FINAL
DECEMBER 2021

Fifth Five-Year Review
Operable Units A and B-1
Former Adak Naval Complex
Naval Air Station Adak
Adak Island, Alaska

Department of the Navy
Naval Facilities Engineering Systems Command
Engineering Field Activity, Northwest
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Former Adak Naval Complex

NAVAL AIR STATION ADAK, ADAK ISLAND, ALASKA

December 2021

Prepared for NAVFAC Northwest by
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EXECUTIVE SUMMARY

This Five-Year Review evaluates whether the remedies implemented at 68 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites, 41 State-Adak Environmental Restoration Agreement (SAERA) sites, and four combined CERCLA and SAERA sites at Former Adak Naval Complex, Adak Island, Alaska, remain protective of human health and the environment.

This Five-Year Review has been completed in accordance with the United States (U.S.) Environmental Protection Agency's (EPA) *Comprehensive Five-Year Review Guidance* (EPA 2001) and the U.S. Department of the Navy's (Navy's) *Policy for Conducting Five-Year Reviews* (DON 2011a), and follows the EPA's *Five-Year Review Recommended Template* (EPA 2016). The Navy is the lead agency in this Five-Year Review and is responsible for conducting the Five-Year Review, and preparing and submitting the Five-Year Review report for regulatory review and comment. The Navy will address any recommendations that require corrective action or follow-up identified during the Five-Year Review.

The triggering action for this review was the execution of the fourth Five-Year Review by the Navy on December 13, 2016. This review covers protectiveness for operable unit (OU) A, SAERA, and OU B-1 sites at the former Adak Naval Complex. The one OU that is not addressed in this Five-Year Review is OU B-2 because a record of decision (ROD) has not been finalized. Because this site is pre-ROD, OU B-2 will not be evaluated for protectiveness; however, the status of OU B-2 is discussed in this review. This fifth Five-Year Review is due by December 13, 2021.

The purpose of this Five-Year Review is to ensure that the remedial actions selected in the records of decision and decision documents for OU A and OU B-1 at the former Adak Naval Complex remain protective of human health and the environment. This review is required because contaminants have been left at Adak above levels that allow for unlimited use and unrestricted exposure.

The Navy is currently evaluating potential per- and polyfluoroalkyl substances (PFAS) releases at Adak. PFAS are emerging chemicals and therefore were not a chemical of concern during the early site investigations on Adak. However, a draft Site Investigation is in progress and a final Preliminary Assessment was submitted in July 2021. The Navy has investigated PFAS and the preliminary results show that low levels of PFAS compounds were detected in the various media. The magnitude of detections are such that the Navy is currently in discussions with the EPA and Alaska Department of Environmental Conservation regarding the necessity for any further investigation relative to PFAS.

SITES REVIEWED

An overview of all 113 sites on Adak is presented in the Site Catalog in Appendix A. A total of 68 CERCLA-only sites (18 sites in OU A and 50 sites in OU B-1), 41 SAERA-only sites, and four combined CERCLA and SAERA sites required remedial actions and were reviewed in this fifth Five-Year Review (Table ES-1). For each site, all relevant activities that have been performed and data and documents that have been generated since implementing the various remedial actions have been reviewed. Site inspections and interviews with relevant personnel have also been conducted as part of the Five-Year Review process.

Table ES-1: Site Summary for Each OU at the Former Adak Naval Complex

Site Type	OU Number	Site Number
CERCLA Sites	OU A	*Total:* 49 sites including the major water bodies: • 31 sites NFA • 18 sites required remedial actions
	OU B-1	*Total:* 156 MEC sites: • 106 NOFA sites • 50 remaining sites required remedial actions
SAERA Sites	Former OU A	*Total:* 121 petroleum sites (62 of these sites were removed from OU A): • 80 sites NFA • 41 sites with final decisions (14 sites with interim remedies)
CERCLA and SAERA Sites	OU A	*Total:* 5 sites: • 1 site NFA • 4 sites required remedial actions

CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
MEC munitions and explosives of concern
NFA no further action
NOFA no further action with institutional controls
OU operable unit
SAERA State-Adak Environmental Restoration Agreement

REVIEW RESULTS

For all 113 sites undergoing review, a technical assessment was performed to evaluate whether:

- The remedy is functioning as intended.
- The assumptions used at the time of remedy selection remain valid, and whether the remedial action objectives are still appropriate.
- Any other information was identified that calls into question the protectiveness of the remedy.

This Five-Year Review identifies recommendations where necessary to improve the effectiveness of the remedial actions in protecting human health and the environment. The Issues, Recommendations and Follow-up Actions, and Protectiveness Statements are summarized in the Five-Year Review Summary Form, which follows this Executive Summary.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name: Former Adak Naval Complex		
EPA ID: AK4170024323		
Region: 10	**State:** AK	**City/County:** Aleutian West
SITE STATUS		
NPL status: ☒ Final ☐ Deleted ☐ Other (specify):		
Remediation status (choose all that apply): ☐ Under Construction ☒ Operating ☒ Complete		
Multiple OUs? ☒ YES ☐ NO		**Construction completion date (most recent):** 2016
Has site been put into reuse? ☒ YES ☐ NO		
REVIEW STATUS		
Lead agency: ☐ EPA ☐ State ☐ Tribe ☒ Other Federal Agency: U.S. Department of the Navy		
Author name: Catherine Webber		
Author title: Remedial Project Manager		**Author affiliation:** U.S. Navy, NAVFAC Northwest
Review period: May 7, 2020 – December 30, 2021		
Date(s) of site inspection: April-June 2021		
Type of review: ☐ Policy ☒ Statutory ☐ Discretionary		
Review number: ☐ 1 (first) ☐ 2 (second) ☐ 3 (third) ☒ Other (specify): 5 (fifth)		
Triggering action: ☐ Actual RA On-site Construction at OU #____ ☐ Actual RA Start at OU#____ ☐ Construction Completion ☒ Previous Five-Year Review Report ☐ Other (specify):		
Triggering action date: December 13, 2016		
Due date *(5 years after triggering action date)*: December 13, 2021		

ISSUES/RECOMMENDATIONS				
OU(s) without Issues/Recommendations Identified in the Five-Year Review:				
OU A (CERCLA sites) and OU B-1				
Issues and Recommendations Identified in the Five-Year Review:				
OU(s):	SAERA Site, SWMU 60, Tank Farm A			
Issue Category:	Remedy Performance			
Issue:	The MNA remedy requires enhancement because of groundwater seeps entering South Sweeper Creek, free product on-site (well 653, a surface water protection well), exceedances of DRO endpoint criteria and TAH and TAqH standards in groundwater, and exceedances of DRO endpoint criteria in sediment. The presence of two petroleum seeps was observed every year to be impacting South Sweeper Creek, and DRO concentrations in sediment showed a significant increase (from 1,900 mg/kg to 63,900 mg/kg) from 2018 to 2019. Thus, sediment conditions in South Sweeper Creek and free product observed in groundwater adjacent to South Sweeper Creek at SWMU 60 suggest that the remedy may not be functioning as intended. The Navy recommends determining the additional investigation/remediation under SAERA required to protect ecological receptors downgradient of the site.			
Recommendation:	Perform a remedy enhancement by installing an OBB to mitigate migration of petroleum hydrocarbons to surface water. The OBB design is complete and construction is anticipated for 2022 (DON 2021a).			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
Yes	Yes	Federal Facility	ADEC	12/31/2023

PROTECTIVENESS STATEMENT(S)	
Operable Unit: OU A	*Protectiveness Determination:* Short-term Protective
Protectiveness Statement: The OU A ROD-specified remedies (DON 2000) are protective of human health and the environment for the chemicals of concern identified therein. No exposure is occurring at these sites because all exposure pathways that could result in unacceptable risks are being controlled through the implementation of ICs and, where applicable, ECs. ICs and ECs are assessed biennially or every 5 years to ensure the remedy remains protective. The emerging chemical PFAS has been identified at OU A SWMUs 16, 32, and 33. A remedy has not been established for PFAS and the evaluation is ongoing. The OU A ROD has established ICs for non-PFAS impacts and these ICs are effective for PFAS at this time. Based on these conditions, the OU A ROD remedies are short-term protective for PFAS.	
Operable Unit: SAERA	*Protectiveness Determination:* Will be Protective
Protectiveness Statement: The SAERA OU remedies will be protective once the 2022 construction of oleophilic bio-barrier at SWMU 60 is complete. With the exception of petroleum at SAERA Site SWMU 60, Tank Farm A, no exposure is occurring at these sites because all exposure pathways that could result in unacceptable risks are being controlled through the implementation of ICs. For these sites, the IC component of the remedy is protective and is expected to remain so as long as the ICs are maintained. ICs are assessed biennially or every 5 years to ensure the remedy remains protective. The significant sediment DRO increase at SWMU 60 represents an exposure pathway that needs to be addressed. Under SAERA, follow-up actions are recommended with respect to DRO at SWMU 60, Tank Farm A, to ensure the remedy is protective due to the presence of a sheen on the adjacent surface water body and sediment impacts. The remedy at SWMU 60, Tank Farm A, will be protective once the planned 2022 enhancement action has been completed.	
Operable Unit: OU B-1	*Protectiveness Determination:* Protective
Protectiveness Statement: The OU-B-1 is protective of human health and the environment. The RAOs were determined to have been achieved and ongoing ICs ensure that human health and the environment are protected. The remedy for OU B-1 is protective of human health and the environment as long as ICs remain in place to control potential exposure pathways that could result in unacceptable risks.	

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CONTENTS

APPENDICES

FIGURES

TABLES

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ACRONYMS AND ABBREVIATIONS

µg/L	microgram per liter
AAC	Alaska Administrative Code
ACL	alternative cleanup level
ADEC	Alaska Department of Environmental Conservation
ADOT	Alaska Department of Transportation
ADOT & PF	Alaska Department of Transportation and Public Facilities
ARAR	Applicable or Relevant and Appropriate Requirement
avgas	aviation gasoline
bgs	below ground surface
BLM	Bureau of Land Management
BTEX	benzene, toluene, ethylbenzene, and xylenes
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CI	confidence interval
CUL	cleanup level
CMP	comprehensive monitoring plan
COC	chemical of concern
CWA	Clean Water Act
DD	decision document
DOI	Department of the Interior, United States
DRO	diesel range organics
EOD	explosive ordnance disposal
EPA	Environmental Protection Agency, United States
ESD	Explanation of Significant Difference
FS	feasibility study
GCI	General Communications, Inc.
GRO	gasoline range organics
HI	hazard index
IC	institutional control
ICMP	Institutional Control Management Plan
LTM	long-term monitoring
LUC	land use control
MC	munitions constituents
MCL	maximum contaminant level
MEC	munitions and explosives of concern
mg/kg	milligram per kilogram
MNA	monitored natural attenuation
NAP	natural attenuation parameter
Navy	Department of the Navy, United States
NFA	no further action (OU A ROD)
no.	number
NOFA	no further action with institutional controls (OU B-1 ROD)
NTCRA	non-time-critical removal action
O&M	operations and maintenance
OE	ordnance and explosives
OMM	operation, maintenance, and monitoring

OU	operable unit
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCE	tetrachloroethylene
PFAS	per- and polyfluoroalkyl substance
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonate
RACR	remedial action completion report
RAO	remedial action objective
RBAL	risk-based action level
RG	remedial goal
RI	remedial investigation
ROD	record of decision
ROICC	resident officer in charge of construction
RCRA	Resource Conservation and Recovery Act
SA	source area
SAERA	State-Adak Environmental Restoration Agreement
SLRA	screening level risk assessment
SSC	supplemental site characterization
SWMU	solid waste management unit
TAC	The Aleut Corporation
TAH	total aromatic hydrocarbons
TAqH	total aqueous hydrocarbons
U.S.	United States
USGS	United States Geological Survey
USFWS	United States Fish and Wildlife Service
UXO	unexploded ordnance
VOC	volatile organic compound

1. Introduction

This report presents the results of the fifth Five-Year Review performed for the former Adak Naval Complex, Adak Island, Alaska (Figure 1-1). The purpose of this Five-Year Review is to determine whether the remedies selected for implementation in the records of decision (RODs) and State-Adak Environmental Restoration Agreement (SAERA) decision documents (DDs) are and will continue to be protective of human health and the environment. This review is required because contaminants have been left at the former Adak Naval Complex above levels that do not allow for unlimited use and unrestricted exposure.

The United States (U.S.) Department of the Navy (Navy) is preparing this Five-Year Review pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (40 Code of Federal Regulations Section 300.430[f][4][ii]), and considering U.S. Environmental Protection Agency (EPA) policy. This review is considered a statutory review rather than a policy review. The triggering action for this review was the execution of the fourth Five-Year Review by the Navy on December 13, 2016.

This report covers the remedies selected for each of the sites in the signed RODs for Operable Units (OUs) A and OU B-1 (DON 1995; 2000; 2001) sites covered under SAERA (former OU A sites) and in the signed DDs for 14 petroleum sites (DON and ADEC 2005; 2006a; 2006b; 2006c; 2006d; DON 2012a). The OU A Record of Decision (ROD) amendment removed the petroleum sites from consideration under CERCLA and established a SAERA that requires petroleum sites to be subject to the CERCLA Five-Year Review process (DON 2003). Throughout this document, sites that were formerly identified as part of OU A and that have since been reclassified under the SAERA will be identified as SAERA sites. Some OU A sites are also identified as combined CERCLA and SAERA sites.

Naval Facilities Engineering Systems Command Northwest conducted this Five-Year Review during the time period of May 2020 through December 2021 by reviewing data collected at the site during the 2016 through 2021 field seasons. This report documents the results of the review. This review covers protectiveness for OU A, SAERA, and OU B-1 sites at the former Adak Naval Complex. The one OU that is not addressed in this Five-Year Review is OU B-2 because a ROD has not been finalized. Because this site is pre-ROD, OU B-2 will not be evaluated for protectiveness; however, the status of OU B-2 is discussed in this review.

While the former Adak Naval Complex is listed on the National Priorities List as a single listing, the former Adak Naval Complex includes multiple CERCLA- and National Oil and Hazardous Substances Pollution Contingency Plan-regulated sites, which are referred to as solid waste management units (SWMUs), source areas (SAs), or individual areas of investigation. The corrective action requirements of the Resource Conservation and Recovery Act (RCRA) of 1976 apply to SWMUs at RCRA-permitted facilities. CERCLA and RCRA corrective action requirements address the investigation and cleanup of contaminated properties through slightly different but functionally equivalent processes. This functional equivalence means that when CERCLA investigation requirements are met, the RCRA investigation requirements for SWMUs are also fulfilled.

The numerous SWMUs and SAs at the former Adak Naval Complex, and the intricate regulatory, investigative, and remedial history of the island, complicate efforts to summarize the Five-Year Review for the island as a whole in a single, comprehensive document. To accomplish this task, this Five-Year Review presents overview information in the body of the report and presents the details of

individual SWMUs and SAs in a Site Catalog in Appendix A which has been updated as part of the Five-Year Review process for Adak. The Site Catalog will be used as a reference document and a source document for SWMU- and SA-specific information (e.g., background text) to be used in other documents (e.g., the comprehensive monitoring plan [CMP]).

1.1 BACKGROUND OF FORMER ADAK NAVAL COMPLEX

Adak Island is located approximately 1,200 air miles southwest of Anchorage, Alaska, in the Aleutian Island chain (Figure 1-1). At 280 square miles, it is the largest of the Andreanof group of the Aleutian Islands. The former Navy base occupied 76,800 acres on the northern half of the island and closed operationally on March 31, 1997.

Land uses at the Former Adak Naval Complex include the airfield, port facilities, light industrial, administrative, commercial/recreational, and residential areas. Future land uses are expected to be generally similar to current land uses.

The OUs include OU A, sites formerly within OU A (now under SAERA), and OU B-1. Significant events relevant to OU A, SAERA, and OU B-1 sites at the Former Adak Naval Complex are presented in the Site Chronology in Appendix B. Pre-2016 information is provided in Section 3 of the *Final Fourth Five-Year Review, Former Adak Naval Complex, Adak Island, Alaska* (DON 2016a).

In September 2000, the federal government entered into a land transfer agreement with The Aleut Corporation (TAC), a native corporation, as documented in the Interim Conveyance document issued by the U.S. Department of the Interior (DOI), Bureau of Land Management (BLM). This agreement set forth the terms and conditions for the conveyance of approximately 47,000 acres of the former Adak Naval Complex property to TAC, the City of Adak, and the State of Alaska Department of Transportation (ADOT) and Public Facilities (PF) (ADOT & PF). The actual conveyance or transfer of property occurred on March 17, 2004 from the Navy to TAC via the DOI under Public Law Order 7609. The Interim Conveyance document is published as Attachment A of the Institutional Control Management Plan (ICMP), Revision 8 (DON 2020e). The Navy retains control of Parcel 4 lands. The U.S. Fish and Wildlife Service (USFWS) manages the southern portion (117,265 acres) of the island, which is a designated wilderness area within the Alaska Maritime National Wildlife Refuge system.

1.1.1 Operable Unit A and SAERA

OU A and SAERA sites address chemical releases to the environment throughout the entire military reservation. The investigation and remediation of OU A sites involved state regulations as well as CERCLA and RCRA procedures.

The site history, use, wastes generated, and chemicals of concern (COCs) are summarized in the Site Catalog (Appendix A) for each CERCLA (and RCRA), SAERA, and combined CERCLA and SAERA site that requires remedial action. Figure 1-2 and Figure 1-3 show the current status of CERCLA and SAERA sites, respectively, that were determined to require further action in the OU A ROD. A total of 175 sites were evaluated for OU A. A total of 18 CERCLA-only sites, 41 SAERA-only sites, and 4 combined CERCLA and SAERA sites required remedial actions and were reviewed in this fifth Five-Year Review. Table 1-1 through Table 1-3 list the names and current statuses of these sites.

Table 1-1: CERCLA-Only Sites in OU A

Site Name	Current Status	CERCLA COCs
Kuluk Bay	Tissue Monitoring with ICs	Aroclor 1254
South Sweeper Creek	Cleanup Complete with ICs	Aroclor 1260, cadmium, chromium, and lead
Andrew Lake	NFA	N/A
Clam Lagoon	NFA	N/A
Sweeper Cove	Tissue Monitoring with ICs	Aroclor 1260
SWMU 2, Causeway Landfill and Minefield	Cleanup Complete with ICs	N/A
SWMU 3, Clam Lagoon Landfill	NFA	N/A
SWMU 4, South Davis Road Landfill	Cleanup Complete with ICs	2,3,7,8-TCDD, Aroclor 1254, Aroclor 1260, copper, lead, and zinc
SWMU 5, North Davis Road Landfill	NFA	N/A
SWMU 6, Andrew Lake Drum Disposal Area 1	NFA	N/A
SWMU 7, Andrew Lake Drum Disposal Area 2	NFA	N/A
SWMU 9, Black Powder Club	NFA	N/A
SWMU 10, Old Baler Bldg.	Cleanup Complete with ICs	Aroclor 1260 and indeno(1,2,3-cd)pyrene
SWMU 11, Palisades Landfill	Cleanup Complete with Landfill Monitoring and ICs	N/A
SWMU 13, Metals Landfill [a]	Monitoring with ICs	N/A
SWMU 16, Former Firefighting Training Area	Cleanup Complete with ICs	Aroclor 1260
SWMU 18/19, White Alice Landfill [b]	Closed Landfill with Monitoring and ICs	N/A
SWMU 20, White Alice/Trout Creek Disposal Area	Cleanup Complete with ICs	Aroclor 1260
SWMU 21A, White Alice Upper Quarry	Cleanup Complete with ICs	Aroclor 1260
SWMU 21B, White Alice Lower Quarry	NFA	N/A
SWMU 21C, White Alice East Disposal Area	NFA	N/A
SWMU 23, Heart Lake Drum Disposal Area	Cleanup Complete with ICs	Arsenic and manganese
SWMU 25, Roberts Landfill [c]	Closed Landfill with Monitoring and ICs	N/A
SWMU 26, Mitt Lake Drum Disposal Area	NFA	N/A
SWMU 27, Lake Leone Drum Disposal Area	NFA	N/A
SWMU 28, Lake Betty Drum Disposal Area	NFA	N/A
SWMU 29, Finger Bay Landfill	Cleanup Complete with Landfill Inspections and ICs	Aroclor 1254
SWMU 30, Magazine 4 Landfill	NFA	N/A
SWMU 42, 42 GSE Steam Clean Oil/Water Separator	NFA	N/A
SWMU 43, AIMD Acid Battery Storage Area	NFA	N/A
SWMU 51, NSGA Transportation Bldg. 10354 Waste Storage Area	NFA	N/A
SWMUs 52, 53, 59	Cleanup Complete with ICs	Arsenic and benzo(a)pyrene
SWMU 54, NMCB Battery Storage	NFA	N/A
SWMU 65, Contractor's Camp Fire/Demolition Site	NFA	N/A
SWMU 66, Palisades Lake PCB Spill	NFA	N/A
SWMU 67, White Alice PCB Spill Site	Cleanup Complete with ICs	N/A
SWMU 68, New Pesticide Storage Area	NFA	N/A

Site Name	Current Status	CERCLA COCs
SWMU 69, Ski Lodge Waste Pile	NFA	N/A
SWMU 70, Davis Road Asphalt Drums	NFA	N/A
SWMU 71, NSGA Fueling Facility	NFA	N/A
SWMU 72, NSGA Transportation Bldg. 10354	NFA	N/A
SA 75, Asphalt Storage Area	NFA	N/A
SA 76, Old Line Shed Bldg.	Cleanup Complete with ICs	Lead, arsenic, and indeno(1,2,3-cd)pyrene
SA 83, Former Chiefs Club Station	NFA	N/A
SA 90, Husky Road Landfill	NFA	N/A
SA 91, Airplane Crash Sites	NFA	N/A
SA 92, Waste Ordnance Pile	NFA	N/A
SA 94, Chemical Weapons Disposal Area	NFA	N/A
SA 95, Transformer Disposal Area	NFA	N/A
Total CERCLA only sites: 49		

AIMD Aircraft Intermediate Maintenance Department
Bldg. building
CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
COC chemical of concern, as identified in the OU A ROD
GSE ground support equipment
IC institutional control
MNA monitored natural attenuation
N/A not applicable
NFA no further action
NSGA Naval Security Group Activity
PCB polychlorinated biphenyl
SA source area
SWMU solid waste management
TCDD tetrachlorodibenzo-p-dioxin
[a] CERCLA and RCRA.
[b] CERCLA and ADEC-SW.
[c] Regulated under ADEC-SW and RCRA.

Table 1-2: SAERA-Only Sites in OU A

Site Name	Current Status
Administration Bldg. (UST 30004-A)	NFA
Amulet Housing, Well AMW-706 Area	Cleanup Complete
Amulet Housing, Well AMW-709 Area	Cleanup Complete
Antenna Field, USTs ANT-1, ANT-2, ANT-3, and ANT-4	Cleanup Complete with ICs
Armory (UST 10311-A)	NFA
Artillery Battalion (USTs ART-1 and ART-2)	NFA
ASR-8 Facility (UST 42007-B)	Cleanup Complete
Bering Chapel (UST 42090-A)	NFA
Boy Scout Camp, West Haven Lake, UST BS-1	Cleanup Complete
Boy Scout Camp, South Haven Lake, UST BS-2	NFA
CDAA Complex (USTs 10580 and 10654)	NFA
Clam Road Truck Fill Stand	NFA
Cold Storage Facility (AST T-1440)	NFA
Contractor's Camp Burn Pad	Cleanup Complete
Contactor's Pad UST T-1706 (Navy Pad)	NFA
Drum Disposal Area at Tank Farm D	NFA
Elementary School (UST 42017-A)	NFA

Site Name	Current Status
Finger Bay Quonset Hut, UST FBQH-1	Cleanup Complete with ICs
Former Power Plant, Bldg. T-1451	Active – Monitoring with ICs/FPR
GCI Compound, UST GCI-1/Area 303	Active – MNA/IC
Girl Scout Camp, UST GS-1	Cleanup Complete
Housing Area, Arctic Acres	Active – MNA/IC
Housing Outfall Area (Sandy Cove)	NFA
Kuluk Housing (UST HST-6C)	NFA
Kuluk Recreation Center (UST 30034)	NFA
Line Crew Bldg. (USTs 2776, 2776-B, and 2776-C)	NFA
LORAN Station (USTs V149A, V149B, and V149C)	NFA
MAUW Compound, UST 24000-A	Cleanup Complete with ICs
MAUW Compound, UST 24032-B	NFA
McDonalds UST	NFA
Medical Center (UST 27088)	NFA
Mount Moffett Power Plant 5 (Used Oil AST)	NFA
Mount Moffett Power Plant 5 (Used Oil Pit)	NFA
Mount Moffett Power Plant 5, USTs 10574 through 10577	Cleanup Complete with ICs
Mount Moffett Tower (Mogas AST and Used Oil AST)	NFA
NAVFAC Compound, USTs 20052 and 20053	Cleanup Complete with ICs
Navy Exchange Bldg., UST 30026	NFA
Navy Exchange Bldg., UST 30027-A	Cleanup Complete with ICs
Navy Exchange Bldg., UST 30033	NFA
New Roberts Housing, UST HST-7C	Cleanup Complete with ICs
New Transportation Bldg. (O/W 10644)	NFA
New Transportation Bldg. (UST 10590)	NFA
New Transportation Bldg. (UST 10591)	NFA
NMCB Bldg. Area, T-1416 Expanded Area [c]	Active – MNA/IC/FPR
NORPAC Hill Seep Area	Cleanup Complete with ICs
NSGA Filling Station, Mogas, and JP-5 ASTs	NFA
Officer Hill and Amulet Housing, UST 31047-A	Cleanup Complete with ICs
Officer Hill and Amulet Housing, UST 31049-A	Cleanup Complete with ICs
Officer Hill and Amulet Housing, UST 31050-A	NFA
Officer Hill and Amulet Housing, UST 31051-A	NFA
Officer Hill and Amulet Housing, UST 31052-A	Cleanup Complete with ICs
Officer Hill and Amulet Housing, UST 31053-A	NFA
Old Fuel Truck Shop (UST 10520-A)	NFA
Old Fuel Truck Shop (UST 10520-B)	NFA
Pantograph Pad (UST RT-1)	NFA
Pumphouse 5 Area	NFA
Quarters A	Cleanup Complete
ROICC Warehouse, UST ROICC-1	NFA
ROICC Warehouse, UST ROICC-2	Cleanup Complete with ICs
ROICC Warehouse, UST ROICC-3	Cleanup Complete with ICs
ROICC Warehouse, UST ROICC-4	NFA
ROICC Contractor's Area, UST ROICC-5	NFA
ROICC Contractor's Area, UST ROICC-6	NFA

Site Name	Current Status
ROICC Contractor's Area, UST ROICC-7	Active – MNA/IC
ROICC Contractor's Area, UST ROICC-8	Cleanup Complete with ICs
Runway 5-23 Avgas Valve Pit	Cleanup Complete
Sewage Lift Station 10 (UST 42483-A)	NFA
Sewage Lift Station 11 (UST 42484-A)	NFA
Shack O-52 (UST 0-52)	NFA
Shack O-69 (UST B)	NFA
South Avgas Pipeline at North Sweeper Creek	NFA
SA 77, Fuels Facility Refueling Dock, SDSA [a]	Cleanup Complete
SA 78, Old Transportation Bldg.	Cleanup Complete with ICs
SA 79, Main Road Pipeline	Active – MNA/IC
SA 80, Steam Plant 4	Active – MNA/IC/FPR
SA 81, NGSA Gun Turret Hill USTs	NFA
SA 82, P-80/P-81 Bldgs.	Cleanup Complete with ICs
SA 84, Sand Shed	NFA
SA 85, New Baler Bldg.	NFA
SA 86, Old Happy Valley Child Care Center	NFA
SA 87, Old Zeto Point Wizard Station	NFA
SA 88, P-70 Energy Generator	Cleanup Complete with ICs
SA 89, Tank Farm C	NFA
SA 96, NORPAC Hill Debris Site	NFA
SA 97, Generator Debris Site	NFA
South of Runway 18-36 Area	Active – MNA/IC/FPR
SWMU 1, Andrew Lake OB/OD and Range [b]	NFA
SWMU 12, Quartermaster Road Debris Disposal Area	NFA
SWMU 22, Avgas Drum Storage Area South of Tank Farm A	NFA
SWMU 24, Hazardous Waste Storage Facility [a]	Cleanup Complete with ICs
SWMU 31, Runway 18-36 Aviation Gas Drum Disposal	NFA
SWMU 34, Steam Plant 4 Used Oil Storage Area	NFA
SWMU 35, GSE Used Oil Tank	Cleanup Complete with ICs
SWMU 41, GSE Used Oil Storage Area	NFA
SWMU 44, AIMD Used Oil Storage Area	NFA
SWMU 45, Sewage Treatment Plant (including SWMUs 46, 47, 48, 49, and 50)	NFA
SWMU 56, Public Works Transportation Department Waste Storage Area	NFA
SWMU 57, 57 Refueling Dock Oil/Water Separator	NFA
SWMU 58/SA 73, Heating Plant 6	Cleanup Complete with ICs
SWMU 60, Tank Farm A	Active – MNA/IC/FPR
SWMU 61, Tank Farm B	Active – MNA/IC
SWMU 62, Housing Area Fuel Leak	Active – MNA/IC/FPR
SWMU 64, Tank Farm D	NFA
Tanker Shed, UST 42494	Active – MNA/IC
Telephone Exchange Bldg. (UST 10324-A)	NFA
Telephone Substation T-100 (UST T-100-B)	NFA
TFB to TFC Pipeline – Area A	NFA
TFB to TFC Pipeline – Area B	NFA
TFB to TFC Pipeline – Area C	NFA

Site Name	Current Status
TFB to TFC Pipeline – Area D	NFA
TFB to TFC Pipeline – Area E (Truck Fill Stand)	NFA
TFB to TFC Pipeline – Area F	NFA
TFB to TFC Pipeline – Area G	NFA
TFC to NSGA Pipeline – Area A	NFA
TFC to NSGA Pipeline – Area B	NFA
TFC to NSGA Pipeline – Area C	NFA
TFC to NSGA Pipeline – Area D	NFA
TFC to NSGA Pipeline – Area E (Truck Fill Stand)	NFA
USGS (NOAA) Bldg. (USTs NOAA-A, -C, and -D)	NFA
Yakutat Hangar, UST T-2039-A	Cleanup Complete with ICs
Yakutat Hangar, USTs T-2039-B and T-2039-C	Cleanup Complete with ICs
Total SAERA only sites: 121	

AST aboveground storage tank
FPR Free-Product Recovery
GCI General Communication, Inc.
HST Hawaii Standard Time
JP Jet Propellant
LORAN long-range navigation
MAUW Modified Advanced Undersea Weapons
NAVFAC Naval Facilities Engineering Systems Command
Navy Department of the Navy, United States
NMCB Naval Mobile Construction Battalion
NOAA National Oceanic and Atmospheric Administration
NORPAC North Pacific
OB/OD open burn/open detonation
ROICC resident officer in charge of construction
SAERA State-Adak Environmental Restoration Agreement
TFB Tank Farm B
TFC Tank Farm C
USGS United States Geological Survey
UST underground storage tank

[a] SAERA and RCRA sites.
[b] CERCLA portion moved to OU-B.
[c] NMCB Bldg. (UST T-1416-A) was combined with this site.

Table 1-3: CERCLA and SAERA Sites in OU A

Site Name	Current Status
SWMU 14, Old Pesticide Disposal Area	Active – MNA/IC
SWMU 15, Future Jobs/DRMO	Cleanup Complete with ICs
SWMU 17, Power Plant 3	Active with ICs
SA 74, Old Batch Facility	NFA
SWMU 55, Waste Storage Area	Active with ICs
Total CERCLA and SAERA sites: 5	

DRMO Defense Reutilization and Marketing Office

1.1.2 Operable Unit B

Overall, OU B addresses hazards associated with munitions and explosives of concern (MEC) and human health and ecological risks associated with munitions constituents (MC). In 2001, OU B was subdivided into OU B-1 and OU B-2 to expedite the transfer of real estate by placing a higher priority on completing the investigation and remediation of OU B-1 sites, which are located within the parcel

of land intended for transfer to TAC (OU B-1 sites are shown on Figure 1-4). Parcel 4 includes all of the land currently retained by the Navy on Adak Island (Parcel 4 boundaries are shown on Figure 1-4 and Figure 1-5), and encompasses a small percentage of the OU B-1 sites and all of the OU B-2 sites that been undergoing further evaluation or remediation.

1.1.2.1 OU B-1

The sites in OU B-1 include the downtown and remote exchange areas identified for land transfer. OU B-1 includes 156 ordnance and explosives (OE) or unexploded ordnance (UXO) areas of concern (or sites). Historical documents identified the sites as OE/UXO sites, but are now referred to as MEC sites. Out of the 156 MEC sites, 50 required remedial actions (Table 1-4).

Table 1-4: OU B-1 Sites with Remedial Actions Required

Site Name	Current Status
Bay of Island Impact Area, BI-01	Cleanup Complete with ICs
Blind Cove/Campers Cove Impact Area, BC-01	Cleanup Complete with ICs
Combat Range 1, C1-02	Cleanup Complete with ICs
Combat Range 1, C1-03	Cleanup Complete with ICs
Combat Range 2, C2-01A	Cleanup Complete with ICs
Combat Range 2, C2-01B	Cleanup Complete with ICs
Combat Range 2, C2-02	Cleanup Complete with ICs
Combat Range 3, C3-01A	Cleanup Complete with ICs
Combat Range 3, C3-01B	Cleanup Complete with ICs
Combat Range 3, C3-01C	Cleanup Complete with ICs
Combat Range 3, C3-01D	Cleanup Complete with ICs
Combat Range 3, C3-01E	Cleanup Complete with ICs
Combat Range 3, C3-04A	Cleanup Complete with ICs
Combat Range 6, C6-01A	Cleanup Complete with ICs
Combat Range 8, C8-01	Cleanup Complete with ICs
Combat Range 8, C8-03	Cleanup Complete with ICs
Combat Range 8, C8-05A	Cleanup Complete with ICs
Finger Bay Ammunition Pier, FBAP-02	Cleanup Complete with ICs
Finger Bay Impact Area, FB-01	Cleanup Complete with ICs
Finger Bay Impact Area, FB-03	Cleanup Complete with ICs
Finger Bay Impact Area, FB-04	Cleanup Complete with ICs
Gun Emplacements, GUN-01	Cleanup Complete with ICs
Gun Emplacements, GUN-02	Cleanup Complete with ICs
Gun Emplacements, GUN-03	Cleanup Complete with ICs
Husky Pass, HP-01	Cleanup Complete with ICs
Lake DeMarie Impact Area, DM-06A	Cleanup Complete with ICs
Lake Jean Ammunition Complex, LJ-01	Cleanup Complete with ICs
Mitt Lake Impact Area, ML-01A	Cleanup Complete with ICs
Mitt Lake Impact Area, ML-01B	Cleanup Complete with ICs
Mitt Lake Impact Area, ML-02A	Cleanup Complete with ICs
Mitt Lake Impact Area, ML-02B	Cleanup Complete with ICs
Mount Moffett, MM-01	Cleanup Complete with ICs
Mount Moffett, MM-02	Cleanup Complete with ICs
Mount Moffett, MM-03	Cleanup Complete with ICs

Site Name	Current Status
Mount Moffett, MM-04 [a]	Cleanup Complete with ICs
Mount Moffett, MM-05	Cleanup Complete with ICs
Mount Moffett, MM-06	Cleanup Complete with ICs
Mount Moffett, MM-07	Cleanup Complete with ICs
Mount Moffett, MM-08	Cleanup Complete with ICs
Mount Moffett, MM-09	Cleanup Complete with ICs
Mount Moffett, MM-10A	Cleanup Complete with ICs
Mount Moffett, MM-10B	Cleanup Complete with ICs
Mount Moffett, MM-10C	Cleanup Complete with ICs
Mount Moffett, MM-10E	Cleanup Complete with ICs
Mount Moffett, MM-10F	Cleanup Complete with ICs
Mount Moffett, MM-10G	Cleanup Complete with ICs
Mount Moffett, MM-10H	Cleanup Complete with ICs
Mount Moffett, MM-11	Cleanup Complete with ICs
Shagak Bay Gun Emplacement, SH-01	Cleanup Complete with ICs
WWII Ammunition Pier (Sweeper Cove), AP-02	Cleanup Complete with ICs
Total OU B-1 sites: 50	

Note: **Bold text** indicates sites not in the Final Work Plan Closure Evaluation (DON 2020a).
WWI World War II
[a] MM-22 and MM-23 sites were incorporated into MM-04.

1.1.2.2 OU B-2

A total of 24 OU B-2 sites were evaluated under the remedial investigation (RI)/feasibility study (FS) stage of the CERCLA process, completed in 2012 (DON 2012b), which addressed hazards associated with MEC and human health and ecological risks associated with MC. The proposed plan for OU B-2 was also completed in 2012. The 24 OU B-2 sites are shown on Figure 1-5 and are within land transfer Parcel 4.

The Navy is conducting a non-time-critical removal action (NTCRA) at OU B-2; island-wide institutional controls (ICs) and engineering controls (ECs) have been implemented to protect human health and the environment. The NTCRA has not been completed at this time; therefore, no ROD has been approved for OU B-2 and this Five-Year Review does not address OU B-2 protectiveness.

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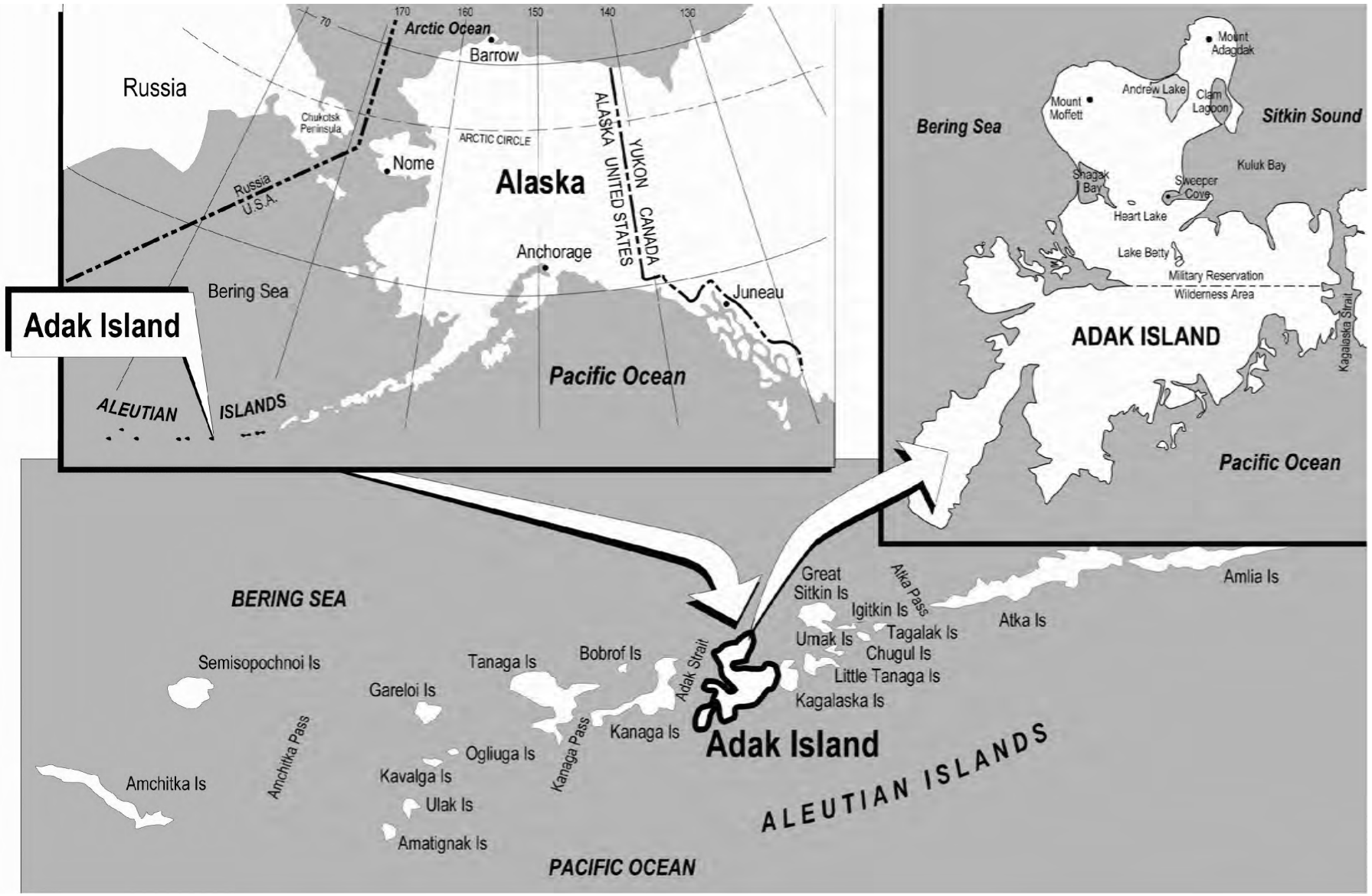

U.S. NAVY	Figure 1-1 Adak Island Location Map	Former Adak Naval Complex FIFTH FIVE-YEAR REVIEW

B:\60628680-SEA1\900_CAD_GIS\910_CAD\FIG 1-1 - STANDARD\NATIVE\FIG 1-1.DWG
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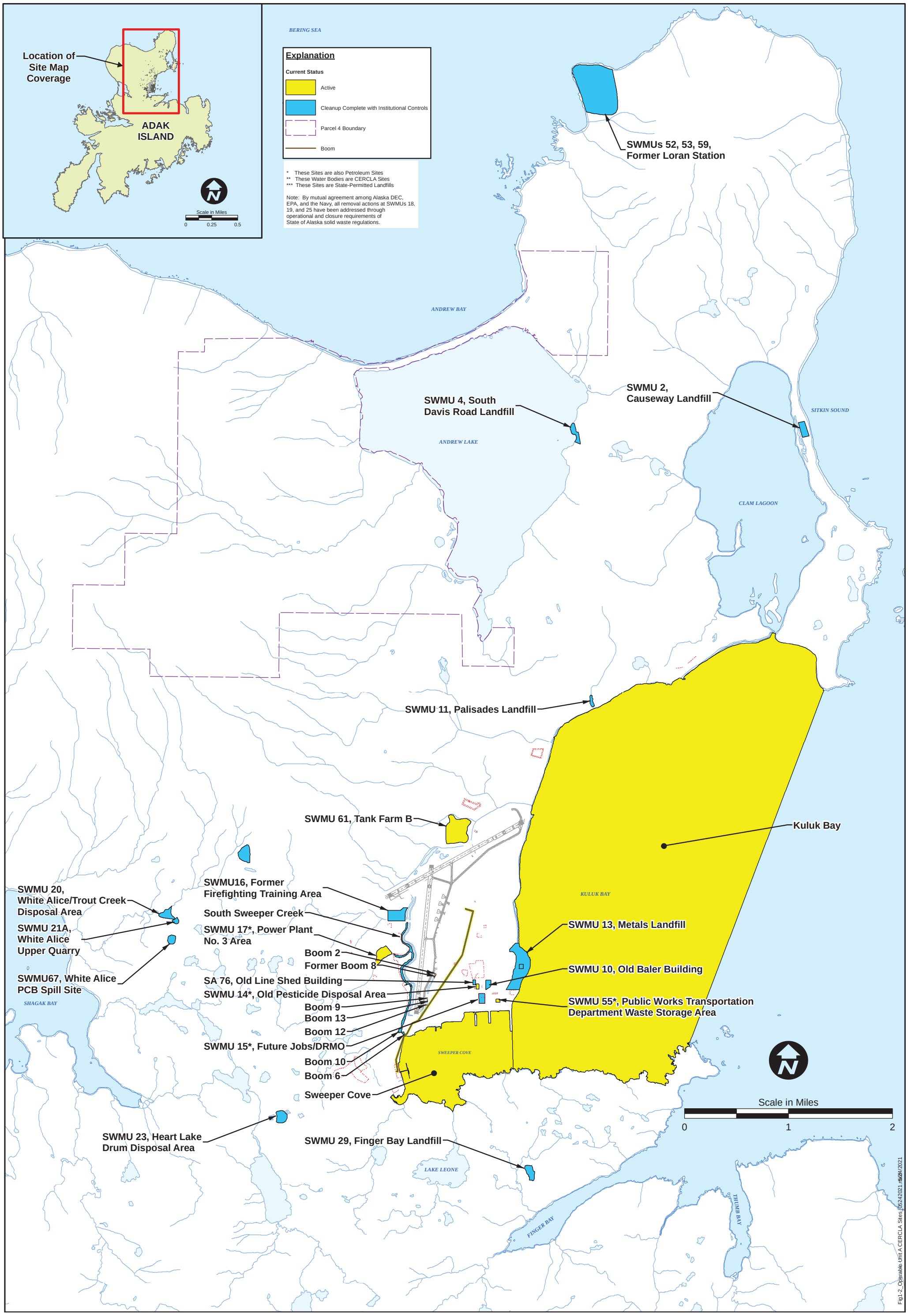

U.S. NAVY	**Figure 1-2** **Operable Unit A CERCLA Sites Determined to Require Further Action**	Former Adak Naval Complex FIFTH FIVE-YEAR REVIEW

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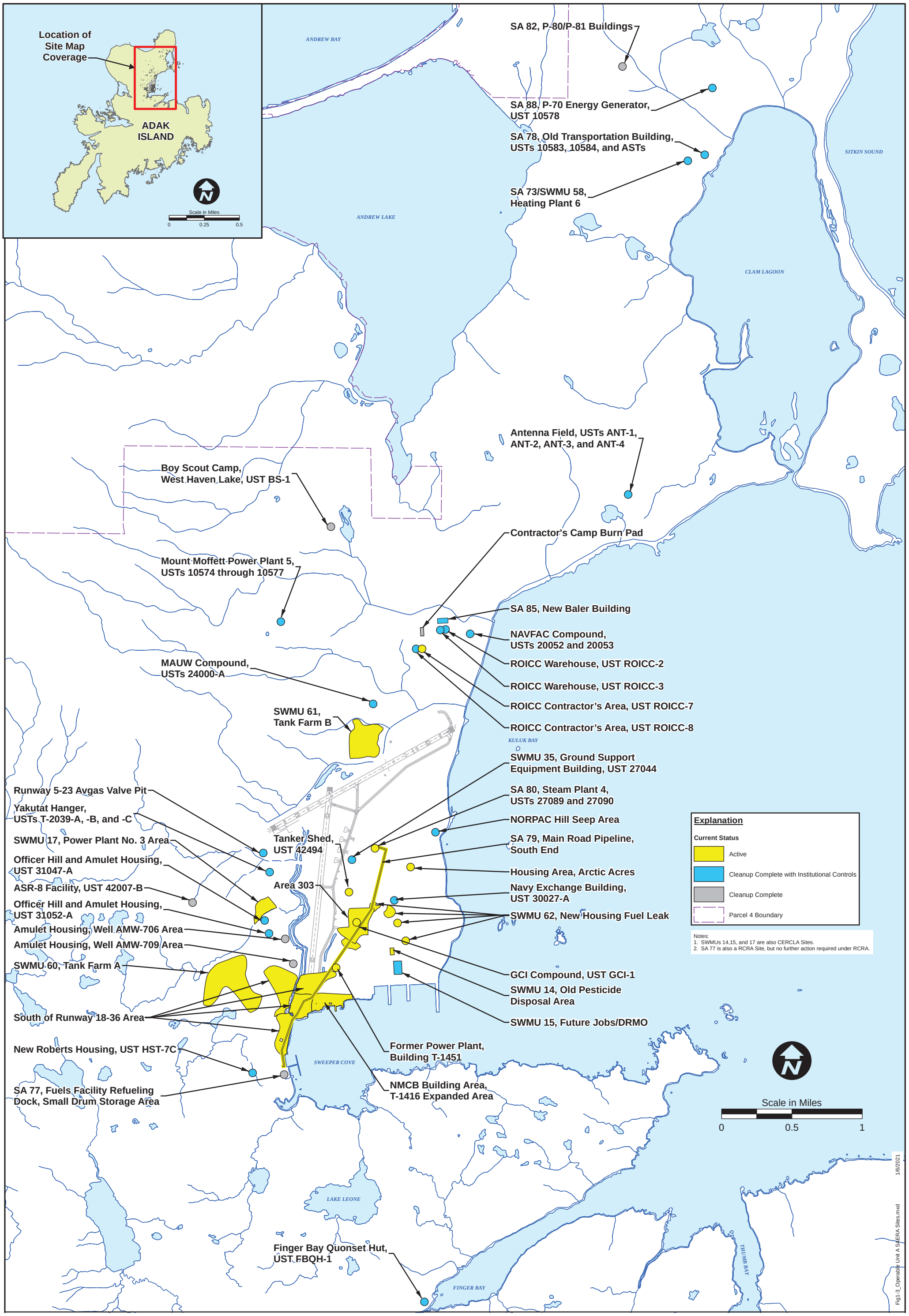

U.S. NAVY	Figure 1-3 SAERA Sites	Former Adak Naval Complex FIFTH FIVE-YEAR REVIEW

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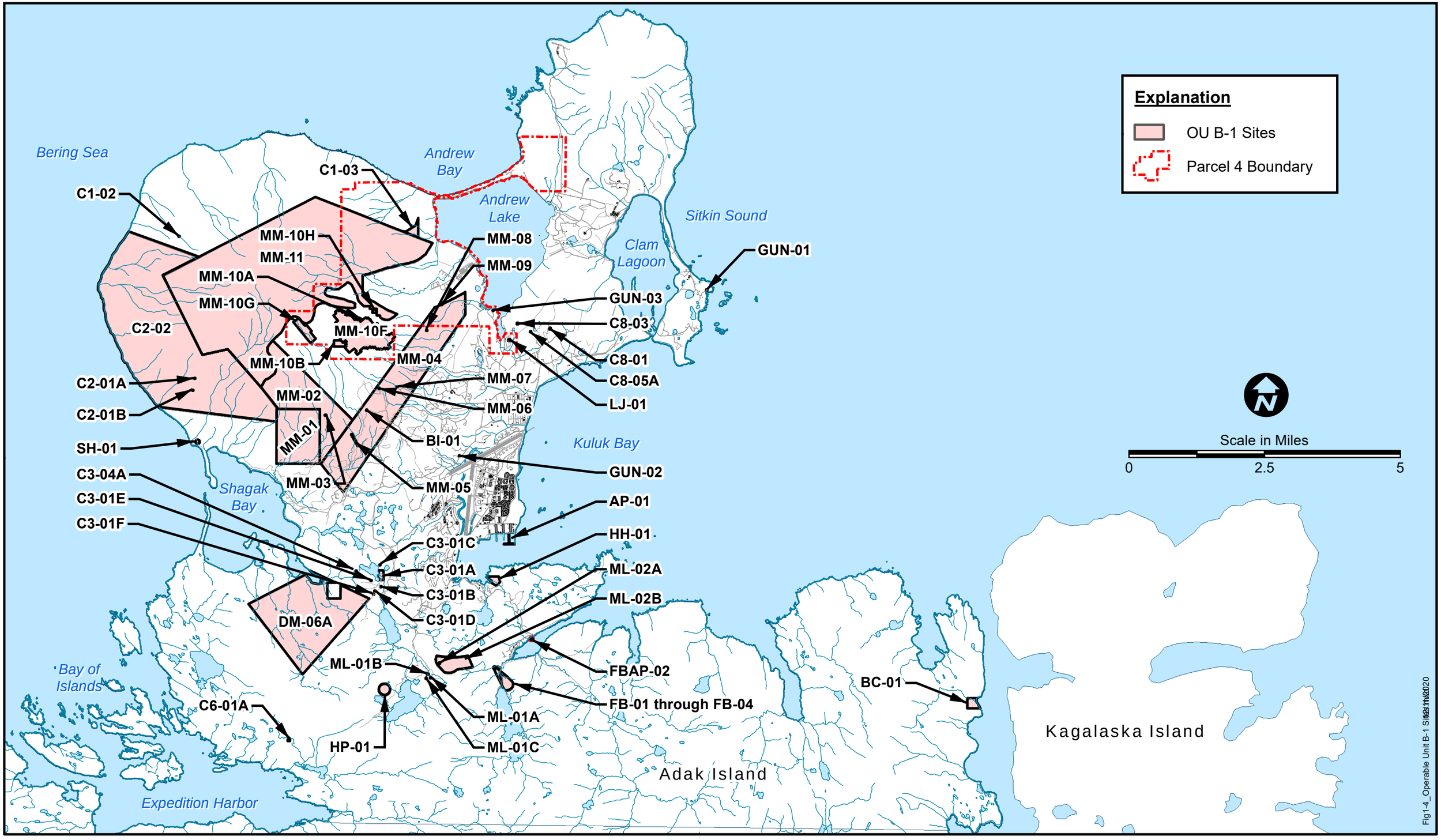

U.S. NAVY	Figure 1-4 Operable Unit B-1 Sites	Former Adak Naval Complex FIFTH FIVE-YEAR REVIEW

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Andrew Bay

Andrew Lake

Clam Lagoon

Expedition Harbor

Scale in Feet

0 2500 5000

OU B-2

OU B-1

Parcel 4

Airstrip

C1-01

ALDA-02

ALDA-01

ALSW-01

BC-03

MAG-01

SA93-01

SA93-04

SA93-02

SA93--03

SA-01

RR-02

RR-04

RR-03

RG-01

HG-01

OBOD-01

RR-01

MI-03

MI-02

MI-01

Enlargement at right

RG-01

HG-01

MI-03

OBOD-01

RR-01

Fig1-5 Operable Unit B-2 Sites.mxd 2/9/2020

U.S. NAVY	Figure 1-5 Operable Unit B-2 RI/FS Sites	Former Adak Naval Complex FIFTH FIVE-YEAR REVIEW

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2. Response Action Summary

This section, as well as Appendix A, provides a brief description of the remedial action objectives (RAOs), the selected remedy, and the remedial actions for these sites.

2.1 BASIS FOR TAKING REMEDIAL ACTION

2.1.1 OU A and SAERA Sites

Actual or threatened releases of hazardous substances from the CERCLA and petroleum/SAERA sites, if not addressed by implementing the response actions selected in the OU A ROD, may present an imminent and substantial endangerment to public health and welfare or to the environment. OU A addresses sources of contamination to soils, surface water, sediments, and groundwater; Table 2-1 shows a summary of the main COCs. Remedial action is required for CERCLA sites for one or more of the following reasons:

- Ecological risk of greater than a hazard index (HI) of 1.0 for the site and there is significant concern about impacts to the environment.
- Excess human health cancer risk of greater than 1×10^{-5} for subsistence fishers (water bodies only).
- Excess human health cancer risk of greater than 1×10^{-5} for residents (person living on-site for 30 years).

Remedial action is required for SAERA sites for one of the following reasons:

- Presence of petroleum free product on groundwater
- Presence of petroleum constituents in groundwater and/or soil

Table 2-1: Summary of Main Chemicals of Concerns for OU A

Media	COCs
Surface water	DRO, GRO, indeno(1,2,3-cd)pyrene, TAH, TAqH, copper, iron, lead, mercury, and zinc.
Soil	DRO, GRO, benzene, arsenic, indeno(1,2,3-cd)pyrene, PCBs, 2,3,7,8-TCDD, copper, lead, zinc, benzo(a)pyrene, arsenic, and manganese.
Sediment [a]	2-Methylnaphthalene, DRO, phenanthrene, PCBs, PAHs, and heavy metals.
Groundwater	PCE, DRO, GRO, lead, benzene, ethylbenzene, benzo(a)anthracene, cis-1,2-dichloroethene, methylene chloride, bis(2-ethylexyl)phthalate, trichloroethene, thallium, toluene, and antimony.
Biota	*Rock sole:* PCBs, PAHs, and cadmium. *Blue mussel:* PCBs, PAHs, chromium, copper, and lead. *Dolly Varden:* Lead and cadmium.

Source: ROD (DON 2000).
COC chemical of concern
DRO diesel range organics
GRO gasoline range organics
PAH polynuclear aromatic hydrocarbon
PCE tetrachloroethylene
TAH total aromatic hydrocarbons
TAqH total aqueous hydrocarbons
TCDD tetrachlorodibenzo-p-dioxin
[a] Non-exhaustive list.

The Navy is currently evaluating potential per- and polyfluoroalkyl substances (PFAS) releases at OU A sites.

2.1.2 OU B-1 Sites

While OU A encompasses the entire military reservation with respect to chemical contamination, OU B-1 encompasses the entire military reservation, with the exception of the OU B-2 sites within Parcel 4, relative to ordnance contamination. In addition to ordnance and munitions posing a risk at OU B-1 sites, some explosives-related chemicals were identified at some sites as COCs, such as RDX (cyclonite), trinitrotoluene, tetryl, nitroglycerin, and nitroguanidine (DON 2001).

An initial screening was conducted as part of an overall hazard assessment methodology developed for OU B to eliminate sites that had little or no likelihood of MEC concerns. This hazard assessment methodology is an Adak-specific process developed as part of an overall framework for assessing and managing potential threats to human health and the environment. These potential threats include explosive safety hazards due to the presence of UXO and the potential release of hazardous chemical substances related to that ordnance. Risks associated with releases from ordnance-related chemical substances are addressed through the chemical sampling and risk analysis methods developed under OU A and updated for current toxicity screening values for explosives-related chemicals.

Sites identified during the preliminary assessment (PA) screening as having little or no likelihood of MEC concern were recommended for the Adak no further action with ICs (NOFA) alternative. During the RI/FS, site information was assessed for explosive hazard through a risk evaluation process similar to the CERCLA process. This Adak-specific explosive safety hazards analysis model was developed by the OU B project team to evaluate explosive safety hazards to human health based on RI data. Current and future pathways for exposure to MEC consist of direct contact with items within an impacted area. Potential for exposure to MEC is derived from the current and future land uses of the areas of concern.

2.2 RESPONSE ACTIONS

2.2.1 Pre-ROD and DD Activities

2.2.1.1 OU A AND SAERA SITES

During the evaluation process at CERCLA sites, the Navy performed removal actions as listed in Table 2-2. Most of these actions were primarily incidental to investigation, such as removing drums or debris. Some of the actions were more significant (i.e., covering a landfill) and required the completion of an interim action ROD or an engineering evaluation/cost analysis and an action memorandum.

Table 2-2: Completed Actions at CERCLA Sites Pre-ROD

Date	Site No.	Completed Actions	Basis for Action [b]
1980–1982	SWMU 26	Removed drums from concrete slab.	IRR
1990	SWMUs 52, 53, and 59	Removed batteries, containers, and other debris.	IRR
Around 1991	SWMU 70	Removed drums.	IRR
1992	SWMU 15	Removed surface soil and debris.	IRR
	SWMU 21A	Removed surface soil containing PCBs.	IRR
	SWMU 43	Removed batteries.	IRR
	SWMU 20	Removed drums and soil containing PCBs.	EE/CA
1993	SWMU 51	Removed batteries.	IRR
1994	SWMUs 7, 23, 69, and SA 95	Removed drums and contaminated soil at SWMU 7, empty drums and a tank from the site at SWMU 23, petroleum-affected soil, rubble, and debris at SWMU 69, and a transformer and sediment at SA 95.	IRR
1995	SA 92	Removed soil and bomblets containing napalm.	IRR
Around 1995	SWMU 24	Removed waste containers.	IRR

Date	Site No.	Completed Actions	Basis for Action [b]
1996	SWMUs 11 and 13 [a]	Recontoured sites, placed cover on upper portion of landfill, and revegetated site.	Interim Action ROD (DON 1995)
	SWMUs 16 and 29	Removed and treated burn pit soils at SWMU 16, and drums from a stream at SWMU 29.	IRR
	SWMU 17 [d]	Removed and treated soil and installed recovery trench.	EE/CA
1997	SWMUs 16 and 67	Disposed of PCB-contaminated soil off island at SWMU 16, and placed cover and impermeable geotextile membrane over the PCB-contaminated area at SWMU 67.	EE/CA (DON 1996a)
	SWMU 27	Removed drums and covered sediment.	IRR
1998	SWMU 2	Cleared ordnance materials in minefield.	TCRA
	SWMU 4	Place soil cover over landfill.	Proposed Plan [c]
	SWMUs 18 and 19	Closed landfill under ADEC solid waste regulations.	18 AAC 60
	SWMU 74	Removed surface soil and placed cover on soil.	IRR
n/a	SWMU 28	Removed drums and solid material that had spilled out of the drums.	IRR

AAC Alaska Administrative Code
EE/CA engineering evaluation/cost analysis
IRR investigation-related removal
n/a not available
No. number
ROD record of decision
TCRA time-critical removal action
[a] Actions taken at those sites were interim remedial actions and not removal actions.
[b] References cited when available.
[c] The selected action for SWMU 4 was conducted in 1998 with the approval of the regulatory agencies before the OU A ROD was signed.
[d] SWMU 17 is a combined CERCLA and SAERA site.

2.2.1.2 OU B-1 SITES

During years of military activity at Adak, numerous MEC items were discovered, removed, and disposed of in accordance with military requirements at the time. Based on explosive ordnance disposal (EOD) detachment records, an estimate of over 75,000 individual MEC items were recovered between 1942 and 1996, the majority of them small arms ammunition. In 1996, the EOD Mobile Unit 11 Detachment Whidbey Island conducted an ordnance survey in the known range areas of Adak (DON 1996c). This survey suggested that significant effort would be required to remove MEC from certain sites.

Following the EOD survey, an investigation was performed at SWMU 2, Causeway Landfill and clearance operations began in mid-1998 and were completed in fall 1998 (DON 1999). The majority of mines located at the site were inert training mines. However, a small number of live service mines were also removed during clearance activities. Remnants of Bangalore torpedoes were also found that were typically used during minefield clearance activities.

In 1996, the Navy initiated an ordnance investigation of the downtown area in order to facilitate leasing of the primary reuse area of the island (DON 1997). Intrusive investigations and clearance activities were completed in the downtown area in 1998. Within the approximately 2,200 acres that were investigated, 7,116 geophysical anomalies were excavated. Three UXO items were found from the surface clearance, and three MEC items were found during subsurface investigations. In 1999 and 2000, physical and intrusive investigations were conducted at OU B-1 for ordnance contamination using geophysical techniques. About 1 percent of all anomalies investigated were found to be UXO, about 2 percent were abandoned MEC, and about 20 percent were MEC scrap.

2.2.2 Remedial Action Objectives

2.2.2.1 OU A AND SAERA REMEDIAL ACTION OBJECTIVES

RAOs were established for 63 OU A sites (18 CERCLA, 41 petroleum, and 4 combined CERCLA and SAERA sites) that required some type of response action per the OU A ROD (DON 1995; 2000) and SAERA DDs. These sites were grouped into the following four categories: a) landfills where landfill covers were installed; b) CERCLA sites (and three sites combined with SAERA) with long-term monitoring (LTM) and/or ICs only; c) CERCLA sites (and one site combined with SAERA) where soil and/or sediment were removed; and d) SAERA sites where remedial actions were required. Site-specific details on RAOs and COCs are included in the Site Catalog in Appendix A. The response actions are summarized as follows:

a) *Landfills with Covers:* Landfill covers were installed at the following sites: SWMUs 4, 11, 13, 18/19, and 25. These were completed either as requirements under the 1995 interim ROD for SWMUs 11 and 13, under the OU A ROD for SWMU 4, or as requirements of permit conditions for landfills permitted by the State of Alaska for SWMUs 18/19 and 25. The RAOs for these sites are the following:

   – Prevent ingestion of and contact with chemically affected subsurface soils within the landfill debris, and protect ecological receptors that may ingest on-site plants (the plants may uptake subsurface chemicals).

   – Limit off-site migration of chemicals and materials from the landfill.

b) *Sites with ICs Only:* The following chemical-release sites administered under CERCLA (and combined with SAERA) required implementing ICs only under the OU A ROD: former landfills at SWMUs 2 and 29; the water bodies Sweeper Cove and Kuluk Bay; and SWMUs 10, 14, 15, 16, 20, 21A, 23, 52, 55, 67, and 76. The RAOs for these sites are as follows:

   – The RAOs for the landfills at SWMUs 2 and 29 are to protect human or ecological receptors (or both) from exposure to landfill debris and soil that could result in a cancer risk greater than 1×10^{-5} or a noncancer risk above a HI of 1.0.

   – The RAOs for Sweeper Cove and Kuluk Bay consist of the protection of subsistence fishers from ingestion of fish (rock sole) and shellfish (blue mussel) containing Aroclors 1260 and 1254, respectively, that could result in a cancer risk greater than 1×10^{-5} or a noncancer risk above a HI of 1.0.

   – The RAOs for the remaining SWMUs involve the protection of human or ecological exposure to soil or groundwater. This exposure could result in a cancer risk greater than 1×10^{-5} or a noncancer risk above a HI of 1.0 under a conservative residential risk exposure scenario for these commercial/industrial sites.

c) *SWMU 17, Power Plant 3 Area and South Sweeper Creek:* The RAOs at the SWMU 17 waste oil and retention ponds are to prevent uptake of and contact with impacted freshwater sediments by benthic infauna and impacted surface water by birds. The SWMU 17 RAOs are relative to both CERCLA and SAERA COCs. The RAOs at South Sweeper Creek are to protect benthic infauna from contacting and ingesting sediments affected by CERCLA COCs.

d) *SAERA Sites:* RAOs for media impacted by petroleum releases were based on 18 Alaska Administrative Code (AAC) 75. The RAOs for petroleum sites established in the OU A ROD were the following:

   – Reduce petroleum concentrations in soil.

   – Reduce volume of petroleum-free product.

- Mitigate potential for downgradient migration.
- Reduce potential for direct exposure.

One or more of these RAOs is applicable to each of the 41 petroleum sites that required remedial action under the OU A ROD. A total of 62 petroleum sites, including the 41 petroleum sites that required remedial action under the OU A ROD, were removed from the OU A ROD by a ROD amendment (DON 2003). Final cleanup decisions for 14 of the 62 petroleum sites, as well as the implementation of all cleanup decisions and necessary monitoring for all 62 petroleum sites, were to be conducted thereafter in accordance with 18 AAC 75 and pursuant to the SAERA between the Navy and Alaska Department of Environmental Conservation (ADEC).

SWMU 24 was closed under RCRA and has ongoing IC requirements. SA 77 was also closed under RCRA and is now Cleanup Complete under SAERA (ADEC 2016). A total of 14 petroleum sites removed from the OU A ROD potentially required further action under SAERA. A SAERA DD documenting final remedies at 10 of these sites was signed on May 20, 2005 (DON and ADEC 2005) and included the following RAOs, both of which are applicable to all 10 sites (Table 2-3):

- Prevent future exposure to petroleum-related chemicals in soil and groundwater at the site.
- Over the long term, reduce concentrations of petroleum-related chemicals in groundwater to levels below ADEC groundwater cleanup levels (CULs).

The DDs documenting the final remedies for the Naval Mobile Construction Battalion Building Area, T-1416 Expanded Area; SWMU 62, New Housing Fuel Leak; South of Runway 18-36 Area; and SWMU 17, Power Plant Number (No.) 3 Area (DON and ADEC 2006a; 2006b; 2006c; 2006d) included more detailed RAOs for each site as defined in the Site Catalog In Appendix A. The final remedy for Area 303 was finalized later in 2012 (DON 2012a). Area 303 was combined with the General Communications, Inc. (GCI) Compound site because it encompasses the boundary of the GCI Compound.

Table 2-3: Summary of the 14 Free-Product SAERA Sites

Category	Site Name	Final remedy selected in DDs
10 Free-Product Sites with no unacceptable risks (DON and ADEC 2005)	Area 303/GCI Compound (DON 2012a)	MNA, ICs and Free Product Recovery
	SA 80, Steam Plant 4	MNA and ICs
	Tanker Shed	MNA, ICs and Free Product Recovery
	SA 78, Old Transportation Bldg.	MNA and ICs
	SA 82, P-80/P-81 Bldgs.	Limited groundwater monitoring
	SA 88, P-70 Energy Generator	Limited groundwater monitoring
	SWMU 58, Heating Plant 6 [a]	MNA and ICs
	SA 73, Heating Plant 6 [a]	MNA and ICs
	Yakutat Hangar	Limited groundwater monitoring
	NORPAC Hill Seep Area	Limited groundwater monitoring
4 Free-Product Sites with unacceptable risks	NMCB Bldg. Area, T-1416 Expanded Area (DON and ADEC 2006a)	MNA, ICs and Free Product Recovery
	South of Runway 18-36 Area (DON and ADEC 2006b)	MNA, ICs, and passive Free Product Recovery and Containment
	SWMU 62, New Housing Fuel Leak (DON and ADEC 2006c)	MNA, ICs and passive Free Product Recovery and Containment, Surface Soil Excavation
	SWMU 17, Power Plant No. 3 Area (DON and ADEC 2006d)	MNA and ICs

DD decision document
[a] SWMU 58 and SA 73 are also combined as one site later on.

2.2.2.2 OU B-1 SITES REMEDIAL ACTION OBJECTIVES

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and risks posed by MEC to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use, which included activity that could potentially disturb unidentified subsurface MEC. Two RAOs were established in the OU B-1 ROD (DON 2001): one addresses explosive safety issues and the other addresses the chemical residues in soil resulting from past ordnance use.

The RAO, as it pertains to the explosive safety aspect of the ordnance, is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the explosives safety hazard assessment process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. CULs are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the CUL goal includes removing all known MEC items that are located in reasonably accessible areas to a depth of 4 feet below ground surface (bgs) using an ordnance detection system that meets the performance criteria established for Adak. Site-specific details on RAOs and COCs are included in the Site Catalog in Appendix A.

The RAO for potential MC risks is to prevent exposure of future residents and recreational users to explosives-related contamination in soils above the CULs. The CULs established in the ROD are the EPA Region 9 preliminary remediation goals for residential soil. This chemical-risk RAO is applicable to the seven locations identified in the ROD as having potential chemical risks, and to additional locations where subsequent field investigations indicated the potential for chemical residues.

2.2.3 Remedy Components

2.2.3.1 OU A AND SAERA SITES

The specific remedial actions selected for each CERCLA, SAERA, and combined CERCLA and SAERA site are provided in the Site Catalog in Appendix A. The major components of the selected remedy for the CERCLA sites (including the OU A water bodies and downtown area groundwater) include the following:

- Excavation and treatment by thermal desorption of contaminated sediments and soils.
- Recycling of treated sediment and soils as daily cover material at the on-island SWMU 25, Roberts Landfill.
- Placement of a soil cover over SWMU 4.
- ICs to prohibit unacceptable exposure to hazardous substances left on-site.
- Monitoring of groundwater for benzene, toluene, ethylbenzene, and xylenes (BTEX), diesel range organics (DRO), gasoline range organics (GRO), bis(2-ethylhexyl)phthalate, methylene chloride, tetrachloroethylene (PCE), trichloroethene, lead, and natural recovery parameters.
- Monitoring of aquatic biota for polychlorinated biphenyls (PCBs) and posting of an advisory (fact sheets) concerning potential risks associated with consumption of fish and shellfish from Sweeper Cove and Kuluk Bay.

The major components of the selected remedy for the petroleum (SAERA) sites are as follows:

- Removal and treatment of petroleum-contaminated soils to meet 18 AAC 75 requirements.
- Monitored natural attenuation of petroleum chemicals in soil and groundwater.

- Free-product recovery to the maximum extent practicable as an interim remedial measure, followed by an evaluation of remedial alternatives to achieve final cleanup per the focused FS to achieve final CULs under 18 AAC 75 for soils and groundwater.
- ICs to minimize the potential for direct contact, to restrict groundwater use, and/or to restrict excavation until remedial objectives have been met.

A total of 14 petroleum sites removed from the OU A ROD potentially required further action under SAERA. Table 2-3 presents the final remedies selected for these sites and their associated DDs. Free product recovery was therefore a component of the final remedy for the following five sites: Tanker Shed, South of Runway 18-36 Area, SWMU 62, New Housing Fuel Leak, Naval Mobile Construction Battalion (NMCB) Bldg. Area T-1416 Expanded Area, and Area 303/GCI Compound.

2.2.3.2 OU B-1 SITES

OU B-1 includes 156 sites that contained potential MEC; NOFA was selected for 106 of the 156 sites. The remedy at all of the OU B-1 sites includes the continuation of the Adak UXO Awareness Program and the inclusion of a deed notice pursuant to CERCLA 120(h)(3)(A)(i) or other suitable information on MEC in the U.S. BLM permanent file concerning the conveyance.

Some action was required at 50 sites by the OU B-1 ROD to meet the RAOs (the OU B-1 ROD did not include remedies for MM-10F, MM-10G, and MM-10H because these sites were not identified until later in 2004). The actions required by the OU B-1 ROD fall under three alternatives:

- Three sites were to be cleared of MEC to a depth of 4 feet bgs (C3-01A, C6-01A, and ML-01A).
- Final characterization and clearance to 4 feet bgs, as needed to support future land use, was completed between 2001 and 2010 at 46 sites as required by the ROD.
- Nine sites were selected in the OU B-1 ROD for Alternative 4, which is to collect and analyze soil samples for MC.

The number of sites listed in the bullets above does not equal 50 because more than one action was selected for some of the sites. The CULs selected in the ROD are presented in Table 2-4.

Table 2-4: Cleanup Levels for Soil COCs at OU B-1

COC	Cleanup Level (ppm or mg/kg [a])	Basis for Cleanup Level
Dinitrotoluene (mixture)	0.72	EPA Region 9 Residential RBSC
2,4,6-Trinitrotoluene	18	
Nitroglycerin	35	
Nitroguanidine	6,100	
Tetryl	610	
RDX (Cyclonite)	4	

Source: ROD (DON 2001).
EPA Environmental Protection Agency, United States
mg/kg milligram per kilogram
ppm part per million
RBSC risk-based screening concentration
[a] Ppm and mg/kg are equivalent units.

2.3 STATUS OF REMEDY IMPLEMENTATION

2.3.1 OU A and SAERA Sites

Most of the physical remedy construction required by the ROD was completed at OU A by 2003. Where required by the OU A ROD and SAERA DDs, product recovery as an interim remedial action, limited groundwater monitoring, or monitored natural attenuation (MNA) has been implemented and is ongoing. ADEC and EPA approved the final remedial action completion report (RACR) in September 2012 and concurred with all of the remedial actions (DON 2012d). The following ECs have been implemented:

- Landfill caps/covers were installed at six landfills (SWMU 4, 11, 13, 18/19, and 25) between 1996 and 2001.
- At SWMU 17 and South Sweeper Creek, sediment removal actions were performed in 1999, primarily to protect ecological receptors from exposures to PCBs above the remediation goal of 1 milligram per kilogram (mg/kg).
- *Fencing and Gates:* Steel swing gates were installed at the entrance of different sites (mainly landfill sites) between 2006 and 2010.

The following ICs have been implemented (Table 2-5):

- *Signage:* Land use control signs have been installed at numerous sites with different types of warnings (as applicable for each site).
  - OU A ROD requires fishing advisory signs for Kuluk Bay and Sweeper Cove.
  - OU B-1 ROD does not require signage.
  - CMP allows flexibility for signage modification as appropriate. For instance, Navy has installed supplemental munitions awareness signs on the approach road to Parcel 4 and many areas of OU B-1. The ICMP is a component of the CMP. Appendix E of the ICMP specifies the type of sign, number of signs, and locations.
- Land use restrictions prohibiting the future use of the property for residential purposes.
  - *Deed Restrictions/Restrictive Covenants:* In the event of a property transfer, restrictive property covenants would be included in the land transfer agreement. The covenants would be binding on the owner's successors and assignees, place limiting conditions on property conveyance, and restrict land use and construction activity that would disturb the area. Covenants would also require notice to the Navy of any intent to transfer interest or initiate construction activities.
- *Groundwater Restrictions:* Groundwater use restrictions will be applied to sites in or adjacent to the downtown area to prevent exposure to impacted groundwater as well as to protect groundwater remediation efforts in this area. The following activities are prohibited:
  - Any subsurface drilling or excavation within the shallow or principal groundwater unit (unless the Navy and the appropriate state and local regulatory agencies determine that no adverse impacts to the in-place remedy will occur).
  - The extraction of any groundwater within the shallow or principal groundwater unit from within the site or within a radius of 1 mile of any groundwater extraction; injection; or monitoring well for drinking, irrigation, or other commercial purpose without prior approval from the Navy and appropriate state and local regulatory agencies.

  - The injection or release of any fluids that may affect the plume flow direction in and around the sites with chemically affected groundwater without prior approval from the Navy and appropriate state and local regulatory agencies.
  - Disturbance of any equipment associated with the treatment or monitoring of groundwater without prior approval from the Navy and appropriate state and local regulatory agencies.
- *Soil Excavation Restrictions:*
  - *IC Excavation Notifications:* The excavation notification is required for each proposed excavation deeper than 2 feet. The Navy will evaluate the notifications to determine whether a proposed project at an IC site is consistent with the land use assumptions.
  - *Absolute Excavation Prohibitions:* At former landfills or where the remedy in place is a protective cover, excavation by non-Navy personnel is absolutely prohibited, although recreational land uses that add additional cover may be permissible.
- *Fishing Advisory Fact Sheet:* The fact sheets warned that subsistence fishing reliant on resident fish and shellfish is potentially hazardous to human health. Fact sheets were first mailed to residents in October 2003 and July 2004, and following each monitoring event after that. Fact sheets were updated in 2021, 2018, 2016, 2014, and prior years with each monitoring event. Copies can be found online and at the City of Adak and the USFWS offices on the island. The fact sheets are introduced to the community at the RAB meetings when they are developed. Laminated copies are posted in town and available at city hall. The Navy intends to continue to issue fact sheets coincident with each monitoring event until chemical concentrations in fish and shellfish tissue meet cleanup levels.
- *Site Inspections and/or Monitoring:* The CMP is updated as necessary, with the review and concurrence of the ADEC and EPA. The CMP was developed as a dynamic and flexible document, with procedures for modifying standard operating procedures that govern the various inspection and maintenance activities over time. The CMP includes the Adak Island IC management plan as an appendix. The IC management plan requires the Navy to perform annual inspections of the IC sites including the following:
  - Annual groundwater and landfill monitoring
  - Annual site inspections (SIs) and Five-Year Review SIs
- Marine monitoring every 5 years to predate the Five-Year Review

Table 2-5: Summary of Implemented ICs at OU A and SAERA Sites

Media, Engineered Controls, and Areas that Do Not Support UU/UE Based on Current Conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned) [a]
Soil	Yes	Yes	OU A and SAERA sites	Protect human health and the environment from ingestion and contact of contaminated soils above regulatory cleanup requirements.	ICMPs
Groundwater	Yes	Yes	In or adjacent to the downtown area	Protect human health and the environment from drinking contaminated water.	ICMPs

Media, Engineered Controls, and Areas that Do Not Support UU/UE Based on Current Conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned) [a]
Biota	Yes	Yes	Kuluk Bay and Sweeper Cove	Protect human ingestion of PCB-contaminated fish and shellfish tissue.	ICMPs

ICMP Institutional Control Management Plan
OU operable unit
UU/UE unlimited use and unrestricted exposure
[a] The latest ICMP is Revision 8 submitted in June 2020 (DON 2020e).

The list of current petroleum sites with free product recovery changed over time since the five sites requiring free product recovery as a component of the final remedy in accordance with the DDs. In 2005, the free product recovery component of the final remedy at the Tanker Shed site was discontinued because it met the practical endpoint as established in the OU A ROD (DON 2006). Also, although free product recovery was not a component of the final remedy at SA 80 Steam Plant 4, ADEC requested performance of monthly monitoring and free product recovery at several wells at this site. In 2011, free product recovery started at SWMU 60, Tank Farm A, because free product was observed in newly installed monitoring wells, as well as in the petroleum shoreline seep downgradient of the site during annual LTM activities. In 2013, free product recovery started at the Former Power Plant, Bldg. T-1451, although not a component of the final remedy in the ROD, after the removal action completed in 2012. In 2014, the free product recovery component of the final remedy at Area 303/GCI Compound was also discontinued because it met practical endpoint criteria as established in the ROD/DD. In summary, at the time of writing of this Five-Year Review, the sites with on-going free product recovery are the following six sites (required per DDs for the three first sites): SWMU 62, New Housing Fuel Leak; NMCB Bldg. Area, T-1416 Expanded Area; South of Runway 18-36 Area; SA 80, Steam Plant 4; SWMU 60, Tank Farm A; and Former Power Plant, Bldg. T-1415.

2.3.2 OU B-1 Sites

Remedial action selection and implementation at OU B-1 are summarized by site in the Site Catalog (Appendix A). The selected remedies have been implemented at all of the 50 OU B-1 action sites, and therefore Cleanup Complete with ICs/Remedy in Place has been achieved. ADEC and EPA approved the final RACR in August 2014 and concurred with all of the remedial actions (DON 2014c). The following ECs have been implemented:

- Three sites required MEC clearance to 4 feet bgs (C3-01A, C6-01A, and ML-01A). Removal activities started in 2001 and were completed during the 2001 or 2002 field seasons. The specific activities conducted at each of these three sites are presented in more detail in Section 5 of the RACR.
- Final characterization and clearance to 4 feet bgs, as needed to support future land use, was completed between 2001 and 2010 at 46 sites as required by the ROD.
- Confirmatory soil sampling was performed at 15 OU B-1 sites to document the absence of chemical MEC residues that could constitute a health risk (an additional eight sites were identified during field activities from the initial seven identified in the ROD). Soil sampling was conducted for explosives-related chemicals and soil was removed, treated, and disposed of either on-site or off-site as necessary. Soil samples were collected following removal of the munitions item. Soil samples were collected during the 2001, 2002, and 2009 field seasons.

The following ICs have been implemented (Table 2-6):

- *UXO Awareness Program for Munitions and Files:* The program began in 1997 with MEC awareness training materials. The information has been updated and substantially revised regularly since 2001. The awareness materials are available and distributed to residents and visitors since 2003.
- *OU B-1 ROD:* A copy of the OU B-1 ROD and the finding of suitability to transfer has been provided to the BLM to be maintained as part of the permanent file of conveyance documentation. The finding of suitability to transfer contains a full legal description of the properties, associated ICs, and a legal description of covenants, as appropriate based on decisions in place for the specific OU reference to these documents. Their availability in the BLM permanent conveyance file has been included in the interim conveyance executed by BLM.
- *ICs Inspections and Five-Year Review Inspections:* These activities are implemented on an island-wide basis. The OU A and OU B-1 RODs require inspections of the remedies and this Five-Year Review. The CMP refines the types of inspections and frequencies on a site-specific basis. Other than for 12 sites, no site-specific operation, maintenance, and monitoring activities are implemented for OU B-1 sites (ICMP Revision 8). A NOFA determination with inspection has been given for 12 OU B-1 sites with slopes exceeding 30 degrees. These sites have been determined to be inaccessible on Adak Island and, therefore, the no further action (NFA) determination is appropriate. These sites are C3-01A through C3-01F, FB-01, FB-03, HH-01, ML-01A, ML-01B, and ML-01C. IC inspections for these sites will be conducted every 4 or 6 years, whichever is closest to and prior to the Five-Year Review.

Table 2-6: Summary of Implemented ICs at OU B-1 Sites

Media, Engineered Controls, and Areas that Do Not Support UU/UE Based on Current Conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned) [a]
Soil	Yes	Yes	OU B-1 sites	Prevent exposure of future residents and recreational users to explosives-related contamination above the cleanup levels.	ICMP

[a] The latest ICMP is revision 8 submitted in June 2020 (DON 2020e).

Table 2-7 summarizes the ICs, ECs, remedies, and operations and maintenance (O&M) requirements for all CERCLA, SAERA, and OU B-1 sites per the ICMP (DON 2020e). Site-specific summaries of ongoing operation, maintenance, and monitoring activities are provided in the Site Catalog in Appendix A.

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Table 2-7: Institutional Controls, Engineering Controls, and Operations and Maintenance for OU A, SAERA, and OU B Sites

Site Name	Regulatory Source of Institutional Controls	Institutional Controls					ECs		Operations and Maintenance							
		Land Use Restrictions [a]	Equitable Servitude [b]	Groundwater Restrictions [c]	Soil Excavation Restrictions [d]	Fishing Advisory [e]	Signage	Fencing	Monitoring [f]	Education [g]	Site/Remedy Condition Inspections and Reporting [h]	Inspection [i]	Soil Cover Inspections [j]	Free-Product Monitoring and Recovery [k]	Visual Inspection [l]	Treatment System [m]
Downtown Area in General																
Downtown Groundwater [t]	OU A ROD/SAERA		X	X	d1					X	h1					
CERCLA/RCRA Closure Downtown Area Sites																
SWMU 10, Old Baler Building	OU A ROD	a1	X	X	d1		X				h2	X				
SWMU 16, Former Firefighting Training Area	OU A ROD	a1	X	X	d1		X				h2	X				
SWMU 20, White Alice/Trout Creek Disposal Area	OU A ROD	a1	X		d1		X				h1	X				
SWMU 21A, White Alice Upper Quarry	OU A ROD	a2	X		d2		X				h2	X	X			
SWMU 23, Heart Lake Drum Disposal Area	OU A ROD	a2	X		d1		X				h2	X				
SWMU 24, Hazardous Waste Storage Facility [n]	RCRA	a1	X	X	d1		X				h1	X				
SWMUs 52, 53, 59, Former LORAN Station	OU A ROD	a1	X		d1		X				h2	X				
SWMU 67, White Alice PCB Spill Site	OU A ROD	a1	X		d2		X				h1	X	X			
SA 76, Old Line Shed Building	OU A ROD	a1	X	X	d1		X				h2	X				
Kuluk Bay	OU A ROD					X			X	X	h1					
Sweeper Cove	OU A ROD					X			X	X	h1					
CERCLA/SAERA Downtown Area Sites																
SWMU 14, Old Pesticide Disposal Area [t]	OU A ROD/SAERA	a1	X	X	d1		X		X		h2	X				
SWMU 15, Future Jobs/DRMO [t]	OU A ROD/SAERA	a1	X	X	d1		X				h1	X				
SWMU 17, Power Plant 3 Area [p, t]	OU A ROD/SAERA	a1	X	X	d1		X		X		h1	X				
SWMU 55, Public Works Transportation Department Waste Storage Area	OU A ROD	a1	X	X	d1		X		X		h1	X				
Landfill Sites																
SWMU 2, Causeway Landfill [u]	OU A ROD	a2	X		d2		X				h1	X	X			
SWMU 4, South Davis Road Landfill [u]	OU A ROD	a2	X		d2		X				h1	X	X			
SWMU 11, Palisades Landfill [u]	OU A ROD	a2	X		d2		X		X		h1	X	X			
SWMU 13, Metals Landfill [u, s]	OU A ROD	a2	X	X	d2		X	X	X		h1	X	X			
SWMU 18, South Sector Drum Disposal Area (White Alice Landfill) and SWMU 19, Quarry Metal Disposal Area (White Alice Landfill) [u]	ADEC	a2	X		d2		X	X			h1	X	X			
SWMU 25, Roberts Landfill	ADEC	a2	X	X	d2		X	X	X		h1	X	X			
SWMU 29, Finger Bay Landfill [u]	OU A ROD	a2	X		d2		X				h1	X	X			
SAERA Sites																
Antenna Field, USTs ANT-1, ANT-2, ANT-3, and ANT-4	OU A ROD/SAERA	a1	X		d1		X				h2	X				
Area 303/GCI Compound, UST GCI-1 [o]	DON 2012	a1	X	X	d1		X		X [v]		h1	X [v]				
Finger Bay Quonset Hut (UST FBQH-1)	ADEC 2005	a2	X		d1		X				h2	X				
Former Power Plant, Building T-1451	OU A ROD/SAERA	a1	X	X	d1		X		X		h1	X		X		
Housing Area, Arctic Acres	OU A ROD/SAERA	a1	X	X	d1		X		X		h1	X				
MAUW Compound, UST 24000-A	ADEC 2005	a1	X		d1		X				h1	X				
Mount Moffett Power Plant 5, USTs 10574 through 10577	ADEC 2005	a1	X		d1		X				h2	X				
Naval Facilities Engineering Systems Command Compound, USTs 20052 and 20053	OU A ROD/SAERA	a1	X	X	d1						h2	X				
Navy Exchange Building, UST 30027-A	OU A ROD/SAERA	a1	X	X	d1						h2	X				
New Roberts Housing, UST HST-7C	OU A ROD/SAERA	a1	X	X	d1						h2	X				
NMCB Building Area, T-1416 Expanded Area [q]	DON and ADEC 2006a	a1	X	X	d1		X		X		h1	X		X	X	X
NORPAC Hill Seep Area [o]	DON and ADEC 2005	a1	X	X	d1		X				h1	X				
Officer Hill and Amulet Housing, UST 31047-A	OU A ROD/SAERA	a3	X	X	d1						h2	X				

Site Name	Regulatory Source of Institutional Controls	Institutional Controls					ECs		Operations and Maintenance							
		Land Use Restrictions [a]	Equitable Servitude [b]	Groundwater Restrictions [c]	Soil Excavation Restrictions [d]	Fishing Advisory [e]	Signage	Fencing	Monitoring [f]	Education [g]	Site/Remedy Condition Inspections and Reporting [h]	Inspection [i]	Soil Cover Inspections [j]	Free-Product Monitoring and Recovery [k]	Visual Inspection [l]	Treatment System [m]
Officer Hill and Amulet Housing, UST 31052-A	OU A ROD/SAERA	a3	X	X	d1						h2	X				
ROICC Contractor's Area, UST ROICC 7	DON 2002b	a1	X	X	d1		X		X		h1	X				
ROICC Contractor's Area, UST ROICC 8	OU A ROD/SAERA	a1	X	X	d1		X				h2	X				
ROICC Warehouse, UST ROICC 2	OU A ROD/SAERA	a1	X	X	d1						h2	X				
ROICC Warehouse, UST ROICC 3	OU A ROD/SAERA	a1	X	X	d1						h2	X				
Runway 5-23 Avgas Valve Pit	OU A ROD/SAERA	a1	X	X	d1		X		X		h1	X				
SA 78, Old Transportation Building USTs [o]	DON and ADEC 2005	a1	X		d1		X				h2	X			X	
SA 79, Main Road Pipeline	DON 2002b	a1	X	X	d1		X		X		h1	X			X	
SA 80, Steam Plant 4, USTs 27089 and 27090 [o]	DON and ADEC 2005	a1	X	X	d1		X		X		h1	X		X		
SA 82, P-80/P-81 Buildings [o]	DON and ADEC 2005	a1	X		d1		X				h2	X				
SA 88, P-70 Energy Generator, UST 10578 [o]	DON and ADEC 2005	a1	X		d1		X				h2	X				
South of Runway 18-36 Area [q]	DON and ADEC 2005	a1	X	X	d1		X		X		h1	X		X	X	X
SWMU 58 and SA 73, Heating Plant 6 [o]	DON and ADEC 2005	a1	X		d1		X				h2	X			X	
SWMU 60, Tank Farm A	OU A ROD/SAERA	a1	X	X	d1		X		X		h1	X		X	X	
SWMU 61, Tank Farm B	OU A ROD/SAERA	a1	X	X	d1		X		X		h1	X			X	
SWMU 62, New Housing Fuel Leak [q]	DON and ADEC 2006c	a3	X	X	d1		X		X		h1	X		X	X	X
Tanker Shed, UST 42494 [o]	DON and ADEC 2005	a1	X	X	d1		X		X		h1	X				
Yakutat Hangar, UST T-2039-A [o]	DON and ADEC 2005	a1	X	X	d1		X				h2	X				
Yakutat Hangar, UST T-2039-B and T-2039-C	OU A ROD/SAERA	a1	X	X	d1						h2	X				
Ordnance Sites [r]																
Downtown Area	OU B-1 ROD		X		d1					X	h2					
C3-01A, C3-01B, C3-01C, C3-01D, C3-01E, C3-01F, FB-01, FB-03, HH-01, ML-01A, ML-01B, ML-01C	OU B-1 ROD		X							X	h2					
Navy-Retained Land (Parcel 4)	OU B-2 ROD						X	X		X	h1	X				

Source: Updated from ICMP Revision 8.
avgas aviation gasoline
RCRA Resource Conservation and Recovery Act
[a] Land use restrictions are required to ensure that the land will never be used in a way inconsistent with the land use assumptions set forth in the Adak Island RODs. Land use restrictions:
a1: Commercial and Industrial a2: Outdoor Recreational a3: Residential
[b] Land use restrictions/prohibitions have been included in the Interim Conveyance.
[c] The downtown area groundwater is restricted from domestic use.
[d] Excavation notification is required at all sites. Excavation is prohibited at the landfills and sites with a soil cover. Excavation restrictions:
d1: Excavation Notification Required d2: Excavation Absolutely Prohibited
[e] Fishing advisory to recommend limiting subsistence consumption of rock sole and blue mussels; fact sheets on the advisory available to City of Adak residents.
[f] Monitoring is conducted on a site-specific basis. Details of the monitoring program are provided in the standalone Groundwater Monitoring SAP, Landfill Monitoring SAP, and Marine Monitoring SAP.
[g] Education Program (required for shellfish/fishery advisory and for ordnance hazards).
[h] Inspection and reporting of institutional controls. Assess the need to take additional action or to reduce controls, as appropriate. A review of these sites will be reported every 5 years. The downtown area groundwater will be inspected by driving on existing roads. The inspection will consist of looking for evidence of domestic wells in use. Inspections conducted:
h1: Biennially during odd years, beginning in 2013 h2: Every 4 or 6 years
[i] Inspect signage for excavation restrictions, ordnance (at Parcel 4), and landfill hazards during inspection of ICs.
[j] Biennially inspect soil covers to ensure they remain intact.
[k] This is marked for sites with a current free-product recovery requirement.
[l] Visual inspection of adjacent shoreline and surface water for petroleum seeps and sheens.
[m] Treatment systems installed as part of final remedies selected for the site.
[n] Although this is a RCRA No Further Action site, institutional controls remain in place to restrict land use to commercial/industrial in accordance with the RCRA closure report. The remaining institutional controls are applicable because of the location of these sites in the downtown area.
[o] Site has met ROD/DD endpoint criteria for interim free-product recovery under the OU A ROD. ADEC concurred via approval of the DD for petroleum sites with no unacceptable risk (DON and ADEC 2005).
[p] Site has met ROD/DD endpoint criteria for interim free-product recovery under the OU A ROD and received ADEC concurrence via approval of the final decision document (DON and ADEC 2006d).
[q] Free-product recovery is part of the final remedy for SWMU 62 (DON and ADEC 2006c), the NMCB Building Area, T-1416 Expanded Area (DON and ADEC 2006a), and South of Runway 18-36 Area (DON and ADEC 2006b).
[r] Details of the ICs and site inspections required for OU B-1 sites are discussed in Section 7 of the ICMP.
[s] Fencing is not currently installed at Metals Landfill and, because of the topography, has not been needed. A gate across the access road restricts vehicular access to the landfill.
[t] CERCLA and petroleum institutional controls apply.
[u] CERCLA landfill closures.
[v] Only applicable for GCI Compound.

2.4 SYSTEMS OPERATIONS AND MAINTENANCE

Operation, maintenance, and monitoring of the OU A and SAERA remedies on Adak are specified in the CMP, which describes the monitoring requirements for ICs, groundwater, surface water, sediment, and tissue. The CMP was updated to Revision 7 in November 2018 (DON 2018g). Major changes from Revision 6 to Revision 7 are summarized below:

- Sampling recommendations have been updated to reflect changes to the sampling progress based on decisions made from the 2014 through 2017 sampling seasons.
- Changed endpoint criteria to CULs where applicable.
- Removed CULs for sites where groundwater is not a source of drinking water. ADEC revoked the ten times rule in 2008; therefore, these criteria no longer apply to any site on Adak.
- Updated CULs for groundwater to reflect the most recent version of the ADEC 18 AAC 75 values from November 2016.
- Updated CULs for surface water to reflect the most recent version of ADEC 18 AAC 70 from March 2003. Changes are pending approval of an Explanation of Significant Difference (ESD).
- *Marine Monitoring:* Updated risk-based action levels (RBALs) to reflect updated parameters for calculating RBALs.

The CMP was updated to Revision 8 in June 2020 (DON 2020e). Major changes from Revision 7 to Revision 8 are summarized below:

- Sampling recommendations have been updated to reflect changes to the sampling progress based on decisions made from the 2018 and 2019 sampling seasons.
- CUL for chromium in groundwater was updated. CULs for analytes that are no longer monitored have been removed.
- Data validation requirements have been updated to include relevant guidance documents and Stage 4 data validation for all data packages.
- Methane vapor monitoring in all wells has been discontinued.

The *Final Operation and Maintenance Plan, Free Product Recovery, Operation and Maintenance, Former Naval Complex, Adak, Alaska* was submitted in 2020 (DON 2020f) for OU A. Primary activities included O&M activities related to free product fuel recovery at six sites:

- SWMU 62, New Housing Fuel Leak Area
- Former Power Plant, Bldg. T-1451
- NMCB Building Area, T 1416 Expanded Area
- SA 80, Steam Plant 4
- South of Runway 18/36 Area
- SWMU 60, Tank Farm A
- Sorbent boom maintenance activities (for protection of surface waters) at selected locations in the East Canal and South Sweeper Creek

This O&M plan defines the free product recovery activities at the sites. Missing or damaged signs and minor landfill repairs identified during annual inspections are replaced each fall and this is documented in the *Adak ICs Repairs Summary* (DON 2020g).

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3. Progress Since the Last Five-Year Review

This section includes the protectiveness determinations and statements from the last Five-Year Review (Table 3-1), as well as the recommendations from the last Five-Year Review and the current status of those recommendations (Table 3-2).

Table 3-1: Protectiveness Determinations/Statements from the 2016 Five-Year Review

OU #	Protectiveness Determination	Protectiveness Statement
OU A	Protective	Under CERCLA, all OU A sites are Remedy in Place and are protective of human health and the environment. There is no current exposure at these sites because all exposure pathways that could result in unacceptable risks are being controlled through the implementation of ICs and, where applicable, engineering controls. For certain sites, such as those with landfill caps, ICs are an integral component of the remedy in perpetuity (e.g., excavation through a landfill cap is not expected to ever be permissible). For these sites, the IC component of the remedy is protective and is expected to remain so as long as the ICs are maintained. ICs are assessed biennially or every 5 years to ensure the remedy remains protective.
SAERA	Will be Protective	With the exception of SWMU 60, SWMU 62, and Building T-1451, all SAERA sites that are either Active (in LTM) or Cleanup Complete with ICs are protective of human health and the environment. There is no current exposure at these sites as all exposure pathways that could result in unacceptable risks are being controlled through the implementation of ICs. For these sites, the IC component of the remedy is protective and is expected to remain so as long as the ICs are maintained. ICs are assessed biennially or every 5 years to ensure the remedy remains protective. Under SAERA, follow-up actions are recommended at the following sites to ensure the remedy is protective due to the presence of surface water and sediment contamination: • SWMU 60, Tank Farm A • SWMU 62, New Housing Fuel Leak • Former Power Plant, Building T-1451 For these sites with recommended follow-up actions, the sites will be protective after the completion of the remedial activities.
OU B-1	Protective	Under CERCLA, the Remedial Action Completion Report (DON 2014c) was finalized for OU B-1, which documented that the remedial actions specified in the OU B-1 ROD had been completed and no further response actions are necessary. The RAOs were determined to have been achieved; however, ongoing ICs were determined necessary to ensure that human health and the environment are protected. The remedy for OU B-1 is protective of human health and the environment as long as ICs remain in place to control exposure pathways that could result in unacceptable risks.

LTM long-term monitoring
RAO remedial action objective

Table 3-2 summarizes issues, recommendations/follow-up actions identified in the previous Five-Year Review, and describes the current implementation status and progress since the previous report.

Table 3-2: Status of Recommendations from the 2016 Five-Year Review

Issue No.	OU No.	Issue Identified during the Previous Five-Year Review	Recommendations/Follow-up Actions from the 2016 Five-Year Review	Current Status	Current Implementation Status Description [a]	Completion Date (if applicable)
1	SAERA	Surface water and sediment conditions in East Canal at the groundwater seep near Boom 3 continue to exceed Water Quality Standards. These findings suggest the remedy at SWMU 62 may not be functioning as intended at one or more locations.	At SWMU 62, a removal action under the SAERA petroleum program is being conducted to protect surface water downgradient of the sites.	Completed	SWMU 62 removal action resulted in the removal of the recovery trench and sumps, two existing monitoring wells, and petroleum-contaminated soil adjacent to the East Canal. Clean amended fill soil was used and six new monitoring wells were installed. East Canal Sources Evaluation and CSM was completed in fall 2019 (DON 2019b). Additional source investigation, product identification/fingerprinting, and natural source zone depletion evaluation data were collected in summer 2021.	2016 SWMU 62 East Canal Removal Action
2	SAERA	The vapor intrusion evaluation conducted as part of this Five-Year Review has identified three wells within the residential area at Adak with results indicating that a potential vapor intrusion issue for naphthalene may be present.	Collect additional data to determine if vapor intrusion is an issue. Compare results to appropriate screening criteria.	Completed	A vapor intrusion pathway study was completed in October 2018. The study was performed in the vicinity of Area 303/GCI Compound and SWMU 62 to assess vapor intrusion exposures to residents occupying commercial or residential buildings. The study concluded the vapor intrusion pathway is not a health concern.	October 2018 (DON 2019a)
3	SAERA	Surface water and sediment conditions in East Canal at the groundwater seep near Boom 11 continue to exceed Water Quality Standards. These findings suggest the remedy at Building T-1451 may not be functioning as intended at one or more locations.	In East Canal near Building T-1451, a removal action under the SAERA petroleum program is being conducted to protect surface water downgradient of the sites.	Completed	The removal action at Bldg. T-1451 consisted of excavation of petroleum-contaminated soil, replacement with amended clean fill, and installation of two monitoring wells. East Canal Sources Evaluation and CSM was completed in fall 2019 (DON 2019b). Additional source investigation, product identification/fingerprinting, and natural source zone depletion evaluation data were collected in summer 2021.	2016 T-1451 East Canal Removal Action
4	SAERA	Surface water and sediment conditions in South Sweeper Creek and free product observed in groundwater adjacent to South Sweeper Creek at SWMU 60 suggest the remedy may not be functioning as intended.	In South Sweeper Creek near SWMU 60, determine if and what additional action under SAERA may be required to protect surface water downgradient of the site.	Ongoing	SWMU 60 was included in the O&M plan for free product recovery to monitor the amount of petroleum released in surface water (DON 2020f). Supplemental Site Characterization (SSC) activities were conducted in 2017. Three new wells were installed in July 2017 at the site and added to the LTM sampling in 2019.	N/A
5	OU A	The remedy at SWMU 4 currently protects human health and the environment in the short term because at the current depth of Andrew Lake, the landfill is contained. However, once remedial activity at OU B-2 is complete, periodic clearance of the mouth of Andrew Lake may no longer occur, impacting lake drainage. The elevation of the lake surface could rise to threaten the landfill cap. Long-term protectiveness could be an issue that requires evaluation during the next 5 years.	Evaluate the potential impacts of discontinued clearing of the Andrew Lake spillway and the resulting elevated lake levels on SWMU 4. Determine if alternative actions are required to either manage the elevation of Andrew Lake or enhance the landfill shoreline protection to ensure protectiveness at the site in the long term.	Completed	The lake level study at SWMU 4 completed in 2018 showed potential for landfill impact. The study is the basis for an upcoming armoring effort to protect the landfill that is currently planned for 2022.	2018 SWMU 4 Lake Level Study (DON 2018i)

Issue No.	OU No.	Issue Identified during the Previous Five-Year Review	Recommendations/Follow-up Actions from the 2016 Five-Year Review	Current Status	Current Implementation Status Description [a]	Completion Date (if applicable)
6	OU A	Heightened interest in the emerging chemical, perfluorinated compounds, are resulting in Department of Defense-wide investigations to determine the potential presence at sites where aqueous film-forming foam was historically used. SWMU 16 has been identified as a potential site. Long-term protectiveness could be an issue that requires evaluation during the next 5 years.	Sample for perfluorinated compound per Navy guidance at SWMU 16. Because the OU A ROD established a groundwater restriction for use as drinking water, this exposure pathway is not complete.	Ongoing	PFAS impacts were identified during 2018. An island-wide PFAS Preliminary Assessment (PA) was undertaken in 2020. The Draft PA has been reviewed by the ADEC and EPA (September 2020). A Final PA was submitted in July 2021. Site Investigation at SWMUs 16, 32, 33 in 2020. Data show low PFAS concentrations in ground water, surface water and soil.	N/A

CSM conceptual site model
N/A not applicable
PFAS per- and polyfluoroalkyl substances
PA preliminary assessment
[a] Further explanation of the current implementation status is given below for the applicable recommendation.

Below are more details on the implementation status and the progress since the last Five-Year Review for the issues 4, and 6, and their respective recommendations, identified in the previous Five-Year Review and whose current status is still ongoing as listed in the table above.

RECOMMENDATION #4

An Engineering Evaluation/Cost Analysis was completed in Spring 2018 (DON 2018c). Proof-of-Concept testing was also completed in 2019. It was shown that a passive bioventing technique is not effective at this site. However, an Oleophilic bio-barrier was determined to be effective and design is complete. The Oleophilic bio-barrier Construction is anticipated during 2022.

At SWMU 60, during a 4-year period, the total free product volume has ranged between 0.00 gallons in 2019 and 0.04 gallons (total in one year) in 2016, well below the endpoint criteria of 5 gallons. However product thickness is still higher than the remedial objective of less than 0.01 foot for a 1-year period. Therefore, the periodic product monitoring and recovery is continued (6 events per year). The 2020 report recommended to continue monitoring at two wells (652 and 653) and discontinue monitoring at wells 656, 657, and 658 because no measurable product was detected during the reporting period. No seep has been observed in the removal area since 2016. See Section 4.2.1.1 for more details.

RECOMMENDATION #6

An island-wide preliminary Assessment for PFAS has been finalized in July 2021 for SWMUs 16, 32, and 33 and a draft Site Inspection (SI) has been prepared. The draft SI (DON 2021c) sampling results indicate concentrations of PFOA, PFOS, and perfluorobutane sulfonate in surface soil, subsurface soil, and surface water below screening levels. Concentrations of PFOA and PFOS in groundwater were detected above screening levels but exposure to groundwater is restricted by ICs at these sites. As a result of these observations and conditions, the draft SI recommends No Further Action. PFAS impacts such that there is a human-health exposure have not been identified in surface water, and soil samples collected to date. No additional evaluation is currently planned for PFAS at Adak.

4. Five-Year Review Process

4.1 COMMUNITY NOTIFICATION, INVOLVEMENT, AND SITE INTERVIEWS

A public notice was made available through a notice of intent fact sheet released on December 2020 by e-mail notifications as well as website publication (BRAC and City of Adak) stating that a Five-Year Review is being conducted and inviting the public to submit any comments to the Navy. The report documenting the results of the review will be made available to the public at the site information repository, which includes a copy of the Administrative Record, located at the University of Alaska, Reserve Room, 3211 Providence Drive, Anchorage, Alaska.

All documents produced relative to CERCLA actions are intended to be available on Adak, together with copies of community and Restoration Advisory Board briefing materials, newsletters, and fact sheets. Recently issued documents are available at the website for Adak environmental cleanup: http://www.bracpmo.navy.mil/brac_bases/other_west/former_naf_adak.html (replaced www.adakupdate.com). During the Five-Year Review process, interviews were conducted to document any perceived problems or successes with the remedy that has been implemented to date. The results of these interviews are summarized below. A report of the interview responses is provided in Appendix E.

Per the regulator interviews (ADEC and EPA) in December 2020, since the last Five-Year Review, no new issues have been raised that would be affecting the protectiveness of the sites. Both ADEC and EPA felt well informed about the site activities at all OUs on Adak and made no additional recommendations aside from continuing evaluating data from the LTM and revising the monitoring accordingly. In both interviews, the emerging chemical PFAS was mentioned as a new concern, but they are aware that the Navy is currently preparing a PA/SI that addresses PFAS on Adak.

Per the landowner interviews (TAC and ADOT & PF) in December 2020, the overall impression of the ongoing environmental cleanup activities is good but the ADOT & PF questioned why the presence of PFAS and perfluorooctanoic acid (PFOA) has taken a long time to be established. Landowners made suggestions regarding the implementation and monitoring of the remedies including updating the website, having more frequent meetings, and having a full site characterization to identify plume boundaries both horizontally and vertically to understand where PFAS is going and where it went. Overall, although both landowners are not aware of any community concerns or incidents at these sites, they both felt concerned about the safety of groundwater and that coordination with them could be improved in regard to PFAS.

Per the community interviews in December 2020 and January 2021, they feel well informed about the environmental cleanup activities at the Former Adak Naval Complex. Although some of the individuals interviewed did not live on Adak at that time, they were not aware of any new community concerns or incidents regarding implementation of the remedies, and they stated that the ongoing cleanup activities seem to be going well overall. The only concern that remained is about the PFAS and perfluorooctane sulfonate (PFOS) results.

Per the City of Adak Manager interview in June 2021, he feels the City is well informed but not necessarily adequately informed about the environmental cleanup activities at the Former Adak Naval Complex, as sometimes work occurs without contemporaneous notification. The City Manager suggested a major re-education for ICs to bring it into the 21st century so requirements for public health and safety are better followed. The City would also benefit from additional communication with the Navy with respect to projecting out Contractor presence on island as well as planned remedial actions and proposed schedule.

Per the Naval Facilities Engineering Systems Command Northwest interviews in December 2020 and January 2021, most personnel were not aware of any changes in land use or site conditions that may impact the protectiveness of the sites. The ongoing remedies appear to be effective at identifying maintenance requirements via required inspections. The only temporary land use change was from the Department of Defense Marines and Navy training exercise conducted in 2019. However, the exercise did not result in any environmental threat to the remedies because of the extensive coordination with the Navy environmental group, the City of Adak, ADOT, and regulatory agencies prior to conducting their work, and by 2020, almost all traces of the exercise were gone. A complaint was filed by a community member with the EPA regarding the protectiveness of the remedy at SWMU 11 Palisades Landfill in August 2020, and a concern was forwarded directly to the Navy in December 2020 regarding debris close to shore at the landfill. One community member also expressed concern about this site by email to the Navy in December 2020. The Navy has addressed the concerns to the satisfaction of the ADEC, EPA, and community member and is not aware of any further concerns.

The Navy continues to conduct operation, maintenance, and monitoring (OMM) on Adak annually as part of the LTM program, monthly as part of the free-product recovery program, on scheduled as part of remediation efforts (e.g., SWMU 60, SWMU 62, Marine Monitoring, Vapor Intrusion, East Canal, Lake Andrew, and PFAS), and as identified during routine Navy visits to the island. The Navy reports that no unexpected difficulties associated with OMM have occurred since 2016. No substantial changes have been made to the inspection and OMM requirements or activities. The CMP is updated according to data from preceding LTM events, and monitoring reductions are implemented when endpoint criteria are met. All changes are approved by the regulatory agencies and available to the community.

One violation of the ICs requirements was brought to the Navy's attention in 2018. The U.S. Geological Survey (USGS) completed an excavation at the White Alice antennae site. Per the Navy's review, while this excavation was within the signed area that prohibited excavation, it was not in the area where the geomembrane cap was placed over the PCB spill site. Thus, the excavation was deemed as not posing a risk. The Navy had meetings with the USGS to review the boundaries for excavation prohibition, reiterated the importance of following the excavation notification process, and clarified the boundaries for dig permitting on Adak in general. The Navy also met with ADEC and EPA to review the situation and corrective measures that were taken.

4.2 DATA REVIEW

Most of the data collected at the former Adak Naval Complex are in support of LTM at OU A and SAERA sites or remedy selection and implementation at SAERA and OU B-1 sites, and are documented in DDs or closure reports. Table 4-1 presents the high-level, LTM schedule. The biennial IC inspections are all conducted in odd-numbered years and the education program, monitoring of excavation restrictions, and downtown area groundwater use restrictions are inspected annually. Select OU B-1 sites are inspected every 5 years per ICMP.

Table 4-1: Long-Term Monitoring Schedule

Year	Groundwater			Landfill		ICMP Inspections			Marine Monitoring	Five-Year Review
	Annual [a]	Biennial	NAPs [b]	Biennial [c]	5-year [d]	Annual [e]	Biennial	OU B-1		
2016	✓	✓		✓		✓				✓
2017	✓					✓	✓		✓	
2018	✓	✓	✓	✓	✓	✓				
2019	✓					✓	✓	✓		

Year	Groundwater			Landfill		ICMP Inspections			Marine Monitoring	Five-Year Review
	Annual [a]	Biennial	NAPs [b]	Biennial [c]	5-year [d]	Annual [e]	Biennial	OU B-1		
2020	✓	✓		✓		✓			✓	
2021	✓					✓	✓			✓

Notes: Light gray shading indicates a Five-Year Review.
Dark gray shading indicates five-year monitoring/inspections conducted on alternating 4- and 6-year intervals, coinciding with a biennial sampling event and preceding a Five-Year Review.
NAP natural attenuation parameter
[a] Area 303, GCI Compound, UST GCI-1; Former Power Plant Bldg. T-1451; and SWMU 60 Tank Farm A.
[b] Natural attenuation parameters sampling conducted at all sites.
[c] Palisades Landfill and Roberts Landfill.
[d] Metals Landfill, White Alice Landfill, and volatile organic compounds at Roberts Landfill.
[e] Education program, excavation restrictions monitoring, and downtown area groundwater use restriction monitoring.

The data presented in this section summarize the data collected and intend to highlight the significant data. A more detailed data review is presented in Appendix C. A few site-specific data are also presented at the end of the section when significant information warranted further discussion (i.e., sites where issues were identified in the fourth Five-Year Review and additional data were collected in support of removal actions).

4.2.1 Long-term Monitoring of Groundwater, Sediment, and Surface Water

The groundwater and landfill monitoring data were reviewed since the fourth Five-Year Review (DON 2017a; 2018d; 2019c; 2020d) at OU A and SAERA sites. The monitoring program was implemented as described in the CMP, Revision 6 (DON 2014a) until the 2018 LTM event, and in 2019 according to the CMP, Revision 7 (DON 2018g). The monitoring program is modified annually based on LTM observations and in response to changing site conditions. These modifications are consolidated and captured in updates to the CMPs, which are updated every 2 to 3 years.

The following subsections are focusing on the three sites identified in the fourth Five-Year Review as will be protective (SMWU 60, Tank Farm A; SWMU 62, New Housing Fuel Leak Area; and Former Power Plant, Bldg. T-1451), as well as Area 303/GCI Compound because it encompasses SWMU 62, SWMU 17 and SWMU 55 due to a status update, and finally the trend analysis for all MNA sites. A more detailed review of each annual groundwater, sediment, and surface water monitoring reports is presented in Appendix C.

4.2.1.1 SWMU 60, TANK FARM A

MNA was selected as the remedy in the OU A ROD for this site (DON 2000). The current status includes MNA, ICs and Free-Product Recovery. Groundwater, surface water, and sediment sampling activities are conducted every year at the site. Three wells (656, 657, and 658) were installed at the site in 2017 as part of the supplemental site characterization (SSC) conducted by the Navy. The three wells were also added to the LTM sampling program beginning with the 2019 event, per recommendation from the 2018 LTM report (DON 2019c) as well as to the free product recovery program in 2018. The purpose of the SSC was to improve petroleum-impacted soils and groundwater extent downgradient of the former Tank Farm A in the portion of SWMU 60 adjacent to South Sweeper Creek (DON 2018c). Figure 4-1 shows the example of the 2019 sample locations and analytical results exceeding endpoint criteria at the site. The contamination at the site is characterized as the intermittent occurrence of free diesel-range product centered in the area of monitoring wells 652 and 653. These wells have either exhibited a thin free product layer, or contained groundwater exceeding the DRO endpoint criterion since sampling began in 2011. The sediment sample collected on the Sweeper Creek shoreline downgradient of well 652 has consistently exceeded the DRO endpoint criterion since 2006. Additionally, the presence of two petroleum seeps observed each monitored year in South Sweeper

Creek and inside Boom 10 shows that the MNA remedy at SWMU 60, Tank Farm A requires enhancement to be protective.

4.2.1.2 AREA 303/GCI COMPOUND (UST GCI-1)

The remedy selected for the Area 303 site is MNA, ICs, and free product recovery pursuant to a groundwater investigation performed in 2013 and according to the *Final Technical Memorandum, Proposed Long-Term Monitoring Program, Area 303, Former Adak Naval Complex, Adak Island, Alaska* (DON 2012c). The remedy specified for the GCI Compound, UST GCI-1 portion of the site in the OU A ROD is free product recovery (DON 2000). MNA with ICs was selected by the Navy and ADEC as the post-free product recovery remedy for the GCI Compound, UST-1 portion of the site (DON and ADEC 2005). To comply with requirements specified for this remedy, the Navy conducts periodic groundwater sampling and water level/product thickness monitoring as specified in the CMPs. Groundwater samples are collected from these wells to evaluate groundwater quality relative to endpoint criteria, to verify that natural attenuation is occurring, and to monitor for surface water protection.

In 2014, Area 303 was combined with another established MNA site, GCI Compound (UST GCI-1). Six monitoring wells from SWMU 62, New Housing Fuel Leak Area were included in this new combined area, along with one well (MW-62-16-03) installed in 2016, following the 2016 removal action (DON 2018h). A mixed DRO and GRO contaminant plume underlies the majority of the site and overlaps the SWMU 62, New Housing Fuel Leak Area (Sandy Cove Housing) DRO/GRO plume to the north, and the SWMU 62, New Housing Fuel Leak Area (Eagle Bay Housing) DRO/GRO plume to the south. The GRO plume underlying the GCI Compound is part of the Area 303 plume occupying its central portion. Figure 4-2 shows the example of the 2019 sample locations, analytical results exceeding endpoint criteria and the estimated extent of endpoint criteria exceedance at the site.

The contamination at the site is characterized as a large plume of mixed gasoline-range and diesel-range hydrocarbons that extends across the site. The northern end of the plume overlaps the Sandy Cove Housing portion of SWMU 62, New Housing Fuel Leak Area, and extends southwest to overlap the Eagle Bay Housing Area. The plume, located upgradient of East Canal, is primarily characterized by endpoint exceedances of GRO, with selected wells exceeding the endpoint criteria for benzene, ethylbenzene, total xylenes, total lead, and dissolved lead. Two areas of DRO endpoint exceedance occur within the plume: one at the northern end (north of the GCI Compound) and one at the southern end (well 03-518). Monitoring conducted in the Eagle Bay Housing Area portion of SWMU 62, New Housing Fuel Leak Area located adjacent to the site (described in Section 4.2.1.3), shows that the Area 303 hydrocarbon plume is likely continuous through that site to East Canal. However, at Area 303, ICs prevent use of groundwater as drinking water; thus, human health is protected and no exposures to ecological receptors are occurring.

4.2.1.3 SWMU 62, NEW HOUSING FUEL LEAK AREA

The remedy specified for this site in the OU A ROD is free product recovery; additional post-free product recovery, ICs, and MNA remedy are specified in the Final DD for SWMU 62. The site consists of two non-contiguous areas: the Sandy Cove Housing Area and the Eagle Bay Housing Area, which are separated by the Area 303/GCI Compound site. Biennial monitoring of the site is currently scheduled at most locations and last occurred in 2018. In 2016, six monitoring wells (MW-62-16-01, MW-62-16-02, MW-62-16-04, MW-62-16-05, MW-62-16-06, and MW-62-16-07) were installed in the Eagle Bay Housing Area following the 2016 removal action adjacent to East Canal (DON 2018b). Annual sampling occurs only for these six wells and was started in 2017. The regularly scheduled biennial sampling of groundwater from the Sandy Cove Housing area and Eagle Bay Housing Area wells and East Canal surface water and sediment occurred in 2016 and 2018. Figure 4-2 shows the

2019 sample locations, analytical results exceeding endpoint criteria, and the estimated extent of free product and endpoint criteria exceedances at the site. At Sandy Cove Housing area, two areas of contamination that exceeded endpoint criteria persist in the area: an area of DRO contamination on the southern side of the residential area encompassing wells 03-155, MW-134-11, and MW-187-1; and an area of DRO contamination on the north-central portion of the residential area encompassing wells MW-146-1 and MW-107-1. An area of DRO and GRO contamination also occurs west of Main Road, upgradient of the airport terminal, that is now included in the Area 303/GCI Compound site.

At Eagle Bay Housing, the 2018 data highlights two areas of groundwater contamination. The first area is located on the southeastern portion of the site crossing Main Road and encompasses wells MW-303-07, MW-303-12, MW-303-8, RW 303-4, HMW-303-03, and RW-303-16. This area consists of intermittent floating free product and dissolved-phase DRO. The second area is located on the northern portion of the site and includes the removal action well data at Eagle Bay Housing. Data indicate that a plume of dissolved DRO in the groundwater at concentrations exceeding the endpoint criterion extends across the removal action area to intersect with East Canal. The plume also contains intermittent floating free product. This plume is likely an extension of the mixed gasoline and diesel-range hydrocarbon plume identified beneath the Area 303/GCI Compound site.

SWMU 62 is located downtown and the ICs prevent use of groundwater as drinking water; thus, human health is protected. Since the 2016 removal action, no seep has been observed at the site and free product recovery and monitoring has continued.

4.2.1.4 FORMER POWER PLANT, BLDG. T-1451

The remedy selected for this site is MNA, but the current status also includes ICs for this site. In 2016, two additional monitoring wells were installed following an additional removal action along East Canal (after the 2012 soil removal action and nine additional monitoring wells) (DON 2018b). Well E-701, southeast of the site, is considered background well for natural attenuation parameters (NAPs) and was only monitored in 2018. For each monitoring event, groundwater samples were analyzed for DRO. Additionally, the groundwater samples collected from monitoring wells MW-1451-2, MW-1451-3, and MW-1451-4 were also analyzed for BTEX and PAHs for the calculation of total aromatic hydrocarbons (TAH) and total aqueous hydrocarbons (TAqH) every year.

Figure 4-3 shows the example of 2019 sample locations, analytical results exceeding endpoint criteria as well as the estimated extent of DRO Endpoint Criterion Exceedance.

The contamination at the site is characterized as the occurrence of free diesel-range product centered in the area of monitoring wells MW-1451-1, MW-1451-6, and MW-1451-7. A plume of dissolved diesel-range hydrocarbons in the groundwater at concentrations exceeding the endpoint criteria extends from the former power plant building westward to East Canal. Seven wells contained either free product or groundwater with DRO exceeding endpoint criterion in 2016, 2018, and 2019 and up to nine wells in 2017. Groundwater from one surface water protection well (MW-1451-2) also exceeded the TAqH criterion. The sediment sample collected on the East Canal shoreline also exceeded the DRO endpoint criteria but only in 2016. The surface water sample collected on East Canal was below or at the DRO endpoint criterion established for South Sweeper Creek in 2016, 2018, and 2019 but exceeded the endpoint in 2017.

Former Power Plant, Bldg. T-1451, is located in the downtown area and ICs prevent the use of groundwater as drinking water; thus, human health is protected. Since the 2016 removal action, no seep was observed at the site and free product recovery and monitoring continues.

4.2.1.5 SWMU 17 AND SWMU 55

The remedy selected for SWMU 17, Power Plant No. 3 Area, in the OU A ROD is free product recovery for petroleum and compliance monitoring for non-petroleum chemicals. MNA was selected as the post, free product recovery remedy for this site. The site has met endpoint criteria for free product recovery and petroleum monitoring. The remedy selected for SWMU 55, Public Works Transportation Department Waste Storage Area, in the OU A ROD is compliance monitoring including groundwater sampling and water level/product thickness monitoring.

SWMU 17 and SWMU 55 groundwater sampling was discontinued following sampling in 2018 after concentrations (vinyl chloride and cis-1,2-DCE at SWMU 17 and PCE at SWMU 55) exhibited statistically significant decreasing trends at the 80 and 95 percent CIs.

4.2.1.6 TREND ANALYSIS

One of the stated objectives in the OU A ROD for these sites is to estimate the rate of natural attenuation to demonstrate achievement of the primary endpoint criteria within 75 years. Trend analyses are conducted following the methodology specified in the CMP. As a secondary endpoint criterion, monitoring at a specific location could be substantially reduced if it can be demonstrated that:

- The concentrations are decreasing at a predictable rate with a degree of confidence of at least 80 percent (as required in the OU A ROD).
- Any exceedance poses no reasonable threat to downgradient receptors.

If monitoring demonstrates that both of these secondary endpoint criteria are met, then it will be concluded that natural attenuation is progressing as predicted, groundwater in the area poses no threat to humans or the environment, and further monitoring can be substantially reduced (e.g., in frequency, location, or analyte). To determine whether secondary endpoint criteria are achieved, a trend evaluation was performed for well locations where exceedances of the primary endpoint criteria have occurred. As specified in the CMP, trend evaluations were performed when at least four monitoring data points were available. Monitoring will be continued if the trend evaluation determines that the primary endpoint criteria are not met, as evidenced by either of the following:

- Despite a decrease in concentrations over time, it is not demonstrated that the exceedances pose no reasonable threat to downgradient receptors.
- No significant change in concentrations observed, and no trend line found outside the confidence interval (CI) (i.e., the concentration trend is uncertain).

If the data tests indicate that the concentrations are increasing, an evaluation will be performed to determine whether to continue monitoring or take additional action.

Statistical trend analysis for the compounds of interest occurring in samples from the site monitoring wells was accomplished using the Mann-Kendall test, which is a non-parametric statistical test used to evaluate trends in data over time. It tests the null hypothesis (H0) at both the 80 and 95 percent CIs. Trend analysis was performed for analytes in groundwater which exceeded endpoint criteria during the previous two sampling events. The analysis output indicates whether parameter trends are increasing, decreasing, or exhibiting no trend. If no trend was indicated, a coefficient of variation assessment was made to evaluate parameter stability and determine whether concentrations are stable or unstable. If a statistically significant decreasing trend was identified in the Mann-Kendall trend analysis, Sen's slope estimate was used to calculate the overall median slope. Sen's procedure is a

non-parametric statistical test that calculates the slope of a trend by evaluation the median slope for all the pairs of samples as an estimate of the overall slope.

Table 4-1 presents the trend analysis results for all MNA sites (a total of 19 sites) from the latest LTM report (2018 or 2019 report for the four sites evaluated annually, which includes Area 303/GCI Compound, Former Power Plant, Bldg. T-1451, SWMU 60 and SWMU 62 Eagle Bay Housing removal action wells). At NMCB Bldg. T-1416 Expanded Area, South of Runway 18-36 Area, SWMU 13, SWMUs 18/19, and SWMU 25, because groundwater contaminant concentrations in all sampled wells have been below endpoint criteria for at least the last two consecutive sample events, trend evaluations were not performed at these sites in 2018. At SWMU 11, because no groundwater sampling was scheduled for this event, trend evaluations were not performed at this site in 2018. At SWMU 62, there was not enough data to calculate a trend for the removal action wells; however, the 2018 LTM report calculated trends for Sandy Cove Housing Area and the existing wells at the Eagle Bay Housing Area.

Most sites exhibit a decreasing trend or no trend confirming MNA, but three wells at three different sites show an increasing trend (SA 79, SA 80, and Area 303/GCI Compound). At well MRP-MW2 in the Area 303/GCI Compound site, the GRO and ethylbenzene concentrations exhibit an increasing trend at both the 80 and 95 percent CIs, and the DRO concentration exhibits an increasing trend at the 80 percent CI. At well MRP-MW8 in the SA 79, Main Road Pipeline Site, and well 04-158 in the SA 80, Steam Plant 4 Site, the DRO concentration exhibits an increasing trend at the 80 percent CI (these wells are located within the contaminant plume). However, MRP-MW8 is tidally influenced.

Although increasing monitoring natural attenuation trends are occurring at these three locations, ICs prevent the use of groundwater as drinking water; thus, human health is protected. At SA 80, ecological exposure pathways are incomplete at the site and downgradient of the site. No exposures to ecological receptors are occurring at the SA 79 and Area 303 sites, but downgradient surface water protection wells are monitored for the protection of ecological receptors at downgradient water bodies.

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Table 4-2: Concentration Trend Evaluation for All MNA Sites

Well	Target Analyte	Exceeds Endpoint Criteria	Highest Concentration last two sampling periods (µg/L)	Endpoint Criteria (µg/L) [b]	Sampling Periods (n)	Man-Kendall Statistic (S)	Mann-Kendall Trend		Concentration Stability [c]	Sen's Slope [d]			
							Trend at 80% CI	Trend at 95% CI		Median Slope (µg/L per year)	Statistically Significant Trend	2-Tailed Test at 80% C.I.	
												Lower Limit	Upper Limit
Housing Area (Arctic Acres)													
03-416 [a]	DRO	Yes	1,800 L	1,500	10	10	No Trend	No Trend	Stable	NC	NC	NC	NC
03-420	DRO	Yes	1,800 Y	1,500	10	-12	Decreasing	No Trend	N/A	-100	No	-392	40
03-421	DRO	Yes	9,000 Y	1,500	9	-10	Decreasing	No Trend	N/A	-600	No	-3,150	1,500
03-890	DRO	Yes	23,000 DYJ	1,500	7	-7	Decreasing	No Trend	N/A	NC	NC	NC	NC
ROICC Contractor's Area, UST ROICC-7													
08-200	Benzene	Yes	240 D	5	10	-19	Decreasing	No Trend	N/A	-5	No	-10	3.33
08-202	Benzene	Yes	7.2	5	10	-32	Decreasing	Decreasing	N/A	-0.76	Yes	-0.97	-0.65
SA 79, Main Road Pipeline													
MRP-MW8	DRO	Yes	6,700 Y	1,500	10	12	Increasing	No Trend	N/A	NC	NC	NC	NC
601	DRO	No	2,200 Y	1,500	6	-2	No Trend	No Trend	Stable	NC	NC	NC	NC
02-230 [a]	DRO	Yes	3,900 YJ	1,500	10	-13	Decreasing	No Trend	N/A	-217	Yes	-286	-75
SA 80, Steam Plant 4													
04-158	DRO	Yes	870,000 DY	1,500	7	12	Increasing	No Trend	N/A	NC	NC	NC	NC
04-159	DRO	Yes	4,200 Y	1,500	10	-17	Decreasing	No Trend	N/A	-100	No	-260	25
04-173	DRO	Yes	4,600 Y	1,500	7	4	No Trend	No Trend	Stable	NC	NC	NC	NC
SP4-3	DRO	Yes	3,100 Y	1,500	10	7	No Trend	No Trend	Stable	NC	NC	NC	NC
SWMU 14, Old Pesticide Storage and Disposal Area													
MW-14-5	DRO	No	2,400 LJ	1,500	10	-21	Decreasing	Decreasing	N/A	-100	No	-233	50
	Total Lead	No	15.5	15	10	-11	Decreasing	No Trend	N/A	-0.99	No	-2.12	0.1
SWMU 17, Power Plant No. 3 Area													
05-735	Cis-1,2-DCE	Yes	190 DJ	70	10	-35	Decreasing	Decreasing	N/A	-29	Yes	-40	-24
	Vinyl Chloride	Yes	3.0	2	10	-25	Decreasing	Decreasing	N/A	-0.42	Yes	-0.55	-0.14
SWMU 55, Public Works Transportation Department Waste Storage Area													
55-145	PCE	Yes	77 DJ	5	10	-22	Decreasing	Decreasing	N/A	-7	Yes	-8	-4
SWMU 61, Tank Farm B													
14-210 [a]	GRO	Yes	4,200 Y	2,200	10	4	No Trend	No Trend	Stable	NC	NC	NC	NC
TFB-MW4B	GRO	Yes	41,000 DY	2,200	10	-22	Decreasing	Decreasing	N/A	-1,500	No	3,000	333
	Benzene	Yes	14 DJ	5	10	-38	Decreasing	Decreasing	N/A	-2.5	Yes	-3.1	-1.9
	Toluene	Yes	3,400 D	1,000	10	-19	Decreasing	No Trend	N/A	-75	No	-200	67
	Ethylbenzene	Yes	1,900 D	700	10	0	No Trend	No Trend	Stable	NC	NC	NC	NC
SWMU 62, New Housing Fuel Leak Area													
Sandy Cove Housing Area													
03-155	DRO	Yes	2,600 YJ	1,500	10	1	No Trend	No Trend	Stable	NC	NC	NC	NC
MW-107-1	DRO	Yes	3,300 YJ	1,500	10	-22	Decreasing	Decreasing	N/A	NC [e]	NC [e]	NC [e]	NC [e]
MW-134-11	DRO	Yes	9,800 Y	1,500	10	5	No Trend	No Trend	Stable	NC	NC	NC	NC
MW-146-1	DRO	Yes	13,000 YJ	1,500	10	-15	Decreasing	No Trend	N/A	-500	No	-1,000	0
MW-187-1	DRO	Yes	7,300 LJ	1,500	10	9	No Trend	No Trend	Stable	NC	NC	NC	NC
Eagle Bay Housing													
AMW-704	DRO	Yes	1,900 Y	1,500	10	-4	No Trend	No Trend	Stable	NC	NC	NC	NC
MW-303-7	DRO	Yes	13,000 DY	1,500	6	-8	Decreasing	No Trend	N/A	-1,000	No	-3,000	1,000
RW-303-16	DRO	Yes	4,800 Y	1,500	9	-8	No Trend	No Trend	Stable	NC	NC	NC	NC

Well	Target Analyte	Exceeds Endpoint Criteria	Highest Concentration last two sampling periods (µg/L)	Endpoint Criteria (µg/L) [b]	Sampling Periods (n)	Man-Kendall Statistic (S)	Mann-Kendall Trend		Concentration Stability [c]	Sen's Slope [d]			
							Trend at 80% CI	Trend at 95% CI		Median Slope (µg/L per year)	Statistically Significant Trend	2-Tailed Test at 80% C.I.	
												Lower Limit	Upper Limit
Tanker Shed, UST 42494													
04-175	DRO	Yes	6,700 Y	1,500	10	-11	Decreasing	No Trend	N/A	-319	Yes	-720	-167
04-290	DRO	Yes	4,500 Y	1,500	10	10	No Trend	No Trend	Stable	NC	NC	NC	NC
04-306	DRO	Yes	2,600 Y	1,500	10	-13	Decreasing	No Trend	N/A	-364	Yes	-700	-100
Area 303/GCI Compound													
03-104	DRO	Yes	3,300 Y	1,500	10	-17	Decreasing	No Trend	N/A	-454	Yes	-1,263	-33
03-107	GRO	Yes	9,400	2,200	7	-1	No Trend	No Trend	Stable	NC	NC	NC	NC
	Total Lead	Yes	22.2	15	7	-1	No Trend	No Trend	Stable	NC	NC	NC	NC
	Dissolved Lead	Yes	20.2	15	7	-1	No Trend	No Trend	Stable	NC	NC	NC	NC
03-518 [a]	DRO	Yes	4,400 YJ	1,500	4	-4	Decreasing	No Trend	N/A	-873	No	-5,100	2,900
	Ethylbenzene	Yes	33	15	4	-3	No Trend	No Trend	Stable	NC	NC	NC	NC
03-778	DRO	Yes	1,900 Y	1,500	10	-4	No Trend	No Trend	Stable	NC	NC	NC	NC
04-210 [a]	GRO	Yes	4,200	2,200	10	-11	Decreasing	No Trend	N/A	-100	No	-262	50
04-211	GRO	Yes	2,400	2,200	7	-10	Decreasing	No Trend	N/A	-275	No	-598	0
04-213	GRO	Yes	4,000	2,200	10	0	No Trend	No Trend	Stable	NC	NC	NC	NC
MRP-MW2	GRO	Yes	16,800 J	2,200	10	27	Increasing	Increasing	N/A	NC	NC	NC	NC
	Benzene	Yes	60.2	4.6	10	6	No Trend	No Trend	Stable	NC	NC	NC	NC
	Ethylbenzene	Yes	1,080	15	10	29	Increasing	Increasing	N/A	NC	NC	NC	NC
	DRO	Yes	2,800 L	1,500	10	12	Increasing	No Trend	N/A	NC	NC	NC	NC
MRP-MW3	GRO	Yes	14,000	2,200	10	-29	Decreasing	Decreasing	N/A	NC	NC	NC	NC
	Ethylbenzene	Yes	1,500 D	15	10	-20	Decreasing	No Trend	N/A	NC	NC	NC	NC
	Total Lead	Yes	51.6	15	4	0	No Trend	No Trend	Stable	NC	NC	NC	NC
	Dissolved Lead	Yes	47.9	15	4	0	No Trend	No Trend	Stable	NC	NC	NC	NC
	DRO	Yes	5,100 L	1,500	10	9	No Trend	No Trend	Stable	NC	NC	NC	NC
MW-303-28	GRO	Yes	9,200	2,200	6	-5	No Trend	No Trend	Stable	NC	NC	NC	NC
	Total Lead	Yes	40.2	15	6	-3	No Trend	No Trend	Stable	NC	NC	NC	NC
	Dissolved Lead	Yes	37.3	15	6	-7	Decreasing	No Trend	N/A	-13	No	-16	0.3
MW-303-30	GRO	Yes	16,000	2,200	6	-3	No Trend	No Trend	Stable	NC	NC	NC	NC
	Ethylbenzene	Yes	1,040	15	6	0	No Trend	No Trend	Stable	NC	NC	NC	NC
	Total Lead	Yes	50.3	15	6	-3	No Trend	No Trend	Stable	NC	NC	NC	NC
	Dissolved Lead	Yes	52.8	15	6	-3	No Trend	No Trend	Stable	NC	NC	NC	NC
MW-303-42	GRO	Yes	14,300 J	2,200	7	0	No Trend	No Trend	Stable	NC	NC	NC	NC
MW-303-43	GRO	Yes	5,200	2,200	7	3	No Trend	No Trend	Stable	NC	NC	NC	NC
Former Power Plant, Bldg. T-1451													
01-118	DRO	Yes	8,700 Y	1,500	10	-15	Decreasing	No Trend	N/A	-526	No	-954	40
MW-1451-2 [a]	DRO	Yes	4,300 Y	1,500	7	-9	Decreasing	No Trend	N/A	-380	No	-667	50
MW-1451-8	DRO	Yes	2,730	1,500	7	-3	No Trend	No Trend	Stable	NC	NC	NC	NC
MW-1451-9	DRO	Yes	3,270	1,500	6	-3	No Trend	No Trend	Stable	NC	NC	NC	NC

Well	Target Analyte	Exceeds Endpoint Criteria	Highest Concentration last two sampling periods (µg/L)	Endpoint Criteria (µg/L) [b]	Sampling Periods (n)	Man-Kendall Statistic (S)	Mann-Kendall Trend		Concentration Stability [c]	Sen's Slope [d]			
							Trend at 80% CI	Trend at 95% CI		Median Slope (µg/L per year)	Statistically Significant Trend	2-Tailed Test at 80% C.I.	
												Lower Limit	Upper Limit
SWMU 60, Tank Farm A													
650 [a]	Benzene	No	8.3 J	4.6	8	-8	Decreasing	No Trend	N/A	-0.27	No	-1.1	0.6
	DRO	Yes	6,520	1,500	8	6	No Trend	No Trend	Stable	NC	NC	NC	NC
652 [a]	DRO	Yes	6,110	1,500	5	4	No Trend	No Trend	Stable	NC	NC	NC	NC
LC5A [a]	Ethylbenzene	Yes	39.0	15	10	10	No Trend	No Trend	Stable	NC	NC	NC	NC

% percent
µg/L microgram per liter
CI confidence interval
D The reported result is from a dilution.
DCE dichloroethylene
J estimated (data qualifier)
L estimated, biased low (chemical data)
N/A not applicable
NC not calculated
S Mann-Kendall statistic; the number of positive differences minus negative differences between sequential sampling results.
Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.

[a] Downgradient wells or surface water protection wells.
[b] Endpoint criteria are established from risk-based cleanup levels for SWMU 61, SWMU 62, and Tanker Shed, or from ADEC cleanup levels for groundwater used as a drinking water source.
[c] Concentration stability is determined from the coefficient of variation when no trend exists at the 80% CI.
[d] Sen's slope is calculated for target analytes with decreasing concentration trends only.
[e] Sen's slope analysis not calculated for this well because the analysis requires that there cannot be more than 2 years between consecutive sampling events.

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4.2.2 Free Product Recovery at Petroleum Sites

This section presents a summary of the free product recovery that was compiled since the fourth Five-Year Review for SWMU 62 and additional sites (DON 2017b; 2018h; 2020b; 2020h). A more detailed site description is presented in Appendix C. All site activities were performed in accordance with the O&M plan (DON 2020f) and *Final Quality Control Plan, Free Product Recovery Operation and Maintenance, Former Adak Naval Complex, Adak Island, Alaska* (DON 2014b).

The Free-Product Recovery reports are showing monitoring and remedial action recovery of free product petroleum from groundwater and boom placement and maintenance for surface water protection at six sites (SWMU 62, Former Power Plant Bldg. T-1451, NMCB Bldg. T-1416 Expanded Area, SA 80, South of Runway 18/36 Area, and SWMU 60). Three of these sites have free-product recovery required per the DD (SMWU 62, NMCB Bldg. T-1416, and South of Runway 18/36 Area) and the three others have free-product recovery added in later on (see Section 2.3.1 for more details). The report summarizes data during each one-year reporting period and whether endpoint criteria were achieved as established in the ROD. The total product recovered during each annual reporting period is listed in Table 4-3 and a summary of wells with free product is listed in Table 4-4.

Table 4-3: Total Free Product Recovery Annually Since 2017

Site	Year	Number of Wells with Recoverable Product	Total Product Recovered (gallons)
SWMU 62, New Housing Fuel Leak Area (Eagle Bay Housing)	2017	6	1.35
	2018	4	1.87
	2019	4	3.24
	2020	3	1.46
Former Power Plant, Bldg. T-1451	2017	3	5.87
	2018	3	3.09
	2019	3	6.91
	2020	3	5.94
NMCB Bldg. T-1416 Expanded Area	2017	3	1.16
	2018	4	2.35
	2019	3	1.42
	2020	1	0.88
SA 80, Steam Plant 4	2017	2	2.56
	2018	3	0.55
	2019	2	1.11
	2020	1	0.52
South of Runway 18/36 Area	2017	1	0.02
	2018	1	0.28
	2019	1	0.89
	2020	1	0.02
SWMU 60, Tank Farm A	2017	1	0.04
	2018	1	0.02
	2019	0	0.00
	2020	1	0.03

Note: Time period starts in October and ends in September of the following year, e.g., 2017 reporting period starts in October 2016 and ends in September 2017.

Table 4-4: Summary of Wells with Free Product

Site	2017	2018	2019	2020
SWMU 62 New Housing Fuel Leak Area (Eagle Bay Housing)	1. **03-101** 2. 03-102 3. HMW-303-11 **4. MRP-MW3** 5. MW-15 6. RW-303-15 7. RW-303-16	1. 03-102 2. HMW-303-11 3. MW-15 4. RW-303-15 5. RW-303-16 6. MW-62-16-05 7. MW-62-16-07	1. 03-102 2. HMW-303-11 3. MW-15 4. RW-303-15 5. RW-303-16 6. MW-62-16-05 7. MW-62-16-07	1. 03-102 2. HMW-303-11 3. MW-15 4. RW-303-15 5. RW-303-16 6. MW-62-16-07
Former Power Plant, Bldg. T-1451	1. MW-1451-1 2. MW-1451-6 3. MW-1451-7	1. MW-1451-1 2. MW-1451-6 3. MW-1451-7	1. MW-1451-1 2. MW-1451-6 3. MW-1451-7	1. MW-1451-1 2. MW-1451-6 3. MW-1451-7
NMCB Expanded Area, Bldg. T-1416	1. 02-300 2. 02-815 3. NMCB-07 4. NMCB-08	1. 02-300 2. 02-815 3. NMCB-07 4. NMCB-08	1. 02-300 2. 02-815 3. NMCB-07 4. NMCB-08	1. 02-300 2. NMCB-07 3. NMCB-08
SA 80, Steam Plant 4	1. 04-155 2. 04-157 3. 04-158	1. 04-155 2. 04-157 3. 04-158	1. 04-155 2. 04-157 3. 04-158	1. 04-155 2. 04-157 3. 04-158
South of Runway 18/36 Area	1. E-216	1. E-216	1. E-216	1. E-216
SWMU 60, Tank Farm A	1. 652 2. 653 **3. 656** **4. 657** **5. 658**	1. 652 2. 653	1. 652 2. 653	1. 652 2. 653

Note: **Bold text** indicates well detections unique to the year it was detected (only considering the last 5 years).

4.2.2.1 *BOOM INSPECTIONS*

Seven booms (six in 2017) were maintained in East Canal and South Sweeper Creek to prevent the migration of petroleum sheen from shoreline product seeps to downgradient surface water bodies (Figure 4-4). Each boom was maintained and inspected on a monthly basis throughout the reporting period. Sheen was observed at least once during the reporting period at boom locations 6, 9, and 10 in 2017, at boom locations 6, 9, 10, 12, and 13 in 2018 and 2020, and at boom locations 6, 9, 10, 12, 13, and former Boom 11 location in 2019. Sheen was not observed at boom locations 2, 3, or 12, or the former Boom 8 and 11 locations (removal action areas) in 2017, at boom locations 2, 3, or former Boom 8 and 11 locations in 2018 and 2020, and at boom locations 2, 3, and former boom 8 location in 2019. Every year, the East Canal shorelines are inspected adjacent to SWMU 62 and Former Power Plant, Bldg. T-1451 removal actions (former boom locations 8 and 11 for the first two years and only Boom 11 location starting in 2020) on a monthly basis for the presence of sheen or evidence of petroleum seep development.

The booms effectively controlled the surface water sheen and prevented downstream migration. However, starting in 2019, fluctuating water levels in East Canal create situations that decrease the effectiveness of booms and allow sheen to periodically escape. In order to prevent the East Canal from overflowing and impacting the nearby airport, ADOT operates two pumps in West Canal; however, the pumps are not operated regularly which contributes to fluctuations.

The monthly inspection and maintenance activities continued every year, starting with six boom located in East Canal and South Sweeper Creek in 2017 (Booms 2, 3, 6, 9, 10, and 12), seven in 2018 (added Boom 13 location), and five in 2019 and 2020 (Booms 2, 3, and Former Boom 8 location were

discontinued in May 2020 due to the absence of petroleum sheen and oily sediment observed along the SWMU 62 portion of East Canal).

In 2017, the Navy recommended to monitor the seepage of petroleum sheen at Former Power Plant, Bldg. T-1451 on the East Canal shoreline adjacent to well MW-1451-3 and investigate possible remedial measures if sheen continues to be observed during upcoming inspections.

In 2019, two additional areas of petroleum sheen and oily sediment were observed during the reporting period. One location is in the Former Power Plant, Bldg. T-1451 portion of East Canal area approximately 5 to 15 feet north of Boom 13, and the other location is on the South Sweeper Creek east shoreline adjacent to the Main Road (Hillside Blvd) bridge crossing. In 2020, the previously documented, petroleum seeps and associated sheen and oily sediment on the east shoreline of South Sweeper Creek adjacent to the Main Road (Hillside Blvd) bridge crossing, were occasionally observed at varying magnitudes.

In 2020, the Navy recommended that monitoring of the seep areas along the South Sweeper Creek east shoreline adjacent to the Main Road (Hillside Blvd) bridge crossing is continued.

4.2.3 Marine Tissue Monitoring

Marine monitoring of blue mussel and rock sole tissue was performed on a biennially basis at Adak Island through 2017, then moved to three years (sampling in 2020), and has now moved to every 5 years (next sampling in 2025). The fourth Five-Year Review reported data up to the 2015 marine monitoring. Therefore, below is a summary of the data from the 2017 and 2020 marine monitoring (DON 2018a; 2020i).

2017: The 2017 Technical Memorandum, Adak Marine Monitoring, provided an evaluation of PCB concentrations in northern rock sole and blue mussel specimens collected from Sweeper Cove and Kuluk Bay at Adak. PCB congeners analysis has been conducted on marine tissue samples from 1999 through 2017. The primary conclusions drawn from the evaluation of the tissue data collected from 1999 through 2017 are as follows:

- The mean total PCB concentrations in rock sole from Sweeper Cove and Kuluk Bay of 20.1 micrograms per kilogram [µg/kg] and 3.25 µg/kg, respectively, decreased from their 2015 levels of 53.5 µg/kg and 4.96 µg/kg, respectively.
- The mean total PCB concentration in rock sole from Sweeper Cove remained above the RBAL of 6.5 µg/kg.
- The mean total PCB concentration in rock sole from Kuluk Bay remained less than the RBAL of 6.5 µg/kg.
- The mean total PCB concentrations in blue mussels from Sweeper Cove and Kuluk Bay of 13.8 µg/kg and 4.67 µg/kg, respectively, decreased from their 2015 levels of 19.3 µg/kg and 7.08 µg/kg, respectively.
- The mean total PCB concentration in blue mussels collected in 2015 from Sweeper Cove fell below the RBAL of 31 µg/kg for the first time since 2002 and decreased further in 2017, despite the mean concentration being affected by localized areas of relatively higher concentrations.
- The mean total PCB concentration in blue mussels collected in 2017 from Kuluk Bay remained below the RBAL of 31 µg/kg.

As expected, the highest PCB concentrations in rock sole and blue mussels were consistently found in Sweeper Cove, which is near the known former PCB sources on Adak Island. The Navy recommended maintenance of the current fish consumption advisories (i.e., both finfish and shellfish). Current fishing advisories are in place for rock sole and blue mussel from Sweeper Cove and rock sole from Kuluk Bay.

Although the mean total PCB concentration in rock sole from Kuluk Bay remained less than the RBAL for the third consecutive monitoring round and there was an apparent decreasing trend, the maximum concentration observed was only slightly below the RBAL. Therefore, continuing the consumption advisory for rock sole collected in Kuluk Bay was recommended until further sampling and testing demonstrated that PCB concentrations declined to the point that removal of the related fishing advisory was warranted. The status of the consumption advisory was recommended to be assessed after results from the next sampling event were evaluated. The Navy also confirmed the recommendation from 2015 to transition the blue mussel and rock sole monitoring from once every 2 years to once every 5 years (after a three year sampling event in 2020) at the same locations in Sweeper Cove and Kuluk Bay.

2020: The 2020 Technical Memorandum, Adak Marine Monitoring, provided an evaluation of PCB concentrations in northern rock sole and blue mussel specimens collected from Sweeper Cove and Kuluk Bay at Adak. In 2018, an ESD was submitted and the RBALs for rock sole and mussels were updated (DON 2018f). PCB congeners analysis had been conducted on marine tissue samples from 1999 through 2020. The primary conclusions drawn from the evaluation of the tissue data collected from 1999 through 2020 were as follows:

a) The mean total PCB concentrations in rock sole from Sweeper Cove and Kuluk Bay of 23.3 µg/kg and 2.02 µg/kg, respectively, were similar to the 2017 levels of 20.1 µg/kg and 3.25 µg/kg, respectively.

b) The mean total PCB concentration in rock sole from Sweeper Cove were above the RBAL of 11.1 µg/kg.

c) The mean total PCB concentration in rock sole from Kuluk Bay were less than the RBAL of 11.1 µg/kg.

d) The mean total PCB concentrations in blue mussels from Sweeper Cove and Kuluk Bay of 29.6 µg/kg and 16.9 µg/kg, respectively, increased from their 2017 levels of 13.8 µg/kg and 4.67 µg/kg, respectively, but were below the RBAL of 53.8 µg/kg.

Current fishing advisories are in place for rock sole and blue mussels from Sweeper Cove and rock sole from Kuluk Bay. Based on the approved 2020 evaluation of Adak Island blue mussel and rock sole tissue (DON 2020i), the current fish consumption advisories for Sweeper Cove were maintained and the advisory for rock sole from Kuluk Bay was removed.

The mean total PCB concentration in rock sole from Kuluk Bay remained less than the RBAL for the fourth consecutive monitoring round and an apparent decreasing trend was confirmed. The mean total PCB concentration in rock sole from Sweeper Cove increased slightly (by 2.7 µg/kg) from 2017 to 2020, which is likely due to nearby non-Navy-related bay floor agitation. However, the concentration trend has decreased significantly since 1999. Continuing the consumption advisory for rock sole collected in Sweeper Cove was recommended until further sampling and testing demonstrate that PCB concentrations have declined to the point that removal of the related fishing advisory is warranted. As with every sampling event, the status of the consumption advisory shall be assessed after sampling results from the next sampling event are evaluated. The EPA, ADEC, and Navy have agreed to a

prescribed frequency of blue mussel and rock sole monitoring once every 5 years at the same locations in Sweeper Cove and discontinuation of the monitoring of blue mussel and rock sole at Kuluk Bay.

4.2.4 Annual ICs Technical Memorandum

Below is a summary of the ICs Technical Memorandums that were compiled since the fourth Five-Year Review (DON 2016b; 2018e; 2018j; 2020c; 2020j) to determine whether the ICs have been effective in achieving their intended purpose. The following activities were conducted during each annual ICs inspection:

- Inspection of the downtown area for evidence of domestic well use or installation.
- Review of IC excavation notifications on file with the Navy and the City of Adak that were processed over a one-year period predating the IC inspection report.
- Inspection of the operation of the UXO Awareness video at the school and airport.
- Interview of on-island personnel regarding the IC Educational Awareness Program.

Inspections were conducted in accordance with the OU A ROD, OU A ROD Amendment, OU B-1 ROD, and the CMP Revision 6 until 2018, the CMP Revision 7 in 2019, and the CMP Revision 8 in 2020. Overall, ICs appear to be effective for children, visitors, and adult residents. More detailed on ICs inspections can be found in Appendix C. Based on the findings of the site inspections, the following conclusions are presented:

- *Downtown Area Groundwater Use:* all ICs appear to be functioning as intended.
- *Excavation Restrictions:* One unauthorized excavation was observed in 2016 and 2018, and two unauthorized excavations were observed during the 2019 inspection. The Navy will continue to improve the excavation restriction program by determining if a provision to the excavation notification forms is needed, and develop new signs for the non-landfill sites with absolute excavation prohibition.
- *UXO Awareness Video:* it is functioning as intended (the operation of the video occurred as planned).
- *Education Program:* the education program appears to be effective because most of the resident population and visitors interviewed were aware of most portions of the program. The Navy will continue to improve the program to increase LUC awareness.

The Navy continues to regularly repair site ICs such as sinkholes, and signs and records of the repairs in an Adak IC Repairs Summary. The efficacy of OU A landfill sites fencing is being evaluated.

4.2.5 Explanation of Significant Difference (DON 2018f)

The ESD was conducted to propose changes to adjust the surface water CULs for three OU A landfill sites on Adak and marine fish/shellfish tissue RBALs in Kuluk Bay and Sweeper Cove due to updated regulations and parameters used to calculate RBALs. In 2016, two recommendations from the fourth Five-Year Review resulted in the need for an ESD to modify criteria set in the OU A ROD. Changes to 18 AAC 70 occurred in 2008 and 2017, which impacted some of the CULs generated at the time of the OU A ROD signing. Table 4-5 identifies the current values and revised new values for each COC at the three OU A landfill sites that require surface water monitoring. Surface water monitoring for volatile organic compounds (VOCs) was terminated in 2002 due to the endpoint criteria being met. The VOC reporting limits for surface water were at or below the ESD revised CULs (Table 4-5).

In addition, a review of the fish/shellfish tissue RBALs determined that common default parameters used by the EPA for exposure duration and body weight were revised in 2014 (Sections 5.2.3.2 and 5.2.3.4). These revised exposure parameters would result in lowering cancer risk and noncancer hazard estimates for residential exposure to soil; however, ICs are in place to protect human health.

Table 4-5: Summary of ESD Revision to surface water cleanup levels at SWMUs 11, 18/19, and 25, and RBAL

Analyte	Previous Value (µg/L)	ESD Revised Value (µg/L) [a]	Source of Current Value
Surface Water Cleanup Levels			
Chemicals included in CMP Revision 8			
Aluminum	87	87	Aquatic Life (Chronic), Federal CWA AWQC and 18 AAC 70.
Antimony	45,000	6	Human Health Organism Only, Solid Waste Program.
Arsenic [b]	1.4	1.4	Human Health Organism Only, Federal CWA AWQC and 40 CFR 131.36.
Barium [c]	N/A	1,000	Human Health Water and Organism, Federal CWA AWQC.
Beryllium	1.4	4	Human Health Organism Only, Solid Waste Program.
Cadmium	1.1	10	Aquatic Life (Chronic), 18 AAC 70.
Chromium III	210	74	Aquatic Life (Chronic), Federal CWA AWQC and 18 AAC 70.
Chromium VI	11	10	Aquatic Life (Chronic), 40 CFR 131.36.
Copper	12	8.96	Aquatic Life (Chronic), 18 AAC 70.
Lead	3.2	2.5	Aquatic Life (Chronic), Federal CWA AWQC.
Mercury	0.012	0.012	Aquatic Life (Chronic), 40 CFR 131.36.
Nickel	100	52	Aquatic Life (Chronic), Federal CWA AWQC and 18 AAC 70.
Selenium	5	5	Aquatic Life (Chronic), 40 CFR 131.36 and 18 AAC 70.
Silver	0.12	100	Human Health Organism Only, Solid Waste Program.
Thallium	48	0.47	Human Health Organism Only, Federal CWA AWQC.
Zinc	110	104.5	Aquatic Life (Chronic), 40 CFR 131.36.
Chemicals not Included in CMP Revision 8			
1, 1-dichloroethene	320	7	Human Health Organism Only, Solid Waste Program.
Cis-1, 2-dichloroethene	None	70	Human Health Organism Only, Solid Waste Program.
Trans-1, 2-dichloroethene	None	360	Human Health Organism Only, Solid Waste Program.
Benzene	710	5	Human Health Organism Only, Solid Waste Program.
Ethylbenzene [b]	3,280	700	Human Health Organism Only, Solid Waste Program.
Toluene	424,000	520	Human Health Organism Only, Federal CWA AWQC.
Trichloroethene	810	5	Human Health Organism Only, Solid Waste Program.
Total Xylenes	None	10,000	Human Health Organism Only, Solid Waste Program.

