STATE OF ALASKA

SEAN PARNELL, GOVERNOR

DEPT. OF ENVIRONMENTAL CONSERVATION

DIVISION OF SPILL PREVENTION AND RESPONSE
CONTAMINATED SITES PROGRAM

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File: 1525.26.023

February 29, 2012

Ms Lynnette Campbell
Division of Airport Leasing
Alaska Department of Transportation & Public Facilities
P.O. Box 112506
Juneau, Alaska USA 99811-2506

Re: Decision Document: ADOT&PF Sitka Airport Maintenance Station
Corrective Action Complete

Dear Ms Campbell,

The Alaska Department of Environmental Conservation, Contaminated Sites Program (DEC) has completed a review of the environmental records associated with ADOT&PF Sitka Airport Maintenance Station located at the Sitka Rocky Gutierrez Airport . Based on the information provided to date, the DEC has determined that the contaminant concentrations remaining on site do not pose an unacceptable risk to human health or the environment. No further remedial action is required at this site.

This decision is based on the administrative record for ADOT&PF Sitka Airport Maintenance Station, which is located in the DEC offices in Juneau, Alaska. The following 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.

Site Name and Location:
ADOT&PF Sitka Airport
Maintenance Station
605 Airport Road
Sitka, Alaska 99501
Lot 5, Block 400,
Sitka Rocky Gutierrez Airport

Name and Mailing Address of Contact Party:
Ms. Lynnette Campbell
Alaska Department of Transportation &
Public Facilities
Airport Leasing Division
P.O. Box 112506
Juneau, Alaska USA 99811-2506

Ms. Lynnette Campbell
ADOT&PF Airport Leasing Division

February 29, 2011

Database Record Key and File Number:
DEC Reckey: 2000120009902
File: 1525.26.023
Hazard ID: 23179

Regulatory authority for this cleanup:
18 AAC 78

Background

In accordance with each requirement in Title 18 Alaska Administrative Code (AAC) 75.350, DEC determined that groundwater at each of the Sitka Naval Operations Base former military-use properties on Japonski Island are not a current or future drinking water source and does not contribute to a current or future drinking water source area. The determination resulted in a restriction against installing water wells on any of the former military properties to access groundwater that may have contamination in concentration to present an exposure risk to human health or the environment. This determination includes the ADOT&PF Sitka Rocky Gutierrez Airport properties.

Although no potable water wells are identified at the ADOT&PF Sitka Airport Maintenance Station site or in the vicinity, the ADOT&PF agreed in 2002 to apply the 18 AAC 75.350 ruling to properties owned by the State of Alaska under ADOT&PF management at the Sitka Rocky Gutierrez Airport (Attachment B). Potable water and sewer on the property is supplied by Sitka Public Works and no water wells or septic tank drain-fields are identified in the area. Other than storm water ditches between properties, marine waters are the surface water body closest to the site.

In 1998, two regulated underground storage tanks (USTs) were taken out of service at the ADOT&PF Sitka Airport Maintenance Station. The 1,500 gallon diesel UST and 500 gallon gasoline UST were connected to a dispenser island. Ground surface above the USTs was asphalt and the dispenser island was constructed with concrete. The USTs provided fuel for the maintenance facility's equipment. *Site Assessment Report for UST Removals at Facility ID# 464* (Report) by Smith Bayliss LeResche Inc. and the accompanying Storage Tank Program Summary Forms were not dated, but the two USTs were closed by removal in April, 2000. During the removal, the UST worker noted the following:

- Groundwater was encountered at three to four feet below ground surface.
- Both of the steel USTs that were closed by removal had no apparent leaks.
- Although soil on the east side of the UST excavation showed elevated field screening results, all soil was returned to the excavation.
- An unknown volume of contaminated material remains at the site.
- Two other USTs not associated with the project are located just east of the 1998 UST closure by removal excavation.

Five confirmation samples were collected from soil remaining at the site. Sample CL05 was collected several feet below the dispenser island and four other samples (CL01 through CL04) were collected in discrete locations three to four feet below the asphalt surface at the groundwater interface in the UST excavation spanning an area of 170 square feet. The five soil samples were analyzed for diesel range organics (DRO), gasoline range organics (GRO), and benzene, toluene, ethylbenzene, and xylenes compounds (BTEX). Benzene results were reported for each sample and the remaining compounds were reported as Total BTEX. Samples CL01, CL03, Cl04, and CL05 had analyte concentrations below 18 AAC 75.341 Method Two, Migration to Groundwater soil screening levels or were below instrument detection.

