



THE STATE
of **ALASKA**
GOVERNOR MICHAEL J. DUNLEAVY

**Department of
Environmental Conservation**

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

610 University Avenue
Fairbanks, AK 99709-3643
Phone: 907-451-2143
Fax: 907-451-2155
www.dec.alaska.gov

File: 380.38.004

21 March 2019

Ron Broyles
US Army Engineer District, Alaska
Environmental Engineering Section
CEPOA-PM-ESP, Room 220
PO Box 6898
JBER, AK 99506-0898

**Re: Decision Document: Nuvagapak Point, Former Distant Early Warning Line Station -
Cleanup Complete Determination (Six Sites)**

Dear Mr. Broyles:

Alaska Department of Environmental Conservation, Contaminated Sites Program (DEC) has completed a review of the environmental records associated with multiple sites associated with Nuvagapak Point Former Distant Early Warning Station, located at Nuvagapak Point, Alaska. The following six sites are currently 'Active' in the Contaminated Sites database at the Station:

1. Nuvagapak Point DEW Line AST Pad Area
2. Nuvagapak Point DEW Line Composite Building
3. Nuvagapak Point DEW Line Debris Pile A (Grid Area)
4. Nuvagapak Point DEW Line Dump Site D
5. Nuvagapak Point DEW Line Kogotpak River Dump Site E
6. Nuvagapak Point DEW Line Shop Area

Based on the information provided to date, it has been determined that the contaminant concentrations remaining at each of the referenced sites located at the Nuvagapak Point Station do not pose an unacceptable risk to human health or the environment and no further remedial action will be required unless new information becomes available that indicates residual contaminants may pose an unacceptable risk.

This Cleanup Complete determination is based on the administrative record for the Nuvagapak Point Station records located in the DEC office in Fairbanks, Alaska. This decision letter summarizes the site history, cleanup actions and levels, and standard site closure conditions that apply.

Table 1: Responsible Party and Site Information

Site Names DEC Hazard ID No. (File No. 380.38.002)	
1. Nuvagapak Point DEW Line AST Pad Area	Haz ID No: 25333
2. Nuvagapak Point DEW Line Composite Building	Haz ID No: 25334
3. Nuvagapak Point DEW Line Debris Pile A (Grid Area)	Haz ID No: 25336
4. Nuvagapak Point DEW Line Dump Site D	Haz ID No: 25335
5. Nuvagapak Point DEW Line Shop Area	Haz ID No: 26499
6. Nuvagapak Point DEW Line Kogotpak River Dump Site E	Haz ID No: 25337
Facility Name and Location:	
Nuvagapak Point Former Distant Early Warning Site 135 Miles East of Deadhorse Near Kaktovik, Alaska 99747	
Name and Mailing Address of Contact Party:	
Ron Broyles CEPOA-PM-ESP, Room 220 PO Box 6898 JBER, AK 99506-0898	
Regulatory Authority for Determination: 18 AAC 75	

Site Description and Background

From 1953 until 1962, the former Nuvagapak Point DEW Line Station was used as a radar defense facility. Original site improvements consisted of a composite building, shop building, warehouse, a 240-foot-tall radio tower, various storage sheds, a fuel pipeline, and a fuel-storage system consisting of a pump house and aboveground storage tanks (ASTs) (Figure 2). These structures were subsequently removed in 1994 and 2000 during several phases of site investigation and execution of remedial activities. The Nuvagapak Point DEW Line Station was an installation of the DOD under the jurisdiction of the Department of the Air Force until August 10, 1965, when jurisdiction was passed to the Department of the Navy. The Navy filed a Notice of Intent to Relinquish on February 11, 1970. The site acreage was selected for inclusion into ANWR on December 2, 1980; transfer to the Bureau of Land Management and U.S. Fish and Wildlife Service (USFWS) became effective on March 28, 1985. Management control was given to the USFWS on March 28, 1985.

The Nuvagapak Point DEW Line Station encompasses two locations: the *Main Cantonment Area*, and the *Kogotpak River Landfill*. The Main Cantonment Area is located approximately 35 miles southeast of Kaktovik, Alaska, adjacent to the Beaufort Lagoon of the Beaufort Sea. The Main Cantonment Area is located within the Arctic National Wildlife Refuge (ANWR). Five of the six sites are located in or near the primary Cantonment Area and were addressed in the 2013 Decision Document for Nuvagapak Point. Each of the specific sites is discussed below.

Nuvagapak Point DEW Line AST Pad Area

The AST Pad area includes the former pump house, fuel storage tanks, and pipeline supports north of the Composite Building, as well as a tundra pond about 40 ft. west of the edge of the gravel pad. In 1994 the ASTs were removed. In 2000 the fuel pump house and pipeline supports were removed and the USACE excavated approximately 26 tons of petroleum-contaminated soil from two locations in this area: the former POL storage tank site and the adjacent pump-house building. The intent of this

excavation was to remove the grossly contaminated surface soil and mitigate migrating contamination. The AST Pad and adjacent pond were sampled in 2003 and 2007. Gasoline range organics (GRO)-contaminated soil remained at the site that exceeded the DEC Method Two cleanup levels of 1,400 mg/kg for GRO. Water samples from the pond adjacent to the AST Pad had GRO concentrations above DEC groundwater cleanup levels and total aromatic hydrocarbons (TAH) and total aqueous hydrocarbons (TAqH) above water quality standards.

