

Request for No Further Remedial Action Planned

Site: Former Fouke Bunkhouse, also known as Two Party Agreement (TPA) Site 9g and National Oceanic and Atmospheric Administration (NOAA) Site 22

Location: St. Paul Island, Alaska is approximately 800 miles southwest of Anchorage in the Bering Sea. On St. Paul Island, the Former Fouke Bunkhouse is situated at the bottom of Village Hill in the central portion of the city of St. Paul near the community grocery store (57°07'21" N latitude, 170°16'50" W longitude; Figure 1).

Legal Property Description: The building and area of excavation are located in the southern portion of Tract 46, Township 35 South, Range 132 West, of the Seward Meridian, Alaska, as shown on the dependent resurvey of a portion of U.S. Survey No. 4943, Alaska, Tract "A", St. Paul Townsite, officially filed June 3, 1997 (Figure 2).

Type of Release:

An aboveground storage tank (AST) with an estimated volume of 300 gallons was located along the east side of the bunkhouse, and a 500-gallon underground storage tank (UST) was buried approximately 10 feet east of the building. Spillage during fueling operations and leakage from the tanks and their associated piping is presumed to have resulted in the petroleum-contaminated soil (PCS) previously present.

History and Background:

The building formerly provided housing for government personnel and workers with the Fouke Fur Company during the seal harvests. An AST, and before that a UST, on the east side of the building reportedly supplied diesel fuel for heating purposes (NOAA 2003).

Summary of Site Investigations:

During the summer of 2000, Columbia Environmental Sciences, Inc. (CESI) conducted site characterization activities in the city of St. Paul. These activities included the installation of monitoring wells and the advancement of soil borings at various locations. One soil sample (Figure 3) was collected just east of the Former Fouke Bunkhouse, revealing the presence of diesel range organics (DRO) at a concentration of 2,400 milligrams per kilogram (mg/kg) (CESI 2001).

NOAA contractors conducted quarterly groundwater monitoring from September 2000 to September 2001 and from October 2003 to July 2004 in the vicinity of the Former Fouke Bunkhouse (Figure 4). During 2000-2001 sampling events, DRO were detected above their Alaska Department of Environmental Conservation (ADEC) Table C cleanup level of 1,500 micrograms per liter ($\mu\text{g/L}$) in well MW46-8, located north of and down gradient from the site, with a maximum detection of 2,400 $\mu\text{g/L}$ (IT Alaska Corp. 2002). Lead was also detected in this well above its Table C cleanup level of 15 $\mu\text{g/L}$, with a maximum detection of 106 $\mu\text{g/L}$. During the first three quarters of the 2003-2004 sampling, DRO were detected in well MW46-8, but at a much lower concentration and below the Table C clean up level. The maximum concentration detected was 630 $\mu\text{g/L}$. Lead was not detected. Further down gradient from the Former Fouke

Bunkhouse, DRO exceedances were detected in MW46-7 during 2000-2001 and 2003-2004 sampling events. DRO have not been detected in well MWA-5, located up gradient from the site, but high concentrations of DRO (*i.e.*, 13,000 µg/L) have been detected in MWA-3, a well potentially located up gradient from the site (Mitretek Systems 2002; Figure 4). [Note that NOAA's contractor for the 2001 sampling analyzed for residual-range organic compounds (RRO) by adapting soil analytical method AK103. The adapted method was never approved by ADEC, and no ADEC approved method exists. Thus, although the contractor reported detecting RRO above its ADEC Table C cleanup level in MW46-8, ADEC has indicated it does not consider this data to be valid, and the results are not included herein.]

Mitretek Systems (2002) evaluated the 2000-2001 groundwater data for wells in the St. Paul Village area, which includes the Former Fouke Bunkhouse site. The Mitretek report demonstrated that groundwater in the vicinity of St. Paul Village has high total dissolved solids and can be brackish. Consequently, the groundwater in the area is not suitable for drinking water. The evaluation, in part, provided a rationale for using alternative groundwater cleanup levels that are protective of human health and the environment where the groundwater is not potable. Mitretek concluded in accordance with 18 AAC 75.350 (ADEC 2000) that groundwater in the Village area is not currently used and does not afford any potential future use as a drinking water source. These findings provided the basis for the application of the Ten Times Rule discussed below.

