



**PACIFIC AIR FORCES REGIONAL
SUPPORT CENTER**

JOINT BASE ELMENDORF-RICHARDSON, ALASKA

**Explanation of Significant Differences,
Site SS016 (Upper Tram Terminal)
&
Site SS017 (Lower Tram Terminal)**

Cape Romanzof

Long Range Radar Station, Alaska

Final

August 2018

(Intentionally Blank)

TABLE OF CONTENT

<u>SECTION</u>	<u>PAGE</u>
ACRONYMS AND ABBREVIATIONS	vi
USAF SIGNATURE PAGE	viii
ADEC SIGNATURE PAGE.....	x
1.0 INTRODUCTION.....	1
1.1 Record of Decision.....	1
1.2 Summary of Circumstances Necessitating an Explanation.....	1
1.3 Administrative Record	3
2.0 SITE HISTORY, CONTAMINATION, and SELECTED REMEDY.....	4
2.1 Site History.....	4
2.2 Selected Remedy	6
3.0 BASIS FOR THIS ESD	7
3.1 Site SS016	8
3.2 Site SS017	10
4.0 SIGNIFICANT DIFFERENCES BETWEEN THE 2013 ROD AND THIS ESD	12
4.1 Site SS016 ROD and ESD Differences.....	12
4.1.1 2013 ROD and Contingency Remedy	12
4.1.2 Soil Quantity Differences	12
4.1.3 Cost Comparison	12
4.2 Site SS017 ROD and ESD Differences.....	15
4.2.1 2013 ROD Remedy	15
4.2.3 Soil Quantity Differences	15
4.2.3 Cost Comparison	15
5.0 AIR FORCE LAND USE CONTROL	17
5.1 Resource Uses and Risk Exposure Assumptions	17
5.2 Risks Necessitating the LUCs.	17

5.3 Performance Objectives.	17
5.4 Location of LUCs	17
5.5 Duration of LUCs.....	17
5.6 Description of Each LUC and How it Achieves a Specific LUC Performance Objective	17
5.7 General Performance Responsibility.	18
5.8 Specific Performance Responsibility to Bind Contractors and Tenants.	18
5.9 Specific Performance Responsibility for Transferring Sites.	18
5. 10. Notification and Corrective Measures Requirement.	18
5. 11. Notification of Transfers	19
5.12. Concurrence Language.	19
5.13. Monitoring Language.	19
5.14. Reporting Language.	19
6.0 STATUTORY DETERMINATIONS	20
7.0 PUBLIC PARTICIPATION.....	20
8.0 REFERENCES	21
AGENCY COMMENTS	22

FIGURES

Figure 1-1 Cape Romanzof Vicinity Map.....	3
Figure 1-2 Site SS016 Upper Tram Terminal.....	4
Figure 1-3 Site SS016 Upper Tram Terminal - Slope.....	4
Figure 3-1 Site SS016 - Upper Tram Terminal Cell Layout	8
Figure 3-2 Site SS017 - Upper Tram Terminal Cell Layout	8

TABLES

Table 3-1 Site SS016 - Status After 2016 RA.....	9
Table 3-2 Site SS017 - Status After 2016 RA	11
Table 4-1 Comparison of 2013 ROD Remedy and Changes in this ESD –Site SS016...14	
Table 4-2 Comparison of 2013 ROD Remedy and Changes in this ESD –Site SS017...16	

(Intentionally Blank)

ACRONYMS AND ABBREVIATIONS

ADEC.....	Alaska Department of Environmental Conservation
ADNR	Alaska Department of Nature Resources
ARAR	Applicable or Relevant and Appropriate Requirements
bgs.....	Below Ground Surface
CERCLA.....	Comprehensive Environmental Response, Compensation and Liability Act
CFR	U.S. Code of Federal Regulations
COC	Contaminant of Concern
cy.....	cubic yards
DRO.....	Diesel Range Organics
EC	Engineering Controls
EIAP.....	Environmental Impact Analysis Process
EPA.....	U.S. Environmental Protection Agency, Region 10
ESD.....	Explanation of Significant Differences
ft.....	feet
FYR.....	Five-Year Review
IC.....	Institutional Controls
JBER	Joint Base Elmendorf-Richardson
LRRS.....	Long Range Radar Station
LUC.....	Land Use Controls
mg/kg	milligram/kilograms
NCP.....	National Oil and Hazardous Substances Pollution Contingency Plan
PA/SI.....	Preliminary Assessment/Site Inspection
PCB	Polychlorinated Biphenyl
RA.....	Remedial Action
RCRA.....	Resource Conservation and Recovery Act
RI.....	Remedial Investigation
ROD	Record of Decision
RRO	Residual Range Organics
SS016.....	Upper Tram Terminal Area
SS017.....	Lower Tram Terminal Area
TCLP.....	Toxic Characteristic Leaching Procedure

ACRONYMS AND ABBREVIATIONS (continued)

TSCA Toxic Substances Control Act
USAF U.S. Air Force

**LEAD AGENCY ACCEPTANCE OF THE EXPLANATION OF
SIGNIFICANT DIFFERENCES FOR CAPE ROMANZOF LONG RADAR
STATION**

By my signature below, the United States Air Force approves the issuance of this Explanation of Significant Differences for two CERCLA sites: Upper Tram Terminal Area (SS016), and Lower Tram Terminal Area (SS017) which includes the disposal pit at Cape Romanzof LRRS, Alaska.



ROBERT J. BACKLUND, P.E., GS-14
Deputy Director, Environmental Management Directorate
Air Force Civil Engineer Center

9/19/18
Date

(Intentionally Blank)

SUPPORT AGENCY ACCEPTANCE OF THE EXPLANATION OF SIGNIFICANT DIFFERENCES FOR ROMANZOF LONG RANGE RADAR STATION

By my signature below, the Alaska Department of Environmental Conservation agrees that, when properly implemented, the revised remedies provided in this Explanation of Significant Differences for Upper Tram Terminal Area (SS016), and Lower Tram Terminal Area (SS017) which includes the disposal pit at Cape Romanzof LRRS, Alaska comply with State law. This decision may be reviewed and revised in the future if information indicates the site may pose an unacceptable risk to human health, safety, welfare, or the environment.

Melinda Brunner, Section Manager
Federal Facilities Section Contaminated Sites Program
Alaska Department of Environmental Conservation

DATE

(Intentionally Blank)

1.0 INTRODUCTION

Name: Cape Romanzof Long-Range Radar Site (LRRS)
Location: Cape Romanzof LRRS, Alaska
Latitude 61° 46' 49'' North, Longitude 166° 02' 19'' West
Lead Agency: United States Air Force (USAF)
Cooperating Agency: US Fish and Wildlife Service (USFWS)
Support Agency: Alaska Department of Environmental Conservation (ADEC)
CS Database: Hazard ID 4129 for Sites SS016 and SS017

This Explanation of Significant Differences (ESD) documents changes to the remedies identified in the 2013 Record of Decision (ROD) titled *Final Landfill No.2 (LF003), Spill/Leak No. 4 at the Weather Station Building (SS010), Upper Tram Terminal Area (SS016) and Lower Tram Terminal Area (SS017)* (USAF, 2013). Cape Romanzof LRRS is located in western Alaska between Kokechik Bay and Scammon Bay (figure 1-1). Specifically, this ESD describes changes in the selected remedy for the Upper Tram Terminal Area (SS016) and Lower Tram Terminal Area (SS017). The publication requirements for this ESD are set forth by: §117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); U.S. Code Title 42, §9617(c); and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (Code of Federal Regulations Title 40 §300.435 (c)(2)(i)). This document will become publically available as part of the Cape Romanzof Long Range Radar Site (LRRS) Administrative Record. A public notice of availability and brief ESD description will be posted in the Delta Discovery Newspaper.

