Request for No Further Remedial Action Planned

Site:
The Municipal Garage/Machine Shop (Municipal Garage) site is known by several different names including the Equipment Shed, Community Garage, and Elephant Hut. It is formerly referred to as Two-Party Agreement [TPA] Site 9e, and as National Oceanographic and Atmospheric Administration (NOAA) site 20.

Location:
St. Paul Island, Alaska is approximately 800 miles southwest of Anchorage in the Bering Sea. The Municipal Garage is situated on St. Paul Island, close to the harbor to the northeast of Village Hill (57°07'21" latitude, 170°16'50" longitude) Figures 1, 2, and 3.

Legal Description: 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. Some of the western portion of this site falls within Lot 3, Section 25, Township 35 South, Range 132 West, of the Seward Meridian, Alaska as shown on the plat of rectangular survey officially filed May 14, 1986 (Figure 2). NOAA currently owns the site.

Type of Release:
The site formerly included petroleum products contained in aboveground storage tanks (AST), underground storage tanks (UST), and associated piping mostly on the west side of the building near the north end (Figure 3). Anecdotal reports of above ground releases exist, but it also appears that these tanks and pipes may have leaked petroleum products into the soil.

History:
The Municipal Garage building complex consists of two wooden buildings constructed in the early 1930's. The complex is made up of the south building, a former machine shop with lathes and bays for vehicle maintenance and repair, and the north building, a large open storage area. These two wooden structures are connected by a metal structure constructed in the 1970's; this structure served for vehicle storage and access to the Machine Shop bays, and rooms for battery charging and welding (Figure 3). In 1987, the City of St. Paul leased the Machine Shop portion of the complex from TDX for $1.00 per year for five years. Eventually, the City sublet the Machine Shop to a private entity for the purpose of conducting an automotive repair business. Purportedly, the sublet did not include the other two buildings, however, the sublessee assumed use of the other two buildings. Currently, the Municipal Garage, or north building, is used for the storage of NOAA heavy equipment. The second story of the Machine Shop, or south building, is used to store the City of St. Paul ambulance. The connecting metal structure is not in use. Historically, aboveground storage tanks (AST) used to store gasoline and underground storage tanks (UST) used to store diesel fuel were located along the west side of the Municipal Garage near the north end. The ASTs and USTs were filled via pipelines connected to tank farms located on Village Hill (NOAA 2003a). Also, a pipeline extended from the tank area around the north end of the building to the former gasoline distribution station at the north end of the Cascade Building along the east side of the Municipal Garage

Summary of Site Investigations:
In 1995, Hart Crowser, Inc. (Hart Crowser, 1997) conducted an expanded site inspection that included the collection of soil samples from the area east of the Municipal Garage (Figure 3). Analytical data for soil samples collected during this investigation indicated the presence of arctic diesel at concentrations up to 5,900 milligrams per kilogram (mg/kg) at a depth of 10 feet below ground surface (bgs). Arctic diesel consists of diesel fuel mixed with gasoline to prevent the mixture from freezing (Hart Crowser 1997, NOAA 2003a, NOAA 2003b).

In 1997, Aleutian Enterprises removed the ASTs and most of the USTs along the west side of the Municipal Garage (Aleutian Enterprises, 1998). In 2000, Columbia Environmental Sciences, Inc. (CESI, 2001) removed an UST at the southeast corner of the Municipal Garage during site characterization activities (Aleutian Enterprises 1998, NOAA 2003a, NOAA 2003b).
In 2000, CESI also conducted additional sampling at the Municipal Garage (Figure 3). Analytical data for soil samples collected during this investigation indicated the presence of diesel-range organic compounds (DRO) up to 13,000 mg/kg, gasoline-range organic compounds (GRO) up to 470 mg/kg, toluene up to 20 mg/kg, and ethylbenzene up to 12 mg/kg (CESI 2001, NOAA 2003a, NOAA 2003b).

Summary of 2000/2001, and 2003/2004 GW Sampling:
NOAA contractors conducted quarterly groundwater monitoring from June 2000 to September 2001 and from October 2003 to July 2004 including 4 monitoring wells in the vicinity of the Municipal Garage (Figure 4). The results are summarized below.

During 2000-2001 sampling events, DRO were detected above their Alaska Department of Environmental Conservation (ADEC) Table C cleanup level of 1,500 ug/l in all 4 wells, with maximum detected concentrations of 14,000 ug/l, (Figure 4). Gasoline range organics (GRO) were detected above their ADEC Table C cleanup level of 1,300 ug/l in two wells, with maximum detected concentrations of 24,000 ug/l, with this same well also exceeding the alternative Ten Times Rule (10x Rule) cleanup level for GRO of 13,000 ug/l, Figure 4. Benzene was detected above its ADEC Table C cleanup level of 5 ug/l in 3 of the 4 wells, with maximum detected concentrations of 410 ug/l, Figure 4. The two wells with the highest benzene concentrations also exceeded the 10x Rule cleanup level for benzene of 50 ug/l. Finally, analysis detected toluene above its ADEC Table C cleanup level of 1,000 ug/l in one well, at a concentration of 7,800 ug/l, (IT Alaska Inc. 2002), Figure 4.

During the first two quarters of 2003-2004 sampling, the same compounds that had exceeded the ADEC Table C cleanup levels were detected in all the same wells at levels exceeding the Table C cleanup levels. All the wells that had exceeded cleanup levels under the 10x Rule in 2000/2001 still did so, and one additional well exceeded the 10x Rule (for DRO) that had not in the previous sampling round. This well, MW46-28, went from 14,000 ug/l DRO in 2000/2001 to 28,000 ug/l DRO in 2003/2004, (Figure 4).

No clear pattern of increasing or decreasing groundwater concentrations evolved in the 4 monitoring wells. Concentrations of some constituents increased in some cases, and decreased in others.

Mitretek Systems (2002) evaluated the 2000-2001 groundwater data for the St. Paul Village area, which includes the FPP. 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 2003) 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 10x Rule discussed below.

Summary of Applied Cleanup Levels:
NOAA employed ADEC Method Two cleanup criteria, discussed at 18 AAC 75.341(c) (ADEC 2003). 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 10x 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 bgs to define subsurface soil to which residents will have a reasonable potential to be exposed through the inhalation or ingestion pathways (ADEC 2003; 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:
Initial cleanup actions at this complex included removal of debris and more than fifty containers of diesel fuel, used oils, acids, solvents, paints, and other miscellaneous liquid substances (Nortech 2001).

Excavation activities for the Municipal Garage commenced on August 4, 2003, and were completed on September 4, 2003. 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 (Figure 5) NOAA 2004.

Initially, personnel removed the concrete valve box and sections of the abandoned aboveground fuel lines located along the northwest side of the Municipal Garage. The lines were cut, drained, and removed from the area in order to allow for heavy equipment access to the area. Excavation activities were initiated at the southwest corner of the building and progressed to the north and west 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, and extended to the east beneath the building. 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 reached 15 feet bgs throughout the majority of the excavation. Forty-two confirmation samples were collected from the excavation for laboratory analyses including benzene, toluene, ethylbenzene, and total xylenes (BTEX), DRO, and GRO; in addition, approximately 20 percent of these samples were also analyzed for RRO, select polynuclear aromatic hydrocarbons (PAH) and lead (Figures 6 through 12).

During excavation activities, a buried tank containing debris and contaminated soil was discovered along the west side of the excavation near the base of Village Hill. Personnel removed the tank and containerized the debris and contaminated soil in drums for off site disposal.

Excavation activities encountered various underground pipelines along the west side of the Municipal Garage. These pipelines included three abandoned fuel pipelines, a 6-inch salt water line, and other unidentified lines, all of which were inactive. The cleanup crew cut, drained, removed and containerized pipelines in manageable sections for shipment and disposal off the island in January 2004. In addition, the open ends of two 2-inch pipes leading into the Municipal Garage building were sealed with cement.