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). Additionally, NOAA proposed and ADEC approved the use of alternative cleanup levels under 18 AAC 75.345 and 18 AAC 75.350, commonly referred to as the Ten Times Rule (ADEC 2002, Mitretek Systems 2002). According to these regulations, if groundwater beneath a site contains contaminant concentrations above the cleanup levels provided in ADEC Table C, then the soil may be remediated to levels ten times higher than those provided in Method Two Tables B1 and B2 for the migration to groundwater pathway for those contaminants found in groundwater at concentrations above the cleanup levels provided in ADEC Table C; however, if the inhalation or ingestion pathway values are more stringent than the migration to groundwater pathway, then the more stringent value is to be applied. 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:

NOAA contractor Tetra Tech EM Inc. (Tetra Tech) and its subcontractor Bering Sea Eccotech (BSE) initiated corrective actions at the Former Fouke Bunkhouse on July 21, 2003 and completed work on July 30, 2003 (Tetra Tech 2004a). The liquid contents of the AST were determined to be a mixture of diesel fuel and water, and were subsequently pumped into four 55-

gallon drums and recycled on-island (*i.e.*, provided to Trident Seafoods for use in its used oil space heater). Prior to excavation activities for the Former Fouke Bunkhouse, additional scoria was placed at the excavation as a road surface. Initial areas of excavation were selected based on the suspected contamination identified during previous investigations. The extent of excavation was determined based on thin-layer chromatography (TLC) screening sample analyses as well as visual and olfactory observations.

Excavation activities began in the area beneath and adjacent to the former AST (Figure 5). As the excavation progressed, a previously unidentified 500-gallon UST was discovered approximately 10 feet east of the building. The contents of the UST were determined to be a mixture of mostly water with highly weathered diesel fuel. As such, the contents were pumped into a plastic tank and hauled to the Blubber Dump, where they were emptied onto the lined stockpile area. Subsequently, the excavation was expanded in all directions based on TLC screening sample analyses as well as visual and olfactory observations. 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 results, additional excavation was conducted even if the concentrations were below alternative cleanup levels unless further excavation was prevented by the presence of groundwater or obstructions. The excavation was advanced to a maximum depth of 13 feet below ground surface (bgs), where groundwater was encountered. One unknown utility line, a 1.5-inch-diameter steel pipeline, was discovered during excavation (Figure 5). The line could not be further identified, so it was left intact throughout the corrective action.

Two test pits were also excavated near the southeast corner of the Former Fouke Bunkhouse to investigate local reports of a suspected UST in this area (Figure 5). Each test pit was advanced to a depth of approximately 7 feet bgs. Neither USTs nor signs of contamination were observed, and the pits were backfilled with the excavated soil.

Thirteen confirmation samples were collected from the bottom and sidewalls of the excavation at the Former Fouke Bunkhouse and analyzed at a fixed laboratory for benzene, toluene, ethylbenzene, and total xylenes (BTEX); DRO; gasoline-range organic compounds (GRO); RRO; select polynuclear aromatic hydrocarbons (PAHs), and lead. Results indicated DRO concentrations varied from not detected to 1,200 mg/kg; two of the thirteen samples collected from this area exceeded the ADEC Method Two cleanup level of 250 mg/kg, but no samples exceeded the alternative cleanup level of 2,500 mg/kg (Table 1, Figure 6). The elevated concentrations of DRO were detected in samples SP22-CS-001-130 and SP22-CS-005-130, which were collected from the bottom of the west side of the excavation at 13 feet bgs, adjacent to the building foundation and at the water table. Concentrations for all other contaminants were below the ADEC Method Two cleanup levels. Laboratory reporting limits were below ADEC Method Two cleanup levels for all analyses except benzene. For benzene, reporting limits of 0.03 mg/kg were achieved, which is above the ADEC Method Two cleanup level of 0.02 mg/kg, but below the alternative cleanup level of 0.5 mg/kg.

During the corrective action, a total of approximately 155 cubic yards of PCS were removed from the excavation at the Former Fouke Bunkhouse. Samples collected from PCS stockpiled

from this site, the Old Sealing Plant/Barreling Shed (Site 27/TPA Site 9ℓ), and Tract A House 102 (Site 54/TPA Site 9r) contained DRO concentrations that varied from not detected to 350 mg/kg (Tetra Tech 2004b). The excavated PCS was stockpiled at the Tract 42 landfill site, pending final disposal at the National Weather Service land spreading site, or other ADEC approved disposal alternative. Following excavation and sampling activities, the Former Fouke Bunkhouse site was restored to its original grade.

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 Fouke Bunkhouse, TPA Site 9g/NOAA Site 22 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, 1991.

ADEC. 2000. Title 18 of the *Alaska Administrative Code* 75, Articles 3 and 9. *Oil and Hazardous Substances Pollution Control Regulations*. State of Alaska. Amended through October 28, 2000.

ADEC. 2002. Letter from Louis Howard, Project Manager, Alaska Department of Environmental Conservation, to John Lindsay, Project Manager, NOAA Pribilof Project Office regarding ADEC conditional approval for applying the Ten Times Rule. 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 December 16, 2001. Columbia Environmental Sciences, Inc. Kennewick, WA.

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

Mitretek Systems. 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.

National Oceanic and Atmospheric Administration (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 for Former Fouke Bunkhouse Petroleum Contaminated Soils (TPA Site 9g), St. Paul Island, Alaska*. Approved as submitted by ADEC on June 3, 2003.