1.1 RECORD OF DECISION

The Cape Romanzof, LRRS ROD was signed by the USAF on 18 March 2013 and by ADEC on 28 March 2013 (USAF 2013).

1.2 SUMMARY OF CIRCUMSTANCES NECESSITATING AN EXPLANATION OF SIGNIFICANT DIFFERENCES

The NCP provides a process for any changes or differences identified after the ROD has been signed. These differences are classified in order of severity as non-significant/minor, significant, or fundamental. The Implementation of the remedy for Sites SS016 and SS017 occurred between June and September 2016.

As part of the SS016 contingency remedy, outlined in the 2013 ROD, the USAF was to excavate to the extent feasible and dispose of approximately 339-cubic yards (cy) of PCB and lead contaminated soil and install a gravel cap over any remaining soil with PCB \geq 1 mg/kg and lead \geq 400 mg/kg. During the 2016 remedial response action, not all remaining PCB and lead contaminated soil at Site SS016 was excavated or capped. This was due to the unstable slope around the Upper Tram Terminal, and the required safety zone around a surface laid high voltage power cable preventing access, removal or capping of the PCB contaminated soils.

As part of Site SS017 remedy, the USAF was to excavate and dispose offsite approximately 190 CY of PCB $>$ 1 mg/kg and lead $>$ 400 mg/kg contaminated soil. During the 2016 remedial response action significantly more PCB and lead contaminated soil was identified at Site SS017. It is estimated an additional 240-cy of PCB and lead contaminated soil remains to be excavated. This includes an estimated 90-cy of PCB and lead contaminated soil discovered under the Lower Tram Terminal, an additional 8.3-cy found around the disposal pit, and 67-cy of contaminated soil that could not be accessed due to the buffer zone around the high voltage power cable.

Powering down the high voltage cable and moving the cable at SS016 and SS017 was not an option during the 2016 remedial response action due to operational requirements of both the USAF and the Federal Aviation Administration.

Because contaminated soil remains on Sites SS016 and SS017, and was not excavated and disposed of as specified in the 2013 ROD, this ESD is required to:

- At SS016: amend the contingency remedy specified in the ROD to modify the remedy to allow PCB $>$ 1 mg/kg and lead $>$ 400 mg/kg contaminated soil to remain uncapped until such time that the Lower Tram Terminal is removed and the high voltage cables can be relocated or powered down.
- At SS017:
 1. amend the remedy specified in the 2013 ROD to increase the quantity of PCB and lead contaminated soil to be excavated from 191-cy to 550-cy and allow PCB and lead - contaminated soil (PCB $>$ 1 mg/kg and lead $>$ 400 mg/kg) to remain in place until such time that the Lower Tram Terminal is removed and the power to the high voltage cables is relocated or powered down, and

2. amend the remedy specified in the 2013 ROD to implement land use controls (LUCs) until such time contaminated soil with PCB >1 mg/kg and lead >400 is removed and the site meets unrestricted use and unlimited exposure (UU/UE).

1.3 ADMINISTRATIVE RECORD

This ESD will be added to the Cape Romanzof LRRS Administrative Record, maintained by the USAF at Joint Base Elmendorf-Richardson (JBER). The Administrative Record is open for public review and available online at- <http://afcec.publicadmin-record.us.af.mil/Search.aspx> or by contacting the JBER Community Relations Coordinator as follows:

Air Force Community Relations Coordinator
 Air Force Civil Engineer Center
 10471 20th Street, Suite 348
 Joint Base Elmendorf-Richardson, Alaska 99506-2200
 1-800-222-4137

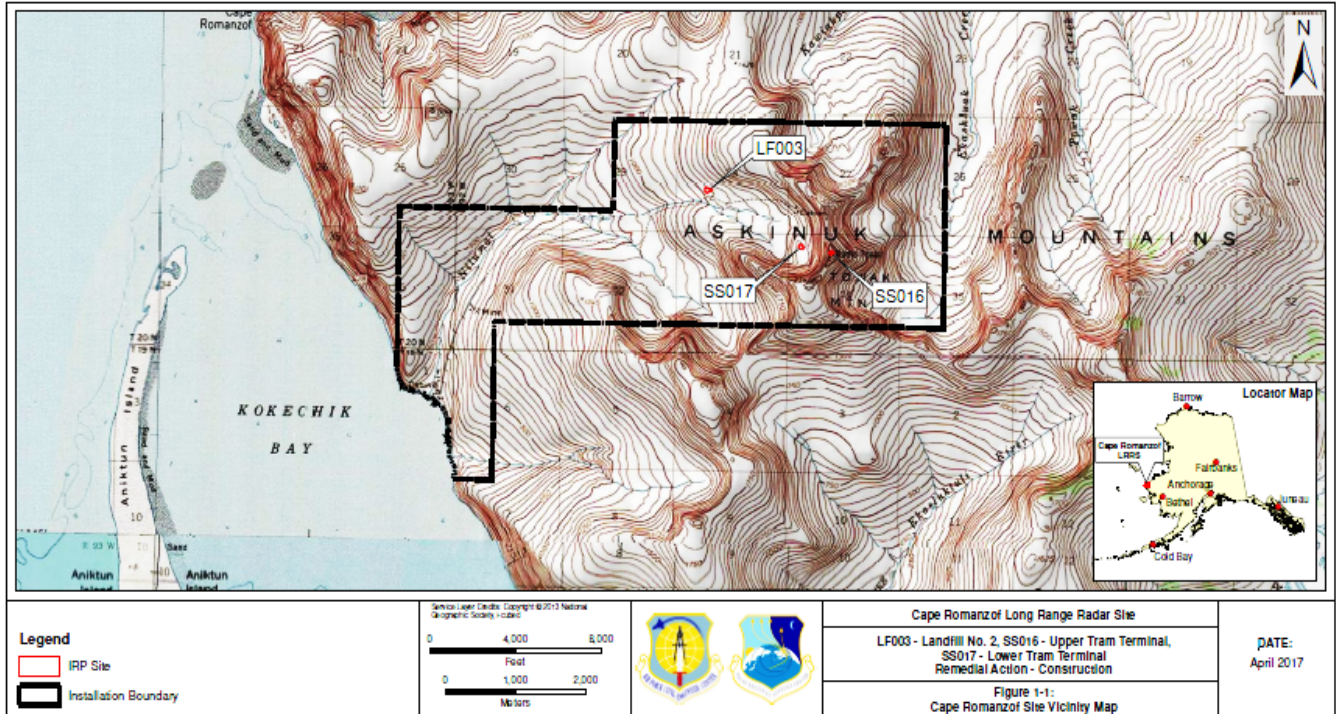


Figure 1.1 Cape Romanzof Site Vicinity Map

Figure 1-2. Site SS016 Upper Tram Terminal in front. Area to be excavated is marked in orange.



