Request for No Further Remedial Action Planned

Site: Tanaq Shop/Store Tank, also known as St. George Island Two Party Agreement (TPA) Site 22-3/National Oceanic and Atmospheric Administration (NOAA) Site 24. This site is also referred to as Tanaq Shop/Store Underground Storage Tank (UST).

Location: St. George Island, Alaska is approximately 800 miles southwest of Anchorage in the Bering Sea. On St. George Island, TPA Site 22-3/Site 24 is located at the NW corner of the building that houses the St. George Canteen, the post office, and the St. George Tanaq Corporation (Tanaq) offices (56°36'6" N latitude, 169°33'1" W longitude; Figure 1).

Legal Property Description: TPA Site 22-3/Site 24 is in Tract 43, 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. See Figure 2.

Type of Release: Soil and groundwater in the area of TPA Site 22-3/Site 24 were contaminated by diesel fuel as a result of spillage during tank fueling operations and leakage from subsurface corrosion holes in the same tank.

History and Background: The Tanaq Shop/Store Tank was a 1,000-gallon underground UST that stored diesel fuel for heating the Tanaq building. Its installation date is thought to have been in the early 1960s when the Tanaq building was constructed, with discontinuation of use in the late 1970s (Polarconsult 1997).

Summary of Site Investigations and Cleanup Actions: In 1997, as part of a multi-site environmental investigation, debris removal, and UST decommissioning effort, Tanaq, with Polarconsult Alaska, Inc. providing environmental consultation, removed the Tanaq Shop Store Tank. Site assessment at the time of removal determined that the soil surrounding the UST was contaminated with diesel range organics (DRO). Subsequently, approximately 402 cubic yards of contaminated soil was excavated from the site. The excavation started at the UST location and expanded horizontally until further excavation was not possible due to the risk of undermining building foundations, interference from nearby septic tanks, and concerns about excavating adjacent to the nearby cliff (Polarconsult 1997). The excavation expanded vertically until equipment refusal was reached due to an underlying basalt layer. Per the report, the soil became progressively more solid with depth, until further excavation was not practicable. Figure 3 shows the extent of the 1997 excavation.

Polarconsult collected eleven soil samples and one duplicate from locations and depths shown on Figure 3. All samples were analyzed for DRO using AK-102 protocols. Two samples, SS 025 and SS 028, were also analyzed for benzene, toluene, ethylbenzene , and total xylenes (BTEX). The BTEX results were below action levels (benzene was not detected), however analyses results for DRO ranged from non-detect at sample location SS 027, to 20,500 mg/kg at sample location SS 022. Samples were collected from the excavation bottom at refusal and along sidewalls, with depths ranging from 6.7 feet to 14.4 feet. Surface contamination due to fuel spillage was removed during excavation. As would be expected, diesel fuel flowing from the subsurface

holes in the tank traveled down through the soil, therefore remaining contamination at the site is found at depths near and past refusal. Although these results indicate DRO contamination was left at the site above the most restrictive applicable ADEC Method Two (ADEC 2003) cleanup level of 250 mg/kg (migration to groundwater), the samples were collected when further excavation was deemed impracticable.

Figure 3 shows approximate test pit locations (TP-1, TP-2, TP-3, TP-4) from a 1995 Hart Crowser investigation of a nearby historic kerosene storage area (Hart Crowser 1997). The Hart Crowser report states that these test pits were excavated to equipment refusal depth, which ranged from 7 to 9 feet. Sixteen samples were taken from the pits and analyzed for DRO, gasoline range organics (GRO), petroleum hydrocarbons, and BTEX. Analyses results indicate that GRO and BTEX were not detected, and the maximum DRO concentration was 180 mg/kg at refusal depth (9 feet) in TP-1. All sample results were below ADEC cleanup standards, and Hart Crowser's recommendation was for no further action in the area of their investigation. For TPA Site 22-3/Site 24, the Hart Crowser results indicate that the DRO contamination drops to concentrations below cleanup requirements by the time it reaches the test pit locations, just beyond the 1997 excavation extents.

Figure 3 also shows groundwater analyses results for samples taken from monitoring well TPA22.3-MW-1 in 2001 through 2004 (TTEMI 2004). The highest DRO concentration detected was in August 2003 at 240 µg/L. The 18 AAC 75, Article 3, Table C, cleanup standard for ground water is 1500 µg/L for DRO (1300 µg/L for GRO). The analyses results show that, although DRO/GRO concentrations at TPA Site 22-3/Site 24 meet ADEC groundwater cleanup requirements, the groundwater has been impacted by the UST leakage. However, DRO concentrations between 2001 and 2004 do not show an increasing trend, indicating that the remaining contamination is not substantially moving to the groundwater. Further excavation will not likely provide additional reduction in groundwater DRO levels. The GRO detected in May 2004 at 50 µg/L seems to be an anomaly as it has not been detected before in this area, and there is no known source. Future sample results will be reviewed to determine GRO trends, if any.

