

Cossaboom, Carey C POA

From: Welker, Molly [mwelker@bristol-companies.com]
Sent: Thursday, April 16, 2009 4:24 PM
To: james.spires@alaska.gov
Cc: Cossaboom, Carey C POA; Woods, Travis; Johnson, Steve
Subject: Proposed Landfill Cap Northeast Cape, AK

Attachments: ADEC Landfill Cap Letter.pdf



ADEC Landfill Cap
Letter.pdf (...)

Dear Mr. Spires:

Per our telephone conversation yesterday, please find attached a summary of the proposed landfill cap design for the Cargo Beach Road Landfill at Northeast Cape, St. Lawrence Island, Alaska.

Please review the material and if you have any questions, please contact me at 743-9341.

Thanks,

Molly

Molly Welker
Senior Project Manager
Bristol Environmental Remediation Services, LLC
111 W. 16th Avenue, Third Floor
Anchorage, AK 99501-5109
Phone : (907) 563-0013
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Summary of the 2009 Northeast Cape Landfill Cap Project

Background of the Cargo Beach Road Landfill

The Cargo Beach Road Landfill is located about mid-way between the former Main Operations Complex and Cargo Beach at Northeast Cape, St. Lawrence Island, Alaska (see attached figures). The site contains an unpermitted solid waste disposal area used by the military from 1965 until 1974. Scattered drums and metal debris were removed from the site during previous removal actions (MWH, 2003; Shannon-Wilson, 2005; Bristol, 2006). The landfill appears to have been created by dumping debris off the sides of a topographic mound. The debris appears to have been covered frequently by grading soil out from the top of the mound. Debris remains visible around the perimeter of the area.

According to Bristol's 2009 Scope of Work from the USACE over 6,000 55-gallon drums were gathered from the Cargo Beach landfill during the 2000 field season. During the 2003 field season 15 tons of scrap metal were removed from the area east of Cargo Beach Road. PCB-contaminated soils (14 tons) from 6 discrete areas along the southeastern exposed edge of the landfill were excavated and shipped offsite during the 2005 field season. Exposed drums and debris were removed from the landfill site in 2005, including several drums of waste oil discovered around the perimeter edges of the landfill. Liquid from two drums was drained and sent off-site for disposal. Field test kits indicated the drums contained used oil and were not contaminated with PCBs. Several other partially buried drums, apparently full with liquid wastes, remain in place. Bristol protected these drums with rocks. R&M Consultants conducted a geophysical survey of the landfill in 2007 and identified several metallic anomalies (Shown in an attached figure).

Summary of Existing Soil and Groundwater Data

Environmental sampling activities at Cargo Beach Road Landfill have included the collection of soil, sediment, surface, and shallow groundwater samples (See Figure 1). Samples were analyzed for petroleum-related compounds, volatile organic compounds, semi-volatile organic compounds, metals, pesticides, and PCBs. Based on the results of the phased Remedial Investigations, contaminants exceeding action levels in the soil were diesel range organics (DRO), residual range organics (RRO), PCBs, arsenic, chromium, and lead. The Cargo Beach Road Landfill has a limited amount of soil contamination remaining above the applicable site-specific risk-based cleanup levels.

