Conditional Closure Request

Site: Old Carpenter Shop, also known as St. George Island Two Party Agreement (TPA) Site 19 and as National Oceanic and Atmospheric Administration (NOAA) Site 19.

Location: St. George Island, Alaska is approximately 800 miles southwest of Anchorage in the Bering Sea (Figure 1). TPA Site 19 is located in the City of St. George at 56° 36' 8.54" N latitude, 169° 32' 53.89" W longitude (Figure 2).

Legal Property Description: TPA Site 19 is in Tract 52, 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 property is owned by the City of St. George.

Type of Release: Soil at TPA Site 19 was contaminated with lead, largely found in a distinct soil layer located from 0.5 to 3 feet below the ground surface (bgs) outside the perimeter of the abandoned carpenter shop foundation.

History and Background: The Old Carpenter Shop was constructed in 1921 as a two and one-half story structure with a basement. Two aboveground storage tanks (ASTs), reportedly used for kerosene storage, were located just north of the building. Aerial photographs indicate that between 1954 and 1960 the building was demolished with the exception of its foundation, which was covered with backfill. The ASTs were moved to a location southwest of the Tanaq Office/Store (Polarconsult 2004a). The site is currently used as a parking area for a nearby church (Figure 2).

Summary of Site Investigations and Corrective Actions

Site Investigations

In 1996, Hart Crowser conducted an environmental investigation on St. George Island that included TPA Site 19. The site was divided into four quadrants and a surface soil sample (0 to 0.5 feet bgs) was collected from each quadrant (Figure 3). Each sample was analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX); gasoline range organics (GRO); diesel range organics (DRO), and residual range organics (RRO). Analytical results indicated detection of DRO and RRO below Alaska Department of Environmental Conservation (ADEC) cleanup standards, with no detection of GRO and BTEX (Hart Crowser 1997). Hart Crowser's investigation report recommended no further action at TPA Site 19.

In 2001, Tetra Tech EM Inc. (Tetra Tech) conducted an environmental site characterization at TPA Site 19 which consisted of searching for underground storage tanks (USTs) and advancing seven soil borings up to 4 feet bgs (Figure 4). No USTs were located at the site. Thirteen samples were collected from the borings and analyzed at a fixed laboratory for GRO, DRO, RRO, volatile organic compounds (VOC), semi-volatile organic compounds (SVOC) and metals. Analytical results indicated either no detection, or detection well below ADEC cleanup standards for GRO, DRO, RRO, VOC and SVOC. All metals were detected at or below natural

background levels with the exception of lead. Lead was detected at one boring location (TPA19-GP1, Figure 4) at 1,210 milligrams per kilogram (mg/kg), which is above the ADEC Method Two residential cleanup criterion of 400 mg/kg (Tetra Tech 2002). The elevated concentration of lead found at TPA19-GP1 came from the 0 to 2 feet bgs sampling interval. The lead concentration from the 2 to 3.5 feet bgs was 16 mg/kg, indicating a fairly narrow band of lead contaminated soil. Tetra Tech's site characterization report recommended removal of the lead contaminated soil, the volume of which was estimated to be 3.7 cubic yards (Tetra Tech 2002).

Final Corrective Actions

NOAA performed corrective action at TPA Site 19, in accordance with 18 AAC 75, Articles 3, 6, and 9, during the 2002, 2003 and 2004 field seasons. The objectives of this action were to remove soil contaminated with lead in concentrations above the ADEC Method Two cleanup criterion for residential areas (400 mg/kg), perform Resource Conservation and Recovery Act (RCRA) characterization sampling of the removed soil, backfill excavations with clean material, and ship the contaminated soil off-island for proper final disposal.

2002 Field Season

On August 30, 2002, NOAA excavated the area surrounding the location of Tetra Tech sample TPA19-GP1 (Figure 4) to approximately 5 feet bgs and collected soil samples to facilitate delineation of the extent of lead-contaminated soil. In the excavation, a dark layer of soil 1 to 4 inches thick was observed approximately 0.5 to 1.5 feet bgs (Polarconsult 2004a). This distinct soil layer contained glass, paint chips and other debris, and appeared to be the original ground surface prior to demolition of the building. Eleven (plus one duplicate) discrete samples were collected from the excavation bottom and side walls (Figure 5); sample analyses included total lead, Toxicity Characteristic Leaching Procedure (TCLP) lead, GRO, DRO, and BTEX. Analytical results indicated lead was the only contaminant present in concentrations above ADEC cleanup requirements. Five of the eleven samples were collected from the dark layer; of these, four samples had lead concentrations above the ADEC cleanup criterion. All of the samples collected outside of the dark layer had lead concentrations well below the cleanup criterion. Based on these results, the project team decided that the dark layer of soil was a good field indicator for the presence of lead contamination. This excavation produced approximately one cubic yard (CY) of contaminated soil which was placed in a flexible individual bulk container (FIBC) and stored for future off-island disposal.

On October 18, 23, and 24, 2002, NOAA used a Geoprobe to advance 20 boreholes to depths of between 3.5 and 5.5 feet bgs. The boreholes were driven in the area around the August 2002 excavation site and the buried shop foundation. Continuous core samples were collected from each location with the thought that the extent and volume of the dark layer could be determined by examination of the soil within the acetate collection tubes. However, the dark layer was not easily distinguishable within the collection tubes, most likely due to cross section distortion produced during the boring (Polarconsult 2004a).

On October 26, 2002, soil removal recommenced at the site previously excavated in August, and continued radially until the dark soil layer was visually judged to be removed (Figure 6). The southern side of the excavation abutted and exposed the northern shop foundation. Approximately 8 CY of soil containing the dark layer was placed directly into eight FIBCs. Approximately 11 CY of overburden soils, which appeared not to include material from the dark layer, were stockpiled on an impermeable plastic membrane and sampled to determine proper disposition (Polarconsult 2004a). Analytical results indicated that the stockpiled soil was also contaminated with lead; subsequently, this soil was placed in 14 FIBCs for storage and eventual shipment off-island. Twelve confirmation samples, plus two duplicates, were collected from the excavation and analyzed for total lead concentration. Analytical results indicated lead concentrations were below the ADEC criterion at all sample locations with the exception of SG-19-015-0 (Figure 6), where a concentration of 1,550 mg/kg was found (Polarconsult 2004a). Table 1 summarizes confirmation sampling results.

On October 30, 2002, NOAA collected 15 additional soil samples to determine if lead or petroleum contamination was present beyond the extent of the excavation dug on October 26, 2002. Eight boreholes were advanced, using a Geoprobe, to depths up to 7 feet bgs. The boreholes were located in a grid pattern (Figure 7), with two borings placed in the former AST locations. After boring/sampling was completed, the excavation was backfilled with thermally treated soil (Polarconsult 2004b). Boring samples were analyzed for GRO, DRO, RRO, total lead, and BTEX. Analytical results for the boring samples indicated all analyte concentrations were below applicable ADEC cleanup criteria (Polarconsult 2004a).