Nuvagak Point DEW Line Composite Building

The Composite Building housed the main living quarters and electrical generator during the operation of the Nuvagak Point DEW Line Station. The Composite Building was demolished in 2000, although the concrete portion of the foundation was left intact and remains at the site (USACE, 2013). Soil around the Composite Building was investigated in 2000, 2003 and 2007, and soil remained in this area that exceeded the polychlorinated biphenyl (PCB) soil cleanup level of 1 milligram per kilogram (mg/kg). Based on the presence of PCBs in soil immediately adjacent to the concrete pad, it was presumed that the concrete was contaminated above the PCB cleanup level of 1.0 mg/kg.

Nuvagak Point DEW Line Debris Pile A (Grid Area)

Debris Pile A is located in the north-central portion of the main gravel pad. Other structures that were located in this area include a bunkhouse, wooden sheds, and concrete anchors for a radio tower. In 1994, debris and drums were removed from the area and approximately 31 tons of petroleum-contaminated soil were excavated from Debris Pile A and Drum Dump C and removed from the site. In 2000, the remaining structures and concrete tower anchors were removed (USACE, 2013). Two soil samples from 1994 and 2000 suggest that there was soil in this area that exceeded the diesel-range organics (DRO) soil cleanup level of 12,500 mg/kg.

Nuvagak Point DEW Line Dump Site D

Dump Site D was placed in tundra north of the gravel pad and was considered jurisdictional wetlands. The site was used as a drum cache that may have also served as a drum-staging and crushing operations area. No removal actions or remedial actions had been performed at this area. The USACE and DEC recommended that the Dump Site D be remediated due to DRO concentrations in soil exceeding DEC Method One cleanup levels (200 mg/kg) due to the coastal erosion occurring on the shoreline north of Dump Site D.

Nuvagak Point DEW Line Shop Area

The Shop Area was a 30-ft by 40-ft structure in the southeastern portion of the main gravel pad. It was described as being “built upon a heavily reinforced concrete pad which sat on top of a heavily reinforced wood floor and wood piling foundation.” This structure, including the foundation, was demolished during the 1994 removal action. The USACE excavated approximately 50 tons of petroleum-contaminated soil from underneath the Shop Area after its removal. Soil remained in this area that exceeds the PCB cleanup level of 1.0 mg/kg.

Kogotpak River Landfill

The Kogotpak River Landfill is located on an unnamed tributary near the mouth of Kogotpak River approximately 1.7 miles southeast of the main cantonment area of the former Nuvagak Point DEW Line site. During the Cold War, there was a primitive road connecting the Kogotpak River Site to the Nuvagak main cantonment area, however, this road has since become reclaimed by the surrounding tundra terrain. The Dump Site “E” was not included in the Record of Decision that depicted the outcome of the previous five sites, since this site underwent a separate non-time critical removal action in 2012 which resulted in removal of all COCs exceeding DEC cleanup levels.

Contaminants of Concern

Various POL and solvent contaminants were evaluated as Potential Contaminants of Concern (PCOCs) in soil, sediment and surface water. PCOCs included fuels, fuel components, solvents, semi-volatile organic compounds, PCBs, pesticides, and metals. Only three contaminants were identified above CULs: DRO, GRO and PCBs (in soil and concrete).

Cleanup Levels

Cleanup levels identified for the sites, documented in the 2013 Decision Document, are based on applicable state requirements promulgated in Alaska Administrative Code, 18 AAC 75.341(c,d) - Tables B1 and B2 apply to these sites. Kogotpak River Dump Site E was cleaned up under a non-time critical removal action and no Decision Document was completed.

Table 2: Comparison of Cleanup Levels by Site

Site or Area of Concern	Contaminant of Concern	Highest Detected Concentration	Cleanup Level by Exposure Pathway
AST Pad Area	GRO	2,600 mg/kg	1,400 mg/kg (human health)
Composite Building (including concrete)	PCBs	6.3 mg/kg	1 mg/kg (human health)
Debris Area Pile A (Grid Area)	DRO	21,000 mg/kg	12,500 mg/kg (human health)
Dump Site D	DRO	26,000 mg/kg	200 mg/kg (Method 1)
Shop Area	PCB	4.9 mg/kg	1 mg/kg (human health)
Kogotpak River Dump Site E	PCBs	42 mg/kg	1 mg/kg (human health)

Note: the DEC cleanup level for PCBs in soil was applied to concrete.

Characterization and Cleanup Activities

The sources of contamination at Nuvagapak were ASTs, fuel-transfer piping, drums, transformers, and dump sites used during station operation. Contamination resulted from spills and leaks from containers used during operations, and from containers, equipment, and dump areas left at the Station until removal during remedial actions in 1994 and 2000.