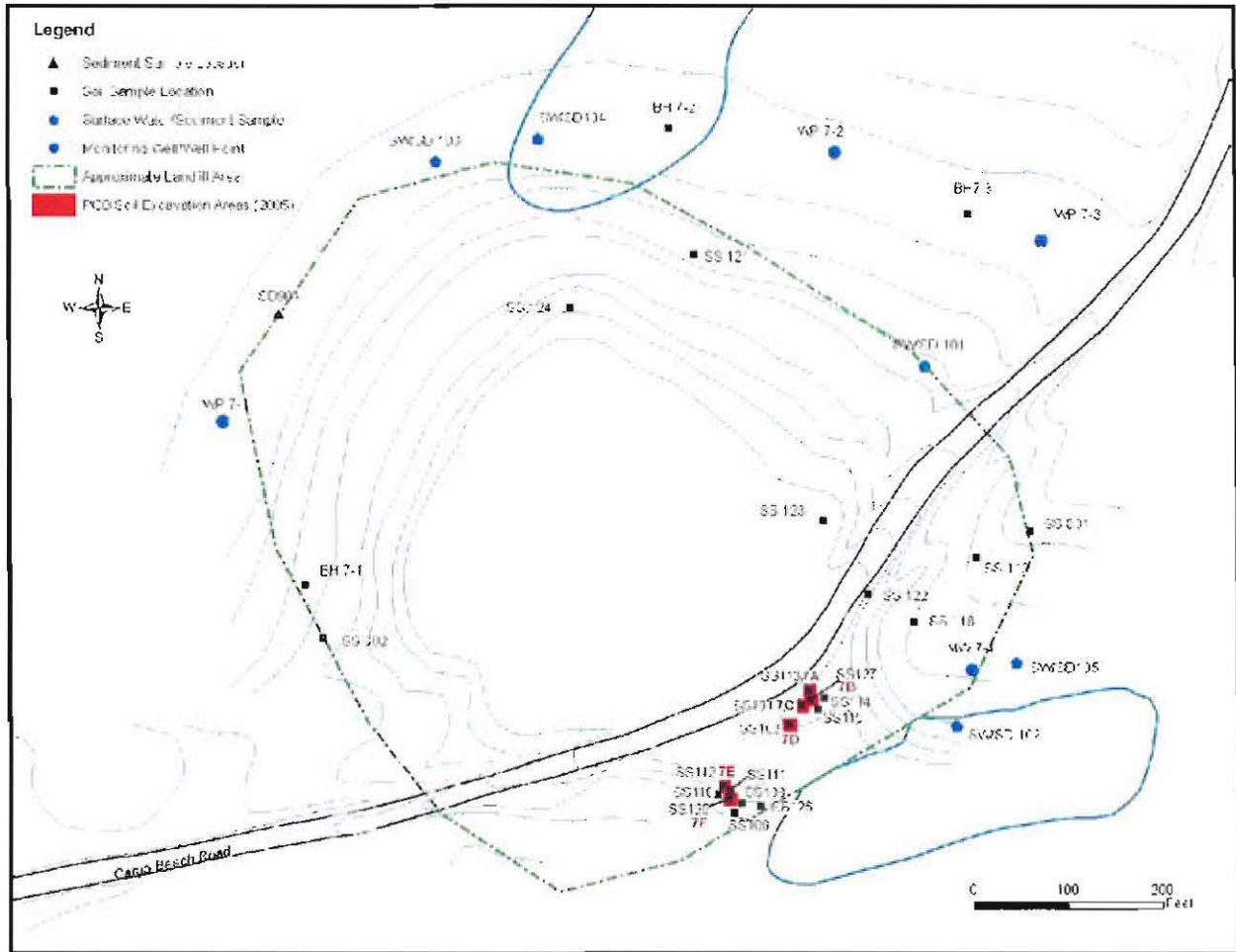


Figure 1. Cargo Beach Road Landfill sampling locations.

The maximum concentration of DRO in soil was 32,000 milligrams per kilogram (mg/kg) at the surface sample location SS801, which exceeds the cleanup level of 9,200 mg/kg. DRO concentrations ranged from non-detect (ND) to 2,300 mg/kg at the other sampling locations. The sample with the elevated DRO concentration was collected in 1994, from a location approximately 75 feet east of the road, at the base of the exposed debris slope. A large amount of debris has been removed from this location and surface soils have been disturbed by heavy equipment.

PCBs were detected in soils on the eastern edge of the landfill at concentrations ranging from ND to 50.8 mg/kg. Six locations with PCBs > 1 mg/kg were excavated and disposed offsite during the 2005 field season. The field screening and laboratory soil confirmation sampling results demonstrated that PCBs were successfully removed to below 1 mg/kg at 4 of the 6 locations. Subsurface soils (2.0 to 3.5 ft bgs) at two locations, 7A and 7E on the eastern slope of the landfill may still contain PCBs above the cleanup level of 1 mg/kg based on immunoassay screening results only.

The RI results indicate that significant contamination has not migrated away from the landfill. Arsenic, chromium, lead, nickel, DRO and PCB contamination was identified in soil and sediment samples above the ADEC cleanup levels collected in 2001 and 2003.

The USACE selected remedy for the landfill is to cap it after removing drums filled with liquids and disposing of associated impacted contaminated soils.

In accordance with our USACE Scope of Work, Bristol will prepare a design and construct the landfill cap in 2009. Bristol proposal is to construct a cap with local material and create a cap that has a hydraulic conductivity less than or equal to natural subsurface soils. Bristol proposes to cap the landfill using 3 feet of clean 'pit run' material located from a borrow area near the site. The top six inches will consist of finer material from the borrow area, have a higher permeability than 1×10^{-5} cm/s, but should promote adequate water retention for the successful re-vegetation of the site with native vegetation or grasses. Furthermore, Bristol will grade the capped landfill area to promote surface water runoff without erosion so as to prevent ponding, erosion, and to minimize percolation. The area is surrounded by discontinuous permafrost at depths ranging from 5 to 15 feet below ground surface.

Bristol's cap design will contain necessary drawings and will include the items listed below.

