

Request for Conditional Closure

Site: Inactive Gasoline Tank Farm, also known as Two Party Agreement (TPA) Site 24, National Oceanic and Atmospheric Administration (NOAA) Site 28, Inactive Gas Tank Farm, and the Gas Tank Farm. The site will be referred to as the “site” herein.

Location: St. George Island, Alaska is approximately 800 miles southwest of Anchorage in the Bering Sea. On the island, the site is situated east of St. George Village, (Figures 1 and 2), north of the Abandoned Diesel Tank Farm (TPA Site 23) and immediately south of the Bering Sea (56°36’9.85’’ North Latitude, 169°32’30.15’’ West Longitude).

Legal Property Description: The area of excavation is Tract 45 in Section 29, Township 41 South, Range 129 West of the Seward Meridian, Alaska, as shown on the plat of rectangular net survey, officially filed February 15, 1985 (Figure 2). The City of St. George owns the property within the area of excavation. [Note: TPA site boundaries are not defined in the TPA. At its discretion, NOAA established a boundary for this TPA site based on site characterization data and historic information.]

Type of Release: Potential release mechanisms include: 1) leaks associated with the storage of gasoline fuel in seven aboveground fuel storage tanks (ASTs) and their appurtenances; and 2) leaks associated with gasoline and diesel fuel transfers within the pipeline that crossed the site.

History and Background:

The U.S. Fish and Wildlife Service (USFWS) constructed and placed into operation the gasoline fuel storage facility in the late 1960s. It consisted of three 8,000-gallon ASTs on concrete saddle foundations, a pump house, and a pipeline that ran from East Landing, through the site, to a diesel fuel storage facility, now called TPA Site 23. The pipeline constitutes the North-South Cargo Fuel Pipeline (TPA Site 25-2). In 1971, the NOAA National Marine Fisheries Service (NMFS) replaced the USFWS in the administration and management of the island. In October 1983, the City of St. George operated the facility after NOAA relinquished administration and management of the island. NOAA transferred the facility and underlying real estate to the City of St. George by Quit Claim Deed in May 1986 (NOAA 1986). Between October 1983 and 1993, four additional ASTs were added to the site. Two 15,000-gallon ASTs on steel support cradles were added first, then two 1,100-gallon ASTs were added later and were placed directly on the ground surface. In 1992, the facility was still in use and the City replaced the aboveground portion of the pipeline from East Landing to the site. In 1993, the City abandoned the site after the Delta Western fuel depot and gasoline station at St. George Harbor became operational (BLM 1967; Black-Smith & Richards 1985; NOAA 1986; E & E 1993; USACE 1994; Hart Crowser 1995).

The site is currently unused, and the nearest residence and the St. George School are approximately 350 feet (ft) southwest of the site (Figure 2).

Summary of Site Investigations:

In 1992, a Preliminary Assessment identified stained soils at the site (E&E 1993). During the Expanded Site Inspection (ESI) in 1995, Hart Crowser detected petroleum odors in the vicinity

of the 1,100-gallon ASTs (Hart Crowser 1997). Hart Crowser identified seven tanks at the site during the ESI; four of the tanks were within a divided earthen berm measuring 32 feet (ft) by 82 ft, and the other three tanks were outside of the berm. (Hart Crowser 1997).

Hart Crowser advanced four hand auger borings and excavated four test pits during the ESI (Figure 3). The near-surface soil consisted of sandy gravel and gravelly sand. Excavation refusal was encountered between 5 and 9 feet below ground surface (bgs). The ESI field laboratory analyzed nineteen soil samples for total petroleum hydrocarbons (TPH) using Method 8015 (modified) and benzene, toluene, ethylbenzene and total xylenes (BTEX) using a Photovac portable analytical instrument. The TPH method quantified specific ranges of hydrocarbons, similar to current Alaska Department of Environmental Conservation (ADEC) analytical methods AK-101, AK-102, and AK-103. An off-island project laboratory analyzed one sample from each test pit and boring (eight total samples) for gasoline-range organics (GRO), BTEX, and total lead analysis.