Forty-two confirmation samples and three field duplicate samples were collected during corrective action activities at the Municipal Garage. Tables 1 and 2 provide a summary of the confirmation samples collected during this corrective action. Figure 6 illustrates the sampling locations. All samples were analyzed for the following constituents:

- BTEX by 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

In accordance with the CAP (NOAA 2003a), analyses for select PAHs were conducted on approximately 20 percent of the confirmation samples, with sampling locations biased toward the area near the southwest portion of the Municipal Garage where previous investigations identified elevated concentrations of benzo(a)pyrene.

Confirmation samples collected from the excavation at the Municipal Garage indicated DRO concentrations varying from not detected to 19,000 mg/kg. Twenty-two of the 42 samples collected from this area contained concentrations of DRO above the ADEC Method Two cleanup level of 250 mg/kg, and 17 of the 42 samples exceeded the alternative cleanup level of 2,500 mg/kg. Figure 7 illustrates the distribution of DRO concentrations.

Confirmation samples indicated GRO concentrations varying from not detected to 1,500 mg/kg. Fourteen of the 42 samples collected from this area contained concentrations of GRO above the ADEC Method Two cleanup level of 300 mg/kg, and 1 of the 42 samples exceeded the alternative cleanup level of 1,400 mg/kg. Figure 8 illustrates the distribution of GRO concentrations.

Confirmation samples indicated benzene concentrations varying from not detected to 1.2 mg/kg. Six of the 42 samples collected from this area contained concentrations of benzene above the ADEC Method Two cleanup level of 0.02 mg/kg, and 3 of the 42 samples exceeded the alternative cleanup level of 0.5 mg/kg. Figure 9 illustrates the distribution of benzene concentrations.

Confirmation samples indicated toluene concentrations varying from not detected to 25 mg/kg. Two of the 42 samples collected from this area contained concentrations of toluene above the ADEC Method Two cleanup level of 5.4 mg/kg, but none of the 42 samples exceeded the alternative cleanup level of 54 mg/kg. Figure 10 illustrates the distribution of toluene concentrations.

Confirmation samples indicated ethylbenzene concentrations varying from not detected to 23 mg/kg. Three of the 42 samples collected from this area contained concentrations of ethylbenzene above the ADEC Method Two cleanup level of 5.5 mg/kg. Since ethylbenzene was not detected in groundwater at this site, the 10x Rule does not apply to the ethylbenzene soil cleanup level. Figure 11 illustrates the distribution of ethylbenzene concentrations.

Confirmation samples indicated total xylenes concentrations varying from not detected to 105 mg/kg. One of the 42 samples collected from this area contained concentrations of total xylenes above the ADEC Method Two cleanup level of 78 mg/kg. Since xylenes were not detected in groundwater at this site, the 10x Rule does not apply to xylene soil cleanup levels. Figure 12 illustrates the distribution of total xylenes concentrations.

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 equal to the alternative cleanup level of 0.5 mg/kg.

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.

Although confirmation samples indicate that contamination remains in some areas of the excavation, no further excavation could be conducted in these areas because of concerns regarding worker safety and threats to the building's structural integrity. Obstructions encountered during excavation included the Municipal Garage building to the east, a steep slope to the west along the base of Village Hill, a live electric line, active fuel pipelines, a concrete pad, and monitoring well MW46-28 along the north side of the building, and monitoring well MW46-6 located near the northwest corner of the building (Figure 5). Near the northwest corner of the Municipal Garage, the integrity of the building foundation and wall was impacted because of efforts to remove as much PCS as possible, which resulted in the foundation being undercut and some settlement of the foundation.

In the southern portion of the excavation, including sampling locations SP20-CS-001-080 through SP20-CS-012-150, the building foundation prevented further excavation to the east and the steep slope of Village Hill to the west, as well as, refusal due to large boulders at the bottom of the excavation. Excavation in this area generally reached depths of 15 feet bgs. Contamination was left in place at 6 of the 12 sampling locations in this area, primarily along the edge of the building (Figures 7 through 12). Contaminants identified at concentrations above ADEC Method Two cleanup levels include DRO, GRO, benzene, toluene, ethylbenzene, and total xylenes; concentrations of DRO, GRO, benzene, ethylbenzene, and total xylenes also exceeded the alternative cleanup levels.

In the northwest portion of the excavation, including sampling locations SP20-CS-013-150 through SP20-CS-035-100, further excavation was prevented by the building foundation to the east and monitoring well MW46-6 as well as refusal due to large boulders and the presence of groundwater in the bottom of the excavation. Excavation in this area generally reached depths of 10 to 15 feet bgs. Contamination was left in place at 16 of the 21 sampling locations in this area, primarily in the middle of the excavation where large boulders were encountered (Figures 7 through 12). Contaminants identified at concentrations above ADEC Method Two cleanup levels included DRO, GRO, benzene, and ethylbenzene; concentrations of DRO and ethylbenzene also exceeded the alternative cleanup levels.

In the northerly area of the excavation, including sampling locations SP20-CS-036-100 through SP20-CS-043-020, the concrete apron and building foundation, the presence of monitoring well MW46-28, and active utility lines prevented further excavation. Excavation in this area generally reached depths of 10 feet bgs. Contamination was left in place at 1 of the 7 sampling locations in this area (SP20-CS-043-020), where the top 2 feet of soil was removed, but further excavation could not be conducted due to the presence of an active fuel pipeline and an active underground electric line identified by a representative of the City of St. Paul. Contaminants identified at concentrations above ADEC Method Two cleanup levels include DRO and benzene; concentrations of DRO also exceeded the alternative cleanup level.

This corrective action excavated an approximate total of 2,805 CY of PCS at the Municipal Garage. In addition, numerous artifacts were discovered during excavation activities, including ceramic cups and plates, bottles, cast iron pots, shoes, and an old rifle. These artifacts were set aside for the Tribal Government.

After excavation activities were completed, NOAA and Tetra Tech advanced 7 soil borings through the concrete floor of the Municipal Garage during September 2003 to assess the nature and extent of contamination beneath the building to address potential concerns over risk and potential complications related to future land use raised by ADEC and future landowners. A total of 26 characterization samples were collected and shipped for fixed laboratory analyses. Figure 6 illustrates the sampling locations, and selected analytical results are shown in Figures 7 through 12.

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 Municipal Garage/Machine Shop, TPA Site 9e, NOAA Site 20, 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.

Aleutian Enterprises. 1998. Project Close-Out Report, NOAA Debris Cleanup, 1997, St. Paul Island, Alaska. November.

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

ADEC. 2003. 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.

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.

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. 2003a. *Draft Corrective Action Plan for the Removal of Petroleum Contaminated Soil at the Municipal Garage/Machine Shop Site (Site 20, TPA Site 9e), St. Paul Island, Alaska*. July 2.

NOAA. 2003b. *Initial Draft Site Characterization Report, Tract 46 and Tract A, Two-Party Agreement Sites 9a through 9s, Pribilof Islands Environmental Restoration Project, St. Paul Island, Alaska*. May 19.

NOAA. 2004. Draft Corrective Action Report Site 20/TPA Site 9e – Municipal Garage/Machine Shop , St. Paul Island, Alaska. June 1.