The dumps comprised surface debris that has been buried by sediment or tidal movement; there were no landfills at the Station. Contaminated media that remained at Nuvagapak included gravel-pad soil, concrete, tundra soil, and pond water.

Between 1985 and 2007, the USACE led several investigations to evaluate environmental contamination at the site. USACE conducted a removal action in 1994 to remove the structures on the site, and a remedial action in 2000 to remove hazardous material, debris, and petroleum contaminated soil. Pipelines at the site were cleaned or removed. Even after these actions were completed, contaminated soil, sediment, and surface water remained.

USACE conducted additional studies in 2003 and 2007 to determine the extent of the contamination remaining. As a result of the investigations, the primary contaminants included, but were not limited to, petroleum hydrocarbons and PCBs detected in soil and surface water at the station.

Nuvagapak Point DEW Line AST Pad Area

The AST Pad area includes the former pump house, fuel storage tanks, and pipeline supports north of the Composite Building. A tundra pond about 40 ft. west of the edge of the gravel pad is included in this area. In 1994 the ASTs were removed. In 2000 the fuel pump house and pipeline supports were removed and the USACE excavated approximately 26 tons of petroleum contaminated soil from two locations in this area: the former POL storage tank site and the adjacent pump-house building.

The AST Pad and adjacent pond were sampled in 2003 and 2007 and gasoline range organics (GRO)-contaminated soil remained at the site that exceeded the DEC Method Two cleanup levels of 1,400 mg/kg for GRO. Water samples from the pond adjacent to the AST Pad also had GRO concentrations above DEC groundwater cleanup levels and total aromatic hydrocarbons (TAH) and total aqueous hydrocarbons (TAqH) above water quality standards.

In 2015 previous soil sample results were used to locate the area of GRO-contaminated soil at the AST Pad whereby 7 tons of GRO-contaminated soil was excavated from the AST Pad and placed into the GRO decision unit (DU) landspread area for treatment. A surface water area on the AST Pad had been identified in the Decision Document; however, no pond was located in this area during the 2015 remedial activities. No work was conducted at the AST Pad in 2016 because all confirmatory samples indicated that all contaminated soil above action levels had been removed.

Nuvagak Point DEW Line Composite Building

The Composite Building was demolished in 2000, although the concrete portion of the foundation was left intact and remained at the site. Soil around the Composite Building was investigated in 2000, 2003 and 2007, and soil remained in this area that exceeded the PCB soil cleanup level of 1 milligram per kilogram (mg/kg). Based on the presence of PCBs in soil immediately adjacent to the concrete pad, it was presumed that the concrete was contaminated above the PCB cleanup level of 1.0 mg/kg.

In 2015, excavation included further characterization and removal of about 22 tons of existing concrete pad that was contaminated with PCBs. During the removal of this pad, an additional 3-inch pad was discovered underneath. This lower concrete pad was also sampled, and concrete sample results for the lower pad were below the PCB cleanup level of 1.0 mg/kg. The lower concrete pad was not removed and remains onsite.

After removal of the concrete pad excavation activities began in the locations of historical PCB exceedances where about 114 tons of non-Toxic Substances Control Act (TSCA)-contaminated soil adjacent to the concrete pad was excavated and placed into 3-cy bulk bags. Approximately 2 tons of miscellaneous debris excavated at the Composite Building was placed into a bulk bag. Confirmation samples indicated that all contamination above action levels had been removed.

Nuvagak Point DEW Line Debris Pile A (Grid Area)

In 1994, debris and drums were removed from the area and approximately 31 tons of petroleum-contaminated soil were excavated from Debris Pile A and Drum Dump C and removed from the site. In 2000, the remaining structures and concrete tower anchors were removed. Historical samples from 1994 and 2000 suggested soil in this area still exceeded the diesel-range organics (DRO) soil cleanup level of 12,500 mg/kg. In 2015, approximately 34 tons of DRO-contaminated soil was excavated from Debris Pile A and placed into a decision unit in the landspread area. Confirmation samples at the limits of excavation showed that all contamination was removed to below DEC cleanup levels.

Nuvagapak Point DEW Line Dump Site D Nuvagapak Point DEW Line Shop Area

The COCs for Dump Site D were determined through previous investigations to be DRO. During the 2014 site reconnaissance 20 surface soil samples were collected to provide additional information regarding potential impacts at Dump Site D. The 2014 data and historic sample results were used to define the area of DRO-contaminated soil.

The 2015 soil excavation activities were guided by visual and olfactory screening and headspace using a photoionization detector (PID). Soil was excavated in 6-inch lifts and placed into the landspread areas. The excavation extended vertically until permafrost or pore-water was encountered. The average depth of the excavation at Dump Site D was 2 feet below ground surface (bgs). Approximately 2,160 tons of DRO-contaminated soil were excavated and transported to the landspread area.

Confirmation soil samples were collected from the sidewall areas and sent to the analytical laboratory for DRO analysis and DRO plus silica gel cleanup analysis. Two confirmation soil samples contained DRO concentrations exceeding the 200 mg/kg cleanup criterion. In 2016 additional remaining DRO-contaminated soil was excavated. Impacted soil associated with a second location where soil concentrations exceed cleanup levels was not excavated in 2016 because the location was underwater and not accessible to excavation equipment. Data confirmation indicated that all contaminated material was sufficiently removed.

