

## Conditional Closure Request

**Site:** Old Power Plant (OPP) site, also known as St. George Island Two Party Agreement (TPA) Site 9 and as National Oceanic and Atmospheric Administration (NOAA) Site 9.

**Location:** St. George Island, Alaska is approximately 800 miles southwest of Anchorage in the Bering Sea (Figure 1). TPA Site 9 is in the northwestern portion of the City of St. George at 56° 36' 9.53" N latitude, 169° 32' 56.31" W longitude (Figure 2).

**Legal Property Description:** TPA Site 9 is in Lot 3 of Tract 43, Section 29, Township 41 South, Range 129 West, of the Seward Meridian, Alaska, as shown on the plat of the Qawax Subdivision, officially filed October 31, 1985. Excavation of contaminated soil extended to the southwest of Lot 3 into Lot 2 (Figure 2). St. George Tanaq Corporation owns the site.

**Type of Release:** The primary release was diesel fuel that spilled or leaked from a fuel storage and supply system associated with a former power plant's diesel generators. Also present at the site, to a lesser degree, is soil contaminated with possible lubricating oil, transformer dielectric fluid, and/or waste crankcase oil as a result of purported past disposal practices and leakage. Lead above the Alaska Department of Environmental Conservation (ADEC) soil cleanup criterion was found at two locations; the source is unknown.

**History and Background:** A diesel generator-driven power plant was constructed at TPA Site 9 between 1936 and 1937 (USBF 1936, 1937). The plant facilities included 11 aboveground storage tanks (ASTs) used to store diesel fuel, gasoline, and lubricating oil, as well as a wood-framed building that housed the generators. The ASTs were located on wooden platforms along the west and southwest sides of the building (Figure 3). Fuel was supplied to the ASTs, via a gravity fed pipeline, from drums staged at the Former Fuel Storage Area (TPA Site 18), located south of the power plant (Scheffer 1948). By 1964, a new power plant was generating the island's electricity, and the TPA Site 9 power plant was shut down (Bureau of Commercial Fisheries 1964). Aerial photographs indicate that by 1967 the 11 ASTs and appurtenances had been removed from the site (Bureau of Land Management 1967). The TPA designated this site the "Old Power Plant" (NOAA 1996). Currently, the OPP building is vacant.

### Site Investigations:

In 1992, Ecology & Environment, Inc. (E&E) conducted a preliminary assessment of various sites on St. George Island, including the OPP. Findings from this investigation indicated that ASTs had been removed from the OPP during the 1960s (E&E 1993).

In 1995, Hart Crowser, Inc. (Hart Crowser) conducted an expanded site inspection of the OPP. The inspection included the collection of surface and subsurface soil samples to characterize the potential extent of contamination. Analytical results from these samples indicated that diesel-range organic compounds (DRO) and residual-range organic compounds (RRO) were present at concentrations above cleanup levels established by ADEC. In addition, Hart Crowser inspected the beach area below the cliff located north of the OPP building for indications of contaminant

migration. The inspection revealed two groundwater seeps along the cliff, but no signs of contamination were noted (Hart Crowser 1997).

In 2001, Tetra Tech EM Inc. (Tetra Tech) conducted a site characterization at the Former Fuel Storage Area (TPA Site 18), which included the collection of soil samples within an area later included in TPA Site 9 remedial actions. Analytical data from this investigation indicated the presence of DRO contamination, and two locations where lead was found at concentrations above the ADEC Method Two residential land use cleanup criterion of 400 milligrams per kilogram (mg/kg) (Tetra Tech 2002, ADEC 2004).

In 2003, NOAA collected six subsurface soil samples from the north side of the OPP to investigate anecdotal reports of waste oil and transformer dielectric dumping at this location. Samples were analyzed for DRO, RRO and polychlorinated biphenyl (PCB). Analytical results indicated that all six samples exceeded the ADEC Method Two cleanup level for DRO; RRO was detected, but did not exceed the ADEC criterion; and PCB was not detected in any of the samples (NOAA 2004).

In 2004, Tetra Tech collected PCB confirmation samples from the north side of the OPP. PCB was not detected in any of the confirmation samples (Tetra Tech 2005a).

From 2001 to 2004, Tetra Tech conducted groundwater sampling in the vicinity of the OPP; samples were analyzed for DRO, gasoline range organics (GRO), volatile organic compounds (VOC), semivolatile organic compounds (SVOC), and metals. Analytical results indicated that DRO concentrations, at 2.2 milligrams per liter (mg/L), had exceeded the ADEC Table C cleanup criterion of 1.5 mg/L (ADEC 2004) in the perched, non-tidally influenced groundwater found in monitoring well TPA9-MW1A; however, all contaminant levels were found below ADEC cleanup criteria in the tidally influenced groundwater aquifer monitored by wells TPA9-MW1, TPA9-MW2, TPA18-MW1, and TPA18-MW2 (Figure 3, Tetra Tech 2005b).