Nortech Environmental Engineering Consultants (Nortech) 2001. *Building Cleanout Report – Initial Draft St. Paul Machine Shop (Non Two-Party Agreement Site) Pribilof Island Site Restoration St. Paul Island, Alaska*. April 2

For the National Oceanic and Atmospheric Administration

John Lindsay
NOAA, Pribilof Project Office

9/30/04
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 Municipal Garage/Machine Shop, TPA Site 9e, NOAA Site 20, 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

10/11/04
Date

FIGURES

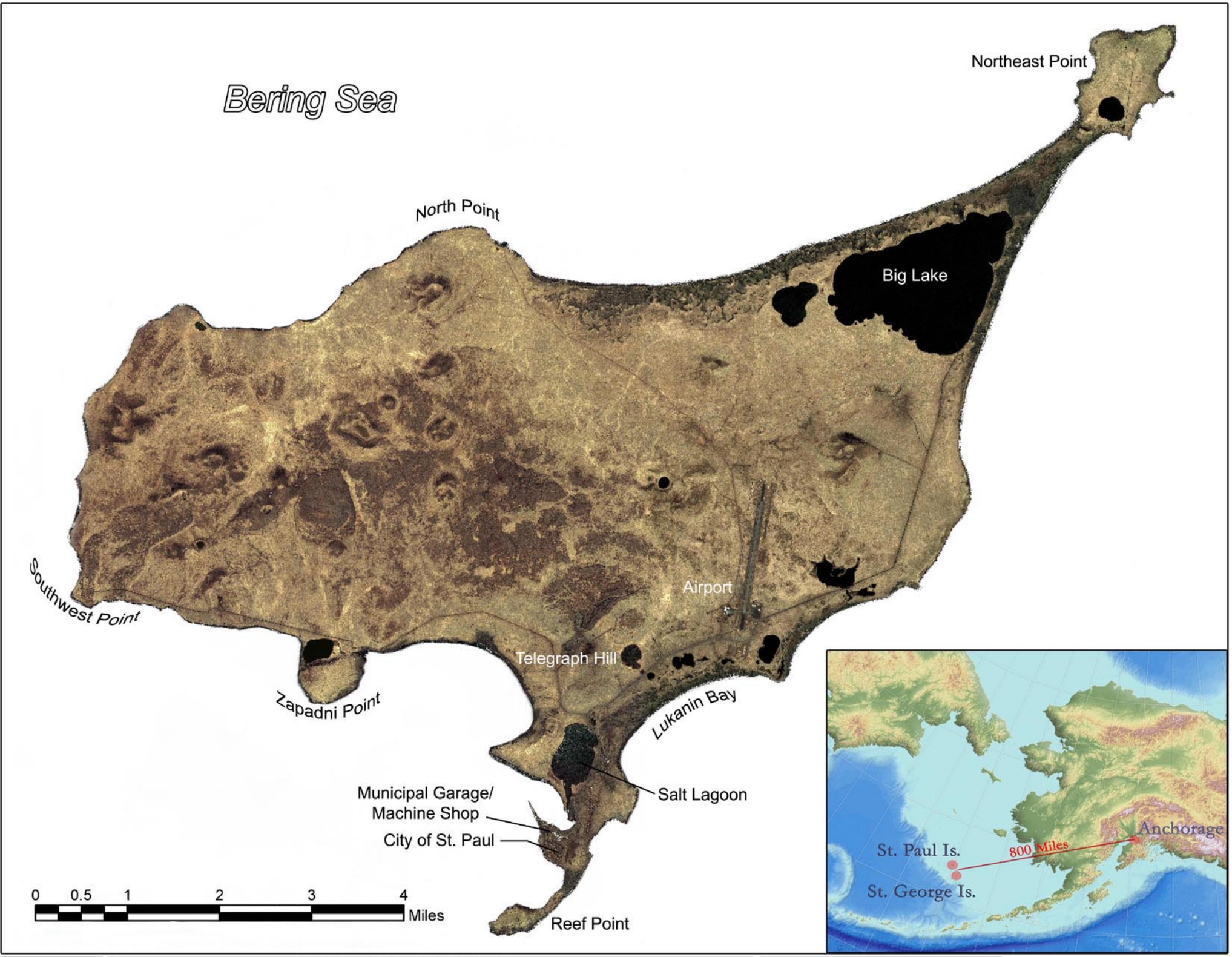

Figure 1	St. Paul Island Vicinity Map Municipal Garage/Machine Shop Site 20/TPA Site 9e St. Paul Island, Alaska	Source: Ikonos Satellite Imagery, 2001	NOAA Pribilof Islands Restoration Project

Figure 2	Legal Property Description Map Municipal Garage/Machine Shop Site 20/TPA Site 9e St. Paul Island, Alaska	Sources: BLM Tracts (BLM MTPs 1983), TPA 9e Boundary (NOAA GIS 2004), Aerial Photo (Aeromap US 1996).

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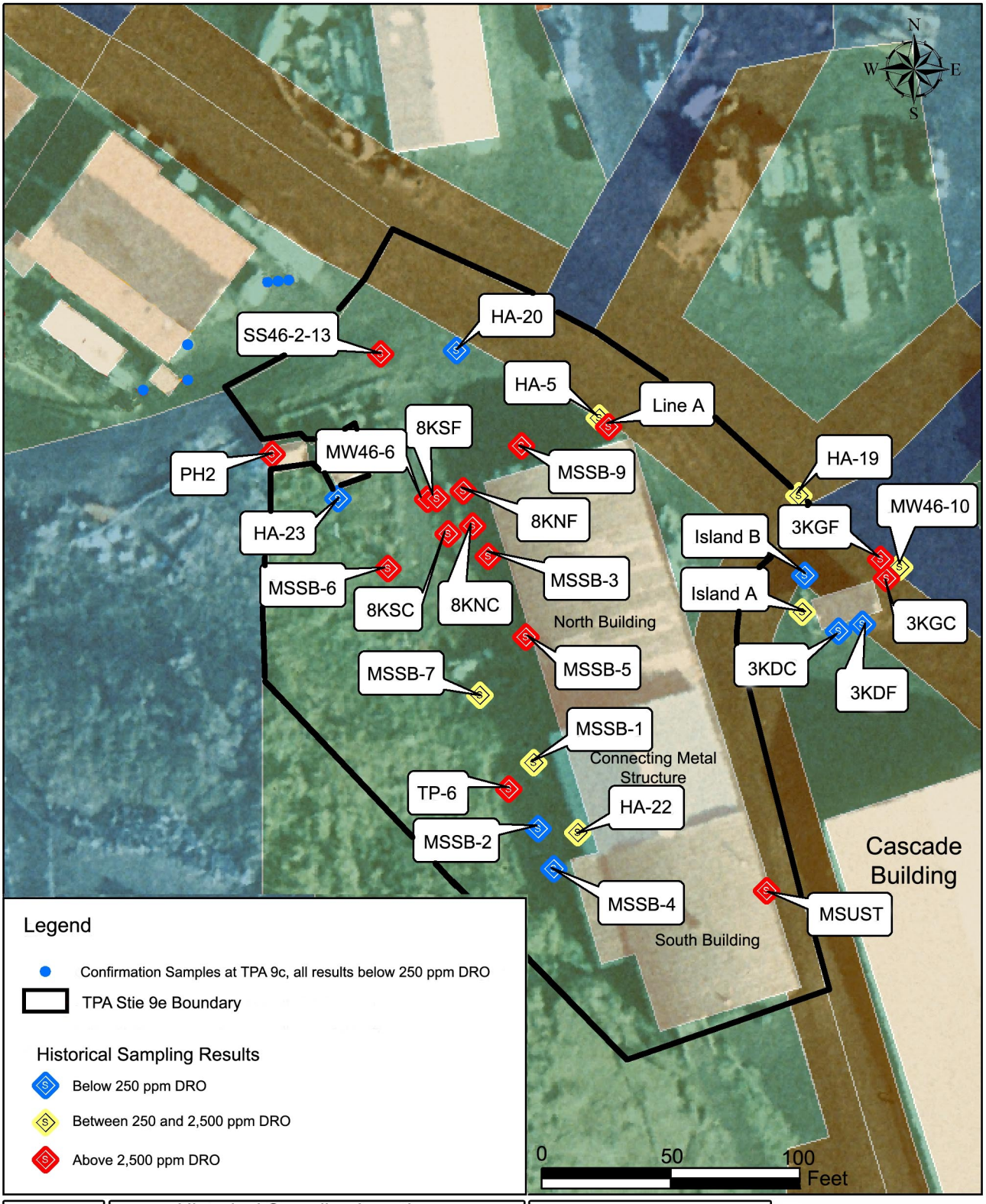

Figure 3	Historical Sampling Locations Municipal Garage/Machine Shop Site 20/TPA Site 9e St. Paul Island, Alaska	Sources: Site Boundaries (NOAA GIS 2004), Historical Sampling Locations (Bristol Environmental Services 1997, CESI 2000, and Hart Crower 1997), Aerial Photo (Aeromap US 1996).	Pribilof Islands Restoration Project

Figure 4	Groundwater Sampling Results Municipal Garage/Machine Shop Site 20/TPA Site 9e St. Paul Island, Alaska	Sources: Excavation Extent (NOAA GPS 2003), Well Locations (NOAA GPS 2004), Utility Locations (NOAA GPS 2003), Aerial Photo (Aeromap US 1996).