Soil sample CL02 which was collected from the east side of the gasoline UST excavation was the only confirmation sample that exceeded the applicable 18 AAC 75.341 soil cleanup levels. The CL02 results in the following table are the highest concentration of hydrocarbons detected in subsurface soil at the site.

Hydrocarbon range and/or compound detected above limits of instrument quantization	Concentration in soil in milligrams per kilogram (mg/kg)	Cleanup Level Method Two Migration to Groundwater in mg/kg
GRO	640	260
DRO	16,000	230
Benzene	<0.058	0.025
Total BTEX compounds	2.988	15

Tabular results for sample CL02 as reported in the 1998 Smith Bayliss LeResche Inc UST Site Assessment

The Report recommended closure of the two other active USTs located east of the excavation.

Characterization Activities

In fall 2007, DEC made arrangements for a new investigation to reexamine the contamination found in soil sample CL02 on the excavation sidewall nearest the remaining USTs. In addition, the site investigation was combined with a UST Site Assessment for the two USTs remaining at the site. The investigation of both subsurface soil and groundwater did not find any significant contamination at the CL02 sample site or the surrounding area. As a result, DEC concludes that the source found in 2000 is de minimis in volume and is not migrating to groundwater at the site.

SLR International Corporation conducted the UST Site Assessment of the two remaining tanks and reported the results in *ADOT&PF Airport Maintenance Shop Site Assessment Report Sitka, Alaska* (dated February, 2008) (SLR 2007). The

report documented that one tank stored heating oil and the other formerly stored waste oil but was no longer in use. Five subsurface borings were advanced to assess the residual soil contamination and the two USTs remaining at the site. Borings through the pavement were located south (HB01) and east (HB03) of the heating oil UST and south (HB02) and east (HB04 and HB05) of the waste oil tank. No soil discoloration or fuel odor was noted in soil cuttings from the five borings. The HB04 and HB05 borings are at the same location as confirmation sample CL02, mid-way in the length of the west side of the former gasoline UST and mid-way in the length of the east side of the out-of-service waste oil UST. The locations of these borings are shown in Attachments C and D enclosed with this letter.

Laboratory analysis of the soil samples included petroleum fractions GRO, DRO, and RRO, polycyclic aromatic hydrocarbon (PAH) compounds, and volatile organic compounds (VOCs). The greatest GRO concentration in soil of 1.02 mg/kg was in HB03; the greatest DRO concentration in soil of 49.2 mg/kg was in HB05; the greatest RRO concentration in soil of 248 mg/kg was in HB05. For the VOCs, the greatest styrene concentration in soil of 0.0162 mg/kg was in HB05, the greatest benzene concentration in soil of 0.00295 mg/kg was in HB04; the greatest toluene concentration in soil of 0.0119 mg/kg was in HB05; the greatest ethylbenzene concentration in soil of 0.0482 mg/kg was in HB03; the greatest total xylene concentration in soil of 0.689 mg/kg was in HB03. None of the soil sample results exceed the most conservative Method Two Migration to Groundwater soil cleanup levels for the over 40-inch zone in 18 AAC 75.341 Tables B1 and B2, except benzene, as illustrated in the following table.

Hydrocarbon range or compound above reporting limit	Highest concentration in soil in the 2007 Site Assessment in mg/kg	Cleanup Level Method Two Migration to Groundwater in mg/kg
GRO	1.02	260
DRO	49.2	230
RRO	248	9700
Styrene (PAH)	0.0162	0.96
Benzene	0.0295	0.025
Toluene	0.0119	6.5
Ethylbenzene	0.0482	6.9
Total xylenes	0.689	63

Tabular results of soil samples from the 2007 Site Assessment by SLR International Corp.