ADEC Soil Cleanup Requirements: Method Two cleanup levels specified in 18 AAC 75, Article 3, Table B2, have been used to determine soil cleanup criteria at TPA sites on St. George Island. Per Table B2, "Under 40 inch Zone", which is applicable to St. George, the DRO cleanup concentration requirements are 10,250 mg/kg for the ingestion exposure pathway; 12,500 mg/kg for the inhalation exposure pathway; and 250 mg/kg for migration to groundwater. These concentration requirements were established to minimize risk to humans and wildlife through direct ingestion of contaminated soil, inhalation of volatized organic substances, and ingestion of groundwater contaminated by pollutants moving through the soil. As shown on Figure 3, sample results indicate that remaining soils meet the inhalation and ingestion criteria in all locations except in the area of sample SS 022 (at 20,500 mg/kg). Per Polarconsult's report, SS 022 was taken from an area where further excavation is not possible due to interference from the nearby septic tank (Polarconsult 1997). All but one of the sample results exceed the 250 mg/kg migration to groundwater criteria. However, sampling results from groundwater in this area have never exceeded ADEC groundwater cleanup criteria, and there is little likelihood of

any impact to current or future island drinking water supplies by leaving the remaining contamination in place at this site.

Other Considerations: Figure 4 shows the cliff edge as photographed in 2001 versus the cliff edge as surveyed by NOAA in 2003. Other evaluations of cliff loss, accomplished by comparing rectified aerial photographs of the cliff edge with a fixed inland survey point, indicate that the cliff is receding at an average rate of six inches per year. Cliff loss appears to occur in sections rather than on a steady incremental basis; this loss is evidenced by the dramatic slough that occurred during the winter of 2003, shown on Figure 4. The cliff loss is a result of the natural undercutting of the cliff base by Bering Sea wave action, coupled with probable freeze/thaw accelerated separation of the basalt cliff face. Potential areas of future cliff face separation are discernable as elongated depressions near the cliff edge. The situation is serious enough that signs have recently been posted in town along the cliff edge warning of its instability.

NOAA believes that excavation of the remaining contaminated soil at TPA Site 22-3/Site 24 has a potential for further accelerating the natural cliff loss, and the landowner, St. George Tanaq Corporation, (NOAA 2004) also acknowledges this concernThis induced cliff loss would occur due to new or increased crack formation in the area of the cliff as a result of ground vibrations associated with nearby excavation activities. These cracks would aid the natural freeze/thaw cycle of breaking down the cliff face. Vibrations would be caused somewhat by the movement of heavy excavation equipment, such as Tanaq's 30-ton Caterpillar 325 BL Track Excavator, in the area between the building and the cliff edge; but much more damaging would be the extreme ground vibration caused by the excavator bucket scraping against the consolidated basalt at its refusal point in the bottom of the excavation pit. This contact by the bucket with the dense basalt is unavoidable because the retrievable contaminated soil is located just above this basalt layer. The use of smaller excavation equipment such as Tanaq's Case 590 Loader/Backhoe is not practicable due to its limited horizontal and vertical reach, and lack of heft for digging through soil that becomes progressively more solid with depth. Use of lighter excavation equipment would also produce heavy ground vibration when the bucket meets solid basalt.

Recommended Action: NOAA believes that the limited benefit derived from removing the remaining contaminated soil at TPA Site 22-3/Site 24 is not worth the potential cost of accelerating cliff loss and the loss of a currently utilized commercial building that includes a U.S. Post Office and community grocery. Soil contaminated with DRO above ADEC cleanup levels based on direct ingestion and inhalation criteria will likely never pose a threat to humans and wildlife due to its location and depth below ground surface. Impact to area groundwater was mitigated with the removal of the leaking UST and the bulk of the contaminated soil. Current DRO concentration in the groundwater, always well below ADEC cleanup criteria, would not likely improve significantly as a result of additional excavation. On the other hand, there is a plausible risk that continued excavation, with its inherent ground vibration, would contribute to cliff loss near the Tanaq building. In accordance with paragraph 59 of the Two Party Agreement (NOAA 1996), NOAA requests written confirmation that NOAA completed all appropriate and practicable corrective action at the Tanaq Shop Store Tank, TPA Site 22-3/Site 24 in accordance with the Agreement, and that ADEC requires no plan for further remedial action from NOAA.

References:

ADEC 2003. Alaska Department of Environmental Conservation 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.

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

National Oceanic and Atmospheric Administration (NOAA). 1996. *Pribilof Islands Environmental Restoration Two Party Agreement.* Attorney General's Office File No. 66 1-95-0126, National Oceanic and Atmospheric Administration. January 26.

NOAA 2004. Jointly signed letter by NOAA (John Lindsay, Pribilof Project Manager) and St. George Tanaq Corp. (Leland Little, CEO) dated September 13 and 23, 2004.

Polarconsult 1997. *Environmental Site Investigation, St. George Debris Cleanup & UST Decommissioning, Pribilof Islands Environmental Restoration Project.* Polarconsult Alaska, Inc. November 2, 1997.

TTEMI 2004. *Initial Draft Field Investigation Report*, St. George Island, Alaska. Tetra Tech EM Inc. August 11, 2004.

