

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

**RECORD OF DECISION
Lake Hood Air Harbor
4451 Aircraft Drive
Anchorage, Alaska**

September 2005

SITE INFORMATION SUMMARY

Site name and location

Lake Hood Air Harbor is located at Lake Hood Airstrip, Anchorage International Airport. The legal description of the site is: Lot 2C, Block 14, SW¼ Section 27, Township 13 North, Range 4 West, Seward Meridian.

Name and mailing address of responsible person

John Schwamm is the present owner of Lake Hood Air Harbor (LHAH) facility but it is being managed by Ron Smith Jr., the principal point of contact for the project. Ron Smith Jr. can be reached at P.O. Box 190893 Anchorage, Alaska 99519

Database Record key

1995210025601

CS file number

File Number: 2100.26.264 (formerly L55.212)

Regulatory authority

18 AAC 75.325 – 18 AAC 75.390

Background and Site Investigative History

The subject property is owned by the Alaska Department of Transportation and Public Facilities, Anchorage International Airport (ANC) and leased to John Schwamm under lease number 03531. The east portion of the site slopes toward Lake Hood. The west portion of the site is generally flat, with a shallow swale-like depression just east of the taxi-way. The site is presently covered with asphalt and occupied by a two-story metal building, an adjacent workshop, and a one-story building located along the southern property line.

In July 1995, two 4,000 gallon underground storage tanks (USTs), a 2,000 gallon UST, and associated distribution systems were removed. The 4,000 gallon USTs were reported to have stored aviation gasoline (AvGas) and were removed from service in December 1993. The 2,000 gallon UST was reportedly “out of service” in 1978 and not used between 1978 and 1995 - when it was removed. Two fuel distribution pipes extended from the USTs to a dispenser located near the shore of Lake Hood. During the UST removal, 9 soil samples were collected from the tank, piping, and dispenser excavation pits. The following table specifies the contaminants detected and the concentrations.

Contaminant of Concern	Range of concentrations (mg/kg)	ADEC Cleanup Levels (mg/kg)
Gasoline Range Petroleum Hydrocarbons	42 to 26,800	300
Benzene	Nondetect to 580	0.02
Toluene	0.19 to 1,200	5.4
Ethylbenzene	Nondetect to 250	5.5
Xylenes	0.55 to 900	78
Lead	2.3 to 150	400

A total of 200 cubic yards of contaminated soil was excavated and stockpiled on-site during the decommissioning process.

In November 1995, a release investigation at LHAH facility resulted in additional petroleum impacted soil being excavated. Six soil samples were collected from the excavation. The following table specifies the contaminants detected and the concentrations.

Contaminant of Concern	Range of concentrations (mg/kg)	ADEC Cleanup Levels (mg/kg)
Gasoline Range Petroleum Hydrocarbons	Nondetect to 6,800	300
Benzene	Nondetect to 30	0.02
Toluene	Nondetect to 190	5.4
Ethylbenzene	Nondetect to 45	5.5
Xylenes	Nondetect to 99	78
Lead	9.9 to 34	400

In 1998, the LHAH facility was again assessed and approximately 790 cubic yards was excavated and transported off site for thermal treatment. Fourteen soil samples were collected from within the excavation pit. The following table specifies the contaminants detected and the concentrations.

Contaminant of Concern	Range of concentrations (mg/kg)	ADEC Cleanup Levels (mg/kg)
Gasoline Range Organics	Nondetect to 5,500	300
Benzene	Nondetect to 66	0.02
Toluene	Nondetect to 87	5.4
Ethylbenzene	Nondetect to 37	5.5
Xylenes	Nondetect to 110	78
Lead	9.9 to 34	400

The assessment and cleanup activities at the LHAH site were funded partly by the ADEC underground storage tank cleanup grant program. However, not all of the contaminated soil was removed and treated due to the issues associated with the availability of grant funds. Contaminated soil remains in place along the south, southeast, and northeast excavation sidewalls.

During the release investigation, an additional underground storage tank was discovered near the dispenser location and is suspected to have contained avgas. Three soil samples were collected

beneath the UST and analyzed for GRO, BTEX, DRO, RRO, and metals. The following table specifies the contaminants detected and the concentrations.

Contaminant of Concern	Range of concentrations (mg/kg)	ADEC Cleanup Levels (mg/kg)
Gasoline Range Organics	8.8 to 12	300
Diesel Range Organics	Nondetect to 28	250
Residual Range Organics	Nondetect	1,000
Benzene	Nondetect to 1.9	0.02
Toluene	Nondetect	5.4
Ethylbenzene	Nondetect	5.5
Xylenes	Nondetect to 0.50	78
Arsenic	7.53 to 8.91	2
Cadmium	Nondetect	5
Chromium	32.9 to 37.7	26
Lead	Nondetect to 28.61	400

The levels of benzene, chromium, and arsenic detected in soil samples collected beneath the UST exceeded 18 AAC 75.341 Table B1 levels.