For the regulated waste oil UST site assessment, the soil analyte list was expanded to include the Resource Conservation & Recovery Act (RCRA) metals arsenic, barium, cadmium, chromium, lead, selenium, silver and mercury. Seven of the eight RCRA metals were detected in soil analysis; however, arsenic and chromium were the only metals that were detected in concentrations above Method Two Table

B1 soil cleanup levels. Although elevated, the concentrations of arsenic and chromium in soil are considered within limits of acceptable background concentrations for the Sitka area.[1]

Groundwater
For the 2007 Site Assessment, well points were installed in three borings: MP1 is in HB02 located south of the waste oil UST, MP2 is in HB05 located east of the former gasoline UST and west of the waste oil tank footprint and MP3 is at a hydrological upgradient from all the USTs. Each well point was screened across the groundwater interface (about 4.1 feet below the surface). A monitoring well at the former dispenser island site was planned to serve as a second, more distant, monitoring point downgradient of the USTs but despite several attempts subsurface boulders would not allow the borings to advance to groundwater depth.

Three groundwater samples and a duplicate were collected and analyzed. Laboratory analysis of the 2007 groundwater samples included petroleum ranges GRO, DRO, and RRO and the BTEX compounds. The highest concentrations in groundwater were in the boring MP2 sample, as detailed below.

Hydrocarbon range or compound above instrument reporting limit	Greatest Concentration in groundwater in milligrams per liter (mg/L)	Table C Groundwater Cleanup Level
GRO	0.0161	2.2
DRO	0.441	1.5
RRO	0.294	1.1
Benzene	<0.0005 (ND)	0.005
Toluene	0.000795	1.0
Ethylbenzene	<0.002 (ND)	0.7
Total xylenes	0.002278	10

Tabular results for groundwater in SLR 2007 Site Assessment

Contaminants of Concern

- Benzene
- DRO
- GRO

(1) [1] Gough, L.P., Severson, R.C. and Shaklette, H.T., 1988. *Element Concentrations in Soils and Other Surficial Materials of Alaska. U.S. Geological Survey Professional Paper 1458.* United States Government Printing Office, Washington.

Cleanup Levels

The soil cleanup levels for this site are established in 18 AAC 75.341, Method Two, Tables B1 and B2 Over 40-inch Zone, Migration to Groundwater.

Contaminant	Migration to Groundwater (mg/kg)	Direct Contact/ Ingestion (mg/kg)	Outdoor Inhalation (mg/kg)
Benzene	0.025	120	8.5
Toluene	6.5	6,600	220
Ethylbenzene	6.9	8,300	81
Xylenes (total)	63	16,600	63
GRO	260	1,400	1,400
DRO	230	8,250	12,500
RRO	8300	8300	22,000

The groundwater cleanup levels for this site are established in 18 AAC 75.345 Table C

Contaminant	Site Cleanup Level (mg/L)
Benzene	0.005
Toluene	1.0
Ethylbenzene	0.7
Xylenes (total)	10
GRO	1.3
DRO	1.5
RRO	1.1

Pathway Evaluation

In evaluating pathways at this facility the following area-wide factors were considered:

- The current and future land use at the ADOT&PF Sitka Airport Maintenance Station and other Sitka Rocky Gutierrez Airport facilities is industrial. As a result, potential receptors are commercial or industrial workers, site visitors, and construction workers.
- Potable water and sewer at the ADOT&PF Sitka Airport Maintenance Station and other Sitka Rocky Gutierrez Airport facilities is supplied by the City of Sitka Public Works and no water wells are identified in the area.
- An area-wide 350 determination restricting installation of water wells has been agreed upon by State-owned property managers on Japonski Island, the City of Sitka and the general public, including the Sitka International Airport where the Maintenance Station is located.

Following investigation and cleanup at the site, exposure to the remaining contaminants was evaluated using DEC's Exposure Tracking Model (ETM). Exposure pathways are the conduits by which contamination may reach human or ecological receptors. ETM results show all pathways to be one of the following: De Minimis Exposure or Pathway Incomplete. A summary of this pathway evaluation is included in Table 1-Attachment E with this document.

The 2007 Site Assessment did not find any elevated concentrations of hydrocarbons remaining in soil at the former gasoline UST location or at the site, with the exception of a slight exceedance of the criterion for benzene in one sample, which is considered to be de minimis. The groundwater sample data however provided no indication that migration from the soil has occurred and confirmed that any remaining petroleum soil contamination is de minimis in both concentration and volume and does not present a current or future exposure risk at the site. The only potential exposure at the site is future risk from contaminated groundwater migrating onto the property from contaminated soil left in place at the adjacent NOB property on Japonski Island. As agreed to by ADOT&PF, a notice of environmental contamination restriction on installation of water wells will be recorded for this property by ADEC.

