of stained soil were observed. A release investigation indicated the site had become contaminated, presumably from surface releases diesel and gasoline. In 2002, approximately 800 cubic yards of soil were excavated and temporarily stored in a stockpile prior to off-site remediation. Samples collected at the limits of excavation indicated that contaminated soil has been excavated to the extent practicable. An area of approximately 400 sq ft could not be completely excavated due to irregular depressions and fracturing of bedrock. Three groundwater monitoring sets were below ADEC Method 2 Groundwater cleanup levels. Although contaminated soil remains in place above ADEC Method 2 Migration to Groundwater cleanup levels, groundwater data indicates that contamination is not significantly dissolving into the aquifer. Remaining contaminated soil is *De Minimis* in volume, is not expected to migrate or leach off site, and is below ADEC Method 2 Inhalation and Ingestion cleanup levels. A Cleanup Complete determination is made for the former Living Quarters Tank Farm.

Dry Well near Building 302 - This site is listed in the ADEC Database as Source Area 78366. A Dry Well was located a short distance from Building 302 and appears to have provided a drain point for floor drains in Building 302. Building 302 has historically been used as a storage, shop, and temporary housing facility. The three floor drains leading to the dry well were tested for PCBs in 1994 prior to sealing; concentrations were detected but below cleanup levels. The dry well was located in 2002 and a soil sample taken from the bottom of the well indicated detectable levels of petroleum contamination at concentrations below ADEC Method 2 Migration to Groundwater Cleanup Levels. PCBs were not detected at the bottom of the dry well. A Cleanup Complete determination is made for the former Dry Well near Building 302.

Cell Phone Tower Facility - This site is listed in the ADEC Database as Source Area 79112. During the 2008 investigation, soil contamination was discovered at the former Cell Phone Tower Facility. Two soil samples identified DRO contamination at concentrations of 1,630 mg/kg and 1,190 mg/kg. ADEC has determined that the highly organic composition of the soil, distance to groundwater, and limited area of contamination indicates that contamination is not likely to migrate into groundwater at this location. Contamination at this site is well below ADEC Method 2 Ingestion and Inhalation cleanup levels. A Cleanup Complete determination is made for the former Cell Phone Tower Facility.

Former Diesel AST 47-D-02 – This site is listed in the ADEC Database as Source Area 79113. The AST was located adjacent to the former Non Directional Beacon building, which has since been demolished and replaced with a NEXRAD facility. In 1994, the 500 gallon diesel AST was removed along with approximately 30 cubic yards of soil. Confirmation sampling after the removal action did not detect DRO or benzene. Contamination associated with this site has been fully addressed. A Cleanup Complete determination is approved for Diesel AST 47-D-02.

ADEC Cleanup Complete – LUST Determination

ADEC has determined that a Cleanup Complete Determination is appropriate for the following LUST site. This site is referred to as a separate area of concern (AOC) in site file 1542.38.001. This site will be designated in the ADEC Database as Cleanup Complete.

UST 47-D-01 and Soil Disposal on Cross Island Road – This site is listed in the ADEC Database as Source Area 79023. This UST was associated with the former Non Directional Beacon building, which has been demolished and replaced with a NEXRAD facility. In 1994, the 1,000 gallon diesel UST was removed along with approximately 10 cubic yards of contaminated soil. Two confirmation samples were taken from the limits of excavation. DRO was detected at concentrations of 9000 mg/kg and 230 mg/kg. An unknown

volume and concentration of remaining contaminated soil was inadvertently removed in 1994 during the excavation and removal of 2800 cubic yards of soil. This comingled 2800 cubic yards of soil was placed at a hairpin turn uphill from the Quarters area. Site inspections at the hairpin turn in 1993 and 1994 did not note any contamination or environmental concerns at this location. The action of excavation, transportation, and dispersal of potentially contaminated soil likely diluted the contaminated soil with clean soil, aerated the mix, and made it impossible to differentiate the contaminated soil stockpile. Significant migration of contamination is unlikely based on information from other diesel contaminated locations on Biorka Island. A Cleanup Complete determination is approved for the Diesel UST 47-D-01 and Potentially Contaminated Soil Disposal Area.

ADEC Not an Area of Concern Determination

ADEC has determined that the following sites are not areas of concern.

Former Soil Stockpile Near Road - During cleanup activities in 2000, 2001, and 2004, a temporary stockpile was established along the cross island road near a hairpin turn. Stockpiled soils were temporarily stored before transport to Seattle for treatment and disposal in July 2004. All soils were appropriately manifested and disposed. Samples taken after the removal of the stockpile did not indicate migration of contaminants. This location is not an area of concern under 18 AAC 75 or 18 AAC 78.

Former Transformer Pad Near Dock - A pad for a former transformer exists near the dock in the Living Quarters area. There is no documented release from this transformer. In 1992, a soil sample and a wipe sample were taken to confirm that contamination was not present in the area. PCBs were not detected in either sample. The former Transformer Pad near Dock location is not an area of concern under 18 AAC 75 or 18 AAC 78.