Figure 1-3. Site SS016, note the excavator and the steepness of SS016.



2.0 Site History, Contamination, and Selected Remedy

2.1 Site History

The Cape Romanzof LRRS includes 4,900 acres of land. The LRRS facilities is divided into two areas, the Lower Camp and the Upper Camp. The Lower Camp lies at the head of an alpine tundra valley next to intermittent streams, which drain into a perennial stream, Fowler Creek (as depicted on USAF drawings and maps) or Nilumat Creek (official name as on United States Geological Survey topographic maps). Current operations, the airfield and SS017 are in the Lower Camp area. The Lower Tram Terminal Area, Site SS017, is located approximately 0.46 miles southeast of the Lower Camp operations base and 0.28 miles due west of the Upper Tram Terminal Area, SS016. The Upper Camp is situated atop Towak Mountain, a high ridge located directly above the head of the valley. The active radar, Upper Tram Terminal and Site SS016 are in the Upper Camp and adjacent to a steep slope approximately 2,250 feet above mean sea level. Although much of the tram equipment remains, the tram cables between the upper and lower tram terminals have been removed. Now, Lower and Upper Camps are linked with a 1.9 mile gravel road.

2.2 CONTAMINATION - PREVIOUS REMEDIAL ACTIVITIES

1999 Preliminary Assessment/Site Inspection (PA/SI). During the 1999, PA/SI the USAF conducted surface soil sampling at both sites to determine whether petroleum-based oils caused soil contamination to the surrounding areas.

Analytical results indicated that diesel range organics (DRO), residual range organics (RRO), and PCBs were detected above regulatory limits. Sample results also indicated PCB contamination appeared to coincide with petroleum contamination at SS016 and SS017 (USAF, 2000). It was conjectured that PCB contaminated oil may have been inadvertently used to oil the tramway cables on isolated occasions. Based on Resource Conservation and Recovery Act (RCRA) characteristics for toxicity and ignitability and PCB concentrations, the tramway soil at the Cape Romanzof LRRS was classified as a Toxic Substance Control Act (TSCA) PCB waste for excavation and disposal. Three areas were identified to have DRO, RRO, and PCB contamination above regulatory levels (maximum concentrations are shown below):

- SS016, Upper Tram Terminal. Estimated 8 cubic yards (CY) of contaminated soil with DRO - 5,300 mg/kg; RRO - 5000 mg/kg and PCB - 1,700 mg/kg.
- SS017 Lower Tram Terminal. Estimated 37 CY of contaminated soil with DRO -12,000 mg/kg; RRO - 26,000 mg/kg; and PCB - 49 mg/kg.
- Waste Disposal Pit behind Lower Tram Terminal (considered part of SS017). Estimated 1.5 CY of contaminated soil with DRO – 1,200 mg/kg; RRO - 470 mg/kg; and PCB – 2.6 mg/kg.

2002 PCB Contaminated Soil Removal. In 2002, the USAF removed DRO, RRO and PCB contaminated soils at Sites SS016 and SS017 to include the waste disposal pit at Site SS017. After excavation, DRO and PCB levels exceeding regulatory limits still remained in soil at Site SS016. Additional excavation and backfill was not recommended due to the high degree of the slope and the high number of very large boulders present. Unless the slope is altered, support of the heavy equipment necessary to remove the large boulders was not feasible. Approximately, 40-cy of soil were excavated in Site SS017. Post excavation sample results showed PCB and DRO concentrations above cleanup levels. Additional excavation was recommended at Site SS017 to reach compliance with regulatory cleanup levels (USAF 2003 cited in USAF 2009).

2008 Remedial Investigation (RI). In 2008, a RI was conducted at SS016 and SS017 to further assess the extent of contamination; to estimate the remaining volume of impacted soil; and investigate potential cleanup strategies.

The RI identified three separate areas at SS016 where PCB concentrations exceeded clean up level in soil for a total of 339-cy. (USAF 2009).

- 240 ft² area along the south edge of the facility, or 17.8*-cy;
- 1,787 ft² area west of the upper tram terminal near the tram docking area, or 133-cy;
- 2,540 ft² area north of the substation near the elevated walkway, or 188-cy.

*Note: The volumes above used 2ft depth and the total divided by 27 ft² used to get cy.

In addition to PCB contamination, lead was also detected above its cleanup level of 400 mg/Kg at four locations along the northern wall of the facility.

At Site SS017, the 2008 RI determined the extent of PCB and lead contamination in surface and subsurface soils. For the purposes of the RI, surface soil was considered to be the soil horizon encountered at depths of 2 ft or less below ground surface (bgs) and subsurface soil was considered to be soil horizon located between 2 ft bgs and the surface of the underlying bedrock. Based on the 2008 RI analytical results, the USAF estimated that 191-cy of soil was contaminated with PCBs and lead at concentrations above the promulgated cleanup level of 1 mg/kg and 400 mg/kg respectively.

2.2 ROD Selected Remedy

Site SS016 had an estimated 339-cy of soil requiring excavation, with a maximum PCB concentration of 6,600 mg/kg and a maximum lead concentration of 617 mg/kg. Site SS017 has an estimated 191-cy of soil requiring excavation, with a maximum PCB concentration of 68 mg/kg and a maximum lead concentration of 1,500 mg/kg (USAF, 2013).

The ROD's common remedy for Sites SS016 and SS017 (including the disposal pit) was excavation and off-site disposal of soil containing (PCB) ≥ 1 mg/kg and lead ≥ 400 mg/kg. All PCB and lead-contaminated soils are collocated and would be excavated together and disposed of offsite at a permitted TSCA/RCRA deposal facility. Once contaminated soils are removed, the excavation area would be backfilled and revegetated to reduce chances of erosion.