The exposure pathway analysis is supported by the most recent DEC Exposure Tracking Model (ETM) ranking. The ETM results showed all pathways to be De Minimis Exposure, Exposure Controlled, or Pathway Incomplete. Results of the ETM evaluation are found in Table 1 of Attachment A, enclosed with this letter.

DEC Decision

The DEC has determined there is no unacceptable risk to human health or the environment, and this site will be granted a Corrective Action Complete determination subject to the following.

1. As stated in a letter dated February 20, 2002 (Attachment B), ADOT&PF will establish a deed restriction for the Sitka Rocky Gutierrez Airport Property including the leased parcels therein. This restriction is necessary to establish in the property record that groundwater throughout Japonski Island has been approved for alternative cleanup levels based on DEC's determination under 18 AAC.350 that the groundwater is not a potential current or future drinking water source. The restriction will document ADOT&PF's responsibility for prohibiting the installation of any drinking water wells throughout the airport property.

2. The monitoring wells currently installed at the property that are not needed for area-wide monitoring must be decommissioned in accordance with DEC guidance as soon as it is determined these wells are no longer needed.

3. Any proposal to transport, store or dispose of soil or groundwater off site requires DEC approval in accordance with 18 AAC 78.274(b). A "site" [as defined by 18 AAC 78.600(h)] means an area that is contaminated, including areas contaminated by the migration of hazardous substances from a source area, regardless of property ownership.

4. Movement or use of contaminated material in a manner that results in a violation of 18 AAC 70 water quality standards is prohibited.

The DEC Contaminated Sites Database will be updated to reflect the change in site status as detailed above.

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.

Ms. Lynnette Campbell
ADOT&PF Airport Leasing Division

February 29, 2011

Please provide documentation to DEC <u>within 30 days of receipt of this letter that a deed restriction has been established for the Sitka Rocky Gutierrez Airport</u>.

If you have questions about this closure decision, please contact the DEC project manager, Bruce Wanstall at (907) 465-5210 or by electronic mail at bruce.wanstall@alaska.gov.

Approved By,

Sally Schlichting
Environmental Manager

Recommended By

Bruce Wanstall
Environmental Program Specialist

Attachments:

A - DEC Groundwater-Use Determination and Application of the 'Ten-Times Rule', DEC letter dated June 5, 2006

B - Sitka Rocky Gutierrez Airport Ground Water Contamination, ADOT&PF letter dated February 20, 2002

C - Figure 2, February, 2008. *ADOT&PF Airport Maintenance Shop Site Assessment Report Sitka, Alaska,* by SLR International Corporation

D - Photographs 9 & 10, February, 2008. *ADOT&PF Airport Maintenance Shop Site Assessment Report Sitka, Alaska,* by SLR International Corporation

E - Table 1 – Exposure Pathway Evaluation

Attachment A: DEC Groundwater-Use Determination and Application of the 'Ten-Times Rule', DEC letter dated June 5, 2006

STATE OF ALASKA

FRANK H. MURKOWSKI, GOVERNOR

DEPT. OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
CONTAMINATED SITES PROGRAM

555 Cordova Street
Anchorage, AK 99501-2617
Phone: (907) 269-7503
Fax: (907) 269-7649
http://www.dec.state.ak.us/
File no.: 1525.38.018
File no.: 1525.26.027

June 5, 2006

Mr. Mark Ridgway
United States Coast Guard
Civil Engineering Unit Juneau
Post Office Box 21747
Juneau, Alaska 99802-1747

Re: Groundwater-Use Determination and Application of the 'Ten-Times Rule'
United States Coast Guard Air Station Facility; Japonski Island, Alaska

Dear Mr. Ridgway:

The Alaska Department of Environmental Conservation (department) has completed review of the letter request for a groundwater-use determination prepared and submitted, on your behalf, by Jacobs Engineering Group, Inc. and dated April 18, 2006. The requested determination is for the groundwater at the United States Coast Guard (USCG) Air Station on Japonski Island to be considered not a current or future drinking water source in accordance with 18 Alaska Administrative Code (AAC) 75.350.