- Lateral extent of area to be capped
- Cover material and borrow source(s)
- Maximum and minimum slope
- Methods of cover placement to include the number of lifts
- Compaction requirements to include number of compaction equipment passes needed to meet the requirement
- Final grading and erosion control measures
- Discussion of how the cap design meets remedial objectives and is in compliance with any applicable regulatory requirements

Attachment 1

Cargo Beach Road Landfill Figures and Photos

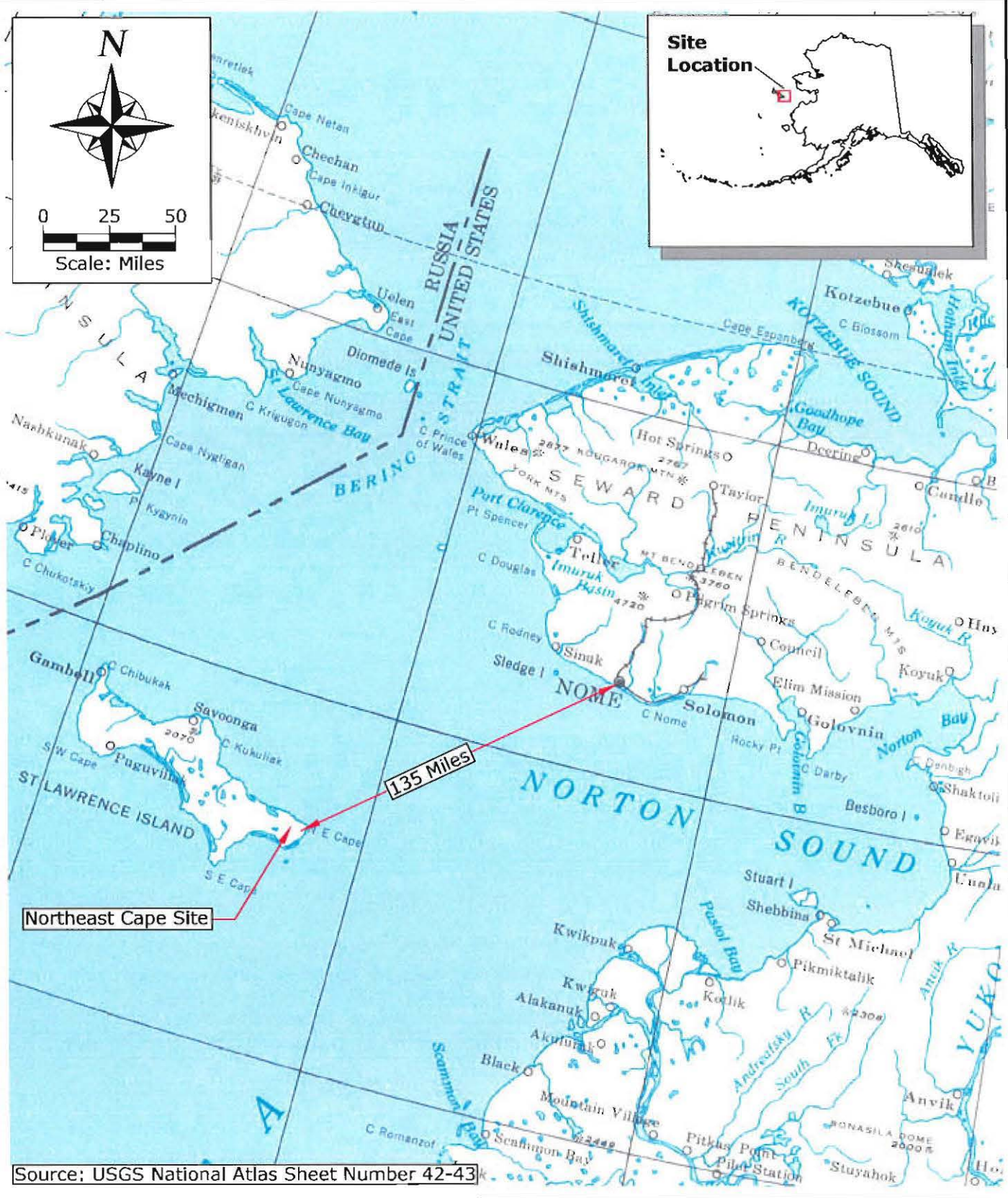
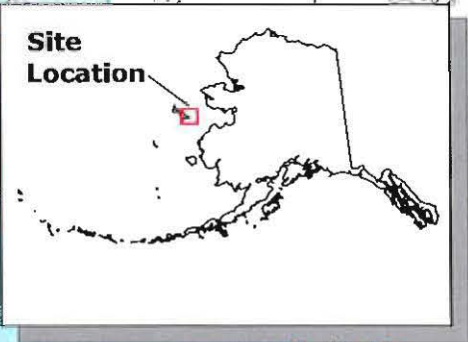
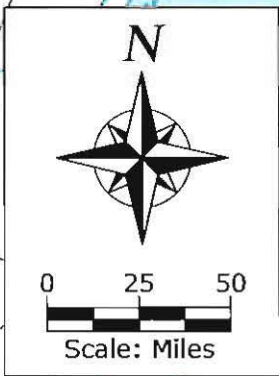
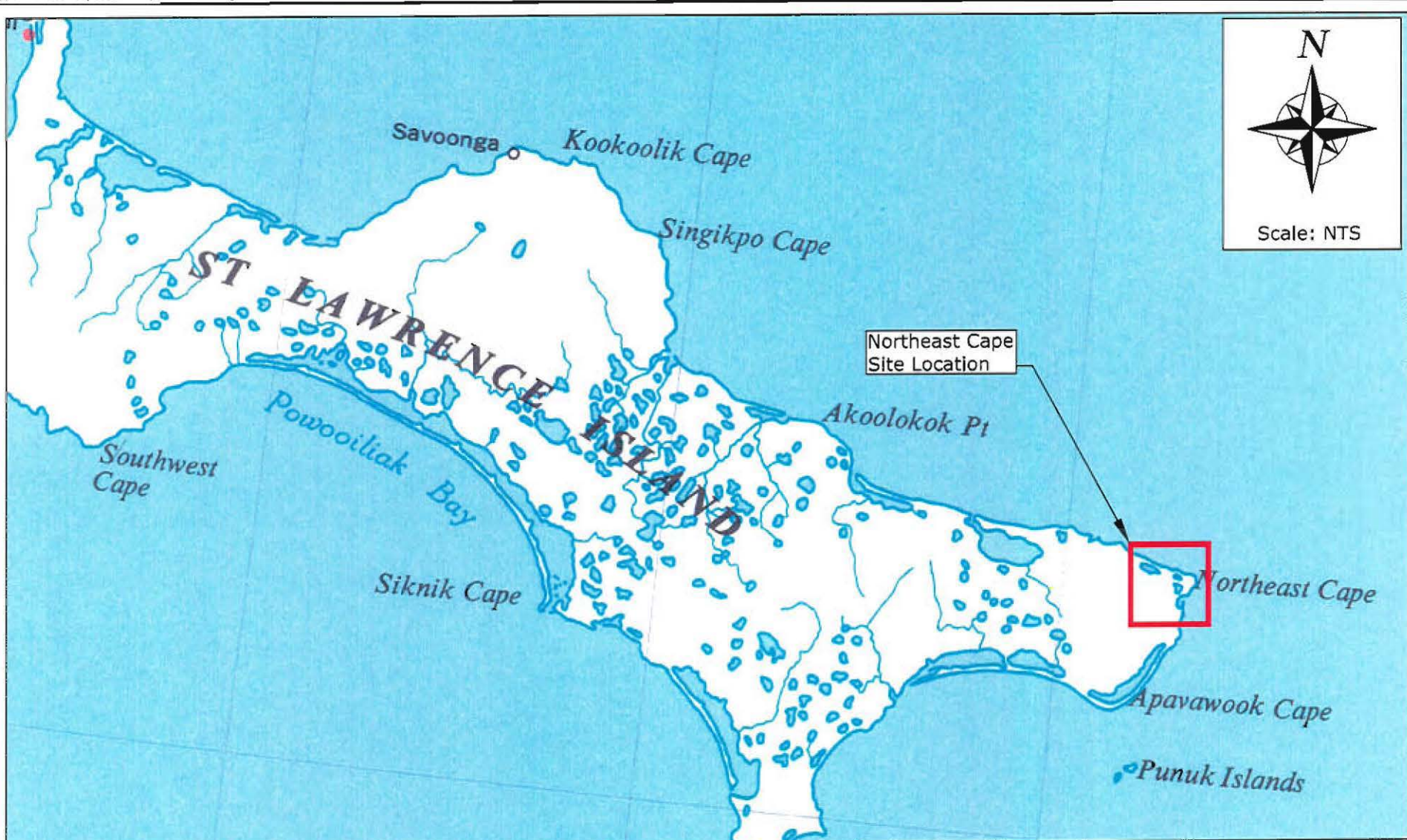