Analyte	Previous Value (µg/L)	ESD Revised Value (µg/L) [a]	Source of Current Value
Fish/Shellfish RBALs (µg/kg)			
PCBs Fish	6.5	11.1	EPA 2014 OSWER 9200.1-120.
PCBs Shellfish	31.4	53.8	EPA 2014 OSWER 9200.1-120.

µg/kg microgram per kilogram
AWQC ambient water quality criteria
CFR Code of Federal Regulations
CMP comprehensive monitoring plan
CWA Clean Water Act
ESD Explanation of Significant Difference
N/A not applicable
RBAL risk-based action level

[a] The Navy, ADEC, and EPA chose the most conservative value of National Toxics Rule (40 CFR 131.36), Federal Clean Water Act (CWA) Ambient Water Quality Criteria (AWQC), Alaska Department of Environmental Conservation (ADEC) water quality standards (18 AAC 70), and ADEC Solid Waste Program (ADEC 2018b). These values are listed in Revision 8 Comprehensive Monitoring Plan (DON 2020e) based on the Explanation of Significant Differences (ESD) for OU A (DON 2018f). Surface water monitoring at SWMUs 11 and 13 have been discontinued.

[b] Human health criterion from U.S. EPA National Recommended Water Quality Criteria (EPA 2009) and National Toxics Rule (40 CFR 131.36) are based on a carcinogenicity of 10^{-5} risk.

[c] Barium's endpoint criterion of 2,000 µg/L was added in the 2020 CMP (Revision 8); however, this is the Alaska criterion and the federal criterion is lower and applies because these are CERCLA sites.

4.2.6 OU B-1

During this Five-Year Review period, the following munitions from OU B-1 were reported, recovered, and destroyed:

- The 5-inch projectile was reported on Mount Moffett by hikers in 2010. In 2018, it was re-found and recovered northeast of MM-10G.
- A 3-inch projectile was discovered on the west flank of Mount Adagdak (east of Parcel 4) in 2019.
- A total of 83 Cartridge Actuated Devices (CADs) were recovered from the shoreline of Finger Bay since 2016 as follows: 2016 – 58 CADs, 2017 – 21 CADS, 2018 – 4 CADs, 2019 and 2020 – 0 CADs.

The 2014 RACR document (DON 2014c) provides information regarding completion of response actions in preparation for requesting that OU B-1 sites be removed from the National Priorities List (NPL). The following EPA deletion criteria have been met for all OU B-1 sites (EPA 2011):

- All required response actions have been implemented.
- No further response actions are necessary.
- There is no health threat above the EPA's target health goals to humans or the environment.

However, the OU B-1 sites have not yet been delisted from the NPL.

4.2.7 PFAS Assessment

The Fourth Five-Year Review recommended PFAS sampling at Former Fire-Fighting Training Areas SWMUs 16, 32, and 33. PFAS are emerging chemicals and therefore were not a COC during the early site investigations on Adak. An Initial Assessment was conducted in 2018 and PFAS impacts were identified. The Navy is currently evaluating potential PFAS releases at Adak.

An Adak-wide Preliminary Assessment was reviewed by the ADEC and EPA in September 2020. It includes SWMUs 16, 32, and 33 sites and other areas on-island where PFAS may have been used, stored, or discharged. Due the existing ICs required by the OU A ROD, no exposure pathways to drinking water were identified in the PA. The Final PA was submitted in July 2021. As per the Office of the Secretary of Defense (DoD 2021), the screening levels for PFOA and PFOS are 0.13 mg/kg in soil and 0.04 µg/L in groundwater. The DoD (2021) screening levels for PFBS are 1.9 mg/kg in soil and 0.6 µg/L in groundwater.

SWMU 16 (Former Firefighting Training Area), a CERCLA site, has a site status of cleanup complete with ICs based on meeting remedial action objectives of the OU A ROD, including soil removal for PCBs. However, potential sources of PFAS were recently identified at SWMUs 16, 32, and 33. Sampling results indicate concentrations of PFOS and PFOA in groundwater above screening levels and perfluorobutane sulfonate in groundwater below screening levels. A SI is being finalized at the time of this writing. The final disposition of the site will be determined based on the results of the final SI.

4.3 FIVE-YEAR REVIEW SITE INSPECTION

Between April–June 2021, a site inspection was conducted in support of this Five-Year Review to assess the protectiveness of the remedies. A Five-Year Review site inspection checklist was completed as observations were made to document the status of each individual site (Appendix D). Table 4-6, Table 4-7, and Table 4-8 present a summary of the conditions and recommendations for all of the OU A sites, OU B sites, and Downtown Area Water Bodies, respectively. Appendix C presents the observations by site for only those sites where there were issues.

Table 4-6: Summary of Site Inspection Conditions and Recommendations at OU A Institutional Control Sites

Site Name	Land Use Change?	Evidence of Soil Erosion	Fencing/Gates Need Repair?	Evidence of Soil Excavation or Well Installation?	Signage Needs Repair?	Is the Building Occupied?	Recommendation
Amulet Housing, Well AMW-706 Area	No	NA	NA	NA	NA	NA	• None for the site (ADEC approved closure and ICs were removed in 2016). • **Evaluate sheen and potential sources of downslope sheen to South Sweeper Creek.**
Amulet Housing, Well AMW-709 Area	No	NA	NA	NA	NA	NA	None (ADEC approved closure and ICs were removed in 2016).
Antenna Field, USTs ANT-1 – ANT-4	No	**Yes**	NA	No	**Yes**	NA	• **Assess the eroded areas.** • **Install signage.**
ASR-8 Facility (UST 42007-B)	No	NA	NA	NA	NA	No	None.
Boy Scout Camp, West Haven Lake, UST BS-1	No	NA	NA	NA	NA	NA	None.
Contractor's Camp Burn Pad	No	NA	NA	NA	NA	NA	None.
Finger Bay Quonset Hut, UST FBQH-1	No	NA	NA	No	**Yes**	NA	**Add sign closer to site.**
Former Power Plant, Building T-1451	No	NA	NA	No	No	**Yes**	**Monitor housekeeping, repair one knocked over sign within well field and monitor sheen escaping boom along east canal.**
GCI Compound, UST GCI-1/Area 303	No	NA	NA	No	**Yes**	No	**Install sign/sign post (knocked over).**
Housing Area, Arctic Acres	No	NA	NA	No	No	No	None.
MAUW Compound, UST 24000-A	No	NA	No	No	No	**Yes**	None.
Mt Moffett Power Plant 5, USTs 10574 - 10577	No	NA	NA	No	No	No	None.
NAVFAC Compound, USTs 20052 and 20053	No	NA	No	No	NA	No	None.
Navy Exchange Building, UST 30027-A	No	NA	NA	No	No	**Yes**	None.
New Roberts Housing, UST HST-7C	No	NA	NA	No	NA	NA	None (there was no institutional control signage on site, however the site is within the downtown area and several signs are in the vicinity).
NMCB Building Area, T-1416 Expanded Area	No	NA	NA	No	No	**Yes**	None.
NORPAC Hill Seep Area	No	NA	NA	No	No	No	None.
Officer Hill and Amulet Housing, UST 31047-A	No	NA	NA	No	No	No	None (there was no institutional control signage on site, however the site is within the downtown area and several signs are in the vicinity).
Officer Hill and Amulet Housing, UST 31052-A	No	NA	NA	No	No	No	None (there was no institutional control signage on site, however the site is within the downtown area and several signs are in the vicinity).
ROICC Contractor's Area, UST ROICC-7	No	NA	NA	No	No	NA	None.
ROICC Contractor's Area, UST ROICC-8	No	NA	NA	No	No	NA	None.
ROICC Warehouse, UST ROICC–2	No	NA	NA	No	**Yes**	NA	**Install signage.**

Site Name	Land Use Change?	Evidence of Soil Erosion	Fencing/Gates Need Repair?	Evidence of Soil Excavation or Well Installation?	Signage Needs Repair?	Is the Building Occupied?	Recommendation
ROICC Warehouse, UST ROICC–3	No	NA	NA	No	**Yes**	NA	**Install signage.**
Runway 5-23 Avgas Valve Pit	No	NA	NA	No	No	NA	None (ADEC approved closure and ICs were removed in 2021).
SA 76, Old Line Shed Building	No	NA	NA	No	No	NA	None.
SA 77, Fuels Facility Refueling Dock, SDSA	No	NA	NA	No	NA	**Yes**	None (ADEC approved closure and ICs were removed in 2016).
SA 78, Old Transportation Building	No	NA	NA	No	No	NA	None.
SA 79, Main Road Pipeline	No	NA	NA	No	No	NA	None.
SA 80, Steam Plant 4	No	NA	NA	No	No	No	None.
SA 82, P80/P81 Buildings	No	NA	NA	No	No	No	None.
SA 85, New Baler Building	No	NA	**NA**	No	NA	No	**None (repair one knocked over sign within debris pile on east side of building).**
SA 86, Old Happy Valley Child Care Center	No	NA	NA	No	NA	NA	None.
SA 88, P70 Energy Generator	No	NA	NA	No	No	No	**Remove old, discarded sign.**
South of Runway 18-36 Area	No	NA	NA	No	No	NA	**Repair well monument.**
South Sweeper Creek	No	NA	NA	No	No	NA	**Determine source of seep.**
SWMU 2, Causeway Landfill and Minefield	No	No	NA	No	No	NA	None (erosion on roadway to site).
SWMU 4, South Davis Road Landfill	No	**Yes**	NA	No	No	NA	**Monitor and repair shoreline for erosion issues.**
SWMU 10, Old Baler Building	No	NA	NA	No	No	NA	None.
SWMU 11, Palisades Landfill	No	**Yes**	NA	No	No	NA	**Monitor erosion issues along the gulley and repaired cap.**
SWMU 13, Metals Landfill	No	No	No	No	No	NA	None.
SWMU 14, Old Pesticides Area	No	NA	NA	No	**Yes**	NA	**Move signage to site.**
SWMU 15, Future Jobs/DRMO	No	NA	NA	No	No	**Yes**	None (damaged institutional control signs that have been placed along northern fence line should be re-installed).
SWMU 16, Former Firefighting Training Area	No	NA	NA	No	No	NA	None.
SWMU 17, Power Plant 3	No	NA	NA	No	No	**Yes**	None.
SWMU 18/19, White Alice Landfill	No	No	**Yes**	No	**Yes**	NA	• **Cover exposed liner.** • **Repair damaged fence and include new signage.**
SWMU 20, White Alice/Trout Creek Disposal Area	No	**Yes**	NA	No	**Yes**	NA	• **Monitoring erosion issues.** • **Replace signage.**
SWMU 21A, White Alice Upper Quarry	No	NA	NA	No	No	NA	None.
SWMU 23, Heart Lake Drum Disposal Area	No	NA	NA	No	No	NA	None.

Site Name	Land Use Change?	Evidence of Soil Erosion	Fencing/Gates Need Repair?	Evidence of Soil Excavation or Well Installation?	Signage Needs Repair?	Is the Building Occupied?	Recommendation
SWMU 24, Hazardous Waste Storage Facility	No	NA	NA	No	No	NA	None.
SWMU 25, Roberts Landfill	No	**Yes**	**Yes**	No	No	NA	• **Reinstall fence.** • **Cover the exposed liner.** • **Monitor erosion and ponding.**
SWMU 29, Finger Bay Landfill	No	No	NA	No	No	NA	None.
SWMU 35, Ground Support Equipment Bldg.	No	NA	NA	NA	NA	**Yes**	None.
SWMU 52, 53, 59, Former LORAN Station	No	**Yes**	NA	No	No	No	**None.**
SWMU 55, Waste Storage Area	No	NA	NA	No	No	No	None.
SWMU 58/SA73, Heating Plant 6	No	NA	NA	No	No	No	None.
SWMU 60, Tank Farm A	No	No	NA	No	No	NA	None.
SWMU 61, Tank Farm B	No	**Yes**	NA	No	**Yes**	No	• **Monitor drainage issues near culvert.** • **Monitor erosion issues.** • **Reinstall signage.**
SWMU 62, Housing Area Fuel Leak	No	NA	NA	No	No	**Yes**	None.
SWMU 67, White Alice PCB Spill Site	No	No	NA	No	No	NA	None.
Tanker Shed, UST 42494	No	NA	NA	No	No	No	None.
Yakutat Hangar, UST T-2039A	No	NA	NA	No	No	No	None.
Yakutat Hangar, USTs T-2039-B and T-2039-C	No	NA	NA	No	No	**No**	None.

Note: Action items are in **bold text.**
NA not applicable

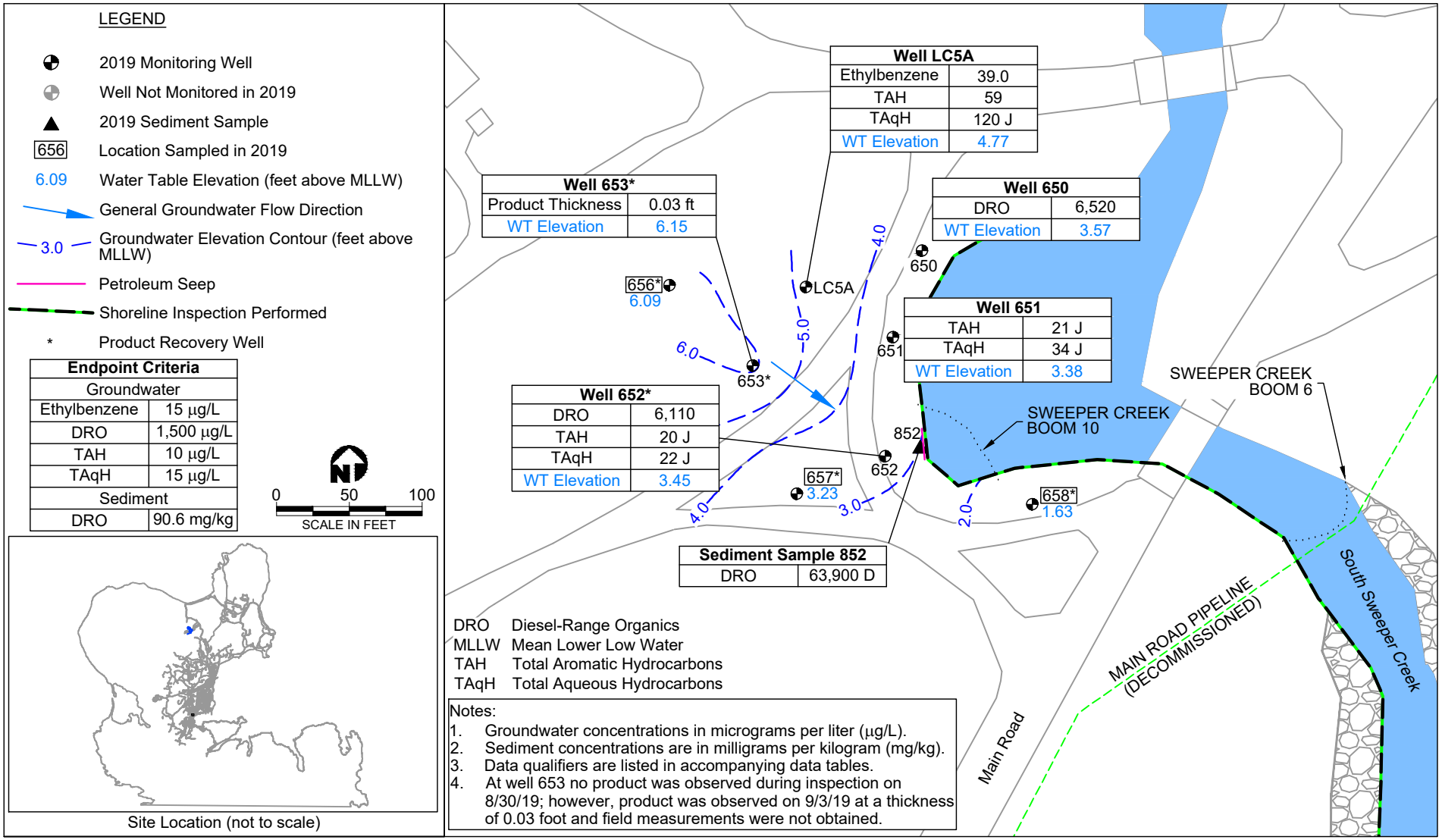
Table 4-7: Summary of Site Inspection Conditions and Recommendations at OU B Institutional Control Sites

Site Name	Land Use Change?	Evidence of Soil Erosion?	Other Issues?	Recommendation
Combat Range (C3-01A, C3-01B, C3-01C, C3-01D, C3-01E, and C3-01F)	No	No	No	None.
Mitt Lake (ML-01A, ML-01B, and ML-01C)	No	No	No	None.
FB Impact Area (FB-01A and FB-01B)	No	No	No	None.
Hammerhead Cove (HH-01)	No	No	No	None.
Mount Moffett (MM-10F, MM-10G and MM-10H)	No	No	No	None.

Note: Action items are in **bold text.**
NA not applicable
OU operable unit

Table 4-8: Summary of Site Inspection Conditions and Recommendations at Downtown Area Water Bodies

Site Name	Land Use Change (Fish Advisory)?	Issues with Education Program?	Recommendation
Kuluk Bay	No	No	None.
Sweeper Cove	No	No	None.



U.S. NAVY		Figure 4-1 SWMU 60, Tank Farm A Sample Locations and Analytical Results Exceeding Endpoint Criteria	Former Adak Naval Complex FIFTH FIVE-YEAR REVIEW

\\AECOMSSD.COM\DCS_ISOLATED\60628680-SEA1\900_CAD_GIS\910_CAD\FIG 4-1.DWG
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LEGEND

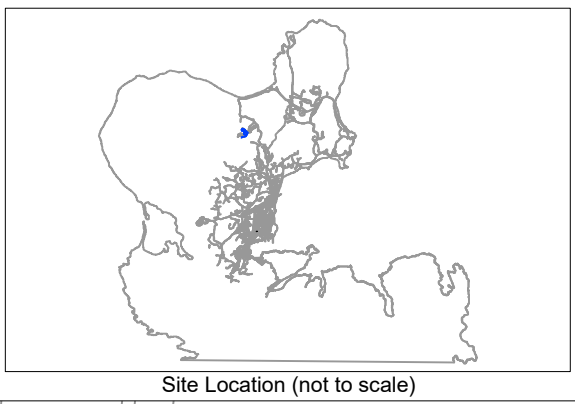
- 2019 Monitoring Well
- Well Not Monitored in 2019
- 03-778 — Location Sampled in 2019
- 7.55 — Water Table Elevation (feet above MLLW)
- General Groundwater Flow Direction
- —4.0— Groundwater Elevation Contour (feet above MLLW)
- Shoreline Inspection Performed
- Estimated Extent of Endpoint Criteria Exceedance

DRO Diesel-Range Organics
GRO Gasoline-Range Organics
MLLW Mean Lower Low Water
TAH Total Aromatic Hydrocarbons
TAqH Total Aqueous Hydrocarbons

Notes:
1. Concentrations in micrograms per liter (µg/L).
2. Data qualifiers are listed in accompanying data table.

Endpoint Criteria	
DRO	1,500 µg/L
GRO	2,200 µg/L
Benzene	4.6 µg/L
Ethylbenzene	15 µg/L
Total Xylenes	190 µg/L
Total Lead	15 µg/L
Dissolved Lead	15 µg/L
TAH	10 µg/L
TAqH	15 µg/L

0 90 180
SCALE IN FEET



Site Location (not to scale)

03-104	
DRO	1,510
WT Elevation	7.39

MRP-MW2	
DRO	2,780
GRO	16,800 J
Benzene	60.2
Ethylbenzene	1,080
Total Xylenes	4,400 J
WT Elevation	7.85

MRP-MW3	
DRO	2,570
GRO	4,610 J
Ethylbenzene	168
Total Xylenes	805
Dissolved Lead	15.1
WT Elevation	21.67

04-210	
GRO	3,930 J
WT Elevation	5.92

04-202	
Free Product	0.04 ft.
WT Elevation	12.58

04-213	
GRO	2,370 J
WT Elevation	6.56

MW-62-16-03	
GRO	8,150 J
Ethylbenzene	692
Total Xylenes	474
TAH	1,260
TAqH	1,270
WT Elevation	2.17

03-107	
GRO	4,690 J
Total Lead	22.2
Dissolved Lead	20.2
WT Elevation	5.19

MW-303-30	
GRO	10,300 J
Ethylbenzene	1,040
Total Xylenes	1,630
Total Lead	20.1
Dissolved Lead	19.1
WT Elevation	4.97

MW-62-16-05*	
Free Product	0.03
WT Elevation	2.95

MW-303-42	
GRO	14,300 J
WT Elevation	3.83

03-518	
DRO	3,650
Ethylbenzene	21.3
WT Elevation	5.22

MW-303-28	
GRO	7,450 J
Total Lead	29.6
Dissolved Lead	25.2
WT Elevation	6.17

MW-62-16-07*	
Free Product	0.14
WT Elevation	3.39

MW-62-16-06*	
DRO	5,140
WT Elevation	3.24

East Canal BOOM 2
East Canal BOOM 3
East Canal
2016 REMOVAL ACTION AREA
Main Road
HIGH SCHOOL
AIR TERMINAL BLDG
TEMP
ALASCOM OFFICE
CABLEVISION BMI

U.S. NAVY

Figure 4-2
Area 303/GCI Compound (UST GCI-1) Sample Locations and Analytical Results Exceeding Endpoint Criteria

Former Adak Naval Complex
FIFTH FIVE-YEAR REVIEW

\\AECOMSSD.COM\DCS_ISOLATED\60628680-SEA1\900_CAD_GIS\910_CAD\FIG 4-2.DWG
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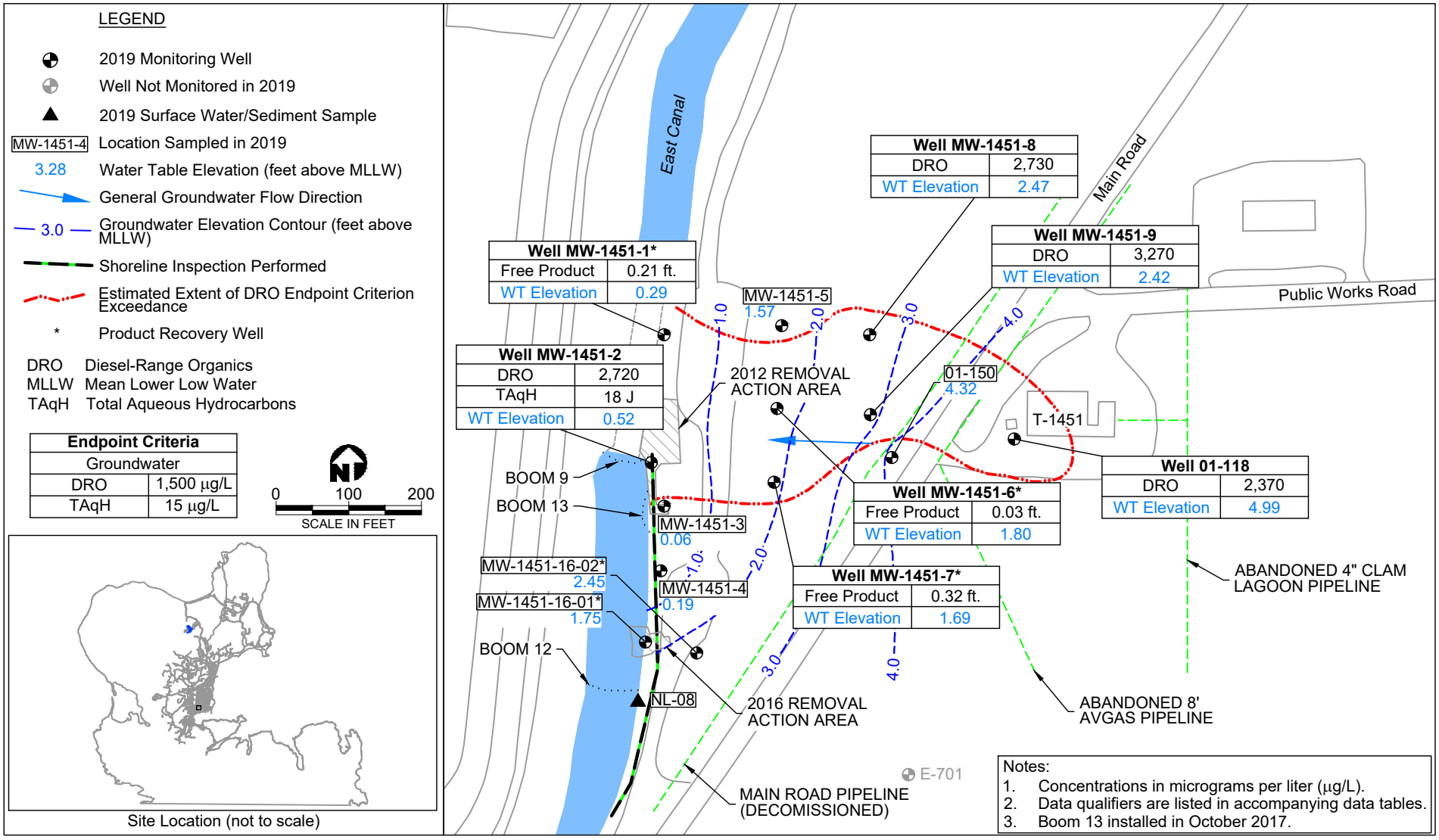

U.S. NAVY		Figure 4-3 Former Power Plant, Building T-1451 Sample Locations and Analytical Results Exceeding Endpoint Criteria	Former Adak Naval Complex FIFTH FIVE-YEAR REVIEW

\\AECOMSSD.COM\DCS_ISOLATED\60628680-SEA1\900_CAD_GIS\910_CAD\FIG 4-3.DWG
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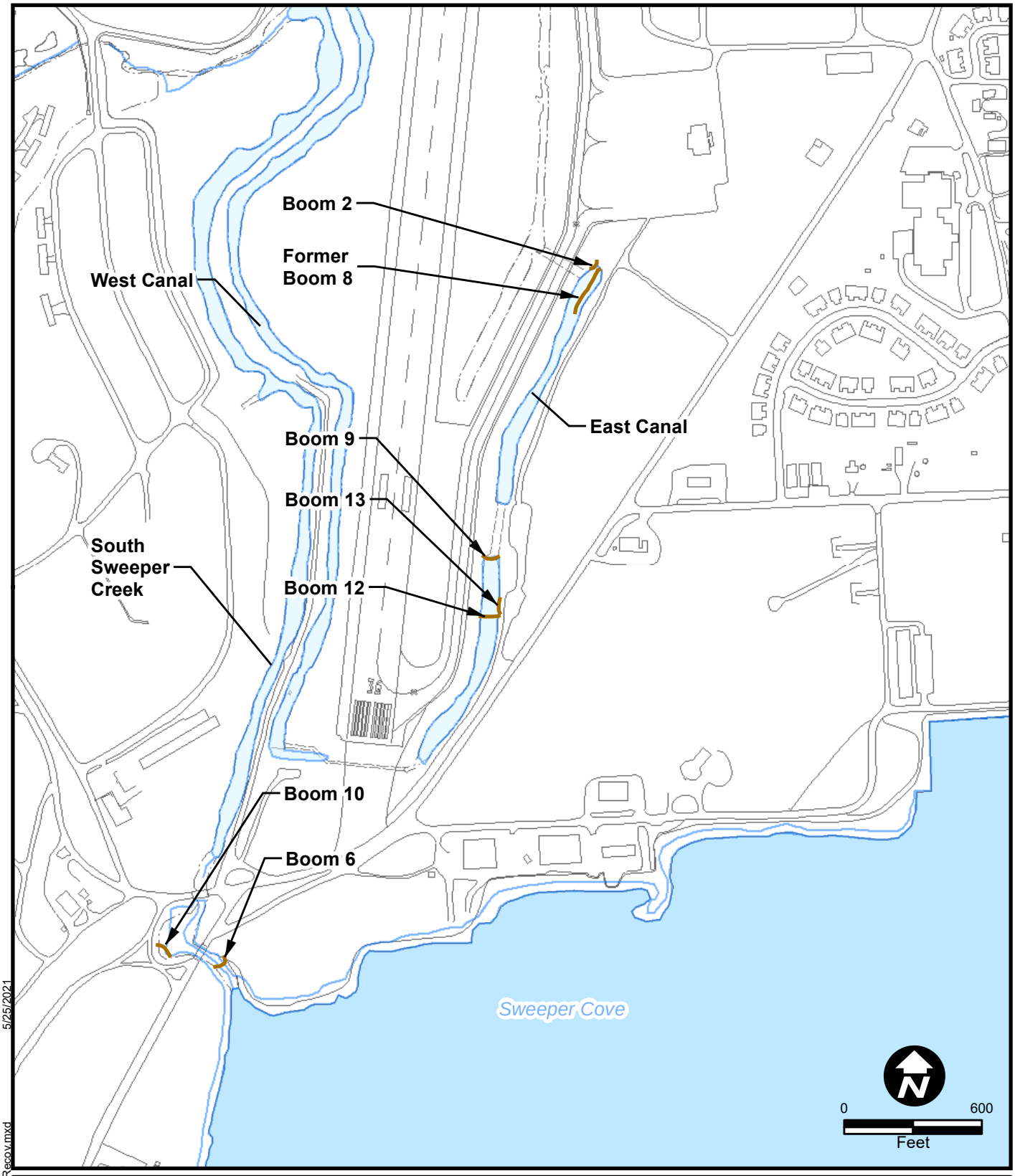

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Fig4-4_FreeProductRecov.mxd

U.S. NAVY		Figure 4-4 Boom Locations	Former Adak Naval Complex FIFTH FIVE-YEAR REVIEW

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5. Technical Assessment

5.1 QUESTION A: IS THE REMEDY FUNCTIONING AS INTENDED BY THE DECISION DOCUMENTS?

5.1.1 OU A

All of the remedy components required by the OU A ROD have been implemented and are functioning as intended by the ROD for all of the CERCLA and SAERA sites, except at SWMU 60, a SAERA site, discussed below (Section 5.1.1.2). The remedy is functioning as intended at Former Power Plant (Building T-1451), SWMU 62, Area 303/GCI Compound, and SA 79. However, additional investigation may be warranted at these three SAERA sites because DRO and/or other COC concentrations in groundwater exceed endpoint criteria, some of which indicate increasing trends and/or the persistent presence of free product observed at greater than the ROD endpoint of 0.01 foot.

5.1.1.1 REMEDIAL ACTION PERFORMANCE AT OU A CERCLA SITES

The caps and covers have been constructed at landfills, and the ponds at SWMU 17 (Power Plant No. 3) have been drained, dredged, and restored. Impacted sediment has been removed from South Sweeper Creek, and limited soil removals have been completed at remedial action sites.

A final RACR was issued in 2012 to document that all remedial actions for soils and surface water are complete at all OU A CERCLA sites (DON 2012d). The RAOs for soils and surface water specified in the RODs have been achieved, although ongoing ICs are necessary to ensure that human health and the environment are protected. The Navy, EPA, and ADEC have determined that all response actions for soils and surface waters are complete, except at Kuluk Bay and Sweeper Cove, and that no further remediation-related construction is anticipated. Remaining activities are primarily related to the Navy's long-term inspection, maintenance, and monitoring activities at those sites with limited surface and subsurface soil concentrations above unrestricted land use (i.e., residential) levels. Based on current land use with controls in place, there continues to be no human or ecological health risk from exposure to residual chemicals.

LTM has been initiated and is ongoing to assess the remedies. The LTM goals and requirements are periodically revisited to maintain focus on the endpoint goals. For the OU A CERCLA only and combined OU A CERCLA/SAERA sites (Table 1-1 and Table 1-3), CERCLA compliance monitoring has been discontinued at all sites based on decision rules of meeting either endpoint criteria or secondary endpoints as listed in the CMPs (DON 2018g; 2020e), except at Sweeper Cove and three landfills, SWMUs 11, 18/19, and 25.

The remedy is functioning as intended at Sweeper Cove and Kuluk Bay. Signs and the education program are implemented and monitored to protect human health exposure. Since monitoring began in 1999, concentrations of total PCBs in rock sole and blue mussel tissue have declined. The 2021 SLRA (DON 2021b) evaluated the cumulative risks of total PCBs in fish and shellfish for subsistence or recreational fisher receptors using the data from the last two sampling events (2015 and 2017). The results indicate that total PCBs concentrations in fish and shellfish in Kuluk Bay do not represent an unacceptable health risk. In contrast, total PCBs concentrations in rock sole in Sweeper Cove still indicate unacceptable health risk. In 2020, the concentrations of total PCBs in rock fish for both water bodies showed similar concentrations to 2018, and total PCB concentrations in shellfish were below the RBAL in both water bodies (Section 4.2.3). Therefore, the last two monitoring events (2017 and 2020) demonstrate that total PCB concentrations in shellfish from Sweeper Cove and Kuluk Bay are acceptable and not a health concern. Although Sweeper Cove fish tissue exceeds the RBAL, this site will continue to be monitored (DON 2020e).

The remedy is functioning as intended at SWMUs 11, 18/19, and 25. Since monitoring began in 1996, concentrations of COCs in groundwater, surface water, and sediment have declined. Groundwater contaminant concentrations at SWMUs 11, 18/19, and 25 have decreased below endpoint criteria (Table 5-1) for at least the last two consecutive sample events. Surface water monitoring ceased at SWMU 11 in 2009 because endpoint criteria have been met (see Appendix A, Site Catalog). During the last two surface water monitoring events (2014 and 2018) at SWMUs 18/19, the target list of dissolved or total metals detected in surface water did not exceed their respective endpoint criteria (DON 2015). Although some locations for sediment samples at SWMU 11 and surface water samples at SWMU 25 exceed endpoint criteria, sites will continue to be monitored (DON 2020f).

5.1.1.2 Remedial Action Performance at OU A SAERA Sites

The final remedy established under the OU A SAERA DDs has been implemented at all of the 41 petroleum sites, including the 14 free-product sites. Limited soil removals have been completed at all of the petroleum sites selected for this remedy component. Interim remedial action product recovery has been performed at the 14 free-product recovery petroleum sites and the Former Power Plant (Bldg. T-1451). Petroleum site monitoring was conducted and, through adjustments to the CMP with Navy and ADEC concurrence, continues at some sites for the assessment of the remedies of MNA, limited groundwater monitoring, surface water protection, and implementation of ICs. For the OU A SAERA only and combined OU A CERCLA/SAERA sites (Table 1-1 and Table 1-3), compliance monitoring has been discontinued at all sites based on meeting either endpoint criteria or secondary endpoints as listed in the CMPs (DON 2018g; 2020e), except at 12 sites discussed below.

Free product recovery is actively occurring at six sites (NMCB Building T-1416, SA 80, South of Runway 18/36 Area, SWMU 60, SWMU 62, and Former Power Plant [Building T-1451]). The six petroleum sites without free product are actively monitored for natural attenuation are as follows: Arctic Acres, Resident Officer in Charge of Construction (ROICC) Contractors Camp (ROICC-7), SA 79, SWMU 14, Area 303/GCI Compound, and SWMU 61. Within the last 5 years, further site investigation occurred in 2017 at SWMU 60 to address the seep and exceedances in surface water and sediment standards at South Sweeper Creek (Section 4.2.1.1), and in 2016, removal actions were taken at the Former Power Plant (Building T-1451) and SWMU 62 to address exceedances in surface water and sediment standards at East Canal (Sections 4.2.1.2 and 4.2.1.3).

The remedy at SWMU 60 is not functioning as intended; thus, the RAOs are not being achieved and petroleum concentrations may be threatening downgradient ecological receptors. The MNA remedy requires enhancement because of groundwater seeps entering South Sweeper Creek, free product on-site (well 653, a surface water protection well), exceedances of DRO endpoint criteria and TAH and TAqH standards in groundwater, and exceedances of DRO endpoint criteria in sediment. Two seeps impacting South Sweeper Creek at Boom 10 and an odor/sheen in surface water downgradient of well LC5A were observed in 2018 and 2019. In 2018 and 2019, DRO concentrations in groundwater exceeded endpoint criteria at wells 650 and 652. During the same period, TAH and TAqH concentrations in groundwater exceeded endpoint criteria at 651, 652, 653, and LC5A. DRO concentrations in sediment showed a significant increase (1,900 mg/kg to 63,900 mg/kg) from 2018 to 2019. Additional investigation/remediation is warranted to protect ecological receptors in South Sweeper Creek and Sweeper Cove.

The remedies are functioning as intended at the remaining five petroleum sites and six free-product recovery sites. The total volume reported every year for the six free-product sites was below the 5-gallon limit during all of the reporting periods (Table 4-1), except at the Former Power Plant (Building T-1451). As a result of the 2016 removal actions at the Former Power Plant

(Building T-1451) and SWMU 62, the remedies are functioning as intended as supported by the following:

- *Former Power Plant, Building T-1451:* Although groundwater continues to exceed endpoint criteria in four site wells (Appendix C), product recovery and monitoring will continue at this site. The remedy remains protective at the Former Power Plant because there is no reasonable threat to the environment and ICs are in place to protect human health. However, additional investigation may be warranted because sheens are present at the East Canal, indicating a potential plume of dissolved diesel-range hydrocarbons in groundwater may be reaching it, and free product recovery has been consistently over 5 gallons per year.
- *SWMU 62:* Although surface water collected at East Canal exceeded DRO endpoint criteria in 2018 and 2020, and DRO groundwater concentrations in monitoring wells exceed endpoint criteria (Appendix C), the remedy is functioning as intended at SWMU 62, and product recovery and monitoring will continue at this site to assess conditions. Additional support that the remedy is functioning is that no seeps or other reasonable threat to the environment were observed and ICs are in place to protect human health. However, an assessment of the DRO, GRO, and BTEX impacts in the comingling of the Area 303 plume with the SWMU 62, Eagle Bay Housing plume is warranted. Continued product recovery, groundwater monitoring, trend evaluation, downgradient water body visual inspections, and additional investigation to assess if natural attenuation can be reasonably expected to achieve endpoint criteria within 75 years is warranted.

Once every 5 years, the MNA remedies are assessed by NAP monitoring. The MNA remedies appear to be effective and biodegradation appears to be occurring to varying degrees at all of the MNA sites (DON 2019c). In 2018, natural attenuation data indicated that anaerobic biodegradation of petroleum hydrocarbons is likely occurring by iron (II) reduction, sulfate reduction, and methanogenesis at all sites. Where the data support a quantitative estimate (Table 4-1), it appears that natural attenuation can be reasonably expected to achieve endpoint criteria within 75 years of ROD execution at all sites. However, increasing trends of DRO and/or other COCs in groundwater were noted at Area 303/GCI Compound, SA 79, and SA 80. Although increasing trends are occurring at these three locations, ICs prevent use of groundwater as drinking water; thus, human health is protected. At SA 80, ecological exposure pathways are incomplete at the site and downgradient of the site. No exposures to ecological receptors are occurring at the SA 79 and Area 303 sites, but downgradient surface water protection wells are monitored for the protection of ecological receptors at downgradient water bodies.

Trend analysis performed at Area 303 on groundwater results from MNA wells indicate increasing trends at one well, MRP-MW2, located in the northern portion of the plume (a distance away from East Canal). GRO and benzene concentration trends are increasing at the 80 and 95 percent CI and DRO concentrations are increasing at the 80 percent CI. Free product was found at 04-202 (0.04 foot), which is centrally located in the plume. Free product recovery is not occurring at Area 303. Since 2016, surface water protection monitoring at MW-303-37 show DRO, GRO, BTEX, TAH, and TAqH concentrations in groundwater below endpoint criteria. However, the wells directly upgradient (MW303-30) and downgradient (MW-62-16-03) of MW-303-37 exceed endpoint criteria. GRO, ethylbenzene, xylenes, TAH, and TAqH concentrations in groundwater at the surface water protection well, MW-62-16-03, exceed criteria in 2018 and 2019 at increasing concentrations (DON 2020d). GRO, ethylbenzene, xylenes, and lead concentrations in groundwater at MW303-30 exceed endpoint criteria. GRO, TAH, and TAqH concentrations in surface water at NL-09B (sampling for SWMU 62) and DRO concentrations in sediment were below endpoint criteria during 2018 and 2020. No seeps, odors, or sheens were observed at the East Canal from former recovery trench to the northern end

during visual inspections in 2018 and 2019 (Section 4.2.1.2). Although free product has been found in the central portion of the site, and increasing trends of GRO, benzene, and DRO were noted in well MRP-MW-2, no seeps or other reasonable threat were observed to the environment and ICs are in place to protect human health; thus, the remedy is functioning as intended at Area 303. However, an assessment of the DRO, GRO, and BTEX impacts in the comingling of the Area 303 plume with the SWMU 62, Eagle Bay Housing plume is warranted. Continued groundwater monitoring, trend evaluation, downgradient water body visual inspections, and additional investigation to assess if natural attenuation can be reasonably expected to achieve endpoint criteria within 75 years is warranted.

In 2018, a vapor intrusion pathway study was completed in the vicinity of Area 303/GCI Compound and SWMU 62 housing areas to assess vapor intrusion exposures to residents occupying commercial or residential buildings (DON 2019a). Target VOCs were analyzed in samples collected in groundwater from six monitoring wells, soil vapor from 11 soil borings, and air from crawlspaces under buildings (five locations). The study concluded the vapor intrusion pathway is not a health concern. Thus, the remedy is protective for the vapor intrusion pathway.

At SA 79, three wells (MRP-MW8, 601, and 02-230) were monitored during 2016 and 2018. An increasing trend at an 80 percent CI was exhibited at MRP-MW8 (Table 4-1), while 601 is stable and 02-230, the surface water protection well, showed a decreasing trend at an 80 percent CI. In 2016 and 2018, DRO endpoint criteria were exceeded in groundwater collected from all three wells except for 601 in 2018 which had a DRO concentration at the endpoint criteria (1,500 micrograms per liter [µg/L]). NAPs were collected in 2018 and data indicated that natural attenuation is occurring (DON 2019c). Since 2001, no product has been measured in site monitoring wells. In 2016 and 2018, visual inspections of the shoreline of Sweeper Cove from well 02-230 to the mouth of Sweeper Creek found no evidence of petroleum contamination migrating from groundwater to Sweeper Cove. Although an increasing trend was noted in one well, MRP-MW8, no seeps or other reasonable threat to the environment were observed; thus, the remedy is functioning as intended at SA 79. However, groundwater monitoring, trend evaluation, and downgradient water body visual inspections should continue to assess whether natural attenuation can be reasonably expected to achieve endpoint criteria within 75 years or if additional action is warranted.

5.1.1.3 Engineering and Institutional Controls

Over the last 5 years, the LUCs are functioning as intended at OU A based on the results of IC SI reports, responses to site interview questionnaires, and observations noted during the site visit. ICs and ECs are included as components of the remedies for OU A CERCLA and OU A SAERA sites. An ICMP is in place, and IC inspections are routinely performed. The selected ICs include an education program, excavation restrictions monitoring, and downtown area groundwater use restriction monitoring and are inspected annually. The Navy has implemented and maintained LUCs, has periodically verified controls are effective and no exposures are occurring, and has taken corrective action when deficiencies are identified. ECs include landfill caps/covers and ICs include inspection of signage, fencing, and gates. The landfill caps and covers are inspected biennially or every 5 years. Maintenance activities included ongoing repairs to perimeter fences and/or signs to restrict access, and maintenance to landfill caps/covers and surface water runoff controls to prevent or repair areas of erosion.

5.1.2 OU B-1

The remedies are functioning as intended at OU B-1. The remedial actions identified in the OU B-1 ROD for 50 sites have been completed and no further response actions are necessary (DON 2014c). The RAOs have been met and ICs remain in place to ensure human health and the environment are protected. The status of all sites is cleanup complete with ICs.

Over the last 5 years, the ICs are functioning as intended at OU B-1 based on the results of IC SI reports, responses to interview questionnaires, and observations noted during the site visit. ICs include inspections of signage, fencing, and LUCs, and implementation of the Adak Island Ordnance Awareness Program. An ICMP is in place, and IC inspections are conducted on alternating 4- and 6-year intervals. The Navy has implemented and maintained ICs, has periodically verified controls are effective and no exposures are occurring, and has taken corrective action when deficiencies are identified.

5.2 QUESTION B: ARE THE EXPOSURE ASSUMPTIONS, TOXICITY DATA, CLEANUP LEVELS, AND RAOS USED AT THE TIME OF THE REMEDY SELECTION STILL VALID?

The protectiveness of the remedies for OU A CERCLA, OU A SAERA, and OU B-1 sites were evaluated by reviewing recent changes to State and Federal standards, toxicity, risk assessment methods, and exposure pathways compared to those established in the RODs and SAERA DDs. The findings of this evaluation are that changes to Applicable or Relevant and Appropriate Requirements (ARARs) and to risk assessment assumptions over the last 5 years have not impacted the protectiveness of the remedies. Although some ARARs are currently lower than in the past, ECs and ICs are in place to prevent exposures to contaminated soil, groundwater, fish, and shellfish. Ongoing LTM of groundwater, surface water, sediment, and marine tissue will need to continue until COC concentrations are below remedial goals (RGs).

5.2.1 Changes in Standards and To Be Considered(s)

Over the last 5 years, the ARARs that were used in the determination of remedial action levels and for LTM endpoint criteria have been revised. The following updates were made since publication of one or both of the RODs and supplemental DDs:

- Alaska 18 AAC 75 soil and groundwater CULs (ADEC 2018a)
- Federal and state surface water quality criteria (18 AAC 70 ADEC, 2020; Section 304(a) of the Clean Water Act [CWA])
- Federal and state drinking water regulations (maximum contaminant levels [MCLs]; 18 AAC 80 [ADEC 2019])

If an ARAR value has decreased since the remedy was put in place, the remedy requires evaluation because this decreased value may call into question the protectiveness of the remedy. If the ARAR is unchanged or has increased, the remedy remains protective. Changes to ARARs because of changes in the regulations and the associated potential impact to remedy protectiveness are presented below by media for the OU A CERCLA, OU A SAERA, and OU B-1 sites.

5.2.1.1 OU A – CERCLA SITES

The OU A CERCLA sites were divided into three categories: landfills, sites requiring ICs, and sites requiring active cleanup. Specific numeric RGs for soil, groundwater, or surface water were not established in the ROD, but were based on state and federal criteria. For ongoing monitoring of

groundwater, surface water, and sediment, "endpoint criteria" were established in the CMPs prior to sampling under Navy and stakeholder oversight to provide comparison values for contaminants included in the monitoring program.

Soil: Over the last 5 years, soil ARARs have changed and could potentially call into question the protectiveness of the soil removal actions that occurred at CERCLA sites, but only if historical ARARs were higher than current soil CULs and if the sites were without ICs and ECs. However, because the Navy currently maintains ICs at CERCLA sites (Table 1-1 and Table 1-3) that restrict land use and soil excavation to prevent human health exposure to any potential residual site contaminants, any changes to soil ARARs do not impact the protectiveness of the remedies. Also, some landfills have been capped with clean soil to prevent human and ecological exposures. For those sites without ICs the current status is NFA. An evaluation of potential ARAR or risk assessment changes for CERCLA sites designated as NFA is discussed in Section 5.2.3.1.

Groundwater: The OU A ROD established the federal MCLs or state criteria (18 AAC 75.345 Table C) as the groundwater monitoring endpoint criteria. In the last 5 years, the federal MCLs remain unchanged, but the Alaska groundwater CULs have decreased for several VOCs and PAHs that are site COCs (Table 5-1). The endpoint criteria listed in Table 5-1 are the current and relevant ARARs for groundwater and have been incorporated in Revision 8 of the CMP (DON 2020e).

The federal MCLs are lower than current state criteria for 1,1-dichloroethene, trans-1,2-dichloroethene, PCE, and toluene (Table 5-1). Monitoring for chlorinated solvents (PCE and daughter products) only occurred at two CERCLA sites, SWMU 17 (Power Plant No. 3) and SWMU 55 (Public Works Transportation Department Waste Storage Area). Since the last Five-Year Review, monitoring has been discontinued at these two sites because secondary endpoints have been met as prescribed in the CMP (i.e., decreasing concentrations at a predictable rate with a degree of confidence of at least 80 percent and the exceedances pose no reasonable threat to downgradient receptors). Although groundwater concentrations remain above federal MCLs or state criteria, the remedy remains protective because ICs prevent groundwater use as drinking water.

Surface Water: In addition to the groundwater standards discussed above, the OU A ROD established state (18 AAC 70) and federal (40 Code of Federal Regulations 131.36) surface water quality standards as the monitoring endpoint criteria for groundwater monitoring locations between impacted areas and downgradient surface water. Groundwater monitoring for protection of surface water was established at SWMUs 14, 15, 17, and 55 and at all four landfills (SWMUs 11, 13, 18/19, and 25). Site surface water sampling has been conducted at some CERCLA sites (SWMUs 11, 18/19, and 25) for comparison to surface water quality standards.

Surface water quality criteria have changed since the time of the OU A ROD. The fourth Five-Year Review recommended an ESD be prepared to address changes to state surface water criteria. In addition, the applicability of the federal CWA Ambient Water Quality Criteria and ADEC Solid Waste Program regulations were considered (DON 2018f). Table 4-5 lists the COCs, surface water monitoring endpoint criteria, and the source of the value formalized in the ESD for the OU A ROD for SWMUs 11, 18/19, and 25 (DON 2018f). The endpoint criteria listed in Table 4-5 are the current and relevant ARARs for surface water, they have not changed since the ESD, and have been incorporated in Revision 8 of the CMP (DON 2020e). Thus, the remedy remains protective because the CMP is updated on a regular basis.

The Alaska surface water quality level of 2,000 mg/kg for barium was added to the Revision 8 CMP (DON 2020e). The federal surface water quality criterion of 1,000 mg/kg for barium is lower and should be considered since monitoring is being done at a CERCLA site.

Groundwater monitoring for protection of surface water has been discontinued at SWMUs 14, 15, 17, and 55 because criteria have been met. The remedy remains protective at SWMUs 14, 15, 17, and 55 because the groundwater values protective of surface water have not changed in the last 5 years. Surface water monitoring has been discontinued at SWMU 11 because criteria have been met and monitoring continues at SWMUs 18/19 and 25. The surface water endpoint criteria listed in Table 4-5 are the current and relevant ARARs, they have not changed since the ESD, and have been incorporated in Revision 8 of the CMP (DON 2020e). Thus, the remedy remains protective because the CMP is updated on a regular basis. Risk that is potentially attributable to SWMUs 11 and 13 is assessed as part of the monitoring program established for Kuluk Bay (see Risk-based RGs in Marine Tissue Section 5.2.3.4).

Sediment: The OU A ROD CULs for sediment removal at the SWMU 17 waste oil pond were based on 18 AAC 75.341 soil criteria (protective of groundwater for antimony and mercury) for the following site COCs: Aroclor 1260 (1 mg/kg), antimony (3 mg/kg), and mercury (1.24 mg/kg). To achieve ecological protection, the pond surface water was removed, COC-impacted sediments were excavated, and the pond was completely filled in with clean fill. Since the OU A ROD was signed, the PCBs soil CUL of 1 mg/kg has not changed, the antimony soil CUL has increased to 4.6 mg/kg, and the mercury (elemental) soil CUL has decreased to 0.36 mg/kg. Although the mercury CUL has decreased the remedy remains protective of ecological receptors because any potential residual site contaminants were covered with clean fill. A CUL of 1 mg/kg for total PCBs in sediment at the SWMU 17 retention pond was based on 18 AAC 75.341 soil CUL and it has not changed since the OU A ROD was signed.

Both fresh and marine sediments were included in LTM at SWMU 11. The endpoint criteria listed in Table 5-2 are based on the Long et al. study (1995) and risk-based values from the PSE-2 process (DON 1996b). Section 5.2.2 discusses new information concerning the endpoint criteria for total PCBs in freshwater sediments. Section 5.2.3.3 discusses the risk-based RGs for COCs in surface water and sediment.

5.2.1.2 OU A – SAERA Sites Without Free-Product

The 41 petroleum release sites that required cleanup decisions are being administered by State-led cleanup regulations through SAERA, which were removed from the OU A ROD in 2003 (DON 2003). In 2012, Area 303 was added and grouped with the GCI Compound (DON 2012a). The 41 OU A SAERA sites are composed of 27 sites without free product and 14 sites with free product (Table 1-1 and Table 2-3).

The ROD RGs for the 27 petroleum sites without free product were based on Alaska state regulations 18 AAC 75.340, 341, and 345 for soil and groundwater, respectively (DON 2000). The remedial objective of the limited soil removal from 12 petroleum sites was to meet 18 AAC 75 Method Two criteria for DRO and these criteria have not changed since the ROD was signed. In the last 5 years, the Alaska groundwater CULs for the site-related contaminants have changed including the lowering of some CULs (Table 5-1). However, the remedy remains protective because ICs are in place preventing groundwater use as a potential future drinking water source. At some sites groundwater monitoring criteria have been met and ICs are no longer required (Table 1-1). The current and relevant Alaska ARARs for groundwater (18 AAC 75.345, Table C, October 27, 2018) have been incorporated in Revision 8 of the CMP (DON 2020e). An evaluation of potential ARAR or risk assessment changes for OU A SAERA sites designated as NFA is discussed in Section 5.2.3.1.

5.2.1.3 OU A – SAERA SITES WITH FREE-PRODUCT

There are 14 free-product SAERA sites. The following four free-product sites were found to pose unacceptable risk to human health and/or the environment: NMCB Building Area (T-1416 Expanded Area), South of Runway 18-36 Area, SWMU 62 (New Housing Fuel Leak), and SWMU 17 (Power Plant No. 3 Area). The remaining 10 free-product sites that pose no unacceptable risk to human health or the environment under current land use conditions are listed in Table 2-3. The RGs for these 14 free-product sites were established in the DDs (DON and ADEC 2005; 2006a; 2006b; 2006d; 2006c; DON 2012a).

Soil: Under Method Four, the ADEC may approve site-specific ACLs based upon results of the risk assessment conducted for an individual site (18 AAC 75.340[f]). Because the risk assessments completed for all free-product sites, except NMCB Building Area (T-1416 Expanded Area) and SWMU 62 (New Housing Fuel Leak), found that the concentrations in soil do not pose a risk to humans or the environment above target health goals, separate ACLs were not calculated, and, by default, the existing contaminant levels at each site are considered protective. An evaluation of the risk assessment findings of no unacceptable risk sites and of the soil risk-based levels calculated for the NMCB Building Area (T-1416 Expanded Area) and SWMU 62 (New Housing Fuel Leak) is discussed in Section 5.2.3.2.

Groundwater: The groundwater RGs established in the DDs for the 14 free-product sites (including the NMCB Building and South of Runway 18-36) were the groundwater CULs for current use or the reasonably expected potential future use of the groundwater as a drinking water source (18 AAC 75.345[b][1], Table C), or 10 times these levels if the groundwater is not reasonably expected to be a potential future source of drinking water (18 AAC 75.345[b][2] dated 1999). However, in 2008, changes to 18 AAC 75 revoked the 10 times groundwater rule. Thus, current Alaska groundwater CULs (18 AAC 75.345[b][1], Table C) are applicable to all 14 free-product sites (Table 5-1).

Since the DDs were signed and in the last 5 years, the Alaska groundwater CULs for the site-related contaminants have changed, including the lowering of some CULs (Table 5-1). However, the remedy remains protective because ICs are in place at all 14 free-product sites preventing groundwater use as a potential future drinking water source. The current and relevant Alaska ARARs for groundwater (18 AAC 75.345, Table C, October 27, 2018) have been incorporated in Revision 8 of the CMP (DON 2020e).

Surface Water and Sediment: For surface water bodies of the state, Alaska regulation 18 AAC Chapter 70 establishes water quality standards based on water use classes and subclasses. The water quality standards established for this use class and subclass specify that petroleum hydrocarbons, oils, and grease may not cause a film, sheen, or discoloration on the surface or floor of the water body or adjoining shorelines and that surface waters must be virtually free from floating oils (18 AAC 70.020[b][5][B][ii]). Alaska also requires TAH and TAqH standards to be met. These standards or ARARs have not changed.

In addition to water quality standards specified in 18 AAC Chapter 70, site-specific surface water and sediment ACLs were established for the South of Runway 18-36 Area for protection of ecological receptors in South Sweeper Creek (DON and ADEC 2006b). An evaluation of the risk-based levels is discussed in Section 5.2.3.3.

5.2.1.4 OPERABLE UNIT B-1

Part of the remedy at OU B-1 for 7 of the 24 observational approach and presumptive clearance sites (C3-01A, C3-04A, C6-01A, C8-01, C8-05A, LJ-01, ML-02B) was to excavate soil to meet residential soil CULs for the ordnance COCs (DON 2001). However, soil excavation was not necessary at these seven sites because the 2001 sampling results of ordnance-related chemicals were below the laboratory reporting limits or the practical quantitation limits (DON 2002).

Table 5-3 compares the current soil ARARs, EPA's residential soil RSLs (EPA 2021), with those presented in the OU B-1 ROD (DON 2001). The current residential soil RSLs of 6.3 mg/kg for nitroglycerin and of 160 mg/kg for tetryl are lower than those established in the ROD necessitating an evaluation of remedy protectiveness under present RSLs. The laboratory reporting limits and the practical quantitation limits for the 2001 sampling results were not available to review. Reporting limits for the 2002 sample results from Combat Range 8, Finger Bay Area, and Mount Moffit ranged from 6.9 mg/kg to 11 mg/kg for tetryl and ranged from 6.7 mg/kg to 11 mg/kg for nitroglycerin. Therefore, there is no issue with tetryl because the reporting limits were likely similar and are below the current residential RSL. The current land use at the OU B-1 sites is recreation and wildlife management and projected future use includes subsistence (DON 2001). The 2019 IC inspection at C3-01A did not observe residential use (DON 2020c). Although the reporting limits for nitroglycerin were slightly higher than the residential soil RSL, the remedy remains protective at OU B-1 sites under current land use because recreational receptors would spend significantly less time at the site compared to a resident living at the site (70 years and 350 days/year), which is what the residential RSL is based on. The remedy also remains protective of future land use given the 2001 and 2002 soil sampling results were not detected for ordnance-related compounds, and ICs and associated land use restrictions are in place (DON 2014c).

5.2.2 Changes in Toxicity and Other Contaminant Characteristic

COCs with new toxicity values that impact human health and have been updated by the EPA since the 18 AAC 75 revision of October 27, 2018 are as follows:

- The inhalation noncancer toxicity value (Provisional Peer-Reviewed Toxicity Values) for trans-1,2-dichloroethylene was added during the EPA RSLs update in November 18, 2020. Specific potential impacts to ARARs are as follows:
  - The addition of the noncancer toxicity value could potentially lower the calculated residential PAL of 790 µg/m3 and VISL of 41.7 used in the 2018 VI Report. However, the remedy remains protective because there were no detections of trans-1,2-dichloroethylene in soil vapor or crawlspace vapor samples. Also, there were no detections of trans-1,2-dichloroethylene in the two groundwater results collected from MW-134-10 and MW-187-1.
  - The Alaska Method Two Groundwater CUL will likely decrease due to the addition of the inhalation noncancer value; however, trans-1,2-dichloroethylene is no longer included in the groundwater monitoring program because endpoint criteria have been met and ICs are in place to protect human health so there are no impacts to the remedy (see Section 5.2.1.1).
- The oral cancer toxicity value (California EPA) for naphthalene was added to the EPA RSLs update in May 18, 2020. The potential impact related to naphthalene is the lowering of the Alaska Method Two groundwater CUL. However, naphthalene is no longer included in the groundwater monitoring program and ICs are in place to protect human health so there is no impact to the remedy at the sites where naphthalene is a COC.

New information was released in 2018 regarding total PCBs in sediment and this new information has potential impact to the selected remedy of sediment monitoring for ecological health at SWMU 11. As listed on Table 5-2, the sum of PCB concentrations in sediments at SWMU 11 are compared against endpoint criteria based on the Long et al. study (1995). Since this study was performed, the EPA has provided a new total PCBs value of 0.06 mg/kg in 2018 for freshwater sediments (EPA 2018). The 0.06 mg/kg total PCBs freshwater sediment value is a threshold effect concentration (TEC) of 0.0598 mg/kg from MacDonald et al 2003 (FDEP 2003) and is a consensus-based value that considered available information (including Long et al. [1995]). There is no impact to the remedy because this value is higher than the 0.0227 mg/kg currently used for endpoint criteria to monitor freshwater sediments at SWMU 11. However, because this higher value of 0.06 mg/kg is protective of ecological receptors, this value could potentially be used as the endpoint criterion for freshwater sediment at the landfill to meet RAOs in a shorter timeframe. The endpoint criterion for marine sediment has not changed and would remain at 0.0227 mg/kg.

5.2.3 Changes in Risk Assessment Methods

Risk assessment assumptions (both human and ecological) were reviewed as part of the requirement to assess the continued protectiveness of the remedies. In general, human health and ecological risk assessment methods have not changed over the last 5 years. An evaluation of the OU A NFA sites and risk-based CULs are included below.

5.2.3.1 No Further Action Sites

No action was required at 31 CERCLA sites and 80 petroleum sites, which included 16 NFA sites that were part of the 62 petroleum sites moved to SAERA (DON 2003). An extensive evaluation of NFA sites was performed in Section 7.2.1 of the third Five-Year Review and is not repeated here (DON 2011b). Petroleum-related chemicals and metals found at NFA sites were compared to migration-to-groundwater levels which are much lower than the Alaska human health risk-based CULs. It was concluded in the third Five-Year Review that additional actions are not needed at the sites based on the evaluation performed and the NFA status remains appropriate.

5.2.3.2 Risk-based RGs for COCs in Soil

The risk-based RGs (Table 5-4) in soil remain protective for the NMCB Building Area (T-1416 Expanded Area) and SWMU 62 (New Housing Fuel Leak) sites provided that ICs remain in place restricting excavation and change in land use. For the NMCB Building Area (T-1416 Expanded Area), the soil RGs are based on the ACLs calculated for DRO and GRO protective of construction worker exposures to soil (DON and ADEC 2006a). The soil RG for SWMU 62 (New Housing Fuel Leak) is based on the ACL calculated for DRO protective of child residential exposures to soil (DON and ADEC 2006c). There have been no changes to risk assessment methods in the last 5 years. The third and fourth Five-Year Reviews (DON 2011b; 2016a) indicated that human health risk levels would be impacted due to Adak changing from an active military base to civilian and due to revisions to the EPA's exposure parameters in 2014. No significant impacts to these RGs were noted because ICs are in place to protect receptors from exposure to residual contaminants in soil at the NMCB Building Area (T-1416 Expanded Area) and SWMU 62 (New Housing Fuel Leak).

5.2.3.3 Risk-based RGs for COCs in Surface Water and Sediment

Total PCBs was the only COC in sediments at South Sweeper Creek in the OU A ROD. The total PCBs CUL of 1 mg/kg (dry weight) was the ecological risk-based value established in the ROD for protection of benthic organisms. There were no changes to ecological risk methods in the last 5 years that impact this CUL.

LTM of fresh and marine sediments was included in the OU A ROD to evaluate the effectiveness of the landfill cover (i.e., part of the ECs) at SWMU 11 (Table 5-2). No COC or RG was established in the ROD for SWMU 11. Endpoint criteria were originally established in the CMP based on the lower of the human or ecological risk-based levels used to screen sites in the PSE-2 process (DON 1996b) and later revised based on recommendations from the second Five-Year Review that determined the PSE-2 risk-based levels were overly protective. Table 5-2 presents the original sediment endpoint criteria based on the PSE-2 process, Alaska soil CULs (18 AAC 75.341), and the current sediment CULs are risk-based values listed in Revision 8 CMP that have been accepted by the Navy and stakeholders (DON 2020e). As discussed in Section 5.2.2, new information was provided by the EPA in 2018 that potentially could lead to higher endpoint criterium for total PCBs for freshwater sediment in order to meet RAOs in a shorter timeframe.

In addition to water quality standards specified in 18 AAC Chapter 70, site-specific surface water and sediment ACLs were established for the South of Runway 18-36 Area for protection of ecological receptors in South Sweeper Creek (DON and ADEC 2006b). Table 5-5 summarizes the ACLs and the basis. The remedy remains protective because there were no changes to ecological risk methods in the last 5 years that impact the ACLs.

5.2.3.4 RISK-BASED RGS FOR COCS IN MARINE TISSUE

The OU A ROD established human health risk-based RGs, protective of subsistence fishers, for monitoring of PCBs in fish and shellfish tissue sampled from Kuluk Bay and Sweeper Cove. The total PCB RGs were calculated as 6.5 µg/kg and 31 µg/kg for fish and shellfish, respectively. The oral cancer slope factor (CSF_o or SFO) of 2.0 $(mg/kg\text{-}day)^{-1}$ for total PCBs has not changed since the ROD (EPA 2021). During the fourth Five-Year Review period, the EPA modified the body weight (kilograms) and exposure duration (years) exposure parameters (EPA 2014 OSWER 9200.1-120), thus, the fourth Five-Year Review recommended that an ESD be prepared to revise the monitoring endpoint criteria for fish and shellfish tissue. Based on these re-calculations, the endpoint criteria are 11.1 µg/kg for fish and 53.8 µg/kg for shellfish and were finalized in the ESD (DON 2018f). These criteria are current and have been incorporated in Revision 8 of the CMP (DON 2020e). These criteria are protective of the remedy because the revised RGs are higher than the original ROD RGs.

5.2.4 Changes in Exposure Pathways

No changes in exposure pathways occurred that would impact the protectiveness of the remedies at OU A and OU B-1. Land use and expected future land use has not changed. There were no newly identified human health or ecological receptors or routes of exposure. There were no newly identified site contaminants since the last Five-Year Review. The EPA provides technical fact sheets for several emerging chemicals and federal facility COCs that have existing federal and state guidelines.[1] The only chemicals listed by the EPA that are applicable to OU A and OU B-1 sites are PFOS and PFOA, and ordnance-related compounds which have already been or are in the process of being addressed. Navy currently includes perfluorobutane sulfonate as a PFAS chemical of interest at sites.

5.2.5 Expected Progress Towards Meeting RAOs

All OU A CERCLA sites and SAERA sites have met or are expected to meet RAOs within 75 years, except SWMU 60. However, SWMU 60 will meet RAOs once additional action is taken.

[1] https://www.epa.gov/fedfac/emerging-contaminants-and-federal-facility-contaminants-concern.

OU B-1 remedial actions have been completed, according to the final report August 2014 (DON 2014c). As summarized in Sections 3 and 4, investigations and remedial actions were completed between 2001 and 2010, and the sites have received ROD action completed certification and are candidates for NPL deletion.

5.3 QUESTION C: HAS ANY OTHER INFORMATION COME TO LIGHT THAT COULD CALL INTO QUESTION THE PROTECTIVENESS OF THE REMEDY?

Other than previously described, there is no other information that could call into question the protectiveness of the remedies.

Table 5-1: Endpoint Criteria for Groundwater at CERCLA and SAERA Sites

Analyte	Current Federal MCL [a] (µg/L)	2016 Alaska CUL (µg/L)	Current Alaska CUL [b] (µg/L)	Included in Revision 8 CMP? (Yes/No)
Petroleum Hydrocarbons				
GRO (AK 101)	Not applicable to SAERA sites	2,200	2,200	Yes; SAERA
DRO (AK 102)		1,500	1,500	
TAH [c]		10	10	
TAqH [c]		15	15	
Volatile Organic Compounds [d]				
Benzene	5	5	**4.6**	Yes; SAERA
Dichloroethene, 1,1-	7	7	280	No
Dichloroethene, cis-1,2-	70	70	**36**	No
Dichloroethene, trans-1,2-	100	100	360	No
Ethylbenzene	700	700	**15**	Yes; SAERA
Tetrachloroethylene	5	5	41	No
Toluene	1,000	1,000	1,100	Yes; SAERA
Trichloroethene	5	5	**2.8**	No
Vinyl chloride	2	2	**0.19**	No
Xylenes (total)	10,000	10,000	**190**	Yes; SAERA
Inorganics				
Aluminum	Not applicable to landfills	None	None	Yes; CERCLA
Antimony		7.8	7.8	
Arsenic		0.52	0.52	
Barium		3,800	3,800	
Beryllium		25	25	
Chromium [e]		22,000	22,000	
Copper		800	800	
Lead	15	15	15	Yes; SAERA & CERCLA
Mercury	Not applicable to landfills	0.52	0.52	Yes; CERCLA
Nickel		390	390	
Selenium		100	100	
Silver		94	94	
Thallium		0.20	0.20	
Zinc		6,000	6,000	

Analyte	Current Federal MCL [a] (µg/L)	2016 Alaska CUL (µg/L)	Current Alaska CUL [b] (µg/L)	Included in Revision 8 CMP? (Yes/No)
Polycyclic Aromatic Hydrocarbons				
Fluorene	None	1,460	**290**	No
Indeno(1,2,3-c,d)pyrene		1	**0.19**	
Naphthalene		700	**1.7**	
Phenanthrene		11,000	**170**	
Pyrene		1,100	**120**	

Note: **Bold** values in the current Alaska cleanup level column have decreased in the last 5 years.
MCL maximum contaminant level
CUL cleanup level
[a] Federal Maximum Contaminant Level (MCL) National Primary Drinking Water Regulations (40 CFR 141 Subpart G).
[b] Alaska Department of Environmental Conservation groundwater cleanup level (CUL) as listed on Table C, 18 AAC 75.345 dated 10/27/2018. These are human health risk-based levels.
[c] Total aromatic hydrocarbons (TAH) and total aqueous hydrocarbons (TAqH) ROD/DD endpoint criteria are based on Alaska Department of Environmental Conservation water quality standards as specified in 18 AAC 70.
[d] The Federal MCLs for 1,1-dichloroethene, trans-1,2-dichloroethene, tetrachloroethylene, and toluene are lower than Alaska Department of Environmental Conservation groundwater CULs.
[e] Total chromium is compared to the chromium III cleanup level.

Table 5-2: Endpoint Criteria for Sediments at SWMU 11

Analyte	Historical Endpoint Criteria	Basis	Rev 7 or Rev 8 CMP Endpoint Criteria (mg/kg) [a]	Basis	Included in Rev 8 CMP? (Yes/No)
Semivolatile Organic Compounds					
Benzo(a)anthracene	0.0875	HH RBSC [c]	1.7	Long et al. 1995 [b] HMW PAHs	No
Benzo(a)pyrene	0.00875				
Benzo(b)fluoranthene	0.0875				
Benzo(g,h,i)perylene	821				
Benzo(k)fluoranthene	0.875				
Indeno(1,2,3-cd)pyrene	0.0875				
Bis(2-ethylhexyl)phthalate	4.56	HH RBSC [c]	4.56	HH RBSC [c]	No
PCB Aroclors					
Sum of PCBs as Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260	0.005	Eco RBSC [c]	0.0227	Long et al. 1995 [b]	Yes
Total Inorganics					
Antimony	2	Eco RBSC [c]	2	Eco RBSC [c]	Yes
Arsenic	0.0365	HH RBSC [c]	8.2	Long et al. 1995 [b]	Yes
Chromium	80 – freshwater 260 – marine	Eco RBSC [c]	81	Long et al. 1995 [b]	No
Nickel	30	Eco RBSC [c]	20.9	Long et al. 1995 [b]	Yes

Eco ecological
HH human health
HMW high molecular weight
[a] Total organic carbon normalization is not required for comparison to endpoint criterion.
[b] Long, E.R., D.D. MacDonald, S.L. Smith, and F.D. Calder. 1995. Incidence of Adverse Biological Effects Within Ranges of Chemical Concentrations in Marine and Estuarine Sediments. Env. Manage. 19(1):81-97. See Section 5.2.2 which discusses new information concerning the endpoint criteria for total PCBs.
[c] Final Preliminary Source Evaluation 2 Guidance Document for Adak (DON 1996b).

Table 5-3: Soil Cleanup Levels for Ordnance Compounds at OU B-1 Sites

Chemical	ROD-Specified Soil Cleanup Level (mg/kg)	2020 Residential Soil RSLs (mg/kg)
Dinitrotoluene (mixture)	0.72	0.8
Nitroglycerin	35	**6.3**
Nitroguanidine	6,100	6,300
RDX (cyclonite or hexahydro-1,3,5-trinitro-1,3,5-triazine)	4.4	8.3
Tetryl (trinitrophenylmethylnitramine)	610	**160**
Trinitrotoluene, 2,4,6-	18	21

Note: **Bold** values have decreased since the time of the 2001 OU B-1 ROD.
RSL Regional Screening Level (based on a cancer risk level of 10^{-6} [EPA 2021])

Table 5-4: Site-Specific Alternative Cleanup Levels for Soil at Free-Product Sites

Chemical	Site-Specific ACL for Soil (mg/kg) [a]	Basis for Soil [a]
NMCB Building Area, T-1416 Expanded Area		
Diesel range organics	31,000	18 AAC 75.340(a)(4)
Gasoline range organics	1,700	18 AAC 75.340(a)(4)
SWMU 62, New Housing Fuel Leak		
Diesel range organics	6,111	18 AAC 75.340(a)(4)

ACL alternative cleanup level
[a] Soil cleanup levels are based on ADEC Method Four, a calculated site-specific risk value discussed in the text.

Table 5-5: Site-Specific Alternative Cleanup Levels for Surface Water and Sediment at South of the Runway 18-36 Area

Chemical	Site-Specific ACL for Surface Water (µg/L)	Basis for Surface Water	Site-Specific ACL for Sediment (mg/kg)	Basis for Sediment
Chemicals Included in Revision 8 CMP				
Diesel range organics	0.014 (0.25)	Eco RBSC (PQL) [a]	90.6	Eco RBSC [b]
Gasoline range organics	114	Eco RBSC [b]	12.2	Eco RBSC [b]
TAH	10	18 AAC 70	—	—
TAqH	15	18 AAC 70	—	—
Chemicals Not Included in Revision 8 CMP				
Indeno(1,2,3-cd)pyrene	0.28	Eco RBSC [b]	—	—
2-Methylnaphthalene	—	—	0.0202	Eco RBSC [b]
Phenanthrene	—	—	0.225	Eco RBSC [b]

mg/L milligram per liter
PQL practical quantitation limit
[a] The practical quantitation limit (PQL) for DRO test method AK102 is 0.25 µg/L. The PQL of 0.25 µg/L was set as the surface water cleanup level for DRO because the risk-based cleanup level of 0.014 µg/L is lower (DON and ADEC 2006b).
[b] Ecological risk-based concentration established in the decision document.

6. Issues, Recommendations, and Follow-up Actions

Issues identified during the SI and interviews are listed in Table 6-1.

Table 6-1: Issues and Recommendations

OU(s):	SAERA Site, SWMU 60, Tank Farm A			
Issue Category:	Remedy Performance			
Issue:	The MNA remedy requires enhancement because of groundwater seeps entering South Sweeper Creek, free product on-site (well 653, a surface water protection well), exceedances of DRO endpoint criteria and TAH and TAqH standards in groundwater, and exceedances of DRO endpoint criteria in sediment. The presence of two petroleum seeps was observed every year impacting South Sweeper Creek and DRO concentrations in sediment showed a significant increase (1,900 mg/kg to 63,900 mg/kg) from 2018 to 2019. Thus, sediment conditions in South Sweeper Creek and free product observed in groundwater adjacent to South Sweeper Creek at SWMU 60 suggest the remedy may not be functioning as intended.			
Recommendation:	Perform a remedy enhancement by installing an OBB to mitigate migration of petroleum hydrocarbons to surface water. The OBB design is complete and construction is anticipated for 2022 (DON 2021a).			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
Yes	Yes	Federal Facility	ADEC	12/31/2023

OBB oleophilic bio-barrier

6.1 OTHER FINDINGS

In addition, the following recommendations were identified during the Five-Year Review and may improve performance of the remedy, improve management of O&M, and accelerate site close out, but do not affect current and/or future protectiveness:

- Based on the 2017 and 2020 marine tissue monitoring results, the current fish consumption advisories for Sweeper Cove will be maintained and the advisory for rock sole from Kuluk Bay will be removed.
- The next version of the CMP will be revised to require that the 95 percent upper confidence level be used as a comparison to the RBAL in the marine monitoring sampling and analysis plan for decision-making purposes. This revision to the CMP will be completed prior to the next marine monitoring event, which is planned for 2025.
- At Former Power Plant, Bldg. T-1451, the free product recovery remedy remains protective because there is no reasonable threat to the environment and ICs are in place to protect human health. Although recoverable free product has occurred consistently above the 5-gallon limit during all reporting periods, and pooled product has emerged along East Canal (specifically around Boom 13), no seeps or petroleum sheen were observed in 2018 and 2019, and DRO concentrations in groundwater are either stable or decreasing. Therefore, product recovery and monitoring will continue and additional investigation is warranted because sheens are present at the East Canal, indicating that a potential plume of dissolved diesel range hydrocarbons in groundwater is reaching it. Additional source investigation, product identification/fingerprinting, and natural source zone depletion evaluation data were collected in summer 2021.
- At Area 303/GCI Compound and SWMU 62, New Housing Fuel Leak Area, both sites remain protective with no threat to the environment and ICs are in place to protect human health. However, an assessment of the DRO, GRO, and BTEX impacts in the comingling of the Area 303 plume with the SWMU 62, Eagle Bay Housing plume is warranted. Additional source investigation, product identification/fingerprinting, and natural source zone depletion evaluation data were collected in summer 2021.

- At SA 79, although an increasing trend was noted in one well, MRP-MW8, no seeps or other reasonable threat to the environment was observed; thus, the remedy is functioning as intended at SA 79. However, groundwater monitoring, trend evaluation, and downgradient water body visual inspections should continue to be assessed if natural attenuation can be reasonably expected to achieve endpoint criteria within 75 years or if additional action is warranted.
- At South of Runway 18-36, Table 15-1 of the CMP, Rev. 8 indicates a method detection limit of 11 µg/L for DRO in surface water but the alternate cleanup level (ecological risk-based screening concentration) identified in the DD is 0.014 µg/L (Table 5-5). An assessment of the method detection limit versus the ACL should be completed and the ACL should be reevaluated.
- *Education Program:* Based on survey information, most of the resident population and visitors interviewed were aware of most portions of the program. However, to continue to improve the education program and increase IC awareness, the Navy will i) continue to regularly update obsolete information in the Airport UXO video, ii) post IC awareness materials at other public spaces such as Pier-5 and the small boat harbor, and iii) remove obsolete and/or incorrect signs.
- *Excavation Notification:* Any kind of soil disturbance requires an excavation notification regardless of depth and excavation method (including hand digging). Some soil disturbances occurred at some sites without an excavation notification having been completed for the work. This did not affect the protectiveness of the sites because the restriction in these areas is no excavation below 2 feet, and the excavation did not exceed that depth. At SWMU 62 and SWMU 67, landowners or land users should be notified and educated on the IC program to ensure excavation notifications are submitted prior to excavating. The Navy will continue to improve the excavation restriction program by determining if a provision to the excavation notification forms is needed to include installing and maintaining fall hazard protection, and to develop new signs for the non-landfill sites with absolute excavation prohibition.
- *Sign Updates:* maintain the program of replacing signs each fall in real-time associated with the site inspections. These efforts for the last several years are documented in the Adak IC Repairs Summary (DON 2020g). Fence repair may be warranted at OU A landfill sites and will be evaluated after the 2021 site inspection.
- In 2008, the ADEC revoked the 10 times rule in 18 AAC 75. Thus, current Alaska groundwater CULs (18 AAC 75.345[b][1], Table C) are applicable to all 14 free-product sites including the NMCB Building and South of Runway 18-36 (Table 5-1). However, the remedy remains protective because ICs are in place. The current and relevant Alaska ARARs for groundwater (18 AAC 75.345, Table C, October 27, 2018) have been incorporated in Revision 8 of the CMP (DON 2020e).
- At SWMU 11, no COC or RG was established in the ROD. Over the last 20 years of monitoring, sample results for antinomy, arsenic, and nickel have been at consistent levels at sample locations 101, 102, and 103. Sediment sample 102 was the only sample for which concentrations of target metals were observed to be above CUL. Sample location 103 is downgradient of location 102 and represents potential impact to marine sediments. No other samples had target metals exceeding a CUL, which indicates that the exposure pathway for ecological risk in Kuluk Bay is not complete. Because the summation of PCB Aroclor concentrations, antimony, arsenic, and nickel are consistently above CULs at sample location 102, the Navy recommended that sediment monitoring of these COCs be continued biennially at the three current locations.
- At SWMU 4, based on the 2018 lake level study showing that the landfill could be impacted, the Navy is planning an armoring effort to protect the landfill and is currently planned for 2022.
- The Navy finalized the Adak-wide PFAS PA (Final PA in July 2021) and the Draft PFAS SI at SWMUs 16, 32, and 33 was submitted in September 2021.

7. Protectiveness Statement

PROTECTIVENESS STATEMENT(S)	
Operable Unit: OU A	*Protectiveness Determination:* Short-term Protective
Protectiveness Statement: The OU A ROD-specified remedies (DON 2000) are protective of human health and the environment for the chemicals of concern identified therein. No exposure is occurring at these sites because all exposure pathways that could result in unacceptable risks are being controlled through the implementation of ICs and, where applicable, ECs. ICs and ECs are assessed biennially or every 5 years to ensure the remedy remains protective. The emerging chemical PFAS has been identified at OU A SWMUs 16, 32, and 33. A remedy has not been established for PFAS and the evaluation is ongoing. The OU A ROD has established ICs for non-PFAS impacts and these ICs are effective for PFAS at this time. Based on these conditions, the OU A ROD remedies are short-term protective for PFAS.	
Operable Unit: SAERA	*Protectiveness Determination:* Will be Protective
Protectiveness Statement: The SAERA OU remedies will be protective once the 2022 construction of oleophilic bio-barrier at SWMU 60 is complete. With the exception of petroleum at SAERA Site SWMU 60, Tank Farm A, no exposure is occurring at these sites because all exposure pathways that could result in unacceptable risks are being controlled through the implementation of ICs. For these sites, the IC component of the remedy is protective and is expected to remain so as long as the ICs are maintained. ICs are assessed biennially or every 5 years to ensure the remedy remains protective. The significant sediment DRO increase at SWMU 60 represents an exposure pathway that needs to be addressed. Under SAERA, follow-up actions are recommended with respect to DRO at SWMU 60, Tank Farm A, to ensure the remedy is protective due to the presence of a sheen on the adjacent surface water body and sediment impacts. The remedy at SWMU 60, Tank Farm A, will be protective once the planned 2022 enhancement action has been completed.	
Operable Unit: OU B-1	*Protectiveness Determination:* Protective
Protectiveness Statement: The OU-B-1 is protective of human health and the environment. The RAOs were determined to have been achieved and ongoing ICs ensure that human health and the environment are protected. The remedy for OU B-1 is protective of human health and the environment as long as ICs remain in place to control potential exposure pathways that could result in unacceptable risks.	

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8. Next Review

The next Five-Year Review report for the Former Adak Naval Complex Superfund Site is required 5 years from the completion date of this review.

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9. Certification of Protectiveness/Signature

Based on the information provided in this Five-Year Review report, the Navy certifies that the remedies selected for OU A, SAERA, and OU B-1 sites at the former Adak Naval Complex, Alaska remain protective of human health and the environment, except for the SWMU 60, Tank Farm A site that will be protective once the remedy enhancement is in place and for PFAS at OU A that is short-term protective.

I hereby approve this fifth five-year CERCLA review at the former Adak Naval Complex.

12-10-21

Christopher C. Generous, LG — Date

Former Adak Naval Complex, Base Realignment
And Closure Environmental Coordinator
U.S. Navy

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Appendix A:
Site Catalog
(on CD-ROM)

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Introduction

This Site Catalog provides a quick reference for Navy personnel, regulators and contractors. It is meant to provide a general overview of historical and current conditions at active OU A sites, inactive OU A sites where ARARs changes might plausibly result in the need for additional action, and OU B-1 sites selected for action in the OU B-1 ROD. The Site Catalog is not an exhaustive rendering of all site information, and some familiarity with the environmental history of Adak is assumed. The information included in the Site Catalog reflects the limitations of the readily available source documents, and the user is encouraged to review the source documents for additional details and to resolve any questions that might arise. All of the information in the Site Catalog is excerpted from other documents, and it is not practical to provide citations for every statement in the Site Catalog. Bibliography references are provided for each site and the user should refer to these references for more detailed information on each site.

The Adak Site Catalog is a living document that will be updated periodically or in association with significant changes in conditions that may occur. The Adak Site Catalog is provided as an appendix to the five-year review for the site, and includes only summary information regarding each site. All data interpretations and recommendations regarding the sites are included in the body of the five-year review or other project documents.

A bibliography list consisting of a numerical identifier is included for each site. The detailed references are provided in the bibliography section, also included at the end of the catalog.

The following sections are included for most sites. Some sections may be omitted for particular sites if no relevant information or data are available.

Maps

The map displayed as the first page for each site shows a general overview of the site. The inset in the upper left hand corner shows the location of the site on Adak Island and the main view shows features in the immediate area. A site boundary polygon is shown for sites with boundaries included in the Interim Conveyance document (included as Attachment D-1 of the Comprehensive Monitoring Plan, bibliography reference number 125). Sampling locations are also shown, and reflect all locations stored in the Navy's database with geospatial X and Y coordinates.

The maps included here are intended to illustrate only the general number and distribution of sampling locations at the sites. Specific details regarding sampling locations are often not discernable. The maps are intended to provide an overall sense of the size and complexity of each site, and the general number of sampling locations used for cleanup decision making. In order to accurately depict the history of investigation and cleanup at each site, as well as the position of each site on the Island, multiple maps at different scales would be required for each site (just as multiple maps are required in the source documents for each site). This would undermine the intent of the Site Catalog as an abbreviated quick reference guide for the sites. The user should rely on the source documents for more detailed map and sample location information. Note that for sites with ongoing monitoring, the most recent map of the monitoring locations and results is linked to the Site Catalog entry under the Operations, Maintenance, and Monitoring section. More detailed information regarding the type of sampling locations at each site and the analytical data collected may be obtained by referring to the project documents. Because of space limitations in the Site Catalog, site names may be abbreviated and minimal explanatory information, such as legends, are included.

Introduction

Status
A quick-reference summary of the current status of the site, with regard to site closure, monitoring, and institutional controls. Status notes in this field for sites with active monitoring of environmental media include a listing of the media being monitoring (e.g., "Groundwater monitoring, landfill monitoring, and IC inspections."). For sites that have achieved either complete closure or cleanup complete with institutional controls, the closure status is noted. In many cases the year when agency concurrence regarding closure is also noted. As commonly used in historical documents for Adak, complete closure is often abbreviated "NFA", meaning No Further Action, whereas cleanup complete with ICs is also called conditional closure or "NFRAP", meaning No Further Remedial Action Planned.

Background
Provides the history of the site, focused on the source of contamination driving the remediation requirements. This section generally covers the time period up to the ROD and is meant to provide an accurate and consistent background description which can be included in subsequent project documents.

Pre-ROD Assessment Summary
A table that draws statistical information from the Navy's database to provide a general synopsis of the analytical results available at the time of the ROD or SAERA decision document.

COC and Risks
A summary of the contaminants of concern and risk drivers for the site, as described in the ROD or SAERA decision document.

RAOs
A summary of the remedial action objectives for the site, as described in the ROD or SAERA decision document.

Remedy Implementation
A summary of the remedies that were implemented at the site, including remedies under the CERCLA RODs and, where applicable, follow-on SAERA decision documents.

Operations, Maintenance and Monitoring
A checklist summary of the current monitoring requirements, the dates of the most recent inspection and sampling, the current media and analytes included in monitoring, and a link to the most recent monitoring figures and tables, from the most recent final monitoring report.

Monitoring History
A tabular summary of the sampling history at each well at the site. All monitoring types are included in this table for sites where on-going monitoring is being performed.

Site Inspection Summary
A brief narrative summary of the most recent site inspection performed under the Institutional Controls Monitoring Plan, based on the most recent final inspection report.

Bibliography
Numerical reference numbers that correspond to the bibliography report included at the end of the document.

Explanation

Current Status

- Active
- Cleanup Complete with Institutional Controls
- Parcel 4 Boundary

* These Sites are also Petroleum Sites
** These Water Bodies are CERCLA Sites
*** These Sites are State-Permitted Landfills

Note: By mutual agreement among Alaska DEC, EPA, and the Navy, all removal actions at SWMUs 18, 19, and 25 have been addressed through operational and closure requirements of State of Alaska solid waste regulations.

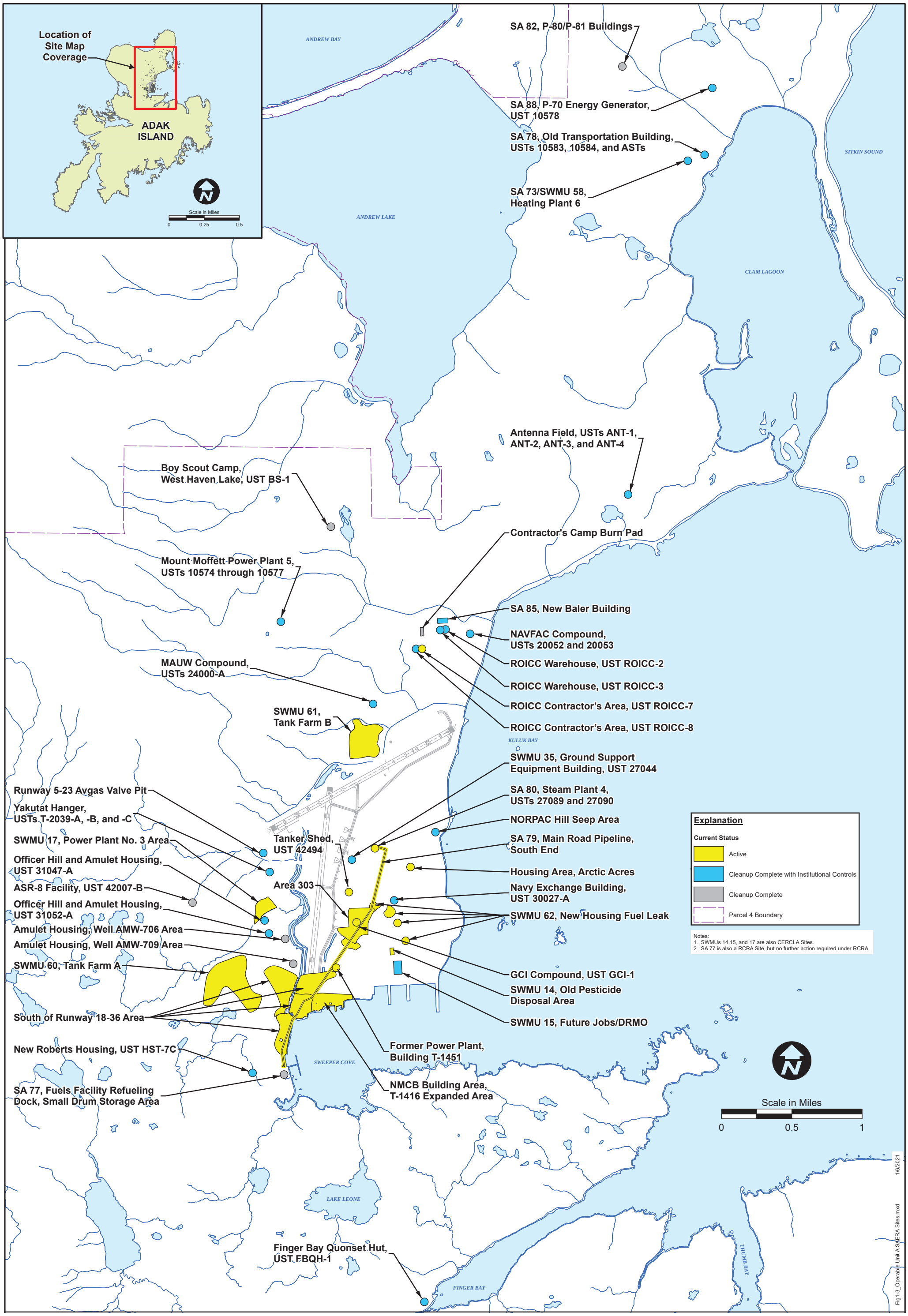
BERING SEA
ANDREW BAY
ANDREW LAKE
SITKIN SOUND
CLAM LAGOON
KULUK BAY
SHAGAK BAY
SWEEPER COVE
LAKE LEONE
FINGER BAY
THUMB BAY

SWMUs 52, 53, 59, Former Loran Station
SWMU 4, South Davis Road Landfill
SWMU 2, Causeway Landfill
SWMU 11, Palisades Landfill
SWMU 61, Tank Farm B
Kuluk Bay
SWMU 20, White Alice/Trout Creek Disposal Area
SWMU 21A, White Alice Upper Quarry
SWMU67, White Alice PCB Spill Site
SWMU16, Former Firefighting Training Area
South Sweeper Creek
SWMU 17*, Power Plant No. 3 Area
SA 76, Old Line Shed Building
SWMU 14*, Old Pesticide Disposal Area
SWMU 15*, Future Jobs/DRMO
SWMU 13, Metals Landfill
SWMU 10, Old Baler Building
SWMU 55*, Public Works Transportation Department Waste Storage Area
Sweeper Cove
SWMU 23, Heart Lake Drum Disposal Area
SWMU 29, Finger Bay Landfill

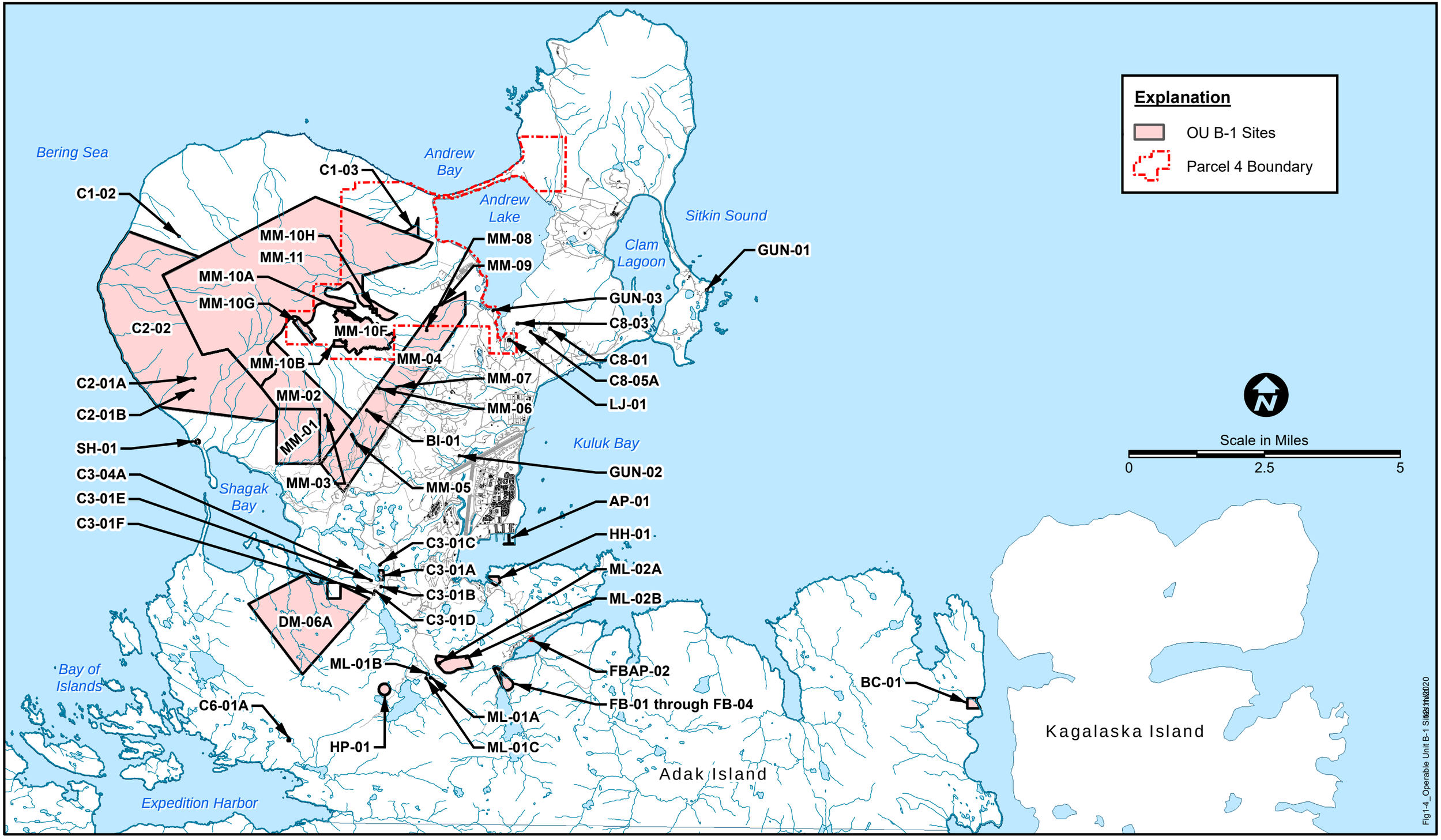
N
Scale in Miles
0
1
2

Fig1-2_Operable Unit A CERCLA Sites.mxd 1/6/2021

U.S. NAVY	Operable Unit A CERCLA Sites Determined to Require Further Action	Former Adak Naval Complex FIFTH FIVE-YEAR REVIEW



U.S. NAVY	SAERA Sites	Former Adak Naval Complex FIFTH FIVE-YEAR REVIEW



U.S. NAVY	Operable Unit B-1 Sites	Former Adak Naval Complex FIFTH FIVE-YEAR REVIEW

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Amulet Housing, Well AMW-706 Area — OU A - SAERA

Amulet Housing, Well AMW-706 Area — OU A - SAERA

STATUS: Cleanup complete

BACKGROUND:

The Amulet Housing, Well AMW-706 Area is located along the eastern edge of Amulet Housing, on the east side of Travis Way, and west of Runway 18-36. The site is approximately 0.5 mile north of Sweeper Cove. South Sweeper Creek is located approximately 50 feet east of Well AMW-706. The Amulet Housing area was used for warehousing engineering equipment in the 1940s until housing units were constructed in the early 1950s. Most housing units and their associated fuel tanks were removed in the late 1980s to early 1990s. Well AMW-706 was installed during the RI at Tank Farm A as part of a group of wells used to assess groundwater quality and flow characteristics outside of the Tank Farm A source areas. Petroleum hydrocarbons were detected in soil and groundwater samples collected from the AMW-706 boring drilled at the site in August 1993 at concentrations exceeding the ADEC matrix levels. The source of petroleum hydrocarbons observed at the AMW-706 area has not been identified, but may include leaks or spills from the USTs used to store JP-5 for residential heating at Officer Hill and Amulet Housing; SWMU 60, Tank Farm A; SWMU 17, Power Plant 3; or other unknown sources.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	12
Number of Pre-Rod Samples	26
Potential Contaminant Types Evaluated	Inorganics, Metals, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Sediment , Sub-surface soil (> 6")
Types of Pre-ROD Locations	Direct Push/Geoprobe, Hand auger, Monitoring well, River/stream, Test Pit, Well

Amulet Housing, Well AMW-706 Area — OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria:

Groundwater

- Lead (total)

Total lead in groundwater exceeded screening criteria in samples collected in 1993. Downgradient migration to South Sweeper Creek via overland flow is not a potential migration pathway, but groundwater flow to South Seeper Creek is a potential migration pathway. In 1996, the site was retained for further evaluation under the SAERA process, because although the maximum subsurface soil concentration for DRO was below the 1996 screening criterion of 5,000 mg/kg for residential sites, the source area is located less than 200 feet from the DEM, South Sweeper Creek. The OU A ROD (1999) did not identify human health or ecological risks associated with the site.

RAOs:

The OU A ROD for the petroleum site Amulet Housing, Well AMW-706 Area established the following RAO (Table 7-4 of the OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

The OU-A ROD-specified remedy for this site was MNA and ICs.

Groundwater monitoring was conducted between 1999 and 2002. Monitoring was discontinued at this site in 2003, because total and dissolved lead concentrations in groundwater were less than ADEC groundwater cleanup levels for six consecutive sampling events.

With ADEC concurrence, Amulet Housing, Well AMW-706 Area was designated as cleanup complete on November 8, 2016.

The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including Amulet Housing, Well AMW-706 Area.

Amulet Housing, Well AMW-706 Area — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☑ None Required

Most Recent Sampling Date: October 2002 — Most Recent Inspection Date: August 2015

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Amulet Housing, Well AMW-706 Area — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
AMW-706	MNA	Groundwater
1999	Total and dissolved lead (quarterly - 2 rounds)	
2000	Total and dissolved lead (quarterly - 2 rounds)	
2001	Total and dissolved lead	
2002	GRO, BTEX, DRO, RRO, NAPs, total and dissolved lead	
2003	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Following cleanup complete designation, Amulet Housing, Well AMW-706 Area does not require IC inspections, and therefore is no longer included in the IC inspection program at Adak.

BIBLIOGRAPHY:

2, 28, 52, 55, 62, 81, 84, 86, 136, 137, 142, 158

Amulet Housing, Well AMW-709 Area — OU A - SAERA

Amulet Housing, Well AMW-709 Area — OU A - SAERA

STATUS: Cleanup complete

BACKGROUND:

The Amulet Housing, Well AMW-709 Area is located along the eastern edge of Amulet Housing, on the east side of Travis Way, and west of Runway 18-36. The site is approximately 1 mile north of Sweeper Cove. South Sweeper Creek is located approximately120 feet east of Well AMW-709. The Amulet Housing area was used for warehousing engineering equipment in the 1940s until housing units were constructed in the early 1950s. Most housing units and their associated fuel tanks were removed in the late 1980s to early 1990s. Well AMW-709 was installed during the RI at Tank Farm A as part of a group of wells used to assess groundwater quality and flow characteristics outside of the Tank Farm A source areas. Petroleum hydrocarbons were detected at concentrations exceeding the ADEC matrix levels in soil and groundwater samples collected from the AMW-709 boring, drilled at the site in August 1993. The source of petroleum hydrocarbons observed at the AMW-709 area has not been identified, but may include leaks or spills from the USTs used to store JP-5 for residential heating at Officer Hill and Amulet Housing. The source of petroleum chemicals does not appear to be associated with Tank Farm A.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	11
Number of Pre-Rod Samples	22
Potential Contaminant Types Evaluated	Inorganics, Metals, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Sub-surface soil (> 6")
Types of Pre-ROD Locations	Borehole/Soil boring, Direct Push/Geoprobe, Monitoring well

Amulet Housing, Well AMW-709 Area — OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria (Table 10-3 of the OU A Rod):

Groundwater

- Lead (total)

Total lead was the only analyte detected in groundwater that exceeded screening criteria in samples collected in 1993. Downgradient migration to South Sweeper Creek via overland flow is not a potential migration pathway, but groundwater was encountered at the site and is a potential migration pathway to South Sweeper Creek. In 1996, the site was retained for further evaluation under the SAERA process, because although the maximum subsurface soil concentration for DRO was below the 1996 screening criterion of 5,000 mg/kg for residential sites, the source area is located less than 200 feet from the DEM, South Sweeper Creek. The OU A ROD (1999) did not identify human health or ecological risks associated with the site.

RAOs:

The OU A ROD for the petroleum site Amulet Housing, Well AMW-709 Area established the following RAO (Table 7-4 of the OU A ROD):

- Mitigate potential for downgradient migration.

REMEDY IMPLEMENTATION:

The OU-A ROD-specified remedy for this site was MNA and ICs.

Groundwater monitoring was conducted between 1999 and 2002. Monitoring was discontinued at this site in 2003, because total and dissolved lead concentrations in groundwater were less than ADEC groundwater cleanup levels for six consecutive sampling events.

With ADEC concurrence, Amulet Housing, Well AMW-709 Area was designated as cleanup complete on November 8, 2016.

The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including Amulet Housing, Well AMW-709 Area

Amulet Housing, Well AMW-709 Area — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☑ None Required

Most Recent Sampling Date: October 2002 — Most Recent Inspection Date: August 2015

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Amulet Housing, Well AMW-709 Area — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
AMW-709	MNA	Groundwater
1999	Total and dissolved lead (quarterly - 2 rounds)	
2000	Total and dissolved lead (quarterly - 2 rounds)	
2001	Total and dissolved lead	
2002	GRO, BTEX, DRO, RRO, NAPs, total and dissolved lead	
2003	Met endpoint criteria; monitoring discontinued	

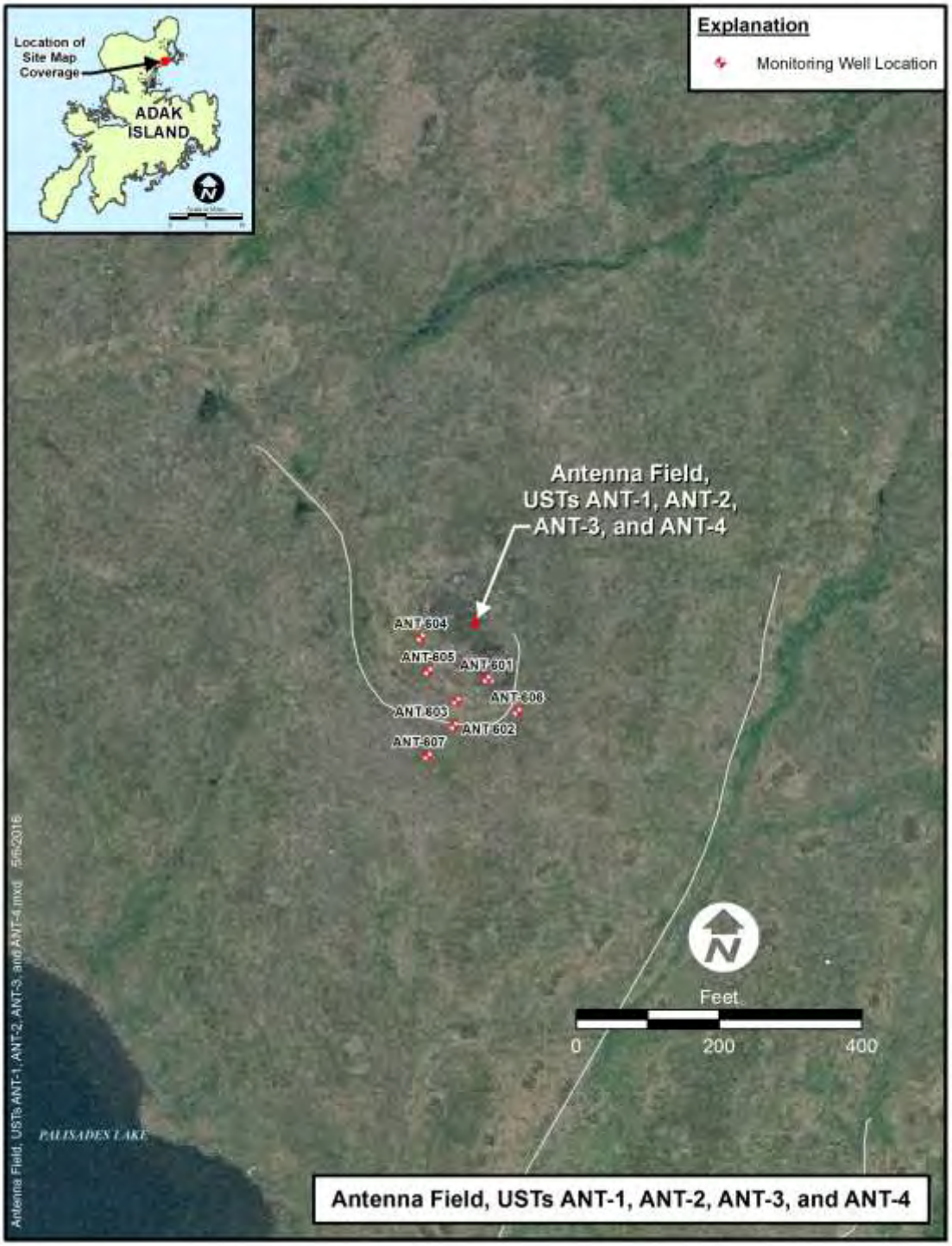
SUMMARY OF INSPECTION RESULTS:

Following cleanup complete designation, Amulet Housing, Well AMW-709 Area does not require IC inspections, and therefore is no longer included in the IC inspection program at Adak.

BIBLIOGRAPHY:

2, 28, 55, 62, 81, 84, 86, 136, 137, 142, 159

Antenna Field, USTs ANT-1, ANT-2, ANT-3, and ANT-4 OU A - SAERA



Antenna Field, USTs ANT-1, ANT-2, ANT-3, and ANT-4 OU A - SAERA

STATUS: Cleanup complete with institutional controls

BACKGROUND:

The Antenna Field is located on a hilltop northeast of Palisades Lake, midway between downtown Adak and Clam Lagoon. Three buildings and antennas were built in 1948 on the site. USTs ANT-1, ANT-2, ANT-3, and ANT-4 supplied JP-5 as heating fuel to the buildings, but were removed in 1993. Several small holes were observed in USTs ANT-3 and ANT-4 upon removal. The source of the petroleum release is not recorded, but appears to have originated from the USTs.

The general topography of the Antenna Field is irregular and is characterized by hills and drainage swales. Palisades Lake is located about 750 feet downgradient (southwest) of the site and is considered to be the downgradient exposure medium, because the site topography slopes predominantly to the southwest. Downgradient migration via overland flow is possible, but unlikely. Although groundwater is present at the site, groundwater recharges slowly or is not present at all, given the relatively impermeable nature of the underlying tephra.

One monitoring well (ANT-601) was installed approximately 10-15 feet south of the tank excavations in July 1998 in an inferred downgradient direction from the former UST locations. One soil sample was collected from the vadose zone during well installation and was analyzed for DRO. Photoionization detector readings and the evidence of a sheen in soil classification samples indicated the presence of petroleum hydrocarbons at the time of drilling. The well was installed to a depth of 10 bgs where bedrock prevented deeper drilling. The well was screened from 4.75 to 9.75 feet bgs. Low water-recharge conditions were encountered during well development. One groundwater sample was collected in August 1998 following well development and analyzed for DRO.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	9
Number of Pre-Rod Samples	10
Potential Contaminant Types Evaluated	Petroleum hydrocarbons
Pre-ROD Sample Matrix Types	Ground water, Sub-surface soil (> 6")
Types of Pre-ROD Locations	Monitoring well, Test Pit

Antenna Field, USTs ANT-1, ANT-2, ANT-3, and ANT-4 OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemicals exceeded these criteria:

Groundwater

- DRO

In 1996, the site was screened using the ADEC matrix cleanup levels and the ADEC supplemental criteria. The site was retained for further investigation because the maximum DRO concentration was slightly above the supplemental criterion for subsurface soil. The supplemental criterion for DRO no longer applies to this site because ROD-established cleanup levels now apply to this site. Surface water migration via overland flow is possible, but groundwater, although present, is not a significant pathway. The OU A ROD (1999) did not identify human health or ecological risks associated with the site.

RAOs:

The OU A ROD for the petroleum site Antenna Field, USTs ANT-1, ANT-2, ANT-3, and ANT-4 established the following RAO on Table 7-4 (OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is MNA and ICs.

Natural attenuation groundwater monitoring for this site began in 1999 and was discontinued in 2010. As required by the latest version of the CMP, the presence or absence of free product is assessed prior to groundwater sampling at each well. If free product is observed, decisions are made based on the measured free product thickness as to whether free product removal is warranted, and whether groundwater samples should be collected. The implementation of ICs began following execution of the ROD in April 2000. Land use restrictions are required to ensure that the land will never be used in a way inconsistent with the land use assumptions set forth in the Adak Island RODs.

The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including Antenna Field.

After evaluation of the site conditions at the Antenna Field, the Navy and ADEC agreed in 2009 to perform additional investigation of this site to assess the current extent of petroleum-impacted media of concern at the site. The objective of the additional characterization was to collect sufficient data to assess the lateral extent of residual DRO in soil and groundwater and establish a network of groundwater monitoring wells sufficient to demonstrate natural attenuation of DRO in groundwater over time.

Antenna Field, USTs ANT-1, ANT-2, ANT-3, and ANT-4 OU A - SAERA

In June of 2010, the Navy installed six additional monitoring wells and eight soil borings to further characterize the site. Concentrations of DRO in soil exceeded the ADEC cleanup level of 230 mg/kg at two soil locations: 1) ANT-602, with concentrations of 18,000 mg/kg in the sample collected from 2.5 feet bgs and 950 J mg/kg in the sample collected from 7.5 feet bgs; and 2) ANT-SB09/ANT-603, with concentrations of 12,000 mg/kg in the sample collected from 5 feet bgs and 2,900 J mg/kg in the sample collected from 7.5 feet bgs. The area of soil with DRO exceedances was delimited by the additional investigation, except that the extent of soil does not appear to be delimited to the southeast of ANT-602.

Of the seven wells at the site, only ANT-601 contained groundwater during the additional investigation. The sample from this well was analyzed for DRO, which was detected at a concentration less than the ADEC cleanup level of 1,500 µg/L.

During a site visit by ADEC and the Navy in 2010 it was determined that ANT-601 was not downgradient from the source as depicted on site drawings, but was located within the UST excavation area. Therefore, the DRO exceedances in ground water (identified by monitoring well ANT-601) is likely confined to the area adjacent to the former UST excavation and is likely representative of water buildup in the UST and not representative of groundwater (if present) at the site. This is supported by the lack of ground water in the surrounding monitoring wells.

Based on the 2010 site characterization activities groundwater monitoring was discontinued following the September 2010 monitoring event. Antenna Field received a "cleanup complete with ICs" determination from ADEC on September 19, 2011. All wells at Antenna Field were decommissioned in 2013.

Antenna Field, USTs ANT-1, ANT-2, ANT-3, and ANT-4 OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: September 2010 Most Recent Inspection Date: September 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required Monitoring File: Not Applicable

Antenna Field, USTs ANT-1, ANT-2, ANT-3, and ANT-4 OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
ANT-601	MNA	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, GRO fractions, BTEX, DRO, DRO fractions, RRO, NAPs	
2003	DRO, RRO, NAPs	
2004	DRO, RRO, NAPs	
2005	DRO	
2006	DRO	
2007	DRO	
2008	DRO	
2009	DRO, NAPs	
2010	DRO	
2011	Met endpoint criteria; monitoring discontinued	
2012	Met endpoint criteria; monitoring discontinued	
2013	Met endpoint criteria; monitoring discontinued	

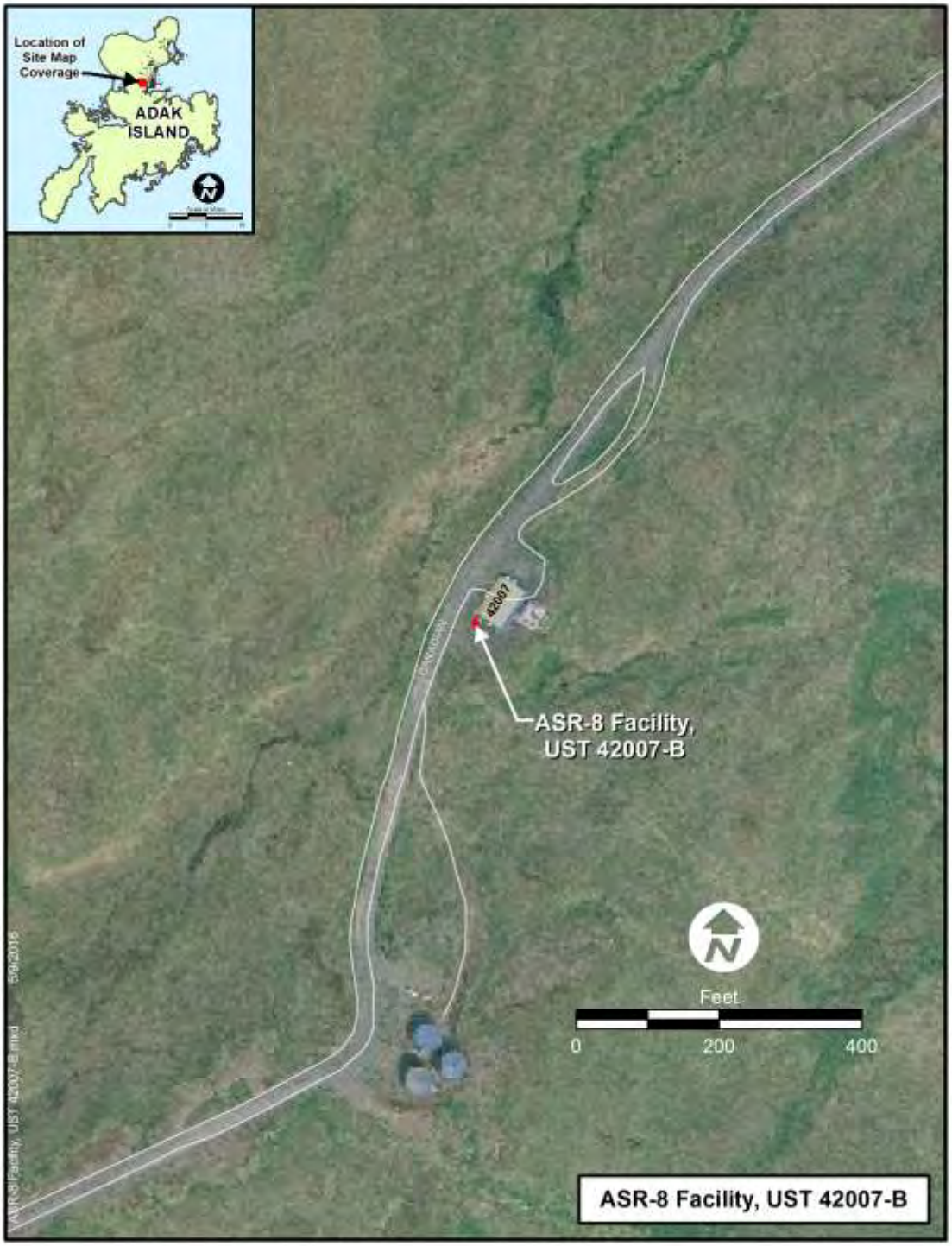
SUMMARY OF INSPECTION RESULTS:

Institutional controls at Antenna Field include land use restrictions, equitable servitude, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection on September 10, 2019, no changes to the site were observed compared to the 2014 inspection results. No indications of a change in land use in this area were found and no residential construction had occurred at the site. No indications of groundwater use or excavation activities were found, and the excavation restriction sign was clearly visible. The 2019 IC report indicated ICs appear to be functioning as intended. The next IC inspection for this site is scheduled for 2024.

BIBLIOGRAPHY:

29, 31, 34, 39, 41, 44, 52, 62, 81, 84, 89, 90, 91, 112, 118, 129, 134, 137, 138, 142, 165, 166

ASR-8 Facility (UST 42007-B) OU A - SAERA



ASR-8 Facility (UST 42007-B) OU A - SAERA

STATUS: Cleanup complete

BACKGROUND:

The ASR-8 Facility houses the transmitter formerly used by the Federal Aviation Agency. The facility is located on Bering Hill, on the crest of a ridge overlooking downtown. UST 42007-B was used to store JP-5 to supply an emergency generator. The UST was decommissioned and removed in 1995. The tank appeared to be in good condition when it was removed. The source of petroleum release is not recorded, but it appears to have originated from the UST, or from overfills and piping leaks.

The general topography surrounding the former location of UST 42007-B consists of hills and swales. The area immediately surrounding the former tank consists of a gravel driving surface and parking area underlain by sand. Downgradient migration via overland flow to an unnamed creek approximately 75 feet west of the site is possible, but unlikely. No groundwater was encountered at the site nor is it expected, because the site is located on tephra, a low-permeability, low-storage-capacity, silt/clay unit. Therefore, downgradient migration via groundwater is unlikely.

The maximum detected concentration of DRO in subsurface soils remaining in place following UST removal was 4,500 mg/kg.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	8
Number of Pre-Rod Samples	10
Potential Contaminant Types Evaluated	Petroleum hydrocarbons
Pre-ROD Sample Matrix Types	Sub-surface soil (> 6")
Types of Pre-ROD Locations	Direct Push/Geoprobe, Excavation, Pipeline

ASR-8 Facility (UST 42007-B) OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria:

Soil

- DRO

In 1996, the ASR-8 Facility site was retained for further analysis under the SAERA process because although the maximum subsurface soil concentration of DRO was less than the screening criterion for recreational sites of 12,500 mg/kg, the source area is less than 200 feet from the downgradient surface water body. Soil exceeding the ROD-established ADEC 18 AAC 75 criteria was proposed to be removed during the limited soil removals conducted in 1999. However, operations at the facility during this time prevented this activity from taking place. The OU A ROD (1999) did not identify human health or ecological risks associated with the site.

RAOs:

The OU A ROD established the following RAO for the petroleum site ASR-8 Facility, UST 42007-B (Table 7-4 of the OU A ROD):

- Mitigate potential for downgradient migration.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is limited soil removal.

A limited soil removal was performed in 2006. The excavation was 15 x 20 x 7 feet deep. Bedrock was encountered at a depth between 7 feet and 7.5 feet. All contaminated soil was transported off-island for disposal. Six confirmation samples from the floor and sidewalls of the excavation were collected. DRO was not detected in four of the samples, with detection limits ranging from 2.1 mg/kg to 2.2 mg/kg. Concentrations in the remaining two confirmation soil samples were 2.9 mg/kg and 9.7 mg/kg, both of which are below the ADEC cleanup level.

With ADEC concurrence, ASR-8 was designated as NFA or cleanup complete on July 19, 2007.

The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including ASR-8.

ASR-8 Facility (UST 42007-B) OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☐ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☑ None Required

Most Recent Sampling Date: July 2006 Most Recent Inspection Date: August 2015

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required Monitoring File: Not Applicable

ASR-8 Facility (UST 42007-B) OU A - SAERA

SUMMARY OF INSPECTION RESULTS:

ASR-8 does not require IC inspections and, therefore, is not included in the IC inspection program at Adak. This site was inspected in August 2015 as part of the five-year review site visit. There were no signs of land use changes or changes in site conditions during the site visit. There were no indications that groundwater was being used or indications of excavation activities found at the site.

BIBLIOGRAPHY:

62, 92, 93, 97

Boy Scout Camp, West Haven Lake, UST BS-1 OU A - SAERA

Boy Scout Camp, West Haven Lake, UST BS-1 OU A - SAERA

STATUS: Cleanup Complete

BACKGROUND:

The former Boy Scout Camp is located in a remote area near the western shores of Haven Lake, about 2 miles north of downtown. The former Boy Scout Camp site and surrounding area was formerly used for ordnance storage during the 1940s. During this period several warehouses, Quonset huts, and operations buildings associated with this military use were present in the area. Only remnants of these structures remain. The cabin that was used to house the Boy Scout Camp during the mid- to late 1980s also has been removed. The building foundation, a 17.5-by 24-foot concrete pad, still exists on the site. The 850-gallon wooden stave tank (UST BS-1) was probably installed adjacent to the eastern wall of the cabin in 1944, but was removed in 1993. Lightweight fuel oil (likely JP-5) was stored in former UST BS-1, presumably to heat the cabin.

The general topography of the Boy Scout Camp West Haven Lake site slopes downward to the east, where Haven Lake lies approximately 130 feet east. The groundwater surface intercepts the ground surface at various points across the site area. As a result, groundwater flows freely out of and across the surface of the ground from seeps, springs, and similar features. Downgradient migration to Haven Lake via overland flow or shallow groundwater flow is possible. Groundwater encountered at the site is a possible migration pathway.

UST BS-1 and the associated piping were removed in September 1993. During the UST closure, the tank was reported in poor condition with a narrow hole about 1 foot long on top of the tank and the wood moderately weathered. DRO in soil samples collected from the north and west walls of the excavation at 2.5 feet bgs yielded concentrations above ADEC cleanup requirements. An additional site investigation to measure chemical concentrations in soil and groundwater in the vicinity of the UST was conducted in 1996 and 1997, and three monitoring wells were installed. DRO was detected in surface and subsurface soil samples at concentrations above ADEC 18 AAC 75 criteria. Concentrations of all detected analytes (DRO, GRO, BTEX, and low-molecular-weight PAHs) in groundwater were below the ADEC cleanup criteria.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	12
Number of Pre-Rod Samples	24
Potential Contaminant Types Evaluated	Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Sub-surface soil (> 6"), Surface soil (less than 6 inches)
Types of Pre-ROD Locations	Borehole/Soil boring, Excavation, Monitoring well, Well, Wetlands

Boy Scout Camp, West Haven Lake, UST BS-1 OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria:

Soil

- DRO

In 1997, the site was retained for further study, because the site contains DRO in surface and subsurface soils at concentrations exceeding ADEC supplemental criteria and because the site is less than 200 feet from the DEM. The OU A ROD (1999) did not identify human health or ecological risks associated with the site.

RAOs:

The OU A ROD established the following RAO for petroleum site Boy Scout Camp, West Haven Lake, UST BS-1 (Table 7-4 of the OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

In 1999, an estimated 107 cubic yards of petroleum-affected soil were excavated during a removal action. Field screening soil samples were collected upon completion of the removal action and indicated that petroleum hydrocarbon concentrations in soil remaining at the UST BS-1 site exceeded ADEC Method Two cleanup levels along the southern, eastern, and western boundaries of the excavation. Because additional soil removal was not possible due to site conditions, a groundwater monitoring well (10-401) was installed at the site.

Groundwater samples were collected from two wells on site in 1999 and 2000 during comprehensive monitoring activities. Limited groundwater monitoring endpoints were achieved, and groundwater monitoring was discontinued at this site in 2000.

With ADEC concurrence, Adak Boy Scout Camp UST BS-1 was designated as cleanup complete on November 8, 2016.

The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including Adak Boy Scout Camp UST BS-1

Boy Scout Camp, West Haven Lake, UST BS-1 — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☑ None Required

Most Recent Sampling Date: July 2000 — Most Recent Inspection Date: August 2015

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Boy Scout Camp, West Haven Lake, UST BS-1 OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
10-400	Limited GW monitoring	Groundwater
1999	DRO, GRO, BTEX (quarterly - 2 rounds)	
2000	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
10-401	Limited GW monitoring	Groundwater
1999	DRO, GRO, BTEX (quarterly - 2 rounds)	
2000	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Following cleanup complete designation, Adak Boy Scout Camp UST BS-1A does not require IC inspections, and therefore is no longer included in the IC inspection program at Adak.

BIBLIOGRAPHY:

2, 28, 55, 62, 84, 91, 129, 136, 137, 142, 160

Contractor's Camp Burn Pad — OU A - SAERA

Contractor's Camp Burn Pad — OU A - SAERA

STATUS: Cleanup complete

BACKGROUND:

The former Contractor's Camp Burn Pad site is located in the northwest corner of the Contractor's Camp area, which is situated north of the eastern end of Runway 5-23. The burn pad is located south of Forest Road, between Drennen Road and Main Davis Road. The Contractor's Camp Burn Pad formerly served as a warehouse foundation in the Resident Officer in Charge of Construction Contractor's Area for storing equipment and supplies. Following removal of the warehouse structure, the foundation was used for soil treatment operations conducted with a thermal desorption unit.

Surface runoff is expected to be minimal because the site is flat and drainage is poor. A marsh area lies approximately 205 feet west-southwest (downgradient) of the former location of the burn pad.

In response to reports that a fuel spill had occurred next to the burn pad during operation of the thermal desorber, a field investigation was conducted in 1997 to evaluate the extent of petroleum-affected soil. The AOC is located next to the east side of the burn pad, approximately 100 feet south of its northeast corner. The investigation included collecting subsurface soil from 10 Geoprobe locations and four hand auger locations in the area of the reported spill. Twenty-three soil samples were collected at depths ranging from 0.1 to 9 feet bgs. DRO was measured in these samples at concentrations ranging from 16 mg/kg to 7,400 mg/kg. The ADEC Method Two soil cleanup level of 230 mg/kg was exceeded in seven of these samples.

Groundwater was encountered at the site and is a possible migration pathway. Analytical results from a groundwater sample collected in 1998 showed no exceedances of the ROD-established ADEC 18 AAC 75 criteria.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	16
Number of Pre-Rod Samples	28
Potential Contaminant Types Evaluated	Petroleum hydrocarbons, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Sub-surface soil (> 6"), Surface soil (less than 6 inches)
Types of Pre-ROD Locations	Direct Push/Geoprobe, Hand auger, Monitoring well

Contractor's Camp Burn Pad — OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria:

Soil

- DRO

RAOs:

The OU A ROD for the petroleum site Contractor's Camp Burn Pad established the following RAO (Table 7-4 of the OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is limited soil removal.

In 1999, approximately 105 cubic yards of in-place soil containing petroleum-related compounds at concentrations exceeding ADEC Method Two soil cleanup levels was removed from the site for treatment and disposal.

In 2000, an additional 20 cubic yards of petroleum-affected soil were removed from beneath Drennen Road, and laboratory analyses of excavation bottom samples indicated the absence of petroleum hydrocarbons in soil above applicable cleanup levels.

This site was evaluated in the 2005 Final Cleanup Report, 19 Sites. Based on this report, ADEC concurred with NFRAP status for this site, but required soil samples near locations 205 and 210 to achieve NFA.

Contractors Camp Burn Pad received a "cleanup complete" designation from ADEC on December 29, 2011. Concentrations of DRO remain only slightly above migration to groundwater levels. Groundwater is not being impacted and the extent of soil contamination is limited. The OU A ROD selected remedy of limited soil removal is considered complete. The risk of exposure to contaminants is de minimis, therefore, ICs have been removed and ADEC is granting site closure.

Contractor's Camp Burn Pad — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☐ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☑ None Required

Most Recent Sampling Date: July 2000 — Most Recent Inspection Date: August 2015

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Contractor's Camp Burn Pad — OU A - SAERA

SUMMARY OF INSPECTION RESULTS:

Revision 6 of the ICMP indicates the Contractor's Camp Burn Pad should be inspected every four to six years with the latest inspection scheduled for 2014. Because the site has received site closure status from ADEC, IC inspections are no longer required at this site. It is recommended that the ICMP be updated to remove IC inspection for this site. Although this site is still included in the ICMP, it was not included in the 2014 or 2015 IC inspection reports.

A five-year review site visit was conducted in August 2015 at this site. There were no changes in land use observed; however, a former excavation was evident with larger aggregate visible at ground surface. The evidence of excavation is not a concern for the overall risk of exposure at this site.

BIBLIOGRAPHY:

2, 28, 55, 57, 84, 86, 87, 142, 143

Finger Bay Quonset Hut, UST FBQH-1 — OU A - SAERA

Finger Bay Quonset Hut, UST FBQH-1 — OU A - SAERA

STATUS: Cleanup complete with institutional controls

BACKGROUND:

The Finger Bay Quonset Hut, located near the end of Finger Bay Road, was built in the 1940s and used to support activities at the Finger Bay drydock and repair center. Between the 1960s and early 1990s, Quonset huts around this area were used as recreational sites for on-island personnel. The UST at this site was used to store JP-5 as fuel for an oil furnace in the Quonset hut. The date that the UST was installed is unknown, but believed to be in the late 1940s.

During the UST removal, two soil samples were collected from the floor of the excavation. DRO concentrations in both soil samples exceeded the ADEC Method Two soil cleanup level of 230 mg/kg. The Finger Bay Quonset Hut UST FBQH-1 and associated piping, believed to be the source of the DRO, were removed in 1997. An additional site investigation was required. Groundwater was not encountered during the UST removal activities.

Monitoring well FB-101 was installed near the site on July 25, 1998. Petroleum constituents were not detected in accompanying soil or groundwater samples at concentrations above the ROD-established ADEC 18 AAC 75 criteria.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	1
Number of Pre-Rod Samples	3
Potential Contaminant Types Evaluated	Petroleum hydrocarbons, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Sub-surface soil (> 6")
Types of Pre-ROD Locations	Monitoring well

Finger Bay Quonset Hut, UST FBQH-1 — OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria:

Soil

- DRO

RAOs:

The OU A ROD for the petroleum site Finger Bay Quonset Hut (UST FBQH-1) established the following RAO (Table 7-4 of the OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

Limited soil removal activities commenced in September 1999. Approximately 22 cubic yards of soil containing petroleum-related compounds at concentrations exceeding ADEC Method Two soil cleanup levels were removed from the site. Soils containing petroleum-related compounds at concentrations greater than ADEC 18 AAC 75 criteria remain in place at the site. However, further excavation was limited by shallow bedrock.

The site remedy shifted from limited soil removal to limited groundwater monitoring with ADEC concurrence in 1999. One downgradient monitoring well was installed in 2001. Limited groundwater monitoring commenced in wells FB-101 and FB-206 in 2001. The site met the endpoint criteria after two sampling events and groundwater monitoring was stopped in 2002.

This site was evaluated in the 2005 Final Cleanup Report, 19 Sites. Based on this report, ADEC concurred with NFRAP status for this site, but required soil samples near locations 202 and 203 to achieve NFA.

ADEC issued a "cleanup completed with ICs" designation for Finger Bay Quonset Hut, UST FBQH-1 on November 23, 2005.

The implementation of ICs began following execution of the ROD in April 2000. Land use restrictions are required to ensure that the land will never be used in a way inconsistent with the land use assumptions set forth in the Adak Island RODs. The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including Finger Bay Quonset Hut. No ICs specific to Finger Bay Quonset Hut, UST FBQH-1 were established in the OU A ROD; however, ICs are included for this site in the ICMP.

Finger Bay Quonset Hut, UST FBQH-1 — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: October 2002 — Most Recent Inspection Date: September 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Finger Bay Quonset Hut, UST FBQH-1 — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
FB-101	Limited GW monitoring	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2003	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
FB-206	Limited GW monitoring	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	GRO, GRO fractions, BTEX, DRO, RRO, total and dissolved lead, NAPs	
2002	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2003	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional controls at Finger Bay Quonset Hut include land use restrictions, equitable servitude, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection on September 5, 2019, no changes to the site were observed compared to the 2014 inspection results. No indications of a change in land use in this area were found, and no residential construction had occurred at the site. No indications of groundwater use or excavation activities were found, and the excavation sign was clearly visible. The sign was observed to have bullet holes in it, but it was still legible. The 2019 IC report indicated ICs appear to be functioning as intended and it is recommended that the excavation restriction sign be relocated to the immediate vicinity of the site. The next IC inspection for this site is scheduled for 2024.

BIBLIOGRAPHY:

2, 28, 55, 62, 84, 86, 91, 129, 137, 142, 144, 165, 166

Former Power Plant, Building T-1451 — OU A - SAERA

Former Power Plant, Building T-1451 — OU A - SAERA

STATUS: Groundwater, sediment, and surface water monitoring; and institutional controls

BACKGROUND:

The Former Power Plant Building T-1451 site is located in the southeast portion of downtown Adak, at the southeast corner of Public Works Road and Main Road. This building also has been referred to as Power House No. 4, Power Plant No. 4, or the main GEM building. The site consists of a level gravel lot at an elevation of approximately 20 feet above MLLW as well as an area dominated by native grasses that slopes down to the west toward the East Canal, which is the closest surface water body at a distance of approximately 500 feet west of the site. The manmade canal's shoreline is lined with grasses and other soft-stemmed plants. Overhead power lines run along the roadways to the north and west of the site. Underground utilities run along the roadways and in the area west of the Building T-1451. The facility was constructed in 1944 and consisted of a power plant building, three diesel ASTs, a fuel pump shed, a water tank, and a septic tank. Sometime after 1986, the power plant building was expanded and the three ASTs removed. It appears that the existing structure overlies much of the location of the three former ASTs.

The former ASTs were supplied by a 2-inch-diameter service pipeline used to transfer diesel fuel from former Fuel Dock 7 to the NSGA at Clam Lagoon. No records of release from the former tanks are available.

An 8-inch-diameter pipeline that reportedly transferred aviation gas from former Fuel Dock 7 to Tank Farm B ran along the eastern side of Main Road past the Former Power Plant site, but was abandoned in 1977. The Main Road Pipeline (6-inch JP-5) is located west of the site along the west side of Main Road. This pipeline was reportedly cleaned but not closed. A pipeline investigation was performed in 2007 to determine whether all pipelines in the vicinity of this site have been decommissioned. The located pipelines were decommissioned in 2009.

The site is relatively flat, soils are highly permeable, and all identified petroleum-affected soils were subsurface. Downgradient migration of chemicals to East Canal via overland flow is possible, but not probable. Petroleum-related compounds in near-surface soils could be leached and migrate downgradient through groundwater.

In 1992, an investigation conducted for the Main Road Pipeline included the collection of soil and groundwater samples at well MRP-MW5 located southwest of the Former Power Plant. DRO was not detected in the three soil samples or GRO in one soil sample; however, the detection limits were above the ADEC soil cleanup criteria. DRO was detected in groundwater at a concentration below the ADEC 18 AAC 75 criteria. During 1993, monitoring well AMW-703 was installed to characterize regional groundwater quality and flow as part of the Tank Farm A release investigation. DRO and GRO concentrations exceeded the ADEC soil cleanup criteria in two soil samples. DRO concentrations also exceeded the ADEC cleanup criterion in the one groundwater sample collected.

In 1996 and 1997, an additional site investigation was conducted in which seven hand-auger borings, seven Geoprobe soil borings, three 2-inch monitoring wells, and four ½-inch monitoring wells were installed. DRO concentrations exceeded ADEC cleanup criteria in 12 soil samples and eight groundwater samples.

Former Power Plant, Building T-1451 — OU A - SAERA

DRO and GRO were not detected in the four surface water samples collected from standing water in the East Canal. The site was retained for further evaluation under the SAERA process because the maximum DRO subsurface soil concentration of 30,000 mg/kg exceeded the screening criterion of 12,500 mg/kg for industrial sites.

In 1998, a groundwater sample was collected from monitoring well 01-118. Analytical results showed DRO at a concentration that exceeded the ROD-established cleanup criteria. GRO and BTEX also were detected, but did not exceed the criteria. Well 01-118 was also sampled for total and dissolved lead as part of the Comprehensive Monitoring Program. No lead exceedances were noted in groundwater samples. However, benzene was detected at a concentration above the ADEC groundwater cleanup level.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	30
Number of Pre-Rod Samples	69
Potential Contaminant Types Evaluated	Metals, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Sediment , Sub-surface soil (> 6"), Surface water
Types of Pre-ROD Locations	Channel/Ditch, Direct Push/Geoprobe, Hand auger, Monitoring well, Well

Former Power Plant, Building T-1451 OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria (Table 10-3 of the OU A):

Soil

- DRO

RAOs:

The OU A ROD for Former Power Plant, Building T-1451 established the following RAO (Table 7-4 of the OU A ROD):

- Reduce potential for direct contact with impacted surface soil.
- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is MNA and ICs.

Natural attenuation groundwater monitoring for DRO, GRO, RRO, and BTEX was initiated in 1999 and is ongoing. Compliance groundwater monitoring for lead also commenced at this site in 1999. Only DRO and RRO concentrations were greater than OU A ROD cleanup criteria between 1999 and 2002. Two new monitoring wells were installed immediately downgradient of the site during 2003. TAH and TAqH analyses were added to well 01-151 in 2007. Surface water and sediment samples are collected annually from location NL-08 to monitor natural recovery of the East Canal starting in 2010. Surface water is analyzed for DRO, TAH, and TAqH. Sediment samples are analyzed for DRO and PAHs.

In 2009, additional site characterization was conducted in the form of sediment and surface water sampling along the eastern shoreline of East Canal, downgradient of Building T-1451. One sediment and one surface water sample at location EC-03 were analyzed, the results indicated DRO was present in surface water at a concentration of 310 µg/L, which exceeds the surface water risk-based cleanup level established for South of Runway 18-36. The co-located sediment sample reported a DRO concentration of 78 mg/kg, less than the sediment risk-based cleanup level established for South of Runway 18-36. However, these cleanup levels may not correlate to risks associated with the Former Power Plant site; therefore, site-specific risk-based endpoint criteria may need to be developed to determine if surface water or sediment are being impacted by onsite contamination at unacceptable levels of risk.

Additional site characterization was performed in 2010 to improve delineation of the extent of petroleum-impacted soils in support of a proposed focused soil excavation adjacent to East Canal. The intent of the proposed excavation was to remove the bulk portion of petroleum-impacted soil that is in close proximity to

the East Canal, as an enhancement to the ROD-specified MNA remedy, creating a natural attenuation zone for groundwater.

DRO analyses were conducted on 32 soil samples collected from 15 soil boring locations at the site during the 2010 investigation. DRO concentrations exceed the ADEC cleanup level of 230 mg/kg in three samples from three locations (01-154, 01-155, and 01-159). Exceedances were present in 2010 soil samples collected from locations 01-154 at 7.5 feet bgs, 01-155 at 7.5 and 10 feet bgs, and 01-159 at 12.5 feet bgs. These results were considered along with historical analytical data to identify the lateral and vertical extent of DRO concentrations in soil.

Activities performed from May through July 2012 to meet the objective of preventing or minimizing impacts to the water quality in East Canal included excavation of petroleum impacted soils and construction of the MNA treatment area within the 7,500 ft2 area approved by the Navy and ADEC in the East Canal/Building T-1451 Area. Approximately 875 cubic yards of petroleum contaminated soil was removed from the 7,500 ft2 area to reduce the contaminant source contributing to sheen on the surface water in the East Canal. Approximately 3,400 pounds of the Oxygen BioChemR (OBC) amendment and 1,000 pounds of wood fiber mulch were applied to the backfill material placed in the MNA treatment area excavation to potentially reduce the petroleum contamination concentrations migrating through the groundwater and producing sheen on the surface water of the East Canal. After construction of the MNA treatment area, nine 2-inch monitoring wells were installed in the East Canal/Building T-1451 area to monitor the effectiveness of the MNA treatment area and provide additional analytical groundwater data for petroleum contamination concentrations.

Another removal action, performed by the Navy in 2016, addressed the petroleum seeping into East Canal. This resulted in removal of the SWMU 62 recovery trench and all six recovery sumps, as well as two monitoring wells, along with the petroleum-contaminated soil adjacent to East Canal. Amended fill soil was used to replace the contaminated soil and seven new monitoring wells were installed.

DRO and TAqH have continued to exceed endpoint criteria in various site wells in 2019. Additionally, recoverable free product continues to be observed in several site wells. Because of this, it was recommended that prescribed monitoring continue at the site.

Free product recovery was conducted this five-year review period between September 2016 and September 2020. A total of 21.81 gallons of free product was recovered from the Former Power Plant Building T-1451 area. It was recommended to continue boom inspections and O&M at Booms 9, 12, and 13 due to the occurrence of petroleum sheen, oily sediment, distressed vegetation and emergence of areas of pooled product along the Former Power Plant Building T-1451 portion of East Canal. It was also recommended that the Navy consider a removal action to remove contaminated soil and free product "hot spots" to eliminate future seeps into East Canal due to consistent occurrence of free product and the emergence of pooled product along East Canal (specifically around Boom 13).

Former Power Plant, Building T-1451 — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

MNA of groundwater, surface water protection of East Canal using oil absorbent booms, and IC inspections.

Monitoring Types:

- [x] Groundwater Monitoring
- [x] Surface Water Monitoring
- [x] Sediment Monitoring
- [ ] Tissue Monitoring
- [ ] Landfill Inspection
- [x] IC Inspection — Click to View ICMP Table
- [ ] Remediation System Monitoring and Maintenance
- [ ] None Required

Most Recent Sampling Date: August 2019 Most Recent Inspection Date: September 2019

Current Media Sampled: Groundwater, surface water, and sediment

Current Analytes Sampled: NAPs, DRO, TAH, TAqH, BTEX, product thickness

Current Monitoring: Click to View Current Monitoring Monitoring File: FormerPowerPlant_MonCurr.pdf

Former Power Plant, Building T-1451 — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
01-118	MNA	Groundwater
1999	Total and dissolved lead (quarterly - 2 rounds)	
2000	Total and dissolved lead (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs, total and dissolved lead	
2002	GRO, GRO fractions, BTEX, DRO, DRO fractions, RRO, NAPs, total and dissolved lead	
2003	DRO, RRO, NAPs	
2004	DRO, RRO, NAPs	
2005	DRO, RRO	
2006	DRO, RRO	
2007	DRO, RRO	
2008	DRO, RRO	
2009	DRO, NAPs	
2010	DRO	
2011	DRO	
2012	DRO	
2013	DRO, NAPs	
2014	DRO, NAPs	
2015	DRO	
2016	DRO	
2017	DRO	
2018	DRO, NAPs	
2019	DRO	

Former Power Plant, Building T-1451 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
01-150	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	DRO, RRO, NAPs	
2004	DRO, RRO, NAPs	
2005	DRO	
2006	DRO	
2007	DRO	
2008	DRO	
2009	DRO, NAPs	
2010	DRO	
2011	DRO	
2012	DRO	
2013	DRO, NAPs	
2014	DRO, NAPs	
2015	DRO	
2016	DRO	
2017	DRO	
2018	DRO, NAPs	
2019	DRO	

Former Power Plant, Building T-1451 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
01-151	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	DRO, RRO, NAPs	
2004	DRO, RRO, NAPs	
2005	DRO	
2006	DRO	
2007	DRO, TAH, TAqH	
2008	DRO, TAH, TAqH	
2009	DRO, TAH, TAqH, NAPs	
2010	DRO, TAH, TAqH	
2011	DRO, BTEX , PAHs (for TAH and TAqH)	
2012	Well removed	

Former Power Plant, Building T-1451 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
E-701	MNA, NAPs background	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	DRO, GRO, BTEX, NAPs	
2004	DRO, GRO, BTEX, NAPs	
2005	NAPs	
2006	NAPs	
2007	NAPs	
2008	NAPs	
2009	NAPs	
2010	Monitoring not planned	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	NAPs	
2014	NAPs	
2015	Monitoring not planned	
2016	Monitoring not planned	
2017	Monitoring not planned	
2018	NAPs	
2019	Monitoring not planned	

Former Power Plant, Building T-1451 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-1451-1	MNA	Groundwater
2003	Non-Existent	
2004	Non-Existent	
2005	Non-Existent	
2006	Non-Existent	
2007	Non-Existent	
2008	Non-Existent	
2009	Non-Existent	
2010	Non-Existent	
2011	Non-Existent	
2012	Non-Existent	
2013	DRO, NAPs	
2014	Free product detected, not sampled	
2015	Free product detected, not sampled	
2016	Free product detected, not sampled	
2017	Free product detected, not sampled	
2018	Free product detected, not sampled	
2019	Free product detected, not sampled	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-1451-16-01	MNA	Groundwater
2017	DRO, GRO, BTEX	
2018	DRO, NAPs	
2019	DRO	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-1451-16-02	MNA	Groundwater
2017	DRO, GRO, BTEX	
2018	DRO, NAPs	
2019	DRO	

Former Power Plant, Building T-1451 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-1451-2	MNA, SW protection	Groundwater
2003	Non-Existent	
2004	Non-Existent	
2005	Non-Existent	
2006	Non-Existent	
2007	Non-Existent	
2008	Non-Existent	
2009	Non-Existent	
2010	Non-Existent	
2011	Non-Existent	
2012	Non-Existent	
2013	DRO, BTEX , PAHs (for TAH and TAqH), NAPs	
2014	DRO, NAPs	
2015	DRO, BTEX , PAHs (for TAH and TAqH)	
2016	DRO, BTEX , PAHs (for TAH and TAqH)	
2017	DRO, BTEX , PAHs (for TAH and TAqH)	
2018	DRO, BTEX , PAHs (for TAH and TAqH), NAPs	
2019	DRO, BTEX , PAHs (for TAH and TAqH)	

Former Power Plant, Building T-1451 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-1451-3	MNA, SW protection	Groundwater
2003	Non-Existent	
2004	Non-Existent	
2005	Non-Existent	
2006	Non-Existent	
2007	Non-Existent	
2008	Non-Existent	
2009	Non-Existent	
2010	Non-Existent	
2011	Non-Existent	
2012	Non-Existent	
2013	DRO, BTEX , PAHs (for TAH and TAqH), NAPs	
2014	DRO, NAPs	
2015	DRO, BTEX , PAHs (for TAH and TAqH)	
2016	DRO, BTEX , PAHs (for TAH and TAqH)	
2017	DRO, BTEX , PAHs (for TAH and TAqH)	
2018	DRO, BTEX , PAHs (for TAH and TAqH), NAPs	
2019	DRO, BTEX , PAHs (for TAH and TAqH)	

Former Power Plant, Building T-1451 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-1451-4	MNA, SW protection	Groundwater
2003	Non-Existent	
2004	Non-Existent	
2005	Non-Existent	
2006	Non-Existent	
2007	Non-Existent	
2008	Non-Existent	
2009	Non-Existent	
2010	Non-Existent	
2011	Non-Existent	
2012	Non-Existent	
2013	DRO, BTEX , PAHs (for TAH and TAqH), NAPs	
2014	DRO, NAPs	
2015	DRO, BTEX , PAHs (for TAH and TAqH)	
2016	DRO, BTEX , PAHs (for TAH and TAqH)	
2017	DRO, BTEX , PAHs (for TAH and TAqH)	
2018	DRO, BTEX , PAHs (for TAH and TAqH), NAPs	
2019	DRO, BTEX , PAHs (for TAH and TAqH)	

Former Power Plant, Building T-1451 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-1451-5	MNA	Groundwater
2003	Non-Existent	
2004	Non-Existent	
2005	Non-Existent	
2006	Non-Existent	
2007	Non-Existent	
2008	Non-Existent	
2009	Non-Existent	
2010	Non-Existent	
2011	Non-Existent	
2012	Non-Existent	
2013	DRO, NAPs	
2014	DRO, NAPs	
2015	DRO	
2016	DRO	
2017	DRO	
2018	DRO, NAPs	
2019	DRO	

Former Power Plant, Building T-1451 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-1451-6	MNA	Groundwater
2003	Non-Existent	
2004	Non-Existent	
2005	Non-Existent	
2006	Non-Existent	
2007	Non-Existent	
2008	Non-Existent	
2009	Non-Existent	
2010	Non-Existent	
2011	Non-Existent	
2012	Non-Existent	
2013	DRO, NAPs	
2014	DRO, NAPs	
2015	Free product detected, not sampled	
2016	DRO	
2017	DRO	
2018	Free product detected, not sampled	
2019	Free product detected, not sampled	

Former Power Plant, Building T-1451 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-1451-7	MNA	Groundwater
2003	Non-Existent	
2004	Non-Existent	
2005	Non-Existent	
2006	Non-Existent	
2007	Non-Existent	
2008	Non-Existent	
2009	Non-Existent	
2010	Non-Existent	
2011	Non-Existent	
2012	Non-Existent	
2013	Free product detected, not sampled	
2014	Free product detected, not sampled	
2015	Free product detected, not sampled	
2016	Free product detected, not sampled	
2017	Free product detected, not sampled	
2018	Free product detected, not sampled	
2019	Free product detected, not sampled	

Former Power Plant, Building T-1451 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-1451-8	MNA	Groundwater
2003	Non-Existent	
2004	Non-Existent	
2005	Non-Existent	
2006	Non-Existent	
2007	Non-Existent	
2008	Non-Existent	
2009	Non-Existent	
2010	Non-Existent	
2011	Non-Existent	
2012	Non-Existent	
2013	DRO, NAPs	
2014	DRO, NAPs	
2015	DRO	
2016	DRO	
2017	DRO	
2018	DRO, NAPs	
2019	DRO	

Former Power Plant, Building T-1451 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-1451-9	MNA	Groundwater
2003	Non-Existent	
2004	Non-Existent	
2005	Non-Existent	
2006	Non-Existent	
2007	Non-Existent	
2008	Non-Existent	
2009	Non-Existent	
2010	Non-Existent	
2011	Non-Existent	
2012	Non-Existent	
2013	Free product detected, not sampled	
2014	DRO, NAPs	
2015	DRO	
2016	DRO	
2017	DRO	
2018	DRO, NAPs	
2019	DRO	

Former Power Plant, Building T-1451 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NL-08	Natural Recovery	Surface water and Sediment
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Surface water: DRO, TAH, TAqH Sediment: DRO, PAHs	
2011	Sediment: DRO, PAHs Surface water: DRO, BTEX , PAHs (for TAH and TAqH)	
2012	Sediment: DRO, PAHs Surface water: DRO, BTEX , PAHs (for TAH and TAqH)	
2013	Sediment: DRO, PAHs Surface water: DRO, BTEX , PAHs (for TAH and TAqH)	
2014	Sediment: DRO, PAHs Surface water: DRO, BTEX , PAHs (for TAH and TAqH)	
2015	Sediment: DRO Surface water: DRO, BTEX , PAHs (for TAH and TAqH)	
2016	Sediment: DRO Surface water: DRO, BTEX , PAHs (for TAH and TAqH)	
2017	Sediment: DRO Surface water: DRO, BTEX , PAHs (for TAH and TAqH)	
2018	Sediment: DRO Surface water: DRO, BTEX , PAHs (for TAH and TAqH)	
2019	Sediment: DRO Surface water: DRO, BTEX , PAHs (for TAH and TAqH)	

SUMMARY OF INSPECTION RESULTS:

Institutional controls at Former Power Plant, Building T-1451 include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and groundwater monitoring, and IC inspections and reporting. During the IC inspection on September 9, 2019, the eastern portion of the site was being used as a maintenance shop for the City of Adak, with numerous vehicles stored onsite. Several 55-gallon drums, various-sized ASTs, and batteries were observed onsite. The western portion of the site did not appear to be in use except for FPR activities. No residential construction had occurred at the site. There were no indications groundwater was being used at the site. The site has an excavation restriction sign approximately 70 yards east of the building. A damaged excavation sign was observed on the ground near the East Canal access road, but the site is in the downtown area and several signs were located in the immediate vicinity of the site. During the 2021 5-year review site walk it was noted that all missing orthe

damaged signs associated with the site from the 2019 IC inspection had been replaced. The 2019 IC report indicated all other ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. Because of past housekeeping issues at this site, it is recommended that the site conditions continue to be monitored. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

8, 29, 31, 34, 39, 41, 44, 52, 62, 74, 84, 89, 90, 91, 112, 118, 129, 132, 134, 140, 141, 142, 145, 151, 152, 161, 162, 163, 165, 166, 167, 168, 169

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

STATUS: Groundwater monitoring and IC inspections

BACKGROUND:

The petroleum-release site designated Area 303/GCI Compound, UST GCI-1 is located in downtown Adak between the air terminal and the former high school building. It is bounded by Airport Road to the north, Sandy Cove Housing area and the former high school building to the east, Eagle Bay Housing area and an unnamed dirt road to the south, and the air terminal to the west. Area 303 occupies approximately 23.8 acres that include disturbed commercial-industrial areas and open grass-covered areas. The general topography of the site is relatively flat with surface drainage directed to the west. The ground surface at the site consists of the asphalt-paved Main Road, multiple small gravel-covered lots in highly disturbed areas near existing structures, and an extensive level area covered with native grasses comprising the less disturbed areas. Elevations of the ground surface in this area are generally 26 to 30 feet above mean lower low water.

The primary physical features at Area 303 include the former line crew building (Building T-2776), which is located at the northern limit of Area 303 along Airport Road, the GCI Compound, which includes the GCI Building 42352 and an associated long-distance telecommunications transmitter and receiver antenna, located within a fenced enclosure that is approximately centered within Area 303, the Main Road traversing the eastern portion of the site in a northeast-southwest direction, and an underground utility corridor that contains former fuel transfer pipelines and traverses the site parallel and adjacent to Main Road.

Former UST GCI-1 and the associated piping were removed in April 1995. During tank removal activities, a previously unknown pipeline believed to be a remote supply/fill pipe separated from the tank, and about 2,000 gallons of water and unknown-type of petroleum residuals discharged into the excavation. Approximately 90 percent of the released liquid was recovered prior to backfilling the excavation. The pipe was plugged and left in place. DRO was detected at concentrations exceeding the ADEC matrix level in two samples collected during the UST removal, and GRO was detected in one sample at a concentration greater than the ADEC matrix level. The UST appeared to be in good condition when removed.

Nine 2-inch monitoring wells and two soil borings were installed at the site in 1996. DRO and GRO exceeded ADEC 18 AAC 75 soil cleanup levels in one of two soil samples. Exceedances of groundwater criteria also were noted in two wells for DRO and in seven wells for GRO collected in 1996. An additional four soil borings were installed above the groundwater table at the facility to determine oxygen gradients in the subsurface soil in 1997. Two 0.5-inch monitoring wells also were installed in 1997. DRO concentrations in one soil sample collected in 1997 exceeded the soil cleanup criterion. Three monitoring wells were resampled in 1997, and exceedances of groundwater criteria were noted in one well for DRO and in three wells for GRO.

An additional monitoring well (04-701) was installed in 1998 to be used for sentinel monitoring during comprehensive monitoring activities. Wells 04-203 and 04-701 were sampled for groundwater in 1998. No exceedances of either soil or groundwater criteria were noted in samples collected from well 04-701; however, DRO and GRO concentrations were above their respective cleanup levels in well 04-203. Comprehensive monitoring results from well 04-701 in the 1999-2000 season yielded concentrations of DRO and GRO near their respective detection limits.

Free product was first observed in well 04-201 in October 1996 and later measured in well 04-202 in October 1997. Less than 5 gallons of product were recovered from passive skimmers installed for two to three months during 1997. Between 1997 and 2004, the Navy gauged the wells at the site periodically for the presence of free product. Free product recovery activities ceased in 2004.