The USCG is located on Japonski Island adjacent to the former Sitka Naval Operating Base (reckey 199412X128001). Currently, there are two (2) identified open contaminated sites, specifically the USCG Japonski Island Base (reckey 2000120103201) and the USCG Air Station – Sitka (reckey 1992120014801). The USCG Japonski Island Base site is a historic diesel tank spill discovered in July 1999 with soil contamination of diesel-range organics up to 4500 milligrams per kilograms (mg/kg). The USCG Air Station – Sitka site covers contaminated soil and groundwater discovered during the closure of multiple regulated underground storage tanks and the removal of an old oil/water separator. Groundwater samples showed diesel-range organics concentrations up to 110 milligrams per liter (mg/L) in 1992 when the wells were first installed, and concentrations up to 2.0 mg/L in 1998 during the last monitoring event. Even after the removal of 600 cubic yards of contaminated soil in 1992, concentrations of extractable petroleum hydrocarbons up to 38,000 mg/kg were detected in the soil during the 1993 remedial investigation. A bioventing system was installed in 1994 and operated for several years. The status of the contaminated soil biocell is unknown.

In April 2001, the United States Army Corps of Engineers (Corps) submitted to the department the *Position Paper – Non-Drinking Water 10-Times Rule* for the Sitka Naval Operating Base site, dated March 2001. The department reviewed the document and concurred that the site met the groundwater use requirements of 18 AAC 75.350 for an area that is not a current or reasonably potential future drinking water source. In order to approve groundwater cleanup levels based upon this determination, the department consulted with the site landowners, the public, and the City and Borough of Sitka, as required by 18 AAC 75.345(b)(2). The site

landowners, Alaska Department of Education and Early Childhood Development, Alaska Department of Transportation and Public Facilities, and the United States Department of Health and Human Services, agreed with the determination and also agreed to place deed restrictions on their properties preventing the future installation of drinking water wells. A public comment period was held from July 15, 2002 until August 16, 2002. Public awareness activities included the mailing of a fact sheet to interested parties and tribe, local and state government contacts, a public notice advertisement in the *Daily Sentinel* newspaper, and a radio interview on KCAW radio in Sitka. Only one (1) set of comments was received which were from the Sitka Tribe of Alaska and concerned coordination issues rather than the groundwater-use determination. The department discussed the groundwater use determination and the proposed cleanup levels with Mr. Hugh Bevan of the City and Borough of Sitka. The City and Borough of Sitka did not object to the groundwater use determination. The department documented the approved groundwater-use determination for the Sitka Naval Operating Base in a letter dated September 27, 2002.

Determination

In regards to the USCG Air Station facility, located adjacent to the former Sitka Naval Operating Base, the department hereby determines that the groundwater underlying this property is also not a current or future potential source of drinking water. The USCG Air Station property is wholly-owned by the USCG, which has requested the groundwater-use determination, and has agreed to prohibit the future installation of drinking water wells. The public and the local government were consulted during the groundwater-use determination for the adjacent property and no objections or concerns were raised, thus no additional consultation was deemed necessary for the USCG facility.

Cleanup Levels

The groundwater cleanup levels of ten-times the values listed in 18 AAC 75.345, Table C are hereby approved for use on the USCG Air Station facility in accordance with 18 AAC 75.345(b)(2). Calculating the migration-to-groundwater exposure pathway for the soil cleanup levels using the higher groundwater values raises the cleanup levels for this pathway by an order of magnitude. The appropriate soil cleanup level for the site must still be the lowest level from the three (3) risk-based exposure pathways and the calculated cumulative risk for cancer and non-cancer effects can not exceed the standards required in 18 AAC 75.325(g).

If you have any questions about this site, please do not hesitate to contact me at 269-7545 or Anne Marie Palmieri, of my staff, at 766-3184.