In May and June 2003, they continued to excavate contaminated soil at LHAH. Approximately 1,432 cubic yards of contaminated soil was removed and 25 soil samples were collected from the walls and the base of the excavation pit. The following table specifies the contaminants detected and the concentrations.

Contaminant of Concern	Range of concentrations (mg/kg)	ADEC Cleanup Levels (mg/kg)
Gasoline Range Organics	Nondetect to 1,710	300
Benzene	Nondetect to 31.2	0.02
Toluene	Nondetect to 8.59	5.4
Ethylbenzene	Nondetect to 16.5	5.5
Xylenes	Nondetect to 28.61	78

The excavation was limited in extent by a buried power line, the proximity of Lake Hood, the boathouse on the eastern portion of the property, and grant funds availability. It was estimated that 45 tons of petroleum impacted soil remain on site.

From August 1997 through May 2004, groundwater monitoring (from nine monitor wells) was conducted at least twice a year and analyzed for GRO and BTEX. The following groundwater samples were collected from 1997 through 2004.

Monitor Well & Year(s) of Sampling	Range of GRO Concentrations (mg/L)	Range of Benzene Concentrations (mg/L)
MW1 (1997-1999)	0.123 to 22	0.014 to 5.4
MW1 (2000-2002)	Nondetect to 1.1	Nondetect to 0.3

MW2 (1997-1999)	Nondetect to 0.85	Nondetect to 0.0086
MW2 (2000-2002)	Nondetect	Nondetect
MW3 (1997-1999)	Nondetect to 4.4	Nondetect to 1.5
MW3 (2000-2002)	Nondetect	Nondetect to 0.01
MW3 (2002-2003)	Nondetect	Nondetect
MW4 (1997-1999)	Nondetect to 0.82	Nondetect to 0.00067
MW4 (2000-2002)	Nondetect to 0.339	Nondetect
MW5 (2000-2002)	Nondetect to 0.82	Nondetect to 0.00067
MW5 (2002-2004)	Nondetect to 0.339	Nondetect
MW6 (2003-2004)	Nondetect to 2.07	0.002 to 0.119
MW7 (2003-2004)	14.9 to 107	4.05 to 38.9
MW8 (2003-2004)	0.373 to 2.92	0.0028 to 0.017
MW9 (2003-2004)	0.288 to 1.72	0.102 to 0.577
ADEC Cleanup Levels (mg/kg)	1.3 mg/L	0.005 mg/L

The groundwater samples collected from monitor wells MW-7 and MW-9 have consistently exceeded 18 AAC 75.345 Table C cleanup values. Monitor wells MW-7 and MW-9 are located on the south east corner of the facility near the boat shed where contaminated soil was left in place. Monitor well MW-6 is located on the northeast corner of the June 2003 excavation pit boundary. The groundwater samples collected from monitor well MW-6 in May 2004 may be reflective of contaminated soil left in place underneath the powerline or contamination left on the eastern edge of the June 2003 excavation pit.

Monitor well MW-8 is located 10 feet west of the former 4,000 gallon USTs. The levels of contaminants of concern in groundwater samples collected from monitor well MW-8 did not exceed 18 AAC 75.345 Table C cleanup levels in May 2004.

During the groundwater monitoring event conducted in May 2004, four pore water (groundwater closely connected to surface water) samples and a surface water sample were collected along the

Lake Hood shoreline. All five water samples were analyzed for BTEX compounds. Benzene was the only contaminant detected at concentrations that ranged from 0.0009 mg/L to 0.0265 mg/L. In the surface water sample, benzene was detected at a level of 0.0045 mg/L. The 18 AAC 70 surface water standards are 0.010 mg/L total aromatic hydrocarbons and 0.015 mg/L total aqueous hydrocarbons. The benzene slightly exceeded the surface water standards in the pore water but not in the surface water.

In May 2005, five passive diffusion bag were used to sample the sediment/surface water interface along the LHAH shoreline. The samplers were deployed for approximately two weeks, and then retrieved for an analysis of the water for BTEX. Benzene was the only contaminant detected at a level of 0.0054 and 0.0042 mg/L – which are below the 18 AAC 70 standards.

Description of contaminants and media impacted

Gasoline range organics (GRO), benzene, ethylbenzene, toluene, and xylenes (BTEX) have been detected in soil and groundwater.

Prior cleanup actions taken

The following cleanup actions were employed at the LHAH site:

July 1995 - two 4,000 gallon underground storage tanks (USTs), a 2,000 gallon UST, and associated distribution systems were removed;

August 1995 - 200 cubic yards of contaminated soil was removed;

November 1995 - 247 cubic yards (370 tons) of contaminated soil was removed;

1998 - 790 cubic yards was removed;

2003 - 1,432 cubic yards was removed.