### **Corrective Actions:**

NOAA performed corrective actions in accordance with 18 AAC 75, Articles 3, 6, and 9. In June 2004, approximately 17 cubic yards of soil was excavated from the two locations where the 2001 Tetra Tech investigation found lead above the ADEC cleanup criterion. Confirmation sampling verified that remaining lead concentrations in the soil were below ADEC requirements (Tetra Tech 2005a).

Excavation of petroleum-contaminated soil (PCS) at the OPP began on July 22, 2004 and was completed on August 4, 2004 (Tetra Tech 2005a). Initial areas of excavation were selected based on contamination identified during previous investigations, while the extent of excavation was determined based on thin-layer chromatography (TLC) screening sample analyses as well as visual and olfactory observations. During this corrective action, PCS was removed in three noncontiguous excavations because of the presence of an active sewer line and the OPP building (Figure 4). Excavation was conducted to the maximum extent practicable. The extent of each excavation was expanded vertically and laterally in all directions until TLC screening sample

analyses indicated that concentrations of contaminants were below ADEC Method Two cleanup levels, or until the presence of obstructions (e.g., utilities, structures, or equipment refusal) prevented further excavation.

The south excavation extended southwesterly from the southwest portion of the OPP building and was bordered to the northwest by the active sewer line, to the northeast by the OPP building, and to the southeast by Zapadni Road (Figures 4 and 5). Depths of excavation in this area varied from approximately 1 foot below ground surface (bgs) in the southwest portion to 10 feet bgs closer to the OPP building. Refusal was encountered throughout the area because of bedrock and large boulders. Twenty-four confirmation samples were collected from the south excavation; this total includes 11 samples collected from the bottom and 13 samples collected from the sidewalls.

The northwest excavation extended from north of the OPP building to the southwest, and was bordered to the north by a cliff and to the southeast by the active sewer line (Figures 4 and 6). Depths of excavation in this area varied from 1 to 5 feet bgs. Refusal was encountered throughout the excavation because of bedrock and large boulders. In addition, excavation in the northernmost portion of this area was limited because of erosion and stability concerns associated with the cliff that slopes steeply down to the Bering Sea. Thirty-two confirmation samples were collected from the northwest excavation; this total includes 14 samples collected from the bottom and 18 samples collected from the sidewalls.

The northeast excavation extended along the north and east sides of the OPP building. This area was bordered to the south and west by the OPP building, to the north by the active sewer line and to the east by Zapadni Road (Figures 4 and 7). Depths of excavation in this area varied from 1.5 to 3 feet bgs. Refusal was encountered throughout the excavation because of bedrock and large boulders. Thirteen confirmation samples were collected from the northeast excavation; this total includes 4 samples collected from the bottom and 9 samples collected from the sidewalls.

Confirmation samples were analyzed for DRO, RRO, benzene, toluene, ethylbenzene, xylene, polynuclear aromatic hydrocarbons and PCB. Analytical results indicated that DRO remained in soils at concentrations above its ADEC Method Two cleanup levels in each of the excavations, primarily within the immediate vicinity of the OPP building. RRO contamination above its ADEC Method Two cleanup level remains in one location. No other contaminants were found above applicable cleanup requirements. Figures 5 through 7 show the sampling locations, analytical results above ADEC cleanup criteria, and excavation limiting factors.

Approximately 1,230 cubic yards of PCS was excavated from the OPP site, and transported directly to the ADEC-approved NOAA petroleum-contaminated soil stockpile located off Zapadni Road to the west of the City of St. George (Figure 1). Thirteen characterization samples were collected from PCS hauled to the stockpile for fixed laboratory analyses.

The excavations were backfilled with clean material when either TLC screening sample analyses indicated contaminant concentrations below ADEC Method Two cleanup levels, or further excavation was not practicable (Tetra Tech 2005a). Fill material was compacted by using the

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excavator bucket and track-walking the excavator over the area, or by using a bulldozer to spread and compact the material. The OPP site was restored to its original grade, erosion control matting was placed over the disturbed areas, and a mixture of native seed and fertilizer was spread to promote the re-growth of vegetation. Backfilling and site restoration activities were completed on August 5, 2004.

**Conclusion:** The ADEC Method Two, Table B2, Under 40 Inch Zone, cleanup criteria for DRO and RRO are as follows:

	Inhalation (mg/kg)	Ingestion (mg/kg)	Migration to groundwater (mg/kg)
DRO	10,250	12,500	250
RRO	10,000	22,000	11,000

As indicated in Figures 5 through 7, most remaining soil contamination at TPA Site 9 exists in concentrations well below the ADEC inhalation and ingestion criteria, and only moderately above the migration to groundwater criterion. Various obstructions make further excavation of contaminated soil impracticable. Groundwater sampling has indicated that perched groundwater (approximately 10 ft bgs, Tetra Tech 2003) in the area has been impacted by DRO; the main groundwater aquifer has not been contaminated (Tetra Tech 2005b). Potential future impact to groundwater has been mitigated with the excavation of approximately 1,230 cubic yards of PCS.