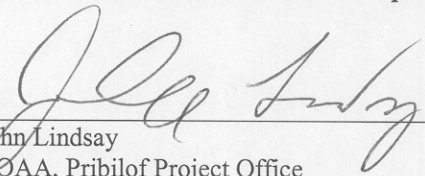
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Tetra Tech EM Inc. (Tetra Tech). 2004a. *Final Corrective Action Report, Site 22/TPA Site 9g-Former Fouke Bunkhouse, St. Paul Island, Alaska.*

Tetra Tech. 2004b. *Letter Report, Summary of 2003 Field Season Stockpile Activities, St. Paul Island, Alaska.* July 23.

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For the National Oceanic and Atmospheric Administration

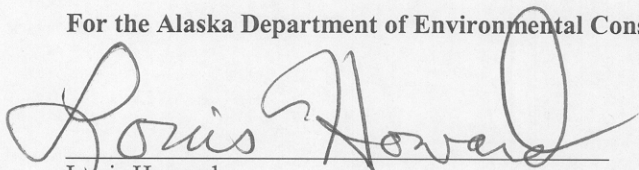


John Lindsay
NOAA, Pribilof Project Office

9/10/04
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 Fouke Bunkhouse, TPA Site 9g/NOAA Site 22, 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

9-14-04
Date

Tables and Figures

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TPA Site 9g/Site22
St. Paul Island, Alaska

Table 1. Analytical Data Summary for Confirmation Samples from the Former Fouke Bunkhouse- TPA 9g/Site 22, St. Paul Island, Alaska

Sample Number	Sample Depth (feet bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Gasoline-range Organic Compounds (mg/kg)	Diesel-range Organic Compounds (mg/kg)	Residual-range Organic Compounds (mg/kg)	Lead (mg/kg)
TPA Site 9g Confirmation Samples									
SP22-CS-001-130	13	0.03 U	0.03 U	0.06	0.56	72	340	50 U	3.53
SP22-CS-002-130	13	0.03 U	0.03 U	0.03 U	0.13	18	78	50 U	3.89
SP22-CS-003-130	13	0.03 U	0.03 U	0.03 U	0.03 U	2 U	170	50 U	4.42
SP22-CS-004-130	13	0.03 U	0.03 U	0.03 U	0.03 U	2 U	10 U	150	3.44
SP22-CS-005-130	13	0.02 U	0.02 U	0.02 U	0.02 U	1 U	1,200	250	3.73
SP22-CS-006-100	10	0.02 U	0.02 U	0.02 U	0.02 U	1 U	10 U	50 U	2.79
SP22-CS-007-100	10	0.02 U	0.02 U	0.02 U	0.02 U	1 U	10 U	50 U	2.62
SP22-CS-008-130	13	0.02 U	0.02 U	0.02 U	0.03	1	110	50 U	4.24
SP22-CS-009-100	10	0.03 U	0.03 U	0.03 U	0.03 U	2 U	10 U	50 U	2.54
SP22-CS-010-130	13	0.03 U	0.03 U	0.03 U	0.03 U	2 U	22	50 U	4.43
SP22-CS-011-100	10	0.02 U	0.02 U	0.02 U	0.02 U	1 U	10 U	50 U	3.04
SP22-CS-012-100	10	0.03 U	0.03 U	0.03 U	0.03 U	2 U	10 U	50 U	2.74
SP22-CS-013-130	13	0.02 U	0.02 U	0.02 U	0.02 U	1 U	10 U	50 U	2.67
Trip Blank Sample									
Trip blank	--	0.02 U	0.02 U	0.02 U	0.02 U	1 U	--	--	--
<i>Method Two Cleanup Level^a</i>		0.02	5.4	5.5	78	300	250	10,000	400 ^e
<i>Method Two Alternative Cleanup Level^b</i>		0.5 ^c	54	NA	NA	1,400 ^d	2,500	NA	400 ^e

Notes:

- bgs Below ground surface
- mg/kg Milligram per kilogram
- Not analyzed
- NA Not available
- TPA Two-Party Agreement
- U The analyte was analyzed for but not detected above the sample reporting limit.

- a Cleanup level is from Title 18 of the Alaska Administrative Code 75 Oil and Hazardous Substances Pollution Control Regulations, published by the State of Alaska and amended through October 28, 2000.
- b Cleanup level obtained from ADEC Method Two based on the "Ten Times Rule" applied to the migration to groundwater pathway, as discussed in Section 5.0 of the corrective action plan (National Oceanic and Atmospheric Administration [NOAA] 2003a).
- c Under the TPA, NOAA is obligated to comply with the 1991 ADEC cleanup level for benzene (0.5 mg/kg).
- d Cleanup level selected is based on more stringent value associated with ingestion and inhalation pathways.
- e Although these sites are in an industrial area, NOAA is using the residential cleanup level for lead (400 mg/kg).