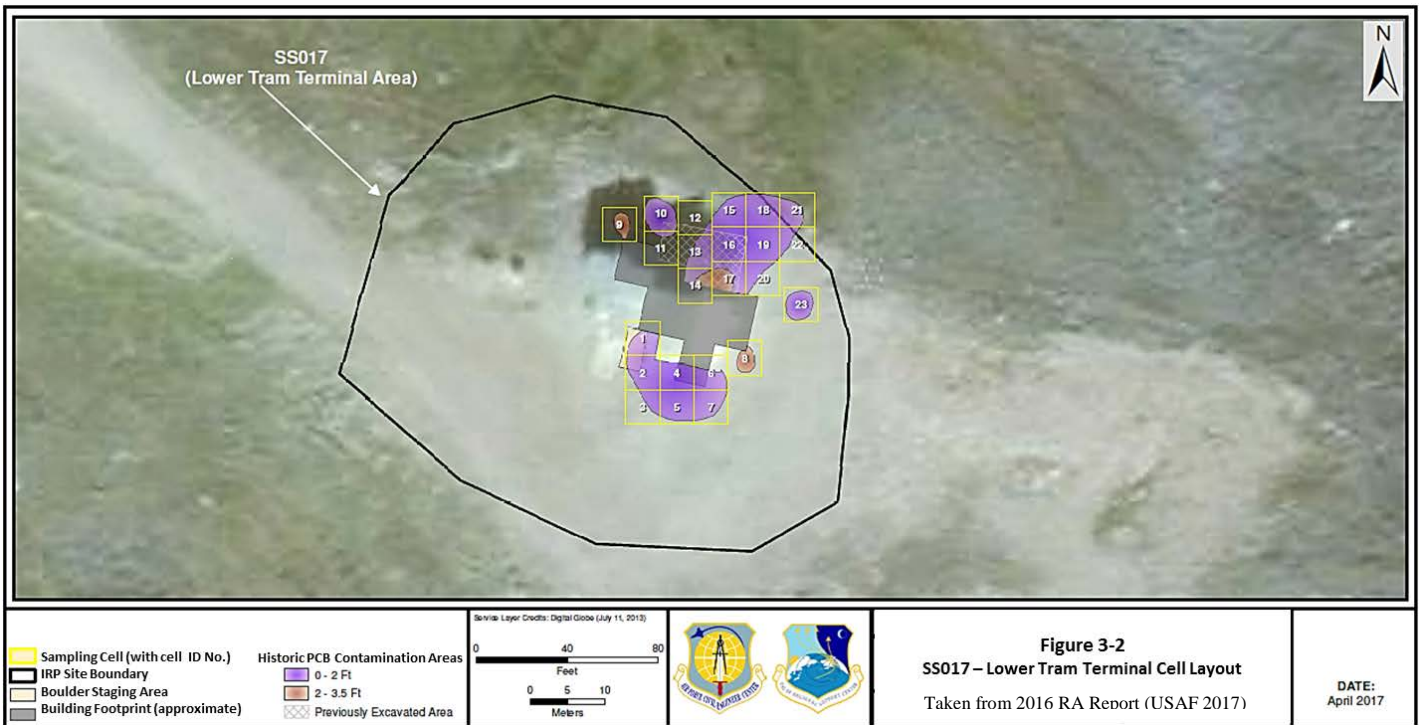
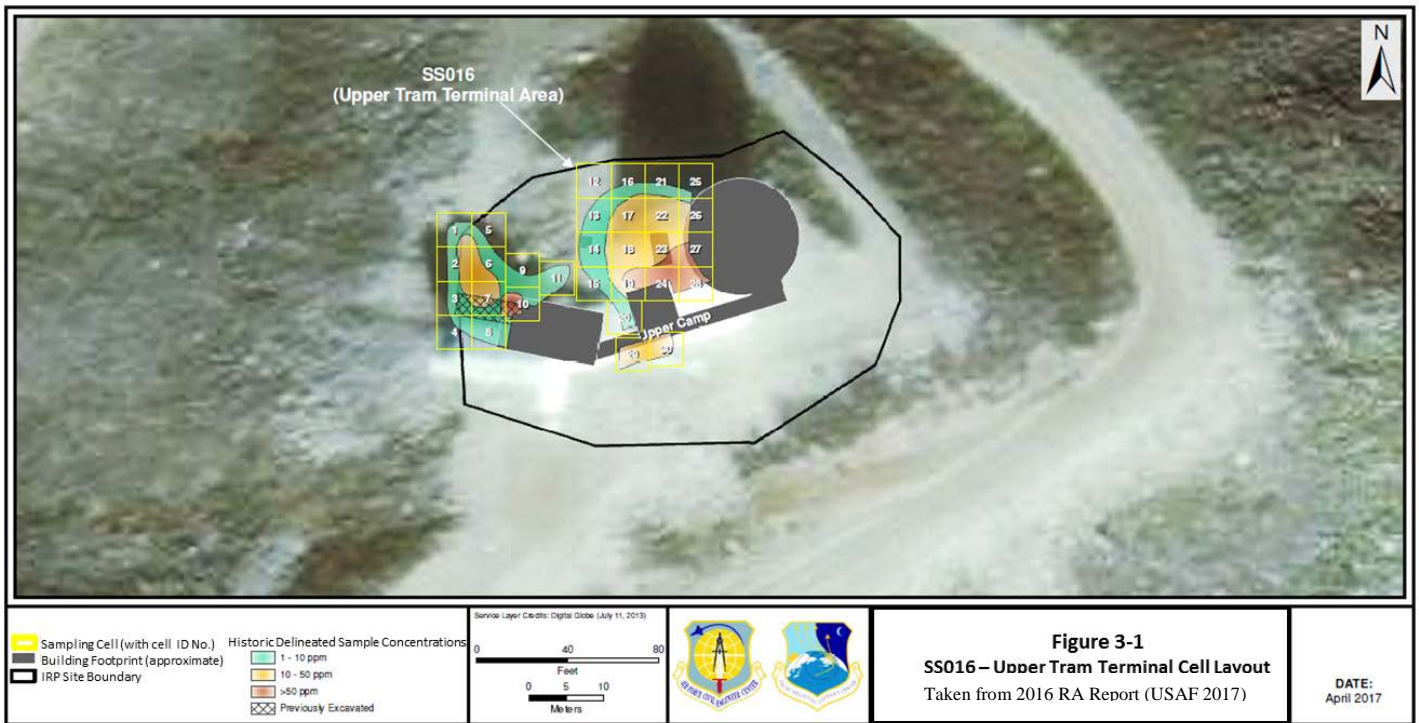
The ROD specified a contingency remedy only for SS016 that stated, "Because Site SS016 is located on a steep slope covered with large boulders, it may not be possible to remove all PCB soils > 1 mg/kg and lead Soils > 400 mg/kg for safety and logistical reasons.

If areas of PCB soil ≥ 1 mg/kg are left in-place at the site, the following actions will be implemented” (USAF 2013):

- A gravel cap will be placed over remaining surface soil contaminated with PCBs and lead above cleanup levels (≥ 1 mg/kg and ≥ 400 mg/kg respectively) protective of human health and the environment to prevent access and exposure to contaminated soil.
- Engineering controls (ECs) such as signs warning of contamination are erected at the locations where surface soil exceeds concentrations protective of human health and the environment.
- ICs that prohibit development and use of property for residential housing, prevent use of contaminated soil for restricted uses, require dig permit in the event of excavation, implement soil management plan, and maintain cap (if necessary) at SS016 in order to prevent direct exposure and water infiltration. Periodic site inspections will be performed to check the condition of the cap and signs; maintenance is completed as needed. The cap and signs are maintained by the USAF until soil no longer poses an unacceptable risk to human health and the environment and allow for unlimited use and unrestricted exposure at the site.
- Performance reports are provided to ADEC annually for the first five years after remedial activities and are followed by a Five-Year Review.

3.0 BASIS FOR THIS ESD

The following section discusses the basis for this ESD. In general, the 2009 RI and 2013 ROD estimated the volume of soil to be excavated in cy, the remedial action reported the volume removed in tons (USAF 2017). When possible, tons were converted to cy using a conversion factor of 1.55-ton/cy. This factor was derived from the actual USACE contract cost to complete the 2016 RA. The depth of contamination noted in the 2008 RI and 2013 ROD estimated the depth of contamination to be 2ft however, because of the shallow bedrock, large boulders and rocks the depth of soil contamination ranged from 0.5 to 2ft at SS016 and 1 to 3.5ft at SS017 (USAF 2009 and USAF 2016). Both sites had their area divided into 15 x 15 ft cells. Site SS016 was divided into 30 Cells (Figure 3-1) and Site SS017 was divided into 23 Cells (Figure 3-2) (USAF 2017).



