Request for NFRAP
Former Diesel Tank Farm, TPA Site 11/Site 30
St. Paul Island, Alaska

Request for No Further Remedial Action Planned

Site:
The Former Diesel Tank Farm, also known as Two Party Agreement (TPA) Site 11 and National Oceanic and Atmospheric Administration (NOAA) Site 30.

Location:
St. Paul Island, Alaska is approximately 800 miles southwest of Anchorage in the Bering Sea. The Former Diesel Tank Farm is a .95 acre site, situated on St. Paul Island, on top of Village Hill (57°07'21" latitude, 170°16'50" longitude) and is U.S. Government property. (Figures 1 and 2).

Legal Description: Tract 43, Township 35 South, Range 132 West, of the Seward Meridian, Alaska, as shown on the plat of rectangular net survey, officially filed May 14, 1986 (Figure 2).

Type of Release:
The Former Diesel Tank Farm (FDTF) contained seven large (81,000 to 127,000 gallon) aboveground storage tanks (AST) installed in the 1950s and removed in 1988 (Figure 3). In 1992, Ecology and Environment, Inc. (Ecology and Environment) conducted a preliminary assessment at the FDTF. Interviews conducted with local residents during the assessment revealed that a fuel spill of unknown quantity occurred at the FDTF sometime in the past, resulting in a fish kill in the Bering Sea to the west (Ecology and Environment, Inc. 1993).

History:
During the 1950s, seven aboveground storage tanks (AST) were installed at the FDTF; six 81,000-gallon ASTs were used for the storage of diesel fuel, while one 127,000-gallon AST was used for the storage of arctic diesel. Historically, fuel was pumped from vessels docked in Village Cove up to the ASTs located at the FDTF. Fuel was then distributed from the ASTs to other locations through pipelines using gravity; various sized pipelines were used, including 2.5-inch, 4-inch, and 12-inch diameters. In 1988, the ASTs were dismantled, reconditioned, and transported to their current location east of the Salt Lagoon, where they are used by the City of St. Paul to fuel the island's power generation system (NOAA 2003).

The TPA allows NOAA to apply cleanup levels using the methods described in the 1991 non-UST regulations (ADEC 1991); however, with ADEC approval, NOAA has elected to use current regulations (ADEC 2000) to address soil cleanup. The cleanup methods applied by NOAA were presented in the CAP for Site 24/TPA Site 9i (NOAA 2003). The cleanup method selected by NOAA was Method Two, discussed at 18 AAC 75.341(c). Method Two employs two separate tables including one for individual contaminants (Table B1) and one for petroleum hydrocarbon contaminants (Table B2).

Summary of Site Investigations:
In 1992, Ecology and Environment, Inc. (Ecology and Environment) conducted a preliminary assessment at the FDTF. Interviews conducted with local residents during the assessment revealed that a fuel spill of unknown quantity occurred at the FDTF sometime in the past, resulting in a fish kill in the Bering Sea to the west (Ecology and Environment, Inc. 1993).

Also in 1992, Dames and Moore, Inc. (Dames and Moore) conducted an environmental investigation that included the excavation of a single test pit at the FDTF. Analytical data for soil samples collected from the test pit indicated the presence of total extractable petroleum hydrocarbons and total recoverable petroleum hydrocarbons at concentrations that exceeded 6,800 milligrams per kilogram (mg/kg) at a depth of 1.5 feet bgs (Dames and Moore 1992).

In 1997, Hart Crowser conducted an expanded site inspection that included the excavation of nine test pits to depths up to 10 feet bgs in the vicinity of the FDTF. Soil samples were collected from varying depths and analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX); diesel-range organic compounds (DRO); gasoline-range organic compounds (GRO); and residual-range organic compounds (RRO). Analytical data indicated the presence of DRO, including arctic diesel, at concentrations up to 20,800 mg/kg. All other analytes were below cleanup levels established by ADEC (Hart Crowser 1997).

In 2000, Tetra Tech conducted a site characterization at the FDTF that included the advancement of 12 soil borings to depths up to 23 feet bgs. Analytical data for soil samples collected from the borings indicated the presence of DRO at concentrations exceeding ADEC cleanup levels; polynuclear aromatic hydrocarbons (PAH) were not detected above ADEC cleanup levels. Based on analytical results, the area of contamination was estimated to cover 17,700 square feet (Tetra Tech 2000).

NOAA contractors conducted quarterly groundwater monitoring between June 2000 to September 2001 and between October 2003 and July 2004 in the vicinity of the FDTF CESI 2001; IT Alaska (2002; TTEMI report pending). During 2000-2001 sampling events, diesel range organic compounds (DRO) were detected above their Alaska Department of Environmental Conservation (ADEC) Table C cleanup level of 1,500 mg/l in well MW46-21, with maximum detected concentrations of 1,600 mg/l (IT Alaska Inc. 2002), Figure 4. Groundwater from MW 46-1 exceeded Table C cleanup level of 15 micrograms per liter for lead (Figure 4). During the first two quarters of 2003-2004 sampling, no analytes were detected above its ADEC Table C cleanup level in the 4 wells at the site MW46-1, MW46-21, MW46-22 and MW46-29, (Figure 4). Note, MW46-29 was installed after 2001 and thus not included in 2000-2001 monitoring. A full report on 2003-2004 sampling events will be available in late 2004.