During 2002, the USGS evaluated the Navy's groundwater monitoring program for OU A at the former Adak Naval Complex to determine how well the program was meeting the objectives specified in the ROD. The Navy then asked the USGS to conduct a field investigation on Adak to obtain information that would be used to modify the existing monitoring program so that it would better monitor the effectiveness of natural attenuation processes. The resulting field investigation was conducted during May and June 2003. As part of this investigation, the USGS collected groundwater samples from 10 locations between the GCI Compound and the East Canal using a Geoprobe sample collection method. The chemical analyses conducted on these samples identified the presence of GRO at concentrations that greatly exceeded those obtained from the GCI source area. The distribution of GRO concentrations in the primary aquifer beneath Area 303 caused the USGS to conclude that a second overlapping GRO plume existed in this area. The USGS stated that the second GRO plume was emanating from an unidentified source somewhere south or southwest of the GCI source area along Main Road.

The Navy subsequently contracted to conduct a follow-on investigation in order to characterize the GRO release, evaluate the human health and ecological risks associated with the release, and present remedial alternatives. The latter would provide decision makers with sufficient information to select an appropriate, cost-effective remedial alternative that protects human health and the environment and that can be implemented at the earliest possible time.

Field investigation activities were conducted during May, June, and July 2006 for the Area 303 site characterization. The primary activities included a survey of the pipelines within Area 303, Geoprobe survey, surface soil sampling, subsurface soil sampling, monitoring well installations, and groundwater sampling.

The distribution of petroleum-related chemicals in the subsurface appears to be controlled not only by the release point and mechanism, but also by local geologic conditions. It appears that the source of petroleum-related chemicals in soil and groundwater at Area 303 originated from the 8-inch avgas pipeline located just east of Main Road. In addition, the release could have been controlled to some extent by migration along the pipeline trench backfill. The point, therefore, at which the release left the pipeline trench backfill may not necessarily be the point at which the pipeline leak occurred. Branch lines to the main pipeline could have affected the route through the vadose zone to groundwater. Other leaks in the northern portion of the pipeline could have resulted in the GRO and benzene detections observed in groundwater.

During summer 2010, the Navy contracted to conduct a soil vapor sampling to support assessment of the risk of potential vapor intrusion at Area 303.

A final decision document for Area 303 was issued in 2012. Chemicals present in groundwater, soil, and soil vapor at Area 303 pose no unacceptable risk to human health above target health goals, provided that

ICs prohibiting the use of groundwater as a drinking water source remain in effect. Some discontinuous free product has been observed in recent monitoring well investigations. Exposures to free product may represent an unacceptable health risk.

Various petroleum-related chemicals were detected in groundwater at concentrations greater than the tabulated groundwater cleanup levels (18 AAC 75.345[b][1], Table C). Institutional controls are in place to prevent the use of groundwater as a drinking water source.

The ecological risk assessment concluded that no ecological threat exists to terrestrial receptors from chemicals detected in surface soil. The groundwater plume from Area 303 has not reached the off-site surface water body (East Canal). Impacts to surface water in East Canal have been addressed under SWMU 62 evaluations. Ecological exposure to surface water in East Canal was considered to be a minor or insignificant exposure pathway.

PRE-ROD ASSESSMENT SUMMARY:

A decision document has not yet been issued for this site.

The tabulation below summarizes the data collected to date for Area 303.

Number of Pre-Rod Locations Sampled	52
Number of Pre-Rod Samples	242
Potential Contaminant Types Evaluated	Air,Inorganics, Metals, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Soil gas, Soil, Sub-surface soil (> 6")
Types of Pre-ROD Locations	Direct Push/Geoprobe, Geoprobe well, Monitoring well, Soil gas probe/well

GCI Compound, UST GCI-1/Area 303 OU A - SAERA

COCs AND RISKS:

Not established.

The existing risk assessment for Site 303 is being revised based on 2010 data.

RAOs:

The OU A ROD for the petroleum site GCI Compound, UST GCI-1/Area 303 established the following RAOs (Decision Document for Area 303):

REMEDY IMPLEMENTATION:

The selected cleanup remedy for Area 303 is MNA, ICs, and free-phase product recovery.

Monitored natural attenuation will help to demonstrate whether contaminant concentrations decrease to below the ADEC cleanup levels, and ICs will be used to protect human health and the environment as long as groundwater concentrations are greater than the groundwater cleanup levels. Institutional controls, including excavation notifications and a groundwater use restriction, will remain in effect to protect human health and the environment until groundwater cleanup levels in 18 AAC 75.345, Table C, have been achieved. Passive free-product recovery will be used to reduce the risk of exposure to free product and of free product migrating to East Canal.

Free product recovery began at this site in June 2013 and continued through September 2015. A total of 0.22 gallons of free product was recovered during this time period all of it recovered in July and August 2013. Product recovery was discontinued in December 2014 because no free product was observed in any of the monitoring wells during the October 2013 through September 2014 reporting period.

DRO, GRO, BTEX, lead, TAH, and TAqH have continued to exceed endpoint criteria in various site wells in 2019. Because of this, it is recommended that prescribed monitoring continue in 2020.

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Groundwater monitoring is currently performed as part of an on-going site evaluation, not as part of the requirements of the CMP.

Monitoring Types:

- [x] Groundwater Monitoring
- [ ] Surface Water Monitoring
- [ ] Sediment Monitoring
- [ ] Tissue Monitoring
- [ ] Landfill Inspection
- [x] IC Inspection — Click to View ICMP Table
- [ ] Remediation System Monitoring and Maintenance
- [ ] None Required

Most Recent Sampling Date: September 2019 Most Recent Inspection Date: September 2019

Current Media Sampled: Groundwater

Current Analytes Sampled: BTEX, GRO, DRO, Lead, TAH, TAqH, free product thickness

Current Monitoring: Click to View Current Monitoring Monitoring File: Area 303_GCI monitoring.pdf

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-107	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Site Assessment	
2009	GRO, BTEX, NAPs	
2010	Monitoring not planned	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	GRO, benzene , T/D-Pb, NAPs	
2014	GRO, benzene , T/D-Pb, NAPs	
2015	GRO, benzene , T/D-Pb	
2016	GRO, benzene , T/D-Pb	
2017	GRO, benzene , T/D-Pb	
2018	GRO, benzene , T/D-Pb, NAPs	
2019	GRO, benzene , T/D-Pb	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-895	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	Discontinued monitoring this background well	
2011	DRO, GRO, BTEX	
2012	DRO, GRO, BTEX	
2013	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-100	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	DRO, GRO, BTEX, NAPs	
2004	DRO, GRO, BTEX, NAPs	
2005	DRO, GRO, BTEX	
2006	DRO, GRO, BTEX	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	GRO, benzene, NAPs	
2010	GRO, benzene	
2011	GRO	
2012	DRO, GRO	
2013	GRO	
2014	GRO	
2015	Met endpoint criteria; monitoring discontinued	
2016	Met endpoint criteria; monitoring discontinued	
2017	Met endpoint criteria; monitoring discontinued	
2018	Met endpoint criteria; monitoring discontinued	
2019	Met endpoint criteria; monitoring discontinued	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-201	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Product thickness	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-202	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	DRO, GRO, BTEX	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Free product detected, not sampled	
2006	Free product detected, not sampled, product thickness (monthly)	
2007	Free product detected, not sampled, product thickness (monthly)	
2008	GRO, BTEX, product thickness (monthly)	
2009	GRO, benzene, NAPs, product thickness (monthly)	
2010	GRO, benzene, product thickness (monthly)	
2011	GRO	
2012	DRO, GRO	
2013	GRO	
2014	GRO	
2015	Met endpoint criteria; monitoring discontinued	
2016	Met endpoint criteria; monitoring discontinued	
2017	Met endpoint criteria; monitoring discontinued	
2018	Met endpoint criteria; monitoring discontinued	
2019	Met endpoint criteria; monitoring discontinued	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-203	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Product thickness	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-204	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Product thickness	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	DRO, GRO, BTEX	
2007	GRO, BTEX	
2008	GRO, BTEX	
2009	GRO, benzene, NAPs	
2010	DRO, GRO	
2011	DRO, GRO	
2012	DRO, GRO	
2013	GRO	
2014	GRO	
2015	GRO	
2016	GRO	
2017	GRO	
2018	GRO, NAPs	
2019	GRO	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-207	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Product thickness	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-210	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	DRO, GRO, BTEX	
2003	Product thickness	
2004	Monitoring not planned	
2005	GRO, BTEX	
2006	GRO, BTEX	
2007	GRO, BTEX	
2008	GRO, BTEX	
2009	GRO, benzene, NAPs	
2010	GRO	
2011	GRO	
2012	DRO, GRO	
2013	GRO	
2014	GRO	
2015	GRO	
2016	GRO	
2017	GRO	
2018	GRO, NAPs	
2019	GRO	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-211	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Product thickness	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	GRO, NAPs	
2014	GRO, NAPs	
2015	GRO	
2016	GRO	
2017	GRO	
2018	GRO, NAPs	
2019	GRO	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-213	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Product thickness	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	DRO, GRO, BTEX	
2007	GRO	
2008	GRO	
2009	GRO, NAPs	
2010	GRO	
2011	GRO	
2012	DRO, GRO	
2013	GRO	
2014	GRO	
2015	GRO	
2016	GRO	
2017	GRO	
2018	GRO, NAPs	
2019	GRO	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-701	MNA	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	GRO, BTEX, NAPs	
2004	GRO, BTEX, NAPs	
2005	GRO, BTEX	
2006	GRO, BTEX	
2007	Product thickness	
2008	GRO, benzene (even years only)	
2009	NAPs	
2010	GRO, benzene (even years only)	
2011	Monitoring not planned	
2012	GRO	
2013	GRO	
2014	GRO	
2015	GRO	
2016	GRO	
2017	GRO	
2018	GRO, NAPs	
2019	GRO	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MRP-MW9	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Product thickness	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	DRO, GRO, BTEX	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	
2011	DRO	
2012	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-17	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Site Assessment	
2009	GRO, BTEX, NAPs	
2010	Monitoring not planned	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-28	MNA	Groundwater
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Monitoring not planned	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	GRO, T/D-Pb, NAPs	
2014	GRO, T/D-Pb, NAPs	
2015	GRO, T/D-Pb	
2016	GRO, T/D-Pb	
2017	GRO, T/D-Pb	
2018	GRO, T/D-Pb, NAPs	
2019	GRO, T/D-Pb	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-30	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Site Assessment	
2009	GRO, BTEX, NAPs	
2010	Monitoring not planned	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	GRO, BTEX , T/D-Pb, dibenzo(a,h)anthracene, NAPs	
2014	GRO, BTEX , T/D-Pb, NAPs	
2015	GRO, BTEX , T/D-Pb, dibenzo(a,h)anthracene	
2016	Free product detected, not sampled	
2017	GRO, BTEX , T/D-Pb, dibenzo(a,h)anthracene	
2018	GRO, BTEX , T/D-Pb, NAPs	
2019	GRO, BTEX , T/D-Pb	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-31	MNA/FP	Groundwater
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Monitoring not planned	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	GRO, BTEX , T/D-Pb, dibenzo(a,h)anthracene, NAPs	
2014	GRO, BTEX , T/D-Pb, PAHs (for TAH and TAqH), NAPs	
2015	GRO, BTEX , T/D-Pb, dibenzo(a,h)anthracene	
2016	GRO, BTEX , T/D-Pb, dibenzo(a,h)anthracene	
2017	GRO, BTEX , T/D-Pb, dibenzo(a,h)anthracene	
2018	GRO, BTEX , T/D-Pb, NAPs	
2019	Monitoring Discontinued	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-32	MNA	Groundwater
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Monitoring not planned	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	GRO, benzene, NAPs	
2014	DRO, GRO, BTEX , PAHs (for TAH and TAqH), NAPs	
2015	Met endpoint criteria; monitoring discontinued	
2016	Met endpoint criteria; monitoring discontinued	
2017	Met endpoint criteria; monitoring discontinued	
2018	Met endpoint criteria; monitoring discontinued	
2019	Met endpoint criteria; monitoring discontinued	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-33	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Site Assessment	
2009	GRO, BTEX, NAPs	
2010	Monitoring not planned	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	GRO, benzene, NAPs	
2014	DRO, GRO, BTEX , PAHs (for TAH and TAqH), NAPs	
2015	DRO, GRO, BTEX	
2016	DRO, GRO, BTEX	
2017	DRO, GRO, BTEX	
2018	DRO, GRO, BTEX, NAPs	
2019	Monitoring discontinued	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-34	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Site Assessment	
2009	GRO, BTEX, NAPs	
2010	Monitoring not planned	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-37	MNA, SW protection	Groundwater
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Monitoring not planned	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	DRO, GRO, BTEX , PAHs (for TAH and TAqH), NAPs	
2014	GRO, BTEX , T/D-Pb, PAHs (for TAH and TAqH), NAPs	
2015	DRO, GRO, BTEX , PAHs (for TAH and TAqH)	
2016	DRO, GRO, BTEX , PAHs (for TAH and TAqH)	
2017	DRO, GRO, BTEX , PAHs (for TAH and TAqH)	
2018	DRO, GRO, BTEX , PAHs (for TAH and TAqH)	
2019	DRO, GRO, BTEX , PAHs (for TAH and TAqH)	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-38	MNA/FP	Groundwater
2003	Non-Existent	
2004	Non-Existent	
2005	Non-Existent	
2006	Non-Existent	
2007	Non-Existent	
2008	Non-Existent	
2009	Non-Existent	
2010	Non-Existent	
2011	Non-Existent	
2012	Non-Existent	
2013	GRO, BTEX , T/D-Pb, dibenzo(a,h)anthracene, NAPs	
2014	GRO, BTEX , T/D-Pb, PAHs (for TAH and TAqH), NAPs	
2015	GRO, BTEX , T/D-Pb, dibenzo(a,h)anthracene	
2016	GRO, BTEX , T/D-Pb, dibenzo(a,h)anthracene	
2017	GRO, BTEX , T/D-Pb, dibenzo(a,h)anthracene	
2018	GRO, BTEX , T/D-Pb, NAPs	
2019	GRO, BTEX , T/D-Pb	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-39	MNA/FP	Groundwater
2003	Non-Existent	
2004	Non-Existent	
2005	Non-Existent	
2006	Non-Existent	
2007	Non-Existent	
2008	Non-Existent	
2009	Non-Existent	
2010	Non-Existent	
2011	Non-Existent	
2012	Non-Existent	
2013	GRO, BTEX , T/D-Pb, dibenzo(a,h)anthracene, NAPs	
2014	GRO, BTEX , T/D-Pb, PAHs (for TAH and TAqH), NAPs	
2015	Met endpoint criteria; monitoring discontinued	
2016	Met endpoint criteria; monitoring discontinued	
2017	Met endpoint criteria; monitoring discontinued	
2018	Met endpoint criteria; monitoring discontinued	
2019	Met endpoint criteria; monitoring discontinued	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-40	MNA/FP	Groundwater
2003	Non-Existent	
2004	Non-Existent	
2005	Non-Existent	
2006	Non-Existent	
2007	Non-Existent	
2008	Non-Existent	
2009	Non-Existent	
2010	Non-Existent	
2011	Non-Existent	
2012	Non-Existent	
2013	GRO, BTEX , T/D-Pb, dibenzo(a,h)anthracene, NAPs	
2014	GRO, BTEX , T/D-Pb, PAHs (for TAH and TAqH), NAPs	
2015	Met endpoint criteria; monitoring discontinued	
2016	Met endpoint criteria; monitoring discontinued	
2017	Met endpoint criteria; monitoring discontinued	
2018	Met endpoint criteria; monitoring discontinued	
2019	Met endpoint criteria; monitoring discontinued	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-41	MNA/FP	Groundwater
2003	Non-Existent	
2004	Non-Existent	
2005	Non-Existent	
2006	Non-Existent	
2007	Non-Existent	
2008	Non-Existent	
2009	Non-Existent	
2010	Non-Existent	
2011	Non-Existent	
2012	Non-Existent	
2013	GRO, BTEX , T/D-Pb, dibenzo(a,h)anthracene, NAPs	
2014	GRO, BTEX , T/D-Pb, PAHs (for TAH and TAqH), NAPs	
2015	Met endpoint criteria; monitoring discontinued	
2016	Met endpoint criteria; monitoring discontinued	
2017	Met endpoint criteria; monitoring discontinued	
2018	Met endpoint criteria; monitoring discontinued	
2019	Met endpoint criteria; monitoring discontinued	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-42	MNA	Groundwater
2003	Non-Existent	
2004	Non-Existent	
2005	Non-Existent	
2006	Non-Existent	
2007	Non-Existent	
2008	Non-Existent	
2009	Non-Existent	
2010	Non-Existent	
2011	Non-Existent	
2012	Non-Existent	
2013	GRO, benzene, NAPs	
2014	DRO, GRO, NAPs	
2015	GRO	
2016	GRO, benzene	
2017	GRO, benzene	
2018	GRO, benzene, NAPs	
2019	GRO, benzene	

GCI Compound, UST GCI-1/Area 303 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-43	MNA	Groundwater
2003	Non-Existent	
2004	Non-Existent	
2005	Non-Existent	
2006	Non-Existent	
2007	Non-Existent	
2008	Non-Existent	
2009	Non-Existent	
2010	Non-Existent	
2011	Non-Existent	
2012	Non-Existent	
2013	GRO, NAPs	
2014	GRO, NAPs	
2015	GRO	
2016	GRO	
2017	GRO	
2018	GRO, NAPs	
2019	GRO	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-44	MNA	Groundwater
2003	Non-Existent	
2004	Non-Existent	
2005	Non-Existent	
2006	Non-Existent	
2007	Non-Existent	
2008	Non-Existent	
2009	Non-Existent	
2010	Non-Existent	
2011	Non-Existent	
2012	Non-Existent	
2013	GRO, NAPs	
2014	GRO, NAPs	
2015	GRO	
2016	GRO	
2017	GRO	
2018	GRO, NAPs	
2019	GRO	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-62-16-03	MNA/SWP	Groundwater
2017	DRO, GRO, BTEX	
2018	DRO, GRO, BTEX, PAHs (for TAH and TAqH), NAPs	
2019	DRO, GRO, BTEX, PAHs (for TAH and TAqH)	

SUMMARY OF INSPECTION RESULTS:

Institutional controls at Area 303/GCI Compound include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, groundwater monitoring, and IC inspections and reporting. During the IC inspection on September 9, 2019, two metal drums were observed on the west site of Building T-2776. The drums are within a secondary containment; however, there is a hole in the secondary containment. The stained soil associated with the drums and a pallet of batteries observed in 2015 and 2017, remain at the site. An unknown flush-mount monitoring well in the field behind the school was observed to have been destroyed during surface scraping by heavy equipment. No other changes to the site were observed compared to the 2017 inspection results. No residential construction had occurred at the site, and excavation restriction signs are clearly visible. There were no indications of groundwater use or

excavation observed at the site. The 2019 IC report indicated all ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. It is recommended that site conditions continue to be monitored at the site. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

26, 29, 31, 34, 39, 41, 44, 52, 62, 69, 74, 77, 84, 90, 91, 108, 129, 134, 139, 140, 141, 142, 151, 152, 156, 165, 166, 168

Girl Scout Camp, UST GS-1 — OU A - SAERA

Girl Scout Camp, UST GS-1 — OU A - SAERA

STATUS: Cleanup complete

BACKGROUND:

The former Girl Scout Camp was located 2 miles northeast of downtown Adak and Runway 5-23. This site, which was used by the 349th Engineers Regiment in the 1940s, included several Quonset huts and other buildings that have since been removed. One cabin that is still in place at the site was used to house Girl Scouts in the mid-to late 1980s. The former Girl Scout Camp site lies in a relatively flat area surrounded by hills and swales. The closest year-round water body, Palisades Lake, is located about 390 feet northeast of the source area.

A UST (UST GS-1) formerly present at the site is thought to have been installed between 1945 and 1947. The UST was used for storing JP-5 for heating buildings that have since been removed. The 850-gallon wooden UST showed signs of moderate weathering when it was removed in August 1993. Records indicating releases or tank-tightness reports were not available for this tank. The two soil samples collected from the excavation floor at a depth of 7 feet bgs had DRO concentrations that exceeded ADEC Method One soil cleanup levels. Therefore, an additional investigation was required.

During the additional site investigation conducted in 1996 and 1997, one 2-inch diameter groundwater monitoring well and three soil borings were installed. In addition, a staff gauge was installed at Palisades Lake. Surface and subsurface soil, groundwater, and surface water samples were collected. DRO concentrations exceeded ADEC soil cleanup levels in one subsurface soil sample and two surface soil samples. DRO, GRO, and BTEX were not detected in groundwater samples. DRO was detected at a maximum concentration of 1,300 µg/L in surface water.

When well 10-120 was resampled in 1998, the DRO concentration was below the ADEC cleanup criteria. DRO concentrations ranged from 380 to 580 µg/L in the two surface water samples collected in 1998.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	11
Number of Pre-Rod Samples	20
Potential Contaminant Types Evaluated	Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Soil, Sub-surface soil (> 6"), Surface soil (less than 6 inches), Surface water
Types of Pre-ROD Locations	Direct Push/Geoprobe, Excavation, Ground surface, Monitoring well, Vault, Wetlands

Girl Scout Camp, UST GS-1 — OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria:

Soil

- DRO

RAOs:

The OU A ROD for the petroleum site Girl Scout Camp (UST GS-1) established the following RAO (Table 7-4 of the OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

In 1999, approximately 192 cubic yards of in-place soil containing petroleum-related compounds at concentrations exceeding ADEC Method Two soil cleanup levels were removed from the site for treatment and disposal. DRO, GRO, and RRO concentrations from all but one sample of soils remaining on site are below ADEC Method Two soil cleanup levels for the over-40 inch rainfall zone and protection of migration to groundwater.

Although analyses of one soil sample produced a DRO concentration (250 mg/kg) slightly above the ADEC Method Two cleanup level (230 mg/kg), little or no impact from this minor exceedance is anticipated. All concentrations of other petroleum-related compounds were below ADEC soil cleanup levels. In addition, groundwater is not considered a continuous transport pathway from the Girl Scout Camp site to Palisades Lake, because the site is situated on tephra.

ADEC designated the site as "cleanup complete" on November 23, 2005.

The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including Girl Scout Camp. No ICs specific to the Girl Scout Camp site were established in the OU A ROD, and IC site inspections are not required for this site in the ICMP.

Girl Scout Camp, UST GS-1 — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☐ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☑ None Required

Most Recent Sampling Date: July 1999 — Most Recent Inspection Date: 1999

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Girl Scout Camp, UST GS-1 — OU A - SAERA

SUMMARY OF INSPECTION RESULTS:

Girl Scout Camp was not one of the sites selected for inspection during the 2015 five-year review. Girl Scout Camp is a no further action site that did not appear likely to be revised to an action site based on ARAR changes.

BIBLIOGRAPHY:

3, 28, 55, 62, 84

Housing Area, Arctic Acres — OU A - SAERA

Housing Area, Arctic Acres — OU A - SAERA

STATUS: Groundwater monitoring and IC inspections.

BACKGROUND:

The Housing Area, Arctic Acres site is located in downtown Adak, east of Main Road and north of Kagalaska Drive. The site consists of 10 duplex housing units, paved roads, and flat gravel areas constructed in 1975. All housing units have been vacant since at least early 1996. Heating fuel (JP-5) was formerly delivered to each unit through underground pressurized ¾-inch steel pipelines connected to two 27,000-gallon steel ASTs. The ASTs lie west of the housing area and receive their fuel from the Main Road Pipeline. The site is drained by roadside ditches and storm drains that flow toward Kuluk Bay. Groundwater elevations measured at the site indicate that groundwater flows towards Kuluk Bay, approximately 1,000 feet to the east, on the eastern portion of the site and toward the East Canal, approximately 3,550 feet to the west, on the western portion of the site.

During a routine pipeline test in August 1993, investigators discovered that JP-5 had been released from the pipeline. Ten leaks caused by corrosion were found along a 150-foot length of pipeline running in an east-west direction under Dolly Varden Drive between Buildings 27055 and 27054 and Building 27058. The combined leak rate was estimated at 7.5 gallons per hour, but it was not known how long the pipeline had been releasing product. Therefore, the total volume released was unknown. The fuel line was repaired within one day of the discovery of the leaks.

During the limited investigation of the pipeline leak conducted in August 1993, monitoring well AAMW¬E298-1 was installed south of the repaired fuel line. DRO was detected at a concentration of 14,000 mg/kg in the sample collected from the AAMW-E298-1 boring. Free product (0.71 foot) was measured in the well in August 1993. When the well was inspected in February 1996, no free product was observed.

Two monitoring wells were installed west of well AAMW-E298-1 in 1996. DRO, GRO, and BTEX were not detected in the soil. DRO concentrations in groundwater samples collected from the three wells ranged from 2,500 to 12,700 µg/L. Free product was not detected in any of the wells during quarterly monitoring activities in 1996 and 1997.

In 1998, monitoring well 03-890 was installed approximately 500 feet west of the former leak. DRO was detected at a concentration of 34,000 mg/kg in the soil sample collected from the 03-890 soil boring. Exceedances of the Alaska DRO groundwater cleanup criterion were noted in both wells. The GRO concentration from the groundwater sample collected from well 03-890 also exceeded the ROD-established Alaska 18 AAC 75.345 Table C value.

In 1999, three monitoring wells (03-420, 03-421, and 03-422) were installed approximately 250 feet west of well 03-890, approximately 300 feet southwest of well 03-890, and approximately 300 feet south of well 03¬-416, respectively. DRO concentrations from the five soil samples collected from wells 03-420 and 03-421 exceeded the ROD-established ADEC 18 AAC 75 soil cleanup criterion. DRO was detected at levels barely above the detection limit in soil samples collected from well 03-422.

Housing Area, Arctic Acres — OU A - SAERA

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	4
Number of Pre-Rod Samples	11
Potential Contaminant Types Evaluated	Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Sub-surface soil (> 6")
Types of Pre-ROD Locations	Monitoring well, Well

Housing Area, Arctic Acres — OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemicals exceeded these criteria (Table 10-3 of the OU A ROD):

Groundwater

- Benzene
- DRO
- GRO

Soil

- DRO

RAOs:

The OU A ROD for the petroleum site Housing Area, Arctic Acres established the following (Table 7-4 of the OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is MNA and ICs.

Natural attenuation groundwater monitoring for this site began in 1999 and is ongoing. Product recovery was initiated at wells 03-421 and 03-890 in 2000 and continued until November 2002. Six new wells (AA-01 through AA-06) were installed in 2001. Limited monitoring was initiated at four of these wells in 2002. As required by the latest version of the CMP, the presence or absence of free product is assessed prior to groundwater sampling at each well. If free product is observed, decisions are made based on the measured free product thickness as to whether free product removal is warranted, and whether groundwater samples should be collected.

DRO was reported at concentrations that exceeded the endpoint criterion of 1,500 µg/L in all four samples collected at the site in 2018 ranging from 1,800 µg/L to 11,000 µg/L. Because DRO concentrations remain above the endpoint criterion, monitoring should continue as prescribed.

The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including Arctic Acres.

Housing Area, Arctic Acres — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- [x] Groundwater Monitoring
- [ ] Surface Water Monitoring
- [ ] Sediment Monitoring
- [ ] Tissue Monitoring
- [ ] Landfill Inspection
- [x] IC Inspection — Click to View ICMP Table
- [ ] Remediation System Monitoring and Maintenance
- [ ] None Required

Most Recent Sampling Date: August 2018 — Most Recent Inspection Date: September 2019

Current Media Sampled: Groundwater

Current Analytes Sampled: DRO, NAPs

Current Monitoring: Click to View Current Monitoring — Monitoring File: Arctic Acres monitoring.pdf

Housing Area, Arctic Acres — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-416	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	DRO, GRO, BTEX	
2002	Monitoring not planned	
2003	DRO, RRO, NAPs	
2004	DRO, RRO, NAPs	
2005	Monitoring not planned	
2006	DRO (even years only)	
2007	Monitoring not planned	
2008	DRO (even years only)	
2009	NAPs	
2010	DRO (even years only)	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	DRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	DRO	
2017	Monitoring not planned	
2018	DRO, NAPs	
2019	Monitoring not planned	

Housing Area, Arctic Acres — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-420	MNA	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	DRO, RRO, NAPs	
2004	DRO, RRO, NAPs	
2005	DRO	
2006	DRO	
2007	DRO	
2008	DRO	
2009	DRO, NAPs (odd years only)	
2010	Product thickness	
2011	DRO	
2012	Monitoring not planned	
2013	DRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	DRO	
2017	Monitoring not planned	
2018	DRO, NAPs	
2019	Monitoring not planned	

Housing Area, Arctic Acres — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-421	MNA	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	Monitoring discontinued	
2005	Free product detected, not sampled	
2006	Free product detected, not sampled	
2007	Free product detected, not sampled	
2008	Free product detected, not sampled	
2009	DRO, NAPs	
2010	DRO	
2011	DRO	
2012	Monitoring not planned	
2013	DRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	DRO	
2017	Monitoring not planned	
2018	DRO, NAPs	
2019	Monitoring not planned	

Housing Area, Arctic Acres — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-422	MNA	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	DRO	
2011	Met endpoint criteria; monitoring discontinued	

Housing Area, Arctic Acres — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-890	MNA	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	Discontinued due to potential product	
2004	Monitoring not planned	
2005	Free product detected, not sampled	
2006	Free product detected, not sampled	
2007	Free product detected, not sampled	
2008	Free product detected, not sampled	
2009	DRO, NAPs	
2010	DRO	
2011	DRO	
2012	Monitoring not planned	
2013	DRO	
2014	Free product detected, not sampled	
2015	Monitoring not planned	
2016	DRO	
2017	Monitoring not planned	
2018	DRO, NAPs	
2019	Monitoring not planned	

Housing Area, Arctic Acres — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
AA-01	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	DRO, DRO fractions, RRO, NAPs	
2003	DRO, RRO, NAPs	
2004	DRO, RRO, NAPs	
2005	Monitoring not planned	
2006	DRO (even years only)	
2007	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
AA-02	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	DRO, DRO fractions, RRO, NAPs	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	DRO	
2011	Met endpoint criteria; monitoring discontinued	

Housing Area, Arctic Acres — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
AA-05	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	DRO, RRO, NAPs	
2003	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
AA-06	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	DRO, RRO, NAPs	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	DRO	
2011	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional controls at Housing Area, Arctic Acres include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection on September 7, 2019, no excavations were observed at the site. Excavation sings are clearly visible. No indications that groundwater was being used were observed. The 2019 IC report indicated all ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

29, 31, 34, 39, 41, 44, 52, 62, 81, 84, 90, 91, 129, 134, 137, 141, 142, 152, 164, 165, 166

Kuluk Bay — OU A

Kuluk Bay — OU A

STATUS: Tissue monitoring with institutional controls

BACKGROUND:

Kuluk Bay borders the most developed portion of Adak Island; both industrial and residential areas are located along its western shore. The Bayshore Highway runs along the shore of Kuluk Bay from the mouth of Sweeper Cove to the mouth of Clam Lagoon, affording easy access. The western shoreline of Kuluk Bay with its sandy beach is easily accessed by foot. Access to the northern and southern shorelines is limited, because of the steep cliffs and rocky shoreline.

Kuluk Bay is used primarily for recreational purposes, which include beachcombing, fishing, and shellfishing. Fishing from shore along the breakwater separating Sweeper Cove and Kuluk Bay for a variety of resident fish is common. Runs of pink salmon that occur in August and September in NAVFAC and Airport Creeks also attract onshore fishermen. Fishing by boat in Kuluk Bay for a variety of resident fish, including halibut, is expected to occur. Shellfishing in Kuluk Bay has not been previously documented. However, shellfish resources with potential uses are present. Extensive mussel beds that could be harvested are present along the rocky shoreline during low tide. The presence of other bivalves in subtidal sediments appears to be very limited.

Analytical results of sediment, surface water, rock sole, and blue mussels collected in 1995 and 1996 were used in a risk assessment specific to Kuluk Bay.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	5
Number of Pre-Rod Samples	9
Potential Contaminant Types Evaluated	Biological, Metals
Pre-ROD Sample Matrix Types	Sediment , Tissue
Types of Pre-ROD Locations	Intertidal

Kuluk Bay OU A

COCs AND RISKS:

The following fish and shellfish COC was identified in the OU A ROD because of exceedance above action levels based on risk-based levels (Table 7-3 of the OU A ROD):

Fish and Shellfish

- Aroclor 1254

The Aroclor 1254 action levels exceeded by Kuluk Bay fish and shellfish were 0.0065 mg/kg and 0.031 mg/kg, respectively (Table 7-3 of the OU A ROD). The 1997 Kuluk Bay Risk Assessment evaluated ecological and human health risks using exposures based on current and future recreational use and future subsistence use of Kuluk Bay. Analytical results of sediment, surface water, rock sole, and blue mussels collected in 1995 and 1996 were used in the risk assessment. The most significant risks were identified for subsistence harvesters consuming fish and shellfish from Kuluk Bay. The cancer risks for the subsistence seafood harvester was primarily due to Aroclor 1254 (with a cancer risk of 5 E-05 and hazard index of 4 for fish , Table 6-5 of the OU A ROD) and arsenic (with a cancer risk of 6 E-05 for blue mussel). Arsenic risks are most likely overestimated because arsenic concentrations are mostly at background levels, therefore no cleanup levels were established for arsenic. The cleanup levels for total PCBs are 0.0065 mg/kg and 0.031 mg/kg for ingestion of fish and shellfish, respectively. These cleanup levels are risk based concentrations and were derived using exposure parameters presented in the OU A ROD for subsistence fishers with a carcinogenic risk threshold of 1 E-05 and noncancer hazard index in excess of 1.0. It was estimated at the time of the ROD that it may take up to 75 years for tissue concentrations to reach the proposed cleanup levels. The text regarding risk assessment results for Kuluk Bay is from the OU A ROD.

RAOs:

The OU A ROD for the CERCLA site Kuluk Bay established the following RAOs (pages 7-9 and 10-4 of the OU A ROD):

- Protection of subsistence fishers from ingestion of fish and shellfish containing chemicals that present a cancer risk in excess of 1 E-05 and a noncancer hazard index in excess of 1.0.

REMEDY IMPLEMENTATION:

The selected remedy for Kuluk Bay is ICs, including a fish consumption advisory, comprehensive monitoring of rock sole tissue, and public education.

Annual monitoring began in 1999 and continued through 2003. Between 2003 and 2017, monitoring has been conducted every other year. Following the 2017 monitoring event, it was recommended and approved that sampling be conducted every 5-years starting in 2020. The ICs were implemented following execution of the ROD in April 2000.

Tissue sampling was last conducted in 2020 in Kuluk Bay. The mean total PCB concentration for rock sole

remained below the risk-based action level (RBAL) for marine fish in 2020 and has remained below the applicable RBAL for four consecutive events. It was recommended and approved that the fishing advisory be removed for rock sole from Kuluk Bay. Discontinuation of monitoring was also recommended and approved.

All five blue mussel samples collected in 2020 had a total PCB concentration that were below the RBAL for shellfish in 2020. The mean concentration of PCBs has remained significantly below the RBAL since 2007. In 2003, the fish consumption advisory was removed for blue mussels collected from Kuluk Bay, however, sampling never ceased. Because the mean total PCB concentration is below the RBAL and has been so for 13 of the past 14 sampling events, reinstatement of the advisory for blue mussel consumption is not warranted and the discontinuation of monitoring was recommended and approved.

Kuluk Bay — OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Additional ROD objectives include 1) documenting temporal change in PCB concentrations in mussels and fish in Sweeper Cove and Kuluk Bay following cleanup of known terrestrial source areas and the contaminated sediment in South Sweeper Creek, and 2) determine the date for rescinding ICs advising subsistence and commercial seafood harvesters in Sweeper Cove and Kuluk Bay.

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☑ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: June 2020 — Most Recent Inspection Date: September 2020

Current Media Sampled: Marine Tissue

Current Analytes Sampled: PCBs

Current Monitoring: Click to View Current Monitoring — Monitoring File: Sweeper Cove_Kuluk Bay monitoring.pdf

Kuluk Bay OU A

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
All Locations	Blue mussel & rock sole LTM	Marine tissue
1999	PCB congeners, lipid analysis, moisture content	
2000	PCB congeners, lipid analysis, moisture content	
2001	PCB congeners, lipid analysis, moisture content	
2002	PCB congeners, lipid analysis, moisture content	
2003	PCB congeners, lipid analysis, moisture content	
2004	Monitoring not planned	
2005	PCB congeners, lipid analysis, moisture content	
2006	Monitoring not planned	
2007	PCB congeners, lipid analysis, moisture content	
2008	Monitoring not planned	
2009	PCB congeners, lipid analysis, moisture content	
2010	Monitoring not planned	
2011	PCBs	
2012	Monitoring not planned	
2013	PCBs	
2014	Monitoring not planned	
2015	PCBs	
2016	Monitoring not planned	
2017	PCBs	
2018	Monitoring not planned	
2019	Monitoring not planned	
2020	PCBs	

SUMMARY OF INSPECTION RESULTS:

ICs at Kuluk Bay include a fish advisory, an educational program, tissue monitoring, and IC inspections and reporting. An educational awareness survey was conducted as part of the IC program in 2020. All 14 Adak residents interviewed were aware that there is a fish consumption advisory for rock sole and blue mussels in Sweeper Cove and rock sole in Kuluk Bay. Five subsistence fishers indicated they routinely eat salmon or halibut but do not eat rock sole. In addition to the interviews during the IC inspections, a health advisory

fact sheet is distributed to residents on Adak. Fact sheets were issued in 2018 and 2021.

BIBLIOGRAPHY:

25, 63, 65, 84, 86, 113, 129, 141, 142, 146, 147, 154, 155, 170, 171

MAUW Compound, UST 24000-A — OU A - SAERA

MAUW Compound, UST 24000-A — OU A - SAERA

STATUS: Cleanup complete with institutional controls

BACKGROUND:

The MAUW Compound is an abandoned facility located north of Runway 5-23, on the south side of Tundra Road. The facility was formerly a secured compound used for ammunition storage. Building 24000-A was the Advanced Undersea Weapons shop. UST 24000-A, installed in 1976, stored JP-5 to fuel the Building 24000 boiler and emergency generator. The ground in the immediate vicinity of the tank is flat, but the compound as a whole slopes downward to the northeast. Landrum Creek is located approximately 390 feet northeast and downgradient of the site.

The UST failed a tank-tightness test in 1993 and was taken out of service before May 1994. The UST and associated piping were removed in October 1994. The condition of the UST upon removal was not reported. No spills or releases were reported to have occurred while the UST was in operation. The source could possibly be from leaks in the tank, overfilling, or leaking pipe joints. Five of eight subsurface soil samples collected from the excavation at depths between 5 and 6.5 feet exceeded ADEC 18 AAC 75 soil cleanup criteria.

Three groundwater monitoring wells and two hand auger borings were installed in 1996. DRO and GRO concentrations from all but one of the surface and subsurface soil samples were below ADEC soil cleanup levels. No exceedances of the DRO groundwater cleanup criterion were noted, and GRO and BTEX were not detected.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	16
Number of Pre-Rod Samples	22
Potential Contaminant Types Evaluated	Petroleum hydrocarbons,Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Soil, Sub-surface soil (> 6")
Types of Pre-ROD Locations	Excavation, Hand auger, Monitoring well, Well

MAUW Compound, UST 24000-A — OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria:

Soil

- DRO

RAOs:

The OU A ROD established the following RAO for petroleum site MAUW Compound, UST 24000-A (Table 7-4 of the OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is limited groundwater monitoring.

Monitoring well 07-140 was installed in 1999 downgradient of well 07-103. DRO concentrations in soil boring 07-140 exceeded the ROD-established ADEC soil cleanup criterion. DRO concentrations in well 07¬-103 exceeded the ROD-established ADEC 18 AAC 75 groundwater criterion during comprehensive monitoring plan activities between 1999 and 2000. DRO was detected in well 07-140 at levels below the groundwater cleanup criterion. BTEX constituents were not detected in either well. No target analytes were detected above groundwater cleanup levels in either well in 2001. Limited groundwater monitoring activities were discontinued in 2001.

This site was evaluated in the 2005 Final Cleanup Report, 19 Sites. Based on this report, ADEC concurred with NFRAP status for this site, but required soil samples near locations 07-101 and 07-140 to achieve NFA.

MAUW Compound, UST 24000-A received "cleanup complete with ICs" determination from ADEC on November 23, 2005.

The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including the MAUW Compound. No ICs specific to the MAUW Compound were established in the OU A ROD; however, ICs are included for this site in the ICMP.

MAUW Compound, UST 24000-A — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: October 2001 — Most Recent Inspection Date: September 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

MAUW Compound, UST 24000-A — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
07-103	Limited GW monitoring	Groundwater
1999	DRO, GRO, BTEX (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
07-140	Limited GW monitoring	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional controls at MAUW Compound, UST 24000-A include land use restrictions, equitable servitude, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection on September 7, 2019, no indications of a change in land use in this area were found and no residential construction had occurred at the site. However, the site bunkers are currently being used for commercial storage. No indications of groundwater use or excavation activities were found, and excavation signs were clearly visible. The 2019 IC report indicated all ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

2, 28, 52, 55, 62, 84, 91, 113, 129, 141, 142, 144, 165, 166

Mount Moffett Power Plant 5, USTs 10574 through 10577 OU A - SAERA

Mount Moffett Power Plant 5, USTs 10574 through 10577 OU A - SAERA

STATUS: Cleanup complete with institutional controls

BACKGROUND:

Mount Moffett Power Plant 5 is located approximately 1 mile north of Runway 5-23, northwest of downtown Adak, on the north side of Red Road. Mount Moffett Power Plant 5 housed the power generators for the large antenna field located nearby. USTs 10574 through 10577 stored the supply fuel, JP-5, for the generators inside the power plant.

The general topography of the site slopes to the southeast. An unnamed creek is approximately 1,000 feet downgradient of the source area. This unnamed creek flows to the east into Landrum Creek, then into North Sweeper Creek, and finally into Kuluk Bay approximately 8,000 feet southeast of the site.

The four 20,000-gallon steel USTs were installed in 1965, approximately 20 feet northeast from the former Power Plant building. UST 10576 failed a tank-tightness test in 1993. USTs 10576 and 10577 and associated piping were removed in September 1994. USTs 10574 and 10575 and associated piping were removed later in April 1996. Stained soil was observed beneath the tanks during removal of the USTs. The tanks showed mild corrosion, but no holes were observed. The release mechanism is unknown, but could possibly be from overfilling. Groundwater was not encountered in the excavation. Twenty-seven soil samples were collected during the tank removals, and DRO concentrations from several locations exceeded the ADEC soil matrix level.

Three soil borings and one monitoring well were completed in 1996. DRO was detected in one of six samples at concentrations exceeding the ADEC soil cleanup criterion. GRO and BTEX in soil were either not detected or detected at levels slightly above the detection limit. Groundwater was not present in the monitoring well, which is located on a low-permeability, tephra-over-bedrock unit.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	37
Number of Pre-Rod Samples	46
Potential Contaminant Types Evaluated	Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Soil, Sub-surface soil (> 6")
Types of Pre-ROD Locations	Borehole/Soil boring, Excavation, Geoprobe well, Hand auger, Monitoring well

Mount Moffett Power Plant 5, USTs 10574 through 10577 OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria:

Soil

- DRO

RAOs:

The OU A ROD established the following RAO for petroleum site Mount Moffett Power Plant 5, USTs 10574 through 10577 (Table 7-4 of the OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy is limited soil removal. Approximately 60 cubic yards of petroleum-affected soil were removed from the site in 1999. DRO concentrations measured in soil remaining at the site are above the ADEC Method Two soil cleanup level for the over-40-inch rainfall zone and protection of migration to groundwater. Groundwater is not considered a complete transport pathway from the site to the downgradient surface water located 1,000 feet to the south.

This site was evaluated in the 2005 Final Cleanup Report, 19 Sites. Based on this report, ADEC concurred with NFRAP status for this site, but required soil samples near locations 502 and 503 to achieve NFA.

Mount Moffett Power Plant 5, USTs 10574 through 10577 received "cleanup complete with Ics" determination from ADEC on November 23, 2005.

The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including Power Plant 5. No ICs specific to Mount Moffett Power Plant 5 were established in the OU A ROD; however, ICs are included for this site in the ICMP.

Mount Moffett Power Plant 5, USTs 10574 through 10577 OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: July 1999 — Most Recent Inspection Date: September 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Mount Moffett Power Plant 5, USTs 10574 through 10577 OU A - SAERA

SUMMARY OF INSPECTION RESULTS:

Institutional controls at Mount Moffett Power Plant 5, USTs 10574 through 10577 include land use restrictions, equitable servitude, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection on September 10, 2019, no indications of a change in land use in this area were found. No indications of groundwater use or excavation activities were found, and excavation signs were clearly visible. No excavation had occurred at the site. The 2019 IC report indicated all ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

2, 28, 52, 55, 62, 84, 86, 91, 113, 129, 136, 137, 142, 144, 165, 166

NAVFAC Compound, USTs 20052 and 20053 — OU A - SAERA

NAVFAC Compound, USTs 20052 and 20053 OU A - SAERA

STATUS: Cleanup complete with institutional controls

BACKGROUND:

The NAVFAC Compound is located north of downtown Adak, approximately 3,200 feet north of Runway 5-23 and approximately 450 feet west of Kuluk Bay. The NAVFAC Compound was used for electronic surveillance of sonar buoys in the Pacific Ocean. USTs 20052 and 20053 were installed in 1986 to provide JP-5 fuel for heating boilers and emergency generators in the electrical power plant (Building 10528) located within the compound. These 10,000-gallon steel
USTs were located approximately 30 feet west of Building 10501 and Building 10528.

The ground surface in the immediate vicinity of the site is flat and typically contains standing water during the wet season. The regional ground surface in the vicinity of the site also is flat, with little to no perceptible slope. Surface runoff from the site is minimal because the site is flat and drainage is poor. The closest downgradient surface water body is Kuluk Bay, located approximately 700 feet east of the UST source area. NAVFAC Creek is located approximately 500 feet north of the site at its closest point, and flows west to east, discharging into Kuluk Bay approximately 975 feet northeast of the site. Groundwater flow direction at the site is determined to be southeast toward Kuluk Bay, and appears to parallel NAVFAC Creek. The groundwater surface has been observed between 11 and 17 feet bgs at the site. Subsurface material observed at the site consists of fine-grained sand with an organic silt layer between 8 and 10 feet bgs in the vicinity of the former USTs. The sandy material typically possesses a high water-bearing capacity.

UST use was discontinued in June 1994. No spills or releases were reported to have occurred while the USTs were in operation. The USTs were removed in October 1994. During removal activities, DRO concentrations from 11 of 16 soil samples collected from underneath tank piping and from the excavation exceeded the Alaska Matrix Level B criterion of 200 mg/kg.

Two monitoring wells and four Geoprobe wells were installed between 1996 and 1997. DRO was detected in soil at concentrations of 22,000 mg/kg and 20 mg/kg in borings 08-101 and 08-102, respectively. DRO, GRO, and BTEX were not detected in the other four soil borings. DRO was detected in groundwater at concentrations of 9,900 µg/L and 1,100 µg/L from wells 08-101 and 08-106, respectively. Benzene also was detected in well 08-101 at a concentration of 1.2 µg/L. Well 08-101 was resampled in 1997 and 1998. Although DRO was detected at levels between 1,400 µg/L and 2,900 µg/L in well 080-101, GRO and benzene were not detected. The site was retained for further evaluation because the maximum DRO concentration in soil exceeded the ADEC matrix level and ADEC supplemental criterion (12,500 mg/kg) for industrial sites.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	39
Number of Pre-Rod Samples	51

NAVFAC Compound, USTs 20052 and 20053 — OU A - SAERA

Potential Contaminant Types Evaluated	Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Soil, Sub-surface soil (> 6")
Types of Pre-ROD Locations	Excavation, Monitoring well, Well

NAVFAC Compound, USTs 20052 and 20053 OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria:

Soil

- DRO

RAOs:

The OU A ROD established the following RAO for petroleum site NAVFAC Compound, USTs 20052 and 20053 (Table 7-4 of the OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is limited groundwater monitoring.

Well 08-101 was sampled as part of the Comprehensive Monitoring Program between 1999 and 2000. DRO and GRO concentrations in groundwater were below the ROD-established ADEC 18 AAC 75.345 Table C values. Limited groundwater monitoring activities were discontinued in 2000.

This site was evaluated in the 2005 Final Cleanup Report, 19 Sites. Based on this report, ADEC concurred with NFRAP status for this site, but required soil samples near locations 5, 7, 8, 9, 11, 31, and 101 to achieve NFA.

NAVFAC Compound received "cleanup complete with ICs" determination from ADEC on November 23, 2005.

The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including NAVFAC Compound. No ICs specific to the NAVFAC Compound were established in the OU A ROD, and ICs or inspection requirements are included for this site every five years.

NAVFAC Compound, USTs 20052 and 20053 — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: June 2000 — Most Recent Inspection Date: September 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

NAVFAC Compound, USTs 20052 and 20053 OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
08-101	Limited GW monitoring	Groundwater
1999	DRO, GRO, BTEX (quarterly - 2 rounds)	
2000	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls for NAVFAC Compound, USTs 20052 and 20053 include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection on September 7, 2019, no changes to the site were observed compared to the previous inspection results. No residential construction had occurred at the site. No indications of groundwater use or excavation activities were found at the site. No excavations were identified during the inspection. There were no excavation restriction signs present onsite, but the site is in the downtown area and several signs were located in the immediate vicinity of the site. The 2019 IC report indicated all ICs appear to be functioning as intended to protect human receptors from contaminated soil or groundwater. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

2, 28, 52, 55, 62, 84, 142, 144, 148, 165, 166

Navy Exchange Building, UST 30027-A — OU A - SAERA

Navy Exchange Building, UST 30027-A — OU A - SAERA

STATUS: Cleanup complete with institutional controls

BACKGROUND:

The Navy Exchange (NEX) Building is located in downtown Adak and is surrounded by housing areas to the east and south, the former McDonald's restaurant to the west, and the former childcare center to the north. The NEX building was constructed in 1973 and used to house the NEX commissary, gasoline service station, and vehicle maintenance garage. The 700-gallon aluminum UST 30027-A was installed in 1974 near the southeast corner of the NEX Building and stored used oil generated by the garage operations at Building 30027.

The ground surface is relatively flat in the immediate vicinity of the site and is covered by an asphalt parking lot and an open field. The closest downgradient surface water body is East Canal, located approximately 2,500 feet west of the site.

UST 30027-A was removed in August 1993. DRO and GRO were detected in the two soil samples collected from the excavation floor beneath the UST at maximum concentrations of 8,000 and 110 mg/kg, respectively. Because analytical results exceeded the DRO criterion established by ADEC, additional investigation was required.

In 1998, one soil boring was drilled near the former UST location. DRO and GRO were reported in the sample collected between 3 and 5 feet at concentrations above their respective ADEC Method Two soil cleanup criteria.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	16
Number of Pre-Rod Samples	16
Potential Contaminant Types Evaluated	Metals, Pesticides and aroclors, Petroleum hydrocarbons, Volatile organics
Pre-ROD Sample Matrix Types	Sub-surface soil (> 6"), Water (not groundwater, unspecified)
Types of Pre-ROD Locations	Excavation, Monitoring well

Navy Exchange Building, UST 30027-A — OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria:

Soil

- DRO

RAOs:

The OU A ROD for the petroleum site NEX Building, UST 30027-A established the following RAO (Table 7-4 of the OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is limited soil removal.

In 1999, approximately 37 cubic yards of petroleum-related compounds at concentrations exceeding ADEC Method Two soil cleanup levels were removed for treatment and disposal. Although DRO concentrations reported for soil remaining on site are above the ADEC Method Two soil cleanup level for the over-40 inch rainfall zone and protection of migration to groundwater, further excavation in this area is not possible because of the proximity of a building to the north and buried utilities to the south, east, and west.

Because of the inaccessibility of the remaining petroleum in soil, the site remedy shifted from limited soil removal to limited groundwater monitoring, with ADEC concurrence in 1999. At ADEC request, one monitoring well (04-871) was installed in the former UST location in 1999. Limited groundwater monitoring commenced in 1999. The site met the endpoint criteria based upon the 1999 and 2000 analytical results, and groundwater monitoring was discontinued in 2000.

This site was evaluated in the 2005 Final Cleanup Report, 19 Sites. Based on this report, ADEC concurred with NFRAP status for this site, but required soil samples near locations 863, 864, and 865 to achieve NFA.

Navy Exchange Building, UST 30027-A received "cleanup complete with ICs" determination from ADEC on November 23, 2005.

The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including the NEX Building. No ICs specific to the Navy Exchange Building were established in the OU A ROD; however, Revision 8 of the ICMP lists the ICs and inspection requirements which is on the five-year schedule.

Navy Exchange Building, UST 30027-A — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: June 2000 — Most Recent Inspection Date: September 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Navy Exchange Building, UST 30027-A — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-871	Limited GW monitoring	Groundwater
1999	DRO, GRO, BTEX (quarterly - 2 rounds)	
2000	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls for Navy Exchange Building, UST 30027-A include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection on September 7, 2019, the NEX Building was being occupied by TDX Adak Generating and had supplies and materials stored onsite. No residential construction had occurred at the site. No indications of groundwater use or excavation activities were found at the site. No excavations were identified during the inspection. There were no excavation restriction signs present onsite, but the site is in the downtown area and several sings were located in the immediate vicinity of the site. The 2019 IC report indicated all ICs appear to be functioning as intended to protect human receptors from contaminated soil or groundwater. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

2, 28, 52, 55, 62, 84, 142, 144, 148, 165, 166

New Roberts Housing, UST HST-7C — OU A - SAERA

New Roberts Housing, UST HST-7C — OU A - SAERA

STATUS: Cleanup complete with institutional controls

BACKGROUND:

The New Roberts Housing area is located near downtown Adak at the western end of Sweeper Cove, adjacent to the fuel pier and the small boat harbor. The former housing units that made up the New Roberts Housing area were vacated during 1998 and have all been subsequently demolished. UST HST-7C and the associated oil/water separator were installed in 1987 to serve the New Roberts Housing fuel distribution system. The fuel distribution system provided JP-5 heating fuel to the former housing area. UST HST-7C was located along the western side of the housing area, south of Salmon Circle Road and at the corner of Main Street and Cross Road.

The site is relatively flat with several depressions across the site, which allows surface water to pond during rain. The closest surface water body to the site is Helmet Creek, which is less than 10 feet west of the site. However, groundwater flows toward Sweeper Cove, which lies approximately 1,300 feet to the east. The groundwater surface has been observed between 11 and 12 feet bgs at the site. Subsurface material observed at the site consists of fine-grained sand. The sandy material typically possesses a high water-bearing capacity.

The UST, the oil/water separator, and associated piping were decommissioned and removed in April 1995. At the time of removal, the tank appeared to be in good condition, but a hole was found in the line connecting it to the oil/water separator. DRO was detected at a maximum concentration of 17,000 mg/kg in one soil sample collected from the bottom of the excavation. No records are available on petroleum releases at this facility. The release mechanisms are probably loose joints between the oil/water separator and the UST or the hole found at the time of removal in the line to the oil/water separator.

One monitoring well was installed at the site between the former tank excavation and Helmet Creek in 1996. DRO was detected in soil samples collected from the boring at concentrations ranging from 320 to 1,400 mg/kg. Two sediment and surface water samples were collected from Helmet Creek from upgradient and downgradient locations. DRO was detected at a concentration of 8.8 mg/kg in the downgradient sediment sample. DRO, GRO, and BTEX were not detected in the surface water.

Three monitoring wells were installed at the site between the former tank excavation and Sweeper Cove in 1999 when it was found that groundwater flowed to the east. DRO concentrations in monitoring well boring 06-300 exceeded the soil cleanup criterion.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	13
Number of Pre-Rod Samples	23
Potential Contaminant Types Evaluated	Petroleum hydrocarbons, Semivolatile organics, Volatile organics

New Roberts Housing, UST HST-7C — OU A - SAERA

Pre-ROD Sample Matrix Types	Ground water, Sediment , Soil, Sub-surface soil (> 6"), Surface water
Types of Pre-ROD Locations	Direct Push/Geoprobe, Excavation, Monitoring well, River/stream

New Roberts Housing, UST HST-7C — OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria:

Soil

- DRO

RAOs:

The OU A ROD for the petroleum site New Roberts Housing, UST HST-7C established the following RAOs (Table 7-4 of the OU A ROD):

- Mitigate potential for downgradient migration.
- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is limited groundwater monitoring.

Limited groundwater monitoring was conducted between 1999 and 2001. Target analyte concentrations in groundwater were less than ADEC groundwater cleanup levels for two consecutive sampling events during 1999 and 2000, but additional sampling was recommended for 2001 because aliphatic DRO exceeded cleanup criteria at location 06-101. Limited groundwater sampling was discontinued in 2001.

This site was evaluated in the 2005 Final Cleanup Report, 19 Sites. Based on this report, ADEC concurred with NFRAP status for this site, but required soil samples near locations 12, 15, 101, and 06-300 to achieve NFA.

New Roberts Housing, UST HST-7C received "cleanup complete with ICs" determination from ADEC on November 23, 2005.

The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including New Roberts Housing. No ICs specific to the New Roberts Housing site were established in the OU A ROD.

New Roberts Housing, UST HST-7C — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: September 2001 Most Recent Inspection Date: September 2019
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

New Roberts Housing, UST HST-7C — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
06-101	Limited GW monitoring	Groundwater
1999	DRO, GRO, BTEX (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO	
2002	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
06-300	Limited GW monitoring	Groundwater
1999	DRO, GRO, BTEX (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO	
2002	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
06-301	Limited GW monitoring	Groundwater
1999	DRO, GRO, BTEX (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO	
2002	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
06-302	Limited GW monitoring	Groundwater
1999	DRO, GRO, BTEX (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO	
2002	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls for New Roberts Housing, UST HST-7C include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection on September 5, 2019, no changes to the site were observed compared to the previous inspection results. No residential construction had occurred at the site. No indications of groundwater use or excavation activities were found at the site. No excavations were identified during the

inspection. There were no excavation restriction signs present onsite, but the site is in the downtown area and several signs were located in the immediate vicinity of the site. The 2019 IC report indicated all ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

2, 28, 52, 62, 84, 115, 142, 144, 148, 165, 166

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

STATUS: Groundwater monitoring and institutional controls

BACKGROUND:

The NMCB Building Expanded Area site is located in downtown Adak on the northern shore of Sweeper Cove. The site consists of a large lowland area between the north shore of Sweeper Cove and the southern end of Runway 18-36. The site extends from the East Canal of the airport ditch system on the northwest, south to Sweeper Cove, and east approximately 2,000 feet. The site and surrounding area were used primarily for industrial purposes up to the military drawdown at Adak in the late 1990s. Three buildings were constructed in the area in the early 1940s, of which only Building T-1416 still remains at the site. The pre-engineered building, located east of Building T-1416, was constructed during 1994. The buildings and surrounding land were used as a woodworking shop, supply depot, machine shop, vehicle motor pool maintenance facility, equipment storage area, and vehicle parking area. Five docks, formerly located at the southern margin of the site, were constructed prior to 1945 and were associated with site operations. The Fish and Wildlife Building, located north of Seawall Road, formerly housed the administrative functions of the USFWS. Three abandoned underground fuel transfer pipelines cross the site.

The land that makes up the NMCB Building Expanded Area site has been extensively altered since the military first occupied Adak Island during WWII. This area was part of a back-beach lagoon prior to occupation and was rapidly converted to a fuel receipt and distribution center and industrial area to support the U.S. Aleutian campaign during WWII.

No documented releases of petroleum hydrocarbons at the NMCB Building Expanded Area have been recorded. However, several potential sources of petroleum releases are present at the site. These sources include two abandoned 8-inch-diameter fuel transfer pipelines, one abandoned 12-inch-diameter fuel transfer pipeline, the former used oil collection tank UST T-1416-A, an inactive AST located south of the southwest corner of Building T-1416, and a 550-gallon JP-5 storage tank located along the east wall of Building T-1416. Petroleum sheens reportedly were observed in 1994 on ponded water between Building T¬1416 and Seawall Road.

In September 1990, an abandoned fuel line located near the southeast corner of Runway 18-36 was uncovered during installation of a new fuel line adjacent to Main Road. The abandoned fuel line reportedly was a source of subsurface fuel contamination, and residual product was observed in the excavated trench. This release may have contributed to, or been associated with, petroleum hydrocarbons released to the environment at the NMCB Building Expanded Area.

Investigations conducted prior to 1996 include the Tank Farm A reconnaissance investigation, Main Road pipeline release investigation, Tank Farm A release investigation, UST T-1416-A closure assessment, site assessment for Sewage Lift Station 11, and the pipeline Area E site assessment. UST T-1416-A was removed during 1994, and UST 42484-A and the associated piping were removed during June 1995 as part of the environmental cleanup at the former Adak Naval Complex. The 1995 pipeline assessment also included removal of a valve pit along the pipeline trace north of Seawall Road. DRO and GRO at concentrations greater than the ADEC soil cleanup levels were confirmed in samples of subsurface soil collected at the NMCB Building Expanded Area during these investigations and removal actions.

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

In 1996, eighteen 2-inch-diameter monitoring wells, four Geoprobe wells, and four Geoprobe borings were installed at the site. DRO and GRO were detected in the soil at maximum concentrations of 43,000 mg/kg and 27,000 mg/kg, respectively. DRO, GRO, and BTEX concentrations in groundwater exceeded ADEC groundwater cleanup criteria in more than half of the wells sampled. Three of these wells were resampled in October 1997, and similar analytical results were reported.

Marine sediment and surface water samples were collected from 12 locations in Sweeper Cove offshore from NMCB in 1998. GRO was detected in three surface water samples collected south of building T-1416, south of the Fish and Wildlife Building, and south of the junction of Seawall and Main Roads. The maximum GRO concentration detected was 67 µg/L. BTEX constituents were reported in six surface water samples collected closest to the shoreline, and the maximum BTEX concentration detected was 33 µg/L. DRO was not detected in any surface water samples collected, but was detected in all 12 marine sediment samples, ranging in concentrations from 37 mg/kg to 146 mg/kg. Total PAHs were detected in two of 12 marine sediment samples.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	109
Number of Pre-Rod Samples	320
Potential Contaminant Types Evaluated	Inorganics, Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Marine sediment, Marine water, Product (floating or free), Soil, Sub-surface soil (> 6"), Surface soil (less than 6 inches), Surface water
Types of Pre-ROD Locations	Borehole/Soil boring, Channel/Ditch, Direct Push/Geoprobe, Excavation, Geoprobe well, Hand auger, Hydropunch, Monitoring well, Subtidal, Test Pit, Well

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

COCs AND RISKS:

The NMCB Building Area was one of the sites in the OU A ROD for which additional evaluation under SAERA was required. The interim action under the OU A ROD was free product recovery. The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemicals exceeded these criteria (interpreted from Table 5-11 of the OU A ROD):

Groundwater

- Benzene
- Benzo(a)anthracene
- cis-1,2-Dichloroethene
- DRO
- Ethylbenzene
- GRO
- Methylene Chloride
- Trichloroethene

The OU A ROD (1999) did not identify human health or ecological risks associated with the site, however, a human health and ecological risk assessment was completed for this site during 2005, as part of the additional evaluation under SAERA. Results of this risk assessment identified human health risk and ecological hazard levels above target health goals. The decision document for final remedial action for the NMCB Building Expanded Area site was signed in 2006. The final remedy consisted of Ics, free product recovery, and MNA.

DRO and GRO were detected in soil at concentrations greater than the ACLs, which were calculated using ADEC Method Four [18 AAC 75.340(a)(4)]. Benzene, DRO, GRO, and lead were detected at concentrations greater than 10 times the tabulated groundwater cleanup levels [I8 AAC 75.345(b)(l), Table C]. The ecological risk assessment established that existing concentrations of contaminants in marine sediment do not pose an unacceptable risk; therefore, no cleanup levels were established for marine sediments.

The 2006 Final Decision Document for the NMCB Building Area T-1416 Expanded Area established cleanup levels based on ADEC regulatory criteria for the following COCs:

Groundwater

- DRO
- GRO
- Lead

Soil

- DRO
- GRO

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

RAOs:

The OU A ROD for NMCB Building Area, T-1416 Expanded Area established the following RAO (Table 7-4 of the OU A ROD):

- Reduce volume of petroleum free product.

The RAOs were revised in the 2006 Final Decision Document for NMCB Building Area, T-1416 Expanded Area to the following:

- Minimize exposure to free-phase petroleum product.
- Prevent potential future migration of contaminants to surface water at concentrations that could result in adverse ecological effects.
- Reduce petroleum hydrocarbons in groundwater to concentrations less than or equal to the Alaska DEC groundwater cleanup levels established for groundwater not currently used for, or not reasonably expected to be used for, drinking water.
- Prevent human and ecological exposure to petroleum hydrocarbons in soil that would result in adverse health effects.

REMEDY IMPLEMENTATION:

Free product recovery was specified by the OU A ROD as the interim remedy for the NMCB Building Expanded Area. This interim remedy was implemented September 1997 through July 2005. As of July 2005, free product recovery at the NMCB Building Expanded Area met the practicable endpoint established for the shut-down of product recovery as specified in the OU A ROD. ADEC approved the interim remedial action free product closure report for this site in January 2006. The 2006 decision document prepared under SAERA specified the final remedy as free product recovery, MNA, and ICs. Institutional controls required by the 2006 decision document were already in place when the decision document was executed. The CMP was modified as needed to incorporate the MNA component of the final remedy.

Six new wells were installed in 2006 as part of implementing the free product recovery component of the final remedy. Following well installation, water level and product thicknesses were checked once per week for a one-month period in three new wells (NMCB-07, NMCB-08, and NMCB-09) and four existing wells (02-300, 02-497, 02-815, and 02-818). Six wells (02-820, 02-821, 02-300, 02-497, 02-815, and 02-81) had measurable product thicknesses during the month of September 2006. The maximum product thickness measured in September was 0.63 foot at 02-815 on September 11, 2006. A sorbent sock was installed for fuel recovery in any location showing product thickness greater than 0.01 foot but less than 0.1 foot (well 02-497). Passive skimmers were installed in locations showing between 0.11 and 0.5 foot product thickness (wells 02-300, 02-815, 02-818, NMCB-07, and NMCB-09). Locations with greater than 0.5 foot product thickness or wherever passive skimmer capacity could be exceeded for the period between monitoring events, were scheduled to have an automated system installed if this condition was observed.

During the one-month start-up period, product recovery occurred approximately once each week at wells with recovery equipment installed, then once per month thereafter. Five wells (02-820, 02-821, 02-300,

02¬815, and 02-818) out of seven had product recovery during September 2006. The maximum product recovered in September 2006 was 0.63 gallon at 02-821 on September 29, 2006. The total product recovered from the NMCB Expanded Area wells for the September 2006 was 13.41 gallons.

During installation of the additional monitoring/recovery wells in 2006, soil samples were collected from wells NMCB-07, NMCB-08, NMCB-10, NMCB-11, and NMCB-12, and were analyzed for VOCs by method 8260B, GRO by method AK 101.0, DRO by method AK 102.0, and RRO by method AK 103.0. In each boring, one sample was collected from the unsaturated zone, and a second sample was collected from near the surface of the primary aquifer unit from these wells.

GRO, DRO, and RRO were detected in most of these soil samples collected in 2006 at concentrations up to 14,200 mg/kg, 20,500 mg/kg, and 954 mg/kg, respectively. BTEX compounds were detected in at least one of the soil samples, with the highest concentration of any BTEX compound at 163 mg/kg (total xylenes in the 4 -6 foot sample from NMCB-07). Trimethylbenzene compounds also were detected in most of the samples at concentrations up to 141 mg/kg.

Free product recovery has been ongoing during this five-year review period. Free product recovery was conducted this five-year review period between September 2016 and September 2020. A total of 5.81 gallons of free product was recovered from the NMCB Building T-1416 Expanded area. Because free product continued to be observed in several onsite wells, it is recommended that all other monitoring at this site continue biennially as prescribed.

GRO concentrations reported in all samples collected in 2018 were below the endpoint criterion of 13,000 µg/L. Because free product was continued to be observed in several onsite wells, it is recommended that all other monitoring at this site continue biennially.

The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including the NMCB Area.

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- [x] Groundwater Monitoring
- [ ] Surface Water Monitoring
- [ ] Sediment Monitoring
- [ ] Tissue Monitoring
- [ ] Landfill Inspection
- [x] IC Inspection — Click to View ICMP Table
- [ ] Remediation System Monitoring and Maintenance
- [ ] None Required

Most Recent Sampling Date: August 2018 Most Recent Inspection Date: September 2019

Current Media Sampled: Groundwater

Current Analytes Sampled: GRO, NAPs, product thickness

Current Monitoring: Click to View Current Monitoring Monitoring File: NMCB monitoring.pdf

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-300	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness (monthly)	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-301	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-302	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness	
2007	Product thickness	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Monitoring not planned	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-451	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, total lead	
2007	DRO, GRO, BTEX, total and dissolved lead	
2008	DRO, GRO, BTEX, total and dissolved lead	
2009	DRO, GRO, BTEX, NAPs, total and dissolved lead	
2010	DRO, GRO, benzene	
2011	DRO, GRO, benzene	
2012	Monitoring not planned	
2013	GRO	
2014	Met endpoint criteria; monitoring discontinued	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-452	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, total lead, 2,4-DNT	
2007	DRO, GRO, BTEX, total and dissolved lead	
2008	DRO, GRO, BTEX, total and dissolved lead	
2009	DRO, GRO, BTEX, NAPs, total and dissolved lead	
2010	DRO, GRO, benzene	
2011	DRO, GRO, benzene	
2012	DRO, GRO, benzene	
2013	Met endpoint criteria; monitoring discontinued	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-453	MNA, SW protection, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, total lead	
2007	DRO, GRO, BTEX, total and dissolved lead	
2008	DRO, GRO, BTEX, total and dissolved lead	
2009	DRO, GRO, BTEX, NAPs, total and dissolved lead	
2010	DRO, GRO, benzene	
2011	DRO, GRO, benzene	
2012	DRO, GRO, benzene	
2013	Met endpoint criteria; monitoring discontinued	
2017	Monitoring not planned; replaces well NMBC-07	
2018	GRO, NAPs	
2019	Monitoring not planned	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-455	MNA, SW protection, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, total lead	
2007	DRO, GRO, BTEX, total and dissolved lead	
2008	DRO, GRO, BTEX, total and dissolved lead	
2009	Free product detected, not sampled, product thickness (monthly)	
2010	DRO, GRO, benzene, product thickness (monthly)	
2011	DRO, GRO, benzene	
2012	DRO, GRO, benzene	
2013	Met endpoint criteria; monitoring discontinued	
2017	Monitoring not planned; replaces well NMCB-10	
2018	GRO, NAPs	
2019	Monitoring not planned; switch back to NNCB-10	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-461	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, total lead	
2007	DRO, GRO, BTEX, total and dissolved lead	
2008	DRO, GRO, BTEX, total and dissolved lead	
2009	DRO, GRO, BTEX, NAPs, total and dissolved lead	
2010	DRO, GRO, benzene	
2011	DRO, GRO, benzene	
2012	DRO, GRO, benzene	
2013	GRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	Monitoring not planned	
2017	Monitoring not planned	
2018	Monitoring not planned	
2019	Monitoring not planned	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-463	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness (monthly)	
2010	Product thickness (monthly)	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-475	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not performed as planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Monitoring not planned	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-478	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, total lead	
2007	DRO, GRO, BTEX, total and dissolved lead	
2008	DRO, GRO, BTEX, total and dissolved lead	
2009	DRO, GRO, BTEX, NAPs, total and dissolved lead	
2010	DRO, GRO, benzene	
2011	DRO, GRO, benzene	
2012	DRO, GRO, benzene	
2013	Met endpoint criteria; monitoring discontinued	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-479	MNA, SW protection, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, total lead	
2007	DRO, GRO, BTEX, total and dissolved lead	
2008	DRO, GRO, BTEX, total and dissolved lead	
2009	DRO, GRO, BTEX, NAPs, total and dissolved lead	
2010	DRO, GRO, benzene	
2011	DRO, GRO, benzene	
2012	Monitoring not planned	
2013	GRO	
2014	Met endpoint criteria; monitoring discontinued	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-489	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Not located	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Monitoring not planned	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	Monitoring not planned	
2014	Monitoring not planned	
2015	Monitoring not planned	
2016	Monitoring not planned	
2017	Monitoring not planned	
2018	Monitoring not planned	
2019	Monitoring not planned	
2020	Monitoring not planned	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-497	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-813	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, total lead	
2007	DRO, GRO, BTEX, total and dissolved lead	
2008	DRO, GRO, BTEX, total and dissolved lead	
2009	Met endpoint criteria; monitoring discontinued	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-815	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-816	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-817	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, total lead	
2007	DRO, GRO, BTEX, total and dissolved lead	
2008	DRO, GRO, BTEX, total and dissolved lead	
2009	DRO, GRO, BTEX, NAPs, total and dissolved lead	
2010	DRO, GRO, benzene	
2011	DRO, GRO, benzene	
2012	DRO, GRO, benzene	
2013	Met endpoint criteria; monitoring discontinued	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-818	MNA, SW protection, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Free product detected, not sampled, product thickness (monthly)	
2007	DRO, GRO, BTEX, total and dissolved lead, product thickness (monthly)	
2008	DRO, GRO, BTEX, total and dissolved lead, product thickness (monthly)	
2009	DRO, GRO, BTEX, NAPs, total and dissolved lead, product thickness (monthly)	
2010	Free product detected, not sampled, product thickness (monthly)	
2011	DRO, GRO, benzene	
2012	DRO, GRO, benzene	
2013	GRO	
2014	GRO, NAPs	
2015	Monitoring not planned	
2016	GRO	
2017	Monitoring not planned	
2018	GRO, NAPs	
2019	Monitoring not planned	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-819	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
E-201	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, total lead	
2007	DRO, GRO, BTEX, total and dissolved lead	
2008	DRO, GRO, BTEX, total and dissolved lead	
2009	DRO, GRO, BTEX, NAPs, total and dissolved lead	
2010	DRO, GRO, benzene	
2011	DRO, GRO, benzene	
2012	DRO, GRO, benzene	
2013	GRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	Monitoring not planned	
2017	Monitoring not planned	
2018	Monitoring not planned	
2019	Monitoring not planned	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NL-05	SW protection	Sediment
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	DRO, GRO, BTEX, total lead	
2010	DRO, GRO, benzene	
2011	DRO, GRO, benzene	
2012	DRO, GRO, benzene	
2013	GRO	
2014	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NMCB-01	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness	
2007	Product thickness	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Monitoring not planned	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NMCB-04	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Free product detected, not sampled, product thickness (monthly)	
2007	DRO, GRO, BTEX, total and dissolved lead, product thickness (monthly)	
2008	Free product detected, not sampled, product thickness (monthly)	
2009	DRO, GRO, BTEX, NAPs, total and dissolved lead	
2010	Free product detected, not sampled	
2011	DRO, GRO, benzene	
2012	DRO, GRO, benzene	
2013	DRO, GRO, benzene	
2014	Met endpoint criteria; monitoring discontinued	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NMCB-05	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, total lead	
2007	DRO, GRO, BTEX, total and dissolved lead	
2008	DRO, GRO, BTEX, total and dissolved lead	
2009	DRO, GRO, BTEX, NAPs, total and dissolved lead	
2010	Met endpoint criteria; monitoring discontinued except product thickness continued	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NMCB-07	MNA, SW protection, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Free product detected, not sampled, product thickness (monthly)	
2007	DRO, GRO, BTEX, total and dissolved lead, product thickness (monthly)	
2008	Free product detected, not sampled, product thickness (monthly)	
2009	Free product detected, not sampled, product thickness (monthly)	
2010	Free product detected, not sampled, product thickness (monthly)	
2011	DRO, GRO, benzene	
2012	DRO, GRO, benzene	
2013	GRO	
2014	GRO	
2015	Monitoring not planned	
2016	GRO	
2017	Monitoring not planned; switch to 02-453	
2018	Monitoring not planned; switch to 02-453	
2019	Monitoring not planned; switch to 02-453	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NMCB-08	MNA, SW protection, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, total lead, product thickness (monthly)	
2007	DRO, GRO, BTEX, total and dissolved lead, product thickness (monthly)	
2008	DRO, GRO, BTEX, total and dissolved lead, product thickness (monthly)	
2009	DRO, GRO, BTEX, NAPs, total and dissolved lead	
2010	DRO, GRO, benzene	
2011	DRO, GRO, benzene	
2012	DRO, GRO, benzene	
2013	Met endpoint criteria; monitoring discontinued	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NMCB-09	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, total lead, product thickness (monthly)	
2007	DRO, GRO, BTEX, total and dissolved lead, product thickness (monthly)	
2008	DRO, GRO, BTEX, total and dissolved lead, product thickness (monthly)	
2009	DRO, GRO, BTEX, NAPs, total and dissolved lead, product thickness (monthly)	
2010	DRO, GRO, benzene, product thickness (monthly)	
2011	DRO, GRO, benzene	
2012	Monitoring not planned	
2013	GRO	
2014	GRO	
2015	Monitoring not planned	
2016	Monitoring not planned	
2017	Monitoring not planned	
2018	Monitoring not planned	
2019	Monitoring not planned	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NMCB-10	MNA, SW protection, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, total lead	
2007	DRO, GRO, BTEX, total and dissolved lead	
2008	DRO, GRO, BTEX, total and dissolved lead	
2009	Free product detected, not sampled, product thickness (monthly)	
2010	Free product detected, not sampled, product thickness (monthly)	
2011	DRO, GRO, benzene	
2012	Free product detected, not sampled	
2013	Free product detected, not sampled	
2014	Free product detected, not sampled	
2015	Monitoring not planned	
2016	GRO	
2017	Monitoring not planned; switch to 02-455	
2018	Monitoring not planned; switch to 02-455	
2019	Monitoring not planned	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NMCB-11	MNA, SW protection, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, total lead	
2007	DRO, GRO, BTEX, total and dissolved lead	
2008	DRO, GRO, BTEX, total and dissolved lead	
2009	DRO, GRO, BTEX, NAPs, total and dissolved lead	
2010	DRO, GRO, benzene	
2011	DRO, GRO, benzene	
2012	DRO, GRO, benzene	
2013	Free product detected, not sampled	
2014	Free product detected, not sampled	
2015	Monitoring not planned	
2016	GRO	
2017	Monitoring not planned	
2018	GRO, NAPs	
2019	Monitoring not planned	

NMCB Building Area, T-1416 Expanded Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NMCB-12	MNA, SW protection, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, total lead	
2007	DRO, GRO, BTEX, total and dissolved lead	
2008	DRO, GRO, BTEX, total and dissolved lead	
2009	DRO, GRO, BTEX, NAPs, total and dissolved lead	
2010	DRO, GRO, benzene	
2011	DRO, GRO, benzene	
2012	DRO, GRO, benzene	
2013	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls for NMBC Building Area, T-1416 Expanded Area include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. Two storage buildings are located at the site. These buildings are currently being used for commercial purposes and equipment storage. During the IC inspection on September 9, 2019, no indications that groundwater was being used were found at this site. No residential construction has occurred at the site. One of two site excavation signs was missing. No indications of a change in land use in this area was found compared to the 2017 inspection. During the 2021 5-year review site walk it was noted that the missing sign associated with the site from the 2019 IC inspection had been replaced.

A drainage ditch, first observed in 2013, was still present along the south side of the site. The drainage ditch was installed to help drain water offsite following an earthquake and the associated tidal and storm event. The ditch is less than 2-ft deep; therefore, a permit with the Navy was not required. Minor amounts of wood and metal remain onsite. The previously documented oil-stained soil near monitoring well 02-497 was no longer visible. During the 2021 5-year review site walk it was noted that all missing or damaged signs associated with the site from the 2019 IC inspection had been replaced. The landowner has improved some housekeeping, but in general, poor housekeeping practices continue to persist and may be contributing to groundwater contamination. Because poor housekeeping practices have continued since 2010, it is recommended that site conditions continue to be monitored. An IC inspection was conducted in the summer

of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

35, 62, 78, 84, 86, 90, 91, 94, 96, 113, 129, 134, 140, 141, 142, 149, 150, 151, 152, 161, 163, 164, 165, 166, 167, 169

NORPAC Hill Seep Area — OU A - SAERA

NORPAC Hill Seep Area — OU A - SAERA

STATUS: Cleanup complete with institutional controls

BACKGROUND:

The precise location of the NORPAC Hill Seep has not been confirmed, but on the basis of field observations has been located approximately at the shoreline of Kuluk Bay southeast of NORPAC Hill. A petroleum sheen has been observed occasionally for several years, usually during high tide, on the surface of Kuluk Bay in this vicinity. No specific information is available regarding when sheens were observed at the site. Most likely these sheens were observed after 1996, because no investigations were performed prior to this date. Presuming that the petroleum source is on shore, the seep area should be situated at or near the base of a rock-covered slope that descends steeply from the Bayshore Highway down to the shoreline of Kuluk Bay. The petroleum hydrocarbon within the sheen had been identified as JP-5.

The southeastern slope of NORPAC Hill has never been developed because of its extreme steepness. The Kuluk Housing area, which is now vacant, is located about 400 feet west-southwest of the shoreline seep area. Each housing unit used JP-5 fuel for heating purposes. This fuel was supplied to the units from ASTs via underground pipelines. Prior to the construction of Kuluk Housing, the area was occupied by Army barracks and mess halls, which were supplied with heating fuel.

Assuming that the released product is JP-5, potential sources in the vicinity include (1) the heating fuel systems for the nearby Kuluk Housing or the former Army barracks, (2) a fuel pipeline associated with a shutoff valve located about 250 feet west of and upgradient from the seep area, or (3) a source yet undiscovered. No releases are known to have occurred at the pipeline, the fuel shutoff valve, the former barracks area, or the Kuluk Housing units in the vicinity.

No investigations were conducted in the vicinity of the NORPAC Hill Seep prior to 1996. The initial investigations conducted in 1996 and 1997 included drilling six soil borings, five of which were completed as monitoring wells, and collecting one surface soil sample. Maximum detected concentrations of DRO and GRO in soil were 14,000 mg/kg and 67 mg/kg, respectively. DRO was detected at a maximum concentration of 5,200 µg/L in groundwater. GRO, BTEX, and cPAHs were not detected in any of the groundwater samples. In 1998, three monitoring wells were installed upgradient of the previous wells to try to determine the source area. Two of the three new wells reported DRO concentrations above the ROD-established ADEC soil cleanup level. GRO was detected in one soil boring at a concentration near the detection limit. The maximum concentration of DRO detected in groundwater (6,180 µg/L) was detected in upgradient well 04-405.

Between September 1996 and November 2001, a measurable product thickness was observed in two wells installed in the vicinity, 04-145 and 04-146. A measurable thickness of free product has not been reported in well 04-145 since November 29, 1999. The maximum product thickness measured in well 04-146 was 1.67 feet on April 25, 2000. A passive recovery bailer was installed in well 04-146 on March 18, 1998. Product recovery was conducted through June 2000. A passive recovery bailer was re-installed in well 04-146 on June 1, 2001.

NORPAC Hill Seep Area — OU A - SAERA

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	37
Number of Pre-Rod Samples	106
Potential Contaminant Types Evaluated	Inorganics, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Sub-surface soil (> 6"), Surface soil (less than 6 inches)
Types of Pre-ROD Locations	Borehole/Soil boring, Channel/Ditch, Ground surface, Hand auger, Monitoring well, Well

NORPAC Hill Seep Area — OU A - SAERA

COCs AND RISKS:

The NORPAC Hill Seep Area was one of the sites in the OU A ROD for which additional evaluation under SAERA was required. The interim action under the OU A ROD was free product recovery.

The OU A ROD (1999) did not identify human health or ecological risks associated with the site, however, a human health and ecological risk assessment was completed for this site during 2004 as part of the additional action required under SAERA.

This site poses no unacceptable risk to human health or the environment above target health goals, provided that Ics remain in effect. The risk assessments performed for this site established that the concentrations in soil do not pose a risk to humans or the environment above target health goals at their present contamination level; therefore, no separate ACLs were calculated and, by default, the existing contaminant levels at the site become the site-specific ACLs. The risk assessment findings of no unacceptable risk remain valid, providing that the assumed land uses for the site per the Adak Reuse Plan do not change. The OU A ROD did not identify human health or ecological risks associated with the site. Cleanup levels specified for groundwater at petroleum-contaminated sites on the former Adak Naval Complex are based on the use of groundwater as a drinking water source [18 AAC 75.345(b)(1), Table C], or 10 times these levels if the groundwater is not reasonably expected to be a potential future source of drinking water [18 AAC 75.345(b)(2)]. Groundwater at NORPAC Hill is not considered to be a reasonably expected potential future source of drinking water; therefore, groundwater cleanup levels for these sites are 10 times the levels specified in Table C of the Alaska regulations.

The 2005 Final Decision Document for Petroleum Sites with No Unacceptable Risk established no COCs for this site.

RAOs:

The OU A ROD for the petroleum site NORPAC Hill Seep Area established the following original RAO:

- Reduce volume of petroleum free product.

The RAOs were revised in the 2005 Final Decision Document for Petroleum Sites with No Unacceptable Risk to the following:

- Prevent future exposure to petroleum-related chemicals in soil and groundwater at the site.
- Over the long term, reduce concentrations of petroleum-related chemicals in groundwater to levels below Alaska DEC groundwater cleanup levels.

REMEDY IMPLEMENTATION:

The OU A ROD-specified interim free product recovery remedy was implemented intermittently beginning in 1998. Free product recovery conducted as an interim remedial action has met the practicable endpoint established for the shut-down of product recovery as specified in the OU A ROD. ADEC approved the interim action free product recovery closure report for this site in January 2006. The 2005 decision

document specifies the final remedy as limited groundwater monitoring. This remedy was implemented in 2005 via modifications to the CMP.

Free product recovery was conducted in 2006 through 2010 at the NORPAC Hills Seep Area site. Between October 2006 and September 2009, 0.28 gallons of free product was recovered during free product recovery activities. Free product recovery activities continued through March 2011 and no additional free product was recovered from the site.

DRO concentrations in samples collected from four wells on site and one sediment location collected at a groundwater seep at the base of the cliff were below endpoint criteria for at least two consecutive sampling events. There were no exceedances of DRO endpoint criterion of 15,000 µg/L in any of the groundwater samples collected between 2005 and 2010; however, one well (04-146) contained free product in 2005, 2006, and 2008 so no samples could be collected those years. In addition, the sediment sample collected in 2009 and 2010 was non-detect for DRO.

ADEC issued a "cleanup complete with ICs" determination on September 19, 2011 based on the results of the groundwater and sediment samples.

The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including NORPAC Hill. No ICs specific to the NORPAC Hill Seep Area were established in the OU A ROD or the 2005 SAERA decision document; however, ICs are included for this site in the ICMP.

NORPAC Hill Seep Area — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Free product recovery was discontinued in June 2010.

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: September 2010 Most Recent Inspection Date: September 2019
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

NORPAC Hill Seep Area — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-145	Limited GW monitoring	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO	
2006	DRO	
2007	DRO	
2008	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-146	SW protection, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Free product detected, not sampled	
2006	Free product detected, not sampled, product thickness (monthly)	
2007	DRO, product thickness (monthly), shoreline inspection	
2008	Free product detected, not sampled, product thickness (monthly), shoreline inspection	
2009	DRO, product thickness (monthly), shoreline inspection	
2010	DRO (if product not present), product thickness (monthly), shoreline inspection	
2011	Met endpoint criteria; monitoring discontinued	

NORPAC Hill Seep Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-147	SW protection	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO	
2006	DRO	
2007	DRO	
2008	DRO (even years only)	
2009	Monitoring not planned	
2010	DRO (even years only)	
2011	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-149	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

NORPAC Hill Seep Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-150	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-403	Limited GW monitoring	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO	
2006	DRO	
2007	DRO	
2008	DRO (even years only)	
2009	Monitoring not planned	
2010	DRO (even years only)	
2011	Met endpoint criteria; monitoring discontinued	

NORPAC Hill Seep Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-404	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-405	Limited GW monitoring	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO	
2006	DRO	
2007	DRO	
2008	DRO (even years only)	
2009	Monitoring not planned	
2010	DRO (even years only)	
2011	Met endpoint criteria; monitoring discontinued	

NORPAC Hill Seep Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NL-06	SW protection	Surface water and Sediment
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	DRO, seep flow insufficient SW not sampled	
2010	DRO, seep flow insufficient SW not sampled	
2011	Sediment: Met endpoint criteria; monitoring discontinued Surface water: Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NS-2	Limited GW monitoring	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO	
2006	DRO	
2007	DRO	
2008	Met endpoint criteria; monitoring discontinued	

NORPAC Hill Seep Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NS-3	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NS-4	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls for NORPAC Hill Seep Area include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection September 7, 2019, no changes to the site were observed compared to the 2014 inspection

results. No residential construction has occurred at the site, and no indications of groundwater use or excavation activities were found. Excavation restriction signs were visible; however, one sign located along Bayshore Highway was faded. The 2019 IC report indicated all ICs appear to be functioning as intended to protect human receptors from exposure to soil or groundwater. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

29, 42, 62, 77, 84, 86, 90, 91, 129, 134, 141, 142, 144, 165, 166

Officer Hill and Amulet Housing, UST 31047-A — OU A - SAERA

Officer Hill and Amulet Housing, UST 31047-A — OU A - SAERA

STATUS: Cleanup complete with institutional controls

BACKGROUND:

Officer Hill Housing is located northwest of Amulet Housing and west of downtown Adak. Former UST 31047-A was located approximately 1,800 feet west of Runway 18-36 and 7,500 feet west of Kuluk Bay. Building 31047 and the other residential housing units in the Officer Hill and Amulet Housing area were built in the 1960s. Land use in this area prior to the 1960s is unknown.

The original fuel oil tank installed at the time of construction of the housing units was replaced (in the same location) with a JP-5 UST in 1988. The condition of the original fuel oil tank when it was removed is unknown. UST 31047-A was used to store JP-5 for the oil furnace. The UST was removed in March 1995. At the time of removal, UST 31047-A appeared to be in excellent condition, with no observed dents, deformities, holes, or rust. DRO concentrations in soil samples collected during removal activities ranged from 9.7 mg/kg to 3,000 mg/kg. Because analytical results indicated that concentrations of DRO in surface soil remaining near the vent pipe exceeded the screening criterion established by ADEC, an additional investigation was required.

In 1996, two hand auger borings were advanced in the vicinity of the former tank. Concentrations of DRO in surface and subsurface soil were reported at 24,700 mg/kg and 19,000 mg/kg, respectively, which exceeded the ADEC cleanup criterion.

In 1998, a site investigation was conducted to evaluate the extent of petroleum hydrocarbons found during the 1996 investigation. One soil boring was drilled to a depth of approximately 6 feet. This boring was intended to be completed as a groundwater monitoring well. However, bedrock was encountered at a depth of 6 feet and groundwater was not present in the boring. Analyses of the two soil samples collected from this boring did not detect DRO at concentrations above the ADEC Method Two soil cleanup level established for this compound.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	10
Number of Pre-Rod Samples	15
Potential Contaminant Types Evaluated	Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Soil, Sub-surface soil (> 6")
Types of Pre-ROD Locations	Borehole/Soil boring, Direct Push/Geoprobe, Excavation, Hand auger, Pipeline

Officer Hill and Amulet Housing, UST 31047-A OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria:

Soil

- DRO

RAOs:

The OU A ROD for the petroleum site Officer Hill and Amulet Housing, UST 31047-A established the following RAO (Table 7-4 of the OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is limited soil removal.

In 1999, approximately 7 cubic yards of soil containing petroleum-related compounds at concentrations exceeding ADEC Method Two soil cleanup levels were removed from the site for treatment and disposal. Although all soils that could be removed from the excavation were removed, highly fractured bedrock encountered between 3 and 5 feet appears to be impacted by petroleum contamination, based on one sample from location 331. Therefore, the DRO concentrations remaining in on-site soils are above the ADEC Method Two soil cleanup level for the over-40-inch rainfall zone and protection of migration to groundwater. Further excavation in this area is not possible because of the presence of shallow bedrock and the proximity of Building 31047. Because shallow bedrock is present at the site and groundwater was not encountered during drilling activities in 1998, groundwater is not considered a continuous transport pathway from the Officer Hill and Amulet Housing site to Yakutat Creek, located 200 feet to the northwest.

This site was evaluated in the 2005 Final Cleanup Report, 19 Sites. Based on this report, ADEC concurred with NFRAP status for this site, but required a soil sample near location 331 to achieve NFA.

Officer Hill and Amulet Housing, UST 31047-A received “cleanup complete with ICs” determination from ADEC on November 23, 2005.

ADEC may require additional actions when the landowner applies to remove restrictions. The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including Officer Hill and Amulet Housing UST 31047-A. No ICs specific to Officer Hill and Amulet Housing UST 31047-A were established by the OU A ROD. However, Revision 8 of the ICMP lists the ICs and inspection requirements which are on the five-year schedule.

Officer Hill and Amulet Housing, UST 31047-A — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: June 1999 — Most Recent Inspection Date: September 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Officer Hill and Amulet Housing, UST 31047-A OU A - SAERA

SUMMARY OF INSPECTION RESULTS:

Institutional Controls for Officer Hill and Amulet Housing, UST 31047-A include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection on September 10, 2019, no changes to the site were observed compared to previous inspection results. No residential construction had occurred at the site. No indications of groundwater use or excavation activities were found at the site. No excavations were identified during the inspection. There were no excavation restriction signs present onsite, but the site is in the downtown area and several signs were located in the immediate vicinity of the site. The 2019 IC report indicated ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

2, 28, 29, 31, 34, 39, 41, 44, 52, 62, 81, 84, 86, 142, 144, 148, 165, 166

Officer Hill and Amulet Housing, UST 31049-A — OU A - SAERA

Officer Hill and Amulet Housing, UST 31049-A — OU A - SAERA

STATUS: Cleanup complete

BACKGROUND:

Officer Hill Housing is located northwest of Amulet Housing and west of downtown Adak. Former UST 31049-A was located approximately 1,800 feet west of Runway 18-36 and 7,500 feet west of Kuluk Bay. Building 31049 and the other residential housing units in the Officer Hill and Amulet Housing area were built in the 1960s. Land use in this area prior to the 1960s is unknown.

The original fuel oil tank installed at the time of construction of the housing units was replaced (in the same location) with a JP-5 UST in 1988. The condition of the original fuel oil tank when it was removed is unknown. UST 31049-A was used to store JP-5 for the oil furnace. The UST was removed in March 1995. At the time of removal, UST 31049-A appeared to be in excellent condition, with no observed dents, deformities, holes, or rust. DRO concentrations in soil samples collected during removal activities ranged from 9.0 mg/kg to 390 mg/kg. Although the maximum DRO concentration in the soil samples collected during the UST closure were well below the ADEC criterion, an additional investigation was required because the site is less than 200 feet from the DEM (an unnamed creek).

In 1998, a site investigation was conducted in the vicinity of the removed piping that had connected the housing unit furnace to UST 31049-A. One soil boring was drilled near the point where the piping entered the building. The maximum DRO concentration detected in the two soil samples collected from this boring was 12 mg/kg, well below the ADEC Method Two soil cleanup level.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	8
Number of Pre-Rod Samples	11
Potential Contaminant Types Evaluated	Petroleum hydrocarbons
Pre-ROD Sample Matrix Types	Soil, Sub-surface soil (> 6")
Types of Pre-ROD Locations	Borehole/Soil boring, Direct Push/Geoprobe, Excavation, Pipeline

Officer Hill and Amulet Housing, UST 31049-A OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria:

Soil

- DRO

RAOs:

The OU A ROD for the petroleum site Officer Hill and Amulet Housing, UST 31047-A established the following RAO (Table 7-4 of the OU A ROD):

- Mitigate potential for downgradient migration.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is limited soil removal.

In 1999, approximately 2 cubic yards of soil containing petroleum-related compounds at concentrations exceeding ADEC Method Two soil cleanup levels were removed from the site for treatment and disposal. Confirmation sampling identified concentrations of petroleum-related compounds below ADEC soil cleanup levels. The site status was designated NFA on November 23, 2005, with ADEC concurrence.

The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including Officer Hill and Amulet Housing UST 31049-A. No ICs specific to Officer Hill and Amulet Housing UST 31049-A were established by the OU A ROD, and IC inspections are not required for this site in the ICMP.

Officer Hill and Amulet Housing, UST 31049-A — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☐ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☑ None Required

Most Recent Sampling Date: June 1999 — Most Recent Inspection Date: August 2010

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Officer Hill and Amulet Housing, UST 31049-A OU A - SAERA

SUMMARY OF INSPECTION RESULTS:

Officer Hill and Amulet Housing, UST 31049-A was not one of the sites selected for inspection during the 2015 five-year review. Officer Hill and Amulet Housing, UST 31049-A is a no further action site that did not appear likely to be revised to an action site based on ARAR changes.

BIBLIOGRAPHY:

2, 4, 28, 29, 31, 34, 39, 41, 44, 52, 62, 81, 84, 86, 144

Officer Hill and Amulet Housing, UST 31052-A — OU A - SAERA

Officer Hill and Amulet Housing, UST 31052-A — OU A - SAERA

STATUS: Cleanup complete with institutional controls

BACKGROUND:

Officer Hill Housing is located northwest of Amulet Housing and west of downtown Adak. Former UST 31052-A was located approximately 600 feet west of South Sweeper Creek, 1,300 feet west of Runway 18-36, and 7,000 feet west of Kuluk Bay. Building 31052 and the other residential housing units in the Officer Hill and Amulet Housing area were built in the 1960s. Land use in this area prior to the 1960s is unknown.

The original fuel oil tank installed at the time of construction of the housing units was replaced (in the same location) with a JP-5 UST in 1988. The condition of the original fuel oil tank when it was removed is unknown. UST 31052-A was used to store JP-5 for the oil furnace. The UST was removed in March 1995. During the tank removal, groundwater was encountered at 5.5 feet bgs, and a heavy sheen was observed on the groundwater surface. DRO concentrations in soil samples collected during removal activities ranged from 5.0 mg/kg to 3,100 mg/kg. UST 31052-A appeared to be in excellent condition at the time of removal, with no observed dents, deformities, holes, or rust. Because DRO concentrations in the soil samples collected during the UST closure exceeded the ADEC criterion, an additional investigation was required.

In 1996 and 1997, a site investigation was conducted to verify that DRO concentrations were present at the vent standpipe and to determine the horizontal extent of petroleum-affected soil. The investigation included collecting soil samples from two hand-augered soil borings that were completed in the vicinity of former UST 31052-A and the associated vent standpipe. The highest concentrations of DRO were in the surface and subsurface soil samples collected near the vent standpipe (2,650 mg/kg and 1,100 mg/kg, respectively).

In 1998, an additional soil boring was drilled in the vicinity of the hand auger locations using Geoprobe drilling equipment. Of the two soil samples collected from the boring, the highest concentration of DRO (69 mg/kg) was detected in the sample collected from 3.5 to 5 feet.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	10
Number of Pre-Rod Samples	17
Potential Contaminant Types Evaluated	Metals, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Soil, Sub-surface soil (> 6")
Types of Pre-ROD Locations	Borehole/Soil boring, Direct Push/Geoprobe, Excavation, Hand auger, Pipeline

Officer Hill and Amulet Housing, UST 31052-A OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria:

Soil

- DRO

RAOs:

The OU A ROD for the petroleum site Officer Hill and Amulet Housing, UST 31052-A established the following RAO (Table 7-4 of the OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is limited soil removal.

In 1999, approximately 2 cubic yards of soil containing petroleum-related compounds at concentrations exceeding ADEC Method Two soil cleanup levels were removed from the site for treatment and disposal. Although DRO concentrations reported for soil remaining on site are above the ADEC Method Two soil cleanup level for the over-40-inch rainfall zone and protection of migration to groundwater, further excavation in this area was not possible because of the proximity of Building 31052 and the presence of shallow groundwater.

The site remedy shifted from limited soil removal to limited groundwater monitoring with ADEC concurrence in 1999 (Agency comments to the Draft Limited Soil Removal Report dated September 21, 1999). Because inaccessible petroleum in soil remained, well 05-372 was installed in 2001 to evaluate whether the remaining petroleum in soil was partitioning into groundwater at concentrations above ADEC 18 AAC 75.345 Table C values. Limited groundwater monitoring commenced in 2001, but no target analytes were detected above OU A ROD cleanup levels in 2001 and 2002; therefore, groundwater monitoring stopped in 2002. This site was evaluated in the 2005 Final Cleanup Report, 19 Sites. Based on this report, ADEC concurred with NFRAP status for this site, but required soil samples near locations 05-207 and 05-371 to achieve NFA.

Officer Hill and Amulet Housing, UST 31052-A received "cleanup complete with ICs" determination from ADEC on November 23, 2005.

The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including Officer Hill and Amulet Housing UST 31052-A. No ICs specific to Officer Hill and Amulet Housing UST

31052-A were established in the OU A ROD. However, Revision 8 of the ICMP lists the ICs and inspection requirements which are on the five-year schedule.

Officer Hill and Amulet Housing, UST 31052-A — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: October 2002 — Most Recent Inspection Date: September 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Officer Hill and Amulet Housing, UST 31052-A — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
05-372	Limited GW monitoring	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls for Officer Hill and Amulet Housing, UST 31052-A include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection on September 10, 2019, no changes to the site were observed compared to previous inspection results. No residential construction had occurred at the site. No indications of groundwater use or excavation activities were found at the site. No excavations were identified during the inspection. There were no excavation restriction signs present onsite, but the site is in the downtown area and several signs were located in the immediate vicinity of the site. The 2019 IC report indicated ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

2, 28, 29, 31, 34, 39, 41, 44, 52, 62, 81, 84, 86, 142, 144, 148, 165, 166

Quarters A — OU A - SAERA

Quarters A — OU A - SAERA

STATUS: Cleanup complete

BACKGROUND:

Quarters A is located on a small hill northeast of Bering Hill, west of Runway 18-36, and overlooking the former Officer Hill and Amulet Housing. Quarters A is a single-family residence formerly occupied by the Naval Air Facility Commander. The knoll where Quarters A is located was used during the 1940s as tent housing for troops. Former UST 42200 was used to store JP-5 fuel for heating Quarters A.

UST 42200 was removed in 1997. Soil samples were collected from the floor of the excavation and from under the supply/return lines against the building foundation. Upon removal, the tank was in excellent condition and did not appear to have holes in the body that would indicate leakage. DRO was reported at a concentration of 1,660 mg/kg in the soil sample collected under the former supply/return lines that exceeded the ADEC Method One soil cleanup level (200 mg/kg) established for this compound. The source of petroleum release is not recorded.

In 1998, two soil borings were drilled in the vicinity of the former supply/return lines. DRO was not detected in these soil samples at concentrations above the ADEC Method Two soil cleanup level established for this compound.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	5
Number of Pre-Rod Samples	7
Potential Contaminant Types Evaluated	Petroleum hydrocarbons, Volatile organics
Pre-ROD Sample Matrix Types	Sub-surface soil (> 6")
Types of Pre-ROD Locations	Borehole/Soil boring, Direct Push/Geoprobe, Excavation

Quarters A — OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria:

Soil

- DRO

RAOs:

The OU A ROD for the petroleum site Quarters A established the following RAO (Table 7-4 of the OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy is limited soil removal.

In 1999, approximately 3 cubic yards of petroleum-impacted soil was removed from the site for treatment and disposal. Confirmation sampling identified concentrations of petroleum related compounds below ADEC soil cleanup levels. No ICs specific to Quarters A were established in the OU A ROD, and IC site inspections are not required for this site in the ICMP. In its designation of the site as NFA in 2005, ADEC stated that area-wide "downtown" land use restrictions will still apply to this site.

Quarters A — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☐ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☑ None Required

Most Recent Sampling Date: July 1999 — Most Recent Inspection Date: 1999

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Quarters A — OU A - SAERA

SUMMARY OF INSPECTION RESULTS:

Quarters A was not one of the sites selected for inspection during the 2015 five-year review. Quarters A is a no further action site that did not appear likely to be revised to an action site based on ARAR changes.

BIBLIOGRAPHY:

5, 55, 62, 84, 86

ROICC Warehouse, UST ROICC-2 — OU A - SAERA

ROICC Warehouse, UST ROICC-2 — OU A - SAERA

STATUS: Cleanup complete with institutional controls

BACKGROUND:

The ROICC Warehouse is located north of downtown Adak, approximately 4,000 feet north of Runway 5-23 and approximately 1,650 feet west of Kuluk Bay. The ROICC Warehouse, built in the mid-to-late 1940s, has always been used for storage of construction equipment and supplies for contractors working for the Navy. UST ROICC-2, a 1,300-gallon steel UST, is believed to have been used to collect and store diesel-range and heavier petroleum product.

The general topography of the ROICC Warehouse area is flat and surface water drainage is poor, creating pools of standing water on the site and throughout the area. The closest surface water body is NAVFAC Creek, located approximately 500 feet north of the site. The closest marine surface water body is Kuluk Bay, located approximately 1,650 feet east of the source. Groundwater flow direction at the site has been estimated to be southeast toward Kuluk Bay and appears to parallel NAVFAC Creek. The groundwater surface has been observed between 6 and 8 feet bgs at the site. Subsurface material observed at the site consists of fine-grained sand with an organic silt layer between 5.5 and 6.5 feet bgs in the vicinity of the former UST. The sandy material typically possesses a high water-bearing capacity.

UST ROICC-2 was decommissioned and removed in April 1995. At the time of removal, the tank was full of a water and product mix that had resulted from rainwater entering the tank through an exposed 4-inch diameter hole on top of the tank. The tank was in poor condition, with surface rust and one 10-inch-long triangular hole above the ground surface. DRO concentrations from all five samples collected from the excavation exceeded the ADEC soil matrix level. The history and exact use of the UST are not documented. The release mechanism is unknown, but could be from overfilling or from the hole in the tank.

In 1996, two groundwater monitoring wells were installed downgradient of the former tank excavation. DRO, GRO, and BTEX were not detected in soil samples collected at the site. DRO and GRO were not detected in groundwater samples, and benzene was detected at a maximum concentration of 2.2 µg/L in groundwater. Well 08-171 was resampled in 1998, and DRO, GRO, and BTEX were not detected in groundwater.

In 1999, wells 08-203 and 08-204 were installed south of well 08-171 because of the variable groundwater flow direction. No exceedances of soil cleanup criteria were noted.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	9
Number of Pre-Rod Samples	15
Potential Contaminant Types Evaluated	Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics

ROICC Warehouse, UST ROICC-2 — OU A - SAERA

Pre-ROD Sample Matrix Types	Ground water, Soil, Sub-surface soil (> 6")
Types of Pre-ROD Locations	Excavation, Monitoring well, Well

ROICC Warehouse, UST ROICC-2 — OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria:

Soil

- DRO

RAOs:

The OU A ROD for the petroleum site ROICC Warehouse, UST ROICC-2 established the following RAO (Table 7-4 of the OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is limited groundwater monitoring.

Wells 08-171 and 08-203 were sampled between 1999 and 2000 as part of the limited monitoring program. Analytical results from groundwater samples collected for two consecutive sampling events were below the ROD-established ADEC 18 AAC 75.345 Table C values. Groundwater monitoring was discontinued at this site in 2000, because concentrations had achieved endpoint criteria.

This site was evaluated in the 2005 Final Cleanup Report, 19 Sites. Based on this report, ADEC concurred with NFRAP status for this site, but required soil samples near locations 10, 12, 14, 15, and 16 to achieve NFA.

ROICC Warehouse, UST ROICC-2 received "cleanup complete with ICs" determination from ADEC on November 23, 2005.

The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including ROICC-2. No ICs specific to UST ROICC-2 were established in the OU A ROD. However, Revision 8 of the ICMP lists the ICs and inspection requirements which are on the five-year schedule.

ROICC Warehouse, UST ROICC-2 — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: May 2000 — Most Recent Inspection Date: September 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

ROICC Warehouse, UST ROICC-2 — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
08-171	Limited GW monitoring	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
08-203	Limited GW monitoring	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls for ROICC Warehouse, UST ROICC-2 include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection on September 7, 2019, no changes to the site were observed compared to previous inspection results. No residential construction had occurred at the site. No indications of groundwater use or excavation activities were found at the site. No excavations were identified during the inspection. There were no excavation restriction signs present onsite, but the site is in the downtown area and several signs were located in the immediate vicinity of the site. The 2019 IC report indicated ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

2, 18, 52, 62, 84, 86, 142, 144, 148, 165, 166

ROICC Warehouse, UST ROICC-3 — OU A - SAERA

ROICC Warehouse, UST ROICC-3 — OU A - SAERA

STATUS: Cleanup complete with institutional controls

BACKGROUND:

The ROICC Warehouse is located north of downtown Adak, approximately 4,000 feet north of Runway 5¬23 and approximately 1,650 feet west of Kuluk Bay. The ROICC Warehouse, built in the mid- to late 1940s, has always been used for storage of construction equipment and supplies for contractors working for the Navy. UST ROICC-3, a 1,300-gallon steel UST, was believed to have been used to collect and store diesel-range and heavier petroleum product.

The general topography of the ROICC Warehouse area is flat and surface water drainage is poor, creating pools of standing water on the site and throughout the area. The closest surface water body is NAVFAC Creek, located approximately 500 feet north of the site. The closest marine surface water body is Kuluk Bay, located approximately 1,650 feet east of the source.

Groundwater flow direction at the site has been estimated to be southeast toward Kuluk Bay and appears to parallel NAVFAC Creek. The groundwater surface has been observed between 6 and 8 feet bgs at the site. Subsurface material observed at the site consists of fine-grained sand with an organic silt layer between 5.5 and 6.5 feet bgs in the vicinity of the former UST. The sandy material typically possesses a high water-bearing capacity.

UST ROICC-3 was decommissioned and removed in April 1995. At the time of removal, the tank was in poor condition, with surface rust. DRO concentrations from two of three samples collected from the excavation exceeded the ADEC soil matrix level. The history and exact use of the UST are not documented. The release mechanism is unknown, but could possibly be from overfilling.

In 1996, two groundwater monitoring wells were installed downgradient of the former tank excavation for UST ROICC-3 and the former tank excavation for UST-ROICC-2 located nearby. DRO, GRO, and BTEX were not detected in soil samples collected at the site. DRO and GRO were not detected in groundwater samples. Benzene was detected at a maximum concentration of 2.2 µg/L in groundwater. Well 08-171 was resampled in 1998, and DRO, GRO, and BTEX were not detected in groundwater.

In 1999, well 08-801 was installed west of the former tank excavation due to the variable groundwater flow direction. No analytes were detected in the soil sample collected.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	8
Number of Pre-Rod Samples	11
Potential Contaminant Types Evaluated	Metals, Pesticides and aroclors, Petroleum hydrocarbons, Volatile organics

ROICC Warehouse, UST ROICC-3 — OU A - SAERA

Pre-ROD Sample Matrix Types	Ground water, Soil, Sub-surface soil (> 6")
Types of Pre-ROD Locations	Excavation, Monitoring well

ROICC Warehouse, UST ROICC-3 OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria:

Soil

- DRO

RAOs:

The OU A ROD for the petroleum site ROICC Warehouse, UST ROICC-3 established the following RAO (Table 7-4 of the OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is limited groundwater monitoring.

Wells 08-171 and 08-801 were sampled between 1999 and 2000 as part of the limited monitoring program, and analytical results from groundwater samples collected for two consecutive sampling events were below the ROD-established ADEC 18 AAC 75.345 Table C values. Groundwater monitoring was discontinued at this site in 2000, because concentrations had achieved endpoint criteria.

This site was evaluated in the 2005 Final Cleanup Report, 19 Sites. Based on this report, ADEC concurred with NFRAP status for this site, but required soil samples near locations 14 and 15 to achieve NFA.

ROICC Warehouse, UST ROICC-3 received "cleanup complete with ICs" determination from ADEC on November 23, 2005.

The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including ROICC-3. No ICs specific to UST ROICC-3 were established in the OU A ROD. However, Revision 8 of the ICMP lists the ICs and inspection requirements which are on the five-year schedule.

ROICC Warehouse, UST ROICC-3 — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: May 2000 — Most Recent Inspection Date: September 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

ROICC Warehouse, UST ROICC-3 — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
08-204	Limited GW monitoring	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
08-801	Limited GW monitoring	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls for ROICC Warehouse, UST ROICC-3 include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection on September 7, 2019, no changes to the site were observed compared to previous inspection results. No residential construction had occurred at the site. No indications of groundwater use or excavation activities were found at the site. No excavations were identified during the inspection. There were no excavation restriction signs present onsite, but the site is in the downtown area and several signs were located in the immediate vicinity of the site. The 2019 IC report indicated ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

2, 28, 52, 62, 84, 86, 142, 144, 148, 165, 166

ROICC Contractor's Area, UST ROICC-7 — OU A - SAERA

ROICC Contractor's Area, UST ROICC-7 — OU A - SAERA

STATUS: Groundwater monitoring and institutional controls

BACKGROUND:

The ROICC Contractor's Area is located north of the airport and downtown Adak in an unpopulated area approximately 1/2 mile from Kuluk Bay. The ROICC Contractor's Area was used for storage of equipment and supplies for contractors working for the Navy. UST ROICC-7 was located on the south side of Davis Street near a concrete pad that had been a warehouse foundation. The UST location was approximately 20 feet north and 17 feet east of the southeast corner of the southern concrete pad.

The general topography of the site is flat. North Sweeper Creek is located approximately 2,200 feet south of the former location of UST ROICC-7. Groundwater flow is generally to the south-southeast toward North Sweeper Creek.

The history and use of the UST ROICC-7 are not documented. When the UST was removed in 1995, the tank was nearly full of oily water. The excavated tank was in moderate to good condition with moderate to heavy surface rust. A 4-inch diameter hole and two piping connections were observed on the tank's top, but piping was not observed in the area of the tank. Hydrocarbon odors and a sheen on the tank were noted during excavation. The source of petroleum release is not recorded, but it appears to have originated from the UST. DRO was reported at a concentration of 16,000 mg/kg in the soil sample collected from the south end of the tank, exceeding the ADEC Method One soil cleanup level (200 mg/kg) established for this compound.

In 1999, three groundwater monitoring wells were installed north of the former ROICC-7 excavation to find the source of benzene reported in groundwater samples collected from well 08-153. Benzene concentrations in the resulting boring for monitoring well 08-200 exceeded the soil cleanup criterion.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	6
Number of Pre-Rod Samples	10
Potential Contaminant Types Evaluated	Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Soil, Sub-surface soil (> 6")
Types of Pre-ROD Locations	Excavation, Monitoring well, Well

ROICC Contractor's Area, UST ROICC-7 OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria:

Soil

- Benzene
- DRO

RAOs:

The OU A ROD for ROICC Contractor's Area, UST ROICC-7 established the following RAO (Table 7-4 of the OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is limited groundwater monitoring.

Limited groundwater monitoring was conducted between 1999 and 2002. Well 08-175 was installed in 2003 to evaluate natural attenuation downgradient. Natural attenuation evaluation monitoring was initiated at locations 08-175, 08-200, and 08-202 during 2003.

Analytical results from groundwater samples collected during the first year of comprehensive monitoring exceeded the ROD-established ADEC 18 AAC 75 groundwater cleanup criteria in well 08-200 (benzene and GRO) and well 08-202 (benzene). As of 2018, wells 08-200 and 08-202 continue to be monitored for benzene on a biennial basis. Concentrations of benzene remain above the cleanup criterion of 5 µg/L in both wells (240 µg/L in well 08-200 and 7.1 µg/L in well 08-202 in 2018). Because benzene concentrations remain above the end point criterion in the currently monitored site wells, it is recommended that groundwater monitoring continue as prescribed. The Navy will consider adding well 08-175 to the LTM sampling program in 2020 to monitor groundwater downgradient of well 08-200.

The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including ROICC-7. ICs specific to UST ROICC-7, and IC inspection requirements, were included in the OU A ROD and the ICMP.

ROICC Contractor's Area, UST ROICC-7 — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- [x] Groundwater Monitoring
- [ ] Surface Water Monitoring
- [ ] Sediment Monitoring
- [ ] Tissue Monitoring
- [ ] Landfill Inspection
- [x] IC Inspection — Click to View ICMP Table
- [ ] Remediation System Monitoring and Maintenance
- [ ] None Required

Most Recent Sampling Date: August 2018 — Most Recent Inspection Date: September 2019

Current Media Sampled: Groundwater

Current Analytes Sampled: Benzene, NAPs

Current Monitoring: Click to View Current Monitoring — Monitoring File: ROICC-7 monitoring.pdf

ROICC Contractor's Area, UST ROICC-7 — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
08-175	MNA, NAE	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	GRO, BTEX, NAPs	
2004	GRO, BTEX, NAPs	
2005	Monitoring not planned	
2006	GRO (Annually), BTEX (even years only)	
2007	GRO	
2008	Benzene (even years only)	
2009	NAPs	
2010	Benzene (even years only)	
2011	Monitoring not planned	
2012	Benzene	
2013	Met endpoint criteria; monitoring discontinued	
2019	Monitoring not planned; (recommence in even years)	

ROICC Contractor's Area, UST ROICC-7 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
08-200	MNA, NAE	Groundwater
1999	DRO, GRO, BTEX (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, VOCs, NAPs	
2002	GRO, GRO fractions, BTEX, DRO, DRO fractions, RRO, NAPs	
2003	GRO, BTEX, NAPs	
2004	GRO, BTEX, NAPs	
2005	GRO, BTEX	
2006	GRO, BTEX	
2007	GRO, BTEX	
2008	Benzene	
2009	Benzene, NAPs	
2010	Benzene	
2011	Monitoring not planned	
2012	Benzene	
2013	Benzene	
2014	Benzene	
2015	Monitoring not planned	
2016	Benzene	
2017	Monitoring not planned	
2018	benzene, NAPs	
2019	Monitoring not planned	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
08-201	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	GRO, GRO fractions, BTEX, DRO, RRO, VOCs, NAPs	
2002	GRO, GRO fractions, BTEX, DRO, DRO fractions, RRO, NAPs	
2003	Discontinued monitoring; no exceedances of criteria except methylene chloride	
2004	Monitoring discontinued	

ROICC Contractor's Area, UST ROICC-7 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
08-202	MNA, NAE	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, VOCs, NAPs	
2002	GRO, GRO fractions, BTEX, DRO, DRO fractions, RRO, NAPs	
2003	GRO, BTEX, NAPs	
2004	GRO, BTEX, NAPs	
2005	GRO, BTEX	
2006	GRO, BTEX	
2007	GRO, BTEX	
2008	Benzene	
2009	Benzene, NAPs	
2010	Benzene (even years only)	
2011	Monitoring not planned	
2012	Benzene	
2013	Benzene	
2014	Benzene	
2015	Monitoring not planned	
2016	Benzene	
2017	Monitoring not planned	
2018	benzene, NAPs	
2019	Monitoring not planned	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls for ROICC Contractor's Area, UST ROICC-7 include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection on September 7, 2019, no changes to the site were observed compared to the 2017 inspection results. No residential construction had occurred at the site. No indications of groundwater use or excavation activities were found. An excavation restriction sign was present onsite. The 2019 IC report indicated ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

29, 34, 41, 52, 62, 84, 86, 90, 91, 129, 134, 141, 142, 152, 164, 165, 166

ROICC Contractor's Area, UST ROICC-8 — OU A - SAERA

ROICC Contractor's Area, UST ROICC-8 — OU A - SAERA

STATUS: Cleanup complete with institutional controls

BACKGROUND:

The ROICC Contractor's Area is located north of the airport and downtown Adak in an unpopulated area. The ROICC Contractor's Area was used for storage of equipment and supplies for contractors working for the Navy. UST ROICC-8 was located near the southwest corner of the southern concrete pad in the ROICC Contractor's Area approximately 180 feet west of an adjacent petroleum-release site (ROICC Contractor's Area, UST ROICC-7). The raised concrete pad is situated between the two sites.

The general topography of the site is flat. The eastern margin of a large marsh area is located approximately 50 feet southwest of the source area. Kuluk Bay is located approximately 0.5 mile east of the former location of UST ROICC-8. Groundwater flow varies at the site, generally flowing to the southeast toward Kuluk Bay. However, occasionally groundwater flows to the southwest toward the marsh. The groundwater surface has been observed between 1 and 4 feet bgs at the site. Subsurface material observed at the site consists of fine-grained silty sand. The sandy material typically possesses a high water-bearing capacity.

The history and use of the UST ROICC-8 are not documented. The UST was removed in 1995. The excavated tank was in fair condition with moderate to heavy surface rust. The associated piping, which was moderately to heavily rusted, was removed together with the tank. The source of petroleum release is not recorded, but it appears to have originated from the UST. DRO was reported at a concentration of 11,000 mg/kg in the soil sample collected from the south end of the tank, exceeding the ADEC Method One soil cleanup level (200 mg/kg) established for this compound.

In 1996, nine monitoring wells and two soil borings were installed at the site. DRO concentrations in the soil ranged from not detected to 801 mg/kg. GRO and BTEX were not detected in the soil. The maximum DRO and GRO concentrations reported in groundwater samples were 500 µg/L and 817 µg/L, respectively, from well 08-153. In addition, benzene was detected at a concentration of 24.8 µg/L in well 08-151.

In 1998, groundwater from wells 08-153 and 08-160 was resampled. Benzene and GRO were detected at concentrations of 1.4 µg/L and 110 µg/L, respectively, in well 08-153. Xylenes were detected at levels barely above the detection limit in both wells. No other constituents were reported.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	16
Number of Pre-Rod Samples	36
Potential Contaminant Types Evaluated	Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics

ROICC Contractor's Area, UST ROICC-8 — OU A - SAERA

Pre-ROD Sample Matrix Types	Ground water, Soil, Sub-surface soil (> 6"), Surface soil (less than 6 inches)
Types of Pre-ROD Locations	Borehole/Soil boring, Excavation, Monitoring well, Pipeline, Well

ROICC Contractor's Area, UST ROICC-8 OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemicals exceeded these criteria (interpreted from Table 5-11 of the OU A ROD):

Groundwater

- Benzene

Soil

- DRO

RAOs:

The OU A ROD for ROICC Contractor's Area, UST ROICC-8 established the following RAO (Table 7-4 of the OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is MNA and ICs.

In 1999, wells 08-153 and 08-160 were resampled as part of the natural attenuation monitoring program. Analytical results from groundwater samples were below the ROD-established ADEC 18 AAC 75.345 Table C values for three consecutive sampling events. Groundwater monitoring was discontinued at this site in 2003, because concentrations had achieved endpoint criteria.

This site was evaluated in the 2005 Final Cleanup Report, 19 Sites. Based on this report, ADEC concurred with NFRAP status for this site, but required soil samples near locations 152 and 157 to achieve NFA.

ROICC Contractor’s Area, UST ROICC-8 received "cleanup complete with ICs" determination from ADEC on November 23, 2005.

The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including ROICC-8. ICs specific to UST ROICC-8, and IC inspection requirements, were included in the OU A ROD and the ICMP.

ROICC Contractor's Area, UST ROICC-8 — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: October 2002 — Most Recent Inspection Date: September 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

ROICC Contractor's Area, UST ROICC-8 OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
08-153	MNA	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
08-160	MNA	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls for ROICC Contractor’s Area, UST ROICC-8 include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection on September 7, 2019, no changes to the site were observed compared to previous inspection results. No residential construction had occurred at the site. No indications of groundwater use or excavation activities were found at the site. Building debris from nearby deteriorating structures was present onsite. No excavations were identified during the inspection. An excavation restriction sign was present onsite. The 2019 IC report indicated ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

2, 28, 52, 62, 84, 86, 90, 91, 129, 137, 142, 144, 165, 166

Runway 5-23 Avgas Valve Pit — OU A - SAERA

Runway 5-23 Avgas Valve Pit — OU A - SAERA

STATUS: Cleanup complete with institutional controls

BACKGROUND:

The Runway 5-23 Avgas Valve Pit is located approximately 800 feet south of the southern end of Runway 5-23 and 50 feet west of a former truck fill stand. The valve pit is associated with an abandoned 6-inch diameter avgas transfer pipeline that supplied fuel to the Runway 5-23 truck fill stand. The pipeline has been abandoned after removal of the aboveground portions of the piping, draining of fuel from the buried sections, and capping of the pipe ends.

In 1994, a product sheen was observed on the groundwater surface in the excavation opened to remove the valve. One soil sample collected during the valve removal contained GRO at concentrations greater than ADEC matrix levels. No records are available on petroleum releases at this facility. The release mechanism is unknown, but may include leaks from the piping and valve.

Two groundwater monitoring wells were installed in 1996. Concentrations of GRO in soil samples collected from location 14-100 exceeded ADEC soil cleanup levels. Well 14-100 was sampled in 1996, 1997, and 1998. Concentrations of GRO exceeded the ADEC matrix levels.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	2
Number of Pre-Rod Samples	8
Potential Contaminant Types Evaluated	Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Sub-surface soil (> 6")
Types of Pre-ROD Locations	Monitoring well, Well

Runway 5-23 Avgas Valve Pit — OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemicals exceeded these criteria (interpreted from Table 5-11 of the OU A ROD):

Groundwater

- Benzene
- GRO

Soil

- GRO

RAOs:

The OU A ROD for the petroleum site Runway 5-23 Avgas Valve Pit established the following RAO (Table 7-4 of the OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is MNA and ICs.

Natural attenuation monitoring was initiated in 1999 and ended in 2013. Benzene, aliphatic GRO, and total GRO concentrations in groundwater were greater than ADEC groundwater cleanup levels between 1999 and 2002. A new well, 14-110, was installed in 2003 to better evaluate groundwater characteristics. DRO analyses were discontinued in 2003, GRO fractions were discontinued in 2005, and BTEX was discontinued in 2009, since concentrations met the monitoring endpoint criteria. GRO analysis was discontinued after the 2013 monitoring event because concentrations were below endpoint criteria for three consecutive sampling events.

Runway 5-23 Avgas Valve Pit received "Cleanup Complete" determination from ADEC on March 1, 2021.

The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including Runway 5-23.

Runway 5-23 Avgas Valve Pit — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☑ None Required

Most Recent Sampling Date: September 2013 Most Recent Inspection Date: September 2019
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

Runway 5-23 Avgas Valve Pit — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
14-100	MNA	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2003	GRO, GRO fractions, BTEX, NAPs	
2004	GRO, GRO fractions, BTEX, NAPs	
2005	GRO (annually)	
2006	GRO, BTEX (even years only)	
2007	GRO	
2008	GRO, BTEX	
2009	GRO, NAPs	
2010	GRO	
2011	Monitoring not planned	
2012	GRO	
2013	GRO	
2014	Met endpoint criteria; monitoring discontinued	

Runway 5-23 Avgas Valve Pit — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
14-110	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	GRO, GRO fractions, BTEX, NAPs	
2004	GRO, GRO fractions, BTEX, NAPs	
2005	GRO, BTEX	
2006	BTEX	
2007	GRO	
2008	GRO (even years only)	
2009	NAPs	
2010	GRO (even years only)	
2011	Monitoring not planned	
2012	GRO	
2013	GRO	
2014	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls for Runway 5-23 Avgas Valve Pit include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection on September 6, 2019, no changes to the site were observed compared to the 2014 inspection results. The site is currently not being used. No residential construction had occurred at the site. No indications of groundwater use or excavation activities were found. An excavation restriction sign was present onsite. The 2019 IC report indicated ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

29, 31, 34, 39, 41, 44, 52, 62, 84, 86, 90, 91, 129, 134, 141, 142, 144, 151, 165, 166, 172

SA 76, Old Line Shed Building — OU A

SA 76, Old Line Shed Building — OU A

STATUS: Cleanup complete with institutional controls

BACKGROUND:

SA 76, Old Line Shed Building, measures approximately 500 feet (north-south dimension) by 320 feet (east-west dimension), or 3.7 acres in area. The site is located approximately 1,500 feet north of Sweeper Cove and 2,400 feet west of Kuluk Bay. The elevation ranges from approximately 25 feet above msl on the northern edge of the site to 20 feet above msl at the southern boundary. The dominant feature of SA 76 is a concrete foundation pad measuring 75 feet (east-west dimension) by 200 feet (north-south dimension).

Available historical information indicates the Old Line Shed Building was once used for office space, living quarters for the line crew, and storage space for a variety of materials, including transformers. Information about construction dates is not available. In 1982, the building was damaged during a severe windstorm and was rendered uninhabitable. The structure was later removed, and the remaining foundation pad was used to store stockpiled soils.

Review of historical records and documents for SA 76 did not indicate prior disposal or burial of materials containing hazardous waste. There are three known potential sources of petroleum hydrocarbons: (1) the underground fuel (gasoline and diesel) supply lines from the mogas supply system formerly located at SWMU 75 west of the site, (2) the former automobile service station located south of the site at SWMU 14, and (3) the fuel oil release associated with the Adak housing area near the site (SWMU 62). The mogas ASTs were dismantled in the 1960s. It is unknown whether the underground supply lines were abandoned in place. The former service station at SWMU 14 was abandoned in the mid-1980s. During operations, the facility serviced vehicles with leaded and unleaded gasoline. Heating oil has leaked from piping at much of the housing area north of the site. No other potential sources of chemicals associated with past site activities have been identified.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	9
Number of Pre-Rod Samples	10
Potential Contaminant Types Evaluated	Metals, Pesticides and aroclors, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Surface soil (less than 6 inches)
Types of Pre-ROD Locations	Ground surface

SA 76, Old Line Shed Building — OU A

COCs AND RISKS:

Analytical data from the limited site inspection were used in the PSE-1 Batch 2 report to evaluate human health and ecological risks. The human health cancer risk using the Adak residential scenario was 1E-04, and the risk using the occupational and recreational scenario was more than an order of magnitude lower. Arsenic in soil and lead in groundwater were the risk drivers. Noncancer risks were below the target HI of 1. The ecological risk was summarized by an HI of 11, which is slightly above the target level of 10 or lower. The site is industrial and provides poor natural habitat for ecological receptors. Human health cancer risks greater than 1E-05 were driven by the chemicals listed below (in surface soil and groundwater) in the OU A ROD. Total lead was identified as a groundwater COC in the OU A ROD because of exceedance above the MCL. (Table 6-5 and 10-3 of the OU A ROD)

Groundwater

- Lead

Soil

- Arsenic
- Indeno(1,2,3-cd)pyrene

RAOs:

The OU A ROD for SA 76, Old Line Shed Building established the following RAOs (Table 7-2 of the OU A ROD):

- Protect ecological exposure to soil.
- Protect human health exposure to soil and groundwater.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is ICs.

SA 76 was one of four sites where the OU A ROD required compliance groundwater sampling to verify that lead concentrations did not exceed MCLs. Groundwater samples were collected and analyzed in 2001 and 2002. At well 76-147, samples were analyzed for and analyzed for TPH, VOCs, and total and dissolved lead (which was discontinued in 2002). At well 76-148, samples were analyzed for total and dissolved lead. Groundwater samples at both wells met the endpoint criteria specified in the OU A ROD and monitoring at the site was discontinued after the 2002 monitoring event.

SA 76, Old Line Shed Building received "cleanup complete with ICs" determination from ADEC on April 15, 2000.

The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown

groundwater is restricted from domestic use. Excavation notification is required at all sites, including SA 76.

SA 76, Old Line Shed Building — OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: October 2002 — Most Recent Inspection Date: September 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

SA 76, Old Line Shed Building — OU A

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
76-147	Compliance	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	GRO, GRO fractions, BTEX, DRO, RRO, VOCs, total and dissolved lead, NAPs	
2002	GRO, GRO fractions, BTEX, DRO fractions, NAPs	
2003	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
76-148	Compliance	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Total and dissolved lead	
2002	Total and dissolved lead	
2003	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls at SA 76, Old Line Shed Building include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. The City of Adak is currently using the site as a solid waste transfer station. During the IC inspection on September 7, 2019, two dumpsters were observed onsite. No residential construction had occurred at the site. No indications of groundwater use or excavation activities were found. Usage of the site remains within the IC requirements of commercial/industrial. A soil excavation restriction sign is located at the northeast end of the site. The 2019 IC report indicated ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

53, 84, 86, 113, 129, 137, 142, 144, 165, 166

SA 77, Fuels Facility Refueling Dock, SDSA — OU A - SAERA

SA 77, Fuels Facility Refueling Dock, SDSA — OU A - SAERA

STATUS: Cleanup complete

BACKGROUND:

SA 77, the Fuels Facility, is located west of Sweeper Cove on the east side of Transit Road near its intersection with Cross Road. The Small Drum Storage Area, situated at the southwest corner of the Fuels Facility, was a temporary transfer area for sealed 55-gallon drums containing non-hazardous petroleum-based residuals and mopping rags generated from the Fuels Division operations between 1980 and 1994. The former drum storage area measures approximately 15 feet by 40 feet.

The Small Drum Storage Area is characterized by flat terrain. However, a manmade berm lies approximately 40 feet to the northeast, and ponding may occur during rainstorms. The ground at the site is covered by compacted gravel. The site is 205 feet west of Sweeper Cove. The geology is composed of near-surface sandy soils derived from stream deposition and dredged fill material. Below the near-surface sandy soils are sands and gravels with varying portions of silt. Groundwater flows east through this area towards Sweeper Cove and is tidally influenced. Data collected from monitoring wells near the site (South of Runway 18-36) indicate groundwater levels of approximately 8 to 10 feet bgs.

In June 1989, the site was listed as a source area (SA 77), because the EPA observed that drums were not labeled during a site inspection of the site. EPA assumed the drums to be improperly handled containers holding unknown waste compounds. In December 1994, a facility review revealed three small, empty ASTs, two empty 55-gallon drums, one 55-gallon drum containing JP-5 contaminated pads, and several miscellaneous equipment filters.

In July 1993, DRO concentrations above the ADEC soil matrix level were noted in seven of nine surface soil samples collected from the areas where drums historically had been stored. The maximum detected concentration of DRO in surface soil was 2,200 mg/kg. Neither GRO nor BTEX were detected in any of the samples. Three additional hand auger soil borings were installed in 1998, and DRO was detected in one boring at a concentration above the ADEC soil cleanup level.

Because the site had not operated as a satellite accumulation area under RCRA and because the material stored at the site was not a hazardous waste, reports and inventory data do not exist. No records of petroleum releases are available.

The site was 'clean closed' under RCRA in 1995 (with the ICs that restrict the property from future residential land use development), because the data collected during the RCRA closure showed that RCRA-regulated hazardous wastes were not present at the SDSA at concentrations warranting corrective action.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	9
Number of Pre-Rod Samples	10

SA 77, Fuels Facility Refueling Dock, SDSA — OU A - SAERA

Potential Contaminant Types Evaluated	Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Sub-surface soil (> 6")
Types of Pre-ROD Locations	Borehole/Soil boring

SA 77, Fuels Facility Refueling Dock, SDSA — OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria:

Soil

- DRO

RAOs:

The OU A ROD for SA 77, Fuels Facility Refueling Dock, Small Drum Storage Area established the following RAO (Table 7-4 of the OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is limited soil removal.

Approximately 150 cubic yards of contaminated soil at the SA 77 site was excavated from the site on October 9-12, 2006. The excavation of contaminated soil was guided by field screening using a PID. Soil contamination was identified in surface soil to a depth of 2.5 feet bgs. Following excavation, five confirmation soil samples were collected for laboratory analysis. Laboratory results were below the ADEC Method 2 soil cleanup levels with one exception: sample SA77-N collected from the base of the northern wall of the excavation contained 560 mg/kg DRO.

SA 77, Fuels Facility Refueling Dock, Small Drum Storage Area received a "cleanup complete" determination from ADEC on October 14, 2016.

SA 77, Fuels Facility Refueling Dock, SDSA — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☑ None Required

Most Recent Sampling Date: October 2006 — Most Recent Inspection Date: August 2015

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

SA 77, Fuels Facility Refueling Dock, SDSA — OU A - SAERA

SUMMARY OF INSPECTION RESULTS:

ICs at SA 77, Fuels Facility Refueling Dock, Small Drum Storage Area include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the inspection in September 2014, no changes to the site were observed compared to previous inspections. The site is currently being used for a commercial purpose, which is allowed under CMP, Revision 6. No residential construction had occurred at the site. No indications of groundwater use or excavation activities were found. Excavation restriction signs were clearly visible. Following cleanup complete designation in 2016, Amulet Housing, Well AMW-706 Area does not require IC inspections, and therefore is no longer included in the IC inspection program at Adak.

During the five-year review site visit in August 2015, it was noted that fiber optic cable had been installed in the southwest portion of the site. In July 2015, GCI Communications submitted a request to the Navy to upgrade the internet connection to Adak school via a direct fiber optic connection.

BIBLIOGRAPHY:

67, 84, 86, 91, 92, 97, 117, 129, 137, 142, 144, 157

SA 78, Old Transportation Building — OU A - SAERA

SA 78, Old Transportation Building — OU A - SAERA

STATUS: Cleanup complete with institutional controls

BACKGROUND:

SA 78, Old Transportation Building, is located approximately 5 miles north of downtown Adak in the NSGA complex, on the lower southern slope of Mount Adagdak, near the northwestern shore of Clam Lagoon. The Old Transportation Building was used as the NSGA fire station and transportation garage from 1950 until mid-1991. Two USTs and two ASTs were used at the Old Transportation Building site to store mogas for vehicle fueling from the early 1960s until 1993. Exact installation dates of the USTs and ASTs are unknown.

The area east of the Old Transportation Building was filled, graded flat, and used as a vehicle fueling area. Although the site has been graded level, the surrounding topography of the Old Transportation Building site slopes southeast toward Clam Lagoon. Surface water runoff generally flows southeast toward Clam Lagoon, approximately 250 feet from the source area.

Environmental investigations during November 1990, May 1991, and February 1992 were conducted to evaluate soil and groundwater conditions at the Old Transportation Building as part of the preconstruction for a new Bachelor's Enlisted Quarters (BEQ) that was never built. Petroleum hydrocarbons were detected in surface soil and groundwater samples collected from the former fueling area during these investigations.

In May 1993, UST 10583 was excavated, removed, cleaned, and disposed of. The two ASTs were removed during the excavation of UST 10583. Soil contamination and fuel leaking from piping connected to both ASTs and the UST were observed during tank removal activities. UST 10584 could not be located to be removed, and no records were available to confirm that the UST has been removed. GRO and BTEX were not detected in the three in-place soil samples collected from the excavation. However, these analyses were rejected because they did not meet ADEC protocols.

Three monitoring wells (MW-116, MW-117, and MW-118) were installed in 1994 during the Preliminary Source Evaluation (PSE)-2 at several nearby sites. DRO was detected in the soil at location 10 and GRO and BTEX were detected in the groundwater in wells MW-117 and MW-118, downgradient of former UST 10583. No analytes were detected in the sediment samples collected along Clam Lagoon and an outfall discharge point. Between 1996 and 1997, seven soil borings and three monitoring wells (12-145, 12-151, and 12-152) were installed in the vicinity of the Old Transportation Building USTs and ASTs. DRO was detected in soil at all but one location and DRO, GRO, and BTEX were detected in groundwater from wells MW-117, 12-145, 12-151, and 12-152. Similar results were found when well MW-117 was resampled in 1997, 1998, and well 12-145 was resampled in 1997. Two downgradient monitoring wells (12-801 and 12-802) were installed in 1998. No constituents were detected in the groundwater samples collected from these wells in 1998, 1999, or 2000.

Monitoring wells in the vicinity of the Old Transportation Building site have been gauged periodically for the presence of free product. Since November 1996, free product has been detected five times in only one of seven wells: 12-145. An absorbent product removal device was installed in monitoring well 12-145 during October 1997. To evaluate product recovery rates, the absorbent device was checked monthly until June

2000. In spite of these efforts, a measurable quantity of free product was not recovered at this site.

Because a measurable quantity of free product was not recovered at this site during the 33-month period from October 1997 to June 2000, the Navy contends that free product has been recovered at the site to the maximum extent practicable following the requirements of the ROD for OU A and 18 AAC 75.325(f)(1)(B). Product recovery efforts were discontinued at this site during July 2000.

While ADEC did not specifically concur with the cessation of the product recovery efforts at SA 78, Old Transportation Building site, ADEC has been involved and concurred with subsequent decisions regarding the site.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	48
Number of Pre-Rod Samples	149
Potential Contaminant Types Evaluated	Inorganics, Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Marine sediment, Near-surface soil, Sediment , Sub-surface soil (> 6")
Types of Pre-ROD Locations	Borehole/Soil boring, Direct Push/Geoprobe, Geoprobe well, Holding pond/Lagoon, Monitoring well, Outfall, Test Pit, Well

SA 78, Old Transportation Building — OU A - SAERA

COCs AND RISKS:

SA 78 was one of the sites in the OU A ROD for which additional evaluation under SAERA was required. The interim action under the OU A ROD was free product recovery. The OU A ROD generally identified COCs for petroleum sites based on exceedances above State of Alaska screening criteria or MCLs. At the time of the OU A ROD, specific exceedances were not documented for SA 78. Instead, the OU A ROD focused on free product at this site.

The OU A ROD (1999) did not identify human health or ecological risks associated with the site, however, a human health and ecological risk assessment was completed for this site during 2004 as part of the additional evaluation under SAERA. This site poses no unacceptable risk to human health or the environment above target health goals, provided that ICs remain in effect. The risk assessments performed for this site established that the concentrations in soil do not pose a risk to humans or the environment above target health goals at their present contamination level; therefore, no separate ACLs were calculated and, by default, the existing contaminant levels at the site become the site-specific ACLs. The risk assessment findings of no unacceptable risk remain valid, providing that the assumed land uses for the site per the Adak Reuse Plan do not change. Cleanup levels specified for groundwater at petroleum-contaminated sites on the former Adak Naval Complex are based on the use of groundwater as a drinking water source [18 AAC 75.345(b)(1), Table C], or 10 times these levels if the groundwater is not reasonably expected to be a potential future source of drinking water [18 AAC 75.345(b)(2)]. Groundwater at SA 78 is not considered to be a reasonably expected potential future source of drinking water; therefore, groundwater cleanup levels for these sites are 10 times the levels specified in Table C of the Alaska regulations.

The 2005 Final Decision Document for Petroleum Sites with No Unacceptable Risk established the following cleanup levels based on ADEC regulatory criteria for the following COCs:

Groundwater

- Benzene
- GRO
- Methylene chloride

RAOs:

The OU A ROD for the petroleum site SA 78, Old Transportation Building established the following original RAO (Table 7-4 of the OU A ROD):

- Reduce volume of petroleum free product.

The RAOs were revised in the 2005 Final Decision Document for Petroleum Sites with No Unacceptable Risk to the following:

- Over the long term, reduce concentrations of petroleum-related chemicals in groundwater to levels below Alaska DEC groundwater cleanup levels.
- Prevent future exposure to petroleum-related chemicals in soil and groundwater at the site.

SA 78, Old Transportation Building — OU A - SAERA

REMEDY IMPLEMENTATION:

The OU A ROD-specified interim remedy for this site is free product recovery.

Free product monitoring and recovery was conducted at this site from November 1996 to July 2000, when free product recovery was terminated.

A decision document for final remedial action for the petroleum sites with no unacceptable risk was signed May 20, 2005. The decision document identifies MNA monitoring as the final remedy. Monitoring activities were implemented in 2005 via changes to the CMP.

Groundwater monitoring was discontinued after the 2012 sampling event because concentrations of DRO, GRO, and benzene were below their respective endpoint criteria for a minimum of three consecutive sampling events.

SA 78, Old Transportation Building site received a "cleanup complete with ICs" determination from ADEC on June 21, 2013.

The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including SA 78. ICs specific to SA 78 were not required by the OU A ROD; however, ICs were included as part of the final remedy in the 2005 SAERA document. ICs (groundwater restrictions in the downtown area) were originally implemented at this site in 2000, and ICs and inspections are required for this site under the ICMP.

SA 78, Old Transportation Building — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Free product recovery was conducted during 2009 and 2010, but discontinued in June 2010.

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: September 2012 Most Recent Inspection Date: September 2019
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

SA 78, Old Transportation Building — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-145	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	DRO, DRO fractions, GRO, GRO fractions, VOCs	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO, GRO, BTEX	
2006	Free product detected, not sampled, product thickness (monthly)	
2007	DRO, GRO, BTEX, product thickness (monthly)	
2008	Free product detected, not sampled, product thickness (monthly)	
2009	DRO, GRO, BTEX, NAPs, product thickness (monthly)	
2010	DRO, GRO, benzene, product thickness (monthly)	
2011	Monitoring not planned	
2012	DRO, GRO, benzene	
2013	Met endpoint criteria; monitoring discontinued	

SA 78, Old Transportation Building — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-152	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO not analyzed due to limited sample volume, GRO, BTEX	
2006	BTEX, DRO and GRO not analyzed due to limited sample volume	
2007	Well dry, not sampled	
2008	Well dry, not sampled	
2009	Well dry for last three years; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-801	SW protection	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	DRO, GRO, BTEX	
2004	DRO, GRO, BTEX	
2005	DRO, GRO, BTEX	
2006	DRO, GRO, BTEX	
2007	Monitoring not planned	
2008	DRO, GRO, BTEX	
2009	Product thickness	
2010	Product thickness	

SA 78, Old Transportation Building — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-802	SW protection, NAPs background	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	DRO, GRO, BTEX	
2004	DRO, GRO, BTEX, NAPs	
2005	DRO, GRO, BTEX, NAPs	
2006	DRO, GRO, BTEX, NAPs	
2007	NAPs	
2008	DRO, GRO, BTEX, NAPs	
2009	NAPs	
2010	DRO, GRO, benzene	
2011	Monitoring not planned	
2012	DRO, GRO, BTEX, benzene	
2013	Met endpoint criteria; monitoring discontinued	

SA 78, Old Transportation Building — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-116	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	DRO, DRO fractions, GRO, GRO fractions, VOCs	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO, GRO, BTEX	
2006	DRO, GRO, BTEX	
2007	DRO, GRO, BTEX	
2008	Monitoring not planned	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO	
2011	Monitoring not planned	
2012	DRO	
2013	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-117	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	DRO, DRO fractions, GRO, GRO fractions, VOCs	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO, GRO, BTEX	
2006	DRO, GRO, BTEX	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	NAPs	
2010	Product thickness	

SA 78, Old Transportation Building — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NL-10	SW protection	Surface water and Sediment
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	No sample collected because no contamination was observed	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls at SA 78, Old Transportation Building include land use restrictions, equitable servitude, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection on September 6, 2019, no indications of a change in land use in this area were found and no residential construction had occurred at the site. No indications of groundwater use or excavation activities were found. Excavation restriction signs were clearly visible onsite. The 2019 IC report indicated ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

29, 31, 34, 39, 41, 44, 52, 62, 77, 84, 86, 90, 91, 129, 134, 137, 142, 144, 150, 165, 166

SA 79, Main Road Pipeline — OU A - SAERA

SA 79, Main Road Pipeline — OU A - SAERA

STATUS: Groundwater monitoring and institutional controls

BACKGROUND:

The southern portion of the Main Road Pipeline runs south along Transit Road, between the traffic circle and the former Aleutian Steak House restaurant. The Main Road Pipeline historically supplied JP-5 for multiple facilities, including aircraft refueling hydrants, residential heating oil distribution tanks, and the Steam Plant 4 fuel supply tanks. The pipeline is 6 inches in diameter and approximately 9,800 feet long. Most of the southern portion of the pipeline runs through open grassy areas. The northern part of the pipeline is bordered on the east by Main Road and on the west by the airfield. This northern section passes through residential housing and industrial facilities. There are six valve boxes along the pipeline. The Main Road Pipeline was reportedly cleaned but not closed. Other pipelines are present in the vicinity of the site including a 10-inch avgas and 4-inch mogas pipeline. Both of these pipelines have been cleaned and closed.

Impacted soils were observed during repair and replacement of sections of the pipeline in 1990. It was unclear whether the soils were impacted from leaks within the pipeline, or from other sources. In 1992, DRO was detected at concentrations above the Alaska soil matrix level in several soil samples collected from points along the southern portion of the pipeline. Monitoring well MRP-MW8 was installed in the vicinity of the maximum DRO concentration detected. Exceedances of the ADEC cleanup values were noted in the soil and groundwater samples collected from location MRP-MW8. When the well was resampled in 1997 and 1998, DRO concentrations still exceeded the Alaska groundwater cleanup criterion. However, GRO and BTEX were not detected.

Monitoring well 02-230 was installed between well MRP-MW8 and Sweeper Cove in 1999. Benzene and DRO concentrations in soil exceeded the ROD-established soil cleanup criteria in this boring.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	43
Number of Pre-Rod Samples	92
Potential Contaminant Types Evaluated	Inorganics, Metals, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Sub-surface soil (> 6")
Types of Pre-ROD Locations	Borehole/Soil boring, Monitoring well, Test Pit, Well

SA 79, Main Road Pipeline — OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria:

Groundwater

- DRO

Soil

- Benzene
- DRO

RAOs:

The OU A ROD for SA 79, Main Road Pipeline established the following RAO (Table 7-4 of the OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is limited groundwater monitoring.

Limited groundwater monitoring for lead was initiated at the north end of this site (well MRP-MW15) in 1999. Lead monitoring met the endpoint criteria and monitoring at the north end of this site was terminated after the 2003 event.

Limited groundwater monitoring was initiated at the south end of this site in 1999. Target analyte concentrations in groundwater were less than ADEC groundwater cleanup levels for two consecutive sampling events, although DRO was detected in both wells during November 1999. Groundwater monitoring was continued at these locations, because of the proximity to Sweeper Cove. DRO concentrations have been detected above the ADEC cleanup levels since 2001. In 2010, additional site characterization was performed to assess whether DRO is migrating in groundwater to the adjacent surface water body (Sweeper Cove) at concentrations greater than ADEC surface water criteria. Six soil borings were drilled, two monitoring wells were installed, and soil and groundwater samples were collected. A total of 16 samples were submitted to the laboratory for DRO analysis. Groundwater samples from the two new wells and two existing wells were submitted to the laboratory for the following analyses: DRO, VOCs, and SVOCs. No samples contained TAH or TAqH in excess of their applicable surface water criteria.

DRO was detected in eight of the 16 soil samples. Detected concentrations ranged from 47 mg/kg to 26,000 mg/kg. Concentrations detected in the eight samples were collected from five locations (601, 603, 604, 605, and 606). Exceedances of the ADEC cleanup level of 230 mg/kg for DRO were present in soil collected

from four locations (601, 603, 604, and 605) located at the northern portion of the site.

DRO concentrations detected in the groundwater samples exceeded the ADEC cleanup level of 1,500 µg/L in two of the three groundwater samples collected from the site in 2018. Samples from wells 601, 02-230, and MWRP-MW8 contained DRO concentrations of 1,500 µg/L, 2,700 µg/L, and 5,300 µg/L, respectively. Each of these wells is located in the northern portion of the site. Because of the observed exceedances of DRO above endpoint criteria in wells MRP-MW8, 02-230, and 601, it is recommended that monitoring at this site be continued as prescribed.

The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including SA 79. No ICs specific to the Main Road Pipeline site were established in the OU A ROD; however, ICs and inspection requirements are included for this site in the ICMP.

SA 79, Main Road Pipeline — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- [x] Groundwater Monitoring
- [ ] Surface Water Monitoring
- [ ] Sediment Monitoring
- [ ] Tissue Monitoring
- [ ] Landfill Inspection
- [x] IC Inspection — Click to View ICMP Table
- [ ] Remediation System Monitoring and Maintenance
- [ ] None Required

Most Recent Sampling Date: August 2018 — Most Recent Inspection Date: September 2019

Current Media Sampled: Groundwater

Current Analytes Sampled: DRO, NAPs

Current Monitoring: Click to View Current Monitoring — Monitoring File: SA 79 monitoring.pdf

SA 79, Main Road Pipeline — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-230	SW protection, MNA, NAE	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	DRO, GRO, BTEX, NAPs	
2004	DRO, NAPs	
2005	DRO, visual inspection	
2006	DRO, visual inspection	
2007	DRO, visual inspection	
2008	DRO, TAH, TAqH, visual inspection	
2009	DRO, TAH, TAqH, NAPs, visual inspection	
2010	DRO, visual inspection	
2011	DRO	
2012	DRO	
2013	DRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	DRO	
2017	Monitoring not planned	
2018	DRO, NAPs	
2019	Monitoring not planned	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
601	MNA	Groundwater
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Monitoring not planned	
2011	DRO	
2012	DRO	
2013	DRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	DRO	
2017	Monitoring not planned	
2018	DRO, NAPs	
2019	Monitoring not planned	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
602	MNA	Groundwater
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Monitoring not planned	
2011	DRO	
2012	Met endpoint criteria; monitoring discontinued	

SA 79, Main Road Pipeline — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
E-403	NAE	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	DRO	
2009	DRO	
2010	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MRP-MW15	Compliance	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Total and dissolved lead	
2004	Total and dissolved lead	
2005	Met endpoint criteria; monitoring discontinued	

SA 79, Main Road Pipeline — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MRP-MW8	MNA, NAE	Groundwater
1999	DRO, GRO, BTEX (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	DRO, GRO, BTEX, NAPs	
2004	DRO, NAPs	
2005	DRO, visual inspection	
2006	DRO, visual inspection	
2007	DRO, visual inspection	
2008	DRO, TAH, TAqH, visual inspection	
2009	DRO, TAH, TAqH, NAPs, visual inspection	
2010	DRO, visual inspection	
2011	DRO	
2012	DRO	
2013	DRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	DRO	
2017	Monitoring not planned	
2018	DRO, NAPs	
2019	Monitoring not planned	

SA 79, Main Road Pipeline — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NL-01	SW protection	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	DRO, visual inspection	
2008	DRO, TAH, TAqH, visual inspection	
2009	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls at SA 79, Main Road Pipeline include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection on September 9, 2019, no changes to the site were observed compared to the 2017 inspection results. The site is currently not being used. No residential construction had occurred, and no indications of groundwater use or excavation activities were found. An excavation restriction sign is present onsite and is located along Main Road. The 2019 IC report indicated ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

29, 31, 34, 39, 41, 44, 52, 62, 74, 77, 84, 86, 89, 90, 91, 112, 118, 129, 134, 141, 142, 152, 164, 165, 166

SA 80, Steam Plant 4 — OU A - SAERA

SA 80, Steam Plant 4 — OU A - SAERA

STATUS: Groundwater monitoring and institutional controls

BACKGROUND:

The SA 80, Steam Plant 4, USTs 27089 and 27090 site is located in the northern end of downtown Adak, approximately 2,000 feet east of Runway 18-36, 2,800 feet south of Runway 5-23, and approximately 2,500 feet southwest of NORPAC Hill. Steam Plant 4 was used to supply steam to various buildings in the area. The Steam Plant was built in the late 1940s and was operational until 1995, when an earthquake severed the main steam line that connected the steam plant to buildings in the area. USTs 27089 and 27090 were 22,000-gallon tanks installed in 1950 and stored JP-5 fuel used for the boilers in the steam plant. The USTs were filled from the Main Road Pipeline (6-inch JP-5), which passes through the site.

The regional topography in this vicinity slopes gently toward the southwest, through the general topography of the site is flat to slightly undulating. Kuluk Bay is approximately 2,500 feet east of the site. The closest downgradient surface water body is East Canal, located approximately 1,400 feet west of the site.

Two releases were reported to have occurred at the site. In June 1991, a release of approximately 50 to 70 gallons occurred when a fill hole ruptured while servicing the tanks. In May 1995, prior to the removal of UST 27089, trace amounts of fuel reportedly dripped to surrounding soils from the ends of a section of the Main Road Pipeline under repair. Immediately following this release, 5 cubic yards of soil was removed from the area. It is unknown whether a spill or release occurred directly from either of the USTs during their use.

In 1992, three monitoring wells (SP4-1, SP4-2, and SP4-3) were installed near the tank farm in response to the 1991 release. DRO and GRO were detected in both soil and groundwater samples collected from wells SP4-1 and SP4-2, and DRO was detected in the groundwater in well SP4-3.

In October 1993, UST 27090 showed signs of minor corrosion when it was removed. UST 27089 failed a tightness test later in 1993 and was deactivated. Associated piping connecting UST 27089 to the steam plant was removed in 1994. At that time, oily water was discovered in a concrete utility vault/corridor that contained the piping connecting the UST to the steam plant. Following removal of the oily water, the vault was removed. When UST 27089 was removed in May 1995, the tank contained 4,000 gallons of oily water and showed little signs of corrosion. No holes were observed in the tank; however, the large quantity of water in the tank suggests that a hole may have been present. Soil samples collected from both excavations exhibited DRO concentrations above the ADEC soil matrix level.

Between 1996 and 1997, five soil borings, one 0.5-inch monitoring well, seven 2-inch monitoring wells, three 4-inch recovery wells, and one 6-inch recovery well were installed at the site. DRO and GRO were detected in the majority of samples analyzed. Well 04-164 was resampled in 1998 and 2002, and DRO, GRO and BTEX were present in the groundwater sample. Monitoring well 04-801 was installed downgradient of the site in 1998 as part of the Comprehensive Monitoring Program, and no constituents have been detected in samples collected between 1998 and 2002.