ESI sample analysis results indicated that site soil was contaminated with GRO and diesel-range organics (DRO) from the ground surface to refusal at up to 9 ft bgs. GRO was found at up to 1,800 milligrams per kilogram (mg/kg) and DRO was found at up to 3,300 mg/kg. The ADEC Method Two soil cleanup levels for GRO and DRO at the site are 300 mg/kg and 250 mg/kg, respectively. Total lead was found at concentrations ranging from 2.2 to 15 mg/kg, which are less than the ADEC Method Two residential soil cleanup level of 400 mg/kg. The ESI concluded that approximately 80 cubic yards of petroleum contaminated soil (PCS) were above site cleanup levels and would require removal and disposal (Hart Crowser 1997). (Figure 3) Hart Crowser recommended excavation and removal of 80 cubic yards of PCS from the site.

In 2001, Tetra Tech EM Inc. (TTEMI) installed one monitoring well at the site while evaluating groundwater at and near St. George Village. TTEMI installed two additional groundwater monitoring wells in 2002 to address potential impacts to groundwater caused by PCS at the site (Figure 4). Monitoring well TPA24-MW-1 is at the upgradient portion of the site while monitoring wells TPA24-MW-2 and TPA24-MW-3 are at the downgradient portion of the site. Nearby well MW22.1-MW-1, located at the St. George School, is approximately 500 feet upgradient of the site (Figure 4). Groundwater in the vicinity of the site is thought to flow northerly to northeasterly away from the site, toward the Bering Sea (Figure 4).

NOAA contractors conducted groundwater monitoring in October 2001, October 2002, August 2003, November 2003, January 2004, and April 2004. During the sampling events, none of the wells at the site had contamination above ADEC Table C levels of concern (Figure 4).

Groundwater at the site is found approximately 45 ft bgs. Groundwater at MW22.1-MW-1 had DRO contamination as high as 860 micrograms per liter ($\mu\text{g/L}$), which is less than the ADEC Table C cleanup level of 1,500 $\mu\text{g/L}$.

Summary of Applied Cleanup Levels:

NOAA employed ADEC Method Two cleanup criteria, discussed at 18 AAC 75.341(c) (ADEC 2000). An alternative cleanup level (0.5 mg/kg) was applied 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 AAC 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. Cleanup criteria were applied to the maximum extent practicable (18 AAC 75.325 (f), 18 AAC 75.990).

Summary of Cleanup Actions:

The ASTs and their appurtenances were removed in 1997 (Polarconsult 1997), and subsequently disposed off-island as scrap metal. No soil removal was performed in 1997.

Corrective actions related to PCS removal were performed in 2002 and 2003. The corrective action objectives called for removing and transporting contaminated soil to the NOAA long-term PCS stockpile and confirming the removal of all soil exceeding the ADEC Method Two cleanup levels (ADEC 2000), consistent with an ADEC-approved corrective action plan (Polarconsult 2002). NOAA pursued these objectives until all petroleum contamination at or above the cleanup levels was removed, the excavation encroached into another TPA site (i.e. TPA Site 25-2), refusal (i.e. more competent pyroclastic material) was experienced, the excavation reached depths greater than 15 ft bgs, or continued excavation threatened to destabilize the adjacent road to TPA Site 6 (Open Pits Site) and the East Rookery.

Corrective action activities involved the removal and transport of 1,731 cubic yards of contaminated soil to the PCS Stockpile for remediation (Figure 5). Recovery of contaminated scoria and welded tuff was discontinued in some areas due to refusal. The maximum depth of excavation at the site was approximately 16 ft bgs. The minimum vertical distance from contaminated soil at the bottom of the excavation to the regional aquifer below was estimated as 30 ft (Polarconsult 2003).