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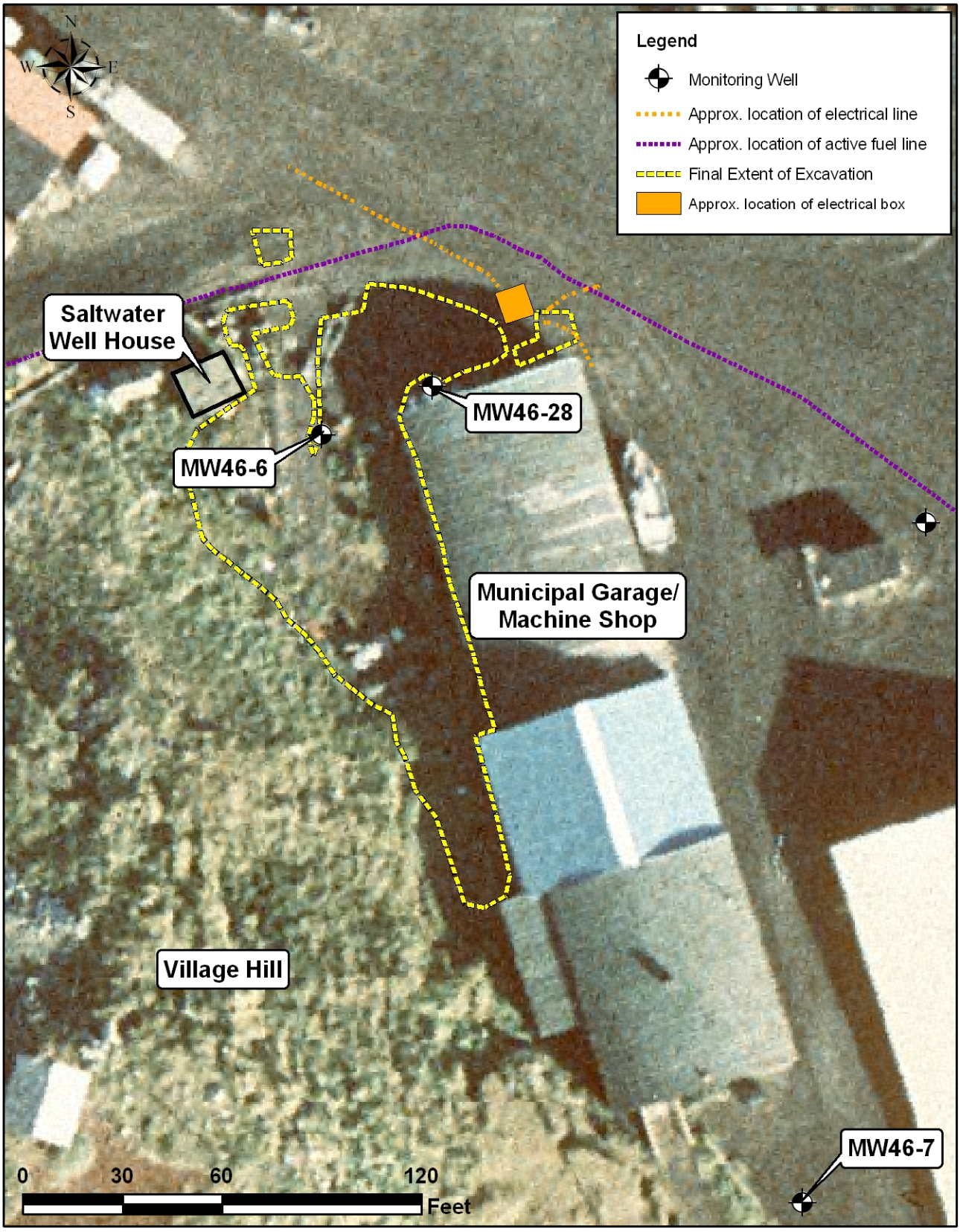

Figure 5	Areas of Excavation Municipal Garage/Machine Shop Site 20/TPA Site 9e St. Paul Island, Alaska	Sources: Excavation Extent (NOAA GPS 2003), Well Locations (NOAA GPS 2004), Utility Locations (NOAA GPS 2003), Aerial Photo (Aeromap US 1996).

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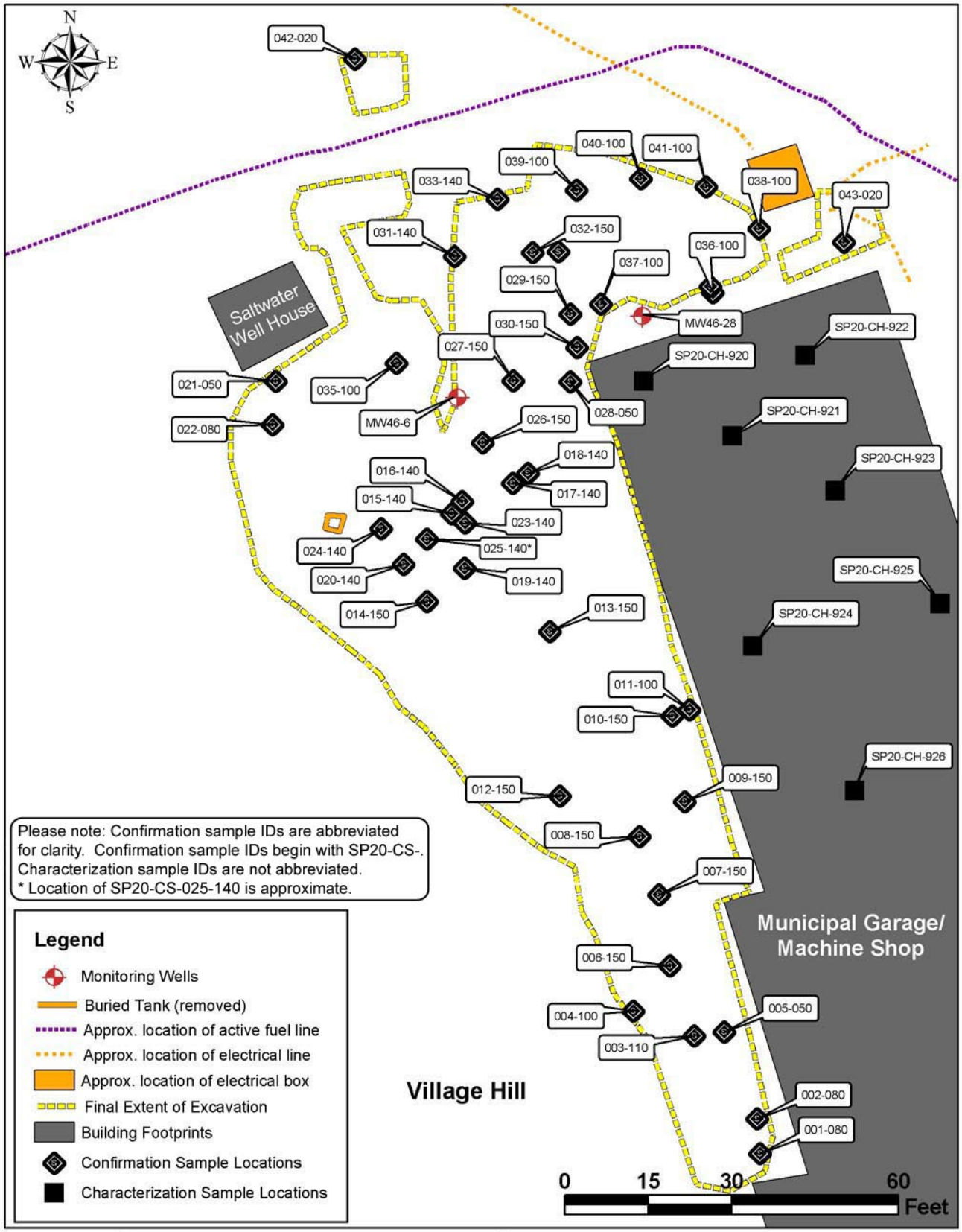