2003 Field Season

On September 16, 2003, NOAA resumed excavation of lead contaminated soil at the 2002 sample location SG-19-15-0 (Figure 8). Visual indicators of discolored soil and debris were used to determine what soil to remove. However, the "dark layer" of soil that was present in previous excavations was only slightly evident (Polarconsult 2004a). Approximately 3.4 CY of soil was removed and either placed directly into two FIBCs, or stockpiled on an impermeable plastic membrane for characterization sampling. A confirmation sample was collected from the excavation and sent to an off-site laboratory for lead analysis. The analytical result indicated that soil in the excavation was still contaminated with 2,010 mg/kg lead.

From October 20 through 22, 2003, soil excavation continued on the north side of the old building footprint (Figure 9). In addition to visual surveillance for discolored soil, a commercial field screening kit, Hybrivet Systems Inc. LeadCheck For Soil™ (LeadCheck), was used to direct soil removal. LeadCheck uses a dye/lead chemical reaction to produce soil sample color changes to indicate lead concentrations above 300 to 400 mg/kg. As soil excavation proceeded, field samples were collected in areas of highest discoloration or debris content, and LeadCheck was used to determine where lead contamination was still present at concentrations above the cleanup criterion, and/or where soil removal was completed. Approximately 15.4 CY of contaminated soil was removed from the north side of the abandoned foundation and placed directly into FIBCs; overburden soil was stockpiled on an impermeable plastic membrane for characterization sampling. After LeadCheck results indicated that the excavation had lead concentrations below

400 mg/kg, six confirmation samples were shipped for fixed laboratory analyses. Analytical results indicated that soil in the excavation was below 400 mg/kg at all locations with the exception of SG19-CS-023-020 (Figure 9), where a concentration of 10,400 mg/kg was found (Polarconsult 2004a).

On October 23, NOAA excavated a trench along the south and west sides of the foundation (Figure 9) to check for lead contamination. Field notes indicate that a large amount of building debris was encountered during excavation (Polarconsult 2004a). Approximately 12.6 CY was removed and stockpiled on an impermeable plastic membrane for characterization sampling. Seven field samples were collected in the trench from areas where visual observation indicated discolored and/or debris-containing soil. LeadCheck results indicated soil within the trench had lead concentrations below 400 mg/kg; subsequently, five confirmation samples (plus one duplicate) were shipped for fixed laboratory analysis.

On October 25, six field samples were collected from the approximately 16 CY of stockpiled soil (from the north side excavation and south/west side trench), and analyzed using LeadCheck. LeadCheck results indicated that the stockpiled soil had lead concentrations below 400 mg/kg; subsequently, six characterization samples were shipped to an off-site laboratory for analysis.

Analytical results for the trench confirmation samples indicated that soil remained contaminated with lead in concentrations above 400 mg/kg at two locations (Figure 9). Further excavation in 2003 was not practicable due to weather conditions, therefore the north side excavation and south/west side trench were backfilled with clean scoria (Polarconsult 2004b). The stockpile characterization sample analytical results indicated that the stockpiles were also contaminated with lead; subsequently the stockpiled soil was placed in FIBCs for future off-island disposal (Polarconsult 2004a).

2004 Field Season

From June 7 through June 11, 2004, NOAA excavated the locations where 2003 confirmation sampling indicated that lead contaminated soil still remained. To improve field screening for lead, NOAA obtained a Niton 700 Series x-ray fluorescence (XRF) analyzer from the Environmental Protection Agency (EPA). EPA also detailed to NOAA an employee who was experienced in the use of XRF for field screening (NOAA 2004). The XRF, which directly measures lead concentrations in soil, was used to direct excavation. Soil removal continued until XRF readings indicated that the remaining lead concentrations were less than 400 mg/kg; confirmation samples were collected from excavation locations where the XRF indicated the highest remaining levels of lead (Tetra Tech 2005). Approximately 3 CY of soil was removed from the north side of the foundation around Polarconsult sample location SG19-CS-023-020 (Figure10), with one confirmation sample collected. Approximately 33 CY of soil was removed from the south and west sides of the foundation around Polarconsult sample locations SG19-CS-030-020 and SG19-CS-031-030 (Figure10), three confirmation samples were collected (plus one duplicate). The south/west excavation extended to depths of 6 to 8.5 bgs where equipment refusal was encountered due to large boulders (Tetra Tech 2005). All excavated soil was placed into FIBCs.

Analytical results for three of the four confirmation samples indicated lead concentrations below 400 mg/kg (see Table 1); however sample location SG19-CS-213-250 had a concentration of 464 mg/kg (Figure 10). Based on an assessment of the site conditions, it was determined that further excavation in this location was not practicable due to equipment refusal (Tetra Tech 2005). All soil excavated from the site (approximately 36 CY) was placed in FIBCs with characterization samples collected for total lead and TCLP lead. The excavations were backfilled and the site capped with clean scoria (Polarconsult 2004b). Analytical results for the FIBC characterization samples ranged from 135 to 273 mg/kg total lead. TCLP results were well below 5 mg/L, indicating that the excavated soil was not a RCRA hazardous waste.

Final Soil Disposal

In 2002, 2003 and 2004 a total of approximately 90 CY of lead contaminated soil was removed from TPA Site 19, placed into approximately 120 FIBCs, and staged for shipment off-island. The containerized soil had elevated concentrations of lead, however, RCRA TCLP analytical results indicated that it was not a hazardous waste (Polarconsult 2004, Tetra Tech 2005). In September 2004, TPA Site 19's FIBCs, along with FIBCs containing non-RCRA soil from other TPA sites, were shipped to Columbia Ridge Landfill in Arlington, Oregon. Attachment 1 provides manifests and Certificates of Disposal for this soil.

Conclusions and Recommendations

TPA Site 19 is the location of a historic St. George Island carpenter shop. This shop, demolished and removed with the exception of its foundation, was the source of lead contamination of the soil surrounding part of its perimeter. The lead contamination may have resulted from paint flaking from the building's siding, from island boat (Bidar) repairs that are said to have taken place at the shop, or other unknown activities. The lead contaminated soil was largely discernable as a "dark" layer located below the backfill that was used to cover the foundation. This dark layer has been removed, and confirmation sample analytical results indicate that remaining soil at the site is below ADEC cleanup levels with the exception of one location (Tetra Tech sample location SG19-CS-213-250, Figure 10). At 464 mg/kg, the remaining lead concentration at this location is just slightly above the ADEC residential cleanup criterion of 400 mg/kg, and is found at a depth of over eight feet bgs at excavation equipment refusal. NOAA believes it has mitigated the potential for exposure to lead to the extent practicable, and therefore has completed all remedial actions necessary at TPA Site 19.

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 Carpenter Shop, TPA Site 19/NOAA Site 19 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.