Summary of Applied Cleanup Levels:
NOAA employed ADEC Method Two cleanup criteria, discussed at 18 AAC 75.341(c) (ADEC 2000). Alternative cleanup levels were also applied for some compounds. For benzene, under the TPA, NOAA had the option to cleanup to the less stringent State of Alaska cleanup level in effect in 1991 (ADEC 1991). ADEC uses 15 feet below ground surface (bgs) to define subsurface soil to which residents will have a reasonable potential to be exposed through the inhalation or ingestion pathways (ADEC 2000; 18 Alaska Administrative Code 75.340 (j)(2)). Therefore NOAA is not obligated to excavate contaminated soil occurring at depths deeper than 15 feet to address the inhalation and ingestion pathways.

Summary of Cleanup Actions:
Excavation activities for the FDTF commenced on August 7, 2003, and were completed on October 20, 2003. Initial areas of excavation were selected based on contamination identified during previous investigations, while the extent of excavation was determined based on TLC screening sample analyses as well as visual and olfactory observations (see Figure 5). Sections of abandoned fuel pipelines associated with past operations at the FDTF were uncovered and removed during various phases of this corrective action. Signs of contamination, including petroleum staining and odors, were noted throughout the excavation. If contaminant concentrations remained above ADEC Method Two cleanup levels based on TLC screening analyses, additional excavation was conducted even if the concentrations were below alternative cleanup levels unless further excavation was prevented by the presence of obstructions.

Maximum depths of excavation varied from 15 to 20 feet bgs throughout the majority of the excavation; shallower depths were attained in the eastern portion of the excavation because of the need to leave supporting soil under the 10-inch-diameter water main and to not encroach on Rim Rock Drive (Figures 5 and 6).

Although confirmation samples indicated that contamination remains in some areas of the excavation, no further excavation could be conducted in these areas because of the presence of obstructions, including large boulders; the 10-inch-diameter, high-density polyethylene water main; Rim Rock Drive along the eastern portion of the excavation; and excavation depths of 15 feet bgs and greater. Excavation around the water main, specifically in the area of confirmation sample SP30-CS-041-080, was conducted in a manner to preserve the integrity of the pipeline and Rim Rock Drive; based on discussions with representatives from NOAA and the City of St. Paul, the

decision was made to not excavate PCS from beneath the line because of concerns related to Rim Rock Drive and the lack of control valves along the affected section of the water main.

During this corrective action, a total of approximately 6,550 CY of PCS was removed from the excavation at the FDTF.

Forty-six confirmation samples and eight field duplicate samples were collected during corrective action activities at the FDTF. In addition, four split samples and one field duplicate sample were collected in coordination with North Wind, Inc., a contractor hired by Tanadgusix Corporation. All samples were analyzed for the following constituents:

- BTEXby U.S. Environmental Protection Agency (EPA) SW-846 (EPA 1996) Method 8021B
- DRO by Method AK102

In addition, the following analyses were conducted on subsets of the confirmation samples collected at the FDTF:

- GRO by Method AK101
- RRO by Method AK103
- PAHs by EPA SW-846 (EPA 1996) Method 8270C Selected Ion Monitoring
- Total lead by EPA SW-846 (EPA 1996) Method 6020

Tables 1 and 2 provide a summary of the samples collected during this corrective action. Figure 6 illustrates the sampling locations.

Confirmation samples collected from the excavation at the FDTF indicated DRO concentrations varying from not detected to 42,000 mg/kg. Fourteen of the 46 confirmation samples collected from this area contained concentrations of DRO above the ADEC Method Two cleanup level of 250 mg/kg, and 9 of the 42 samples exceeded the alternative cleanup level of 2,500 mg/kg (Figure 6). One of the four split samples contained a concentration of DRO above just the ADEC Method Two cleanup level, and one of the four split samples exceeded the method 2 and the alternative cleanup level. The other 2 samples did not exceed either cleanup level.

Concentrations of all other contaminants in confirmation samples were below ADEC Method Two cleanup levels. Laboratory reporting limits were below ADEC Method Two cleanup levels for all analyses except benzene. For benzene, reporting limits varied from 0.03 mg/kg to 0.5 mg/kg, which is above the ADEC Method Two cleanup level of 0.02 mg/kg, but below or equal to the alternative cleanup level of 0.5 mg/kg. Higher detection limits were realized for samples with relatively high levels of DRO.

Throughout the corrective action, excavation was conducted at each location to the maximum extent practicable. However, due to the presence of obstructions, contamination was left in place at some locations. The following paragraphs summarize the rationale for leaving contamination in various sections of the excavation (see Figure 4).