Figure 6	Confirmation Sampling Location Map Municipal Garage/Machine Shop Site 20/TPA Site 9e St. Paul Island, Alaska	Sources: Excavation Extent, Confirmation Samples, Tank Location, and Building Outlines (NOAA GPS 2003) Well location (NOAA GPA 2002).

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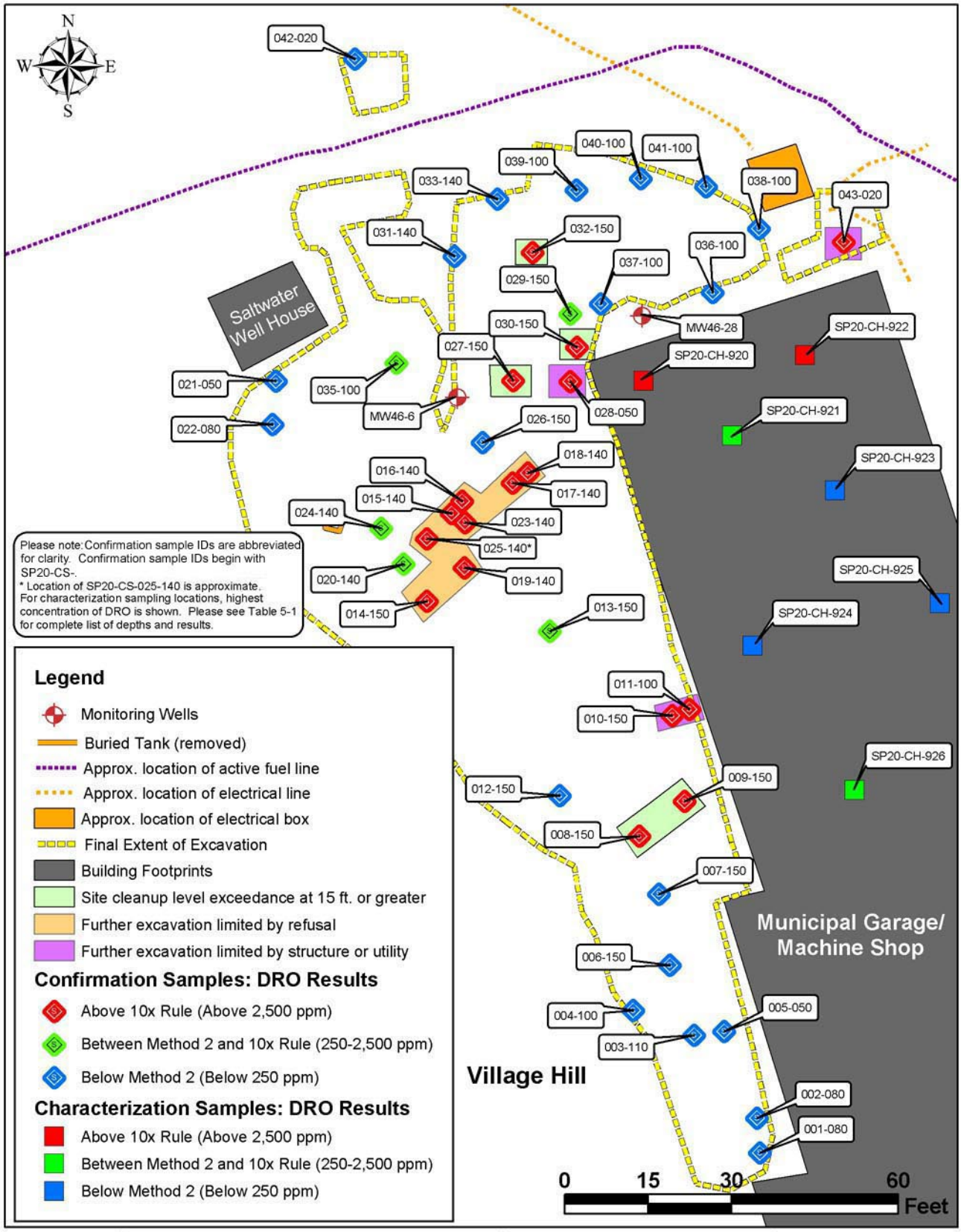

Figure 7	DRO Concentration Map Municipal Garage/Machine Shop Site 20/TPA Site 9e St. Paul Island, Alaska	Sources: Excavation Extent, Confirmation Samples, Tank Location, and Building Outlines (NOAA GPS 2003) Well locations (NOAA GPA 2004).

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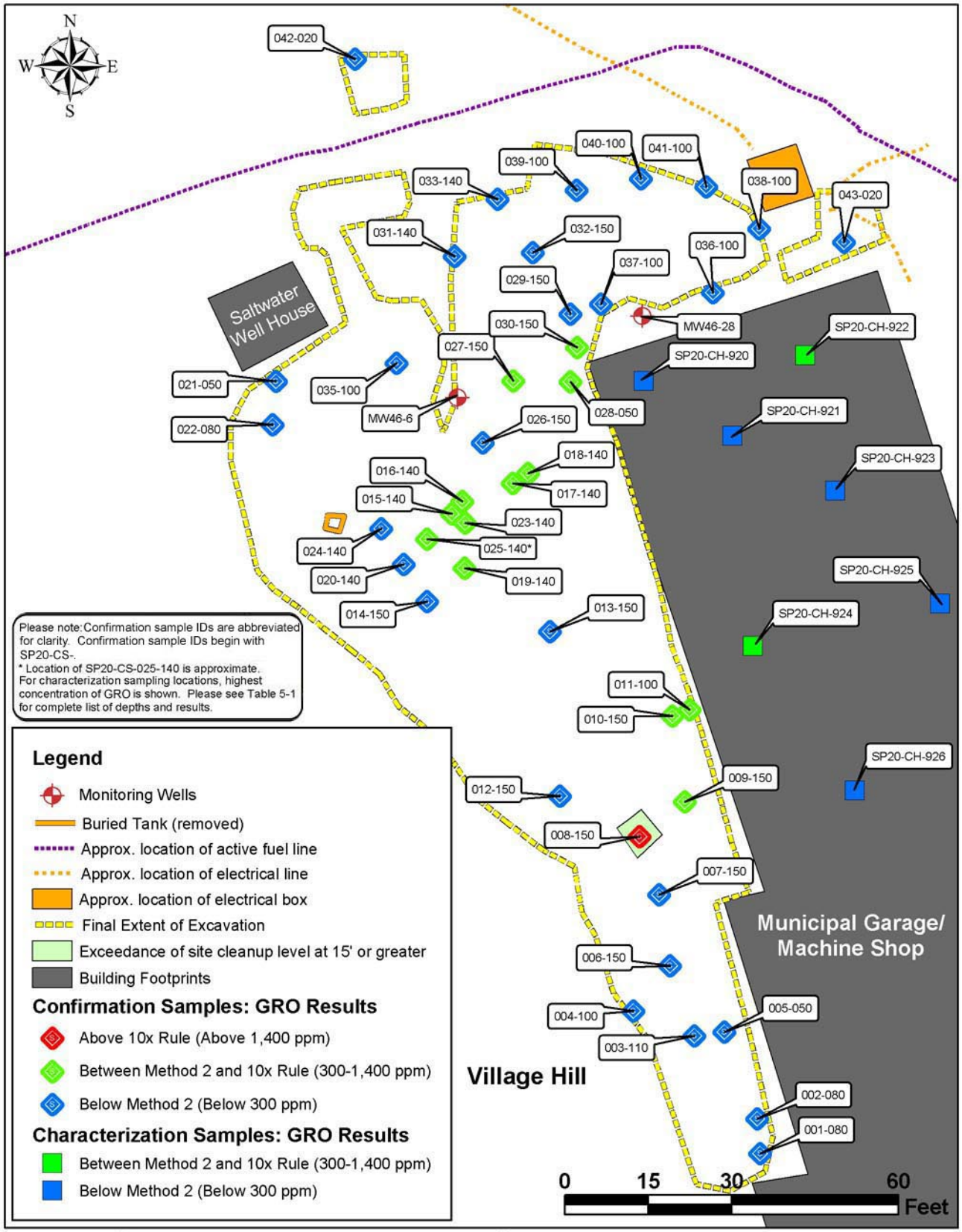