**Recommended Action:** In accordance with paragraph 59 of the Two Party Agreement (NOAA 1996), NOAA requests written confirmation that NOAA completed all appropriate and corrective action, to the maximum extent practicable, at the Old Power Plant, TPA Site 9/NOAA Site 9 in accordance with the Agreement and that ADEC grant a conditional closure not requiring further remedial action from NOAA. NOAA understands ADEC will/may require additional containment, investigation, or cleanup if subsequent information indicates that the level of contamination that remains does not protect human health, safety, or welfare, or the environment.



**References:**

- ADEC 2004. Title 18 of the *Alaska Administrative Code 75*, Articles 3, 6, and 9. Oil and Hazardous Substances Pollution Control Regulations. State of Alaska. Amended through January 30, 2005.
- Bureau of Commercial Fisheries 1964. *Tank Farm Location Plan, St. George Island, Pribilof Islands, Alaska, Drawing No. 6 FA STG-1-59.0*. January 15.
- Bureau of Land Management 1967. *Aerial Photographs, Village of St. George Island*.
- E&E 1993. *Preliminary Assessment of National Oceanic and Atmospheric Administration Sites, Pribilof Islands, Alaska*. February.
- Hart Crowser, Inc. 1997. *Expanded Site Inspection, St. George Island, Pribilof Islands, Alaska*. January.
- NOAA 1996. *Pribilof Islands Environmental Restoration Two-Party Agreement, Attorney General's Office File No. 66-1-95-0126*. January 26.
- NOAA 2004. *Final Corrective Action Plan for Petroleum and Lead Contaminated Soil Removal at the Old Power Plant (Two-Party Agreement Site 9), St. George Island, Alaska*. June 4.
- Scheffer, Dr. Victor B. 1948. *Aerial Photographs, Village of St. George Island*. July 15.
- Tetra Tech 2002. *Draft Site Characterization Report, Former Fuel Storage Area, Two-Party Agreement Site No. 18, Pribilof Islands Site Restoration, St. George Island, Alaska*. April 19.
- Tetra Tech 2003. *Draft Field Investigation Report, Pribilof Islands Environmental Restoration Project, St. George Island, Alaska*. May 6.
- Tetra Tech 2005a. *Final Corrective Action Report, Site 9/TPA Site 9 – Old Power Plant, St. George Island, Alaska*. July 6.
- Tetra Tech 2005b. *Final Field Investigation Report, Pribilof Islands Environmental Restoration Project, St. George Island, Alaska*. June 23.
- U.S. Bureau of Fisheries (USBF) 1936. *Annual Report, 1936, Alaska Fishery and Fur Seal Industries*.
- USBF 1937. *Annual Report, 1937, Alaska Fishery and Fur Seal Industries*.

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TPA Site 9/NOAA Site 9  
St. George Island, Alaska

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**For the National Oceanic and Atmospheric Administration**

  
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John Lindsay  
NOAA, Pribilof Project Office

9-15-05  
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 Old Power Plant, St. George TPA Site 9/NOAA Site 9, in accordance with the Agreement and that no plan for further remedial action is required.

**For the Alaska Department of Environmental Conservation**

  
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Louis Howard  
Alaska Department of Environmental Conservation  
Remedial Project Manager

