

# STATE OF ALASKA

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

**FRANK MURKOWSKI, GOVERNOR**

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File: 120.26.008

July 7, 2006

Mr. Jack Adams  
P.O. Box 587  
Delta Junction, AK 99737

Re: Jack's Service Station  
Mile 266.5 Richardson Highway  
Delta Junction, Alaska

Dear Mr. Adams:

The Alaska Department of Environmental Conservation, Contaminated Sites Program, (ADEC), reviewed the administrative file for the above-referenced facility. Based on the information presented to date, ADEC has determined that further cleanup action is not required at this time. The following information was considered in making the determination on the environmental status of the site.

The following is a summary of the regulatory issues associated with this facility and the ADEC determination regarding its environmental status:

### **Introduction**

Site name and location:

Jack's Service Station  
Mile 266.5 Richardson Highway  
Delta Junction, Alaska

Name and mailing address of responsible person:

Mr. Jack Adams  
P.O. Box 587  
Delta Junction, Alaska 99737

Database Record Key and CS file number:

ADEC RecKey #1990330017601  
ADEC File number: 120.26.008  
UST Fac ID #1776  
Event ID #017

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

### **Background**

Jack's Service has been a vehicle service and fuel dispensing station since the 1940s. The site is located at 1544 Richardson Highway (Figure 1). In 1994, Oil Spill Technology (OST) identified petroleum contamination in soil around the Underground Storage Tanks (USTs) and dispenser island. The USTs consisted of two 2,000-gallon diesel tanks and a dual-compartment 12,300-gallon leaded and unleaded gasoline tank. The UST system was decommissioned in 1995 and approximately 2,200 cubic yards of petroleum-contaminated soil were excavated and stockpiled at the eastern end of the property in a containment cell.

A 1995 Site Assessment and 1997 Release Investigation completed by Shannon & Wilson Inc. (S&W) identified petroleum hydrocarbon contamination remaining in the ground above ADEC cleanup levels. Ingestion/inhalation cleanup levels were exceeded in one boring at a depth of 5 feet and boring B-8 at depths of 10 and 20 feet.

In the dispenser island area, contaminated soil was removed to a depth of 17 feet with petroleum contamination remaining in the ground but contained within the upper 15 feet of subsurface soil. Contaminated soil was excavated to a depth of 12 feet in the UST excavation with petroleum contamination remaining in the north and east sidewalls.

The cleanup efforts employed at the site included the 1995 UST tank removal and soil excavation and the installation of a passive vapor extraction (PVE) system. The system was upgraded to a mobile soil vapor extraction (SVE) system in October 2002. Four soil borings were drilled in April 2004 to assess soil treatment effectiveness. Boring B-1 was drilled to a depth of 11.5 feet at the north end of the UST excavation, near the former B-8 which had gasoline range organics (GRO) at 11,400 mg/kg and benzene at 488 mg/kg. The 2004 samples reported GRO at 31.8 mg/kg and benzene at 0.213 mg/kg. Boring B-2 was drilled near the entrance to Jack's Liquor store. GRO and benzene were not detected. Boring B-3 was drilled near the northwest corner of the service station building in the vicinity of vapor extraction well VE-4. Results of the analysis initially indicated GRO at 3900 mg/kg and 4.91 mg/kg benzene but the soil screening data and vapor monitoring from vent stack VS-4 had relatively low screening values. ADEC requested a re-analysis of the sample for GRO and it indicated the GRO concentration was 1,950 mg/kg.

Boring B-4 was drilled west of the dispenser island excavation near the location of release investigation boring B-2. In 1997, the soil contained 10,100 mg/kg GRO and 167 mg/kg benzene. The 2004 samples did not detect GRO or benzene.

The contaminated soil excavated from the UST and dispenser areas was stored in the stockpile and subsequently treated in a treatment cell. It ultimately met applicable cleanup levels and was used on other areas of the property. The bottom liners from the soil stockpile and treatment cells were removed and disposed.

The assessment and cleanup activities at this site were funded by the ADEC Financial Assistance Program (FAP) until June 2004.

## Hydrogeology

The site is located about ¼ mile east of the Delta River and 8 miles southwest of the Tanana River. The groundwater table is approximately 60 to 80 feet below ground surface (bgs) with a confining or low permeability layer of Delta Till located 35 feet bgs, overlain by 20 feet of gravelly sands and 15 feet of silt. Perched water is sometimes present above the confining layer but drinking water wells in the area are completed at depths ranging from 100 to 240 feet. The on-site drinking water well serving Jack's Service Station and Jack's Liquor Store is located 200 feet northeast of the service station building.

The drinking water well on-site has been sampled four times (1997, twice in 2002, and 2003) for volatile organic compounds (VOCs). The 1997 sample detected 1,2-dichloroethene and methylene chloride at concentrations below the maximum contaminant level (MCL) for drinking water but all other sample events did not detect contamination above regulatory standards.

## Land Use

The site is, and is expected to remain, a fuel service station in a commercial area of Delta Junction along the Richardson Highway. Much of the ground surface near the service station is paved with asphalt and surface water drains to the northeast. The property includes a liquor store, 80 feet north of the service station and 25 feet from the former UST excavation. A video store is located 70 feet east of the liquor store and former UST excavation. The nearest residence is 300 feet from the service station.