Following the removal of contaminated soil, confirmation samples were collected from the final extents of the excavation and from soil stockpiles generated during the project. The soil samples were analyzed for GRO, DRO, residual-range organics (RRO), BTEX, and lead. GRO, DRO, toluene, ethylbenzene, and total xylenes were detected in the excavation confirmation soil samples above the site cleanup levels at six of the 76 sampling locations (Figures 6 and 7). The site cleanup levels for toluene, ethylbenzene, and total xylenes are 5.4 mg/kg, 5.5 mg/kg, and 78 mg/kg, respectively (Polarconsult 2002). The maximum concentrations of these contaminants at the site after the 2002 corrective action were GRO at 2,050 mg/kg, DRO at 2,870 mg/kg, toluene at 147 mg/kg, ethylbenzene at 84.6 mg/kg, and total xylenes at 389 mg/kg. Benzene, RRO and lead were not detected above cleanup levels at the site (Polarconsult 2002). Benzene was detected at an estimated 0.0837 mg/kg, above its ADEC Method Two cleanup level of 0.02 mg/kg but below its site cleanup level (i.e. 1991 cleanup level) of 0.5 mg/kg.

Stockpile samples collected from PCS transported to NOAA's stockpile indicated DRO and benzene at maximum concentrations of 3,020 mg/kg and 0.343, respectively. All other contaminants were below ADEC Method Two cleanup levels (Polarconsult 2003). A total of six stockpiles were temporarily staged on site to determine whether the soil in the stockpiles was contaminated above site cleanup levels or satisfactory for use as clean backfill. Three of the stockpiles were found to contain DRO above the site cleanup level of 250 mg/kg, with a

maximum of 2,540 mg/kg. These three stockpiles were hauled to NOAA's off-site PCS stockpile. The other three on-site stockpiles were below site cleanup levels for all contaminants and were used as clean backfill. The PCS hauled to NOAA's stockpile in 2002 was remediated with NOAA's enhanced thermal conduction (ETC) system by thermal desorption.

Additional PCS was removed from the northwest portion of the site in 2003 during the corrective action for the adjacent TPA Site 25-2. The soil found contaminated in 2002 samples SG-24-015D and SG-24-065 was removed (Figures 7 and 8). This PCS was added to NOAA's PCS stockpile and currently awaits beneficial industrial use as soil berm construction material for the City of St. George's new landfill.

Laboratory reporting limits were below ADEC Method Two cleanup levels for all contaminants except benzene. For benzene, reporting limits of 0.0884 mg/kg or lower 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. Concentrations of all other contaminants in confirmation samples collected were below the ADEC Method Two cleanup levels.

Recommended Action:

In accordance with paragraph 59 of the Two Party Agreement (NOAA 1996), NOAA requests written confirmation that NOAA completed all appropriate and practicable corrective and closure actions at the Inactive Gasoline Tank Farm, TPA Site 24/NOAA Site 28 in accordance with the Agreement and that ADEC grant a conditional closure that will not require further remedial action from NOAA.

References:

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

For the National Oceanic and Atmospheric Administration



John Lindsay
NOAA, Pribilof Project Office

11-24-04
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 Inactive Gasoline Tank Farm, TPA Site 24/NOAA Site 28, 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

Dec 14, 2004
Date

Figures

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Inactive Gasoline Tank Farm, TPA Site 24/NOAA Site 28
St. George Island, Alaska