TABLE 1
EXCAVATION CONFIRMATION SAMPLING RESULTS

Sample ID	Sample Depth (ft)	Field Screen Method	Date Collected	Fixed Lab Results For Total Lead Concentration (mg/kg)
Final Excavation, 2002, Figure 6, Polarconsult Alaska, Inc.				
SG-19-014-0	Not Noted	Visual	10/30/2002	182
SG-19-015-0	Not Noted	Visual	10/30/2002	1,550 (Removed in 2003)
SG-19-016-0	Not Noted	Visual	10/30/2002	259
SG-19-017-0	Not Noted	Visual	10/30/2002	18.5
SG-19-018-0	Not Noted	Visual	10/30/2002	394
SG-19-019-0	Not Noted	Visual	10/30/2002	37.4
SG-19-019-0 D			10/30/2002	72.9
SG-19-020-0	Not Noted	Visual	10/30/2002	41
SG-19-021-0	Not Noted	Visual	10/30/2002	14.5
SG-19-022-0	Not Noted	Visual	10/30/2002	109
SG-19-023-0	Not Noted	Visual	10/30/2002	41.5
SG-19-024-0	Not Noted	Visual	10/30/2002	15.4
SG-19-025-0	Not Noted	Visual	10/30/2002	313
SG-19-025-0 D			10/30/2002	306
Final Excavation, 2003, Figure 9, Polarconsult Alaska, Inc.				
SG19-CS-022-015	1.5	Visual/LeadCheck™	10/22/2003	24.5
SG19-CS-023-020	2.0	Visual/LeadCheck™	10/22/2003	10,400 (Removed in 2004)
SG19-CS-024-015	1.5	Visual/LeadCheck™	10/22/2003	116
SG19-CS-025-030	3.0	Visual/LeadCheck™	10/22/2003	74.4
SG19-CS-026-020	2.0	Visual/LeadCheck™	10/22/2003	30
SG19-CS-027-020	2.0	Visual/LeadCheck™	10/22/2003	201
SG19-CS-028-010	1.0	Visual/LeadCheck™	10/24/2003	110
SG19-CS-029-025	2.5	Visual/LeadCheck™	10/24/2003	17.5
SG19-CS-030-020	2.0	Visual/LeadCheck™	10/24/2003	989 (Removed in 2004)
SG19-CS-030-dup			10/24/2003	1,420 (Removed in 2004)
SG19-CS-031-030	3.0	Visual/LeadCheck™	10/24/2003	451 (Removed in 2004)
SG19-CS-032-015	1.5	Visual/LeadCheck™	10/24/2003	347
Final Excavation, 2004, Figure 10, Tetra Tech EM, Inc.				
SG19-CS-201-030	3.0	XRF	06/07/2004	89.3
SG19-CS-203-065	6.5	XRF	06/07/2004	109
SG19-CS-213-085	8.5	XRF	06/10/2004	375
SG19-CS-213-dup			06/10/2004	464 (Left in place)
SG19-CS-214-060	6.0	XRF	06/11/2004	277

References:

ADEC 2005. *18 AAC 75, Articles 3, 6 and 9. Oil and Hazardous Substances Pollution Control Regulations*. State of Alaska. Amended through January 30, 2005.

Hart Crowser 1997. *Expanded Site Inspection, St. George Island, Pribilof Islands, Alaska*. Hart Crowser, Seattle, Washington. January.

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

NOAA 2004. Letter from Mr. John Lindsay (NOAA Pribilof Project Office) to Mr. Louis Howard (ADEC) Subject: *Field Screening for Lead Contaminated Soil Using a Field Portable X-Ray Fluorescence Analyzer (XRF), Various Sites, Pribilof Islands, Alaska*. May 17.

Polarconsult 2004a. *Draft Interim Corrective Action Report, Old Carpenter Shop, TPA Site 19, Remedial Corrective Action Project, St. George Island, Alaska*. Polarconsult Alaska, Inc., Anchorage, Alaska. May 28.

Polarconsult 2004b. *Source Area Letter Report of Environmental Findings, 2003 Field Season, St. George Island, Pribilof Islands, Alaska*. Polarconsult Alaska, Inc., Anchorage, Alaska. June 22.

Tetra Tech 2002. *Final Site Characterization Report, Old Carpenter Shop, Two-Party Agreement Site No. 19, Pribilof Islands Site Restoration, St. George Island, Alaska*. Tetra Tech EM Inc., Mountlake Terrace, Washington. March 12.

Tetra Tech 2005. *Final Letter Report, Removal of Lead-Contaminated Soils from TPA Sites 3,9, and 19 and PCB Sampling at TPA Site 9, St. George Island, Alaska.* Tetra Tech EM Inc., Mountlake Terrace, Washington. July 6.

For the National Oceanic and Atmospheric Administration

_____ _____

John Lindsay Date
NOAA, Pribilof Project Office

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 Carpenter Shop, St. George TPA Site 19/NOAA Site 19, in accordance with the Agreement and that no further remedial action is required as a part of this conditional closure granted by ADEC.

For the Alaska Department of Environmental Conservation

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Louis Howard Date
Alaska Department of Environmental Conservation
Remedial Project Manager