Free product has been observed in six of 15 wells (SP4-2, 04-155, 04-157, 04-158, 04-159, and 04-173) at

the site since 1997. Passive-style skimmers were initially installed in 1997 in wells SP4-2 and 04-155, where product was frequently detected. However, after further evaluation, skimmers were subsequently installed in wells 04-157, 04-158, and 04-173, where free product was intermittently present. Less than 25 gallons of free product were recovered at SA 80 between January 1997 and June 2000. Free-product recovery efforts at the site were terminated during July 2000, because the Navy contends that free product has been recovered at the site to the maximum extent practicable. Free product recovery was re-established and has occurred at the site during this five-year review period.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	28
Number of Pre-Rod Samples	101
Potential Contaminant Types Evaluated	Inorganics, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Product (floating or free), Sub-surface soil (> 6")
Types of Pre-ROD Locations	Borehole/Soil boring, Direct Push/Geoprobe, Excavation, Monitoring well, Recovery well, Well

SA 80, Steam Plant 4 — OU A - SAERA

COCs AND RISKS:

SA 80 was one of the sites in the OU A ROD for which additional evaluation under SAERA was required. The interim action under the OU A ROD was free product recovery. The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemicals exceeded these criteria (interpreted from Table 5-11 of the OU A ROD):

Groundwater

- Benzene
- Benzo(a)anthracene

The OU A ROD (1999) did not identify human health or ecological risks associated with the site, however, a human health and ecological risk assessment was completed for this site during 2004 as part of the additional evaluation under SAERA. This site poses no unacceptable risk to human health or the environment above target health goals, provided that ICs remain in effect. The risk assessments performed for this site established that the concentrations in soil do not pose a risk to humans or the environment above target health goals at their present contamination level; therefore, no separate ACLs were calculated and, by default, the existing contaminant levels at the site become the site-specific ACLs. The risk assessment findings of no unacceptable risk remain valid, providing that the assumed land uses for the site per the Adak Reuse Plan do not change. Cleanup levels specified for groundwater at petroleum-contaminated sites on the former Adak Naval Complex are based on the use of groundwater as a drinking water source [18 AAC 75.345(b)(1), Table C], or 10 times these levels if the groundwater is not reasonably expected to be a potential future source of drinking water [18 AAC 75.345(b)(2)]. Groundwater at SA 80 is not considered to be a reasonably expected potential future source of drinking water; therefore, groundwater cleanup levels for these sites are 10 times the levels specified in Table C of the Alaska regulations.

The 2005 Final Decision Document for Petroleum Sites with No Unacceptable Risk established the following cleanup levels based on ADEC regulatory criteria for the following COCs:

Groundwater

- Benzene
- DRO

RAOs:

The OU A ROD for the petroleum site SA 80, Steam Plant established the following original RAO (Table 7-4 of the OU A ROD):

- Reduce volume of petroleum free product.

The RAOs were revised in the 2005 Final Decision Document for Petroleum Sites with No Unacceptable Risk to the following:

- Over the long term, reduce concentrations of petroleum-related chemicals in groundwater to levels below Alaska DEC groundwater cleanup levels.

- Prevent future exposure to petroleum-related chemicals in soil and groundwater at the site.

REMEDY IMPLEMENTATION:

The OU A ROD-specified interim remedy for this site is free product recovery.

Free-product recovery was conducted at the site from 1997 through June 2000. A decision document for final remedial action for the petroleum sites with no unacceptable risk was signed May 20, 2005. The decision document identifies MNA monitoring and ICs as the final remedy. Monitoring activities were implemented in 2005 via changes to the CMP. In addition to the required MNA and IC components of the final remedy, the 2005 SAERA decision document also required additional follow-up sampling to support the remedy decision. Two additional soil samples were required in the vicinity of existing location 9. The goal of this sampling was to evaluate the natural attenuation process within vadose zone soil by comparing the concentrations of petroleum-related chemicals in the soil samples to concentrations reported in soil samples collected during 1997. One additional groundwater sample was also required from monitoring well 04-173, along with free product measurement and removal (if found).

These additional samples were collected and analyzed in September 2004 (based on the requirements in a draft version of the decision document). Free product measurement and removal also was conducted in September 2004. Soil results identified DRO in soil from 6 -7 ft bgs at a concentration exceeding the ADEC cleanup level.

DRO concentrations detected in the groundwater samples exceeded the ADEC cleanup level of 1,500 µg/L in all four groundwater samples collected from the site in 2018. Samples from wells 04-158, 04-159, 04-173 and SP4-3 contained DRO concentrations of 870,000 µg/L, 3,700 µg/L, 4,600 µg/L, and 3,100 µg/L, respectively. DRO continues to exceed endpoint criteria in site wells. The DRO concentration is exhibiting an increasing trend in well 04-158, however the concentration trends are stable at wells 04-173 and SP4-3 and decreasing at well 04-159. Measurable product continues to be observed in some site wells and periodic product recovery activities continue at the site. Additionally, there is strong evidence that MNA is occurring in groundwater at the site, and it is recommended that groundwater monitoring continue as prescribed.

Free product recovery was conducted this five-year review period between September 2016 and September 2020. A total of 4.74 gallons of free product was recovered from the SA 80, Steam Plant 4 area.

The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including SA 80. ICs specific to SA 80 were not required by the OU A ROD; however, ICs were included as part of the final remedy in the 2005 SAERA document. ICs were originally implemented at this site in 2000, and ICs and annual inspections are required for this site under the ICMP.

SA 80, Steam Plant 4 — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- [x] Groundwater Monitoring
- [ ] Surface Water Monitoring
- [ ] Sediment Monitoring
- [ ] Tissue Monitoring
- [ ] Landfill Inspection
- [x] IC Inspection — Click to View ICMP Table
- [ ] Remediation System Monitoring and Maintenance
- [ ] None Required

Most Recent Sampling Date: August 2018 Most Recent Inspection Date: September 2019

Current Media Sampled: Groundwater

Current Analytes Sampled: DRO, NAPs, product thickenss

Current Monitoring: Click to View Current Monitoring Monitoring File: SA 80 monitoring.pdf

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-103	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	DRO, NAPs	
2004	DRO, NAPs	
2005	DRO	
2006	DRO	
2007	Monitoring not planned	
2008	DRO (even years only)	
2009	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-155	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness (monthly)	

SA 80, Steam Plant 4 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-157	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness (monthly)	

SA 80, Steam Plant 4 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-158	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO	
2006	Free product detected, not sampled, product thickness (monthly)	
2007	Free product detected, not sampled, product thickness (monthly)	
2008	Free product detected, not sampled, product thickness (monthly)	
2009	Free product detected, not sampled, product thickness (monthly)	
2010	DRO, product thickness (monthly)	
2011	Free product detected, not sampled	
2012	DRO	
2013	DRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	DRO	
2017	Monitoring not planned	
2018	DRO, NAPs	
2019	Monitoring not planned	

SA 80, Steam Plant 4 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-159	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO	
2006	DRO	
2007	DRO	
2008	DRO	
2009	DRO, NAPs	
2010	DRO	
2011	DRO	
2012	DRO	
2013	DRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	DRO	
2017	Monitoring not planned	
2018	DRO, NAPs	
2019	Monitoring not planned	

SA 80, Steam Plant 4 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-164	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness (monthly)	

SA 80, Steam Plant 4 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-173	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	DRO, GRO, BTEX	
2005	Free product detected, not sampled	
2006	Free product detected, not sampled, product thickness (monthly)	
2007	Free product detected, not sampled, product thickness (monthly)	
2008	Free product detected, not sampled, product thickness (monthly)	
2009	Free product detected, not sampled, product thickness (monthly)	
2010	DRO, product thickness (monthly)	
2011	Free product detected, not sampled	
2012	DRO	
2013	DRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	DRO	
2017	Monitoring not planned	
2018	DRO, NAPs	
2019	Monitoring not planned	

SA 80, Steam Plant 4 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-801	MNA	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO	
2006	DRO	
2007	DRO	
2008	DRO	
2009	DRO, NAPs	
2010	DRO	
2011	DRO	
2012	DRO	
2013	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
SP4-2	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness (monthly)	

SA 80, Steam Plant 4 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
SP4-3	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	DRO, NAPs	
2004	DRO, NAPs	
2005	DRO	
2006	DRO	
2007	DRO	
2008	DRO	
2009	NAPs	
2010	DRO	
2011	Monitoring not planned	
2012	DRO	
2013	DRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	DRO	
2017	Monitoring not planned	
2018	DRO, NAPs	
2019	Monitoring not planned	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls at SA 80, Steam Plant 4 include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection on September 7, 2019, no changes to the site were observed compared to the 2017 inspection results. No residential construction had occurred at the site. No indications of groundwater use or excavation activities were found. Excavation restriction signs were clearly visible. The 2019 IC report indicated ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. An IC inspection was conducted in the summer of 2021, and the results

BIBLIOGRAPHY:

29, 31, 34, 39, 41, 44, 52, 62, 74, 77, 84, 86, 90, 91, 121, 129, 134, 141, 142, 149, 150, 151, 152, 161, 163,

164, 165, 166, 167, 169

SA 82, P-80/P-81 Buildings — OU A - SAERA

SA 82, P-80/P-81 Buildings — OU A - SAERA

STATUS: Cleanup complete with institutional controls

BACKGROUND:

The P-80/P-81 Buildings were used by the former NSGA and are located on Stor Road, approximately 4,500 feet north of the main NSGA complex. UST 10587 and AST 10333 were located west of Building P-80 and were used to store JP-5 fuel for the heating boiler. UST 10579 was located northwest of Building P-81 and was used to store JP-5 fuel to supply the generator in Building P-81.

The natural topography of the area slopes gently at a 5 to 10 percent grade toward Clam Lagoon, approximately 1 mile to the southeast. The closest surface water body is an unnamed stream approximately 550 feet east-southeast of the site.

It is presumed that UST 10587 and AST 10333 were taken out of service when Building P-80 was abandoned. In 1991, piping believed to be part of the UST 10587 system was encountered during excavations in the area, but the UST was never found. AST 10333 was removed in August 1994. Reports that UST 10579 was removed sometime in 1991 were confirmed by the Navy; however, no report documenting the removal was found.

Fourteen soil borings and seven monitoring wells were drilled between 1996 and 1997. DRO was detected in 10 of 21 subsurface soil samples at concentrations less than or equal to the ADEC matrix cleanup level. GRO and BTEX were detected in soil, but at concentrations below the cleanup levels. DRO was detected in five of seven groundwater samples from wells on the site. GRO was not detected. Monitoring well 12-185 was damaged and subsequently abandoned in 1998. Monitoring well 12-401 was installed downgradient of the site in 1998, and DRO was detected in the sample collected in 1998. No constituents have been detected in the well in samples collected between 1999 and 2000. No petroleum-related compounds were reported in groundwater samples collected from the site at concentrations greater than their respective ADEC groundwater cleanup levels for groundwater not used as a drinking water source. Only DRO was reported in two groundwater samples (location 12-170 in 1996 and location 12-185 in 1997) at concentrations above its ADEC groundwater cleanup level for groundwater used as a drinking water source.

Free product was detected intermittently in the two wells (12-170 and 12-180) situated in the former UST locations. Passive-style skimmers were used at this site to recover product when detected at measurable quantities. Total product recovered from this site is 0.04 gallon. Free product has not been observed in any well in the vicinity of the P-80/P-81 Buildings since July 31, 1998. Since that time, the Navy has gauged the wells at this site for the presence of free product monthly, then quarterly. Because free product has not been found in any monitoring well since July 1998, the Navy believes that free product has been recovered at this site to the maximum extent practicable as required by 18 AAC 75.325(f)(1)(B).
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PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	14

SA 82, P-80/P-81 Buildings — OU A - SAERA

Number of Pre-Rod Samples	46
Potential Contaminant Types Evaluated	Inorganics, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Product (floating or free), Sub-surface soil (> 6")
Types of Pre-ROD Locations	Borehole/Soil boring, Direct Push/Geoprobe, Geoprobe well, Monitoring well, Well

SA 82, P-80/P-81 Buildings — OU A - SAERA

COCs AND RISKS:

SA 82 was one of the sites in the OU A ROD for which additional evaluation under SAERA was required. The interim action under the OU A ROD was free product recovery.

The OU A ROD (1999) did not identify human health or ecological risks associated with the site, however, a human health and ecological risk assessment was completed for this site during 2004 as part of the additional evaluation under SAERA. This site poses no unacceptable risk to human health or the environment above target health goals, provided that ICs remain in effect. The risk assessments performed for this site established that the concentrations in soil do not pose a risk to humans or the environment above target health goals at their present contamination level; therefore, no separate ACLs were calculated and, by default, the existing contaminant levels at the site become the site-specific ACLs. The risk assessment findings of no unacceptable risk remain valid, providing that the assumed land uses for the site per the Adak Reuse Plan do not change. Cleanup levels specified for groundwater at petroleum-contaminated sites on the former Adak Naval Complex are based on the use of groundwater as a drinking water source [18 AAC 75.345(b)(1), Table C], or 10 times these levels if the groundwater is not reasonably expected to be a potential future source of drinking water [18 AAC 75.345(b)(2)]. Groundwater at SA 82 is not considered to be a reasonably expected potential future source of drinking water; therefore, groundwater cleanup levels for these sites are 10 times the levels specified in Table C of the Alaska regulations.

The 2005 Final Decision Document for Petroleum Sites with No Unacceptable Risk established no COCs for this site.

RAOs:

The OU A ROD for the petroleum site SA 82, P-80/P-81 Buildings established the following original RAO:

- Reduce volume of petroleum free product.

The RAOs were revised in the 2005 Final Decision Document for Petroleum Sites with No Unacceptable Risk to the following:

- Over the long term, reduce concentrations of petroleum-related chemicals in groundwater to levels below Alaska DEC groundwater cleanup levels.
- Prevent future exposure to petroleum-related chemicals in soil and groundwater at the site.

REMEDY IMPLEMENTATION:

The OU A ROD-specified interim remedy for this site is free product recovery.

Free product monitoring and recovery was conducted at the site from 1997 through 1998. A decision document for final remedial action for the petroleum sites with no unacceptable risk was signed May 20, 2005. The decision document identifies limited groundwater monitoring as the final remedy. Monitoring activities were implemented in 2005 via changes to the CMP.

SA 82, P-80/P-81 Buildings — OU A - SAERA

In addition to the required limited groundwater monitoring of the final remedy, the 2005 SAERA decision document also required limited soil removal as an additional action to support the final remedy. The limited excavation was completed in July 2006. The excavation was centered around location 12-182. The excavation continued until a 12-foot-square by 6-foot-deep excavation was dug and all soil removed. Field screening during the excavation activities did not indicate elevated concentrations of petroleum hydrocarbons. Once the excavation limits were achieved, one confirmation sample was collected from the center bottom of the excavation area. DRO was detected in this soil sample at a concentration of 3,200 mg/kg, and RRO was detected at 240 mg/kg. ADEC concurred that the soil removal action was completed in accordance with the decision document.

Limited groundwater monitoring at the site ended in 2008, when concentrations of DRO in groundwater were less than ADEC groundwater cleanup levels for two consecutive sampling events.

SA 82, P-80/P-81 Buildings received a "cleanup complete with ICs" determination on June 22, 2010.

The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including SA 82. No ICs specific to SA 82 were established in the OU A ROD or the 2005 SAERA decision document; however, ICs are included for this site in the ICMP, and inspections are required every five years.

SA 82, P-80/P-81 Buildings — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: September 2008 Most Recent Inspection Date: September 2019
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-170	Limited GW monitoring	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO	
2006	DRO	
2007	Monitoring not planned	
2008	DRO (even years only)	
2009	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-172	Limited GW monitoring	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO	
2006	DRO	
2007	Monitoring not planned	
2008	DRO (even years only)	
2009	Met endpoint criteria; monitoring discontinued	

SA 82, P-80/P-81 Buildings — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-173	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness	
2007	Product thickness	
2008	DRO, RRO	
2009	Monitoring not planned	
2010	Monitoring not planned	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-180	Limited GW monitoring, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO	
2006	Free product detected, not sampled, product thickness (monthly)	
2007	DRO, product thickness (monthly)	
2008	DRO, product thickness (monthly)	
2009	Met endpoint criteria; DRO monitoring discontinued, product thickness (monthly)	

SA 82, P-80/P-81 Buildings — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-194	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness	
2007	Product thickness	
2008	DRO, RRO	
2009	Met endpoint criteria; DRO monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-401	SW protection	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	DRO	
2004	DRO	
2005	DRO	
2006	DRO	
2007	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls at SA 82, P-80/P-81 Buildings include land use restrictions, equitable servitude, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection on September 6, 2019, no changes to the site were observed compared to the 2014 inspection results. No indications of a change in land use in this area were found and no residential construction had occurred at the site. No indications that groundwater was being used were found at the site. No indications of excavation were found, and excavation signs were clearly visible. The 2019 IC report indicated ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

29, 34, 41, 52, 62, 77, 84, 86, 97, 119, 120, 129, 137, 142, 144, 165, 166

SA 85, New Baler Building — OU A

SA 85, New Baler Building — OU A

STATUS: Cleanup complete

BACKGROUND:

The New Baler Building, constructed in 1992 to replace an aging structure, housed the process of densifying and compacting solid nonhazardous waste, which was then disposed of in the Roberts municipal solid waste landfill at Adak. A number of structures existing in the site vicinity from the 1940s were destroyed or abandoned in the early 1970s. These structures included ordnance repair and maintenance shops, a lubrication and inspection building, a vehicle wash rack, a paint shop, a service station, and a grease rack. Water and sewer lines associated with these structures were constructed with wood-stave piping. About 20 abandoned and partly dismantled vehicles, some with stained soil beneath them, were located to the east, as well as waste dumpsters no longer in use.

In a geotechnical study conducted for construction of the New Baler Building, a weak to moderately strong hydrocarbon odor was detected at depths of surface to 11.5 feet bgs and from 2.5 feet to 4 feet bgs in Borings B-4 and B-7, respectively, located 40 feet to 50 feet south of what is now the building. A sheen on the groundwater was noted in Boring B-7. The site was designated SA 85. No petroleum hydrocarbon releases had been reported prior to this geotechnical drilling.

UST 42602-B was a single-wall steel tank approximately 7 feet long and 4 feet in diameter that was installed at the facility in 1991 and used to temporarily store liquid produced during compaction of garbage after it had been routed through two grease traps. The liquid was collected for about six months before sampling and discharge. According to the site assessment report, the tank was in good condition, with no observed dents, holes, surface rusting, or deformation. About 450 gallons of liquid were pumped from the tank before its removal.

Several environmental investigations were conducted at the New Baler Building in the early to mid-1990s. The first investigation, a contamination boundary assessment, followed up on the petroleum odor and staining noted during the geotechnical study of 1990.

URS conducted a limited field investigation (LFI) of the site in fall 1994 to further investigate the southern portion of the site. Based on results for field and analytical samples, it was concluded that the contamination appeared to be concentrated along an abandoned wooden sewer line at depths greater than 2 feet. In the third investigation, UST 42602-B was removed as part of a site assessment. The site assessment involved removing the tank and collecting samples from the sidewalls of the excavation. No samples were collected beneath the tank, because groundwater was in the bottom of the excavation. No surface soil samples were collected. The samples collected from the LFI and UST removal studies were analyzed for DRO and TPH.

In 1996, four groundwater monitoring wells were installed, five shallow test pits were excavated, and five piezometers were installed. Soil and groundwater samples were collected. Samples were analyzed for TPH and PAHs.

During the 1994 and 1996 field events, DRO was detected in 28 of the 34 subsurface soil samples analyzed

in the laboratory. Of the 28, eight samples had DRO concentrations between 100 mg/kg and an estimated 4,300 mg/kg. The remainder of the samples had relatively low DRO concentrations (below 100 mg/kg). GRO was not detected in the four samples for which it was analyzed. RRO was analyzed for in five samples, with two detected results of 35 and 690 mg/kg.

During the 1996 groundwater sampling event, DRO was detected in the eight groundwater samples collected from six of the groundwater monitoring wells at the site. Concentrations in five of the six wells were either 200 µg/L or 300 µg/L. The DRO concentration was one order of magnitude higher, at 2,000 µg/L, in well 08-114, east of the tank and north of the former SA 85 release location. GRO was detected in samples from four of the six wells at concentrations within a close range, from 55 µg/L to 77 µg/L. These wells were west-southwest, north, east-northeast, and southeast of the New Baler Building and SA 85. The total BTEX concentration maximum was 8 µg/L. No cPAHs were detected. The total LPAH maximum concentration was 49.07 µg/L.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	27
Number of Pre-Rod Samples	49
Potential Contaminant Types Evaluated	Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Soil, Sub-surface soil (> 6")
Types of Pre-ROD Locations	Excavation, Test Pit, Well

SA 85, New Baler Building — OU A

COCs AND RISKS:

The OU A ROD listed SA 85 as an NFA site.

RAOs:

No RAOs were established for SA 85.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy is NFA.

SA 85, New Baler Building — OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☐ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☑ None Required

Most Recent Sampling Date: October 1996 — Most Recent Inspection Date: August 2015

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

SA 85, New Baler Building — OU A

SUMMARY OF INSPECTION RESULTS:

SA 85, New Baler Building is a no further action site that does not have any ICs. The site was inspected as part of the five-year review site visit. The site visit in August 2015 found that the site has had no changes in site conditions since the last five-year review.

BIBLIOGRAPHY:

114

SA 86, Old Happy Valley Child Care Center — OU A

SA 86, Old Happy Valley Child Care Center — OU A

STATUS: Cleanup complete

BACKGROUND:

A building was constructed on the SA 86, Old Happy Valley Child Care Center site, and was used as a gymnasium and arena in the 1950s. The building was later used as a bowling alley and then as a child care center. It burned sometime after 1987. Areas to the east and southeast of the source area have been used for gravel storage. The building was heated with fuel supplied by an AST, the former location of which is unknown. There is no record of underground fuel storage at this site. The petroleum products used at the site are unknown.

No records are available on petroleum releases at this facility. During a geotechnical investigation conducted in 1989, hydrocarbon odors were noted in the subsurface soil and a sheen was observed on the groundwater surface in exploratory borings. Samples collected in 1994 showed the presence of petroleum hydrocarbons. The release mechanism is unknown, but probably includes overfilling of the former AST and other sources associated with past operations.

A limited field investigation was conducted in 1994 to assess subsurface soil and groundwater quality. Soil samples were collected at depths ranging from approximately 1 to 5.5 feet bgs from 16 separate test pits. Three groundwater monitoring wells were installed. Soil and groundwater samples were analyzed for TPH. Petroleum hydrocarbons were detected at concentrations that exceeded ADEC matrix levels and additional investigation was required.

In 1996, three additional monitoring wells were installed. Subsurface soil, groundwater, sediment, and surface water samples were collected. Soil samples were analyzed for TPH and lead; groundwater and surface water samples were analyzed for TPH and SVOCs; and sediment samples were analyzed for TPH, total organic carbon, SVOCs, and lead.

Analytical results for soil samples collected during the investigations indicated detected concentrations of DRO ranged from an estimated 5.1 mg/kg to an estimated 13,000 mg/kg. GRO concentrations ranged from an estimated 6.5 mg/kg to 65 mg/kg and total BTEX ranged from 0.031 mg/kg to 1.5 mg/kg.

Analytical results for groundwater collected during the investigations showed that DRO was detected in two of the five groundwater samples taken during the 1996 sampling event. All of the reported concentrations were below the ADEC matrix level. Wells 06-121 and 06-120 (crossgradient of the source area) contained DRO at concentrations of 610 µg/L and 390 µg/L. During the 1994 sampling event, DRO was detected at concentrations of 260 µg/L from MW-86-3 in the source area and 340 µg/L from MW-86-2 south of the drainage creek. However, during the 1996 sampling event, DRO was not detected in either MW-86-3 or MW-86-2. GRO, benzene, and total BTEX were not detected in groundwater during the most recent sampling event. Two PAHs were detected at crossgradient well 06-121, chrysene at 0.04 µg/L and benzo(a)anthracene at 0.04 µg/L. These concentrations are below the ADEC matrix levels.

PRE-ROD ASSESSMENT SUMMARY:

SA 86, Old Happy Valley Child Care Center — OU A

Number of Pre-Rod Locations Sampled	29
Number of Pre-Rod Samples	70
Potential Contaminant Types Evaluated	Metals, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Sediment , Sub-surface soil (> 6"), Surface water
Types of Pre-ROD Locations	Hand auger, Monitoring well, River/stream, Test Pit, Well

SA 86, Old Happy Valley Child Care Center — OU A

COCs AND RISKS:

The OU A ROD listed SA 86 as an NFA site.

RAOs:

No RAOs were established for SA 86.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy is NFA.

SA 86, Old Happy Valley Child Care Center — OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☐ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☑ None Required

Most Recent Sampling Date: October 1996 — Most Recent Inspection Date: August 2015

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

SA 86, Old Happy Valley Child Care Center — OU A

SUMMARY OF INSPECTION RESULTS:

SA 86, Happy Valley Child Care Center is a no further action site that does not have any ICs. The site was inspected as part of the five-year review site visit. The site visit in August 2015 found that the site has had no changes in site conditions since the last five-year review.

BIBLIOGRAPHY:

84, 86, 115

SA 88, P-70 Energy Generator — OU A - SAERA

SA 88, P-70 Energy Generator — OU A - SAERA

STATUS: Cleanup complete with institutional controls

BACKGROUND:

SA 88 is located on the north side of Giddens Road, approximately 1 mile north of the main NSGA complex. This site was once used as a radio receiving facility. The site occupies 0.5 acre in an undeveloped portion of the NSGA. The site and surrounding area are situated at the southern base of Mount Adagdak, and slope toward Clam Lagoon. The facility is composed of three structures: Building P-70 (receiving facility), Building P-86 (storage and equipment building), and Building 10355 (energy generation plant for the facility). The P-70 Building was used for auxiliary power generation and miscellaneous storage at NSGA. UST 10578 was installed at Building P-70 in 1965 to store JP-5 for powering the generator.

The site itself is flat, having been cut into the slope and graded as a platform for the buildings. East of the site, the natural topography of the area slopes at a 10 to 25 percent grade toward Clam Lagoon, approximately 1,500 feet southeast. The closest surface water body is an unnamed creek approximately 350 feet southeast of the site.

UST 10578 had a 5,000-gallon capacity and was removed in May 1993. No records on releases from the UST are available. However, petroleum product 'flowing' from the west sidewall of the excavation was recorded at 2 feet bgs. The rate at which the product was released and the length of time the release was observed were not provided in the site assessment report. DRO was reported in all four soil samples collected from the sidewalls and base of the excavation at concentrations greater than the ADEC soil matrix cleanup level.

Thirteen soil borings, three groundwater monitoring wells, two Geoprobe wells, and three product recovery wells were installed between September 1996 and May 1997. DRO was detected in 12 of 27 soil samples collected at 18 locations at concentrations above the ADEC matrix cleanup level of 200 mg/kg. GRO and BTEX were detected in soil, but at concentrations below the cleanup levels. DRO was detected in seven of eight wells sampled in 1996 and 1997 at a maximum concentration of 12,000 µg/L; GRO was detected in two of eight wells. Several PAHs were detected in seven of eight wells sampled in 1996 and 1997. No detections of these PAHs were greater than ADEC cleanup levels. Two downgradient monitoring wells (12-701 and 12-702) were installed in 1998 for the Comprehensive Monitoring Program. DRO was detected in well 12-702 at a concentration equal to ADEC groundwater cleanup criterion in 1998. No constituents were detected in groundwater samples collected from well 12¬701 between 1998 and 2000.

Free product was observed in four of 10 monitoring wells (12-162, 12-163, 12-198, and 12-252) at the P-70 Energy Generator site between 1996 and 2002. At least one passive-style skimmer was rotated between wells with measurable product thicknesses (12-162, 12-163, and 12-198) between January and December 1997. This recovery effort produced less than 5 gallons of product at the site during 1997. Approximately 26 gallons of free product was recovered at the site between January 1997 and June 2000. The Navy contends that free product has been recovered at this site to the maximum extent practicable as required by 18 AAC 75.325(f)(1)(B).

While ADEC did not specifically concur with the cessation of the product recovery efforts at this site,

SA 88, P-70 Energy Generator — OU A - SAERA

ADEC has been involved and concurred with subsequent decisions made regarding this site, and ADEC concurrence that product recovery endpoints had been reached in the 2005 SAERA decision document.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	16
Number of Pre-Rod Samples	51
Potential Contaminant Types Evaluated	Inorganics, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Product (floating or free), Sub-surface soil (> 6")
Types of Pre-ROD Locations	Borehole/Soil boring, Direct Push/Geoprobe, Hand auger, Monitoring well, Recovery well, Well

SA 88, P-70 Energy Generator — OU A - SAERA

COCs AND RISKS:

SA 88 was one of the sites in the OU A ROD for which additional evaluation under SAERA was required. The interim action under the OU A ROD was free product recovery.

The OU A ROD (1999) did not identify human health or ecological risks associated with the site, however, a human health and ecological risk assessment was completed for this site during 2004 as part of the additional evaluation under SAERA. This site poses no unacceptable risk to human health or the environment above target health goals, provided that Ics remain in effect. The risk assessments performed for this site established that the concentrations in soil do not pose a risk to humans or the environment above target health goals at their present contamination level; therefore, no separate ACLs were calculated and, by default, the existing contaminant levels at the site become the site-specific ACLs. The risk assessment findings of no unacceptable risk remain valid, providing that the assumed land uses for the site per the Adak Reuse Plan do not change. Cleanup levels specified for groundwater at petroleum-contaminated sites on the former Adak Naval Complex are based on the use of groundwater as a drinking water source [18 AAC 75.345(b)(1), Table C], or 10 times these levels if the groundwater is not reasonably expected to be a potential future source of drinking water [18 AAC 75.345(b)(2)]. Groundwater at SA 88 is not considered to be a reasonably expected potential future source of drinking water; therefore, groundwater cleanup levels for these sites are 10 times the levels specified in Table C of the Alaska regulations. The OU A ROD did not identify human health or ecological risks associated with the site.

The 2005 Final Decision Document for Petroleum Sites with No Unacceptable Risk established no COCs for this site.

RAOs:

The OU A ROD for the petroleum site SA 88, P-70 Energy Generator established the following original RAO:

- Reduce volume of petroleum free product.

The RAOs were revised in the 2005 Final Decision Document for Petroleum Sites with No Unacceptable Risk to the following:

- Prevent future exposure to petroleum-related chemicals in soil and groundwater at the site.

REMEDY IMPLEMENTATION:

The OU A ROD-specified interim remedy for this site was free product recovery, which was performed between 1996 and 2002. The 2005 decision document specifies the final remedy as limited groundwater monitoring. This remedy was implemented during the 2005 monitoring program. A decision document for final remedial action for the petroleum sites with no unacceptable risk was signed May 20, 2005. The decision document identifies limited groundwater monitoring as the final remedy. Monitoring activities were implemented in 2005 via changes to the CMP.

SA 88, P-70 Energy Generator — OU A - SAERA

In addition to the required limited groundwater monitoring of the final remedy, the 2005 SAERA decision document also required additional one-time groundwater samples from four wells at the site, along with free product measurement and removal (if found). The four additional action wells were included for regular, on-going sampling in the CMP revisions made during implementation of the final remedy. On-going product measurement and recovery also has been implemented at this site.

The Decision Document in 2005 called for free product recovery in 2 inch wells with greater than 0.5 feet product thickness and in 4-6 inch wells with greater than 0.1 feet product thickness during the annual groundwater monitoring event. The site met the practicable endpoint for free product recovery, however it was restarted on a monthly basis at five wells by request of ADEC in 2007. From May 2007 to September 2010, 6.84 gallons of free product were recovered from all wells at the site. Free product recovery was ceased in April 2011.

Groundwater sampling was discontinued after the 2010 groundwater monitoring event as all wells had met endpoint criterion for DRO. ADEC issued a "cleanup complete with ICs" determination for SA 88, P-70 Energy Generator on September 19, 2011.

The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including SA 88. No ICs specific to SA 88 were established in the OU A ROD or the 2005 SAERA decision document; however, ICs are included for this site in the ICMP, and annual inspections are required.

SA 88, P-70 Energy Generator — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: September 2010 Most Recent Inspection Date: September 2019
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

SA 88, P-70 Energy Generator — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-162	Limited GW monitoring, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	DRO	
2005	Free product detected, not sampled	
2006	Free product detected, not sampled, product thickness (monthly)	
2007	DRO, product thickness (monthly)	
2008	DRO, product thickness (monthly)	
2009	DRO, product thickness (monthly)	
2010	DRO, product thickness (monthly)	
2011	Met endpoint criteria; monitoring discontinued	

SA 88, P-70 Energy Generator — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-163	Limited GW monitoring, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	DRO	
2005	Free product detected, not sampled	
2006	Free product detected, not sampled, product thickness (monthly)	
2007	DRO, product thickness (monthly)	
2008	Free product detected, not sampled, product thickness (monthly)	
2009	DRO, product thickness (monthly)	
2010	DRO, product thickness (monthly)	
2011	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-197	Limited GW monitoring, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	DRO	
2005	Free product detected, not sampled	
2006	Free product detected, not sampled, product thickness (monthly)	
2007	DRO, product thickness (monthly)	
2008	DRO, product thickness (monthly)	
2009	DRO, product thickness (monthly)	
2010	DRO, product thickness (monthly)	
2011	Met endpoint criteria; monitoring discontinued	

SA 88, P-70 Energy Generator — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-198	Limited GW monitoring, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	DRO	
2005	Free product detected, not sampled	
2006	Free product detected, not sampled, product thickness (monthly)	
2007	Free product detected, not sampled, product thickness (monthly)	
2008	Free product detected, not sampled, product thickness (monthly)	
2009	DRO, product thickness (monthly)	
2010	DRO, product thickness (monthly)	
2011	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-252	Limited GW monitoring, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	DRO	
2005	Free product detected, not sampled	
2006	Free product detected, not sampled, product thickness (monthly)	
2007	DRO, product thickness (monthly)	
2008	Free product detected, not sampled, product thickness (monthly)	
2009	DRO, product thickness (monthly)	
2010	DRO, product thickness (monthly)	
2011	Met endpoint criteria; monitoring discontinued	

SA 88, P-70 Energy Generator — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-253	Limited GW monitoring	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO	
2006	DRO	
2007	DRO	
2008	DRO	
2009	DRO	
2010	DRO	
2011	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-701	SW protection	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	DRO	
2004	DRO	
2005	DRO	
2006	DRO	
2007	DRO	
2008	DRO	
2009	DRO	
2010	Met endpoint criteria; monitoring discontinued	

SA 88, P-70 Energy Generator — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-702	Limited GW monitoring	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO	
2007	DRO	
2008	DRO	
2009	DRO	
2010	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls at SA 88, P-70 Energy Generator include land use restrictions, equitable servitude, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection on September 6, 2019, no indications of a change of a change in land use in this area were found in this area and no residential construction had occurred at the site. No indications of excavation were found, and excavation restriction signs were clearly visible. However, damage was observed at two of the three signs onsite. During the 2021 5-year review site walk it was noted that the damaged signs associated with the site from the 2019 IC inspection had been replaced. The 2019 IC report indicated ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

29, 34, 41, 52, 62, 77, 84, 86, 90, 91, 113, 121, 129, 134, 137, 140, 142, 165, 166

South of Runway 18-36 Area — OU A - SAERA

South of Runway 18-36 Area — OU A - SAERA

STATUS: Groundwater and sediment monitoring and institutional controls

BACKGROUND:

The South of Runway 18-36 Area consists of the lowland area surrounding the southern portion of Runway 18-36. It extends from the East Canal of the airport ditch system on the east to South Sweeper Creek on the west and Sweeper Cove to the south. To the east, this site adjoins another large petroleum-release site, the NMCB Building T-1416 Expanded Area. The primary physical features on the site include the southern portion of Runway 18-36, Main Road, the northern end of Transit Road south to the Transit Road Bridge, and the southern portion of the West Canal and the Crossover Canal of the airport ditch system. The canals that constitute the airport ditch system are engineered structures used to divert surface water from the vicinity of Runway 18-36. Because the site is within the low-fly zone established for the airfield, no buildings are located within the site boundaries.

Topography at the South of Runway 18-36 area is flat, low-lying land adjacent to and south of the Runway 18-36 area extending to Sweeper Cove. Elevations in this area are generally less than 15 feet above MLLW. The dike situated on the eastern shore of South Sweeper Creek constitutes the highest topographic point on the site.

Early in 1989, several leaks were discovered in underground pipelines that traverse the hillsides in the vicinity of Tank Farm A. These leaks typically occurred in abandoned WWII-era pipelines still connected to the active fuel distribution system. Two documented leaks within Tank A Farm occurred in abandoned branch fuel lines that were not properly isolated. Fuel was released from these and other undocumented sources within Tank Farm A in quantities sufficient to migrate downslope and produce the petroleum impacts observable along the western shoreline of lower South Sweeper Creek. In September 1990, an abandoned fuel line located near the southeast corner of Runway 18-36 was uncovered during installation of a new fuel line adjacent to Main Road. The abandoned fuel line reportedly was the source of a subsurface fuel release, and residual product was observed in the excavated trench.

Numerous investigations have been performed at the South of Runway 18-36 area and the surrounding vicinity. These investigations include a 1989 phased site investigation to evaluate the extent of the petroleum fuel release in the vicinity of Tank Farm A, a 1994 release investigation to supplement the 1989 investigation, a 1994 release investigation to evaluate the extent of fuels released in the vicinity of the Main Road (6-inch, JP-5) Pipeline, a 1996 release investigation work plan prepared to summarize site conditions, a 1999 site summary report, and a 2001 RI.

During these investigations, numerous monitoring wells were installed and many soil, groundwater, surface water, and sediment samples were collected. These investigations identified DRO and benzene in soil and groundwater above ADEC cleanup criteria, as well as the presence of free product floating on the surface of the groundwater. In addition, it was concluded that it was highly likely that petroleum hydrocarbon contamination entered South Sweeper Creek and potentially South Sweeper Cove. During the release investigation conducted at Tank Farm A in 1993, three distinct dissolved petroleum hydrocarbon plumes were identified in the South of Runway area: (1) along the eastern shore of South Sweeper Creek, (2) west of South Sweeper Creek near wells E-401 and LC-5A, and (3) from well E-210 into the NMCB area.

South of Runway 18-36 Area — OU A - SAERA

Cleanup activities that have been implemented at the South of Runway 18-36 Area include soil capping, sediment removal, replacement of crossover canal with metal culverts and contaminated soil excavation, installation of a product interception device, and pipeline cleaning and closures. In August 1998, petroleum aesthetic corrective action work was completed in the South of Runway 18-36 Area. Corrective action activities included capping 270 lineal feet of stained soil within the West Canal south of the Crossover Canal and removing a section of wooden pipeline. Removal, treatment, and disposal of PCB-contaminated sediment from South Sweeper Creek were completed from April to August 1999. Airport ditch culvert installation activities occurred from May to September 2001 to reduce the potential for contamination to seep into the airport ditch drainage system. The activities included installing two metal culverts north of the west ditch portion of Crossover Canal from the existing culverts in the South of Runway 18-36 area to the south end of the West Canal. Approximately 70 cubic yards of petroleum-contaminated soil on the south bank of the Crossover Canal were removed for treatment and disposal. During August 2001, a product interception device was installed along the bank of South Sweeper Creek to prevent release of petroleum into the creek by eliminating an observed seep. This product interception device was installed adjacent to and east from the Transit Road Bridge. During June 2003, the cleaning and closure of three pipelines (10-inch avgas, 8-inch mogas, and 4-inch mogas pipelines) that cross the South of Runway 18-36 Area was completed.

Monitoring wells within the vicinity of the South of Runway 18-36 area have been gauged periodically for the presence of free product since June 1997. Free product has been detected in several wells at least once.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	165
Number of Pre-Rod Samples	440
Potential Contaminant Types Evaluated	Biological, Inorganics, Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Sediment , Sub-surface soil (> 6"), Surface water, Tissue
Types of Pre-ROD Locations	Borehole/Soil boring, Channel/Ditch, Direct Push/Geoprobe, Geoprobe well, Ground surface, Hand auger, Intertidal, Monitoring well, Ocean, open water (not bay), Test Pit, Well

South of Runway 18-36 Area — OU A - SAERA

COCs AND RISKS:

The South of Runway 18-36 Area was one of the sites in the OU A ROD for which additional evaluation under SAERA was required. The interim action under the OU A ROD was free product recovery. The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemicals exceeded these criteria (interpreted from Table 5-11 of the OU A ROD):

Groundwater

- Benzene

The OU A ROD (1999) did not identify human health or ecological risks associated with the site, however, a human health and ecological risk assessment was completed for this site during 2005 as part of the follow-on evaluation under SAERA. Results of this risk assessment identified ecological hazard levels above target health goals. Human health risk levels were found to be below target health goals, provided that Ics remain in effect. A decision document for final remedial action for the South of Runway 18-36 Area was finalized in 2006.

The ADEC Method Four cleanup levels [18 AAC 75.340(a)(4)], which are based on site-specific risk assessments, were used to establish cleanup levels for the site. However, the risk assessment for this site established that the existing concentrations in soil do not pose a risk to humans or the environment above target health goals. Therefore, soil concentrations remaining at the site meet cleanup level requirements because they do not represent a health risk for the site-specific population. Groundwater cleanup levels are based on 10 times the tabulated groundwater cleanup levels [18 AAC 75.345(b)(1), Table C], because groundwater is not reasonably expected to be a potential future source of drinking water [18 AAC 75.345(b)(2)]. Alaska state regulations do not establish chemical-specific cleanup levels for sediment. Therefore, sediment cleanup levels were established based on the results of the ecological risk assessment. Site-specific risk-based cleanup levels were calculated for those chemicals that could potentially pose an unacceptable risk to ecological receptors due to exposure to sediment in South Sweeper Creek. These risk-based cleanup levels are additional cleanup levels for surface water, and do not replace the TAqH and TAH criteria specified in 18 AAC Chapter 70.

The 2006 Final Decision Document for the South of Runway 18-36 Area established the following cleanup levels based on ADEC regulatory criteria or calculated risk-based levels for the following COCs:

Groundwater

- DRO

Sediment

- 2-Methylnaphthalene
- DRO
- Phenanthrene

Surface Water

- DRO
- GRO
- Indeno(1,2,3-cd)pyrene
- TAH
- TAqH

RAOs:

The OU A ROD for the petroleum site South of Runway 18-36 established the following original RAO (Table 7-4 of the OU A ROD):

- Reduce volume of petroleum free product.

The RAOs were revised in the 2006 Final Decision Document for South of Runway 18-36 to the following:

- Prevent ecological exposure to petroleum hydrocarbons in surface water and sediment that would result in adverse health effects to ecological receptors or an exceedance of the Alaska surface water quality standards.
- Prevent the migration of petroleum hydrocarbons to surface water that would result in adverse health effects to ecological receptors and/or an exceedance of the Alaska surface water quality standards.
- Prevent the migration of petroleum hydrocarbons to sediments that would result in adverse health effects to ecological receptors.
- Protect human health by minimizing exposure to free-phase product.
- Reduce petroleum hydrocarbons in groundwater to concentrations less than or equal to the Alaska DEC groundwater cleanup levels established for groundwater not currently used for, or not reasonably expected to be used for drinking water (in regards to human health)

REMEDY IMPLEMENTATION:

Free product recovery was specified by the OU A ROD as the interim remedy for the South of Runway 18-36 Area. This interim remedy was implemented from June 1997 through July 2005 using a combination of passive and automatic skimming devices. Approximately 215 gallons of free product were recovered during this time period. As of July 2005, free product recovery at the South of Runway 18-36 area met the practicable endpoint established for the shut-down of product recovery as specified in the OU A ROD. ADEC approved the interim remedial action free product closure report for this site in January 2006.

The 2006 decision document prepared under SAERA specified ICs, passive free product recovery and containment, MNA for groundwater, and natural recovery for surface water and sediment as the selected remedies for South of Runway 18-36. ICs required by the 2006 decision document were already in place when the decision document was executed. The CMP was modified as needed to incorporate the groundwater MNA and sediment/surface water natural recovery components of the final remedy.

South of Runway 18-36 Area — OU A - SAERA

As part of implementing the passive free product recovery and containment component of the final remedy, a 400-foot-long recovery trench was installed between August 17 and September 9, 2006. The recovery trench provides a zone of increased permeability to enhance collection of free product through employment of passive collection equipment. Eight recovery sumps/wells were installed with the trench. These sumps were installed every 50 feet as collection points for the fuel-skimming equipment installed at the site. In addition to the recovery sumps, seven new recovery/monitor wells were installed. These "RW" wells were installed to enhance the existing well system.

Also, as part of implementing the product recovery component of the final remedy, free product recovery devices were installed in wells at the site and within the product recovery trench sumps. The equipment installed included pneumatically-operated passive skimmers at the eight sump locations and other locations with greater than 0.5 foot of measurable product thickness, passive canister skimmers at specific locations where free product thickness was measured between 0.1 and 0.5 foot, and sorbent socks where fuel was detected at a thickness less than 0.1 foot. Product recovery has been on-going since equipment installation.

Free product recovery was discontinued in February 2012. The amount of free product recovered between October 2010 and February 2012 was 2.46 gallons. Free product recovery was started again in October 2014 in two wells (E-216 and RW-18/36-04) at the South of Runway 18-36 area, however monitoring well RW-18/36-04 was discontinued after December 2017. Free product recovery was conducted this five-year review period between September 2016 and September 2020. A total of 1.21 gallons of free product was recovered during this period.

Sorbent booms also are used for free product recovery. Five sorbent booms are located in Sweeper Creek/West Canal: one around the West Canal Pump station, three in Sweeper Creek, and one in the existing product interception device. Six sorbent booms are located in the East Canal. The purpose of the floating sorbent booms is to prevent the migration of contaminants and eliminate petroleum sheen in adjacent surface waters. The booms are routinely inspected and replaced when required.

TAH exceeded the endpoint criterion of 10 µg/L in two of the three groundwater samples and TAqH exceeded the endpoint criterion of 15 µg/L in three of three groundwater samples collected in 2018. TAH concentration in wells 02-231 and AS-1 was 147 and 129 µg/L respectively and TAqH concentration was 236, 38, and 383 µg/L in wells 02-231, 02-232, and AS-1, respectively.

DRO concentrations in two of three sediment samples collected in 2018 exceed the endpoint criteria of 90.6 with concentrations ranging from 120 to 160 mg/kg.

Because of the continued exceedance of endpoint criteria for DRO in sediment, the continued exceedance of endpoint criteria for TAH and TAqH in surface water protection wells, and the observance of free product in other site wells, it is recommended that all other monitoring at the site be continued as prescribed.

The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including South of Runway 18-36. ICs and biennial inspections are required for this site under the ICMP.

South of Runway 18-36 Area — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

MNA of groundwater, surface water protection of Sweeper Creek using an interceptor trench and oil absorbent booms, and monthly IC inspections.

Monitoring Types:

- [x] Groundwater Monitoring
- [ ] Surface Water Monitoring
- [x] Sediment Monitoring
- [ ] Tissue Monitoring
- [ ] Landfill Inspection
- [x] IC Inspection — Click to View ICMP Table
- [ ] Remediation System Monitoring and Maintenance
- [ ] None Required

Most Recent Sampling Date: September 2018 Most Recent Inspection Date: September 2019

Current Media Sampled: Groundwater and sediment

Current Analytes Sampled: DRO, GRO, BTEX, TAH, TAqH, NAPs, visual inspections, product thickness

Current Monitoring: Click to View Current Monitoring Monitoring File: Runway 18-36 monitoring.pdf

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-231	MNA, SW protection, PT	Groundwater
1999	DRO, GRO, BTEX (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO	
2002	GRO, BTEX, DRO, DRO fractions, RRO, NAPs	
2003	DRO, GRO, BTEX	
2004	DRO, GRO, BTEX	
2005	DRO, GRO, BTEX, visual inspection	
2006	DRO, GRO, BTEX, TAH, TAqH, product thickness (monthly), visual inspection	
2007	DRO, GRO, BTEX, TAH, TAqH, product thickness (monthly), visual inspection	
2008	DRO, GRO, BTEX, TAH, TAqH, product thickness (monthly), visual inspection	
2009	DRO, GRO, BTEX, TAH, TAqH, NAPs, product thickness (monthly), visual inspection	
2010	DRO, BTEX, TAH, TAqH, product thickness (monthly), visual inspection	
2011	DRO, BTEX , PAHs (for TAH and TAqH)	
2012	DRO, BTEX , PAHs (for TAH and TAqH)	
2013	DRO, BTEX , PAHs (for TAH and TAqH)	
2014	DRO	
2015	Monitoring not planned	
2016	BTEX, PAHs (for TAH and TAqH)	
2017	Monitoring not planned	
2018	BTEX, PAHs (for TAH and TAqH), NAPs	
2019	Monitoring not planned	

South of Runway 18-36 Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-232	MNA, SW protection, PT	Groundwater
1999	DRO, GRO, BTEX (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO	
2002	DRO, DRO fractions, RRO, NAPs	
2003	DRO	
2004	DRO	
2005	DRO, visual inspection	
2006	DRO, GRO, BTEX, TAH, TAqH, visual inspection	
2007	DRO, GRO, BTEX, TAH, TAqH, visual inspection	
2008	DRO, GRO, BTEX ,TAH, TAqH, visual inspection	
2009	DRO, GRO, NAPs, visual inspection	
2010	DRO, BTEX, TAH, TAqH, visual inspection	
2011	DRO	
2012	BTEX , PAHs (for TAH and TAqH)	
2013	BTEX , PAHs (for TAH and TAqH)	
2014	BTEX , PAHs (for TAH and TAqH), NAPs	
2015	Monitoring not planned	
2016	BTEX , PAHs (for TAH and TAqH)	
2017	Monitoring not planned	
2018	BTEX , PAHs (for TAH and TAqH), NAPs	
2019	Monitoring not planned	

South of Runway 18-36 Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
02-518	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
18/36-01	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

South of Runway 18-36 Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
18/36-02	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
18/36-03	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	DRO, GRO, BTEX, TAH, TAqH	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

South of Runway 18-36 Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
18/36-05	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO	
2007	DRO	
2008	Product thickness	
2009	DRO (odd years only), NAPs	
2010	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
28-804	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness	
2007	Well cap stuck, product thickness not measured	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

South of Runway 18-36 Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
28-808	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness	
2007	Well cap stuck, product thickness not measured	
2008	Not located in field, presumed destroyed, monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
28-812	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Product thickness	

South of Runway 18-36 Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
852	Natural Recovery	Surface water and Sediment
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2007	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2008	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2009	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2010	Surface water: Monitoring of this location for this site is not planned Sediment: DRO, 2-methylnaphthalene, phenanthrene	

South of Runway 18-36 Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
AS-1	MNA, SW protection, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Free product detected, not sampled, product thickness (monthly)	
2007	DRO, GRO, BTEX, TAH, TAqH, product thickness (monthly), visual inspection	
2008	DRO, GRO, BTEX, TAH, TAqH, product thickness (monthly), visual inspection	
2009	DRO, GRO, BTEX, TAH, TAqH, NAPS, product thickness (monthly), visual inspection	
2010	DRO, BTEX, TAH, TAqH, visual inspection	
2011	DRO, BTEX , PAHs (for TAH and TAqH)	
2012	BTEX , PAHs (for TAH and TAqH)	
2013	BTEX , PAHs (for TAH and TAqH)	
2014	BTEX , PAHs (for TAH and TAqH), NAPs	
2015	Monitoring not planned	
2016	BTEX , PAHs (for TAH and TAqH)	
2017	Monitoring not planned	
2018	BTEX , PAHs (for TAH and TAqH), NAPs	
2019	Monitoring not planned	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
E-206	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO	
2007	DRO	
2008	DRO	
2009	DRO, NAPs	
2010	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
E-207	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness (monthly)	

South of Runway 18-36 Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
E-208	MNA, SW protection, PT	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO	
2002	NAPs	
2003	DRO	
2004	DRO	
2005	DRO	
2006	DRO, GRO, BTEX, TAH, TAqH, visual inspection	
2007	DRO, GRO, BTEX, TAH, TAqH, visual inspection (odd years only)	
2008	Product thickness	
2009	DRO, GRO, BTEX, TAH, TAqH, NAPs, visual inspection	
2010	Monitoring not planned	
2011	DRO	
2012	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
E-209	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness (monthly)	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
E-213	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
E-215	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
E-216	SW protection, PT	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	Monitoring not planned	
2002	DRO, DRO fractions, NAPs	
2003	DRO	
2004	Free product detected, not sampled	
2005	DRO	
2006	Product thickness (monthly), visual inspection	
2007	Product thickness (monthly), visual inspection	
2008	Product thickness (monthly), visual inspection	
2009	Product thickness (monthly), visual inspection	
2010	Product thickness (monthly), visual inspection	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
E-217	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO	
2006	Product thickness (monthly), visual inspection	
2007	Product thickness (monthly), visual inspection	
2008	Product thickness (monthly), visual inspection	
2009	Product thickness (monthly), visual inspection	
2010	Product thickness (monthly), visual inspection	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
E-218	MNA, SW protection, PT	Groundwater
1999	DRO, GRO, BTEX (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX (quarterly - 2 rounds)	
2001	Monitoring not planned	
2002	NAPs	
2003	DRO	
2004	DRO	
2005	DRO, visual inspection	
2006	DRO, GRO, BTEX, TAH, TAqH, visual inspection	
2007	DRO, GRO, BTEX, TAH, TAqH, visual inspection	
2008	DRO, GRO, BTEX, TAH, TAqH, visual inspection	
2009	DRO, GRO (odd years only), NAPs, visual inspection	
2010	DRO, BTEX, TAH, TAqH, visual inspection	
2011	DRO	
2012	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
LC6A	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MRP-12	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	DRO, RRO, NAPs	
2003	DRO	
2004	DRO	
2005	DRO	
2006	DRO	
2007	DRO (odd years only)	
2008	Product thickness	
2009	DRO, NAPs	
2010	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NL-02	Natural recovery	Surface water
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	DRO, TAH, TAqH	
2008	Monitoring discontinued after 2007 one-time sample	
2015	Met endpoint criteria; monitoring discontinued	

South of Runway 18-36 Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NSWSD-01	Natural Recovery	Surface water and Sediment
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2007	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2008	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2009	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2010	Surface water: DRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, 2-methylnaphthalene, phenanthrene	
2011	Sediment: Met endpoint criteria; monitoring discontinued Surface water: Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NSWSD-02	Natural Recovery	Surface water and Sediment
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2007	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2008	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2009	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2010	Surface water: DRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, 2-methylnaphthalene, phenanthrene	
2011	Sediment: DRO, PAHs Surface water: Met endpoint criteria; monitoring discontinued	
2012	Sediment: DRO, PAHs	
2013	Sediment: DRO, PAHs	
2014	Sediment: DRO, PAHs, NAPs	
2015	Sediment: Monitoring not planned	
2016	Sediment: DRO	
2017	Sediment: Monitoring not planned	
2018	Sediment: DRO	
2019	Sediment: Monitoring not planned	

South of Runway 18-36 Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NSWSD-03	Natural Recovery	Surface water and Sediment
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2007	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2008	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2009	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2010	Surface water: DRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, 2-methylnaphthalene, phenanthrene	
2011	Sediment: Met endpoint criteria; monitoring discontinued Surface water: Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NSWSD-04	Natural Recovery	Surface water and Sediment
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2007	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2008	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2009	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2010	Surface water: DRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, 2-methylnaphthalene, phenanthrene	
2011	Sediment: DRO, PAHs Surface water: Met endpoint criteria; monitoring discontinued	
2012	Sediment: DRO, PAHs	
2013	Sediment: DRO, PAHs	
2014	Sediment: DRO, PAHs, NAPs	
2015	Sediment: Monitoring not planned	
2016	Sediment: DRO	
2017	Sediment: Monitoring not planned	
2018	Sediment: DRO	
2019	Sediment: Monitoring not planned	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NSWSD-05	Natural Recovery	Surface water and Sediment
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2007	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2008	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2009	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2010	Surface water: DRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, 2-methylnaphthalene, phenanthrene	
2011	Sediment: DRO, PAHs Surface water: Met endpoint criteria; monitoring discontinued	
2012	Sediment: DRO, PAHs	
2013	Sediment: DRO, PAHs	
2014	Sediment: DRO, PAHs, NAPs	
2015	Sediment: Monitoring not planned	
2016	Sediment: DRO	
2017	Sediment: Monitoring not planned	
2018	Sediment: DRO	
2019	Sediment: Monitoring not planned	

South of Runway 18-36 Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NSWSD-06	Natural Recovery	Surface water and Sediment
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2007	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2008	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2009	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2010	Surface water: DRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, 2-methylnaphthalene, phenanthrene	
2011	Sediment: Met endpoint criteria; monitoring discontinued Surface water: Met endpoint criteria; monitoring discontinued	

South of Runway 18-36 Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NSWSD-07	Natural Recovery	Surface water and Sediment
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2007	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2008	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2009	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2010	Surface water: DRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, 2-methylnaphthalene, phenanthrene	
2011	Sediment: Met endpoint criteria; monitoring discontinued Surface water: DRO, BTEX , PAHs (for TAH and TAqH)	
2012	Surface water: DRO, BTEX , PAHs (for TAH and TAqH)	
2013	Surface water: DRO, BTEX , PAHs (for TAH and TAqH)	
2014	Surface water: Met endpoint criteria; monitoring discontinued	

South of Runway 18-36 Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NSWSD-08	Natural Recovery	Surface water and Sediment
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2007	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2008	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2009	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2010	Surface water: DRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, 2-methylnaphthalene, phenanthrene	
2011	Sediment: Met endpoint criteria; monitoring discontinued Surface water: DRO, BTEX , PAHs (for TAH and TAqH)	
2012	Surface water: DRO, BTEX , PAHs (for TAH and TAqH)	
2013	Surface water: DRO, BTEX , PAHs (for TAH and TAqH)	
2014	Surface water: Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RW-18/36-01	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	DRO, BTEX, TAH, TAqH, product thickness (monthly)	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RW-18/36-02	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RW-18/36-03	MNA, SW protection, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, TAH, TAqH, visual inspection, product thickness (monthly)	
2007	Field error, not sampled, product thickness (monthly)	
2008	DRO, GRO, BTEX, TAH, TAqH, product thickness (monthly), visual inspection	
2009	DRO, GRO, BTEX, TAH, TAqH, NAPs, visual inspection	
2010	DRO, BTEX, TAH, TAqH, visual inspection	
2011	DRO, BTEX , PAHs (for TAH and TAqH)	
2012	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RW-18/36-04	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RW-18/36-05	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RW-18/36-06	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RW-18/36-07	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
Z2-4	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
Z3-2	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
Z3-6	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness	
2007	Monitoring not planned	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

South of Runway 18-36 Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
Z4-2	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls at South of Runway 18-36 Area include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection on September 9, 2019, no changes to the site were observed compared to the 2017 inspection results. No residential construction had occurred at the site. No indications of groundwater use or excavation activities were found at the site. No excavations were identified during the inspection, and excavation restriction signs were clearly visible. The product recovery trench system located onsite is no longer in use as agreed upon with ADEC. The 2019 IC report indicated ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

29, 34, 41, 46, 52, 62, 77, 79, 84, 86, 90, 91, 96, 111, 112, 122, 129, 130, 134, 140, 141, 142, 149, 150, 152, 161, 163, 164, 165, 166, 167, 169

South Sweeper Creek — OU A

South Sweeper Creek — OU A

STATUS: Cleanup complete

BACKGROUND:

The principal surface drainage feature in the Sweeper Cove drainage basin is South Sweeper Creek. South Sweeper Creek is west of the downtown core area and Runway 18-36. South Sweeper Creek is fed by Yakutat Creek, Airport Ditch, and other small tributaries. Not all surface water within the drainage basin passes through South Sweeper Creek; small streams on the southern portion of the drainage basin discharge directly into Sweeper Cove. In addition, water collected in the runway canals (diversionary structures that provide drainage and dewatering for the airport) is discharged to lower South Sweeper Creek via a pair of pumps.

The lower reach of South Sweeper Creek is up to 120 feet wide. Sediments in the lower reach are sand- and silt-sized, indicating that this area is depositional (unlike the tributaries, which have faster flow and primarily sand and gravel in their creek bottoms). Benthic invertebrates and fish prefer rocky/gravelly creek bottoms and are unlikely to live in fine-grain substrate. Sediments measured in the lower reach were 3.5 to 5 feet thick, which is thicker than sediment measured upstream.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	71
Number of Pre-Rod Samples	118
Potential Contaminant Types Evaluated	Biological, Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Marine sediment, Sediment , Sub-surface soil (> 6"), Surface water
Types of Pre-ROD Locations	Borehole/Soil boring, Channel/Ditch, Direct Push/Geoprobe, Geoprobe well, Hand auger, Monitoring well, River/stream, Test Pit, Well

South Sweeper Creek OU A

COCs AND RISKS:

The following COCs were identified in the OU A ROD because of exceedances above action levels based on risk-based levels (Table 7-3 of the OU A ROD):

Freshwater Sediment

- Aroclor 1260

Tissue

- Cadmium
- Chromium
- Lead

In the OU A ROD (Table 7-3), the following action levels were exceeded: PCB 1 mg/kg (freshwater), and lead 0.064 mg/kg, cadmium 0.042 mg/kg, and chromium 0.26 mg/kg (in shellfish). The cleanup level of PCB (the main chemical of concern) is risk based, representing the threshold above which adverse effects to benthic organisms are apparent. Sediment samples were collected from South Sweeper Creek in 1995 during the PSEs for SWMUs 16 and 17, in 1996 for the RI/FS, and in 1998 for the supplemental risk evaluation. Contaminants in creek sediments do not pose a significant human health risk. Although the total risks of consumption of fish (Dolly Varden) for the subsistence fisher scenario, were risk 2 E-04 with Aroclor 1260 as the main risk driver (Table 6-4 and Table 6-5 of the OU A ROD), it was estimated in the OU A ROD that fish resources would be depleted within 2-4 years. Ecological risks of sediment exposures were driven by PCB hazard quotients exceeding 1. Aquatic exposures to lead and cadmium were also determined to have significant potential to pose ecological risks with hazard quotients exceeding 1 (Table 6-7 of the OU A ROD). RAOs were developed in the RI/FS for protection of ecological receptors from possible adverse effects of PCBs in sediments indicated by the elevated hazard quotient for Aroclor 1260. The RAO is includes of cadmium and lead because they are colocated with PCBs. Reduction of PCB concentrations in sediment by removal was also intended to reduce cadmium and lead concentrations, and therefore reduce the chemical concentrations in aquatic biota.

RAOs:

The OU A ROD for the CERCLA site South Sweeper Creek established the following RAOs (Table 7-3 and pg. 10-13 of the OU A ROD):

- Allow natural recovery processes to reduce chemical concentration in prey tissues to below acceptable levels over time (Table 7-3) of the OUA ROD.
- To protect benthic infauna from contacting and ingesting COC-affected sediments. The chemical of concern for protection of benthic invertebrates is total PCBS, and the cleanup is 1 mg/kg (dry weight). This cleanup level is risk based and represents a threshold above which adverse effects to benthic organisms are apparent (pg. 10-13, and Table 7-3 of the OUA ROD).

South Sweeper Creek — OU A

REMEDY IMPLEMENTATION:

The selected remedy for South Sweeper Creek was removal and treatment of sediment. It was concluded that sediment removal (a variation of Alternative 4) was the most effective strategy for protecting human health and the environment at South Sweeper Creek. To achieve the PCB cleanup level of 1 mg/kg, an estimated 3,900 cubic yards of sediments from the affected area were identified to be removed, treated, and disposed of. The maximum estimated dredge depth was 2 feet, which was approximated for determining costs; the depth could be shallower or deeper based on observed conditions.

The selected action for Sweeper Creek was conducted in 1999 with the approval of the regulatory agencies. Confirmation samples were collected from the excavation for PCB analysis by field test kits; however, the closure report does not include tabulated post-excavation results. The excavated sediments were replaced with clean fill material to restore the creek bed to its original hydraulic condition. The excavated sediments were treated using low-temperature thermal desorption to reduce DRO levels to below 100 mg/kg and RRO levels to below 2,000 mg/kg to meet Roberts Landfill requirements (less than 10 mg/kg PCBs) for recycling as daily cover.

No ICs or long-term monitoring are required, because remedial actions for South Sweeper Creek have met the remedial goals. All ROD-required actions are completed.

South Sweeper Creek — OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☐ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☑ None Required

Most Recent Sampling Date: June 1999 — Most Recent Inspection Date: August 2015

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

South Sweeper Creek — OU A

SUMMARY OF INSPECTION RESULTS:

South Sweeper Creek is a no further action site that does not have any ICs. The site was inspected as part of the five-year review site visit. The site visit in August 2015 found that there were no changes in site conditions since the last five-year review.

BIBLIOGRAPHY:

43, 62, 65, 84, 86, 129

Sweeper Cove — OU A

Sweeper Cove — OU A

STATUS: Tissue monitoring with institutional controls

BACKGROUND:

Sweeper Cove is the most actively used water body at Adak, because it is adjacent to the main industrial portion of the downtown area.

Sweeper Cove is an estuary with a surface area of approximately 450 acres and receives drainage from approximately 4,511 terrestrial acres. The western portion of Sweeper Cove includes a shallow inlet that was developed into a small boat harbor. The northern shoreline has been altered by construction activities begun by the military in 1942. South Sweeper Creek and Mitt Creek are the primary drainages into Sweeper Cove.

The shoreline geology includes natural depositional areas of sands where some streams discharge into Sweeper Cove shorelines, exposed bedrock found on the southern shoreline of Sweeper Cove, and boulder riprap bulkheads constructed during the military development of the northern shoreline. The subtidal region is almost entirely sand, with an increasing percentage of fine material as the distance from shore increases.

Because Sweeper Cove has received the drainage from a majority of the developed area on Adak, the potential for contaminants to deposit in Sweeper Cove has been a concern. As part of the RI, samples of sediment, surface water, marine worm tissue, blue mussel tissue, and bottom fish tissue were collected in 1996 and analyzed.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	38
Number of Pre-Rod Samples	77
Potential Contaminant Types Evaluated	Biological, Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Marine sediment, Marine water, Sediment , Tissue
Types of Pre-ROD Locations	Intertidal, River/stream, Subtidal

Sweeper Cove OU A

COCs AND RISKS:

The following fish and shellfish COC was identified in the OU A ROD because of exceedance above action levels based on risk-based levels (Table 7-3 of the OU A ROD):

Fish and Shellfish

- Aroclor 1260

In the OU A ROD action levels exceeded for Aroclor 1260 were 0.0065 mg/kg for fish and 0.031 mg/kg for shellfish (Table 7-3). According to the risk assessment, the cancer risk to the recreational user was 1E-05, and the cancer and noncancer risks to the subsistence fisher were 1E-03 and an HI of 10, respectively. Risk drivers causing cancer risks for the recreational user were Aroclor 1260 and arsenic in rock sole. Risk drivers causing cancer risks for the subsistence fisher were Aroclor 1260 and arsenic in rock sole and blue mussel. Risk drivers causing the noncancer risk for subsistence fishers were antimony, arsenic, and cadmium in rock sole (Tables 6-4 and 6-5 of the OU A ROD). The risk assessment also concluded that there were significant ecological risks to benthic invertebrates (HIs between 10 and 100), based on sediment quality values and sediment toxicity test exceedances. Primary ecological risk drivers were PAHs. The cleanup levels for total PCBs are 0.0065 mg/kg and 0.031 mg/kg for ingestion of fish and shellfish, respectively. These cleanup levels are risk based concentrations and were derived using exposure parameters in the OU A ROD for subsistence fishers with a carcinogenic risk threshold of 1 E-05.

RAOs:

The OU A ROD for the CERCLA site Sweeper Cove established the following RAO (Table 7-3 and page 10-4 of the OU A ROD):

- Protection of subsistence fishers from ingestion of fish and shellfish containing chemicals that present a cancer risk in excess of 1 E-05 and a noncancer hazard index in excess of 1.0.

REMEDY IMPLEMENTATION:

The selected remedy for Sweeper Cove is ICs, including a fish consumption advisory, comprehensive monitoring of blue mussel and rock sole tissue, and public education.

Institutional controls in Sweeper Creek were implemented following execution of the ROD in April 2000.

The Navy has conducted marine tissue monitoring in Sweeper Cove since 1999. Initially, this monitoring was conducted annually in accordance with the OU A ROD. In 2003, the five-year marine tissue monitoring program required by the OU A ROD was completed. The 2003 technical memorandum for marine monitoring recommended continued sampling for rock sole and blue mussel from Sweeper Cove at a frequency of every other year through the next five-year review period to evaluate the changes in total PCB concentrations. Therefore, the Navy has conducted marine tissue monitoring at Sweeper Cove every other year from 2004 through 2017. Following the 2017 monitoring event, it was recommended that sampling be

conducted every 5-years starting in 2020.

Blue mussel and rock sole tissue samples are collected from Sweeper Cove to document the temporal change in PCB concentrations in mussels and fish in Sweeper Cove and to determine the date for rescinding ICs advising subsistence and commercial seafood harvesters of the potential risk associated with consumption of certain species of fish and shellfish from Sweeper Cove. Marine tissue samples have been analyzed for PCB congeners, lipid analysis, and moisture content.

Institutional controls for Sweeper Creek include a fishing advisory, ongoing monitoring (biennial tissue sampling), education, and site/remedy condition inspections and reporting.

Tissue sampling was last conducted in 2020 in Sweeper Cove. The mean total PCB concentration for rock sole remained above the RBAL for marine fish in 2020. Therefore, maintaining the consumption advisory for rock sole caught in Sweeper Cove is recommended. The mean total PCB concentration in blue mussels was below the RBAL for shellfish in 2015, however a decreasing trend was not found to be statistically significant. Therefore, continuing the consumption advisory for blue mussels collected in Sweeper Cove is recommended until further sampling and testing to demonstrate that PCB concentrations are continuing to decline. The next sampling event would be conducted in 2025.

Sweeper Cove — OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☑ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: September 2020 Most Recent Inspection Date: September 2020

Current Media Sampled: Tissue

Current Analytes Sampled: PCBs

Current Monitoring: Click to View Current Monitoring Monitoring File: TO 15 Final Tech Memo.pdf

Sweeper Cove — OU A

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
All Locations	Blue mussel & rock sole LTM	Marine tissue
1999	PCB congeners, lipid analysis, moisture content	
2000	PCB congeners, lipid analysis, moisture content	
2001	PCB congeners, lipid analysis, moisture content	
2002	PCB congeners, lipid analysis, moisture content	
2003	PCB congeners, lipid analysis, moisture content	
2004	Monitoring not planned	
2005	PCB congeners, lipid analysis, moisture content	
2006	Monitoring not planned	
2007	PCB congeners, lipid analysis, moisture content	
2008	Monitoring not planned	
2009	PCB congeners, lipid analysis, moisture content	
2010	Monitoring not planned	
2011	PCBs	
2012	Monitoring not planned	
2013	PCBs	
2014	Monitoring not planned	
2015	PCBs	
2016	Monitoring not planned	
2017	PCBs	
2018	Monitoring not planned	
2019	Monitoring not planned	
2020	PCBs	

SUMMARY OF INSPECTION RESULTS:

ICs at Sweeper Cove include a fish advisory, an educational program, tissue monitoring, and IC inspections and reporting. An educational awareness survey was conducted as part of the IC program in 2020. All 14 Adak residents interviewed were aware that there is a fish consumption advisory for rock sole and blue mussels in Sweeper Cove and rock sole in Kuluk Bay. Five subsistence fisher indicated they routinely eat salmon or halibut but do not eat rock sole or blue mussels. In addition to the interviews during the IC

inspections, a health advisory fact sheet is distributed to residents on Adak. Fact sheets were issued in 2018 and 2020.

BIBLIOGRAPHY:

62, 63, 84, 86, 113, 129, 141, 142, 146, 147, 154, 155, 165, 170, 171

SWMU 2, Causeway Landfill and Minefield — OU A

SWMU 2, Causeway Landfill and Minefield — OU A

STATUS: Cleanup complete with institutional controls

BACKGROUND:

SWMU 2, the Causeway Landfill, is located on the eastern side of Clam Road on a narrow strip of land separating Clam Lagoon from Sitkin Sound. The landfill is approximately 2 to 3 acres in area and is about 4 to 6 feet thick. The elevation of the site is between 5 and 20 feet above MLLW. An elevated ridgeline along Sitkin Sound marks its eastern boundary, and Clam Road marks its western boundary. To the west of the site are several depressions permanently filled with water, remaining from borrow operations. Materials observed within these pits consist of clean sands, cobbles, and boulders. To the west of these water-filled depressions is a linear ridge of organic materials and gravels that appear to have been stripped from the area to expose the underlying cobble and gravel. The landfill has been covered with a soil cap; however, minor amounts of metal debris can be seen protruding from this cover.

The Causeway Landfill operated from the mid-1950s to the early 1960s and reportedly received waste materials that included sanitary trash, construction debris, scrap equipment, and other refuse generated by NSGA. No records have been found indicating the amount of hazardous material that may have entered the landfill. Based on known operations at NSGA, it has been estimated that less than 50 gallons of liquid waste per month were disposed of at this location.

WWII defensive plans for the island from May 1945 contained proposed locations for defensive works including 27 minefield locations with instructions to emplace mines in the event of imminent invasion. Adak was never invaded and WWII ended three months after the date of the defensive plan. Nonetheless, the potential minefields were investigated intrusively or by surface inspection. Live mines and training mines (both inert and live) were found only at the SWMU 2 minefield, geographically separate from the SWMU 2 landfill to the south. The mines are believed to have been placed there for training purposes and not as part of the defensive plan. In 1998, the mines were removed from the site by the Navy.

The Causeway Landfill was investigated from 1994 through 1997 for subsurface and surface contamination, including ordnance compounds. No detections of ordnance compounds were identified from subsurface soil or groundwater samples, and no visual evidence of MEC in landfill debris was observed during intrusive investigations. Causeway Landfill was retained for further evaluation as part of the RI/FS due to concentrations of Aroclors, cPAHs and inorganics reported in subsurface soils, and 1,3-dinitrobenzene and inorganics present in groundwater samples.

Analytical results of sediment, soil, and groundwater samples were used in a PSE-2 and a revised PSE-2.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	20
Number of Pre-Rod Samples	36
Potential Contaminant Types Evaluated	Dioxins and furans, Metals, Ordnance,

	Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Marine sediment, Sediment , Sub-surface soil (> 6"), Surface water
Types of Pre-ROD Locations	Borehole/Soil boring, Intertidal, Lake/pond/open reservoir, Test Pit, Well

SWMU 2, Causeway Landfill and Minefield — OU A

COCs AND RISKS:

The OU A ROD did not establish any COCs for this site.

Analytical results of sediment, soil, and groundwater samples were used in a PSE-2 and a revised PSE-2. The estimated cumulative human health risk under a residential use scenario was 1.1E-05 due to the presence of Aroclors, 2,3,7,8-TCDD, and SVOCs in the subsurface soil. There were no human health risk drivers greater than 1E-05 (Tables 6-3 and 6-4 of the OU A ROD). The ecological HI was 85, based on exposure to subsurface soils Tables 6-6 and 6-7 of the OU A ROD). Ecological receptors used in the risk assessment do not burrow; therefore, as long as the landfill cover is not disturbed, the site does not pose a significant risk to ecological receptors. Ecological risk drivers were Aroclor 1248, Aroclor 1254, copper, lead, 4-methylphenol, 2,3,7,8-TCDD (TEF), and zinc. This site was determined to not pose significant risk nor exceed ARARs.

RAOs:

The OU A ROD for SWMU 2 established the following RAOs (interpreted from Table 7-2, and pg. 10-2 of the OU A ROD) :

- Protect ecological receptors from exposure to landfill debris and subsurface soil that could result in cancer risk greater than 1E-05 or a noncancer risk above an HI of 1.0.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is ICs. The implementation of ICs began in 1999.

The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including SWMU 2.

SWMU 2, Causeway Landfill received "cleanup complete with ICs" determination from ADEC on June 2, 2004.

SWMU 2, Causeway Landfill and Minefield — OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☑ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: 1997 — Most Recent Inspection Date: September 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

SWMU 2, Causeway Landfill and Minefield — OU A

SUMMARY OF INSPECTION RESULTS:

Institutional Controls at SWMU 2, Causeway Landfill and Minefield include land use restrictions, equitable servitude, soil excavation restrictions, signage, soil cover inspections, and IC inspections and reporting. During the inspection on September 6, 2019, no changes to the site were observed compared to the 2017 inspection results. No residential construction or excavation had occurred at the site. Engineering controls that were implemented at SWMU 2 include signs and soil cover. At the time of inspection, the landfill cap appeared to be intact and undisturbed with very heavy vegetative cover and no evidence of ponding. It appears that debris was coming up through the cap, however the landfill is heavily overgrown, and the debris does not appear to be affecting the integrity of the landfill cap. Three landfill notification signs were intact and visible along the road, although it was noted that the signs were faded. The access road to the site along Clam Lagoon (below SA 78, Old Transportation Building) has two areas with collapsed culverts, possibly impeding future access. The 2019 IC report indicated ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

13, 65, 72, 84, 86, 113, 129, 141, 142, 144, 165, 166

SWMU 4, South Davis Road Landfill — OU A

SWMU 4, South Davis Road Landfill — OU A

STATUS: Cleanup complete with landfill inspections and institutional controls

BACKGROUND:

SWMU 4, South Davis Road Landfill, is located on the eastern shore of Andrew Lake. The western boundary of the site is the shoreline of Andrew Lake. The eastern boundary of the site is at the base of a ridge that ranges from approximately 90 feet above MLLW on the north to approximately 50 feet above MLLW on the southern boundary of the site.

The surface of the site is approximately 20 to 25 feet above MLLW and is relatively flat and featureless. The elevation of Andrew Lake is approximately 15 feet above MLLW. Two intermittent streams transect the site that is predominantly covered with grasses, tundra, and mosses. Metal and other debris were observed on the surface in a 1975 aerial photograph and protruded from the soil at several locations. Field observations indicate that the landfill encompasses approximately 3 acres.

The South Davis Road Landfill operated from the early to late 1940s. The date of closure is uncertain, but is believed to be prior to 1950. The majority of the materials disposed of in this landfill are believed to be solid wastes generated from the construction and subsequent demolition of Albert Mitchell Airfield. Albert Mitchell Airfield was constructed between Clam Lagoon and Andrew Lake in 1942. Albert Mitchell Airfield was closed in 1945, and all associated activities were transferred to the main Adak airfield.

Analytical results of sediment, soil, surface water, and sediment samples were used in a PSE-2 and a revised PSE-2.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	17
Number of Pre-Rod Samples	30
Potential Contaminant Types Evaluated	Dioxins and furans, Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Sediment , Sub-surface soil (> 6"), Surface water
Types of Pre-ROD Locations	Borehole/Soil boring, Lake/pond/open reservoir, River/stream, Test Pit, Well, Wetlands

SWMU 4, South Davis Road Landfill — OU A

COCs AND RISKS:

The following COCs in subsurface soils were identified in the OU A ROD (Table 7-3 of the OU A ROD):

Soil

- 2,3,7,8-TCDD
- Aroclor 1254
- Aroclor 1260
- Copper
- Lead
- Zinc

The human health risk under a residential use exposure scenario was estimated to be 4.5E-05. The primary risk driver was arsenic in subsurface soil (Tables 6-4 and 6-5 of the OU A ROD). The maximum arsenic concentration in subsurface soil at the site is 7 mg/kg, which is within one order of magnitude of the low end of the background range of 2 mg/kg. The ecological HI associated with soil was 126. Primary ecological risk drivers were inorganics, Aroclors, and 2,3,7,8-TCDD (Tables 6-6 and 6-7 of the OU A ROD). The ecological receptors of concern for adverse risks were birds, invertebrates, and plants. Exposures of Dioxin and PCB compounds were possible through the following pathways: to birds through ingestion of prey and particles of subsurface soil, to invertebrates via ingestion of subsurface soil and direct dermal contact, and plants via root uptake. Ecological receptors used in the risk assessment do not burrow; therefore, as long as the landfill cover is not disturbed, the site does not pose a significant risk to ecological receptors.

RAOs:

The OU A ROD for SWMU 4 established the following RAOs (Table 7-3 and pg. 10-4 of the OU A ROD):

- Protect the ecological receptors that may ingest on-site plants (The plants may uptake subsurface chemicals).
- Prevent ingestion of and contact with impacted subsurface soils within the landfill debris.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is an engineered cover and ICs. Placement of the landfill cover was completed in 1998. The implementation of ICs began following execution of the ROD in April 2000. Land use restrictions are required to ensure that the land will never be used in a way inconsistent with the land use assumptions set forth in the Adak Island RODs.

The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including SWMU 4.

SWMU 4, South Davis Road Landfill — OU A

Although on-going monitoring is not required for this site, the Navy database contains results for a sediment sample, DL-01, collected on September 14, 2009. The annual groundwater monitoring, landfill monitoring, and IC inspection reports do not discuss the purpose of this sample.

In 2008, a groundwater seep was observed flowing out of the toe of the landfill on the shoreline and into adjacent Lake Andrew. In September 2009, one sediment sample (DL-01) was collected along the lake shore where the seep had been observed in 2008. At the time of the sampling, no seep was observed flowing from the landfill; therefore, only sediment was collected. The sediment sample collected at location DL-01 was analyzed for PCBs, PAHs (including bis(2-ethyl, 2-hexyl)phthalate), and 13 total priority pollutant metals.

Concentrations of PCB Aroclor 1260 were found to exceed endpoint criteria developed for the Palisades Landfill and indicate that this contaminant may be migrating from the landfill and impacting Lake Andrew. It was noted that risk-based endpoint criteria for the Palisades Landfill site may not correlate to risks associated with the SWMU 4, South Davis Road Landfill site. Therefore site-specific risk-based endpoint criteria may need to be developed to determine if sediments are being impacted by onsite contamination at unacceptable levels of risk.

Prior to collection of this one sediment sample in September 2009, the most recent sampling event at SWMU 4 was in 1996.

SWMU 4, South Davis Road Landfill received "cleanup complete with ICs" determination on September 1, 2004.

SWMU 4, South Davis Road Landfill — OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☑ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: September 2009 Most Recent Inspection Date: September 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required Monitoring File: Not Applicable

SWMU 4, South Davis Road Landfill — OU A

SUMMARY OF INSPECTION RESULTS:

Institutional Controls at SWMU 4, South Davis Road Landfill include land use restrictions, equitable servitude, soil excavation restrictions, signage, soil cover inspections, and IC inspections and reporting. During the inspection on September 5, 2019, it was observed that the previous repairs at both Swale 1 and Swale were in good condition. The seep first observed during the 2013 inspections, at the southeast end of the landfill, approximately 20 feet south of the southern swale (Swale 1), is still present. The seep is approximately 8-feet wide and was observed to be discharging at a low flow rate. The water was clear with no odor. Metal debris was observed below the seep on the beach. The seep located near the northern swale (Swale 2) was observed to be flowing and vegetated. The other small seep identified at the north end of the landfill was still present with minimal flow and clear, odorless water. No indications of a change in land use in this area were found and no residential construction had occurred at the site. No indications of excavation activities were found, and excavation restriction signs were clearly visible. The landfill cap was well vegetated. Some sloughing vegetation and possible erosion, evident by exposed soil in the armor rock along the shoreline at the landfill boundary, suggests erosion may occur if the elevation of Andrew Lake rises. The 2019 IC report recommended that monitoring for erosion along the shoreline continue to ensure the long-term protectiveness of the remedy. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

13, 15, 65, 66, 72, 84, 86, 113, 129, 131, 141, 142, 144, 165, 166

SWMU 10, Old Baler Building — OU A

SWMU 10, Old Baler Building — OU A

STATUS: Cleanup complete with institutional controls

BACKGROUND:

SWMU 10, the Old Baler Building site, is located west of Monument Hill and approximately 1,200 feet north of Sweeper Cove. The facility is approximately 1.5 acres in area. It has a foundation footprint measuring approximately 100 feet wide (east-west dimension) by 200 feet long (north-south dimension). SWMU 10 ranges in elevation from 32.6 feet above msl at the northeast end of the site to 20.6 feet above msl at the southwest corner. The ground surface at the site gradually slopes to the southwest.

The Old Baler facility was once used to mechanically compact and compress municipal waste. PCBs, VOCs, SVOCs, and inorganics have been detected in soils at this site. The presence of these chemicals constitutes the principal concern at SWMU 10.

The date when operations started at the Old Baler facility is not known. Based on historical information, the building housing the baling equipment (used for compacting waste material) was constructed as a warehouse during WWII. In the late 1950s, the building was converted into a compaction and baling facility for municipal waste. Before its conversion, the building was used as an auto repair shop and living quarters for the line crew. Materials reportedly stored in the building in the past include transformers, traffic signs, pipe, wire spools, metal fencing, tires, welding gases, and 55-gallon drums of lubricants and transmission oils.

The baler building was demolished in 1992, and the concrete foundation pad was left in place.

Analytical results of surface soil samples collected for the site inspection were used in a PSE-1.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	17
Number of Pre-Rod Samples	19
Potential Contaminant Types Evaluated	Herbicides, Metals, Pesticides and aroclors, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Product (floating or free), Surface soil (less than 6 inches)
Types of Pre-ROD Locations	Ground surface

SWMU 10, Old Baler Building — OU A

COCs AND RISKS:

Human health cancer risks greater than 1E-05 in soils were driven by the chemicals listed below in surface soil in the OU A ROD (Table 6-5 of the OU A ROD).

Soil

- Aroclor 1260
- Indeno(1,2,3-cd)pyrene

Human health risk under a residential exposure scenario was estimated to be 6E-05. The estimated risk under an industrial exposure scenario (current use) is 3 E-06. The primary risk drivers are indeno(1,2,3-cd)pyrene and Aroclor 1260 in surface soil (Tables 6-4 and 6-5 of the OU A ROD). The ecological HI associated with surface soil was 59. The primary ecological risk driver is Aroclor 1260 in surface soil (Tables 6-6 and 6-7 of the OU A ROD). Because of the site and habitat characteristics, the site was found not to pose a significant risk to ecological receptors.

RAOs:

The OU A ROD for SWMU 10 established the following original RAO (interpreted from Table 7-2 and pg. 10-6 of the OU A ROD):

- Protect human health exposure to surface soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is ICs.

ICs were implemented in 2000 following execution of the OU A ROD. Land use restrictions are required to ensure that the land will never be used in a way inconsistent with the land use assumptions set forth in the Adak Island RODs. The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including SWMU 10.

SWMU 10, Old Baler Building received "cleanup complete with ICs" determination from ADEC on August 30, 2004.

SWMU 10, Old Baler Building — OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: June 1991 — Most Recent Inspection Date: September 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

SWMU 10, Old Baler Building — OU A

SUMMARY OF INSPECTION RESULTS:

Institutional Controls at SWMU 10, Old Baler Building include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the September 7, 2019 inspection, no changes to the site were observed compared to the 2014 inspection results. The site appeared to be used as a storage location for cement cinder blocks. No residential construction had occurred at the site. No indications of groundwater use or excavation activities were found. The ICs required at this location include soil excavation restrictions. Two soil excavation restriction signs were present at the site. One is located along Bayshore Drive and the other is located on the northwest corner across the street from the site. The 2019 IC report indicated ICs appear to be functioning as intended. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

15, 53, 67, 73, 75 , 84, 86, 91, 129, 137, 142, 144, 165, 166

SWMU 11, Palisades Landfill — OU A

SWMU 11, Palisades Landfill — OU A

STATUS: Cleanup complete with landfill monitoring, sediment monitoring and institutional controls

BACKGROUND:

SWMU 11, Palisades Landfill, is located several miles north of the main downtown area and was used as the primary disposal area for all operations on Adak Island from the 1940s to approximately 1970. The landfill area, which is approximately 6 acres, covers portions of the coastal uplands immediately adjacent to Kuluk Bay and part of a canyon or ravine. The ravine is approximately 1,200 feet long, 5 to 300 feet wide, and 5 to 150 feet deep, with a small stream (Palisades Creek) that runs through it. The mouth of the ravine opens immediately to Kuluk Bay.

The landfill received wastes from the 1940s to approximately 1970. Approximately 80,000 to 100,000 cubic yards of solid waste are located in the landfill. A wide variety of materials was reportedly disposed of at Palisades Landfill, including waste POL, chlorinated and nonchlorinated solvents, paint waste, sanitary trash, scrap vehicles, lead and mercury batteries, construction waste, and mercury. The landfill was covered with local soils in the early 1970s after disposal practices were stopped. A portion of the material disposed of within the ravine has no cover and is on a slope. The exposed waste in the ravine consists primarily of barrels and construction waste. The waste in the ravine covers a portion of Palisades Creek, which runs through the landfill before emptying into Kuluk Bay. The landfill does not extend into Kuluk Bay. Groundwater occurs locally under the site and discharges into the marine environment at the downgradient boundary.

Surface soil, groundwater, surface water, and stream sediment samples were collected during the 1988 and 1992 site investigations. VOCs, SVOCs, Aroclors, and inorganics were detected in soil. VOCs, SVOCs, and inorganics were detected in sediment. Inorganics were detected in surface water. Although no RI or risk assessment was performed at the time, the FFA parties concluded that performing an interim remedial action was the best option because of the following:

(1) The potential for exposure to contaminants in the environment in concentrations high enough to pose unacceptable human health risks or ecological impacts, based on the estimated nature and volume of wastes disposed of
(2) The toxic nature of the materials disposed of (e.g., chlorinated solvents were reportedly disposed of at both sites)
(3) The proximity of the site to sensitive marine environments
(4) The limited number of cost-effective remedial alternatives available for landfills
(5) The perception that the benefit gained by performing a detailed RI and FS prior to choosing an appropriate remedy would be offset by the cost of that investigation and the delay in implementing an action
(6) The need to stabilize the landfill and minimize further degradation

The 1995 interim action ROD recommended landfill capping to reduce risks to human and ecological receptors. Landfill capping was completed in 1996.

Rock sole fillet and blue mussel tissue monitoring in Kuluk Bay began in 1996. There also is a fish consumption advisory for Kuluk Bay. Risk potentially attributable to SWMU 11 is assessed as part of the

monitoring program established for Kuluk Bay, the downgradient water body which was evaluated by a risk assessment in the Adak RI/FS.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	24
Number of Pre-Rod Samples	110
Potential Contaminant Types Evaluated	Biological, Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Marine sediment, Sediment , Sub-surface soil (> 6"), Surface water, Tissue
Types of Pre-ROD Locations	Borehole/Soil boring, Intertidal, Lake/pond/open reservoir, River/stream, Subtidal, Well

SWMU 11, Palisades Landfill — OU A

COCs AND RISKS:

No risk assessment was performed for SWMU 11. SWMU 11 was included in an interim action ROD that specified the placement of a cover over the landfills, monitoring, and ICs. A cover was placed on the site as an interim remedial action. The OU A ROD selected the interim action as a final remedy. The capping, monitoring, and IC actions performed under the interim action ROD were evaluated and determined to be protective.

RAOs:

The OU A ROD for SWMU 11 established the following original RAO (interpreted from pgs. 7-6 and 10-2 of the OU A ROD):

- Protect human health and ecological receptors from exposure to landfill debris and soil that could result in cancer risk greater than 1E-05 or a noncancer risk above an HI of 1.0.

REMEDY IMPLEMENTATION:

The landfill was recontoured and capped in 1996. The installed landfill cover consists of a surficial jute mat and seed layer underlain by a 2-foot-thick layer of compacted soil, underlain by a 6-inch leveling soil layer.

The implementation of ICs began following execution of the OU A ROD in April 2000. The OU A ROD also identifies comprehensive monitoring and signage as engineering controls to be implemented as part of the remedy. The ICs prohibit residential use at SWMU 11, restrict land use to recreational or industrial applications, restrict groundwater use, and prohibit excavation. The ICMP describes implementation and monitoring of ICs at OU A, including SWMU 11, and reporting of inspections. Language constituting an equitable servitude is included in the Interim Conveyance that transfers the property from the United States to The Aleut Corporation so that the use restrictions run with the land and are binding on future landowners.

Site conditions are reviewed every five years to evaluate protectiveness of the remedy as part of the engineering controls. Annual site visits are conducted to inspect engineered controls. Monitoring requirements are reviewed annually, in conjunction with ADEC and EPA, to reevaluate the need for monitoring, monitoring frequency, and target analytes. Surface water and sediment monitoring at SWMU 11 began in 1996. Surface water monitoring was discontinued beginning in 2009 and sediment monitoring is ongoing. Blue mussel monitoring was conducted annually from 1996 through 1999. Rock sole and blue mussel monitoring was conducted annually throughout Kuluk Bay from 1999-2002, and has been conducted biannually since 2003. One of the blue mussel sampling locations in Kuluk Bay is located in close proximity to SWMU 11.

Only one of the three sediment samples collected in 2018 exceeded endpoint criteria for PCBs, antimony, arsenic, and nickel of 22.7 µg/kg, 2 mg/kg, 8.2 mg/kg, and 20.9 mg/kg, respectively. The concentrations of PCBs, antimony, arsenic, and nickel at sediment location 102 were 260 µg/kg, 2.09 mg/kg, 13.8 mg/kg, and

41.7 mg/kg, respectively.

Since the summation of PCB Aroclor concentrations, antimony, arsenic, and nickel are consistently above the endpoint criteria, it is recommended that sediment monitoring of these contaminants of concern be continued biennially at the three locations.

SWMU 11, Palisades Landfill received "cleanup complete with ICs" determination from ADEC on September 1, 2004.

SWMU 11, Palisades Landfill — OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☑ Sediment Monitoring
- ☐ Tissue Monitoring
- ☑ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: September 2018 Most Recent Inspection Date: September 2019

Current Media Sampled: Sediment

Current Analytes Sampled: PCBs, total antimonty, arsenic, and nickel (TIN)

Current Monitoring: Click to View Current Monitoring Monitoring File: SWMU 11 monitoring.pdf

SWMU 11, Palisades Landfill — OU A

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
101	Post closure monitoring	Surface water and Sediment
1999	Surface water: BTEX, SVOCs, Pesticides/PCBs, TIN, DIN Sediment: SVOCs, Pesticides/PCBs, TIN	
2000	Surface water: VOCs, SVOCs, Pesticides/PCBs, TIN, DIN Sediment: SVOCs, Pesticides/PCBs,TIN	
2001	Surface water: VOCs, SVOCs, Pesticides/PCBs, TIN, DIN Sediment: SVOCs, Pesticides/PCBs, TIN	
2002	Surface water: VOCs, SVOCs, TIN, DIN Sediment: SVOCs, Pesticides/PCBs, TOC, GS	
2003	Surface water: PCBs, TIN, DIN Sediment: SVOCs, PCBs, TIN, TOC, GS	
2004	Surface water: PCBs, TIN, DIN Sediment: SVOCs, PCBs, TIN, TOC, GS	
2005	Surface water: TIN, DIN Sediment: SVOCs, TIN, TOC, GS	
2006	Surface water: TIN, DIN Sediment: SVOCs, PCBs, TIN, TOC, GS	
2007	Surface water: Monitoring not planned Sediment: SVOCs, TIN	
2008	Surface water: TIN, DIN Sediment: SVOCs, PCBs, TIN	
2009	Surface water: Met endpoint criteria; monitoring discontinued Sediment: SVOCs, TIN	
2010	Sediment: SVOCs, PCBs, TIN	
2011	Sediment: TIN	
2012	Sediment: Monitoring not planned	
2013	Sediment: SVOCs, PCBs, TIN	
2014	Sediment: PCBs, TIN	
2015	Sediment: Monitoring not planned	
2016	Sediment: PCBs, TIN	
2017	Sediment: Monitoring not planned	
2018	Sediment: PCBs, TIN	
2019	Sediment: Monitoring not planned	

SWMU 11, Palisades Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
102	Post closure monitoring	Surface water and Sediment
1999	Surface water: BTEX, SVOCs, Pesticides/PCBs, TIN, DIN Sediment: SVOCs, Pesticides/PCBs, TIN	
2000	Surface water: VOCs, SVOCs, Pesticides/PCBs, TIN, DIN Sediment: SVOCs, Pesticides/PCBs, TIN	
2001	Surface water: VOCs, SVOCs, Pesticides/PCBs, TIN, DIN Sediment: SVOCs, Pesticides/PCBs, TIN	
2002	Surface water: VOCs, SVOCs, TIN, DIN Sediment: SVOCs, Pesticides/PCBs, TOC, GS	
2003	Surface water: PCBs, TIN, DIN Sediment: SVOCs, PCBs, TIN, TOC, GS	
2004	Surface water: PCBs, TIN, DIN Sediment: SVOCs, PCBs, TIN, TOC, GS	
2005	Surface water: TIN, DIN Sediment: SVOCs, PCBs, TIN, TOC, GS	
2006	Surface water: TIN, DIN Sediment: SVOCs, PCBs, TIN, TOC, GS	
2007	Surface water: Monitoring not planned Sediment: SVOCs, TIN	
2008	Surface water: TIN, DIN Sediment: SVOCs, PCBs, TIN	
2009	Surface water: Met endpoint criteria; monitoring discontinued Sediment: SVOCs, TIN	
2010	Sediment: SVOCs, PCBs, TIN	
2011	Sediment: TIN	
2012	Sediment: Monitoring not planned	
2013	Sediment: SVOCs, PCBs, TIN	
2014	Sediment: PCBs, TIN	
2015	Sediment: Monitoring not planned	
2016	Sediment: PCBs, TIN	
2017	Sediment: Monitoring not planned	
2018	Sediment: PCBs, TIN	
2019	Sediment: Monitoring not planned	

SWMU 11, Palisades Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
103	Post closure monitoring	Sediment
1999	SVOCs, Pesticides/PCBs, and TIN	
2000	SVOCs, Pesticides/PCBs, and TIN	
2001	SVOCs, Pesticides/PCBs, TIN	
2002	SVOCs, Pesticides/PCBs, TIN, TOC, grain size	
2003	SVOCs, PCBs, TIN, TOC, grain size	
2004	SVOCs, PCBs, TIN, TOC, grain size	
2005	TIN, SVOCs, grain size, TOC	
2006	SVOCs, PCBs, TIN, TOC, grain size	
2007	SVOCs, TIN	
2008	SVOCs, PCBs, TIN	
2009	SVOCs, TIN	
2010	SVOCs, PCBs, TIN	
2011	TIN	
2012	Monitoring not planned	
2013	SVOCs, PCBs, TIN	
2014	PCBs, TIN	
2015	Monitoring not planned	
2016	PCBs, TIN	
2017	Monitoring not planned	
2018	PCBs, TIN	
2019	Monitoring not planned	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls at SWMU 11, Palisades Landfill include land use restrictions, equitable servitude, soil excavation restrictions, signage, soil cover inspections, and IC inspections and reporting. During the September 5, 2019 inspection, it was observed that a sinkhole near the previously documented sinkhole has been filled by emergency repair. This sinkhole was adjacent to a former sinkhole that had been repaired in 2010, 2014, and 2017. Standing water was observed in the seasonal stream (Palisades Creek) just off the landfill cap. Water in this stream typically percolates through the substrate via a visible circular whirlpool, which indicates where the water goes into the landfill. However, during the 2019 inspection this water feature was not visible. The water was flat but was assumed to still be percolating through the substrate, because no flooding at the landfill was observed. Both landfill signs and site swales were in good condition. The vegetated cap was heavily vegetated and appeared in good condition with the exception of the

equipment tracks used for accessing the site for emergency repairs. The track areas should continue to be monitored to ensure cap integrity. No indications of a change in land use in this area were found and no residential construction had occurred at the site. No indications of excavation activities were found. The recent repairs should continue to be monitored. The 2019 IC report indicated ICs appear to be functioning as intended to protect humans and the environment. It is recommended that the repaired sinkhole and landfill cap be monitored to assess whether repairs are necessary. It is also recommended that the equipment tracks on the vegetative cap continue to be monitored to ensure cap integrity. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

29, 30, 31, 39, 44, 63, 65, 84, 85, 98, 126, 129, 135, 141, 142, 152, 164, 165, 166

SWMU 13, Metals Landfill — OU A

SWMU 13, Metals Landfill — OU A

STATUS: Groundwater monitoring, landfill monitoring, and institutional controls

BACKGROUND:

SWMU 13, Metals Landfill, is located immediately southeast of the central community of Adak and is bounded by Monument Hill to the west and Kuluk Bay to the east. The total volume of landfill waste and soil in the Metals Landfill is approximately 400,000 cubic yards, not including the material that was scattered on the surface and adjacent to the shoreline. The total site area is approximately 28 acres, of which approximately 19 acres were used as a landfill.

The Metals Landfill began operations in the 1940s and received a variety of waste materials, including sanitary trash, construction waste, paints, chlorinated and nonchlorinated solvents, batteries, scrap vehicles, medical waste, and sewage sludge. In 1970, restrictions were placed on the types of materials that could be disposed of at the landfill. Beginning in 1988, when a sludge press was installed at the sewage treatment plant, dewatered sewage sludge was disposed of on the southern end of the eastern section of the landfill. The landfill stopped receiving wastes in 1989.

In 1989, regulatory agencies conducted a site inspection of the Metals Landfill. They discovered four drums with liquid, one cracked vehicular battery, and one acetylene cylinder scattered in one small area of the landfill. As a result of the inspection, the regulatory agencies determined that the battery area contained hazardous waste, and therefore was considered a hazardous waste pile under RCRA. This is the only area of the landfill to have a RCRA violation. The remaining landfill has been designated as a solid waste management unit under RCRA. The presence of the batteries resulted in a Federal Facilities Compliance Agreement being signed and issued by the EPA in November 1990. This hazardous waste pile was closed under RCRA guidelines.

Surface and subsurface soil, groundwater, surface water, and sediment samples were collected during the 1989 and 1992 site investigations, and quarterly groundwater sampling was conducted in 1992 and 1993. VOCs, SVOCs, pesticides, Aroclors, and inorganics were detected in soil. Total petroleum hydrocarbons were detected above regulatory criteria in one well. Although no RI or risk assessment was performed at the time, the FFA parties concluded that performing an interim remedial action was the best option because of:

(1) The potential for exposure to contaminants in the environment in concentrations high enough to pose unacceptable human health risks or ecological impacts, based on the estimated nature and volume of wastes disposed of
(2) The toxic nature of the materials disposed of (e.g., chlorinated solvents were reportedly disposed of at both sites)
(3) The proximity of the site to sensitive marine environments
(4) The limited number of cost-effective remedial alternatives available for landfills
(5) The perception that the benefit gained by performing a detailed RI/FS prior to choosing an appropriate remedy would be offset by the cost of that investigation and the delay in implementing an action
(6) The need to stabilize the landfill and minimize further degradation

SWMU 13, Metals Landfill — OU A

After the landfill was recontoured and capped in 1996, the Navy performed additional construction activities at the site. In 2000, the Navy removed approximately 98 percent of the scrapped equipment and miscellaneous metal debris that littered approximately 1,500 feet of the shoreline along the landfill, and installed a protective riprap cover over the shoreline.

Risk that is potentially attributable to SWMU 13 is assessed as part of the monitoring program established for Kuluk Bay, the downgradient water body, which was evaluated by a risk assessment in the Adak RI/FS.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	71
Number of Pre-Rod Samples	170
Potential Contaminant Types Evaluated	Biological, Dioxins and furans, Inorganics, Metals, Ordnance, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Marine sediment, Marine water, Sediment , Surface soil (less than 6 inches), Tissue
Types of Pre-ROD Locations	Ground surface, Intertidal, Lake/pond/open reservoir, Monitoring well, Subtidal

SWMU 13, Metals Landfill — OU A

COCs AND RISKS:

No risk assessment was performed for SWMU 13. SWMU 13 was included in an interim action ROD that specified the placement of a cover over the landfills, monitoring, and ICs. A cover was placed on the site as an interim remedial action. The OU A ROD selected the interim action as a final remedy. The capping, monitoring, and IC actions done under the interim action ROD were evaluated and determined to be protective.

RAOs:

The OU A ROD for SWMU 13 established the following original RAO (interpreted from pgs. 7-6 and 10-2 of the OU A ROD):

- Protect human health and ecological receptors from exposure to landfill debris and soil that could result in cancer risk greater than 1E-05 or a noncancer risk above an HI of 1.0.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy is engineering controls, ICs, and groundwater monitoring.

An engineered landfill cover constituted the engineering control remedy. The landfill was recontoured and capped in 1996. The installed landfill cover consists of a surficial jute mat and seed layer underlain by a 2-foot-thick layer of compacted soil, underlain by a 6-inch leveling soil layer. Groundwater monitoring began in 1996.

Groundwater has been sampled at the Metals Landfill periodically since July 1996. To date, 17 sampling events at the Metals Landfill have occurred from 1996 through 2014. Monitoring occurred in 2008 and 2010 and was then reduced to every five years. Monitoring was conducted in 2018.

Samples were collected in eight monitoring wells in 2018 and all samples were below endpoint criteria for both arsenic and barium. Since the observance of arsenic and barium concentrations continue to remain below endpoint criteria, the Navy recommended that sampling for target dissolved and total metals be discontinued.

ICs included land use restrictions, access restrictions, and excavation prohibition. ICs were implemented in 2000 following execution of the OU A ROD.

SWMU 13, Metals Landfill — OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- [x] Groundwater Monitoring
- [ ] Surface Water Monitoring
- [ ] Sediment Monitoring
- [ ] Tissue Monitoring
- [x] Landfill Inspection
- [x] IC Inspection — Click to View ICMP Table
- [ ] Remediation System Monitoring and Maintenance
- [ ] None Required

Most Recent Sampling Date: August 2018 — Most Recent Inspection Date: September 2019

Current Media Sampled: Groundwater

Current Analytes Sampled: Total As, dissolved As, total Ba, dissolved Ba

Current Monitoring: Click to View Current Monitoring — Monitoring File: SWMU 13 monitoring.pdf

SWMU 13, Metals Landfill — OU A

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW13-1	Post closure monitoring	Groundwater
1999	VOCs, SVOCs, Pesticides/PCBs, TIN and DIN	
2000	Sampling not performed	
2001	SVOCs, Pesticides/PCBs, TIN, DIN	
2002	VOCs, SVOCs, Pesticides/PCBs, TIN, DIN	
2003	VOCs, SVOCs, TIN, DIN	
2004	PCBs, VOCs, SVOCs, TIN, DIN	
2005	TIN, DIN	
2006	VOCs, SVOCs, TIN, DIN	
2007	TIN, DIN, total and dissolved barium	
2008	VOCs, SVOCs, TIN, DIN, total and dissolved barium	
2009	TIN, DIN, total and dissolved barium	
2010	Total and dissolved arsenic, total and dissolved barium	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	Monitoring not planned	
2014	Total and dissolved arsenic, total and dissolved barium	
2015	Monitoring not planned	
2016	Monitoring not planned	
2017	Monitoring not planned	
2018	Total and dissolved arsenic, total and dissolved barium	
2019	Monitoring not planned	

SWMU 13, Metals Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW13-2	Post closure monitoring	Groundwater
1999	VOCs, SVOCs, Pesticides/PCBs, TIN, and DIN	
2000	VOCs, SVOCs, Pesticides/PCBs, TIN, and DIN	
2001	SVOCs, Pesticides/PCBs, TIN, DIN	
2002	VOCs, SVOCs, Pesticides/PCBs, TIN, DIN	
2003	VOCs, SVOCs, TIN, DIN	
2004	PCBs, VOCs, SVOCs, TIN, DIN	
2005	TIN, DIN	
2006	VOCs, SVOCs, TIN, DIN	
2007	TIN, DIN, total and dissolved barium	
2008	VOCs, SVOCs, TIN, DIN, total and dissolved barium	
2009	Monitoring not planned	
2010	Total and dissolved arsenic, total and dissolved barium	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	Monitoring not planned	
2014	Total and dissolved arsenic, total and dissolved barium	
2015	Monitoring not planned	
2016	Monitoring not planned	
2017	Monitoring not planned	
2018	Total and dissolved arsenic, total and dissolved barium	
2019	Monitoring not planned	

SWMU 13, Metals Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW13-3	Post closure monitoring	Groundwater
1999	VOCs, SVOCs, Pesticides/PCBs, TIN, and DIN	
2000	VOCs, SVOCs, Pesticides/PCBs, TIN, and DIN	
2001	SVOCs, Pesticides/PCBs, TIN, DIN	
2002	VOCs, SVOCs, Pesticides/PCBs, TIN, DIN	
2003	VOCs, SVOCs, TIN, DIN	
2004	PCBs, VOCs, SVOCs, TIN, DIN	
2005	TIN, DIN	
2006	VOCs, SVOCs, TIN, DIN	
2007	TIN, DIN, total and dissolved barium	
2008	VOCs, SVOCs, TIN, DIN, total and dissolved barium	
2009	Monitoring not planned	
2010	Total and dissolved arsenic, total and dissolved barium	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	Monitoring not planned	
2014	Total and dissolved arsenic, total and dissolved barium	
2015	Monitoring not planned	
2016	Monitoring not planned	
2017	Monitoring not planned	
2018	Total and dissolved arsenic, total and dissolved barium	
2019	Monitoring not planned	

SWMU 13, Metals Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW13-4	Post closure monitoring	Groundwater
1999	VOCs, SVOCs, Pesticides/PCBs, TIN, and DIN	
2000	Sampling not performed	
2001	VOCs, SVOCs, Pesticides/PCBs, TIN, DIN	
2002	VOCs, SVOCs, Pesticides/PCBs, TIN, DIN	
2003	VOCs, SVOCs, TIN, DIN	
2004	PCBs, VOCs, SVOCs, TIN, DIN	
2005	TIN, DIN	
2006	VOCs, SVOCs, TIN, DIN	
2007	TIN, DIN, total and dissolved barium	
2008	VOCs, SVOCs, TIN, DIN, total and dissolved barium	
2009	Monitoring not planned	
2010	Total and dissolved arsenic, total and dissolved barium	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	Monitoring not planned	
2014	Total and dissolved arsenic, total and dissolved barium	
2015	Monitoring not planned	
2016	Monitoring not planned	
2017	Monitoring not planned	
2018	Total and dissolved arsenic, total and dissolved barium	
2019	Monitoring not planned	

SWMU 13, Metals Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW13-5	Post closure monitoring	Groundwater
1999	VOCs, SVOCs, Pesticides/PCBs, TIN, and DIN	
2000	VOCs, SVOCs, Pesticides/PCBs, TIN, and DIN	
2001	VOCs, SVOCs, Pesticides/PCBs, TIN, DIN	
2002	VOCs, SVOCs, Pesticides/PCBs, TIN, DIN	
2003	VOCs, SVOCs, TIN, DIN	
2004	PCBs, VOCs, SVOCs, TIN, DIN	
2005	TIN, DIN	
2006	VOCs, SVOCs, TIN, DIN	
2007	TIN, DIN, total and dissolved barium	
2008	VOCs, SVOCs, TIN, DIN, total and dissolved barium	
2009	Monitoring not planned	
2010	Total and dissolved arsenic, total and dissolved barium	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	Monitoring not planned	
2014	Total and dissolved arsenic, total and dissolved barium	
2015	Monitoring not planned	
2016	Monitoring not planned	
2017	Monitoring not planned	
2018	Total and dissolved arsenic, total and dissolved barium	
2019	Monitoring not planned	

SWMU 13, Metals Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW13-603	Post closure monitoring	Groundwater
1999	VOCs, SVOCs, Pesticides/PCBs, TIN, and DIN	
2000	VOCs, SVOCs, Pesticides/PCBs, TIN, and DIN	
2001	VOCs, SVOCs, Pesticides/PCBs, TIN, DIN	
2002	VOCs, SVOCs, Pesticides/PCBs, TIN, DIN	
2003	VOCs, SVOCs, TIN, DIN	
2004	PCBs, VOCs, SVOCs, TIN, DIN	
2005	TIN, DIN	
2006	VOCs, SVOCs, TIN, DIN	
2007	TIN, DIN, total and dissolved barium	
2008	VOCs, SVOCs, TIN, DIN, total and dissolved barium	
2009	Monitoring not planned	
2010	Total and dissolved arsenic, total and dissolved barium	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	Monitoring not planned	
2014	Total and dissolved arsenic, total and dissolved barium	
2015	Monitoring not planned	

SWMU 13, Metals Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW13-604	Post closure monitoring	Groundwater
1999	VOCs, SVOCs, Pesticides/PCBs, TIN, and DIN	
2000	VOCs, SVOCs, Pesticides/PCBs, TIN, and DIN	
2001	VOCs, SVOCs, Pesticides/PCBs, TIN, DIN	
2002	VOCs, SVOCs, Pesticides/PCBs, TIN, DIN	
2003	VOCs, SVOCs, TIN, DIN	
2004	PCBs, VOCs, SVOCs, TIN, DIN	
2005	TIN, DIN	
2006	VOCs, SVOCs, TIN, DIN	
2007	TIN, DIN, total and dissolved barium	
2008	VOCs, SVOCs, TIN, DIN, total and dissolved barium	
2009	Monitoring not planned	
2010	Total and dissolved arsenic, total and dissolved barium	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	Monitoring not planned	
2014	Total and dissolved arsenic, total and dissolved barium	
2015	Monitoring not planned	
2016	Monitoring not planned	
2017	Monitoring not planned	
2018	Total and dissolved arsenic, total and dissolved barium	
2019	Monitoring not planned	

SWMU 13, Metals Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW13-605	Post closure monitoring	Groundwater
1999	VOCs, SVOCs, Pesticides/PCBs, TIN, and DIN	
2000	VOCs, SVOCs, Pesticides/PCBs, TIN, and DIN	
2001	VOCs, SVOCs, Pesticides/PCBs, TIN, DIN	
2002	VOCs, SVOCs, Pesticides/PCBs, TIN, DIN	
2003	VOCs, SVOCs, TIN, DIN	
2004	PCBs, VOCs, SVOCs, TIN, DIN	
2005	TIN, DIN	
2006	VOCs, SVOCs, TIN, DIN	
2007	TIN, DIN, total and dissolved barium	
2008	VOCs, SVOCs, TIN, DIN, total and dissolved barium	
2009	Monitoring not planned	
2010	Total and dissolved arsenic, total and dissolved barium	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	Monitoring not planned	
2014	Total and dissolved arsenic, total and dissolved barium	
2015	Monitoring not planned	
2016	Total and dissolved arsenic, total and dissolved barium	
2017	Total and dissolved arsenic, total and dissolved barium	
2018	Monitoring not planned	
2019	Total and dissolved arsenic, total and dissolved barium	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls at SWMU 13, Metals Landfill include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, soil cover inspections, and IC inspections and reporting. Engineering controls that were implemented at SWMU 13 include a landfill cap (soil cover), drainage swales, armor sea wall, fencing, and signs that were inspected on September 8, 2019. Previously completed work to the landfill, including armor wall repair, swale repair, and sign placement, are in good condition. The 2019 inspection found no indications of a change in land use in this area. Fencing is not required for the site as the steep topography surrounding it, generally discourages access of unauthorized vehicles. Previously observed all-terrain vehicle tracks were still visible at the site. New vehicle tracks were observed along the site access road presumably from landfill repair work. Access was blocked at the north end of the landfill by the placement of large rocks and a log. Additional large rocks were placed at the south

end of the landfill to impede site access by all-terrain vehicles. Site access controls should continue to be monitored to prevent unauthorized vehicle access to the landfill. The signs and gate for the entrance road were in good condition. The landfill cap typically has good vegetative cover and appears to be in good condition. The vehicle access road recently used for landfill repairs shows minor erosions and should be monitored. The armor wall on the shoreline is in generally good condition. There are several areas of sparse armor rock along the shoreline adjacent to monitoring well MW13-4 that should be bolstered. Additionally, large amounts of previously observed metal debris remain on the cliffs on the northeastern boundary of the landfill. This debris is not impacting the integrity of the armor wall, and it is not feasible to cap due to the steep terrain. A second area of metal debris, located further north of the landfill, has been observed since inspections began in 2005. This debris lies outside of the landfill boundaries and is not associated with SWMU 13, Metals Landfill. ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

24, 29, 30, 31, 38, 39, 44, 62, 63, 65, 84, 85, 86, 98, 129, 135, 141, 142, 152, 164, 165, 166

SWMU 14, Old Pesticide Area — OU A - SAERA

SWMU 14, Old Pesticide Area — OU A - SAERA

STATUS: Groundwater monitoring and institutional controls

BACKGROUND:

SWMU 14, the Old Pesticide Disposal Area, consists of a vacant property located to the southwest of the Public Works building in the downtown area. The site includes the foundation of former Building 1471 and an abandoned drain field reportedly used to disperse pesticide rinse water. The site is bounded to the north by the Public Works building parking area and Raven Street, to the south by Public Works Road, to the west by an unnamed dirt road, and to the east by the Public Works building and its unnamed paved access road. Except for the concrete building foundation (slab) the site consists of a featureless, flat-lying, unpaved soil area covered with gravel. Elevation of the site ranges from about 23 to 24 feet above MLLW. Sweeper Cove is located approximately 1,500 feet south of the site.

Building 1471 was used from 1950 to 1987 for handling a variety of pesticides. From 1950 to 1980, residual material and rinse water from pesticide handling were discharged through a drainpipe to a subsurface drainfield at the south end of the building. The drainpipe reportedly broke in 1980, resulting in discharge directly to the ground surface from 1980 to 1984. Recycling of pesticide wastes and rinse water was initiated in 1984, and no additional wastewater was discharged to the site. During active use of the drainfield, an estimated 10 pounds per month of pesticides were reportedly discharged to the site, including Tordon(TM), Dursban(TM), pyrethrum, boric acid, Safrotin(TM), and Vaponite(TM). The basis for this estimate was not provided in the report.

Building 1471 also was used as a motor vehicle filling station from approximately 1950 to 1985. Two USTs, one for leaded and one for unleaded gasoline, were reportedly located approximately 100 feet south of the building foundation. The contents were reported to have been drained in 1988, but the tanks were believed to have been left in place. In 1992, the Navy used ground-penetrating radar to locate the USTs. Suspect locations were identified. Excavations to locate the tanks occurred in 1996 during the PSE-2 field work. Empty fuel pipes were found and excavated, but there was no evidence of buried USTs.

SWMU 14 also was evaluated under SAERA because it contains petroleum contamination. The site was screened using ADEC groundwater cleanup levels and was retained for evaluation in the focused feasibility study, because the maximum concentration of GRO exceeded the screening criteria of 1,300 µg/L (18 AAC 75.345) during all four quarterly groundwater sampling events in 1999 and 2000. Additionally, toluene was detected at 370,000 µg/L in June 2000, which exceeds the ROD-established groundwater cleanup levels of 1,000 µg/L (18 AAC 75.345).

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	27
Number of Pre-Rod Samples	45
Potential Contaminant Types Evaluated	Herbicides, Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics,

	Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Sub-surface soil (> 6"), Surface soil (less than 6 inches)
Types of Pre-ROD Locations	Ground surface, Monitoring well, Test Pit, Well

SWMU 14, Old Pesticide Area — OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemicals exceeded these criteria (Table 6-5 and 10-3 of the OU A ROD):

Groundwater

- Bis(2-ethylhexyl)phthalate
- Ethylbenzene
- GRO
- Lead
- Tetrachloroethene
- Thallium
- Toluene

Soil

- Benzo(a)pyrene

The cancer risk calculated under the OU A ROD for the Adak residential scenario was 4.2E-5. The risk drivers for this site are benzo(a)pyrene in soil and tetrachloroethene in groundwater. The noncancer risk HI for the residential scenario is less than 1 (Tables 6-4 and 6-5 of the OU A ROD). SWMU 14 is not considered an ecological risk, because the site is not a likely habitat for foraging or nesting by ecological receptors

SWMU 14 also was evaluated under SAERA as part of the OU A ROD, because it contains petroleum contamination. The site was screened against the ADEC groundwater cleanup levels and was retained for evaluation in the focused feasibility study, because the maximum GRO concentration exceeded the screening criteria of 1,300 µg/L (18 AAC 75.345) during all four quarterly groundwater sampling events in 1999 and 2000 (U.S. Navy 2001a).

Additionally, toluene was detected at 370,000 µg/L in June 2000, which exceeds the ROD-established groundwater cleanup levels of 1,000 µg/L (18 AAC 75.345).

RAOs:

The OU A ROD for SMWU 14 established the following RAOs (Table 7-2 and pg. 10-6 of the OU A ROD):

- Reduce petroleum concentrations in soil.
- Protect human health receptors from exposure to soil and groundwater.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy is MNA for groundwater and ICs.

SWMU 14, Old Pesticide Area — OU A - SAERA

Groundwater monitoring began in 1999 and is ongoing. Natural attenuation parameters and sampled wells are identified in the current version of the Comprehensive Monitoring Plan.

ICs were implemented in 2000 following execution of the OU A ROD. Land use restrictions are required to ensure that the land will never be used in a way inconsistent with the land use assumptions set forth in the Adak Island RODs. The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including SWMU 14.

A sample was collected in one well (MW 14-5) in 2018 and concentrations of DRO, GRO, and total and dissolved lead were at or below the endpoint criteria of 1,500 µg/L, 2,200 µg/L, and 15 µg/L, respectively. However, they have exceeding their respective end point criteria in recent sampling events. Therefore, it is recommended that groundwater monitoring for these parameters be continued in the designated well as prescribed.

SWMU 14, Old Pesticide Area — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Free product recovery was conducted in well 01-153 beginning in 2009, and was discontinued in June 2010.

Monitoring Types:

- [x] Groundwater Monitoring
- [ ] Surface Water Monitoring
- [ ] Sediment Monitoring
- [ ] Tissue Monitoring
- [ ] Landfill Inspection
- [x] IC Inspection — Click to View ICMP Table
- [ ] Remediation System Monitoring and Maintenance
- [ ] None Required

Most Recent Sampling Date: August 2018 — Most Recent Inspection Date: September 2019

Current Media Sampled: Groundwater

Current Analytes Sampled: GRO, DRO, total Pb, dissolved Pb, NAPs, product thickness

Current Monitoring: Click to View Current Monitoring — Monitoring File: SWMU 14 monitoring.pdf

SWMU 14, Old Pesticide Area — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
01-153	MNA, PT, Compliance	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	MNA: DRO, GRO, GRO fractions, BTEX, NAPs Compliance: Total and dissolved lead, total thallium, TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, methylene chloride, bis(2-ethylhexyl)phthalate	
2004	MNA: DRO, GRO, GRO fractions, BTEX, NAPs. Compliance: Total and dissolved lead, total thallium, TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, methylene chloride, bis(2-ethylhexyl)phthalate	
2005	MNA: GRO, BTEX, DRO. Compliance: Total and dissolved lead, TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, methylene chloride, bis(2-ethylhexyl)phthalate	
2006	MNA: GRO, BTEX, DRO (even years only). Compliance: Total and dissolved lead, TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride	
2007	MNA: Monitoring not planned. Compliance: Total and dissolved lead, TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride	
2008	MNA: DRO, GRO, BTEX, product thickness (monthly). Compliance: Total and dissolved lead, TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride	
2009	MNA: NAPs, product thickness (monthly). Compliance: Total and dissolved lead, TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride	
2010	MNA: Met endpoint criteria; DRO, GRO, BTEX monitoring discontinued, product thickness (monthly). Compliance: TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride	
2011	Monitoring not planned	
2012	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, VC	
2013	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, VC	
2014	Met endpoint criteria; monitoring discontinued	

SWMU 14, Old Pesticide Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
55-145	MNA & Compliance	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	MNA: DRO, GRO. Compliance: total and dissolved lead	
2011	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
55-146	MNA & Compliance	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	MNA: DRO, GRO Compliance: total and dissolved lead	
2010	MNA: DRO, GRO Compliance: total and dissolved lead	
2011	Met endpoint criteria; monitoring discontinued	

SWMU 14, Old Pesticide Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW14-423	MNA & Compliance	Groundwater

1999	MNA: DRO, GRO, BTEX, NAPs. Compliance: total and dissolved lead (quarterly - 2 rounds)
2000	MNA: DRO, GRO, BTEX, NAPs. Compliance: total and dissolved lead (quarterly - 2 rounds)
2001	MNA: DRO, RRO, GRO, GRO fractions, BTEX, NAPs. Compliance: VOCs, SVOCs, total and dissolved lead, NAPs (quarterly - 2 rounds)
2002	Damaged well could not be sampled
2003	Removed from monitoring program Well is damaged
2004	Monitoring discontinued

SWMU 14, Old Pesticide Area — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW14-5	MNA & Compliance	Groundwater
1999	MNA: DRO, GRO, BTEX, NAPs (quarterly - 2 rounds). Compliance: total and dissolved lead (quarterly - 2 rounds)	
2000	MNA: DRO, GRO, BTEX, NAPs (quarterly - 2 rounds). Compliance: total and dissolved lead (quarterly - 2 rounds)	
2001	MNA: DRO, RRO, GRO, GRO fractions, BTEX, NAPs. Compliance: VOCs, SVOCs, total and dissolved lead	
2002	MNA: DRO, RRO, GRO, GRO fractions, BTEX, NAPs. Compliance: VOCs, SVOCs, total and dissolved lead	
2003	MNA: DRO, GRO, GRO fractions, BTEX, NAPs. Compliance: total and dissolved lead, total thallium, TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, methylene chloride, bis(2-ethylhexyl)phthalate	
2004	MNA: DRO, GRO, GRO fractions, BTEX, NAPs. Compliance: total and dissolved lead, total thallium, TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, methylene chloride, bis(2-ethylhexyl)phthalate	
2005	MNA: DRO, GRO, BTEX. Compliance: total and dissolved lead, TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride	
2006	MNA: DRO, GRO, BTEX. Compliance: total and dissolved lead, methylene chloride	
2007	MNA: DRO, GRO. Compliance: total and dissolved lead	
2008	MNA: DRO, GRO. Compliance: total and dissolved lead	
2009	MNA: DRO, GRO, NAPs. Compliance: total and dissolved lead	
2010	MNA: DRO, GRO. Compliance: total and dissolved lead	
2011	DRO, GRO	
2011	Monitoring not planned	
2012	DRO, GRO	
2012	Monitoring not planned	
2013	DRO, GRO, T/D-Pb	
2013	Monitoring not planned	
2014	Met endpoint criteria; monitoring discontinued	
2014	DRO, GRO, T/D-Pb, NAPs	
2015	Monitoring not planned	
2016	DRO, GRO, T/D-Pb	
2017	Monitoring not planned	

2018	DRO, GRO, T/D-Pb , NAPs	
2019	Monitoring not planned	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW15-3	5-year review support	Groundwater
2010	Five-year review support: total and dissolved lead, DRO, GRO	
2011	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls at SWMU 14, Old Pesticide Area include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the IC inspection on September 7, 2019 no changes to the site were observed compared to the 2017 inspection results. The site did not appear to be in use. No residential construction had occurred at the site. No indications of groundwater use or excavation activities were found at the site. There were no excavation notification signs present on the site, but several signs were located in the immediate vicinity of the site. The 2019 IC report indicated ICs appear to be functioning as intended. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

13, 19, 52, 66, 81, 84, 86, 90, 91, 113, 129, 134, 141, 142, 152, 164, 165, 166

SWMU 15, Future Jobs/DRMO — OU A - SAERA

SWMU 15, Future Jobs/DRMO — OU A - SAERA

STATUS: Cleanup complete with institutional controls

BACKGROUND:

SWMU 15, Future Jobs/DRMO, also known as the former HWSA, is located south of the Public Works Building and north of Sweeper Cover between Warehouse No. 2 (Building T-1443) and Warehouse No. 3 (Building T-1446), which are to the east and west of the site, respectively. The site is bordered on the north by Public Works Road and on the south by a paved area used for temporary storage of container vans and supplies. The entire 3½-acre site is surrounded by a 6-foot-high chain link fence, with another fence separating it into north and south storage areas. The only structure on site is a sheet metal storage shed at the northeast corner. The site is relatively flat, ranging between 18 and 19 feet above MLLW.

SWMU 15 was used as a storage yard from the 1950s until the site was cleared in 1992. It was initially used by DRMO (formerly the Defense Property Disposal Office) until 1984. Materials were left at the site until their removal in 1992. Materials stored at the site included construction materials (drums, crates, pipe, conductor cable, and brick), paints, chlorinated and nonchlorinated solvents, utility line transformers, and compounds. According to a previous study, no hazardous wastes have been stored at the site since 1984. As indicated in the initial assessment study, 150 gallons of PCB-containing transformer coolant were spilled near the southeast corner of the south fenced area.

In 1992, approximately 252 cubic yards of surface soil were removed, based on sampling conducted in 1990. Additional samples of surface and subsurface soil, sediment, and groundwater were collected in 1996 for the PSE-2.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	284
Number of Pre-Rod Samples	443
Potential Contaminant Types Evaluated	Dioxins and furans, Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Product (floating or free), Sediment , Soil, Sub-surface soil (> 6"), Surface soil (less than 6 inches)
Types of Pre-ROD Locations	Borehole/Soil boring, Channel/Ditch, Drum/Container contents, Ground surface, Monitoring well, River/stream, Well

SWMU 15, Future Jobs/DRMO — OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemicals exceeded these criteria (Table 6-5 and 10-3 of the OU A ROD):

Groundwater

- Tetrachloroethene
- Trichloroethene

The cancer risk calculated under the OU A ROD for the Adak residential scenario is 7.1E-05. The primary risk drivers are Aroclor 1260 and dioxin/furans in soil and PCE in groundwater. The noncancer risk HI for the residential scenario is less than 1 (Tables 6-4 and 6-5 of the OU A ROD). SWMU 15 is not considered an ecological risk, because the site is not a likely habitat for foraging or nesting by ecological receptors. The site is currently zoned industrial. SWMU 15 also was evaluated under SAERA as part of the OU A ROD, because of the presence of petroleum in environmental media.

RAOs:

The OU A ROD for SWMU 15 established the following RAOs (interpreted from Table 7-2 and pg. 10-6, and Table 7-4 of the OU A ROD):

- Mitigate potential for downgradient migration.
- Protect human health receptors from exposure to soil and groundwater.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy is MNA and ICs. Natural attenuation groundwater monitoring for this site began in 1999 and was discontinued in 2011, as prescribed by the Comprehensive Monitoring Plan.

This site was investigated under both the SAERA and CERCLA programs. In 2003, ADEC concurred with the recommendation to discontinue the MNA for petroleum hydrocarbons at SWMU 15. After 2003, only annual compliance monitoring was conducted for chlorinated solvents (TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride) at MW 15-3.

Compliance sampling at the site was discontinued in 2011, when concentrations of TCE and PCE in groundwater were less than ADEC groundwater cleanup levels for two consecutive sampling events. ADEC designated the site as "cleanup complete with ICs" on March 13, 2014.

ICs were implemented in 2000 following execution of the OU A ROD. Land use restrictions are required to ensure that the land will never be used in a way inconsistent with the land use assumptions set forth in the Adak Island RODs. The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites,

including SWMU 15.

SWMU 15, Future Jobs/DRMO — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: September 2011 Most Recent Inspection Date: September 2019
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
15-1	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	GRO, GRO fractions, BTEX, DRO, RRO, total and dissolved lead, VOCs, SVOCs, NAPs	
2002	GRO, GRO fractions, BTEX, DRO, RRO, VOCs, TIN, NAPs	
2003	No additional monitoring recommended	
2004	Monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW15-3	MNA & Compliance	Groundwater
1999	MNA: DRO, GRO, BTEX, NAPs (quarterly - 2 rounds). Compliance: monitoring not planned	
2000	MNA: DRO, GRO, BTEX, NAPs (quarterly - 2 rounds). Compliance: monitoring not planned	
2001	MNA: DRO, RRO, GRO, GRO fractions, BTEX, NAPs. Compliance: VOCs	
2002	MNA: DRO, RRO, GRO, BTEX, NAPs. Compliance: VOCs	
2003	MNA: DRO, GRO, GRO fractions, BTEX, NAPs. Compliance: TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, methylene chloride	
2004	MNA: Met endpoint criteria; monitoring discontinued. Compliance: TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, methylene chloride	
2005	Compliance: TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride	
2006	Compliance: TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride	
2007	Compliance: TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride	
2008	Compliance: TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride	
2009	Compliance: TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride	
2010	Compliance: TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride	
2011	Compliance: TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, VC	
2012	Compliance: Met endpoint criteria; monitoring discontinued	

SWMU 15, Future Jobs/DRMO — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW15-424	MNA, Compliance, 5-year review support	Groundwater

1999	MNA: DRO, GRO, BTEX, NAPs (quarterly - 2 rounds) Compliance & 5-year review support: monitoring not planned
2000	MNA: DRO, GRO, BTEX, NAPs (quarterly - 2 rounds) Compliance & 5-year review support: monitoring not planned
2001	MNA: DRO, RRO, GRO, GRO fractions, BTEX, NAPs Compliance: VOCs Five-year review support: monitoring not planned
2002	MNA: DRO, RRO, GRO, GRO fractions, BTEX, NAPs Compliance: VOCs, TIN Five-year review support: monitoring not planned
2003	MNA: DRO, GRO, GRO fractions, BTEX, NAPs Compliance: TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, methylene chloride Five-year review support: monitoring not planned
2004	MNA & Compliance: met endpoint criteria; monitoring discontinued Five-year review support: monitoring not planned
2005	Five-year review support: monitoring not planned
2006	Five-year review support: monitoring not planned
2007	Five-year review support: monitoring not planned
2008	Five-year review support: monitoring not planned
2009	Five-year review support: monitoring not planned
2010	Five-year review support: TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride

SUMMARY OF INSPECTION RESULTS:

Institutional Controls at SWMU 15, Future Jobs/DRMO include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. The site is currently being used to store fishing equipment and other commercial materials. During the IC inspection on September 9, 2019, previously documented areas of oil-stained soil, containers of various sizes containing paints, oils, other unknown liquids, and miscellaneous debris, were observed on the north side of the site along the fence, along with a carbon vessel and numerous refrigerated conex containers. As observed in previous inspections, the above-ground storage tank and 55-gallon drums of suspected fuel (not associated with Navy activities) located south of the site and near well MW15-424 are outside the SWMU 15, Future Jobs/DRMO site boundary. Approximately 15 containers of various size (5-gallons to 15-gallons) of paint and oil were observed stored on pallets on the north side of the site along the fence, along with a carbon vessel and seven refrigerated conex containers. Fishing equipment was also observed stored at this location. The excavation restriction sign was in good condition; however, the access road that the sign is located along has been blocked limiting the visibility of the sign. No indications of groundwater use or excavation activities were found. The 2019 IC report indicated housekeeping practices onsite are improved and appear adequate. However, potentially contaminated soil and various liquids remaining onsite may be impacting

underlying groundwater. It is recommended that site conditions continue to be monitored at the site. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

12, 13, 19, 65, 81, 84, 86, 90, 91, 113, 129, 134, 141, 142, 149, 165, 166

SWMU 16, Former Firefighting Training Area — OU A

SWMU 16, Former Firefighting Training Area — OU A

STATUS: Cleanup complete with institutional controls

BACKGROUND:

SWMU 16, the Former Firefighting Training Area, occupies approximately 4 acres between taxiways about 500 feet south of the west end of Runway 5-23. It is generally flat, with elevations ranging from 5 to 12 feet above MLLW.

From 1970 to 1989, firefighting training exercises were performed at this site. During these exercises, petroleum, waste oil, and solvents were floated on water within burn pits and repeatedly ignited and extinguished as part of the firefighting training. Three burn pits were constructed within the training area. The pits were constructed of soil berms on top of a concrete surface. It was estimated that 120 gallons of flammable liquid were used during each exercise. In 1985, 20,000 gallons of waste petroleum were reportedly disposed of at the site and apparently ignited for firefighting training. In 1989, ponded surface water was removed and soil from the burn pit berms was stockpiled prior to site investigation. These stockpiles were removed and treated in 1996.

Site investigations of the Former Firefighting Training Area were conducted between 1992 and 1997. As a result of these findings, the Navy conducted an interim removal in 1997 of soil near the concrete apron, which contained PCBs in excess of 1 mg/kg. Analytical results of sediment, surface and subsurface soil, and groundwater were used to assess human health and ecological risk in the PSE report for the site.

The potential presence of PFAS at SWMU 16, which includes SWMU 32 and SWMU 33, was initially based on historical activities and was subsequently confirmed by groundwater sampling in the 2018 Initial Basewide Assessment. A Site Investigation is underway with groundwater, surface water, and soil sampling.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	128
Number of Pre-Rod Samples	323
Potential Contaminant Types Evaluated	Biological, Dioxins and furans, Herbicides, Inorganics, Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Product (floating or free), Sediment , Soil, Sub-surface soil (> 6"), Surface soil (less than 6 inches), Surface water, Tissue
Types of Pre-ROD Locations	Borehole/Soil boring, Excavation, Ground surface, Monitoring well, River/stream, Stockpile, Well

SWMU 16, Former Firefighting Training Area — OU A

SWMU 16, Former Firefighting Training Area — OU A

COCs AND RISKS:

The OU A ROD established the following risk driver for the site (Table 6-5 of the OU A ROD):

Groundwater

- Aroclor 1260

The ecological HI for the site was calculated at 70, which warranted further action. The risk driver was Aroclor 1260. Another risk evaluation that was based on post-removal conditions indicates that the human health cancer risk is 4E-05 (Table 6-5 of the OU A ROD), because of Aroclor 1260 in soil (based on a residential scenario). Aroclor 1260 was detected in only one of 35 samples and has not been detected since 1990. The ecological HI was reduced to 17 as a result of the removal action, which was determined to be acceptable. The three stockpiles or "hot spots" were removed, which was considered sufficient to mitigate ecological risk and reduce the RME concentration from 100 mg/kg to an HI of 70 to 1.5 mg/kg (HI of 17). The HI of 17 is not significantly higher than the generally accepted maximum of 10.

RAOs:

The OU A ROD for SWMU 16 established the following RAOs (interpreted from Table 7-2 and pg. 10-6 of the OU A ROD):

- Protect human health and ecological receptors from exposure to soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is ICs.

ICs were implemented in 2000 following execution of the OU A ROD. Land use restrictions are required to ensure that the land will never be used in a way inconsistent with the land use assumptions set forth in the Adak Island RODs. The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including SWMU 16.

SWMU 16, Former Firefighting Training Area — OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: May 1997 — Most Recent Inspection Date: August 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

SWMU 16, Former Firefighting Training Area — OU A

SUMMARY OF INSPECTION RESULTS:

Institutional Controls at SWMU 16, Former Firefighting Training Area include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the September 6, 2019 inspection, no changes to the site were observed compared to the 2014 inspection. The site did not appear to be in use. No residential construction had occurred at the site. No indications of groundwater use or excavation activities were found. The sign is located approximately 100 feet from the road and is legible The ICs appear to be functioning as intended in the OU A ROD to protect human receptors from exposure to contaminated soil or groundwater. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

12, 13, 62, 62, 65, 84, 86, 113, 129, 137, 142, 144, 165, 166

SWMU 17, Power Plant 3 — OU A - SAERA

SWMU 17, Power Plant 3 — OU A - SAERA

STATUS: Groundwater monitoring and institutional controls

BACKGROUND:

SWMU 17, the Power Plant 3 Area, is west of the downtown core area and Runway 18-36. SWMU 17 contains or contained a number of AOCs, including the waste oil pond, the north pond, the bulk storage waste oil tank, two oil/water separators, two temporary drum accumulation areas, the power plant tank farm, the seepage area along the slope below the power plant, a Quonset hut used previously for transformer storage, the dry cleaners, and stained areas within the ditches along both sides of Akutan Way.

Power Plant 3 became operational in 1950. Two of the ASTs stored JP-5, one stored waste oil, and the remaining two stored reserve oil supplies. The waste oil pond was constructed in the mid-1960s to contain waste POL generated at the plant. The Quonset hut has historically been used for electric line and transformer repairs and for auto repair. The dry-cleaning facility located south of the power plant began operation in 1968. The power plant continues to serve as the main electrical generating source on Adak. The other facilities at Power Plant 3, such as the dry cleaners and the Quonset hut, are not currently in use.

The two vertical ASTs (31018 and 31019) were reported to be cleaned and closed during 1998. One horizontal AST (31017) was reported to be removed at that time. The two remaining ASTs (31015 and 31016) remain in operation and contain JP-5 used to fuel the power plant.

Seeps of free product were observed along the roadside ditches in 1995. The Navy installed coffer dams within the trench to act as oil/water separators. Approximately 5,000 gallons of water and product were recovered from the trench by January 1996.

In October 1995, the Navy's Environmental/Safety Department observed that free product was entering the roadside ditches at Akutan Way and Amulet Way as the water table rose. Navy personnel placed absorbent booms in the ditches downgradient of the seeps as a temporary measure to prevent oil from entering the storm drain system and eventually reaching South Sweeper Creek. Temporary accumulation berms were constructed, which consisted of soil berms to catch the oil and underflow pipe outfalls to pass stormwater to catchbasins. Approximately 110 cubic yards of stained soil was removed from the ditches downgradient of the berms in October 1995 to prevent potential migration of petroleum with stormwater.

During the summer of 1996, a product recovery trench was constructed at the intersection of Amulet Way and Akutan Way. During the construction of the recovery trench, much of the stained surface soil in the ditches was excavated.

As part of the CERCLA investigation for the site, analytical results of sediment, surface and subsurface soil, groundwater, and surface water were used to assess human health and ecological risk in the PSE report for the site. Freshwater sediments and surface water presented potential adverse risk to ecological receptors. Sediments in the waste oil pond (and adjacent surface soil) and the retention pond, which contain inorganics, SVOCs, and PCB compounds, expose benthic fauna to adverse risk. Surface water in the retention pond presents adverse risk to birds. The human health cancer risk and the noncancer HI based on the residential scenario were 4E-04 and 45 respectively. The primary cancer risk drivers were Aroclor

1260, arsenic, and beryllium in surface water and Aroclor 1254 and beryllium in groundwater. The primary noncancer risk drivers were various inorganics in surface water and groundwater.

As part of the SAERA investigation for the site under the OU A ROD, the petroleum issues were addressed. Free product was detected in 7 of 18 wells. The maximum DRO concentration in surface soil was 220,000 mg/kg, which exceeds the ROD-established soil cleanup levels (18 AAC 75.340) of 8,250 mg/kg for industrial sites. The maximum DRO concentration in subsurface soil was 71,000 mg/kg, which exceeds the ROD-established soil cleanup level (18 AAC 75.340) of 12,500 mg/kg for industrial sites. SVOCs in groundwater from one location and xylene in surface water from one location exceeded ROD-established cleanup levels (18 AAC 75.345).

In 1999, oil/water separators O/W1 and O/W2 were removed and their inflows were rerouted directly to the sanitary sewer system. Also in 1999, contaminated soils in the waste oil pond and water retention pond were removed and treated by thermal desorption on-island. In 2000, the existing free-product recovery trench was re-designed and upgraded to improve product recovery rates. In addition, another interim remedial action to eliminate free-product seeps at the ground surface was completed in 2002.

A subsurface investigation (including completion of soil borings and installation of monitoring wells) was undertaken in summer 2001 at SWMU 17 to characterize contamination that may have originated from the power plant.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	277
Number of Pre-Rod Samples	640
Potential Contaminant Types Evaluated	Inorganics, Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Debris/rubble, Ground water, Product (floating or free), Sediment , Sludge, Soil, Sub-surface soil (> 6"), Surface soil (less than 6 inches), Surface water, Water (not groundwater, unspecified)
Types of Pre-ROD Locations	Borehole/Soil boring, Channel/Ditch, Excavation, Ground surface, Holding pond/Lagoon, Indoors, Lake/pond/open reservoir, Monitoring well, River/stream, Sump, Test Pit, Well

SWMU 17, Power Plant 3 — OU A - SAERA

COCs AND RISKS:

SWMU 17 was one of the sites in the OU A ROD for which additional evaluation under SAERA was required. The petroleum interim action under the OU A ROD was free product recovery. The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemicals exceeded these criteria (pg 10-9, Table 10-3, and interpreted from table 5-11 of the OU A ROD):

Groundwater

- Bis(2-ethylhexyl)phthalate
- DRO
- Methylene chloride
- Tetrachloroethene

Sediment

- 2-Methylnaphthalene
- Acenaphthene
- Antimony
- Aroclor 1254
- Aroclor 1260
- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(k)fluoranthene
- Bis(2-ethylhexyl)phthalate
- Chrysene
- Ethylbenzene
- Fluoranthene
- Fluorene
- Lead
- Manganese
- Mercury
- Nickel
- Phenanthrene
- Pyrene
- Zinc

Surface water

- Copper
- Iron
- Lead
- Mercury
- Zinc

SWMU 17, Power Plant 3 — OU A - SAERA

The 2006 SWMU 17 Decision Document prepared under SAERA as a follow-on to the OU A ROD established cleanup levels based on ADEC regulatory criteria for the following COCs:

Groundwater

- 2-Methylnaphthalene
- Benzene
- Benzo(a)pyrene
- DRO
- Ethylbenzene
- GRO
- Naphthalene
- Toluene
- Total Xylenes

RAOs:

The OU A ROD for SWMU 17 established the following original RAOs (interpreted from Table 7-3 and pg. 10-9, and Table 7-4 of the OU A ROD):

- Prevent uptake of and contact with impacted freshwater sediments by benthic infauna and impacted surface water by birds.
- Reduce the volume of free product.

The RAOs were revised in the 2006 SWMU 17 Decision Document to the following:

- Reduce petroleum hydrocarbons in groundwater to concentrations less than or equal to the Alaska DEC groundwater cleanup levels established for groundwater not currently used for, or not reasonably expected to be used for, drinking water.
- Minimize exposure to free-phase product.

Based on additional sediment sampling in Yakutat Creek in 2005 (after execution of the OU A ROD), the ecological risk assessment was updated. As a result of this risk assessment update, no RAOs were found to be necessary for freshwater sediment.

REMEDY IMPLEMENTATION:

The OU A ROD-specified interim remedy for this site is sediment removal from the waste oil and retention ponds, free product recovery, groundwater monitoring and ICs. The OU A ROD states that the remedy was implemented in 1999 with the approval of the regulatory agencies (see background section for more details of the removal).

The SWMU 17 remedial actions are summarized as follows:
•In 1992 an interim containment action and treatment of containment surface water occurred.

•In 1996, the Navy installed and operated the first product recovery trench.
•In 1999, oil/water separators O/W1 and O/W2 were removed and their inflows were rerouted directly to the sanitary sewer system.
•In 1999, COC-affected sediments in the waste oil pond, water retention pond, and South Sweeper Creek were removed, treated and disposed, and replaced with clean substrate.
•In 2000, the existing free-product recovery trench was re-designed and upgraded to improve product recovery rates.
•In 2002, an interim remedial action was performed to eliminate free-product seeps at the ground surface, promote surface water runoff, and prevent site surface water from contacting free product or contaminated soil and transporting contaminants into Sweeper Creek.

Free product recovery at this site was conducted between October 1996 and July 2002 through a combination of passive skimmers installed in site wells and a dual-trench product recovery system. Free-product recovery efforts were discontinued in July 2002 when recovery met the technical practicable endpoint established in the OU A ROD for shutdown of product recovery systems that are dependent on water table depression to facilitate product recovery.

The 2006 decision document prepared under SAERA selected the final remedy of MNA and ICs.

Groundwater monitoring has been discontinued in all but one well (05-735) at the site. As of 2018, concentrations of cis-1,2-DCE and vinyl chloride continue to exceed endpoint criteria in well 05-735. During this five-year review period, cis-1,2-DCE concentrations ranged from 170 to 190 µg/L (with an endpoint criterion of 70 µg/L) and vinyl chloride concentrations ranged from 2.2 to 3.0 µg/L (with an endpoint criterion of 2 µg/L). Because these two compounds exhibit statistically significant decreasing trends at the 80 and 95 percent confidence intervals and have met the CMP, Revision 6 secondary endpoint criteria, monitoring has been discontinued.

SWMU 17, Power Plant 3 — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Free product recovery was discontinued in June 2010.

Monitoring Types:

- [x] Groundwater Monitoring
- [ ] Surface Water Monitoring
- [ ] Sediment Monitoring
- [ ] Tissue Monitoring
- [ ] Landfill Inspection
- [x] IC Inspection — Click to View ICMP Table
- [ ] Remediation System Monitoring and Maintenance
- [ ] None Required

Most Recent Sampling Date: August 2018 Most Recent Inspection Date: September 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: Click to View Current Monitoring Monitoring File: SWMU 17 monitoring.pdf

SWMU 17, Power Plant 3 — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
05-375	MNA, SW protection	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	GRO, GRO fractions, BTEX, DRO, RRO, and NAPs	
2002	GRO, BTEX, DRO, RRO, VOCs, SVOCs, NAPs	
2003	DRO, GRO, BTEX	
2004	DRO, GRO, BTEX	
2005	DRO, GRO, BTEX	
2006	DRO, GRO, BTEX	
2007	DRO	
2008	DRO (even years only)	
2009	Product thickness, NAPs	
2010	DRO	
2011	Monitoring not planned	
2012	DRO	
2013	Met endpoint criteria; monitoring discontinued	

SWMU 17, Power Plant 3 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
05-735	Compliance	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	VOCs, SVOCs	
2002	VOCs, SVOC, NAPs	
2003	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, methylene chloride, bis(2-ethylhexyl)phthalate	
2004	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, methylene chloride, bis(2-ethylhexyl)phthalate	
2005	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, methylene chloride, bis(2-ethylhexyl)phthalate	
2006	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, methylene chloride	
2007	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, methylene chloride	
2008	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, methylene chloride	
2009	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, methylene chloride	
2010	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, methylene chloride	
2011	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, VC	
2012	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, VC	
2013	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, VC	
2014	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, VC	
2015	Monitoring not planned	
2016	cis-1,2-DCE, VC	
2017	Monitoring not planned	
2018	cis-1,2-DCE, VC, NAPs	
2019	Monitoring not planned	

SWMU 17, Power Plant 3 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
05-810	SW protection	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, VOCs, SVOCs, NAPs	
2003	DRO, GRO, BTEX, NAPs	
2004	DRO, GRO, BTEX	
2005	DRO, GRO, BTEX	
2006	DRO, GRO, BTEX	
2007	Not included in final remedy, monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
05-811	SW protection	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, VOCs, SVOCs, NAPs	
2003	DRO, GRO, BTEX, NAPs	
2004	DRO, GRO, BTEX	
2005	DRO, GRO, BTEX	
2006	DRO, GRO, BTEX	
2007	Not included in final remedy, monitoring discontinued	

SWMU 17, Power Plant 3 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
05-815	SW protection	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, VOCs, SVOCs, NAPs	
2003	DRO, GRO, BTEX, NAPs	
2004	DRO, GRO, BTEX	
2005	DRO, GRO, BTEX	
2006	DRO, GRO, BTEX	
2007	Not included in final remedy, monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
HC-1	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

SWMU 17, Power Plant 3 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
HC-2	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Free product detected, not sampled, product thickness	
2008	DRO, product thickness (monthly)	
2009	DRO, NAPs, product thickness (monthly)	
2010	DRO, product thickness (monthly)	
2011	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
HC-3	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	VOCs, SVOCs, NAPs	
2003	Monitoring discontinued	
2007	DRO	
2008	DRO	
2009	DRO, NAPs	
2010	DRO	
2011	Met endpoint criteria; monitoring discontinued	

SWMU 17, Power Plant 3 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
PP-05	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Free product detected, not sampled	
2008	Free product detected, not sampled, product thickness (monthly)	
2009	DRO, NAPs, product thickness (monthly)	
2010	DRO, product thickness (monthly)	
2011	Monitoring not planned	
2012	DRO	
2013	Met endpoint criteria; monitoring discontinued	

SWMU 17, Power Plant 3 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
R-1	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	DRO, RRO, TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, methylene chloride, bis(2-ethylhexyl)phthalate	
2004	DRO, RRO, bis(2-ethylhexyl)phthalate	
2005	DRO, RRO, bis(2-ethylhexyl)phthalate	
2006	DRO	
2007	DRO	
2008	DRO (even years only)	
2009	Product thickness, NAPs	
2010	DRO	
2011	Monitoring not planned	
2012	DRO	
2013	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
R-2	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	DRO	
2008	DRO (even years only)	
2009	Product thickness, NAPs	
2010	DRO	
2011	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
R-3	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
R-4	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Product thickness	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Monitoring not planned	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
R-5	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	DRO	
2008	DRO	
2009	DRO, NAPs	
2010	DRO	
2011	Met endpoint criteria; monitoring discontinued	

SWMU 17, Power Plant 3 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
R-6	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	VOCs, SVOCs	
2002	Monitoring not planned	
2003	DRO, RRO, TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, methylene chloride, bis(2-ethylhexyl)phthalate	
2004	DRO, RRO, bis(2-ethylhexyl)phthalate	
2005	DRO, RRO, bis(2-ethylhexyl)phthalate	
2006	Free product detected, not sampled	
2007	DRO	
2008	DRO	
2009	DRO, NAPs	
2010	DRO	
2011	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls at SWMU 17, Power Plant 3 include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. The site is currently being used as the active power plant for the City of Adak. During the 2007, 2008, and 2009 inspections, petroleum staining was observed beneath the waste oil tank located on the east side of the building, and ADEC notified the city to address this issue. The waste oil tank was removed in 2010, and the stained soil was covered with clean gravel in 2011. The previously documented stained area beneath the tank was not observed during the 2017 or September 10, 2019 inspections. No new excavations were observed at this site. Three small stained areas of soil (the largest, 4 feet in diameter) were observed in the fenced area where the drums were formerly stored in 2011. One small oil-stained area, 3 feet in diameter, was observed in the roadway northeast of the former drum storage area. Housekeeping in the yard on the east side of Building 10203, previously being used to store equipment and miscellaneous debris, has improved since the 2017 inspection. A new AST and several drums were observed scattered around the site. No other changes to the site were observed compared to the previous inspection results. No residential construction had occurred at the site. No indications that groundwater was being used were observed. Excavation restriction signs were clearly visible. The 2019 IC report indicated housekeeping practices have improved at this site, but it is recommended that site conditions continue to be monitored. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

47, 50, 58, 62, 65, 81, 84, 86, 90, 91, 113, 123, 129, 134, 141, 142, 152, 164, 165, 166

SWMUs 18 /19, White Alice Landfill — OU A

SWMUs 18 /19, White Alice Landfill — OU A

STATUS: Groundwater and surface water monitoring, landfill monitoring, and IC inspections

BACKGROUND:

SWMU 18, the South Sector Drum Disposal Area, was located at the base of an abandoned quarry located west of the downtown area. Approximately twenty 55-gallon drums were disposed of on low-lying tundra. The drums were heavily rusted and were most likely deposited during the 1940s. There is no information on the contents of the drums or any other history available.

SWMU 19, Quarry Metal Disposal Area, was a small scrap metal disposal area located in the abandoned quarry west of the downtown. Scrap metal, including material from demolition of Quonset huts, has been placed on the floor of the quarry. The disposal area was active from 1980 to 1985. No information was available on the history of any contaminant releases at the site.

SWMU 18, together with SWMU 19, became White Alice Landfill, which received construction wastes in the 1990s until it was covered with soil and closed according to Alaska solid waste regulations in 1998. Closure entailed placement of a landfill cover, grading and contouring, surface water/erosion controls, access restrictions in the form of a sign and a gate, and a vegetative cover according to Alaska solid waste landfill closure requirements (18 AAC 60).

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	5
Number of Pre-Rod Samples	39
Potential Contaminant Types Evaluated	Inorganics, Metals, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Surface water
Types of Pre-ROD Locations	Lake/pond/open reservoir, Monitoring well, River/stream

SWMUs 18 /19, White Alice Landfill — OU A

COCs AND RISKS:

The OU A ROD selected the capping of SWMU 18 and 19 as a final action. The selected remedy complied with 18 AAC 60 and the permit requirements for closure of the site.

RAOs:

The OU A ROD for SWMU 18 and19 did not establish an explicit RAO but listed the following requirement:

- Keep landfill cover intact.

REMEDY IMPLEMENTATION:

These SWMUs were combined into White Alice Landfill, which was closed in 1997 according to Alaska State regulations. Closure entailed placing a soil cover over the landfill, grading and contouring, surface water/erosion controls, access restrictions, and installing a vegetative cover per Alaska solid waste landfill closure requirements. Monitoring is currently being conducted as a provision of the closure and post-closure plans. ICs include land use and restrictions, as well as excavation prohibition.

Groundwater and surface water have been sampled at the White Alice Landfill periodically since March 1996. To date, 17 sampling events have occurred from 1996 through 2019. Arsenic, barium, chromium, and nickel concentrations in groundwater and surface water were below their respective endpoint criteria in 2018. Following 2010, sampling has been reduced to once every five years.

It is recommended that sampling for target dissolved and total metals (arsenic, barium, chromium, and nickel) be continued every five years as prescribed. In addition, it is recommended that measurement of methane in site wells be discontinued, as no measurable levels have been detected in the past 10 years of monitoring. The next sampling event is scheduled for 2024.