Nuvagapak Point DEW Line Kogotpak River Dump Site E

Contaminated soil removal from the former Kogotpak River Landfill occurred over a period of two field seasons (2012 to 2013). Approximately 90 cubic yards of polychlorinated biphenyl (PCB) and lead contaminated soil, along with 30 tons of debris were removed and staged at the Nuvagapak Point staging area pending offsite removal. Barge access necessary to enable transportation of waste material offsite was not possible upon conclusion of 2013, and up until the 2016 field season when sea ice conditions were favorable. All material was transported from the site and properly disposed of in Arlington, Oregon, with one transformer disposed in Grand View, Idaho.

Target cleanup levels were achieved in 46 out of 48 confirmation samples, with the two sampled areas with elevated PCB concentrations (3.4 mg/kg and 24.5 mg/kg) residing under water due to erosion by the river whereby further excavation was not possible.

Cumulative Risk Evaluation

Pursuant to 18 AAC 75.325(g) and 18 AAC 78.600(d)], when detectable contamination remains on-site following a cleanup, a cumulative risk determination must be made that the risk from hazardous substances does not exceed a cumulative carcinogenic risk standard of 1 in 100,000 across all exposure pathways and does not exceed a cumulative non-carcinogenic risk standard at a hazard index of one across all exposure pathways.

Based on a review of the environmental record, DEC has determined that residual contaminant concentrations meet the human health cumulative risk criteria for residential land use.

Exposure Pathway Evaluation

Following investigation at the site, exposure to the remaining contaminants was evaluated using DEC's Exposure Tracking Model (ETM). Exposure pathways are the conduits by which contamination may reach human or ecological receptors. ETM results show all pathways to be one of the following: De Minimis Exposure, Exposure Controlled, or Pathway Incomplete. A summary of this pathway evaluation is included as the attached Table 3: Exposure Pathway Evaluation.

DEC Decision

Soil contaminants remaining at the site are below the approved cleanup levels suitable for residential land use or are considered 'naturally occurring.' This site will receive a "Cleanup Complete" designation on the Contaminated Sites Database, subject to the following standard conditions.

Standard Conditions

1. Any proposal to transport soil or groundwater off-site requires DEC approval in accordance with 18 AAC 75.325(i) and 18 AAC 78.600(h). A "site" as defined by 18 AAC 75.990 (115) and 18 AAC 78.995(134) means an area that is contaminated, including areas contaminated by the migration of hazardous substances from a source area, regardless of property ownership. (See attached site figure.)
2. Movement or use of contaminated material in a manner that results in a violation of 18 AAC 70 water quality standards is prohibited.

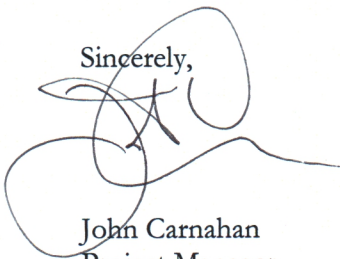
This determination is in accordance with 18 AAC 75.380 and 18 AAC 78.276(f) and does not preclude DEC from requiring additional assessment and/or cleanup action if future information indicates that contaminants at this site may pose an unacceptable risk to human health, safety, or welfare or to the environment.

Appeal

Any person who disagrees with this decision may request an adjudicatory hearing in accordance with 18 AAC 15.195 – 18 AAC 15.340 or an informal review by the Division Director in accordance with 18 AAC 15.185. Informal review requests must be delivered to the Division Director, 555 Cordova Street, Anchorage, Alaska 99501-2617, within 15 days after receiving the department's decision reviewable under this section. Adjudicatory hearing requests must be delivered to the Commissioner of the Department of Environmental Conservation, 410 Willoughby Avenue, Suite 303, P.O. Box 111800, Juneau, Alaska 99811-1800, within 30 days after the date of issuance of this letter, or within 30 days after the department issues a final decision under 18 AAC 15.185. If a hearing is not requested within 30 days, the right to appeal is waived.

If you have questions about this closure decision, please contact me directly at (907) 451-2166, or email at john.carnahan@alaska.gov.