Figure 8	GRO Concentration Map Municipal Garage/Machine Shop Site 20/TPA Site 9e St. Paul Island, Alaska	Sources: Excavation Extent, Confirmation Samples, Tank Location, and Building Outlines (NOAA GPS 2003) Well location (NOAA GPA 2002).

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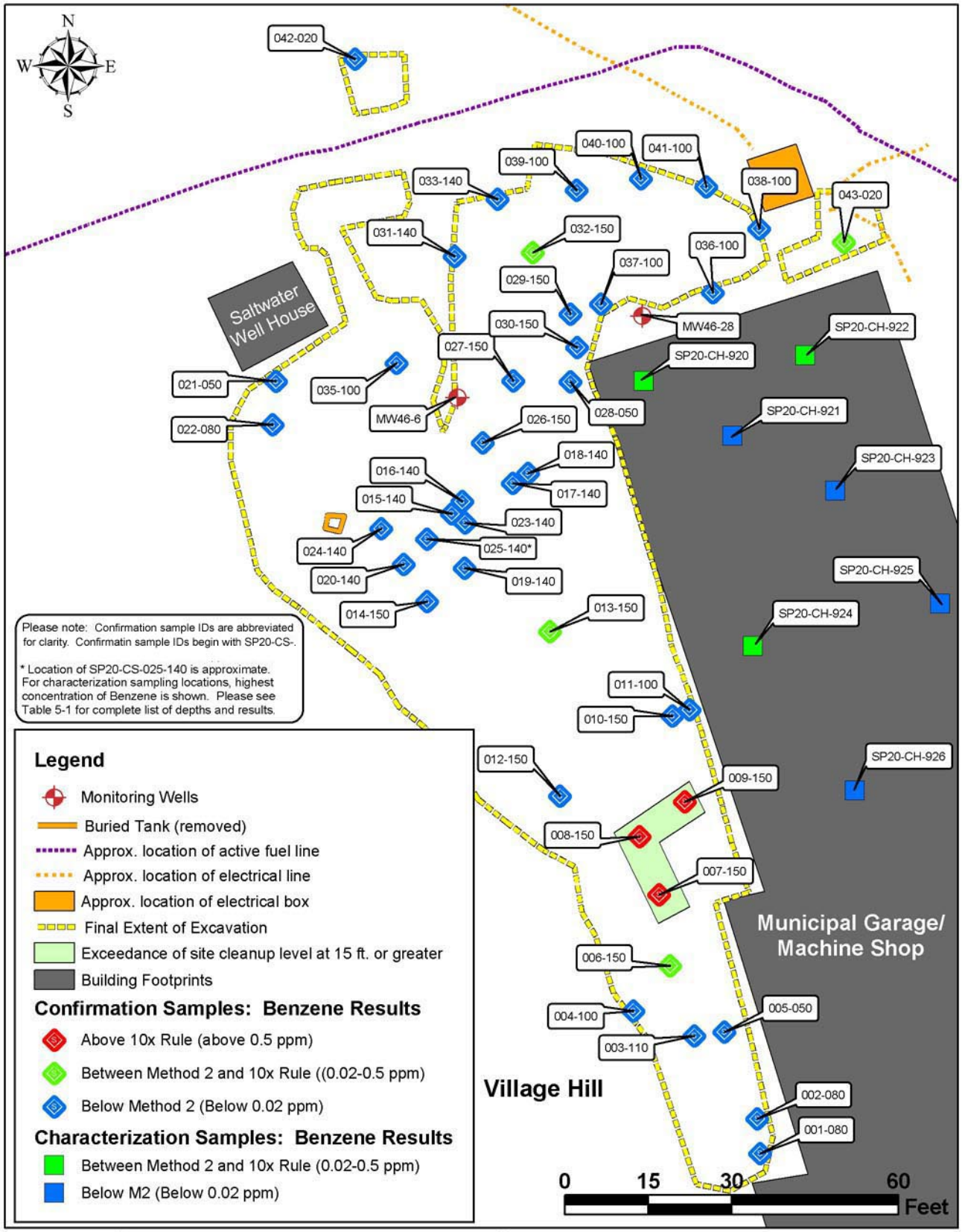

Figure 9	Benzene Concentration Map Municipal Garage/Machine Shop Site 20/TPA Site 9e St. Paul Island, Alaska	Sources: Excavation Extent, Confirmation Samples, Tank Location, and Building Outlines (NOAA GPS 2003) Well location (NOAA GPA 2002).

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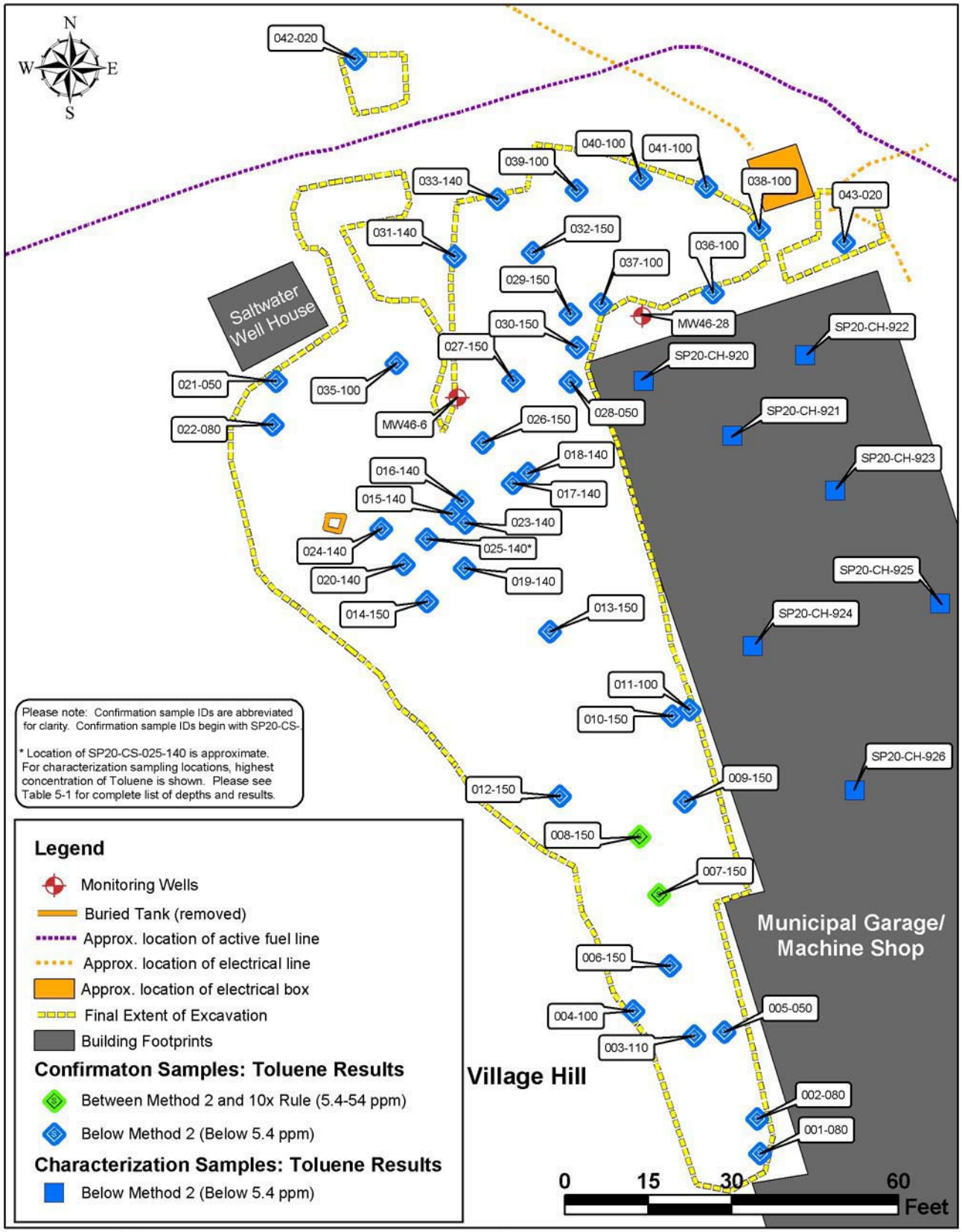