US Coast Guard Transformer - A transformer was previously located adjacent to Building 300. There is no documented release from this transformer. In 1992, a soil sample and a wipe sample were taken to confirm that contamination was not present in the area. PCBs were not detected in either sample. The US Coast Guard Transformer near Building 300 location is not an area of concern under 18 AAC 75 or 18 AAC 78.

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, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99801, 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, Juneau, Alaska 99801, within 30 days after the

date of issuance of this decision document, 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 decision document, please contact the ADEC project manager, Fred Vreeman at (907) 451-2181 or by email at fred.vreeman@alaska.gov.

Approved By

Fred Vreeman
Environmental Program Manager

Recommended By

James Ward
College Intern III

Enclosure: Compilation of Sample Results for LQ Determinations
Excerpted figures 3-16 and 3-12 (Bristol Construction Services 2008)
Excerpted figures 3-1 and 3-3 (Ecology and Environment 1994)

cc: Mark Ridgway, US Coast Guard
Michael Wilcox, US Forest Service
Tim Chittenden, US Forest Service

ATTACHMENT 1

SITE SUMMARY TABLE

for: FAA Biorka Island - Living Quarters

File: 1542.38.001
Hazard ID: 901

Site	Sample #	Contaminates of Concern DRO (mg/kg)	GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	ethyl benzene (mg/kg)	xylenes (mg/kg)	PCB (mg/kg)	Report
Method 2 Migration to GW Cleanup				0.025	6.5	6.9	63	1	
Method 2 Over 40" Zone		230	260						
Alternative Cleanup Levels		**1860**	**1400**	**0.0401**					
Building 601 ASTs **4 ASTs, EE315, 316, 317, 318** **(QS AOC5)** Source Area 78358	BKA04SS601Q27 (Floor, bedrock) BKA04SS601Q32D (Wall, bedrock) BKA04MW89Q01 (Sentry GW)	5800 2400 3.1	--	--	--	--	--	--	CH2MHill, *Site Closure Report, Building 300 and 601 Area, Biorka Island, Alaska.* March 2006
Decision	The Building 601 area will remain open with the expectation of additional work to be conducted in 2012								
Comments	A cleanup excavation in 2004 removed soil to bedrock; 32 of 34 confirmation soil samples were below ACLs but the foundation of Building 601 prevented complete excavation. FAA has indicated that Building 601 will be demolished in 2012. Contamination near and beneath building 601 should be characterized and remedied to ADEC method 2 cleanup levels.								
Pipeline 47-P-10 between Buildings 200 and 201 **(QS AOC10)** Source Area 78364	BKA06SD201Q01 (sediment) BKA06SD201Q02 (sediment)	13.7 8.06	ND 1.23	ND ND	ND ND	ND ND	ND ND	-- --	Bristol Construction Services, LCC, *Groundwater Sampling and Environmental Investigation, Biorka Island, Alaska, Closeout Report Final. August 2008*
Decision	Pipeline 47-P-10 will remain in open status with the expectation of additional work to be conducted in 2012.								
Comments	Minimal concentrations of contamination have been detected where pipeline 47-P-10 has been excavated, but uncertainty remains due to prior inability to excavate contaminated soil adjacent to utilities near Building 201 and near Building 601. FAA has indicated that Building 601 will be demolished in 2012. Contamination near and beneath Building 601 should be characterized and remedied to ADEC method 2 cleanup levels.								

SITE SUMMARY TABLE

for: FAA Biorka Island - Living Quarters

File: 1542.38.001
Hazard ID: 901

Site	Sample #	Contaminates of Concern DRO (mg/kg)	GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	ethyl benzene (mg/kg)	xylenes (mg/kg)	PCB (mg/kg)	Report
Wood Crib/Culvert near Building 300 (QS AOC9) Source Area 79109	BKA-04MW89Q01 (groundwater)	--	3.1 mg/L	--	--	--	--	0.065	CH2MHill, *Building 300 and 601 Area, Biorka Island, Alaska.* March 2006
	BKA04-MW89SS04 (3-4' bgs)	12000	120						
	BKA04-MW89SS04 (5-6' bgs)	6000	51						Bristol Construction Services, LCC, *Groundwater Sampling and Environmental Investigation, Biorka Island, Alaska, Closeout Report Final.* August 2008
	BKA06SS300Q03 (8.5' bgs)	3220	4.46						
Decision	This site will remain open with the expectation of additional work to be conducted in 2012.								
Comments	Contamination at this location exceeds cleanup levels for DRO to a depth in excess of 8.5' bgs.								
Contaminated Soil at Beach Tank Farm Fill Valve Source Area 79111	--	--	--	--	--	--	--	--	CH2MHill, Building 300 and 601 Area, Biorka Island, Alaska. March 2006
Decision	This site will remain open with the expectation of additonal work to be conducted in 2012.								
Comments	Contaminated soil was discovered at a fill valve near the Beach tanks in 2006 but was not adequately characterized. Historic photography indicated that the location was the site of several ASTs. The extent of contamination at this site must be characterized and remedied to ADEC method 2 cleanup levels.								
2.5 inch Cross Island aboveground Pipeline (QS AOC3) Source Area 79017	P001SL	TPH 17315	--	--	--	--	--	--	Ecology and Environment, *Site Cleanup and Investigation Report, Biorka Island FAA Station, Biorka, Alaska.* December 1994
Decision	A Cleanup Complete designation is approved for the 2.5 inch Cross Island Aboveground Pipeline.								
Comments	As part of the 1994 interim cleanup, 36 cuts were made to the pipeline and approximately 350 gallons of diesel fuel were drained from the line. The line was left in place. Twenty locations were screened for potential leaks, including all low points along the line; 3 locations were analyzed with the field lab due to high readings. The three locations were examined in 2005, with no indications of stains or stressed vegetation found. The locations of three high readings are isolated and difficult to reach, with excavation likely to cause greater harm to the environment.								