9/22/05  
Date

## Figures

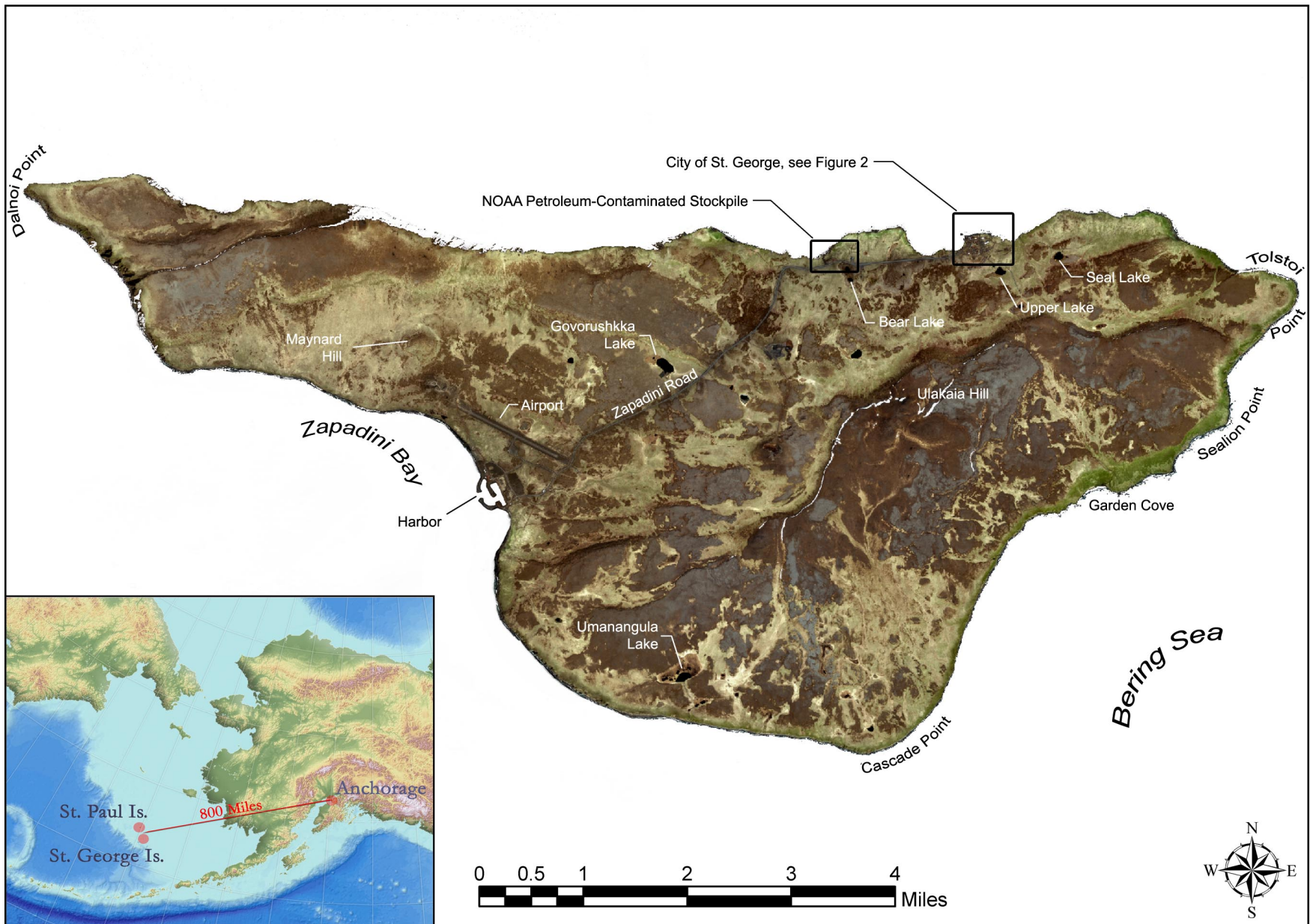


Figure  
1

**Island Vicinity Map  
Old Power Plant  
TPA Site 9/NOAA Site 9  
St. George Island, Alaska**

Source: Ikonos 2001 Satellite Image







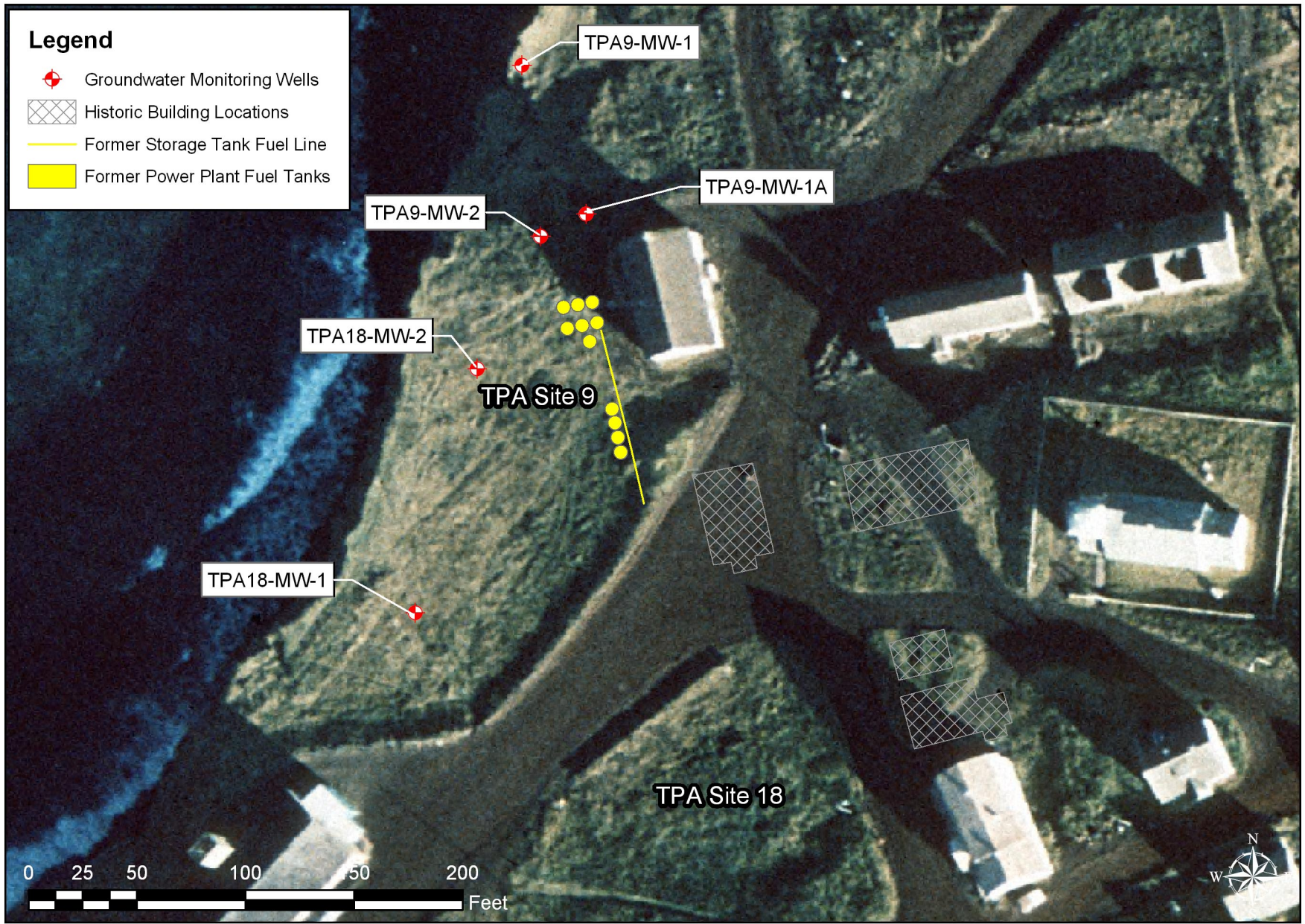
Figure  
2

**Property Description Map  
Old Power Plant  
TPA Site 9/NOAA Site 9  
St. George Island, Alaska**

Source: AeroMap U.S. 9/28/96 Aerial Photograph; Bureau of Land Management Land Survey Filed February 15, 1985







Figure

3

**Historic Fuel Supply System  
Old Power Plant, TPA Site 9  
Former Fuel Storage Area, TPA Site 18  
St. George Island, Alaska**

Source: AeroMap U.S. Aerial Photograph 9/28/96; Hart Crowser 1996 Expanded Site Inspection; Historic Aerial Photos; Pribilof Project Database