For the National Oceanic and Atmospheric Administration

John Lindsay
NOAA, Pribilof Project Office

10/4/04
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 Tanaq Shop Store Tank, St. George TPA Site 22-3/Site 24, 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

10/8/04
Date

Tables and Figures

Table 1. Analytical Data Summary for Samples from the Tanaq Shop Store Tank, TPA Site 22-3/Site 24, St. George Island, Alaska

Polarconsult Sample ID Number	DRO (mg/kg)	Benzene (mg/kg)	BTEX (mg/kg)	Sample Depth (feet)
SS 021	4000	NA	NA	8.3
SS 022	20500	NA	NA	9.4
SS 023	1040	NA	NA	12.8
SS 024	758	NA	NA	14.4
SS 025	2730	ND	13	8.5
SS 026	3730	NA	NA	8.4
SS 027	ND	NA	NA	11.9
SS 028	1530	ND	4	7.3
SS 029	997	NA	NA	10.7
SS 030	2070	NA	NA	6.7
SS 031	730	NA	NA	8.0
SS 032 (Note 1)	2780	NA	NA	6.7
Method Two Cleanup Level See Note 2	250	0.02	Note 3	

NA Not Analyzed
ND Not Detected
Note 1 Duplicate of SS 030
Note 2 Clean up levels are those for "Migration to Groundwater", Under 40 Inch Zone, as specified in 18 AAC 75, Article 3, Table B2.
Note 3 Individual cleanup levels are: Benzene 0.02 mg/kg; Toluene 5.4 mg/kg; Ethylbenzene 5.5 mg/kg; Total Xylenes 78 mg/kg.

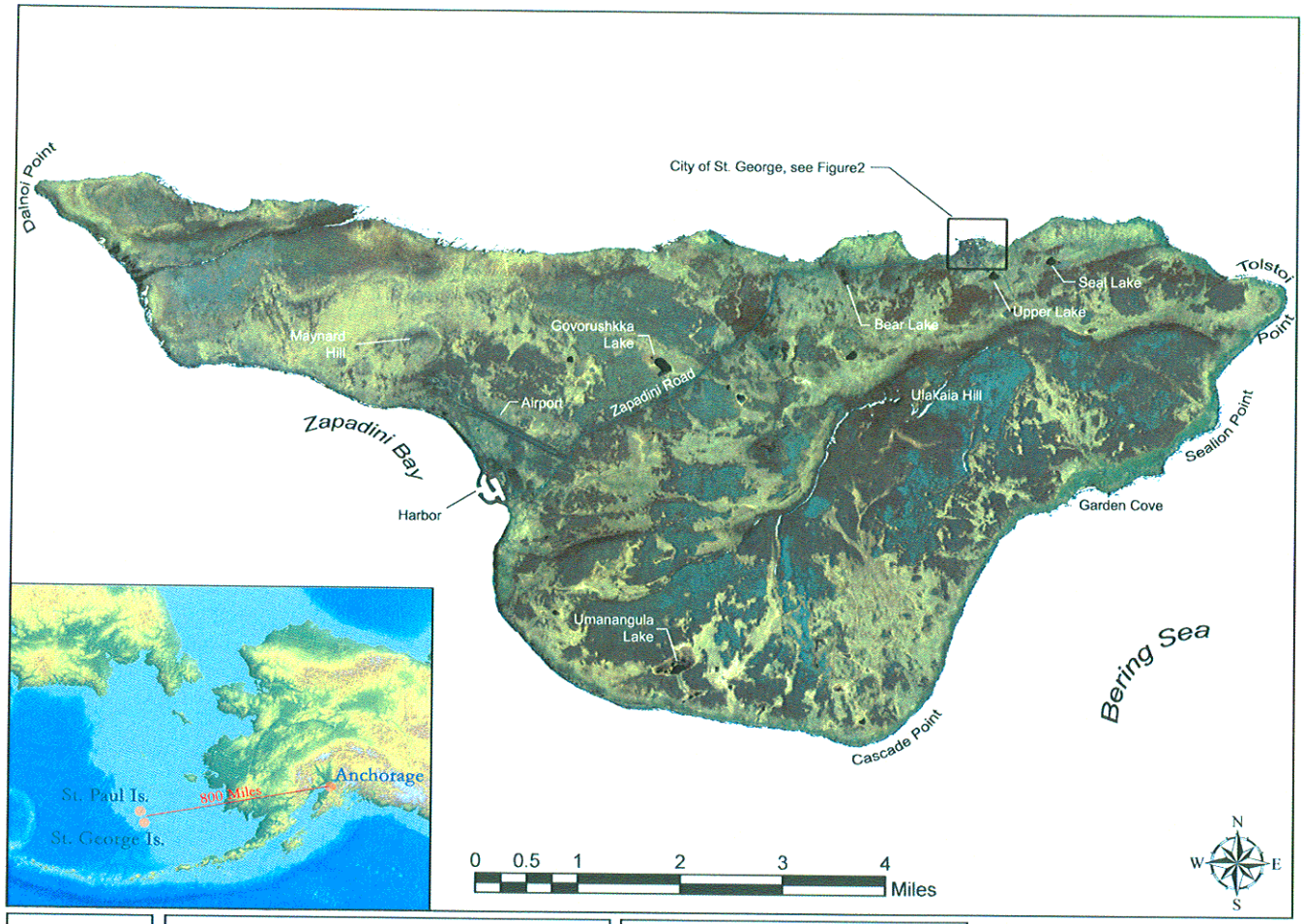

Figure 1	**Island and Vicinity Map Shop/Store UST TPA Site 22-3/Site 24 St. Geroge Island, Alaska**	Source: Ikonos 2001 Satellite Image

Pribilof Islands Restoration Project

Figure 2	**Legal Property Description Map Shop/Store UST TPA Site 22-3/Site 24 St. George Island, Alaska**	Source: Ikonos 2001 Satellite Image; Bureau of Land Management Land Survey Filed Febuary 15, 1985	Pribilof Islands Restoration Project