SITE SUMMARY TABLE

for: FAA Biorka Island - Living Quarters

File: 1542.38.001
Hazard ID: 901

Site	Sample #	Contaminates of Concern DRO (mg/kg)	GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	ethyl benzene (mg/kg)	xylenes (mg/kg)	PCB (mg/kg)	Report
Pipeline 47-P-09 between Buildings 300 and 201 (QS AOC13) Source Area 78365	BKA04SS57	TPH 278	--	--	--	--	--	--	CH2MHill, *Site Closure Report, Building 300 and 601 Area, Biorka Island, Alaska.* March 2006
Decision	A Cleanup Complete designation is approved for Pipeline 47-P-09.								
Comments	During the excavation of Pipeline 47-P-09, soil adjacent to Building 300 was discovered that exceeded Method 2 cleanup levels. These impacted soils were excavated in 2005; the remainder of the removed pipeline was field screened and did not indicate contamination at levels near Method 2 Cleanup levels.								
Gasoline Spill near Building 300	"Drain Pit Sidewall"	--	17600	662	3320	573	2885	--	CH2MHill, *Site Closure Report, Building 300 and 601 Area, Biorka Island, Alaska.* March 2006
	BKA06SS300Q01	--	1.02	ND	ND	ND	ND	--	
Decision	A Cleanup Complete designation is approved for the Gasoline Spill near Building 300								
Comments	Following a gasoline spill in 2001, 4 out of 14 samples exceeded Method 2 Migration to Groundwater cleanup levels. Two of these samples near Building 300 slightly exceeded benzene cleanup levels, and two of these samples were located near a drain pit outside the entrance to Building 300. A sample taken in 2008 at the location of the previous sampling was well below cleanup level, indicating that attenuation had reduced the concentration of contaminants at this site.								

SITE SUMMARY TABLE

for: FAA Biorka Island - Living Quarters

File: 1542.38.001
Hazard ID: 901

Site	Sample #	Contaminates of Concern DRO (mg/kg)	GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	ethyl benzene (mg/kg)	xylenes (mg/kg)	PCB (mg/kg)	Report
Petroleum and Lead Contamination at Buildings 100, 101, 102 (QSC AOC7) & (QS AOC16) Source Area 79025 &78356	Bldg 100	ND	ND	ND	ND	ND	ND		CH2mHill, *Site Closute Report, Quarters Area Biorka Island, Alaska.* June 2003
	Bldg 101	ND	ND	ND	ND	ND	ND		
	Bldg 102 BKA02SS178Q01	553	ND	ND	ND	ND	ND		
Decision	A Cleanup Complete designation is approved for the petroleum contamination at Buildings 100, 101, and 102.								
Comments	A Letter sent in February 2004 serves to document that contaminated soil in the specific area of Bldgs 100-102 area has been removed to the greatest extent practical, groundwater is not impacted, and the ADEC does not require additional treatment in this area. Contamination at former Building 102 is above migration to groundwater cleanup levels but below direct contact and inhalation cleanup levels. Since groundwater at this location is not contaminated and the volume of contaminated soil appears minimal, this exceedence is determined to be *De Minimis* . Lead paint associated with these buildings chipped onto adjacent soil, resulting in lead contamination above ADEC Method 2 cleanup levels. Soil removals during demolition of Buildings 100, 101, and 102 resulted in the removal and off-site disposal of lead contaminated soil associated with these sites. Any residual lead contamination is determined to be *De Minimis* .								
Living Quarters Tank Farm EE311, 312, 313, 314 (QS AOC8) Source Area 78360	BKA02SS099T12	--	7.42	0.066					CH2MHill, *Quarters Area Tank Farm, Biorka Island, Alaska.* July 2003
	BKA02SS099T13	3920	3.20	0.155					
	BKA02SS099T14	2610	18.6	0.0288					
	BKA02SS099T34	--	6.49	0.0952					
	BKA02SS099T35	2620	14.7	0.408					
	BKA02SS099T37	2010	1.59	ND					
	BKA02SS099T38	--	5.52	0.0803					
Decision	A Cleanup Complete designation is approved for this site.								
Comments	Contaminated soil has been excavated to the extent practicable, however an area of approximately 400 sq ft could not be excavated due to irregular depressions of bedrock below groundwater. 3 previous GW monitoring sets were below ADEC Method 2 groundwater cleanup levels (Bristol 2008). Although remaining contamination remains in place above migration to groundwater cleanup levels, groundwater data indicates that contamination is not leaching. Remaining contaminated soil is *De Minimis* in volume, is not expected to migrate or leach, and is below ADEC Method 2 Inhalation and Ingestion cleanup levels.								