Figures

Attachment 1

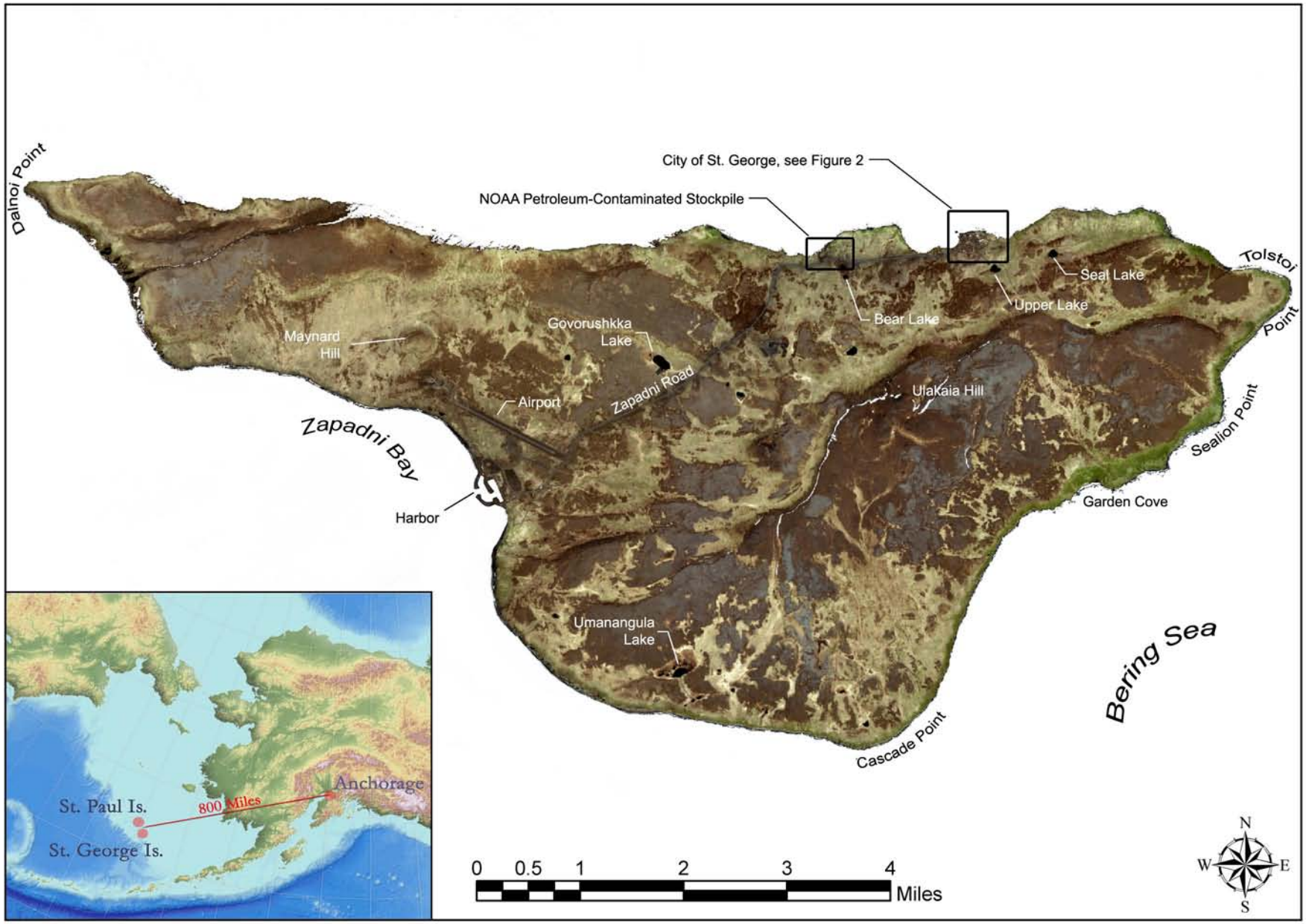

Figure 1	**Island and Vicinity Map Old Carpenters Shop TPA Site 19/NOAA Site 19 St. George Island, Alaska**	Source: Ikonos 2001 Satellite Image

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Figure 2	**Site Location Map Old Carpenter Shop TPA Site 19/NOAA Site 19 St. George Island, Alaska**	Source: AeroMap U.S. 9/28/96 Aerial Photograph;Bureau of Land Management Land Survey Filed Febuary 15, 1985

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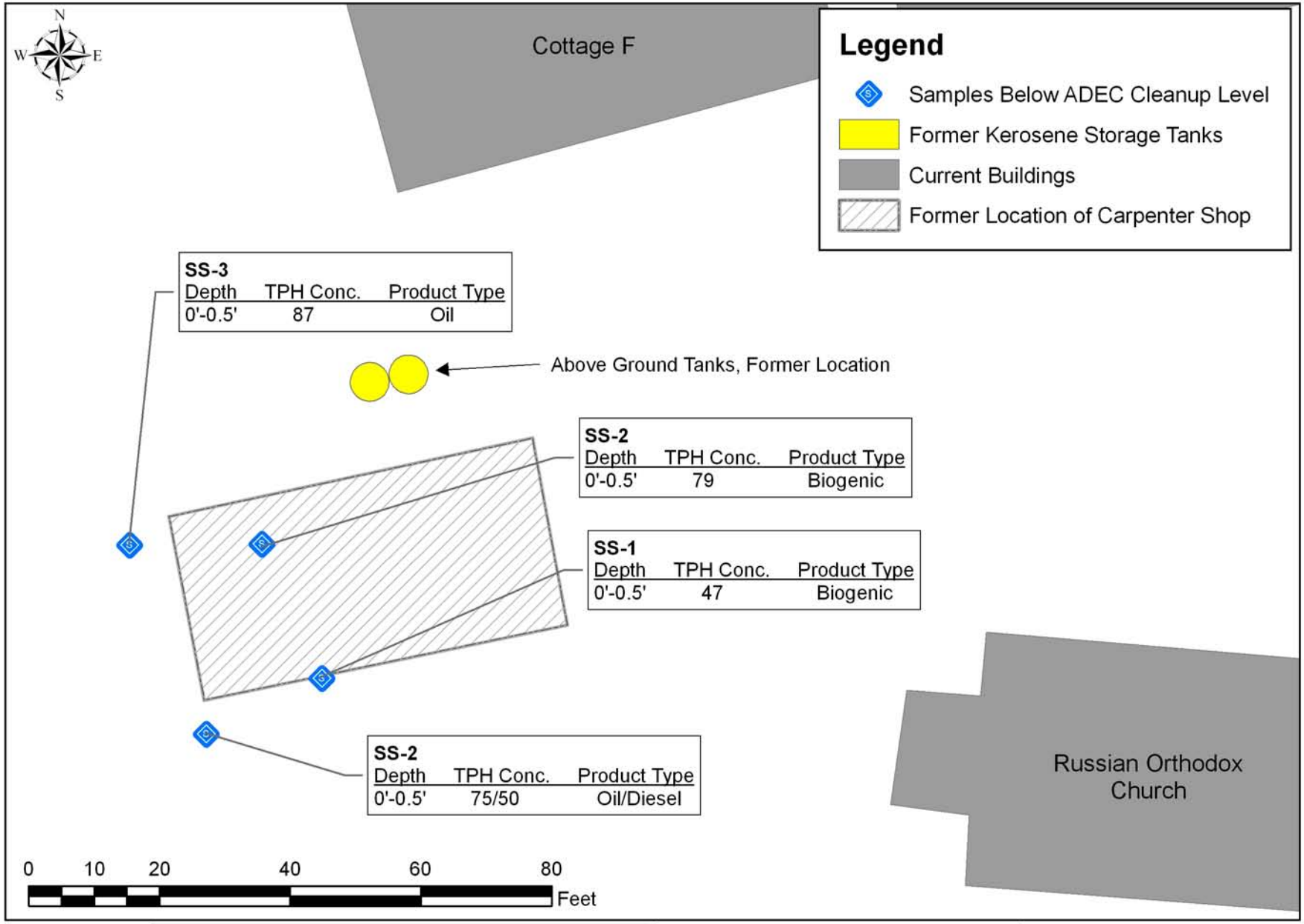

Figure 3	**Hart Crowser 1996, Site Characterization TPA Site 19/NOAA Site 19 St. George Island, Alaska**	Source: Former building and tank locations obtained from 1948 Victor Scheffer aerial photograph; Survey data from Pribilof Project database.