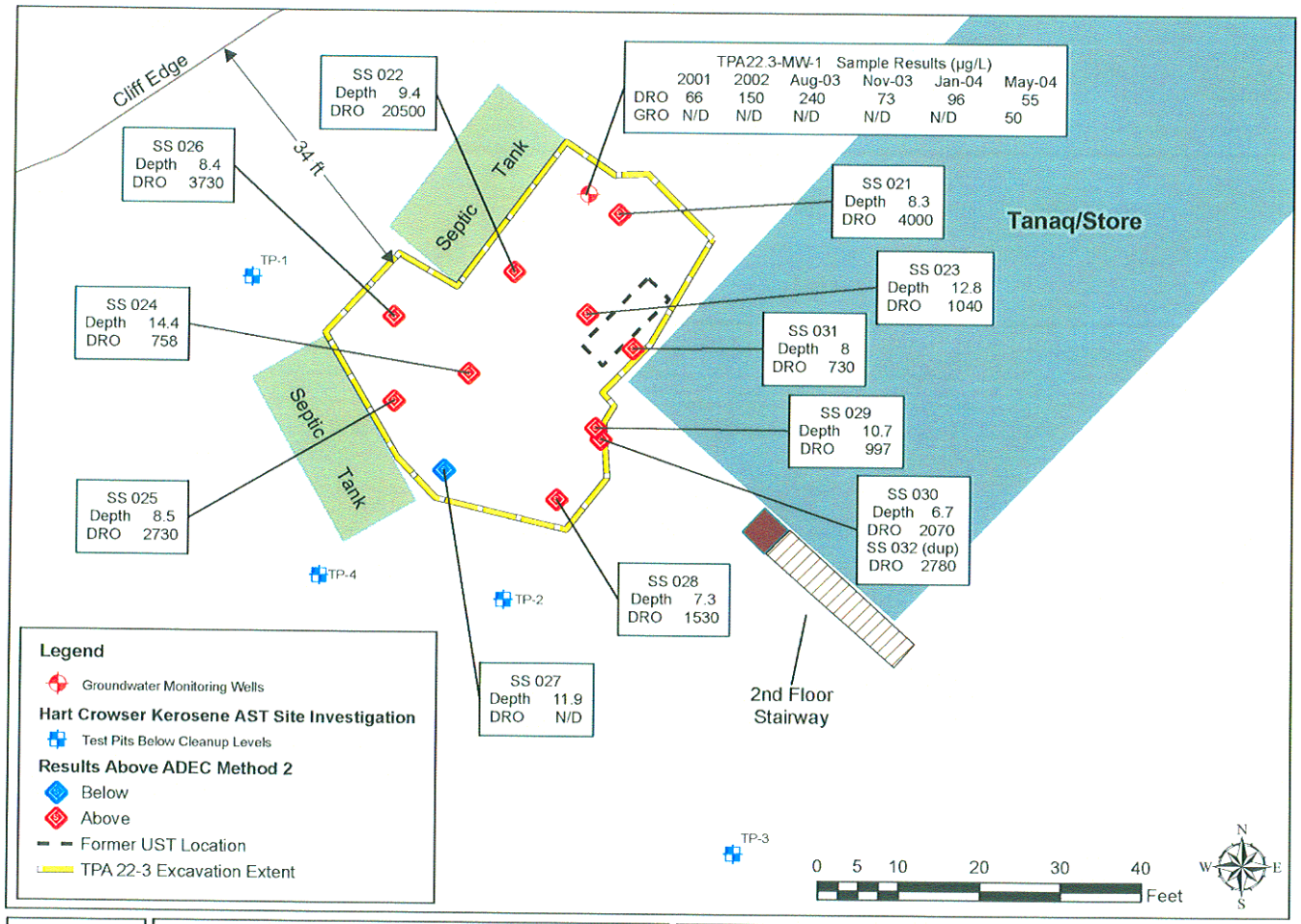

Figure 3	Excavation & Sample Location Plan Polarconsult, 1997 UST Decommissioning Shop/Store UST TPA Site 22-3/Site 24 St. George Island, Alaska	Source: Polar Consult 1997 Corrective Action Report TTEMI Field Investigation Report 2/14/2003 & Initial Draft Field Ivestigation Report 8/11/2004. Note: Soil Levels reported in mg/kg; Groundwater Levels Reported in µg/L

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Figure 4	**Cliff Erosion Winter 2003 Shop/Store UST TPA Site 22-3/Site 24 St. George Island, Alaska**	Source: Ikonos 2001 Orthorectified Satellite Image; Survey Data Collected by Pribilof Project Contractor July 2003

Pribilof Islands Restoration Project

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Pribilof Project Office
7600 Sand Point Way N.E
Seattle, Washington 98115
Ph: 206-526-6965, fax: 206-526-4819

September 13, 2004

Leland Little
Chief Executive Officer
St. George Tanaq Corporation
9135 King Street, Suite 201
Anchorage, AK 99515

RE: Two Party Agreement Site 22-3, Tanaq Store UST

Dear Mr. Little:

The National Oceanic and Atmospheric Administration (NOAA) desires to seek a "No Further Remedial Action Planned" (NFRAP) determination from Alaska Department of Environmental Conservation (ADEC) for Two Party Agreement (TPA) Site 22-3, Tanaq Store Underground Storage Tank (UST). This request will be based on the relatively low additional environmental risk associated with leaving the remaining diesel range organics (DRO) contaminated soil in place compared to the risk of causing accelerated sloughing of the nearby cliff as a result of the use of excavation equipment to remove the soil. As property owner, it is important that St. George Tanaq Corporation (Tanaq) understands and concurs with NOAA's reasoning behind seeking this determination. This letter provides background information about the site, and hopefully will serve as documentation of Tanaq's concurrence with requesting a NFRAP.