Sincerely,



John Carnahan
Project Manager

Attach: Table
 Site Figure

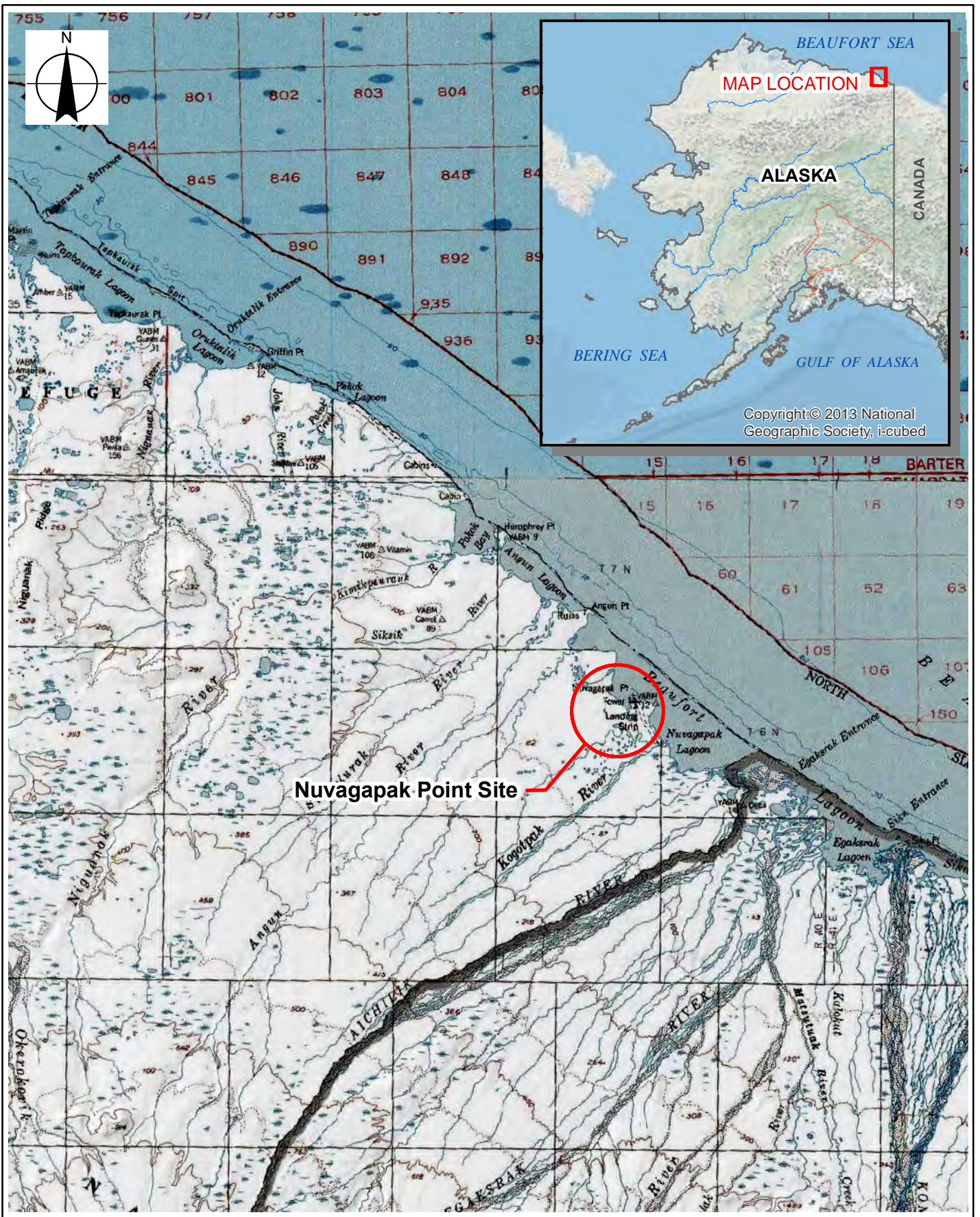
cc: Spill Prevention and Response, Cost Recovery Unit

**Table 3 – Exposure Pathway Evaluation
Multiple Sites – Nuvagapak Point (Former) Distant Early Warning Line Station**

Pathway - Explanation	AST Pad Area	Composite Building	Debris Pile A	Dump Site D	Shop Area	Kogotpak River Dump Site E
Surface Soil Contact - Petroleum and PCB contaminants remain in surface soil below cleanup levels.	De minimis Exposure	De minimis Exposure	De minimis Exposure	De minimis Exposure	De minimis Exposure	Pathway Incomplete
Subsurface Soil Contact - Petroleum and PCB contaminants remain in subsurface soil below cleanup levels.	De minimis Exposure	Pathway Incomplete	Pathway Incomplete	De minimis Exposure	De minimis Exposure	Pathway Incomplete
Inhalation (Outdoor Air) - Concentrations of petroleum contaminants were below inhalation cleanup levels.	Pathway Incomplete	Pathway Incomplete	Pathway Incomplete	Pathway Incomplete	Pathway Incomplete	Pathway Incomplete
Groundwater Ingestion – Supra-permafrost groundwater is not a potential drinking water source and concentrations of metals are naturally occurring.	Pathway Incomplete	Pathway Incomplete	Pathway Incomplete	Pathway Incomplete	Pathway Incomplete	Pathway Incomplete
Surface Water Ingestion - No contamination identified in surface water, and is not used as a drinking water source in the vicinity of the site.	De minimis Exposure	Pathway Incomplete	Pathway Incomplete	Pathway Incomplete	Pathway Incomplete	Pathway Incomplete
Wild and Farmed Foods Ingestion – Petroleum and PCBs present at concentrations below cleanup levels.	Pathway Incomplete	De minimis Exposure	Pathway Incomplete	Pathway Incomplete	De minimis Exposure	De minimis Exposure
Inhalation – Indoor Air (vapor intrusion) No structures are present nor anticipated to be constructed at site. Concentrations below residential target levels.	Pathway Incomplete	Pathway Incomplete	Pathway Incomplete	Pathway Incomplete	Pathway Incomplete	Pathway Incomplete
Other Human Health – None applicable	NA	NA	NA	NA	NA	NA
Exposure to Ecological Receptors - Metals and PCBs present at concentrations below cleanup levels.	De minimis Exposure	De minimis Exposure	Pathway Incomplete	Pathway Incomplete	De minimis Exposure	De minimis Exposure