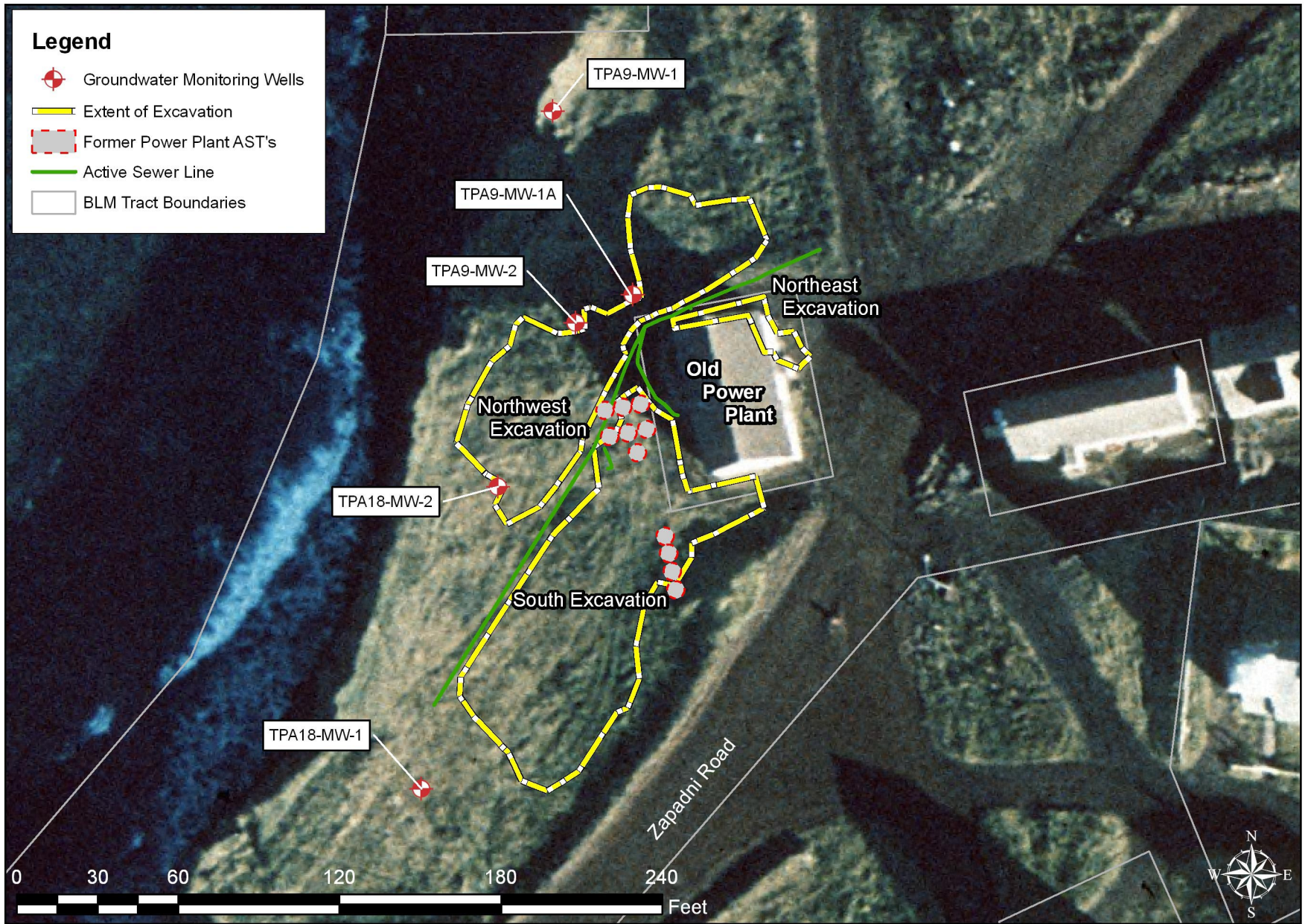


Figure  
4

**Areas of Petroleum Contaminated  
Soil Excavation  
Old Power Plant  
TPA Site 9/NOAA Site 9  
St. George Island, Alaska**

Source: AeroMap U.S. 9/28/96 Aerial Photograph; Bureau of Land Management Land Survey Filed February 15, 1985