Site History and Remediation Activities To Date

The following historic and site remediation information is based on the Polarconsult Alaska, Inc. report "*Environmental Site Investigation, St. George Debris Cleanup & UST Decommissioning, Pribilof Islands Environmental Restoration Project*", dated 11/2/1997.

The Tanaq Store UST was a 1,000-gallon diesel fuel tank, located at Lot 1 of Tract 43, Qawax Subdivision, Seward Meridian, Alaska. Its installation date is thought to have been in the early 1960s when the Tanaq building was constructed, with discontinuation of use in the late 1970s. In 1997, the UST was removed by St. George Tanaq Corporation, with Polarconsult Alaska, Inc. providing environmental consultation. Site assessment at the time of removal determined that the soil surrounding the UST was contaminated with DRO. Subsequently, approximately 402 cubic yards of contaminated soil was excavated from the site. The excavation started at the UST location and expanded horizontally until further

excavation was not possible due to the risk of undermining building foundations, interference from nearby septic tanks, and concerns about excavating adjacent to the nearby cliff. The excavation expanded vertically until equipment refusal was reached due to an underlying basalt layer. Per the report, the soil became progressively more solid with depth. Enclosure (1) is four draft figures that will be included in the proposed NFRAP request. Figure 4 shows the extent of the 1997 excavation; 1997 soil sample locations and results; groundwater monitoring well TPA22.3-MW-1 location and water analyses results for DRO/GRO; and approximate test pit locations from a 1995 Hart Crowser expanded site inspection.

Remaining Site Contamination

Enclosure (1), Figure 4, shows DRO analytical results ranging from non-detect at sample location SS 027 to 20,500 ppm at sample location SS 022. Samples were collected from the excavation bottom at refusal and along sidewalls, with depths ranging from 6.7 feet to 14.4 feet. As would be expected, diesel fuel flowed from the leaking tank down through the soil, therefore contaminated soil is found at depths near refusal, not at the surface. Although these results indicate DRO contamination was left at the site above the most restrictive applicable ADEC Method Two cleanup level of 250 ppm (migration to groundwater), the samples were collected when further excavation was deemed impracticable.

Figure 4 shows approximate test pit locations (TP-1, TP-2, TP-3, TP-4) from a 1995 Hart Crowser investigation of a nearby historic kerosene storage area (*Draft Hart Crowser Expanded Site Inspection, St. George Island, Pribilof Islands, Alaska*, dated June 1996). The Hart Crowser report states that these test pits were excavated to equipment refusal depth, which ranged from 7 to 9 feet. Sixteen samples were taken from the pits and analyzed for DRO, gasoline range organics (GRO), petroleum hydrocarbons, benzene, toluene, ethylbenzene, and total xylenes (BTEX). Analytical results indicate that GRO and BTEX were not detected, and the maximum DRO concentration was 180 ppm at refusal depth (9 feet) in TP-1. All sample results were below ADEC cleanup standards, and Hart Crowser's recommendation was for no further action in the area of their investigation. For TPA Site 22-3, the Hart Crowser results indicate that the DRO contamination drops to concentrations below cleanup requirements by the time it reaches the test pit locations, just beyond the 1997 excavation extents.

Figure 4 also shows groundwater analytical results for samples taken from monitoring well TPA22.3-MW-1 in 2001 through 2004. The highest DRO concentration detected was in August 2003 at 240 parts per billion (ppb). The 18 AAC 75, Table C, cleanup standard for ground water is 1500 ppb for DRO (1300 ppb for GRO). The analytical results show that, although DRO/GRO concentrations at TPA Site 22-3 meet ADEC groundwater cleanup requirements, the groundwater has been impacted by the UST leakage. However, DRO concentrations between 2001 and 2004 do not show an increasing trend, therefore further

excavation would not likely provide additional reduction in groundwater DRO levels. The GRO detected in May 2004 at 50 ppb seems to be an anomaly as it has not been detected before in this area, and there is no known source. Future sample results will be reviewed to determine GRO trends, if any.

ADEC Soil Cleanup Requirements

Method Two cleanup levels, Table B2 of 18 AAC 75, have been used to determine soil cleanup criteria at TPA sites on St. George Island. Per Table B2, "Under 40 inch Zone", which is applicable to St. George, the DRO cleanup concentration requirements are 10,250 ppm for the ingestion exposure pathway; 12,500 ppm for the inhalation exposure pathway; and 250 ppm for migration to groundwater. These concentration requirements were established to minimize risk to humans and wildlife through direct ingestion of contaminated soil, inhalation of volatized organic substances, and ingestion of groundwater contaminated by pollutants moving through the soil. As shown on Figure 4, sample results indicate that remaining soils meet the inhalation and ingestion criteria in all locations except in the area of sample SS 022 (at 20,500 ppm). Per Polarconsult's report, SS 022 was taken from an area where further excavation was not possible due to interference from the nearby septic tank. All but one of the sample results exceed the 250 ppm migration to groundwater criteria. However, sampling results from groundwater in this area have never exceeded ADEC groundwater cleanup criteria, and there is little likelihood of any impact to current or future island drinking water supplies.