FIGURE 2-1
 WHITE ALICE SITE REMOVAL ACTION
 NORTHEAST CAPE ST. LAWRENCE ISLAND, ALASKA
 VICINITY MAP

| | | | | |
|---|-------------|------------------|----------|-------|
| Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION Phone (907) 563-0013 Fax (907) 563-6713 Project No. 25037 | DATUM: | DATE | 09/22/05 | SHEET |
| | N/A | DWN. | MTG | 1 |
| | PROJECTION: | SCALE | NTS | of |
| | N/A | CONTRACT NO.: | APPRVD. | SJ |
| | | DACA85-02-C-0011 | | 2 |

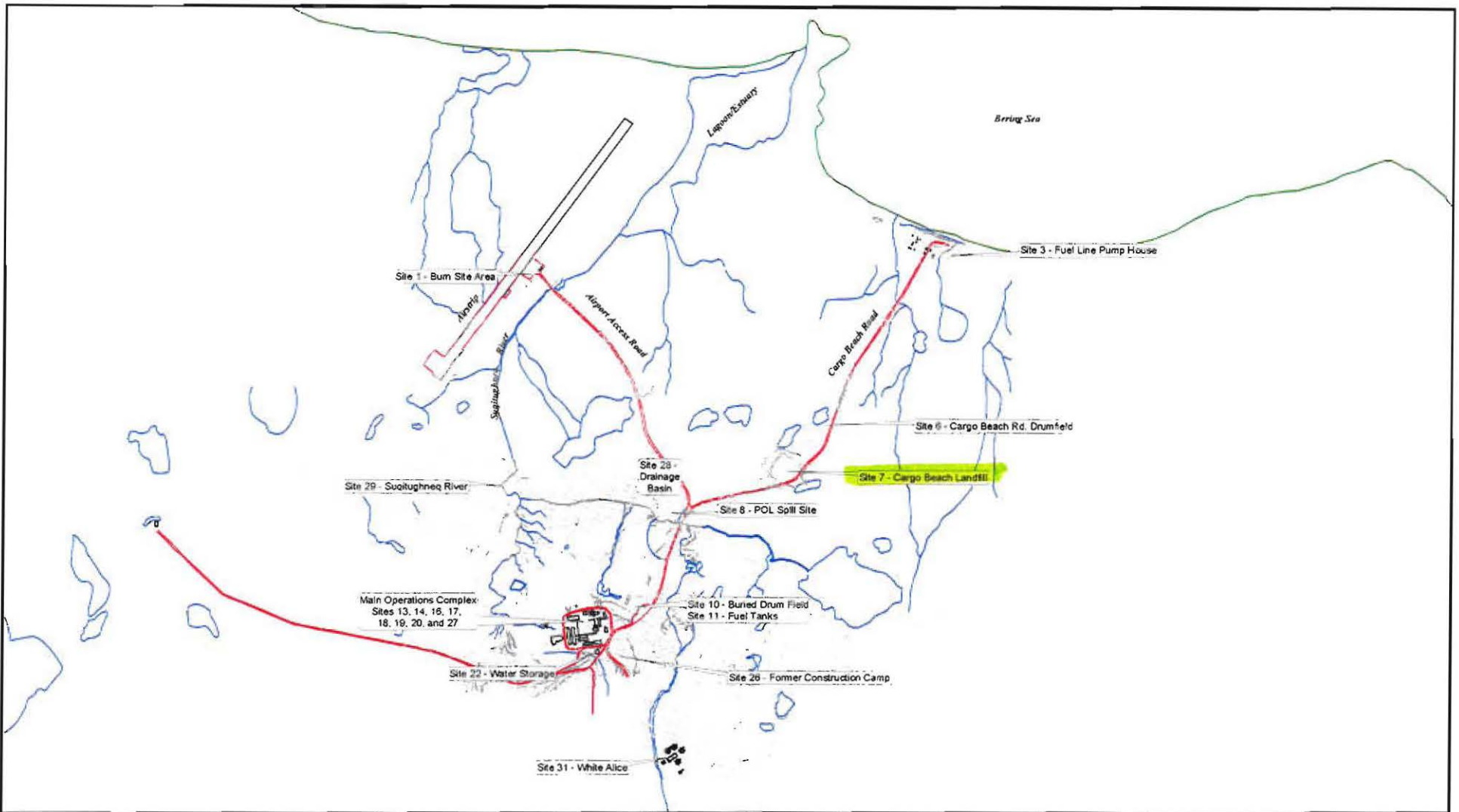
Drawing: 1:25037 NE CAPE TRAM & DEBRIS REMOVAL VACAD-ENVIRO\TRANS_DEBRIS_REMOVAL\DWG\25037_RA_FIG2-1.DWG - Layout: FIG2-1
 User: MGARCIA Jan 05, 2006 - 2:07pm Xrefs: - Images: NECAPE.JPG



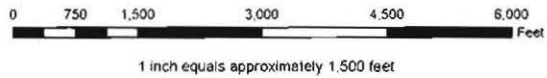
Source: USGS St. Lawrence 1:250,000 Series

FIGURE 2-2
 WHITE ALICE SITE REMOVAL ACTION
 NORTHEAST CAPE ST. LAWRENCE ISLAND, ALASKA
 LOCATION MAP

| | | | |
|---|------------------|-------------|-------|
| Bristol ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION Phone (907) 563-0013 Fax (907) 563-8713 Project No. 25037 | DATUM: | DATE | SHEET |
| | N/A | 09/22/05 | 2 |
| | PROJECTION: | DWN. MTG | of |
| | N/A | SCALE SHOWN | 2 |
| | CONTRACT NO: | APPRVD. SJ | |
| | DACA85-02-C-0011 | | |



- Legend**
- Water Feature
 - Road
 - Shoreline
 - Topographic Contours (Interval 5 ft)



Phase IV RI, Northeast Cape
St. Lawrence Island, Alaska

SITE MAP

June 2005

32-1-16821



SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

Fig. 2-3

Note: All locations approximate, see Appendix D of "Phase IV RI, Northeast Cape, St. Lawrence Island, Alaska" for survey data. Figure based on previous work. Physical features may not correspond to 2004 field observations.