Notes to Table 3: “De minimis Exposure” means that in DEC’s judgment receptors are unlikely to be adversely affected by the minimal volume or concentration of remaining contamination. “Pathway Incomplete” means that in DEC’s judgment contamination has no potential to contact receptors. “Exposure Controlled” means there is an institutional control in place limiting land or groundwater use and there may be a physical barrier in place that prevents contact with residual contamination.

Date: 02 Nov 2016 Drawn by: SJ K:\PROJECTS\Army\Collinson_Nuvagapak\MXDs\2016\2016_Nuvagapak_RA_Site_Loc-01.mxd



Nuvagapak Point Site



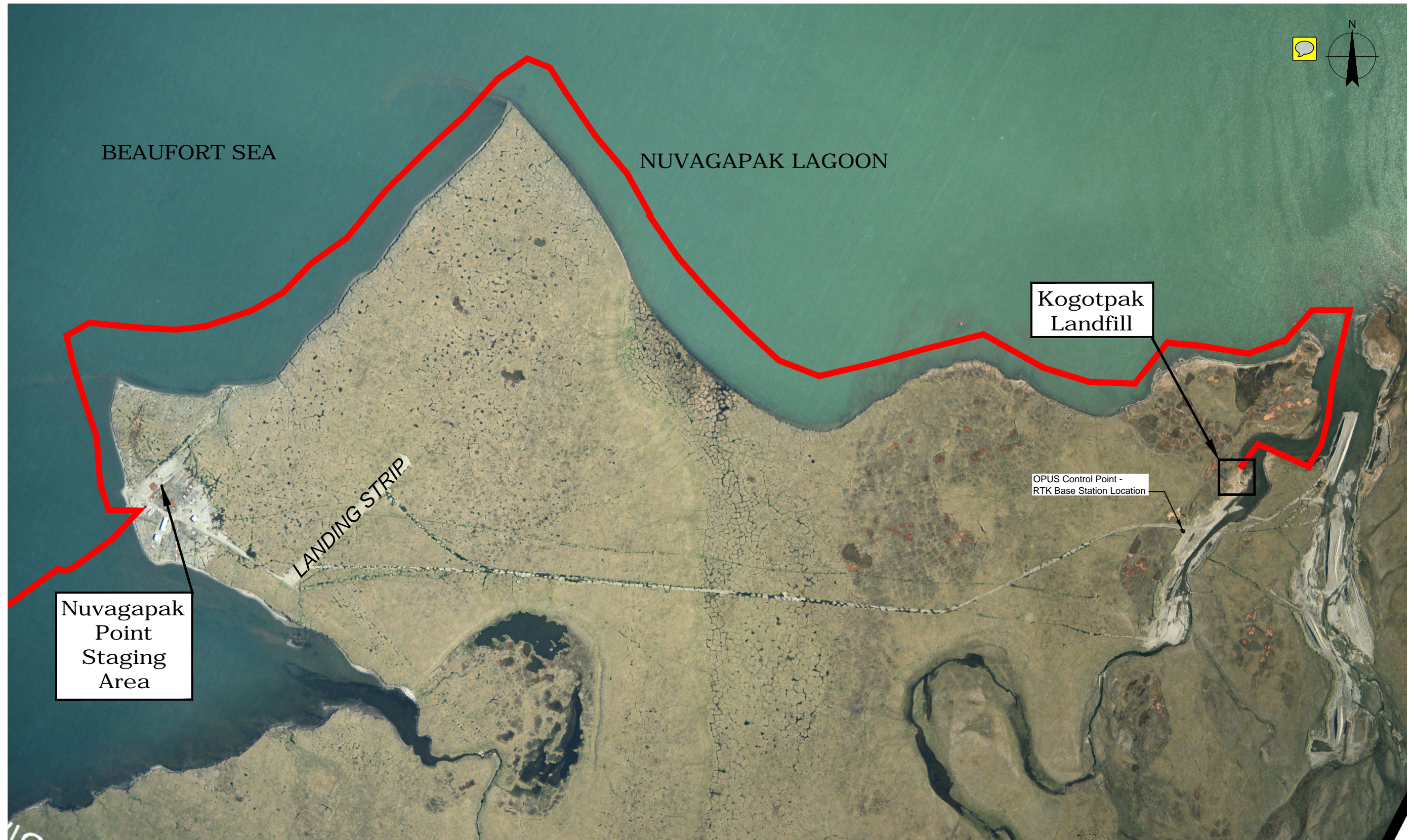
SITE LOCATION AND VICINITY MAP

U.S. Army Corps of Engineers
Nuvagapak Point, Alaska

FIGURE

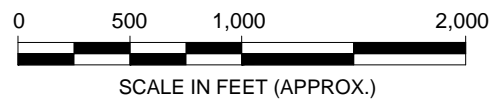
1

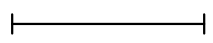
DATE:
02 NOV 2016




LEGEND

 OVERLAND TRAVEL AND SEA ICE CORRIDOR FOR 2013



SCALE: AS NOTED	DRAWN: MSF/SJ
THIS BAR IS 1" AT FULL SIZE: 	DESIGNED: MSF
PROJECT NO.: UA-0531-1102	CHECKED: JED

SITE MAP

 U.S. Army Corps of Engineers
Kogotpak River Landfill, Alaska

FIGURE

2A

DATE:
10-2016



BEAUFORT LAGOON

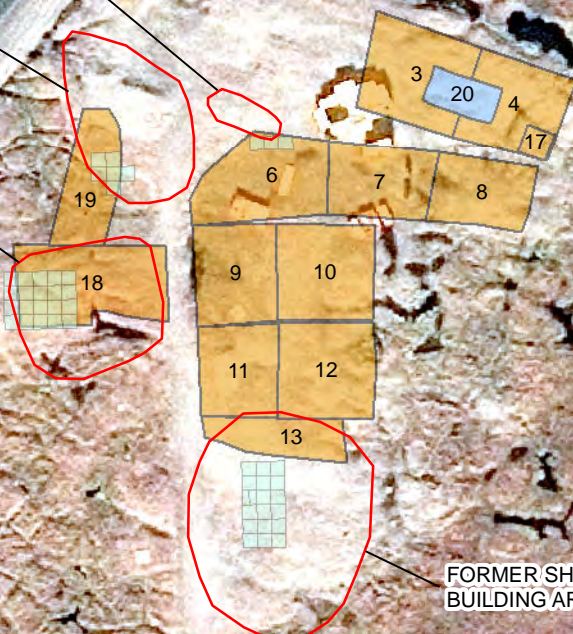
FORMER DUMP SITE 'D'

FORMER DEBRIS PILE 'A'

FORMER AST PAD AREA

FORMER COMPOSITE BUILDING AREA

FORMER SHOP BUILDING AREA

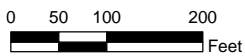


LEGEND

-  Study Area (from 2013 Decision Document)
-  2015 DRO & GRO Landspread Decision Units
-  2015 Soil Sampling Grids
-  2016 DRO Landspread Decision Unit

Imagery Source: Satellite Imaging Corp. © Copyright 2013
Imagery Collection Date: 06 SEP 2013

Date: 02 Nov 2016 Drawn by: SJ K:\PROJECTS\Army\Collinson_Nuvagapak\MXDs\2015_Nuvagapak_RA-01.mxd