There has been approximately 2,670 cubic yards of impacted soil removed from the site.

Current and expected future land use

The site is presently used for small aircraft maintenance and storage and is expected to operate in the same manner in the future.

Determination of current and expected future use of groundwater

Groundwater at the site is not a current source for drinking water nor is it expected to be in the future.

The groundwater contaminant plume is not believed to be migrating offsite. An 18 AAC 75.350 determination related to the shallow (unconfined) aquifer was conducted for portions of the airport facility and concluded it was not a drinking water source. This determination did not include the areas adjacent to Lake Hood but the environmental issues associated with groundwater in this area are related more to the groundwater being a transport medium to surface water than its use as drinking water.

Completed Exposure Pathways

The exposure pathways evaluated under this decision include ingestion and inhalation, migration to indoor air, and migration to surface water.

ADEC CLEANUP LEVELS

Soil

ADEC has evaluated the contaminant concentrations in the soil in accordance with 18 AAC 75.341 Tables B1 and B2 cleanup levels. The various pathways evaluated were migration to groundwater;

ingestion and inhalation. All pathways evaluated are considered complete and the most stringent of the various pathways will be considered applicable at this site. The following soil cleanup levels are established for this site:

- Benzene 0.02 mg/kg
- Toluene 5.4 mg/kg
- Ethylbenzene 5.5 mg/kg
- Xylenes 78 mg/kg
- Gasoline Range Organics 300 mg/kg
- Diesel Range Organics 250 mg/kg
- Arsenic 2 mg/kg
- Chromium 26 mg/kg

Groundwater

ADEC evaluated the contaminant concentrations in the groundwater (shallow unconfined aquifer) at this site not as a drinking water source but as a medium that could transport contamination. Therefore, cleanup levels for the shallow groundwater at these sites would be based on protection of surface water; protection of indoor air; and/or concentrations that would not result in migration off site.

Surface Water

The ADEC has evaluated the contaminant concentrations in surface water in accordance with 18 AAC 70 water quality standards. The following standards were considered when making the decision regarding the environmental status of this site:

- Total Aromatic Hydrocarbons 0.010 mg/L
- Total Aqueous Hydrocarbons 0.015 mg/L

ADEC DECISION

The data presented to date indicates that the soil and groundwater throughout the facility have been impacted from past releases of aviation fuel at the facility. Since 1995, approximately 2,600 cubic yards of contaminated soil has been excavated and transported from the site. This has reduced the risk of exposure to human health and the environment, however, soil and groundwater contamination remain at levels above the established Department cleanup levels.

The cleanup actions and monitor data indicate a general trend of decreasing contaminant concentrations over time. The arsenic and chromium detected in soil exceed 18 AAC 75.341 levels established for migration to groundwater but there were no identified sources at the LHAH site. Therefore, ADEC has concluded that the elevated soil concentrations of these metals are naturally occurring and no remedial action is required. They slightly exceed the human health risk levels established for ingestion but the Lake Hood area is a commercial/industrial area and they have not been detected in ground or surface water samples.

The levels of benzene and GRO detected in soil remaining on site exceeds the concentrations established for protection of human health (i.e. ingestion and inhalation). However, the subject soil is presently capped with asphalt, and therefore, provides a barrier to the ingestion or inhalation pathway.

In May 2005, Lake Hood surface water was sampled at the groundwater/surface water interface near areas of groundwater contamination. The sample results did not detect contaminants of concern above 18 AAC 70 surface water quality standards. Therefore, ADEC has determined the groundwater contamination does not pose a risk to Lake Hood.

Based on the information provided to date, ADEC has determined that no further remedial action is required at the Lake Hood Air Harbor site. There are areas of soil and groundwater contamination that remain above the 18 AAC 75 soil and groundwater cleanup levels established for the site but it does not pose a risk to human health or the environment.

This determination is subject to the following conditions:

1. any proposal to excavate or transport soil or groundwater from the site requires ADEC approval in accordance with 18 AAC 78.274(b);
2. groundwater and surface water will require periodic monitoring to ensure contamination is decreasing and not migrating into Lake Hood and/or off site. A monitor plan shall be prepared and submitted to ADEC for review and approval.
3. additional investigation and/or cleanup action may be necessary in the future, if new information indicates there is hazardous substance contamination at this site that may pose a risk to human health and the environment.
4. an institutional control (ADEC database entry) will be attached to the lease lots that identify the nature and extent of contamination remaining there.

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. 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.

ADEC Project Manager Approval:

Todd Blessing, Environmental Specialist

Date

ADEC Section Manager Approval:

Jim Frechione, Environmental Conservation Manager

Date