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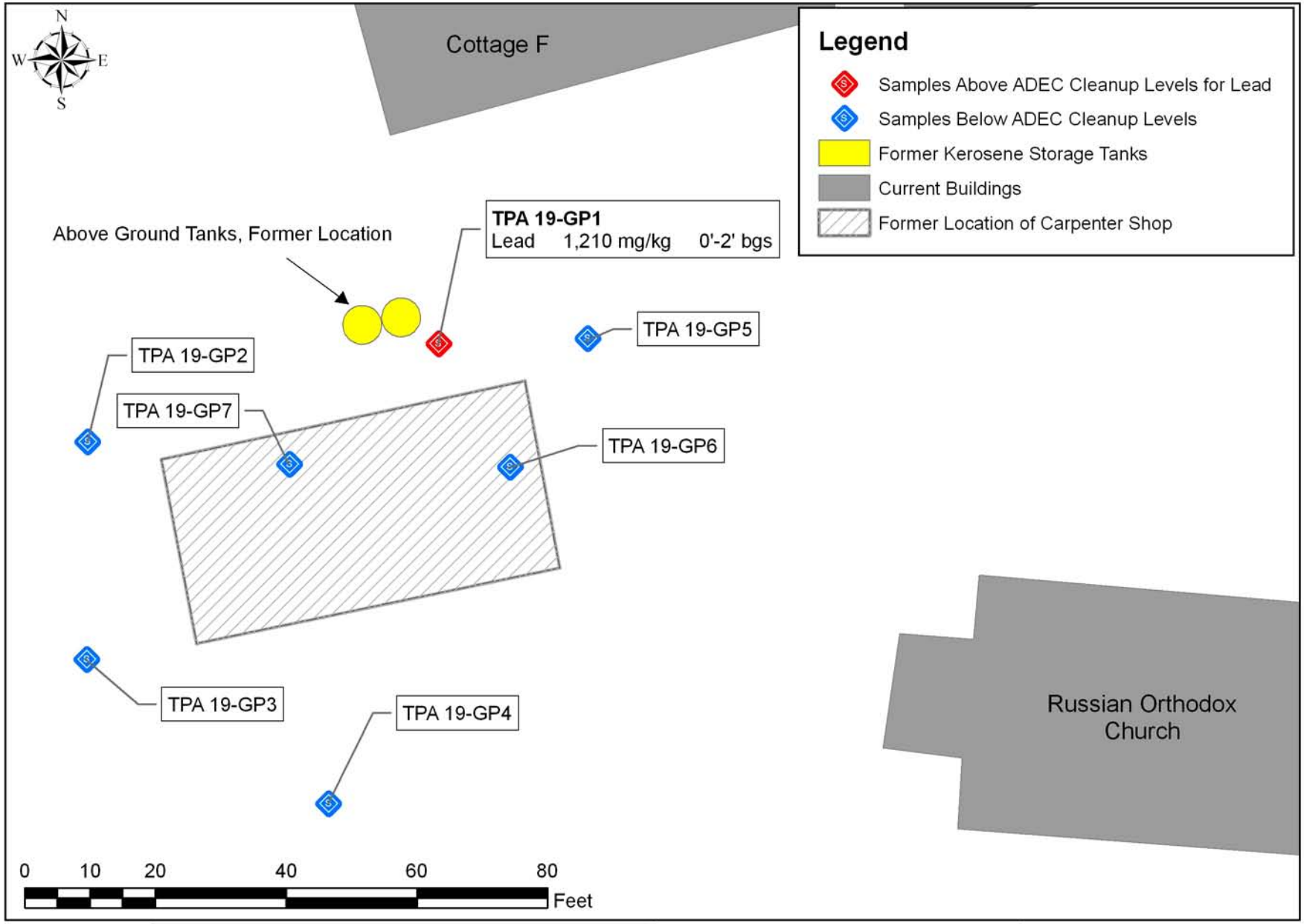

Figure 4	**Tetra Tech EM. Inc. 2001, Site Characterization TPA Site 19/NOAA Site 19 St. George Island, Alaska**	Source: Former building and tank locations obtained from 1948 Victor Scheffer aerial photograph; Survey data from Pribilof Project database.

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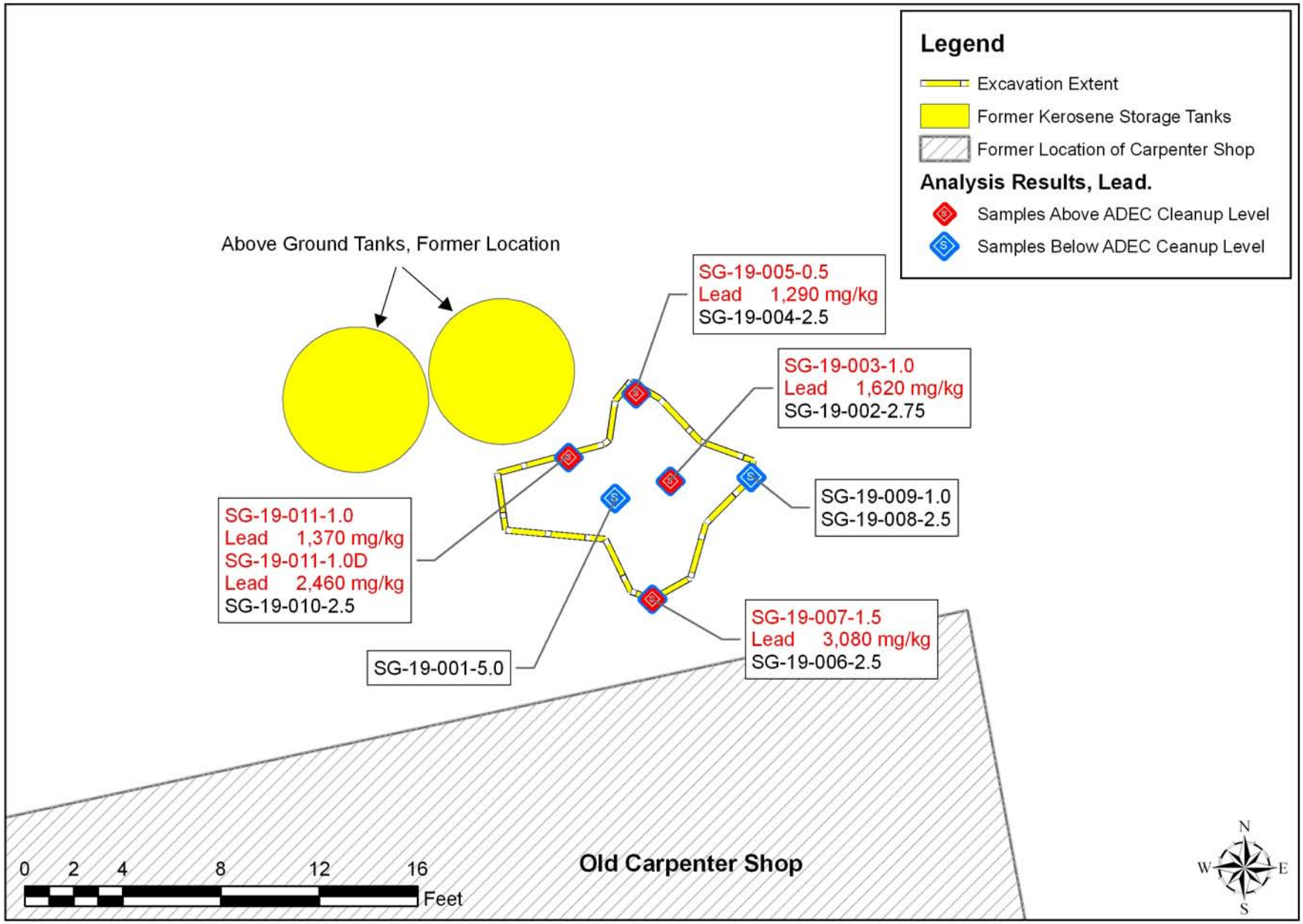

Figure 5	**Initial Investigation, August 30, 2002 Old Carpenter Shop TPA Site 19/NOAA Site 19 St. George Island, Alaska**	Source: Former building and tank locations obtained from 1948 Victor Scheffer aerial photograph; Survey data from Pribilof Project database.