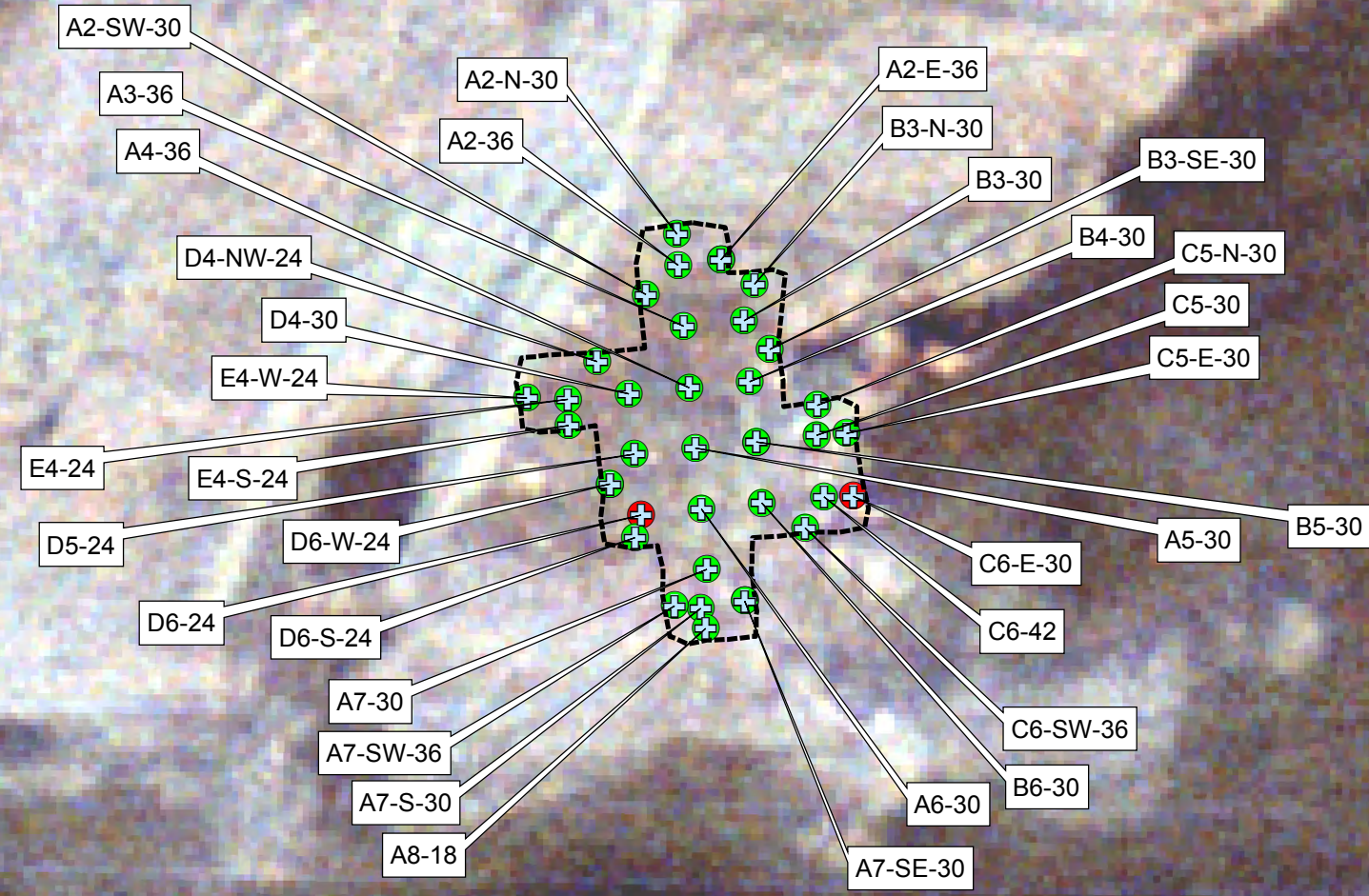
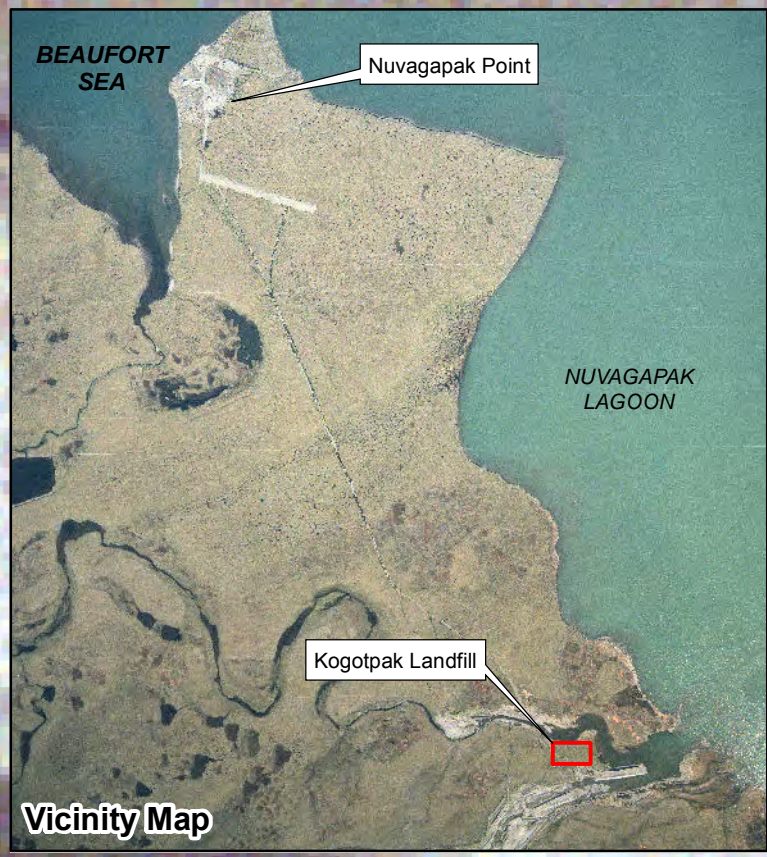
NUVAGAPAK POINT SITE MAP

U.S. Army Corps of Engineers
Nuvagapak Point, Alaska

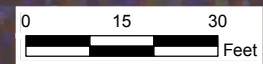
FIGURE

2

DATE:
02 NOV 2016



NOTE: Location ID denotes grid cell number, cardinal direction and depth of sample in inches.
(i.e. E4-S-24 = grid cell E-4, south wall, 24" bgs)



UNNAMED CREEK

Imagery: Aero-Metric Copyright © 1985

Date: 15 Nov 2016 Drawn by: SJ K:\PROJECTS\Army\Kogotpak_Landfill\MXDs\2016_Kogotpak_RA-02.mxd

LEGEND	
	PCB Sample Location < 1 mg/kg
	PCB Sample Location ≥ 1 mg/kg
	Lead Sample Location < 400 mg/kg
	Lead Sample Location ≥ 400 mg/kg
	Excavation Boundary

SCALE: 1" = 30'	DRAWN: SJ
THIS BAR IS 1" AT FULL SCALE 	DESIGNED:
PROJECT NO.:	CHECKED:

2013 PCB AND LEAD SAMPLING STATUS MAP

U.S. Army Corps of Engineers
Kogotpak River Landfill, Alaska

FIGURE

12

DATE:
15 NOV 2016