Electromagnetic data collection underway at Site 7, looking south.
(9 August 2007)



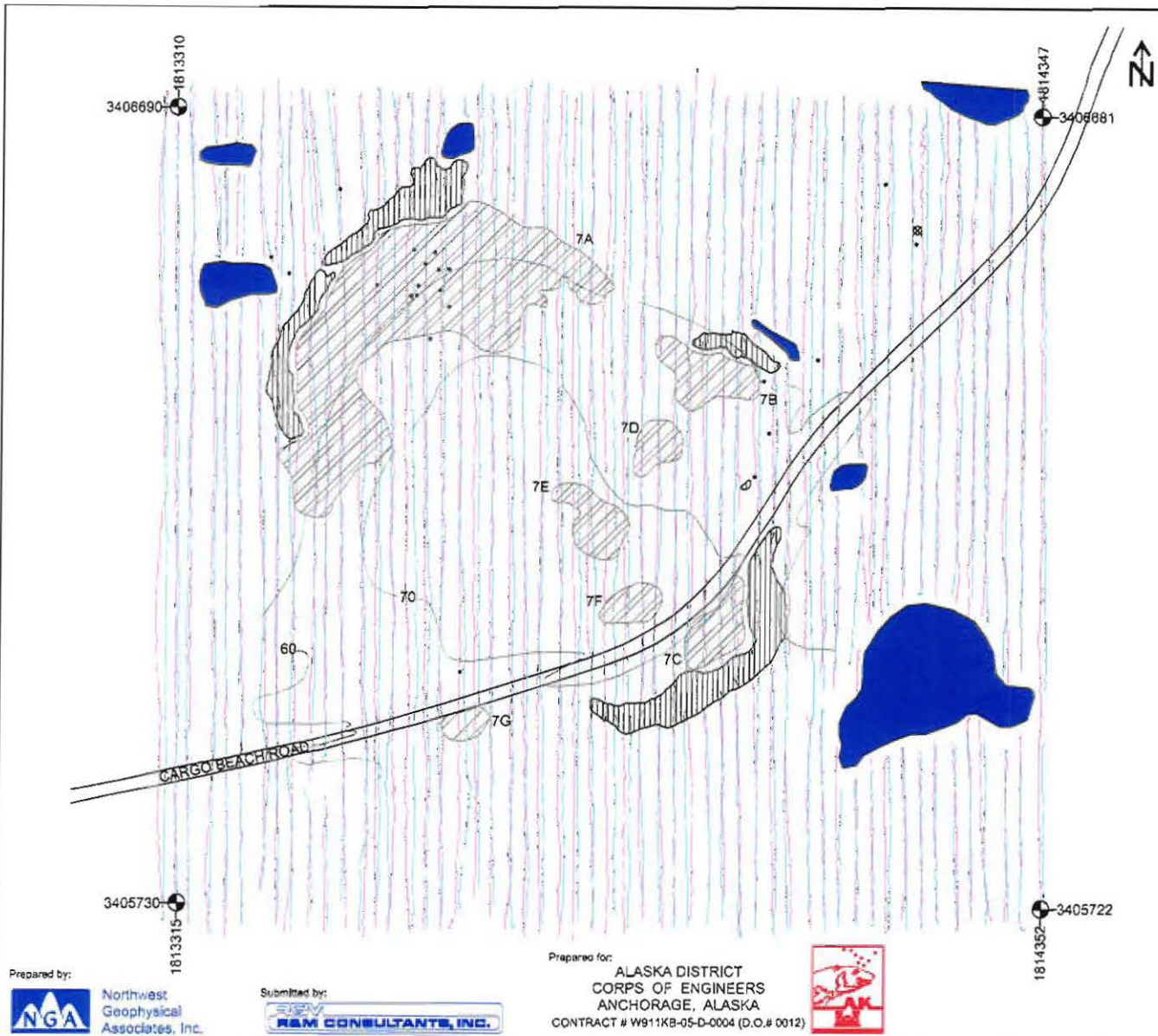
Magnetic data collection underway at Site 7, looking southeast.
(9 August 2007)



Existing debris on the south side of the Site 7 mound, looking east.
(9 August 2007)



Simultaneous data collection underway at Site 7, looking southeast.
(9 August 2007)



LEGEND

- SURFACE METAL
- ANOMALY
- EM TRANSECT
- MAG TRANSECT
- TOPOGRAPHIC CONTOUR
- CORNER POST/REBAR
- MONITORING WELL
- SURFACE METAL
- SURFACE WATER

0 125
U.S. SURVEY FEET
ALASKA STATE PLANE ZONE 9
NAD83 (CSRS98)

Prepared by:
 Northwest Geophysical Associates, Inc.