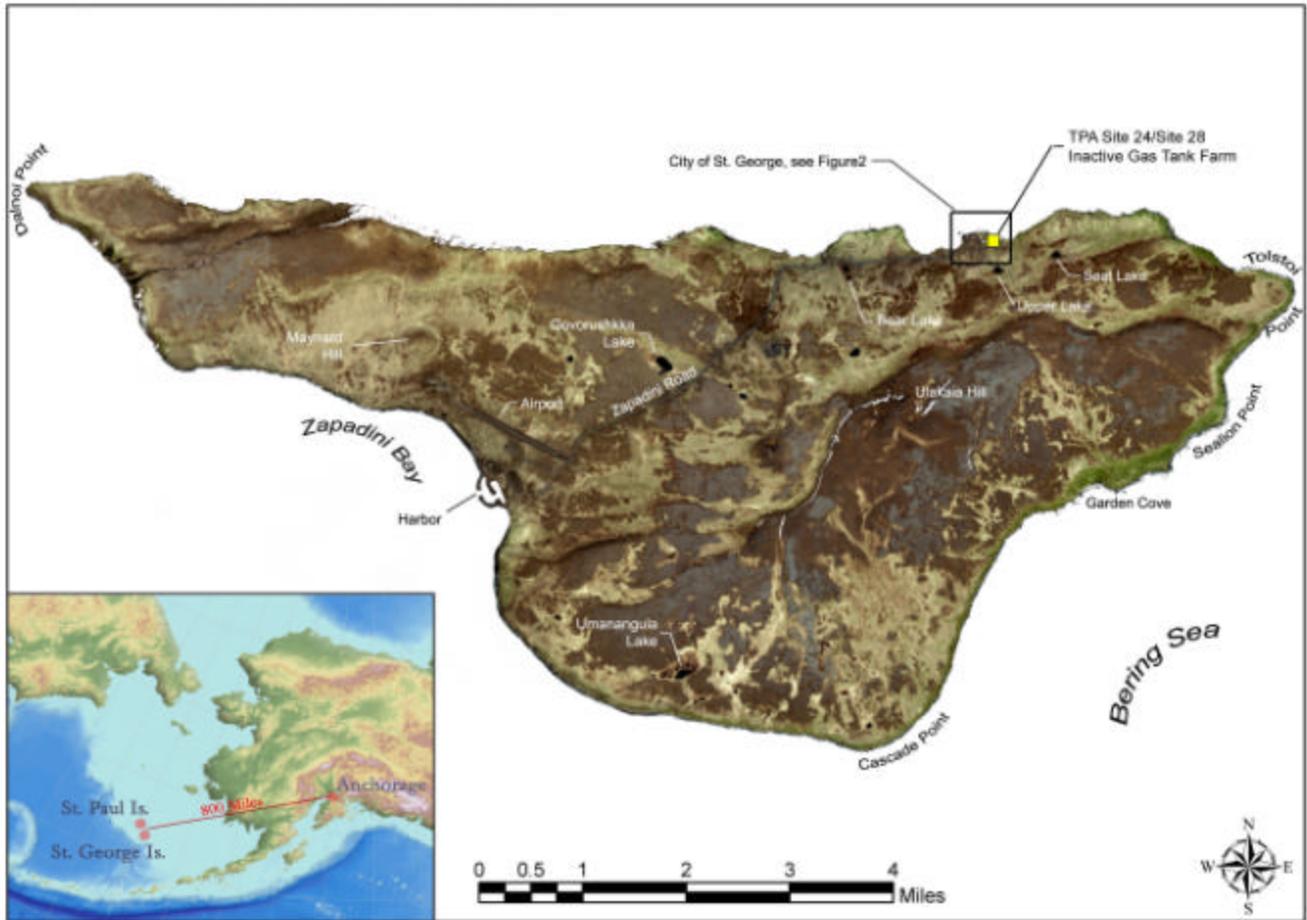


Figure
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**Island and Vicinity Map
Inactive Gas Tank Farm
TPA Site 24/NOAA Site 28
St. George Island, Alaska**

Source: Ikonos 2001 Satellite Image



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Figure 2	Legal Property Description Map Inactive Gasoline Tank Farm TPA Site 24/Site 28 St. George Island, Alaska	Source: AeroMap U.S. 9/28/96 Aerial Photograph; Bureau of Land Management Land Survey Filed February 15, 1985
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Photo #1: View Northwest, Early stages of TPA 24 Inactive Gas Tank Farm Excavation.



Photo #2: View Northwest, Finishing of TPA 24 Inactive Gas Tank Farm Excavation.



Photo #3: View South, Sampling of TPA 24 Inactive Gas Tank Farm Excavation.



Photo #4: Exposing the liner placed along contaminated wall of TPA 24 Inactive Gas Tank Farm Excavation, during the 2003 excavation of the Port Fuel Supply Line N-S (TPA 25-2).