SWMUs 18 /19, White Alice Landfill — OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- [x] Groundwater Monitoring
- [x] Surface Water Monitoring
- [ ] Sediment Monitoring
- [ ] Tissue Monitoring
- [ ] Landfill Inspection
- [x] IC Inspection — Click to View ICMP Table
- [ ] Remediation System Monitoring and Maintenance
- [ ] None Required

Most Recent Sampling Date: September 2018 Most Recent Inspection Date: September 2019

Current Media Sampled: Groundwater and surface water

Current Analytes Sampled: Total and dissolved arsenic, barium, nickel, and chromium

Current Monitoring: Click to View Current Monitoring Monitoring File: SWMUs 18_19 monitoring.pdf

SWMUs 18 /19, White Alice Landfill — OU A

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
21-3	Post closure monitoring	Groundwater
1999	VOCs, TIN	
2000	VOCs, TIN	
2001	VOCs, TIN	
2002	VOCs, TIN, DIN	
2003	VOCs, TIN, DIN	
2004	TIN, DIN	
2005	Monitoring not planned	
2006	VOCs, TIN, DIN	
2007	Monitoring not planned	
2008	VOCs, TIN, DIN, total and dissolved barium	
2009	Monitoring not planned	
2010	TIN, DIN, total and dissolved barium	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	Monitoring not planned	
2014	TIN, DIN, total and dissolved barium, WQP	
2015	Monitoring not planned	
2016	Monitoring not planned	
2017	Monitoring not planned	
2018	Total and dissolved As, Ba, Cr, and Ni	
2019	Monitoring not planned	

SWMUs 18 /19, White Alice Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
21-4	Post closure monitoring	Groundwater
1999	VOCs, TIN	
2000	VOCs, TIN	
2001	VOCs, TIN	
2002	VOCs, TIN, DIN	
2003	VOCs, TIN, DIN	
2004	TIN, DIN	
2005	Monitoring not planned	
2006	VOCs, TIN, DIN	
2007	Monitoring not planned	
2008	VOCs, TIN, DIN, total and dissolved barium	
2009	Monitoring not planned	
2010	TIN, DIN, total and dissolved barium	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	Monitoring not planned	
2014	TIN, DIN, total and dissolved barium, WQP	
2015	Monitoring not planned	
2016	Monitoring not planned	
2017	Monitoring not planned	
2018	Total and dissolved As, Ba, Cr, and Ni	
2019	Monitoring not planned	

SWMUs 18 /19, White Alice Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
WASW01	Post closure monitoring	Surface water
1999	VOCs, TIN	
2000	VOCs, TIN	
2001	VOCs, TIN	
2002	VOCs, TIN, DIN	
2003	VOCs, TIN, DIN	
2004	TIN, DIN	
2005	Monitoring not planned	
2006	VOCs, TIN, DIN	
2007	Monitoring not planned	
2008	VOCs, TIN, DIN, total and dissolved barium	
2009	Monitoring not planned	
2010	TIN, DIN, total and dissolved barium	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	Monitoring not planned	
2014	TIN, DIN, total and dissolved barium, WQP	
2015	Monitoring not planned	
2016	Monitoring not planned	
2017	Monitoring not planned	
2018	Total and dissolved As, Ba, Cr, and Ni	
2019	Monitoring not planned	

SWMUs 18 /19, White Alice Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
WASW02	Post closure monitoring	Surface water
1999	VOCs, TIN	
2000	VOCs, TIN	
2001	VOCs, TIN	
2002	VOCs, TIN, DIN	
2003	VOCs, TIN, DIN	
2004	TIN, DIN	
2005	Monitoring not planned	
2006	VOCs, TIN, DIN	
2007	Monitoring not planned	
2008	VOCs, TIN, DIN, total and dissolved barium	
2009	Monitoring not planned	
2010	TIN, DIN, total and dissolved barium	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	Monitoring not planned	
2014	TIN, DIN, total and dissolved barium, WQP	
2015	Monitoring not planned	
2016	Monitoring not planned	
2017	Monitoring not planned	
2018	Total and dissolved As, Ba, Cr, and Ni	
2019	Monitoring not planned	

SWMUs 18 /19, White Alice Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
WASW03	Post closure monitoring	Surface water
1999	VOCs, TIN	
2000	VOCs, TIN	
2001	VOCs, TIN	
2002	VOCs, TIN, DIN	
2003	VOCs, TIN, DIN	
2004	TIN, DIN	
2005	Monitoring not planned	
2006	VOCs, TIN, DIN	
2007	Monitoring not planned	
2008	VOCs, TIN, DIN, total and dissolved barium	
2009	Monitoring not planned	
2010	TIN, DIN, total and dissolved barium	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	Monitoring not planned	
2014	TIN, DIN, total and dissolved barium, WQP	
2015	Monitoring not planned	
2016	Monitoring not planned	
2017	Monitoring not planned	
2018	Total and dissolved As, Ba, Cr, and Ni	
2019	Monitoring not planned	

SUMMARY OF INSPECTION RESULTS:

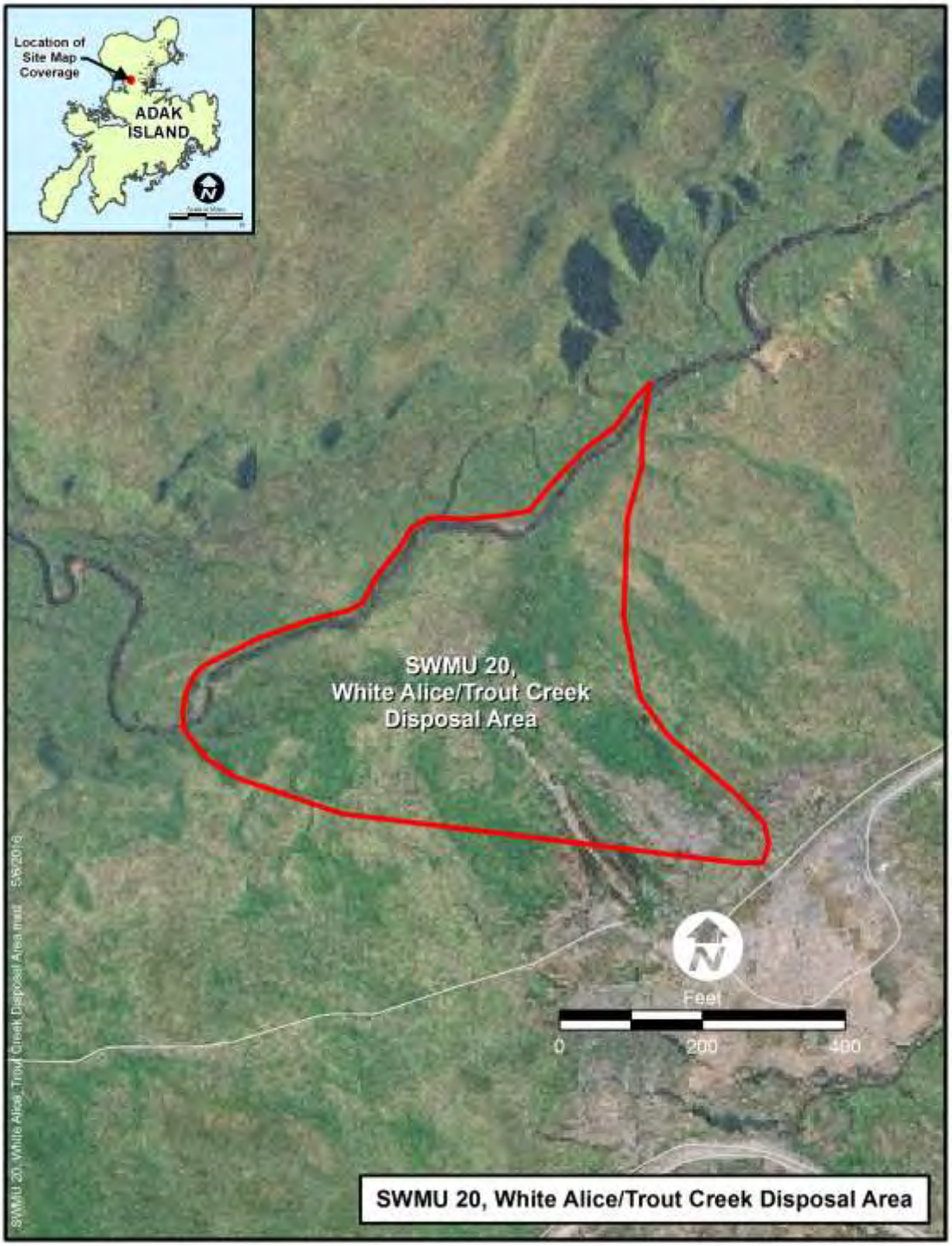
Institutional Controls at SWMU 18/19, White Alice Landfill include land use restrictions, equitable servitude, soil excavation restrictions, signage, fencing, soil cover inspections, and IC inspections and reporting. During the inspection on September 6, 2019, no indications of a change in land use in this area were found and no residential construction had occurred at the site. No indications of excavation activities were found. It was observed that all previously documented areas of erosion repaired in 2015 were in good condition. The vegetation has yet to recover in the area repaired with jute matting at the southeast portion of the landfill. The middle portion of the southern swale was bolstered by emergency repair prior to the 2019 IC inspection per the Navy. The gate and landfill sign by the gate are in good condition. Many sections of damaged fence (approximately 60) and unsecured signage (approximately 5) were observed mainly along the west and east perimeter fence. The landfill cap appeared to be intact, undisturbed, and well-vegetated

except at the sparsely vegetated, repaired erosion area at the southeast portion of the landfill, and a 15 feet by 15 feet area along the northeast part of the landfill. Water was observed draining off the cap through the southern swale. Some ponding was observed in the swale at the northern portion of the landfill. The 2019 IC report recommended that damaged fencing and signage be repair and that the repaired swale continue to be monitored. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

29, 30, 31, 39, 44, 65, 84, 86, 127, 129, 135, 141, 142, 152, 164, 165, 166

SWMU 20, White Alice/Trout Creek Disposal Area — OU A



SWMU 20, White Alice/Trout Creek Disposal Area OU A

STATUS: Cleanup complete with institutional controls

BACKGROUND:

SWMU 20, the White Alice/Trout Creek Disposal Area, is located approximately 2 miles west of the downtown area. SWMU 20 consists of two distinct topographic environments: (1) a steep (50 percent grade) northwest-facing hillside, approximately 200 feet wide and 500 feet long, which is covered with native vegetation and debris; and (2) a portion of the heavily vegetated, marshy Trout Creek floodplain, at the base of the hillside, which extends approximately 1,000 feet downstream. Trout Creek, a salmon-spawning habitat, meanders southwesterly through the bottom of the valley and eventually discharges to Shagak Bay, approximately 1 mile to the west.

The White Alice Complex was constructed in 1956 as part of a military communications network. The complex was dismantled between 1980 and 1982. An initial assessment study conducted in 1986 determined that material from the demolition of the White Alice Complex may have been deposited at the Trout Creek and White Alice Quarry areas. During the demolition, a contractor allegedly disposed of approximately 2,000 gallons of PCB-containing fluids in 55-gallon drums from 51 transformers at SWMU 20. No documented evidence exists to support this allegation. It is not known whether the Trout Creek area was used for waste disposal prior to 1980.

Approximately one hundred 55 gallon drums, some of which may have contained PCB-containing fluids, together with other debris, were removed from SWMU 20 in 1992. PCB-containing soil was excavated and disposed of off site in 1992. Based on the results of previous investigations, PCBs and inorganics are the principal COCs at this site.

Analytical results of sediment, surface and subsurface soil, surface water, and fish tissue were used to assess human health and ecological risk in the PSE report for the site.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	98
Number of Pre-Rod Samples	192
Potential Contaminant Types Evaluated	Metals, Pesticides and aroclors, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Product (floating or free), Sediment , Soil, Sub-surface soil (> 6"), Surface soil (less than 6 inches), Surface water
Types of Pre-ROD Locations	Borehole/Soil boring, Drum/Container contents, Ground surface, River/stream, Wetlands

SWMU 20, White Alice/Trout Creek Disposal Area OU A

COCs AND RISKS:

The OU A ROD identified the following risk driver (Table 6-5 of the OU A ROD):

Soil

- Aroclor 1260

Analytical results of sediment, surface and subsurface soil, surface water, and fish tissue were used to assess human health and ecological risk in the PSE report for the site. The human health cancer risk was calculated as 2E-05. The risk driver is Aroclor 1260 in surface soil. The noncancer HI and other human health scenarios were below levels of concern Tables 6-4 and 6-5 of the OU A ROD). The ecological HI is 231, which is significantly higher than the target HI of 10. The primary ecological risk drivers are Aroclor 1260 in the surface and subsurface soil and silver in the surface water (Tables 6-6 and 6-7 of the OU A ROD) . The ecological risk was explained as acceptable, based on the fact that the area of contamination is small (720 square feet) compared to the habitat area of the species that inhabit the area. Nearly all of the HI is associated with Aroclor 1260 (31 in soil, 110 in subsurface soil, 29 in surface water). Aroclor detections are limited to the areal extent of the 1992 drum and soil removal. The risks associated with this area were overestimated, as they assumed that an ecological receptor would frequent only this small portion of the site. Based on the small area impacted by PCBs relative to the range of potential ecological receptors, the cumulative risks calculated for ecological receptors were overestimated. Furthermore, since the depth to groundwater is only 0.5 foot the likelihood of burrowing animals encountering impacted subsurface soil was low.

RAOs:

The OU A ROD for the CERCLA site SWMU 20, White Alice/Trout Creek Disposal Area established the following RAO (interpreted from Table 7-2 and pg. 10-6 of the OU A ROD):

- Protect human health and ecological receptors from exposure to soil.

REMEDY IMPLEMENTATION:

The remedy selected in the OU A ROD for this site is ICs.

The implementation of ICs began following execution of the ROD in April 2000. Land use restrictions are required to ensure that the land will never be used in a way inconsistent with the land use assumptions set forth in the Adak Island RODs.

The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including SWMU 20.

SWMU 20, White Alice/Trout Creek Disposal Area received "cleanup complete with ICs" determination from ADEC on September 1, 2004.

SWMU 20, White Alice/Trout Creek Disposal Area — OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: July 1995 — Most Recent Inspection Date: September 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

SWMU 20, White Alice/Trout Creek Disposal Area OU A

SUMMARY OF INSPECTION RESULTS:

Institutional Controls at SWMU 20, White Alice/Trout Creek Disposal Area include land use restrictions, equitable servitude, soil excavation restrictions, signage, soil cover inspections, and IC inspections and reporting. During the inspection on September 6, 2019, no indications of a change in land use in this area were found. No residential construction had occurred at the site. No indications of excavation activities were found, and no excavation notifications had been filed the previous year for this site. One of the two excavation signs was missing. The previously documented eroded area approximately 60-feet long and 15-feet wide running down the cliff face observed during the 2013 inspection was repaired in 2015 and remains in good condition. Some exposed wood and metal debris exists on the cliff face east of the repaired erosion area. This debris has been observed for years and appears to have been pushed over the edge of the cliff where it remains, as it is far too steep to recover safely. The 2019 IC report recommended that the missing excavation sign be repaired to ensure ICs are functioning as intended to protect receptors from exposure to contaminated soil or groundwater. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

13, 19, 65, 73, 84, 86, 113, 129, 141, 142, 144, 165, 166

SWMU 21A, White Alice Upper Quarry — OU A

SWMU 21A, White Alice Upper Quarry — OU A

STATUS: Cleanup complete with institutional controls

BACKGROUND:

SWMU 21A, the White Alice Upper Quarry, is an abandoned quarry located approximately 2 miles west of the downtown area.

The White Alice Complex was constructed in 1956 as part of a military communications network, which was dismantled between 1980 and 1982. The White Alice Quarry Disposal Area was originally the site of a series of borrow pits that supplied foundation materials used during road and building construction. SWMU 21A was used as a disposal area between 1980 and 1982.

Historical information does not clearly define what wastes were disposed of at SWMU 21A. During demolition activities (1980 to 1982), the demolition contractor drained fluids containing PCBs from 51 transformers into 55-gallon drums before removing electrical equipment to an off-site location. Disposal of the estimated 2,000 gallons of transformer oil was never documented; however, SWMU 21A is a possible disposal site.

Surficial soils containing PCBs were identified at the site during the site inspection. Surficial soils that contained PCB concentrations greater than 10 mg/kg were excavated and removed in 1992. A 2,000- to 3,000-square-foot synthetic membrane (20 mil thick) was installed over areas where the highest PCB concentrations were detected in confirmation samples. The liner was covered with a minimum of 12 inches of clean fill.

Analytical results of soil samples were used to assess human health and ecological risk.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	99
Number of Pre-Rod Samples	172
Potential Contaminant Types Evaluated	Pesticides and aroclors
Pre-ROD Sample Matrix Types	Soil, Surface soil (less than 6 inches)
Types of Pre-ROD Locations	Ground surface, Lake/pond/open reservoir

SWMU 21A, White Alice Upper Quarry — OU A

COCs AND RISKS:

The OU A ROD identified the following risk driver for this site (Table 6-5 of the OU A ROD):

Soil

- Aroclor 1260

The human health residential cancer risk was calculated as 1.4 E-05 (Tables 6-4 and 6-5 of the OU A ROD). The noncancer HI and other human health scenarios were below levels of concern. The ecological HI is 28 because of Aroclor 1260 in the soil (Tables 6-6 and 6-7 of OU A ROD). This ecological risk is not significant because the soil causing the risk has been covered with a synthetic membrane and at least 12 inches of clean fill.

RAOs:

The OU A ROD for SWMU 21A established the following RAOs (interpreted from Table 7-2 and pg. 10-6 of the OU A ROD):

- Protect human health and ecological receptors from exposure to soil.

REMEDY IMPLEMENTATION:

The OU A ROD specified remedy was implementation of ICs.

The implementation of ICs began following execution of the ROD in April 2000. Land use restrictions are required to ensure that the land will never be used in a way inconsistent with the land use assumptions set forth in the Adak Island RODs. IC inspections, including inspection to ensure the integrity of the synthetic liner, are required under the ICMP.

The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including SWMU 21A.

SWMU 21A, White Alice Upper Quarry received "cleanup complete with ICs" determination from ADEC on September 1, 2004.

SWMU 21A, White Alice Upper Quarry — OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: November 1992 Most Recent Inspection Date: September 2019
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

SWMU 21A, White Alice Upper Quarry — OU A

SUMMARY OF INSPECTION RESULTS:

Institutional Controls at SWMU 21, White Alice Upper Quarry include land use restrictions, equitable servitude, soil excavation restrictions, signage, soil cover inspections, and IC inspections and reporting. During the IC inspection on September 6, 2019, no indications of a change in land use in this area were found compared to the 2014 inspection results. No residential construction had occurred at the site. No excavations were identified during the inspection, and excavation restriction signs were clearly visible; however, it was observed that the signs were not the "absolute excavation prohibition" signs necessary for defining the restriction of any excavation at the site. The site appeared not to be in use. The 2019 IC report recommended that the excavation restriction sign be replaced with “absolute excavation prohibition” signs to ensure ICs are functioning as intended to protect human receptors from exposure to contaminated soil. During the 2021 5-year review site walk it was noted that the previous signs associated with the site from the 2019 IC inspection had been replaced with newer excavation restriction signs. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

13, 19, 73, 84, 86, 113, 129, 137, 142, 144, 165, 166

SWMU 23, Heart Lake Drum Disposal Area — OU A

SWMU 23, Heart Lake Drum Disposal Area — OU A

STATUS: Cleanup complete with institutional controls

BACKGROUND:

SWMU 23, the Heart Lake Drum Disposal Area, lies approximately 0.4 mile southeast of Heart Lake and approximately 2 miles southwest of downtown Adak. A small 1-acre lake (referred to in investigation records as Lake B) just northeast of the site discharges through the drum disposal area to a small stream. This stream discharges west to a small 2.3-acre unnamed lake (referred to as Lake A), which is adjacent to the west side of the site. This lake discharges to Heart Lake, which discharges to Shagak Bay.

The Heart Lake Drum Disposal Area, at a grade of approximately 15 percent, covers approximately 8 acres of a valley floor that trends southwest toward Lake A. The site ranges south from 260 feet above MLLW near the access road and hillsides to 205 feet above MLLW on the valley floor. The entire site is covered by tundra vegetation (lichen, grasses, and mosses). The soil is primarily silt with some sand and unconsolidated rock on the upper elevations.

The Heart Lake Drum Disposal Area was reportedly used for the disposal of approximately twenty 55-gallon drums over a period of three years during the 1940s. Estimates of the areal extent of the site range from 1 to 8 acres. During a site visit in 1993, drums were observed scattered over the site, with 15 to 18 drums grouped in a drainage ditch downstream of Lake B at the northeast edge of the site. The drums were described in an earlier study as empty, with any residual contents they may have contained at the time of disposal released prior to this inspection. One large tank (approximately 1,500 gallons) was also observed at the site. The nature of previous drum and tank contents is unknown. The drums may have contained fuels, POL, paints, solvents (chlorinated or nonchlorinated), pesticides, or other drummed products typically used on Adak Island during World War II.

In the course of the removal of the drums during summer 1994, it was observed that most of the drums had neither tops nor bottoms and were in a narrow surface water drainage (2 feet wide by 3 feet deep) that drains from Lake B into Lake A. It is likely that these drums were originally placed for drainage control, a practice that has been noted at other areas on Adak Island, such as SWMUs 3 and 30. Other drums found on the site were whole and may have contained chemicals. An attempt was made to remove a few of the more visible drums scattered across the valley. Two drums removed from the steep southern hillside of the valley had intact tops and bottoms with a few rust holes and, although empty, had dark staining and a petroleum/fuel odor.

Analytical results of sediment samples were used to assess human health and ecological risk.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	9
Number of Pre-Rod Samples	14
Potential Contaminant Types Evaluated	Metals, Pesticides and aroclors, Petroleum

	hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Sediment , Surface soil (less than 6 inches)
Types of Pre-ROD Locations	Channel/Ditch, Ground surface, Lake/pond/open reservoir, Wetlands

SWMU 23, Heart Lake Drum Disposal Area — OU A

COCs AND RISKS:

The following risk drivers were identified in the OU A ROD (Table 6-5 of the OU A ROD):

Soil

- Arsenic
- Manganese

The human health cancer risk and the noncancer HI for the Adak residential scenario were calculated as 1E-05 and 7, respectively (Tables 6-4 and 6-5 of the OU A ROD). It is likely that the presence of arsenic is due to natural causes, since the maximum detected value of 10 mg/kg is well below the maximum background value of 80 mg/kg. The cancer risks based on other human health scenarios were below levels of concern. Ecological HIs from exposure primarily to manganese in soil and sediment were estimated at 92 and 51, respectively (Tables 6-6 and 6-7 of the OU A ROD). However, the ecological risks are not significant, because the samples containing the highest manganese concentrations were collected from two small areas (less than 1 square yard) where metal debris rusted.

RAOs:

The OU A ROD for SWMU 23 established the following RAOs (interpreted from Table 7-2 and pg. 10-6 of the OU A ROD):

- Protect ecological exposure to sediments.
- Protect human health and ecological receptors from exposure to soil.

REMEDY IMPLEMENTATION:

The OU A ROD specified remedy is ICs.

The implementation of ICs began following execution of the ROD in April 2000. Land use restrictions are required to ensure that the land will never be used in a way inconsistent with the land use assumptions set forth in the Adak Island RODs.

The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including SWMU 23.

SWMU 23, Heart Lake Drum Disposal Area received "cleanup complete with ICs" determination from ADEC on June 4, 2004.

SWMU 23, Heart Lake Drum Disposal Area — OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: June 1996 — Most Recent Inspection Date: September 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

SWMU 23, Heart Lake Drum Disposal Area — OU A

SUMMARY OF INSPECTION RESULTS:

Institutional Controls at SWMU 23, Heart Lake Drum Disposal Area include land use restrictions, equitable servitude, soil excavation restrictions, signage, soil cover inspections, and IC inspections and reporting. During the inspection on September 6, 2019 no changes to the site were observed compared to the 2014 inspection results. No residential construction had occurred at the site. The site appeared not to be in use. No excavations were identified during the inspection and the excavation restriction sign was clearly visible. The 2019 IC report indicated all ICs appear to be functioning as intended. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

13, 15, 19, 73, 84, 86, 113, 129, 137, 142, 144, 165, 166

SWMU 24, Hazardous Waste Storage Facility — OU A

SWMU 24, Hazardous Waste Storage Facility — OU A

STATUS: Cleanup complete with institutional controls

BACKGROUND:

The HWSF was located south of the Public Works Road and east of Building T-1443. The site was operated as a container storage area from 1980 to 1994. The entire perimeter of the HWSF is fenced, with access through a locked gate at the western end of the compound. The storage capacity was cited in the permit submittals as 20,000 gallons of pre-containerized waste. The only structure at the HWSF is Building 30006, which was used to store, categorize, sort and label wastes. The building is located at the eastern end of the paved yard.

The dimensions of the HWSF are approximately 300 by 55 feet. The entire surface area of the compound, with the exception of Building 30006, is covered by asphalt pavement approximately 4 inches thick. Outside the paved, fenced area at the western end are two asphalt pads. The pad on the southwestern corner was used to store unknown materials awaiting analytical results for classification. The emergency response equipment trailer occupied the pad on the northwestern side. Building 30006 has a curbed concrete pad foundation with dimensions of 25 by 40 feet. An internal concrete berm was used to separate the PCB storage area from other storage areas.

The OU A ROD documents that this site was investigated under RCRA and SAERA. Waste containers were estimated to have been removed in 1995. RCRA closure was completed in 1995. Specifically, (1) Building 30006 was decontaminated using odorless kerosene, and confirmation field and laboratory samples were collected and analyzed; (2) PCB-contaminated asphalt was removed, and confirmation samples were collected from the limits of the removal area and analyzed; (3) Four soil borings were completed, and subsurface soil samples were collected and analyzed; (4) Two drainage ditch sediment samples were collected and analyzed; and (5) IDW was sampled and analyzed and arrangements were made for its disposal. All final samples from Building 30006 and from areas surrounding the asphalt removal location showed PCB results below TSCA action levels. Building 30006 was therefore cleaned, and the contaminated asphalt section removed, to satisfy the objectives stated in the RCRA closure plan.

Analytical results for samples collected in the four soil borings showed only one sample with a detectable concentration of PCE. The PCE concentration and those of all other analytes were below EPA Region 10 risk-based screening concentrations for VOCs and the action level in the RCRA closure plan. Detectable concentrations of PCE were found in the upper 2 feet of soils but were found not to have migrated laterally from potential source areas at the HWSF. The soil borings confirmed that PCE has not migrated off site vertically or horizontally. A variety of analytes were detected in the drainage ditch sediment samples. However, all concentrations were below the action levels established in the RCRA closure plan.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	87
Number of Pre-Rod Samples	160

SWMU 24, Hazardous Waste Storage Facility — OU A

Potential Contaminant Types Evaluated	Dioxins and furans, Herbicides, Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Debris/rubble, Product (floating or free), Sediment , Soil, Sub-surface soil (> 6"), Water (not groundwater, unspecified)
Types of Pre-ROD Locations	Borehole/Soil boring, Channel/Ditch, Direct Push/Geoprobe, Drum/Container contents, Ground surface, Test Pit

SWMU 24, Hazardous Waste Storage Facility — OU A

COCs AND RISKS:

The OU A ROD listed SWMU 24 as an NFA site.

RAOs:

No RAOs were established for SWMU 24.

REMEDY IMPLEMENTATION:

The site was closed under RCRA in 1995, with ICs required.

The implementation of ICs began following site closure in 1995. Land use restrictions are required to ensure that the land will never be used in a way inconsistent with the land use assumptions set forth in the Adak Island RODs.

The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including SWMU 24.

SWMU 24, Hazardous Waste Storage Facility received "cleanup complete with ICs" determination from ADEC on June 4, 2004.

SWMU 24, Hazardous Waste Storage Facility — OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: November 1996 Most Recent Inspection Date: September 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required Monitoring File: Not Applicable

SWMU 24, Hazardous Waste Storage Facility OU A

SUMMARY OF INSPECTION RESULTS:

Institutional Controls at SWMU 24, Hazardous Waste Storage Facility include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the September 7, 2019 inspection, much less debris was observed in and around the site than was observed during previous inspections. Most of the materials and debris observed in previous years have since been removed from the island for recycling and little remains onsite. The majority of the remaining material has been moved to the Contractor's Camp Area.

The pink storage box containing various sized containers and the underlying stained soil still remains at the site. Some fishing equipment, creosote logs, compressed gas cylinders (propane, fire extinguishers, etc.), an AST, appliances, vehicle batteries, tires, bottom portion/leaking bunker oil tank, and other debris are stored onsite. A slight sheen and petroleum odor was observed during the 2019 inspection where drums and soil staining were observed during previous inspections. There is no restricted access or soil barrier at the site. The soil excavation restriction sign, previously documented as missing, has been replaced. There was no evidence of groundwater use.

The 2019 IC report indicated there is a concern that contaminants associated with onsite wastes are a threat to residents and are potentially impacting site soils and underlying groundwater. It was therefore recommended that site conditions continue to be monitored. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

29, 31, 39, 44, 62, 65, 67, 72, 84, 113, 128, 129, 141, 142, 144, 165, 166

SWMU 25, Roberts Landfill — OU A

SWMU 25, Roberts Landfill — OU A

STATUS: Cleanup complete with groundwater, surface water and sediment monitoring, landfill monitoring, and institutional controls.

BACKGROUND:

SWMU 25, the Roberts Landfill, is located approximately 1 mile southwest of NAF Adak. The boundary of Roberts Landfill encompasses 59 acres, including a main portion, a designated asbestos disposal area, and partially buried metal bunkers filled with asbestos material. The areal extent of refuse within the main portion of the landfill is 28.5 acres.

The landfill operated from the early 1950s until 1972 and then again from 1975 to the 2000, when it was capped and closed. During the initial operation, wastes managed included sanitary trash, metal debris, batteries, solvents, waste paints, and construction rubble. Between 1975 and 2000, the landfill accepted only sanitary trash. Portions of the landfill were reopened for disposal of demolition debris in 2001 and again in 2002 for the demolition and disposal of 52 cabins. The landfill was subsequently closed again in 2003. Groundwater monitoring was conducted around the landfill quarterly beginning in 1995 and then annually since 1996. No significant releases were detected.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	46
Number of Pre-Rod Samples	96
Potential Contaminant Types Evaluated	Inorganics, Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Product (floating or free), Soil, Surface soil (less than 6 inches), Surface water, Water (not groundwater, unspecified)
Types of Pre-ROD Locations	Drum/Container contents, Excavation, Ground surface, Lake/pond/open reservoir, Monitoring well, Outfall, River/stream, Spring/Seep, Well

SWMU 25, Roberts Landfill — OU A

COCs AND RISKS:

The OU A ROD selected the capping of SWMU 25 as a final action. The selected remedy complied with 18 AAC 60 and the permit requirements for closure of the site.

RAOs:

The OU A ROD for the CERCLA site SWMU 25 (Roberts Landfill) did not establish an explicit RAO for SWMU 25 but listed the following requirement:

- Keep landfill cover intact.

REMEDY IMPLEMENTATION:

Roberts Landfill has been closed and reopened several times with the final closure in 2003. The final closure was conducted in accordance with Alaska State regulations. Closure entailed placement of a soil cover over the landfill, grading and contouring, surface water/erosion controls, access restrictions, and installation of a vegetative cover per Alaska solid waste landfill closure requirements. Institutional controls included land use restrictions, access restrictions, and excavation prohibition.

Annual monitoring began in 1995 and is currently being conducted as a provision of the closure and post-closure plans. Groundwater and surface water have been sampled at the Roberts Landfill periodically since March 1996. To date, 22 sampling events have occurred from 1996 through 2018. In 2010, sampling was then reduced to biennially. In 2011, a seep was identified northwest of the landfill in the Adak Fuels Facility and collection of surface water at this location was added to the sampling program.

Groundwater collected from Roberts Landfill did not exceed any endpoint criteria. In order to continue to monitor the surface water contamination source, it is recommended to continue to reduce monitoring of wells A-2, A-3, A-5, and B-1 to every five years to coincide with the 5-year review process. Because of the continued exceedances of the endpoint criteria in surface water samples for copper and aluminum, it is recommended that surface water monitoring for metals continue biennially at the prescribed locations RLSW01 through RLSW05. In addition, it is recommended that measurement of methane in site wells be discontinued, as no measurable levels have been detected in the past 10 years of monitoring.

The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including SWMU 25.

SWMU 25, Roberts Landfill received "cleanup complete with ICs" determination from ADEC on October 26, 2004.

SWMU 25, Roberts Landfill — OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- [x] Groundwater Monitoring
- [x] Surface Water Monitoring
- [ ] Sediment Monitoring
- [ ] Tissue Monitoring
- [x] Landfill Inspection
- [x] IC Inspection — Click to View ICMP Table
- [ ] Remediation System Monitoring and Maintenance
- [ ] None Required

Most Recent Sampling Date: August 2018 — Most Recent Inspection Date: September 2019

Current Media Sampled: Groundwater and surface water

Current Analytes Sampled: Total and dissolved 13 priority pollutant metals plus aluminum, VOCs

Current Monitoring: Click to View Current Monitoring — Monitoring File: SWMU 25 monitoring.pdf

SWMU 25, Roberts Landfill — OU A

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
A-2	Post closure monitoring	Groundwater
1999	VOCs, TIN	
2000	VOCs, TIN	
2001	VOCs, TIN	
2002	VOCs, TIN	
2003	VOCs, TIN, DIN	
2004	VOCs, TIN, DIN	
2005	VOCs, TIN, DIN	
2006	VOCs, TIN, DIN	
2007	VOCs, TIN, DIN	
2008	TIN, DIN, total and dissolved aluminum	
2009	TIN, DIN, VOCs, total and dissolved aluminum	
2010	TIN, DIN, total and dissolved aluminum	
2011	VOCs, TIN, DIN	
2012	Monitoring not planned	
2013	VOCs, TIN, DIN	
2014	VOCs, TIN, DIN	
2015	Monitoring not planned	
2016	TIN, DIN	
2017	Monitoring not planned	
2018	VOCs, TIN, DIN	
2019	Monitoring not planned	

SWMU 25, Roberts Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
A-3	Post closure monitoring	Groundwater
1999	VOCs, TIN	
2000	VOCs, TIN	
2001	VOCs, TIN	
2002	VOCs, TIN	
2003	VOCs, TIN, DIN	
2004	VOCs, TIN, DIN	
2005	VOCs, TIN, DIN	
2006	VOCs, TIN, DIN	
2007	VOCs, TIN, DIN, total and dissolved aluminum	
2008	TIN, DIN, total and dissolved aluminum	
2009	TIN, DIN, VOCs, total and dissolved aluminum	
2010	TIN, DIN, total and dissolved aluminum	
2011	VOCs, TIN, DIN	
2012	Monitoring not planned	
2013	VOCs, TIN, DIN	
2014	VOCs, TIN, DIN	
2015	Monitoring not planned	
2016	TIN, DIN	
2017	Monitoring not planned	
2018	VOCs, TIN, DIN	
2019	Monitoring not planned	

SWMU 25, Roberts Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
A-5	Post closure monitoring	Groundwater
1999	VOCs, TIN	
2000	VOCs, TIN	
2001	VOCs, TIN	
2002	VOCs, TIN	
2003	VOCs, TIN, DIN	
2004	VOCs, TIN, DIN	
2005	VOCs, TIN, DIN	
2006	VOCs, TIN, DIN	
2007	VOCs, TIN, DIN, total and dissolved aluminum	
2008	TIN, DIN, total and dissolved aluminum	
2009	TIN, DIN, VOCs, total and dissolved aluminum	
2010	TIN, DIN, total and dissolved aluminum	
2011	VOCs, TIN, DIN	
2012	Monitoring not planned	
2013	VOCs, TIN, DIN	
2014	VOCs, TIN, DIN	
2015	Monitoring not planned	
2016	TIN, DIN	
2017	Monitoring not planned	
2018	VOCs, TIN, DIN	
2019	Monitoring not planned	

SWMU 25, Roberts Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
B-1	Post closure monitoring	Groundwater
1999	VOCs, TIN	
2000	VOCs, TIN	
2001	VOCs, TIN	
2002	VOCs, TIN	
2003	VOCs, TIN, DIN	
2004	VOCs, TIN, DIN	
2005	VOCs, TIN, DIN	
2006	VOCs, TIN, DIN	
2007	VOCs, TIN, DIN, total and dissolved aluminum	
2008	TIN, DIN, total and dissolved aluminum	
2009	TIN, DIN, VOCs, total and dissolved aluminum	
2010	TIN, DIN, total and dissolved aluminum	
2011	VOCs, TIN, DIN	
2012	Monitoring not planned	
2013	VOCs, TIN, DIN	
2014	VOCs, TIN, DIN	
2015	Monitoring not planned	
2016	TIN, DIN	
2017	Monitoring not planned	
2018	VOCs, TIN, DIN	
2019	Monitoring not planned	

SWMU 25, Roberts Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NL-11	Post closure monitoring	Surface water
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Total aluminum, total copper	
2011	TIN, DIN	
2012	Monitoring not planned	
2013	TIN, DIN	
2014	TIN, DIN	
2015	Monitoring not planned	
2016	TIN, DIN	
2017	Monitoring not planned	
2018	TIN, DIN	
2019	Monitoring not planned	

SWMU 25, Roberts Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NL-12	Post closure monitoring	Surface water
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Total aluminum, total copper	
2011	TIN, DIN	
2012	Monitoring not planned	
2013	TIN, DIN	
2014	TIN, DIN	
2015	Monitoring not planned	
2016	TIN, DIN	
2017	Monitoring not planned	
2018	TIN, DIN	
2019	Monitoring not planned	

SWMU 25, Roberts Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NL-13	Post closure monitoring	Surface water
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	TIN, DIN, total and dissolved aluminum	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	Monitoring not planned	
2014	Monitoring not planned	
2015	Monitoring not planned	
2016	Monitoring not planned	
2017	Monitoring not planned	
2018	Monitoring not planned	
2019	Monitoring not planned	

SWMU 25, Roberts Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RLSW01	Post closure monitoring	Surface water
1999	VOCs, TIN	
2000	VOCs, TIN	
2001	VOCs, TIN	
2002	VOCs, TIN	
2003	VOCs, TIN, DIN	
2004	VOCs, TIN, DIN	
2005	VOCs, TIN, DIN	
2006	VOCs, TIN, DIN	
2007	VOCs, TIN, DIN, total and dissolved aluminum	
2008	TIN, DIN, total and dissolved aluminum	
2009	TIN, DIN, VOCs, total and dissolved aluminum	
2010	TIN, DIN, total and dissolved aluminum	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	Monitoring not planned	
2014	Monitoring not planned	
2015	Monitoring not planned	
2016	TIN, DIN, total and dissolved aluminum	
2017	Monitoring not planned	
2018	TIN, DIN, total and dissolved aluminum	
2019	Monitoring not planned	

SWMU 25, Roberts Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RLSW02	Post closure monitoring	Surface water
1999	VOCs, TIN	
2000	VOCs, TIN	
2001	VOCs, TIN	
2002	VOCs, TIN	
2003	VOCs, TIN, DIN	
2004	VOCs, TIN, DIN	
2005	VOCs, TIN, DIN	
2006	VOCs, TIN, DIN	
2007	VOCs, TIN, DIN, total and dissolved aluminum	
2008	TIN, DIN, total and dissolved aluminum	
2009	TIN, DIN, VOCs, total and dissolved aluminum	
2010	TIN, DIN, total and dissolved aluminum	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	Monitoring not planned	
2014	VOCs, TIN, DIN	
2015	Monitoring not planned	
2016	TIN, DIN, total and dissolved aluminum	
2017	Monitoring not planned	
2018	VOCs, TIN, DIN	
2019	Monitoring not planned	

SWMU 25, Roberts Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RLSW03	Post closure monitoring	Surface water
1999	VOCs, TIN	
2000	VOCs, TIN	
2001	VOCs, TIN	
2002	VOCs, TIN	
2003	VOCs, TIN, DIN	
2004	VOCs, TIN, DIN	
2005	VOCs, TIN, DIN	
2006	VOCs, TIN, DIN	
2007	VOCs, TIN, DIN, total and dissolved aluminum	
2008	TIN, DIN, total and dissolved aluminum	
2009	TIN, DIN, VOCs, total and dissolved aluminum	
2010	TIN, DIN, total and dissolved aluminum	
2011	VOCs, TIN, DIN	
2012	Monitoring not planned	
2013	VOCs, TIN, DIN	
2014	VOCs, TIN, DIN	
2015	Monitoring not planned	
2016	TIN, DIN	
2017	Monitoring not planned	
2018	VOCs, TIN, DIN	
2019	Monitoring not planned	

SWMU 25, Roberts Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RLSW04	Post closure monitoring	Surface water
1999	VOCs, TIN	
2000	VOCs, TIN	
2001	VOCs, TIN	
2002	VOCs, TIN	
2003	VOCs, TIN, DIN	
2004	VOCs, TIN, DIN	
2005	VOCs, TIN, DIN	
2006	VOCs, TIN, DIN	
2007	VOCs, TIN, DIN, total and dissolved aluminum	
2008	TIN, DIN, total and dissolved aluminum	
2009	TIN, DIN, VOCs, total and dissolved aluminum	
2010	TIN, DIN, total and dissolved aluminum	
2011	VOCs, TIN, DIN	
2012	Monitoring not planned	
2013	VOCs, TIN, DIN	
2014	VOCs, TIN, DIN	
2015	Monitoring not planned	
2016	TIN, DIN	
2017	Monitoring not planned	
2018	VOCs, TIN, DIN	
2019	Monitoring not planned	

SWMU 25, Roberts Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RLSW05	Post closure monitoring	Surface water
1999	VOCs, TIN	
2000	VOCs, TIN	
2001	VOCs, TIN	
2002	VOCs, TIN	
2003	VOCs, TIN, DIN	
2004	VOCs, TIN, DIN	
2005	VOCs, TIN, DIN	
2006	VOCs, TIN, DIN	
2007	VOCs, TIN, DIN, total and dissolved aluminum	
2008	TIN, DIN, total and dissolved aluminum	
2009	TIN, DIN, VOCs, total and dissolved aluminum	
2010	TIN, DIN, total and dissolved aluminum	
2011	VOCs, TIN, DIN	
2012	Monitoring not planned	
2013	VOCs, TIN, DIN	
2014	VOCs, TIN, DIN	
2015	Monitoring not planned	
2016	TIN, DIN	
2017	Monitoring not planned	
2018	VOCs, TIN, DIN	
2019	Monitoring not planned	

SWMU 25, Roberts Landfill — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RLSW06	Post closure monitoring	Surface water
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Total aluminum, total copper	
2010	Monitoring not planned	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	Monitoring not planned	
2014	Monitoring not planned	
2015	Monitoring not planned	
2016	Monitoring not planned	
2017	Monitoring not planned	
2018	Monitoring not planned	
2019	Monitoring not planned	

SUMMARY OF INSPECTION RESULTS:

Institutional Controls at SWMU 25, Roberts Landfill include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, fencing, soil cover inspections, and IC inspections and reporting. During the 2009 through 2011 inspections, a large, sparsely vegetated area was noted in the central portion of the landfill. Some improvement in vegetative growth was noted in 2013 through 2017. During the September 9, 2019 IC inspection, vegetation in this area has shown continued improvement. In general, the remainder of the vegetative cap appears adequate. The previously documented sinkhole located near monitoring well B-1 was not located in 2017, therefore it has been determined that the sinkhole no longer justifies continued monitoring.

Several small areas show minor erosion along the western perimeter fence. A previously documented minor

area of repaired erosion, adjacent to a swale in the southwestern portion of the site, appeared stable. In 2015, the end of the swale area was repaired by installing jute matting, topsoil, and reseeding. Since the repair, vegetation has established itself, which should prevent future erosion.

All gates are in good condition. The western gate was found to be locked at the time of the inspection. The northern cable gate from Adak Fuels Facility, as well as the cable gate leading down to the water tanks, were not being used to prevent access during the inspection. The gate along the western perimeter, however, was locked and the landfill sign was in good condition.

Eight of nine new asbestos signs, installed in 2015 around the buried asbestos bunkers located west across the road from the landfill, were in good condition. One asbestos sign was missing. These asbestos bunkers are not part of the landfill.

Approximately 100 sections of fence were observed down, primarily along the western and eastern perimeters. Fence sections were considered down if one or more barbwire strands were missing or damaged. Approximately 25 fence posts and several signs were also observed to be down or damaged during the inspection. The 2015 landfill repairs have allowed almost all previously documented standing water to drain from the site via the swales.

A groundwater seep observed during the 2010 inspection on the Mitt Lake access road, downgradient from the landfill and uphill from sample location RLSW05, is still present. The seep was sampled in 2010 (sample location NL-13), and the sample results did not exceed endpoint criteria. A groundwater seep observed in 2011, northwest of the landfill in the adjacent Adak Fuels Facility, is still present. The seep is characterized with blue and white precipitate. A surface water sample from location NL-14 was collected in 2018 from a ditch immediately below the seep and analyzed for total and dissolved priority pollutant metals plus aluminum, volatile organic compounds, and water quality parameters. There were no endpoint criteria exceedances at this location in 2018. Recommendations to continue surface water sampling at this location are presented in the 2018 Annual Long-Term Monitoring Report.

During the September 9, 2019 inspection, no indications of a change in land use in this area were found. The site did not appear to be in use, other than the permitted activities performed by the City of Adak and Adak Fuels Facility. No residential construction had occurred at the site. No indications of groundwater use or excavation activities were found at the site. For ICs to function as intended to protect human receptors from exposure to contaminated soil or groundwater, the following actions are recommended:

- Repair damaged perimeter fencing and signage.
- Install additional signage along western perimeter fence.
- Continue to monitor the eroded and repaired areas.
- Notify Adak Fuels Facility to keep both cable gates locked to prevent vehicle access to the site since the Adak Fuels Facility is not secured.

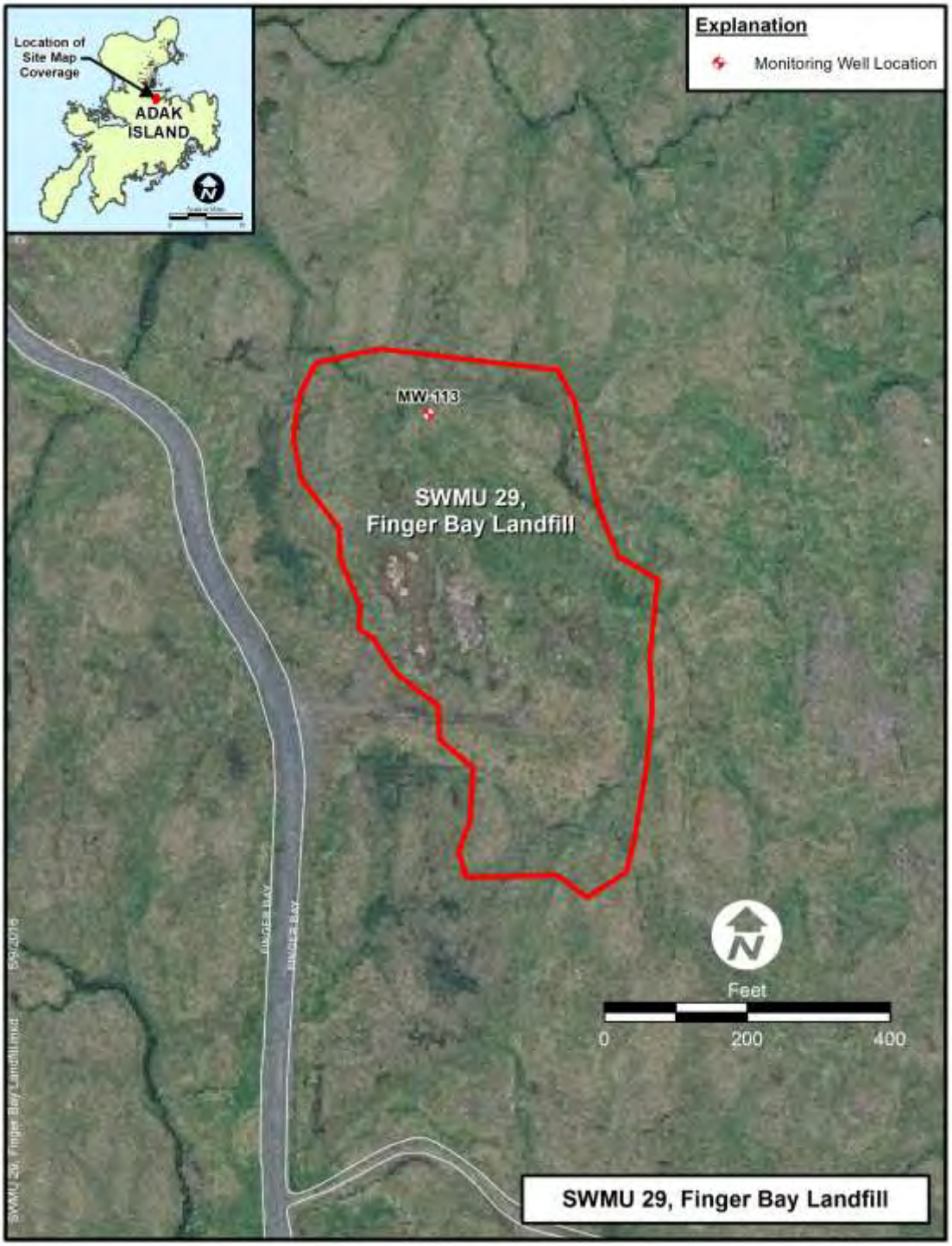
During the 2021 5-year review site walk it was noted that damaged signs associated with the site from the 2019 IC inspection had been replaced. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

SWMU 25, Roberts Landfill — OU A

BIBLIOGRAPHY:

48, 51, 84, 86, 113, 126, 129, 135, 141, 142, 152, 164, 165, 166

SWMU 29, Finger Bay Landfill — OU A



SWMU 29, Finger Bay Landfill — OU A

STATUS: Cleanup complete with landfill inspections and institutional controls

BACKGROUND:

SWMU 29 is located in a low-lying area about 2,600 feet south of Sweeper Cove and 1,800 feet north of Finger Bay. The landfill was reportedly used for waste disposal between 1972 and 1975. The areal extent of the landfill is estimated to be approximately 6.7 acres, based on geophysical information. Nearby landmarks include a Quonset hut and cabin located about 700 feet northwest of the landfill and about 100 feet west of an unnamed stream. The stream, which drains the site vicinity, flows from the northeast to the southwest, passing through a weir located immediately northwest of the landfill and ultimately to Finger Bay.

The ground surface above the landfill is graded relatively flat, ranging from 100 to 130 feet above MLLW. Previous investigations indicated that the surface consists of 0.5 to 1 foot of gravelly fill overlying between 2 and 7 feet of debris. Debris identified in the landfill includes construction wastes (concrete, wire, various metal scraps, wood) and household garbage (cans, bottles, garden hose, plastic products). The base of the landfill and the surrounding surface are predominantly low-permeability volcanic ash or bedrock. Vegetation is sparse over much of the landfill surface, and the surrounding landscape is vegetation typical for lowland tundra.

In 1996 the Navy removed seven intact 15-gallon containers and pieces of eight to 10 others from the unnamed stream. The white material in some of the drums was reported to be spent calcium carbide.

Analytical results of sediment, subsurface soil, and groundwater samples were used to assess human health and ecological risk.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	19
Number of Pre-Rod Samples	39
Potential Contaminant Types Evaluated	Dioxins and furans, Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Product (floating or free), Sediment , Sub-surface soil (> 6")
Types of Pre-ROD Locations	Borehole/Soil boring, Monitoring well, River/stream, Test Pit, Well

SWMU 29, Finger Bay Landfill — OU A

COCs AND RISKS:

The OU A ROD identified the following risk drivers (Tables 6-5 of the OU A ROD):

Soil

- Aroclor 1254

The human health cancer risk for the Adak residential scenario was calculated as 3 E-05 driven almost entirely by Aroclor 1254 (Tables 6-4 and 6-5 of the OU A ROD). The cancer and noncancer risks, based on other human health scenarios, were below levels of concern (Table 6-4 of the OU A ROD). The ecological HI caused by exposure to chemicals in sediment was estimated to be 26 (Tables 6-4 and 6-7 of the OU A ROD), most of which was associated with one sample collected near the 15-gallon containers in the stream that were removed. The ecological HI caused by exposure to chemicals in subsurface soil was estimated to be 172. The only burrowing animals on Adak are the Norway rat and the arctic fox, neither of which is expected to commonly use this site, because of the sparse vegetation.

RAOs:

The OU A ROD for the CERCLA site SWMU 29 (Finger Bay Landfill) established the following RAOs for SWMU 29 (Table 7-2 and pg. 10-2 of the OU A ROD):

- Protect ecological receptors from exposure to landfill debris, sediment, and subsurface soil that could result in cancer risk greater than 1E-05 or a noncancer risk above an HI of 1.0.

REMEDY IMPLEMENTATION:

The remedy selected in the OU A ROD is ICs.

The implementation of ICs began following execution of the ROD in April 2000. Land use restrictions are required to ensure that the land will never be used in a way inconsistent with the land use assumptions set forth in the Adak Island RODs.

The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including SWMU 29.

SWMU 29, Finger Bay Landfill received "cleanup complete with ICs" determination from ADEC on June 4, 2004.

SWMU 29, Finger Bay Landfill — OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☑ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: November 2002 — Most Recent Inspection Date: September 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

SWMU 29, Finger Bay Landfill — OU A

SUMMARY OF INSPECTION RESULTS:

Institutional controls at SWMU 29, Finger Bay Landfill include land use restrictions, equitable servitude, soil excavation restrictions, signage, soil cover inspections, and IC inspections and reporting. During the inspection on September 5, 2019, no indications of a change in land use in this area were found and no residential construction had occurred at the site. No indications of excavation activities were found, and excavation restriction signs were clearly visible. Prior to the 2019 inspection, new rock was placed on the landfill in an area just off Finger Bay Road for a presumed emergency repair. Much of the area is marshy with thick tundra. Some ponding was noted throughout the site although it is not believed to be on the landfill soil cap. Small quantities of debris exist on the site. The 2019 IC report indicated ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

19, 62, 84, 86, 113, 129, 141, 142, 144, 165, 166

SWMU 35, Ground Support Equipment Building, UST 27044 OU A

SWMU 35, Ground Support Equipment Building, UST 27044 OU A

STATUS: Cleanup complete

BACKGROUND:

SWMU 35, located at the GSE Building is located on the north side of the end of Terminal Road, just east of A-Taxiway. The building housed aircraft ground-support facilities, including a paint shop and general maintenance shop, both of which have operated since 1966. Next to the building, UST 27044 stored used oil generated by steam-cleaning operations. The 500-gallon UST, made of aluminum, was partially buried on the west side of the building.

The general topography of the SWMU 35 area slopes slightly west, toward Runway 18-36; the site and the area west of SWMU 35 have been graded flat and paved. The elevation of the site is about 9 feet above MLLW. Surface water runoff is diverted to storm sewers that drain into the airport runway drainage ditches. The closest runway drainage ditch to SWMU 35, East Airport Ditch, is approximately 575 feet west. Subsurface soils consist of a brown to dark gray silty sand with varying amounts of gravel. No groundwater monitoring wells exist near the site. The depth to groundwater is estimated to be 15 feet bgs based on the Adak groundwater study. Topography indicates that the groundwater flow direction is to the west, toward the runway drainage ditches. The aquifer is classified as having a high water-bearing capacity.

UST 27044 was removed in September 1993. A 2-inch-diameter plastic inlet pipe connected the tank to the building. Other tank components included a 6-inch-diameter inlet or pump-out pipe and a vent pipe. There were no dispensers associated with the tank. At the time of removal, the tank contained a trace amount of sludge and showed no signs of corrosion. The tank measured about 3.5 by 4 feet by 6 feet long and the tank excavation measured about 8.5 by 8.5 feet and 1.5 feet deep. The soil on the south and west sidewalls of the excavation was stained black and smelled like petroleum. Two soil samples were collected from the east and west ends of the excavation floor, at about 1 to 1.5 feet bgs for laboratory analysis of DRO, TRPH, VOCs, and ORO. The highest reported concentration of DRO was 1,700 mg/kg. The results indicated DRO at concentrations in exceedance of ADEC matrix levels.

In 1996, a groundwater monitoring well (04-255) was installed approximately 20 feet west of the former UST excavation and a wellpoint (04-256) was installed approximately 45 feet west of the former UST excavation. One soil sample was collected from 04-255 and analyzed for DRO, GRO, and BTEX. DRO, GRO and total BTEX were reported at concentrations of 8,400 mg/kg, 600 mg/kg, and 81.4 mg/kg respectively all of which are below ADEC supplemental screening criteria for industrial sites.

Groundwater samples were collected from 04-255 and 04-256 and analyzed for DRO, GRO, BTEX, and PAHs. DRO was detected at 1,300 and 1,100 J µg/L; GRO was detected at 162 and 130 µg/L, respectively. Benzene was detected at location 04-255 at 1.9 µg/L. Total BTEX concentrations were measured at 79.9 and 83.1 J µg /L at locations 04-255 and 04-256, respectively. No cPAHs were detected in either well. Total LPAH concentrations were 3.05 and 1.78 µg/L at locations 04-255 and 04-256, respectively.

PRE-ROD ASSESSMENT SUMMARY:

SWMU 35, Ground Support Equipment Building, UST 27044 OU A

Number of Pre-Rod Locations Sampled	6
Number of Pre-Rod Samples	8
Potential Contaminant Types Evaluated	Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Soil, Sub-surface soil (> 6")
Types of Pre-ROD Locations	Excavation, Well

SWMU 35, Ground Support Equipment Building, UST 27044 OU A

COCs AND RISKS:

The OU A ROD listed SWMU 35 as an NFA site.

RAOs:

No RAOs were established for SWMU 35.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is NFA.

SWMU 35, GSE Building received "cleanup complete" determination from ADEC on June 4, 2004.

SWMU 35, Ground Support Equipment Building, UST 27044 OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☐ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☑ None Required

Most Recent Sampling Date: May 1997 Most Recent Inspection Date: August 2015

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required Monitoring File: Not Applicable

SWMU 35, Ground Support Equipment Building, UST 27044 OU A

SUMMARY OF INSPECTION RESULTS:

There are no ICs for SWMU 35.

During the five-year review site visit in August 2015, no changes in land use were observed. There were a few housekeeping issues noted but the site was otherwise in good condition.

BIBLIOGRAPHY:

18, 114

SWMUs 52, 53, 59, Former LORAN Station — OU A

SWMUs 52, 53, 59, Former LORAN Station — OU A

STATUS: Cleanup complete with institutional controls

BACKGROUND:

The Former Loran Station was constructed between 1948 and 1950 to support U.S. Naval and Coast Guard navigation in and out of the Aleutian Islands. The station was closed in 1979. Since then, it has fallen into a state of disrepair, evidently from vandalism and the extreme weather conditions.

The Former Loran Station includes the following SWMUs: SWMU 52 (Loran Transmitter Complex, referred to as the Signal Building), SWMU 53 (Loran Paint/Workshop Building, referred to as the Paint Storage Shed), and SWMU 59 (Loran Boiler and Barracks, referred to as the Mechanical Building).

The station is located on a northwest-facing promontory along the Bering Sea coastline. The promontory is located on the northwest flank of Mount Adagdak. The station was constructed on a relatively gentle (16 percent grade) portion of the west-facing slope between 150 and 300 feet above MLLW. West of the site, the land surface drops more sharply (53 percent grade) toward the Bering Sea. To the north, a steep shoreline escarpment (67 percent grade) bounds the facility. Areas within 1 mile to the south and east of the Former Loran Station are undeveloped and are expected to remain so.

The site also includes a former UST pit. The three tanks and their contents were removed in July 1994. The pit was backfilled with 200 cubic yards of soil. A septic system and its outflow fixtures are located on the western escarpment. Debris is scattered on both escarpments. Live ordnance (an illuminator cartridge) was discovered along the western escarpment in July 1995 during sampling activities.

Isolated debris, including empty drums and pieces of scrap metal and wood, is strewn about the western escarpment downhill from the buildings. The structure and contents of each of the three buildings have been severely damaged from vandalism and weather.

The foundation for the former Loran Building is located on the upper terrace above the three buildings. This building was razed in 1983. Debris, presumably derived from the demolition of the Loran Building, lies directly downslope on the northern escarpment. The debris along the northern escarpment includes over 100 empty drums, the original contents of which are unknown; building materials such as steel and wood, most likely derived from the former Loran Building; electrical components; old automobiles; and a few pieces of nondescript large equipment. Additional debris is reportedly buried or wedged along the bottom of the escarpment, where the land surface consists of large (8 to 10 foot-diameter) boulders. Because of the steepness of the slope, no definitive inventory of the debris has been made.

Analytical results of surface and subsurface soil samples were used to assess human health and ecological risk.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	107

SWMUs 52, 53, 59, Former LORAN Station — OU A

Number of Pre-Rod Samples	157
Potential Contaminant Types Evaluated	Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Product (floating or free), Sediment , Soil, Sub-surface soil (> 6"), Surface soil (less than 6 inches)
Types of Pre-ROD Locations	Excavation, Ground surface, Intertidal, Pipeline, Stockpile, Tank

SWMUs 52, 53, 59, Former LORAN Station — OU A

COCs AND RISKS:

Due to the following risk drivers in surface soil, total human health cancer risks were greater than 1E-05. The OU A ROD identified the following risk drivers for this site (Table 6-5 of the OU A ROD):

Soil

- Arsenic
- Benzo(a)pyrene

Analytical results of surface and subsurface soil samples were used to assess human health and ecological risk. The human health cancer risk for the Adak residential scenario was calculated as 5E-05 (Table 6-4 of the OU A ROD). The cancer and noncancer risks, based on other human health scenarios, were below levels of concern. The ecological HI caused by exposure to chemicals was estimated to be 260 (Tables 6-6 and 6-7 of the OU A ROD), most of which were two SVOCs in surface soil. Because these compounds were detected in one of 36 samples, the exposure to receptors would be negligible and the ecological risk is not significant.

RAOs:

The OU A ROD for the CERCLA site SWMUs 52, 53, 59, Former LORAN Station established the following RAO (interpreted from Table 7-2 and page 10-6 of the OU A ROD):

- Protect human health and ecological exposure to soil and debris.

REMEDY IMPLEMENTATION:

The remedy selected in the OU A ROD is ICs.

The implementation of ICs began following execution of the ROD in April 2000. Land use restrictions are required to ensure that the land will never be used in a way inconsistent with the land use assumptions set forth in the Adak Island RODs.

The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including SWMUs 52, 53, 59.

SWMUs 52, 53, and 59, Former Loran Station received "cleanup complete with ICs" determination from ADEC on August 31, 2004.

SWMUs 52, 53, 59, Former LORAN Station — OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: July 1995 — Most Recent Inspection Date: September 2019
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required — Monitoring File: Not Applicable

SWMUs 52, 53, 59, Former LORAN Station — OU A

SUMMARY OF INSPECTION RESULTS:

Institutional controls at SMWU 52, 53, 59, Former LORAN Station include land use restrictions, equitable servitude, soil excavation restrictions, signage, and IC inspections and reporting. During the inspection on September 5, 2019, no changes to the site were observed compared to the 2014 inspection results. No indications of excavation activities were found, and excavation restriction signs are clearly visible. Some recreational use of the site was evident which included graffiti and empty beverage cans, but the use was within the requirements of the ROD. The site was accessible by on-road vehicles, as the previously documented landslide on the access road has been cleared. The 2019 IC report indicated ICs still appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

65, 84, 86, 113, 129, 137, 142, 144, 165, 166

SWMU 55, Waste Storage Area — OU A

SWMU 55, Waste Storage Area — OU A

STATUS: Groundwater monitoring and institutional controls

BACKGROUND:

SWMU 55, the Public Works Transportation Department Waste Storage Area, is located in the industrial area of downtown Adak. It is west of the Red Shed (Building T-1441). SWMU 55 consists of approximately 0.7 acre of flat, gravel-covered surface (approximately 150 by 200 feet). The elevation of most of SWMU 55 is 19 feet above MLLW. Site drainage leads to Sweeper Cove, about 700 feet away. A steel storage shed (30 by 24 feet) was erected in 1983 in the east-central area of the site. Wastes stored on site included POL, spent solvents, and other maintenance-related materials.

The exact starting date for waste accumulation and storage at this site is not known; however, it is assumed that such storage took place concurrently with vehicle maintenance operations in Building T-1441 (Red Shed). The Red Shed was constructed in 1944, and it was originally the property of the U.S. Army, which designated it as the Transit Shed. In 1951, this property was transferred to the U.S. Navy, and the Red Shed became a vehicle maintenance and storage area. In 1983, the Navy constructed the SWMU 55 steel storage shed for storage of flammable materials. New oil, hydraulic and transmission fluids, and other vehicle-care products were stored inside of and adjacent to the steel shed. In approximately 1983, the Navy began to store accumulated waste oils, spent solvents, and other maintenance-related materials outside of the steel storage shed. Surface soils beneath and around the drums showed signs of staining under the wooden pallets during the 1995 field investigation.

Under the CERCLA evaluation, analytical results of groundwater, surface and subsurface soil, and sediment samples were used to assess human health and ecological risk.

This site was also evaluated under SAERA. No concentrations of DRO exceeded the screening criterion for industrial sites.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	35
Number of Pre-Rod Samples	54
Potential Contaminant Types Evaluated	Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Sediment , Sub-surface soil (> 6"), Surface soil (less than 6 inches)
Types of Pre-ROD Locations	Borehole/Soil boring, Channel/Ditch, Ground surface, Well

SWMU 55, Waste Storage Area — OU A

COCs AND RISKS:

The following groundwater COCs were identified in the OU A ROD because of exceedances above MCLs or ADEC criteria (Table 10-3 of the OU A ROD):

Groundwater

- Antimony
- Bis(2-ethylhexyl)phthalate
- Methylene chloride
- Tetrachloroethene

The human health cancer risk and noncancer HI for the Adak residential scenario were calculated as 1E-04 and 1, respectively. The risk driver for the cancer and noncancer risks is PCE in groundwater (Tables 6-4 and 6-5 of the OU A ROD). The cancer and noncancer risks, based on other human health scenarios, were below levels of concern. Future residential use is unlikely at the site because it is located in the middle of an industrial area of downtown Adak, near a dock. There is no ecological risk because of the absence of ecological habitat and receptors.

RAOs:

The OU A ROD for the CERCLA site SWMU 55, Public Works Transportation Department Waste Storage Area established the following RAO (interpreted from Table 7-2 and page 10-6 of the OU A ROD):

- Protect human health exposure to groundwater.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy is ICs.

This remedy includes compliance monitoring for CERCLA-regulated compounds. The implementation of ICs began following execution of the ROD in April 2000.

One groundwater sample (well 55-145) was collected in 2018 and analyzed for PCE. The concentration of PCE 77 µg/L in well 55-145 was detected above the endpoint criteria of 5 µg/L but shows statistically significant decreasing trends at the 80 and 95 percent confidence intervals and have met the secondary endpoint criterion.

The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including SWMU 55.

SWMU 55, Waste Storage Area — OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- [x] Groundwater Monitoring
- [ ] Surface Water Monitoring
- [ ] Sediment Monitoring
- [ ] Tissue Monitoring
- [ ] Landfill Inspection
- [x] IC Inspection — Click to View ICMP Table
- [ ] Remediation System Monitoring and Maintenance
- [ ] None Required

Most Recent Sampling Date: August 2018 — Most Recent Inspection Date: September 2019

Current Media Sampled: Groundwater

Current Analytes Sampled: PCE, NAPs

Current Monitoring: Click to View Current Monitoring — Monitoring File: SWMU 55 monitoring.pdf

SWMU 55, Waste Storage Area — OU A

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
55-145	Compliance	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	VOCs, SVOCs, TIN, DIN	
2002	VOCs, SVOCs, TIN, DIN	
2003	Dissolved antimony, TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, methylene chloride, bis(2-ethylhexyl)phthalate	
2004	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, methylene chloride, bis(2-ethylhexyl)phthalate	
2005	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, methylene chloride	
2006	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride	
2007	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride	
2008	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride	
2009	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride	
2010	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride	
2011	Met endpoint criteria; monitoring discontinued	
2011	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, VC	
2012	Monitoring not planned	
2013	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, VC	
2014	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, VC, NAPs	
2015	Monitoring not planned	
2016	PCE	
2017	Monitoring not planned	
2018	PCE, NAPs	
2019	Monitoring not planned	

SWMU 55, Waste Storage Area — OU A

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
55-146	Compliance	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	VOCs, SVOCs, TIN, DIN	
2002	VOCs, SVOCs, total and dissolved lead, TIN, DIN	
2003	Dissolved antimony, TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, methylene chloride, bis(2-ethylhexyl)phthalate	
2004	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride (even years only), methylene chloride, bis(2-ethylhexyl)phthalate (annually)	
2005	methylene chloride, bis(2-ethylhexyl)phthalate	
2006	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride	
2007	Monitoring not planned	
2008	TCE, PCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride	
2009	Met endpoint criteria; monitoring discontinued	
2011	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional controls at SWMU 55, Public Works Transportation Department Waste Storage Area include land use restrictions, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the 2013 inspection, it appeared that the area was no longer being used as a recycling center. However, in 2017 as well as 2019, some materials and debris were observed onsite including a number of 55-gallon drums stored adjacent to the site. The majority of materials previously stored onsite have been removed from the island for recycling, with the remaining material moved to the Contractor's Camp Area. Some equipment remains adjacent to the site, including a crane and two forklifts.

The bay door and front door to Building 42061 was observed to have been blown open prior to the 2017 inspection. Numerous drums containing virgin materials including antifreeze, molybdenum grease, hydraulic oil, and 5-gallon containers with tire treatment still remain inside Building 42061. Building 42061 continues to deteriorate further exposing the contents of the building. There is no restricted access or soil barrier at the site.

No new evidence of excavation was noted during the 2019 inspection. There was no evidence of groundwater use. Due to the wastes and conditions observed at this site in the past, there is a concern that contaminants associated with onsite materials and wastes are a threat to residents and are potentially impacting site soils and underlying groundwater. Landowners have been notified in the past by both the Navy and ADEC, that they should improve housekeeping practices. The volume of waste stored onsite has diminished significantly since 2012. The 2019 IC report indicated, Building 42061 continues to deteriorate, posing a potential risk for a chemical release to the site. It is recommended that site conditions continue to

be monitored at the site. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

65, 66, 84, 86, 90, 113, 129, 134, 141, 142, 152, 164, 165, 166

SWMU 58/SA 73, Heating Plant 6 **OU A - SAERA**

SWMU 58/SA 73, Heating Plant 6 — OU A - SAERA

STATUS: Cleanup complete with institutional controls

BACKGROUND:

SWMU 58 and SA 73, Heating Plant 6, is situated in the southeast corner of the former NSGA complex, approximately 5 miles north of downtown Adak on the lower, southern slope of Mount Adagdak. The Heating Plant 6 site comprises Building 10348 and 10585, six former USTs, one former AST, and one former oil/water separator and was established in April 1977. Only the buildings remain at the site. The plant was bordered on the east by the NSGA complex, which closed in 1995. The tanks and oil/water separator were removed from the site between 1993 and 1996. Heating Plant 6 supplied heat and power to the NSGA complex during its operational history from the 1950s until 1995. The NSGA complex is currently unused.

The Heating Plant No. 6 site encompasses approximately one-third of an acre. The primary physical features on the site are the heating plant (Building 10348) the former NSGA, Gladdings Road, and a large gravel parking area that formerly contained the on-site USTs and oil/water separator. Native tundra grasses exist south of the site. Two drainage ditches that channel surface water runoff toward Clam Lagoon are located at the edge of the gravel area.

Four source areas were identified at the Heating Plant 6 site: AST 10348-A, USTs 10570 through 10573 and 10585-A, UST V-118, and O/W 10348-B. The following describes the removal and cleanup activities associated with each source area.

AST 10348-A was formerly located adjacent to the south wall of the heating plant building near its southeast corner. The tank was taken out of service in April 1994.

USTs 10570, 10571, 10572, 10573, and 10585-A constitute the former fuel farm for Heating Plant 6. USTs 10572 and 10573 were removed from the site in August 1994. USTs 10570 and 10571 were removed in April 1996. The tanks were generally reported to be in good condition on removal; however, free product was encountered on the groundwater at 14 feet bgs during removal activities. UST 10585-A was removed from the site in July 1993.

UST V-118 was a 1,500-gallon steel tank that is believed to have stored either mogas or diesel fuel. The date that the tank was taken out of service is not known, but is presumed to be prior to 1994. After deactivation, the manway cover to UST V-118 was left unsecured, allowing water to enter the tank. During June 1994, prior to the removal of the UST, water was twice pumped out of the tank and passed through an oil/water separator and activated carbon before being discharged to the Adak wastewater treatment plant. UST V-118 was removed from the site on September 14, 1994.

O/W 10348-B was a 1,000-gallon concrete tank that collected waste fluids from floor drains within the Heating Plant 6 building. The oil/water separator was a 1.5-by-1.5-by-1-foot rectangular box installed within the concrete tank. The date that the oil/water separator was taken out of service is not known, but a dye test performed prior to removal confirmed that the floor drains in the heating plant building had been sealed. O/W 10348-B was removed from the site during September 1994, and a seep identified as free

product and flowing at a rate of approximately 2 gallons per minute was noted at about 9 feet bgs on the south wall of the excavation. Excavation activities were stopped at this point and the excavation was backfilled. A monitoring well was installed in the backfilled excavation to monitor product accumulation. This well showed water at 7.5 feet bgs and an accumulation of less than 0.5 inch of product.

During July 1998 a French drain was installed in the north-south-trending drainage ditch and small secondary ditch south of the Heating Plant 6 site as an aesthetic corrective action. The northwest-southeast-trending ditch was unaltered. The north-south-trending drainage ditch was cleared of vegetation, a geotextile liner was installed at the bottom of the ditch, and a 4-inch-diameter perforated drainpipe (French drain) was laid on top of the liner. The ditch was then backfilled with crushed rock, pit run (quarry material), and topsoil. The topsoil was then fertilized and seeded to promote vegetation growth.

Between 1993 and 1999, 46 soil samples were collected across the Heating Plant 6 site from 33 locations. DRO was detected in all but three of these 46 samples and exceeded the ADEC Method Two soil criterion of 230 mg/kg in 28 of the 46 samples. GRO exceeded the ADEC Method Two soil criterion of 260 mg/kg in five samples.

In 1996 and 1997, 18 groundwater samples were collected from 12 wells and analyzed for DRO, GRO, and BTEX. DRO was detected in every groundwater sample collected in 1996 and 1997, with concentrations ranging from 1,300 µg/L to 15,000 µg/L. GRO was detected in only nine of these samples. Neither DRO nor GRO was detected in concentrations greater than the ADEC criteria for groundwater not used as a drinking water source of 15,000 µg/L and 13,000 µg/L, respectively, from groundwater samples collected in 1996 and 1997. Two of the 18 groundwater wells were resampled in 1998. In 1998, two sentinel wells (12-601 and 12-604) were installed in the southeastern portion of the site, downgradient from the USTs. DRO has not been detected in well 12-601 since 2000, and GRO has not been detected in well 12-601 since 1999.

Monitoring wells within the vicinity of the Heating Plant 6 site have been gauged periodically for the presence of free product since October 1996. Passive-style product skimmers were installed in selected monitoring and recovery wells in January 1997. These skimmers were rotated among the seven wells that contained measurable product thickness. The skimmers operated continually at the site from January through May 1997, and intermittently as product volume decreased. Approximately 5 gallons of free product were recovered from the Heating Plant 6 site during the first five months of product recovery efforts and decreased to less than 0.25 gallon between 1997 and October 1999. No product has been recovered since October 1999. The Navy contends that free product has been recovered at this site to the maximum extent practicable, as required by 18 AAC 75.325(f)(1)(B). Product recovery efforts were discontinued at this site during July 2000.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	27
Number of Pre-Rod Samples	96
Potential Contaminant Types Evaluated	Inorganics, Metals, Petroleum hydrocarbons,

	Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Product (floating or free), Sludge, Soil, Sub-surface soil (> 6"), Surface soil (less than 6 inches), Surface water
Types of Pre-ROD Locations	Channel/Ditch, Excavation, Geoprobe well, Ground surface, Hand auger, Monitoring well, Recovery well

SWMU 58/SA 73, Heating Plant 6 — OU A - SAERA

COCs AND RISKS:

SWMU 58/SA 73 was one of the sites in the OU A ROD for which additional evaluation under SAERA was required. The interim action under the OU A ROD was free product recovery.

The OU A ROD (1999) did not identify human health or ecological risks associated with the site, however, a human health and ecological risk assessment was completed for this site during 2004 as part of the additional evaluation under SAERA. This site poses no unacceptable risk to human health or the environment above target health goals, provided that Ics remain in effect. The risk assessments performed for this site established that the concentrations in soil do not pose a risk to humans or the environment above target health goals at their present contamination level; therefore, no separate ACLs were calculated and, by default, the existing contaminant levels at the site become the site-specific ACLs. The risk assessment findings of no unacceptable risk remain valid, providing that the assumed land uses for the site per the Adak Reuse Plan do not change. Cleanup levels specified for groundwater at petroleum-contaminated sites on the former Adak Naval Complex are based on the use of groundwater as a drinking water source [18 AAC 75.345(b)(1), Table C], or 10 times these levels if the groundwater is not reasonably expected to be a potential future source of drinking water [18 AAC 75.345(b)(2)]. Groundwater at SWMU 58/SA 73 is not considered to be a reasonably expected potential future source of drinking water; therefore, groundwater cleanup levels for these sites are 10 times the levels specified in Table C of the Alaska

The 2005 Final Decision Document for Petroleum Sites with No Unacceptable Risk established the following cleanup levels based on ADEC regulatory criteria for the following COCs:

Groundwater

- DRO

RAOs:

The OU A ROD for the petroleum site SWMU 58/SA 73, Heating Plant 6 established the following original RAO (Table 7-4 of the OU A ROD):

- Reduce volume of petroleum free product.

The RAOs were revised in the 2005 Final Decision Document for Petroleum Sites with No Unacceptable Risk to the following:

- Over the long term, reduce concentrations of petroleum-related chemicals in groundwater to levels below Alaska DEC groundwater cleanup levels.
- Prevent future exposure to petroleum-related chemicals in soil and groundwater at the site.

REMEDY IMPLEMENTATION:

The OU A ROD-specified interim remedy for this site is free product recovery. Product recovery was initiated during January 1997 and was terminated during October 1999. Approximately 5.25 gallons of product were recovered.

SWMU 58/SA 73, Heating Plant 6 — OU A - SAERA

A decision document prepared by the Navy and ADEC specifies the final remedy as MNA and ICs. MNA activities were implemented in 2005 via changes to the CMP. Although not explicitly required by the OU A ROD, ICs were implemented in 2000. Land use restrictions are required to ensure that the land will never be used in a way inconsistent with the land use assumptions set forth in the Adak Island RODs. The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including SWMU 58/ SA 73.

In addition to the required MNA and IC components of the final remedy, the 2005 SAERA decision document also required replacement of well 12-203 with a larger diameter well to facilitate groundwater monitoring, collection of an additional soil sample during replacement of this well, collection of two additional groundwater samples from wells 12-203 and 12-110, and one surface water sample from the downstream end of the two on-site drainage ditches prior to their discharge into Circulary Disposed Antenna Array (CDAA) Creek. Additional surface water sampling was to be conducted depending on the results of the initial surface water sample.

Although free product recovery endpoints have been met at this site, the SAERA decision document required additional product recovery, as needed, as part of scheduled groundwater monitoring activities under the CMP.

The required soil sample was collected in September 2004 by placing a soil boring adjacent to well 12-203, which was replaced in June 2006. Analytical results of the soil sample reported a DRO concentration exceeding the ADEC cleanup level. The required surface water and groundwater samples were collected in September 2004. Product recovery requirements were incorporated into the CMP.

Free product recovery was performed at this site from October 2010 through September 2012. During the period of October 2010 to September 2011, 0.52 gallons of free product were recovered from SWMU 58/SA 72 wells. No free product was recovered in 2012; therefore, free product recovery was discontinued.

After the 2012 sampling event, it was recommended that monitoring at this site be discontinued based on the following reasons:

- DRO concentrations have remained below endpoint criterion for at least two consecutive sampling events;
- The observance of free product across the site has greatly reduced and was observed in only one well at a thickness of 0.3 feet;
- No free product was recovered for the site from October 2011 to September 2012; and
- There was no evidence of petroleum contamination in the intermittent stream that flows through the site.

SWMU 58/SA 72 received "cleanup Complete with ICs" determination from ADEC on August 26, 2013.

SWMU 58/SA 73, Heating Plant 6 — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: September 2012 Most Recent Inspection Date: September 2019
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-101	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO, GRO, BTEX	
2006	DRO, GRO, BTEX	
2007	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-105	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	DRO, GRO, BTEX	
2009	Free product detected, not sampled	
2010	DRO	
2011	DRO	
2012	DRO	
2013	Met endpoint criteria; monitoring discontinued	

SWMU 58/SA 73, Heating Plant 6 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-106	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-108	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

SWMU 58/SA 73, Heating Plant 6 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-110	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Free product detected, not sampled	
2005	Free product detected, not sampled	
2006	Free product detected, not sampled, product thickness (monthly)	
2007	Free product detected, not sampled, product thickness (monthly)	
2008	Free product detected, not sampled, product thickness	
2009	Well 12-105 replaced this well, monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-114	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO, GRO, BTEX	
2006	DRO, GRO, BTEX (even years only)	
2007	Monitoring not planned	
2008	DRO, GRO, BTEX	
2009	NAPs	
2010	DRO	
2011	Monitoring not planned	
2012	DRO	
2013	Met endpoint criteria; monitoring discontinued	

SWMU 58/SA 73, Heating Plant 6 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-120	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO, GRO, BTEX	
2006	DRO, GRO, BTEX	
2007	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-121	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO, GRO, BTEX	
2006	Free product detected, not sampled, product thickness (monthly)	
2007	DRO, GRO, BTEX, product thickness (monthly)	
2008	Free product detected, not sampled, product thickness (monthly)	
2009	DRO, NAPs, product thickness (monthly)	
2010	DRO, product thickness (monthly)	
2011	DRO	
2012	Free product detected, not sampled	
2013	Met endpoint criteria; monitoring discontinued	

SWMU 58/SA 73, Heating Plant 6 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-124	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-125	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

SWMU 58/SA 73, Heating Plant 6 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-201	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-202	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

SWMU 58/SA 73, Heating Plant 6 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-203	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Free product detected, not sampled	
2005	Free product detected, not sampled	
2006	Free product detected, not sampled, product thickness (monthly)	
2007	Free product detected, not sampled, product thickness (monthly)	
2008	Free product detected, not sampled, product thickness (monthly)	
2009	DRO, NAPs, product thickness (monthly)	
2010	DRO, product thickness (monthly)	
2011	DRO	
2012	DRO	
2013	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-601	SW protection	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	DRO, GRO, BTEX	
2004	DRO, GRO, BTEX	
2005	DRO, GRO, BTEX	
2006	DRO, GRO, BTEX	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO	
2010	DRO	
2011	Met endpoint criteria; monitoring discontinued	

SWMU 58/SA 73, Heating Plant 6 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-604	SW protection	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	DRO, GRO, BTEX	
2004	DRO, GRO, BTEX	
2005	DRO, GRO, BTEX	
2006	DRO, GRO, BTEX (even years only)	
2007	Monitoring not planned	
2008	DRO, GRO, BTEX	
2009	Monitoring not planned	
2010	DRO	
2011	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-610	SW protection, PT	Groundwater
1999	Well was dry	
2000	Well was dry	
2001	Well was dry	
2002	Monitoring discontinued Well has been dry for last four sampling events Replacement well installed	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

SWMU 58/SA 73, Heating Plant 6 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
12-611	SW protection	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	DRO, GRO, BTEX	
2004	DRO, GRO, BTEX	
2005	DRO, GRO, BTEX	
2006	DRO, GRO, BTEX	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO	
2010	DRO	
2011	DRO	
2012	Met endpoint criteria; monitoring discontinued	

SWMU 58/SA 73, Heating Plant 6 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NL-07	SW protection	Surface water and Sediment
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	DRO	
2010	No petroleum contamination observed, not sampled	
2011	Sediment: DRO Surface water: DRO	
2012	Sediment: Met endpoint criteria; monitoring discontinued Surface water: Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional controls at SWMU 58/SA 73, Heating Plant 6 include land use controls, equitable servitude, soil excavation restrictions, signage, and IC inspections and reporting. During the inspection on September 6, 2019, no indications of a change in land use in this area were found. No indications of groundwater use or excavation activities were found, and excavation restriction signs were clearly visible. No excavation had occurred at the site. The 2019 IC report indicated all ICs appear to be functioning as intended. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

7, 53, 61, 77, 84, 86, 90, 91, 113, 121, 122, 129, 134, 142, 144, 149, 150, 165, 166

SWMU 60, Tank Farm A — OU A - SAERA

SWMU 60, Tank Farm A — OU A - SAERA

STATUS: Groundwater, surface water, and sediment monitoring; petroleum boom maintenance; and institutional controls

BACKGROUND:

Tank Farm A, designated SWMU 60, is a former bulk fuel-storage facility located in the upland area west of Runway 18-36. It occupies an area of approximately 55 acres situated on a hill with steeply sloped margins. The site is approximately 200 feet south of Yakutat Creek and approximately 900 feet west of South Sweeper Creek.

When constructed in 1943, the facility consisted of 45 bulk storage FCTs ranging in capacity from 21,000 to 420,000 gallons. The FCTs were primarily constructed above the ground surface. Some may have been partially buried or built into hillsides. The tanks were placed either on a thin concrete pad or compact earth. Fuel was transferred to, from, and throughout the tank farm by a system of underground pipelines. During the 1950s, many of the existing tanks were taken out service, and as many as 30 FCTs were crushed in place and buried. The records reviewed indicated that 43 FCTs were demolished in 1984 by crushing in place and covering with graded material and topsoil. The two remaining FCTs were removed in 1993.

A number of releases have been identified in the Tank Farm A area. During the 1950s, several FCTs were reported to be leaking, and fuel was observed seeping out of hillside soil into the creek adjacent to the former high school and NEX Building 10320. Several releases from underground fuel lines were identified in early 1989, some of which resulted in fuel reaching ditches and entering South Sweeper Creek. In 1989, Navy personnel constructed containment ponds and used oil-containment booms to contain and mitigate the migration of fuel from the source area. The abandoned pipelines were also isolated from the active pipelines.

Numerous previous investigations were performed at Tank Farm A and the surrounding areas. Eight monitoring wells were installed at Tank Farm A during expanded site investigations conducted between 1987 and 1988. The contractor concluded that the overall human health and environmental hazard was low, but recommended removal of fuel-contaminated soil and sediment.

A preliminary assessment of fuel contamination was performed in 1989, following a release of JP-5 from an abandoned pipeline located north of FCT-T8304. Visibly contaminated soils were reported extending northward from the abandoned pipeline to Hillside Boulevard. A soil vapor survey showed elevated petroleum vapors in the soil over a wide area north of the leak.

A three-phase investigation to define the extent of petroleum hydrocarbon impacts was performed from 1989 to 1990. This investigation concluded that as much as 1.2 million gallons of residual fuel may be present in approximately 146,000 cubic yards of soil in the Tank Farm A area (and extending into the area south of Runway 18-36). TPH concentrations greater than 1,000 mg/kg were found in soil samples collected from beneath removed sections of an underground JP-5 pipeline extending from Tank Farm D to Power Plant 3.

In 1993, TPH concentrations ranging between 2,000 mg/kg and 9,400 mg/kg were detected in soil samples

collected in conjunction with removal of the last two FCTs and associated fuel-distribution piping.

During the release investigation conducted in 1993, concentrations of TPH as diesel fuel were reported above 2,000 mg/kg in 15 soil samples and above 1,000 µg/L in wells E-020 and E-024. Although visibly contaminated sediments were observed in stream bottoms in several locations, no petroleum hydrocarbons were detected in any surface water samples.

Between 1996 and 1997, four monitoring wells were installed. Soil and groundwater samples were collected from these borings, and 10 sediment and surface water sample pairs were collected from drainage ditches in Tank Farm A. No exceedance of the ADEC soil cleanup level for DRO was noted. One exceedance of the ADEC groundwater cleanup level for DRO was noted in the sample collected from well LC-5A (located near the traffic circle). No GRO exceedance was noted in either soil or groundwater. Benzene exceedances were noted in groundwater collected from wells E-006 and E-501. DRO was detected in seven of 10 sediment samples and in two of 10 surface water samples.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	215
Number of Pre-Rod Samples	418
Potential Contaminant Types Evaluated	Inorganics, Metals, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Sediment , Sub-surface soil (> 6"), Surface soil (less than 6 inches), Surface water
Types of Pre-ROD Locations	Borehole/Soil boring, Channel/Ditch, Ground surface, Hand auger, Monitoring well, River/stream, Test Pit, Vault, Well, Wetlands

SWMU 60, Tank Farm A — OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemical exceeded these criteria (Table 10-3 of the OU A ROD):

Groundwater

- Benzene

RAOs:

The OU A ROD for the petroleum site SWMU 60, Tank Farm A established the following RAO (Table 7-4 of the OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is MNA with ICs. Natural attenuation monitoring was initiated in 1999 and is ongoing. ICs were implemented in 2000. Land use restrictions are required to ensure that the land will never be used in a way inconsistent with the land use assumptions set forth in the Adak Island RODs.

The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including SWMU 60.

In July 2010, four additional monitoring wells and two additional soil borings were installed downgradient of the site to determine the lateral extent of contamination and the impact of affected groundwater on Sweeper Creek at the Traffic Circle area in order to assess whether DRO is migrating to South Sweeper Creek at concentrations greater than ADEC surface water criteria.

Samples were collected for laboratory analysis from two intervals from all six locations. A total of 13 samples were submitted to the laboratory for DRO analysis by Alaska Method AK 102. DRO was detected in 10 of the 13 samples, from all six locations. Detected concentrations ranged from an estimated 14 mg/kg to 22,000 mg/kg. Depictions of the lateral extent of DRO in soil were revised based on these data, and data gaps regarding the lateral extent to the south of the site were identified.

Groundwater samples were collected from existing monitoring well LC5A and new wells 650, 651, and 652 on July 17, 2010. A sample was not collected from new well 653 because it contained 0.25 foot of free product. Samples were submitted for the following analyses: DRO by Alaska Method AK 102, VOCs by EPA Method 8260B, and SVOCs by EPA Method 8270C.

DRO was detected at a concentration exceeding the ADEC cleanup level in one well, and benzene was detected at a concentration exceeding the ADEC cleanup level in two wells in 2015. TAH and TAqH concentrations were detected in groundwater samples in excess of their respective surface water criteria in three of the four wells, including two wells (651 and 652) adjacent to South Sweeper Creek. Based on these data, it was concluded that TAH and TAqH concentrations in excess of surface water criteria may be migrating into the creek and additional evaluation was recommended.

Three new wells (656, 657, and 658) were installed at the site in 2017 as part of the site investigation conducted by the Navy and added to the LTM sampling program beginning in 2019. As of 2019, DRO, TAH, and TAqH have continued to exceed endpoint criteria in various site wells and sediment. Additionally, free product continues to be observed in site wells, although at a reduced volume and frequency. Because of this, it is recommended that the prescribed monitoring continue at this site.

Free product recovery was conducted this five-year review period between September 2016 and September 2020. A total of 0.09 gallons of free product was recovered from the SWMU 60, Tank Farm A area.

The oleophillic biobarrier (OBB) has been designed and is planned as a remedy optimization. Construction is planned for the Summer 2022 field season pending permitting and work plan approval.

SWMU 60, Tank Farm A — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- [x] Groundwater Monitoring
- [ ] Surface Water Monitoring
- [x] Sediment Monitoring
- [ ] Tissue Monitoring
- [ ] Landfill Inspection
- [x] IC Inspection — Click to View ICMP Table
- [ ] Remediation System Monitoring and Maintenance
- [ ] None Required

Most Recent Sampling Date: September 2019 Most Recent Inspection Date: September 2019

Current Media Sampled: Groundwater and sediment

Current Analytes Sampled: BTEX, DRO, TAH, TAqH, NAPs, product thickness

Current Monitoring: Click to View Current Monitoring Monitoring File: SWMU 60 monitoring.pdf

SWMU 60, Tank Farm A — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
650	MNA, SW protection	Groundwater
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Monitoring not planned	
2011	DRO, BTEX , PAHs (for TAH and TAqH)	
2012	DRO, BTEX , PAHs (for TAH and TAqH)	
2013	DRO, BTEX , PAHs (for TAH and TAqH)	
2014	DRO, BTEX , PAHs (for TAH and TAqH)	
2015	DRO, BTEX , PAHs (for TAH and TAqH)	
2016	DRO, BTEX , PAHs (for TAH and TAqH)	
2017	Monitoring not planned	
2018	DRO, BTEX , PAHs (for TAH and TAqH), NAPs	
2019	DRO, BTEX , PAHs (for TAH and TAqH)	

SWMU 60, Tank Farm A — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
651	MNA, SW protection	Groundwater
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Monitoring not planned	
2011	DRO, BTEX , PAHs (for TAH and TAqH)	
2012	DRO, BTEX , PAHs (for TAH and TAqH)	
2013	DRO, BTEX , PAHs (for TAH and TAqH)	
2014	DRO, BTEX , PAHs (for TAH and TAqH)	
2015	DRO, BTEX , PAHs (for TAH and TAqH)	
2016	DRO, BTEX , PAHs (for TAH and TAqH)	
2017	Monitoring not planned	
2018	DRO, BTEX , PAHs (for TAH and TAqH), NAPs	
2019	DRO, BTEX , PAHs (for TAH and TAqH)	

SWMU 60, Tank Farm A — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
652	MNA, SW protection	Groundwater
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Monitoring not planned	
2011	Free product detected, not sampled	
2012	DRO, BTEX , PAHs (for TAH and TAqH)	
2013	Free product detected, not sampled	
2014	DRO, BTEX , PAHs (for TAH and TAqH)	
2015	Free product detected, not sampled	
2016	DRO, BTEX , PAHs (for TAH and TAqH)	
2017	Monitoring not planned	
2018	DRO, BTEX , PAHs (for TAH and TAqH), NAPs	
2019	DRO, BTEX , PAHs (for TAH and TAqH)	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
653	MNA, SW protection	Groundwater
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Monitoring not planned	
2011	Free product detected, not sampled	
2012	DRO, BTEX , PAHs (for TAH and TAqH)	
2013	Free product detected, not sampled	
2014	Free product detected, not sampled	
2015	DRO, BTEX , PAHs (for TAH and TAqH)	
2016	DRO, BTEX , PAHs (for TAH and TAqH)	
2017	Monitoring not planned	
2018	DRO, BTEX , PAHs (for TAH and TAqH), NAPs	
2019	DRO, BTEX , PAHs (for TAH and TAqH)	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
656	MNA, SW protection	Groundwater
2019	DRO, BTEX, PAHs (for TAH and TAqH), NAPs	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
657	MNA, SW protection	Groundwater
2019	DRO, BTEX, PAHs (for TAH and TAqH), NAPs	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
658	MNA, SW protection	Groundwater
2019	DRO, BTEX, PAHs (for TAH and TAqH), NAPs	

SWMU 60, Tank Farm A — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
852	Natural Recovery	Surface water and Sediment
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2007	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2008	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2009	Surface water: DRO, GRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, GRO, 2-methylnaphthalene, phenanthrene	
2010	Surface water: DRO, TAH, TAqH, indeno(1,2,3-cd)pyrene Sediment: DRO, 2-methylnaphthalene, phenanthrene	
2011	Sediment: DRO, PAHs Surface water: DRO, BTEX , PAHs (for TAH and TAqH)	
2012	Sediment: DRO, PAHs Surface water: DRO, BTEX , PAHs (for TAH and TAqH)	
2013	Sediment: DRO, PAHs Surface water: DRO, BTEX , PAHs (for TAH and TAqH)	
2014	Sediment: DRO, PAHs Surface water: DRO, BTEX , PAHs (for TAH and TAqH)	
2015	Sediment: DRO Surface water: Met endpoint criteria; monitoring discontinued	
2016	Sediment: DRO	
2017	Monitoring not planned	
2018	Sediment: DRO	
2019	Sediment: DRO	

SWMU 60, Tank Farm A — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
LC5A	MNA	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	DRO, GRO, BTEX, NAPs	
2004	DRO, NAPs	
2005	DRO, visual inspection	
2006	DRO, visual inspection	
2007	DRO, visual inspection	
2008	DRO, TAH, TAqH, visual inspection	
2009	DRO, TAH, TAqH, NAPs, visual inspection	
2010	DRO, TAH, TAqH, visual inspection	
2011	DRO, BTEX , PAHs (for TAH and TAqH)	
2012	BTEX , PAHs (for TAH and TAqH)	
2013	BTEX , PAHs (for TAH and TAqH)	
2014	BTEX , PAHs (for TAH and TAqH), NAPs	
2015	BTEX , PAHs (for TAH and TAqH)	
2016	BTEX , PAHs (for TAH and TAqH)	
2017	Monitoring not planned	
2018	BTEX , PAHs (for TAH and TAqH), NAPs	
2019	BTEX , PAHs (for TAH and TAqH)	

SWMU 60, Tank Farm A — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW E006	MNA	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	DRO, GRO, BTEX, NAPs	
2004	BTEX, NAPs	
2005	BTEX	
2006	BTEX	
2007	BTEX	
2008	BTEX	
2009	BTEX, NAPs	
2010	Benzene	
2011	Benzene	
2012	Benzene	
2013	Benzene	
2014	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW E501	MNA	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	DRO, GRO, BTEX, NAPs	
2004	Met endpoint criteria; monitoring discontinued	

SWMU 60, Tank Farm A — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NL-03	SW protection	Surface water and Sediment
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Surface water: DRO, TAH, TAqH. Sediment: DRO, BTEX	
2007	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional controls at SWMU 60, Tank Farm A include land use controls, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the September 10, 2019 inspection, no residential construction had occurred at the site, and excavation restriction signs were clearly visible. There was surface evidence of permitted excavations in the downgradient portion of the site associated with the installation of wind-assisted passive bioventing and vapor monitoring. There were no indications of unpermitted groundwater use or excavation observed at the site. The 2019 IC report indicated all ICs appear to be functioning as intended. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

8, 13, 53, 84, 86, 90, 91, 113, 118, 129, 134, 140, 141, 142, 150, 151, 152, 161, 163, 165, 166, 167, 168, 169

SWMU 61, Tank Farm B — OU A - SAERA

SWMU 61, Tank Farm B — OU A - SAERA

STATUS: Groundwater, surface water, and sediment monitoring; petroleum boom maintenance; and institutional controls

BACKGROUND:

Tank Farm B, designated SWMU 61, is located next to and north of Runway 5-23. Tank Farm B is surrounded on three sides by water. North Sweeper Creek is located at the base of the hill to the south and east. An unnamed creek, which flows into North Sweeper Creek, is located at the base of the hill to the north. When constructed in 1943, the facility originally consisted of forty 23,800-gallon USTs and one 420,000-gallon FCT, designated V156-A2. All of these tanks were originally used to store avgas and had a combined capacity of 1.37 million gallons. A second 420,000-gallon FCT (10262-A1) was constructed in 1958. This tank was originally used to store avgas, but was retrofitted to store JP-5 fuel and then mogas. The FCTs were primarily constructed beneath the ground surface. A pump house was located on top of each FCT. Fuel was transferred to, from, and throughout Tank Farm B by several pipelines ranging from 6 to 10 inches in diameter. The pipelines were connected to FCTs and USTs through valve pits (one valve pit per tank).

In 1992, results from a soil-gas survey identified two areas of elevated concentrations of volatile organic vapors in the subsurface, one on the east side of FCT 10262-A1 and the other on the south side of UST pair T8761-9A and B, where the tank system piping enters the main fuel distribution pipeline. These areas correspond to the locations previously identified as petroleum-release source areas.

During September 1993, 30 of the 40 USTs were removed at Tank Farm B. Soil samples collected from the floors and sidewalls of each excavation indicated the presence of petroleum hydrocarbons in the soil. Although no record of the removal of the 10 remaining USTs exists, a site survey using ground-penetrating radar and electromagnetic techniques did not confirm the presence of these tanks.

Removal of most of the aboveground sections of pipelines, plugging of abandoned underground sections of pipelines, and cleaning and disposing of piping and other debris at Tank Farm B was completed in 1993. Soil analytical results from soil samples collected from under valve pits and from below the removed aboveground pipeline sections and flanges indicated the presence of petroleum hydrocarbons in the soil. In 1996, FCT 10262-A1 was drained, isolated from the associated pipelines, cleaned, inspected, and placed on inactive status. Additional soil and groundwater samples were collected from areas identified in the previous investigations between 1996 and 1997. The 10-inch-diameter pipeline to fuel Pier A-1 was drained, cleaned, and abandoned in 2003.

Four areas where petroleum hydrocarbons were detected in soil samples collected during the previous investigations are described below:
(A) The central area is located approximately 20 feet east of FCT 10262-A1, extending approximately 130 feet south to the former valve pit and approximately 110 feet east to the blind flange on the inactive 6-inch-diameter fuel-transfer pipeline. DRO and GRO were detected in soil at concentrations of up to 11,800 mg/kg and 2,000 mg/kg, respectively.
(B) The east area is located south of former UST pair T8761-9A and B. DRO and GRO were detected in soil at concentrations of up to 220 mg/kg and 1,800 mg/kg, respectively. Lead was detected at a

concentration of 464 mg/kg in a sample collected from the area between the two valve pits associated with the former USTs.
(C) The north area is located at the northern margin of Tank Farm B, downslope from former UST pair T8767-12A and B. GRO was reported at a maximum concentration of 1,400 mg/kg.
(D) A second north area is located approximately 300 feet north of the valve pit where the 4-inch-diameter and 6-inch-diameter avgas pipelines intersect. DRO was reported at a concentration of 383 mg/kg in one sample.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	130
Number of Pre-Rod Samples	197
Potential Contaminant Types Evaluated	Biological, Herbicides, Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Sediment , Soil, Sub-surface soil (> 6"), Surface soil (less than 6 inches), Surface water, Tissue
Types of Pre-ROD Locations	Borehole/Soil boring, Excavation, Ground surface, Hand auger, Monitoring well, River/stream, Tank, Vault, Well

SWMU 61, Tank Farm B — OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemicals exceeded these criteria (interpreted from Table 5-11 and Table 10-3 of the OU A ROD):

Groundwater

- Benzene
- Ethylbenzene
- GRO
- Toluene

In 1996, the site was screened using the ADEC supplemental criteria and was retained, because the maximum DRO concentration in surface soil (11,800 mg/kg) exceeded the screening level of 5,000 mg/kg for industrial sites, and the maximum GRO concentrations in subsurface soils (2,000 mg/kg) exceeded the screening level of 1,400 mg/kg. DRO, GRO, and BTEX were detected at Tank Farm B in groundwater at wells TFB-MW4A and TFB-MW4B. The OU A ROD (1999) did not identify human health or ecological risks associated with the site.

RAOs:

The OU A ROD for the petroleum site SWMU 61, Tank Farm B established the following RAO (Table 7-4 of the OU A ROD):

- Mitigate potential for downgradient migration.

REMEDY IMPLEMENTATION:

The OU A ROD-specified remedy for this site is MNA with ICs.

Natural attenuation groundwater monitoring was initiated in 1999 and is on-going. New well 14-113 was installed in 2003 to monitor natural attenuation conditions adjacent to North Sweeper Creek and to provide for surface water protection monitoring. Visual inspections of the North Sweeper Creek shoreline for petroleum seeps and sheen were added to the monitoring plan in 2005. ICs were implemented in 2000. Land use restrictions are required to ensure that the land will never be used in a way inconsistent with the land use assumptions set forth in the Adak Island RODs.

The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including SWMU 61.

In 2009, additional sediment and surface water samples were collected at SWMU 61 along North Sweeper Creek to support Engineering Evaluation/Cost Analyses activities and determine whether petroleum compounds are migrating to North Sweeper Creek. The additional samples were taken upgradient and

downgradient of an existing sediment/surface water monitoring station downgradient of the source area. At the downgradient sample location, odor and sheen were noted in surface water and/or sediment and analytical results indicated GRO and DRO were present in sediment at concentrations exceeding the risk-based cleanup level established for the South of Runway 18-36 site. However, these cleanup levels may not correlate to risks associated with the SWMU 61, Tank Farm B site; therefore, site-specific risk-based endpoint criteria may need to be developed to determine if sediments are being impacted by onsite contamination at unacceptable levels of risk.

In 2010, additional site characterization activities were performed at SWMU 61 to further assess the lateral extent of petroleum-impacted soils in support of a soil excavation remedy for source removal. Seven hand auger borings were advanced to further define the extent of TPH in soil at a maximum depth of 7.5 feet bgs in July 2010. Fourteen soil samples were collected from the borings (two depths in each boring) and analyzed for GRO by Alaska Method AK 101.

GRO was not detected in seven of the 14 samples. Detected GRO concentrations ranged from 3.1 mg/kg to 590 mg/kg. GRO concentrations in one sample exceeded the ADEC cleanup level of 260 mg/kg. The exceedance was present in sample 14-705-1, collected from a depth of 1-foot bgs. These sample results were compared to previous soil sample results from the same area and it was concluded that natural attenuation is occurring at the site.

As of 2018, GRO, BTEX, TAH, and TAqH concentrations remain above their respective endpoint criteria at the site; therefore, groundwater monitoring is recommended to continue on a biennial basis as prescribed. The Navy is also considering conducting a remedy evaluation to address impacted groundwater adjacent to North Sweeper Creek.

SWMU 61, Tank Farm B — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- [x] Groundwater Monitoring
- [ ] Surface Water Monitoring
- [ ] Sediment Monitoring
- [ ] Tissue Monitoring
- [ ] Landfill Inspection
- [x] IC Inspection — Click to View ICMP Table
- [ ] Remediation System Monitoring and Maintenance
- [ ] None Required

Most Recent Sampling Date: September 2018 Most Recent Inspection Date: September 2019

Current Media Sampled: Groundwater

Current Analytes Sampled: BTEX, GRO, TAH, TAqH, NAPs, product thickness

Current Monitoring: Click to View Current Monitoring Monitoring File: SMWU 61 monitoring.pdf

SWMU 61, Tank Farm B — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
14-113	MNA, SW protection	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	GRO, BTEX, NAPs	
2004	GRO, BTEX, NAPs, visual inspection	
2005	GRO, BTEX, visual inspection	
2006	GRO, BTEX, visual inspection	
2007	GRO, BTEX, TAH, TAqH, visual inspection	
2008	GRO, BTEX, TAH, TAqH, visual inspection	
2009	GRO, DRO, BTEX, TAH, TAqH, NAPs, visual inspection	
2010	GRO, BTEX, TAH, TAqH, visual inspection	
2011	GRO, BTEX , PAHs (for TAH and TAqH)	
2012	GRO, BTEX , PAHs (for TAH and TAqH)	
2013	GRO, BTEX , PAHs (for TAH and TAqH)	
2014	GRO, BTEX , PAHs (for TAH and TAqH), NAPs	
2015	Monitoring not planned	
2016	GRO, BTEX , PAHs (for TAH and TAqH)	
2017	Monitoring not planned	
2018	GRO, BTEX , PAHs (for TAH and TAqH), NAPs	
2019	Monitoring not planned	

SWMU 61, Tank Farm B — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
14-210	MNA, SW protection	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	GRO, BTEX, NAPs	
2004	GRO, BTEX, NAPs	
2005	GRO, BTEX, visual inspection	
2006	GRO, BTEX, visual inspection	
2007	GRO, BTEX, visual inspection	
2008	GRO, BTEX, visual inspection	
2009	GRO, BTEX, NAPs	
2010	GRO, BTEX, visual inspection	
2011	GRO, BTEX	
2012	GRO, BTEX	
2013	GRO, BTEX	
2014	GRO, BTEX, NAPs	
2015	Monitoring not planned	
2016	GRO, BTEX	
2017	Monitoring not planned	
2018	GRO, BTEX, NAPs	
2019	Monitoring not planned	

SWMU 61, Tank Farm B — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NL-04	SW protection	Surface water and Sediment
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Surface water: GRO, TAH, TAqH Sediment: GRO, BTEX	
2008	Surface water: GRO, TAH, TAqH Sediment: GRO, BTEX	
2009	Surface water: DRO, GRO, TAH, TAqH Sediment: DRO, GRO BTEX	
2010	Surface water: DRO, GRO, TAH, TAqH Sediment: DRO, GRO BTEX	
2011	Sediment: DRO, GRO, BTEX Surface water: DRO, GRO, BTEX , PAHs (for TAH and TAqH)	
2012	Sediment: GRO, BTEX Surface water: GRO, BTEX , PAHs (for TAH and TAqH)	
2013	Sediment: GRO, BTEX Surface water: GRO, BTEX , PAHs (for TAH and TAqH)	
2014	Sediment: GRO, BTEX Surface water: GRO, BTEX , PAHs (for TAH and TAqH)	
2015	Sediment: Met endpoint criteria; monitoring discontinued Surface water: Met endpoint criteria; monitoring discontinued	

SWMU 61, Tank Farm B — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NL-D-04	SW protection	Surface water and Sediment
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Surface water: DRO, GRO, TAH, TAqH Sediment: DRO, GRO, BTEX	
2010	Surface water: DRO, GRO, TAH, TAqH Sediment: DRO, GRO, BTEX	
2011	Sediment: DRO, GRO, BTEX Surface water: DRO, GRO, BTEX , PAHs (for TAH and TAqH)	
2012	Sediment: GRO, BTEX Surface water: GRO, BTEX , PAHs (for TAH and TAqH)	
2013	Sediment: Met endpoint criteria; monitoring discontinued Surface water: Met endpoint criteria; monitoring discontinued	

SWMU 61, Tank Farm B — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NL-U-04	SW protection	Surface water and Sediment
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Surface water: DRO, GRO, TAH, TAqH Sediment: DRO, GRO, BTEX	
2010	Monitoring discontinued	
2011	Sediment: Met endpoint criteria; monitoring discontinued Surface water: Met endpoint criteria; monitoring discontinued	
2012	Sediment: Met endpoint criteria; monitoring discontinued Surface water: Met endpoint criteria; monitoring discontinued	
2013	Sediment: Met endpoint criteria; monitoring discontinued Surface water: Met endpoint criteria; monitoring discontinued	
2014	Sediment: Met endpoint criteria; monitoring discontinued Surface water: Met endpoint criteria; monitoring discontinued	
2015	Sediment: Met endpoint criteria; monitoring discontinued Surface water: Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
TFB-MW-4A	MNA	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	GRO, BTEX, NAPs	
2004	Met endpoint criteria; monitoring discontinued	

SWMU 61, Tank Farm B — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
TFB-MW-4B	MNA	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	GRO, BTEX, NAPs	
2004	GRO, BTEX, NAPs	
2005	GRO, BTEX	
2006	GRO, BTEX	
2007	GRO, BTEX	
2008	GRO, BTEX	
2009	GRO, DRO, BTEX, NAPs	
2010	GRO, BTEX	
2011	GRO, BTEX	
2012	GRO, BTEX	
2013	GRO, BTEX	
2014	GRO, BTEX, NAPs	
2015	Monitoring not planned	
2016	GRO, BTEX	
2017	Monitoring not planned	
2018	GRO, BTEX, NAPs	
2019	Monitoring not planned	

SUMMARY OF INSPECTION RESULTS:

Institutional controls at SWMU 61, Tank Farm B include land use controls, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the inspection on September 9, 2019, no changes to the site were observed compared to the 2017 inspection results. The site is currently not being used. No residential construction had occurred at the site. No indications that groundwater was being used and no indications of excavation activities were found at the site. Excavation restriction signs were clearly visible, however the sign located off Hillside Boulevard has bullet dents which do not currently impact sign legibility. The 2019 IC report indicated all ICs appear to be functioning as intended. The next IC inspection is scheduled 2021.

BIBLIOGRAPHY:

7, 26, 46, 84, 86, 90, 91, 113, 118, 129, 132, 134, 141, 142, 152, 164, 165, 166

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

STATUS: Groundwater, surface water, and sediment monitoring; free product recovery; petroleum boom maintenance; and institutional controls

BACKGROUND:

SWMU 62, New Housing Fuel Leak, is located in the downtown area of Adak, east of Runway 18-36, north of Public Works Road, west of Bayshore Highway, and south of Kagalaska Drive. SWMU 62 occupies an area of approximately 100 acres and includes Sandy Cove Housing, Eagle Bay Housing, Turnkey Housing, two school buildings and yards, and miscellaneous facilities.

Initial investigation reports for SWMU 62 divided the three housing areas according to the proximity of leaks, apparent extent of free product, and individual housing units. The subdivisions are as follows:
(A) Sandy Cove Housing: Unit 102, Units 107 and 146, Units 114, 116, 160, and 167, and Units 134, 139, 179, 184, and 187
(B) Eagle Bay Housing Unit 303
(C) Turnkey Housing Unit 67

Each housing unit is supplied with JP-5 heating fuel from one or two 500-gallon ASTs, installed in 1998 to replace the former distribution and storage system. Prior to the installation of the 500-gallon ASTs, JP-5 heating fuel was distributed to the housing units through a network of underground piping. The fuel was stored in several large ASTs that were filled via piping connected to the Sandy Cove, Eagle Bay, and Turnkey Housing tank farms.

Groundwater is found as both a laterally discontinuous perched layer and a regional water table aquifer beneath SWMU 62. Groundwater appears to flow toward Kuluk Bay, the East Canal, and Sweeper Cove, depending on its proximity to each.

In 1988 and 1989, the Navy conducted reviews of inventory records and visual site inspections in housing units and crawl spaces after occupants reported hydrocarbon-like odors. As a result of the visual inspections, five piping fuel leaks were discovered and repaired. Because of these detected leaks, the heating fuel distribution system was pressure tested. As a result of the pressure testing, 16 additional piping leaks were detected and repaired: 13 in Sandy Cove, two in Eagle Bay, and one in Turnkey Housing. The substance released from the pipes was JP-5; however, the volume of the release has not been determined. Based on the results from these investigations, approximately 102 cubic yards of surface soil was removed from beneath the housing units. The excavated material was replaced with clean sand, and vapor barriers were installed and sealed to the housing unit foundations.

Free product was encountered in 46 of 109 monitoring wells installed in 1989. Ten recovery wells were installed in Sandy Cove Housing, six recovery wells were installed in Eagle Bay Housing, and one product recovery trench was installed adjacent to and west of Sandy Cove Housing Unit 167 as an interim remedial action. Free product was not measured in Turnkey Housing wells. A total of 45 additional monitoring wells and 10 recovery wells were installed in 1993 to evaluate existing conditions.

A separate release investigation was conducted in 1993 to evaluate potential petroleum-related

contamination along the Main Road Pipeline (6-inch JP-5). DRO concentrations of 20,000 mg/kg in soil and 4,100 µg/L in groundwater were detected in samples collected from MRP-MW1. GRO was reported at 1,700 mg/kg in the soil sample from MRP-MW4. Free product was detected in one well (MRP-MW1) that was installed within the free product plume associated with the Sandy Cove Housing Unit 102 area.

Between 1996 and 1999, 48 monitoring and Geoprobe wells were installed. The maximum concentration of DRO detected in subsurface soil samples was 2,700 mg/kg in Unit 102 samples; 19,000 mg/kg in Units 107 and 146 samples; 12,000 mg/kg in Units 114, 116, 134, 139, 160, 167, 179, 184, and 187 samples; and 18,000 mg/kg in Unit 303 samples. The maximum concentration of DRO detected in groundwater was 18,000 µg/L in Unit 102 samples; 14,000 µg/L in Units 107 and 146 samples; 23,000 µg/L in Units 114, 116, 134, 139, 160, 167, 179, 184, and 187 samples; and 23,000 µg/L in Unit 303 samples.

Since site investigation activities began during 1989, more than 200 groundwater wells have been installed within the SWMU 62 site. These wells were periodically gauged for the presence of free product between November 1992 and October 2003. During this time period, free product was observed at a measurable thickness in 112 wells. In addition, a petroleum seep into the East Canal of the airport ditch system was identified west of the Eagle Bay Housing area.

Free product recovery efforts began in 1989. The free product recovery system operated regularly for the first year. After the first or second year of operation, maintenance issues appear to have resulted in intermittent operation of the system until 1993, when the system was inspected. The system was repaired and restarted in 1994. In 1996, installation of a new total fluids recovery system was completed and the system was started in October 1996. Since operation of the total fluids recovery system started in 1996, the system operated relatively continuously, except for planned shutdowns for well development and maintenance. The total volume of the free product recovered from November 1996 to May 2000 is approximately 18,000 gallons. The total volume of free product recovered since 1989 is approximately 154,000 gallons. This estimate is based on monthly progress reports and recovered volumes reported in previous investigations. The recovery system was shut down in May 2000.

Post-recovery monitoring was conducted at the New Housing Fuel Leak site for a two-year period following shutdown of the free-product recovery system. At the end of the two-year period, the Navy monitoring contractor determined that post-recovery monitoring could be discontinued at the site. The Navy estimates that between 1,400 and 6,900 gallons of recoverable free product remain in the subsurface at the New Housing Fuel Leak site. The recovery system was shut down in May 2000, but additional remedial activities were implemented via a SAERA decision document in 2006. Further discussion is presented in the Remedy Implementation section below.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	224
Number of Pre-Rod Samples	666
Potential Contaminant Types Evaluated	Inorganics, Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics,

	Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Product (floating or free), Sediment , Soil gas, Soil, Sub-surface soil (> 6"), Surface water
Types of Pre-ROD Locations	Borehole/Soil boring, Channel/Ditch, Direct Push/Geoprobe, Excavation, Geoprobe well, Hand auger, Hydropunch, Monitoring well, Recovery well, Well

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

COCs AND RISKS:

SWMU 62 was one of the sites in the OU A ROD for which additional evaluation under SAERA was required. The interim action under the OU A ROD was free product recovery. The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemicals exceeded these criteria (interpreted from Table 5-11 of the OU A ROD):

Groundwater

- Benzene
- DRO
- Ethylbenzene
- GRO
- Toluene

The OU A ROD (1999) did not identify human health or ecological risks associated with the site, however, a human health and ecological risk assessment was completed for this site during 2004 as part of the follow-on assessment under SAERA. SWMU 62 cleanup levels specified for soil are based on ADEC Method Four Criteria [18 AAC 75.340(a)(4)], which uses site-specific risk assessments to establish ACLs. Cleanup levels specified for groundwater are based on the use of groundwater as a drinking water source [18 AAC 75.345(b)(1), Table C]. The human health risk assessment for this site established that the existing concentrations in surface water and sediment do not pose an unacceptable risk to humans. In addition, the ecological risk assessment established that no ecological threat exists for any ecological receptor from petroleum hydrocarbons released at the SWMU 62 site. Therefore, no risk-based cleanup levels were calculated for surface water or sediment at the site and no cleanup is necessary.

The 2006 Final Decision Document for the South of Runway 18-36 Area established the following cleanup levels based on ADEC regulatory criteria for the following COCs:

Groundwater

- Benzene
- DRO
- Ethylbenzene
- GRO
- Toluene

Soil

- DRO

RAOs:

The OU A ROD for SWMU 62 established the following original RAOs (Table 7-4 of the OU A ROD):

- Mitigate potential for downgradient migration.

- Reduce volume of petroleum free product.

The RAOs were revised in the 2006 Final Decision Document for SWMU 62 to the following (for the protection of human health):

- Prevent migration of free product to surface water that would result in an exceedance of the Alaska DEC surface water quality standard (sheen only)
- Minimize exposure to free-phase product in soil, groundwater, and surface water
- Reduce petroleum hydrocarbons in groundwater to concentrations less than or equal to the Alaska DEC groundwater cleanup levels established for groundwater used as a drinking water source
- Prevent human exposure to petroleum hydrocarbons in surface soil that would result in adverse health effects.

REMEDY IMPLEMENTATION:

The OU A ROD-specified interim remedy for this site is free product recovery.

Active product recovery as an interim action was initiated during January 1989 and was terminated during May 2000. Approximately 154,000 gallons of free product was removed.

The August 2006 decision document prepared under SAERA specified the final remedy as ICs, free product containment and passive recovery, surface soil excavation, and MNA. ICs required by the 2006 decision document were already in place when the decision document was executed. The CMP was modified as needed to incorporate the groundwater MNA component of the final remedy.

Surface soil excavation was conducted from June 28 to July 6, 2006. Soil at the identified hot spot was excavated to a depth of 2 feet and proceeded radially outward from the center of the excavation until soils were confirmed clean through field test kit and laboratory analysis. A total of 187 cubic yards of soil were removed from an area approximately 50 feet by 50 feet by 2 feet deep. The excavation was limited to 2 feet bgs by the work plan, and lateral excavation in one area was limited by the presence of a concrete foundation. The rationale for the 2 foot deep excavation was not presented in the workplan or closure report.

Eight confirmation soil samples were collected following excavation: two floor samples and six sidewall samples. DRO and RRO was detected in all eight of the samples, and the DRO concentrations exceeded the cleanup level of 6,111 mg/kg in one floor sample and one sidewall sample (near the concrete foundation). The maximum DRO concentration in the confirmation soil samples was 24,000 mg/kg. The soil represented by these samples was left in place, covered with Visqueen, and then covered with 2 feet of clean backfill soil.

As part of implementing the passive free product recovery and containment component of the final remedy, a 300-foot-long recovery trench was installed between September 15 and October 3, 2006 at SWMU 62 adjacent to the East Canal. The recovery trench provides a zone of increased permeability to enhance

collection of free product through employment of passive collection equipment, with the further addition of a downgradient impermeable liner to prevent migration of petroleum contaminants into the East Canal. Six recovery wells (sumps) were installed within the trench at 50-foot intervals, and provide the means of deploying passive product collection.

Four new monitoring/recovery wells also were installed in 2006.

Booms in the East Canal drainage were replaced in September 2006 and have been monitored since.

Also, as part of implementing the product recovery component of the final remedy, free product recovery devices were installed in wells at the site and within the product recovery trench sumps. Sorbent socks were installed for fuel recovery at any location showing a product thickness greater than 0.01 foot but less than 0.1 foot. Passive skimmers were installed at locations showing between 0.11 and 0.5 foot, and an automated system installed at locations showing a product thickness greater than 0.5 foot, or wherever passive skimmer capacity was exceeded for the period between monitoring events. An automated recovery system was installed in 2006 for four locations (03-518, HMW-303-3, HMW-303-5, and HMW-303-11). The system was adjusted in the field to efficiently recover the greatest amount of fuel and the least amount of water.

Water level and product thicknesses were checked once per week in September 2006 at 47 well locations. Thirty wells had measurable product thicknesses during this month. The maximum product thickness measured in September was 2.70 feet at HMW-102-1 on September 4, 2006.

In 2009, an additional sediment and surface water sample were each collected at SWMU 62 on the eastern shore of East Canal, downgradient of the product recovery trench. Analytical results indicated DRO was present in sediment at a concentration exceeding the risk-based cleanup level established for the South of Runway 18/36 site. However, these cleanup levels may not correlate to risks associated with the SWMU 62 site; therefore site-specific risk-based endpoint criteria may need to be developed to determine if sediments are being impacted by onsite contamination at unacceptable levels of risk.

A removal action performed by the Navy in 2016, addressed petroleum seepage occurring into East canal in the area of the recovery trench and recovery sumps. This resulted in removal of the recovery trench and all six recovery sumps, as well as two existing monitoring wells, along with the petroleum contaminated soil adjacent to East Canal. Clean amended fill soil was used to replace the contaminated soil and seven new monitoring wells were installed.

Free product recovery is ongoing. From October 2016 through September 2020, a total of 7.92 gallons of free product have been recovered from SWMU 62, New Housing Fuel Leak area. Due to the continued observance of free product, it was recommended that free product activities continue.

As of 2019, DRO continues to exceed the end point criterion in groundwater in various site wells with the continued occurrence of intermittent free product, it is recommended that five of the monitoring wells installed in 2016 in the SWMU 62, New Housing Fuel Leak Area removal area continue to be included in the LTM monitoring program, and that the groundwater, surface water, and sediment monitoring at the site

continue as prescribed.

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- [x] Groundwater Monitoring
- [x] Surface Water Monitoring
- [x] Sediment Monitoring
- [ ] Tissue Monitoring
- [ ] Landfill Inspection
- [x] IC Inspection — Click to View ICMP Table
- [ ] Remediation System Monitoring and Maintenance
- [ ] None Required

Most Recent Sampling Date: September 2018 Most Recent Inspection Date: September 2019

Current Media Sampled: Groundwater, surface water, and sediment

Current Analytes Sampled: GRO, DRO, BTEX, TAH, TAqH, NAPs, product thickness

Current Monitoring: Click to View Current Monitoring Monitoring File: SWMU 62 monitoring.pdf

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RW-303-13	MNA, SW protection, PT	Groundwater
2016	Decommissioned during SWMU 62 Remediation	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-012	FFS	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	Met endpoint criteria; monitoring discontinued	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	DRO, GRO, BTEX , PAHs (for TAH and TAqH), NAPs	
2014	DRO, GRO, BTEX , PAHs (for TAH and TAqH), NAPs	
2015	DRO, GRO, BTEX , PAHs (for TAH and TAqH)	
2016	Decommissioned during SWMU 62 Remediation; switched to RW-303-14 (SWMU 62) in 2016 then MW-62-16-03 in 2017 and beyond	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-101	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness (monthly)	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-102	PT	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness (monthly)	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-103	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, NAPs	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	
2011	DRO, GRO, BTEX	
2012	DRO	
2013	Met endpoint criteria; monitoring discontinued	
2015	DRO, GRO, BTEX	
2016	DRO, GRO, BTEX	
2017	DRO, GRO, BTEX	
2018	DRO, GRO, BTEX, NAPs	
2019	Met endpoint criteria; monitoring discontinued	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-104	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Free product detected, not sampled, product thickness (monthly)	
2007	DRO, GRO, BTEX, product thickness (monthly)	
2008	DRO, GRO, BTEX, product thickness (monthly)	
2009	DRO, GRO, BTEX, NAPs, product thickness (monthly)	
2010	DRO, GRO, BTEX	
2011	DRO, GRO, BTEX	
2012	DRO, GRO, BTEX	
2013	DRO, GRO, BTEX	
2014	DRO, GRO, BTEX	
2015	DRO	
2016	DRO	
2017	DRO	
2018	DRO, NAPs	
2019	DRO	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-107	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-109	MNA, SW protection, PT	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, total and dissolved lead, NAPs	
2003	Met endpoint criteria; monitoring discontinued	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, NAPs	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	
2011	DRO, GRO, BTEX	
2012	DRO	
2013	Met endpoint criteria; monitoring discontinued	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-155	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	DRO, GRO, BTEX, NAPs	
2004	DRO, GRO, BTEX, NAPs	
2005	DRO, GRO, BTEX	
2006	DRO, GRO, BTEX, NAPs	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	
2011	DRO	
2012	DRO	
2013	DRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	DRO	
2017	Monitoring not planned	
2018	DRO, NAPs	
2019	Monitoring not planned	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-502	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, NAPs	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	
2011	DRO, GRO, BTEX	
2012	DRO, GRO, BTEX	
2013	DRO, GRO, BTEX	
2014	DRO, GRO, BTEX	
2015	Met endpoint criteria; monitoring discontinued	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-518	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness (monthly)	
2011	Monitoring not planned	
2012	Monitoring not planned	
2013	Monitoring not planned	
2014	Monitoring not planned	
2015	GRO, DRO, BTEX	
2016	GRO, DRO, BTEX	
2017	GRO, DRO, BTEX	
2018	GRO, DRO, BTEX, NAPs	
2019	GRO, DRO, BTEX	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-619	FFS, MNA, PT	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	Discontinued monitoring; DRO detected above criteria; use another sentinel well	
2006	Monitoring not planned	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	
2011	DRO, GRO, BTEX	
2012	DRO	
2013	DRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	DRO	
2017	Monitoring not planned	
2018	DRO, NAPs	
2019	Monitoring not planned	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-695	FFS	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	Met endpoint criteria; monitoring discontinued	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-696	FFS, PT	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	Met endpoint criteria; monitoring discontinued	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-697	FFS, MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	Met endpoint criteria; monitoring discontinued	
2006	DRO, GRO, BTEX, NAPs	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	
2011	DRO, GRO, BTEX	
2012	Met endpoint criteria; monitoring discontinued	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-778	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, NAPs	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	
2011	DRO, GRO, BTEX	
2012	DRO, GRO, BTEX	
2013	DRO, GRO, BTEX	
2014	DRO, GRO, BTEX	
2015	DRO	
2016	DRO	
2017	DRO	
2018	DRO, NAPs	
2019	DRO	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-802	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, NAPs	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	
2011	DRO	
2012	DRO	
2013	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-895	FFS, MNA, PT	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	Monitoring not planned	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	Met endpoint criteria; monitoring discontinued	
2006	DRO, GRO, BTEX, NAPs	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-896	FFS	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-897	FFS	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
03-898	FFS, MNA, SW protection, PT	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	Met endpoint criteria; monitoring discontinued	
2006	DRO, GRO, BTEX, NAPs	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	
2011	DRO, GRO, BTEX	
2012	DRO	
2013	Met endpoint criteria; monitoring discontinued	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
AMW-704	FFS, MNA, SW protection, PT	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	Met endpoint criteria; monitoring discontinued	
2006	DRO, GRO, BTEX, NAPs	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	
2011	DRO, GRO, BTEX	
2012	DRO	
2013	DRO	
2014	DRO, NAPs	
2015	GRO	
2016	DRO, GRO	
2017	GRO	
2018	DRO, GRO, NAPs	
2019	Monitoring not planned	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
CTO-124-MW14	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
CTO-124-MW15	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
HMW-102-1	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
HMW-102-6	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, NAPs	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	
2011	DRO	
2012	Met endpoint criteria; monitoring discontinued	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
HMW-102-8	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, NAPs	
2007	Product thickness	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Monitoring not planned	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
HMW-107-2	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	
2011	DRO	
2012	Met endpoint criteria; monitoring discontinued	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
HMW-139-2	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
HMW-139-3	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, NAPs	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	
2011	DRO	
2012	Met endpoint criteria; monitoring discontinued	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
HMW-146-1	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
HMW-146-3	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, NAPs	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	
2011	DRO, GRO, BTEX	
2012	DRO	
2013	Met endpoint criteria; monitoring discontinued	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
HMW-303-1	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
HMW-303-10	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
HMW-303-11	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness (monthly)	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
HMW-303-12	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, NAPs, product thickness (monthly)	
2007	DRO, GRO, BTEX, product thickness (monthly)	
2008	DRO, GRO, BTEX, product thickness (monthly)	
2009	DRO, GRO, BTEX, NAPs, product thickness (monthly)	
2010	DRO, GRO, BTEX	
2011	Met endpoint criteria; monitoring discontinued	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
HMW-303-2	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
HMW-303-3	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness (monthly)	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
HMW-303-4	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
HMW-303-5	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
HMW-303-9	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MRP-MW-2	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, NAPs	
2007	DRO, GRO, BTEX	
2008	Well dry, not sampled	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	
2011	DRO, GRO, BTEX	
2012	DRO, GRO, BTEX	
2013	DRO, GRO, BTEX , T/D-Pb, NAPs	
2014	DRO, GRO, BTEX , T/D-Pb, PAHs (for TAH and TAqH), NAPs	
2015	DRO, GRO, BTEX , T/D-Pb	
2016	DRO, GRO, BTEX , T/D-Pb	
2017	DRO, GRO, BTEX , T/D-Pb	
2018	DRO, GRO, BTEX , T/D-Pb, NAPs	
2019	DRO, GRO, BTEX , T/D-Pb	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MRP-MW-3	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, NAPs	
2007	DRO, GRO, BTEX	
2008	Free product detected, not sampled, product thickness	
2009	DRO, GRO, BTEX, NAPs	
2010	Free product detected, not sampled, product thickness	
2011	DRO, GRO, BTEX	
2012	DRO, GRO, BTEX	
2013	DRO, GRO, BTEX	
2014	DRO, GRO, BTEX , T/D-Pb, PAHs (for TAH and TAqH), NAPs	
2015	DRO, GRO, BTEX , T/D-Pb	
2016	DRO, GRO, BTEX , T/D-Pb	
2017	DRO, GRO, BTEX , T/D-Pb	
2018	DRO, GRO, BTEX , T/D-Pb, NAPs	
2019	DRO, GRO, BTEX , T/D-Pb	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-102-4	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-107-1	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, NAPs	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	
2011	DRO	
2012	DRO	
2013	DRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	DRO	
2017	Monitoring not planned	
2018	DRO, NAPs	
2019	Monitoring not planned	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-107-11	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-134-10	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-134-11	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	DRO, GRO, BTEX	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO, GRO, BTEX	
2006	DRO, GRO, BTEX, NAPs	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	
2011	DRO, GRO, BTEX	
2012	DRO	
2013	DRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	DRO	
2017	Monitoring not planned	
2018	DRO, NAPs	
2019	Monitoring not planned	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-134-8	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Well destroyed	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-139-2	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Sample tubing clogged with biomaterial, no sample collected, product thickness	
2007	Product thickness	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Monitoring not planned	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-146-1	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	
2011	DRO	
2012	DRO	
2013	DRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	DRO	
2017	Monitoring not planned	
2018	DRO, NAPs	
2019	Monitoring not planned	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-146-6	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Well abandoned, MW-146-1 sampled as replacement	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-187-1	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, NAPs	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	
2011	DRO, GRO, BTEX	
2012	DRO, benzene	
2013	DRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	DRO	
2017	Monitoring not planned	
2018	DRO, NAPs	
2019	Monitoring not planned	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-1	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-10	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-12	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness (monthly)	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-14	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, NAPs	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	
2011	Met endpoint criteria; monitoring discontinued	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-18	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-5	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-7	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	
2011	DRO, GRO, BTEX	
2012	DRO	
2013	DRO	
2014	DRO, NAPs	
2015	Monitoring not planned	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-303-8	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-62-16-01	MNA	Groundwater
2017	DRO, GRO, BTEX	
2018	DRO, NAPs	
2019	DRO	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-62-16-02	MNA	Groundwater
2017	DRO, GRO, BTEX	
2018	DRO, NAPs	
2019	DRO	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-62-16-03	MNA	Groundwater
2017	DRO, GRO, BTEX	
2018	DRO, NAPs	
2019	DRO	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-62-16-04	MNA	Groundwater
2017	DRO, GRO, BTEX	
2018	DRO, NAPs	
2019	DRO	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-62-16-05	MNA	Groundwater
2017	DRO, GRO, BTEX	
2018	DRO, NAPs	
2019	Free product detected, not sampled	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-62-16-06	MNA	Groundwater
2017	DRO, GRO, BTEX	
2018	DRO, NAPs	
2019	DRO	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-62-16-07	MNA	Groundwater
2017	Free product detected, not sampled	
2018	Free product detected, not sampled	
2019	Free product detected, not sampled	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NL-09	SW protection	Surface water and Sediment
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Monitoring not planned	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Surface water: DRO, GRO, BTEX, TAH, TAqH Sediment: DRO, GRO, BTEX, PAHs	
2011	Sediment: DRO, GRO, BTEX , PAHs Surface water: DRO, GRO, BTEX , PAHs (for TAH and TAqH)	
2012	Sediment: DRO, GRO, BTEX , PAHs Surface water: DRO, GRO, BTEX , PAHs (for TAH and TAqH)	
2013	Sediment: DRO, GRO, BTEX , PAHs Surface water: DRO, GRO, BTEX , PAHs (for TAH and TAqH)	
2014	Sediment: DRO, GRO, BTEX , PAHs Surface water: DRO, GRO, BTEX , PAHs (for TAH and TAqH)	
2015	Sediment: Monitoring not planned Surface water: Monitoring not planned	
2016	Location buried beneath clean fill during SWMU 62 remedation	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
NL-09B	SW protection	Surface water and Sediment
2016	Sediment: DRO Surface water: DRO, GRO, BTEX, PAHs(for TAH and TAqH)	
2017	Monitoring not planned	
2018	Sediment: DRO Surface water: DRO, GRO, BTEX, PAHs(for TAH and TAqH)	
2019	Monitoring not planned	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RW-102-2	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Replaced with HMW-102-8 for 2006	
2007	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RW-102-4	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RW-303-11	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RW-303-12	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RW-303-13	MNA, SW protection, PT	Groundwater

1999	Monitoring not planned
2000	Monitoring not planned
2001	Monitoring not planned
2002	Monitoring not planned
2003	Monitoring not planned
2004	Monitoring not planned
2005	Monitoring not planned
2006	DRO, GRO, BTEX, NAPs, product thickness (monthly)
2007	RW-303-15 accidentally sampled instead of this location, product thickness (monthly)
2008	DRO, GRO, BTEX, product thickness (monthly)
2009	DRO, GRO, BTEX, NAPs, product thickness (monthly)
2010	DRO, GRO, BTEX, product thickness (monthly)
2011	DRO, GRO, BTEX
2012	DRO
2013	DRO
2014	DRO, NAPs
2015	Monitoring not planned

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RW-303-14	MNA, SW protection, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, NAPs, product thickness (monthly)	
2007	DRO, GRO, BTEX, product thickness (monthly)	
2008	DRO, GRO, BTEX, product thickness (monthly)	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	
2011	DRO, GRO, BTEX	
2012	DRO	
2013	DRO	
2014	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RW-303-15	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	DRO, GRO, BTEX, product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness (monthly)	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RW-303-16	MNA, SW protection, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX, NAPs, product thickness (monthly)	
2007	DRO, GRO, BTEX, product thickness (monthly)	
2008	DRO, GRO, BTEX, product thickness (monthly)	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, BTEX	
2011	DRO, GRO, BTEX	
2012	DRO	
2013	DRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	DRO	
2017	Monitoring not planned	
2018	DRO, NAPs	
2019	Monitoring not planned	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RW-303-4	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness (monthly)	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RW-303-6	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

SWMU 62, Housing Area Fuel Leak — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RW-303-7	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
RW-303-9	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness	
2010	Product thickness	

SUMMARY OF INSPECTION RESULTS:

Institutional controls at SWMU 62, Housing Area Fuel Leak includes land use controls, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the September 10, 2019 inspection, the large pile of petroleum contaminated soil with a black poly cover

associated with the 2016 removal action was no longer observed onsite. Surface evidence of an unpermitted excavation, presumably to shut off water after a housing fire, was observed near Sandy Cove Housing unit 165A. No other unauthorized excavations were observed at the site. No indications of groundwater use were found. Excavation restriction signs were clearly visible. No other changes to the site were observed compared to the 2017 inspection results. The 2019 IC report indicated for ICs to function as intended, landowners should be notified and educated on the IC program to ensure excavation notifications are submitted prior to excavating. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

50, 59, 62, 84, 86, 90, 91, 96, 110, 129, 132, 134, 140, 141, 142, 149, 150, 151, 152, 161, 162, 163, 165, 166, 167, 168, 169

SWMU 67, White Alice PCB Spill Site — OU A

SWMU 67, White Alice PCB Spill Site — OU A

STATUS: Cleanup complete with institutional controls

BACKGROUND:

SWMU 67, the White Alice PCB Spill Site (formerly called Site 22), is a former military communications complex located approximately 2 miles west of downtown Adak. Prior to the removal action in 1997, the site consisted of the remains of three building foundations, abandoned concrete pads, and eight DEW Line radar nets.

SWMU 67 is situated on a flattened hilltop approximately 595 feet above MLLW. The slopes of the surrounding hillsides vary, exceeding 50 percent in some areas. The site occupies the highest topographic point in the vicinity.

The White Alice Complex was constructed in 1956 and consisted of large transmitting and receiving dish antennae. The complex was dismantled between 1980 and 1982. According to the initial assessment study report, the demolition contractor drained fluids containing PCBs from 51 transformers into 55-gallon drums prior to removing electrical equipment. During this process, an unknown volume of transformer oil was spilled inside and outside the easternmost building of the White Alice Complex.

Two USTs containing JP-5 were removed from the White Alice Complex during the summer of 1994. Approximately 200 cubic yards of soils were determined to be impacted by chemicals associated with the tanks. No soils were removed from the site during the tank removal.

Following the PSE-2 of SWMU 67, an interim removal action was conducted in 1997 consisting of transporting approximately 984 cubic yards of soils from Site 16A stockpiles (located adjacent to SWMU 16) containing PCBs (less than 50 mg/kg) to SWMU 67, and constructing a multi-layered impermeable cap over the areas of highest observed contamination (soil with more than 25 mg/kg PCBs) to prevent migration of PCBs from the site. The cap also covers the soils transported from Site 16A. The work performed at SWMU 67 did not conform exactly to the previously published plans, in that the boundary of the multi-layered cap extends farther than originally planned.

Analytical results of surface and subsurface soil and sediment samples were used to assess human health and ecological risk based on post removal conditions.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	215
Number of Pre-Rod Samples	308
Potential Contaminant Types Evaluated	Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics

SWMU 67, White Alice PCB Spill Site — OU A

Pre-ROD Sample Matrix Types	Sediment , Sub-surface soil (> 6"), Surface soil (less than 6 inches)
Types of Pre-ROD Locations	Borehole/Soil boring, Excavation, Ground surface, Spring/Seep, Test Pit

SWMU 67, White Alice PCB Spill Site — OU A

COCs AND RISKS:

No COCs were identified in the OU A ROD. Aroclors were major ecological risk drivers in sediment and surface soil.

A residential scenario was not evaluated, because establishing a residence at this location was determined not to be feasible. The cancer and noncancer risks, based on other human health scenarios, were below levels of concern (Table 6-4 of the OU A ROD). The ecological HI from sediment and surface soil was estimated to be 68 and 86, respectively, primarily from Aroclor 1260 (Tables 6-6 and 6-7 of the OU A ROD). Capping reduced the ecological risk by more than 99 percent. Detections of the residual PCBs in the soil outside the cap were infrequent and discontinuous. Downgradient seeps where sediments were collected do not provide significant habitat for receptors. Therefore, the ecological risks are negligible.

RAOs:

The OU A ROD for the CERCLA site SWMU 67, White Alice PCB Spill Site established the following RAO (interpreted from Table 7-2 of the OU A ROD):

- Prevent human and ecological exposure to PCBs in soil that would result in adverse health effects.

REMEDY IMPLEMENTATION:

The remedy selected for this site in the OU A ROD was ICs.

ICs were implemented in 2000 following execution of the OU A ROD. Land use restrictions are required to ensure that the land will never be used in a way inconsistent with the land use assumptions set forth in the Adak Island RODs.

The land use restrictions/prohibitions have been included in the Interim Conveyance. Excavation notification is required at all sites, including SWMU 67. IC inspections, including inspection of the cap, are required under the ICMP.

SWMU 67, White Alice PCB Spill Site received "cleanup complete with ICs" determination from ADEC on September 1, 2004.

SWMU 67, White Alice PCB Spill Site — OU A

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: June 1998 — Most Recent Inspection Date: September 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

SWMU 67, White Alice PCB Spill Site — OU A

SUMMARY OF INSPECTION RESULTS:

Institutional controls at SWMU 67, White Alice PCB Spill Site includes land use controls, equitable servitude, soil excavation restrictions, signage, soil cover inspections, and IC inspections and reporting. During the inspection on September 6, 2019, the cellular communication tower and building within a fenced area, and the previously documented AVO equipment, was observed onsite. New monitoring equipment has been installed at the site since the 2017 inspection. Signs of unauthorized excavation were observed at the site around the newly installed equipment, as evident by the pile of suspected cap liner material. The use of the communication equipment onsite is consistent with intended reuse. There were no "excavation restriction" or "absolute excavation prohibition" signs observed onsite as the sign was missing from the post. The 2019 IC report indicated that absolute excavation prohibition signs be installed and land users be notified and educated on the IC program to ensure excavation notifications are submitted prior to excavating, and to ensure ICs are functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

9, 13, 16, 17, 62, 64, 65, 84, 86, 113, 129, 141, 142, 144, 165, 166

Tanker Shed, UST 42494 — OU A - SAERA

Tanker Shed, UST 42494 — OU A - SAERA

STATUS: Groundwater monitoring and institutional controls

BACKGROUND:

The Tanker Shed is located approximately at the midpoint between Main Road and Runway 18-36 in downtown Adak. The Tanker Shed was used to perform maintenance on the tanker trucks that transport fuel for the housing area heating system and for aircraft refueling. The Tanker Shed building is currently unused. It is not known when the Tanker Shed was built, but it was likely in the 1960s, based on the type of construction. The dimensions of the Tanker Shed are approximately 40 by 80 feet. UST 42494 was located near the southwest corner of the Tanker Shed. The centerline of the UST was parallel to and 30 feet from the west wall of the building. The 6000-gallon UST 42494 was installed in 1985 to collect used oil generated during vehicle maintenance and to collect fluids from the oil/water separator system. The oil/water separator system was connected to the catch basin associated with the truck wash rack.

Most of the land surface around the Tanker Shed is flat and paved with concrete or asphalt. The land surface immediately east of the building is unimproved and covered with tundra grass. The regional topography in this vicinity slopes to the west. The closest downgradient surface water body is East Canal, located approximately 800 feet west of former UST 42494.

The UST was reported to be in good condition when removed in 1995, with no cracks, dents, deformities, or holes. DRO concentrations exceeded the Alaska soil matrix level in two soil samples collected from the bottom of the excavation. A petroleum hydrocarbon sheen was observed on groundwater within the UST excavation. The associated underground piping was removed to the edge of the excavation, and the cut ends were capped with concrete. There was no record that a spill or release occurred directly from the UST. The likely source of the petroleum hydrocarbons at the site is from overfilling or piping leakage.

During the investigation conducted between 1996 and 1997 at the site, one 2-inch-diameter monitoring well, eleven 4-inch-diameter recovery wells, five 6-inch-diameter recovery wells, one ½-inch-diameter monitoring well, seven hollow-stem auger soil borings, and 15 Geoprobe soil borings were installed at the site to delimit the horizontal extent of free product and petroleum-affected soils. DRO concentrations exceeded the Alaska cleanup level in soil samples collected from 14 locations, and exceedances of GRO in soil were noted at four locations. DRO, GRO, and benzene concentrations in groundwater exceeded ADEC groundwater cleanup levels (used as a drinking water source) in five, five, and seven samples, respectively. Two of these wells were resampled in 1997. Although DRO, GRO, and benzene concentrations were less than those in samples collected in 1996, they still exceeded Alaska groundwater cleanup criteria.

Two downgradient wells (04-317 and 04-601) were installed in 1998, and groundwater samples were collected from well 04-317 in 1998 and 2001. DRO and benzene exceedances were reported in 1998 and 2001, and GRO exceedances of the ROD-established Alaska groundwater criteria (18 AAC 75.345 Table C values) were reported in 2001. Groundwater samples were collected from well 04-601 between 1999 and 2002 as part of the Comprehensive Monitoring Program. Benzene and DRO exceedances of the ROD-established Alaska groundwater criteria (18 AAC 75.345 Table C values) were reported.

In 2001, a supplemental site assessment was conducted to address data gaps.

Tanker Shed, UST 42494 — OU A - SAERA

Free product recovery was conducted as an interim action began at the Tanker Shed site in January 1997.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	67
Number of Pre-Rod Samples	138
Potential Contaminant Types Evaluated	Inorganics, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Product (floating or free), Soil, Sub-surface soil (> 6")
Types of Pre-ROD Locations	Borehole/Soil boring, Direct Push/Geoprobe, Excavation, Monitoring well, Pipeline, Recovery well, Well

Tanker Shed, UST 42494 — OU A - SAERA

COCs AND RISKS:

Tanker Shed was one of the sites in the OU A ROD for which additional evaluation under SAERA was required. The interim action under the OU A ROD was free product recovery. The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemicals exceeded these criteria (interpreted from Table 5-11 of the OU A ROD):

Groundwater

- Benzene
- DRO

The OU A ROD (1999) did not identify human health or ecological risks associated with the site, however, a human health and ecological risk assessment was completed for this site during 2004, as part of the follow-on evaluation under SAERA. This sites poses no unacceptable risk to human health or the environment above target health goals, provided that Ics remain in effect. The risk assessments performed for this site established that the concentrations in soil do not pose a risk to humans or the environment above target health goals at their present contamination level; therefore, no separate ACLs were calculated and, by default, the existing contaminant levels at the site become the site-specific ACLs. The risk assessment findings of no unacceptable risk remain valid, providing that the assumed land uses for the site per the Adak Reuse Plan do not change. Cleanup levels specified for groundwater at petroleum-contaminated sites on the former Adak Naval Complex are based on the use of groundwater as a drinking water source [18 AAC 75.345(b)(1), Table C], or 10 times these levels if the groundwater is not reasonably expected to be a potential future source of drinking water [18 AAC 75.345(b)(2)]. Groundwater at the Tanker Shed site is considered to be a reasonably expected potential future source of drinking water; therefore, groundwater cleanup levels for this site are those specified in Table C of 18 AAC 75.345(b)(1).

The 2005 Final Decision Document for Petroleum Sites with No Unacceptable Risk established the following cleanup levels based on ADEC regulatory criteria for the following COCs:

Groundwater

- Benzene
- DRO
- GRO

RAOs:

The OU A ROD for the petroleum site Tanker Shed (UST 42494) established the following original RAOs (Table 7-4 of the OU A ROD):

- Reduce volume of petroleum free product.

The RAOs were revised in the 2005 Final Decision Document for Petroleum Sites with No Unacceptable Risk to the following:

- Over the long term, reduce concentrations of petroleum-related chemicals in groundwater to

levels below Alaska DEC groundwater cleanup levels.

- Prevent future exposure to petroleum-related chemicals in soil and groundwater at the site.

REMEDY IMPLEMENTATION:

The OU A ROD-specified interim remedy for this site is free product recovery. The decision document prepared by the Navy and ADEC under SAERA specifies the final remedy as free product recovery, MNA, and ICs.

Free product recovery as an interim action was conducted at the Tanker Shed site from January 1997 through November 2001. Approximately 528 gallons of free product were recovered at the Tanker Shed during this five-year period. The product recovery system was shut down for the winter on November 12, 2001 and did not operate during 2002 or 2003. Product recovery activities restarted in August 2004 and continued until July 2005.

Free product recovery as part of the final remedy concluded at this site in July 2005, as the practicable endpoint for free product recovery was reached. This was discussed in the free product recovery closure report for this site, approved by ADEC in January 2006.

ICs required by the 2006 decision document were already in place when the decision document was executed. ICs had been implemented in 2000, following execution of the OU A ROD. Land use restrictions are required to ensure that the land will never be used in a way inconsistent with the land use assumptions set forth in the Adak Island RODs. The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites, including Tanker Shed.

The CMP was modified as needed to incorporate the groundwater MNA component of the final remedy. This remedy was implemented in 2005. In addition to the required free product recovery, MNA, and IC components of the final remedy, the 2005 SAERA decision document required collection of one additional soil sample and installation of one additional groundwater monitoring well.

The required soil sample was collected on September 17, 2004 and analyzed for DRO, GRO, and BTEX to confirm the lateral extent of petroleum compounds in soil. The DRO, GRO, and BTEX detected in this soil sample were all well below the ADEC cleanup level.

The additional monitoring well was installed as required by the decision document during the 2006 field season. One soil sample was collected from the well bore at a depth of 7 to 8 feet bgs. GRO, DRO, RRO, and VOCs were not detected above their laboratory reporting limits in this sample. This well was subsequently incorporated into the monitoring program for Tanker Shed.

As of 2018 DRO concentrations remain above the endpoint criterion in three of the currently monitored site wells and natural attenuation continues to progress at this site; therefore, it is recommended that groundwater monitoring continue as prescribed in the CMP.

Tanker Shed, UST 42494 — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Free product recovery was discontinued in June 2010.

Monitoring Types:

- [x] Groundwater Monitoring
- [ ] Surface Water Monitoring
- [ ] Sediment Monitoring
- [ ] Tissue Monitoring
- [ ] Landfill Inspection
- [x] IC Inspection — Click to View ICMP Table
- [ ] Remediation System Monitoring and Maintenance
- [ ] None Required

Most Recent Sampling Date: September 2018 Most Recent Inspection Date: September 2019

Current Media Sampled: Groundwater

Current Analytes Sampled: DRO, NAPs, product thickness

Current Monitoring: Click to View Current Monitoring Monitoring File: Tanker Shed monitoring.pdf

Tanker Shed, UST 42494 — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-175	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO, GRO, BTEX	
2006	DRO, GRO, BTEX	
2007	DRO, GRO, BTEX	
2008	DRO, GRO	
2009	DRO, NAPs	
2010	DRO	
2011	DRO	
2012	DRO	
2013	DRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	DRO	
2017	Monitoring not planned	
2018	DRO, NAPs	
2019	Monitoring not planned	

Tanker Shed, UST 42494 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-176	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness (monthly)	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-178	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

Tanker Shed, UST 42494 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-290	MNA	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO, GRO, BTEX	
2006	DRO, GRO, BTEX	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO, GRO, BTEX, NAPs	
2010	DRO, GRO, benzene	
2011	DRO, GRO, benzene	
2012	DRO, GRO	
2013	DRO, GRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	DRO	
2017	Monitoring not planned	
2018	DRO, NAPs	
2019	Monitoring not planned	

Tanker Shed, UST 42494 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-301	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-302	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

Tanker Shed, UST 42494 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-303	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-304	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

Tanker Shed, UST 42494 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-306	MNA, PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO, GRO, BTEX	
2006	Free product detected, not sampled, product thickness (monthly)	
2007	Free product detected, not sampled, product thickness (monthly)	
2008	DRO, GRO, BTEX, product thickness (monthly)	
2009	DRO, GRO, BTEX, NAPs, product thickness (monthly)	
2010	DRO, GRO, benzene, product thickness (monthly)	
2011	DRO, GRO, benzene	
2012	DRO, GRO	
2013	DRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	DRO, NAPs	
2017	Monitoring not planned	
2018	DRO, NAPs	
2019	Monitoring not planned	

Tanker Shed, UST 42494 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-307	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-308	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

Tanker Shed, UST 42494 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-309	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness (monthly)	
2007	Product thickness (monthly)	
2008	Product thickness (monthly)	
2009	Product thickness (monthly)	
2010	Product thickness (monthly)	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-310	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

Tanker Shed, UST 42494 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-311	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-312	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

Tanker Shed, UST 42494 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-313	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-314	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

Tanker Shed, UST 42494 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-317	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

Tanker Shed, UST 42494 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
04-601	MNA, SW protection	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO	
2002	DRO, RRO, GRO, BTEX, NAPs	
2003	DRO, GRO, BTEX, NAPs	
2004	DRO, GRO, BTEX, NAPs	
2005	DRO, GRO, BTEX	
2006	DRO, GRO, BTEX	
2007	DRO, GRO, BTEX	
2008	DRO, GRO, BTEX	
2009	DRO, NAPs	
2010	DRO, GRO, benzene (even years only)	
2011	DRO	
2012	DRO, GRO	
2013	DRO	
2014	DRO, NAPs	
2015	Monitoring not planned	
2016	DRO	
2017	Monitoring not planned	
2018	DRO, NAPs	
2019	Monitoring not planned	

Tanker Shed, UST 42494 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
TS-01	SW protection	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	DRO, GRO, BTEX, NAPs	
2004	DRO, GRO, BTEX, NAPs	
2005	DRO, GRO, BTEX	
2006	DRO, GRO, BTEX	
2007	DRO, GRO, BTEX	
2008	DRO, GRO (even years only)	
2009	Monitoring not planned	
2010	DRO, GRO	
2011	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
TS-03	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

Tanker Shed, UST 42494 — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
TS-04	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Product thickness	
2006	Product thickness	
2007	Product thickness	
2008	Product thickness	
2009	Product thickness	
2010	Product thickness	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
TS-05d	SW protection	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	DRO, GRO, BTEX	
2007	DRO, GRO, BTEX	
2008	DRO, GRO (even years only)	
2009	Monitoring not planned	
2010	DRO, GRO	
2011	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional controls at Tanker Shed, UST 42494 includes land use controls, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the

inspection on September 7, 2019, no changes to the site were observed compared to the 2017 inspection results. The site did not appear to be in use. No residential construction had occurred at the site, and no indications of groundwater use or excavation activities were found. Excavation restriction signs were clearly visible at the site. Therefore, ICs appear to be functioning as intended to protect human receptors from exposure to contaminated soil or groundwater. The 2019 IC report indicated all ICs appear to be functioning as intended. An IC inspection was conducted in the summer of 2021, and the results will not be available until 2022.

BIBLIOGRAPHY:

36, 62, 77, 84, 86, 90, 91, 121, 122, 129, 134, 141, 142, 152, 164, 165, 166

Yakutat Hangar, UST T-2039-A — OU A - SAERA

Yakutat Hangar, UST T-2039-A — OU A - SAERA

STATUS: Cleanup complete with institutional controls

BACKGROUND:

The Yakutat Hangar site is located approximately 1,800 feet west of Runway 18-36 and approximately 1,500 feet south of the west end of Runway 5-23. Building T-2039 was built in the 1940s as an airplane hangar. It is unknown when the automobile repair garage was constructed. Sometime in the late 1970s, the hangar was converted from its original use to house additional automobile repair and automobile hobby shop facilities. UST T-2039-A was installed in 1979 about 17 feet north of Yakutat Hangar and contained used oil generated by auto repairs at Building T-2039. The general topography of the Yakutat Hangar area slopes downward slightly to the north and west. The area surrounding the UST is paved with asphalt and has been used for vehicle parking and storage. South Sweeper Creek, which lies approximately 370 feet northeast and downgradient of the former UST, is the closest downgradient surface water body.

When UST T-2039-A was removed in September 1993, it showed minor signs of corrosion. No records of spills or leaks from UST T-2039-A were found. Groundwater that accumulated in the excavation had a petroleum odor and sheen. The maximum DRO concentration reported in samples collected from the bottom of the excavation was 350 mg/kg. The excavation was backfilled. The source of the material used to backfill the excavation is variously reported as either a clean source, or a contaminated soil stockpile generated at the time UST T-2039-A was removed. In 1996, the Navy discovered free product in a drainage ditch northwest of Yakutat Hangar. Seven test pits were excavated upgradient of the drainage ditch by Navy personnel to assess the source of the petroleum fuel. Free product was observed on the shallow water table in four of seven test pits. Temporary well points were installed in 1997 to evaluate the extent of free product and identify the source. The source of the free-product plume was attributed to leaks from the underground heating fuel pipeline that connects the AST located west of the hangar to the heating system in the hangar. Four recovery wells were installed at the site. The maximum areal extent of free product in 1996 was between the AST west of Yakutat Hangar, the northwestern edge of the hangar (well 05-244), and the recovery trench. No samples were collected during this investigation. An aesthetic action was taken at the site in 1998. The drainage ditch was replaced with a French drain, which consists of a perforated pipe placed in gravel backfill. The new drain pipe was connected to an existing culvert. The culvert and drainage ditch were parts of the same drainage system. The drainage from the culvert enters another ditch, which eventually connects to South Sweeper Creek.