3.1 Site SS016

During the remedial response action in 2016, approximately 83-cy of PCB and lead contaminated soil was removed. Based on the original 2013 ROD's estimated volume of 339 -cy, approximately 256-cy remain on site.

The volume of soil contamination remaining may be inaccurate due to various reasons such as variable depth of contamination, depth to bedrock, and soil remaining in unexcavated cells on an unstable slope and around the high voltage cables. The steepness of the slope required the use of hand tools and a vacuum trailer to conduct the soil excavation. During excavation of Cell 8, several large rocks present underneath the tram terminal and around the footings became unstable and dislodged, creating unsafe working conditions. Further excavation in this area ceased, thus Cells 2, 3, and 4 were not excavated and Cells 6, 9, and 10 excavation was discontinued. Cell 7 was excavated to bedrock after the first excavation lift of 0 to 0.5 ft bgs and was considered clean before the slope became unstable. Even though Cell 8 became unstable during excavation, confirmation samples were taken and results showed the cell was clean. Although Cells 9 and 10 were considered unsafe for further excavation they were deemed safe enough to be sampled, lined and backfilled. Cells #1 and 5 were not excavated or capped due to a 6 foot safety zone around live high voltage power cables to avoid electrocution or damaging the cables. Table 3-1 provides the status on whether the site's cells were cleaned, capped or not excavated or capped at the end of the 2016 remedial response action. Because Cells 1 through 6 remain uncapped they do not meet 2013 ROD contingency remedy for being protective to human health and the environment.

Table 3-1. Site SS016 - Status After 2016 RA

CELL #	CLEAN / CAPPED	PCB / Lead Sample Results Floor (F) / Wall (W)
1 thru 5	No Cap not Excavated	PCB \geq mg/kg and Lead \geq 400 mg/kg
6	No Cap not Excavated	PCB \geq mg/kg and Lead \geq 400 mg/kg
7 and 8	Clean	
9	Capped	1.9 mg/kg PCB (F)
10	Capped	86 mg/kg PCB (F)
11 thru 23	Clean	
24	Capped	34 mg/kg PCB (W)
25 thru 26	Clean	
28	Capped	34 mg/kg PCB (W)
29 and 30	Clean	
Red – Cell Not Capped or Excavated Yellow - Cell Capped Clean – 20 of 30 Cells are considered clean		

3.2 Site SS017

Remedial response actions conducted in 2016 at Site SS017, which includes the disposal pit, resulted in the removal of 293-cy of PCB and lead contaminated soil. However, according to the 2016 RA, approximately 240-cy remain to be excavated to meet unrestricted land use as required by 2013 ROD (see Table 2 for remaining quantity). Based on the original ROD's estimated volume of 191-cy, this is an increase of approximately 343-cy of PCB and lead contaminated soil.

Some of the difference between ROD amounts and actual amount may be due to PCB and lead contamination deeper than expected ranging between 2 to 4 ft bgs and encountering additional PCB contamination. Table 3-2 shows those cells that did not meet ADEC Method Two Soil Cleanup Levels for PCB ≥ 1 mg/kg and lead ≥ 400 mg/kg. The estimated quantity of contaminated soil is also presented. Additional PCB contaminated soil was encountered at the foundation on the north side of Lower Tram Terminal. Confirmation samples indicate that lead and PCB contaminated soil appears to extend beneath the Lower Tram Terminal which must be supported or removed prior to further excavation. The volume of contaminated soil under the lower tram is estimated at 90-cy. Additional contamination was also found around the waste disposal pit (cell 23). After the last excavation, a wall confirmation results were 3.5 mg/kg PCB.

The 2013 ROD stated that after all PCB and lead contaminated soil is removed, SS017 would meet unrestricted land use. However, to ensure personnel safety as well as to minimize potential damage to high voltage power cable, a 6-foot buffer zone was maintained during excavation at Site SS017. This resulted in four Cells 15, 18, 21 and 22 and only half of each Cell 12, 16, and 19 (25-cy) not accessible leaving these cell neither fully excavated nor capped. Relocation of the live high voltage power cable is required to access the contaminated soils in certain locations.

Upon completion of excavation and sampling activities, the floor and sidewalls of those areas containing PCB > 1 mg/kg and Lead > 400 mg/kg were covered with a geotextile to delineate the contaminated area for future removal actions. Clean fill from the installation borrow source was placed on top of the liner as backfill to match the surrounding grade, effectively acting as a cap to the contamination.

Table 3-2. Site SS017 - Status After 2016 RA

CELL #	CLEAN / CAPPED	Remaining Soil (cy)	PCB / Lead (L) Final Sample Results Floor (f) / Sidewall (w)
1	Clean		
2	Capped	8.3*	1.0 mg/kg PCB (w)
3 to 5	Clean		
6	Capped	8.3	1.6 mg/kg PCB (f)
7 & 8	Clean		
9	Capped	8.3	660 mg/kg L (w)
10	Clean		
11	Capped	8.3	18.4 mg/kg PCB (w) 2,160 mg/kg L (w)
12	Clean		
13	Capped	8.3	1.4 mg/kg PCB (f)
14	Clean		
15	Not Excavated	16.6 (2ft depth)	PCB > 1 mg/kg and Lead >400 mg/kg
16	Capped	8.3	3.3 mg/kg PCB (f)
17	Capped	8.3	8.3 mg/kg PCB (w)
18	Not Excavated	16.6 (2ft depth)	PCB>1 mg/kg and Lead >400 mg/kg
19	Capped	8.3	1.6 mg/kg PCB (f)
20	Capped	8.3	8.3 mg/kg PCB (w)
21 & 22	Not Excavated	16.6 (2ft depth)	PCB > 1 mg/kg and Lead >400 mg/kg
23	Capped (disposal pit)	8.3	3.5 mg/kg PCB (w)
Amount remaining to be excavated in cells		150	
Contamination under Lower Tram Terminal		90	
Estimate of Contaminated Soil Remaining		240	
Contaminated Soil Excavated and Remaining		533	
<p>Red - Cell Not Excavated or Capped PCB >1 mg/kg and Lead >400 mg/kg</p> <p>Yellow - Cell Capped using liner and clean fill Clean - 6 of 23 Cells are considered clean</p> <p>*Remaining to Excavate: Assumes (15x15x1ft)/(27ft²/yd) to meet unrestricted land use</p>			

4.0 SIGNIFICANT DIFFERENCES BETWEEN THE 2013 ROD AND THIS ESD

The following sections discuss differences between the ROD's selected remedy and the actions in this ESD based on the 2016 Remedial Action Report.

4.1 Site SS016 ROD and ESD Differences.

The following sections discuss the changes to the ROD-selected remedy based on the latest site data evaluation. Table 4-1 summarizes the changes from the 2013 ROD to this ESD.