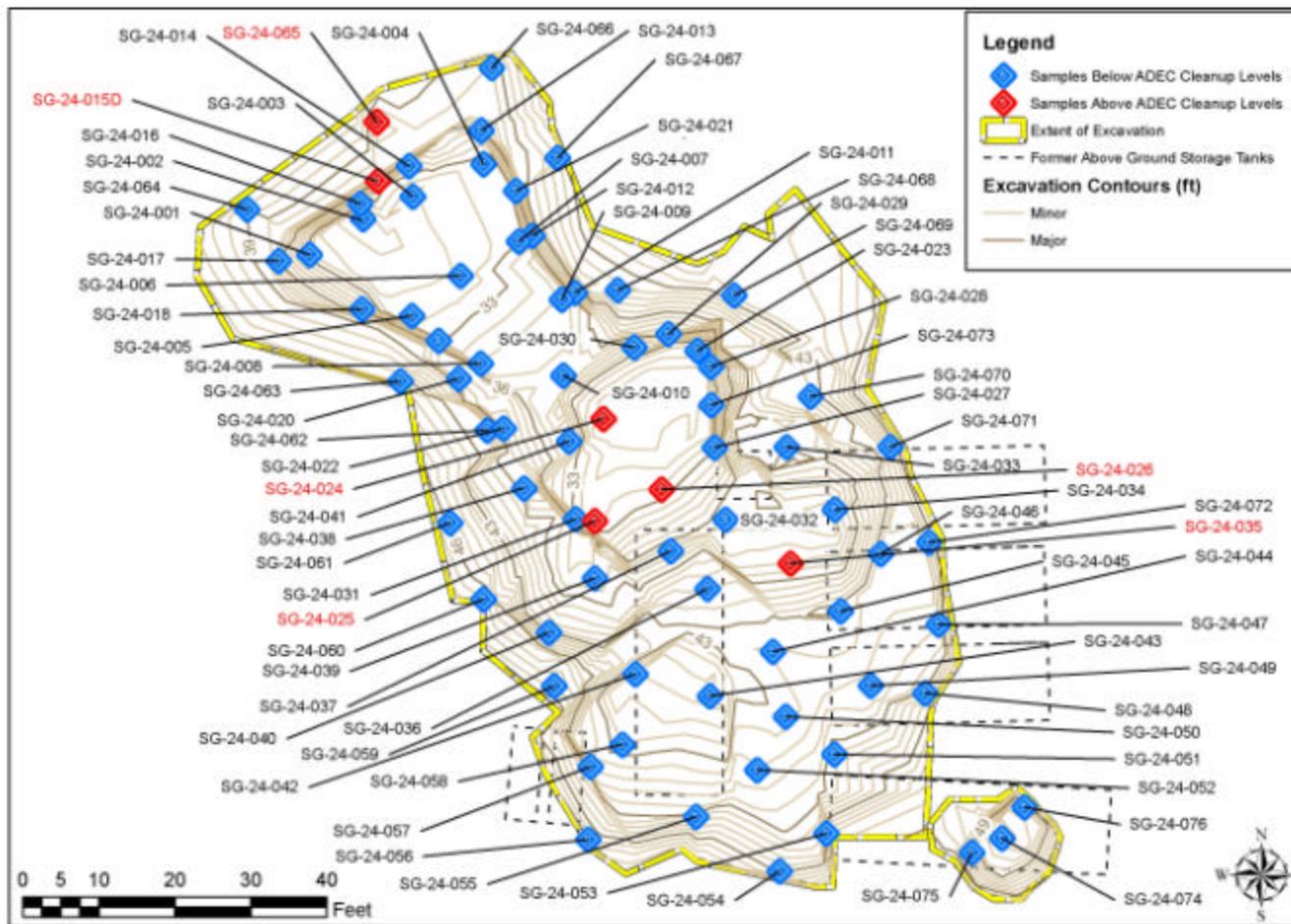
Figure
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**Excavation Photos
Inactive Gas Tank Farm
TPA Site 24/Site 28
St. George Island, Alaska**