Two 2-inch-diameter monitoring wells, two 4-inch-diameter recovery wells, three 0.5-inch Geoprobe wells, and four Geoprobe borings were installed between 1996 and 1997 as part of the Yakutat Hangar UST T-2039-A investigation. Four of eight soil samples collected yielded DRO concentrations greater than the ADEC soil cleanup criterion. In 1998 and 1999, four more soil samples were collected from three locations. DRO was not reported in any of these samples at concentrations greater than the ADEC soil cleanup criterion. DRO concentrations in groundwater samples collected from three of seven wells were equal to or greater than the ADEC groundwater cleanup criterion for groundwater used as drinking water, and benzene concentrations exceeded groundwater as drinking water cleanup criterion in two of seven wells sampled. When one of these wells was resampled in 1997, concentrations were below the groundwater as drinking water cleanup criterion. Two monitoring wells (05-250 and 05-801) were installed in 1998, and well 05-389 was installed in 1999. No detections of petroleum compounds have been reported in well 05-

250 from samples collected in 1998. Wells 05-389 and 05-801 were sampled twice annually as part of the monitoring program from 1998 to 2002. Well 05-389 had low detections of DRO and GRO from the sample collected in 1999. While several samples collected from this site since 1996 contained DRO in concentrations greater than groundwater as drinking water cleanup criterion, groundwater is not considered a potential future drinking water source at this site. No detections of DRO at this site exceeded the ADEC cleanup criterion for groundwater not used as a drinking water source.

A free product recovery system consisting of an interceptor trench located immediately upgradient of the former ditch was installed in January 1997. The system operated from February 1997 through November 2000. During this period, approximately 690 gallons of free product were recovered. The Navy contends that free product has been recovered at this site to the maximum extent practicable as required by 18 AAC 75.325(f)(1)(B). Product recovery efforts were discontinued at this site during November 2000.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	19
Number of Pre-Rod Samples	67
Potential Contaminant Types Evaluated	Inorganics, Metals, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Product (floating or free), Sub-surface soil (> 6"), Water (not groundwater, unspecified)
Types of Pre-ROD Locations	Direct Push/Geoprobe, Geoprobe well, Monitoring well, Recovery well, Test Pit, Well

Yakutat Hangar, UST T-2039-A — OU A - SAERA

COCs AND RISKS:

Yakutat Hanger, UST T-2039-A was one of the sites in the OU A ROD for which additional evaluation under SAERA was required. The interim action under the OU A ROD was free product recovery.

The OU A ROD (1999) did not identify human health or ecological risks associated with the site, however, a human health and ecological risk assessment was completed for this site in 2004, as part of the additional evaluation under SAERA. This site poses no unacceptable risk to human health or the environment above target health goals, provided that Ics remain in effect. The risk assessments performed for this site established that the concentrations in soil do not pose a risk to humans or the environment above target health goals at their present contamination level; therefore, no separate ACLs were calculated and, by default, the existing contaminant levels at the site become the site-specific ACLs. The risk assessment findings of no unacceptable risk remain valid, providing that the assumed land uses for the site per the Adak Reuse Plan do not change. Cleanup levels specified for groundwater at petroleum-contaminated sites on the former Adak Naval Complex are based on the use of groundwater as a drinking water source [18 AAC 75.345(b)(1), Table C], or 10 times these levels if the groundwater is not reasonably expected to be a potential future source of drinking water [18 AAC 75.345(b)(2)]. Groundwater at the Yakutat Hangar (UST T-2039-A) is not considered to be a reasonably expected potential future source of drinking water; therefore, groundwater cleanup levels for these sites are 10 times the levels specified in Table C of the Alaska regulations.

Surface water samples have not been collected from the drainage ditch at Yakutat Hangar, which discharges into South Sweeper Creek. However, contaminant-loading modeling was performed and model results predicted that surface water quality criteria would be met at the site.

The 2005 Final Decision Document for Petroleum Sites with No Unacceptable Risk established no COCs for this site.

RAOs:

The OU A ROD for the petroleum site Yakutat Hangar, UST T-2039-A established the following original RAO:

- Reduce volume of petroleum free product.

The RAOs were revised in the 2005 Final Decision Document for Petroleum Sites with No Unacceptable Risk to the following:

- Over the long term, reduce concentrations of petroleum-related chemicals in groundwater to levels below Alaska DEC groundwater cleanup levels.
- Prevent future exposure to petroleum-related chemicals in soil and groundwater at the site.

REMEDY IMPLEMENTATION:

The OU A ROD-specified interim remedy for this site is free product recovery.

Yakutat Hangar, UST T-2039-A — OU A - SAERA

Product recovery was initiated during January 1997 and was terminated during November 2000, because free product recovery conducted as an interim remedial action met the practicable endpoint established for the shut-down of product recovery as specified in the OU A ROD. ADEC approved the interim action free product recovery closure report for this site in January 2006. The decision document prepared by the Navy and ADEC in 2005 under SAERA specifies the final remedy as limited groundwater monitoring. This remedy was implemented in 2005 though adjustments to the CMP. In addition to the limited groundwater monitoring component of the remedy, the 2005 decision document required surface water samples from the drainage ditch prior to its discharge to South Sweeper Creek to evaluate contaminant loading.

Surface water sampling was conducted as required in September 2004. One sample was collected from near station 5-222, and one sample was collected from the intersection of the drainage ditch and South Sweeper Creek. The samples were analyzed for GRO, DRO, and BTEX. Only GRO was detected in one of the two samples, at a concentration of 20 µg/L. With ADEC concurrence, the site status was designated as no further action planned (or cleanup complete) in 2007. ADEC granted cleanup complete at the site in 2007, but required that the site remain subject to ICs. ADEC required proper well abandonment and decommissioning of the free product recovery system.

No ICs specific to Yakutat Hangar UST T-2039-A were established in the OU A ROD or the 2005 SAERA decision document; however, ICs were explicitly required in ADEC's conditional closure letter. ICs are included for this site in the ICMP. ICs originally were implemented in 2000 following execution of the OU A ROD. Land use restrictions are required to ensure that the land will never be used in a way inconsistent with the land use assumptions set forth in the Adak Island RODs. The land use restrictions/prohibitions have been included in the Interim Conveyance. The downtown groundwater is restricted from domestic use. Excavation notification is required at all sites.

Yakutat Hanger, UST T-2039-A received "cleanup complete with ICs" determination from ADEC on May 1, 2007.

Yakutat Hangar, UST T-2039-A — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: 2006 — Most Recent Inspection Date: September 2019

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Yakutat Hangar, UST T-2039-A — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
05-221	Limited GW monitoring	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO	
2006	DRO	
2007	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
05-240	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Monitoring not planned	

Yakutat Hangar, UST T-2039-A — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
05-243	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Monitoring not planned	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
05-244	Limited GW monitoring	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO	
2006	DRO	
2007	Met endpoint criteria; monitoring discontinued	

Yakutat Hangar, UST T-2039-A — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
05-250	Limited GW monitoring	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO	
2006	DRO	
2007	Met endpoint criteria; monitoring discontinued	

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
05-389	SW protection	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, BTEX, DRO, RRO, NAPs	
2003	DRO, GRO, BTEX	
2004	DRO, GRO, BTEX	
2005	DRO	
2006	DRO	
2007	Met endpoint criteria; monitoring discontinued	

Yakutat Hangar, UST T-2039-A — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
05-801	SW protection	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2001	GRO, GRO fractions, BTEX, DRO, RRO, NAPs	
2002	GRO, DRO, BTEX, NAPs	
2003	DRO, GRO, BTEX	
2004	DRO, GRO, BTEX	
2005	DRO	
2006	DRO	
2007	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-1	PT	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	Monitoring not planned	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	Monitoring not planned	
2006	Product thickness	
2007	Monitoring not planned	
2008	Monitoring not planned	
2009	Monitoring not planned	
2010	Monitoring not planned	

Yakutat Hangar, UST T-2039-A — OU A - SAERA

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
MW-2a	Limited GW monitoring	Groundwater
1999	Monitoring not planned	
2000	Monitoring not planned	
2001	Monitoring not planned	
2002	DRO	
2003	Monitoring not planned	
2004	Monitoring not planned	
2005	DRO	
2006	DRO	
2007	Met endpoint criteria; monitoring discontinued	

SUMMARY OF INSPECTION RESULTS:

Institutional controls at Yakutat Hangar, UST T-2039-A includes land use controls, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the inspection on September 6, 2019, no changes to the site were observed compared to the 2014 inspection results. The site is currently not being used. No residential construction had occurred at the site. No indications of groundwater use or excavation activities were found. The excavation restriction sign was clearly visible. The 2019 IC report indicated all ICs appear to be functioning as intended. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

7, 36, , 62, 77, 84, 86, 87, 90, 91, 94, 121, 124, 129, 141, 142, 144, 165, 166

Yakutat Hangar, USTs T-2039-B and T-2039-C — OU A - SAERA

Yakutat Hangar, USTs T-2039-B and T-2039-C — OU A - SAERA

STATUS: Cleanup complete with institutional controls

BACKGROUND:

The Yakutat Hangar site is located approximately 1,800 feet west of Runway 18-36 and approximately 1,500 feet south of the west end of Runway 5-23. Building T-2039 was built in the 1940s as an airplane hangar. It is unknown when the automobile repair garage was constructed. Sometime in the late 1970s, the hangar was converted from its original use to house additional automobile repair and automobile hobby shop facilities. UST T-2039-B was installed in 1979 at the south end of the garage and supplied JP-5 to a heating boiler inside. UST T-2039-C was installed in 1981 directly beneath the south wall grade beam of the garage. The tank was connected to floor drains inside the garage and was used to collect and store used oil and any spilled fluids from the floor.

The general topography of the Yakutat Hangar area slopes downward slightly to the north and west. The area surrounding the UST is paved with asphalt and has been used for vehicle parking and storage. South Sweeper Creek, which lies approximately 370 feet northeast and downgradient of the former UST, is the closest downgradient surface water body.

A 2-inch-diameter steel vent pipeline and 2-inch-diameter remote fill pipeline for tank T-2039-B were removed in May 1995. Since groundwater was encountered in the excavation at 2.5 feet bgs, the UST was not removed, because plans had not been made for controlling groundwater during removal activities. When tank removal activities resumed in October 1995, UST T-2039-B was found to be full of oily water. About 2,500 gallons were pumped from the tank before it was removed. UST T-2039-B was observed to be in good condition when it was removed, with only minor surface rust on the top. However, two 2-inch-diameter openings were noted on the tank where the fill and vent pipes, removed in May 1995, had been located. The concrete ballast for the tank was not removed, since it was too close to the building.

There were about 50 gallons of oily water in UST T-2039-C prior to its removal in October 1995. The water was pumped out before removal activities began, but the tank refilled with water. The six pipe connection points observed on the tank were found to be loose and were believed to have allowed the tank to refill with groundwater. Because of the limited work area and the high water table, the tank was removed by excavating outside the building and pulling the tank laterally from underneath the building. Underground piping was cut and capped. None of the soil samples collected from the two excavations had DRO concentrations above the Alaska soil matrix level.

The chemical analyses conducted on nine soil samples collected from the limits of this excavation reported concentrations of petroleum-related chemicals below the most stringent ADEC Method Two soil cleanup criteria established for each chemical tested.

DRO was reported at a concentration of 14,000 mg/kg in a surface soil sample (0 to 2 feet bgs) collected during installation of downgradient monitoring well 05-241. Because this concentration is reported in a surface soil sample located approximately 150 feet downgradient from USTs T-2039-B and -C, and because groundwater samples from well 05-241 reported concentrations of petroleum-related chemicals below ADEC groundwater cleanup criteria, it appears that the DRO concentrations in surface soil at this location

may be a result of careless disposal practices at the automotive hobby garage.

PRE-ROD ASSESSMENT SUMMARY:

Number of Pre-Rod Locations Sampled	1
Number of Pre-Rod Samples	3
Potential Contaminant Types Evaluated	Inorganics, Pesticides and aroclors, Petroleum hydrocarbons, Semivolatile organics, Volatile organics
Pre-ROD Sample Matrix Types	Ground water, Sub-surface soil (> 6")
Types of Pre-ROD Locations	Well

Yakutat Hangar, USTs T-2039-B and T-2039-C — OU A - SAERA

COCs AND RISKS:

The OU A ROD established COCs for petroleum sites based on exceedances of State of Alaska criteria or MCLs. At the time of the OU A ROD, the following chemicals exceeded these criteria (interpreted from Table 5-11 of the OU A ROD):

Groundwater

- Benzene

RAOs:

The OU A ROD for the petroleum site Yakutat Hangar, UST T-2039-B and T-2039-C established the following original RAO (from Table 7-4 of the OU A ROD):

- Reduce petroleum concentrations in soil.

REMEDY IMPLEMENTATION:

The OU A ROD-specified interim remedy for this site is limited soil removal.

Approximately 30 cubic yards of soil were removed from a 20-foot-square area surrounding well 05-241 during July 1999. Two confirmation soil samples collected from the northern and southern limits of the excavation contained DRO at concentrations of 24 mg/kg and 3,200 mg/kg, respectively. The remedy reverted to limited groundwater monitoring in 1999 with ADEC concurrence. The site met the endpoint criteria with 1999 and 2000 analytical results, and groundwater monitoring was terminated in 2000. This site was evaluated in the 2005 Final Cleanup Report, 19 Sites. Based on this report, ADEC concurred with NFRAP status for this site, but required soil samples near locations 241, 251, 252, and 382 to achieve NFA.

No ICs specific to USTs T-2039-B and T-2039-C at Yakutat Hangar were established in the OU A ROD, and IC inspections are not included for this site in the ICMP. However, ICs are required in the ICMP for the nearby UST T-2039-A.

Yakutat Hanger, UST T-2039-B and T-2039-C received "cleanup complete with ICs" determination from ADEC on November 23, 2005.

Yakutat Hangar, USTs T-2039-B and T-2039-C — OU A - SAERA

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection — Click to View ICMP Table
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: February 1999 — Most Recent Inspection Date: September 2019
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required — Monitoring File: Not Applicable

Yakutat Hangar, USTs T-2039-B and T-2039-C — OU A - SAERA

MONITORING HISTORY:

Location-Specific Summary of Comprehensive Monitoring Program Since 1999

LOCATION	MONITORING PURPOSE	MEDIUM TESTED
05-241	Limited GW monitoring	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	Met endpoint criteria; monitoring discontinued	
LOCATION	MONITORING PURPOSE	MEDIUM TESTED
05-802	Limited GW monitoring	Groundwater
1999	DRO, GRO, BTEX, NAPs (quarterly - 2 rounds)	
2000	Met endpoint criteria; monitoring discontinued	

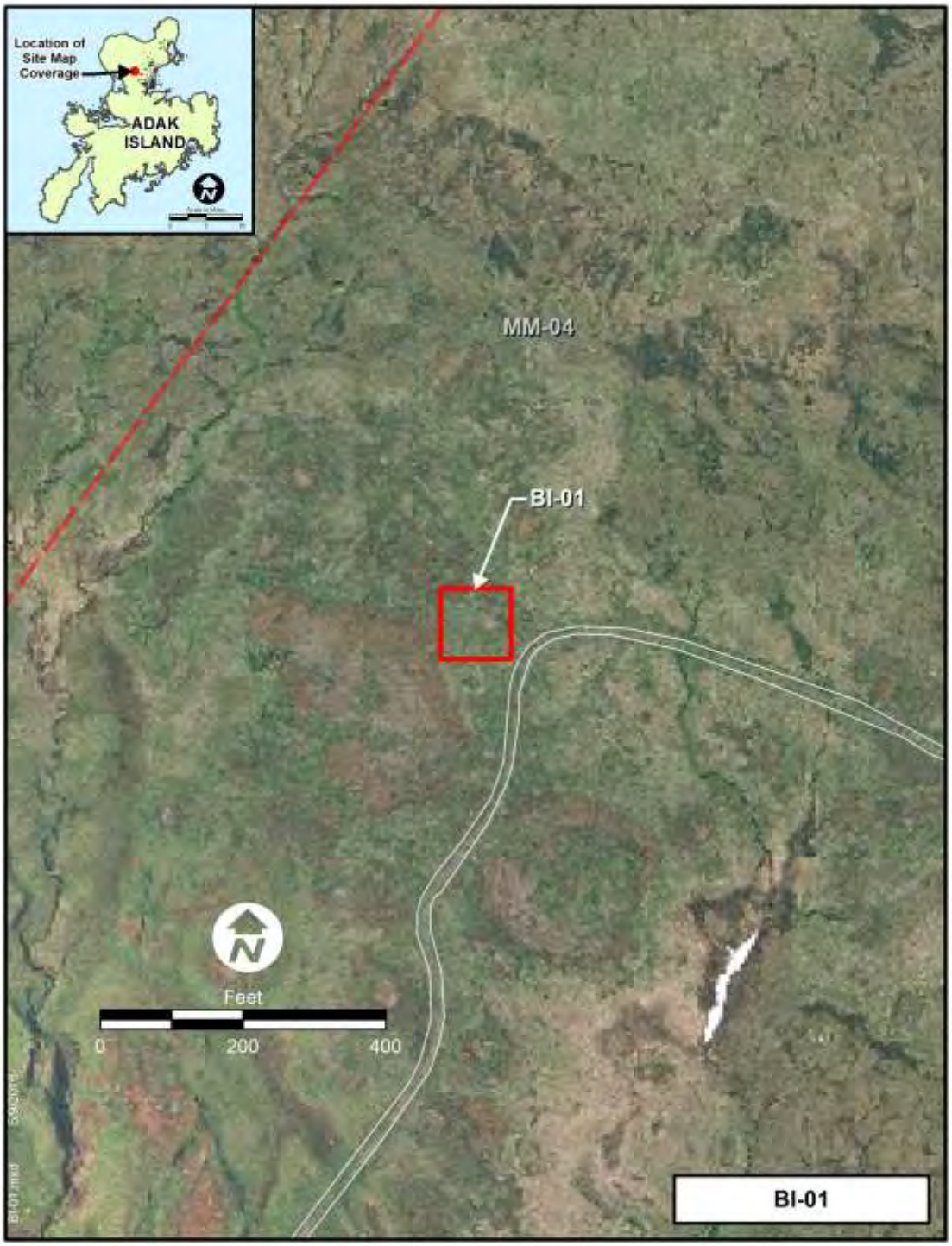
SUMMARY OF INSPECTION RESULTS:

Institutional controls at Yakutat Hangar, UST T-2039-B and T-2039-C includes land use controls, equitable servitude, groundwater restrictions, soil excavation restrictions, signage, and IC inspections and reporting. During the inspection on September 10, 2019, no changes to the site were observed compared to the 2014 inspection results. The site is currently not being used. No residential construction had occurred at the site. No indications of groundwater use or excavation activities were found. The excavation restriction sign was clearly visible. The 2019 IC report indicated all ICs appear to be functioning as intended. The next IC inspection is scheduled to occur in 2024.

BIBLIOGRAPHY:

2, 36, 59, 62, 84, 86, 137, 142, 144, 165, 166

Bay of Island Impact Area, BI-01 — OU B-1



Bay of Island Impact Area, BI-01 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

BI-01 consists of a small 0.22-acre parcel of land located north of town at the base of Mount Moffett. The circular area was identified from a single archive record that identifies the weapon system as a 155-mm gun located on the lower southwestern flanks of Mt. Moffett. This site includes the firing point on Mt. Moffett.

Bay of Island Impact Area, BI-01 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy for BI-01 was observation approach presumptive remedy. The OU B-1 ROD states that BI-01 was reconned in the 2000 field season and subsequently recommended for NFA. Furthermore, the 2004 after action report indicated that an e-mail from former Environmental Chemical Corporation Project Manager Al Larkins to Mark Murphy describes how UXO teams searched for possible firing points and impact areas at multiple locations during the 2000 field season, and none were found at BI-01. The site was visited in August 2004 and three types of manmade features were identified in the vicinity of this site. However, no MEC items were found while investigating the site. In 2008, ADEC designated conditional closure with ICs for the site.

BI-01 received "cleanup complete with ICs" determination from ADEC on January 16, 2008.

Bay of Island Impact Area, BI-01 — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: Not Applicable Most Recent Inspection Date: September 2020
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

Bay of Island Impact Area, BI-01 OU B-1

SUMMARY OF INSPECTION RESULTS:

ICs for all OU B-1 sites include equitable servitude and an ongoing education program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

99, 100, 106, 83, 129, 141, 142, 144, 171

Blind Cove/Campers Cove Impact Area, BC-01 OU B-1

Blind Cove/Campers Cove Impact Area, BC-01 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

The Blind Cove/Campers Cove Impact Area, including BC-01, is located southwest of downtown Adak along the eastern shoreline of Adak Island. This sector is approximately 4,469 acres, including the area outside the military reservation. Terrain and vegetation vary significantly, from the coastal lowlands to the steep, rocky peaks along the western boundary of the sectors. Based on historical records, this area includes two firing points and associated range safety fans, gun battery firing area and associated impact zone, and a land-based scouting problem maneuver area.

BC-01 is located within the Blind Cove/Campers Cove Impact Area sector, and measures 300 meters square (approximately 22 acres). BC-01 served as an impact zone for gun battery firing. The terrain is relatively flat terrain, and the vegetation is thick and lush with lowland tundra species growing to heights of 6 to 18 inches. The area is not accessible by any improved roads or established hiking trails, and has been accessed only by boat or helicopter. This area was investigated twice previously. During the 1999 site investigation, this site was surveyed as part of the Blind Cove/Campers Cove area. No MEC or MD was found. This area was investigated a second time during the 2000 RI. Five anomalies were identified and intrusively investigated. All anomalies were MD with two pieces being identified as projectile fragments. Because projectile fragments were located along the southern boundary of BC-01, further investigation between BC-01 and BC-09 was determined to be necessary.

Blind Cove/Campers Cove Impact Area, BC-01 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy for BC-01 was observation approach presumptive clearance. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination to the south of the BC-01 boundary as part of the observational approach to executing clearance at the site. As discussed in the background section, addition investigation was needed at this site because five anomalies were identified along the southern boundary of the site during the 2000 RI. During 2001, a geophysical survey was used to determine the final boundaries of the site and meet the OU B-1 requirement for final characterization and clearance. The survey was performed to the south of BC-01 along survey transects spaced at 115-meter intervals. Nine anomalies were investigated based on geophysical results; eight pieces of MD and one no find. Based on the findings of the 2001 field work, additional geophysical survey work was performed in 2002, also to the south of BC-01, to determine the final boundaries of the site. Survey work was performed in the form mini-grids. One hundred and one anomalies were investigated based on geophysical results: 63 pieces of MD were removed and 37 anomalies were no finds. Since no MEC was identified during the final site characterization activities, the site was designated NFA and the ROD remedy was completed in 2002.

BC-01 received "cleanup complete with ICs" determination from ADEC on June 2, 2004

Blind Cove/Campers Cove Impact Area, BC-01 OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: Not Applicable Most Recent Inspection Date: September 2020
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

Blind Cove/Campers Cove Impact Area, BC-01 OU B-1

SUMMARY OF INSPECTION RESULTS:

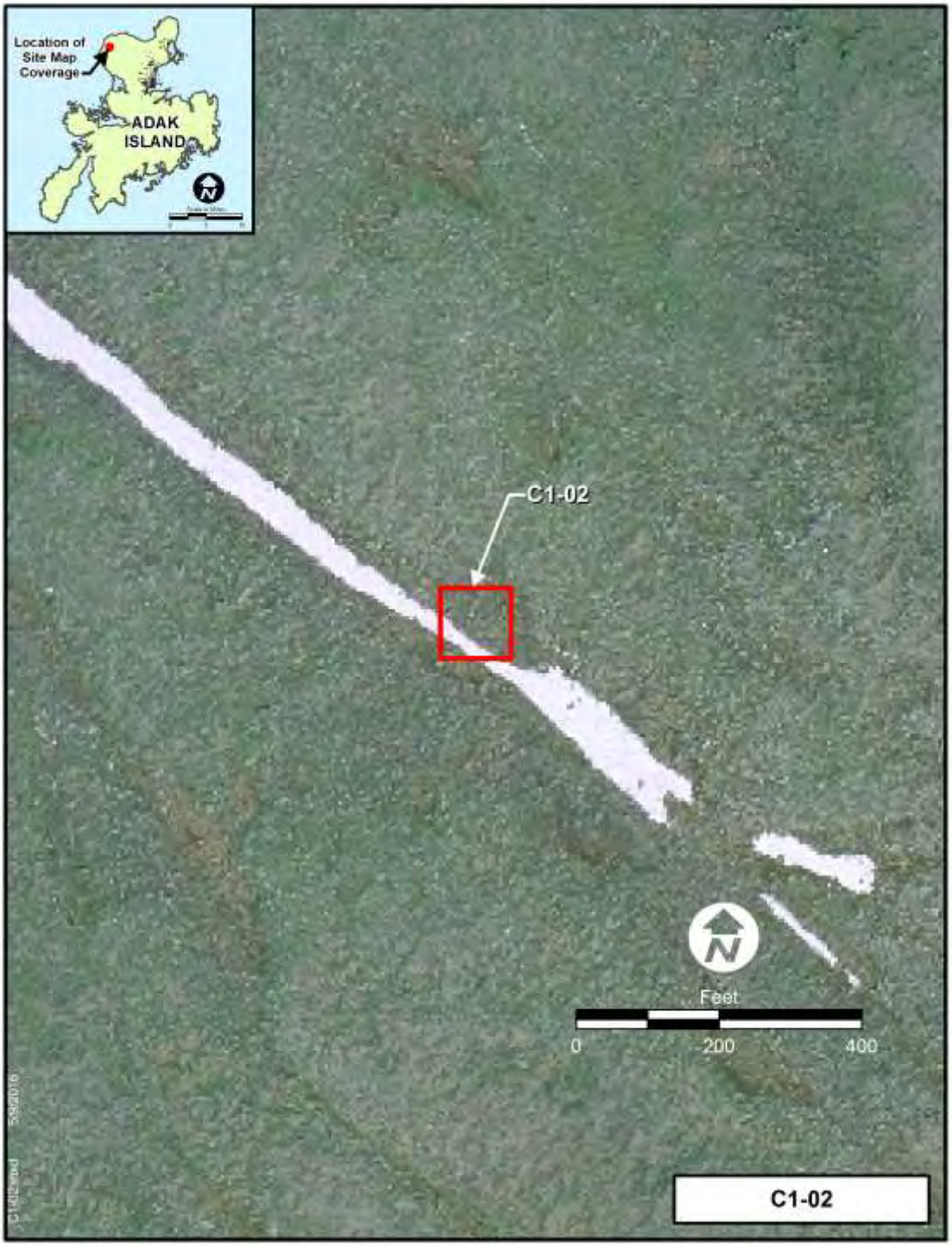
ICs for all OU B-1 sites include equitable servitude and an ongoing education program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 101, 102, 107, 117, 129, 141, 142, 144, 171

Combat Range 1, C1-02 — OU B-1



Combat Range 1, C1-02 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

Combat Range #1, including C1-02, is located northwest of downtown Adak, encompassing the land area on the northern flank of Mt. Moffett. Combat Range #1 is approximately 4,400 acres in size and has varied terrain and vegetation. The entire sector is composed of rocky steep slopes separated by deep near-vertical ravines continuing down to the water's edge. A small rocky beach is present at the base of the mostly vertical cliffs.

C1-02 is located within the Combat Range #1 sector, and is 0.22 acre. A piece of a mechanical time fuze classified as MD was found in 1999 during a meandering path geophysical survey. This fuze was removed at the time of the survey. Access to this site is severely limited by it's location and topography. The nearest vehicle access point is the former ski lodge area, which is 4.3 miles away (as the crow flies) and approximately 7.5 miles away if traversing the side of Mount Moffett. Access by boat also is impracticable due to the severe nature of the rocky shoreline and the fact that this site is approximately 4,800 feet from the shoreline and approximately 1,800 feet above sea level, with a steep cliff between the site and the shoreline.

Combat Range 1, C1-02 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy was observation approach presumptive clearance. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. Two attempts were made to reach this site using an ARGO all-terrain vehicle in September 2004, but both were terminated due to dense fog, heavy rain, and difficult terrain. The extremely isolated location of C1-02 significantly reduces the potential for the occurrence of casual hikers, and there are no locations of significant interest associated with this site. Further, this site is covered in snow approximately eight months out of the year. Because C1-02 is at least as unlikely to experience human usage as many of the sites deemed inaccessible (slopes in excess of 30 degrees) that are much closer to the City of Adak, the Navy recommended C1-02 also be deemed NFA due to inaccessibility.

C1-02 received "cleanup complete with ICs" determination from ADEC on January 16, 2008.

Combat Range 1, C1-02 — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: Not Applicable Most Recent Inspection Date: September 2020
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

Combat Range 1, C1-02 OU B-1

SUMMARY OF INSPECTION RESULTS:

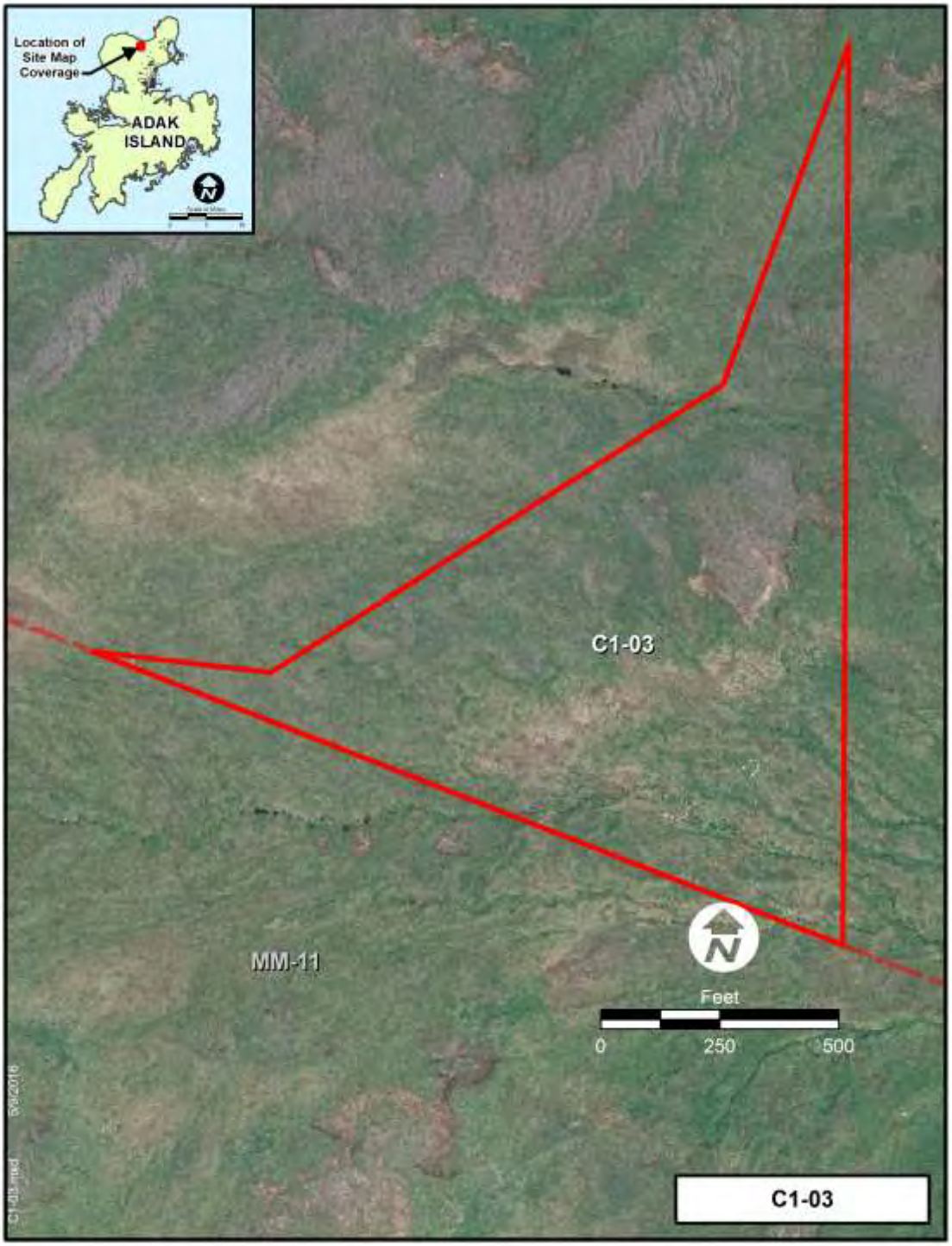
ICs for all OU B-1 sites include equitable servitude and an ongoing education program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 100, 106, 129, 141, 142, 144, 171

Combat Range 1, C1-03 — OU B-1



Combat Range 1, C1-03 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

Combat Range #1, including C1-03, is located northwest of downtown Adak, encompassing the land area on the northern flank of Mt. Moffett. Combat Range #1 is approximately 4,400 acres in size and has varied terrain and vegetation. The entire sector is composed of rocky steep slopes separated by deep near-vertical ravines continuing down to the water's edge. A small rocky beach is present at the base of mostly vertical cliffs. C1-03 is located within the Combat Range #1 sector, and is 4,125 acres. It is located on the northern slopes of Mt. Moffett, extending from the east near Lake Andrew to the west, where it borders Combat Range #2. There is access to the area only by ARGO all-terrain vehicle or helicopter. This area was investigated in 1999 and 2000. During the 1999 field investigation, no ordnance or related material was found. This area was investigated a second time during the 2000 RI. One hundred ninety-four anomalies were identified in the area during the 2000 RI, but these anomalies were not intrusively investigated at the time of the RI.

Combat Range 1, C1-03 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy was observation approach presumptive clearance. In 2002, the anomalies identified during the 2000 RI were intrusively investigated. In addition, two 30-meter by 30-meter mini-grids were investigated. These mini-grids were centered on MD items located during the 2002 intrusive investigation of the anomalies identified during the 2000 RI. Twelve anomalies were identified and intrusively investigated in the two 30-meter by 30-meter mini-grids. Of the 206 anomalies investigated, six pieces of MD (including five pieces of fragmentation and one expended 51 series fuze) were found. Two hundred anomalies were classified as no finds.

C1-02 received"cleanup complete with ICs" determination from ADEC on June 2, 2004.

Combat Range 1, C1-03 — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Combat Range 1, C1-03 OU B-1

SUMMARY OF INSPECTION RESULTS:

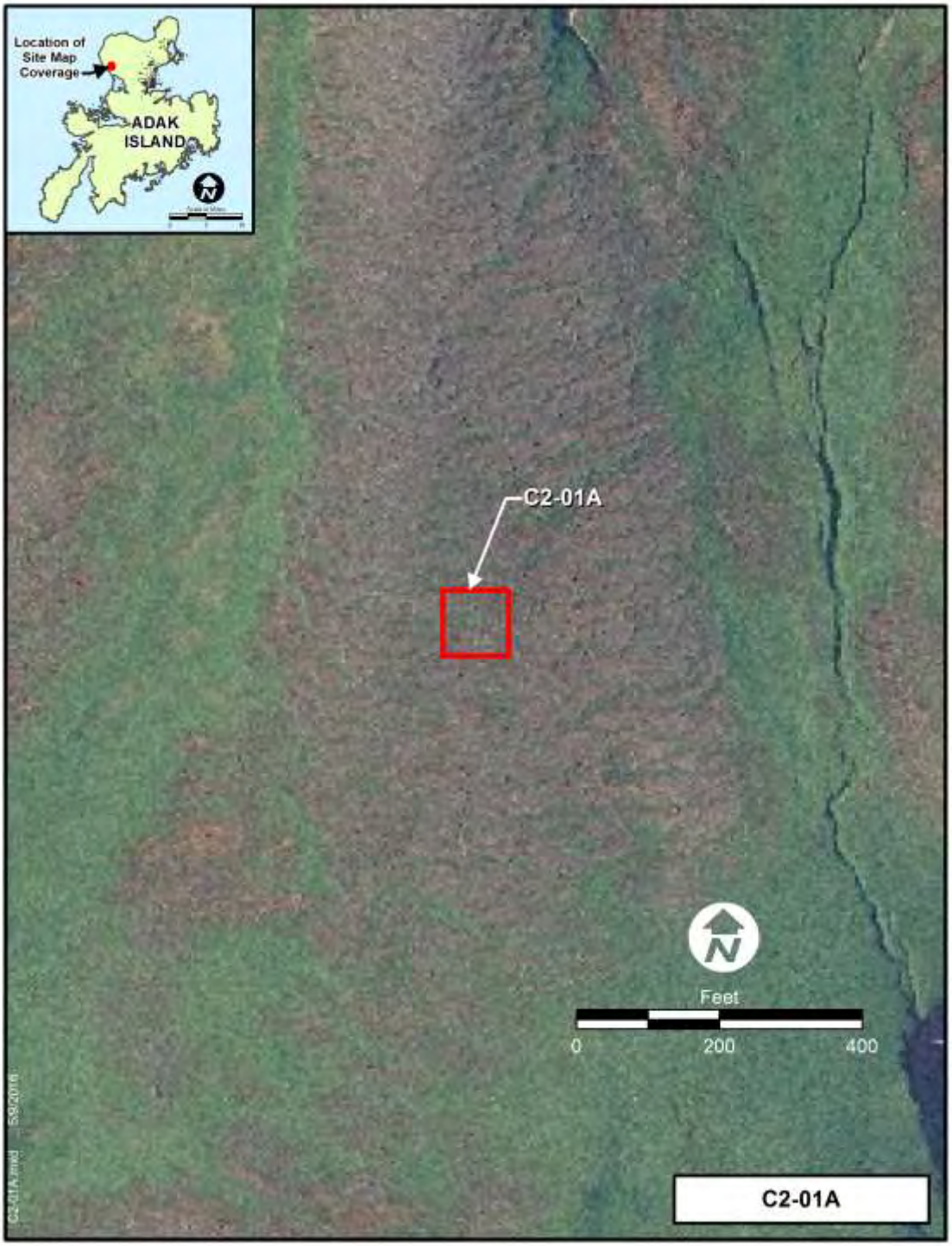
ICs for all OU B-1 sites include equitable servitude and an ongoing education program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 101, 129, 141, 142, 144, 171

Combat Range 2, C2-01A — OU B-1



Combat Range 2, C2-01A — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

Combat Range #2, including C2-01A, is located northwest of downtown Adak, encompassing the land area on the western flank of Mt. Moffett. Combat Range #2 is approximately 3,401 acres in size and has varied terrain and vegetation. This sector is mainly composed of large sloping plateaus on the side of Mt. Moffett between moderately steep drainages.

C2-01A is located at the northwestern end of Combat Range #2, and encompasses 0.2 acre. The C2-01A area, on the lower flanks of Mt. Moffett, lies within a small patch of rolling terrain surrounded on the north and south by inaccessible terrain. There is access to the area only by ARGO all-terrain vehicle or helicopter. This area was investigated in 1999 and 2000. During the 1999 field investigation, two metal fragments were found in this general area. This same area was investigated again during the 2000 RI, although targets located in 2000 were not intrusively investigated at the time of the RI.

Combat Range 2, C2-01A — OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy was observation approach presumptive clearance. In 2002, anomalies identified during the 2000 RI were intrusively investigated. No MEC or MD was found. Twenty-seven anomalies were classified as no finds. The ROD remedy was completed in 2002.

C2-01A received "cleanup complete with ICs" determination from ADEC on June 3, 2004.

Combat Range 2, C2-01A — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Combat Range 2, C2-01A — OU B-1

SUMMARY OF INSPECTION RESULTS:

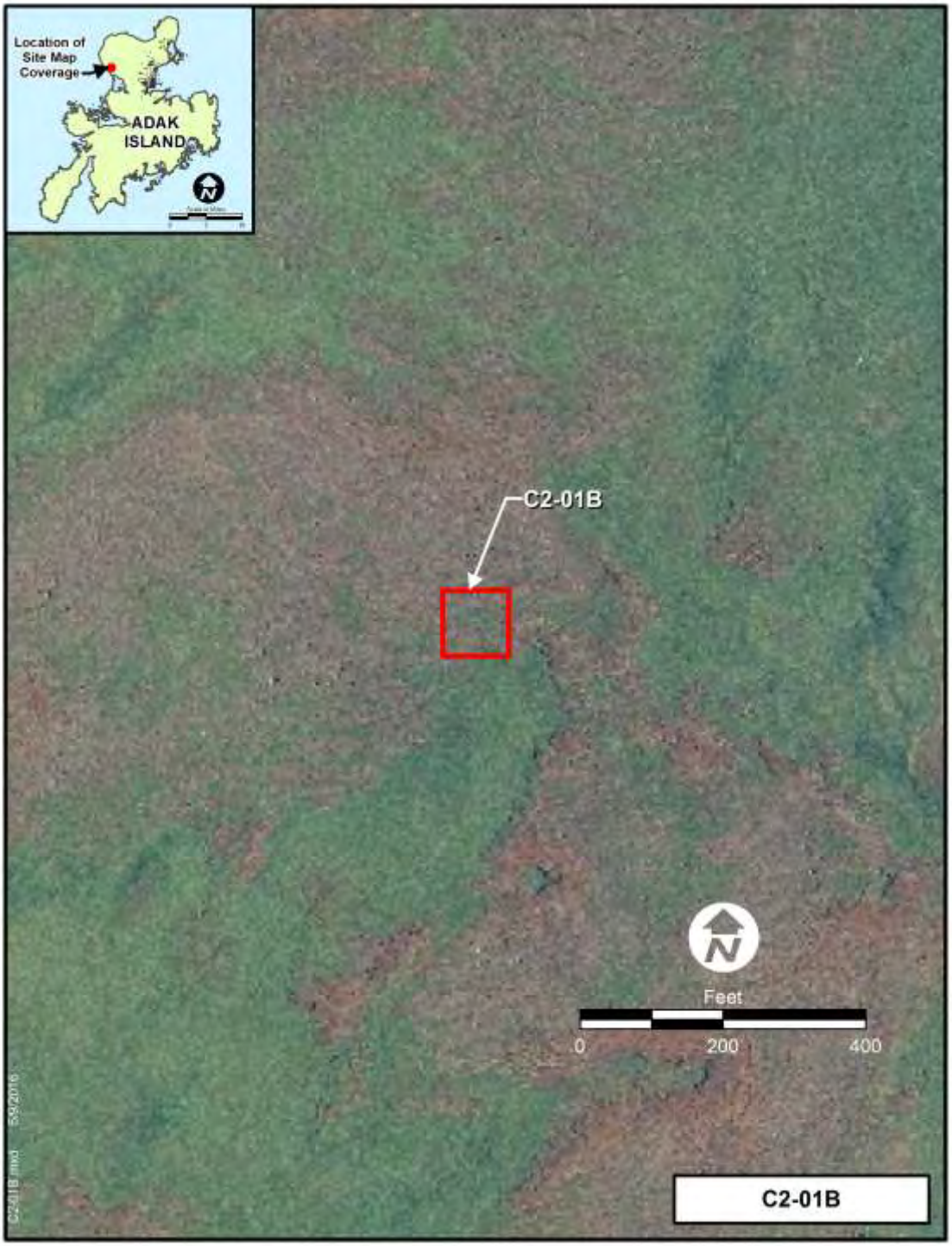
ICs for all OU B-1 sites include equitable servitude and an ongoing education program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 101, 129, 141, 142, 144, 171

Combat Range 2, C2-01B — OU B-1



Combat Range 2, C2-01B — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

Combat Range #2, including C2-01B, is located northwest of downtown Adak, encompassing the land area on the western flank of Mt. Moffett. Combat Range #2 is approximately 3,401 acres in size and has varied terrain and vegetation. This sector is mainly composed of large sloping plateaus on the side of Mt. Moffett between moderately steep drainages.

C2-01B is located at the northwestern end of Combat Range #2 and encompasses 0.2 acre. C2-01B area, on the lower flanks of Mt. Moffett, lies within a small patch of rolling terrain surrounded on the north and south by inaccessible terrain. There is access to the area only by ARGO all-terrain vehicle or helicopter. This area was investigated in 1999 and 2000. During the 1999 field investigation, two metal fragments were found in this general area. This area was investigated a second time during the 2000 RI. Five anomalies were identified in the area, but were not intrusively investigated in 2000.

Combat Range 2, C2-01B — OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. In 2002, anomalies identified during the 2000 RI were intrusively investigated. A single MD item (fragmentation) was found. Thirty-one anomalies were classified as no finds. The ROD remedy was completed in 2002.

C2-01B received "cleanup complete with ICs" determination from ADEC on June 3, 2004.

Combat Range 2, C2-01B — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Combat Range 2, C2-01B — OU B-1

SUMMARY OF INSPECTION RESULTS:

ICs for all OU B-1 sites include equitable servitude and an ongoing education program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 101, 129, 141, 142, 144, 171

Combat Range 2, C2-02 — OU B-1

Combat Range 2, C2-02 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

Combat Range #2 is located northwest of downtown Adak, encompassing the land area on the western flank of Mt. Moffett. Combat Range #2 is approximately 3,401 acres in size and has varied terrain and vegetation. This sector is mainly composed of large sloping plateaus on the side of Mt. Moffett between moderately steep drainages.

Combat Range area C2-02 encompasses the western side of Mt. Moffett and includes all portions of Combat Range #2 that are not included in C2-01A and B. It is characterized by steep terrain and inaccessible slopes. The shoreline along the western boundary of Combat Range #2 is characterized by rocky cliffs with narrow, steep, cobbley beaches. The cliffs prevent access from the ocean side of the range. There is access to the area only by ARGO all-terrain vehicle or helicopter. This area was investigated in 1999 and 2000. During the 1999 field investigation, no ordnance or related material was found in C2-02. This area was investigated a second time during the 2000 RI. Five hundred ninety anomalies were identified in the area, but were not intrusively investigated in 2000.

Combat Range 2, C2-02 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. In 2002, anomalies identified during the 2000 RI were intrusively investigated. In addition, six 30-meter by 30-meter minigrids were surveyed on MD finds. Fifteen MD items and five metal waste items were recovered. The MD consisted primarily of fragmentation and one exploded PD fuze. Six hundred and seventy-eight anomalies were classified as no finds. The ROD remedy was completed in 2002.

CB-02 received "cleanup complete with ICs" determination from ADEC on June 3, 2004.

Combat Range 2, C2-02 — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Combat Range 2, C2-02 OU B-1

SUMMARY OF INSPECTION RESULTS:

ICs for all OU B-1 sites include equitable servitude and an ongoing education program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 101, 129, 141, 142, 144, 171

Combat Range 3, C3-01A — OU B-1

Combat Range 3, C3-01A — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

Combat Range #3 is a trapezoidal area southwest of downtown Adak adjacent to Combat Range #6, which lies to the south. The area stretches between Mt. Reed and Shagak Bay and encompasses the Lake DeMarie Impact Area, which is evaluated separately. Combat Range #3 is approximately 6,124 acres (excluding the Lake DeMarie Impact Area) and has a variety of terrain and vegetation. This area is divided north to southeast by the Mt. Reed mountain range. The Eastern Disposal Site (C3-01) is located in the northeastern corner of Combat Range #3.

C3-01A, the Cove Disposal Area, is a portion of the larger rectangular area of C3-01. The area measures about 95 by 315 meters, encompassing 10.5 acres along the eastern shoreline of Heart Lake. The terrain in C3-01A varies, but is relatively flat compared with other outback areas of Adak. There is access to the area via an improved road that runs nearly all the way to the eastern shore of the lake. C3-01A was investigated in both 1999 and 2000. During the 1999 SI, this area was surveyed utilizing a random ribbon walk. Numerous ordnance-related items (MEC and MD) were found, many in positions and conditions suggesting disposal activities had taken place in this area. During the RI in 2000, this area was investigated a second time using the prescribed search pattern with search transects spaced at 34.5 meters. Two hundred and thirty-four anomalies were identified for intrusive investigation. MEC and MD were found at numerous locations within this area. Following the determination that the area had heavy utilization for ordnance disposal activities, some of the anomalies in the interior of C3-01A were not intrusively investigated because ample data were already available regarding the nature of ordnance contamination. Instead, efforts were concentrated on bounding the core disposal area to determine the extent of contamination.

Combat Range 3, C3-01A — OU B-1

COCs AND RISKS:

While not specified as COCs in the OU B-1 ROD, site risks addressed in the remedy include ordnance as well as RDX and TNT in soil.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas.

The RAO for potential ordnance-related chemical risks is to prevent future residents and recreational users from being exposed to explosives-related contamination in soils above the cleanup levels. The cleanup levels established in the ROD are the EPA Region 9 PRGs for residential soil. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy for C3-01A is clearance to 4 feet bgs and chemical sampling, removal, and on-site/off-site treatment and disposal of soils. The remedy was implemented in 2001 and 2002. In 2001, intrusive activity at this site was completed for 22 of 34 grids; however, the site could not be completed during the 2001 field season due to heavy contamination. There were 1,009 anomalies investigated with two UXO and 111 DMM items found. In 2002, the methodology for the intrusive investigation was modified due to high anomaly density, soggy soil conditions, and a high water table. Soil contaminated with ordnance was excavated, spread in 6-inch layers at an off-site laydown area, cleared of MEC and MD using detector-aided search methods, and backfilled in the excavation area. In addition to the 34 grids originally planned for the site, 24 buffer zone expansions also were remediated. During 2002, 19 UXO, 223 DMM, 327 MD, and 576 metal waste items were recovered. Three hundred and ninety-two anomalies were classified as no finds. One hundred and two anomalies were classified as no digs, and four excavations were abandoned. A reason was not provided in the 2002 After Action Report regarding the number of no finds. Although no find

verification sample was not performed at C3-01 during the 2002 field activities, it was performed at five other sites. No reason was provided specific to C3-01A regarding the no dig and dig abandoned classifications. However, the report indicated that no dig generally means that digging was stopped for safety reasons due to the presence of standing water or a large rock in the hole. During the 2001 and 2002 field season, all detected anomalies in accessible areas (areas with a slope less than 30 degrees) were intrusively investigated and removed. In addition, the site was originally 10 acres, but increased to the current 18 acres due to grid expansion associated with ordnance finds. The ROD remedy was completed in 2002.

Three soil samples were analyzed for TNT and RDX and reported concentrations were below detection limits.

C3-01A received "cleanup complete with ICs" determination from ADEC on June 3, 2004.

Combat Range 3, C3-01A — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: August 27, 2000 Most Recent Inspection Date: September 2020
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

Combat Range 3, C3-01A — OU B-1

SUMMARY OF INSPECTION RESULTS:

Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

On September 9, 2019, C3-01A through C3-01F were visually inspected for signs of erosion, soil exposure, and land use. The sites include a greater than 30-degree sloped area and a portion of the western shore of Heart Lake. No evidence of landslides, sloughing, or obvious erosion was observed at the sites. A stream flows into Heart Lake through site C3-01A. Additionally, an access road and hiking trails pass through the site and evidence of recreational use (e.g., all-terrain vehicle [ATV] tracks, fishing line, and footprints on the lake shore) was observed in this area. Additionally, ATV tracks were observed adjacent to sites C3-01B, C3-01D, and C3-01F, but not on them. No other evidence of erosion, debris, structures, or usage was observed at sites C3-01A through C3-01F.

The 2019 IC report indicated that because there is evidence of recreation use in site C3-01A, it is recommended that ordnance awareness information should continue to be available to residents and visitors to Adak. The surveys indicated that 94 percent of the residents and visitors surveyed were aware of the maps detailing ordnance awareness and restricted areas on Adak. All of the school-age children surveyed have seen some of the ordnance awareness materials or watched the video. The next IC inspection is scheduled to occur in 2024.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 101, 102, 107, 129, 137, 141, 142, 144, 165, 171

Combat Range 3, C3-01B — OU B-1

Combat Range 3, C3-01B — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

Combat Range #3 is a trapezoidal area southwest of downtown Adak adjacent to Combat Range #6, which lies to the south. The area stretches between Mt. Reed and Shagak Bay and encompasses the Lake DeMarie Impact Area, which is evaluated separately. Combat Range #3 is approximately 6,124 acres (excluding the Lake DeMarie Impact Area) and has a variety of terrain and vegetation. This area is divided north to southeast by the Mt. Reed mountain range. The Eastern Disposal Site (C3-01) is located in the northeastern corner of Combat Range #3.

C3-01B (Mortar #1) is a 30-by-30-meter square encompassing 0.2 acre. The terrain in C3-01B is relatively flat compared with other outback areas of Adak. There is access to the area via an improved road network in the NAF Magazine Area sector. This area was investigated in both 1999 and 2000. During the 1999 SI, this area was surveyed utilizing a random ribbon walk that passed through C3-01B one time. The lone mortar found was the only anomaly detected in this area. During the RI in 2000, this area was investigated a second time using the prescribed search pattern for the overall disposal area (C3-01) with search transects spaced at 34.5 meters. One transect passed through the 30-by-30-meter square C3-01B site, and one transect passed just south of the site. No UXO was found within or near the boundaries of the site, suggesting that the mortar was a lone UXO item unrelated to other activities at C3-0IA.

Combat Range 3, C3-01B — OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy for C3-01B is observation approach presumptive clearance. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. More specifically, the goal of final characterization work at this site was to confirm that the 81-mm mortar found during the 1999 investigation was a lone item. The remedial action technique used consisted of a geophysical survey in a grid centered on the referenced anomaly with data collected on a 5-meter spacing (transect). Twenty-eight anomalies were identified, and were classified as metal waste. No UXO items were found. The ROD remedy was completed in 2001.

C3-01B received "cleanup complete with ICs" determination from ADEC on June 3, 2004.

Combat Range 3, C3-01B — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: Not Applicable Most Recent Inspection Date: September 2020
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

Combat Range 3, C3-01B — OU B-1

SUMMARY OF INSPECTION RESULTS:

Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

On September 9, 2019, C3-01A through C3-01F were visually inspected for signs of erosion, soil exposure, and land use. The sites include a greater than 30-degree sloped area and a portion of the western shore of Heart Lake. No evidence of landslides, sloughing, or obvious erosion was observed at the sites. A stream flows into Heart Lake through site C3-01A. Additionally, an access road and hiking trails pass through the site and evidence of recreational use (e.g., all-terrain vehicle [ATV] tracks, fishing line, and footprints on the lake shore) was observed in this area. Additionally, ATV tracks were observed adjacent to sites C3-01B, C3-01D, and C3-01F, but not on them. No other evidence of erosion, debris, structures, or usage was observed at sites C3-01A through C3-01F.

The 2019 IC report indicated that because there is evidence of recreation use in site C3-01A, it is recommended that ordnance awareness information should continue to be available to residents and visitors to Adak. The surveys indicated that 94 percent of the residents and visitors surveyed were aware of the maps detailing ordnance awareness and restricted areas on Adak. All of the school-age children surveyed have seen some of the ordnance awareness materials or watched the video. The next IC inspection is scheduled to occur in 2024.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 102, 107, 129, 137, 141, 142, 144, 165, 171

Combat Range 3, C3-01C — OU B-1

Combat Range 3, C3-01C — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

Combat Range #3 is a trapezoidal area southwest of downtown Adak adjacent to Combat Range #6, which lies to the south. The area stretches between Mt. Reed and Shagak Bay and encompasses the Lake DeMarie Impact Area, which is evaluated separately. Combat Range #3 is approximately 6,124 acres (excluding the Lake DeMarie Impact Area) and has a variety of terrain and vegetation. This area is divided north to southeast by the Mt. Reed mountain range. The Eastern Disposal Site (C3-01) is located in the northeastern corner of the Combat Range #3.

C3-01C (Mortar #2) is a 30-by-30-meter square encompassing 0.2 acre. The terrain in C3-0IC is relatively flat compared with outback areas of Adak. There is access to the area via an improved road network in the NAF Magazine Area Sector. This area was investigated in both 1999 and 2000. During the 1999 SI, this area was surveyed utilizing a random ribbon walk that passed through C3-01C one time. The lone mortar found was the only anomaly detected in this area. During the RI in 2000, this area was investigated a second time using the prescribed search pattern for the overall disposal area (C3-01) with search transects spaced at 34.5 meters. One transect passed through the 30-by-30-meter square C3-01C site, and one transect passed just north of the site. No UXO or related scrap was found near the mortar site, suggesting that the mortar was a lone UXO item unrelated to other activities at C3-0A.

Combat Range 3, C3-01C — OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy for C3-01C is observation approach presumptive clearance. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. More specifically, the goal of the final characterization work at this site was to confirm that the 81-mm WP mortar found during the 1999 investigation was a lone item. The remedial action technique used consisted of geophysical survey of the grid with a 5-meter transect mini-grid. There were no anomalies discovered at this site. The ROD remedy was completed in 2001.

C3-01C received "cleanup complete with ICs" determination from ADEC on June 3, 2004.

Combat Range 3, C3-01C — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: Not Applicable Most Recent Inspection Date: September 2020
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

Combat Range 3, C3-01C — OU B-1

SUMMARY OF INSPECTION RESULTS:

Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

On September 9, 2019, C3-01A through C3-01F were visually inspected for signs of erosion, soil exposure, and land use. The sites include a greater than 30-degree sloped area and a portion of the western shore of Heart Lake. No evidence of landslides, sloughing, or obvious erosion was observed at the sites. A stream flows into Heart Lake through site C3-01A. Additionally, an access road and hiking trails pass through the site and evidence of recreational use (e.g., all-terrain vehicle [ATV] tracks, fishing line, and footprints on the lake shore) was observed in this area. Additionally, ATV tracks were observed adjacent to sites C3-01B, C3-01D, and C3-01F, but not on them. No other evidence of erosion, debris, structures, or usage was observed at sites C3-01A through C3-01F.

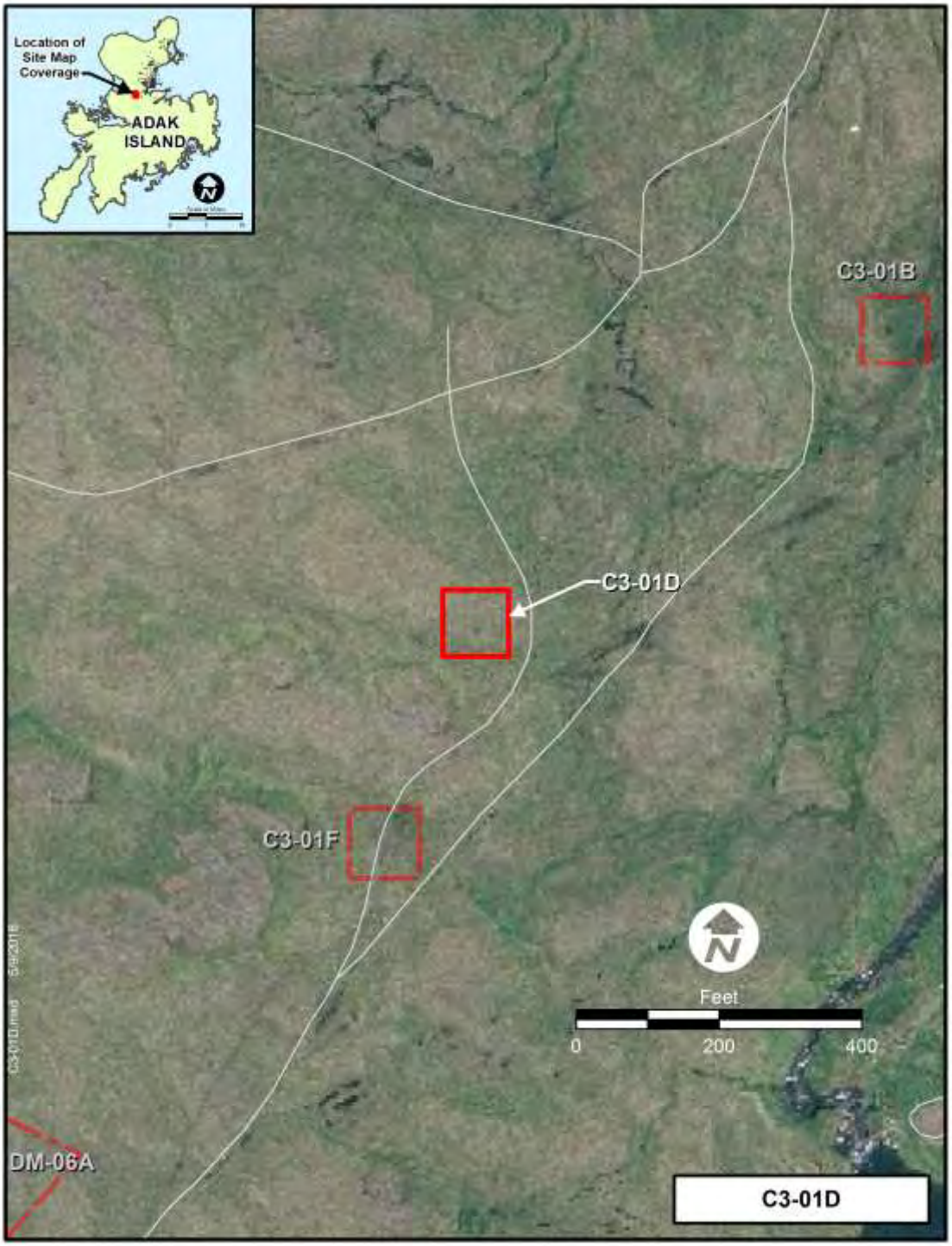
The 2019 IC report indicated that because there is evidence of recreation use in site C3-01A, it is recommended that ordnance awareness information should continue to be available to residents and visitors to Adak. The surveys indicated that 94 percent of the residents and visitors surveyed were aware of the maps detailing ordnance awareness and restricted areas on Adak. All of the school-age children surveyed have seen some of the ordnance awareness materials or watched the video. The next IC inspection is scheduled to occur in 2024.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 102, 107, 129, 137, 141, 142, 144, 165, 171

Combat Range 3, C3-01D — OU B-1



Combat Range 3, C3-01D — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

Combat Range #3 is a trapezoidal area southwest of downtown Adak adjacent to Combat Range #6, which lies to the south. The area stretches between Mt. Reed and Shagak Bay and encompasses the Lake DeMarie Impact Area, which is evaluated separately. Combat Range #3 is approximately 6,124 acres (excluding the Lake DeMarie Impact Area) and has a variety of terrain and vegetation. This area is divided north to southeast by the Mt. Reed mountain range. The Eastern Disposal Site (C3-01) is located in the northeastern corner of Combat Range #3.

C3-01D (Mortar #3) is a 30-by-30-meter square encompassing 0.2 acre. The terrain in C3-01D is relatively flat compared with outback areas of Adak. There is access to the area via an improved road network in the NAP Magazine Area Sector. This area was investigated in both 1999 and 2000. During the 1999 SI, this area was surveyed utilizing a random ribbon walk that passed through C3-01D one time. The lone mortar found was the only anomaly detected in this area. During the RI in 2000, this area was investigated a second time using the prescribed search pattern for the overall disposal area (C3-01) with search transects spaced at 34.5 meters. One transect passed through the 30-by-30-meter square C3-01D site, and two transects passed north and south of the site. No UXO or related scrap was found near the mortar site, suggesting that the mortar was a lone UXO item unrelated to other activities at C3-01A.

Combat Range 3, C3-01D — OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy for C3-01D is observation approach presumptive clearance. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. More specifically, the goal of the final characterization work at this site was to confirm that the 81-mm WP mortar found during the 1999 investigation was a lone item. The remedial action technique used consisted of geophysical survey of the grid with a 5-meter transect mini-grid. One anomaly was investigated at this site and it was classified as MD. The ROD remedy was completed in 2001.

C3-01D received "cleanup complete with ICs" determination from ADEC on June 3, 2004.

Combat Range 3, C3-01D — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: Not Applicable Most Recent Inspection Date: September 2020
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

Combat Range 3, C3-01D — OU B-1

SUMMARY OF INSPECTION RESULTS:

Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

On September 9, 2019, C3-01A through C3-01F were visually inspected for signs of erosion, soil exposure, and land use. The sites include a greater than 30-degree sloped area and a portion of the western shore of Heart Lake. No evidence of landslides, sloughing, or obvious erosion was observed at the sites. A stream flows into Heart Lake through site C3-01A. Additionally, an access road and hiking trails pass through the site and evidence of recreational use (e.g., all-terrain vehicle [ATV] tracks, fishing line, and footprints on the lake shore) was observed in this area. Additionally, ATV tracks were observed adjacent to sites C3-01B, C3-01D, and C3-01F, but not on them. No other evidence of erosion, debris, structures, or usage was observed at sites C3-01A through C3-01F.

The 2019 IC report indicated that because there is evidence of recreation use in site C3-01A, it is recommended that ordnance awareness information should continue to be available to residents and visitors to Adak. The surveys indicated that 94 percent of the residents and visitors surveyed were aware of the maps detailing ordnance awareness and restricted areas on Adak. All of the school-age children surveyed have seen some of the ordnance awareness materials or watched the video. The next IC inspection is scheduled to occur in 2024.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 99, 102, 107, 129, 137, 141, 142, 144, 165, 171

Combat Range 3, C3-01E — OU B-1

Combat Range 3, C3-01E — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

Combat Range #3 is a trapezoidal area southwest of downtown Adak adjacent to Combat Range #6, which lies to the south. The area stretches between Mt. Reed and Shagak Bay and encompasses the Lake DeMarie Impact Area, which is evaluated separately. Combat Range #3 is approximately 6,124 acres (excluding the Lake DeMarie Impact Area) and has a variety of terrain and vegetation. This area is divided north to southeast by the Mt. Reed mountain range. The Eastern Disposal Site (C3-01) is located in the northeastern corner of Combat Range #3.

C3-01E (Bomb Tail Fuze) is a 30-by-30-meter square encompassing 0.2 acre. The terrain in C3-01E is relatively flat compared with outback areas of Adak. There is access to the area via an improved road network in the NAP Magazine Area Sector. This area was investigated in both 1999 and 2000. During the 1999 SI, this area was surveyed utilizing a random ribbon walk that passed through C3-01E one time. The lone tail fuze found was the only anomaly detected in this area. During the RI in 2000, this area was investigated a second time using the prescribed search pattern for the overall disposal area (C3-01) with search transects spaced at 34.5 meters. One transect passed through the 30-by-30-meter square C3-01E site, and one transect passed south of the site. No UXO or related scrap was found near the fuze site, suggesting that the fuze was a lone item unrelated to other activities at C3-01A.

Combat Range 3, C3-01E — OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. More specifically, the goal of work at this site was to confirm that the tail fuze found during the 1999 investigation was a lone item. The technique used consisted of a 100 percent geophysical survey of the 30-meter grid. During 2001, the boundary for this area was significantly expanded to the west and northeast of the original boundary due to the presence of DMM and MD. There were 65 anomalies investigated at this site, although no UXO items were found by the conclusion of the 2001 field season. Because DMM and MD were encountered within the 15-meter buffer zone, this site required further investigation in the 2002 field season. Eight buffer zone expansions through 100 percent geophysical survey were completed in C3-01E. One DMM item, 10 MD items, and 13 metal waste items were recovered. The DMM item was a bomb fuze and the MD items included fragmentation and fuze parts. Forty-eight anomalies were classified as no finds. The ROD remedy was completed in 2002.

C3-01E received "cleanup complete with ICs" determination from ADEC on June 3, 2004.

Combat Range 3, C3-01E — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Combat Range 3, C3-01E — OU B-1

SUMMARY OF INSPECTION RESULTS:

Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

On September 9, 2019, C3-01A through C3-01F were visually inspected for signs of erosion, soil exposure, and land use. The sites include a greater than 30-degree sloped area and a portion of the western shore of Heart Lake. No evidence of landslides, sloughing, or obvious erosion was observed at the sites. A stream flows into Heart Lake through site C3-01A. Additionally, an access road and hiking trails pass through the site and evidence of recreational use (e.g., all-terrain vehicle [ATV] tracks, fishing line, and footprints on the lake shore) was observed in this area. Additionally, ATV tracks were observed adjacent to sites C3-01B, C3-01D, and C3-01F, but not on them. No other evidence of erosion, debris, structures, or usage was observed at sites C3-01A through C3-01F.

The 2019 IC report indicated that because there is evidence of recreation use in site C3-01A, it is recommended that ordnance awareness information should continue to be available to residents and visitors to Adak. The surveys indicated that 94 percent of the residents and visitors surveyed were aware of the maps detailing ordnance awareness and restricted areas on Adak. All of the school-age children surveyed have seen some of the ordnance awareness materials or watched the video. The next IC inspection is scheduled to occur in 2024.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 101, 102, 107, 129, 137, 141, 142, 144, 165, 171

Combat Range 3, C3-04A — OU B-1

Combat Range 3, C3-04A — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

Combat Range #3 is a trapezoidal area southwest of downtown Adak adjacent to Combat Range #6, which lies to the south. The area stretches between Mt. Reed and Shagak Bay and encompasses the Lake DeMarie Impact Area, which is evaluated separately. Combat Range #3 is approximately 6,124 acres (excluding the Lake DeMarie Impact Area) and has a variety of terrain and vegetation. This area is divided north to southeast by the Mt. Reed mountain range. C3-04 encompasses the areas of Combat Range #3 not included in the Lake De Marie Impact Area. The terrain of C3-04 is characterized as rugged and steep.

C3-04A (Bomb Booster) is a small 30-by-30-meter square encompassing 0.2 acre. The terrain in C3-04A is relatively flat compared with other outback areas of Adak. There is access to the area via potential boat landing sites at Shagak Bay to the west: also, a hiking trail passes near the site. Combat Range #3 was investigated in both 1999 and 2000. During the 1999 SI, Combat Range #3 was surveyed utilizing a random ribbon walk. The random ribbon walk did not pass any where near C3-04A. During the RI in 2000, this area was investigated as part of a larger area using the prescribed search pattern for the overall maneuver area (C3-04) with search transects spaced at 105 meters. The single bomb booster found was the only anomaly detected in this area in 2000, and the location of this bomb booster was designated C3-04A. No other UXO or related scrap was found near the booster site, suggesting that the find was a lone item unrelated to other activities at C3-04. The item discovered at this site remained in place following the RI.

Combat Range 3, C3-04A — OU B-1

COCs AND RISKS:

While not specified as COCs in the OU B-1 ROD, site risks addressed in the remedy include ordnance as well as RDX, TNT, and tetryl in soil.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC and to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas.

The RAO for potential ordnance-related chemical risks is to prevent future residents and recreational users from being exposed to explosives-related contamination in soils above the cleanup levels. The cleanup levels established in the ROD are the EPA Region 9 PRGs for residential soil. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance as well as chemical sampling, removal, and on-site/off-site treatment and disposal of soils. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. More specifically, the goal of work at this site was to confirm that the bomb booster found during the 2000 investigation was a lone item. The technique used consisted of a geophysical study in the 15-meter expansion areas using 5-meter transects. The boundary for this area was significantly expanded in all directions due to the presence of DMM and MD. Four hundred anomalies were investigated at this site. No UXO items were found. Four DMM items and 208 MD items were found. The booster was one of the DMM items identified and all items were removed/treated during an intrusive remedial action event on October 9, 2001 after a full sweep of the area was completed. This site required NFA since the items discovered were determined to be from the result of a one-time aircraft jettison. The ROD remedy was completed in 2001.

Combat Range 3, C3-04A — OU B-1

Two soil samples collected in 2001 reported ordnance related chemicals below detection limits. Therefore, no soil was removed from the site for treatment and/or disposal.

C3-04A received "cleanup complete with ICs" determination from ADEC on October 21, 2004.

Combat Range 3, C3-04A — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: 2001 — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Combat Range 3, C3-04A — OU B-1

SUMMARY OF INSPECTION RESULTS:

Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 102, 107, 129, 141, 142, 144, 171

Combat Range 6, C6-01A — OU B-1

Combat Range 6, C6-01A — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

Combat Range #6 is a triangular area that stretches across the entire width of Adak (east to west) near the military reservation boundary. The orientation is such that a portion of Combat Range #6 is in the military reservation and a portion of the range is located outside the military reservation in the wildlife refuge. Only the portion of Combat Range #6 located in the military reservation was included in the RI/FS investigation. This portion of the sector is approximately 6,820 acres and has a variety of terrain and vegetation. The majority of the topographic formations noted in Combat Range #6 consist of high mountains separated by large wide valleys.

Area C6-01A is a 1-acre portion of Combat Range #6 (C6-01) on the southwest slope of Mt. Reed. The terrain in C6-01A is moderately steep and rolling. There is no formal access to the area because of the lack of improved roads or trails; however, the area is not far from Expedition Harbor on the western shoreline of Adak, where there are potential boat landing sites. This area was not investigated in 1999. Although it was part of the Combat Range #6 sector in 1999, the random ribbon walk used for that investigation did not pass through the C6-01A area. During the RI in 2000, this area was investigated as part of the Combat Range #6 sector investigation using the prescribed search pattern for a maneuver area (transects with 105-meter spacing). Initially a loose cluster of ordnance-related items was found. Two pieces of UXO and one piece of MD were found in one general area. In order to further investigate these finds, a rectangular (approximately 60-meter by 70-meter) area surrounding the three finds was investigated with 5-meter line spacing, leading to the discovery of two more pieces of UXO, along with numerous pieces of MD. A total of 16 anomalies were investigated in this area. Four of the anomalies were UXO. Nine of the anomalies were identified as MD, and the remaining anomalies were classified as no finds.

Combat Range 6, C6-01A — OU B-1

COCs AND RISKS:

While not specified as COCs in the OU B-1 ROD, site risks addressed in the remedy include ordnance and TNT in soil.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas.

The RAO for potential ordnance-related chemical risks is to prevent future residents and recreational users from being exposed to explosives-related contamination in soils above the cleanup levels. The cleanup levels established in the ROD are the EPA Region 9 PRGs for residential soil. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy for C6-01A is clearance to 4 feet bgs and chemical sampling, removal, and on-site/off-site treatment and disposal of soils. The remedy was implemented in 2001. During the 2001 field season, C6-01A was expanded to encompass additional area as a result of the multiple UXO and MD items found on the eastern boundary of the site during the RI. There were two UXO items found among 158 anomalies investigated. The remaining anomalies were MD, metal waste, or no finds. The two UXO items found were 81-mm mortars. Both were left in place for later disposal and were located within 1 foot of the ground surface. Documentation could not be found verifying that these UXO items were removed. However, the after action report indicated that the remedy was completed in 2001. Complete documentation will be assembled as part of the preparation of the remedial action completion report for OU B-1.

One soil sample collected in 2001 reported ordnance-related chemicals below detection limits. Therefore, no soil was removed from the site for treatment and/or disposal.

Combat Range 6, C6-01A — OU B-1

C6-01A received "cleanup complete with ICs" determination from ADEC on October 22, 2004.

Combat Range 6, C6-01A — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: 2001 — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Combat Range 6, C6-01A — OU B-1

SUMMARY OF INSPECTION RESULTS:

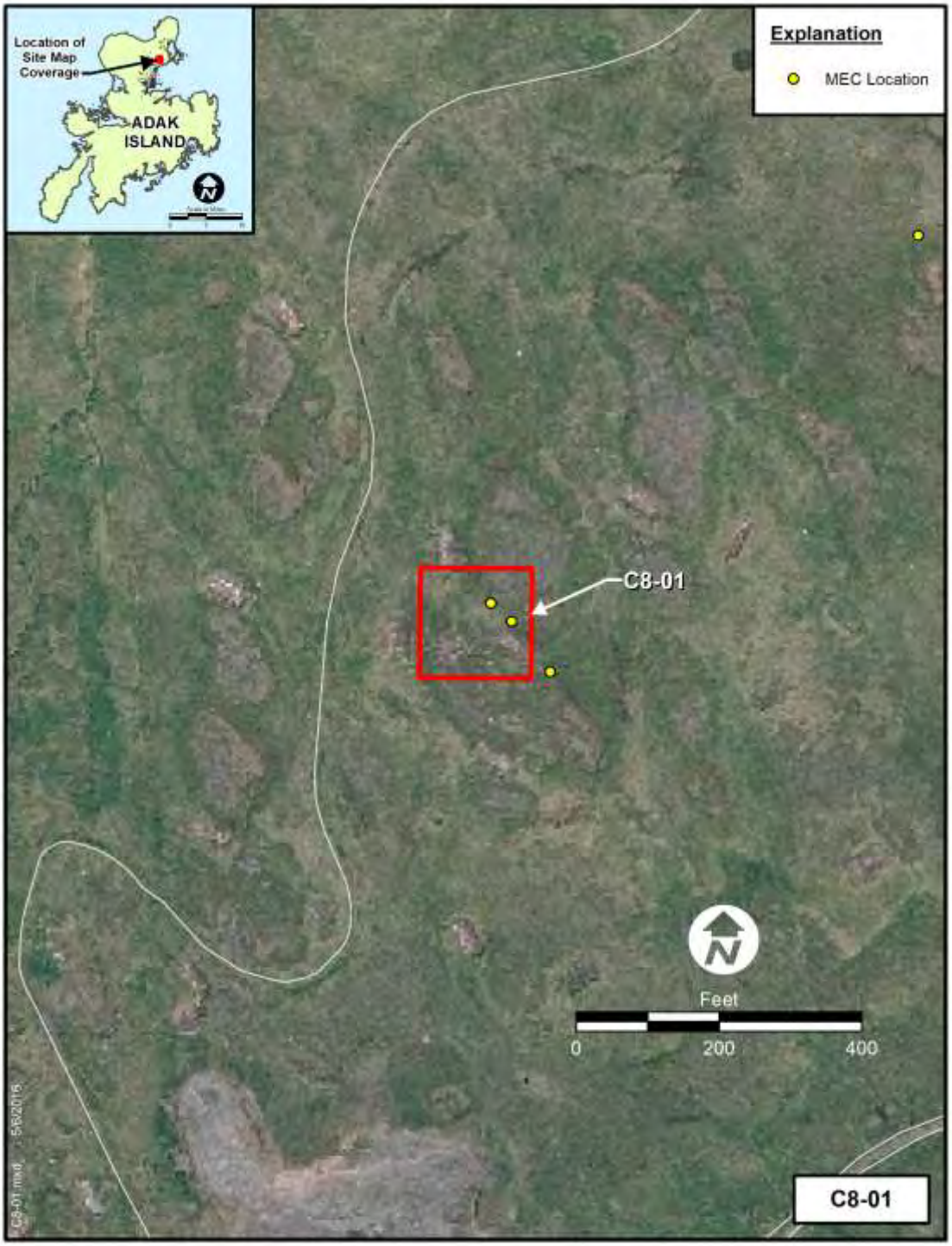
Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99,102, 107, 129, 142, 171

Combat Range 8, C8-01 — OU B-1



Combat Range 8, C8-01 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

Combat Range #8 is located near the southern tip of Andrew Lake, a short distance east of the lake. The range is approximately 158 acres and encompasses a wide range of terrain and vegetation for a small area. A very large, steep ravine bisects the area from north to south near the eastern side. At the head of this ravine, there is a small lake and associated wetlands. Near the southern border of the sector is a larger lake and another wetland. This sector also contains a manmade rock quarry in the southeastern corner. Near the east end of Combat Range #8, above the rock quarry, there are numerous foundations, piles of wood debris, and trash associated with former Quonset huts or other small buildings. These buildings may have been used to house troops. There is also a cabin located in the western portion of this sector.

The Eastern Disposal Site (C8-01) is located on the eastern boundary of the Combat Range #8 site midway along the boundary in the north/south direction. The terrain is characterized by rolling steep hills and ravines. The area is north of downtown Adak within the core development area. There is access to the area from an improved roadway to the east. This area was investigated in both 1999 and 2000. During the 1999 SI, this area was surveyed utilizing a random ribbon walk that passed through C8-01 one time. Three pieces of DMM were found at a depth of approximately 4 feet, indicating likely disposal by burial. During the RI in 2000, this area was investigated a second time using the prescribed bound and characterize methodology for a site containing DMM (100 percent geophysical survey and intrusive investigation). Nineteen anomalies were identified and intrusively investigated. Four additional pieces of DMM were found. The remaining anomalies were classified as metal waste.

Combat Range 8, C8-01 OU B-1

COCs AND RISKS:

While not specified as COCs in the OU B-1 ROD, site risks addressed in the remedy include ordnance as well as TNT and tetryl in soil.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas.

The RAO for potential ordnance-related chemical risks is to prevent future residents and recreational users from being exposed to explosives-related contamination in soils above the cleanup levels. The cleanup levels established in the ROD are the EPA Region 9 PRGs for residential soil. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumption clearance and chemical sampling, removal, and on-site/off-site treatment and disposal of soils. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. More specifically, the goal of work at this site during the 2001 field season was to delineate the final boundaries of the site. A 100 percent geophysical survey of the subject boundary was utilized due to the items previously discovered. During 2001, 34 anomalies were investigated at this site. There were no UXO items found; however, one DMM item and one MD item were found near the boundary of the site. Based on these findings, additional remedial activity in expansion areas was performed at this site in 2004. The expansion area was 100 percent geophysically surveyed over the entire 0.091-acre area that was necessary to ensure an adequate 5-meter ordnance-free buffer around the previously discovered items. Twenty-two anomalies were targeted, producing 19 pieces of metallic waste and three no finds. No UXO, DMM, or other items of concern were found at this site during the 2004 field

season. The ROD remedy was implemented in 2004. In 2008, ADEC designated conditional closure with ICs for the site.

Two soil samples collected in 2001 reported ordnance-related chemicals below detection limits. Therefore, no soil was removed from the site for treatment and/or disposal.

C8-01 received "cleanup complete with ICs" determination from ADEC on January 16, 2008.

Combat Range 8, C8-01 — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: 2001 — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Combat Range 8, C8-01 OU B-1

SUMMARY OF INSPECTION RESULTS:

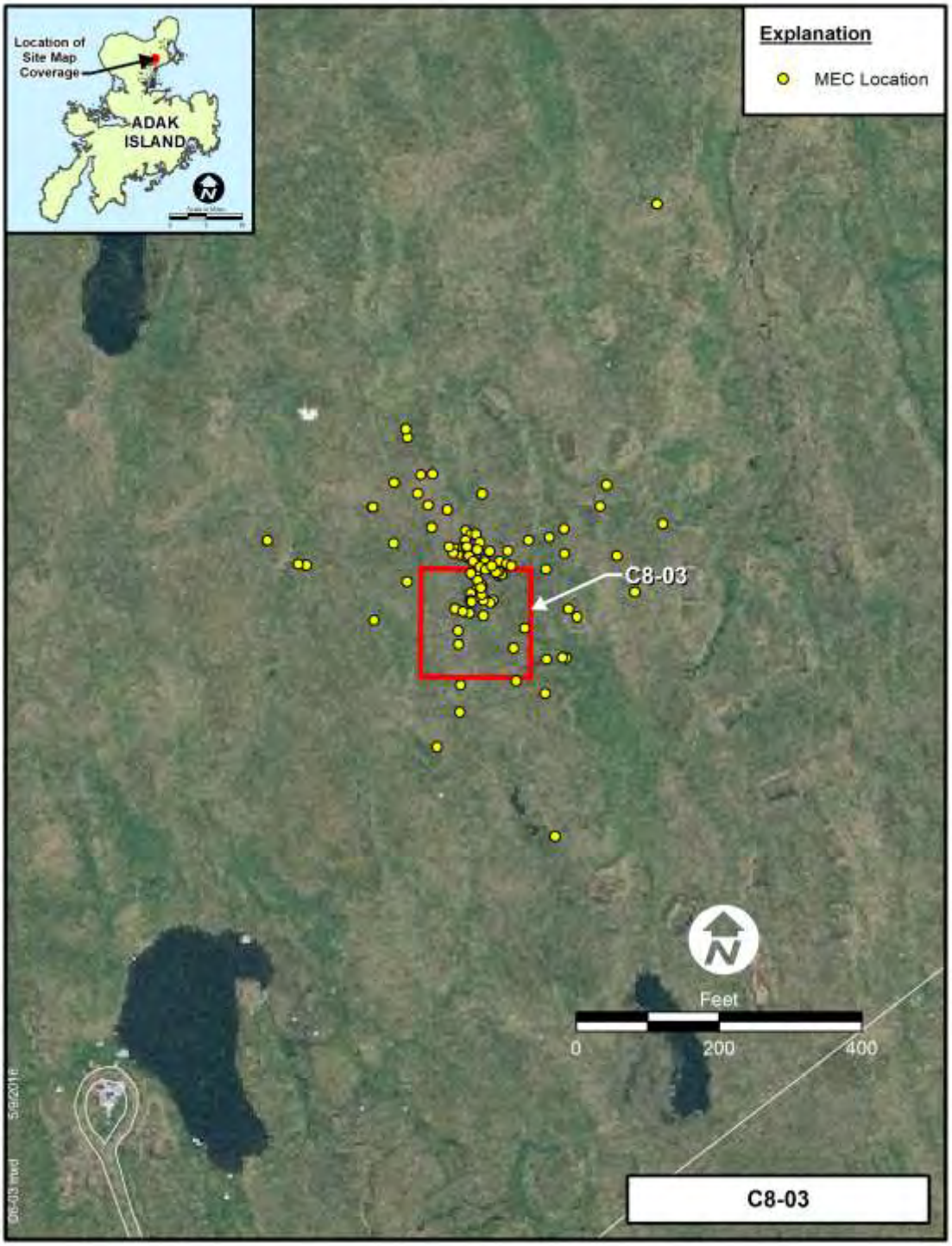
Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 100, 102, 106, 107, 129, 141, 142, 144, 171

Combat Range 8, C8-03 — OU B-1



Combat Range 8, C8-03 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

Combat Range #8 is located near the southern tip of Andrew Lake, a short distance east of the lake. The range is approximately 158 acres and encompasses a wide range of terrain and vegetation for a small area. A very large steep ravine bisects the area from north to south near the eastern side. At the head of this ravine, there is a small lake and associated wetlands. Near the southern border of the sector is a larger lake and another wetland. This sector also contains a manmade rock quarry in the southeastern corner. Near the east end of Combat Range #8, above the rock quarry, there are numerous foundations, piles of wood debris, and trash associated with former Quonset huts or other small buildings. These buildings may have been used to house troops. There is also a cabin located in the western portion of this sector.

The Western Disposal Site (C8-03) is located in the northwestern portion of Combat Range #8, about 300 feet northwest of C8-02. The C8-03 terrain is characterized by rolling steep hills and deep ravines. The area is north of downtown Adak within the core development area. There is access to the site via an improved roadway within 400 meters of the site. This area was investigated in both 1999 and 2000. During the 1999 SI, this area was surveyed utilizing a random ribbon walk that passed through C8-03 twice. DMM items were found including three 20-mm projectiles. During the RI in 2000, this area was investigated a second time using the prescribed search pattern for small sites containing UXO or DMM (100 percent geophysical survey and intrusive investigation). Forty-one anomalies were identified and intrusively investigated. One anomaly was identified as UXO, 22 anomalies were identified as DMM, and 10 anomalies were identified as MD. The remaining eight anomalies were classified as either metal waste or no finds. Several ordnance-related items were located near the boundaries of the site. Because it was uncertain whether the area had been properly bounded, it was recommended that the site be expanded and additional RI work performed to confirm that all items related to the ordnance activities (apparent disposal by abandonment or burial) in this area have been identified. In addition, a single piece of MD was found outside of the site boundaries, and the area surrounding this MD was recommended for inclusion in the expanded search area.

Combat Range 8, C8-03 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance, as well as munitions constituents in soil.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas.

The RAO for potential ordnance-related chemical risks is to prevent future residents and recreational users from being exposed to explosives-related contamination in soil above the cleanup levels. The cleanup levels established in the ROD are based on EPA Region 9 PRGs for residential soil. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy for this site is observation approach presumptive clearance. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. More specifically, the goals of work at this site during the 2001 field season were to determine the final boundaries of the site and to investigate the anomaly located outside the site boundaries. A 100 percent geophysical survey was performed along the southern and eastern border of the original site, as well as around the additional item found outside of the site boundaries. The boundary for the site was expanded to the east due to the presence of DMM. While there were 225 anomalies investigated at this site, no UXO items were found. However, over half (120) of the anomalies investigated were DMM. This site required further expansion at the boundaries due to the presence of DMM at the eastern, southern, and western boundaries. In 2002, three buffer zone expansions through 100 percent geophysical survey were performed. One UXO item, a fuze, was found. Twenty-five DMM items, 93 MD items, and 10 metal waste items were recovered. The DMM items included 20-mm,

Combat Range 8, C8-03 OU B-1

37-mm, and 40-mm projectiles, as well as fuzes. One hundred and thirty-seven anomalies were classified as no finds. The ROD remedy was completed in 2002. Complete documentation will be assembled as part of the preparation of the remedial action completion report for OU B-1.

Twenty soil samples were collected between 2001 and 2002. One sample, collected in 2001, reported RDX in soil at a concentration of 5.9 mg/kg, exceeding the cleanup levels established in the ROD. The 2001 and 2002 after action reports did not verify that soil exceeding the cleanup levels was excavated and treated/disposed of off site.

C8-03 received "cleanup complete with ICs" determination from ADEC on June 3, 2004.

Combat Range 8, C8-03 — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: October 22, 2002 Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required Monitoring File: Not Applicable

Combat Range 8, C8-03 OU B-1

SUMMARY OF INSPECTION RESULTS:

Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 101, 102, 107, 129, 141, 142, 144, 171

Combat Range 8, C8-05A — OU B-1

Combat Range 8, C8-05A — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

Combat Range #8 is located near the southern tip of Andrew Lake, a short distance east of the lake. The range is approximately 158 acres and encompasses a wide range of terrain and vegetation for a small area. A very large, steep ravine bisects the area from north to south near the eastern side. At the head of this ravine, there is a small lake and associated wetlands. Near the southern border of the sector is a larger lake and another wetland. This sector also contains a manmade rock quarry in the southeastern corner. Near the east end of Combat Range #8, above the rock quarry, there are numerous foundations, piles of wood debris, and trash associated with former Quonset huts or other small buildings. These buildings may have been used to house troops. There is also a cabin located in the western portion of this sector.

C8-05A is a small 30- by 30-meter square portion of C8-05 encompassing approximately 0.2 acre. The terrain in this area is moderately steep. There is access to the area via an improved roadway within 400 meters of the site. This area was investigated in both 1999 and 2000. During the 1999 SI, this area was surveyed utilizing a random ribbon walk that passed through C8-05A one time. No UXO was found. During the RI in 2000, this area was investigated a second time using the prescribed search pattern for a combat range (105-meter transect spacing). A single anomaly was identified and intrusively investigated. The anomaly was a discarded military munition (20-mm projectile) and is suspected of being a lone item.

Combat Range 8, C8-05A — OU B-1

COCs AND RISKS:

While not specified as COCs in the OU B-1 ROD, site risks addressed in the remedy include ordnance, as well as TNT and RDX in soil.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas.

The RAO for potential ordnance-related chemical risks is to prevent future residents and recreational users from being exposed to explosives-related contamination in soils above the cleanup levels. The cleanup levels established in the ROD are the EPA Region 9 PRGs for residential soil. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance and chemical sampling, removal, and on-site/off-site treatment and disposal of soils. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. More specifically, the goal of work at this site was to determine if the single 20-mm projectile found during the 2000 RI is a lone item. The technique used consisted of a 100 percent survey of the 30-meter square grid. Fifteen anomalies were investigated at this site and no MEC or MD items were found. The boundary for this area was not expanded, since excavation of the anomalies yielded only metal waste. The ROD remedy was completed in 2001.

Three soil samples were collected in 2001 and reported ordnance-related chemicals at concentrations below cleanup goals established in the ROD. Therefore, no soil was removed from the site for treatment and/or disposal.

Combat Range 8, C8-05A — OU B-1

C8-05A received "cleanup complete with ICs" determination from ADEC on June 3, 2004.

Combat Range 8, C8-05A — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: 2001 — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Combat Range 8, C8-05A — OU B-1

SUMMARY OF INSPECTION RESULTS:

Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 99, 102, 107, 129, 141, 142, 144, 171

Finger Bay Ammunition Pier, FBAP-02 OU B-1

Finger Bay Ammunition Pier, FBAP-02 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

FBAP-02 is the area underlying the location of the former Finger Bay Ammunition Pier. The pier was formerly located along the north shoreline of Finger Bay, a fjord-like inlet south of downtown Adak. The 300-foot L-shaped wooden pier was used to off-load ordnance during WWII. The terrain in the area where the pier met the shoreline is relatively flat and somewhat rocky. There is no known documentation of offshore abandonment or disposal of ordnance into the water from any of the pier-related military activities. However, it is possible that ordnance may have been dropped from the pier during off-loading or handling.

Finger Bay Ammunition Pier, FBAP-02 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. Potential explosive-related chemical risks to ecological receptors were also investigated.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas.

The RAO for potential ordnance-related chemical risks is to prevent future residents and recreational users from being exposed to explosives-related contamination in soil above the cleanup levels. The cleanup levels established in the ROD are based on EPA Region 9 PRGs for residential soil. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required performing a reconnaissance survey using visual inspection and hand-held geophysical detectors to better define the areas requiring final characterization. At FBAP-02, the reconnaissance survey was an underwater dive, which was performed in 2001. The goal of this dive was to determine whether any unauthorized abandonment of ordnance occurred at the site. Observational data collected during the reconnaissance survey revealed that no ordnance-related materials (MEC or MD) were observed at this site. Since no MEC or MD was identified during the reconnaissance survey, the site was designated NFA and the ROD remedy was completed in 2001.

FBAP-02 received "cleanup complete with ICs" determination from ADEC on June 4, 2004.

Finger Bay Ammunition Pier, FBAP-02 — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Finger Bay Ammunition Pier, FBAP-02 OU B-1

SUMMARY OF INSPECTION RESULTS:

Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources

BIBLIOGRAPHY:

83, 91, 99, 102, 129, 141, 142, 144, 171

Finger Bay Impact Area, FB-01 — OU B-1

Finger Bay Impact Area, FB-01 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

Finger Bay Impact Area is located southeast of downtown Adak and upgradient from the head of Finger Bay. This sector is about 446 acres and has a variety of terrain and vegetation. A large stream running north between Lake Betty and Finger Bay bisects the area. Some structural remnants are visible in the Finger Bay Impact Area. West of the stream basin, fence poles and small wooden foundations are visible.

FB-01, Mortar Firing Point, is a circular area approximately 200 feet in diameter, which has been identified from historical photographs as the firing point for the mortar anomaly area within the Finger Bay Impact Area. The terrain in this area is relatively flat, sloping gently toward the creek at the center of the Finger Bay Impact Area. This area was investigated during the 1999 field effort and no ordnance or MD was found. To support the 1999 findings, additional investigation was needed to determine whether this area should be subject to further geophysical survey activities.

Finger Bay Impact Area, FB-01 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required performing a reconnaissance survey using visual inspection and hand-held geophysical detectors to better define the areas requiring final characterization. At FB-01, the reconnaissance survey was performed in 2001. The goal of work was to determine whether any unauthorized burial or abandonment of ordnance occurred at this site. Reconnaissance data collected showed no indication of contamination by MEC or MD and no UXO items were observed. Since no MEC was identified during the reconnaissance survey, the site was designated NFA and the ROD remedy was completed in 2001.

FB-01 received "cleanup complete with ICs" determination from ADEC on June 4, 2004.

Finger Bay Impact Area, FB-01 — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Finger Bay Impact Area, FB-01 OU B-1

SUMMARY OF INSPECTION RESULTS:

Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

On September 5, 2019, these sites were visually inspected for signs of erosion, soil exposure, and land use. No evidence of landslides, sloughing, or obvious erosion was observed at the sites. The streams flowing into Finger Bay, flow through sites FB-01 and FB-03. Additionally, an access road and hiking trails, are nearby these sites, and evidence of recreational use (e.g., hiking) was observed in this area. No other evidence of erosion, debris, structures, or usage was observed at these sites.
The 2019 IC report indicated that because there is evidence of recreation use in site FB-01, it is recommended that ordnance awareness information should continue to be available to residents and visitors to Adak. The surveys indicated that 94 percent of the residents and visitors surveyed were aware of the maps detailing ordnance awareness and restricted areas on Adak. All of the school-age children surveyed have seen some of the ordnance awareness materials or watched the video. The next IC inspection is scheduled to occur in 2024.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 102, 129, 137, 141, 142, 144, 165, 171

Finger Bay Impact Area, FB-03 OU B-1

Finger Bay Impact Area, FB-03 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

Finger Bay Impact Area is located southeast of downtown Adak and upgradient from the head of Finger Bay. This sector is about 446 acres and has a variety of terrain and vegetation. A large stream running north between Lake Betty and Finger Bay bisects the area. Some structural remnants are visible in the Finger Bay Impact Area. West of the stream basin, fence poles and small wooden foundations are visible.

FB-03, Mortar Impact Area, begins about 1,000 feet from the Mortar Firing Point site and continues out to a distance of about 2,500 feet. This site is an irregular shape and encompasses approximately 30 acres. It includes a hillside southeast of the known firing point for the mortars and a lowland area near a creek separating the likely impact area from the firing point. There is access to the area via a roadway serving the firing point and small arms ranges located northeast of the site. There also is boat access from Finger Bay and a hiking trail meanders through the area to Lake Betty. This area was investigated in both 1999 and 2000. During the 1999 SI, this area was surveyed utilizing a random ribbon walk that passed through FB-03 numerous times. No UXO was found; however, several pieces of fragmentation associated with mortars were located. During the RI in 2000, this area was investigated a second time using the prescribed search pattern for a 60-mm mortar impact area (34.5-meter spacing). Ninety-five anomalies were identified and intrusively investigated. Multiple MD items were discovered; however, no UXO was found. Seventy-one anomalies were identified as MD. The remaining anomalies were classified as metal waste, no finds, or other waste.

Finger Bay Impact Area, FB-03 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. More specifically, the goal of work at this site in 2001 was to determine whether the MD items found during the 2000 investigation were lone items. The technique used consisted of a geophysical survey of the 30-meter square grids with 5-meter transect minigrids centered on the referenced anomalies. The site was divided into four sub-sites called FB-03A through FB-03D, corresponding to the previously-identified anomalies. Geophysical work was completed at sites FB-03A and FB-03B during the 2001 field season. The investigation area expanded well beyond the initial two grids for FB-03C and FB-03D to nearly 13 acres. Because of this, the geophysical survey of FB-03C and FB-03D were not completed during the 2001 field season. Fifty-seven anomalies were investigated at these four sub-sites and two UXO items were found. Sites FB-03C and FB-03D contained the UXO and MD. The UXO items included a 3.5-inch bazooka round found at FB-03C and a 2.36-inch anti-tank rocket found at FB-03D. UXO and MD were not found at FB-03A or FB-03B.

During the 2002 field season, 38 50-meter by 50-meter 100 percent geophysical survey grids were completed. One thousand nine hundred and eighty five anomalies were investigated at FB-03. Nine UXO

items, 49 DMM items, 653 MD items, and 1,274 metal waste items were recovered. The nine UXO items included a hand grenade, rifle grenade, and 2.36-inch rockets. Three exception areas were not completely excavated. One exception area included anomalies associated with a heavy cargo sled. The second area included anomalies associated with a large electric motor bolted to a concrete pad, and the final exception area included anomalies associated with a maintenance area, wooden structures, and a small arms firing line. The Project Team approved these exceptions. One hundred and sixty-seven anomalies were classified as no finds, 110 anomalies were classified as no dig, and three excavations were abandoned. A reason was not provided in the 2002 After Action Report regarding the number of no finds. Although no find verification sampling was not performed at FB-03 during the 2002 field activities, it was performed at five other sites. No reason was provided specific to FB-03 regarding the no dig and dig abandoned classifications. However, the report indicated that no dig generally means that digging was never started due to standing water or other obstacle at the site, and dig abandoned generally means that digging was stopped for safety reasons due to the presence of standing water or a large rock in the hole. The ROD remedy was completed in 2002.

Six soil samples were collected between 2001 and 2002 during clearance activities. Ordnance-related chemicals were not detected in any of the samples analyzed. Therefore, no soil was removed from the site for treatment and/or disposal.

FB-03 received "cleanup complete with ICs" determination from ADEC on June 4, 2004.

Finger Bay Impact Area, FB-03 — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: August 27, 2002 Most Recent Inspection Date: September 2020
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

Finger Bay Impact Area, FB-03 OU B-1

SUMMARY OF INSPECTION RESULTS:

Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

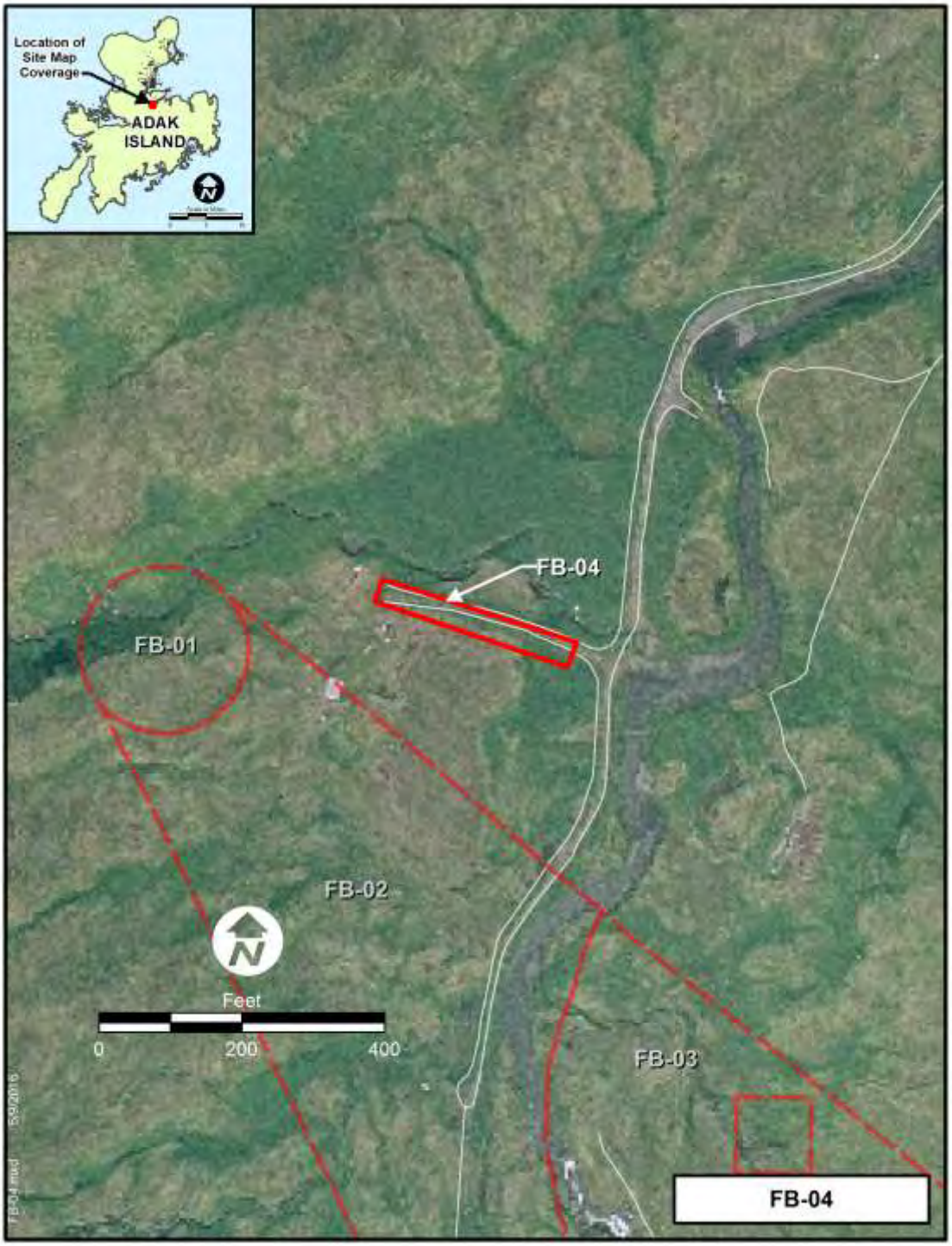
On September 5, 2019, these sites were visually inspected for signs of erosion, soil exposure, and land use. No evidence of landslides, sloughing, or obvious erosion was observed at the sites. The streams flowing into Finger Bay, flow through sites FB-01 and FB-03. Additionally, an access road and hiking trails, are nearby these sites, and evidence of recreational use (e.g., hiking) was observed in this area. No other evidence of erosion, debris, structures, or usage was observed at these sites.
The 2019 IC report indicated that because there is evidence of recreation use in site FB-03, it is recommended that ordnance awareness information should continue to be available to residents and visitors to Adak. The surveys indicated that 94 percent of the residents and visitors surveyed were aware of the maps detailing ordnance awareness and restricted areas on Adak. All of the school-age children surveyed have seen some of the ordnance awareness materials or watched the video. The next IC inspection is scheduled to occur in 2024.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

49, 83, 91, 99, 101, 107, 129, 141, 142, 144, 165, 171

Finger Bay Impact Area, FB-04 — OU B-1



Finger Bay Impact Area, FB-04 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

Finger Bay Impact Area is located southeast of downtown Adak and upgradient from the head of Finger Bay. This sector is about 446 acres and has a variety of terrain and vegetation. A large stream running north between Lake Betty and Finger Bay bisects the area. Some structural remnants are visible in the Finger Bay Impact Area. West of the stream basin, fence poles and small wooden foundations are visible.

FB-04 is a narrow rectangular area encompassing 0.2 acre identified as the firing point for projectiles in the Finger Bay Impact Area. Unfired ordnance may have been stored, dropped, discarded, or disposed of during WWII, but the ordnance used would not have been carried long distances because of its heavy weight. The terrain is relatively flat and the area is adjacent to a dirt roadway that enters the range area. This area was investigated during the 1999 field effort and no ordnance or MD was found. To support the 1999 findings, additional investigation was needed to determine whether this area should be subject to further geophysical survey activities.

Finger Bay Impact Area, FB-04 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required performing a reconnaissance survey using visual inspection and hand-held geophysical detectors to better define the areas requiring final characterization. At FB-04, the reconnaissance survey was performed in 2001. The goal was to determine whether any unauthorized burial or ordnance abandonment occurred at this site. Reconnaissance data collected showed no indication of contamination by ordnance-related materials and no UXO items were observed. Since no MEC was identified during the reconnaissance survey, the site was designated NFA and the ROD remedy was completed in 2001.

FB-04 received "cleanup complete with ICs" determination from ADEC on June 4, 2004.

Finger Bay Impact Area, FB-04 — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Finger Bay Impact Area, FB-04 OU B-1

SUMMARY OF INSPECTION RESULTS:

Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 102, 129, 141, 142, 144, 171

Gun Emplacements, GUN-01 — OU B-1

Gun Emplacements, GUN-01 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

GUN-01 is composed of four general locations (gun sites 2, 5, 27, and 35) thought to have been 20-mm gun emplacements during WWII. Each of the four gun emplacements is considered to be approximately 30 meters square in order to provide space for the weapons, ammunition storage, and trenching or shelter for the gunners. The terrain at GUN-01 is relatively flat. The exact locations of these four sites are not well documented and none of the sites were inspected or investigated during the 1999 SI or the 2000 RI.

Gun Emplacements, GUN-01 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required performing a reconnaissance survey using visual inspection and hand-held geophysical detectors to better define the areas requiring final characterization. At GUN-01, the reconnaissance survey was performed in 2001. The goal of work was to determine whether any unauthorized burial or abandonment of ordnance occurred at this site. Reconnaissance data collected revealed the presence of MD. The MD found was determined to not be from the firing point at GUN-01. The end caps found are simply packing materials. Therefore, no further investigation was warranted and the ROD remedy was completed in 2001.

GUN-01 received "cleanup complete with ICs" determination from ADEC on June 4, 2004.

Gun Emplacements, GUN-01 OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None Most Recent Inspection Date: September 2020
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

Gun Emplacements, GUN-01 OU B-1

SUMMARY OF INSPECTION RESULTS:

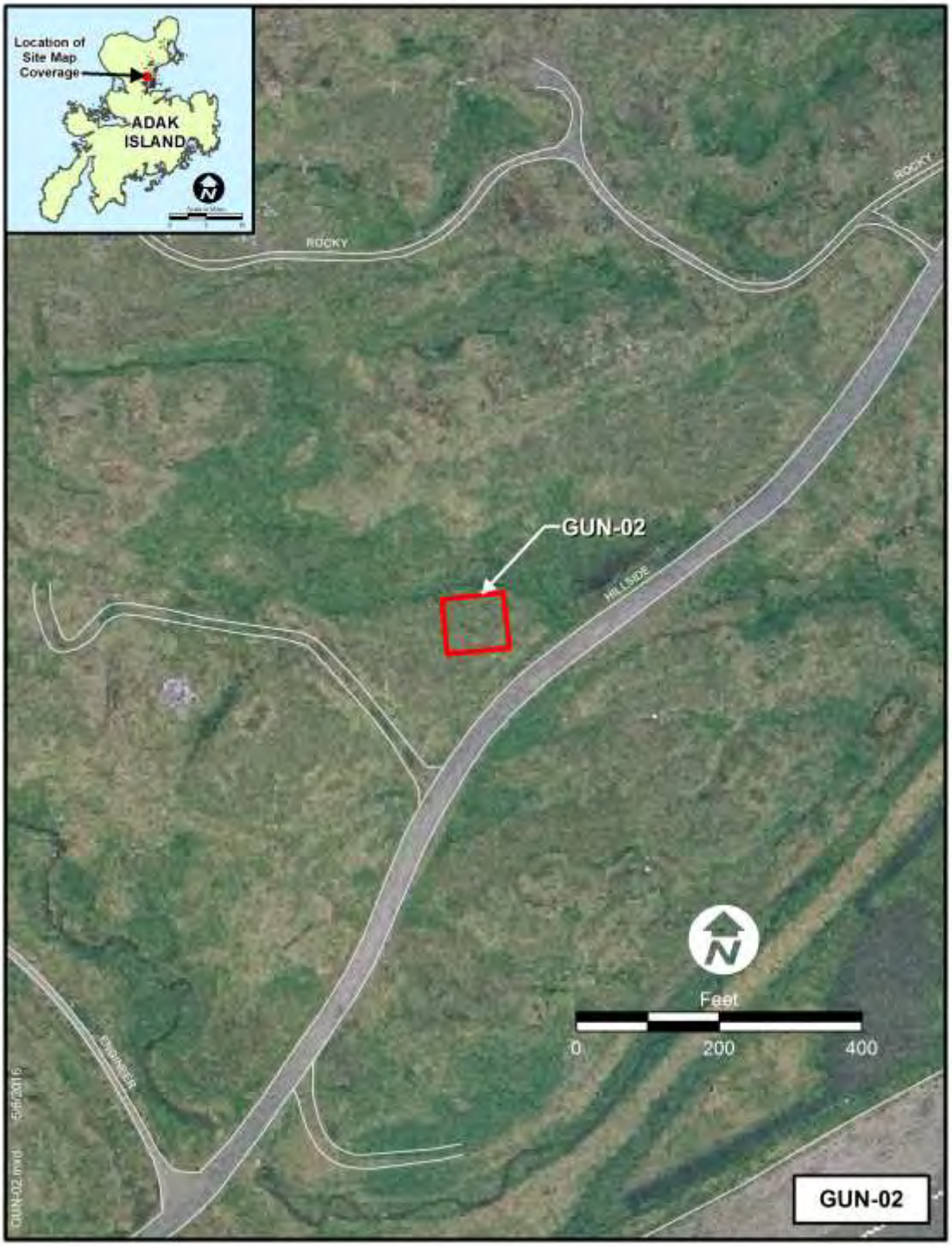
Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 102, 129, 141, 142, 144, 171

Gun Emplacements, GUN-02 — OU B-1



Gun Emplacements, GUN-02 — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

GUN-02 is made up of two general locations (gun sites 28 and 33) thought to have been 37-mm gun emplacements during WWII. Each of the two gun emplacements is believed to be 30 meters square in order to provide space for the weapons, ammunition, and personnel. The terrain at GUN-02 is relatively flat to allow gun placement. The exact locations of these four sites are not well documented and none of the sites were inspected or investigated during the 1999 SI or the 2000 RI.

Gun Emplacements, GUN-02 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required performing a reconnaissance survey using visual inspection and hand-held geophysical detectors to better define the areas requiring final characterization. At GUN-02, the reconnaissance survey was performed in 2001. The goal of work was to determine whether any unauthorized burial or abandonment of ordnance occurred at this site. Reconnaissance data collected revealed the presence of DMM in the form of a non-electrical blasting cap. This non-electrical blasting cap is not associated with activity at the firing point at GUN-02. Therefore, no further investigation was warranted and the ROD remedy was completed in 2001.

GUN-02 received "cleanup complete with ICs" determination from ADEC on June 4, 2004.

Gun Emplacements, GUN-02 — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Gun Emplacements, GUN-02 OU B-1

SUMMARY OF INSPECTION RESULTS:

Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 99, 102, 129, 141, 142, 144, 171

Gun Emplacements, GUN-03 OU B-1

Gun Emplacements, GUN-03 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

GUN-03 is made up of 29 general locations (gun sites 1, 3, 4, 6-26, 29-32, and 34) thought to have been 40-mm gun emplacements during WWII. Each of the 29 gun emplacements is believed to be 30 meters square to provide space for the weapons, ammunition, and personnel. The terrain at GUN-03 is relatively flat to allow gun placement. Two 40-mm gun locations were identified in the field and investigated during the 1998 investigation of the Priority II Area of Adak. A third site was investigated during the 1999 investigation, but the remaining 26 sites were not investigated unless they happened to fall within or near the randomly selected grids in the 1997 and 1998 investigations. No UXO was found at any of these three sites.

Gun Emplacements, GUN-03 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required performing a reconnaissance survey using visual inspection and hand-held geophysical detectors to better define the areas requiring final characterization. At GUN-03, the reconnaissance survey was performed in 2001. The goal of work was to determine whether any unauthorized burial or abandonment of ordnance occurred at this site. No UXO or ordnance-related materials were found during the reconnaissance survey. Therefore, no further investigation was warranted and the ROD remedy was completed in 2001.

GUN-03 received "cleanup complete with ICs" deesignation on June 4, 2004.

Gun Emplacements, GUN-03 — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Gun Emplacements, GUN-03 OU B-1

SUMMARY OF INSPECTION RESULTS:

Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 102, 129, 141, 142, 144, 171

Husky Pass, HP-01 OU B-1

Husky Pass, HP-01 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

This area consisted of two 81-mm firing points and three impact areas, all in the vicinity of Lake Bonnie Rose and Husky Pass. Although bounded by some of the most rugged terrain on Adak Island, the terrain in these areas is relatively flat near the lake, rising to steep hills and ravines. The firing points are northwest of Husky Pass and west of Lake Bonnie Rose. The impact areas are located on top of the peaks that make up Mt. Reed. HP-01 was not investigated during the 1999 SI and 2000 RI, because this site was identified after these field activities occurred through an archive search.

Husky Pass, HP-01 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 RO,D the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required performing a reconnaissance survey using visual inspection and hand-held geophysical detectors to better define the areas requiring final characterization. At HP-01, the reconnaissance survey was performed in 2001. The goal of work was to determine whether any unauthorized burial or abandonment of ordnance occurred at this site. Reconnaissance data collected revealed the presence of small arms ammunition casings (.30 and .308 caliber), one unfired .308 round, and what appeared to be the tail boom of an 81-mm mortar. Further investigation was not warranted, and the ROD remedy was completed in 2001.

HP-01 received "cleanup complete with ICs" designation from ADEC (date not listed on the ADEC website).

Husky Pass, HP-01 OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None Most Recent Inspection Date: September 2020
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

Husky Pass, HP-01 OU B-1

SUMMARY OF INSPECTION RESULTS:

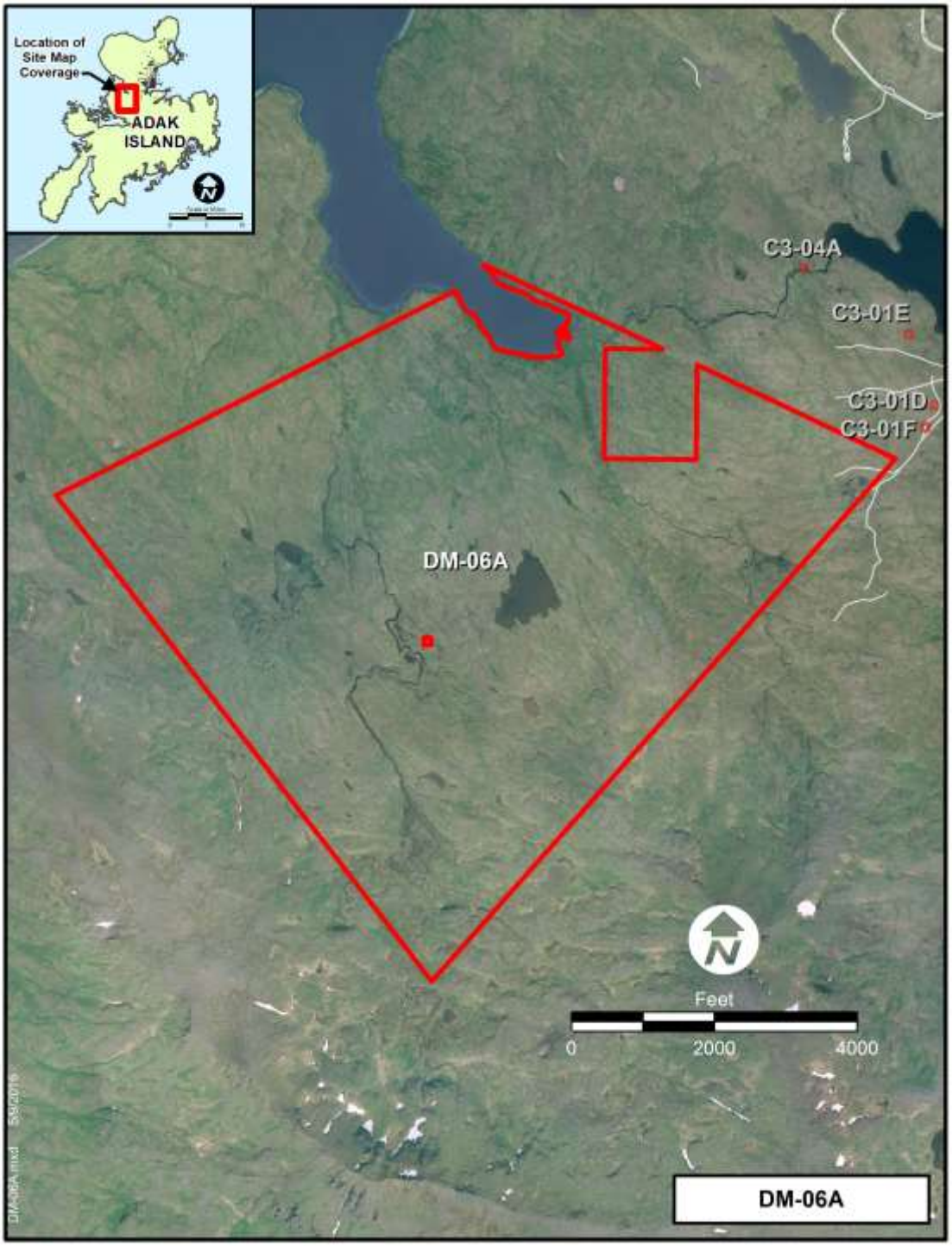
Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 102, 129, 141, 142, 144, 171

Lake DeMarie Impact Area, DM-06A — OU B-1



Lake DeMarie Impact Area, DM-06A — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

The Lake DeMarie Impact Area is located west/southwest of downtown Adak near Shagak Bay. It is located within the boundaries of Combat Range #3, but was investigated separately. This sector is approximately 1,314 acres and has a variety of terrain and vegetation. The majority of the area's topography consists of rolling hills, lakes, and valleys, all sloping down to the north from the Mt. Reed range. The southern portion of the sector borders the mountain range and becomes extremely steep and impassable. The area includes two firing points, one near the southern tip of Andrew Lake and one near the north end of the NAF Adak/Lake De Marie Ammunition Complex.

DM-06A is a 30-meter by 30-meter square encompassing 0.2 acre within DM-06A. The terrain is relatively flat compared to other outback areas on Adak. There is no formal access to the area via either roadway or trail. This area was not investigated in 1999. Although it was part of the Lake Marie Impact Area sector in 1999, the random ribbon walk used for that investigation did not pass through the DM-06A area. During the RI in 2000, this area was investigated as part of a larger area using the prescribed search pattern for the 90-mm projectile impact area (DM-06) with search transects spaced at 50 meters. A single abandoned mortar was found at this site and is suspected to be a lone piece of ordnance unrelated to other activities in DM-06.

Lake DeMarie Impact Area, DM-06A — OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. More specifically, the goal of work in this site during 2001 was to confirm that the 60-mm mortar found during the 2000 investigation is a lone item. The remedial action technique used was a 100 percent survey of a 30-meter-square grid. Four anomalies were identified. Three of the four anomalies were no finds and the remaining anomaly was found to be MD (a 30-caliber casing). Therefore, no work was completed at DM-06A during the 2004 field activities, although it was included in the 2004 after action report. The ROD remedy was completed in 2001. In 2008, ADEC designated conditional closure with ICs for the site.

DM-06A received "cleanup complete with ICs determination" from ADEC on January 16, 2004.

Lake DeMarie Impact Area, DM-06A — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Lake DeMarie Impact Area, DM-06A — OU B-1

SUMMARY OF INSPECTION RESULTS:

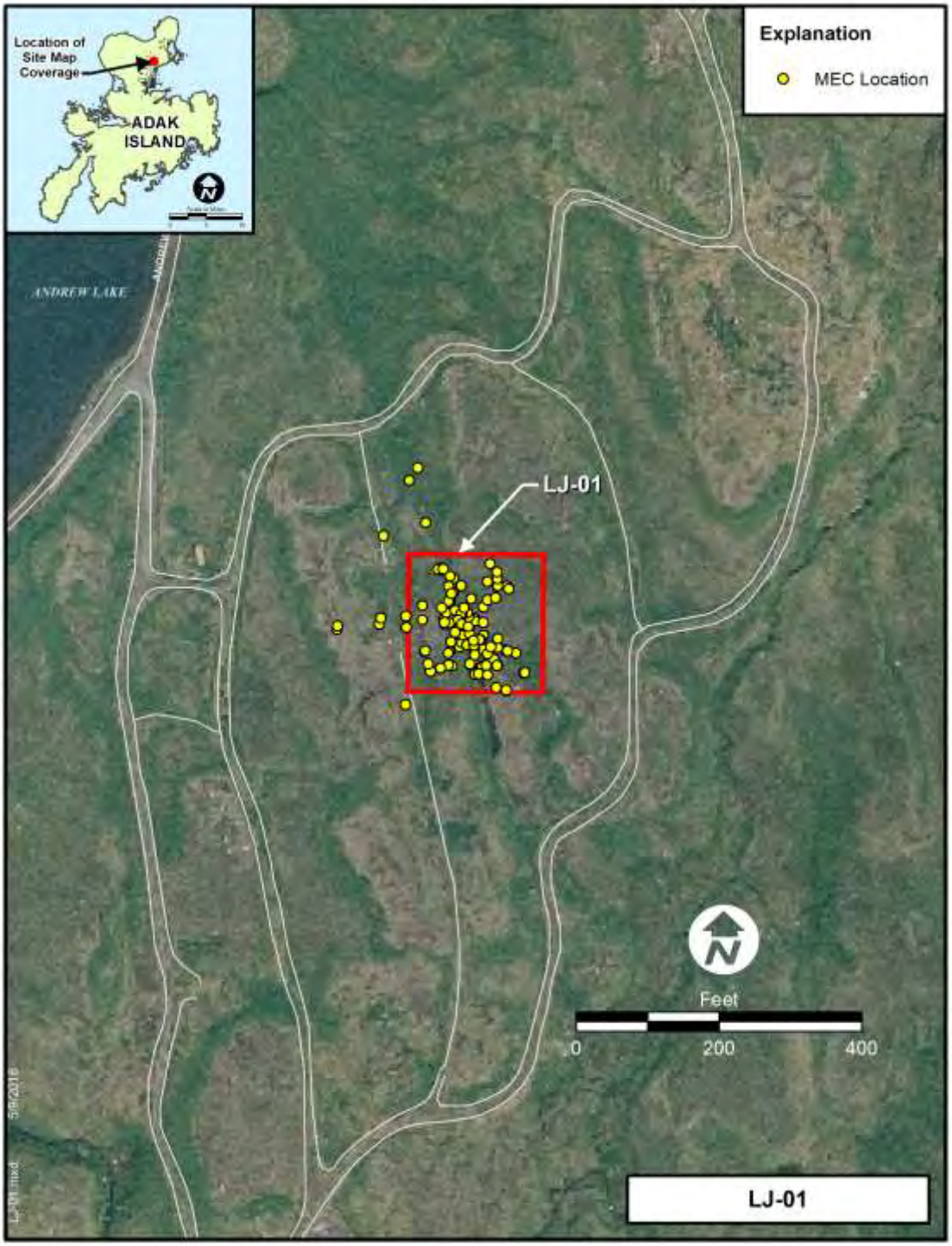
Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 100, 102, 106, 107, 129, 141, 142, 144, 171

Lake Jean Ammunition Complex, LJ-01 — OU B-1



Lake Jean Ammunition Complex, LJ-01 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

This area is located north of downtown Adak along the eastern shoreline of Lake Jean. LJ-01 is a small 55-by 60-meter rectangular site encompassing approximately 0.8 acre. The terrain is relatively flat. There is access to the area via an improved roadway within 400 meters of the site. This area was investigated in both 1999 and 2000. During the 1999 SI, this area was surveyed utilizing a random ribbon walk that passed through LJ-01 several times. DMM items (flares) were found at this site along with a single piece of UXO (a hand grenade). During the 2000 RI, this area was investigated a second time using the prescribed search pattern for a site containing lone ordnance finds (100 percent geophysical survey and intrusive investigation). Two hundred and five anomalies were identified and intrusively investigated. Twenty-one anomalies were identified as UXO, primarily MK2 hand grenades. Seventy-two anomalies were identified as DMM including such items as small arms ammunition, PD fuzes, 37-mm projectiles, 50-mm mortar rockets, flares, and practice ordnance. Several UXO and DMM items were located near the site boundaries. Because the area contained a large number of ordnance items near site boundaries, further investigation was required to delineate the site.

Lake Jean Ammunition Complex, LJ-01 OU B-1

COCs AND RISKS:

While not specified as COCs in the OU B-1 ROD, site risks addressed in the remedy include ordnance as well as TNT, tetryl, nitroglycerin, and nitroguanidine in soil.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas.

The RAO for potential ordnance-related chemical risks is to prevent future residents and recreational users from being exposed to explosives-related contamination in soils above the cleanup levels. The cleanup levels established in the ROD are the EPA Region 9 PRGs for residential soil. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance and chemical sampling, removal, and on-site/off-site treatment and disposal of soils. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. More specifically, the goal of work at this site in 2001 was to establish the final boundaries to the west and south of the site. The technique used was a 100 percent geophysical survey of the western and southern boundaries. One hundred and nineteen anomalies were investigated at this site. None of those anomalies investigated were UXO. However, 42 were DMM items. The boundary for this area was not expanded during this season, and therefore further investigation was warranted.

During the 2004 field season, LJ-01 was defined as three different UoPs. UoP 7 was the 2000 work area, UoP 7A was the 2001 work area, and UoP 9 was the 2004 work area where expansion grids were completed to ensure that all MEC items had a 15-meter ordnance-free buffer around them. During 2004 field work, an

area with construction debris was identified and designated as an "exception area." This area was not completed during the 2004 field season because the equipment and time were not available to complete clearance. As work proceeded in 2004, problems were identified with the 2000 and 2001 field work. As a result, the geophysical anomalies identified during the 2000 and 2001 field work were re-investigated and additional ordnance was identified. However, this work could not be completed during the 2004 field season. During operations in 2004, a total of 69 anomalies were identified as ordnance-related items in the entire LJ-01 area (2000, 2001, and 2004). Six of these items were UXO, four were practice ordnance (MD), and the remaining 59 anomalies were classified as DMM.

Since work could not be completed in 2004, additional investigation and clearance was performed in 2008, when activities included investigating all anomalies to a depth of 4 feet below the mineral soil surface in accordance with the ROD, conducting intrusive investigations of the remaining anomalies identified in 2004, clearing the remaining construction debris in the exception area and investigating all geophysical anomalies in that area, performing a 100 percent geophysical survey of the entire UoP 7 and UoP 7A area, and intrusively investigating additional anomalies identified during that survey. In 2008, 48 MEC items were recovered. These MEC items consisted of DMM and material potentially presenting an explosive hazard. No MEC was encountered within the 15-meter buffer of the LJ-01 boundary, and therefore no step-outs were required.

The ROD remedy was completed during the 2008 field season and in September 2010 ADEC designated the site cleanup complete with ICs.

Four soil samples were submitted in 2001 for chemical analysis and reported ordnance-related chemical concentrations below detection limits. Therefore, no soil was removed from the site for treatment and/or disposal.

LJ-01 received "cleanup complete with ICs" determination from ADEC on September 14, 2010.

Lake Jean Ammunition Complex, LJ-01 OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date 2001 Most Recent Inspection Date: September 2020
Current Media Sampled None
Current Analytes Sampled None
Current Monitoring None Required Monitoring File: Not Applicable

Lake Jean Ammunition Complex, LJ-01 OU B-1

SUMMARY OF INSPECTION RESULTS:

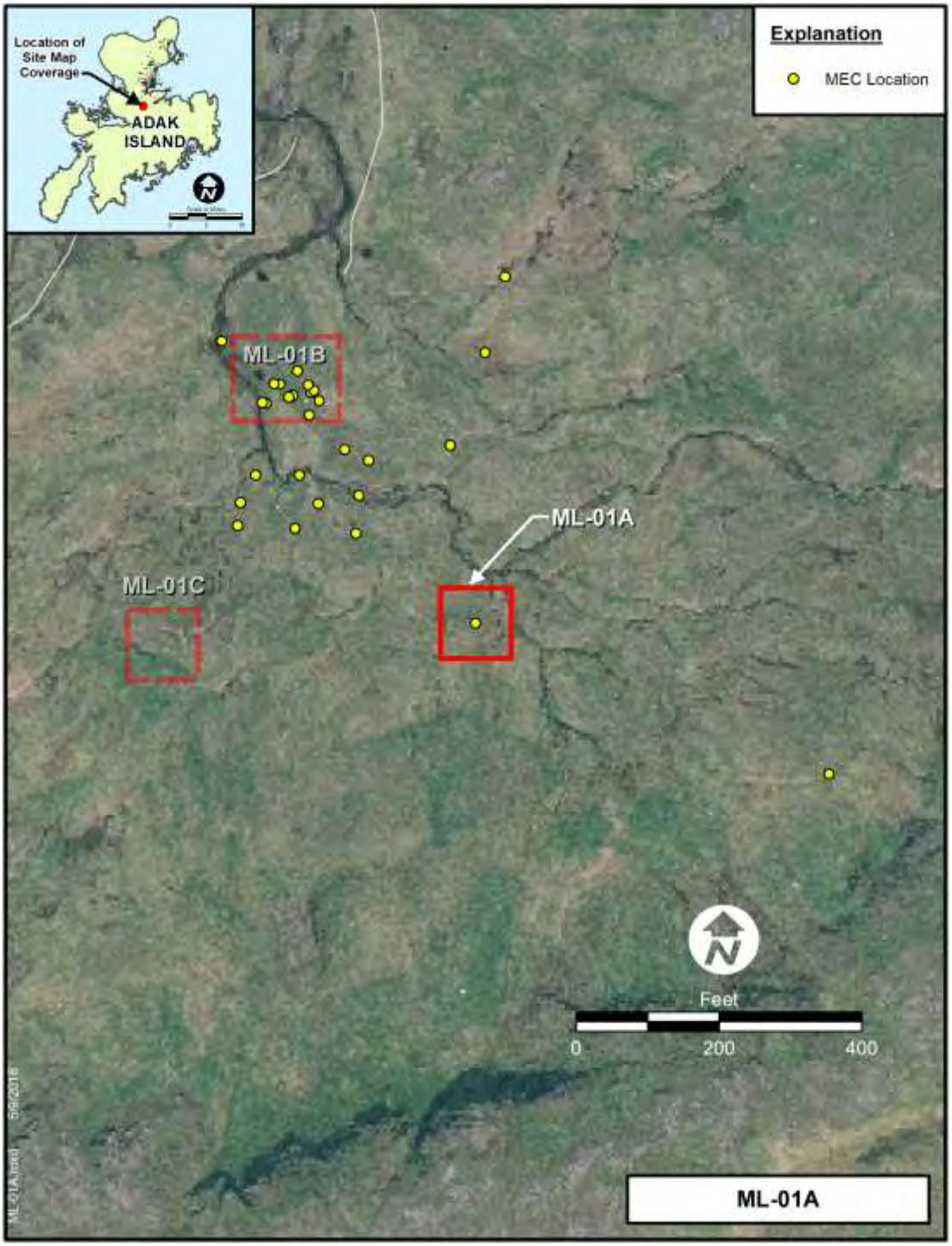
Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 104, 105, 107, 129, 141, 142, 144, 171

Mitt Lake Impact Area, ML-01A — OU B-1



Mitt Lake Impact Area, ML-01A — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

The Mitt Lake Impact Area is located southwest of downtown Adak adjacent to the Naval Magazine sector. This sector is approximately 482 acres and has a variety of terrain and vegetation. The 60-mm Mortar Impact Area (ML-01) is located in the southeast corner of the Mitt Lake Impact Area. The terrain of ML-01 is characterized by steep rolling hills with rocky outcrops on the hilltops.

ML-01A is a portion of the 60-mm Mortar Impact Area encompassing 3.5 acres. The terrain in ML-01A varies, but is generally moderate in slope compared with other outback areas of Adak. There is no formal access to the area either by roadway or trail. This area was investigated in both 1999 and 2000. During the 1999 SI, this area was surveyed utilizing a random ribbon walk that passed through ML-01A numerous times. Several 60-mm mortars were found along with MD. During the RI in 2000, this area was investigated a second time using the prescribed search pattern for a 60-mm mortar impact area with search transects spaced at 34.5 meters. Eleven anomalies were identified and intrusively investigated. UXO and related MD were found. Six of the anomalies were identified as UXO. Four of the anomalies were identified as MD. The remaining anomaly was classified as metal waste.

Mitt Lake Impact Area, ML-01A — OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is clearance to 4 feet bgs. Geophysical work was performed in 2001. The site boundaries were expanded to maintain a 15-meter buffer. One hundred and ninety-one anomalies were investigated at ML-01A, of which 18 were UXO items. The UXO items consisted of a single 20-mm HE projectile and 60-mm mortar rounds and fuzes. The 20-mm HE projectile is considered a ricochet from the ML-02 area. The ROD remedy was completed in 2001.

Ordnance-related chemicals were not reported above detection limits in the one soil sample collected in 2001. Therefore, no soil was removed from the site for treatment and/or disposal.

ML-01A received "cleanup complete with ICs" determination from ADEC on August 31, 2004.

Mitt Lake Impact Area, ML-01A — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Mitt Lake Impact Area, ML-01A OU B-1

SUMMARY OF INSPECTION RESULTS:

Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

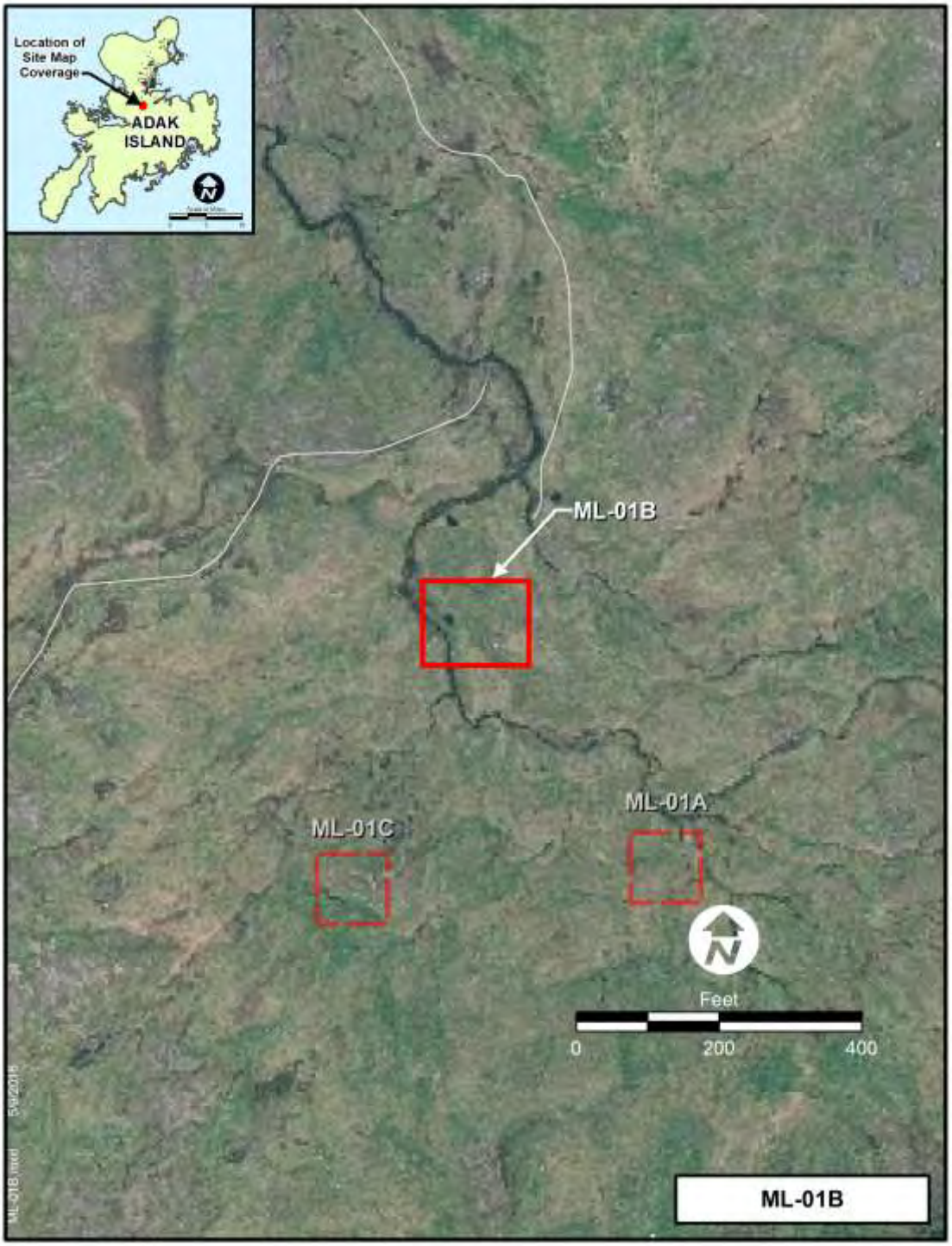
On September 9, 2019, Mitt Lake Impact Area, ML-01A, ML-01B, ML-01C were visually inspected for signs of erosion, soil exposure, and land use. The sites can be accessed only by hiking several miles up Husky Pass Trail. No evidence of landslides, sloughing, obvious erosion, structures, debris, or use of any kind was observed at the sites. The 2019 IC report indicates that ICs appear to be functioning properly. The next IC inspection is scheduled to occur in 2024.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 99, 102, 107, 129, 137, 141, 142, 144, 165, 171

Mitt Lake Impact Area, ML-01B — OU B-1



Mitt Lake Impact Area, ML-01B — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

The Mitt Lake Impact Area is located southwest of downtown Adak adjacent to the Naval Magazine sector. This sector is approximately 482 acres and has a variety of terrain and vegetation. The 60-mm Mortar Impact Area (ML-01) is located in the southeast corner of the Mitt Lake Impact Area. The terrain of ML-01 is characterized by steep rolling hills with rocky outcrops on the hilltops.

ML-01B is a portion of the 60-mm Mortar Impact Area (ML-01) and encompasses 0.2 acre, with a 30-by-30-meter square screening area. The terrain in ML-01B is steep. There is no formal access to the area either by roadway or trail. This area was part of the Mitt Lake Impact Area investigated in 1999; however, this particular portion of that area was not investigated due to steep slopes. During the RI in 2000, this area was investigated using the prescribed search pattern for a 60-mm mortar impact area with search transects spaced at 34.5 meters. A single anomaly was identified and intrusively investigated. The anomaly was a single 60-mm mortar (UXO) suspected to be an isolated, lone item.

Mitt Lake Impact Area, ML-01B — OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. More specifically, the goal of work at this site was to determine if the single 60-mm mortar found during the 2000 RI is a lone item. The technique used consisted of a geophysical survey of the 30-meter square grid with a 5-meter transect minigrid. One anomaly was investigated at this site and determined to be a no find. The ROD remedy was completed in 2001.

ML-01B received "cleanup complete with ICs" determination from ADEC on August 31, 2004.

Mitt Lake Impact Area, ML-01B — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Mitt Lake Impact Area, ML-01B OU B-1

SUMMARY OF INSPECTION RESULTS:

Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

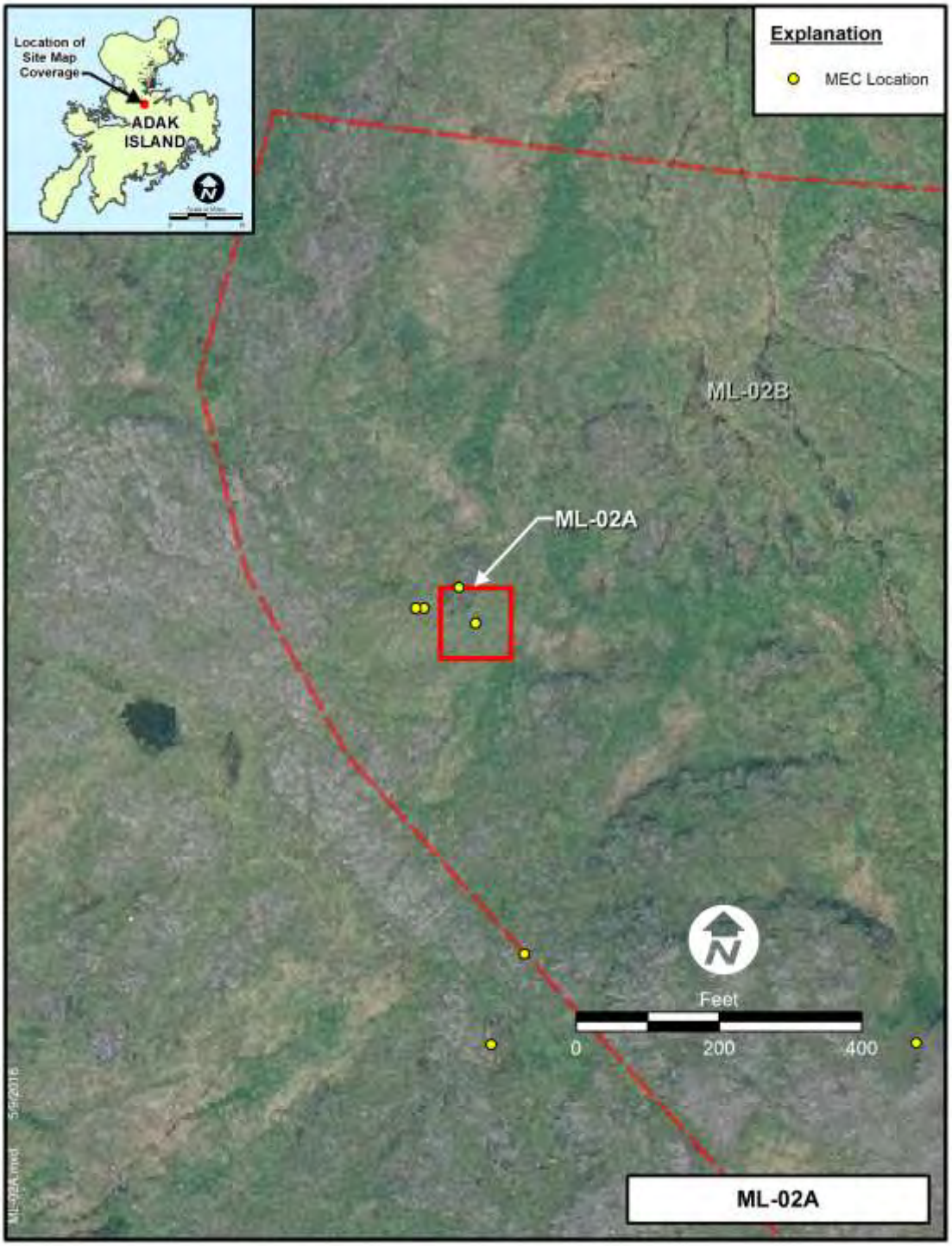
On September 9, 2019, Mitt Lake Impact Area, ML-01A, ML-01B, ML-01C were visually inspected for signs of erosion, soil exposure, and land use. The sites can be accessed only by hiking several miles up Husky Pass Trail. No evidence of landslides, sloughing, obvious erosion, structures, debris, or use of any kind was observed at the sites. The 2019 IC report indicates that ICs appear to be functioning properly. The next IC inspection is scheduled to occur in 2024.

In 2020 the non-site-specific ordnance ICs were inspected as part of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 102, 107, 129, 137, 141, 142, 144, 165, 171

Mitt Lake Impact Area, ML-02A — OU B-1



Mitt Lake Impact Area, ML-02A — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

The Mitt Lake Impact Area is located southwest of downtown Adak adjacent to the Naval Magazine sector. This sector is approximately 482 acres and has a variety of terrain and vegetation. The 20/40-mm Impact Area (ML-02) is located centrally about 4,500 feet south of the historical firing point for the Mitt Lake Impact Area. The ML-02 area terrain is characterized by steep ridges and deep ravines.

ML-02A, the Single 20-mm Projectile Site, is a portion of the 20/40-mm Impact Area (ML-02), encompassing 0.2 acre and a 30-by-30-meter-square screening area. The terrain in ML-02A is steep and the vegetation is thick and lush, predominantly made up of grass species. There is access to the area via an improved roadway within 400 meters of the site. This area was not investigated in 1999 due to the steep slopes present. During the RI in 2000, this area was investigated in accessible locations using the prescribed search pattern for a 20-mm impact area with search transects spaced at 20 meters. A single anomaly was identified and intrusively investigated in this area. The anomaly was identified as a single 20-mm projectile, which is suspected to be a lone item.

Mitt Lake Impact Area, ML-02A — OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. More specifically, the goal of work at this site was to determine if the 20-mm projectile found during the 2000 investigation is a lone item. The technique used was a geophysical survey of a 30-meter square grid with a 5-meter transect minigrid centered at the location of the 20-mm projectile. The boundary for this area was expanded both north and west during the 2001 field activities. There were nine anomalies investigated at this site. Three UXO items were found and all consisted of 20-mm HE projectiles located at depths less than 1 foot bgs. The ROD remedy was completed in 2001.

ML-02A received "cleanup complete with ICs" determination from ADEC on August 31, 2004.

Mitt Lake Impact Area, ML-02A — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Mitt Lake Impact Area, ML-02A — OU B-1

SUMMARY OF INSPECTION RESULTS:

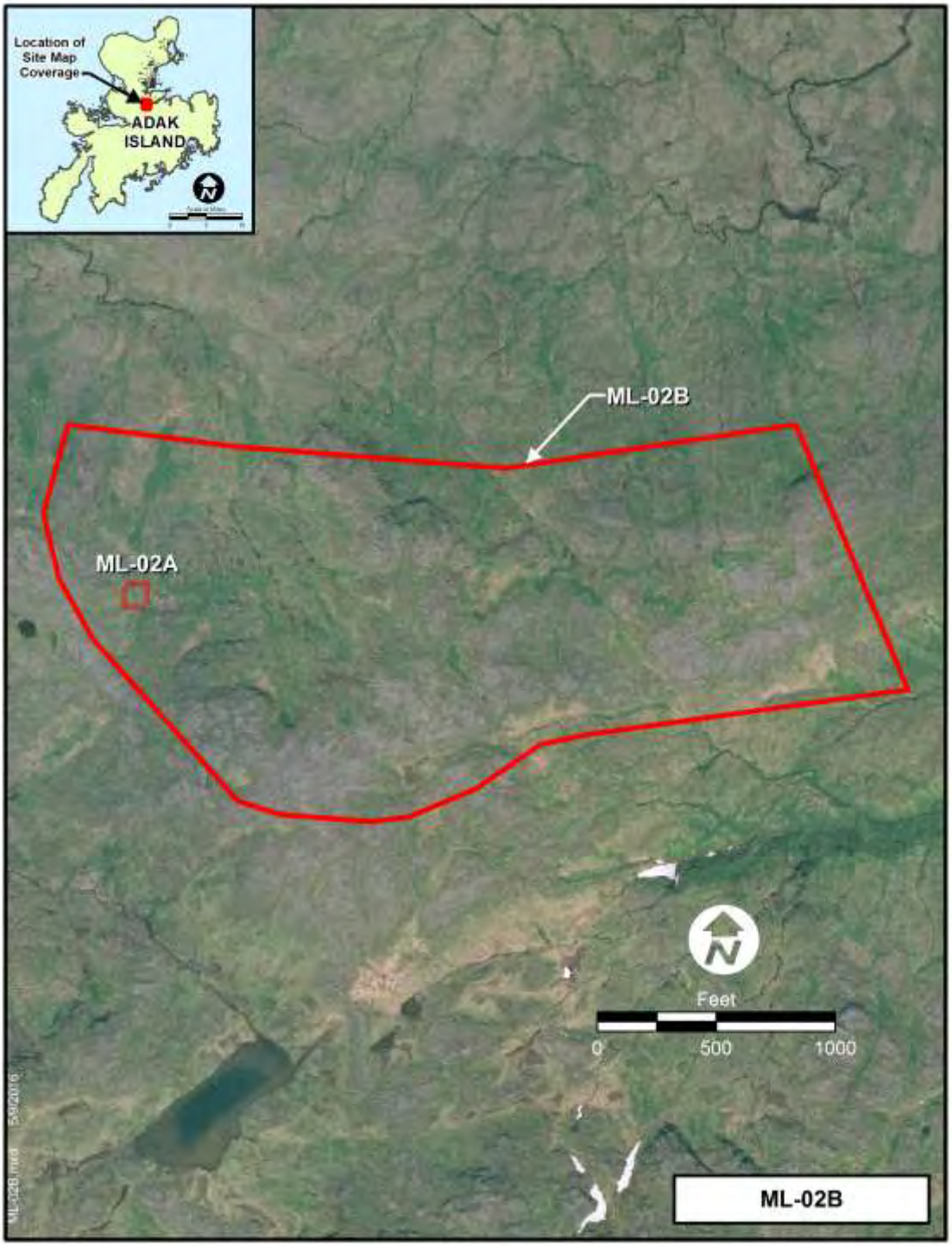
Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 102, 107, 129, 141, 142, 144, 171

Mitt Lake Impact Area, ML-02B — OU B-1



Mitt Lake Impact Area, ML-02B — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

The Mitt Lake Impact Area is located southwest of downtown Adak adjacent to the Naval Magazine sector. This sector is approximately 482 acres and has a variety of terrain and vegetation.

The 20/40-mm Impact Area (ML-02) is located centrally about 4,500 feet south of the historical firing point for the Mitt Lake Impact Area. The ML-02 area terrain is characterized by steep ridges and deep ravines.

ML-02B is the remainder area of ML-02 after removal of the lone 20-mm projectile site (ML-02A). It is an irregularly shaped area on the lower flanks of a ridgeline facing the Mitt Lake Firing Points to the north. The area encompasses approximately 100 acres with steep to inaccessible terrain. There is access to the area via an improved roadway within 400 meters of the site. This area was not investigated in 1999 due to the steep slopes. During the RI in 2000, ML-02 (including both ML-02A and ML-02B) was investigated in accessible locations using the prescribed search pattern for a 20-mm impact area with search transects spaced at 20 meters. Eighty-two anomalies were identified and intrusively investigated. UXO was found, along with related MD. Six anomalies were identified as UXO (20-mm projectiles). Seventeen anomalies were identified as MD. The remaining anomalies were classified as metal waste, no finds, or they were below the 4-foot excavation limit for intrusive investigation. The prescribed bound and characterize methodology for lone items of UXO was applied to all but one of the 20-mm finds to determine whether they were lone items or part of an impact area with significant densities of UXO. The lone 20-mm projectile site that was not investigated using the bound and characterize methodology was designated ML-02A. The area that was fully characterized was designated as ML-02B. The RI concluded that all UXO was removed from ML-02B in 2000, and no UXO remained at the site. However, chemical sampling was to be performed at the site.

Mitt Lake Impact Area, ML-02B — OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance, as well as tetryl and TNT in soil.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas.

The RAO for potential ordnance-related chemical risks is to prevent future residents and recreational users from being exposed to explosives-related contamination in soils above the cleanup levels. The cleanup levels established in the ROD are the EPA Region 9 PRGs for residential soil. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy includes chemical sampling, removal and on-site/off-site treatment and disposal of soils. Ordnance-related chemicals were not reported above detection limits in the two soil samples collected in 2001. Therefore, no soil was removed from the site for treatment and/or disposal. The ROD remedy was completed in 2001.

ML-02B received "cleanup complete with ICs" determination from ADEC on August 31, 2004.

Mitt Lake Impact Area, ML-02B — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: 2001 — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Mitt Lake Impact Area, ML-02B OU B-1

SUMMARY OF INSPECTION RESULTS:

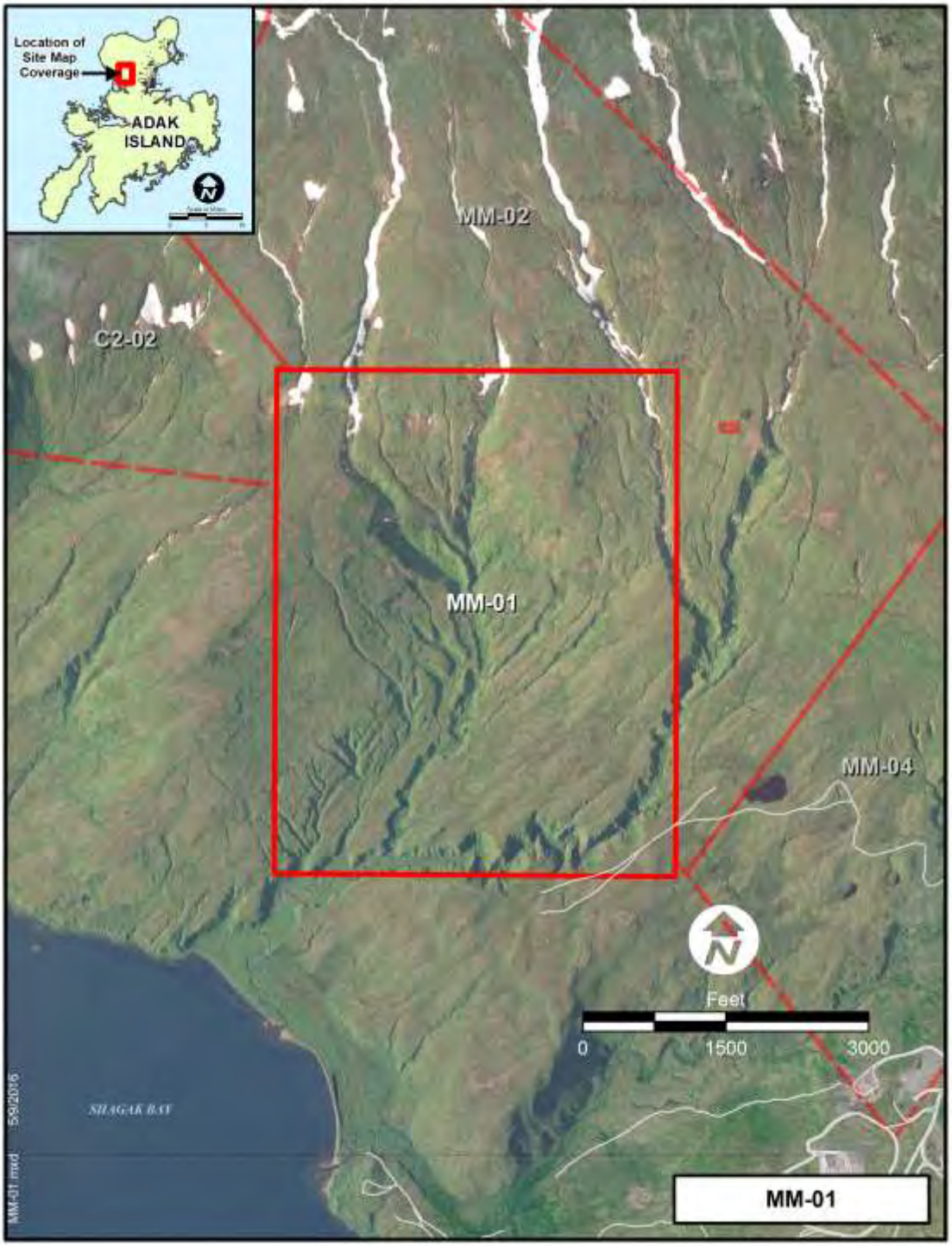
Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 102, 107, 129, 141, 142, 144, 171

Mount Moffett, MM-01 — OU B-1



Mount Moffett, MM-01 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

This site is located near the base of Mt. Moffett just northeast of Shagak Bay. It is identified as an impact area for 155-mm projectiles fired from the Andrew Bay seawall and as a portion of a potential impact area for direct fire weapons ranges along the southeastern flanks of Mt. Moffett. MM-01 is 513 acres in size. The terrain in MM-01 is steep on both the east and west sides, descending sharply to a large stream channel centrally located at the site. During the 1999 field investigation, no ordnance or MD was found in this area. However, little field data was collected in the area due to the steep terrain.