## Contaminants of Concern

Contaminants of concern (COCs) at the site were those associated with the storage and dispensing of petroleum hydrocarbon products from the 1940s to 1995. They include: benzene, toluene, ethylbenzene, and xylene (BTEX), GRO, and diesel range organics (DRO). Several chlorinated compounds (i.e., 1,2-dichlorobenzene, 1,4-dichlorobenzene, and chlorobenzene) were detected during the 1994 Site Assessment, but not after the removal of contaminated soil. Lead was also detected during the 1994 and 1995 investigations.

BTEX, GRO, and DRO compounds were detected in soil samples at concentrations exceeding the 18 AAC 75.341 Tables B1 and B2 Migration to Groundwater cleanup levels. Although not quantified in previous soil investigations, lead scavengers 1,2-dibromoethane, and 1,2-dichloroethane may be considered COCs based on their use in gasoline until the late 1980s.

Soil verification sampling conducted at the site in conjunction with soil vapor sampling included analysis of VOC and petroleum aromatic hydrocarbons from soil boring B-1. Results of these analyses do not indicate any analyte exceeding the most stringent cleanup levels, with the exception of GRO and BTEX.

Lead concentrations in soil ranged from 19.9 to 50.1 mg/kg which are below the 400 mg/kg cleanup level for soil in residential areas. The lead levels may be naturally occurring background concentrations; thus lead is not considered a COC.

## Pathway Evaluation

The exposure pathways evaluated at the site included inhalation and ingestion. The migration pathway was the migration to groundwater.

The potential human exposure pathways to the contaminated soil included ingestion of soil particles and inhalation of ambient air. Both the inhalation and ingestion pathways may be complete, but soil concentrations do not exceed 18 AAC 75.341 Tables B1 and B2 cleanup levels for either ingestion or inhalation (except for one area of the site).

The migration to ground and surface water pathways were evaluated and the pathways may be complete but do not pose an unacceptable risk. The hydrogeology of the site indicated a minimal risk to groundwater, based on the depth to the aquifer, the presence of low permeability soil strata, and field evidence showing attenuation of the contaminants at depth.

The possible migration of vapors into buildings was considered but the health risks were relatively low. There was no ecological exposure pathways considered at the site.

## CLEANUP LEVELS

The cleanup levels established for this site are the 18 AAC 75.341 Tables B1 and B2 levels for the migration to groundwater in the Under 40 Inch zone and groundwater cleanup levels in 18 AAC 75.345 Table C. The cleanup levels are listed in Table 1.

**TABLE 1: Site Cleanup Levels**

<b>Chemical of Concern</b>	<b>Soil Cleanup Level (mg/kg)</b>	<b>Table C Groundwater Cleanup Levels (mg/L)</b>
GRO	300	1.3
DRO	250	1.5
Benzene	0.02	0.005
Toluene	5.4	1
Ethylbenzene	5.5	0.7
Xylenes	78	10
1,2-Dibromoethane	3.06E-5	0.00005
1,2-Dichloroethane	0.015	0.005

## ADEC DECISION

The cleanup actions at this site have resulted in the removal of the former fuel tanks and approximately 2200 cubic yards of contaminated soil. Furthermore, the impacted soil remaining in the ground has been treated (i.e. SVE) and appears to have decreased the contaminant concentrations. Soil sampling in 2004 indicated that contaminant levels met the ingestion and inhalation cleanup levels, with the exception of GRO (1,950 mg/kg) and xylenes (707 mg/kg). Since the site is a commercial use facility and is mostly paved to prevent an exposure pathway, the risk posed by the residual soil remaining is acceptable, in accordance with the conditions established in this document.

Based on the information provided to date, ADEC will require no further remedial action subject to the following conditions:

1. In accordance with 18 AAC 78.274(b), ADEC approval must be obtained prior to transport and/or disposal of soil or groundwater from this site. In addition to off site transport, any proposed soil excavation in the area of Boring B3, shall require the prior notification and approval of ADEC before soil is excavated. There were concentrations of soil contamination above the ingestion/inhalation levels that may require more stringent worker safety and/or management practices.
2. A deed notice (Notice of Environmental Contamination) shall be filed with the State Recorder's Office regarding the location of residual contamination remaining at the site. The residual contamination will also be noted in ADEC's Leaking Underground Storage Tanks (LUST) Database.
3. In accordance with 18 AAC 78.276, additional investigation and cleanup may be required if new information is discovered which leads ADEC to make a determination that the cleanup described in this decision is not protective of human health, safety, and welfare or the environment.
4. No groundwater wells shall be installed on the property without the review and approval of ADEC.
5. The drinking water well currently on site shall be sampled periodically for petroleum hydrocarbon compounds to ensure the 18 AAC 75.345 Table C standards are not exceeded. A sampling plan and schedule shall be submitted to ADEC for review and approval.
6. ADEC will consider a Site Closure (and removal of institutional controls) only after the soil and/or groundwater achieves the established cleanup levels for the site.

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, P.O. Box 111800, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99811-1800, within 15 days of the decision. Adjudicatory hearing requests must be delivered to the Commissioner of the Department of Environmental Conservation, P.O. Box 111800, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99811-1800, within 30 days of the decision. If a hearing is not requested within 30 days, the right to appeal is waived.

Sincerely,



Deborah Williams  
Environmental Program Specialist

Sincerely,



Jim Frechione  
Environmental Program Manager