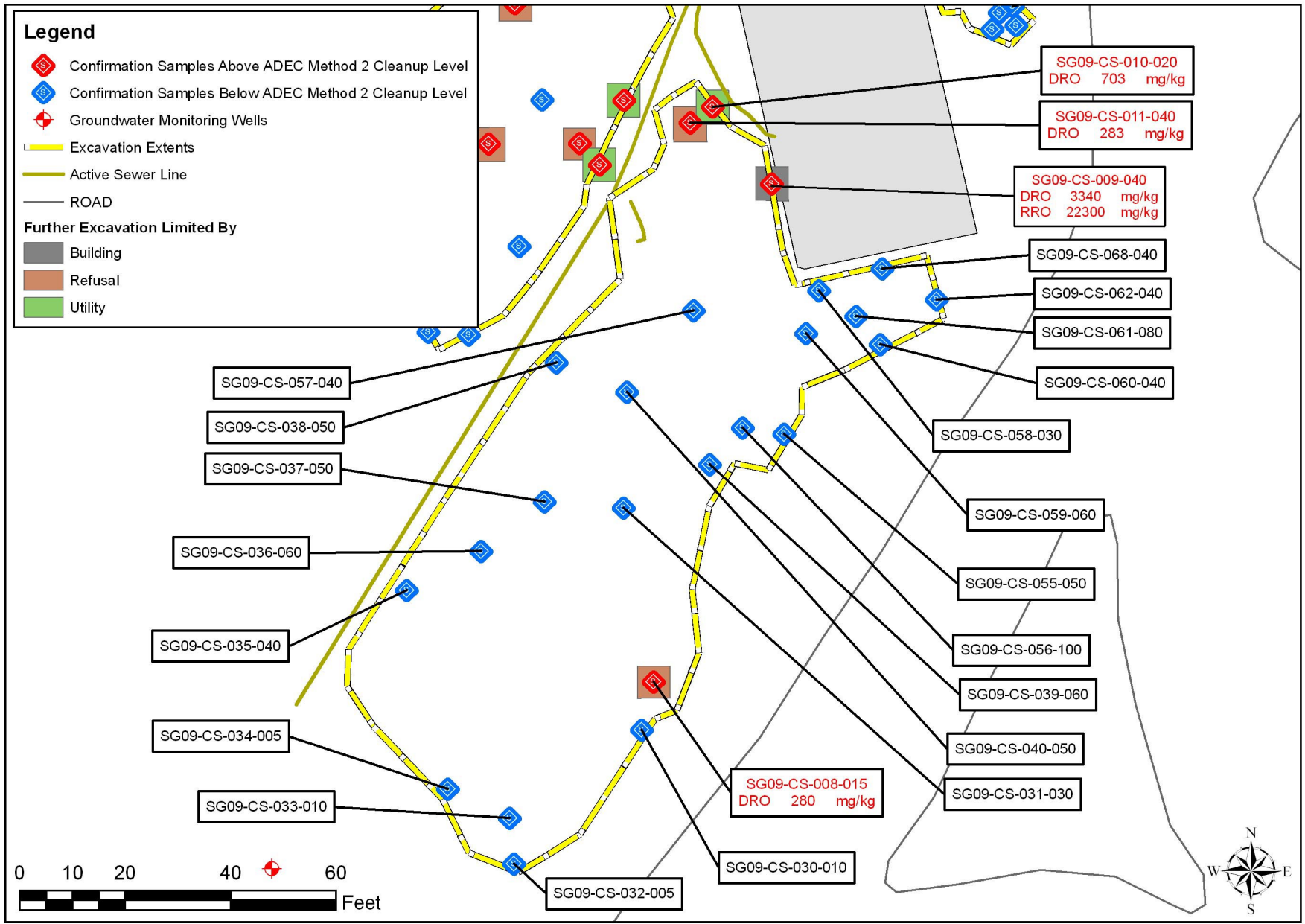


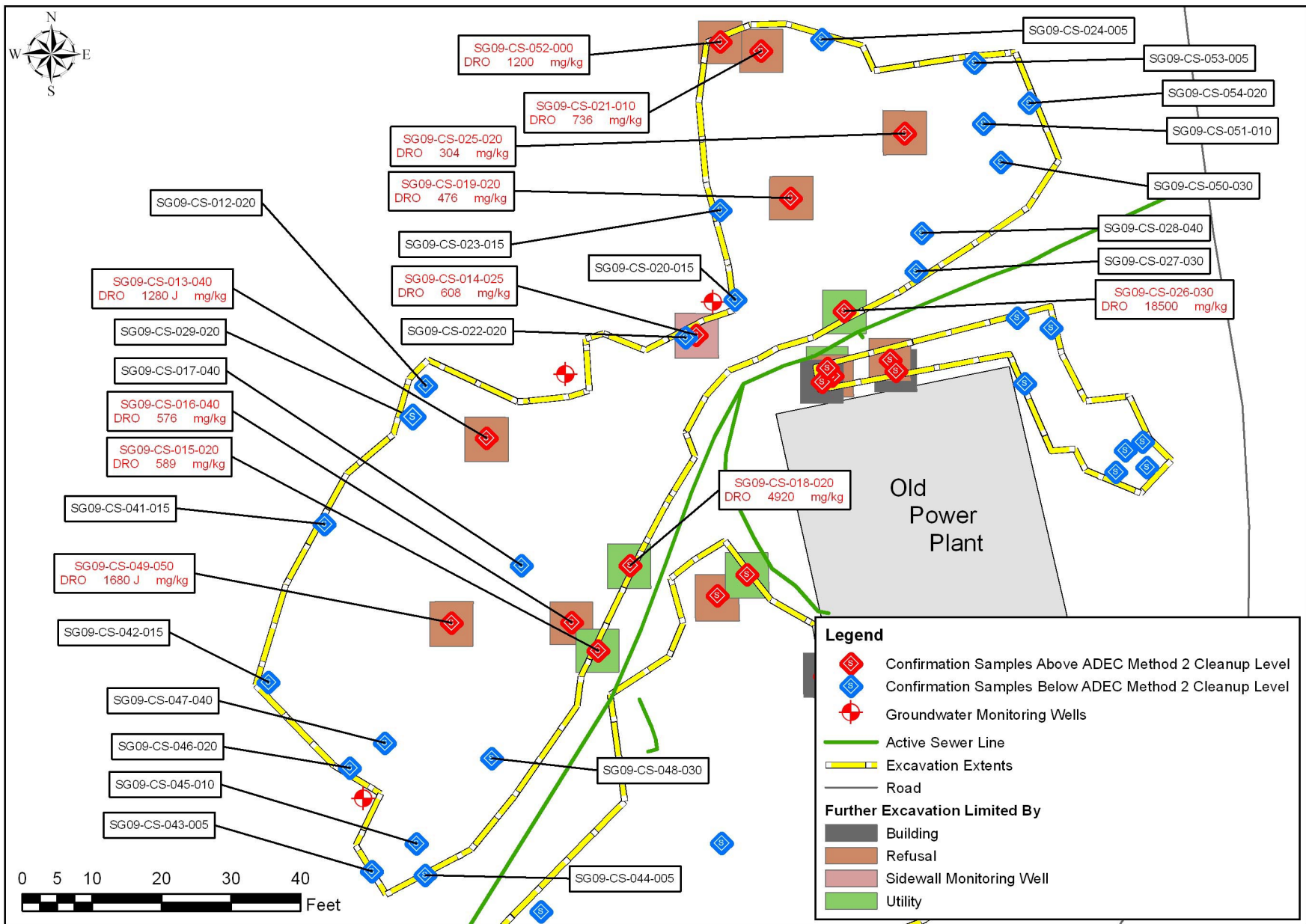
Figure  
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**South Excavation Sampling Location Map  
Old Power Plant  
TPA Site 9/NOAA Site 9  
St. George Island, Alaska**