Submitted by:
 RAM CONSULTANTS, INC.

Prepared for:
 ALASKA DISTRICT
 CORPS OF ENGINEERS
 ANCHORAGE, ALASKA
 CONTRACT # W911KB-05-D-0004 (D.O.# 0012)



FIGURE 2
Geophysical Interpretation Summary
SITE 7
 Geophysical Site Investigation
 Northeast Cape
 St. Lawrence Island, Alaska

Cossaboom, Carey C POA

From: Welker, Molly [mwelker@bristol-companies.com]
Sent: Friday, April 17, 2009 2:06 PM
To: Spiers, James K (DEC)
Cc: Cossaboom, Carey C POA; Woods, Travis
Subject: RE: Proposed Landfill Cap Northeast Cape, AK

Attachments: Fig 1 for ADEC.pdf; Site 7 GW Table MWH.pdf



Fig 1 for ADEC.pdf (757 KB)
Site 7 GW Table MWH.pdf (983 K...

Mr Spiers:

The following information is taken from the MWH 2001 Phase III RI, Northeast Cape, Alaska - Final Report on the Groundwater and Surface Water Sampling (Section 2.1.4.4). An attached table shows the analytical results and another image of Figure 1 is attached. The well points (WP 7-1, 7-2, and 7-3) are shown as blue dots on Figure 1. I can't find any information on MW 7-4 shown on Figure 1. I believe this is the only groundwater samples that have been collected at this site.

Hopefully, this information answers your questions. Please let me know if you need additional information.

=====

Shallow groundwater and surface water are believed to be in close communication as evidenced by the lack of or abundance of both, depending on recent weather conditions. Shallow groundwater is inferred to flow topographically downgradient in a radial pattern mimicking the topography at the site.

To evaluate any impact to groundwater, three well points were installed 3 to 6 feet bgs downgradient of the landfill (Figure 2-4). WP 7-1 was installed near the western edge of the landfill area. WP 7-2 and WP 7-3 were installed 235 feet apart, approximately 125 and 165 feet, respectively, north of the north-northeastern border of the landfill area.

Despite being installed in saturated ground, these well points yielded very little water. WP7-1 required several days to produce the 3 to 4 liters of water required by the laboratory.

Groundwater samples were collected from each well point and were analyzed for DRO, RRO, GRO, VOCs, PAHs, PCBs, and metals.

DRO and GRO were below Table C cleanup levels in all three samples. RRO was detected in all three samples at concentrations ranging from 1.1 to 2.7 mg/L, equaling or exceeding the Table C cleanup level (Table 2-5). In the sample collected from WP 7-1, chromium, lead, and nickel were detected at concentrations that exceed Table C cleanup levels. The sample from WP 7-2 contained lead in exceedence of the Table C cleanup level. No PCBs, PAHs, or VOCs were detected in the samples, except acetone, which was detected below the Table C cleanup level in the sample from WP 7-1.

Two surface water samples were collected from ephemeral surface water bodies at the site to assess contaminant migration. At each of these locations a surface water and sediment samples were collected. Sample SW104 was collected from the ephemeral surface water on the north-northwestern border of the landfill area. Sample SW105 was collected in the southeastern corner of the landfill area, across Cargo Beach Road from the main landfill area. Photos of sample locations are provided in Appendix C. Surface water samples were analyzed for DRO, GRO, RRO, VOCs, PAHs, PCBs, and metals.

DRO, RRO, GRO, VOCs, PAHs, and PCBs were not detected at or above the method reporting limit. No metals were detected at concentrations exceeding Table C cleanup levels.

Therefore, it appears that localized areas of contamination may be present, but the extent is limited either by the quantity of contamination present or undetermined subsurface migration patterns.

Molly Welker
Senior Project Manager
Phone : (907) 563-0013

From: Spiers, James K (DEC) [mailto:james.spiers@alaska.gov]
Sent: Friday, April 17, 2009 9:30 AM
To: Welker, Molly
Subject: RE: Proposed Landfill Cap Northeast Cape, AK

Molly,

The map in the document is not very legible, so I have these questions.

1. Where are the monitor wells and what is the depth to groundwater?
2. What is the direction of GW flow?
3. Regardless of action levels, have GW samples taken over time indicated an increase in contaminant concentrations over background?