Sincerely,

John Halverson
Environmental Program Manager

Ms. Lynnette Campbell
ADOT&PF Airport Leasing Division

February 29, 2011

Attachment B: Sitka Rocky Gutierrez Airport Ground Water Contamination, ADOT&PF letter dated February 20, 2002

STATE OF ALASKA

DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

TONY KNOWLES, GOVERNOR

6860 GLACIER HIGHWAY
JUNEAU, ALASKA 99801-7999
PHONE: (907) 465-4498
TEXT: (907) 465-4647
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STATEWIDE DESIGN & ENGINEERING SERVICES DIVISION
PRELIMINARY DESIGN & ENVIRONMENTAL

February 20, 2002

Re: Sitka Airport Ground Water Contamination

Anne Marie Palmieri
Department of Environmental Conservation
Contaminated Sites Remediation Program
Post Office Box 1542
Haines, Alaska 99827

Dear Ms. Palmieri:

This is in response to your request that the Department of Transportation & Public Facilities (DOT&PF) consider agreeing to a deed restriction for future development on the Sitka Airport, owned by the State of Alaska and operated by DOT&PF. The deed restriction would prohibit the development of drinking water wells on Sitka Airport property.

Following consultation with staff in our Environmental and Right of Way sections, I have determined that such a deed restriction would be in the best interest of the state and would not have an adverse impact on the future operation of the airport. The department's Right of Way section will prepare a conforming deed restriction and have the document recorded when you inform us the cleanup has been completed.

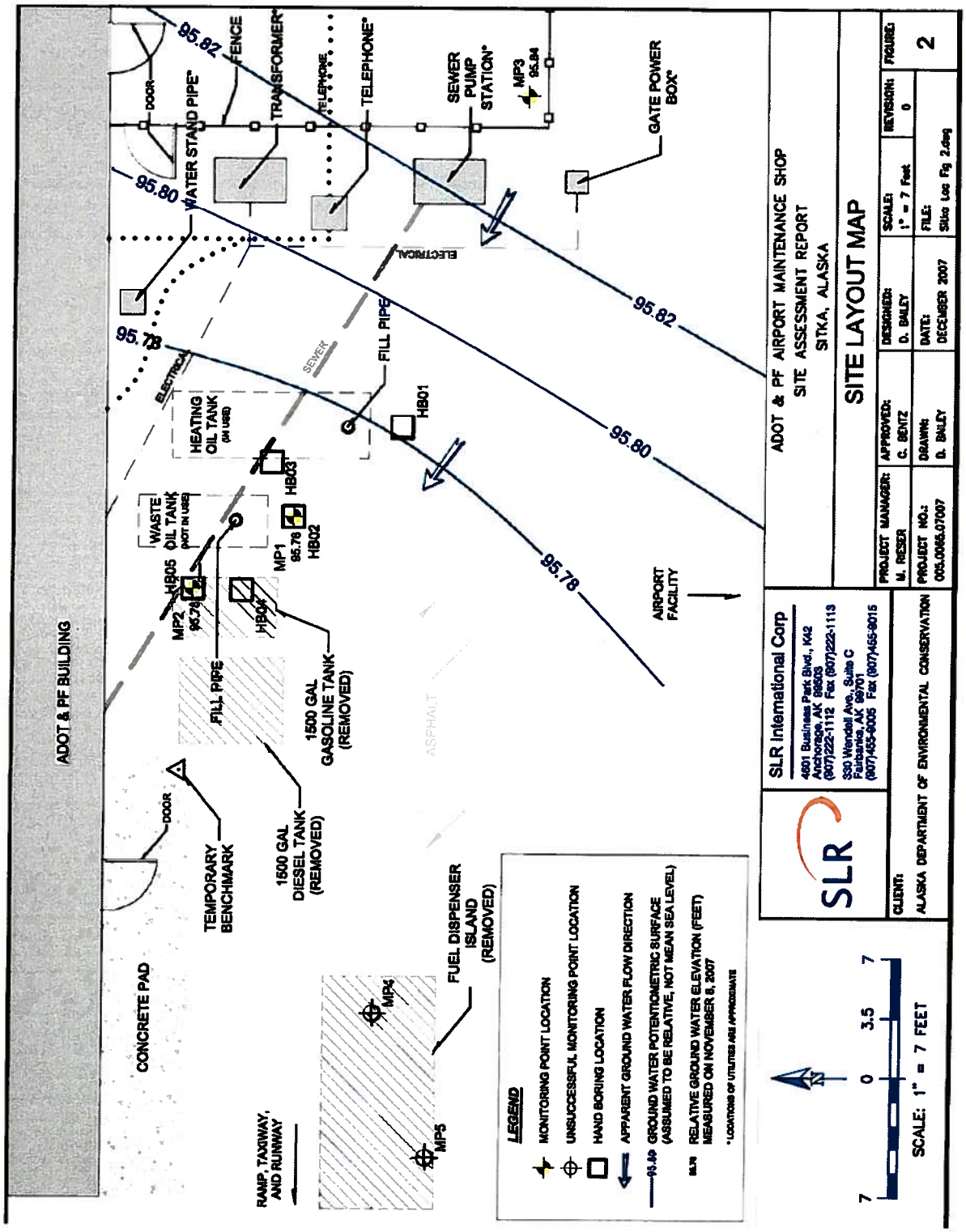
If you have any questions, please contact Reuben Yost, our Regional Environmental Coordinator, at 465-4498.