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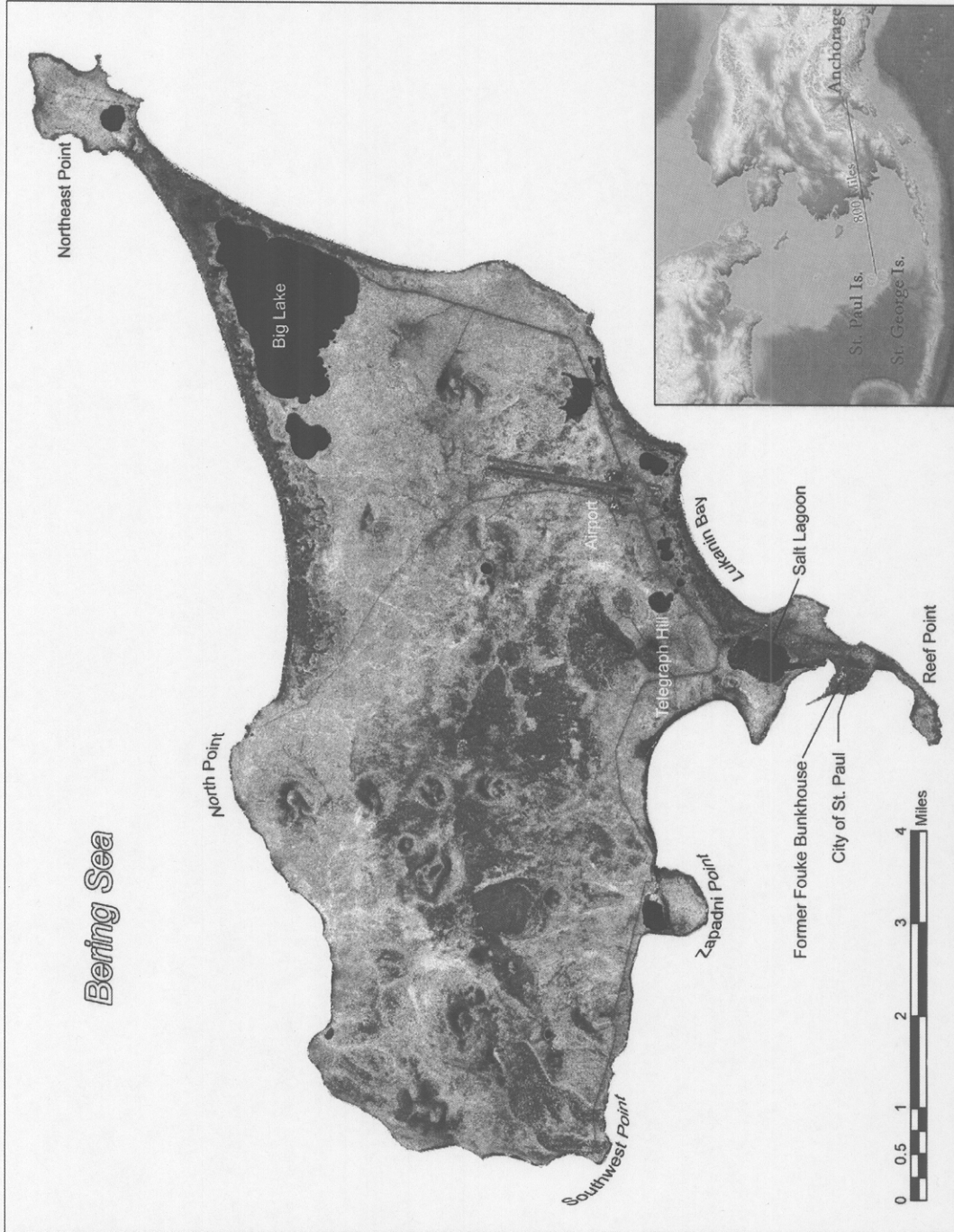