4.1.1 2013 ROD Contingency Remedy. The 2013 ROD specified a contingency remedy: if areas of PCB contaminated soils ≥ 1 mg/kg and lead contaminated soils ≥ 400 mg/kg are left in-place at the site due to safety or logistical issues, then a cap will be placed over remaining surface soil contamination and LUCs would be implemented (USAF 2013). However during the remedial action in 2016, six cells were not capped due to safety and logistical issues causing a change in the ROD's remedy. In this ESD all uncapped cells are on an inaccessible slope. Additionally, cells #1 and 5 were not excavated or capped due to a 6 foot safety zone around live high voltage power cables to avoid electrocution or damaging the cables. All LUCs implemented for the capped cells will be implemented for the uncapped cells.

4.1.2 Soil Quantity Differences. The 2013 ROD quantity of surface soil requiring excavation at the site was estimated to be approximately 339-cy. After the 2016 RA approximately 83-cy of PCB and lead contaminated soil was excavated and disposed of offsite (USAF 2017). Approximately 256-cy remain on Site SS016 with a PCB concentration > 1 mg/kg and lead concentration > 400 mg/kg. The volume of soil contamination remaining may be inaccurate due to various reasons such as variable depth of contamination, depth to bedrock, and soil remaining in unexcavated cells on an unstable slope and around the high voltage cables.

4.1.3 Cost Comparison. The cost presented below is the total cost of removing one ton of soil which includes project management, labor, and barging, analytical and all other related cost. Utilizing the 2013 ROD remedy, a total of 525 tons (339-cy x 1.55 ton/cy) of soil was anticipated to be excavated and disposed of offsite. The proposed cost was \$795,743 or \$1,516/ton in 2013 ROD (USAF 2013). If the ROD contingency remedy was implemented, a 30 year additional maintenance cost of \$409,643 was added for an overall estimate of \$1,205,386. The extended 30 year cost per ton was \$2,296/ton. The cost, as reflected in the 2016 RA, was \$3,319/ton. The actual cost to excavate and dispose of 129

tons offsite was \$428,189. If all 525 tons (339-cy) were remove the cost would have been \$1,744,123. This is a 45.6% increase over the 2013 ROD cost. The estimated project cost to relocate the cable and remove the terminal is \$8,849,439 which include the removal of all remaining contaminated soil. This significantly exceeds the \$795,743 estimate presented in the 2013 ROD by \$8,053,696.

Table 4-1. Comparison of 2013 ROD Remedy and Changes in this ESD

2013 ROD – Site SS016	2018 ESD – SS016
<p>ROD Contingency: Because the site is located on a steep slope in an area covered with large boulders, it may not be possible to remove all PCB Soil ≥ 1 mg/kg for safety and logistical reasons. If areas of PCB soil ≥ 1 mg/kg are left in-place at the site, the following actions will be implemented:</p> <ul style="list-style-type: none"> ▪ A cap will be placed over remaining surface soil contaminated with PCBs and lead above cleanup levels (≥ 1 mg/kg and ≥ 400 mg/kg respectively). This cap would be protective of human health and the environment to prevent access and exposure to contaminated soil. ▪ Engineering controls (ECs) ECs such as signs warning of contamination will be erected at the location where surface soil is located at concentrations above cleanup levels protective of human health and the environment. ▪ ICs that prohibit development and use of property for recreational and residential housing; prevent the use of contaminated soil; require dig permit in the event of excavation; and implement soil management plan at SS016 in order to prevent direct exposure ▪ Locations of the cap and signs will be surveyed and recorded in the appropriate Cape Romanzof LRRS land records, including the Base Master Plan and ADNR land records. <p>Five-Year Review will be required. Performance reports will be provided to ADEC, annually, for the first five years after remedial activities and will be followed by a Five-Year Review. At that time the frequency of inspections and reports may be reduced.</p>	<p>Areas that could not be excavated or capped due to safety or logistical concerns will remain uncapped until Upper Tram Terminal and a high voltage power cable are removed and the slope stabilized.</p> <ul style="list-style-type: none"> ▪ LUCs for uncapped cells will meet the same ROD requirements as for capped cells. ▪ Locations of uncapped cells will be surveyed and recorded in the land records, including the Base Master Plan and ADNR land records. <p>Uncapped cells will meet the same requirement for Five-Year Reviews and performance reports as stated in the ROD.</p>
<p>Soil Quantity: The quantity of PCB and lead contaminated soil to remove was estimated to be 339-cy (525 tons).</p>	<p>At the end of the 2016 field season approximately 83-cy (129 tons) was shipped off site. An additional 256-cy (396 tons) of PCB and lead contaminated soil remain at the site. It is expected the remaining soil contamination will be addressed in 2023 once the abandoned Upper Tram Terminal is removed and high voltage cable is relocated or powered down.</p>
<p>Cost: Under the ROD remedy a total of 339-cy or 525 tons of soil was anticipated to be removed and deposited offsite. The proposed cost was estimated to be \$795,743. The 30 year cost to maintain the LUCs was estimated at \$409,643 for a total of 1,205,386.</p>	<p>After the 2016 RA approximately 129-tons (83-cy) soil was excavated and disposed of offsite. An estimated 396-tons (256-cy) remain on site. To remove the remaining contaminated soil the high voltage cable will require relocating and the Upper Tram Terminal will need removing increasing the estimated cost by \$8,849,439. This significantly exceeds the \$795,743 estimate presented in the 2013 ROD by \$8,053,696.</p>

4.2 Site SS017 ROD and ESD Differences.

The following sections discuss the changes to the ROD-selected remedy based on the latest site data evaluation. Table 4-2 summarizes the changes from the 2013 ROD to this ESD.

4.2.2 2013 ROD Remedy. The 2013 ROD, Site SS017, specified that all PCB and lead contaminated soil would be removed to meet unlimited use and unlimited restrictions. However, during the remedial action in 2016 RA excavation could not be done in six cells that had a high voltage power cable and additional contamination was encountered both around and under the Lower Tram Terminal. This ESD provides changes to the remedy which will allow:

- the unexcavated cells to remain with LUC until the high voltage cable is relocated and
- the cells with PCB ≥ 1 mg/kg and lead ≥ 400 mg/kg to remain with caps and LUCs until the Lower Tram Terminal and its associated contaminated soil is removed.

All LUCs implemented for the capped cells will be implemented for the uncapped cells.

4.2.1 Soil Quantity Differences. The 2013 ROD specified, that 191-cy (includes the 11.7-cy at the disposal pit) of PCB- and lead-contaminated surface soil concentrations above ≥ 1 mg/kg and ≥ 400 mg/kg respectively. Based on the 2016 RA a total of 293-cy were excavated and disposed off-site, an increase of 103-cy. An additional estimated quantity of 240-cy of PCB and lead contaminated soil remains to be excavated at Site SS017 to meet the ROD remedy of unlimited use and unrestricted exposure.

4.2.2 Cost Comparison. The cost presented below is the total cost of removing one ton of soil which includes project management, labor, and barging, analytical and all other related cost. Utilizing the 2013 ROD remedy, a total of 296 tons (191-cy x 1.55 ton/cy) of soil was anticipated to be excavated and disposed of offsite. The ROD estimated cost was \$938,995 (includes the waste pit) or \$3,112/ton. The cost, as reflected in the 2016 RA, was \$3,319/ton or \$1,506,826 for excavation and removal of 454-tons. However, with the additional 372 tons (240-cy) of soil contamination remaining both under the Lower Tram Terminal and within the original area, capped and uncapped, the estimated total cost for removal is \$8,675,497. This cost includes the removal of the Lower Tram Terminal and the relocation of the high voltage cable. This significantly exceeds the \$938,995 estimate presented in the 2013 ROD by \$9,417,270.