Contamination remaining in three areas of the excavation was not removed because of maximum depths attained in those areas. The three areas include: (1) the area encompassed by confirmation sampling locations SP30-CS-011-200 through SP30-CS-015-200 in the west portion of the excavation, where depths reached 20 feet bgs; (2) the area encompassed by confirmation sampling locations SP30-CS-017-150 through SP30-CS-021-150 and SP30-CS-023-160 in the central portion of the excavation, where depths varied from 15 to 16 feet bgs; and (3) the area encompassed by confirmation sampling locations SP30-CS-022-150, SP30-CS-025-150, SP30-CS-035-150, and SP30-CS-037-150 in the central portion of the excavation, where depths reached 15 feet bgs. ADEC uses 15 feet bgs to define subsurface soil to which residents will have a reasonable potential to be exposed through the inhalation or ingestion pathways (ADEC 2000); 18 Alaska Administrative Code 75.340 (j)(2). Based on the depths of excavation attained in these areas, risks associated with the inhalation and ingestion pathways have been mitigated.

Contaminated soil associated with confirmation sampling location SP30-CS-041-080, located along the east edge of the excavation, was not removed because of concerns regarding the integrity of the 10-inch diameter water main and Rim Rock Drive.

Contaminated soil associated with confirmation sampling location SP30-CS-024-100, located in the south-central portion of the excavation, was subsequently removed. The excavation was advanced to a depth of 15 feet bgs in this area.

Recommended Action:
In accordance with paragraph 59 of the Two Party Agreement (NOAA 1996), NOAA requests written confirmation that NOAA completed all appropriate corrective action at the Former Diesel Tank Farm, TPA Site 11/ NOAA Site 30, in accordance with the Agreement and that ADEC requires no further remedial action plan from NOAA.

References:

Alaska Department of Environmental Conservation (ADEC). 1991. *Interim Guidance for Non-UST Contaminated Soil Cleanup Levels. Contaminated Sites Program*. July 17.

ADEC. 2000. Title 18 of the *Alaska Administrative Code 75*, Articles 3 and 9. Oil and Hazardous Substances Pollution Control Regulations. State of Alaska. Effective date January 30, 2003.

ADEC. 2002. *Letter from Louis Howard (ADEC) to John Lindsay (NOAA Pribilof Project Office)*. May 30.

Columbia Environmental Sciences, Inc. (CESI). 2001. Draft Site Characterization Report, Tract 46 and Vicinity (TPA Site 9), St. Paul Island, Alaska. Version 2.1. Kennewick, WA. December 16.

Dames and Moore, Inc. 1992. *Limited Environmental Evaluation, Test Pit Excavation, St. Paul Island*. June 23

Ecology and Environment, Inc. 1993. *Preliminary Assessment of the National Oceanic and Atmospheric Administration Sites, Pribilof Islands, Alaska*. February.

U.S. Environmental Protection Agency (EPA). 1996. *Test Methods for Evaluating Solid Waste*. EPA/SW-846. Third Edition and Updates. December

Hart Crowser, Inc. 1997. *Expanded Site Inspection of St. Paul Island, Pribilof Islands, Alaska*. January.

IT Alaska Corporation. 2002. *Draft Annual Groundwater Monitoring Report 2001, St. Paul Island, Alaska*. March.

Mitretek. 2002. *Groundwater Use and Classification in the Vicinity of Tract 46, St. Paul Island, Pribilof Islands, Alaska*. Prepared by Mitretek Systems, for the National Oceanic and Atmospheric Administration. June 5.

NOAA. 1996. *Pribilof Islands Environmental Restoration Two Party Agreement*. Attorney General's Office File No. 66 1-95-0126, National Oceanic and Atmospheric Administration. January 26.

NOAA. 2003. *Draft Corrective Action Plan, Petroleum Contaminated Soil Removal at the Former Diesel Tank Farm (TPA Site 11), St. Paul Island, Alaska*. June 3.

NOAA. 2004. Initial Draft Corrective Action Report Site 30/TPA Site 11 – Former Diesel Tank Farm, St. Paul Island, Alaska. June 3.

Tetra Tech EM Inc. (Tetra Tech). 2000. *Site Characterization Report, Former Diesel Tank Farm (Two-Party Agreement Site No. 11), Pribilof Islands Site Restoration, St. Paul Island, Alaska*. December.

For the National Oceanic and Atmospheric Administration

John Lindsay
NOAA, Pribilof Project Office

9/24/04
Date

Approvals: In accordance with Paragraph 59 of the Two Party Agreement, this is to confirm that all corrective action has been completed at the Former Diesel Tank Farm, TPA Site 11/NOAA Site 30, in accordance with the Agreement and that no plan for further remedial action is required.

For the Alaska Department of Environmental Conservation

Louis Howard
Alaska Department of Environmental Conservation
Remedial Project Manager

Nov 5, 2004
Date