SITE SUMMARY TABLE

for: FAA Biorka Island - Living Quarters

File: 1542.38.001
Hazard ID: 901

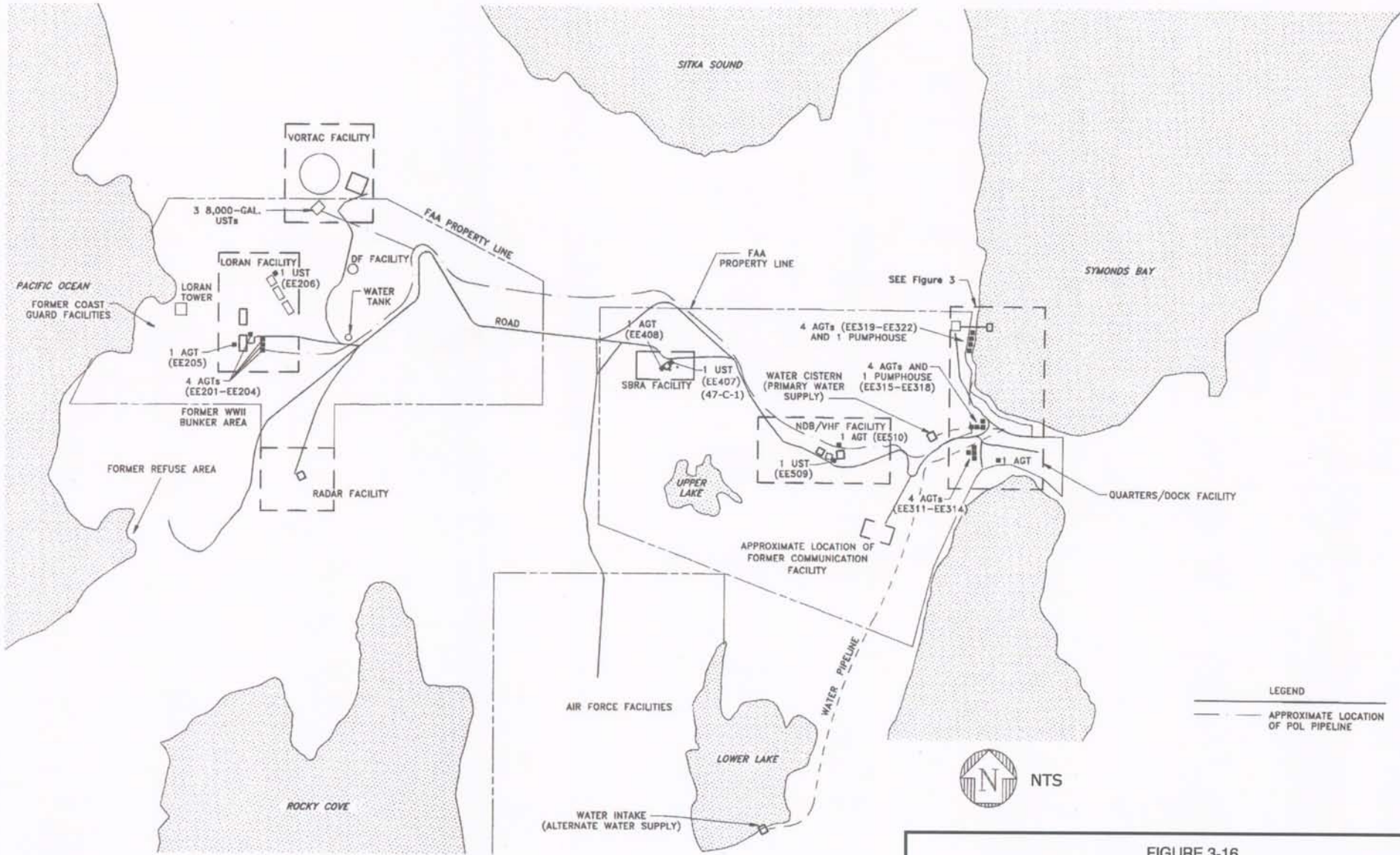
Site	Sample #	Contaminates of Concern DRO (mg/kg)	GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	ethyl benzene (mg/kg)	xylenes (mg/kg)	PCB (mg/kg)	Report
Dry Well near Building 302 (QS AOC15) Source Area 78366	BKA06SS302Q01	ND	ND	--	--	--	--	ND	Bristol Construction Services, LCC, *Groundwater Sampling and Environmental Investigation, Biorka Island, Alaska, Closeout Report Final.* August 2008
	BKA06SS302Q02	ND	ND	--	--	--	--	ND	
Decision	A Cleanup Complete designation is approved for the Dry Well near Building 302.								
Comments	Although sediment samples in Building 302 contained contaminants of concern, samples at and near the dry well did not detect petroleum hydrocarbons, VOCs, or PCBs.								
Former Cell Phone Tower Facility	BKA06SSCRSM02	1630	--	--	--	--	--	--	Bristol Construction Services, LCC, *Groundwater Sampling and Environmental Investigation, Biorka Island, Alaska, Closeout Report Final.* August 2008
	BKA06SSCRSM04	1190	1.09	--	--	--	--	--	
Decision	A Cleanup Complete designation is approved for the Former Cell Phone Tower Facility								
Comments	Contamination at this site is above ADEC Method 2 Migration to Groundwater Cleanup Levels, however, the highly organic composition of the soil, minimal volume of groundwater, and limited amount of contamination indicates that diffusion of contamination into groundwater is unlikely. Contamination at this site is well below ADEC Method 2 Ingestion and Inhalation cleanup levels.								
UST 47-D-01 and Soil Disposal on Cross Island Road Source Area 79023	BKA94IC-50906SL	9000		ND	22	ND	ND	--	Ecology and Environment, *Site Cleanup and Investigation Report, Biorka Island FAA Station, Biorka, Alaska.* December 1994
Decision	A Cleanup Complete designation is approved for UST 47-D-01								
Comments	UST 47-D-01 was a 1,000 gallon diesel UST excavated in 1994, along with 10 cubic yards of contamianted soil. DRO was detected at the limits of excavation at concentrations of 9,000 mg/kg. A substantial but unknown volume of additional soil was inadvertendly excavated and placed at a hairpin turn uphill from the Quarters area. Significant migration of contaminants is unlikely after the action of excavation, transportation, and dispersal of contaminated soil.								