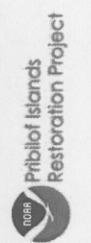
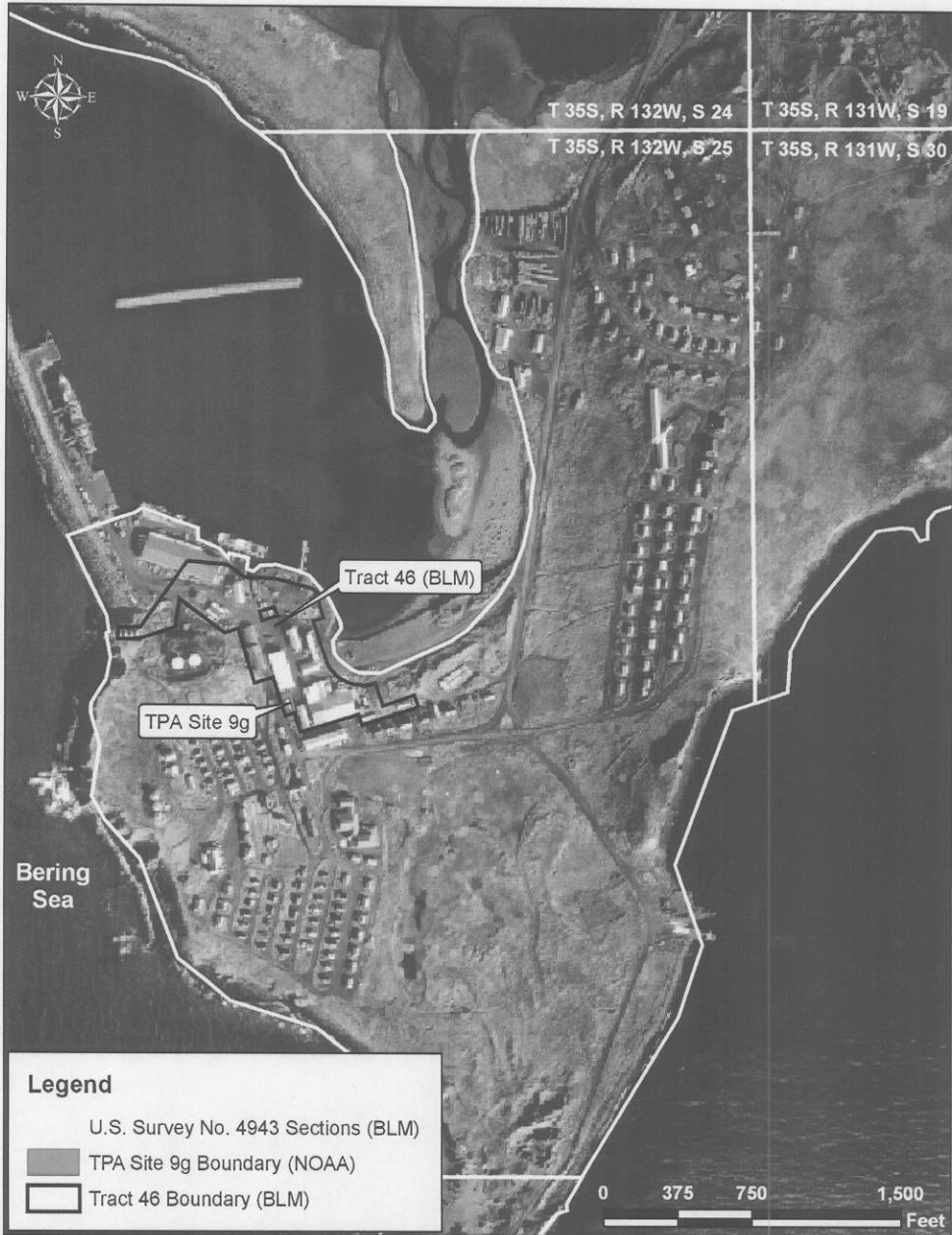