Cliff Sloughing

Enclosure (1), Figure 3, shows the cliff edge as photographed in 2001 versus the cliff edge as surveyed by NOAA in 2003. Other evaluations of cliff loss, accomplished by comparing rectified aerial photographs of the cliff edge with a fixed inland survey point, indicate that the cliff is receding at an average rate of six inches per year. Cliff loss appears to occur in sections rather than on a steady incremental basis; this loss is evidenced by the dramatic slough that occurred during the winter of 2003, shown on Figure 3. The cliff loss is a result of the natural undercutting of the cliff base by Bering Sea wave action, coupled with probable freeze/thaw accelerated separation of the basalt cliff face. Potential areas of future cliff face separation are discernable as elongated depressions near the cliff edge. The situation is serious enough that signs have recently been posted in town along the cliff edge warning of its instability.

NOAA believes that excavation of the remaining contaminated soil at TPA Site 22-3 has a potential for further accelerating the natural cliff loss. This induced cliff loss would occur due to new or increased crack formation in the cliff face as a result of ground vibrations associated with nearby excavation activities. These cracks would aid the natural freeze/thaw cycle of breaking down the cliff face. Vibrations would be caused somewhat by the movement of heavy excavation equipment, such as Tanaq's 30-ton Caterpillar 325 BL Track

Excavator, in the area between the building and the cliff edge; but much more damaging would be the extreme ground vibration caused by the excavator bucket scraping against the consolidated basalt at its refusal point in the bottom of the excavation pit. This contact by the bucket with the dense basalt is unavoidable because the retrievable contaminated soil is located just above this basalt layer. The use of smaller excavation equipment such as Tanaq's Case 590 Loader/Backhoe is not practicable due to its limited horizontal and vertical reach, and lack of heft for digging through soil that becomes progressively more solid with depth. Use of lighter excavation equipment will still produce heavy ground vibration when the bucket meets solid basalt.

Summary

NOAA does not believe that the benefit derived by removing the remaining contaminated soil at TPA Site 22-3 is worth the potential cost of accelerating cliff loss. Soil contaminated with DRO above ADEC cleanup levels based on direct ingestion and inhalation criteria will likely never pose a threat to humans and wildlife due to its location and depth below ground surface. Impact to area groundwater was mitigated with the removal of the leaking UST and the bulk of the contaminated soil. Current DRO concentration in the groundwater, always well below ADEC cleanup criteria, would not likely improve significantly as a result of additional excavation. On the other hand, there is a plausible risk that continued excavation, with its inherent ground vibration, would contribute to cliff loss near the Tanaq building.

NOAA requests that Tanaq, as property owner, concur with the approach of requesting a NFRAP designation from ADEC for TPA Site 22-3 without further excavation at the site. Upon your signature and return of this letter affirming your concurrence as the rightful representative of Tanaq, NOAA will proceed with the NFRAP request. Two copies are provided; one each for Tanaq's and NOAA's files; please retain one and return the other.

I can be reached at 206-526-4560 (fax: -4819); by e-mail at john.lindsay@noaa.gov.