SITE SUMMARY TABLE

for: FAA Biorka Island - Living Quarters

File: 1542.38.001
Hazard ID: 901

Site	Sample #	Contaminates of Concern DRO (mg/kg)	GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	ethyl benzene (mg/kg)	xylenes (mg/kg)	PCB (mg/kg)	Report
Former Soil Stockpile Near Road (QS AOC19)	BKA04SL001M08	150	<5	ND	ND	ND	ND	--	Smith Bayliss LeResche Inc. *Corrective Action Final Soil Disposal Report* . October 2004
Decision	This site was adequately addressed and is not considered an area of concern.								
Comments	Stockpiled soils were temporarily stockpiled before transport to Seattle for treatment and disposal. All soils were appropriately manifested and disposed. Samples taken after removal of the stockpile did not indicate migration of contaminants.								
Former Transformer Pad near Dock (QS AOC1)	S-BKAQUA-7	--	--	--	--	--	--	ND	Ecology and Environment Inc, *Environmental Compliance Investigation Report for Biorka Island Navigation Aid Station, Biorka Island.* April 1992
Decision	This site was adequately addressed and is not considered to be an area of concern.								
Comments	No documented release. FAA took a soil sample & wipe sample to verify conditions.								
US Coast Guard Transformer Building 300 (QS AOC6)	S-BKAQUA-6	--	--	--	--	--	--	ND	Ecology and Environment Inc, *Environmental Compliance Investigation Report for Biorka Island Navigation Aid Station, Biorka Island.* April 1992
Decision	This site was adequately addressed and is not considered to be an area of concern.								
Comments	There was no documented release of contaminants and no sign of stressed vegetation or indications of a release.								