Mount Moffett, MM-01 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Prior to the 2004 field season, historical field activities performed at this site were investigated. This investigation found that the required 115-meter transects had been collected over this site and no UXO, DMM, or MD items had been found during the intrusive investigation. Based on this, no further investigation activities were performed in 2004 and NFA status was recommended for MM-01. In 2008, ADEC designated conditional closure with ICs for the site.

MM-01 received "cleanup complete with ICs" determination from ADEC on January 16, 2008.

Mount Moffett, MM-01 — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Mount Moffett, MM-01 OU B-1

SUMMARY OF INSPECTION RESULTS:

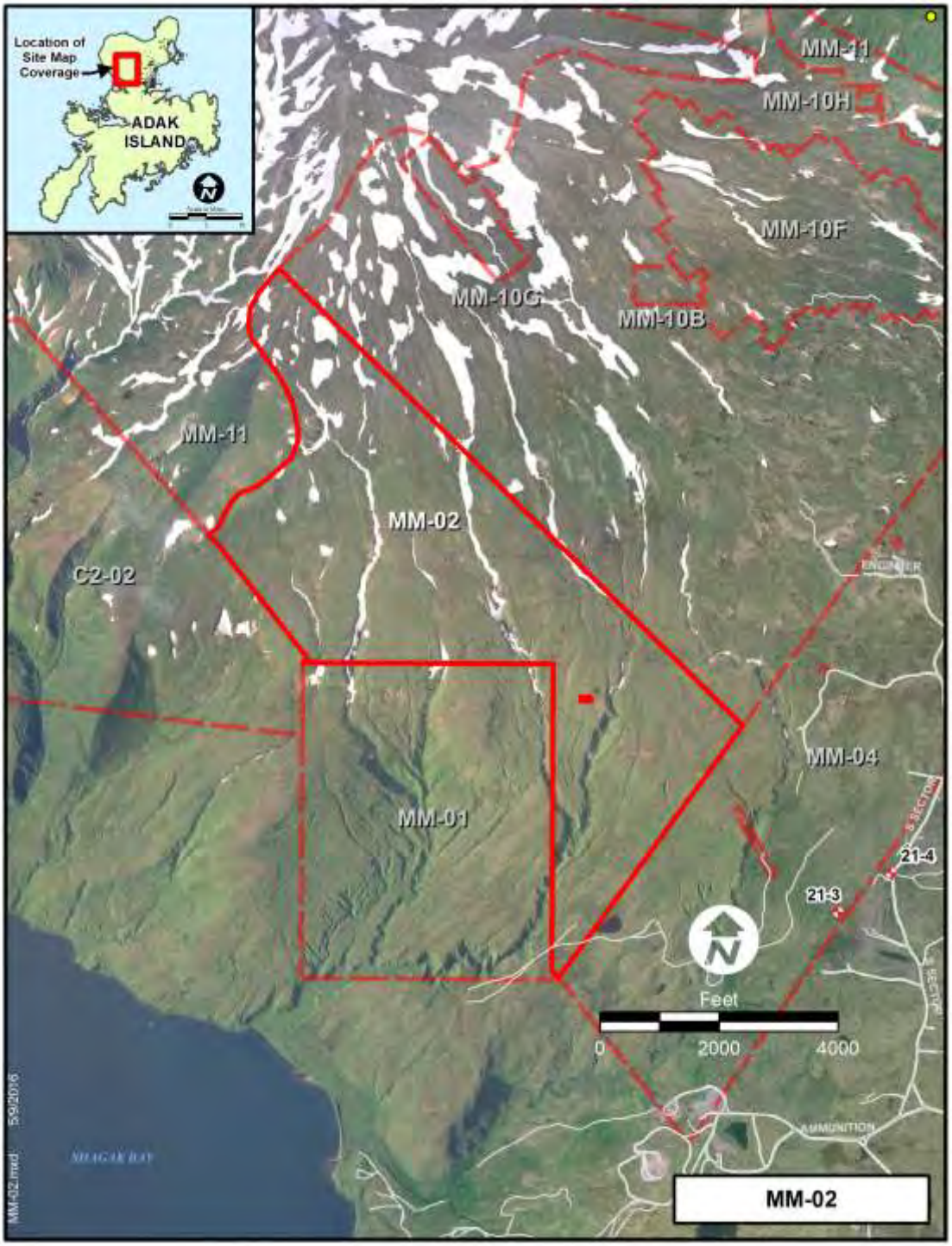
Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 100, 106, 118, 129, 141, 142, 144, 171

Mount Moffett, MM-02 — OU B-1



Mount Moffett, MM-02 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

This area is located southeast of the peak of the mountain adjacent to the 155-mm impact area (MM-01). The area is identified in historical firing orders as part of two impact areas; however, the area is located near the outer limits of these impact areas. MM-02 is 776 acres in size. The terrain is steep. There are three deep stream ravines and a small lake within the boundaries of the site. Access to MM-02 is available by parking at the ski lodge and using an ARGO all-terrain vehicle to access the site. During pre-ROD field investigations, ordnance-related items were found at the site including one bullet-related item and eight MD items.

Mount Moffett, MM-02 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC and to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. More specifically, the goal of work at this site was to gather geophysical data surrounding the eight MD items located during previous field seasons. All of the geophysical mapping was performed using 30-meter by 30-meter mini-grids with 5-meter line spacing. Several addition pieces of fragmentation were recovered during the intrusive investigation that caused additional "step outs" during the 2004 field season. Intrusive investigation produced 18 pieces of fragmentation. The rest of the anomalies were no finds or hot geology. No UXO, DMM, or other items of concern were found at this site during the 2004 field season. The ROD remedy was completed in 2004. In 2008, ADEC designated conditional closure with ICs for the site.

MM-02 received "cleanup complete with ICs" determination from ADEC on January 16, 2008.

Mount Moffett, MM-02 — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Mount Moffett, MM-02 OU B-1

SUMMARY OF INSPECTION RESULTS:

Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 100, 106, 118, 129, 141, 142, 144, 171

Mount Moffett, MM-03 OU B-1

Mount Moffett, MM-03 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

This small area encompasses a single metallic fragment found in the southeast of Mount Moffett near MM-01. MM-03 is 0.42 acre in size, and the terrain in this area is steep. Access to MM-02 is available by parking at the "ski lodge" and using an ARGO all-terrain vehicle to access the site. Two pieces of fragmentation were discovered from transect data collected in MM-03 during the 1999 field season.

Mount Moffett, MM-03 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. More specifically, the goal of work at this site was to gather geophysical data surrounding the two MD items located during previous field seasons. These items were close enough together that one 60-meter by 30-meter mini-grid was collected over both items with 5-meter line spacing. After this mapping was completed, details emerged indicating that this area had been 100 percent geophysically mapped during the 2000 field season. A small expansion was performed in 2004 to complete the 15-meter MEC-free buffer around the fragmentation items. Only one anomaly was targeted and it was a no find. No UXO, DMM, or other items of concern were found at this site during the 2004 field season. The ROD remedy was completed in 2004. In 2008, ADEC designated conditional closure with ICs for the site.

MM-03 received "cleanup complete with ICs" designation on January 16, 2008.

Mount Moffett, MM-03 — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Mount Moffett, MM-03 OU B-1

SUMMARY OF INSPECTION RESULTS:

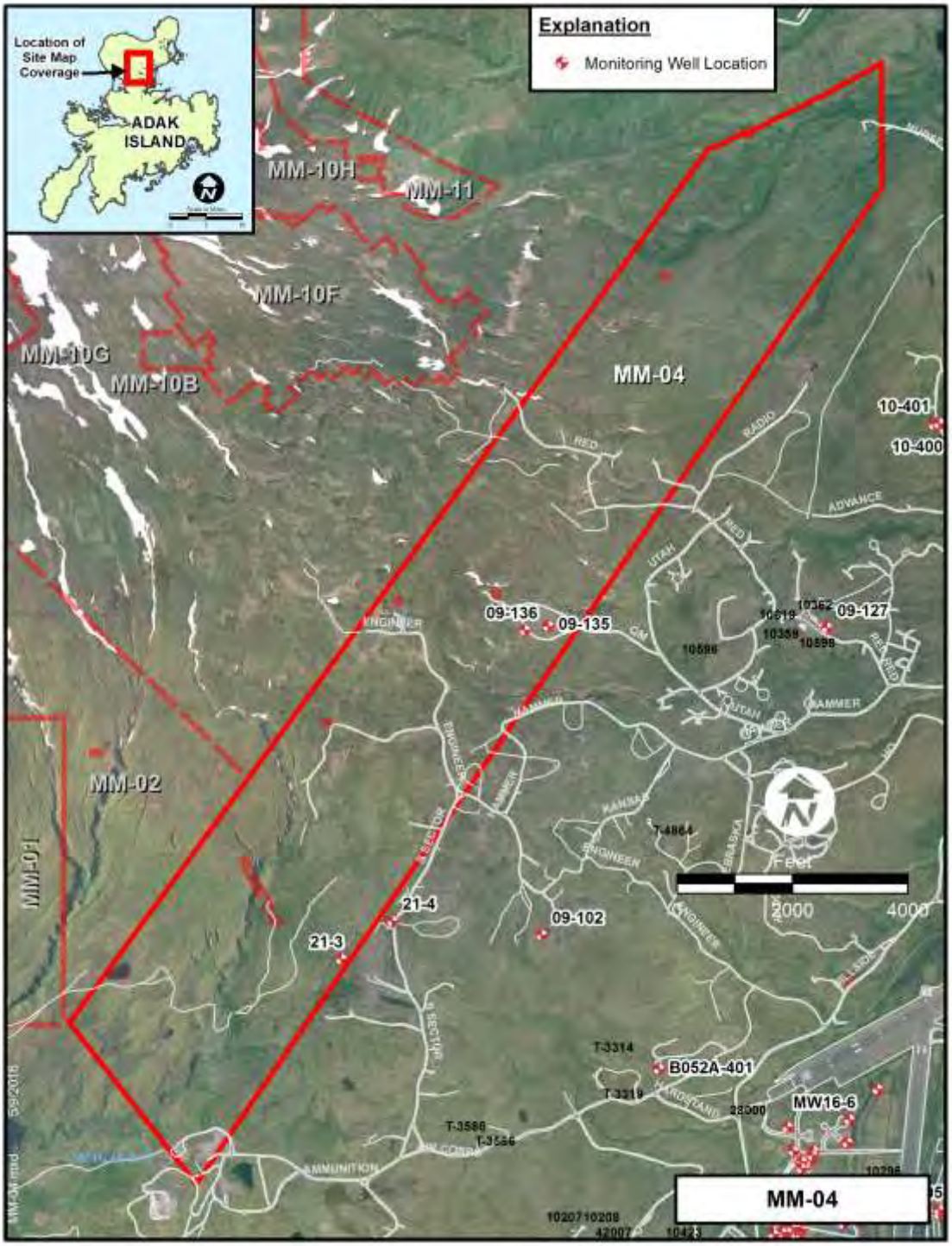
Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 100, 106, 118, 129, 141, 142, 144, 171

Mount Moffett, MM-04 — OU B-1



Mount Moffett, MM-04 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

This area is located along the southeastern flanks of Mt. Moffett and includes the firing points for five direct and indirect fire weapons ranges in this area. MM-04 is 1,488 acres in size. The terrain in this area is characterized by gently rolling hills and ravines. The extensive road network in this area, the relatively high use documented in historical photographs, and the amount of development in modern times suggests that this area was not an impact zone. However, MM-23 resides within the boundary of MM-04. MM-23 is located approximately 250 meters east of MM-05. MM-23 was established on the basis of archival records, which indicated that the site was an experimental firing location for a 4.2-inch chemical mortar. During the 1999 field investigation, no ordnance or OE scrap was found in this area.

Mount Moffett, MM-04 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Prior to the 2004 field season, geophysical surveys and intrusive investigations were conducted adjacent to the location of MM-23, which is part of MM-04. During these efforts, no evidence of past use of this area as a mortar firing position was discovered. Based on this, no further investigation activities were performed in 2004 and NFA status was recommended for MM-04. In 2008, ADEC designated conditional closure with ICs for the site.

MM-04 received "cleanup complete with ICs" designation from ADEC on January 26, 2008.

Mount Moffett, MM-04 OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None Most Recent Inspection Date: September 2020
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

Mount Moffett, MM-04 OU B-1

SUMMARY OF INSPECTION RESULTS:

ICs for all OU B-1 sites include equitable servitude and an ongoing education program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

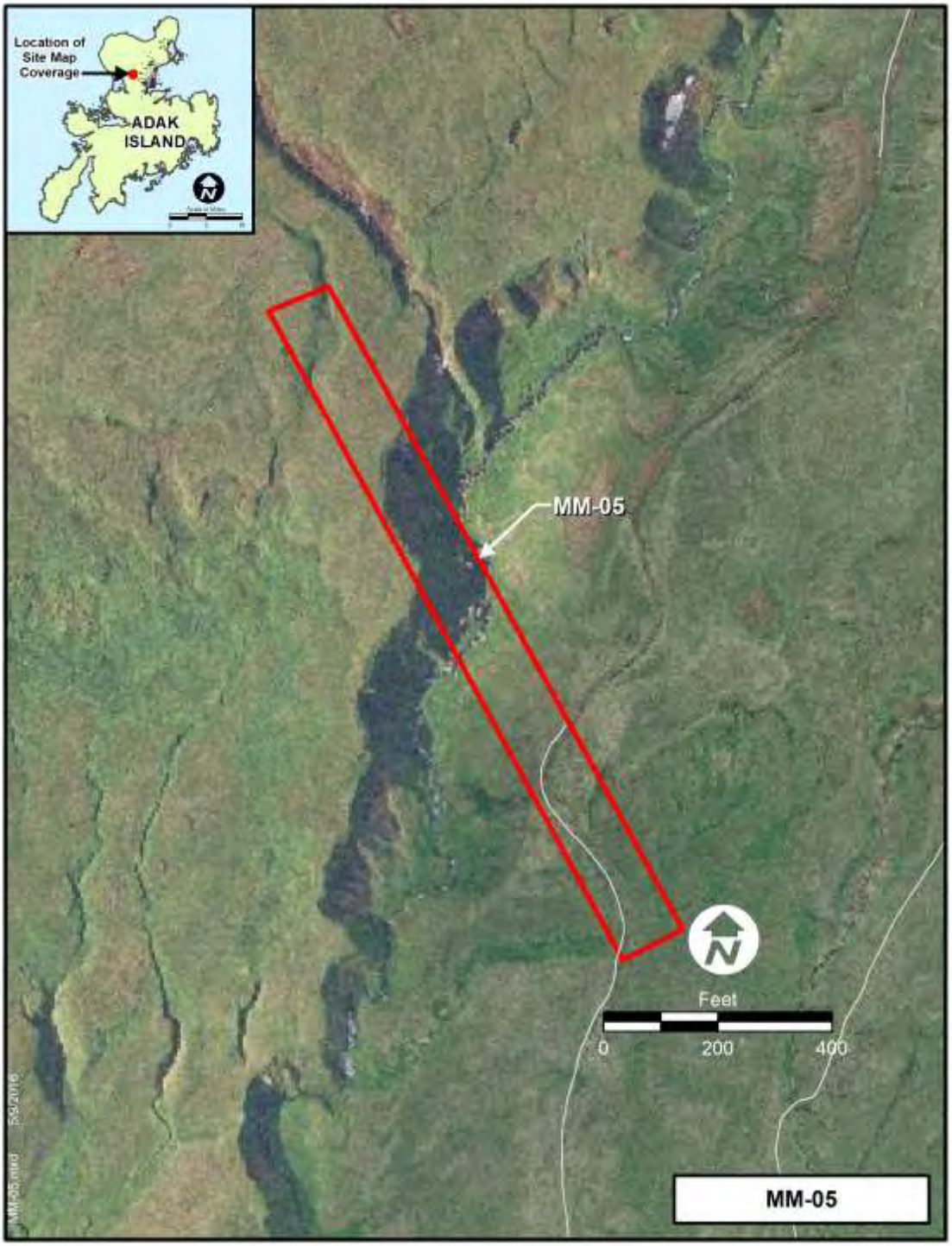
The 2015 IC inspection report considered the ordnance awareness program to be functioning effectively because most of the resident population and visitors interviewed were aware of most portions of the program. The Navy will continue to improve the program to increase IC awareness, including the following:

- The Navy is looking into showing the Airport UXO video on the local TV channel 6.

BIBLIOGRAPHY:

83, 91, 99, 100, 106, 118, 129, 141, 142, 144, 171

Mount Moffett, MM-05 OU B-1



Mount Moffett, MM-05 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

This small area encompasses two metallic fragments found in the southern portion of MM-04. MM-05 is 3.42 acres in size. The terrain in this area slopes gently toward the crest of Mt. Moffett, which lies more than 1 mile to the north. This area was investigated in 1999 as part of MM-04. During this investigation, seven ordnance-related items were found inside its boundaries. The area surrounding two of these ordnance-related items was designated MM-05. These two anomalies were a piece of fragmentation located in the northern part of MM-05 and a 30-06 bullet located in the southern part of the site.

Mount Moffett, MM-05 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. More specifically, the goal of work at this site was to gather geophysical data surrounding the one MD item (fragmentation) located during the 1999 investigation. A 30-meter by 30-meter mini-grid with 5-meter line spacing was conducted over the fragmentation. After this mapping was completed, details emerged indicating that this area had been 100 percent geophysically mapped during the 2000 field season. A small expansion was performed in 2004 to complete the 15-meter MEC-free buffer around the fragmentation item. One anomaly was targeted and resulted in a no find. No UXO, DMM, or other items of concern were found at this site during the 2004 field season. The ROD remedy was completed in 2004. In 2008, ADEC designated conditional closure with ICs for the site.

MM-05 received "cleanup complete with ICs" designation from ADEC on January 16, 2008.

Mount Moffett, MM-05 OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None Most Recent Inspection Date: September 2020
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

Mount Moffett, MM-05 OU B-1

SUMMARY OF INSPECTION RESULTS:

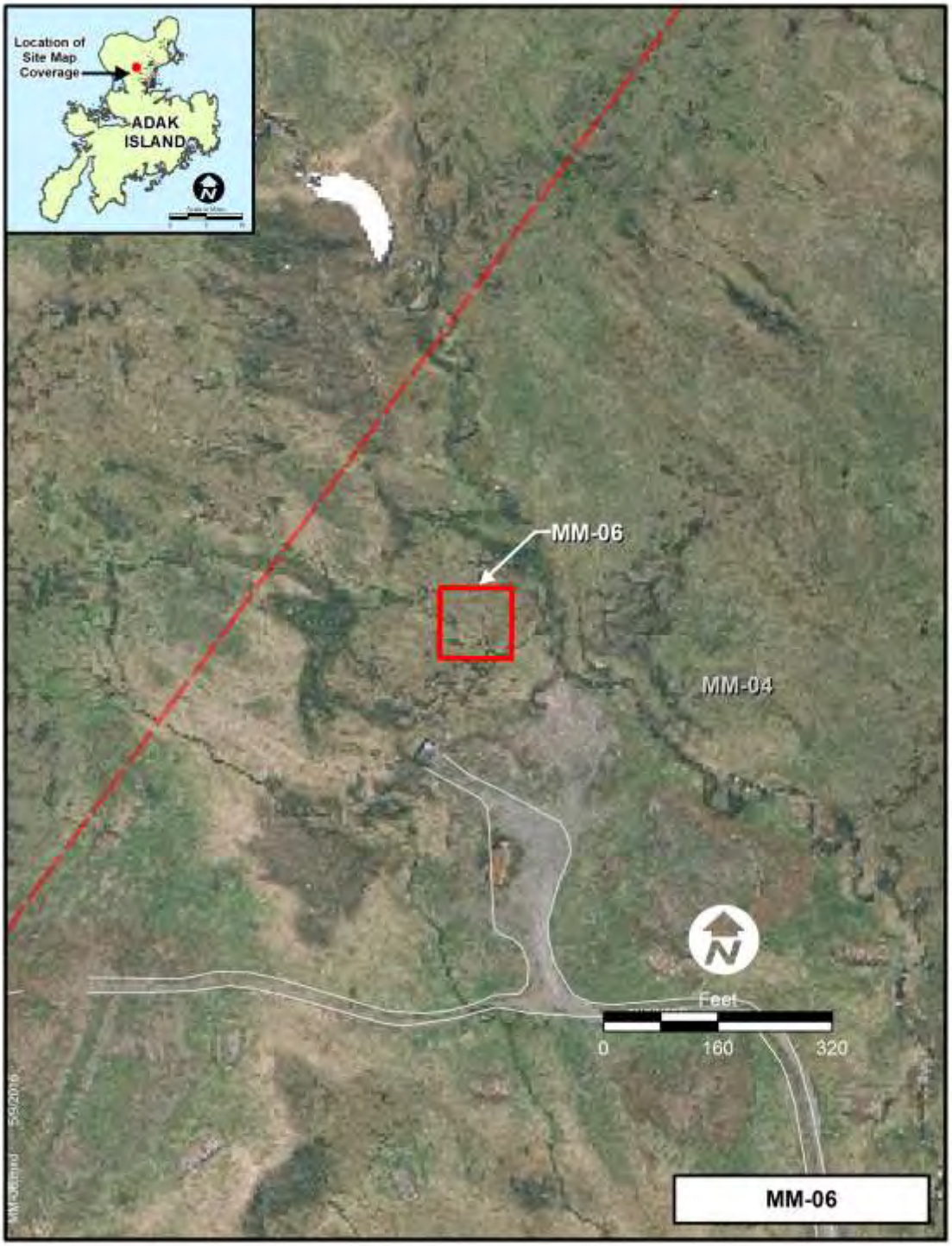
Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 100, 106, 118, 129, 141, 142, 144, 171

Mount Moffett, MM-06 OU B-1



Mount Moffett, MM-06 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

This small area encompasses a single piece of fragment found in the southeastern portion of MM-04. MM-06 is 0.22 acre in size. The terrain in this area slopes gently toward the crest of Mt. Moffett, which lies more than 1 mile to the north. This site is located at the "ski lodge" and is easily accessible by vehicle. This area was investigated in 1999 as part of MM-04. During this investigation, seven ordnance-related items were found inside its boundaries. The area surrounding one of these ordnance-related items was designated MM-06. This site is located in between the general location given for the mortar and artillery firing points. During the 1999 field investigation, a single piece of fragment was found. It was not possible to discern the type of projectile from which the fragment originated.

Mount Moffett, MM-06 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. More specifically, the goal of work at this site was to gather geophysical data surrounding the one MD item (fragmentation) located during the 1999 investigation. A 30-meter by 30-meter mini-grid with 5-meter line spacing was conducted over the fragmentation. After this mapping was completed, details emerged indicating that this area had been 100 percent geophysically mapped during the 2000 field season. Eleven anomalies were targeted by the geophysical operations, producing four pieces of metallic waste and one no find. The other six digs were abandoned due to water and were later confirmed by QC to be related to a pipeline running through the grid. No UXO, DMM, or other items of concern were found at this site during the 2004 field season. The ROD remedy was completed in 2004. In 2008, ADEC designated conditional closure with ICs for the site.

MM-06 received "cleanup complete with ICs" designation from ADEC on January 16, 2008.

Mount Moffett, MM-06 OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None Most Recent Inspection Date: September 2020
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

Mount Moffett, MM-06 OU B-1

SUMMARY OF INSPECTION RESULTS:

Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 100, 106, 118, 129, 141, 142, 144, 171

Mount Moffett, MM-07 OU B-1

Mount Moffett, MM-07 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

This small area encompasses a single find consisting of an M-46 fuze in the central part of MM-04. MM-07 is 0.22 acre in size. The terrain in this area slopes gently toward the crest of Mt. Moffett, which lies more than 1 mile to the northwest. This area was investigated in 1999 as part of MM-04. During this investigation, seven ordnance-related items were found inside its boundaries. The area surrounding one of these ordnance-related items, an M-46 fuze, was designated MM-07. The live M-46 projectile fuze was found at the bottom of a trash pit excavation at a depth of 48 inches bgs. In 2000, a 100 percent geophysical survey was performed over the 0.22-acre area; however, the area was never 100 percent remediated due to the amount of trash and construction debris present. Based on the results of this limited investigation, coupled with the information gathered during the 1999 field season, MM-07 was not believed to present an ordnance or hazardous waste threat to the public and is simply the remains of some sort of wooden structure and its contents.

Mount Moffett, MM-07 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC and to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. A detector-aided reconnaissance of the area was conducted in 2004. Twenty-seven anomalies were investigated by the UXO team, producing 17 pieces of metallic waste and six bullet-related anomalies. Further investigation of the previously-collected geophysical data showed that a rather large linear anomaly to the southeast of the grid was never intrusively investigated. The anomaly was targeted with four points and intrusively investigated by a UXO team. The intrusive investigation yielded two metal waste items found to be approximately 4 feet away from the given anomaly location and two no finds. This linear item was most likely a pipe on the surface that was removed during the initial 1999 investigation. No UXO, DMM, or other items of concern were found at this site during the 2004 field season. The ROD remedy was completed in 2004. In 2008, ADEC designated conditional closure with ICs for the site.

MM-07 received "cleanup complete with ICs" designation from ADEC on January 16, 2008.

Mount Moffett, MM-07 OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None Most Recent Inspection Date: September 2020
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

Mount Moffett, MM-07 OU B-1

SUMMARY OF INSPECTION RESULTS:

Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 100, 106, 118, 129, 141, 142, 144, 171

Mount Moffett, MM-08 OU B-1

Mount Moffett, MM-08 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

This small area encompasses a single metallic fragment found in the northeastern part of MM-04. MM-08 is 0.22 acre in size. The terrain in this area slopes gently toward the crest of Mt. Moffett, which lies more than 1 mile to the west. This area was investigated in 1999 as part of MM-04. During this investigation, seven ordnance-related items were found inside its boundaries. The area surrounding one of these ordnance-related items was designated MM-08.

Mount Moffett, MM-08 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. More specifically, the goal of work at this site was to gather geophysical data surrounding the one MD item (fragmentation) located during the 1999 investigation. A 30-meter by 30-meter mini-grid with 5-meter line spacing was conducted over the fragmentation. No anomalies were identified and as a result no intrusive investigation was performed by the UXO teams. The ROD remedy was completed in 2004. In 2008, ADEC designated conditional closure with ICs for the site.

MM-08 received "cleanup complete with ICs" designation from ADEC on January 16, 2008.

Mount Moffett, MM-08 OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None Most Recent Inspection Date: September 2020
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

Mount Moffett, MM-08 OU B-1

SUMMARY OF INSPECTION RESULTS:

Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 100, 106, 118, 129, 141, 142, 144, 171

Mount Moffett, MM-09 OU B-1

Mount Moffett, MM-09 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

This small area encompasses a single metallic fragment found in the northeastern part of MM-04. MM-09 is 0.85 acre in size. The terrain in this area is steep, sloping up to a ridgeline separating the Andrew Lake Range Complex from MM-04. This area was investigated in 1999 as part of MM-04. During this investigation, seven ordnance-related items were found inside its boundaries. The area surrounding one of these ordnance-related items was designated MM-09.

Mount Moffett, MM-09 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. More specifically, the goal of work at this site was to gather geophysical data surrounding the one MD item (fragmentation) located during the 1999 investigation. A 30-meter by 30-meter mini-grid with 5-meter line spacing was conducted over the fragmentation. During the investigation at MM-09, two additional pieces of fragmentation and one piece of small arms debris were identified. These were located within the 30-meter by 30-meter mini-grid, and an expansion of the investigation area was not required. Seven anomalies were targeted during geophysical operations, producing three pieces of fragmentation, one piece of metallic waste, and three no finds. No UXO, DMM, or other items of concern were found at this site during the 2004 field season. The ROD remedy was completed in 2004. In 2008, ADEC designated conditional closure with ICs for the site.

MM-09 received "cleanup complete with ICs" determination from ADEC on January 16, 2008.

Mount Moffett, MM-09 OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None Most Recent Inspection Date: September 2020
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

Mount Moffett, MM-09 OU B-1

SUMMARY OF INSPECTION RESULTS:

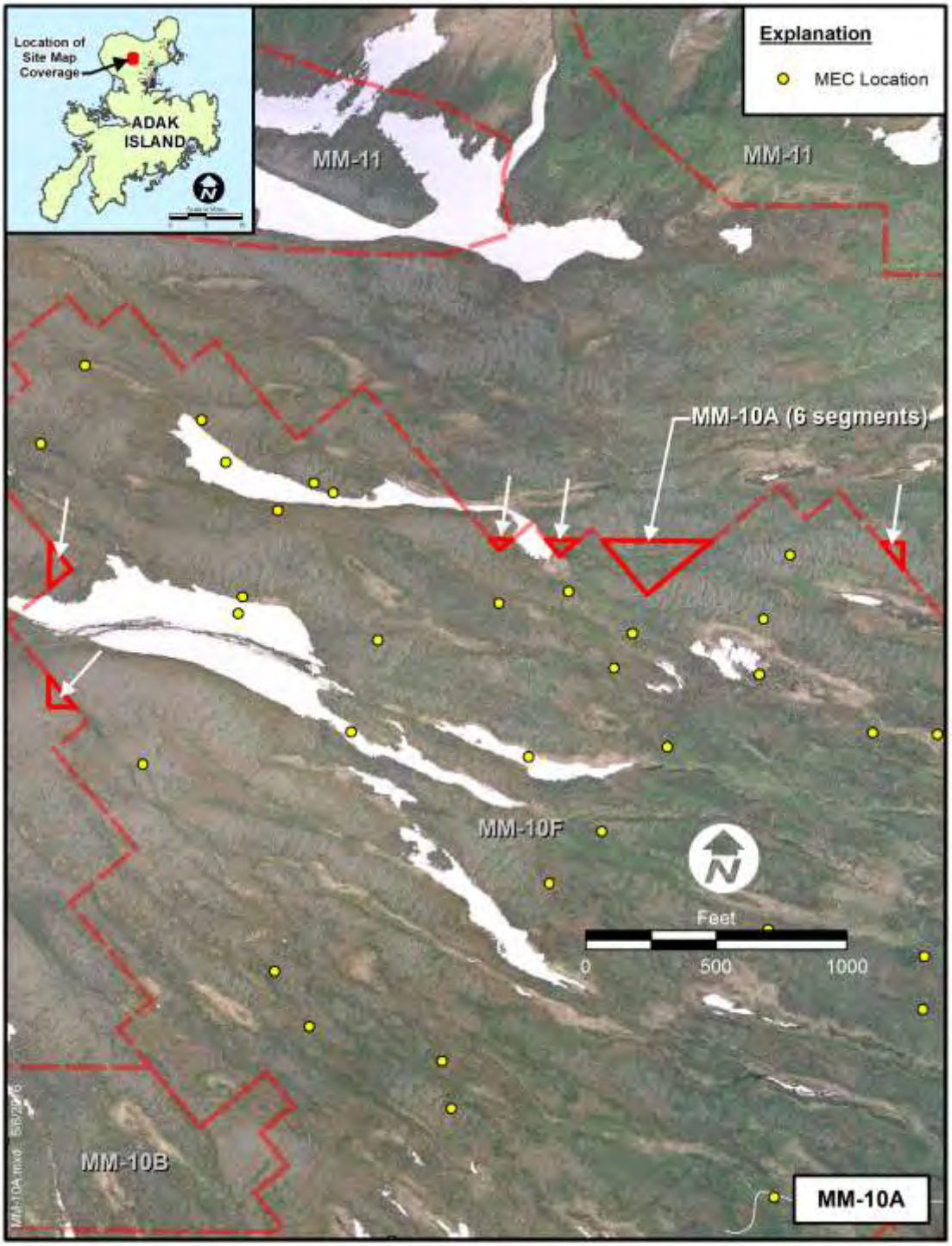
Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 100, 106, 118, 129, 141, 142, 144, 171

Mount Moffett, MM-10A — OU B-1



Mount Moffett, MM-10A — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

This site is in a bowl-shaped area near the upper flanks of Mt. Moffett on the front (southeast) side. It is located within a large area generally identified as an impact area for 90-mm and 155-mm projectiles fired from six separate locations on the northern end of Adak Island. Several types of ordnance and MD were discovered in this overall area on Mt. Moffett, and it appears that the front face on the mountain was heavily used as an impact zone. Surrounding areas contained scrap or other ordnance-related items indicative of projectiles of various sizes, including 75-mm and 90-mm projectiles, as well as a fragment from a 155-mm projectile. Mortars were found at lower elevations together with PD 557 fuzes, which are commonly used on large-caliber projectiles.

MM-10A is a small area within MM-10E, with steep terrain descending sharply to rolling hills along the southeastern flanks of Mt. Moffett. There is access to the area only by ARGO all-terrain vehicle or helicopter. During the 1999 investigation, a 37-mm projectile (fired) and MD related to 37-mm projectiles were found in MM-10A.

Mount Moffett, MM-10A — OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. Potential explosive-related chemical risks to ecological receptors were also investigated.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas.

The RAO for potential ordnance-related chemical risks is to prevent future residents and recreational users from being exposed to explosives-related contamination in soil above the cleanup levels. The cleanup levels established in the ROD are based on EPA Region 9 PRGs for residential soil. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. The remedy for this site was implemented in conjunction with MM-10E in 2002, 2004, and 2008. Refer to the site catalog entry for MM-10E for details of remedial actions implemented at MM-10E (as well as MM-10A and MM-10B). The ROD remedy was completed in 2008. However, ADEC and EPA have not concurred with the remedial actions.

Three soil samples were collected in 2001. No results exceeded cleanup levels for ordnance-related chemicals established in the OU B-1 ROD. Therefore, no soil was removed from the site for treatment and/or disposal.

MM-10A received "cleanup complete with ICs" designation from ADEC on February 22, 2013.

Mount Moffett, MM-10A — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Mount Moffett, MM-10A OU B-1

SUMMARY OF INSPECTION RESULTS:

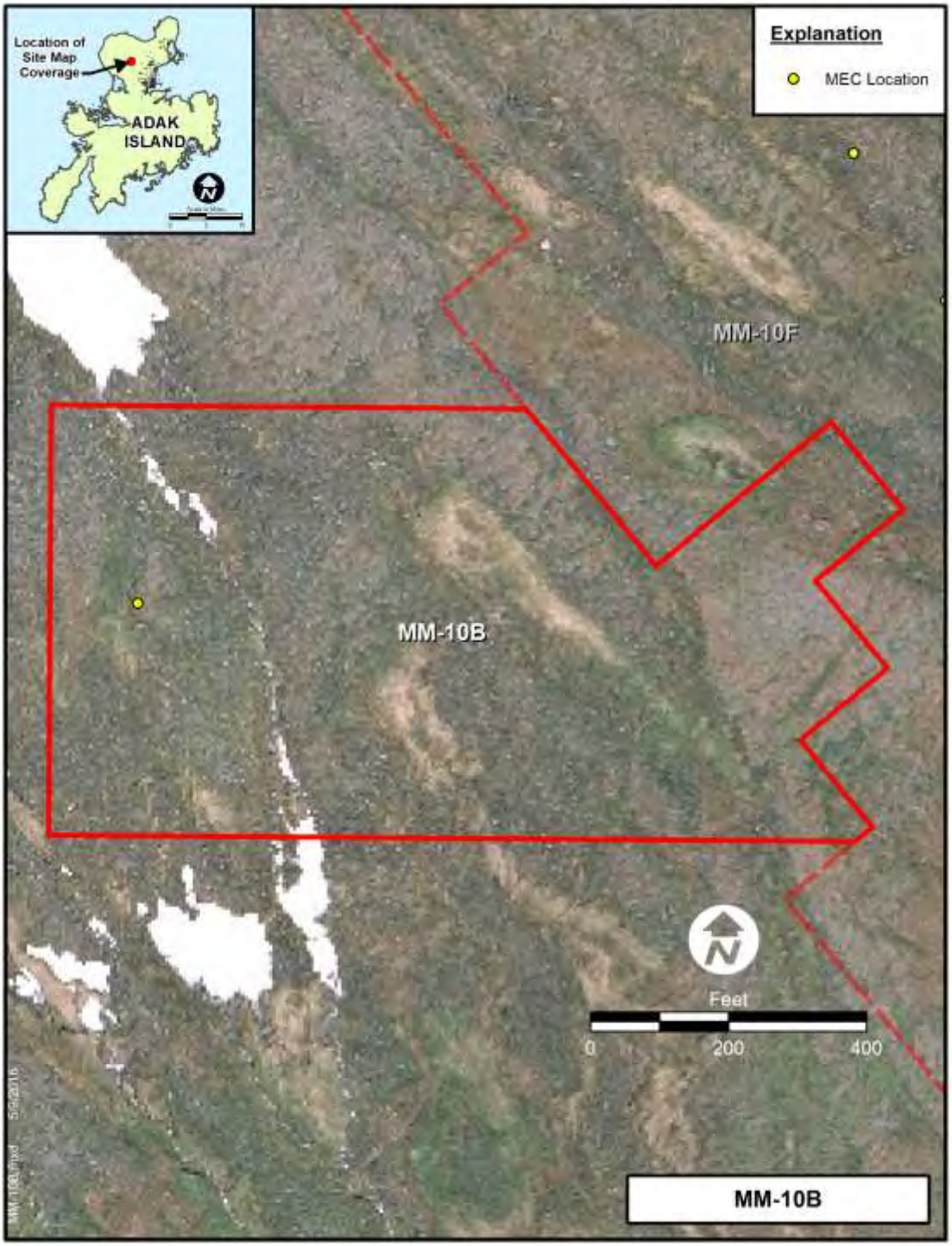
Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 118, 129, 141, 142, 144, 171

Mount Moffett, MM-10B — OU B-1



Mount Moffett, MM-10B — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

This site is in a bowl-shaped area near the upper flanks of Mt. Moffett on the front (southeast) side, directly south of MM-10A. It is located within a large area generally identified as an impact area for 90-mm and 155-mm projectiles fired from six separate locations on the northern end of Adak Island. Several types of ordnance and MD were discovered in this overall area on Mt. Moffett, and it appears that the front face on the mountain was heavily used as an impact zone. Surrounding areas contained scrap or other ordnance-related items indicative of projectiles of various sizes, including 75-mm and 90-mm projectiles, as well as a fragment from a 155-mm projectile. Mortars were found at lower elevations together with PD 557 fuzes, which are commonly used on large-caliber projectiles.

MM-10B is a small area (22.5 acres) within MM-10E, with steep terrain descending sharply to rolling hills along the southeastern flanks of Mt. Moffett. There is access to the area only by ARGO all-terrain vehicle or helicopter. During the 1999 investigation, ordnance and MD were discovered, indicating the use of 60-mm mortars in the area. This area was investigated a second time during the 2000 RI. Forty-four anomalies were intrusively investigated. Two UXO items, 97 MD items, and 15 metal waste items were found.

Mount Moffett, MM-10B — OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. The remedy for this site was implemented in conjunction with MM-10E in 2002, 2004, and 2008. Refer to the site catalog entry for MM-10E for details of remedial actions implemented at MM-10E (as well as MM-10A and MM-10B). The ROD remedy was completed in 2008. However, ADEC and EPA have not concurred with the remedial actions.

MM-10B received "cleanup complete with ICs" designation from ADEC on February 22, 2013.

Mount Moffett, MM-10B — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Mount Moffett, MM-10B OU B-1

SUMMARY OF INSPECTION RESULTS:

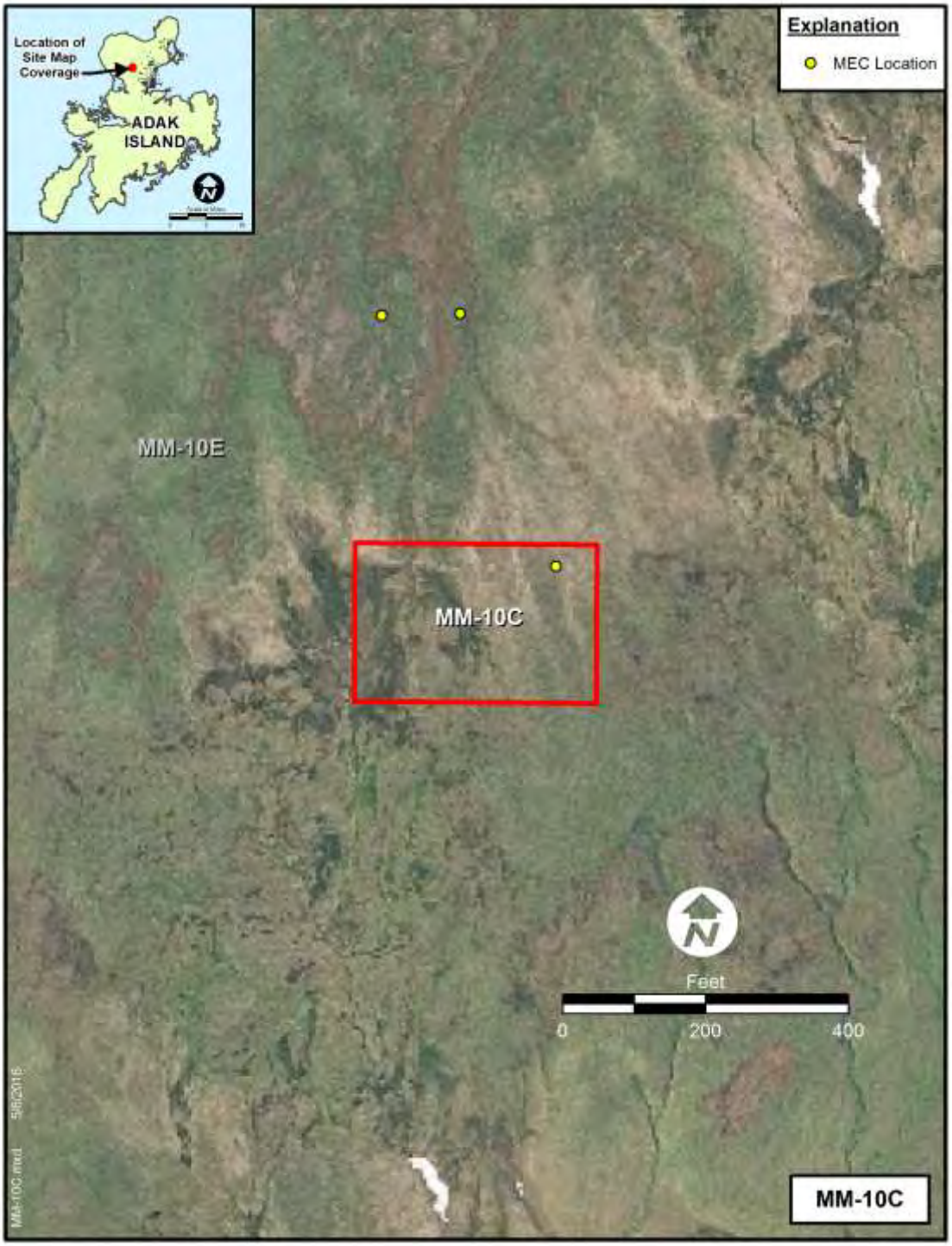
Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 101, 118, 129, 141, 142, 144, 171

Mount Moffett, MM-10C — OU B-1



Mount Moffett, MM-10C — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

This site is located in the southern corner of MM10-E near the WWII Ski Lodge on the southeastern flanks of Mt. Moffett. It is located within a large area generally identified as an impact area for 90-mm and 155-mm projectiles fired from six separate locations on the northern end of Adak Island. Several types of ordnance and MD were discovered in this overall area on Mt. Moffett, and it appears that the front face on the mountain was heavily used as an impact zone. Surrounding areas contained scrap or other ordnance-related items indicative of projectiles of various sizes, including 75-mm and 90-mm projectiles, as well as a fragment from a 155-mm projectile. Mortars were found at lower elevations together with PD 557 fuzes, which are commonly used on large-caliber projectiles.

MM-10C is a small area (1.7 acres) within MM-10E with rolling, moderately steep terrain. There is road access nearby, but direct access to the area is only by ARGO all-terrain vehicle or helicopter. During the 1999 investigation, two 37-mm projectiles (fired) and MD were found in MM-10C. This area was investigated a second time during the 2000 RI. Fifty-seven anomalies were intrusively investigated. One metal waste item and 21 MD items were found during the 2002 investigation.

Mount Moffett, MM-10C OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. Therefore, a geophysical transect survey at 15-meter spacing was performed. The results of the transect survey led to footprint reduction and 100 percent geophysical survey of the resulting area. Two thousand and twenty-two anomalies were identified during the 100 percent geophysical survey. Two UXO items, 1,348 MD items, and 201 metal waste items were recovered. The two UXO items were 37-mm projectiles. MD finds included fragmentation, fuze parts, and 37-mm practice projectiles. In addition, 444 anomalies were classified as no finds, two anomalies were classified as no dig, and two excavations were abandoned. A reason was not provided in the 2002 After Action Report regarding the number of no finds. However, no find verification sampling was performed on 35 (7.8 percent) of the no finds by the QC team. No reason was provided specific to MM-10C regarding the no dig and dig abandoned classifications. However, the report indicated that no dig generally means that digging was never started due to standing water or other obstacle at the site, and dig abandoned generally means that digging was stopped for safety reasons due to the presence of standing water or a large rock in the hole. The ROD remedy was completed in 2002.

Mount Moffett, MM-10C — OU B-1

MM-10C received "cleanup complete with ICs" determination from ADEC on Februrary 22, 2013.

Mount Moffett, MM-10C — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Mount Moffett, MM-10C — OU B-1

SUMMARY OF INSPECTION RESULTS:

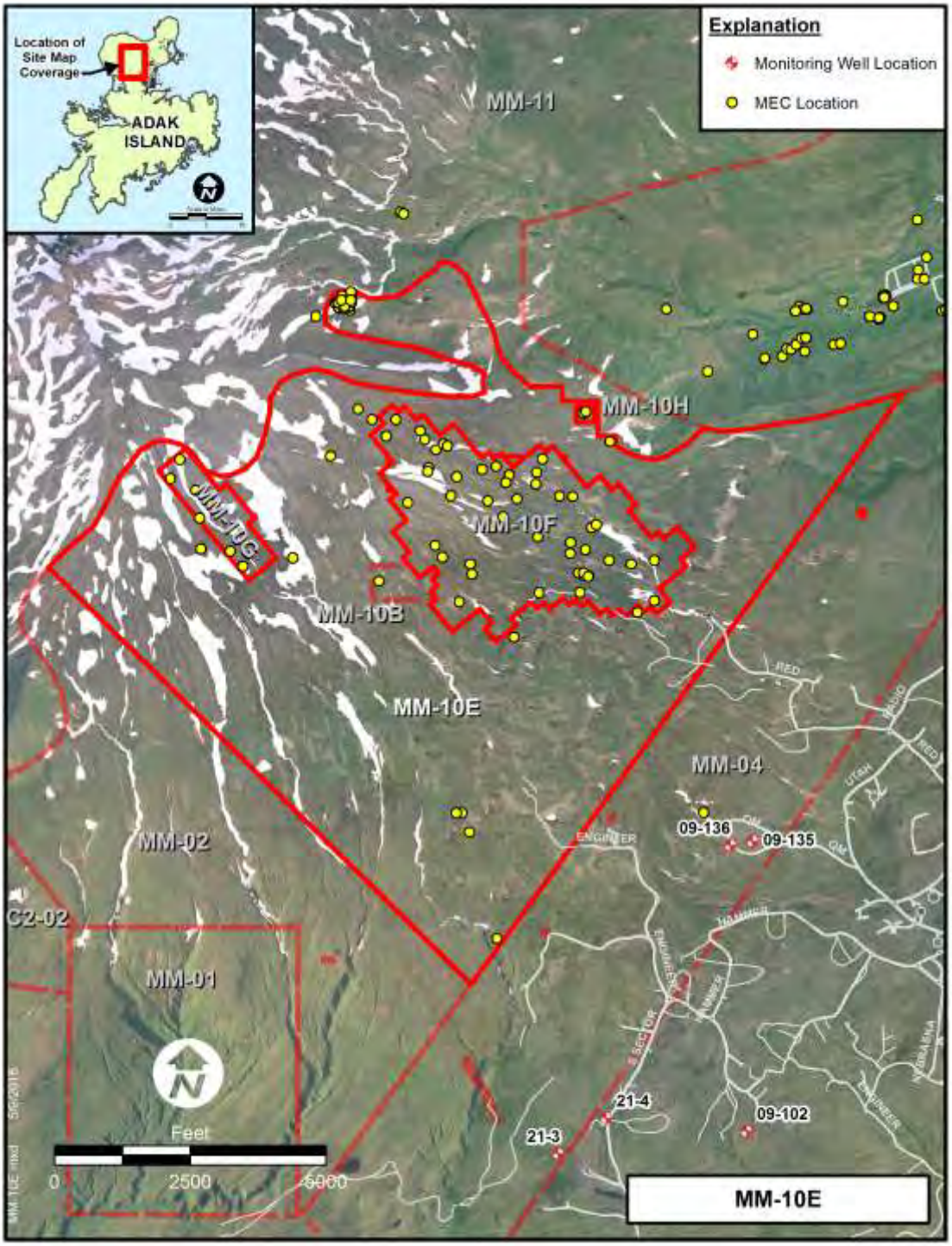
Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 101, 118, 129, 141, 142, 144, 171

Mount Moffett, MM-10E — OU B-1



Mount Moffett, MM-10E — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

This site is in a bowl-shaped area near the upper flanks of Mt. Moffett on the front (southeast) side. It is located within a large area generally identified as an impact area for 90-mm and 155-mm projectiles fired from six separate locations on the northern end of Adak Island.

MM-10E is a large area (2,127 acres) with steep terrain descending sharply to rolling hills along the southeastern flanks of Mt. Moffett. There is access to the area only by ARGO all-terrain vehicle or helicopter. During the 1999 field investigation, several types of ordnance and MD were discovered in MM-10E and it appears that the area was heavily used as an impact area. Projectiles of various sizes, including 75-mm and 90-mm projectiles, as well as a fragment from a 155-mm projectile, were found in the area. In addition, mortars were found at lower elevations together with PD 557 fuzes, which are commonly used on large-caliber projectiles. During the 2004 field season, the MM-10E area was reduced to 1,764 acres by establishing two new sites: MM-10F and MM-10G.

Mount Moffett, MM-10E OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. In 2001, geophysical work identified 723 anomalies. Nine were classified as UXO and included 20-mm, 37-mm, 40-mm, 75-mm, and 90-mm projectiles; a 3-in HE round; and MK2 fragmentation grenades. Further remedial action was required at this site due to the presence of UXO items at the boundaries.

During the 2002 field activities, transect survey data were collected in probable and possible anomaly areas, and mini-grid data were collected in the outlying fragmentation areas in accordance with the Mount Moffett observational approach. Surveys in MM-10A and MM-10B were not differentiated from those in MM-10E and the data for all three areas are included here. Seventy-seven grids, two 100 percent surveys, and 75 minigrids with 5-meter spacing were performed at various locations in the outlying fragmentation areas. Twenty-eight UXO items, 774 MD items, and 140 metal waste items were recovered. The UXO items included 37-mm, 40-mm, and 75-mm projectiles, as well as fuzes. MD finds included fragmentation and fuze parts. In addition, 315 anomalies were classified as no finds, five anomalies were classified as no dig, and three excavations were abandoned. A reason was not provided in the 2002 After Action Report

regarding the number of no finds. Although no find verification sampling was not performed at MM-10E during the 2002 field activities, it was performed at five other sites. No reason was provided specific to MM-10E regarding the no dig and dig abandoned classifications. However, the report indicated that no dig generally means that digging was never started due to standing water or other obstacle at the site, and dig abandoned generally means that digging was stopped for safety reasons due to the presence of standing water or a large rock in the hole. Remedial action was not completed in MM-10E during the 2002 field season.

Work in MM-10E during the 2004 field season began by investigating anomalies remaining from the 2002 field season that were generated from previously collected 15-meter transects. Additional grids and expansion areas also were investigated in 2004. A total of 816 anomalies were investigated within MM-10E, including 33 ordnance items (29 of which were 20-mm projectiles), three 90-mm projectiles, and one 75-mm projectile. Additional anomalies included 361 pieces of MD and 21 items designated as metal waste. Seventy-one anomalies were attributed to hot geology, 10 were listed as other, and there were 610 no finds, 182 of which were related to QC operations. The majority of the remaining no finds can be attributed to the northwest part of MM-10E, where the terrain caused elevated EM61-MK2 noise. Remedial actions were considered complete at MM-10E following the 2004 field activities. However, during installation of the GPO area for MM-10F, G, and H, a munitions item was found in MM-10E. As a result additional geophysical and clearance work was performed in MM-10E during 2008. Finally, during site restoration activities performed at MM-10E in 2010, additional munitions items were discovered. These items were disposed of in 2010.

The ROD remedy was completed in 2008. In 2008, ADEC designated conditional closure with ICs for the site.

Eight soil samples were collected between 2001 and 2002. None had detectable concentrations of ordnance-related chemicals. Therefore, no soil was removed from the site for treatment and/or disposal.

MM-10E received "cleanup complete with ICs" determination from ADEC on February 22, 2013.

Mount Moffett, MM-10E — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: August 27, 2002 Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required Monitoring File: Not Applicable

Mount Moffett, MM-10E OU B-1

SUMMARY OF INSPECTION RESULTS:

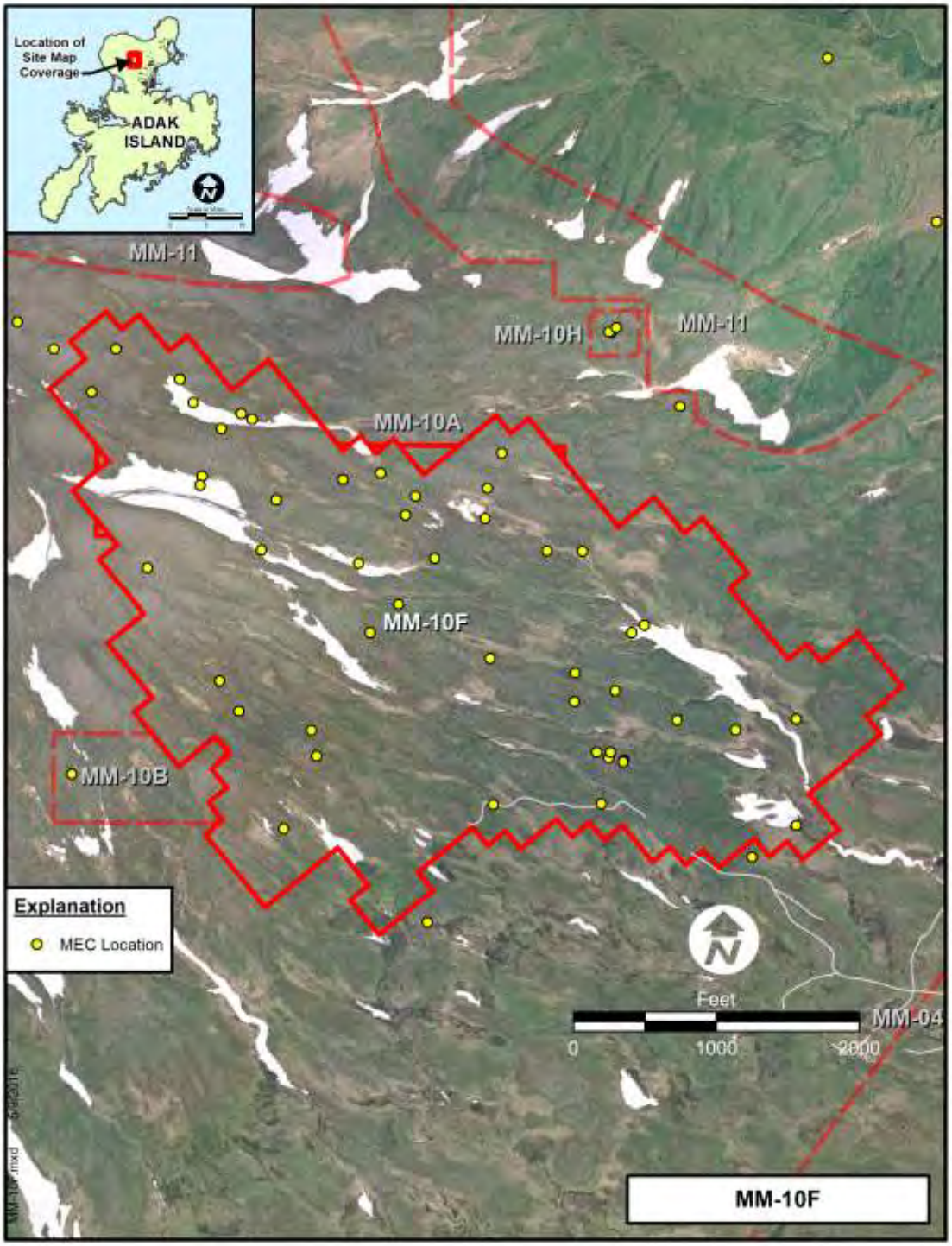
Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 100, 101, 102, 106, 118, 129, 141, 142, 144, 171

Mount Moffett, MM-10F — OU B-1



Mount Moffett, MM-10F — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

This site is located in the north-central part of MM-10E, which originally consisted of 2,127 acres and is in a bowl-shaped area near the upper flanks of Mt. Moffett on the front (southeast) side. It is located within a large area generally identified as an impact area for 90-mm and 155-mm projectiles fired from six separate locations on the northern end of Adak Island.

During the 1999 field investigation, several types of ordnance and MD were discovered in MM-10E and it appears that the area was heavily used as an impact area. Projectiles of various sizes, including 75-mm and 90-mm, as well as a fragment from a 155-mm projectile, were found in the area. In addition, mortars were found at lower elevations together with PD 557 fuzes, which are commonly used on large-caliber projectiles. During the 2004 field season, the MM-10E area was reduced from 2,127 acres to 1,764 acres by establishing two new sites: MM-10F and MM-10G. These two new areas were designated by studying GIS maps displaying the locations of investigated UXO, DMM, and MD items. These maps showed two distinct anomaly areas possessing significantly higher concentrations of UXO, DMM, and MD items than other areas within MM-10E. MM-10F consists of 320 acres with steep terrain descending sharply to rolling hills along the southeastern flanks of Mt. Moffett. There is access to the area only by ARGO all-terrain vehicle or helicopter.

Mount Moffett, MM-10F — OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required gathering characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. The investigation in MM-10F began prior to the existence of this site within MM-10E during the beginning of the 2004 field season. As geophysical expansions and intrusive investigations became ever-increasing at MM-10E during the 2004 field season, it was decided to bound this area as its own site. Once boundaries for MM-10F were determined, the area was divided into 517 50-meter by 50-meter square grids and a TAVSC was performed. The magnitude of MEC contamination was greater than anticipated, and surface clearance activities were conducted in 2004 without concurrence from the project team, a deviation from the approved work plan. During the 2004 field season, a total of 18 UXO items, 3,095 MD items, and 61 metal waste items were identified in MM-10F during intrusive and TAVSC operations. In addition, 74 anomalies were attributed to hot geology, 163 anomalies were classified as no finds, 45 anomalies were classified as other, and 15 excavations were abandoned. A reason was not provided in the 2004 After Action Report regarding the number of no finds. No reason was provided specific to MM-10F regarding the other or dig abandoned classifications. However, the report indicated that “other” generally means bottle caps, kitchen utensils, construction debris, etc. and dig abandoned generally means that digging was stopped for safety reasons due to the presence of standing

water or a large rock in the hole.

Remedial actions were not completed at MM-10F during the 2004 field season. An additional workplan was developed and approved by the project team for implementation beginning in 2008. Additional geophysical work and clearance activities consistent with the selected remedy were performed in 2008 at MM-10F. Because ordnance-related items were encountered within the 15-meter buffer zone, this site required further investigation of four step-outs in the 2009 field season. The ROD remedy was completed in 2009. However, during site restoration activities performed at MM-10F in 2010, an additional munitions item was discovered. This item was disposed of in 2010.

During clearance activities performed at MM-10F, a breached munitions item was found in August of 2008. After the breached munitions item was removed, a five-point composite sample was collected and tested for TNT using a field test kit in September 2009. The concentration of TNT was below cleanup levels. Therefore, a second five-point composite sample was collected for off-site analysis. Ordnance-related chemicals were either not detected or detected at concentrations below cleanup goals established in the ROD.

MM-10F received "cleanup complete with ICs" determination from ADEC on February 22, 2013.

Mount Moffett, MM-10F — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Mount Moffett, MM-10F OU B-1

SUMMARY OF INSPECTION RESULTS:

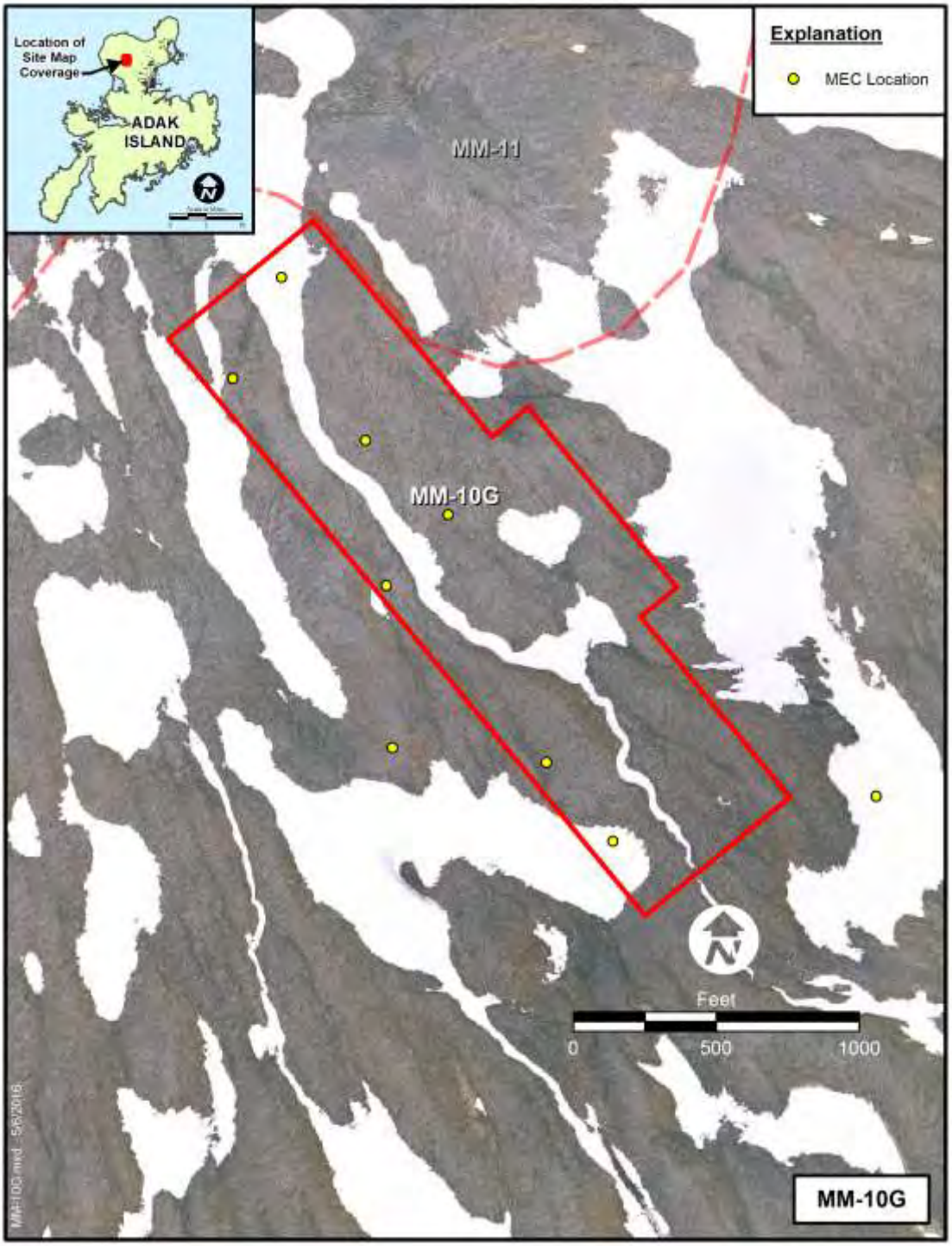
Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 100, 129, 141, 142, 144, 153, 171

Mount Moffett, MM-10G — OU B-1



Mount Moffett, MM-10G — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

This site is location in the western part of MM-10E, which originally consisted of 2,127 acres and is in a bowl-shaped area near the upper flanks of Mt. Moffett on the front (southeast) side. It is located within a large area generally identified as an impact area for 90-mm and 155-mm projectiles fired from six separate locations on the northern end of Adak Island.

During the 1999 field investigation, several types of ordnance and MD were discovered in MM-10E and it appears that the area was heavily used as an impact area. Projectiles of various sizes, including 75-mm and 90-mm, as well as a fragment from a 155-mm projectile, were found in the area. In addition, mortars were found at lower elevations together with PD 557 fuzes, which are commonly used on large-caliber projectiles. During the 2004 field season, the MM-10E area was reduced from 2,127 acres to 1,764 acres by establishing two new sites: MM-10F and MM-10G. These two new areas were designated by studying GIS maps displaying the locations of investigated UXO, DMM, and MD items. These maps showed two distinct anomaly areas possessing significantly higher concentrations of UXO, DMM, and MD items than other areas within MM-10E. MM-10F consists of 43 acres. This site is located on the northwest side of Mount Moffett and contains a large amount of airplane wreckage. There is access to the area only by ARGO all-terrain vehicle or helicopter.

Mount Moffett, MM-10G — OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required gathering characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. The investigation in MM-10G began prior to the designation of this site within MM-10E during the beginning of the 2004 field season. As geophysical expansions and intrusive investigations became ever-increasing at MM-10E during the 2004 field season, it was decided to bound this area as its own site. A TAVSC was not performed at this site during the 2004 field activities, and further investigation of this site was deferred to future field seasons. The magnitude of MEC contamination was greater than anticipated, and surface clearance activities were conducted in 2004 without concurrence from the project team, a deviation from the approved work plan. During the 2004 field season, a total of three UXO items, 343 MD items, and 75 metal waste items were identified in MM-10G during intrusive operations. In addition, 13 anomalies were attributed to hot geology, 440 anomalies were classified as no finds, and two anomalies were classified as other. A reason was not provided in the 2004 After Action Report regarding the number of no finds. No reason was provided specific to MM-10G regarding the other classification. However, the report indicated that “other” generally means bottle caps, kitchen utensils, construction debris, etc.

Mount Moffett, MM-10G — OU B-1

Remedial actions were not completed at MM-10G during the 2004 field season. An additional workplan was developed and approved by the project team for implementation beginning in 2008. Additional geophysical work and clearance activities were performed in 2008 at MM-10G. Because ordnance-related items were encountered within the 15-meter buffer zone, this site required further investigation of one step-out in the 2009 field season. The ROD remedy was completed in 2009.

During clearance activities performed at MM-10G, a breached munitions item was found in August of 2009. After the breached munitions item was removed, a five-point composite sample was collected and tested for TNT using a field test kit in September 2009. Because the concentration of TNT was above cleanup levels, soil was excavated from the site. After excavation, a second five-point composite sample was collected and tested for TNT using a field test kit. Because this sample was below cleanup levels, a five-point composite sample of in-place soil was collected for off-site analysis. A sample also was collected from the excavated soil stockpile. The TNT concentration of the sample collected from in-place soil exceeded the cleanup goal established in the ROD. In addition, the concentrations of 2-amino-4,6-dinitrotoluene and 4-amino-2,6-dinitrotoluene exceeded recently established ADEC cleanup levels. After discussions with regulators, further sampling or soil excavation was determined to be unnecessary.

MM-10G received "cleanup complete with ICs" determination from ADEC on February 22, 2013.

Mount Moffett, MM-10G — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Mount Moffett, MM-10G OU B-1

SUMMARY OF INSPECTION RESULTS:

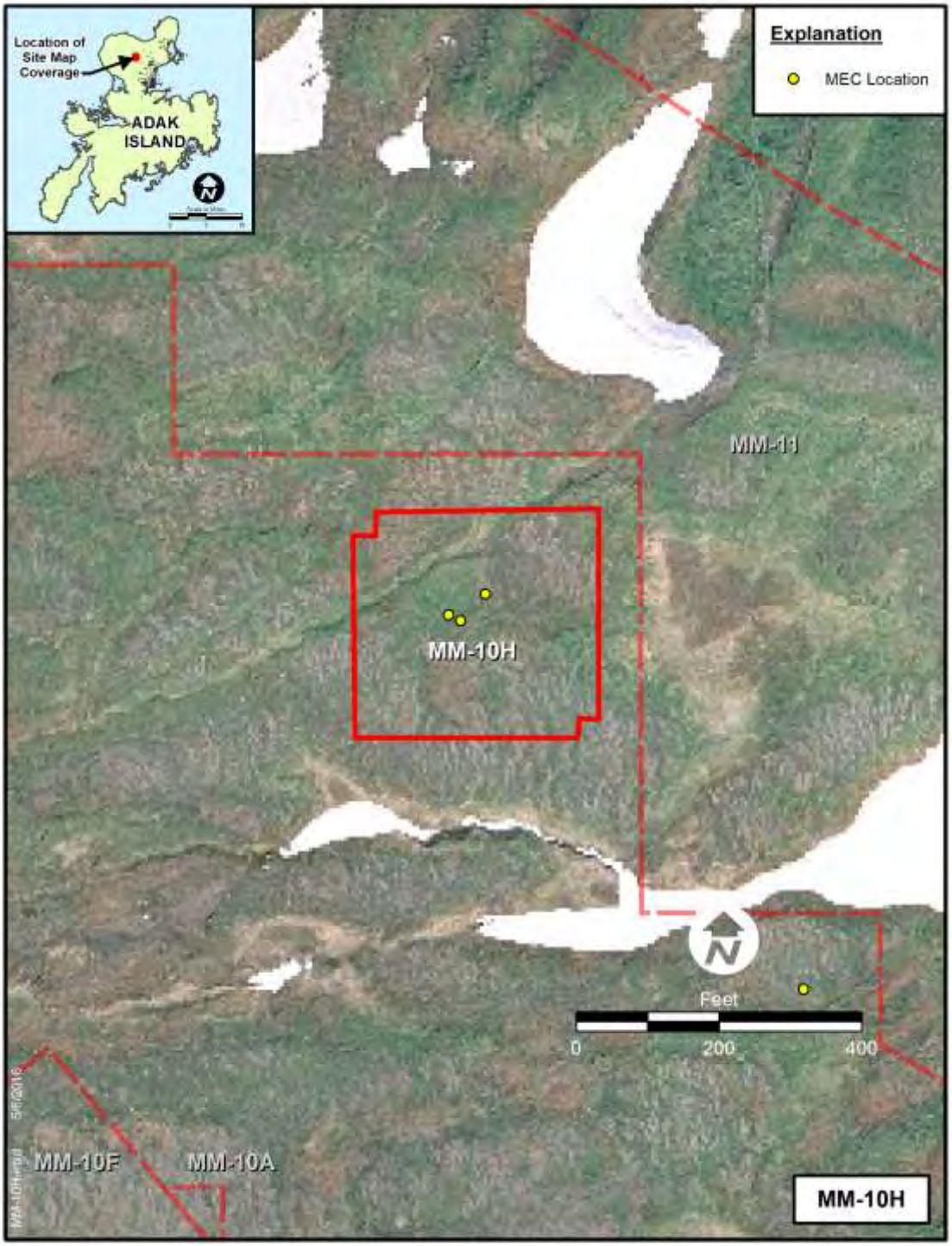
Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 100, 129, 141, 142, 144, 153, 171

Mount Moffett, MM-10H — OU B-1



Mount Moffett, MM-10H — OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

This site is located on the northern border of MM-10E. MM-10E is in a bowl-shaped area near the upper flanks of Mt. Moffett on the front (southeast) side. It is located within a large area generally identified as an impact area for 90-mm and 155-mm projectiles fired from six separate locations on the northern end of Adak Island. Several types of ordnance and MD were discovered in this overall area of Mt. Moffett, and it appears that the front face on the mountain was heavily used as an impact zone. Surrounding areas contained scrap or other ordnance-related items indicative of projectiles of various sizes, including 75-mm and 90-mm, as well as a fragment from a 155-mm projectile. Mortars were found at lower elevations together with PD 557 fuzes, which are commonly used on large-caliber projectiles.

MM-10H is 2.6 acres in size, and was created in December 2004 due to three 90-mm projectiles that were located in this area during the 2004 field season. The center of MM-10H is located approximately 60 meters east of the original boundaries

Mount Moffett, MM-10H — OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required gathering characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site.

Due to the magnitude of MEC contamination being greater than anticipated, only surface clearance was conducted during 2004, a deviation from the workplan conducted without concurrence from the project team. An additional workplan was developed and approved by the project team for implementation beginning in 2008. Further remediation work on this site began in 2008. Both geophysical work and clearance activities also were completed at this site in 2008. Therefore, the ROD remedy was completed in 2008.

MM-10H received "cleanup complete with ICs" determination from ADEC on February 22, 2013.

Mount Moffett, MM-10H — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: None — Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required — Monitoring File: Not Applicable

Mount Moffett, MM-10H OU B-1

SUMMARY OF INSPECTION RESULTS:

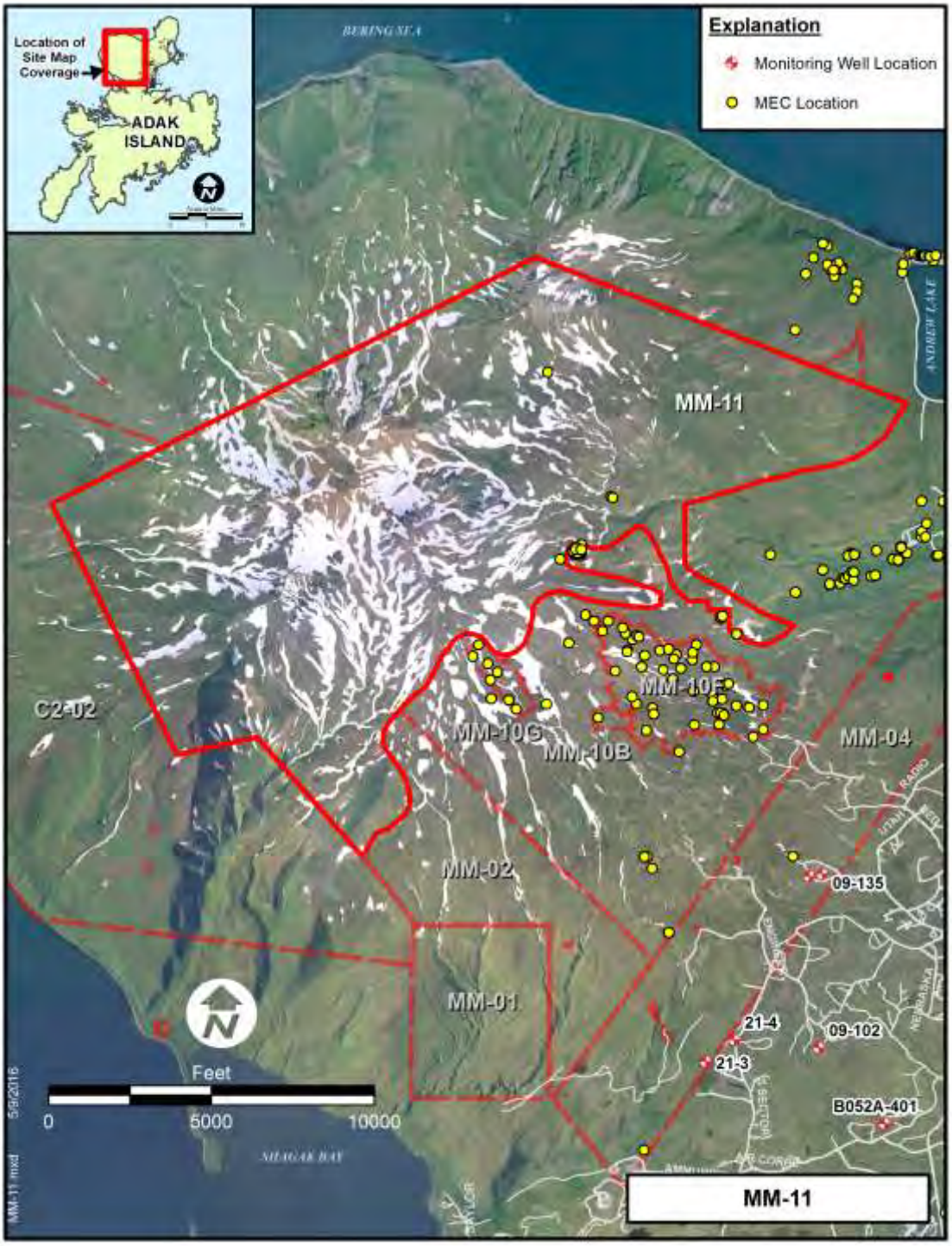
Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 100, 129, 141, 142, 144, 153, 171

Mount Moffett, MM-11 — OU B-1



Mount Moffett, MM-11 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

This area is located northwest of the peak of the mountain adjacent to the most remote portions of Combat Range #1 and Combat Range #2. The area is identified in historical firing orders as part of three impact areas: one 90-mm impact area, one 155-mm impact area, and one area identified only as a large-caliber impact area.

The entire MM-11 area is 4,974 acres. The terrain in this area is generally very steep, rocky, and inaccessible. There are deep stream ravines carrying runoff down the mountainside and rocky ridgelines between the ravines. There are smaller areas that are flatter; however, these are generally surrounded by terrain too rugged to traverse safely. There is access to the area only by ARGO all-terrain vehicle or helicopter. This area was not investigated during the 1999 field season; however, during transit across the northwestern saddle toward Combat Range #1, field staff noted an area that contained fragmentation and MD. Two fired 90-mm projectiles also were found on the surface in this area. Initial geophysical surveys were completed during the 2000 field season, and 31 anomalies were located. No intrusive investigation was performed on the 31 anomalies during the 2000 field season.

Mount Moffett, MM-11 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

REMEDY IMPLEMENTATION:

The selected remedy is observation approach presumptive clearance. Implementing the remedy first required gathering final characterization data on the extent of ordnance contamination as part of the observational approach to executing clearance at the site. More specifically, the goal of the work performed in 2002 was to complete the intrusive investigation of the area. A single 20-mm projectile was found during the initial intrusive work, along with several fragmentation items. A 100 percent geophysical survey grid was completed at the 20-mm find location and five 30-meter by 30-meter minigrids were surveyed at fragmentation find locations. Two more 20-mm projectiles (UXO) were recovered, and a total of eight MD items (fragmentation) were recovered. In addition, 81 anomalies were classified as no finds. Remedial action was not completed in MM-11 during the 2002 field season.

During 2004, a 30-meter by 30-meter (100 percent coverage) survey was to be conducted over the location of a 90-mm projectile that was found on the surface during the 2002 field season by a hiker (an off-duty UXO tech). There also was a piece of fragmentation to the east of this UXO item that required a 30-meter by 30-meter (5-meter transect) grid to be surveyed. A total of 67 anomalies were targeted in MM-11, two of which were fragmentation items that required additional geophysical mapping. Both pieces of fragmentation were located at or near the surface and were likely the result of the 90-mm projectile being

blown in place during the 2002 field season. Four anomalies were found to be hot geology and the remaining targets were no finds. The ROD remedy was completed in 2004.

Ordnance-related chemicals were not reported above detection limits in the one soil sample collected in 2002.

MM-11 received "cleanup complete with ICs" designation from ADEC on January 16, 2008.

Mount Moffett, MM-11 — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: October 15, 2002 Most Recent Inspection Date: September 2020

Current Media Sampled: None

Current Analytes Sampled: None

Current Monitoring: None Required Monitoring File: Not Applicable

Mount Moffett, MM-11 OU B-1

SUMMARY OF INSPECTION RESULTS:

Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

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Shagak Bay Gun Emplacement, SH-01 — OU B-1

Shagak Bay Gun Emplacement, SH-01 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

This area supported four 155-mm Howitzer gun emplacements on the far west side of the hills west of downtown Adak and northeast of Shagak Bay. This area is characterized by steep rolling hills. This area was first investigated during the 2001 field season after its discovery in archival data.

Shagak Bay Gun Emplacement, SH-01 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. No explosives-related chemical contamination was identified at this site.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use. Only the RAO established for ordnance applies to this site.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas.

REMEDY IMPLEMENTATION:

The selected remedy was observation approach presumptive clearance. Implementing the remedy first required performing a reconnaissance survey using visual inspection and hand-held geophysical detectors to better define the areas requiring final characterization. At SH-01, the reconnaissance survey was performed in 2001. The goal of work was to determine whether any unauthorized burial or abandonment of ordnance occurred at this site. Reconnaissance data collected showed no indication of contamination with ordnance-related material. Since no MEC was identified during the reconnaissance survey, the site was designated NFA and the ROD remedy was completed in 2001. Therefore, no work was completed at SH-01 during the 2004 field activities, although it was included in the 2004 after action report. In 2008, ADEC designated conditional closure with ICs for the site.

SH-01 received "cleanup complete with ICs" determination from ADEC on January 16, 2008.

Shagak Bay Gun Emplacement, SH-01 — OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: Not Applicable Most Recent Inspection Date: September 2020
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

Shagak Bay Gun Emplacement, SH-01 OU B-1

SUMMARY OF INSPECTION RESULTS:

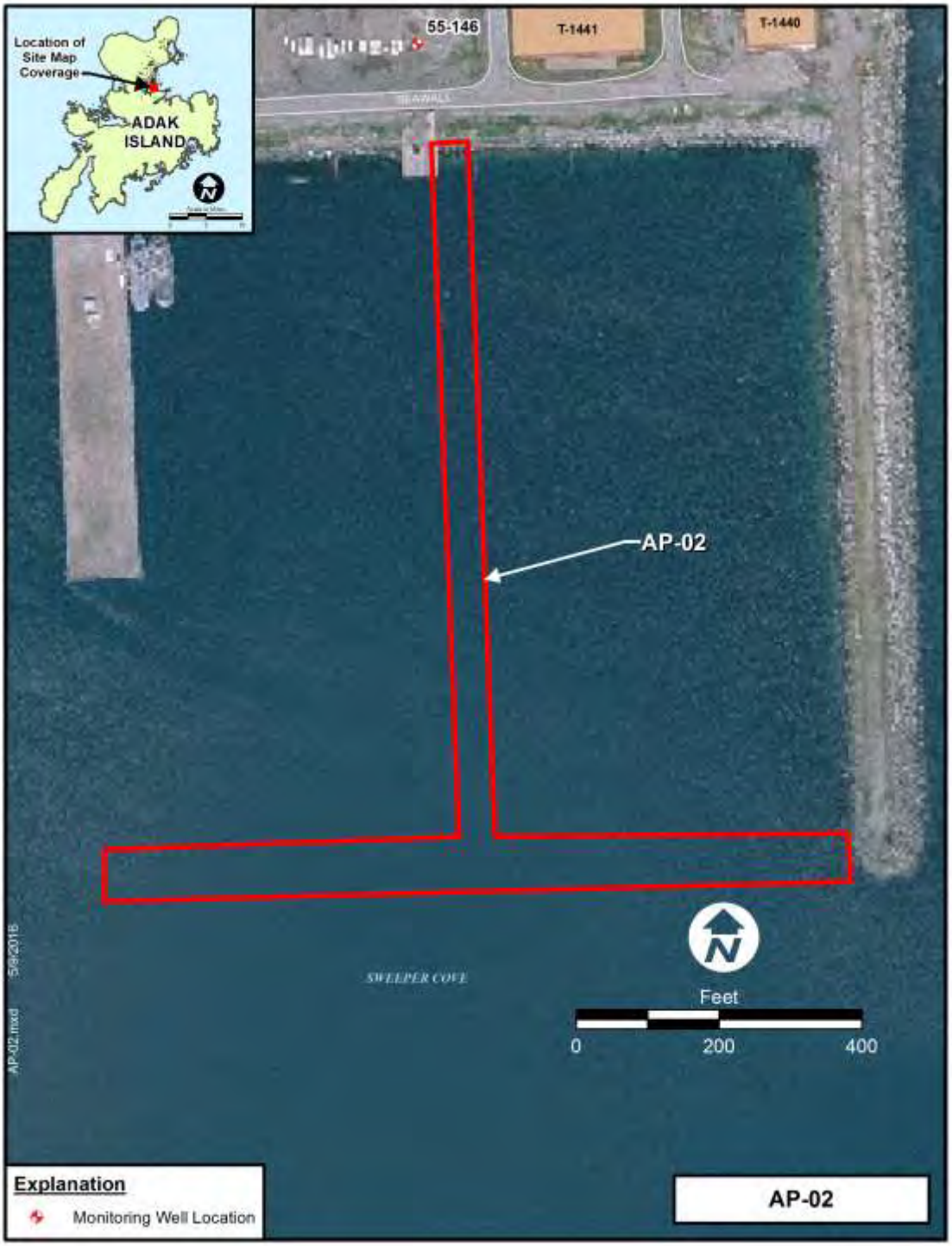
Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

BIBLIOGRAPHY:

83, 91, 99, 100, 102, 106, 129, 141, 142, 144, 171

WWII Ammunition Pier (Sweeper Cove), AP-02 OU B-1



WWII Ammunition Pier (Sweeper Cove), AP-02 OU B-1

STATUS: Cleanup complete with institutional controls

BACKGROUND:

AP-02 is the area underlying the location of the former ammunition pier in Sweeper Cove, a natural inlet developed into a full-service port that flanks the south side of downtown Adak. The pier was formerly located along the north shoreline of Sweeper Cove. The 800-foot long, T-shaped wood pier was used to off-load ordnance during WWII. The terrain in the area where the pier met the shoreline is relatively flat and somewhat rocky. There is no known documentation of offshore abandonment or disposal of ordnance into the water from any of the pier-related military activities. However, it is possible that ordnance may have been dropped from the pier during off-loading or handling.

WWII Ammunition Pier (Sweeper Cove), AP-02 OU B-1

COCs AND RISKS:

While not specified as a COC in the OU B-1 ROD, the site risk addressed in the remedy is ordnance. Potential explosive-related chemical risks to ecological receptors were also investigated.

RAOs:

The goal of the OU B-1 investigation and remediation activities on Adak Island was to take steps to effectively reduce and manage potential explosive hazards and potential chemical risks posed by MEC in order to protect human health and the environment for current and reasonably expected future land use. The RAOs were intended to support an unrestricted (i.e., residential) future land use that included the possibility of activity that could disturb subsurface MEC. Two RAOs were established: one addressed explosive safety issues, and the other addressed the chemical residues in soil resulting from past ordnance use.

The RAO pertaining to the explosive safety aspect of the ordnance is to reduce any remaining potential explosive safety hazards throughout OU B-1 through the application of the ESHA process and subsequent clearance of MEC, as necessary, to support current and reasonably expected future land use. Cleanup levels are typically numeric expressions of RAOs. However, for explosive hazards associated with the OU B-1 sites, the cleanup level entails removing all known MEC items that can be located using an ordnance detection system that meets performance criteria established for Adak and that are located in reasonably accessible areas. RAOs were identified in section 8 of the Final 2001 OU B-1 ROD.

The RAO for potential ordnance-related chemical risks is to prevent future residents and recreational users from being exposed to explosives-related contamination in soil above the cleanup levels. The cleanup levels established in the ROD are based on EPA Region 9 PRGs for residential soil

REMEDY IMPLEMENTATION:

The selected remedy for AP-02 was observation approach presumptive clearance. Implementing the remedy first required performing a reconnaissance survey using visual inspection and hand-held geophysical detectors to better define the areas requiring final characterization. At AP-02, the reconnaissance survey was an underwater dive, which was performed in 2001. The goal of this dive was to determine whether any unauthorized abandonment of ordnance occurred at the site. Observational data collected during the reconnaissance survey revealed one piece of MD, consisting of a spent 0.5-caliber casing. Since no MEC were identified during the reconnaissance survey, the site was designated NFA and the ROD remedy was completed in 2001.

AP-02 received "cleanup complete with ICs" determination from ADEC on September 1, 2004.

WWII Ammunition Pier (Sweeper Cove), AP-02 OU B-1

OPERATIONS, MAINTENANCE, AND MONITORING:

Monitoring Types:

- ☐ Groundwater Monitoring
- ☐ Surface Water Monitoring
- ☐ Sediment Monitoring
- ☐ Tissue Monitoring
- ☐ Landfill Inspection
- ☑ IC Inspection
- ☐ Remediation System Monitoring and Maintenance
- ☐ None Required

Most Recent Sampling Date: Not Applicable Most Recent Inspection Date: September 2020
Current Media Sampled: None
Current Analytes Sampled: None
Current Monitoring: None Required Monitoring File: Not Applicable

WWII Ammunition Pier (Sweeper Cove), AP-02 OU B-1

SUMMARY OF INSPECTION RESULTS:

Institutional controls for all OU B-1 sites include equitable servitude and an ongoing educational program on Adak. Island residents and visitors are made aware of the program through videos, maps, posters, school children training, handouts, Restoration Advisory Board meetings, and on-line. This program is intended to familiarize on-island residents and visitors with the history of ordnance use, storage, handling and disposal on Adak Island; basic characteristics of ordnance items on Adak; and the procedures that should be followed if a suspected ordnance item is encountered. Equitable servitude notices are included in the Hazardous Waste/Hazardous Substance Deed Notification, Land Transfer Parcels 1A and 1B which contains a full legal description of the properties and a description of any known hazardous materials stored, used, or released on any transferring piece of property.

of the 2020 IC Tech Memo. The 2020 IC Tech Memo considered the ordnance awareness program to be functioning effectively because all residents and visitors were aware of the maps, so presumably that would lead to the understanding that Parcel 4 was restricted due to potential live ordnance. Some residents were unaware of the Navy outreach website and the toll-free telephone number. Additional awareness improvement for visitors includes increasing the number who are aware of Parcel 4 and other IC resources.

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83, 91, 99, 102, 117, 129, 141, 142, 144, 171

Acronyms

µg/L	micrograms per liter
AAC	Alaska Administrative Code
ACL	alternative cleanup level
ADEC	Alaska Department of Environmental Conservation
AK	Alaska
AO	abandoned ordnance
AOC	area of concern
ARAR	applicable or relevant and appropriate requirement
ASR	Airport Surveillance Radar
AST	aboveground storage tank
avgas	aviation gasoline
BEQ	Bachelor's Enlisted Quarters
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
CDAA	Circulary Disposed Antenna Array
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CMP	comprehensive monitoring plan
COC	contaminant of concern
COD	chemical oxygen demand
cPAH	carcinogenic polycyclic aromatic hydrocarbon
DEM	downgradient exposure medium
DMM	discarded military munitions
DRMO	Defense Reutilization Marketing Office
DRO	diesel-range organics
EPA	Environmental Protection Agency
ESHA	explosives safety hazard assessment
FCT	field-constructed tanks

Acronyms

FFA	Federal Facilities Agreement
FFS	focused feasibility study
FS	feasibility study
GCI	General Communications, Inc.
GEM	Ground Electronics Maintenance
GIS	Geographic Information Systems
GPO	geophysical prove-out
GRO	gasoline-range organics
GS	grain size
GSE	Ground Support Equipment
GW	groundwater
HE	high explosive
HI	hazard index
HWSA	Hazardous Waste Storage Area
HWSF	Hazardous Waste Storage Facility
IC	institutional control
ICMP	Institutional Control Management Plan
IDW	investigation-derived waste
JP	jet propellant
LFI	limited field investigation
LORAN	long-range navigation
LPAH	low molecular weight polycyclic aromatic hydrocarbon
LTM	long term monitoring
MAUW	Modified Advanced Undersea Weapons
MCL	maximum contaminant level
MD	munitions debris
MEC	munitions and explosives of concern

Acronyms

mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MLLW	mean lower low water
mm	millimeter
MNA	monitored natural attenuation
mogas	motor gasoline
msl	mean sea level
NAE	natural attenuation evaluation
NAF	Naval Air Facility
NAPs	natural attenuation parameters
NAVFAC	Naval Facility
NEX	Navy Exchange
NFA	No Further Action
NFRAP	No Further Remedial Action Planned
NMCB	Naval Marine Construction Battalion
NSGA	Naval Security Group Activity
OE	ordnance and explosives
ORO	oil-range organics
OU	operable unit
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyls
PCE	tetrachloroethene
PD	point detonating
PID	photoionization detector
POL	petroleum, oil, and lubricant
PRG	preliminary remediation goal
PSE	Preliminary Source Evaluation

Acronyms

PT	product thickness
PVC	polyvinyl chloride
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RDX	Royal Demolition Explosive
RI	remedial investigation
ROD	Record of Decision
ROICC	Resident Officer in Charge of Construction
RRO	residual-range organics
SA	Source Area
SAERA	State-Adak Environmental Restoration Agreement
SDSA	Small Drum Storage Area
SI	site investigation
SVOC	semivolatile organic compound
SW	surface water
SWMU	solid waste management unit
TAH	total aromatic hydrocarbon
TAqH	total aqueous hydrocarbon
TAVSC	technology aided visual surface clearance
TCDD	tetrachlorodibenzo-p-dioxin
TDS	total dissolved solids
TEF	toxic equivalency factor
TKN	total Kjehldahl nitrogen
TNT	trinitrotoluene
TPH	total petroleum hydrocarbon
TRPH	total recoverable petroleum hydrocarbon
TSCA	Toxic Substances Control Act

Acronyms

UoP	units of production
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
UXO	unexploded ordnance
VOC	volatile organic compound
WP	white phosphorus
WWII	World War II

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83	Navy, USEPA	Final Record of Decision for Operable Unit B-1, Former Adak Naval Complex, Adak Island, Alaska. Prepared by Foster Wheeler for Engineering Field Activity, Northwest. October 2001.
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86	Navy	Second Five-Year Review of Records of Decision, Former Adak Naval Complex, Adak, Alaska. Prepared by URS for Naval Facilities Engineering Command Northwest. December 13, 2006.
87	Navy, USEPA, ADEC	Adak Naval Air Station, Adak, Alaska (AK 4170024323) Operable Unit A Record of Decision Amendment No. 1. Prepared by Naval Facilities Engineering Command, Engineering Field Activity, Northwest. October 10, 2003.
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91	Navy	Final Institutional Controls Site Inspection Report, September 2009, Operable Unit A and B-1, Former Naval Air Facility, Adak, Alaska. Prepared by Sealaska for Naval Facilities Engineering Command Northwest under Contract No. N44255-09-D-4005, Task Order 02. March 2010.
92	Navy	Final Closure Report, Remedial Action Closure at Four Petroleum Sites, Tango Pad, SA-77, SA-82, and ASR-8. Prepared by URS for Naval Facilities Engineering Command Northwest. April 5, 2007.
93	ADEC	ASR-8 UST 42007-B, Approval of Site Closure. Letter to Gary Simmons of NAVFAC NW from Guy Warren, ADEC. July 19, 2007.
94	Navy	Final Closure Report, Interim Action Free-Product Recovery, South of Runway 18-36 Area, NMCB Expanded Area, Tanker Shed Area, NORPAC Hill Seep Area, and Yakutat Hangar, Former Naval Air Facility Adak, Adak Island, Alaska. Prepared by TetraTech for Naval Facilities Engineering Command Northwest under Contract No. N44255-01-D-2000. January 2006.
96	Navy	Closure Report, Remedial Action Construction at Three Petroleum Sites, Former Naval Air Facility, Adak, Alaska, South Runway 18-36 Area, NMCB Expanded Area, SWMU 62 - New Housing Fuel Leak Site, Landfill Repairs, Rommel Stake Removal, and Institutional Controls. Prepared by TetraTech for Naval Facilities Engineering Command Northwest. March 23, 2007.
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101	Navy	Final After Action Report, 2002 Field Season for OU B-1 Sites, Former Naval Air Facility, Adak Island, Adak, Alaska. Prepared by Foster Wheeler Environmental Corporation for Engineering Field Activity, Northwest. May 2003.
102	Navy	Final After Action Report, 2001 Field Season, Former Naval Air Facility, Adak Island, Adak Alaska. Prepared by Environmental Chemical Corporation and Foster Wheeler Environmental Corporation for Engineering Field Activity, Northwest. March 2002.
104	Navy	Final After Action Report for 2008 Field Season for Lake Jean LJ-01 and Rifle Grenade Range RG-01, Former Naval Air Facility Adak Island, Alaska. Prepared by USA Environmental for Naval Facilities Engineering Command Northwest. April 26, 2010.
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119	ADEC	Cleanup Complete with Institutional Controls Determination for SA-82 NSGS P80/P81 Buildings. Letter to Aaron Vernik of NAVFAC NW from Meghan Dooley, ADEC. June 22, 2010.
120	ADEC	Remedial Action Complete for SA-82 NSGA P801P8 1 Buildings. Letter to Gary Simmons of NAVFAC NW from Guy Warren, ADEC. July 30, 2007.
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122	Navy	Well Installation, Repair, and Abandonment Report, Former Adak Naval Complex, Adak, Alaska. Prepared by URS for NAVFAC NW. January 8, 2007.
123	Navy, ADEC	Decision Document, SWMU 17, Power Plant No. 3 Area, Former Adak Naval Complex, Adak, Alaska. Prepared by U.S. Navy and ADEC. December 14, 2006.
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138	ADEC	Cleanup Complete with Institutional Controls Determination for Antenna Field, USTs ANT-1, ANT-2, ANT-3 and ANT-4. September 19, 2011.
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149	Navy	Final Annual Groundwater Monitoring Report 2011 Long Term Monitoring Operable Unit A, Former Adak Naval Complex, Adak, Alaska. Prepared by Sealaska Environmental Services, Inc. June 25, 2012.
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151	Navy	Final Annual Groundwater and Landfill Monitoring Report 2013 Long Term Monitoring Operable Unit A. Former Adak Naval Complex, Adak, Alaska. J Prepared by Sealaska Environmental Services, Inc. June 20, 2014.
152	Navy	Final Annual Groundwater and Landfill Monitoring Report, 2014 Long Term Monitoring, Operable Unit A, Former Adak Naval Complex, Adak, Alaska. Prepared by Sealaska Environmental Services, Inc. May 28, 2015.
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159	Navy	Cleanup Complete Determination for Adak Amulet Housing Well AMW-709 Site. Letter to Jessica Faragalli of NAVFAC NW from Guy Warren, ADEC. November 8, 2016.
160	Navy	Cleanup Complete Determination for Adak Boy Scout Camp UST BS-1 Site. Letter to Jessica Faragalli of NAVFAC NW from Guy Warren, ADEC. November 8, 2016.
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166	Navy	Draft Institutional Control Management Plan Comprehensive Monitoring Plan Revision 8 Former Naval Complex Adak, Alaska. Prepared by Sealaska Environmental Services, LLC. Silverdale, WA: Naval Facilities Engineering Command, Northwest. May 15, 2020.
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168	Navy	Final Annual Groundwater and Landfill Monitoring Report 2019 Long-Term Monitoring, Operable Unit A Former Naval Complex Adak, Alaska. Prepared by Sealaska Environmental Services, LLC. Silverdale, WA: Naval Facilities Engineering Command, Northwest. May 2020.
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171	Navy	Internal Draft Technical Memorandum, Summary of Institutional Controls Effectiveness, Contract N62473-20-C0614 2020 Institutional Controls, Former Naval Complex Adak, Alaska. Prepared by Sealaska Remediation Solutions, LLC. Silverdale, WA: Naval Facilities Engineering Systems Command Northwest. December 16, 2020.
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Appendix B:
Site Chronology

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1. Site Chronology

For pre-2016 information, see Section 2.0 of the fourth five-year review for Former Adak Naval Complex, Adak, Alaska (DON 2016).

A total of 177 sites were evaluated for Operable Unit (OU) A. Two of these sites were deferred to OU B (Solid Waste Management Unit [SWMU] 8 and Source Area [SA] 93) because ordnance was present at these sites (DON 2000). Of the remaining 175 sites, 121 were petroleum sites that included two sites investigated under both Resource Conservation and Recovery Act and State-Adak Environmental Restoration Agreement (SAERA) (SWMUs 24 and 77), 49 were investigated under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (SWMU 18 and 19 are considered one site here), five were investigated under both CERCLA and SAERA (SWMUs 14, 15, 17, 55, and SA 74). Figure B-1 presents an overview of the process used to evaluate OU A CERCLA sites, and Figure B-2 presents an overview of the process used to evaluate SAERA sites.

As shown on Figure B-3, 156 sites are addressed under OU B-1, 6 sites will be addressed under the Formerly Used Defense Site (FUDS) program, and the remainder will be addressed as part of OU B-2. FUDS sites are sites that encompass areas outside the military reservation.

During this fifth five-year review period (between October 2016 and December 2020), ADEC approved cleanup complete status for four sites including SA 77 Small Drum Storage Area, Adak Amulet Housing Well AMW-706 and AMW-709, and Adak Boy Scout Camp UST BS-1 that was updated from their previous cleanup complete with institutional controls. Additionally, ADEC approved cleanup complete status for Runway 5-23 AVGAS Valve Pit in March 2021 that was updated from their previous cleanup complete with institutional controls.

Event	Date
Initial assessment study performed	1986
Site inspection	1989
RCRA remedial facility assessment	1990
Federal Facility Compliance Agreement under RCRA signed by EPA	November 20, 1990
Adak proposed for listing to the National Priorities List	October 1992
FFA signed	1993
Two-party agreement (SAERA) regarding petroleum sites signed	April 1994
Final National Priorities List listing	May 1994
ROD for interim remedial action signed for Sites 11 and 13	March 1995
Final EE/CA for Site 16A (Soil stockpile area within SWMU16) and SWMU 67 (White Alice PCB Spill Site)	April 1996
SAERA amended	August 1996
UXO Survey conducted	October 1996
Operational closure of Adak Naval Air Station	March 1997
Intrusive Investigation of UXO in the priority I Area	November 1997
RI/FS for OU A	1997
FFA amended to designate OU B	1998
Final UXO Minefield Investigation, SWMU 2	April 1999
ROD for OU A signed	April 2000

Event	Date
Institutional Control Management Plan implemented	2000
RI/FS for OU B (OU B divided into OU B-1 and OU B-2)	July 2001
OU B-1 ROD signed	December 2001
First five-year review executed	December 2001
FFA and SAERA amended to move petroleum sites from OU A to SAERA	March 2002
OU A remedy in place at all non-SAERA sites	2003
OU A ROD amended to move all petroleum sites with further action from OU A to SAERA	October 2003
Completion of land relinquishment by the Navy to DOI, with subsequent transfer to TAC, City of Adak, and the State of Alaska Department of Transportation and Public Facilities (Interim Conveyance)	March 2004
Decision document for final remedy at 10 OU A SAERA sites	May 2005
Decision document for final remedy at NMCB Building Area, T-1416 Expanded Area	March 2006
Decision document for final remedy at SWMU 62, New Housing Fuel Leak Site	August 2006
Decision document for final remedy at South of Runway 18-36 Area	October 2006
OU A remedy in place at all OU A SAERA sites	October 2006
Second five-year review executed	December 2006
Decision document for final remedy at SWMU 17, Power Plant No. 3 Area	January 2007
Munitions Constituents Sampling Analysis Plan for OU B-1 AOCs	July 2008
OU B-1 remedy in place at all sites	September 2010
Third five-year review executed	December 2011
Decision document for final remedy at Area 303	March 2012
Final OU A RACR (for soil and surface water)	September 2012
Final RACR for OU B-1	August 2014
Final Comprehensive Monitoring Plan, Revision 6, OU A	August 2014
Final After-Action Report for Non-Time Critical Removal Action for SWMU 25 Roberts Landfill Road	January 2015
Fourth five-year review executed	December 2016
Final Comprehensive Monitoring Plan, Revision 7, OU A	November 2018
Final Comprehensive Monitoring Plan, Revision 8, OU A	November 2020

DOI	Department of Interior, United States
EPA	Environmental Protection Agency, United States
FFA	Federal Facilities Agreement
OU	operable unit
PCB	polychlorinated biphenyl
RACR	remedial action completion report
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
SAERA	State-Adak Environmental Restoration Agreement
SWMU	solid waste management unit
TAC	The Aleut Corporation

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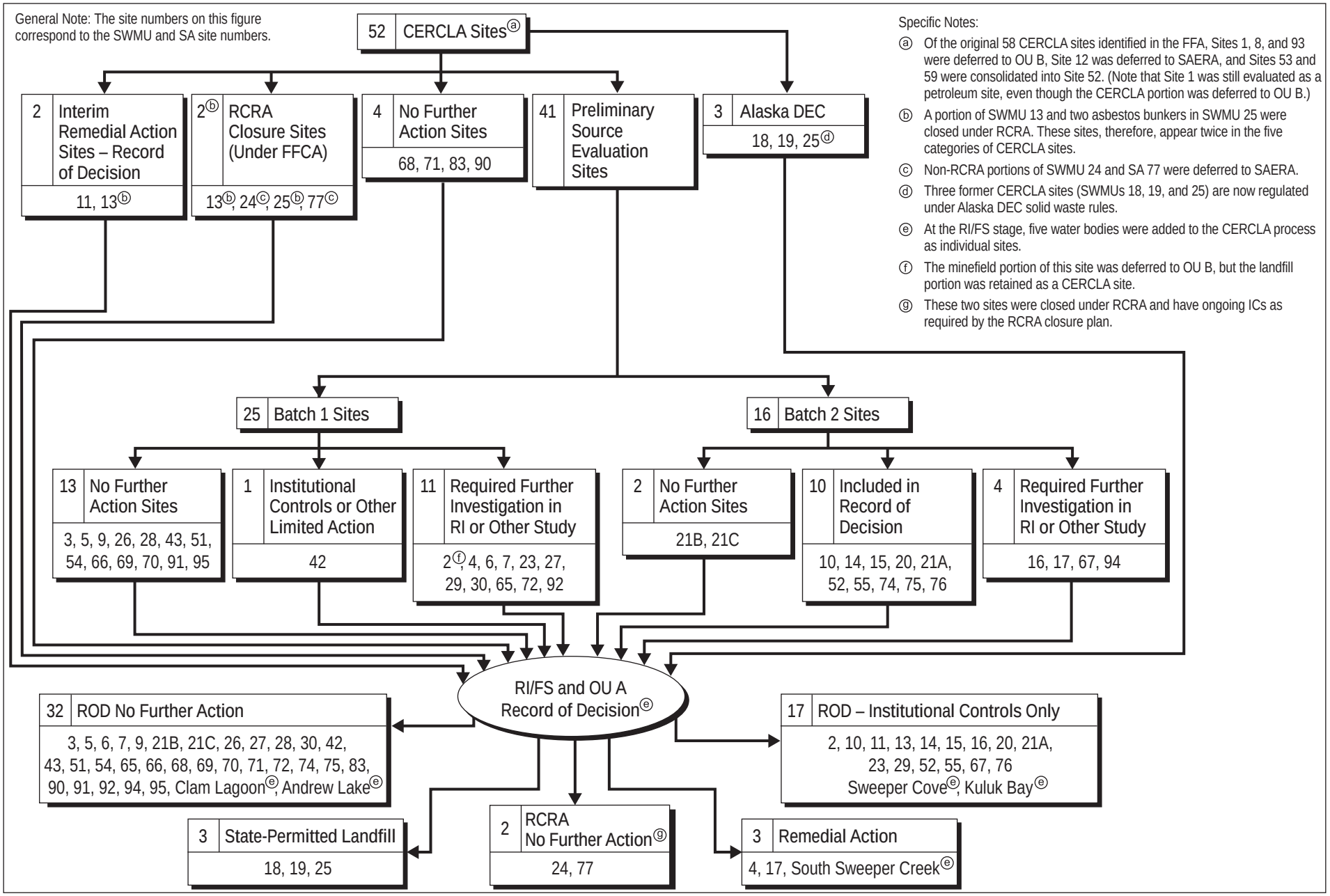

U.S.NAVY

Figure B-1
Summary of CERCLA Site Process at Former Adak Naval Complex

Former Adak Naval Complex
FIFTH FIVE-YEAR REVIEW

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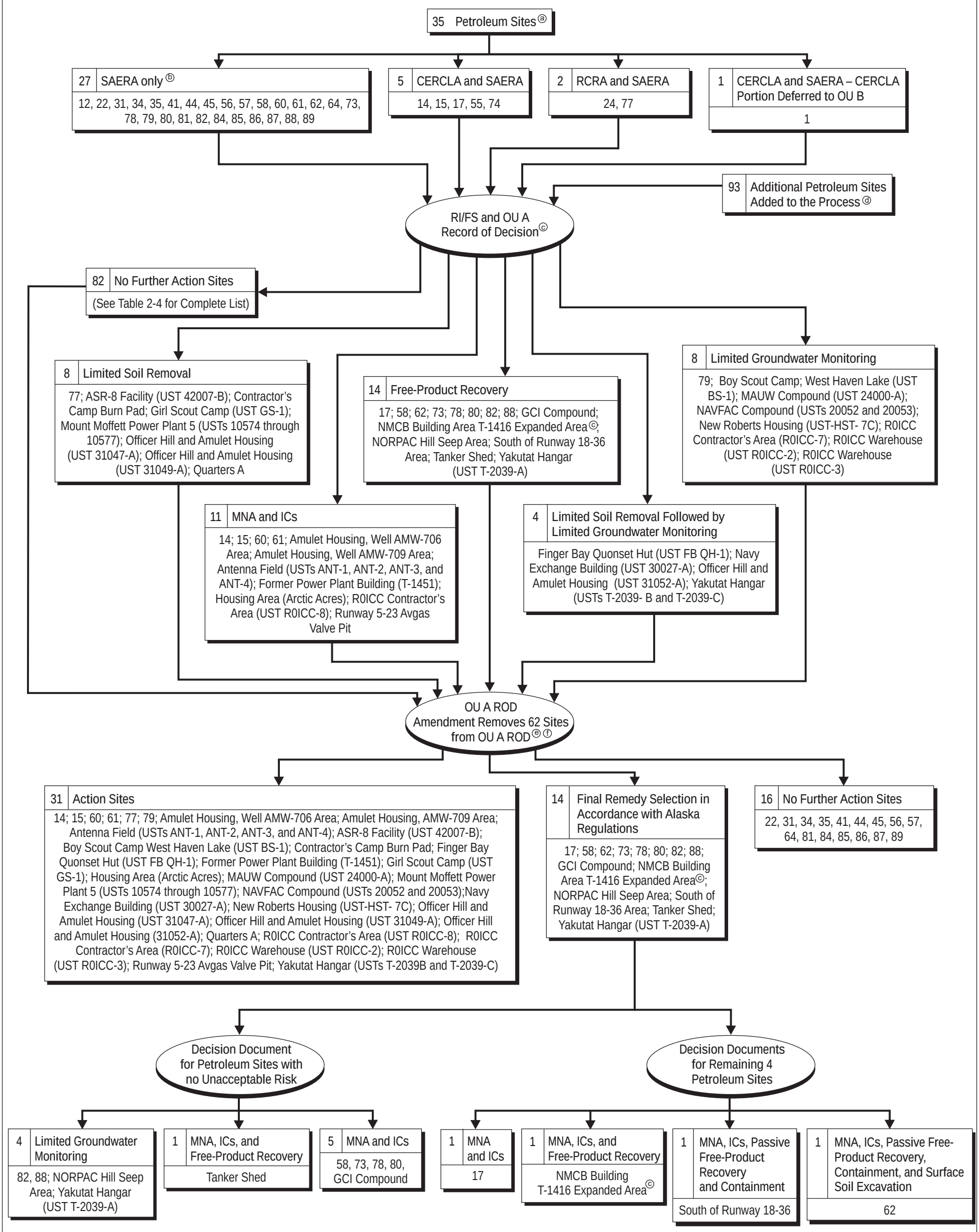

General Note:

The site numbers on this figure correspond to the SWMU and SA site numbers.

Specific Notes:

ⓐ Original number of petroleum sites from FFA.

ⓑ SWMU 12 was originally listed as a CERCLA site in the FFA. It was transferred to the SAERA process.

ⓒ NMCB Building (UST T-1416-A) was combined with this site.

ⓓ A complete listing of these sites is provided in Table 2-1 of the OU A ROD (and Table 2-2 of this document) and includes SA 96 and SA 97 and all the sites without a SWMU or SA number, except does not include the five water bodies (Sweeper Cove, South Sweeper Creek, Clam Lagoon, Andrew Lake, and Kuluk Bay).

ⓔ This count includes the two NMCB sites as separate sites. Therefore, if combined, the total number of sites removed from the OU A ROD is 61.

ⓕ Sixty-six no further action sites were not removed from the OU A ROD and are not included in the flow chart below this point.

U.S.NAVY

Figure B-2
Summary of Petroleum Site Process at
Former Adak Naval Complex

Former Adak Naval Complex
FIFTH FIVE-YEAR REVIEW

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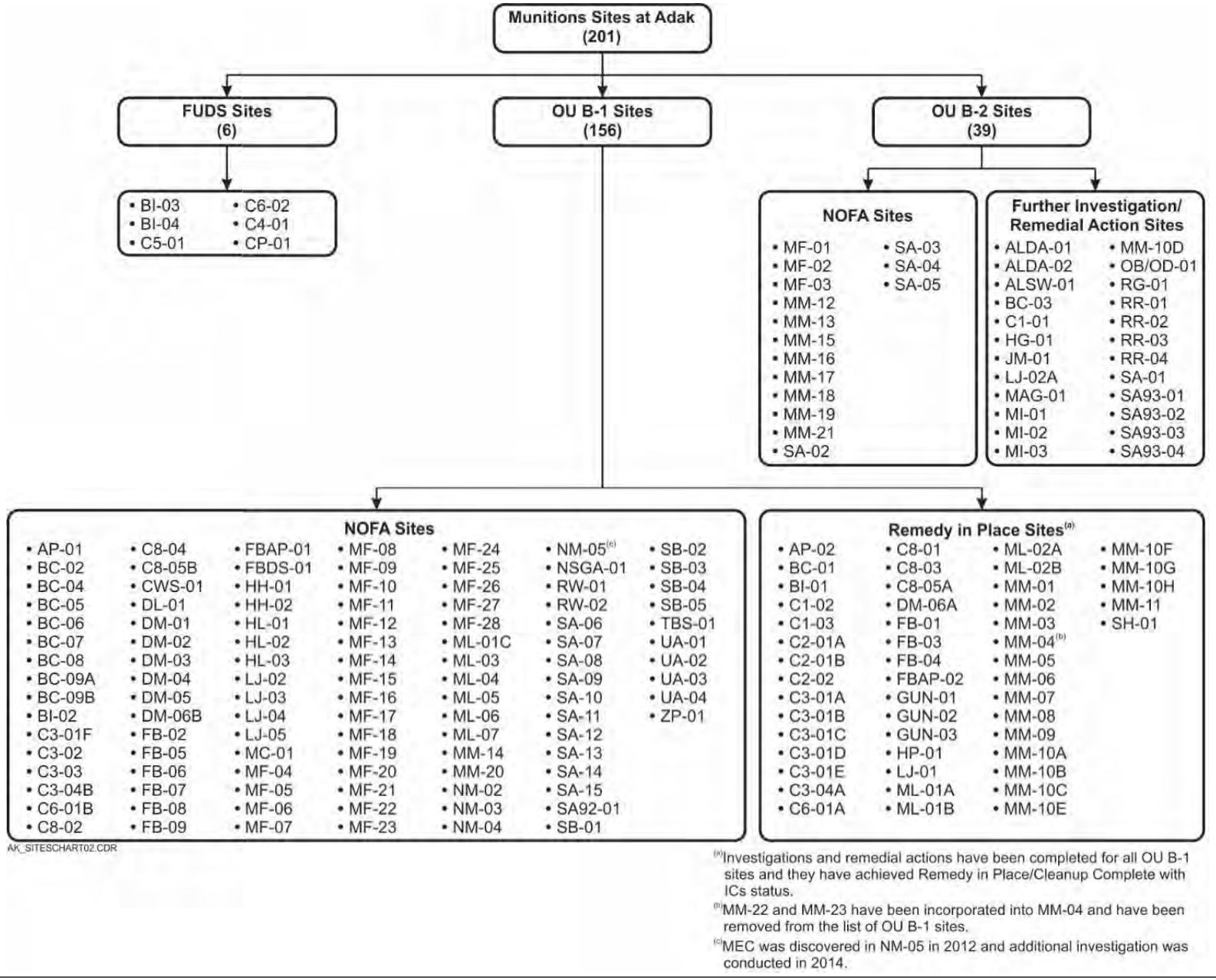

U.S.NAVY

Figure B-3
Summary OU B Site Process at Former Adak Naval Complex

Former Adak Naval Complex
FIFTH FIVE-YEAR REVIEW

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Appendix C:
Detailed Data Review

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CONTENTS

TABLES

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ACRONYMS AND ABBREVIATIONS

µg/L	microgram per liter
ADEC	Alaska Department of Environmental Conservation
BTEX	benzene, toluene, ethylbenzene, and xylenes
CI	confidence interval
CMP	comprehensive monitoring plan
DRO	diesel range organics
EC	engineering control
GCI	General Communications, Inc.
GRO	gasoline range organics
IC	institutional control
ICMP	Institutional Control Management Plan
LTM	long-term monitoring
LUC	land use control
MNA	monitored natural attenuation
MW	monitoring well
NAP	natural attenuation parameter
NMCB	Naval Mobile Construction Battalion
NORPAC	North Pacific
ORP	oxidation-reduction potential
OU	operable unit
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCE	tetrachloroethylene
PRG	preliminary remediation goal
RCRA	Resource Conservation and Recovery Act
ROD	record of decision
ROICC	resident officer in charge of construction
SA	source area
SAERA	State-Adak Environmental Restoration Agreement
SI	site inspection
SWMU	solid waste management unit
TAH	total aromatic hydrocarbons
TAqH	total aqueous hydrocarbons
USFWS	United States Fish and Wildlife Service
UST	underground storage tank
UXO	unexploded ordnance
VOC	volatile organic compound

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1. Data Review

The data presented in this appendix are not intended to be a comprehensive discussion of all the data collected but are intended to highlight the significant data. The data review is summarized on a data type and yearly basis. A few site-specific data are also presented at the end of the following section when significant information warranted further discussion (i.e., sites where issues were identified in the fourth Five-Year Review and additional data were collected in support of removal actions).

1.1 Long-term Monitoring of Groundwater, Sediment, and Surface Water

This section summarizes the groundwater and landfill monitoring data that were reviewed since the fourth Five-Year Review (DON 2017a; 2018a; 2019; 2020c) at Operable Unit (OU) A and State-Adak Environmental Restoration Agreement (SAERA) sites. The monitoring program was implemented as described in the comprehensive monitoring plan (CMP), Revision 6 (DON 2014) until the 2018 Long-term Monitoring (LTM) event, and in 2019 according to the CMP, Revision 7 (DON 2018c). The monitoring program is modified annually based on long-term monitoring observations and in response to changing site conditions. These modifications are consolidated and captured in updates to the CMPs, which are updated every 2 to 3 years. Detailed figures showing specific well locations discussed below are included in the Site Catalog, as Appendix A.

2016: During this event, groundwater, surface water, and sediment samples were collected from 91 monitoring locations at 17 sites. Product thickness and depth to water measurements were collected at 143 locations from these sites. Monitoring was also performed at two landfills. Based on the previous monitoring results, the monitored natural attenuation remedies appeared to be effective and biodegradation appeared to be occurring in varying degrees at all of the monitored natural attenuation (MNA) sites. Monitoring for natural attenuation parameters (NAPs) had been reduced, from annually to every 4 to 6 years, to coincide with the next Five-Year Review, and was scheduled for 2018.

Based on the 2016 monitoring program results, the following recommendations were presented:

- *Area 303/General Communications Inc. (GCI) Compound:* The Navy recommended to discontinue well inspection monitoring of wells 04-100, MW-303-39, MW-303-40, and MW-303-41. Well 03-012 was removed in 2016 during removal action activities, and well MW-62-16-03 located in about the same location was designated as a replacement monitoring location for the next year. Because numerous wells continued to exceed endpoint criteria for diesel range organics (DRO), gasoline range organics (GRO), benzene, and total and dissolved lead, the United States Department of the Navy (Navy) recommended that prescribed groundwater monitoring be continued in 2017.
- *Former Power Plant, Building (Bldg.) T-1451:* Two monitoring wells installed in 2016 in the removal action area were recommended to be included in the LTM program to monitor the progress of the remediation in that part of the site. DRO and total aqueous hydrocarbons (TAqH) continued to exceed endpoint criteria in various site wells. Additionally, recoverable free product continued to be observed in several site wells. Because of this, the Navy recommended that prescribed monitoring be continued in 2017.
- *Housing Area (Arctic Acres):* Because DRO concentrations remained at or above the endpoint criterion in the currently monitored site wells, the Navy recommended that groundwater monitoring be continued as prescribed.
- *Naval Mobile Construction Battalion (NMCB) Bldg. T-1416 Expanded Area:* Because free gasoline-range product continued to be observed in several on-site wells, the Navy recommended that groundwater monitoring at this site be continued as prescribed. Well 02-

453 replaced well NMCB-07 and well 02-455 replaced well NMCB-10 for groundwater sample collection, due to the frequent presence of free product in those wells.

- *Resident Officer in Charge of Construction (ROICC) Contractor's Area, Underground Storage Tank (UST) ROICC-7:* Benzene concentrations remained above the endpoint criterion in the currently monitored site wells; therefore, the Navy recommended that groundwater monitoring be continued.
- *Source Area (SA) 79:* DRO concentrations remained at or above the endpoint criterion; therefore, the Navy recommended that groundwater monitoring be continued.
- *SA 80:* DRO continued to exceed endpoint criteria and exhibited stable concentrations in site wells. Measurable product continued to be observed in some site wells and periodic product recovery activities continued at the site; therefore, the Navy recommended that groundwater monitoring be continued.
- *South of Runway 18-36 Area:* DRO continued to exceed endpoint criteria in shoreline sediments, and total aromatic hydrocarbons (TAH) and TAqH continued to exceed endpoint criteria in two surface water protection wells; therefore, the Navy recommended that groundwater and sediment monitoring be continued as prescribed.
- *Solid Waste Management Unit (SWMU) 11:* Because the summation of polychlorinated biphenyl (PCB) Aroclor concentrations, antimony, arsenic, and nickel in sediment were consistently above the endpoint criteria at sampling location 102, the Navy recommended that sediment monitoring be continued biennially.
- *SWMU 14:* DRO and total lead continued to exceed endpoint criteria at MA-14-5 and exhibited stable trends in concentrations. GRO and dissolved lead did not exceed their respective endpoint criteria. Therefore, the Navy recommended that groundwater monitoring be continued.
- *SWMU 17:* Vinyl chloride and cis-1,2-dichloroethene remained above endpoint criteria in compliance well 05-735 but exhibited statistically significant decreasing concentrations. The Navy recommended that groundwater monitoring be continued.
- *SWMU 25:* Groundwater collected did not exceed any endpoint criteria, but several surface water samples exceeded endpoint criteria for aluminum, copper, and zinc. Therefore, the Navy recommended that surface water monitoring be continued biennially.
- *SWMU 55:* Tetrachloroethylene (PCE) concentration exceeded the endpoint criteria in well 55-145, but showed statistically significant decreasing trends at the 80 and 95 percent confidence intervals (CIs) and had met the CMP secondary endpoint criterion. However, the PCE endpoint criteria exceedance and the direction of groundwater flow may still pose a threat to downgradient receptors. Therefore, the Navy recommended that sampling be continued as planned.
- *SWMU 60:* DRO, TAH, and TAqH continued to exceed endpoint criteria in various site wells and sediment. Additionally, free product continued to be observed in site wells, although at a reduced volume and frequency. Therefore, the Navy recommended that the prescribed monitoring be continued, and that a remedy evaluation be conducted to address impacted soil and sediment adjacent to South Sweeper Creek near monitoring well 652 and sediment location 852.
- *SWMU 61:* The Navy recommended that groundwater monitoring and shoreline inspection for visible evidence of contamination be continued biennially as prescribed to allow time for the remedy of MNA to be effective.

- *SWMU 62:* The Navy recommended that groundwater monitoring be continued at Sandy Cove Housing Area based on the continued exceedance of the DRO endpoint criterion. At the Eagle Bay Housing Area, the six monitoring wells installed in 2016 in the removal action area were recommended to be included in the LTM program to monitor the progress of the remediation in that part of the site. Well RW-303-13 was removed in 2016 and the Navy recommended that well MW-62-16-01 serve as a replacement monitoring location in 2017.
- *Tanker Shed, UST 42494:* Because DRO concentrations remain above the endpoint criterion in three of the currently monitored site wells, the Navy recommended that monitoring be continued as prescribed.

2017: During this 2017 monitoring event, groundwater, surface water, and sediment samples were collected from 39 monitoring locations at three petroleum-release sites. In addition, product thickness and depth to water measurements were performed at 48 locations from these sites. Sampling was not conducted at any landfill in 2017 (all have reduced frequency of monitoring and, at the minimum, monitoring is conducted biennially).

Based on the 2017 monitoring program results, the following recommendations are presented:

- *Area 303/GCI Compound:* Because numerous wells continue to exceed endpoint criteria for DRO, GRO, benzene, total and dissolved lead, and ethylbenzene, the Navy recommended that prescribed groundwater monitoring be continued in 2018. Analysis of dibenz(a,h)anthracene had been conducted in three wells (MW-3030-30, MW-303-31, and MW-303-38) for 5 consecutive years with no detections reported for this analyte. Therefore, the Navy recommended that sampling for this compound be discontinued.
- *Former Power Plant, Bldg. T-1451:* DRO and TAqH continued to exceed endpoint criteria in groundwater in various site wells. Additionally, recoverable free product continued to be observed in several site wells. Because of this, the Navy recommended that prescribed monitoring be continued in 2018. The two monitoring wells installed in 2016 as part of the removal action area were recommended to be continued to be included in the LTM program to monitor the progress of the remediation in that part of the site.
- *SWMU 62:* Because DRO exceeded endpoint criteria in groundwater in various site wells with the continued occurrence of intermittent free product, the Navy recommended that the six monitoring wells installed in 2016 in the SWMU 62 removal action area be included in the LTM program, and that the groundwater, surface water, and sediment monitoring at this site be continued as prescribed.

2018: Groundwater, surface water, and sediment samples were collected from 123 monitoring locations at 19 sites. Product thickness and depth to water measurements were performed at 159 locations from these sites. Based on the previous monitoring results, the monitored natural attenuation remedies appeared to be effective and biodegradation appeared to be occurring to varying degrees at all of the monitored natural attenuation sites. Monitoring for NAPs had been reduced from annually to every 4 to 6 years to coincide with the next Five-Year Review, and was conducted during this report.

Based on the 2018 monitoring program results, the following recommendations were presented:

- *Area 303/GCI Compound:* The Navy recommended that sampling be discontinued at six wells (03-103, 04-204, 04-701, AMW-704, MW-303-31, and MW-303-03-33) based on the lack of reported detections for at least three consecutive monitoring events above endpoint criteria. Because the remaining wells continue to exceed endpoint criteria, the Navy recommended that groundwater monitoring be continued.
- *Former Power Plant, Bldg. T-1451:* DRO and TAqH continued to exceed endpoint criteria in groundwater in various site wells. Additionally, recoverable free product continued to be observed in several site wells. Because of this, the Navy recommended that prescribed monitoring be continued in 2019. Two monitoring wells installed in 2016 in the removal action area should continue to be included in the LTM program to assess the progress of the remediation in that part of the site.
- *Housing Area (Arctic Acres):* Because DRO concentrations remained at or above the endpoint criterion in the currently monitored site wells, the Navy recommended that groundwater monitoring be continued as prescribed.
- *NMCB Bldg. T-1416:* Because free gasoline-range product continued to be observed in several on-site wells, the Navy recommended that groundwater monitoring be continued at this site biennially. Groundwater monitoring should recommence at well NMCB-10 biennially (discontinue its replacement well 02-455). Surface water protection monitoring should continue at wells NMCB-11, 02-453, and 02-818. Because measurable free product had not been detected since 2010, the Navy recommended that product thickness and depth to water measurements at five wells (02-452, 02-478, 02-479, 02-817, and 02-819) be discontinued.
- *ROICC Contractor's Area, UST ROICC-7:* Benzene concentrations remained above the endpoint criterion in the currently monitored site wells; therefore, the Navy recommended that monitoring be continued as prescribed. The Navy would consider adding well 08-175 to the LTM sampling program in 2020 to monitor groundwater downgradient of well 08-200.
- *SA 79:* DRO concentrations remained at or above endpoint criterion; therefore, the Navy recommended that groundwater monitoring be continued.
- *SA 80:* The DRO concentration was shown to exhibit an increasing trend in well 04-158; however, the concentration trends were stable at wells 04-173 and SP4-3 and decreasing at well 04-159. Measurable product continued to be observed in some site wells and periodic product recovery activities continued at the site. Additionally, strong evidence was present that MNA was occurring in groundwater at the site. The Navy recommended that groundwater monitoring be continued.
- *South of Runway 18-36 Area:* DRO continued to exceed endpoint criteria in shoreline sediments, and TAH and TAqH continued to exceed endpoint criteria in two surface water protection wells. The Navy recommended that groundwater and sediment monitoring be continued as prescribed.
- *SWMU 11:* Because the summation of PCB Aroclor concentrations, antimony, arsenic, and nickel in sediment were consistently above the endpoint criteria at sampling location 102, the Navy recommended that sediment monitoring be continued biennially.
- *SWMU 13:* Because the observance of arsenic and barium concentrations remained below endpoint criteria, the Navy recommended that sampling for target dissolved and total metals (arsenic and barium), as well as methane, be discontinued as no measurable levels have been detected in the past 10 years.

- *SWMU 14:* DRO, GRO, and total and dissolved lead did not exceed their respective endpoint criteria during this event; however, they had in other recent sampling events. Therefore, the Navy recommended that groundwater monitoring be continued.
- *SWMU 17:* The Navy recommended that sampling be discontinued at the site.
- *SWMUs 18/19:* No dissolved or total metals included in the target analyte list for the site were detected in surface water and in groundwater above the endpoint criteria. The Navy recommended that sampling for target dissolved and total metals (arsenic, barium, chromium, and nickel) be continued every 5 years. In addition, the Navy recommended that measurement of methane be discontinued as no measurable levels had been detected in the past 10 years.
- *SWMU 25:* The Navy recommended that volatile organic compounds (VOCs) monitoring be discontinued in surface water and groundwater because VOCs have not been detected above detection limits since 1999. However, so that potential contamination sources to surface water continue to be monitored, the Navy recommended that monitoring be reduced but continued in four wells every 5 years, surface water monitoring for metals be continued biennially, and methane monitoring be discontinued.
- *SWMU 55:* Results were similar as 2016; therefore, the Navy recommended that sampling be discontinued at the site.
- *SWMU 60:* Results were similar as 2016; therefore, the Navy recommended that monitoring be continued and that three new wells (656, 657, and 658) installed in 2017 be added as part of the site investigation to the monitoring schedule with analysis for DRO, TAH, and TAqH.
- *SWMU 61:* The Navy recommended that groundwater monitoring and shoreline inspection for visible evidence of contamination be continued biennially as prescribed to allow time for the remedy of MNA to be effective. The Navy also considered the relative priority of conducting a remedy evaluation to address impacted groundwater adjacent to North Sweeper Creek.
- *SWMU 62:* At Sandy Cove Housing Area, the Navy recommended that groundwater monitoring be continued except at well 03-619 because the DRO concentration at that well had not exceeded endpoint criterion for the last 10 sampling events. At the Eagle Bay Housing Area, the Navy recommended that groundwater, surface water, and sediment monitoring be continued.
- *Tanker Shed, UST 42494:* The Navy recommended that monitoring be continued because DRO concentrations remained above the endpoint criterion in three of the site wells.

The 2018 natural attenuation data indicated that anaerobic biodegradation of petroleum hydrocarbons is likely occurring by iron (II) reduction, sulfate reduction, and methanogenesis at all sites. Water quality parameters collected during the 2018 LTM event support evidence of continued natural attenuation as shown by the reducing environment (low or negative oxidation-reduction potential [ORP]) and depleted oxygen (0.00 milligram per liter [mg/L]) at certain areas within the plume. As required by the CMP, NAPs are next scheduled to be measured at the sites in 2024.

2019: Groundwater, surface water, and sediment samples were collected from 40 monitoring locations at four sites during the 2019 monitoring event. In addition, product thickness and depth to water measurements were performed at 50 locations at these sites.

Based on the 2019 monitoring program results, the recommendations were presented as follows:

- *Area 303/GCI Compound:* No target analytes were detected above endpoint criteria for at least three consecutive monitoring events at wells MW-303-38 and MW-303-44. The Navy recommended that sampling at these locations be discontinued. Benzene had not been detected above endpoint criteria at wells 03-107 and MW-303-42, and GRO at well 03-518 for at least three consecutive events. The Navy recommended that sampling for these analytes at these locations ne discontinued. Because 14 remaining wells have not met the endpoint criteria, the Navy recommended that the prescribed groundwater monitoring be continued in 2020.
- *Former Power Plant, Bldg. T-1451:* No target analytes were detected above endpoint criteria for at least two consecutive events at wells 01-150, MW-1451-5, MW-1451-16-01, and MW-1451-16-02. The Navy recommended that sampling at these locations be discontinued. DRO and TAqH continued to exceed endpoint criteria in groundwater in various site wells. Additionally, recoverable free product continued to be observed in several site wells. The Navy recommended that the prescribed monitoring be continued in 2020.
- *SWMU 60:* DRO, TAH, and TAqH continued to exceed endpoint criteria in various site wells and sediment. Additionally, free product continued to be observed in site wells, although at a reduced volume and frequency. The Navy recommended that the prescribed monitoring be continued in 2020.
- *SWMU 62:* Because DRO was not detected above endpoint criteria for three consecutive events at MW-62-16-01, the Navy recommended that sampling at this location be discontinued. Because DRO exceeded endpoint criteria for groundwater in various site wells and with the continued intermittent occurrence of free product, the Navy recommended that five remaining monitoring wells (MW-62-16-02 and MW-62-16-04 through MQ-62-16-07) installed at the site in 2016 be continued to be included in the LTM program, and that the groundwater, surface water, and sediment monitoring at this site be continued as prescribed.

The following subsections focus on the three sites identified in the fourth Five-Year Review as will be protective (SMWU 60 Tank Farm A, SWMU 62 New Housing Fuel Leak Area, and Former Power Plant Bldg. T-1451), as well as Area 303/GCI Compound because it encompasses SWMU 62.

1.1.1 SWMU 60, Tank Farm A

During the 2017 SSC event, quantitative laboratory analyses were conducted on 25 subsurface soil samples collected from 17 locations. DRO concentrations exceeded the preliminary remediation goal (PRG) of 230 milligram per kilogram (mg/kg) at 12 locations and ranged from 250 to 8,300 mg/kg. Detected concentrations of DRO in the seven sediment samples collected ranged from 310 mg/kg to 11,000 mg/kg. No surface soil samples were collected. Nine groundwater samples were collected from nine locations at the site. DRO, benzene, ethylbenzene, TAH, and TAqH exceeded their respective PRGs in the collected groundwater samples. DRO concentrations exceeded the PRG of 1,500 micrograms per liter (µg/L) at five locations and ranged from 1,500 µg/L at MW-656 to 4,600 µg/L at MW-652. Benzene was measured at a concentration of 6.2 µg/L in one well, exceeding the PRG of 4.6 µg/L. Ethylbenzene was measured above the PRG of 15 µg/L at three wells with concentrations of 32 µg/L, 40 µg/L, and 28 µg/L, respectively. These were the only BTEX constituents measured during the event that exceeded PRGs. TAH concentrations exceeded the PRG of 10 µg/L in samples from four wells. TAqH exceeded the PRG of 15 µg/L in samples from six wells.

1.1.1.1 GROUNDWATER SAMPLE RESULTS AND FREE PRODUCT MONITORING

Four monitoring wells were sampled in 2016, five in 2018, and seven in 2019. Well 653 was not sampled in 2016 and 2019 as planned because the product thickness was greater than 0.02 foot. In 2016, groundwater samples were collected from monitoring wells 650, 651, and 652. In 2018, groundwater monitoring well 653 was sampled. In 2019, groundwater monitoring wells 656, 657, and 658 were also sampled. The groundwater samples collected were analyzed for DRO, BTEX, and polynuclear aromatic hydrocarbons (PAHs) (well LC5A sample was analyzed only for BTEX and PAHs). BTEX and PAH results were used to calculate TAH and TAqH for the samples.

In 2016, the DRO concentration for the surface water protection well 652 (5,000 µg/L) exceeded the endpoint criterion of 1,500 µg/L. DRO concentrations for the remaining surface water protection wells 650 and 651 were below the endpoint criterion. All BTEX constituents were detected below their respective endpoint criteria in wells 650, 651, 652, and LC5A. TAH and TAqH concentrations exceeded the respective water quality standards of 10 µg/L and 15 µg/L in surface protection well 651 (32 and 48 µg/L, respectively), well 652 (47 and 51 µg/L, respectively) and well LC5A (88 and 158 µg/L, respectively). The TAH and TAqH concentrations for well 650 did not exceed their respective water quality standards.

In 2018, the DRO concentrations for the surface water protection wells 650 and 652 (2,400 and 2,500 µg/L, respectively) exceeded the endpoint criterion. DRO concentrations for the remaining surface water protection wells 651 and 653 were below the endpoint criterion. Benzene was estimated above the endpoint criterion of 5 µg/L at surface water protection well 650 (8.3 µg/L). All other BTEX constituents were detected below their endpoint criteria in wells 650, 651, 652, 653, and LC5A. TAH and TAqH concentrations exceeded the respective water quality standards in surface protection well 651 (62 and 95 µg/L, respectively), well 652 (73 and 133 µg/L, respectively), well 653 (18 and 19 µg/L, respectively), and well LC5A (41 and 84 µg/L, respectively). The TAH and TAqH concentrations for well 650 did not exceed the respective water quality standards.

In 2019, the DRO concentration for the surface water protection wells 650 and 652 (6,520 and 6,110 µg/L, respectively) exceeded the endpoint criterion. Figure 4-1 in the main document shows the 2019 sample locations and analytical results exceeding endpoint criteria at the site. DRO concentrations for the remaining wells were below the endpoint criterion. Ethylbenzene was detected above the endpoint criterion of 15 µg/L at surface water protection well LC5A (39.0 µg/L). No other BTEX constituents were detected above their respective endpoint criteria in wells 650, 651, 652, 656, and 658. TAH and TAqH concentrations exceeded the respective water quality standards in surface water protection well 651 (21 and 34 µg/L, respectively), well 652 (20 and 22 µg/L), and well LC5A (59 and 120 µg/L). The TAH and TAqH concentrations for wells 650, 656, 657, and 658 did not exceed the respective water quality standards.

Depth to water and product thickness measurements were collected at five monitoring wells in 2016 and 2018 and five monitoring wells in 2019. The water level data indicate that the direction of groundwater flow is to the east toward Sweeper Creek. A shoreline inspection was performed annually from the mouth of South Sweeper Creek along the western shoreline, upstream to the top of Sweeper Creek Lagoon. Each monitored year, two petroleum seeps were observed. One petroleum seep is located in South Sweeper Creek on the western shoreline of the lagoon downgradient of SWMU 60. The area of shoreline affected by the seep is approximately 16 feet by 5 feet in area and located north and adjacent to the culvert. This seep is characterized by oily sediments, a sheen on surface water, and a slight to heavy petroleum odor. A second smaller seep and area with sheen approximately 4 feet by 3 feet in area was observed inside of the north end of Boom 10 (location 852).

1.1.1.2 SEDIMENT SAMPLING RESULTS

A sediment sample was collected at the seep location 852 and analyzed for petroleum hydrocarbons (DRO) to determine if natural recovery is progressing. Surface water sampling at location 852 was discontinued after 2014 because no endpoint criteria had been exceeded for three consecutive sampling events. A heavy petroleum odor and petroleum sheen was observed at sediment sample location 852. Each year that sediment was sampled at location 852, DRO was detected at a level that exceeded the endpoint criterion of 90.6 mg/kg (Table 1). In 2019, DRO exceeded the endpoint criterion at a concentration of 63,900 mg/kg, which is a significant increase compared to prior results.

Table 1: Analytical Results for Sediment at SWMU 60

Location	Year	DRO (mg/kg)
852 Downgradient	2016	**2,100 DY**
	2017	NP
	2018	**1,900 DY**
	2019	**63,900 D**
Endpoint Criteria		90.6

Note: **Bold text** indicates reported concentration is greater than the endpoint criteria.
D The reported result is from a dilution.
DRO diesel range organics
mg/kg milligram per kilogram
NP not planned
Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.

1.1.1.3 NATURAL ATTENUATION ASSESSMENT

Collection of NAPs at this site last occurred during the 2018 monitoring event. The 2018 data indicated that anaerobic biodegradation of petroleum hydrocarbons is likely occurring by iron (II) reduction; sulfate reduction; and strong evidence of methanogenesis which followed aerobic natural attenuation, as shown by elevated carbon dioxide levels and depleted oxygen levels. Statistical trend evaluations are conducted only for target analyte concentrations in groundwater for analytes that exceeded endpoint criteria within the last two sampling events. A minimum of four data points is required for the analysis. The trend analyses for three wells are:

- *Well 650:* The benzene concentration exhibits a decreasing trend at the 80 percent CI. However, the Sen's evaluation does not indicate a statistically significant downward trend. The DRO concentration is stable with no trend at 80 and 95 percent CIs.
- *Well 652:* The DRO concentration is stable with no trend at the 80 and 95 percent CIs.
- *Well LC5A:* The ethylbenzene concentration is stable with no trend at the 80 and 95 percent CIs.

1.1.2 Area 303/GCI Compound (UST GCI-1)

1.1.2.1 GROUNDWATER SAMPLE RESULTS AND FREE PRODUCT MONITORING

Depth to water and product thickness measurements were collected at 33 monitoring wells in 2016, 29 monitoring wells in 2017 and 2018, and 23 monitoring wells in 2019. The water level data indicate that the direction of groundwater flow is to the west toward East Canal.

In 2016, the groundwater samples collected from 18 of the 20 designated monitoring wells were analyzed for GRO. In addition, samples from five wells were analyzed for total and dissolved lead,

samples from two wells were analyzed for benzene, samples from seven wells were analyzed for BTEX, samples from three wells were analyzed for dibenz(a,h)anthracene, and samples from seven wells were analyzed for DRO. Samples from surface water protection well RW-303-14, which was selected to replace 03-012 for surface water protection monitoring, and well MW-303-37 were analyzed for BTEX and PAHs for the calculation of TAH and TAqH. Well 03-012 was scheduled for sampling; however, the well was removed during the 2016 removal action at SWMU 62. Wells 03-518, 04-202, MRP-MW3, and MW-303-30 were not sampled due to the presence of free product in the well at the time of sampling (0.10 feet, 0.03 feet, 0.14 feet, and 0.04 feet, respectively).

GRO was detected at concentrations above the endpoint criterion of 2,200 µg/L in groundwater collected from 10 of 18 wells sampled, with the highest concentration at 26,000 µg/L (at well MW-303-42). Benzene was detected at concentrations above the endpoint criterion of 5 µg/L in two wells, MW-303-38 (44 µg/L) and MRP-MW2 (71 µg/L). Concentrations of toluene, ethylbenzene, total xylenes, and dibenz(a,h)anthracene did not exceed endpoint criteria in any well sampled for these target analytes. Total and dissolved lead were detected at concentrations above the endpoint criterion of 15 µg/L in groundwater from three wells: 03-107 (42.6 µg/L and 43.3 µg/L, respectively), MW-303-28 (67.0 µg/L and 65.3 µg/L, respectively), and MW-303-38 (30.2 µg/L and 29.5 µg/L, respectively). TAH and TAqH were calculated for samples collected from two surface water protection wells, MW-303-37 and RW-303-14, which are located in close proximity upgradient of East Canal. TAH and TAqH did not exceed Alaska Department of Environmental Conservation (ADEC) water quality standards in either well. DRO was detected at concentrations above the endpoint criterion of 1,500 µg/L in groundwater collected from three wells: 03-104 (5,300 µg/L), 03-778 (1,600 µg/L), and MRP-MW2 (3,200 µg/L).

In 2017, the groundwater samples collected from 20 monitoring wells were analyzed for GRO. In addition, samples from eight wells were analyzed for DRO, samples from nine wells were analyzed for BTEX, samples from two wells were analyzed for benzene only, samples from six wells were analyzed for total and dissolved lead, and samples from three wells were analyzed for dibenz(a,h)anthracene. Samples from surface water protection well MW-303-37 and MW-62-16-03 were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) and PAHs for the calculation of TAH and TAqH. Wells 04-202, and MRP-MW3 were not sampled due to the presence of free product in the wells at the time of sampling (0.04 and 0.02 foot, respectively).

GRO was detected at concentrations above the endpoint criterion of 2,200 µg/L in groundwater collected from 9 of 20 wells sampled, with the highest concentration at 27,000 µg/L (at well MW-303-42). Benzene was detected at a concentration above the endpoint criterion of 5 µg/L in the sample from one well, MRP-MW2 (81 µg/L). Ethylbenzene was detected at a concentration above the endpoint criteria of 700 µg/L in one well, MW-303-30 (1,700 µg/L). Concentrations of toluene, total xylenes, and dibenz(a,h)anthracene did not exceed endpoint criteria in any well sampled for these target analytes. DRO was detected at concentrations above the endpoint criterion of 1,500 µg/L in groundwater collected from four wells: 03-104 (5,800 µg/L), 03-778 (1,700 µg/L), and MRP-MW2 (3,300 µg/L) in the northern part of the plume, and well 03-518 (15,000 µg/L) near the southern part of the plume. Total and dissolved lead were detected at concentrations above the endpoint criterion of 15 µg/L in groundwater from two wells, 03-107 (54.9 µg/L and 54.2 µg/L, respectively) and MW-303-28 (27.6 µg/L and 27.1 µg/L, respectively). TAH and TAqH were calculated for samples collected from two surface water protection wells, MW-303-37 and MW-62-16-03, which are located in close proximity upgradient of the East Canal. TAH and TAqH did not exceed ADEC water quality standards in either well.

In 2018, the groundwater samples collected from 21 monitoring wells were analyzed for GRO. In addition, samples from 8 wells were analyzed for DRO, samples from 10 wells were analyzed for BTEX, samples from 2 wells were analyzed for benzene only, and samples from 7 wells were analyzed for total and dissolved lead. Samples from surface water protection well MW-303-37 and MW-62-16-03 were analyzed for BTEX and PAHs for the calculation of TAH and TAqH. Free product was detected in one well (04-202) with a product thickness of 0.01 foot at this site in 2018.

GRO was detected at concentrations above the endpoint criterion of 2,200 µg/L in groundwater collected from 10 of 21 wells sampled, with the highest concentration at 16,000 µg/L (at well MW-303-30). Benzene was detected at a concentration above the endpoint criterion of 5 µg/L in the sample from one well, MRP-MW2 (36 µg/L). Ethylbenzene was detected at a concentration above the endpoint criterion of 700 µg/L in two wells, MRP-MW3 (1,500 µg/L) and MW-303-30 (1,100 µg/L). Concentrations of toluene and total xylenes did not exceed endpoint criteria in any well sampled for these target analytes. DRO was detected at concentrations above the endpoint criterion of 1,500 µg/L in groundwater collected from five wells: 03-104 (3,300 µg/L), 03-778 (1,900 µg/L), MRP-MW2 (2,800 µg/L), and MRP-MW3 (5,100 µg/L) in the northern part of the plume, and well 03-518 (4,400 µg/L) near the southern part of the plume. Total lead and dissolved lead were detected at concentrations above the endpoint criterion of 15 µg/L (each) in groundwater from three wells, MRP-MW3 (51.6 µg/L and 47.9 µg/L, respectively), MW-303-28 (40.2 µg/L and 37.3 µg/L, respectively), and MW-303-30 (50.3 µg/L and 52.8 µg/L, respectively). TAH and TAqH were calculated for samples collected from two surface water protection wells, MW-303-37 and MW-62-16-03, which are located in close proximity upgradient of East Canal. ADEC water quality standards for TAH and TAqH exceeded the endpoint criteria of 10 µg/L and 15 µg/L, respectively, in MW-62-16-03 (300 µg/L and 300 µg/L, respectively). TAH and TAqH did not exceed ADEC water quality standards in well MW-303-37.

In 2019, the groundwater samples collected from 15 monitoring wells were analyzed for GRO. Additionally, samples from seven wells were analyzed for DRO, samples from seven wells were analyzed for BTEX, samples from two wells were analyzed for benzene only, and samples from six wells were analyzed for total and dissolved lead. Samples from surface water protection wells MW-303-37 and MW-62-16-03, were analyzed for BTEX and PAHs for the calculation of TAH and TAqH. Free product was detected in one well (04-202) with a product thickness of 0.04 foot at this site in 2019. Figure 4-2 in the main document shows the 2019 sample locations, analytical results exceeding endpoint criteria and the estimated extent of endpoint criteria exceedance at the site.

GRO was detected at concentrations above the endpoint criterion of 2,200 µg/L in groundwater collected from 9 of 15 wells sampled, with the highest concentration at 16,800 µg/L (at well MRP-MW2). Benzene was detected at a concentration above the endpoint criterion of 4.6 µg/L in the sample from one well, MRP-MW2 (60.2 µg/L). Ethylbenzene was detected at a concentration above the endpoint criterion of 15 µg/L in five wells, with the highest concentration at 1,080 µg/L (at well MRP-MW2). Total xylenes were detected at a concentration above the endpoint criterion of 190 µg/L in five wells, with the highest concentration at 4,400 µg/L (at well MRP-MW2). Concentrations of toluene did not exceed endpoint criteria in any well sampled for this target analyte. DRO was detected at concentrations above the endpoint criterion of 1,500 µg/L in groundwater collected from three wells in the northern part of the plume, 03-104 (1,510 µg/L), MRP-MW2 (2,780 µg/L), and MRP-MW3 (2,570 µg/L), and one well near the southern part of the plume, 03-518 (3,650 µg/L). Total lead and dissolved lead were detected at concentrations above the endpoint criterion of 15 µg/L (each) in groundwater from three wells, 03-107 (22.2 µg/L and 20.2 µg/L, respectively), MW-303-28 (29.62 µg/L and 25.2 µg/L, respectively), and MW-303-30 (20.1 µg/L and 19.1 µg/L, respectively). Additionally, dissolved lead from well MRP-MW3 (15.1 µg/L) was slightly above the endpoint

criterion while total lead (15.0 µg/L) did not exceed endpoint criterion. TAH and TAqH were calculated for samples collected from two surface water protection wells, MW-303-37 and MW-62-16-03, which are located in close proximity and upgradient of East Canal. ADEC water quality standards for TAH and TAqH exceeded the endpoint criterion of 10 µg/L and 15 µg/L, respectively, in MW-62-16-03 (1,260 µg/L and 1,270 µg/L, respectively). TAH and TAqH did not exceed ADEC water quality standards in well MW-303-37.

The northeastern shoreline of East Canal was inspected from the north end of East Canal south to the location of the former SWMU 62, New Housing Fuel Leak Area recovery trench. East Canal at this location is heavily vegetated and marshy. The pre-existing petroleum seep along the East Canal shoreline was remediated by the Navy in 2016. No seeps or petroleum sheen were observed at the time of inspection during each monitoring event. Iron staining and bio-sheen were observed along East Canal in the removal action area.

1.1.2.2 Natural Attenuation Assessment

Collection of NAPs at the site wells was last performed during the 2018 monitoring event. The 2018 data indicated that anaerobic biodegradation of petroleum hydrocarbons is likely occurring by iron (II) reduction, sulfate reduction, and methanogenesis, which followed aerobic natural attenuation, as shown by elevated carbon dioxide levels and depleted oxygen levels. Water quality parameters collected during the annual LTM events support evidence of continued natural attenuation, as shown by the reducing environment (low or negative ORP) and depleted oxygen (less than 1.0 mg/L) at certain areas within the plume. Trend evaluation was conducted at the site.

The following are the results of the latest 2019 statistical evaluation:

- *Well 03-104:* The DRO concentration exhibits a decreasing trend at the 80 percent CI. The Sen's evaluation also indicates a statistically significant decreasing trend, with a median slope of -454 µg/L per year.
- *Well 03-107:* The GRO, total lead, and dissolved lead concentrations exhibit no trend at both the 80 and 95 percent CIs with the coefficients of variation indicating stable concentrations.
- *Well 03-518:* The DRO concentration exhibits a decreasing trend at the 80 percent CI. However, the Sen's evaluation does not indicate a statistically significant downward trend. The ethylbenzene concentration exhibits no trend at both the 80 and 95 percent CIs with the coefficients of variation indicating a stable concentration.
- *Well 03-778:* The DRO concentration exhibits no trend at both the 80 and 95 percent CIs with the coefficients of variation indicating a stable concentration.
- *Well 04-210:* The GRO concentration exhibits a decreasing trend at the 80 percent CI. However, the Sen's evaluation does not indicate a statistically significant downward trend.
- *Well 04-211:* The GRO concentration exhibits a decreasing trend at the 80 percent CI. However, the Sen's evaluation does not indicate a statistically significant downward trend.
- *Well 04-213:* The GRO concentration exhibits no trend at both the 80 and 95 percent CIs with the coefficients of variation indicating a stable GRO concentration.
- *Well MRP-MW2:* The GRO and ethylbenzene concentrations exhibit an increasing trend at both the 80 and 95 percent CIs, and the DRO concentration exhibits an increasing trend at the 80 percent CI. The benzene concentration exhibits no trend at both the 80 and 95 percent CIs with the coefficients of variation indicating a stable benzene concentration. This well is nested

with MRP-MW3 and located within the northern portion of the contaminant plume. Well MRP-MW2 is the deeper well completed in the regional aquifer. Well MRP-MW3 (discussed below) is completed within the shallow perched aquifer.

- *Well MRP-MW3:* The GRO concentration exhibits a decreasing trend at both the 80 and 95 percent CIs. The ethylbenzene concentration exhibits a decreasing trend at the 80 percent CI. The Sen's evaluation was not calculated for GRO or ethylbenzene for this well because the evaluation requires no more than 2 years between consecutive sampling events. The DRO, total lead, and dissolved lead concentrations exhibit no trend at both the 80 and 95 percent CIs with the coefficients of variation indicating stable concentrations.
- *Well MW-303-28:* The GRO and total lead concentrations exhibit no trends at both the 80 and 95 percent CIs with the coefficients of variation indicating stable concentrations. The dissolved lead concentration exhibits a decreasing trend at the 80 percent CI. However, the Sen's evaluation does not indicate a statistically significant downward trend.
- *Well MW-303-30:* The GRO, ethylbenzene, total lead, and dissolved lead concentrations exhibit no trend at either the 80 or 95 percent CIs with the coefficients of variation indicating stable concentrations.
- *Well MW-303-42:* The GRO concentration exhibits no trend at either the 80 or 95 percent CIs with the coefficients of variation indicating a stable concentration.
- *Well MW-303-43:* The GRO concentration exhibits no trend at either the 80 or 95 percent CIs with the coefficients of variation indicating a stable concentration.

1.1.3 SWMU 62, New Housing Fuel Leak Area

1.1.3.1 Groundwater Sample Results and Free Product Monitoring

Depth to water and product thickness measurements were collected at 25 monitoring wells in 2016 (8 at Sandy Cove area and 17 at Eagle Bay), 6 monitoring wells in 2017, 31 monitoring wells in 2018 (8 at the Sandy Cove area and 23 at the Eagle Bay Housing Aera), and 6 monitoring wells at the Eagle Bay Housing Area in 2019. The water level data indicate that the direction of groundwater flow in the main aquifer beneath the site is to the west-southwest beneath Sandy Cove and to the west toward East Canal beneath the Eagle Bay.

In 2016, eight wells were sampled for petroleum contaminants in both areas of the site (six at Sandy Cove and two surface water protection wells in Eagle Bay). Free product was detected in one well and was not sampled (RW-303-16 in Eagle Bay, which was also decommissioned after remediation). At Sandy Cove Housing, DRO was detected at concentrations above the endpoint criterion in groundwater collected from five of the six wells sampled, ranging from 2,100 µg/L (well 03-155) to 13,000 µg/L (well MW-146-1). At Eagle Bay Housing, one of the two wells sampled (MW-303-7) had a DRO concentration above the endpoint criterion at 13,000 µg/L. DRO did not exceed the endpoint criterion in well AMW-704.

In 2017, the six wells in the Eagle Bay Housing Area were scheduled to be sampled per the CMP. Free product was observed in one well (MW-62-16-07) which was therefore not sampled. Groundwater samples collected from Eagle Bay removal action area wells were analyzed for DRO, GRO, and BTEX. This was the first year of sampling these wells under the LTM program. DRO was detected at concentrations above the endpoint criterion in groundwater collected from three wells (MW-62-16-02 with 3,100 µg/L, MW-62-16-04 with 2,900 µg/L, and MW-62-16-06 with 3,800 µg/L). GRO and BTEX were not detected above endpoint criteria in any well sampled.

In 2018, 14 wells were sampled for petroleum contaminants in both areas of the site (6 at Sandy Cove and 8 at Eagle Bay). Free product was observed in one well (MW-62-16-07) and was not sampled. At Sandy Cove Housing, DRO was detected at concentrations above the endpoint criterion of 1,500 µg/L in groundwater collected from five of the six wells sampled, ranging from 2,500 µg/L (well MW-107-1) to 9,800 µg/L (well MW-134-11). At Eagle Bay Housing, DRO was detected at concentrations above the endpoint criterion in groundwater collected from five of the eight wells sampled, ranging from 1,700 µg/L (well MW-62-16-02) to 13,000 µg/L (well MW-303-7).