Figure 1
 St. Paul Island Vicinity Map
 Former Fouke Bunkhouse
 TPA Site 9g/Site 22
 St. Paul Island, Alaska

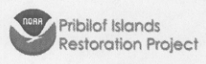
Source: Ikonos Satellite Imagery, 2001



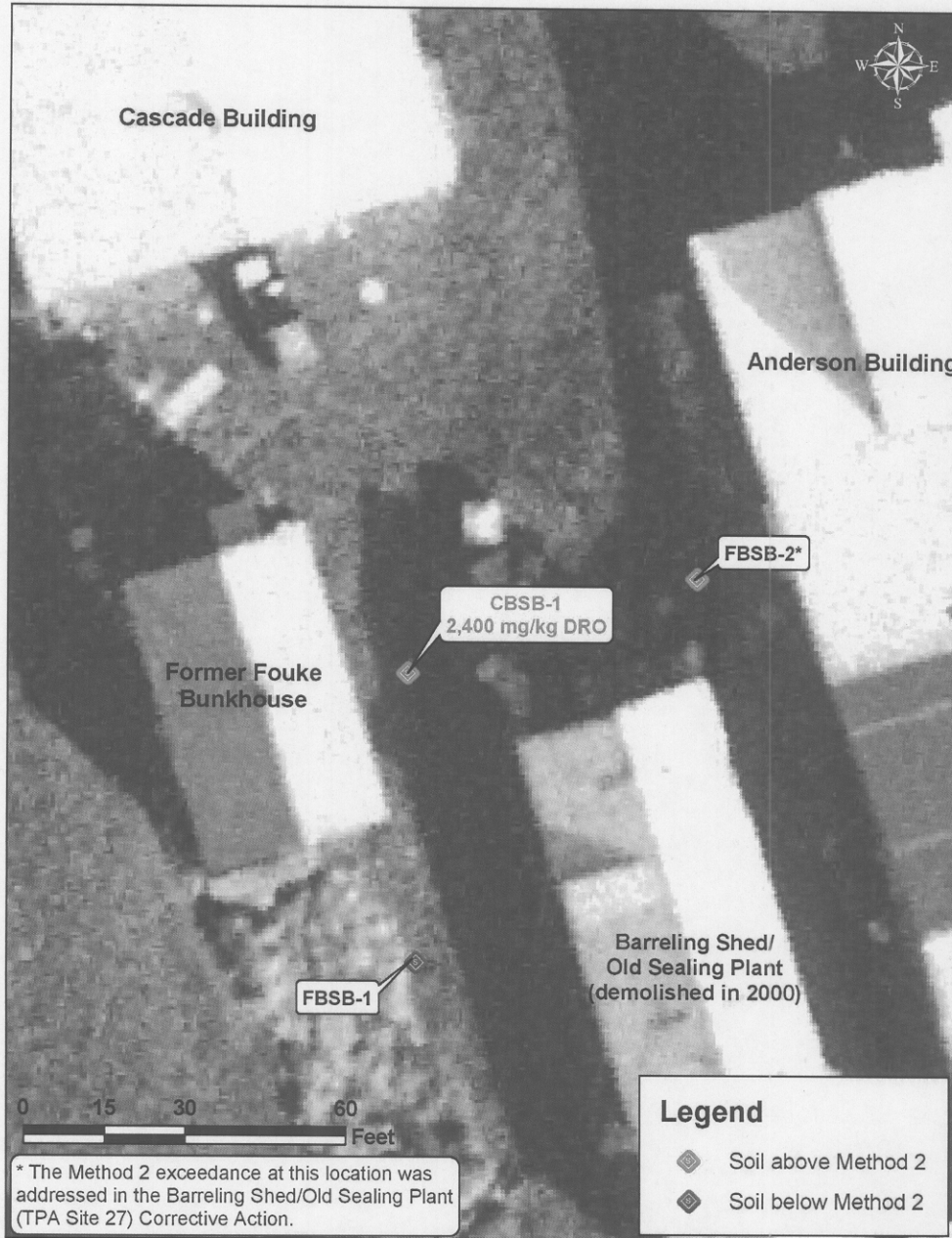
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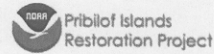
<p>Figure 2</p>	<p>Legal Property Description Map Former Fouke Bunkhouse TPA Site 9g/Site 22 St. Paul Island, Alaska</p>	<p>Sources: BLM Tract (BLM MTPs 1983), TPA 9g Boundary (NOAA GIS 2004), Aerial Photo (Aeromap US 1996).</p>