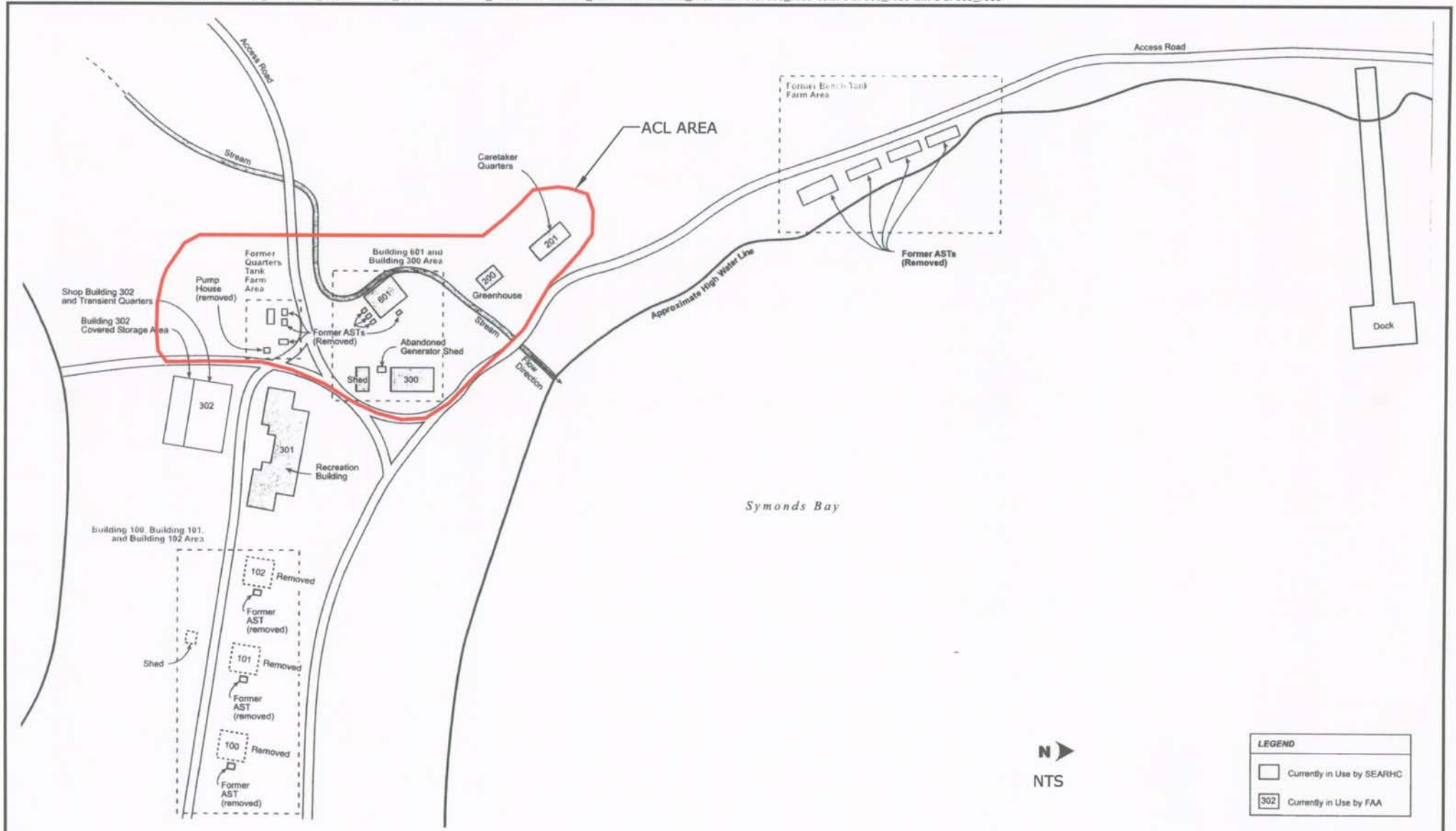


SOURCE: ECOLOGY AND ENVIRONMENT, INC.
FIGURE 2, TANK LOCATION AND INDENTIFICATION MAP
JUNE, 1994

FIGURE 3-16
BIORKA ISLAND FAA STATION
BIORKA ISLAND, ALASKA
SBRA FACILITY LOCATION MAP

Bristol CONSTRUCTION SERVICES, LLC
Phone (907) 563-0013 Fax (907) 563-6713
Project No. 57002