Source: Survey Data Collected by  
Pribilof Project Staff July 2004







Figure

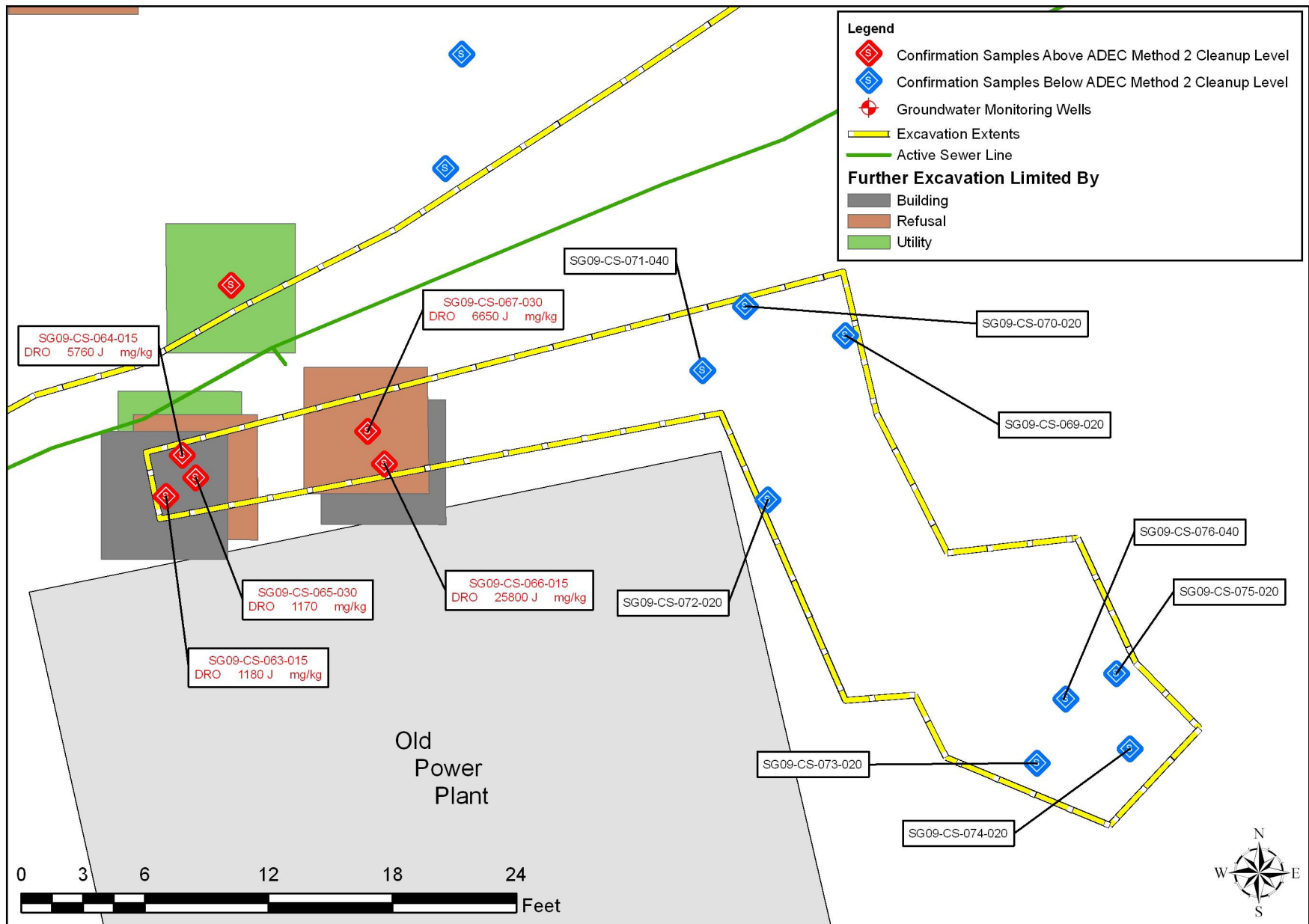
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**Northwest Excavation Sampling Location Map  
Old Power Plant  
TPA Site 9/NOAA Site 9  
St. George Island, Alaska**

Source: Survey Data Collected by Pribilof Project Staff July 2004

Note: J - Analyte was positively identified, but the numerical value is an estimated concentration.





Figure

7

**Northeast Excavation Sampling Location Map  
Old Power Plant  
TPA Site 9/NOAA Site 9  
St. George Island, Alaska**

Source: Survey Data Collected by Pribilof Project Staff July 2004

Note: J - Analyte was positively identified, but the numerical value is an estimated concentration.