Sincerely,

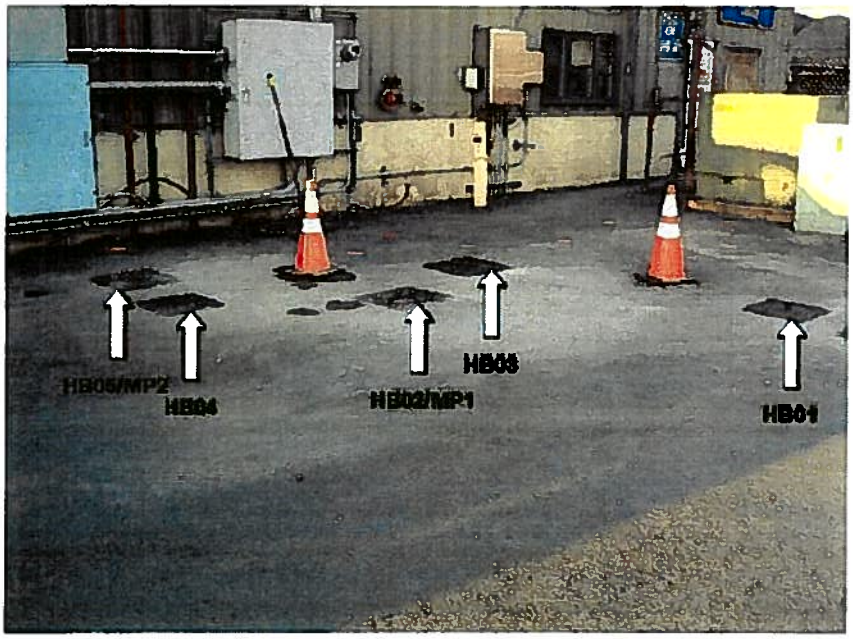
Gary Hayden
Director, Southeast Region Construction and M&O

cc: Frank Mielke, DOT&PF Right of Way Chief
Reuben Yost, DOT&PF Regional Environmental Coordinator

Attachment C: Site Figure



Attachment D: Site Photographs



Photograph 9: View of site after restoration activities were complete.

Photograph 10: View of fill pipes and restored site, looking towards the active runway (west). ADOT&PF Airport Maintenance Building on right edge of frame.

Attachment E: Table 1 – Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	Pathway Incomplete	Surface soil contamination has not been identified and the surface is paved with asphalt.
Sub-Surface Soil Contact	De-minimis exposure	Contamination remains in the subsurface, but is below migration to groundwater levels.
Inhalation – Outdoor Air	Pathway Incomplete	Volatile compound concentrations in any remaining contamination are below migration to groundwater cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	There are buildings at the site and any remaining volatile hydrocarbon compound contamination is below migration to groundwater cleanup levels.
Groundwater Ingestion	Pathway Incomplete	A 350 determination by the DEC is in effect for Japonski Island properties. Groundwater, if present, is not a current or future potable drinking water source at the site. The area is currently served by the Sitka Public Water System.
Surface Water Ingestion	Pathway Incomplete	There is no potable surface water body located within ¼ mile of the site.
Wild Foods Ingestion	Pathway Incomplete	Wild foods harvest areas are not present within the restricted airport properties.
Exposure to Ecological Receptors	Pathway Incomplete	Ecological receptor pathways are not present within the restricted airport properties.

Notes to Table 1: "De-minimis exposure" means that in DEC's judgment receptors are unlikely to be affected by the minimal volume of remaining contamination. "Pathway incomplete" means that in DEC's judgment contamination has no potential to contact receptors. "Exposure controlled" means there is an administrative mechanism in place limiting land or groundwater use, or a physical barrier in place that deters contact with residual contamination.