Table 4-2. Comparison of 2013 ROD Remedy and Changes in this ESD

2013 ROD – Site SS017 to include Waste Pit	2018 ESD – SS017 to include Waste Pit
<p>Quantity Differences. The quantity of surface soil to be removed was estimated to be 191-cy (296 tons).</p>	<p>The quantity of soil removed in 2016 was 293-cy (454 tons) of PCB and lead contaminated soil. Approximately 103-cy (160-tons) more than the ROD amount. An estimated 240-cy (372-tons) of contaminated soil remain on site. It is expected the remaining contamination will be addressed in 2023 during the removal of the Lower Tram Terminal and relocation of the high voltage cable.</p>
<p>Excavation and Off-Site Disposal to meet unlimited use and unlimited restrictions</p>	<p>1. The remedy specified in the 2013 ROD is amended to allow the current areas with PCB ≥ 1 mg/kg and lead ≥ 400 mg/kg contaminated soil to remain in place with capped cells and those areas unexcavated and inaccessible to remain until such time that the Lower Tram Terminal is removed and the high voltage cables can be relocated.</p> <p>2. The remedy specified in the 2013 ROD is amended to implement land use controls (LUC) until such time that the Lower Tram Terminal is removed and the power to the high voltage cables can be relocated as follows:</p> <ul style="list-style-type: none"> ▪ Engineering controls (ECs) such as signs warning of contamination will be erected at the location where soil is located at concentrations above cleanup levels protective of human health and the environment. ▪ ICs that prohibit development and use of property for residential housing, prevent use of contaminated soil for restricted uses, require dig permit in the event of excavation, and implement soil management plan at SS017 in order to prevent direct exposure. ▪ ICs will be incorporated into the LUC Plan. ▪ Annual site inspections will be performed to check the condition of the cap and signs; maintenance will be completed as needed. The signs will be maintained by the USAF until such time that it is determined that PCB contaminated soil no longer poses an unacceptable risk to human health and the environment and allow for unlimited use and unrestricted exposure at the site. ▪ Locations of the cap will be surveyed and recorded in the appropriate Cape Romanzof LRRS land records, including the Base Master Plan and ADNRR land records.
<p>Cost: Under the ROD the proposed cost was estimated to be \$938,995 (includes the waste pit) or \$3,112/ton.</p>	<p>After the 2016 RA approximately 454-tons (293-cy) soil was excavated and disposed of offsite at a cost of \$1,506,826 (\$3,319/ton). An estimated 396-tons (256-cy) remain on site. To remove the remaining contaminated soil the high voltage cable will require relocating and the Lower Tram Terminal will need removing, increasing the estimated cost to \$8,849,439. This significantly exceeds the \$938,995 estimate presented in the 2013 ROD by \$9,417,270.</p>

5.0 AIR FORCE LAND USE CONTROL

5.1 Resource Uses and Risk Exposure Assumptions. The land use at this site is designated as industrial use only currently and in the future in the base master plan. However, to assess the need for land use controls, contamination at the site was assessed for unlimited use and unrestricted exposure, particularly recreational and residential use.

5.2 Risks Necessitating the LUCs. Residual soil contamination is not safe for recreational or residential use. LUCs are therefore necessary to preclude such uses and to control the disposition and use of any soil excavated from the site.

5.3 Performance Objectives.

5.3.1 Prohibit the development and use of property for residential housing, elementary and secondary schools, or child care facilities and playgrounds.

5.3.2 Prevent the use of contaminated soil for restricted uses in the event of excavation and implement the soils management plan.

5.4 Location of LUCs. See Figure 3-1 for Site SS016 and Figure 3-2 for Site SS017

5.5 Duration of LUCs. Land use controls will be maintained until the concentration of PCB and lead in the soil are at levels that allow for unlimited use and unrestricted exposure.

5.6 Description of Each LUC and How It Achieves a Specific LUC Performance Objective.

5.6.1 Signage around Sites SS016 and SS017 will warn and prohibit entry and excavation of soil within the Sites. Signage will be maintained by AFCEC/CZOP.

5.6.2 The AF IMT 103, *Base Civil Engineering Work Clearance Request*, known as the dig permit system will prevent activities that could breach cell caps or relocate/move contaminated soil. The base dig permit system is implemented by 611 CES/CEO IAW PRSCOI 32-7001.

5.6.3 The base construction review process will prevent ground-disturbing construction activities or ensure safe soil management procedures in areas with residual contamination. The base construction review process is implemented by 611 CES/CEO IAW PRSCOI 32-7001.

5.6.4 The base Environmental Impact Analysis Process (EIAP) will assess the potential environmental impact of any action proposed at the site. The EIAP is implemented by 611 CES/CEIE.

5.6.5 All use limitations and exposure restrictions shall be entered in the base master plan and the Geographical Information System by 611 CES/CEN.

5.6.6 As required by State of ADEC a deed of notice shall be filed with Alaska Department of Natural Resources (ADNR), that describes the nature and location of residual contamination, and the types and locations of LUCs.

5.7 General Performance Responsibility. The Air Force is responsible for implementing, maintaining, monitoring, reporting and enforcing land use controls.

5.8 Specific Performance Responsibility to Bind Contractors and Tenants. The Air Force shall inform, monitor, enforce, and bind, where appropriate, authorized lessees, tenants, contractors and other authorized occupants of the site regarding the LUCs affecting the site.

5.9 Specific Performance Responsibility for Transferring Sites. Although the Air Force may later transfer these procedural responsibilities to another party by contract, property transfer agreement, or through other means, the Air Force shall retain ultimate responsibility for remedy implementation and protectiveness.

5.10 Notification and Corrective Measures Requirement. The Air Force will notify ADEC as soon as practicable, but no longer than ten days after discovery, of any activity that is inconsistent with the land use control objectives or use restrictions, or any other action that may interfere with the effectiveness of the land use controls. The Air Force will take prompt measures to correct the violation or deficiency and prevent its recurrence. In this notification, the Air Force will identify any corrective measures it has taken or any corrective measures it plans to take and the estimated time frame for completing them. For corrective measures taken after the notification, the Air Force shall notify the State of Alaska when the measures are complete.

5.11 Notification of Transfers. The Air Force must provide notice to the State of Alaska at least six (6) months prior to any transfer or sale of property containing land use controls so that the State of Alaska can be involved in discussions to ensure that appropriate provisions are included in the transfer or conveyance documents to maintain effective land use controls. If it is not possible for the facility to notify the State of Alaska at least six months prior to any transfer or sale, then the facility will notify the state as soon as possible but no later than 60 days prior to the transfer or sale of any property subject to land use controls. The Air Force agrees to provide the State of Alaska with such notice, within the same time frames, for federal-to-federal transfer of property accountability. The Air Force shall provide either access to or a copy of the executed deed or transfer assembly to the State of Alaska.