John Lindsay _____ Date: 9/13/04
NOAA Pribilof Project Manager

Leland Little _____ Date: 9/23/04
St. George Tanaq Corp. Chief Executive Officer

Enclosures: as stated
Cc: Jim Malchow, NOAA
Greg Gervais, NOAA
File

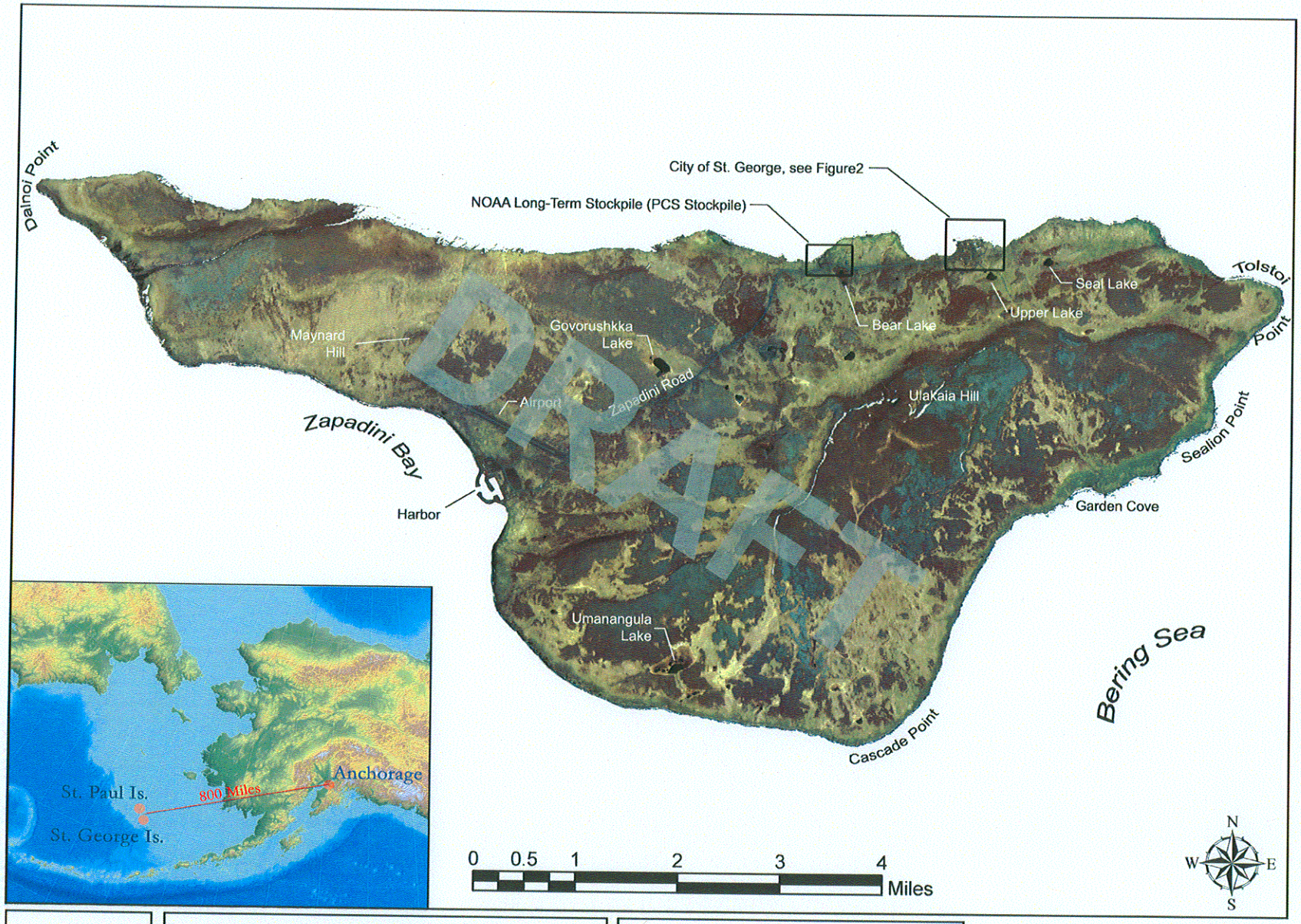

Figure	Island and Vicinity Map	Source: Ikonos 2001 Satellite Image
1		

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Figure 2	**City Area Vicinity Map**	Source: Aero Map U.S. 9/28/96 Aerial Photograph