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<p>Figure 3</p>	<p>Historical Sampling Locations Former Fouke Bunkhouse TPA Site 9g/Site 22 St. Paul Island, Alaska</p>	<p>Sources: Historical Sampling Locations (Pribilof Islands GIS Project 2003), Aerial Photo (Aeromap US, 1996).</p>
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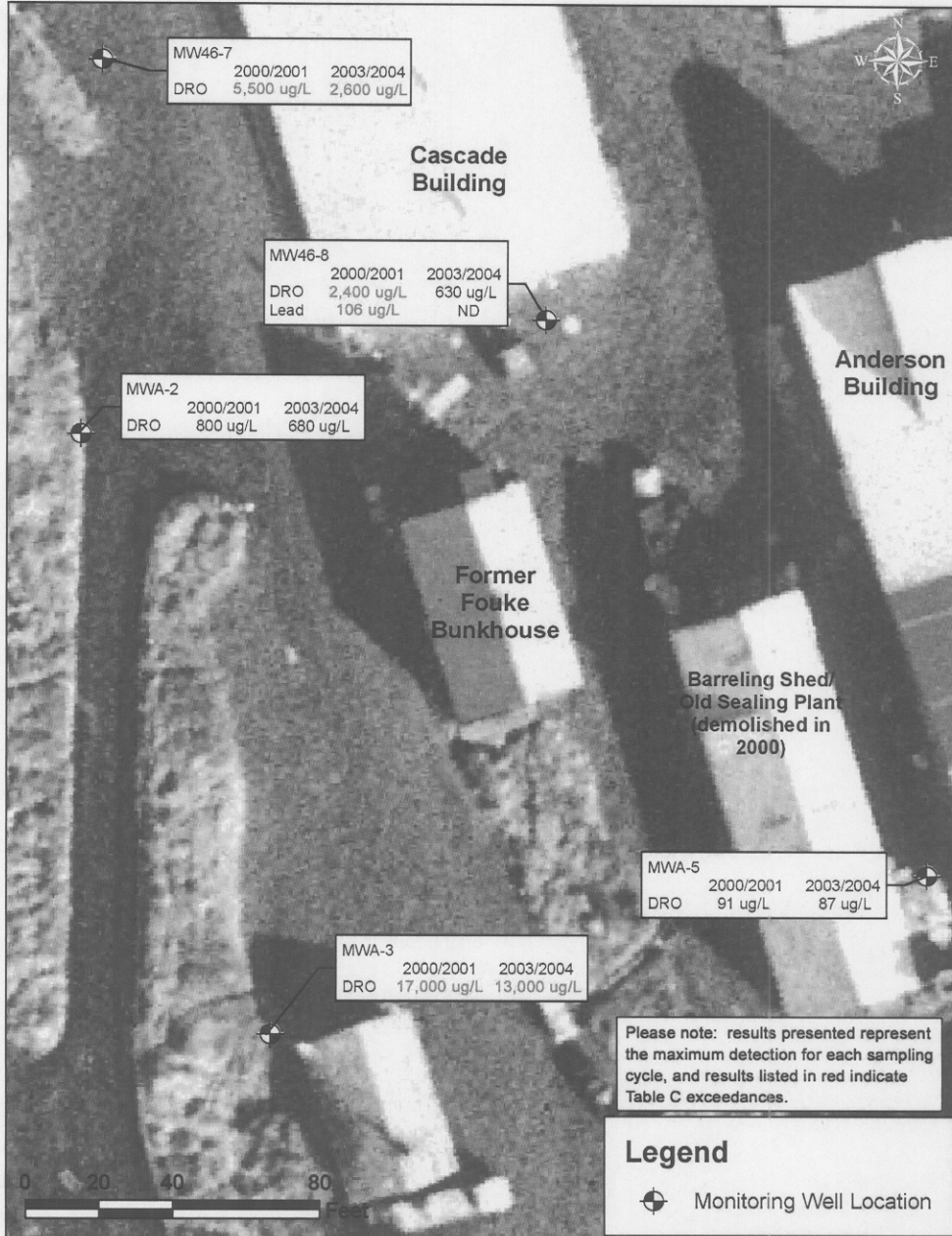
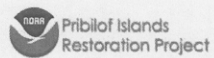
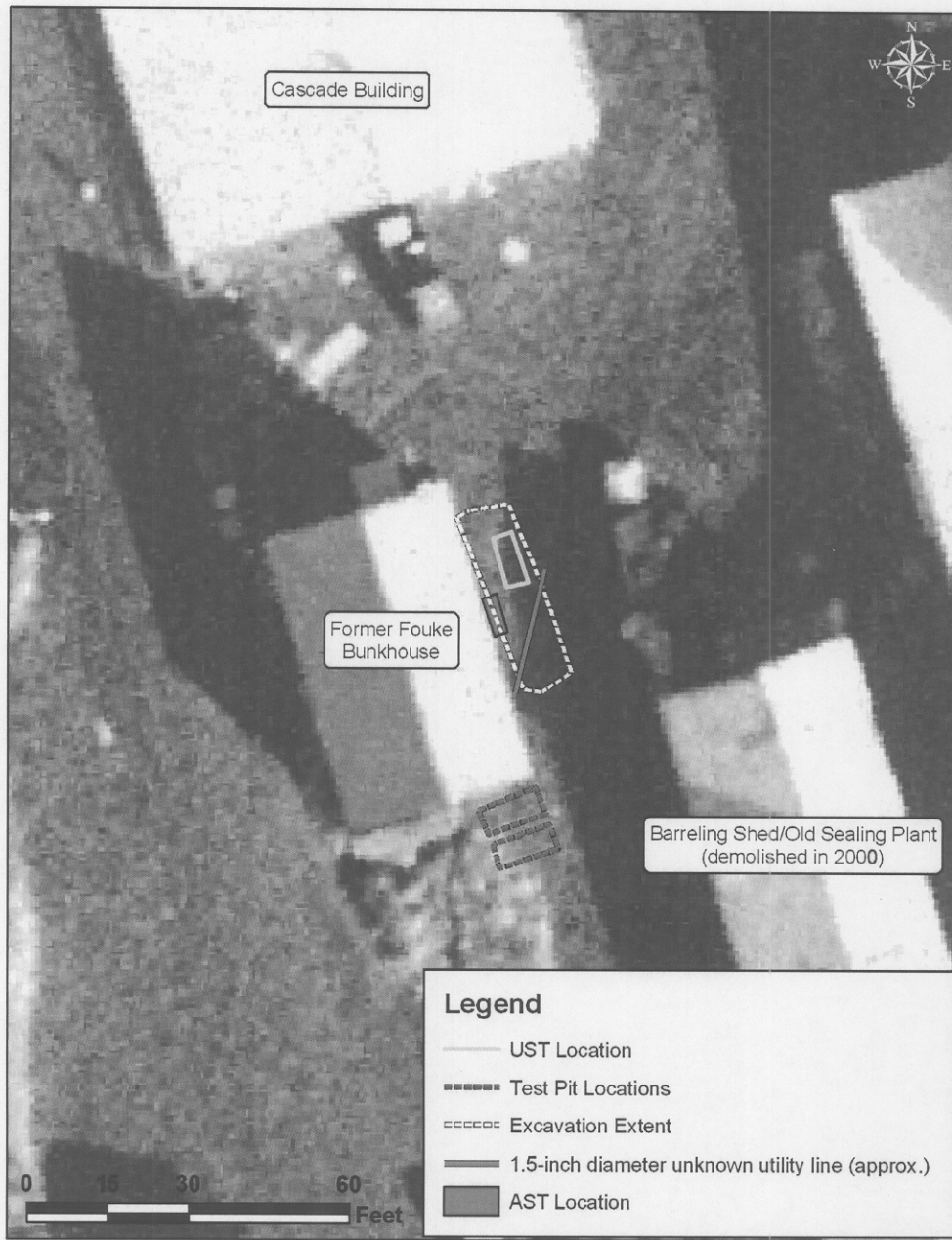