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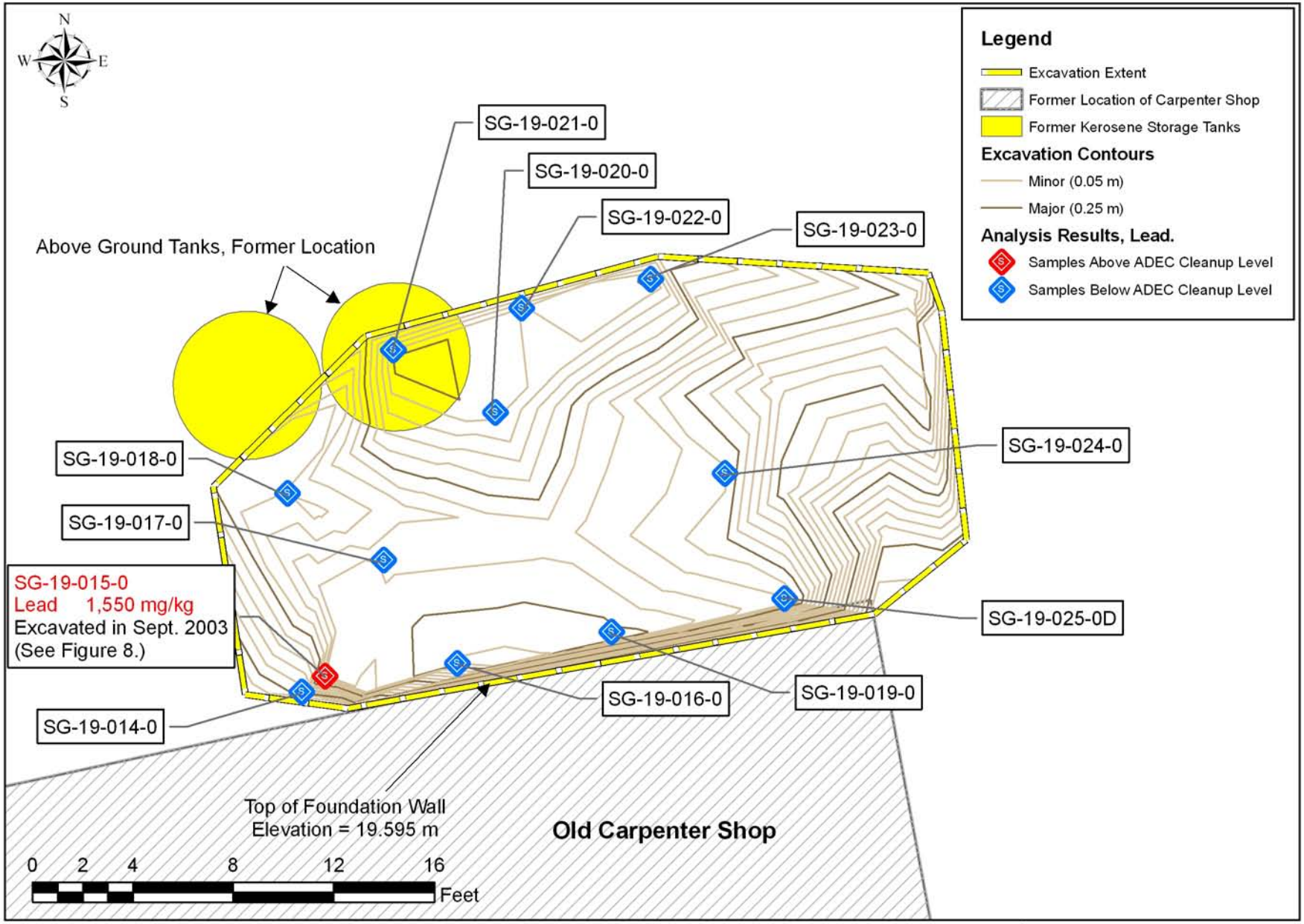

Figure 6	**Excavation and Sample Location Plan, October 26, 2002. TPA Site 19/NOAA Site 19 St. George Island, Alaska**	Source: Former building and tank locations obtained from 1948 Victor Scheffer aerial photograph; Survey data from Pribilof Project database.

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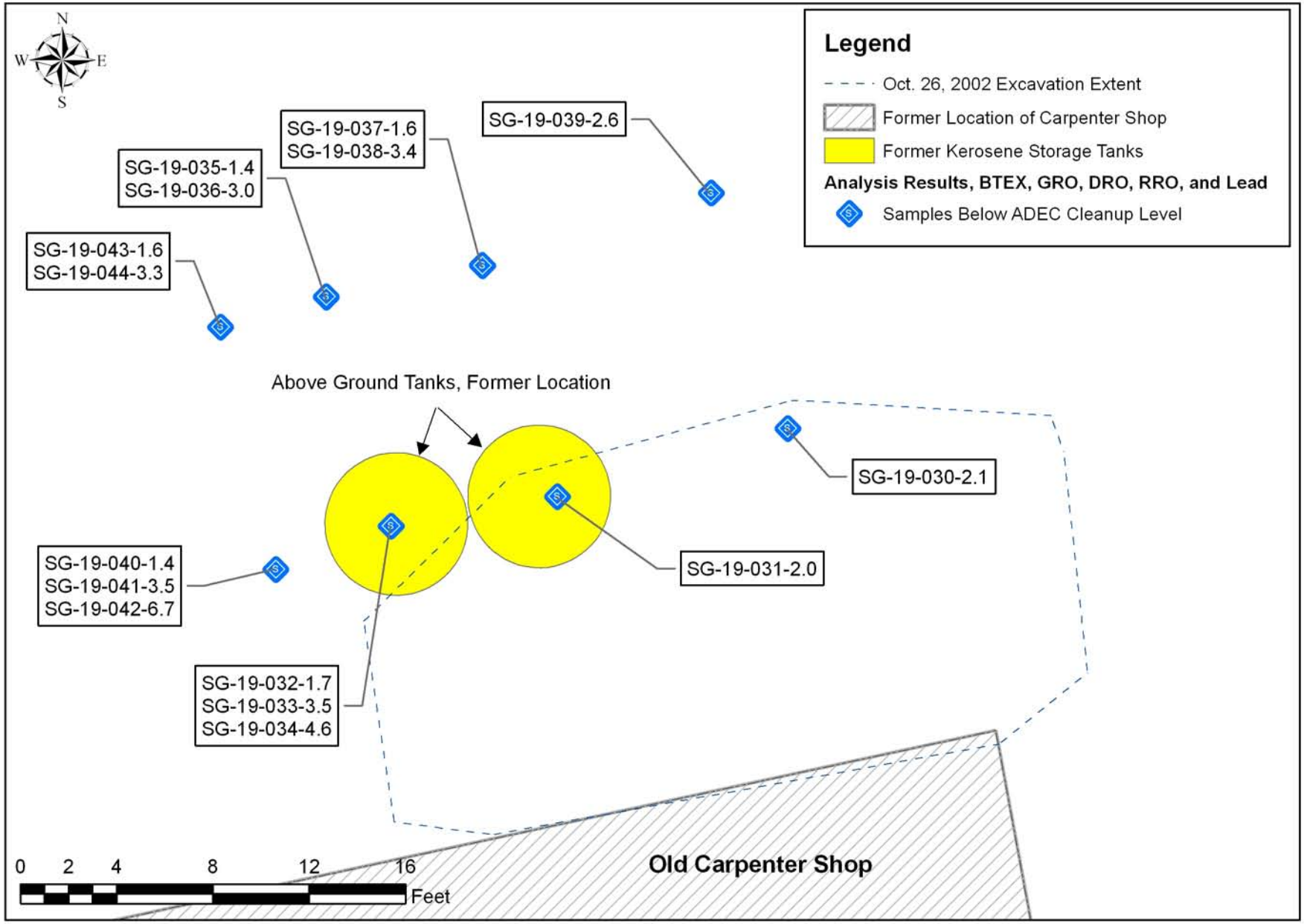