5.12 Concurrence Language. The Air Force shall not modify or terminate land use controls, modify land uses that might impact the effectiveness of the land use controls, take any anticipated action that might disrupt the effectiveness of the LUCs, or take any action that might alter or negate the need for LUCs without 45 days prior to the change seeking and obtaining approval from the State of Alaska of any required ROD modification.

5.13 Monitoring Language. The Air Force will monitor and inspect all site areas subject to LUCs at least biannually or more or less frequently as determined by the Air Force and the state.

5.14 Reporting Language. The Air Force will report biannually, or more or less frequently as may be determined by the Air Force and the State to be necessary based upon site specific

activities or conditions, to the State of Alaska on the frequency, scope, and nature of LUC monitoring activities, the results of such monitoring, any changes to the LUCs, and any corrective measures resulting from monitoring during the time period.

6.0 STATUTORY DETERMINATIONS

The selected remedies for Cape Romanzof, LRRS, as stated in the ROD and modifications herein, remain protective of human health and the environment under CERCLA §121 and the NCP.

Implementing “Institutional Controls, Engineering Controls, and Containment” due to safety or logistical issues associated with remedial action at SS016 and SS017 is protective of human health and the environment; complies with Federal and State of Alaska requirements identified in the 2013 ROD that are applicable or relevant and appropriate to remedial action as described in the aforementioned documents; is cost-effective; and uses permanent solutions and alternative treatment technologies to the maximum extent practicable. The remedy employs institutional controls, signage and soil capping of the contaminated soil.

7.0 PUBLIC PARTICIPATION

The public participation requirements set forth in 40 CFR 300.435(c)(2)(i) of the NCP are met through the issuance of this ESD and through notification of its availability to the public via the Public Announcements Section of the Tundra Drums and Public Notice Section of the Delta Discovery.

8.0 REFERENCES.

40 CFR 300, "National Oil and Hazardous Substances Pollution Contingency Plan," *Code of Federal Regulations*, as amended.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. 9601, et seq.

USAF, 2009. *Final remedial Investigation Report, Cape Romanzof LRRS, Cape Romanzof Long Range Radar Station, Cape Romanzof, Alaska. July.*

USAF. 2013. *Final Record of Decision Landfill No.2 (LF003), Spill/Leak No. 4 at the Weather Station Building (SS010), Upper Tram Terminal Area (SS016) and Lower Tram Terminal Area (SS017) Record of Decision, Cape Romanzof Long Range Radar Station, Cape Romanzof, Alaska. February.*

USAF. 2016. Cape Romanzof LRRS Uniform Federal Policy – Quality Assurance Project Plan, Cape Romanzof LRRS, Alaska, April.

USAF. 2017. *Final Remedial Action-Construction Report, LF003 – Landfill No.2, SS016 - Upper Tram Terminal, SS017 – Lower Tram Terminal, Cape Romanzof Long Range Radar Station, Cape Romanzof, Alaska.* June.

AGENCY COMMENTS



THE STATE
of **ALASKA**
GOVERNOR BILL WALKER

**Department of
Environmental Conservation**

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

555 Cordova Street
Anchorage, AK 99501
Main: 907-269-7552
Fax: 907-269-7687
www.dec.alaska.gov

File No.: 2526.38.018

August 28, 2018

Richard Mauser
AFCEC/CZOP
10471 20th Street, Suite 347
JBER, AK 99506-2201

RE: ADEC Approval of the Responses to Comments Made on the Explanation for Significant Differences for SS016 and SS017 at Cape Romanzof LRRS, Alaska dated July 2018

Dear Mr. Mauser:

On behalf of the Alaska Department of Environmental Conservation (ADEC), I have reviewed the responses to ADEC's comments on the 2018 Explanation of Significant Differences for sites: SS016 and SS017 (CS DB Hazard ID 4129). ADEC finds the responses acceptable and will approve the responses for incorporation into the final version of the document. Electronic version of the document is preferred.

If you have any questions on this letter or wish to set up a comment review meeting, please contact me at 907-269-7552 or louis.howard@alaska.gov.

Sincerely,

A handwritten signature in blue ink that reads "Louis Howard".

Louis Howard
Environmental Program Specialist

Alaska Department of Environmental Conservation
Comments on the Draft ESD for SS016 & SS017 Cape Romanzof LRRS, Alaska dated July 2018
Commenter: Louis Howard (ADEC), Comments Developed: August 22, 2018
AF Response: RMauser 23 Aug 18

			capped due to a 6 foot safety zone around live high voltage power cables to avoid electrocution or damaging the cables.”	
5.	13	Table 4-1	<p>Comparison of 2013 ROD Remedy and Changes in this ESD The text states:” It is expected the remaining soil contamination will be removed once the abandon Upper Tram Terminal ...”</p> <p>ADEC requests the text state: “It is expected the remaining soil contamination will be addressed in 2023 once the abandoned Upper Tram Terminal and high voltage cable are ...”</p> <p>ADEC assumes the schedule for the Upper and Lower Tram Terminal removals are going to be the same and conducted in 2023. Please verify if the high voltage cable is to be removed as stated in this table or will be relocated or powered down as stated in section 1.2. Correct text as appropriate in the table which has conflicting text (ESD language for ROD contingency, Soil Quantity and Cost).</p>	<p>Inserted: It is expected the remaining soil contamination will be addressed in 2023 once the abandoned Upper Tram Terminal is removed and high voltage cable is relocated or powered down.</p> <p>Correct assumption. Text corrected as written above.</p>
6.	15	Table 4-2	<p>Comparison of 2013 ROD Remedy and Changes in this ESD 2. 4th Bullet The text states: “Periodic site inspections will be performed to check the condition of the signs; maintenance will be completed as needed. The signs will be maintained by the USAF until such time that it is determined that PCB contaminated soil no longer poses an unacceptable risk to human health and the environment and allow for unlimited use and unrestricted exposure at the site.”</p> <p>ADEC will require that periodic inspections will occur at least every year for SS017. This is consistent with requirements for SS016 in the 2013 Record of Decision Section 2.14.6 Five-Year Review Requirements:</p> <p style="padding-left: 40px;">“If PCB-contaminated soils are left in-place at SS016 due to safety and logistical concerns, annual inspections, maintenance to the cap, and signs will be required.”</p>	<p>Deleted “Periodic”</p> <p>Inserted: “Annual site inspections will be performed to check the condition of the cap and signs”</p>
7.		5.6	Description of Each LUC and How It Achieves a Specific LUC Performance Objective	?

Alaska Department of Environmental Conservation
Comments on the Draft ESD for SS016 & SS017 Cape Romanzof LRRS, Alaska dated July 2018

Commenter: Louis Howard (ADEC), Comments Developed: August 22, 2018

AF Response: RMauser 23 Aug 18

8.	17	5.6.6	<p>The text states: “As required by State of Alaska Department of Natural Resources (ADNR), a deed notice shall be filed that describes the nature and location of residual contamination, and the types and locations of LUCs.”</p> <p>ADEC requests this text be deleted. This notice is not required by Alaska Department of Natural Resources, it is required by ADEC.</p>	<p>Inserted: 5.6.6 As required by State of ADEC a deed of notice shall be filed with Alaska Department of Natural Resources (ADNR), that describes the nature and location of residual contamination, and the types and locations of LUCs.</p>
----	----	-------	--	--