Pribilof Islands Restoration Project

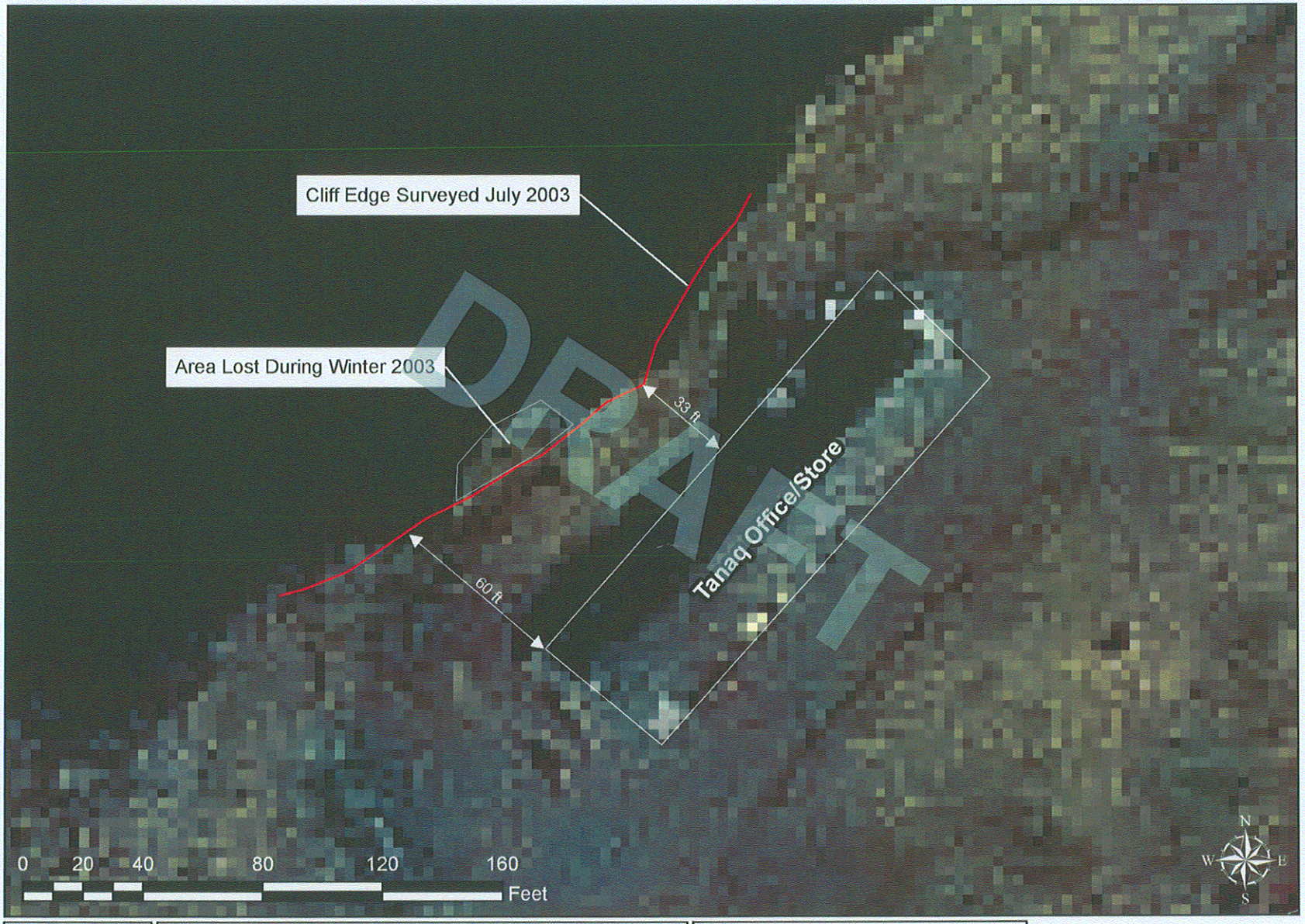

Figure 3	**Cliff Erosion Winter 2003 Tanaq Office/Store Building St. George Island, Alaska**	Source: Ikonos 2001 Orthorectified Satellite Image; Survey Data Collected by Pribilof Project Contractor July 2003

Pribilof Islands Restoration Project

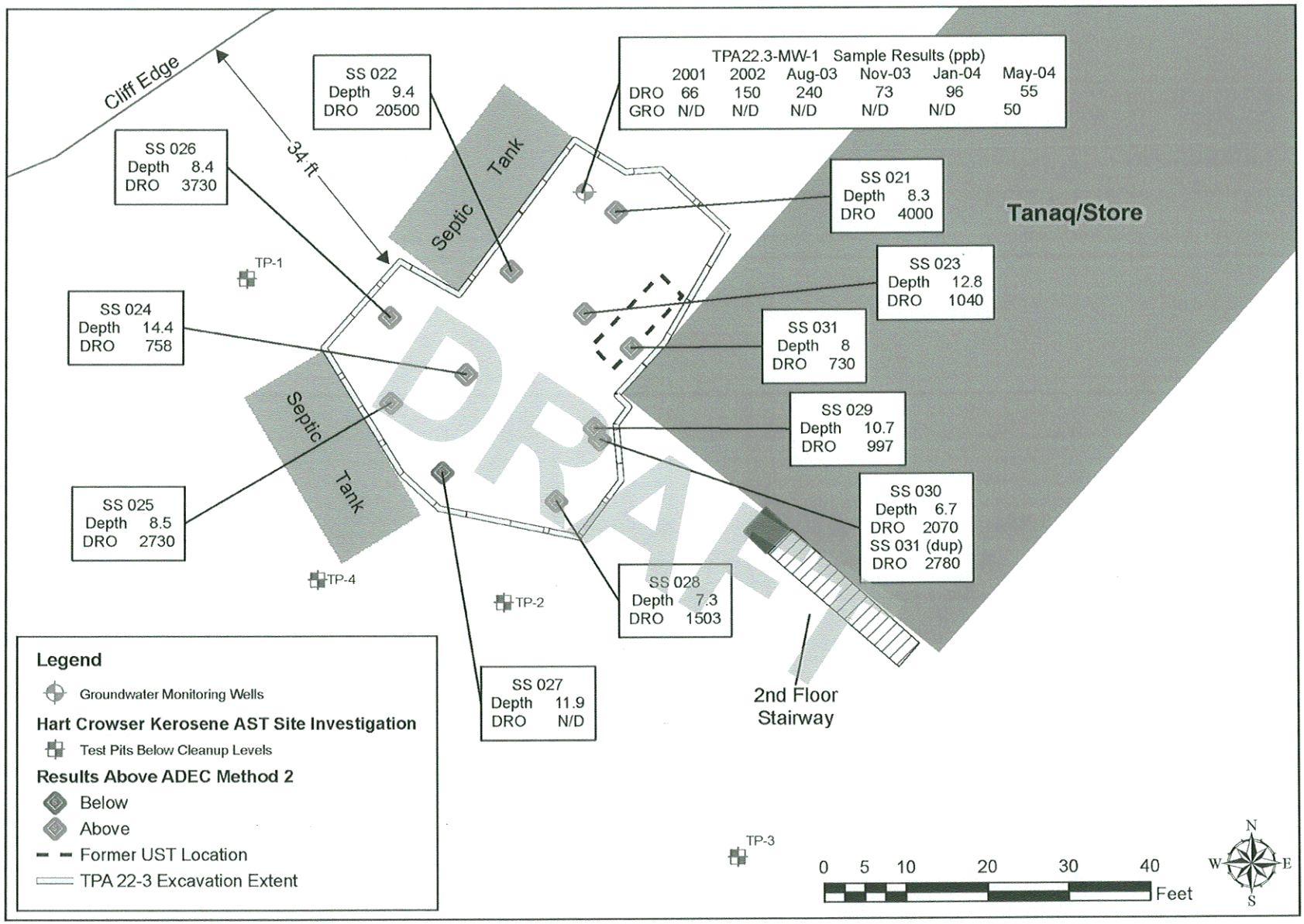

Figure	Excavation and Sample Location Plan 1997 UST Decommissioning, St. George, Alaska	Source: Polar Consult 1997 Corrective Action Report TTEMI Field Investigation Report 2/14/2003 & Initial Draft Field Ivestigation Report 8/11/2004. Note: Soil Levels reported in PPM; Groundwater Levels Reported in PPB
4		

Pribilof Islands Restoration Project