Figure 7	**Soil Boring and Sample Location Plan, October 30, 2002. TPA Site 19/NOAA Site 19 St. George Island, Alaska**	Source: Former building and tank locations obtained from 1948 Victor Scheffer aerial photograph; Survey data from Pribilof Project database.

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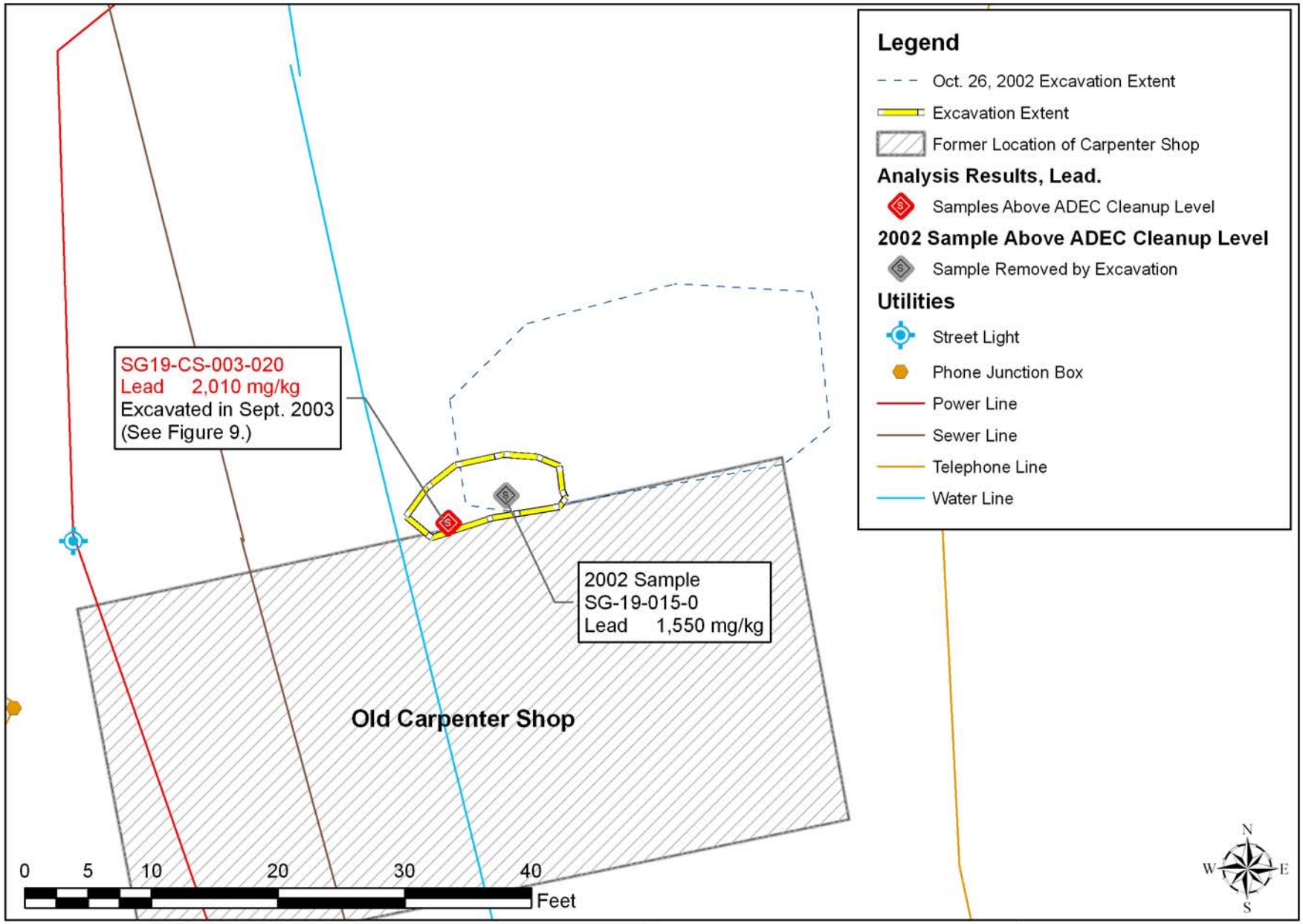

Figure 8

Excavation and Sample Location Plan, September 16, 2003.
TPA Site 19/NOAA Site 19
St. George Island, Alaska

Source: Former building locations obtained from 1948 Victor Scheffer aerial photograph; Survey data from Pribilof Project database.