Figure 10	Toluene Concentration Map Municipal Garage/Machine Shop Site 20/TPA Site 9e St. Paul Island, Alaska	Sources: Excavation Extent, Confirmation Samples, Tank Location, and Building Outlines (NOAA GPS 2003) Well location (NOAA GPA 2002).

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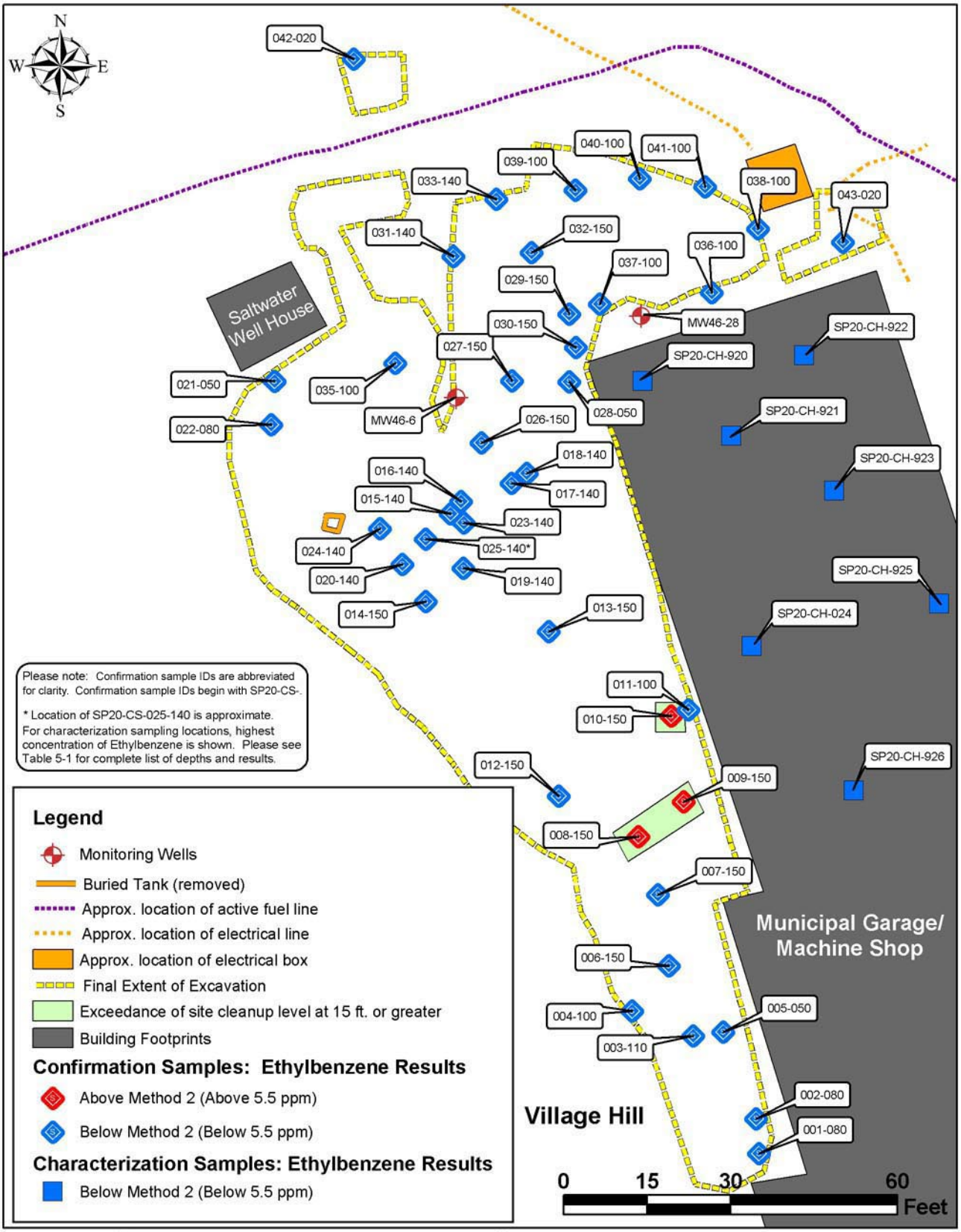

Figure 11	Ethylbenzene Concentration Map Municipal Garage/Machine Shop Site 20/TPA Site 9e St. Paul Island, Alaska	Sources: Excavation Extent, Confirmation Samples, Tank Location, and Building Outlines (NOAA GPS 2003) Well location (NOAA GPA 2002).