DATUM:	NA
PROJECTION:	NA
DATE	04/21/06
DWN.	MTG
SCALE	SHOWN
APPRVD.	SJ
SHEET	16 of 17



SOURCE: CH2MHILL CONSTRUCTORS, INC.
FIGURE 2-2, QUARTERS/DOCK FACILITY MAP
DECEMBER, 2004

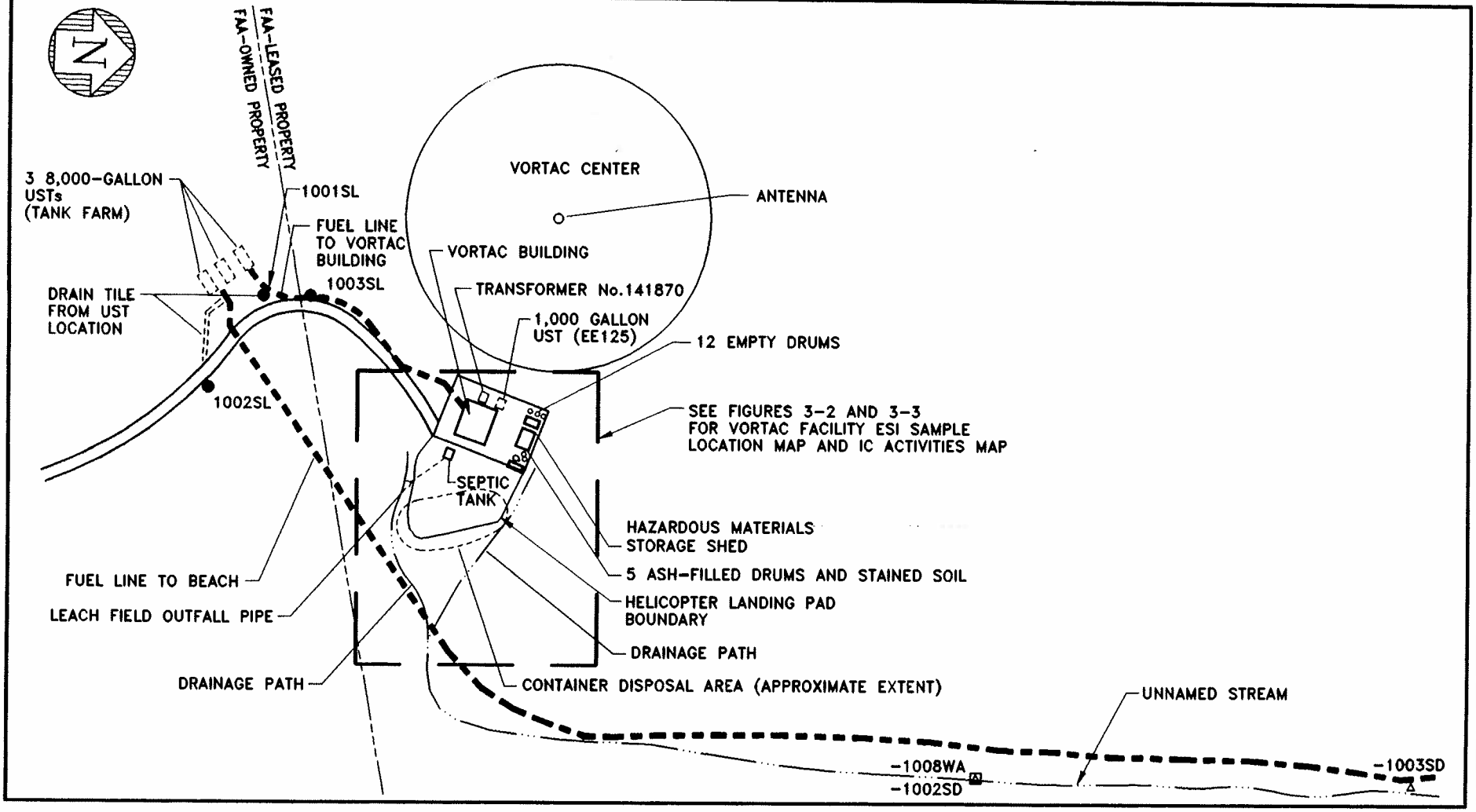
FIGURE 3-12
BIORKA ISLAND FAA STATION
BIORKA ISLAND, ALASKA
ACL SIGN AREA AT FORMER QUARTERS TANK FARM AND BUILDING 300/601 AREAS

Bristol CONSTRUCTION SERVICES, LLC
Phone (907) 563-0013 Fax (907) 563-6713
Project No. 57002