Pribilof Islands Restoration Project

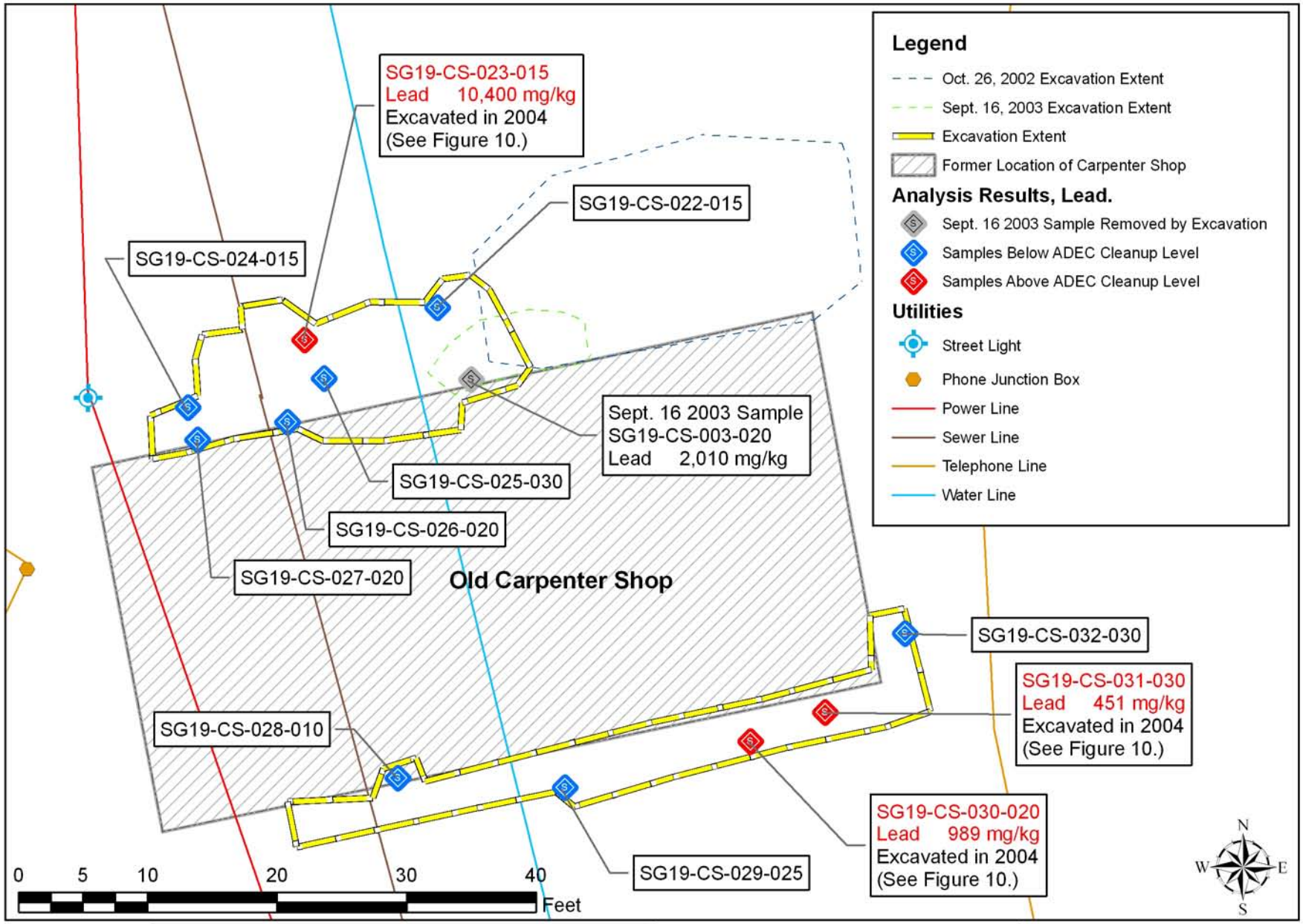

Figure 9

Excavation and Sample Location Plan, October 22 & 23, 2003. TPA Site 19/NOAA Site 19 St. George Island, Alaska

Source: Former building locations obtained from 1948 Victor Scheffer aerial photograph; Survey data from Pribilof Project database.

Pribilof Islands Restoration Project

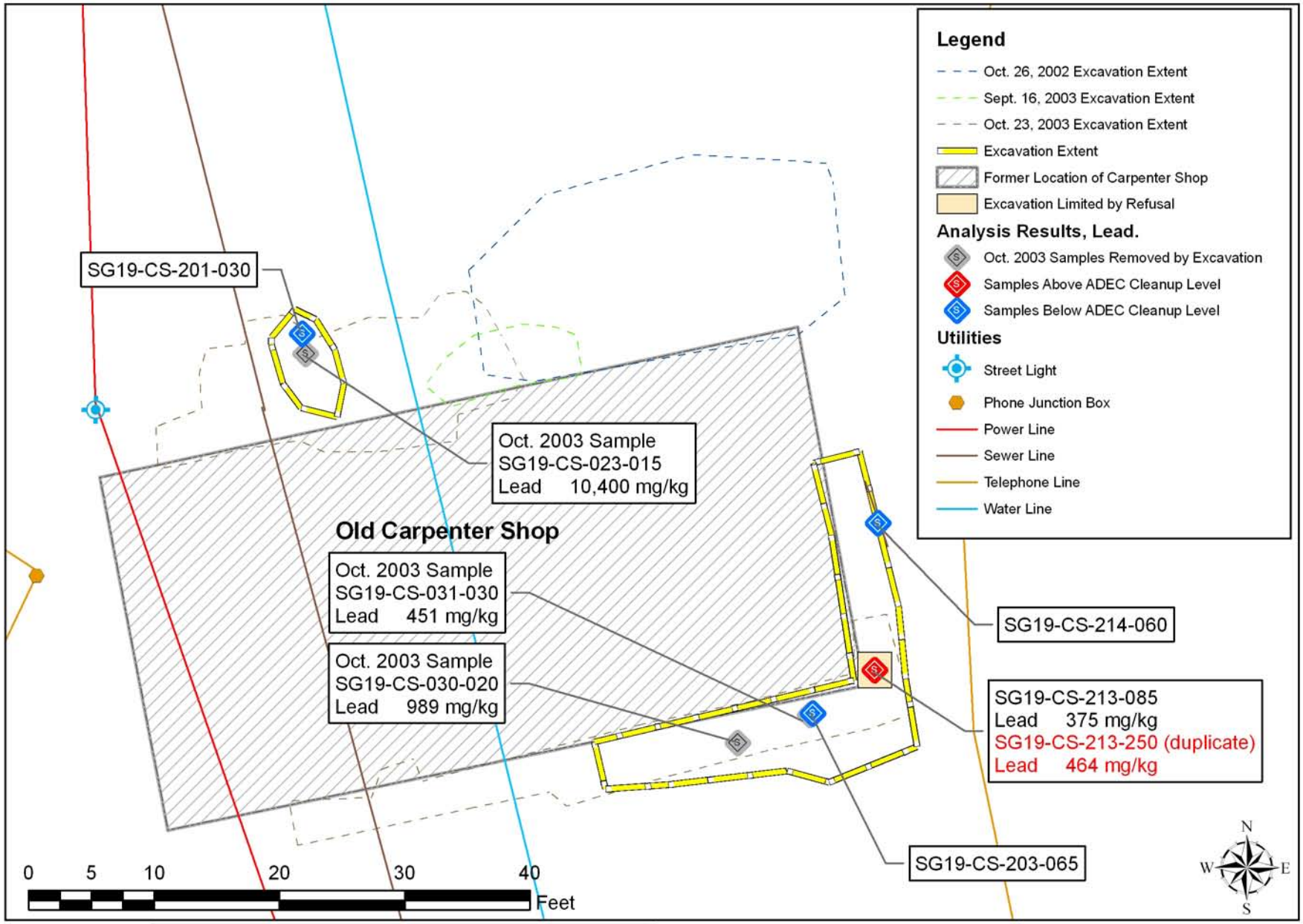

Figure 10

Excavation and Sample Location Plan, June 2004.
TPA Site 19/NOAA Site 19
St. George Island, Alaska

Source: Former building locations obtained from 1948 Victor Scheffer aerial photograph; Survey data from Pribilof Project database.

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