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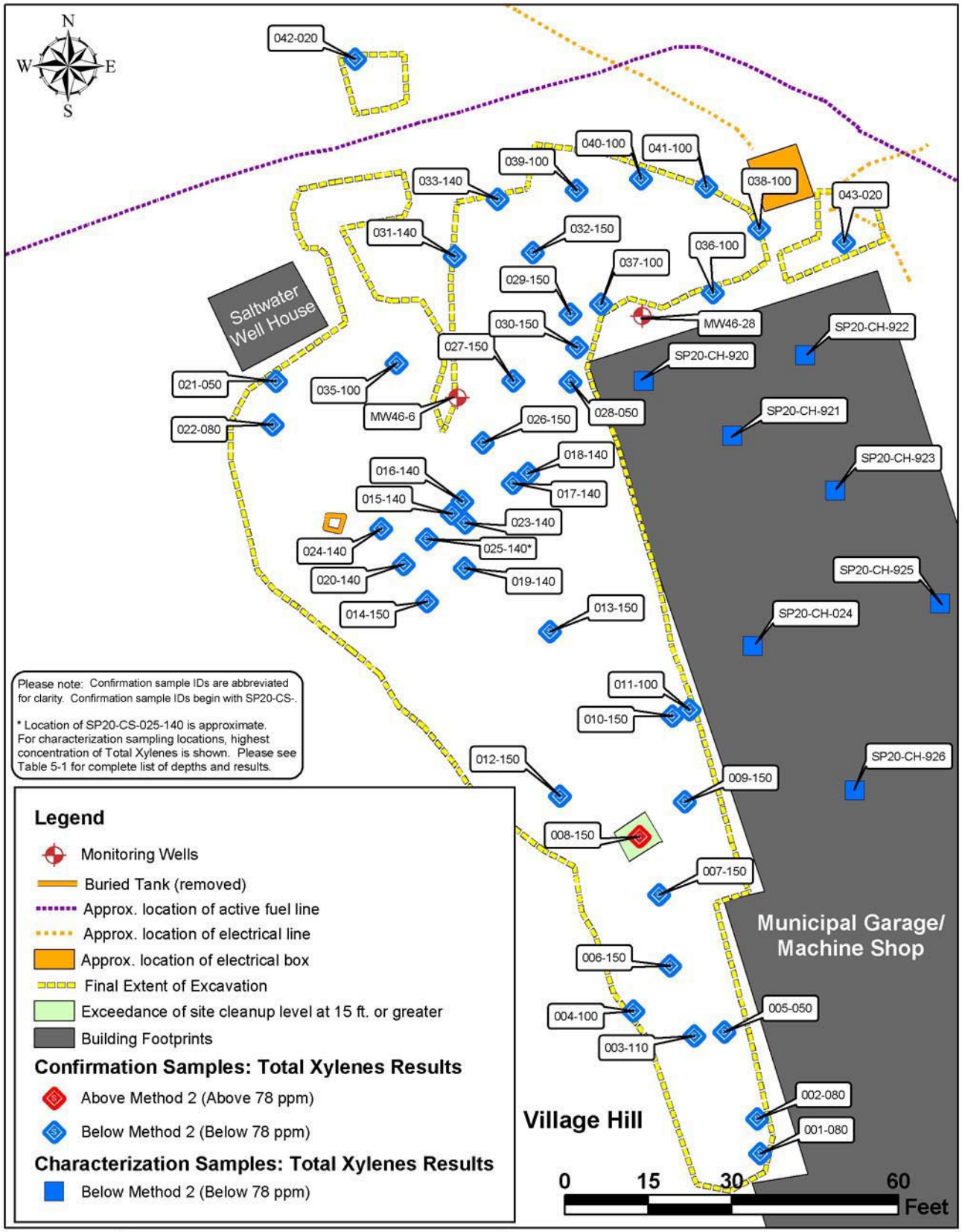

Figure 12	Total Xylenes Concentration Map Municipal Garage/Machine Shop Site 20/TPA Site 9e St. Paul Island, Alaska	Sources: Excavation Extent, Confirmation Samples, Tank Location, and Building Outlines (NOAA GPS 2003) Well location (NOAA GPA 2002).

Pribilof Islands Restoration Project

TABLES

TABLE 1

ANALYTICAL DATA SUMMARY - BTEX, GRO, DRO, RRO, AND LEAD
SITE 20/TPA SITE 9e - MUNICIPAL GARAGE/MACHINE SHOP
ST. PAUL ISLAND, ALASKA

Notes

bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
DRO	Diesel-range organic compounds
GRO	Gasoline-range organic compounds
mg/kg	Milligram per kilogram
--	Not analyzed
NA	Not available
RRO	Residual-range organic compounds
TPA	Two-Party Agreement
U	The analyte was analyzed for, but not detected above the sample reporting limit
J	The analyte was positively identified, but the numerical value is the estimated concentration; the result is considered qualitatively acceptable, but quantitatively unreliable
a	Duplicate of sample number SP20-CS-018-140
b	Duplicate of sample number SP20-CS-025-140
c	Duplicate of sample number SP20-CS-027-150
d	Duplicate of sample number SP20-SS-014
e	Duplicate of sample number SP20-SS-020
f	Cleanup level obtained 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.
g	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] 2003e).
h	Under the TPA, NOAA is obligated to comply with the 1991 ADEC cleanup level for benzene (0.5 mg/kg).
i	Cleanup level selected is based on more stringent value associated with ingestion and inhalation pathways.
j	Although these sites are in an industrial area, NOAA is using the residential cleanup level for lead (400 mg/kg).

TABLE 2

ANALYTICAL DATA SUMMARY - POLYNUCLEAR AROMATIC HYDROCARBONS
SITE 20/TPA SITE 9e - MUNICIPAL GARAGE/MACHINE SHOP
ST. PAUL ISLAND, ALASKA
(Page 1 of 2)

Sample Number	Sample Depth (feet bgs)	Naphthalene (mg/kg)	Acenaphthylene (mg/kg)	Acenaphthene (mg/kg)	Fluorene (mg/kg)	Phenanthrene (mg/kg)	Anthracene (mg/kg)	Fluoranthene (mg/kg)	Pyrene (mg/kg)	Benz(a) anthracene (mg/kg)	Chrysene (mg/kg)	Benzo(b) fluoranthene (mg/kg)	Benzo(k) fluoranthene (mg/kg)	Benzo(a) pyrene (mg/kg)	Indeno(1,2,3-cd) pyrene (mg/kg)	Dibenzo(a,h) anthracene (mg/kg)	Benzo(g,h,i) perylene (mg/kg)
TPA Site 9e Confirmation Samples																	
SP20-CS-001-080	8	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
SP20-CS-002-080	8	0.005 U	0.005 U	0.005 U	0.005 U	0.008	0.005 U	0.005 U	0.009	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
SP20-CS-003-110	11	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
SP20-CS-004-100	10	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
SP20-CS-005-050	5	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
SP20-CS-006-150	15	0.590 D	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
SP20-CS-007-150	15	0.270	0.005 U	0.005 U	0.005 U	0.006	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
SP20-CS-008-150	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-009-150	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-010-150	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-011-100	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-012-150	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-013-150	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-014-150	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-015-140	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-016-140	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-017-140	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-018-140	14	24	0.050 U	0.050 U	1.5	0.86	0.078	0.15	0.28	0.083	0.085	0.053	0.050 U	0.064	0.050 U	0.050 U	0.050 U
SP20-CS-018-250 [a]	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-019-140	14	3.3	0.050 U	0.49	0.55	0.24	0.050 U	0.050 U	0.059	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
SP20-CS-020-140	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-021-005	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-022-080	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-023-140	14	0.050 U	0.050 U	0.48	0.53	0.45	0.073	0.14	0.28	0.094	0.091	0.073	0.050 U	0.086	0.050 U	0.050 U	0.050 U
SP20-CS-024-140	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-025-140	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-025-250 [b]	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-026-150	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-027-150	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-027-250 [c]	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-028-050	5	0.050 U	0.050 U	0.064	0.095	0.050 U	0.050 U	0.050 U	0.055	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
SP20-CS-029-150	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-030-150	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-031-140	14	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
SP20-CS-032-150	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-033-140	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-035-100	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-036-100	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-037-100	10	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
SP20-CS-038-100	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-039-100	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-040-100	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-041-100	10	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
SP20-CS-042-020	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SP20-CS-043-020	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Method Two Cleanup Level [f]		*43*	*NA*	*210*	*270*	*NA*	*4,300*	*NA*	*1,500*	*6*	*620*	*11*	*110*	*1*	*11*	*1*	*NA*

Notes

bgs	Below ground surface
D	Result reported from dilute analysis
mg/kg	Milligram per kilogram
--	Not analyzed

TABLE 2

ANALYTICAL DATA SUMMARY - POLYNUCLEAR AROMATIC HYDROCARBONS
SITE 20/TPA SITE 9e - MUNICIPAL GARAGE/MACHINE SHOP
ST. PAUL ISLAND, ALASKA

NA	Not available
TPA	Two-Party Agreement
U	The analyte was analyzed for, but not detected above the sample reporting limit
a	Duplicate of sample number SP20-CS-018-140
b	Duplicate of sample number SP20-CS-025-140
c	Duplicate of sample number SP20-CS-027-150
d	Duplicate of sample number SP20-SS-014
e	Duplicate of sample number SP20-SS-020
f	Cleanup level obtained 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.