Figure 4 Groundwater Sampling Results Former Fouke Bunkhouse TPA Site 9g/Site 22 St. Paul Island, Alaska

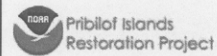
Sources: Monitoring Well Locations (Pribilof Islands GIS Project 2003), Aerial Photo (Aeromap US, 1996).



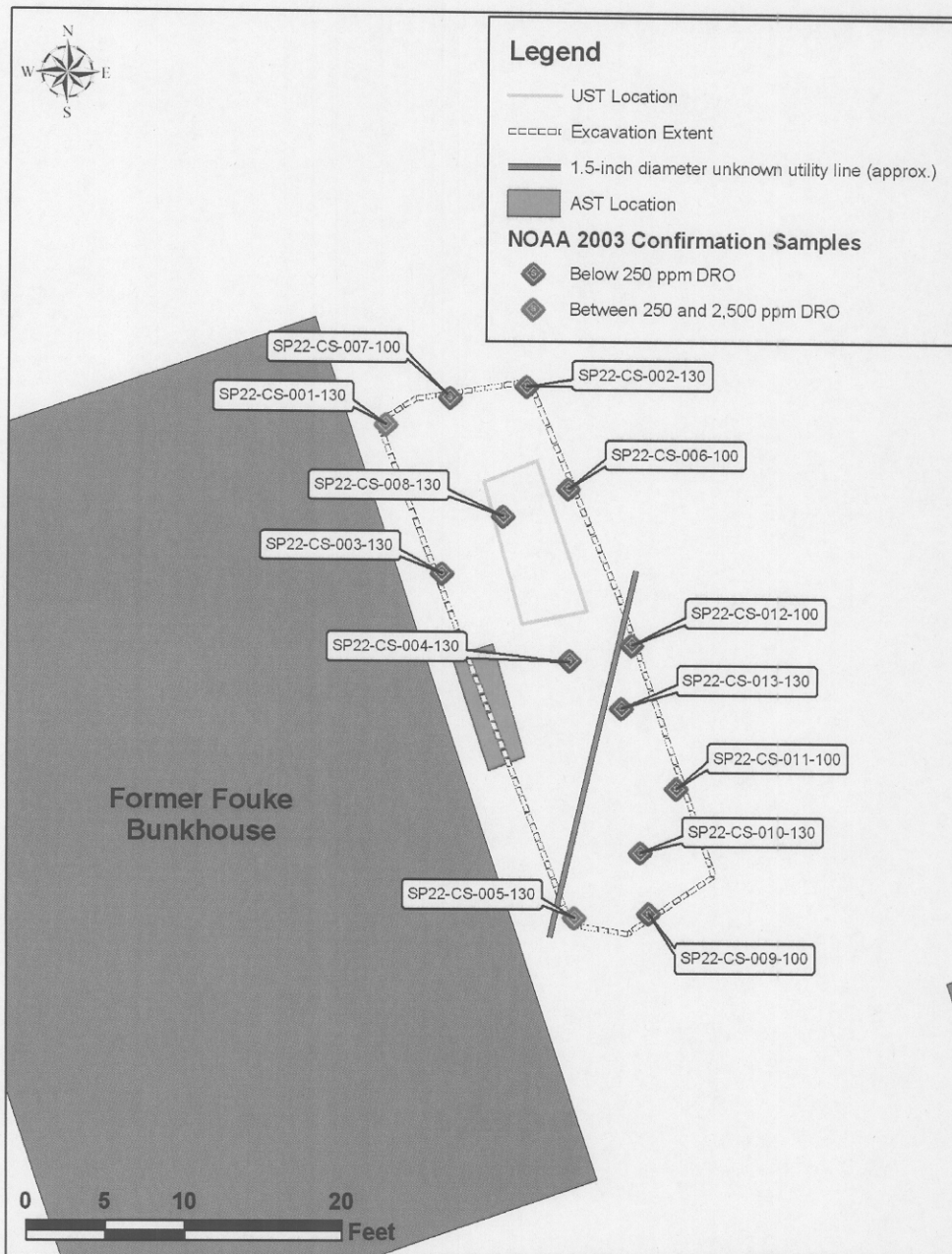
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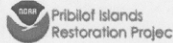


<p>Figure 5</p>	<p>Areas of Excavation Former Fouke Bunkhouse TPA Site 9g/Site 22 St. Paul Island, Alaska</p>	<p>Sources: Monitoring Well Location (Pribilof Islands GIS Project 2003), UST Location, AST Location, and Excavation Extent (NOAA GPS 2003), Aerial Photo (Aeromap US, 1996).</p>
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<p>Figure 6</p>	<p>Confirmation Sampling Locations Former Fouke Bunkhouse TPA Site 9g/Site 22 St. Paul Island, Alaska</p>	<p>Sources: Confirmation Samples, UST Location and Excavation Extent (NOAA GPS 2003), AST Location (NOAA Pribilof Project GIS, 2003).</p>	
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