Source: Pribilof Project Photo Archive

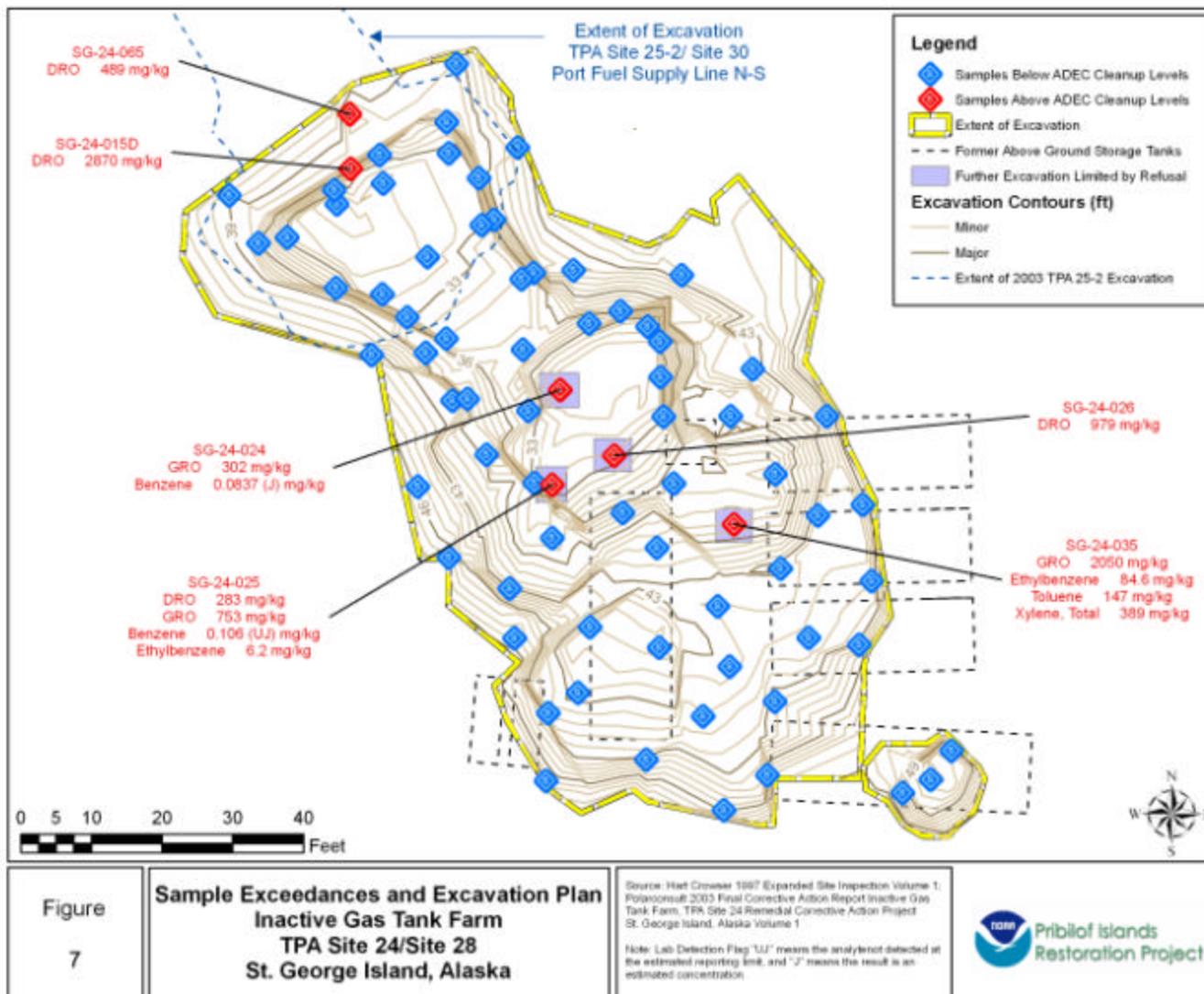


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<p>Figure 6</p>	<p>Excavation and Sample Location Plan Inactive Gas Tank Farm TPA Site 24/Site 28 St. George Island, Alaska</p>	<p>Source: Hart Crowser 1997 Expanded Site Inspection Volume 1; Polarconsult 2003 Final Corrective Action Report Inactive Gas Tank Farm, TPA Site 24 Remedial Corrective Action Project St. George Island, Alaska Volume 1</p>	
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