Ken Spiers
Environmental Program Specialist
Solid Waste Program
Alaska Dept. Environmental Conservation
451-2134

From: Welker, Molly [mailto:mwelker@bristol-companies.com]
Sent: Thursday, April 16, 2009 4:28 PM
To: Spiers, James K (DEC)
Subject: Proposed Landfill Cap Northeast Cape, AK

Dear Mr. Spiers:

Per our telephone conversation yesterday, please find attached a summary of the proposed landfill cap design for the Cargo Beach Road Landfill at Northeast Cape, St. Lawrence Island, Alaska.

Please review the material and if you have any questions, please contact me at 743-9341.

Thanks,

Molly

Molly Welker
Senior Project Manager
Bristol Environmental Remediation Services, LLC
111 W. 16th Avenue, Third Floor
Anchorage, AK 99501-5109
Phone : (907) 563-0013
FAX : (907) 563-6713
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**Table 2-5
Site 7 Results, Regulatory Exceedences**

| Sample Location | Sample Identification | Sample Depth (ft. bgs) | DRO | RRO | PCB Aroclor™-1260 | Arsenic | Chromium | Lead | Nickel |
|-------------------------------|-----------------------|------------------------|--------------|---------------|-------------------|--------------|--------------|--------------|-------------|
| Soil (mg/kg) | | | | | | | | | |
| SS 125 | 01NE07SS125 | 0.5 | 150 | 620 VJ | 1.1 | 50 | 64 | 350 | 37 |
| SS 126 | 01NE07SS126 | 0.5 | 160 | 740 VJ | 0.13 | 17.3 | 75 | 460 | 43 |
| SS 127 | 01NE07SS127 | 0.5 | 720 | 3,600 VJ | 13 | 30 | 65 | 419 | 57 |
| SD 104 | 01NE07SD104 | 0.5 | 1,400 | 2,800 VJ | ND(0.079) | 3.3 | 19 | 41 | 13 |
| SD 105 | 01NE07SD105 | 0.5 | 280 | 1,700 VJ | ND(0.28) | 4.1 | 5 | 20 | 5 |
| ADEC Method Two Cleanup Level | | | 250 | 11,000 | 1 | 2 | 26 | 400 | 87 |
| Groundwater (mg/L) | | | | | | | | | |
| WP 7-1 | 01NE07WP101 | N/A | 0.66 | 2.7 VJ | ND(0.001) | 0.01 | 0.255 | 0.04 | 3.54 |
| WP 7-2 | 01NE07WP102 | N/A | ND(0.25) | 1.1 VJ | ND(0.001) | 0.004 | 0.014 | 0.017 | ND(0.01) |
| WP 7-3 | 01NE07WP103 | N/A | 0.39 VJ | 1.4 VJ | ND(0.001) | 0.004 | 0.014 | 0.006 | ND(0.01) |
| ADEC Table C Cleanup Level | | | 1.5 | 1.1 | 0.05 | 0.004 | 0.1 | 0.015 | 0.1 |

Key:

Bold indicates concentration exceeds cleanup level.

ADEC = Alaska Department of Environmental Conservation

WP = well point

DRO = diesel range organics

Ft. bgs = feet below ground surface

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

N/A = not applicable

ND = analyte not detected. Method reporting limit shown in parenthesis

PCB = polychlorinated biphenyl

RRO = residual range organics

SD = sediment

SS = surface soil

VJ = estimated value

Cossaboom, Carey C POA

From: Cossaboom, Carey C POA
Sent: Friday, April 17, 2009 4:21 PM
To: 'Welker, Molly'
Subject: RE: ADEC approval of NEC Proposed Landfill Cap

Molly,

It would appear that this e-mail has documented the necessary approval. I will scan it in combination with the ADEC Landfill Cap Letter and associated e-mailings.

Carey

-----Original Message-----

From: Welker, Molly [mailto:mwelker@bristol-companies.com]
Sent: Friday, April 17, 2009 3:04 PM
To: Cossaboom, Carey C POA; Johnson, Steve; Woods, Travis
Subject: ADEC approval of NEC Proposed Landfill Cap

Carey: would you like me to ask Mr. Spiers to write an official letter approving the design of the proposed landfill cap for our records or is this email sufficient?

Molly

From: Spiers, James K (DEC) [mailto:james.spiers@alaska.gov]
Sent: Friday, April 17, 2009 2:59 PM
To: Welker, Molly
Subject: RE: Proposed Landfill Cap Northeast Cape, AK

Molly,

I reviewed the material and feel the contractor's plan for a cap on this landfill will be protective of human health and the environment. It is likely that if this facility were operating today, it would be a Class III MSWLF. Cap requirements for Class III landfills do not call for any particular permeability - simply a cover of 24" of soil or other material, graded to prevent erosion, and vegetated if possible.

Let me know if you have questions.

Ken Spiers
Environmental Program Specialist
Solid Waste Program
Alaska Dept. Environmental Conservation
451-2134

From: Welker, Molly [mailto:mwelker@bristol-companies.com]
Sent: Thursday, April 16, 2009 4:28 PM