DATUM:	NA
PROJECTION:	NA
DATE	04/21/06
DWN.	MTG
SCALE	SHOWN
APPRVD.	SJ
SHEET	12 of 17

VR7S019A

Source: HART CROWSER, INC. 1991



SCALE IN FEET

0 150 300 450

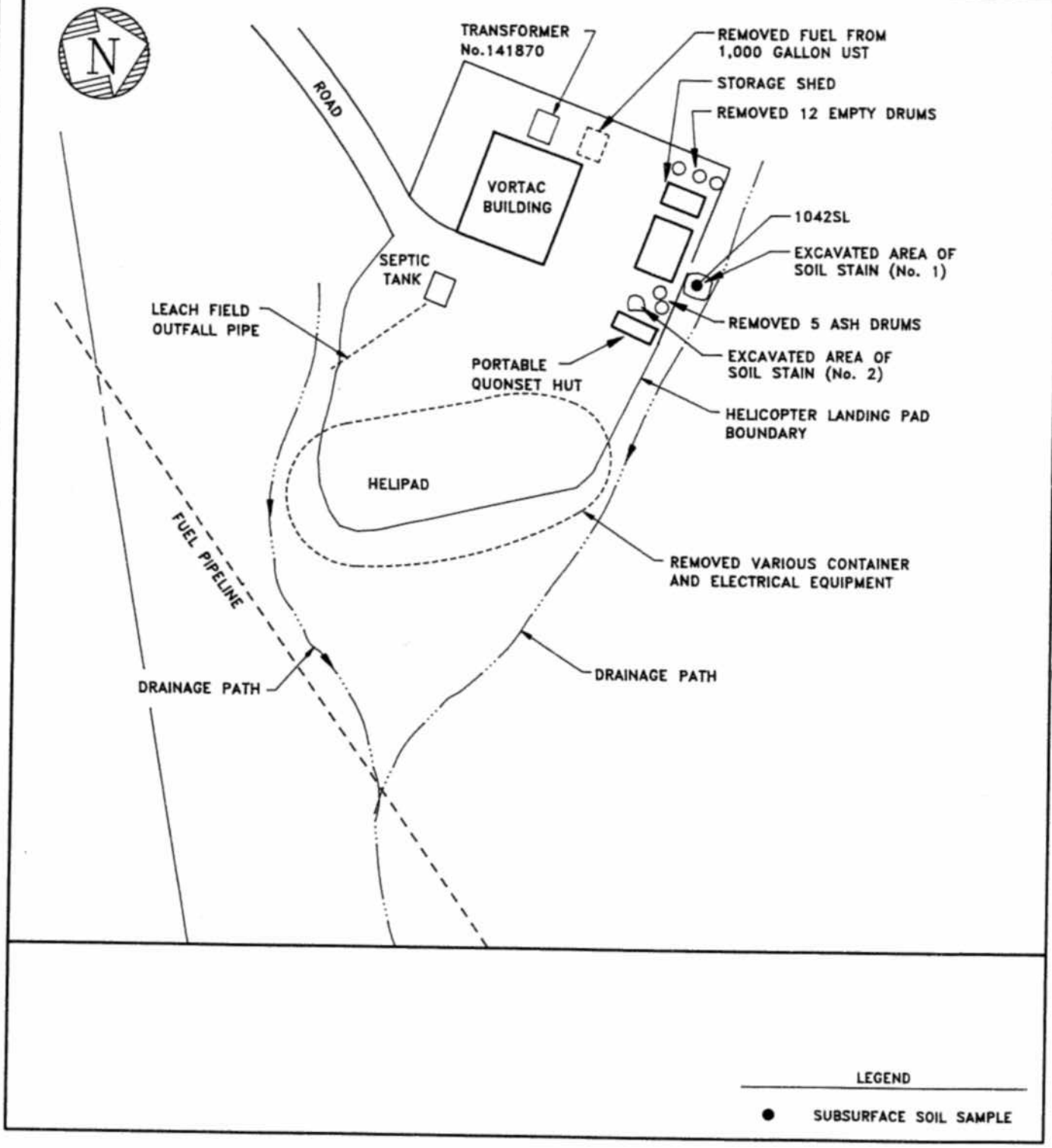
LEGEND

- ● SUBSURFACE SOIL SAMPLE
- ○ SURFACE SOIL
- ⊠ COLLOCATED SURFACE WATER AND SEDIMENT SAMPLE
- △ SURFACE SEDIMENT SAMPLE

Ecology and Environment, Inc.	
Figure: 3-1	Proj. No: VR7000
Date: 8/10/94	Drawn by: MEH
Title: BIORKA ISLAND FAA STATION VORTAC FACILITY SAMPLE LOCATION MAP	

VQ9S033A

Source: HART CROWSER, INC. 1991



SCALE IN FEET

0 50 100 150

Ecology and Environment, Inc.	
Figure: 3-3	Proj. No: VR7000
Date: 8/10/94	Drawn by: MEH
Title: VORTAC FACILITY IC ACTIVITIES	

*Attachment A: FAA Biorka Island Station LQ, Wood Crib/Culvert near Building 300 (BKA QS AOC9) Area of Concern Cleanup Complete-ICs Agreement and Signature Page**

As the landowners and/or operators of the FAA Biorka Island Station LQ, Wood Crib/Culvert near Building 300 (BKA QS AOC9) Area of Concern, the Federal Aviation Administration agrees with the Cleanup Complete with ICs Determination and its terms and conditions, as stated in the decision letter for the FAA Biorka Island Station LQ, wood Crib/Culvert near Building 300 (BKA QS AOC9) Area of Concern, dated January 4, 2017, and listed below. Failure to comply with the terms and conditions of the determination may result in ADEC reopening this site and requiring further remedial action in accordance with 18 AAC 78.276(f).

Alice L Salzman — 1-31-17

Signature of Authorized Representative, Title — Date
United States Federal Aviation Administration

Alice L. Salzman, RECO
Printed Name of Authorized Representative, Title
United States Federal Aviation Administration

Institutional Controls and Conditions

1. Remaining petroleum poses an ingestion risk. DEC requires a workplan when excavation work will be conducted in the area of the remaining contamination.
2. The area of remaining contamination will not be used as a residential area.

1. Any proposal to transport soil, sediment or groundwater off-site requires ADEC approval in accordance with 18 AAC 75.325. A "site" [as defined by 18 AAC 75.990 (115)] means an area that is contaminated, including areas contaminated by the migration of hazardous substances from a source area, regardless of property ownership. **This is a standard condition.**

2. Movement or use of contaminated material in a manner that results in a violation of 18 AAC 70 water quality standards is prohibited. **This is a standard condition.**

3. Groundwater in the state of Alaska is protected for aquaculture use. In the event that an aquaculture facility uses groundwater from this site in the future, additional treatment may be required to meet aquatic life criteria under 18 AAC 70. **This is a standard condition.**

Note to Responsible Person (RP):
After making a copy for your records, please return a signed copy of this form to the ADEC project manager at the address on this correspondence within 30 days of receipt of this letter. The Division of SPAR/Contaminated Sites Program prefers and encourages electronic submittals.