In 2019, free product was observed in two wells and consequently were not sampled (MW-62-16-05 and MW-62-16-07). DRO was detected at a concentration above the endpoint criteria of 1,500 µg/L in groundwater collected from one of the four wells sampled, well MW-62-16-06 (5,140 µg/L). Figure 4-2 in the main document shows the 2019 sample locations, analytical results exceeding endpoint criteria, and the estimated extent of free product and endpoint criteria exceedances at the site.

A visual inspection of the East Canal shoreline was conducted to identify potential petroleum migration from groundwater to East Canal. The eastern shoreline of East Canal was inspected from SWMU 62 shoreline removal action area to the culvert at the location of Boom 9 downgradient from the Former Power Plant, Bldg. T-1451 site. The previously documented large petroleum seep into East Canal was remediated in 2016. No seeps or petroleum sheen were observed in 2016, 2017, and during the last conducted inspection in 2018. Iron staining and bio-sheen was observed along East Canal during each inspection.

To assess the effectiveness of the sorbent booms maintained in East Canal, one surface water and one sediment sample were collected, downgradient of the free product recovery trench (removed in 2016) and booms. The area around location NL-09 was reworked and covered with several feet of amended fill in 2016 as part of the SWMU 62 shoreline removal action. The monitoring location was moved to the relatively undisturbed channel bottom area just downstream of the Boom 3 location, which is located downstream of the 2016 removal action. The new location (NL-09B) will provide a baseline for future performance monitoring of the removal action site. Surface water and sediment were collected at this new location.

1.1.3.2 Surface Water and Sediment Sampling Results

Surface water was collected at East Canal location NL-09B in 2016 and 2018, and was analyzed for DRO, GRO, BTEX and PAHs (for calculation of TAH and TAqH). Because risk-based criteria have not been established for this site, surface water results were compared to the South of Runway 18-36 endpoint criteria and State of Alaska surface water criteria. The concentrations for DRO in 2016 (480 µg/L) and 2018 (330 µg/L) in the surface water sample collected at location NL-09B were above endpoint criterion of 250 µg/L. Concentrations for GRO, TAH, and TAqH were below endpoint criteria during both sampling events.

The sediment sample at location NL-09B was analyzed for DRO. Because risk-based criteria have not been established for this site, sediment results were compared to the South Sweeper Creek endpoint criteria. Table 2 presents the sediment analytical results. The concentration for DRO in the sediment sample has been below the endpoint criterion (90.6 mg/kg) since 2016.

Table 2: Analytical Results for Sediment at SWMU 62

Location	Year	DRO (mg/kg)
NL-09	2016	52 Y
	2017	NP
	2018	22 DY
Endpoint Criteria		90.6

D The reported result is from dilution.
NP not planned
Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.

1.1.3.3 Natural Attenuation Assessment

Collection of NAPs at this site last occurred during the 2018 monitoring event to determine whether natural attenuation is occurring in groundwater and to support the Five-Year Review process. The 2018 data indicated that anaerobic biodegradation of petroleum hydrocarbons is likely occurring by iron (II) reduction, sulfate reduction, and methanogenesis. Water quality parameters, which were collected during 2019, support the evidence of continued natural attenuation as shown by the reducing environment (low or negative ORP) and depleted dissolved oxygen concentrations (less than 1.0 mg/L) within most of the removal action area. Statistical trend evaluations are only conducted for target analyte concentrations in groundwater that exceed endpoint criteria within the last two sampling events and have a minimum of four data points. Because insufficient data is available for the removal action wells, no trend analysis was performed in 2019, but Table 3 presents the results at these wells. However, sufficient data was available for statistical analysis at the Sandy Cove Housing area and the existing wells at the Eagle Bay Housing Area, and the results are the following:

Sandy Cove Housing Wells

- *Wells 03-155, MW-134-11, and MW-187-1:* The DRO concentration exhibits no trend at either the 80 or 95 percent CI. The coefficients of variation indicate the concentration is stable at each well.
- *Well MW-107-1:* The DRO concentration exhibits a decreasing trend at the 80 and 95 percent CIs. However, the Sen's slope analysis was not performed for this well, as the analysis requires no more than two years between consecutive sampling events.
- *Well MW-146-1:* The DRO concentration exhibits a decreasing trend at the 80 percent CIs. However, the Sen's slope analysis does not indicate a statistically significant decreasing trend for this well.

Eagle Bay Housing Wells

- *Wells AMW-704 and RW-303-16:* The DRO concentration exhibits no trend at either the 80 or 95 percent CIs. The coefficients of variation indicate the concentrations are stable.
- *Well MW-303-7:* The DRO concentration exhibits a decreasing trend at the 80 percent CIs. However, the Sen's slope analysis does not indicate a statistically significant decreasing trend for this well.

Table 3: Analytical Results for Petroleum-Related Chemicals at SWMU 62, New Housing Fuel Leak Area, and Removal Wells at Eagle Bay Housing Area

Well Location	Year	DRO (µg/L)
MW-62-16-01	2017	72 UJ
	2018	53 U
	2019	610 U
MW-62-16-02	2017	**3,100 J**
	2018	**1,700 Y**
	2019	762
MW-62-16-04	2017	**2,900 YJ**
	2018	1,100 Y
	2019	321 J
MW-62-16-05	2017	1,200 YJ
	2018	1,200 Y
	2019	**FP**
MW-62-16-06	2017	**3,800 YJ**
	2018	**3,400 Y**
	2019	**5,140**
MW-62-16-07	2017	**FP**
	2018	**FP**
	2019	**FP**
Endpoint criteria		1,500

Notes: **Bold text** indicates reported concentration is greater than ADEC cleanup levels for groundwater used as a drinking water source.
Data qualifier definitions are found on page ix of the 2019 LTM report.
µg/L microgram per liter
FP free product, unable to be sampled
J estimated value
NP not planned
U not detected; value shown is the quantitation limit
Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.

1.1.4 Former Power Plant, Bldg. T-1451

1.1.4.1 Groundwater Sample Results and Free Product Monitoring

In 2016, nine monitoring wells were scheduled for sampling, but free product was observed in two wells (MW-1451-1 and MW-1451-7) and samples were not collected from these wells. DRO was detected at a concentration above the endpoint criterion of 1,500 µg/L in groundwater collected from five of the nine wells sampled, with the highest concentration at well MW-1451-6 (7,300 µg/L). For the fourth consecutive sampling event, TAqH exceeded the ADEC water quality standard of 15 µg/L in groundwater collected from well MW-1451-2 (29 µg/L). The remaining TAqH concentrations were below water quality standard. TAH was below the ADEC water quality standard of 10 µg/L in all three wells for which it was calculated.

In 2017, eleven monitoring wells were scheduled for sampling, but free product was observed in two wells (MW-1451-1 and MW-1451-7) and samples were not collected from these wells. The groundwater samples collected from monitoring wells MW-1451-16-01 and MW-1451-16-02 were also analyzed for GRO and BTEX. DRO was detected at a concentration above the endpoint criterion in groundwater collected from seven of the eleven wells sampled, with the highest concentration at well 01-118 (9,600 µg/L). GRO and BTEX were not detected in groundwater sampled collected from

the two monitoring wells. For the fifth consecutive sampling event, TAqH exceeded the ADEC water quality standard in groundwater collected from well MW-1451-2 (34 µg/L). The remaining TAqH concentrations were below the water quality standard. TAH was below the ADEC water quality standard in all three wells for which it was calculated.

In 2018, eleven monitoring wells were scheduled for sampling, but free product was observed in three wells (MW-1451-1, MW-1451-6, and MW-1451-7) and samples were not collected from these wells. DRO was detected at a concentration above the endpoint criterion in groundwater collected from four of the eleven wells sampled, with the highest concentration at well 01-118 (8,700 µg/L). For the sixth consecutive sampling event, TAqH exceeded the ADEC water quality standard in groundwater collected from well MW-1451-2 (28 µg/L). The remaining TAqH concentrations were below the water quality standard. TAH was below the ADEC water quality standard in all three wells for which it was calculated.

In 2019, ten monitoring wells, one surface water location, and one sediment location were scheduled to be sampled. However, free product was observed in three wells (MW-1451-1, MW-1451-6, and MW-1451-7) and samples were not collected. Figure 4-3 in the main document shows the 2019 sample locations, analytical results exceeding endpoint criteria as well as the estimated extent of DRO Endpoint Criterion Exceedance. DRO was detected at a concentration above the endpoint criterion in groundwater collected from four of the ten wells sampled, with the highest concentration at well MW-1451-9 (3,270 µg/L). For the seventh consecutive sampling event, TAqH exceeded the ADEC water quality standard in groundwater collected from well MW-1451-2 (18 µg/L). The remaining TAqH concentrations were below the water quality standard. TAH was also below the ADEC water quality standard in all three wells for which it was calculated. Depth to water and product thickness measurements were collected at 11 monitoring wells in 2016, 13 monitoring wells in 2017 and 2019, and 14 monitoring wells in 2018. The water level data indicate that the direction of groundwater flow is to the west, toward East Canal.

A visual inspection of the East Canal shoreline from the culverts at Boom 9 south to the Crossover Canal is conducted to identify potential petroleum migration from groundwater to East Canal. No seeps or petroleum sheen were observed in 2016. No seeps or petroleum sheen were observed in the area of the 2016 removal action (former Boom 11 location) in 2017, 2018, and 2019. Iron staining and bio-sheen were observed along East Canal in 2017, 2018, and 2019. However, a small area of petroleum seepage and sheen was observed in the waterway adjacent to monitoring well MW-1451-3 in 2017. A new boom section (Boom 13) was subsequently installed in October 2017 under the petroleum recovery task order to contain this seep. A petroleum sheen was also observed between the culverts behind Boom 9. The previously documented small area of petroleum seepage and sheen observed in the waterway adjacent to monitoring well MW-1451-3 at Boom 13, was observed again in 2018 and 2019. A petroleum sheen was also observed downstream at Boom 12.

1.1.4.2 Surface Water and Sediment Sampling Results

One surface water sample and one sediment sample (NL-08) were collected downgradient of the southern-most boom (Boom 12) to determine the effectiveness of sorbent booms. No odors were noted during surface water and sediment sampling. However, in 2018 and 2019 a light petroleum sheen was observed on the surface water and in the sediment during sampling. At location NL-08, surface water was analyzed for DRO, BTEX, and PAHs for TAH and TAqH calculation, and sediment was analyzed for DRO. Because no risk-based endpoint criteria have been established for East Canal, DRO results were compared to the criteria established for South Sweeper Creek, which may or may not reflect risks associated with East Canal.

The concentration of DRO in the surface water sample collected at location NL-08 did not exceed or was at the endpoint criterion of 250 µg/L (250 µg/L in 2016 and 2018, 240 µg/L in 2019) but was above endpoint criteria in 2017 (610 µg/L). Concentrations for TAH and TAqH were below endpoint criteria. Table 4 presents the sediment analytical results. The concentration of DRO in sediment at location NL-08 was below endpoint criterion every year except in 2016 when it slightly exceeded endpoint criteria at 91 mg/kg.

Table 4: Analytical Results for Sediment at Former Power Plant, Bldg. T-1451

Location	Year	DRO (mg/kg)
NL-08	2016	**91 DY**
	2017	72
	2018	26 DY
	2019	23.2
Endpoint Criteria		90.6

Note: **Bold text** indicates reported concentration is greater than the endpoint criteria.

1.1.4.3 NATURAL ATTENUATION ASSESSMENT

Collection of NAPs at this site last occurred during the 2018 monitoring event to determine whether natural attenuation is occurring in groundwater and to support the Five-Year Review process. The 2018 data indicated that anaerobic biodegradation of petroleum hydrocarbons is likely occurring by iron (II) reduction, sulfate reduction, and methanogenesis, which followed aerobic natural attenuation, as shown by elevated carbon dioxide levels and depleted oxygen levels. Water quality parameters, which were last collected during 2019, support the evidence of continued natural attenuation as shown by the reducing environment (low or negative ORP) and depleted dissolved oxygen concentrations (less than 1.0 mg/L) at certain areas within the plume. Statistical trend evaluations are only conducted for target analyte concentrations in groundwater that exceed endpoint criteria within the last two sampling events and have a minimum of four data points. The following are the results of the 2019 statistical evaluation:

- *Well 01-118:* The DRO concentration exhibits a decreasing trend at the 80 percent CI. However, the Sen's evaluation does not indicate a statistically significant downward trend.
- *Well MA-1451-2:* The DRO concentration exhibits a decreasing trend at the 80 percent CI. However, the Sen's evaluation does not indicate a statistically significant downward trend.
- *Well MW-1451-8:* The DRO concentration exhibits no trend at the 80 or 95 percent CI with the coefficients of variation indicating the concentration is stable.
- *Well MW-1451-9:* The DRO concentration exhibits no trend at the 80 or 95 percent CI with the coefficients of variation indicating the concentration is stable.

1.2 FREE PRODUCT RECOVERY AT PETROLEUM SITES

This appendix presents a more detailed information about free product recovery that was compiled since the fourth Five-Year Review for SWMU 62 and additional sites (DON 2017b; 2018d; 2020a; 2020e).

1.2.1 SWMU 62, New Housing Fuel Leak Area

The site has achieved the OU A Record of Decision (ROD) practical endpoint for a passive recovery system as a result of the 2016 removal action, which removed the recovery trench, recovery sumps, petroleum-impacted soil, and accumulated product adjacent to East Canal. The monthly volume of

recovered product, averaged over the most recent 6 months, remained below 5 gallons per month since January 2016 and remained below the endpoint criteria for each entire reporting period. However, the requirement for the occurrence of product in the replacement monitoring wells has not met the remedial objective of less than 0.01 foot for a 1-year period. In two of the removal action monitoring wells, product was observed at greater than the ROD endpoint of 0.01 foot during the 2017, 2018, and 2019 monitoring event and in only one of the removal action monitoring well in 2020.

Per each report recommendations, the periodic monitoring and free product recovery activities at SWMU 62 decreased from 11 wells in 2017 to 7 wells (measured during 6 events per year) in 2019 and down to 6 wells in 2021. In 2018, the monitoring at the following four removal action wells (MW-62-16-01, MW-62-16-02, MW-62-16-04, and MW-62-16-06) was reduced to a quarterly schedule. In 2018, product recovery was also discontinued at well 03-518 because product was observed only twice at a trace and 0.01-foot thickness, and no product was recovered during this reporting period. Finally, in 2021 the monitoring at five wells (MW-62-16-01, MW-62-16-02, MW-62-16-04, MW-62-16-05, and MW-62-16-06) will be discontinued since no measurable free product has been detected during the 2020 reporting period.

1.2.2 Former Power Plant, Bldg. T-1451

During the free product recovery activities at Bldg. T-1451, the total volume reported every year was higher than 5 gallons during all reporting periods except in 2018. Therefore, the free product monitoring and recovery continued (6 events per year) at three wells (MW-1451-1, MW-1451-6, and MW-1451-7) but was reduced to a quarterly schedule at two removal action wells (MW-1451-16-01, and MW-1451-16-02) in 2018. Monitoring at the following wells (MW-1451-16-01, and MW-1451-16-02) was discontinued in 2020 since no free product has been detected since monitoring began in October 2016. In the 2020 report, due to the consistent occurrence of recoverable free product at Former Power Plant, Bldg. T-1451 and the emergence of pooled product along East Canal (specifically around Boom 13), the Navy is considering a remedial action to remove contaminated soil and free product hot spots to eliminate future seeps into East Canal.

1.2.3 NMCB Bldg. T-1416 Expanded Area

During the free product recovery activities at Bldg. T-1416, the total volume reported every year was below the 5 gallons limit during all reporting periods. The free product monitoring continued every year (6 events per year) starting with five wells in 2017 (02-300, 02-815, NMCB-07, NMCB-08, and NMCB-10) to four wells in 2018 (NMCB-10 was discontinued due to the lack of measurable free product since October 2016) to three wells in 2021 (02-815 was discontinued since no measurable free product has been detected during the 2020 reporting period).

1.2.4 SA 80, Steam Plant 4

During the free product recovery activities at SA 80, the total volume reported every year was below the 5 gallons limit during all reporting periods. The free product monitoring continued every year (6 events per year) at three wells (04-155, 04-157, and 04-158).

1.2.5 South of Runway 18/36 Area

During the free product recovery activities at South of Runway 18/36 Area, the total volume reported every year was well below the 5 gallons limit during all the reporting periods. The free product monitoring started with two monitoring wells in 2017 (E-216 and RW-18/36-04) but the later was quickly discontinued in 2018 due to only one occurrence of 0.01-foot thickness, and no product recovered during the 2017 reporting period.

1.2.6 SWMU 60, Tank Farm A

During the free product recovery activities at SWMU 60, the total volume reported every year was also well below the 5 gallons limit during all the reporting periods. The free product monitoring continued every year (6 events per year) starting with five wells in 2017 (652, 653, 656, 657, and 658) then reduced three of those monitoring wells to a quarterly schedule in 2019 (656, 657, and 658) before completely discontinuing them in 2021 since no measurable product has been detected during the 2020 reporting period. Only two monitoring wells (652, 653) are continuing to be monitored for free product at this site.

1.3 ANNUAL ICS TECHNICAL MEMORANDUM

Below is a detailed summary of the annual ICs Technical Memorandums that were compiled since the fourth Five-Year Review (DON 2016; 2018b; 2018e; 2020b; 2020f) to determine whether the ICs have been effective in achieving their intended purpose. Inspections were conducted in accordance with the OU A ROD, OU A ROD Amendment, OU B-1 ROD, and the CMP Revision 6 until 2018, the CMP Revision 7 in 2019, and the CMP Revision 8 in 2020.

2016: Per FCR-01, an additional three sites (North Pacific [NORPAC] Hill Seep Area; Runway 5-23 aviation gasoline (Avgas) Valve Pit; and Modified Advanced Undersea Weapons Compound, UST 24000-A) were reduced to monitoring with 5-year institutional control (IC) inspections following the 2015 ICs SI Report. During the downtown area groundwater use inspections, no indications were found for domestic potable wells being used or drilling activities for potable water wells taking place. For the Parcel 4 Sign Inspection, some signs were missing or illegible around the site; therefore, a formal inspection of signs and fencing was recommended for the 2017 event to determine if repair or replacement is warranted. In terms of Excavation Notification, no excavations were observed at any sites where excavation is prohibited. During the review, a large area in the Kuluk Bay Housing Area was observed to have surface scraping that was outside of the requested excavation area. Although the City of Adak should have completed an excavation notification for this work, the restriction in this area is no excavation below 2 feet, and the surface scraping did not exceed that depth. The unexploded ordnance (UXO) Awareness video operation is a requirement of OU B-1 ROD and applies to the entire northern section of Adak (not site-specific). The UXO Awareness video was shown to all teachers and student at school, and at the airport during the arrival and departure of the commercial flight. Additionally, maps with UXO information were distributed to agencies and businesses on Adak. In terms of Education Evaluation, 24 interviews were conducted during the inspection, which consisted of adult residents, school children, and visitors. The survey indicates the educational awareness for residents and visitors has increased slightly compared to 2015 results.

Conclusions and Recommendations: As expected, ICs appeared to be effective for children, visitors, and adult residents. Based on the findings of the September 2016 primary SIs, the following conclusions and recommendations were presented:

- *Downtown Area Groundwater Use:* No recommendations, all ICs appeared to be functioning as intended. Findings from the 2017 IC inspections will be used to determine if repair or replacement of signs and fencing along Parcel 4 is warranted.
- *Excavation Restrictions:* One unauthorized excavation was observed during the reporting period. Although an excavation request for permit should have been completed for this work, the excavation did not exceed 2 feet. The City Manager expressed interest in being included in the excavation notification process during the Restoration Advisory Board held in October 2016. The Navy committed to update the excavation notification process in the Institutional

Control Management Plan (ICMP) to include coordination with the City and to follow up with the dig permit holders upon completion of work.

- *UXO Awareness Video:* No recommendations were made.
- *Education Program:* Based on the survey information, the education program appeared to be effective because most of the resident population and visitors interviewed were aware of most portions of the program. The Navy will continue to improve the program to increase IC awareness, including the following: i) possibly showing the Airport UXO Awareness video on the local TV channel 6, ii) possibly posting IC awareness material at other public spaces such as Pier-5 and the small boat harbor.

2017: This ICs SI Report included evaluation of additional sites only inspected biennially as well as OU B-1 sites. Because it has been shown that ICs have generally remained effective since 2005, reductions to the monitoring program began in 2013. Twenty sites have only had periodic minor observable findings during annual IC inspections. Therefore, monitoring at these sites was reduced to a biennial schedule starting in 2013. For the remaining 32 sites, very few or no findings have been observed since 2005, and groundwater monitoring has met endpoint criteria. Therefore, monitoring at these sites was reduced to once every 5 years; with 5-year IC inspections occurring in 2014 and 2019 (2 years prior to the Five-Year Review) to coincide with the Five-Year Review process. The same activities as earlier annual ICs inspections were conducted during the 2017 inspections (UXO Awareness video only at the airport) and additional inspections of downtown area and remote area sites were conducted at a total of 19 sites, 7 landfills, Parcel 4 and other areas of interest. The following actions were recommended based on the findings of the primary SIs conducted in September 2017:

- *Excavation Restrictions:* No unauthorized excavations were reported or observed during the 2017 inspection. Therefore, excavation restriction ICs appeared to be functioning as intended. The Navy will continue to improve the excavation restriction program by determining if a provision to the excavation notification forms is needed to include installing and maintaining fall hazard protection.
- *Education Program:* Based on survey information, the education program appears to be effective because most of the resident population and visitors interviewed were aware of most portions of the program. The Navy will continue to improve the education program to increase IC awareness, including the following i) show the airport UXO video on the local TV channel 6, ii) update obsolete information in the Airport UXO video, iii) post IC awareness materials at other public spaces such as Pier-5 and the small boat harbor, iv) remove obsolete and/or incorrect signs such as the signs at SWMU 13, Metals Landfill, near SWMU 29, Finger Bay Landfill, and the fisheries closure sign at the former United States Fish and Wildlife Service (USFWS) building.
- *Downtown Area Groundwater:* No recommendations as no indications of domestic potable well use or drilling activities for potable water use were found.
- *Downtown Area Comprehensive Environmental Response, Compensation, and liability Act (CERCLA) Sites (Except Landfills):* SWMU 14 had no recommendations as all ICs appeared to be functioning as intended. The Navy recommended that site conditions continue to be monitored at SWMU 15 and SWMU 17, and the City be notified that the open excavation observed at the site be filled in. Contaminants associated with on-site wastes were a concern at SWMU 55 due to its threat to residents and potentially impacting site soils and underlying groundwater, and therefore recommended that site conditions continue to be monitored.

- *Downtown Area Water Bodies:* The current fish consumption advisory for rock sole and blue mussels in Sweeper Cove and for rock sole in Kuluk Bay was recommended to be maintained and then reassessed based on the 2020 sampling events.
- *Downtown Area Landfills:* The Navy recommended that additional site access controls be considered to prevent unauthorized vehicle access to the landfill at SWMU 13 (monitor the vehicle access road recently used for landfill repairs for erosion). At SWMU 25, for the ICs to function as intended to protect human receptors from exposure to contaminated soil or groundwater, the Navy recommended repair of damaged perimeter fencing and signage, installation of additional signage along western perimeter fence, continuation of monitoring of the eroded and repaired areas, sampling surface water at the blue seep on the northwest side of the landfill (NL-14) in 2018 to determine if metals continue to exceed cleanup criteria, and notification to Adak Fuels Facility to keep the northern cable gate locked to prevent vehicle access to the site.
- *Downtown Area Resource Conservation and Recovery Act (RCRA) Closure Sites:* There was concern at SWMU 24 that contaminants associated with on-site wastes are a threat to residents and are potentially impacting site soils and underlying groundwater. The Navy recommended that site conditions continue to be monitored.
- *Downtown SAERA Sites (MNA):* Because of past housekeeping issues at Former Power Plant Bldg. T-1451, the Navy recommended that site conditions continue to be monitored. The rest of those sites have no recommendations as all ICs appeared to be functioning as intended.
- *Downtown SAERA Sites (Free-Product Recovery):* Because of past housekeeping issues at Area 303/GCI Compound, and NMCB Bldg. T-1416 Expanded Area, the Navy recommended that site conditions continue to be monitored. The rest of those sites have no recommendations as all ICs appeared to be functioning as intended.
- *Remote Area CERCLA Sites (except landfills):* At SWMU 20 and 67, there were no recommendations as all ICs appeared to be functioning as intended.
- *Remote Area Landfills:* The Navy recommended at SWMU 4 that monitoring for erosion along the shoreline continue to ensure long-term protectiveness of the remedy. The next inspection was scheduled to occur in 2019. The Navy recommended at SWMU 11 that the repaired swale and sinkhole be monitored to assess whether repairs become necessary again, and that the equipment tracks on the vegetative cap continue to be monitored. The Navy recommended at SWMU 18/19 that damaged fencing and signage be repaired and that the repaired swale continue to be monitored. The rest of the Remote Area Landfills have no recommendations as all ICs appeared to be functioning as intended.

Engineering control (EC) repairs were completed at Adak in 2017 as identified in the site inspection (DON 2020d) and included placing boulders at the northern boundary of SWMU 13 landfill to block ATV access, spillway repair, cover of exposed liner and filling the sinkhole at the north end of SWMU 11, and the repair of the spillway and swale at SWMUs 18/19.

2018: During the downtown area groundwater use inspections, no indications were found for domestic potable wells being used or drilling activities for potable water well taking place. In terms of Excavation Notifications, no sites appeared to have been negatively impacted by the excavations that took place during that time. During the review, an excavation was observed along the southeast perimeter of the SWMU 55 boundary along a water/discharge line near the fish plant. It was observed that the excavation did not exceed 2 feet below ground surface. The UXO Awareness video was shown to all teachers and student at school, and at the airport during the arrival and departure of commercial

flights. Additionally, maps with UXO information were distributed to agencies and businesses on Adak. In terms of Education Evaluation, 24 interviews were conducted during the inspection, which consisted of adult residents, school children, and visitors. The survey indicated that the educational awareness for residents and visitors remained constant compared to 2017 results.

ICs appeared to be generally effective for children, visitors, and adult residents. Based on the findings of the 2018 IC activities, the following conclusions and recommendations were listed:

- *Downtown Area Groundwater Use Inspection:* All ICs appeared to be functioning as intended.
- *Excavations Restrictions:* One unauthorized excavation was observed along the SE perimeter of the SWMU 55, Public Works Transportation Department Waste Storage Area boundary along a water/discharge line near the fish plant. The Navy committed to update the excavation notification process in the next ICMP revision to include coordination with the City and to follow up with dig permit holders upon completion of work. The Navy will also continue to improve the excavation restriction program determining if a provision to the excavation notification form is needed to include installing and maintaining fall hazard protection.
- *UXO Awareness Video Operation:* The video was functioning as intended (the operation of the video occurred as planned).
- *Education Program:* The program appeared to be effective because most of the resident population and visitors interviewed were aware of most portions of the program.

EC and IC repairs were completed at Adak in 2018 as identified in the site inspection (DON 2020d) and included filling the settling area at SWMU 29, installation of "Pedestrian-only" signs at north and south ends of landfill, swale reparation, and placing boulders at the southern boundary of SWMU 13 landfill to block ATV access, repair of the sinkhole, spillway, and installation of check dams at SWMU 11, repair of the spillway and large sign at the entrance of SWMUs 18/19, and replacement or installation of signs at about 15 locations.

2019: This ICs SI Report included evaluation of additional sites only inspected before the Five-Year Review as well as OU B-1 sites. Currently, 28 sites are inspected biennially (including Parcel 4) with 39 sites (including 12 remote OU B-1 sites) inspected every 5 years. The same activities as earlier annual ICs inspections were conducted during the 2019 inspections (UXO Awareness video only at the airport) and additional inspections of downtown area and remote area sites were conducted as well.

The following actions were recommended based on the findings of the primary SIs conducted in September 2019:

- *Excavation Restrictions:* Two unauthorized excavations were observed during the 2019 inspection. To ensure excavation restriction ICs are functioning as intended, land users should be notified and educated on the IC program to ensure excavation notifications are submitted prior to excavating. The Navy will continue to improve the excavation restriction program by determining if a provision to the excavation notification forms is needed to include installing and maintaining fall hazard protection, and develop new signs for the non-landfill sites with absolute excavation prohibition.
- *Education Program:* Based on survey information, the education program appeared to be effective because most of the resident population and visitors interviewed were aware of most portions of the program. The Navy will continue to improve the education program to increase IC awareness, including the following i) continue to regularly update obsolete information in the Airport UXO video, ii) post IC awareness materials at other public spaces such as Pier-5

and the small boat harbor, iii) remove obsolete and/or incorrect signs such as the signs at SWMU 13, Metals Landfill, and the fisheries closure sign at the former USFWS building.

- *Downtown Area Groundwater:* No recommendations were made as no indications of domestic potable well use or drilling activities for potable water use were found.
- *Downtown Area (CERCLA) Sites (Except Landfills):* SWMU 10, SWMU 14, and SA 76 had no recommendations as all ICs appeared to be functioning as intended. The Navy recommended that site conditions continue to be monitored at SWMU 15 and SWMU 17. Contaminants associated with on-site wastes are a concern at SWMU 55 due to its threat to residents and potentially impacting site soils and underlying groundwater, and the Navy therefore recommended that site conditions continue to be monitored.
- *Downtown Area Water Bodies:* The current fish consumption advisory for rock sole and blue mussels in Sweeper Cove and for rock sole in Kuluk Bay will be maintained and will be reassessed based on the 2020 sampling events.
- *Downtown Area Landfills:* The Navy recommended that the armor rock shoreline be bolstered to ensure ICs continue to function as intended at SWMU 13. At SWMU 25, for ICs to function as intended to protect human receptors from exposure to contaminated soil or groundwater the Navy recommended to repair damaged perimeter fencing and signage, install additional signage along western perimeter fence, continue to monitor the eroded and repaired areas, and notify Adak Fuels Facility to keep the northern cable gate locked to prevent vehicle access to the site.
- *Downtown Area RCRA Closure Sites:* There is concern at SWMU 24 that contaminants associated with on-site wastes are a threat to residents and are potentially impacting site soils and underlying groundwater. The Navy recommended that site conditions continue to be monitored.
- *Downtown SAERA Sites (MNA):* Because of past housekeeping issues at Area 303/GCI Compound, Former Power Plant Bldg. T-1451, and NMCB Bldg. T-1416 Expanded Area, the Navy recommended that site conditions continue to be monitored. At the latter, the Navy also recommended that the missing excavation restriction sign north of the pre-engineered building be replaced. For ICs to function as intended at SWMU 62, landowners should be notified and educated on the IC program to ensure excavation notifications are submitted prior to excavating. The rest of the sites had no recommendations as all ICs appeared to be functioning as intended.
- *Downtown SAERA Sites (Cleanup Complete with ICs):* At NORPAC Hill Seep Area the Navy recommended that the faded excavation restriction sign along Bayshore Highway be replaced. The rest of the sites had no recommendations as all ICs appear to be functioning as intended.
- *Remote Area CERCLA Sites (except landfills):* The Navy recommended that the missing excavation restriction sign be repaired at SWMU 20, and the existing excavation restriction sign be replaced with absolute excavation prohibition at SWMU 21A. The Navy recommended that absolute excavation prohibition signs be installed, and land users should be notified and educated on the IC program to ensure excavation notifications are submitted prior to excavating at SWMU 67. The rest of the sites had no recommendations as all ICs appeared to be functioning as intended.
- *Remote Area Landfills:* The Navy recommended at SWMU 4 that monitoring for erosion along the shoreline continue to ensure long-term protectiveness of the remedy. The next inspection is scheduled to occur in 2021. The Navy recommended at SWMU 11 that the repaired sinkhole and landfill cap be monitored to assess whether repairs are necessary, and that the equipment tracks on the vegetative cap continue to be monitored. The Navy recommended at SWMU 18 that damaged

fencing and signage be repaired and that the repaired swale continue to be monitored. The rest of the sites had no recommendations as all ICs appeared to be functioning as intended.

- *Remote Area SAERA Sites:* All ICs appeared to be functioning as intended at these sites except for Finger Bay Quonset Hut (UST FBQH-1) where the Navy recommended that the excavation restriction sign be relocated to the immediate vicinity of the site.
- *Adak CERCLA Ordnance sites:* At Combat Range #3 (C3-01A) and Finger Bay Impact Area sites, evidence of recreation use was present; therefore the Navy recommended that ordnance awareness information should continue to be available to residents and visitors to Adak. The rest of those sites had no recommendations as all ICs appeared to be functioning as intended.

EC and IC repairs were completed at Adak in 2019 as identified in the site inspection (DON 2020d) and included filling the settling area and sign replacement at SWMU 29, swale reparation at SWMU 13, the repair of swale and raising the front portion of the road 2 feet at SWMU 11, the repair of spillway, swale, check dams installation and sign replacement at SWMUs 18/19, and replacement or installation of signs at about 15 locations.

2020: During the downtown area groundwater use inspections, no indications were found for domestic potable wells being used or drilling activities for potable water well taking place. In terms of Excavation Notification, no sites appeared to have been negatively impacted by the excavations that took place during that time. The UXO Awareness video was shown to all teachers and students at the school, and at the airport during the arrival and departure of commercial flights. Additionally, maps with UXO information were distributed to agencies and businesses on Adak. In terms of Education Evaluation, 17 interviews were conducted during the inspection, which consisted of adult residents, school children, and visitors. Due to the Coronavirus Disease 2019 pandemic, the usual face-to-face interviews were replaced by electronic forms via Microsoft Forms. The survey indicated that the educational awareness for residents and visitors increased compared to 2019 results.

As expected, ICs appeared to be effective for children, visitor, and adult residents. Based on the findings of the 2020 IC activities, the following conclusions and recommendations were listed:

- *Downtown Area Groundwater Use Inspection:* All ICs appeared to be functioning as intended.
- *Excavations Restrictions:* No unauthorized excavations were reported or observed during the 2020 inspection; therefore, the excavation notification program appeared to be functioning as expected.
- *UXO Awareness Video Operation:* it was functioning as intended (the operation of the video occurred as planned).
- *Education Program:* The program appeared to be effective because most of the resident population and visitors interviewed were aware of most portions of the program. The Navy will continue to improve the program to increase LUC awareness, including increasing awareness of the Navy outreach website and the toll-free telephone number.

EC and IC repairs were completed at Adak in 2020 as identified in the site inspection (DON 2020d) and included lining swale and spillway with new drainage rock at SWMU 13, reshaping of spillway and installation of additional check dams at SWMUs 18/19, flattening the end of the oil trap adjacent to Sweeper Creek and placing rocks on top, and replacement or removal of signs in various places adjacent to the City and outlying areas.

1.4 SITE CLOSURE

Many documents are prepared to identify potential site closure at CERCLA, SAERA, and combined sites. In this section, we summarize the different site closure documents available.

1.4.1 Final Work Plan, OU A/OU B-1/SAERA Closure Evaluation (DON 2020a)

This WP in January 2020 intends to evaluate the status of all OU A, OU B-1, and SAERA sites at the Former Adak Naval Complex. The purpose of the evaluation is to establish each site's status relative to closure. Sites that are already closed will be identified. Conditions at each active site will be evaluated relative to closure requirements to determine if these requirements have been met or, if not, what criteria need to be met for closure and whether new closure goals should be developed and proposed.

1.4.2 Final Technical Memorandum Soil Alternative Cleanup Level (ACL) (DON 2020f)

This Tech Memo in July 2020 focuses on SAERA sites. The purpose of this alternative cleanup level (ACL) Tech Memo is to describe the inputs and methods used to calculate site-specific ACLs for petroleum hydrocarbons in soil, summarize the proposed site-specific soil ACLs, and present the site-specific ACLs to the ADEC and EPA for review and approval, or adjustment. The ADEC approved ACLs will be compared to existing soil concentration data at the SAERA sites in order to evaluate whether they are eligible for closure, they need additional MNA time, or they need additional data to assess current site conditions.

1.4.3 Final Alternative Cleanup Levels Site Evaluation and Recommendations (DON 2021a)

This ACL Site Evaluation in January 2021 summarizes the process used to determine the new ACLs approved through the ADEC and recommendations for each site to determine a path towards closure for SAERA sites. The COCs evaluated for this were DRO, residual range organics, and GRO. The objectives of this evaluation are to establish each site's status relative to closure based on new ACLs. Conditions at each active site was evaluated relative to closure requirements to determine if these requirements have been met or, if not, what criteria need to be met for closure. Of the 32 sites evaluated, the Navy recommended that additional soil sampling be conducted at 14 sites to evaluate if soil degradation has occurred. If soil degradation has occurred and soil concentrations are below CULs, the site would then be evaluated to see whether ICs can be removed and whether it can apply for a full NFA. Based on the site evaluations, the Runway 5-23 Avgas Valve Pit is the only site recommended for NFA and removal of the current ICs. The remaining sites should continue with their current status.

1.4.4 Final Monitoring Reduction and Well Decommissioning Recommendations (DON 2021c)

This February 2021 document presents the processes for the reduction in environmental monitoring that will allow for discontinuation of monitoring at CERLA/SAERA sites in OU A. This document explains the groundwater monitoring reduction, the well decommissioning and LUC monitoring reduction in more details for each site.

1.4.5 Draft Screening Level Risk Assessment (SLRA)

The Draft Screening Level Risk Assessment (SLRA) of CERCLA sites for OU A sites summarizes the process used to develop the SLRA and provide recommendations for removal of select OU A CERCLA sites at the Former Adak Naval Complex from the EPA Superfund NPL and/or transfer of management for these sites to the ADEC under the SAERA (DON 2021d). The SLRA is anticipated to be finalized in July 2021. The 14 OU A sites (excluding landfill sites and SWMU 16) were reviewed

in this streamlined SLRA to determine whether unacceptable residual health risks exist for human health and ecological receptors under the current and future land uses as prescribed in the Interim Conveyance. The land use restrictions and excavation prohibitions prescribed in the Interim Conveyance "run with the land" and are binding on all subsequent owners (DON 2011b).

The screening level risk evaluation concluded that no unacceptable health risks exists from exposure to residual contamination for the reasonably anticipated receptors under current and future land use conditions at any of the 14 sites, with the exception of consumption of marine tissue from Sweeper Cove by subsistence fishers. In addition, while the results of the human health evaluation at SWMU 21A and SWMU 67 indicate that residual concentrations in soil do not represent an unacceptable health risk for industrial worker receptors or recreational receptors with the caps in place, continued inspection of the cap is needed to ensure that the cap remains intact and continues to mitigate exposure. The following sites are potential candidates for site deletion under CERCLA based on the conclusion of no unacceptable risk to human health or the environment under reasonably anticipated current and future land use conditions:

- Outside of Downtown Area Sites
  - SWMU 17, Power Plant 3 Area (and SWMU 36-40 and 63)
  - SWMU 20, White Alice/Trout Creek Disposal Area
  - SWMU 23, Heart Lake Drum Disposal Area
  - SWMU 52, Loran Station (includes SWMU 53 and 59)
- Downtown Area Sites
  - SA 76, Old Line Shed Building
  - SWMU 10, Old Bailer Facility
  - SWMU 14, Old Pesticide Disposal Area and Gas Station
  - SWMU 15, Future JOBS/DRMO
  - SWMU 24, Hazardous Waste Container Storage Area
  - SWMU 55, Public Works Transportation Department Waste Storage
- Downgradient Water Bodies
  - Kuluk Bay

While this document indicates that the 11 sites mentioned above, are potential candidates for site deletion under the revised exposure assumptions, the Navy is currently not planning to pursue site deletion from CERCLA at this time. The current ICs at these sites will remain in place going forward. Uniform Environmental Covenants Act Title 46 Chapter 04 Article 3 requirements will be considered in any Navy decision to pursue future site deletion.

2. Five-Year Review Site Inspection

Between April–June 2021, a site inspection was conducted in support of this Five-Year Review to assess the protectiveness of the remedies. The tables in the main text present a summary of the conditions and recommendations for all of the OU A sites, OU B sites, and Downtown Area Water Bodies, respectively. Here we present the detailed observations by site for only those sites where there were issues.

2.1 AMULET HOUSING, WELL AMW-706 AREA, AND SOUTH SWEEPER CREEK

Near Amulet Housing, Well AMW-706 Area a petroleum sheen was noted downslope from excavating warning sign and adjacent to South Sweeper Creek during the site visit in April 2021. The inspector recommends evaluating if the source of the sheen to the creek originates from nearby sites.

2.2 ANTENNA FIELD, USTS ANT-1, ANT-2, ANT-3, AND ANT-4

Conditions reported during the site visit in April 2021 were consistent with the previous Five-Year Review site visit in August 2015. There were eroded areas, metallic wires sticking out of the ground, and drums observed at the site. Also, no signage was present. The inspector recommends assessing the eroded areas and installing signage.

2.3 FINGER BAY QUONSET HUT, UST FBQH-1

During the site visit in April 2021, the Finger Bay Quonset Hut sign is located at a turn-around area and not at the building pad. The inspector recommends that an additional excavation restriction sign be placed closer to the Quonset Hut near the former stairs.

2.4 FORMER POWER PLANT BUILDING T-1451

Poor housekeeping was observed during the site visit in April 2021 at the Former Power Plant, Building T-1451. Also, a sheen was observed escaping the boom on the south side of the culvert. The inspector recommends monitoring of housekeeping and sheen at the site.

2.5 GCI COMPOUND, UST GCI-1/AREA 303

Due to historical housekeeping issues at the site it is recommended that site conditions continue to be monitored. A sign is knocked down on the ground. The inspector recommends installing the sign and post at the site.

2.6 ROICC WAREHOUSE, UST ROICC–2 AND UST ROICC–3

The ROICC Warehouse was collapsed during the site visit in April 2021; however, it was standing during the previous Five-Year Review site visit. There was no signage present at the site indicating that no excavation is allowed. Private property signage was posted on remnants of the old warehouse. The inspector recommends that a soil excavation sign be placed at the site.

2.7 SA 85, NEW BALER BUILDING

Damaged fencing to the north, and minor debris and dumping were observed during the site visit in April 2021 at the New Baler Building. Also, an active gravel pad is present and in use by city residents. The inspector recommends monitoring of housekeeping and reinstalling damaged sign at the site.

2.8 SA 88, P70 ENERGY GENERATOR

New signage was observed during the site visit in April 2021 at the P70 Energy Generator. However, one of the older signs was discarded on the ground and should be removed.

2.9 SOUTH OF RUNWAY 18-36 AREA

A very damaged well monument (MW-AS-1) was observed during the site visit in April 2021 at the South of Runway 18-36 Area. The inspector recommends replacement of the MW-AS-1 well monument at the site.

2.10 SWMU 4, SOUTH DAVIS ROAD LANDFILL

During the inspection in April 2021 at SWMU 4, South Davis Road Landfill, a seep, first observed during the 2013 inspection, was still present at the southeast end of the landfill approximately 20 feet south of the southern swale. Also, erosion was present along north end of landfill near Andrew Lake Shoreline. Metal debris was present along the beach below and liner was exposed below the swale. In addition, there is a drainage issue and seep at the north end of the landfill as well as significant ponding near an installed sign, however the ponding is adjacent to the site and not on-site. The inspector recommends correction of eroding and ponding issues at the site.

2.11 SWMU 11, PALISADES LANDFILL

Exposed waste within the centerline of the gully was observed during the site visit in April 2021 at the SWMU 11, Palisades Landfill. The inspector recommends correction of eroding issues at the site.

2.12 SWMU 14, OLD PESTICIDES AREA

Incorrect signage and ponding were observed during the site visit in April 2021 at the SWMU 14, Old Pesticides Area. Currently the signage is posted next to a building not associated with the site. The inspector recommends correction of ponding issues, installation of a sign at the site, and removal of current sign.

2.13 SWMU 18/19, WHITE ALICE LANDFILL

Damaged fencing and exposed liner in the south end of the swale were observed during the site visit in April 2021 at the SWMU 18/19, White Alice Landfill. Ponding was noted adjacent to the landfill. The inspector recommends reinstalling the fence with new signage and covering the exposed liner at the site.

2.14 SWMU 20, WHITE ALICE/TROUT CREEK DISPOSAL AREA

Erosion issues, wood debris, and a damaged sign on the ground were observed during the site visit in April 2021 at the SWMU 20, White Alice/Trout Creek Disposal Area. The inspector recommends monitoring erosion issues and replacing the damaged sign at the site.

2.15 SWMU 25, ROBERTS LANDFILL

Damaged fencing along the western edge of the landfill, ponding on southern side adjacent to landfill, some drainage swale ponding on north end of the landfill, signs of erosion, and damaged liner on south side of landfill were observed during the site visit in April 2021 at the SWMU 25, Roberts Landfill. The inspector recommends reinstalling the fence, covering the exposed liner, and monitoring the erosion and ponding at the site as well as the recently repaired areas.

2.16 SWMU 61, TANK FARM B

Minor erosion present throughout the site in bermed areas and poor drainage at southern end of culvert were observed during the site visit in April 2021 at the SWMU 61, Tank Farm B. One of two pumphouses was noted as flooded. A damaged no excavation sign is laying on the ground east of the flooded pumphouse. The inspector recommends correcting drainage, monitoring erosion, and reinstalling signage at the site.

3. References

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———. 2020f. *Internal Draft Technical Memorandum, Summary of Institutional Controls Effectiveness, Contract N62473-20-C-0614 2020 Institutional Controls, Former Naval Complex, Adak, Alaska*. Prepared by Sealaska Remediation Solutions, LLC. Silverdale, WA: Naval Facilities Engineering Systems Command Northwest. December 16.

Appendix D:
Five-Year Review Site Inspection Checklists and Photologs by Site

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Site Inspection Checklist

I. SITE INFORMATION

Site name: *Antenna Field, USTs ANT-1 – ANT-4*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Monitored natural attenuation
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other_____

MNA discontinued in 2011 and cleanup complete with institutional controls determination issued by ADEC. Wells decommissioned in 2013.

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *Eroded areas, wires sticking out of the ground, and drums strewn around site. No signage present.*

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures_____

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks_____

3. **Signs and other security measures** ☐ Intact ☒ Work Needed ☐ N/A
Remarks *Did not see signs present during site walk. Signs need to be installed.*

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: Antenna Field, USTs ANT 1, ANT 2, ANT 3, and ANT 4 **Direction Photo Taken:** North **Description:** 55-gallon drum, metal tank, and various metallic debris scattered throughout site and in bermed depression.	

Site Name: Antenna Field, USTs ANT 1, ANT 2, ANT 3, and ANT 4 **Direction Photo Taken:** South **Description:** Concrete pad/former structure layout. Metallic debris (piping, scrap metal, drums) scattered throughout site. Exposed rusted wire conduit coming out of south berm.	

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: Antenna Field, USTs ANT 1, ANT 2, ANT 3, and ANT 4 **Direction Photo Taken:** Southeast **Description:** Bare patches of vegetation upgradient of concrete pad/former structure. Rusted pipes/conduits surfacing from the ground, erosion present on sidewalls.	

Site Name: Antenna Field, USTs ANT 1, ANT 2, ANT 3, and ANT 4 **Direction Photo Taken:** Northeast **Description:** Electrical conduit through western berm of former structure. Woody debris present throughout site.	

Site Inspection Checklist

I. SITE INFORMATION

Site name: *Boy Scout Camp, West Haven Lake, UST BS-1*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

☐ Cover or capping/containment
☐ Access controls
☐ Institutional controls
☐ Soil/Sediment removal
☐ Free product recovery
☐ Monitored natural attenuation
☐ Groundwater monitoring
☐ Marine tissue monitoring
☐ Ordnance clearing
☐ Other *Cleanup complete and removal of institutional controls determination by ADEC received in 2016.*

References Supplementing This Checklist:

☐ 2019 Landfill Monitoring Inspection Report
☐ 2019 Groundwater Monitoring Report
☐ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks_____

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures *Concrete pad remains, building is falling apart.*_____

III. ACCESS AND INSTITUTIONAL CONTROLS ☐ Applicable ☒ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☐ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks_____

3. **Signs and other security measures** ☐ Intact ☐ Work Needed ☒ N/A
Remarks *No signage present but not needed since ICs were removed in 2016.*

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: Boy Scout Camp, West Haven Lake, UST BS-1

Direction Photo Taken:

Northwest

Description:

Former Boy Scout Camp structure. Photo is facing east side of structure.

Site Name: Boy Scout Camp, West Haven Lake, UST BS-1

Direction Photo Taken:

North

Description:

Interior of former Boy Scout Camp structure.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: Boy Scout Camp, West Haven Lake, UST BS-1

Direction Photo Taken:

Southwest

Description:

Foundation of former Boy Scout Camp structure. Metallic debris present throughout site.

Site Name: Boy Scout Camp, West Haven Lake, UST BS-1

Direction Photo Taken:

West

Description:

Foundation of Former Boy Scout Camp structure. Surface water present east of foundation draining into West Haven Lake.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SA 85, New Baler Building*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

☐ Cover or capping/containment
☐ Access controls
☐ Institutional controls
☐ Soil/Sediment removal
☐ Free product recovery
☐ Monitored natural attenuation
☐ Groundwater monitoring
☐ Marine tissue monitoring
☐ Ordnance clearing
☒ Other *No Further Action based ADEC Method 4 criteria– excluded from ROD.*

References Supplementing This Checklist:

☐ 2019 Landfill Monitoring Inspection Report
☐ 2019 Groundwater Monitoring Report
☐ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *Building open to the atmosphere, no changes in site conditions from previous inspections and last 4th FYR. Active gravel pad present seems to be in use by city residents, minor debris and dumping present.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *Concrete slab on grade warehouse, one floor (tall) surrounded by gravel.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☐ Applicable ☒ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☐ N/A
   Remarks *Fencing to the north has been damaged (knocked down).*

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☐ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☐ No ☐ N/A
   Remarks

3. **Signs and other security measures** ☐ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☐ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☐ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SA 85 New Baler Builder

Direction Photo Taken:

East

Description: West side of new baler building structure.

Site Name: SA 85 New Baler Builder

Direction Photo Taken:

North

Description:

Visual evidence of active gravel pile/deposit with a new shovel placed on top of gravel pile. Pile is on the west side of new baler building structure.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SA 85 New Baler Building

Direction Photo Taken:

East

Description: Interior of new baler building structure. Good housekeeping practices inside building. Minimal signs of recreational disturbance.

Site Name: SA 85 New Baler Building

Direction Photo Taken:

East

Description: Institutional control signage damaged and in pile of metallic debris on the east side of the new baler building.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *Contractor's Camp Burn Pad*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

☐ Cover or capping/containment
☐ Access controls
☐ Institutional controls
☒ Soil/Sediment removal
☐ Free product recovery
☐ Monitored natural attenuation
☐ Groundwater monitoring
☐ Marine tissue monitoring
☐ Ordnance clearing
☐ Other *Cleanup complete and institutional controls removal determination by ADEC occurred in 2011.*

References Supplementing This Checklist:

☐ 2019 Landfill Monitoring Inspection Report
☐ 2019 Groundwater Monitoring Report
☐ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *No changes from previous site visits and 4th FYR. Surface water pooling noted along south side of pad*_____

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures_____

III. ACCESS AND INSTITUTIONAL CONTROLS ☐ Applicable ☒ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☐ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☐ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☐ No ☐ N/A
   Remarks_____

3. **Signs and other security measures** ☐ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☐ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☐ Yes ☐ No ☐ N/A

Remarks_____
_____
_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: Contractors Camp Burn Pad

Direction Photo Taken:

West

Description:

Northeast corner of contractor's camp burn pad.

Site Name: Contractors Camp Burn Pad

Direction Photo Taken:

South

Description: Contractors camp burn pad looking south from the north end of pad.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: Contractors Camp Burn Pad

Direction Photo Taken:

West

Description: Surface water pooling near southwest corner of concrete pad.

Site Name: Contractors Camp Burn Pad

Direction Photo Taken: East

Description: UST excavation location directly off sidewall of concrete pad according to figures and historical references. Stressed vegetation near sidewall and heavy machinery tracks observed.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *Finger Bay Quonset Hut, UST FBQH-1*	**Date of inspection:** 04/20/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☒ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Monitored natural attenuation
- ☒ Groundwater monitoring *ended*
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other *Conditional closure approved by ADEC in 2004.*

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *No changes from 2019 IC site inspections. Trails leading from Quonset hut are regularly used. Small hole filled with water on-site.*

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks *Sign is intact,, but it is located downslope from the site. Recommend that sign be moved to the vicinity of the site.*

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: Finger Bay Quonset Hut

Direction Photo Taken:

South

Description: Institutional control signage properly installed north of the former structure footprint.

Site Name: Finger Bay Quonset Hut

Direction Photo Taken:

East

Description: Concrete pad/former foundation for finger bay Quonset hut looking east towards finger bay.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: Finger Bay Quonset Hut **Direction Photo Taken:** South **Description:** Surface water pooling within vegetation south of concrete pad/foundation.	

Site Name: Finger Bay Quonset Hut **Direction Photo Taken:** South **Description:** Former pipeline tieoff for Quonset hut upgradient from road.	

Site Inspection Checklist

I. SITE INFORMATION

Site name: *Former Power Plant, Building T-1451*	**Date of inspection:** 04/20/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Other_____
- ☒ Monitored natural attenuation
- ☒ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☒ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *Similar to 2019 IC inspections and last 4th FYR. Poor housekeeping, sheen observed escaping boom on south side of culvert.*_____

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *2 used for vehicle storage/repair & welding, 1 secondary storage building.*_____

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks_____

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☒ Applicable ☐ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☒ Properly secured/locked ☒ Good condition ☒ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *Former Power Plant, Building T-1451*	**Date of inspection:** 04/20/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40℉/Cloudy

Inventory of Structures

Building #: *1* **Type of construction:** *slab on grade*

Number of floors: *2* **Possible floors below grade?** ☐ Yes ☐ No ☒ Unsure

Building occupied/in use ☒ Yes ☐ No ☐ N/A

Remarks *GEM – general equipment maintenance*

Building surrounded by ☒ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: *2* **Type of construction:** *slab on grade*

Number of floors: *1* **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure

Building occupied/in use ☒ Yes ☐ No ☐ N/A

Remarks *Storage shed*

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: Former Power Plan T-1451

Direction Photo Taken:

South

Description: Former power plant building looking south. Former building is in active use by the City of Adak for vehicle storage and maintenance activities.

Site Name: Former Power Plan T-1451

Direction Photo Taken:

South

Description: East side of building which includes active work sheds, Conex's, and vehicle staging activities.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: Former Power Plan T-1451

Direction Photo Taken:

West

Description: Monitoring well field between main road and tarmac of runway 18-36.

Site Name: Former Power Plan T-1451

Direction Photo Taken:

South

Description: Institutional control signage damaged within monitoring well field.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: Former Power Plan T-1451

Direction Photo Taken:

West

Description: East canal south culvert. Product boom present at mouth of culvert, sheen identified on eastern shoreline of east canal past product boom.

Site Name: Former Power Plan T-1451

Direction Photo Taken:

West

Description: Visual product sheen present on shoreline of east canal.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: Former Power Plan T-1451

Direction Photo Taken:

Southwest

Description: Sheen seep on east side of east canal adjacent from former power plant building. Sheen seep approximately 200 feet south of culvert.

Site Name: Former Power Plan T-1451

Direction Photo Taken:

West

Description: Institutional control signage properly installed near east canal shoreline.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: Former Power Plan T-1451

Direction Photo Taken:

West

Description: East canal culvert, north side of culvert.

Site Name: Former Power Plan T-1451

Direction Photo Taken:

South

Description: Sheen present coming out of culvert and escaping product boom downstream.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *Kuluk Bay*	**Date of inspection:** 04/20/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

☐ Cover or capping/containment
☐ Access controls
☒ Institutional controls
☐ Soil/Sediment removal
☐ Free product recovery
☐ Monitored natural attenuation
☐ Groundwater monitoring
☐ Marine tissue monitoring
☐ Ordnance clearing
☒ Other *Fish advisory, conditional closure by ADEC in 2004.*

References Supplementing This Checklist:

☐ 2019 Landfill Monitoring Inspection Report
☐ 2019 Groundwater Monitoring Report
☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *No changes, similar to 2019 IC inspections.*

4. **Building(s) located on site** ☐ Yes ☐ No ☐ N/A
   If Yes, number & type of structures

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☐ No ☒ N/A
   Evidence of Well Installation? ☐ Yes ☐ No ☒ N/A

   Remarks

3. **Signs and other security measures** ☐ Intact ☐ Work Needed ☒ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks *Fish advisory remains in effect; educational program is functioning.*_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: Kuluk Bay

Direction Photo Taken:

Northeast

Description: Kuluk Bay from north bluff near palisades landfill.

Site Name: Kuluk Bay

Direction Photo Taken:

East

Description: Kuluk Bay looking east towards metals landfill from NORPAC Hill Seep Area.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *MAUW Compound, UST 24000-A*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

☐ Cover or capping/containment
☐ Access controls
☒ Institutional controls
☐ Soil/Sediment removal
☐ Free product recovery
☐ Monitored natural attenuation
☐ Groundwater monitoring
☐ Marine tissue monitoring
☐ Ordnance clearing
☐ Other *Conditional closure with institutional controls program in place and approved by ADEC in 2005.*

References Supplementing This Checklist:

☐ 2019 Landfill Monitoring Inspection Report
☐ 2019 Groundwater Monitoring Report
☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks *Incinerator used by UXO contractors on site.*

3. **Current Overall Site Conditions**
   Remarks *No significant changes, evidence of recreational shooting. Two conex boxes and an incinerator present and in use.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *Slab on grade concrete and corrugated metal.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☒ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**

Evidence of Excavation?	☐ Yes	☒ No	☐ N/A
Evidence of Well Installation?	☐ Yes	☒ No	☐ N/A

Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *MAUW Compound, UST 24000-A*	**Date of inspection:** 04 / 18 / 2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40°F/Cloudy

Inventory of Structures

Building #: *1* **Type of construction:** *slab on grade, corrugated metal*

Number of floors: *1* **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure

Building occupied/in use ☒ Yes ☐ No ☐ N/A

Remarks *Former explosives storage, rented out as storage bunkers built into hillside with vegetated tundra covering roof of structure.*

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

---

Building #: *2* **Type of construction:** *concrete barracks*

Number of floors: *2* **Possible floors below grade?** ☒ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks *Unoccupied marine barracks.*

Building surrounded by ☒ asphalt ☐ concrete ☒ Landscaping or bare ground

---

Building #: *3* **Type of construction:** *slab on grade, concrete and corrugated metal*

Number of floors: *1* **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure

Building occupied/in use ☒ Yes ☐ No ☐ N/A

Remarks *Garage area used for storage.*

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

---

Building #: *4* **Type of construction:** *slab on grade block and metal tower*

Number of floors: *2-3* **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks *Abandoned security watchtower.*

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

---

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

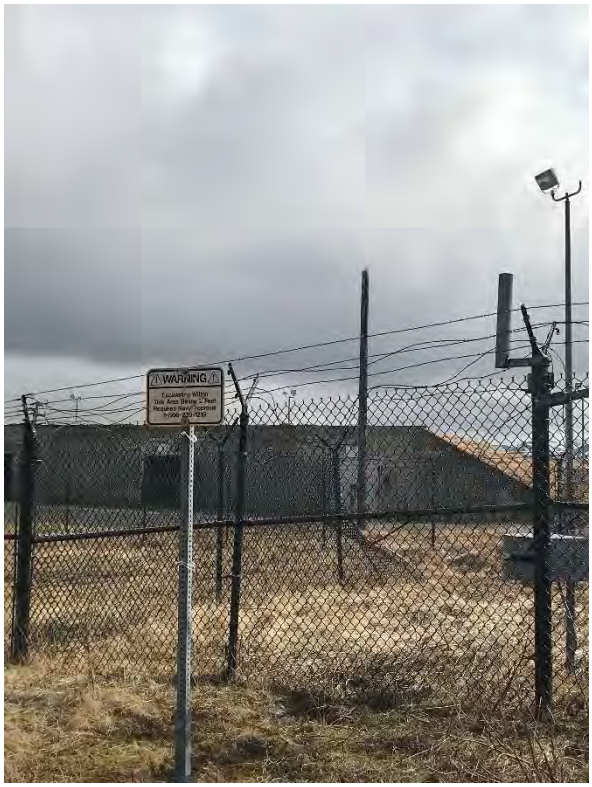
AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: MAUW Compound USTs 24000-A and 24032-B

Direction Photo Taken:

South

Description: Institutional control signage properly installed outside fenced site boundary.



Site Name: MAUW Compound USTs 24000-A and 24032-B

Direction Photo Taken:

Northeast

Description: MAUW Compound sleeping quarters on northeast side of site. Chemical burnoff equipment identified on site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: MAUW Compound USTs 24000-A and 24032-B

Direction Photo Taken:

West

Description: Bomb storage bunkers looking west. Subcontractor Conex's containing hazardous materials locked and stored outside bunker doors.

Site Name: MAUW Compound USTs 24000-A and 24032-B

Direction Photo Taken:

South

Description: Visual evidence of recreational activities onsite. Spent shotgun shells on ground near east corner of bomb storage bunker.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: MAUW Compound USTs 24000-A and 24032-B

Direction Photo Taken:

West

Description: Munitions storage facility on west side of site. Looking at east side of building.

Site Name: MAUW Compound USTs 24000-A and 24032-B

Direction Photo Taken:

Southwest

Description: Munitions storage facility, north side of building.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: MAUW Compound USTs 24000-A and 24032-B

Direction Photo Taken:

North

Description: Former UST excavation location. Heavy machinery tracks on surface visible.

Site Name: MAUW Compound USTs 24000-A and 24032-B

Direction Photo Taken:

North

Description: Former UST excavation location. Heavy machinery tracks on surface visible. Utility tie-off observed near southwest corner of building.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *Mt Moffett Power Plant 5, USTs 10574 - 10577*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☒ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Monitored natural attenuation
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other *Cleanup complete with institutional controls program in place and approved by ADEC in 2004.*

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *No changes. Site similar to previous inspections and last 4th FYR.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *Main power plant building – One floor, slab on grade.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *Mt Moffett Power Plant 5, USTs 10574-10577*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40℉/Cloudy

Inventory of Structures

Building #: *1* **Type of construction:** *Slab on grade; one story*

Number of floors: *1 – 2* **Possible floors below grade?** ☒ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks *Building open with equipment inside.*

Building surrounded by ☐ asphalt ☐ concrete ☒ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: Mount Moffett Power Plant 5 USTs 10547 through 10577

Direction Photo Taken:

West

Description: Institutional control signage properly installed near southeast corner of building 5.

Site Name: Mount Moffett Power Plant 5 USTs 10547 through 10577

Direction Photo Taken:

North

Description: South side of power plant building 5.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: Mount Moffett Power Plant 5 USTs 10547 through 10577

Direction Photo Taken:

West

Description: North side of power plant building 5. Former UST excavation location. Observed fill material in area.

Site Name: Mount Moffett Power Plant 5 USTs 10547 through 10577

Direction Photo Taken:

West

Description: North side of power plant building 5. Former UST excavation location. Observed fill material in area and vegetated depression.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *NAVFAC Compound, USTs 20052 and 20053*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

☐ Cover or capping/containment
☐ Access controls
☒ Institutional controls
☐ Soil/Sediment removal
☐ Free product recovery
☐ Monitored natural attenuation
☒ Groundwater monitoring
☐ Marine tissue monitoring
☐ Ordnance clearing
☐ Other *Cleanup complete with institutional controls record established by ADEC in 2005*

References Supplementing This Checklist:

☐ 2019 Landfill Monitoring Inspection Report
☐ 2019 Groundwater Monitoring Report
☐ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *Minimal disturbance to site conditions, similar to previous site visits and 4th FYR.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *Building complex – slab on grade, one story, mix of concrete and corrugated metal.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐N/A

1. **Fencing/Gates** ☒ Intact ☐ Gates secured ☐ Work Needed ☐ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks

3. **Signs and other security measures** ☐ Intact ☐ Work Needed ☒ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *NAVFAC Compound, USTs 20052 and 20053*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40℉/Cloudy

Inventory of Structures

Building #: *1-6* **Type of construction:** *slab on grade, concrete and metal*

Number of floors: *1-2* **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks *Buildings are unsafe, significant water damage.*

Building surrounded by ☐ asphalt ☐ concrete ☒ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: NAVFAC Compound USTs 20052 and 20053

Direction Photo Taken:

East

Description: West side of NAVFAC Compound building.

Site Name: NAVFAC Compound USTs 20052 and 20053

Direction Photo Taken:

East

Description: Former UST excavation location on the south side of building. Fill material within depression in surface observed.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: NAVFAC Compound USTs 20052 and 20053

Direction Photo Taken:

East

Description: North side of NAVFAC Compound building.

Site Name: NAVFAC Compound USTs 20052 and 20053

Direction Photo Taken:

East

Description: West side of NAVFAC Compound building.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *New Roberts Housing, UST HST-7C*	**Date of inspection:** 04/20/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Monitored natural attenuation
- ☒ Groundwater monitoring *ended*
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other *Conditional closure approved by ADEC in 2004.*

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *Similar to 2019 IC inspections, concrete pad is generally in good condition.*

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Signs and other security measures** ☐ Intact ☐ Work Needed ☐ N/A
   Remarks

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____
_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: New Roberts Housing UST HST-7

Direction Photo Taken:

West

Description: East side of vegetated berm where former USTs were located.

Site Name: New Roberts Housing UST HST-7

Direction Photo Taken:

West

Description: Former tank holding area. No evidence of recreational usage. Minor pooling in concrete cutout in center of tank holding area.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *Officer Hill and Amulet Housing, UST 31047-A*	**Date of inspection:** 04/20/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☒ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Other *Conditional closure approved by ADEC in 2004*
- ☐ Monitored natural attenuation
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *No changes from 2019 IC inspections. Adjacent houses occupied per 4th FYR are no longer occupied.*_____

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *One, slab on-grade duplex home.*_____

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☐ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks_____

3. **Signs and other security measures** ☐ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: Officer Hill New Amulet Housing UST 31047A

Direction Photo Taken:

West

Description: Office hill housing structure. No evidence of recreational use/occupancy.

Site Name: Office Hill New Amulet Housing UST 31047A

Direction Photo Taken:

Northwest

Description: Southeast corner of housing structure where former UST excavation was located. Distressed vegetation and fill material observed in area.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *Officer Hill and Amulet Housing, UST 31052-A*	**Date of inspection:** 04/20/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☒ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Other *Conditional closure approved by ADEC in 2004.*
- ☐ Monitored natural attenuation
- ☒ Groundwater monitoring *discontinued 2003*
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *No changes from 2019 IC inspections. Adjacent houses occupied per 4th FYR are no longer occupied.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *One, slab on-grade duplex home.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks

3. **Signs and other security measures** ☐ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks _____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: Officer Hill New Amulet Housing UST 31052A

Direction Photo Taken:

West

Description: Office hill housing structure. No evidence of recreational use/occupancy.

Site Name: Officer Hill New Amulet Housing UST 31052A

Direction Photo Taken:

West

Description: Surface water pooling on west side of housing structure.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *ROICC Warehouse, UST ROICC–2*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Monitored natural attenuation
- ☒ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other *Cleanup complete with institutional controls record established by ADEC in 2005.*

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☐ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *ROICC warehouse completely collapsed. It was standing in photos from the 4th FYR.*

4. **Building(s) located on site** ☐Yes ☒ No ☐ N/A
   If Yes, number & type of structures *Foundation of the building is still intact, but the rest of the building is scattered around the foundation as well as collapsed on top of the foundation.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks

3. **Signs and other security measures** ☐ Intact ☒ Work Needed ☐ N/A
Remarks *Did not see signage present at the site indicating that no excavation is allowed. Private property signage was posted on remnants of the old warehouse.*

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☐ Yes ☒ No ☐ N/A
Site conditions imply ICs fully enforced ☐ Yes ☒ No ☐ N/A

Remarks *Need signage placed to notify public that no excavation is allowed.*

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

Site Inspection Checklist

I. SITE INFORMATION

Site name: *ROICC Warehouse, UST ROICC–3*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Monitored natural attenuation
- ☒ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other *Cleanup complete with institutional controls record established by ADEC in 2005.*

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☐ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *ROICC warehouse completely collapsed. It was standing in photos from 4th FYR.*

4. **Building(s) located on site** ☐Yes ☒ No ☐ N/A
   If Yes, number & type of structures *Foundation of the building is still intact, but the rest of the building is scattered around the foundation as well as collapsed on top of the foundation.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☐ Applicable ☒ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Signs and other security measures** ☐ Intact ☒ Work Needed ☐ N/A
Remarks *Did not see signage present at the site indicating that no excavation is allowed. Private property signage was posted on remnants of the old warehouse.*

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☐ Yes ☒ No ☐ N/A
Site conditions imply ICs fully enforced ☐ Yes ☒ No ☐ N/A

Remarks

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VI. MNA/GROUNDWATER MONITORING Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: ROICC 2 & 3

Direction Photo Taken:

South

Description: No trespassing signage installed on north side of previously existing building. Signs visible from access road to site.

Site Name: ROICC 2 & 3

Direction Photo Taken:

South

Description: ROICC-2 location of former warehouse. Scattered woody and metallic debris throughout site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: ROICC 2 & 3

Direction Photo Taken:

South

Description: Collapsed warehouse building within ROICC-3 site. Building collapsed due to a high wind event within the last five years.

Site Name: ROICC 2 & 3

Direction Photo Taken:

Northeast

Description: Southwest corner of former ROICC-3 warehouse. Location of previous UST excavation on corner of building. Visual signs of recreational activity. Vehicle marks leading up to warehouse entrance on north side and individuals identified on site during review.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *ROICC Contractor's Area, UST ROICC-7*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Other ___

_____

- ☒ Monitored natural attenuation
- ☒ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☒ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____
   _____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____
   _____

3. **Current Overall Site Conditions**
   Remarks *No changes in site conditions. Conditions similar to previous 4th FYR.*_____
   _____

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures _____
   _____

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____
   _____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks_____
   _____

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☒ Applicable ☐ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

Site Inspection Checklist

I. SITE INFORMATION

Site name: *ROICC Contractor's Area, UST ROICC-8*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☒ Monitored natural attenuation
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other *Cleanup complete with institutional controls record established by ADEC in 2004.*

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *No changes, site conditions similar to previous site inspections and 4th FYR.*_____

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures _____

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks_____

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: ROICC 7 & 8

Direction Photo Taken:

West

Description: Institutional control signage properly installed on the west side of the site.

Site Name: ROICC 7 & 8

Direction Photo Taken:

South

Description: ROICC 7 & 8 concrete pad facing south. No visual signs of disturbance onsite.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: ROICC 7 & 8

Direction Photo Taken:

West

Description: Surface water pooling observed in the southwest corner of the site.

Site Name: ROICC 7 & 8

Direction Photo Taken:

West

Description: Visible biological identified sheen observed within surface pooling in southwest corner of site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: ROICC 7 & 8

Direction Photo Taken:

North

Description: Former UST excavation location on the southeast corner of concrete pad. Heavy machinery tracks identified leading up to corner of building with distressed vegetation.

Site Name: ROICC 7 & 8

Direction Photo Taken:

South

Description: Former UST excavation location on the southwest corner of concrete pad.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *Runway 5-23 Avgas Valve Pit*	**Date of inspection:** 04/20/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☒ Monitored natural attenuation
- ☐ Groundwater monitoring *ended in 2014*
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other *ADEC approved site closure in 2021, and ICs were removed. GW monitoring ended in 2014.*

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☒ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *No changes since 2019 IC inspections and 4th FYR.*_____

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures_____

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks_____

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: Runway 5-23 AVGAS

Direction Photo Taken:

North

Description: Institutional control signage properly installed on the south side of site.

Site Name: Runway 5-23 AVGAS

Direction Photo Taken:

North

Description: Potential location of previous valve pit. No visual signs of disturbance on site.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *South Sweeper Creek*	**Date of inspection:** 04/20/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☒ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Monitored natural attenuation
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other *Conditional closure approved by ADEC in 2005.*

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☐ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *Petroleum seep noticed directly across from Amulet Housing AMW 706 excavation warning sign. This seep was not noted on any previous inspections or figures.*

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks *2019 IC inspection report does not include South Sweeper Creek, but ADEC database indicates that the status is cleanup complete with institutional controls.*_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: South Sweeper Creek **Direction Photo Taken:** North **Description:** South Sweeper Creek looking north from the former firefighting training area.	

Site Name: South Sweeper Creek **Direction Photo Taken:** West **Description:** South Sweeper Creek looking west from the officer hill amulet housing area.	

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: South Sweeper Creek

Direction Photo Taken:

Northwest

Description: South Sweeper Creek looking northwest from the south of runway 18-36 area before SWMU 60.

Site Name: South Sweeper Creek

Direction Photo Taken:

North

Description: South Sweeper Creek looking north from SWMU 60.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: South Sweeper Creek

Direction Photo Taken:

NA

Description: Sheen observed down slope of excavation restriction sign adjacent to Amulet Housing Well AMW-706 Area.

Site Name: South Sweeper Creek

Direction Photo Taken:

East

Description: Photo of excavation restriction sign along South Sweeper Creek adjacent to Amulet Housing Well AMW-706 Area.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SA 77, Fuels Facility Refueling Dock, SDSA*	**Date of inspection:** 04/19/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Partly Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Other.
- ☐ Monitored natural attenuation
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

Cleanup complete and IC removed by ADEC in 2016.

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *Site is in good conditions and is no longer in the IC inspection program.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *Small enclosure for fuel credit card payments.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks

3. **Signs and other security measures** ☐ Intact ☐ Work Needed ☒ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *SA 77, Fuels Facility Refueling Dock, SDSA*	**Date of inspection:** 04/19/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40℉/Partly Cloudy

Inventory of Structures

Building #: *1* **Type of construction:** *slab on grade*

Number of floors: *1* **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure

Building occupied/in use ☒ Yes ☐ No ☐ N/A

Remarks *Small enclosure for fuel credit card payments (open to environment).*

Building surrounded by ☐ asphalt ☐ concrete ☒ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: SA 77 Fuels Facility

Direction Photo Taken:

East

Description: Institutional control signage properly installed on the fencing of the site.

Site Name: SA 77 Fuels Facility

Direction Photo Taken:

East

Description: Active residential fuel pump #1.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: SA 77 Fuels Facility

Direction Photo Taken:

East

Description: AST's providing fuel to residential fuel pumps. No evidence of damage or leakage from AST's or pumps.

Site Name: SA 77 Fuels Facility

Direction Photo Taken:

East

Description: Restricted access to greater dock area signage installed to the west of fuel pumps.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SA 78, Old Transportation Building*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery *ended*
- ☐ Monitored natural attenuation
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

Cleanup complete with ICs determination issued in 2013.

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *Site conditions similar to previous 4th FYR. Abandoned deteriorating building on-site.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *One slab on grade and concrete block, several bays for vehicles.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☐ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☐ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *SA 78, Old Transportation Building*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40℉/Cloudy

Inventory of Structures

Building #: *1* **Type of construction:** *slab on grade, block*

Number of floors: *1* **Possible floors below grade?** ☐ Yes ☐ No ☒ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks *Vehicle maintenance and offices.*

Building surrounded by ☒ asphalt ☐ concrete ☒ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____________________

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____________________

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____________________

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____________________

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SA 78 Old transportation Building

Direction Photo Taken:

Northeast

Description: Institutional control signage properly installed on the east side of access road to old transportation building.

Site Name: SA 78 Old transportation Building

Direction Photo Taken:

Southwest

Description: Northeast corner of old transportation building where automobile bays were located for storage/maintenance.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SA 78 Old transportation Building

Direction Photo Taken:

North

Description: Southeast corner of old transportation building.

Site Name: SA 78 Old transportation Building

Direction Photo Taken:

Northeast

Description: Southwest corner of old transportation building.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SA 82, P80/P81 Buildings*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Monitored natural attenuation
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other *Cleanup complete with ICs determination issued in 2010. Wells decommissioned in 2013.*

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *No changes since last site inspections and 4FYR.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *Two slab on grade metal sided buildings partially open block storage area and one connex.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks _____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *SA 82, P80/P81 Buildings*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40°F/Cloudy

Inventory of Structures

Building #: *1* **Type of construction:** *concrete block*

Number of floors: *1* **Possible floors below grade?** ☒ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks *Gray with blue roof – secured building. Subgrade floors.*

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: *2* **Type of construction:** *slab on grade*

Number of floors: *1* **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks *Beige & rusted corrugated metal – transformer outside.*

Building surrounded by ☐ asphalt ☐ concrete Landscaping or bare ground

Building #: *3* **Type of construction:**

Number of floors: *1* **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks *Three white tanks, Chlorine Gas Warning sign.*

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: *4* **Type of construction:** *cinder block shed*

Number of floors: *1* **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SA 82-P80_81 Buildings

Direction Photo Taken:

Northeast

Description: Institutional control signage properly installed on access road to P80_81 buildings.

Site Name: SA 82-P80_81 Buildings

Direction Photo Taken:

North

Description: Southeast corner of north P-80_81 building. Visual evidence of damaged windows and debris scattered throughout site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SA 82-P80_81 Buildings

Direction Photo Taken:

West

Description: East side of south P80-81 buildings.

Site Name: SA 82-P80_81 Buildings

Direction Photo Taken:

West

Description: Visual evidence of recreational activity within site. Bullet holes throughout wall of building.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SA 82-P80_81 Buildings

Direction Photo Taken:

West

Description: East side of chlorine tank building.

Site Name: SA 82-P80_81 Buildings

Direction Photo Taken:

North

Description: Interior of chlorine tank building. Vegetation growing inside building on floor, visible chemical damage beneath chlorine tanks.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SA 88, P70 Energy Generator*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Monitored natural attenuation
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other *Cleanup complete with ICs determination issued in 2011. Wells decommissioned in 2013.*

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *No change similar conditions to previous site inspections and 4FYR.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *One slab on grade with concrete block walls.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**

Evidence of Excavation?	☐ Yes	☒ No	☐ N/A
Evidence of Well Installation?	☐ Yes	☒ No	☐ N/A

Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks *New signage noted; there is one of the older signs discarded on the ground and should be removed.*

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *SA 88, P70 Energy Generator*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40℉/Cloudy

Inventory of Structures

Building #: *1* **Type of construction:** *slab on grade*

Number of floors: *1* **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☒ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SA 88 P70 Building

Direction Photo Taken:

North

Description: Institutional control signage properly installed on east side of building near access road to site.

Site Name: SA 88 P70 Building

Direction Photo Taken:

West

Description: East side of P70 building.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SA 88 P70 Building

Direction Photo Taken:

Northeast

Description: Debris and plastic liner exposed on the north side of P70 building near minor erosion.

Site Name: SA 88 P70 Building

Direction Photo Taken:

West

Description: Interior of P-70 building. No evidence of damage or disturbance of site.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *Sweeper Cove*	**Date of inspection:** 04/20/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Monitored natural attenuation
- ☐ Groundwater monitoring
- ☒ Marine tissue monitoring
- ☐ Ordnance clearing
- ☒ Other *Fish Advisory, conditional closure by ADEC in 2005.*

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *No changes from 2019 IC inspections and last 4th FYR.*

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures *Buildings adjacent to shoreline.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☐ No ☒ N/A
   Evidence of Well Installation? ☐ Yes ☐ No ☒ N/A

   Remarks_____

3. **Signs and other security measures** ☐ Intact ☐ Work Needed ☒ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks *Fish advisory in effect; education program functioning as intended.*_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks _____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: Sweeper Cove **Direction Photo Taken:** West **Description:** Sweeper cove looking west from finger bay road.	

Site Name: Sweeper Cove **Direction Photo Taken:** South **Description:** Sweeper cove shoreline looking south from town.	

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 2, Causeway Landfill and Minefield*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Monitored natural attenuation
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other *Conditional closure approve by ADEC in 2004.*

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *Similar to 2019 IC site inspections and previous 4th FYR. Metallic debris scattered on ground surface. Culverts are eroding causing road damage on way to the site.*

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☒ Applicable ☐ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☒ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks *Metallic debris present on site.*_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SWMU 2 Causeway Landfill

Direction Photo Taken:

East

Description: Institutional signage properly installed on the south side of landfill.

Site Name: SWMU 2 Causeway Landfill

Direction Photo Taken:

Northeast

Description: Vegetation within SWMU 2 landfill looking from the south end.

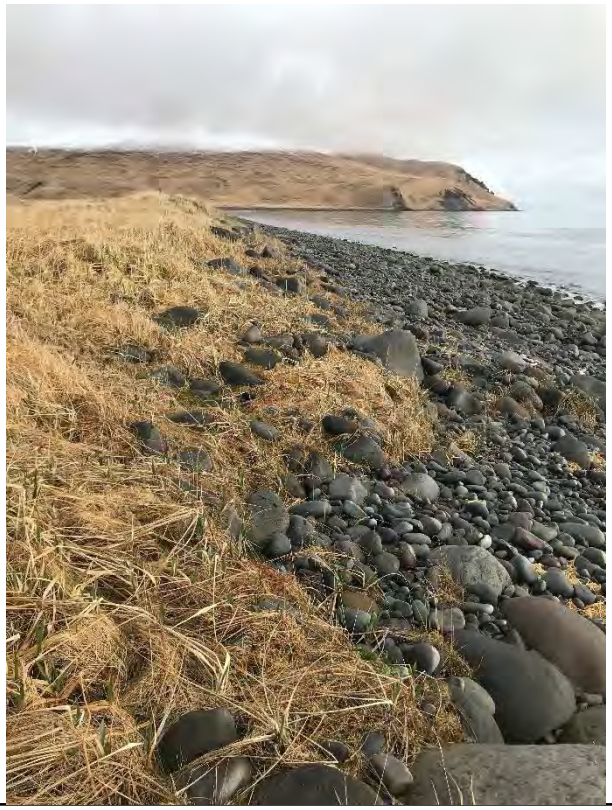
AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SWMU 2 Causeway Landfill

Direction Photo Taken:

Northeast

Description: Shoreline of landfill near the south end. No visual evidence of damage to liner or landfill boundary.



Site Name: SWMU 2 Causeway Landfill

Direction Photo Taken:

East

Description: Landfill boundary marker in the northwest corner of site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SWMU 2 Causeway Landfill

Direction Photo Taken:

Northwest

Description: Metallic debris (55-gallon drum, vehicle parts, etc.) present in northern portion of landfill.

Site Name: SWMU 2 Causeway Landfill

Direction Photo Taken:

South

Description: Metallic Site overview of northern portion of landfill looking south.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 4, South Davis Road Landfill*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☒ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Other_____
- ☐ Monitored natural attenuation
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

References Supplementing This Checklist:

- ☒ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *Erosion present; seep present at the southeast end of the landfill. Surface water from swale repairs flowing into Andrew Lake. Metal debris present on beach and ponding adjacent to sign on north end of landfill.*

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures_____

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks _____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks *Drainage issues are still a concern, similar to the fourth FYR.*

IV. COVERS, CAPPING, AND CONTAINMENT ☒ Applicable ☐ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☒ No ☐ N/A
☒ Signs of erosion ☐ Signs of settlement ☒ Indicators of poor drainage control

Remarks *Water drainage, ponding, and seep issues. Erosion noted along the west side of the landfill facing Andrew Lake.*

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks _____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks _____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks _____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks _____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SWMU 4
South Davis Landfill

Direction Photo Taken:

West

Description: Institutional control signage properly installed on access road to landfill.

Site Name: SWMU 4
South Davis Landfill

Direction Photo Taken:

Northwest

Description: Shoreline of landfill looking northwest. Various metallic debris observed on shoreline including rusted tools and Marston mat material.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SWMU 4 South Davis Landfill **Direction Photo Taken:** East **Description:** Seep surfacing above shoreline near southern portion of landfill.	

Site Name: SWMU 4 South Davis Landfill **Direction Photo Taken:** East **Description:** Culvert with drainage leading into Andrew lake with liner exposed.	

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SWMU 4
South Davis Landfill

Direction Photo Taken:

Northeast

Description: Erosion present along north end of landfill near Andrew lake shoreline.

Site Name: SWMU 4
South Davis Landfill

Direction Photo Taken:

North

Description: Surface water pooling near north end of landfill at boundary marker.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 11, Palisades Landfill*	**Date of inspection:** 04 / 18 / 2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☒ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Other_____
- ☐ Monitored natural attenuation
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

References Supplementing This Checklist:

- ☒ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *Waste present within the centerline of the gully. Repairs ongoing rock present over recent liner repairs. Swale is in good condition.*

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures_____

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks *Evidence of recent repairs such as tracks leading to rock placement in repaired areas of the landfill*

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks *New signs present, old or damaged signs were replaced since the last 4FYR review*

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks

IV. COVERS, CAPPING, AND CONTAINMENT ☒ Applicable ☐ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☒ Yes ☐ No ☐ N/A
☒ Signs of erosion ☐ Signs of settlement ☒ Indicators of poor drainage control

Remarks *Repairs were noted to have occurred recently but there is still debris eroding along the gulley*

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SWMU 11 Palisades Landfill **Direction Photo Taken:** East **Description:** Institutional control signage properly installed at beginning of access road to landfill.	

Site Name: SWMU 11 Palisades Landfill **Direction Photo Taken:** North **Description:** Exposed metallic debris in landfill gully. Observed metallic debris has migrated from gully to mouth of gully and Kuluk Bay.	

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SWMU 11 Palisades Landfill **Direction Photo Taken:** West **Description:** Landfill liner properly installed after new construction to fix exposed section of liner.	

Site Name: SWMU 11 Palisades Landfill **Direction Photo Taken:** **South** **Description:** Distressed vegetation marks from heavy machinery towards landfill liner construction.	

Site Inspection Checklist

I. SITE INFORMATION	
Site name: *SWMU 16, Former Firefighting Training Area*	**Date of inspection:** 04/20/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40º Cloudy

Remedy Includes: (Check all that apply)

☐ Cover or capping/containment
☐ Access controls
☒ Institutional controls
☐ Soil/Sediment removal
☐ Free product recovery
☐ Monitored natural attenuation
☒ Groundwater monitoring *PFAS 2019.*
☐ Marine tissue monitoring
☐ Ordnance clearing
☐ Other *Conditional closure approved by ADEC in 2004.*

References Supplementing This Checklist:

☐ 2019 Landfill Monitoring Inspection Report
☐ 2019 Groundwater Monitoring Report
☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *New wells have been installed for PFAS monitoring. Geoprobe tracked areas have filled with water.*

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____*Not part of the MNA remedy, but new wells for PFAS monitoring were installed in 2019*.
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: SWMU 16 Former Firefighting Training Area

Direction Photo Taken:

East

Description: Asphalt roadway towards airport, and former fire fighting training buildings.

Site Name: SWMU 16 Former Firefighting Training Area

Direction Photo Taken:

Northeast

Description: Monitoring well field with six new installed monitoring wells for PFAS investigation.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: SWMU 16 Former Firefighting Training Area

Direction Photo Taken:

East

Description: Surface water pooling within monitoring well field north of former firefighting buildings.

Site Name: SWMU 16 Former Firefighting Training Area

Direction Photo Taken:

North

Description: Visual evidence of damaged tundra within monitoring well field from heavy machinery. Gravel fill material observed periodically throughout site.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 17, Power Plant 3*	**Date of inspection:** 04/20/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

☐ Cover or capping/containment ☐ Monitored natural attenuation
☐ Access controls ☒ Groundwater monitoring *Ended in 2018.*
☒ Institutional controls ☐ Marine tissue monitoring
☒ Soil/Sediment removal (Waste oil pond) ☐ Ordnance clearing
☒ Free product recovery *Ended.*
☐ Other *Groundwater monitoring ended in 2018 per 2019 GWM report.*

References Supplementing This Checklist: ☐ 2019 Landfill Monitoring Inspection Report
☒ 2019 Groundwater Monitoring Report
☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *Similar to previous IC inspections and last fourth FYR. Poor housekeeping; metal debris waste surrounding the building.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *Main power plant building, former dry cleaner building, and a partially enclosed flammable storage building.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *SWMU 17, Power Plant 3*	**Date of inspection:** 04/20/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40℉/Cloudy

Inventory of Structures

Building #: *1* **Type of construction:** *Slab on grade*

Number of floors: 1-2 **Possible floors below grade?** ☒ Yes ☐ No ☐ Unsure

Building occupied/in use ☒ Yes ☐ No ☐ N/A

Remarks *Operating power plant; sumps and subfloors expected.*

Building surrounded by ☒ asphalt ☐ concrete ☒ Landscaping or bare ground

Building #: *2* **Type of construction:** *Slab on grade*

Number of floors: *1-2* **Possible floors below grade?** ☒ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks *Former dry cleaners.*

Building surrounded by ☒ asphalt ☐ concrete ☒ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: SWMU 17 Power Plant

Direction Photo Taken:

South

Description: Institutional control signage properly installed in front of access road to power plant.

Site Name: SWMU 17 Power Plant

Direction Photo Taken:

East

Description: Monitoring well field downgradient from power plant looking east. Surface water pooling identified and metallic debris.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: SWMU 17 Power Plant

Direction Photo Taken:

South

Description: North side of power plant building. Poor housekeeping on east side of building noted. Large amounts of metallic debris, and trash throughout site not affiliated with power plant.

Site Name: SWMU 17 Power Plant

Direction Photo Taken:

Southeast

Description: Large storage tanks on northeast corner of site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: SWMU 17 Power Plant

Direction Photo Taken:

South

Description: Northeast corner of power plant building. Metallic debris present (rusted 55-gallon drum).

Site Name: SWMU 17 Power Plant

Direction Photo Taken:

North

Description: South side of power plant building.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 18/19, White Alice Landfill*	**Date of inspection:** 04/19/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☒ Cover or capping/containment
- ☐ Access controls (signage)
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Monitored natural attenuation
- ☒ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other *Conditional closure approved with IC program in 2004.*

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☒ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *No changes since the last IC inspection. Fencing is damaged and needs repairs. Liner exposed in the south end of swale. Ponding is present adjacent to the landfill.*

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☒ Work Needed ☐ N/A
   Remarks *Fence and gates need repair.*

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks

3. **Signs and other security measures** ☐ Intact ☒ Work Needed ☐ N/A
Remarks *New signage recommended when fence is repaired, at least on new sections of fence.*

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☐ Yes ☒ No ☐ N/A
Site conditions imply ICs fully enforced ☐ Yes ☒ No ☐ N/A

Remarks

IV. COVERS, CAPPING, AND CONTAINMENT ☒ Applicable ☐ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☒ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks *Recently repaired swales were observed.*

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VI. MNA/GROUNDWATER MONITORING ☒ Applicable ☐ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☒ Good condition ☐ All required wells located
☐Needs Maintenance ☐ N/A
Remarks

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: SWMU 18
White Alice Landfill

Direction Photo Taken:

West

Description: Institutional control signage properly installed in the northwest corner of the landfill.

Site Name: SWMU 18
White Alice Landfill

Direction Photo Taken:

Southwest

Description: Landfill overview looking southwest. Vegetation present over landfill.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: SWMU 18
White Alice Landfill

Direction Photo Taken:

Southwest

Description: Damaged barbed wire fencing on the north side of landfill boundary.

Site Name: SWMU 18
White Alice Landfill

Direction Photo Taken:

West

Description: Damaged barbed wire fencing and exposed liner near east corner of landfill.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: SWMU 18
White Alice Landfill

Direction Photo Taken:

Northwest

Description: Landfill culvert transect in the southeast corner of landfill. No evidence of damage.

Site Name: SWMU 18
White Alice Landfill

Direction Photo Taken:

West

Description: Erosion present in the southeast corner of landfill near entrance.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: SWMU 18
White Alice Landfill

Direction Photo Taken:

South

Description: Textile matting present to promote vegetation growth in southeast corner of landfill.

Site Name: SWMU 18
White Alice Landfill

Direction Photo Taken:

South

Description: Textile matting present to promote vegetation growth in southeast corner of landfill.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 20, White Alice/Trout Creek Disposal Area*	**Date of inspection:** 04/19/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40°F/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Monitored natural attenuation
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other *Conditional closure approved by ADEC in 2004.*

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks _____
2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks _____
3. **Current Overall Site Conditions**
   Remarks *Signs of soil erosion, wood is visible along cliffs, and damaged sign is on the ground.*
4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures _____

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks _____
2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A
   Remarks _____

3. **Signs and other security measures** ☒ Intact ☒ Work Needed ☐ N/A
Remarks *One damaged sign is on the ground and needs to be repaired.*

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: SWMU 20 White Alice Trout Creek Disposal Area

Direction Photo Taken:

North

Description: Institutional control signage properly installed on bluff above disposal area.

Site Name: SWMU 20 White Alice Trout Creek Disposal Area

Direction Photo Taken:

West

Description: Disposal area looking down bluff. Metallic debris present throughout site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: SWMU 20 White Alice Trout Creek Disposal Area

Direction Photo Taken:

North

Description: Disposal area looking down towards trout creek. Minor erosion observed along bluff where metallic debris is present.

Site Name: SWMU 20 White Alice Trout Creek Disposal Area

Direction Photo Taken:

North

Description: Institutional control signage damaged and left on ground of bluff near site.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 21A, White Alice Upper Quarry*	**Date of inspection:** 04/19/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Monitored natural attenuation
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other *Conditional closure approved by ADEC in 2004.*

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *Conditions similar to 2019 IC site visit and fourth FYR. Tire tracks, stockpiles of soil and debris, and ponding are present.*

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
   Remarks

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: SWMU 21A White Alice Upper Quarry

Direction Photo Taken:

West

Description: Institutional control signage properly installed on access road to site.

Site Name: SWMU 21A White Alice Upper Quarry

Direction Photo Taken:

West

Description: Vegetation and erosion throughout site looking west.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: SWMU 21A White Alice Upper Quarry

Direction Photo Taken:

North

Description: Surface water pooling in northwest corner of quarry near sidewall and access road to trout creek disposal area.

Site Name: SWMU 21A White Alice Upper Quarry

Direction Photo Taken:

West

Description: Surface water pooling in between quarry sections from east to west.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: SWMU 21A White Alice Upper Quarry

Direction Photo Taken:

West

Description: West portion of quarry closest to access road up to White Alice. Frequent surface water pooling present in low elevation areas of quarry.

Site Name: SWMU 21A White Alice Upper Quarry

Direction Photo Taken:

West

Description: Metallic debris near the west quarry wall near trout creek disposal area. Surface water pooling present near west side wall of quarry.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 23, Heart Lake Drum Disposal Area*	**Date of inspection:** 04/19/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Monitored natural attenuation
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other *Conditional closure approved by ADEC in 2004.*

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *Good condition, similar to 2019 IC inspection and last fourth FYR.*

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: SWMU 23 Heart Lake Drum Disposal Area

Direction Photo Taken:

Northwest

Description: Institutional control signage properly installed on access road to site.

Site Name: SWMU 23 Heart Lake Drum Disposal Area

Direction Photo Taken:

South

Description: Bermed drum disposal area with vegetation and gravel/rock present on the surface.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: SWMU 23 Heart Lake Drum Disposal Area

Direction Photo Taken:

South

Description: Southeast side of disposal area facing south. Bermed sidewalls show signs of minor erosion.

Site Name: SWMU 23 Heart Lake Drum Disposal Area

Direction Photo Taken:

South

Description: Visual evidence of recreational use around site. Spent shotgun shells found on southwest corner of site near access road.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 25, Roberts Landfill*	**Date of inspection:** 04/19/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Partly Cloudy

Remedy Includes: (Check all that apply)

- ☒ Cover or capping/containment
- ☒ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Monitored natural attenuation
- ☒ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other _*Conditional closure approved by ADEC in 2004.*_

References Supplementing This Checklist:

- ☒ 2019 Landfill Monitoring Inspection Report
- ☒ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks _*Damaged fence along western edge of landfill; ponding on southern adjacent to landfill; some swale ponding on north end of landfill; damaged liner on south side of landfill.*_____

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures_____

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☒ Gates secured ☒ Work Needed ☐ N/A
   Remarks _*Fencing damaged along western and eastern perimeters.*_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
   Remarks_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks _____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☒ Applicable ☐ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☒ Yes ☐ No ☐ N/A
☒ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks _____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks _____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks _____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks _____
_____

VI. MNA/GROUNDWATER MONITORING ☒ Applicable ☐ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☒ Properly secured/locked ☒ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks _____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: SWMU 25 Roberts Landfill

Direction Photo Taken:

South

Description: Institutional control signage properly installed at the east side of the site.

Site Name: SWMU 25 Roberts Landfill

Direction Photo Taken:

South

Description: Surface water pooling in the southwest portion of the landfill.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: SWMU 25 Roberts Landfill

Direction Photo Taken:

East

Description: Institutional control signage properly installed on fencing in the southwest corner of the landfill.

Site Name: SWMU 25 Roberts Landfill

Direction Photo Taken:

North

Description: Culvert drainage in the southeast portion of the landfill. Observed debris at bottom of culvert.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: SWMU 25 Roberts Landfill

Direction Photo Taken:

East

Description: Site overview looking northeast. Observed culvert with visible damaged to construction.

Site Name: SWMU 25 Roberts Landfill

Direction Photo Taken:

South

Description: Surface water pooling inside lined culvert used for drainage from landfill.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: SWMU 25 Roberts Landfill **Direction Photo Taken:** South **Description:** Textile fabric covering non-vegetated surface in northern portion of landfill to promote vegetative growth.	

Site Name: SWMU 25 Roberts Landfill **Direction Photo Taken:** North **Description:** Erosion/landslide underneath culvert liner in southern portion of landfill.	

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: SWMU 25 Roberts Landfill

Direction Photo Taken:

South

Description: Erosion/landslide underneath culvert liner in southern portion of landfill.

Site Name: SWMU 25 Roberts Landfill

Direction Photo Taken:

East

Description: Surface water pooling in southern portion of landfill near perimeter road.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 29, Finger Bay Landfill*	**Date of inspection:** 04/20/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 30ºF/Showers

Remedy Includes: (Check all that apply)

☐ Cover or capping/containment
☐ Access controls
☒ Institutional controls
☐ Soil/Sediment removal
☐ Free product recovery
☐ Monitored natural attenuation
☐ Groundwater monitoring
☐ Marine tissue monitoring
☐ Ordnance clearing
☐ Other *Conditional closure approved by ADEC in 2004.*

References Supplementing This Checklist:

☐ 2019 Landfill Monitoring Inspection Report
☐ 2019 Groundwater Monitoring Report
☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks *Minor regrading was apparent.*

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *Recent gravel road repairs into the site. Minor debris present ponding adjacent to the site.*

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____

IV. COVERS, CAPPING, AND CONTAINMENT ☒ Applicable ☐ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☒ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☒ Indicators of poor drainage control

Remarks *Minor ponding observed around the site and adjacent to the site.*

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: SWMU 29 Finger Bay Landfill

Direction Photo Taken:

East

Description: Institutional control signage properly installed on access road to site.

Site Name: SWMU 29 Finger Bay Landfill

Direction Photo Taken:

East

Description: Surface water pooling on access road to site just before recently completed road maintenance.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: SWMU 29 Finger Bay Landfill

Direction Photo Taken:

East

Description: Erosion present in northern portion of landfill upgradient from access road.

Site Name: SWMU 29 Finger Bay Landfill

Direction Photo Taken:

North

Description: Vegetated northern portion of landfill with bare patches and erosion visible.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: SWMU 29 Finger Bay Landfill

Direction Photo Taken:

North

Description: Metallic debris present on surface in eastern section of landfill.

Site Name: SWMU 29 Finger Bay Landfill

Direction Photo Taken:

East

Description: Biological sheen identified in the southeast corner of site. Rock test applied in middle of photo and can observe sheen dispersing instead of reforming (reforming shows characteristics of product-related sheen).

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 52, 53, 59, Former LORAN station*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy/Scattered snow showers

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Other_____
- ☐ Monitored natural attenuation
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks *Unused abandoned buildings.*

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *Recreational use observed; vandalism and bullet holes on building and fallen roof vent. Erosion on hillside behind building noted. Conditions similar to previous site inspections and fourth FYR.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *One communications building under antenna. One office and generator annex.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☐ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
   Remarks

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *SWMU 52, 53, 59, Former LORAN station*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40℉/Cloudy/Scattered snow showers

Inventory of Structures

Building #: *1* **Type of construction:** *Slab on grade*

Number of floors: *1* **Possible floors below grade?** ☒ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks *Offices with generator/power annex.*

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: *2* **Type of construction:** *slab on grade*

Number of floors: *1* **Possible floors below grade?** ☐ Yes ☐ No ☒ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks *Communications building – wood walls and roof rotting away.*

Building surrounded by ☐ asphalt ☐ concrete ☒ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SWMU 52
Former Loran Station

Direction Photo Taken:

North

Description: Institutional control signage properly installed along access road to site.

Site Name: SWMU 52
Former Loran Station

Direction Photo Taken:

North

Description: Southwest corner of Loran Station building.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SWMU 52
Former Loran Station

Direction Photo Taken:

Northeast

Description: Collapsed structure north of main Loran Station building.

Site Name: SWMU 52
Former Loran Station

Direction Photo Taken:

East

Description: Erosion and liner type material exposed from berm behind east side of building.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 58/SA 73, Heating Plant 6*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery *ended*
- ☐ Monitored natural attenuation
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other *Cleanup complete with ICs determination issued in 2013.*

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks
2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks
3. **Current Overall Site Conditions**
   Remarks *Conditions similar to previous site inspections and last fourth FYR. Abandoned deteriorating buildings on-site.*
4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *Two structures including the heating plant and a pumphouse.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks
2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A
   Remarks
3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
   Remarks

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *SWMU 58/SA73, Heating Plant 6*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Inventory of Structures

Building #: *1* **Type of construction:** *Slab on grade*

Number of floors: *2* **Possible floors below grade?** ☒ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks *Building 10348 – Former heating plant, subfloors, and part of building is one story with 20-foot ceilings.*

Building surrounded by ☒ asphalt ☐ concrete ☒ Landscaping or bare ground

Building #: *2* **Type of construction:** *modular*

Number of floors: *1* **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks *Building 10433 – small building housing valve pit, mostly subgrade, and open.*

Building surrounded by ☒ asphalt ☐ concrete ☒ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SA 73 Heating Plant 6

Direction Photo Taken:

South

Description: Institutional control signage properly installed in southwest portion of site.

Site Name: SA 73 Heating Plant 6

Direction Photo Taken:

North

Description: South side of building 1034. Condition of building deteriorating.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SA 73 Heating Plant 6

Direction Photo Taken:

North

Description: Heating pit structure and building 1034 in the background of photo. Gravel/sand fill material observed on south side of heating pit structure.

Site Name: SA 73 Heating Plant 6

Direction Photo Taken:

North

Description: Interior of building 1034.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 60, Tank Farm A*	**Date of inspection:** 04/20/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Other_____
- ☒ Monitored natural attenuation
- ☒ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☒ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks __*Similar to 2019 IC site inspection. Settling present on-site above South Sweeper Creek; scattered minor debris at the site.*_____

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures_____

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks_____

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☒ Applicable ☐ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☒ Properly secured/locked ☒ Good condition ☒ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: SWMU 60 Tank Farm A

Direction Photo Taken:

South

Description: Sweeper cove with product boom in place near culvert downgradient from SWMU 60.

Site Name: SWMU 60 Tank Farm A

Direction Photo Taken:

South

Description: Institutional control signage properly installed in upgradient area of site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: SWMU 60 Tank Farm A

Direction Photo Taken:

West

Description: Structural outcroppings in hillside of SWMU 60 upgradient area.

Site Name: SWMU 60 Tank Farm A

Direction Photo Taken:

West

Description: Metallic debris (rusted 55-gallon drum) within surface water near base of hill in upgradient portion of site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: SWMU 60 Tank Farm A

Direction Photo Taken:

Northwest

Description: Tank outcroppings in hillside on western portion of site.

Site Name: SWMU 60 Tank Farm A

Direction Photo Taken:

East

Description: Eroded depression within hillside of upgradient area. Distressed vegetation observed.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 61, Tank Farm B*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Other_____
- ☒ Monitored natural attenuation
- ☒ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☒ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *No changes from previous inspections, minor erosion present throughout the site in bermed areas. Poor drainage at southern end of culvert.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *Two pumphouses, one is flooded one is to an inactive tank*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks_____

3. **Signs and other security measures** ☒ Intact ☒ Work Needed ☐ N/A
Remarks *A damaged no excavation sign is laying on the ground east of the flooded pumphouse. Recommend to re-install the sign.*

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VI. MNA/GROUNDWATER MONITORING ☒ Applicable ☐ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☒ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *SWMU 61, Tank Farm B*	**Date of inspection:** 04/18/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40℉/Cloudy

Inventory of Structures

Building #: *1* **Type of construction:** *Concrete walled building over UST*

Number of floors: *1* **Possible floors below grade?** ☒ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks *Pumphouse above inactive UST last contained mogas. Area is below grade but above the UST.*

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: *2* **Type of construction:** *Slab on grade*

Number of floors: *1* **Possible floors below grade?** ☒ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks *Flooded pumphouse.*

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SWMU 61 Tank Farm B

Direction Photo Taken:

East

Description: Institutional control signage properly installed at beginning of access road to site.

Site Name: SWMU 61 Tank Farm B

Direction Photo Taken:

South

Description: North side of southern pumphouse. Building in poor condition due to excessive flooding.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SWMU 61 Tank Farm B

Direction Photo Taken:

North

Description: Recently constructed culvert on the north side of access road functioning properly.

Site Name: SWMU 61 Tank Farm B

Direction Photo Taken:

Northwest

Description: Recently constructed culvert on the south side of access road. Culvert outlet overflowing and in poor condition.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/18/2021

Site Name: SWMU 61 Tank Farm B

Direction Photo Taken:

North

Description: Downed telephone pole near pipeline on northern portion of site. No damaged observed to pipeline.

Site Name: SWMU 61 Tank Farm B

Direction Photo Taken:

North

Description: Southeast corner of northern pumphouse.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 67, White Alice PCB Spill Site*	**Date of inspection:** 04/19/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☒ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Monitored natural attenuation
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other *Conditional closure approved by ADEC in 2004.*

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *Similar conditions to 2019 IC site inspection and last fourth FYR. Piles of gravel, stone debris, wires, nuts, and telecom equipment present.*

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks *Sign was replaced that was missing during the 2019 IC site inspection.*

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks

IV. COVERS, CAPPING, AND CONTAINMENT ☒ Applicable ☐ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☒ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: SWMU 67
White Alice PCB Spill Site

Direction Photo Taken:

West

Description: Institutional control signage properly installed on access road to site.

Site Name: SWMU 67
White Alice PCB Spill Site

Direction Photo Taken:

Southwest

Description: Support pillars and metallic debris (abundant screws, bolts, and tools) on southwest side of site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: SWMU 67 White Alice PCB Spill Site

Direction Photo Taken:

North

Description: Damaged fencing surrounding radio transmitter equipment.

Site Name: SWMU 67 White Alice PCB Spill Site

Direction Photo Taken:

West

Description: Gravel debris pile near radio transmitting equipment.

Site Inspection Checklist

I. SITE INFORMATION

Site name: Yakutat Hanger, UST T-2039A	**Date of inspection:** 04/20/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☒ Free product recovery – *Ended*
- ☐ Other *Conditional closure approved by ADEC in 2007 and wells decommissioned in 2013.*
- ☐ Monitored natural attenuation
- ☒ Groundwater monitoring – *Ended*
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *No changes since 2019 IC inspections and fourth FYR.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures One large hangar.

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
   Remarks_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Site Inspection Checklist

I. SITE INFORMATION

Site name: *Yakutat Hangar, USTs T-2039-B and T-2039-C*	**Date of inspection:** 04/20/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☒ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Other *Conditional closure approved by ADEC in 2004.*
- ☐ Monitored natural attenuation
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *No changes since 2019 IC inspections and last fourth FYR.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *Former Hangar.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☐ Applicable ☒ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *Yakutat Hangar, USTs T-2039-B and T-2039-C*	**Date of inspection:** 04 /20 /2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF/Cloudy

Inventory of Structures

Building #: *1* **Type of construction:** *slab on grade*

Number of floors: *2* **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks Large building, formerly used as auto shop

Building surrounded by ☒ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: 2 **Type of construction:** *slab on grade*

Number of floors: 1 **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks Small garage, waste oil burner and floor drains

Building surrounded by ☒ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: Yakutat Hanger

Direction Photo Taken:

East

Description: Northwest corner of Yakutat Hanger. Metallic debris scattered throughout site. Decommissioned piping observed on site.

Site Name: Yakutat Hanger

Direction Photo Taken:

South

Description: Former UST excavation location on northwest corner of hanger. Fill material and asphalt cutout observed on surface.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: Yakutat Hanger

Direction Photo Taken:

South

Description: Former UST excavation location on the southwest side of the hanger. Fill material and asphalt cutout observed on surface.

Site Name: Yakutat Hanger

Direction Photo Taken:

East

Description: Institutional control signage properly installed on access road to site.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SA 80, Steam Plant 4*	**Date of inspection:** 04/21/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☒ Free product recovery *ended*
- ☐ Other *ADEC approved conditional closure in 2005.*
- ☒ Monitored natural attenuation
- ☒ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☒ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *Similar to 2019 IC site inspections and previous 4th FYR. Limited housekeeping issues.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *One main building and two small storage outbuildings. Each are one story slab on grade.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks _____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____

VI. MNA/GROUNDWATER MONITORING ☒ Applicable ☐ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☒ Properly secured/locked ☒ Good condition ☒ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *SA 80, Steam Plant 4*	**Date of inspection:** 04/21/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Inventory of Structures

Building #: *1* **Type of construction:** *slab on grade*

Number of floors: *1-2* **Possible floors below grade?** ☒ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks Former steam plant, sub floors and 20 foot ceiling.

Building surrounded by ☐ asphalt ☒ concrete ☒ Landscaping or bare ground

Building #: *2* **Type of construction:** *slab on grade*

Number of floors: *1* **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks Small storage outbuilding

Building surrounded by ☐ asphalt ☐ concrete ☒ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/21/2021

Site Name: SA 80, Steam Plant 4

Direction Photo Taken: Southwest

Description: Institutional control signage in front of SA 80, Steam Plant 4. Northeast corner of site.

Site Name: SA 80, Steam Plant 4

Direction Photo Taken: Southeast

Description: Photo of SA 80, Steam Plant 4 area. Southeast corner of the site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/21/2021

Site Name: SA 80, Steam Plant 4

Direction Photo Taken: Northeast

Description: Overview of SA 80, Steam Plant 4 area.

Site Name: SA 80, Steam Plant 4

Direction Photo Taken: North

Description: Overview of SA 80, Steam Plant 4 area, taken just outside the fence line.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *Navy Exchange Building, UST 30027-A*	**Date of inspection:** 04/21/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40º F Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☒ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Other *ADEC issued conditional closure in 2004*
- ☐ Monitored natural attenuation
- ☒ Groundwater monitoring *ended*
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *Similar conditions to 2019 IC site inspection and previous 4th FYR. Debris scattered around lot. Building is currently in use.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *One large one story slab on grade.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
   Remarks

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *Navy Exchange Building, UST 30027-A*	**Date of inspection:** 04/21/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Inventory of Structures

Building #: *1* **Type of construction:** *slab on grade*

Number of floors: *1-2* **Possible floors below grade?** ☐ Yes ☐ No ☒ Unsure

Building occupied/in use ☒ Yes ☐ No ☐ N/A

Remarks *Used for equipment/material storage by TDX Adak Generating.*

Building surrounded by ☒ asphalt ☐ concrete ☐ Landscaping or bare ground

---

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

---

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

---

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

---

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/21/2021

Site Name: Navy Exchange Building, UST 30027-A

Direction Photo Taken: Northwest

Description: Overview of Navy Exchange Building, UST 30027-A. Southeast corner of the site.

Site Name: Navy Exchange Building, UST 30027-A

Direction Photo Taken: North

Description: Storage area at entrance door to Navy Exchange Building. Southwest corner of the building.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/21/2021

Site Name: Navy Exchange Building, UST 30027-A

Direction Photo Taken: North

Description: Sign of current company using the Navy Exchange Building and storage area on SW corner of building.

Site Name: Navy Exchange Building, UST 30027-A

Direction Photo Taken: Southeast

Description: Northwest corner of Navy Exchange Building with visible ponding located southwest area of the site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/21/2021

Site Name: Navy Exchange Building, UST 30027-A

Direction Photo Taken: West

Description: UST located on east side of Navy Exchange Building.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SA 79, Main Road Pipeline*	**Date of inspection:** 04/21/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Other_____
- ☒ Monitored natural attenuation
- ☒ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☒ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *Similar to 2019 IC site inspection and previous 4th FYR (Connex box still located on north end).*_____

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures _____

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks_____

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☒ Applicable ☐ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☒ Properly secured/locked ☒ Good condition ☒ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/21/2021

Site Name: SA 79, Main Road Pipeline South End

Direction Photo Taken: Southwest

Description: Overview of SA 79, Main Road Pipeline South End. Northeast end of the site facing southwest.

Site Name: SA 79, Main Road Pipeline South End

Direction Photo Taken: Northeast

Description: Off limits sign just north of concrete pad area located on the south center area of the site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/21/2021

Site Name: SA 79, Main Road Pipeline South End

Direction Photo Taken: East

Description: Overview of SA 79, Main Road Pipeline South End. West side of the site facing east. Shipping container visible in the background.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *South of Runway 18-36 Area*	**Date of inspection:** 04/21/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Remedy Includes: (Check all that apply)

- ☒ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☒ Free product recovery
- ☐ Other_____
- ☒ Monitored natural attenuation
- ☒ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☒ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *Similar to 2019 IC site inspections and last 4th FYR, no changes. MW-AS-1 well monument is destroyed and needs to be repaired.*_____

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures_____

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks_____

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☒ Applicable ☐ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☒ Applicable ☐ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☒ Properly secured/locked ☒ Good condition ☒ All required wells located
☒ Needs Maintenance ☐ N/A
Remarks *MW-AS-1 well monument is destroyed and needs repair.*_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/21/2021

Site Name: South of Runway 18-36 Area

Direction Photo Taken: North

Description: Overview of South of Runway 18-36 area adjacent to the south end of active runway.

Site Name: South of Runway 18-36 Area

Direction Photo Taken: North

Description: Institutional control signage located at South of Runway 18-36 Area adjacent to access road along East Canal.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/21/2021

Site Name: South of Runway 18-36 Area

Direction Photo Taken: NA

Description: Damaged MW AS-1 located at entrance of access road adjacent to East Canal.

Site Name: South of Runway 18-36 Area

Direction Photo Taken: Southeast

Description: Overview of South of Runway 18-36 facing the bay.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/21/2021

Site Name: South of Runway 18-36 Area

Direction Photo Taken: South

Description: Overview of South of Runway 18-36 Area.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *NORPAC Hill Seep Area*	**Date of inspection:** 04/21/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☒ Free product recovery – *ended*
- ☐ Monitored natural attenuation
- ☒ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other *Cleanup complete with ICs determination by ADEC in 2011, free product recovery ceased in 2011 as well. Wells decommissioned in 2013.*

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☒ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *Similar to 2019 IC site inspections and previous 4th FYR. No changes.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *2 vacant, slab on grade duplex homes.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks_____

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *NORPAC Hill Seep*	**Date of inspection:** 04/21/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Inventory of Structures

Building #: *1 – 2* **Type of construction:** *Slab on grade, modular*
Number of floors: *1* **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure
Building occupied/in use ☐ Yes ☒ No ☐ N/A
Remarks *Abandoned/unoccupied homes in disrepair.*
Building surrounded by ☐ asphalt ☐ concrete ☒ Landscaping or bare ground

Building #: **Type of construction:**
Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure
Building occupied/in use ☐ Yes ☐ No ☐ N/A
Remarks____________________
Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**
Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure
Building occupied/in use ☐ Yes ☐ No ☐ N/A
Remarks____________________
Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**
Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure
Building occupied/in use ☐ Yes ☐ No ☐ N/A
Remarks____________________
Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**
Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure
Building occupied/in use ☐ Yes ☐ No ☐ N/A
Remarks____________________
Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/21/2021

Site Name: NORPAC Hill Seep Area

Direction Photo Taken: Northwest

Description: Overview of NORPAC Hill Seep Area. Institutional control signage installed just west of roadway.

Site Name: NORPAC Hill Seep Area

Direction Photo Taken: South

Description: Building located adjacent to NORPAC Hill Seep Area. Building is not in use.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/21/2021

Site Name: NORPAC Hill Seep Area

Direction Photo Taken: East

Description: Overview of NORPAC Hill Seep Area, on west edge of site. Vehicle tracks visible on the ground surface.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *Housing Area, Arctic Acres*	**Date of inspection:** 04/21/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Other_____
- ☒ Monitored natural attenuation
- ☒ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☒ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *Abandoned homes, some homes falling apart. Each home has a sign indicating authorized entry only. Similar to 2019 IC site inspection and previous 4th FYR.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *Several vacant housing units. No evidence of occupancy.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks_____

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____
_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☒ Applicable ☐ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☒ Properly secured/locked ☐ Good condition ☒ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *Housing Area, Arctic Acres*	**Date of inspection:** 04/21/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Inventory of Structures

Building #: 1-13+ **Type of construction:** *Slab on grade or modular*

Number of floors: 1-2 **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks *Vacated housing signage indicating only authorized personnel allowed.*

Building surrounded by ☐ asphalt ☐ concrete ☒ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/21/2021

Site Name: Housing Area, Arctic Acres

Direction Photo Taken: Northwest

Description: Typical housing unit located within the Housing Area, Arctic Acres site.

Site Name: Housing Area, Arctic Acres

Direction Photo Taken: NA

Description: Excavation restriction sign located at Housing Area, Arctic Acres.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/21/2021

Site Name: Housing Area, Arctic Acres

Direction Photo Taken: NA

Description: Notice authorized personnel entry sign located at each housing unit in Housing Area, Arctic Acres.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *ASR-8 Facility (UST 42007-B)*	**Date of inspection:** 04/21/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☐ Institutional controls
- ☒ Soil/Sediment removal *2006*
- ☐ Free product recovery
- ☐ Other *Cleanup complete determination by ADEC 2007 no ICs required.*
- ☐ Monitored natural attenuation
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☐ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *No changes since last 4th FYR, building is open to environment.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *One, two-story concrete slab on grade.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☐ Applicable ☒ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remark

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☐ No ☒ N/A
   Evidence of Well Installation? ☐ Yes ☐ No ☒ N/A

   Remarks

3. **Signs and other security measures** ☐ Intact ☐ Work Needed ☒ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☐ Yes ☐ No ☒ N/A
Site conditions imply ICs fully enforced ☐ Yes ☐ No ☒ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____
_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *ASR-8 Facility (UST 42007-B)*	**Date of inspection:** 04/21/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Inventory of Structures

Building #: 1 **Type of construction:** *Slab on grade*

Number of floors: 2 **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☒ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/21/2021

Site Name: ASR-8 Facility (UST 42007-B)

Direction Photo Taken: Southeast

Description: Overview of ASR-8 Facility. Photo taken on northwest corner of site.

Site Name: ASR-8 Facility (UST 42007-B)

Direction Photo Taken: Northeast

Description: Overview of ASR-8 Facility. Photo taken on southwest corner of site. Debris visible along sides of building.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/21/2021

Site Name: ASR-8 Facility (UST 42007-B)

Direction Photo Taken: North

Description: Overview of ASR-8 Facility. Photo taken on south end of site. Platform on Southwestern side of building.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *Amulet Housing, Well AMW-706 Area*	**Date of inspection:** 04/21/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls *ended*
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☒ Monitored natural attenuation *ended*
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other ___*Cleanup complete; determination by ADEC issued in 2016. ICs were removed in 2016*.

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☐ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____
   _____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____
   _____

3. **Current Overall Site Conditions**
   Remarks *Similar to last 4th FYR and previous years, no changes. Petroleum sheen noticed downslope from warning excavating sign adjacent to S Sweeper Creek. Recommend that if possible, try and determine the source of the sheen in S Sweeper Creek and see if it originates from nearby sites.*
   _____

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures_____
   _____

III. ACCESS AND INSTITUTIONAL CONTROLS ☐ Applicable ☒ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____
   _____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☐ No ☒ N/A
   Evidence of Well Installation? ☐ Yes ☐ No ☒ N/A

   Remarks_____
   _____

3. **Signs and other security measures** ☐ Intact ☐ Work Needed ☒ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☐ Yes ☐ No ☒ N/A
Site conditions imply ICs fully enforced ☐ Yes ☐ No ☒ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/21/2021

Site Name: Amulet Housing, Well AMW-706 Area

Direction Photo Taken: West

Description: Overview of Amulet Housing, Well AMW-706 Area. Photo taken on east end of site.

Site Name: Amulet Housing, Well AMW-706 Area

Direction Photo Taken: East

Description: Overview of Amulet Housing, Well AMW-706 Area. Photo taken on west end of site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/21/2021

Site Name: Amulet Housing, Well AMW-706 Area

Direction Photo Taken: East

Description: Institutional controls sign on east end of Amulet Housing, Well AMW-706 Area. Downslope of this sign there is a petroleum seep present (see next image).

Site Name: Amulet Housing, Well AMW-706 Area

Direction Photo Taken: NA

Description: Petroleum seep downslope from Institutional control sign at Amulet Housing Well AMW-706 Area.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *Amulet Housing, Well AMW-709 Area*	**Date of inspection:** 04/21/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls *ended*
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☒ Monitored natural attenuation *ended*
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other _*Cleanup complete determination by ADEC issued in 2016. ICs were removed in 2016.*_____

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☐ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *Similar to previous years and last 4th FYR, no changes.* _____

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures_____

III. ACCESS AND INSTITUTIONAL CONTROLS ☐ Applicable ☒ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☐ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☐ No ☒ N/A
   Evidence of Well Installation? ☐ Yes ☐ No ☒ N/A

   Remarks_____

3. **Signs and other security measures** ☐ Intact ☐ Work Needed ☒ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☐ Yes ☐ No ☒ N/A
Site conditions imply ICs fully enforced ☐ Yes ☐ No ☒ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/21/2021

Site Name: Amulet Housing, Well AMW-709 Area

Direction Photo Taken: East

Description: Overview of Amulet Housing, Well AMW-709 Area. Photo taken on west end of site.

Site Name: Amulet Housing, Well AMW-709 Area

Direction Photo Taken: East

Description: Institutional controls sign on east end of Amulet Housing, Well AMW-709 Area. Sign is facing towards South Sweeper Creek.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SA 86, Old Happy Valley Child Care Center*	**Date of inspection:** 04/21/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40ºF Cloudy

Remedy Includes: (Check all that apply)

☐ Cover or capping/containment
☐ Access controls
☐ Institutional controls
☐ Soil/Sediment removal
☐ Free product recovery
☐ Monitored natural attenuation
☐ Groundwater monitoring
☐ Marine tissue monitoring
☐ Ordnance clearing
☒ Other *No Further Action based on ADEC Method 4 criteria– excluded from ROD.*

References Supplementing This Checklist:

☐ 2019 Landfill Monitoring Inspection Report
☐ 2019 Groundwater Monitoring Report
☐ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *Similar to last 4th FYR; building and drum debris scattered throughout site.*

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures *Building debris.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☐ Applicable ☒ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Signs and other security measures** ☐ Intact ☐ Work Needed ☒ N/A
   Remarks_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☐ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☐ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/21/2021

Site Name: SA 86, Old Happy Valley Child Care Center

Direction Photo Taken: Southeast

Description: Overview of SA 86, Old Happy Valley Child Care Center. Photo taken on northwest end of site.

Site Name: SA 86, Old Happy Valley Child Care Center

Direction Photo Taken: Southwest

Description: Overview of SA 86, Old Happy Valley Child Care Center. Photo taken on northeast end of site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/21/2021

Site Name: SA 86, Old Happy Valley Child Care Center

Direction Photo Taken: NA

Description: Drum and scattered debris within the SA 86, Old Happy Valley Child Care Center Area.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SA 76, Old Line Shed Building*	**Date of inspection:** 04/22/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Monitored natural attenuation
- ☐ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other *Conditional closure approved by ADEC in 2004.*

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☐ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *Dumpsters onsite used by City of Adak for central trash consolidation.*

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: SA 76, Old Line Shed Building

Direction Photo Taken: Northwest

Description: Overview of SA 76, Old Line Shed Building. Photo taken on southeast end of site.

Site Name: SA 76, Old Line Shed Building

Direction Photo Taken: NA

Description: Roll-off located within SA 76, Old Line Shed Building. Roll-off is used for garbage waste disposal for the Adak Island community.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 14, Old Pesticides Area*	**Date of inspection:** 04/22/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Other_____
- ☐ Monitored natural attenuation
- ☒ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☒ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *Similar to 2019 IC site inspections and previous fourth FYR. Ponding on-site; recommend that signage is moved to an appropriate location closer to the site. Currently, the signage is posted next to a building not associated with the site.*

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures_____

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks_____

3. **Signs and other security measures** ☒ Intact ☒ Work Needed ☐ N/A
Remarks *Recommend that signage is moved to an appropriate location closer to the site. Currently, the signage is posted next to a building not associated with the site*

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VI. MNA/GROUNDWATER MONITORING ☒ Applicable ☐ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☒ Properly secured/locked ☐ Good condition ☒ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: SWMU 14, Old Pesticides Area

Direction Photo Taken: Southeast

Description: Overview of SWMU 14, Old Pesticides Area. Photo taken on northwest end of site. Ponding within site is visible.

Site Name: SWMU 14, Old Pesticides Area

Direction Photo Taken: South

Description: Overview of SWMU 14, Old Pesticides Area. Photo taken on north center end of site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: SWMU 14, Old Pesticides Area

Direction Photo Taken: North

Description: Overview of SWMU 14, Old Pesticides Area. Photo taken on south center end of site.

Site Name: SWMU 14, Old Pesticides Area

Direction Photo Taken: NA

Description: Institutional controls sign facing a building adjacent to the SE corner of SWMU 14, Old Pesticides Area. The sign is not facing the SWMU 14 site.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 62, Housing Area Fuel Leak*	**Date of inspection:** 04/22/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40º F Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☒ Soil/Sediment removal
- ☒ Free product recovery *passive*
- ☐ Other_____
- ☒ Monitored natural attenuation
- ☒ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☒ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks *Site conditions are similar to previous use and 2019 IC site inspections.*

3. **Current Overall Site Conditions**
   Remarks_____

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *Approximately 35 two-story residential homes; some are not occupied. Also includes a community building (with a grocery store, a restaurant, and offices).*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☒ Applicable ☐ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☒ Properly secured/locked ☒ Good condition ☒ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *SWMU 62, Housing Area Fuel Leak*	**Date of inspection:** 04/22/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Inventory of Structures

Building #: *Approx. 35* **Type of construction:** *Manufactured on non-slab foundation*

Number of floors: *2* **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure

Building occupied/in use ☒ Yes ☐ No ☐ N/A

Remarks *Some housing units are in use; others are abandoned.*

Building surrounded by ☒ asphalt ☐ concrete ☒ Landscaping or bare ground

Building #: 2 **Type of construction:** *Slab on grade – concrete and metal*

Number of floors: *1* **Possible floors below grade?** ☐ Yes ☐ No ☒ Unsure

Building occupied/in use ☒ Yes ☐ No ☐ N/A

Remarks *Community center – store, restaurant, and offices.*

Building surrounded by ☒ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: SWMU 62, Housing Fuel Leak Area

Direction Photo Taken: West

Description: Institutional controls sign at SWMU 62, Housing Fuel Leak Area. Facing east canal just south of Area 303/GCI Compound site.

Site Name: SWMU 62, Housing Fuel Leak Area

Direction Photo Taken: Southeast

Description: Well field at SWMU 62, Housing Fuel Leak Area just east of east canal.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: SWMU 62, Housing Fuel Leak Area

Direction Photo Taken: NA

Description: Petroleum seep along east canal adjacent to booms at SWMU 62, Housing Fuel Leak Area.

Site Name: SWMU 62, Housing Fuel Leak Area

Direction Photo Taken: Southeast

Description: Institutional controls sign as you enter Sandy Cove Housing at SWMU 62, Housing Fuel Leak Area.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *GCI Compound, UST GCI-1/Area 303*	**Date of inspection:** 04/22/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☒ Free product recovery *ended*
- ☐ Other_____
- ☒ Monitored natural attenuation
- ☒ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☒ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *Similar to 2019 IC site inspections and previous 4th FYR. A sign is knocked down on the ground and needs to be repaired.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *2-GCI cpd and T-2776.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Signs and other security measures** ☒ Intact ☒ Work Needed ☐ N/A
Remarks *Sign knocked over, sign needs to be repaired.*

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VI. MNA/GROUNDWATER MONITORING ☒ Applicable ☐ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☒ Properly secured/locked ☒ Good condition ☒ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *GCI Compound, UST GCI-1/Area 303*	**Date of inspection:** 04/22/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Inventory of Structures

Building #: *1* **Type of construction:** *slab on grade; modular*
Number of floors: *1* **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure
Building occupied/in use ☐ Yes ☒ No ☐ N/A
Remarks *GCI Cpd*
Building surrounded by ☐ asphalt ☐ concrete ☒ Landscaping or bare ground

Building #: 2 **Type of construction:** *slab on grade; modular*
Number of floors: 1 **Possible floors below grade?** ☒ Yes ☐ No ☐ Unsure
Building occupied/in use ☐ Yes ☒ No ☐ N/A
Remarks *T-2776 uncertain usage*
Building surrounded by ☐ asphalt ☐ concrete ☒ Landscaping or bare ground

Building #: **Type of construction:**
Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure
Building occupied/in use ☐ Yes ☐ No ☐ N/A
Remarks
Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**
Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure
Building occupied/in use ☐ Yes ☐ No ☐ N/A
Remarks
Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**
Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure
Building occupied/in use ☐ Yes ☐ No ☐ N/A
Remarks
Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: GCI Compound, UST GCI-1/ Area 303

Direction Photo Taken: NA

Description: Damaged sign within GCI Compound. Facing east canal.

Site Name: GCI Compound, UST GCI-1/Area 303

Direction Photo Taken: Northeast

Description: Overview of GCI Compound/303 Area. Photo taken on southwest end of site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: GCI Compound, UST GCI-1/ Area 303

Direction Photo Taken: West

Description: GCI Compound on east side of the building.

Site Name: GCI Compound, UST GCI-1/Area 303

Direction Photo Taken: North

Description: Building T-2776 located non northeast corner of the GCI compound/Area 303 site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: GCI Compound, UST GCI-1/ Area 303

Direction Photo Taken: South

Description: UST located on north side of building T-2776 within GCI compound/Area 303 site.

Site Name: GCI Compound, UST GCI-1/Area 303

Direction Photo Taken: Southeast

Description: Overview of GCI Compound/303 Area. Photo taken on northwest end of site.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *Tanker Shed, UST 42494*	**Date of inspection:** 04/22/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☒ Free product recovery *ended*
- ☐ Other *Conditional closure approved by ADEC in 2005.*
- ☒ Monitored natural attenuation
- ☒ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

References Supplementing This Checklist:

- ☐ 2010 Landfill Monitoring Inspection Report
- ☒ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *Similar to 2019 IC site inspections and last fourth FYR. Ponding adjacent to site.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures Tanker Shed - block and metal slab on concrete

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks _____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☒ Applicable ☐ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☒ Properly secured/locked ☐ Good condition ☒ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *Tanker Shed, UST 42494*	**Date of inspection:** 04/22/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40º F Cloudy

Inventory of Structures

Building #: *1* **Type of construction:** *Slab on grade; block and metal*

Number of floors: *1* **Possible floors below grade?** ☐ Yes ☐ No ☒ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks____

Building surrounded by ☒ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: Tanker Shed, UST 42494

Direction Photo Taken: South

Description: Institutional control sign as you enter the Tanker Shed UST, 42494 area.

Site Name: Tanker Shed, UST 42494

Direction Photo Taken: South

Description: Overview of Tanker Shed UST, 42494 site. Photo taken on north end of site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: Tanker Shed, UST 42494

Direction Photo Taken: North

Description: Overview of Tanker Shed UST, 42494 site. Photo taken on south end of site. Ponding just west of the building is visible.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 35, Ground Support Equipment Bldg.*	**Date of inspection:** 04/22/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40º F Cloudy

Remedy Includes: (Check all that apply)

☐ Cover or capping/containment
☐ Access controls
☐ Institutional controls
☐ Soil/Sediment removal
☐ Free product recovery
☐ Monitored natural attenuation
☐ Groundwater monitoring
☐ Marine tissue monitoring
☐ Ordnance clearing
☐ Other *No Further Action based on ADEC Method 4 criteria – excluded from ROD.*

References Supplementing This Checklist:

☐ 2019 Landfill Monitoring Inspection Report
☐ 2019 Groundwater Monitoring Report
☐ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *Similar to last fourth FYR; some housekeeping issues but site is in good condition.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *Former ground support equipment building is now the airport operations building. One story slab on grade, corrugated metal.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☐ Applicable ☒ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☐ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☐ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☐ No ☐ N/A
   Remarks_____

3. **Signs and other security measures** ☐ Intact ☐ Work Needed ☐ N/A
   Remarks_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☐ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☐ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *SWMU 35, Ground Support Equipment Bldg.*	**Date of inspection:** 04/22/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Inventory of Structures

Building #: *1* **Type of construction:** *slab on grade*

Number of floors: *1* **Possible floors below grade?** ☐ Yes ☐ No ☒ Unsure

Building occupied/in use ☒ Yes ☐ No ☐ N/A

Remarks *Ground support equipment building – office and shop space for airfield operations.*

Building surrounded by ☒ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: SWMU 35, Ground Support Equipment Bldg.

Direction Photo Taken: Southwest

Description: Overview of SWMU 35, Ground Support Equipment Building. Photo taken on northeast end of site. Storage along east side of building.

Site Name: SWMU 35, Ground Support Equipment Bldg.

Direction Photo Taken: South

Description: Overview of SWMU 35, Ground Support Equipment Building. Photo taken on north end of site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: SWMU 35, Ground Support Equipment Bldg.

Direction Photo Taken: South

Description: West side of SWMU 35, Ground Support Equipment Building. Photo taken on north end of site.

Site Name: SWMU 35, Ground Support Equipment Bldg.

Direction Photo Taken: Northwest

Description: Overview of SWMU 35, Ground Support Equipment Building. Photo taken on southeast end of site.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 13, Metals Landfill*	**Date of inspection:** 04/22/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40º F Cloudy

Remedy Includes: (Check all that apply)

- ☒ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Monitored natural attenuation
- ☒ Groundwater monitoring *discontinued*
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other *Conditional closure approved by ADEC in 2004.*

References Supplementing This Checklist:

- ☒ 2019 Landfill Monitoring Inspection Report
- ☒ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *Similar to 2019 IC inspections. Some metal debris on top of landfill, drainage swales and cap in good condition. Drone survey markers noted on top of landfill.*

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures_____

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☒ Gates secured ☐ Work Needed ☐ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks_____

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____

IV. COVERS, CAPPING, AND CONTAINMENT ☒ Applicable ☐ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☒ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks *Groundwater monitoring ended in 2019.*

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: SWMU 13, Metals Landfill

Direction Photo Taken: Northeast

Description: Danger buried landfill sign entering SWMU 13 along northern access road.

Site Name: SWMU 13, Metals Landfill

Direction Photo Taken: South

Description: Overview of SWMU 13, Metals Landfill. Photo taken on north end of landfill at top of access road.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: SWMU 13, Metals Landfill

Direction Photo Taken: NA

Description: One of several survey marker used for aerial drones on top of SWMU 13, Metals Landfill.

Site Name: SWMU 13, Metals Landfill

Direction Photo Taken: NA

Description: Good condition of ground surface swale adjacent to access roads on top of SWMU 13, Metals Landfill.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: SWMU 13, Metals Landfill

Direction Photo Taken: NA

Description: Survey marker located on top and center of SWMU 13, Metals Landfill.

Site Name: SWMU 13, Metals Landfill

Direction Photo Taken: North

Description: Overview of SWMU 13, Metals Landfill. Photo taken on south end of landfill.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: SWMU 13, Metals Landfill

Direction Photo Taken: East

Description: Access gate with institutional controls sign along access road heading up to SWMU 13, Metals Landfill. South end of the landfill.

Site Name: SWMU 13, Metals Landfill

Direction Photo Taken: NA

Description: Damaged buried landfill sign located at the base of the landfill on the south end.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *NMCB Building Area, T-1416 Expanded Area*	**Date of inspection:** 04/22/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☒ Free product recovery - *ended*
- ☐ Other *Conditional closure approved by ADEC in 2006.*
- ☒ Monitored natural attenuation
- ☒ Groundwater monitoring
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☒ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *Similar to 2019 IC site inspections and previous 4th FYR. Poor housekeeping, debris and dirt piles.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *Two slab on grade structures.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☒ Applicable ☐ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☒ Properly secured/locked ☐ Good condition ☒ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *NMCB Building Area, T-1416 Expanded Area*	**Date of inspection:** 04/22/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Inventory of Structures

Building #: *1* **Type of construction:** *slab on grade, corrugated metal*

Number of floors: *1-2* **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure

Building occupied/in use ☒ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☒ asphalt ☐ concrete ☒ Landscaping or bare ground

Building #: *2* **Type of construction:** *slab on grade, corrugated metal*

Number of floors: *1* **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☒ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks____

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: NMCB Building Area, T-1416 Expanded Area

Direction Photo Taken: East

Description: Overview of NMCB Building Area. Photo taken on west side of site. Dirt piles visible in the forefront.

Site Name: NMCB Building Area, T-1416 Expanded Area

Direction Photo Taken: NA

Description: Institutional controls sign located at NMCB Building Area, T-1416 Expanded Area.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: NMCB Building Area, T-1416 Expanded Area

Direction Photo Taken: Northeast

Description: Overview of NMCB Building Area. Building 42069 located on northeast end of site.

Site Name: NMCB Building Area, T-1416 Expanded Area

Direction Photo Taken: South

Description: Building that is falling apart and institutional controls sign located on southwest portion of the site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: NMCB Building Area, T-1416 Expanded Area

Direction Photo Taken: West

Description: Overview of NMCB Building Area. Photo taken on east side of property. Scattered debris visible.

Site Name: NMCB Building Area, T-1416 Expanded Area

Direction Photo Taken: West

Description: Southern shoreline along NMCB Building Area, T-1416 Expanded Area.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: NMCB Building Area, T-1416 Expanded Area

Direction Photo Taken: NA

Description: Metal debris along shoreline of NMCB Building Area, T-1416 Expanded Area.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 15, Future Jobs/DRMO*	**Date of inspection:** 04/22/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40º F Cloudy

Remedy Includes: (Check all that apply)

☐ Cover or capping/containment
☐ Access controls
☒ Institutional controls
☐ Soil/Sediment removal
☐ Free product recovery
☐ Monitored natural attenuation
☒ Groundwater monitoring *ended*
☐ Marine tissue monitoring
☐ Ordnance clearing
☐ Other _*Cleanup complete determination issued by ADEC in 2014. Groundwater monitoring ended in 2012.*_

References Supplementing This Checklist:

☐ 2019 Landfill Monitoring Inspection Report
☐ 2019 Groundwater Monitoring Report
☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☒ Yes ☐ No ☐ N/A
   Remarks _*Building in use by Aleutian Outfitters for storage.*_

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks _____

3. **Current Overall Site Conditions**
   Remarks _*Similar to 2019 IC site inspections and previous fourth FYR. Ponding on south end and debris on north end of site.*_

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *Corrugated metal shed – staining on ground.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks _____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks _____

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks_____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks _____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *SWMU 15, Future Jobs/DRMO*	**Date of inspection:** 04/22/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Inventory of Structures

Building #: *1* **Type of construction:** *Corrugated metal on slab.*

Number of floors: *1* **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure

Building occupied/in use ☒ Yes ☐ No ☐ N/A

Remarks *Building in use by Aleutian Outfitters for storage.*

Building surrounded by ☒ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:** ☐

Number of floors: **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete x Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: SWMU 15, Future Jobs/DRMO

Direction Photo Taken: East

Description: Drums and debris along northern boundary of SWMU 15, Future Jobs/DRMO.

Site Name: SWMU 15, Future Jobs/DRMO

Direction Photo Taken: North

Description: Waste barrels located on northern boundary of SWMU 15, Future Jobs/DRMO.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: SWMU 15, Future Jobs/DRMO

Direction Photo Taken: Southwest

Description: Occupied building used for storage located at northeast corner of SWMU 15, Future Jobs/DRMO.

Site Name: SWMU 15, Future Jobs/DRMO

Direction Photo Taken: North

Description: Damaged institutional controls signs along northeast corner of fence line at SWMU 15, Future Jobs/DRMO.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: SWMU 15, Future Jobs/DRMO

Direction Photo Taken: North

Description: Institutional controls sign located at on the east side of SWMU 15, Future Jobs/DRMO.

Site Name: SWMU 15, Future Jobs/DRMO

Direction Photo Taken: North

Description: Overview of SWMU 15, Future Jobs/DRMO. Photo taken on south side of property. Crab trap storage visible in forefront.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 10, Old Baler Building*	**Date of inspection:** 04/22/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40º F Cloudy

Remedy Includes: (Check all that apply)

☐ Cover or capping/containment
☐ Access controls
☒ Institutional controls
☐ Soil/Sediment removal
☐ Free product recovery
☐ Monitored natural attenuation
☐ Groundwater monitoring
☐ Marine tissue monitoring
☐ Ordnance clearing
☐ Other *Conditional closure approved by ADEC in 2004.*

References Supplementing This Checklist:

☐ 2019 Landfill Monitoring Inspection Report
☐ 2019 Groundwater Monitoring Report
☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks

3. **Current Overall Site Conditions**
   Remarks *Similar to 2019 IC site inspections and fourth FYR. Drums and scrap metal near former building foundation.*

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A

   Remarks

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
Remarks _____
_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks _____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks _____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks _____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks _____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks _____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks _____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: SWMU 10, Old Baler Building

Direction Photo Taken: North

Description: Overview of SWMU 10, Old Baler Building. Photo taken on south side of property.

Site Name: SWMU 10, Old Baler Building

Direction Photo Taken: West

Description: Institutional control sign located on east side of site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: SWMU 10, Old Baler Building

Direction Photo Taken: NA

Description: Drums and scattered debris located in center of site.

Site Name: SWMU 10, Old Baler Building

Direction Photo Taken: Southwest

Description: Overview of SWMU 10, Old Baler Building. Photo taken on northwest corner of property.

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 55, Waste Storage Area*	**Date of inspection:** 04/22/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40º F Cloudy

Remedy Includes: (Check all that apply)

- ☐ Cover or capping/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Soil/Sediment removal
- ☐ Free product recovery
- ☐ Monitored natural attenuation
- ☒ Groundwater monitoring *ended*
- ☐ Marine tissue monitoring
- ☐ Ordnance clearing
- ☐ Other *Groundwater monitoring ended in 2019.*

References Supplementing This Checklist:

- ☐ 2019 Landfill Monitoring Inspection Report
- ☒ 2019 Groundwater Monitoring Report
- ☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *Similar to 2019 IC site inspections and last fourth FYR. Building open to atmosphere due to damaged wall. Waste drums inside building.*

4. **Building(s) located on site** ☒ Yes ☐ No ☐ N/A
   If Yes, number & type of structures *Corrugated metal shed on concrete slab.*

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
   Remarks_____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____
_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks *Groundwater monitoring ended in 2019.*_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☒ Applicable ☐ N/A

Vapor Intrusion Condition Checklist

Site name: *SWMU 55, Waste Storage Area*	**Date of inspection:** 04/22/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40° F Cloudy

Inventory of Structures

Building #: *1* **Type of construction:** *Slab on grade*

Number of floors: *1* **Possible floors below grade?** ☐ Yes ☒ No ☐ Unsure

Building occupied/in use ☐ Yes ☒ No ☐ N/A

Remarks *Building open to atmosphere and full of waste drums.*

Building surrounded by ☒ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

Building #: **Type of construction:**

Number of floors: **Possible floors below grade?** ☐ Yes ☐ No ☐ Unsure

Building occupied/in use ☐ Yes ☐ No ☐ N/A

Remarks

Building surrounded by ☐ asphalt ☐ concrete ☐ Landscaping or bare ground

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: SWMU 55, Waste Storage Area

Direction Photo Taken: South

Description: Overview of SWMU 55, Waste Storage Area. Photo taken on north side of property.

Site Name: SWMU 55, Waste Storage Area

Direction Photo Taken: West

Description: Equipment storage at SWMU 55, Waste Storage Area on east side of drum storage building.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: SWMU 55, Waste Storage Area

Direction Photo Taken: NA

Description: Waste drums located inside building at SWMU 55, Waste Storage Area.

Site Name: SWMU 55, Waste Storage Area

Direction Photo Taken: North

Description: Building located at SWMU 55 Waste Storage Area. The building is open to atmosphere and contains waste drums.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: SWMU 55, Waste Storage Area

Direction Photo Taken: South

Description: Institutional control sign located at northeast corner of SWMU 55, Waste Storage Area (sign is used for both SWMU 55 and SWMU 24).

Site Inspection Checklist

I. SITE INFORMATION

Site name: *SWMU 24, Hazardous Waste Storage Facility*	**Date of inspection:** 04/22/2021
Location and Region: *Adak Island, Alaska, Region 10*	**EPA ID:** *AK4170024323*
Agency, office, or company leading the five-year review: *NAVFAC NW*	**Weather/temperature:** 40º F Cloudy

Remedy Includes: (Check all that apply)

☐ Cover or capping/containment
☐ Access controls
☒ Institutional controls
☐ Soil/Sediment removal
☐ Free product recovery
☐ Monitored natural attenuation
☐ Groundwater monitoring
☐ Marine tissue monitoring
☐ Ordnance clearing
☒ Other *RCRA NFA – ICs in place to restrict land use to commercial/industrial. ADEC approved conditional closure in 2004.*

References Supplementing This Checklist:

☐ 2019 Landfill Monitoring Inspection Report
☐ 2019 Groundwater Monitoring Report
☒ 2019 Institutional Controls Inspection Report

II. GENERAL SITE CONDITIONS

1. **Land use changes on site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

2. **Land use changes off site** ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Current Overall Site Conditions**
   Remarks *Similar to 2019 IC site inspections and last fourth FYR. Debris and drums scattered throughout north portion of site. Waste handling conducted.*

4. **Building(s) located on site** ☐ Yes ☒ No ☐ N/A
   If Yes, number & type of structures _____

III. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

1. **Fencing/Gates** ☐ Intact ☐ Gates secured ☐ Work Needed ☒ N/A
   Remarks_____

2. **Excavation and Well Restrictions**
   Evidence of Excavation? ☐ Yes ☒ No ☐ N/A
   Evidence of Well Installation? ☐ Yes ☒ No ☐ N/A
   Remarks_____

3. **Signs and other security measures** ☒ Intact ☐ Work Needed ☐ N/A
   Remarks _____

4. **Institutional Controls**
Site conditions imply ICs properly implemented ☒ Yes ☐ No ☐ N/A
Site conditions imply ICs fully enforced ☒ Yes ☐ No ☐ N/A

Remarks_____

IV. COVERS, CAPPING, AND CONTAINMENT ☐ Applicable ☒ N/A

1. **Overall Conditions**
Site conditions indicate regular maintenance and inspection ☐ Yes ☐ No ☐ N/A
☐ Signs of erosion ☐ Signs of settlement ☐ Indicators of poor drainage control

Remarks_____
_____

V. FREE PRODUCT RECOVERY SYSTEM ☐ Applicable ☒ N/A

1. **Electrical Enclosures and Panels** (properly rated and functional)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

2. **Tanks, Vaults, Storage Vessels**
☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring and Recovery Wells**
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VI. MNA/GROUNDWATER MONITORING ☐ Applicable ☒ N/A

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Good condition ☐ All required wells located
☐ Needs Maintenance ☐ N/A
Remarks_____
_____

VII. VAPOR INTRUSION CONDITION CHECKLIST ☐ Applicable ☒ N/A

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: SWMU 24, Hazardous Waste Storage Facility

Direction Photo Taken: South

Description: Institutional control sign located at northeast corner of SWMU 55, Waste Storage Area (sign is used for both SWMU 55 and SWMU 24).

Site Name: SWMU 24, Hazardous Waste Storage Facility

Direction Photo Taken: West

Description: Overview of SWMU 24, Hazardous Waste Storage Facility. Photo taken on east side of property.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/22/2021

Site Name: SWMU 24, Hazardous Waste Storage Facility

Direction Photo Taken: South

Description: Debris and drums scattered on ground along north end of SWMU 24, Hazardous Waste Storage Facility.

Site Name: SWMU 24, Hazardous Waste Storage Facility

Direction Photo Taken: West

Description: Overview of SWMU 24, Hazardous Waste Storage Facility. Photo taken on west side of property.

OU B-1 Land Use and Visual Site Inspection Checklist

Purpose: This inspection checklist is intended to document general land uses occurring at OU B-1 sites. In addition, the checklist is also intended to document any significant changes in site conditions that could result in a greater potential for exposure to hazards from OE/UXO.

Inspectors: Demetrio Cabanillas & Anders Utter **Date/Time**: 4/20/2021 9:15
Note: Navy will provide advance notice of inspection to regulatory agencies to allow their participation if they so desire.

Company: AECOM, NAVFAC Northwest

Weather/Temperature: 30 F, Cloudy, Showers

Site Designation (see OU B-1 ROD) FB-01A and FB-01B

Site Environmental Inspection

Erosion, Subsurface Soil Exposure Patterns

Is surface water drainage resulting in obvious erosion at the site?

Have any events (sloughing, landslides, past flood events) resulted in newly exposed subsurface soils? If yes, describe location, condition, severity, and provide square footage. Sketch location and provide location coordinates on reverse side of this form and provide a digital photograph.

No significant erosional issues observed (natural stream erosion.

Land Use Verification

The intent is to verify that land use assumptions used as a basis for remedy selection at the site (i.e. recreational use in areas with 30 degree or lower slope and little if any access or use of areas with greater than 30 degrees slope) remain valid.

1. Is there manmade debris (including potential OE/UXO items) or evidence of disturbance visible on the slope above the re-vegetated and restored area (i.e. trails, footprints and/or trampled vegetation, litter (beer cans/bottles, cigarette butts, etc.), campfire remnants, tent stakes, etc.)? If yes, note type of debris, location, and square footage. Sketch location and provide location coordinates on the reverse of this form and provide a digital photograph(s) of affected area. Forward to the remedial project manager.

Trails show frequent use, ATV tracks present and some drums and wires in the stream adjacent to the trails.

2. Is there any evidence of permanent development adjacent to re-vegetated, restored, remediated area (i.e. grading of site, survey stakes, buildings (temporary or permanent), or building foundations, etc.)? Note such evidence photographically and with a sketch of site that identifies the approximate location of the evidence.

No

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: FB-02

Direction Photo Taken:

South

Description:

FB-02 site looking towards finger creek.

Site Name: FB-02

Direction Photo Taken:

South

Description:

Rusted 55-gallon drums in finger creek near base of waterfall. Visual evidence of recreational use in area. Bullet holes within rusted drums.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: FB-02

Direction Photo Taken:

East

Description: Concrete debris from former structure near finger creek trail.

Site Name: FB-02

Direction Photo Taken: East

Description: Metallic debris within and along creek shoreline. Metal wire lined approximately 100 feet of shoreline along finger creek trail to Lake Betty.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: FB-01 **Direction Photo Taken:** East **Description:** Site overview from stream shoreline looking towards finger creek.	

Site Name: FB-01 **Direction Photo Taken:** West **Description:** Stream within site with visual pipeline crossing stream.	

OU B-1 Land Use and Visual Site Inspection Checklist

Purpose: This inspection checklist is intended to document general land uses occurring at OU B-1 sites. In addition, the checklist is also intended to document any significant changes in site conditions that could result in a greater potential for exposure to hazards from OE/UXO.

Inspectors: Demetrio Cabanillas & Anders Utter **Date/Time**: 4/20/2021 10:20
Note: Navy will provide advance notice of inspection to regulatory agencies to allow their participation if they so desire.

Company: AECOM, NAVFAC Northwest

Weather/Temperature: 30 F, Cloudy, Showers

Site Designation (see OU B-1 ROD) HH-01

Site Environmental Inspection

Erosion, Subsurface Soil Exposure Patterns

Is surface water drainage resulting in obvious erosion at the site?

Have any events (sloughing, landslides, past flood events) resulted in newly exposed subsurface soils? If yes, describe location, condition, severity, and provide square footage. Sketch location and provide location coordinates on reverse side of this form and provide a digital photograph.

No significant erosional issues observed.

Land Use Verification

The intent is to verify that land use assumptions used as a basis for remedy selection at the site (i.e. recreational use in areas with 30 degree or lower slope and little if any access or use of areas with greater than 30 degrees slope) remain valid.

1. Is there manmade debris (including potential OE/UXO items) or evidence of disturbance visible on the slope above the re-vegetated and restored area (i.e. trails, footprints and/or trampled vegetation, litter (beer cans/bottles, cigarette butts, etc.), campfire remnants, tent stakes, etc.)? If yes, note type of debris, location, and square footage. Sketch location and provide location coordinates on the reverse of this form and provide a digital photograph(s) of affected area. Forward to the remedial project manager.

No direct signs of recreational use, debris is present (wire wrapped wood piping).

2. Is there any evidence of permanent development adjacent to re-vegetated, restored, remediated area (i.e. grading of site, survey stakes, buildings (temporary or permanent), or building foundations, etc.)? Note such evidence photographically and with a sketch of site that identifies the approximate location of the evidence.

No

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: HH-01

Direction Photo Taken:

North

Description: HH-01 looking from bluff at small cove, vegetated area throughout site.

Site Name: HH-01

Direction Photo Taken:

East

Description: Metallic and woody debris observed in creek gully entering into sweeper cove.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/20/2021

Site Name: HH-01

Direction Photo Taken:

East

Description: Shoreline of sweeper cove within site area. No visual evidence of recreational use on site.

Site Name: HH-01

Direction Photo Taken:

East

Description: Wire-wrapped wood pipeline surfacing from bluff with disconnected section laying in vegetation downgradient from bluff.

OU B-1 Land Use and Visual Site Inspection Checklist
Page 1 of 2

Purpose: This inspection checklist is intended to document general land uses occurring at OU B-1 sites. In addition, the checklist is also intended to document any significant changes in site conditions that could result in a greater potential for exposure to hazards from OE/UXO.

Inspectors: Demetrio Cabanillas & Anders Utter **Date/Time**: 4/19/2021 11:40
Note: Navy will provide advance notice of inspection to regulatory agencies to allow their participation if they so desire.

Company: AECOM, NAVFAC Northwest

Weather/Temperature: 40 F, Cloudy

Site Designation (see OU B-1 ROD) C3-01A, C3-01B, C3-01C, C3-01D, C3-01E, and C3-01F

Site Environmental Inspection

Erosion, Subsurface Soil Exposure Patterns

Is surface water drainage resulting in obvious erosion at the site?

Have any events (sloughing, landslides, past flood events) resulted in newly exposed subsurface soils? If yes, describe location, condition, severity, and provide square footage. Sketch location and provide location coordinates on reverse side of this form and provide a digital photograph.

No significant erosional issues observed.

Land Use Verification

The intent is to verify that land use assumptions used as a basis for remedy selection at the site (i.e. recreational use in areas with 30 degree or lower slope and little if any access or use of areas with greater than 30 degrees slope) remain valid.

1. Is there manmade debris (including potential OE/UXO items) or evidence of disturbance visible on the slope above the re-vegetated and restored area (i.e. trails, footprints and/or trampled vegetation, litter (beer cans/bottles, cigarette butts, etc.), campfire remnants, tent stakes, etc.)? If yes, note type of debris, location, and square footage. Sketch location and provide location coordinates on the reverse of this form and provide a digital photograph(s) of affected area. Forward to the remedial project manager.

Use of ATVs are present, metalic debris present between C3-01B and C3-01E (spool of wire).

2. Is there any evidence of permanent development adjacent to re-vegetated, restored, remediated area (i.e. grading of site, survey stakes, buildings (temporary or permanent), or building foundations, etc.)? Note such evidence photographically and with a sketch of site that identifies the approximate location of the evidence.

No

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: OUB-1-C3-01A

Direction Photo Taken:

West

Description: Vegetation and gravel road within C3-01A site.

Site Name: OUB-1-C3-01A

Direction Photo Taken:

East

Description: Vegetation and debris within C3-01A site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: OUB-1-C3-01B **Direction Photo Taken:** Southwest **Description:** ATV tracks present in tundra throughout site.	

Site Name: OUB-1-C3-01B **Direction Photo Taken:** South **Description:** Vegetated tundra throughout site.	

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: OUB-1-C3-01C

Direction Photo Taken:

North

Description: Shoreline of Heart Lake within C3-01C site.

Site Name: OUB-1-C3-01C

Direction Photo Taken:

North

Description: Vegetated tundra within C3-01C, restricted access sign properly installed.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: OUB-1-C3-01D

Direction Photo Taken:

South

Description: Vegetated tundra and pooling within site.

Site Name: OUB-1-C3-01D

Direction Photo Taken:

West

Description: Barbed wire roll within tundra of site.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: OUB-1-C3-01E

Direction Photo Taken:

Northwest

Description: Stressed vegetation in hillside of site.

Site Name: OUB-1-C3-01E

Direction Photo Taken:

North

Description: ATV tracks within tundra of site.

OU B-1 Land Use and Visual Site Inspection Checklist

Purpose: This inspection checklist is intended to document general land uses occurring at OU B-1 sites. In addition, the checklist is also intended to document any significant changes in site conditions that could result in a greater potential for exposure to hazards from OE/UXO.

Inspectors: Demetrio Cabanillas & Anders Utter **Date/Time**:4/19/2021 14:00
Note: Navy will provide advance notice of inspection to regulatory agencies to allow their participation if they so desire.

Company: AECOM, NAVFAC Northwest

Weather/Temperature: 40 F, Cloudy

Site Designation (see OU B-1 ROD) ML-01A, ML-01B, and ML-01C

Site Environmental Inspection

Erosion, Subsurface Soil Exposure Patterns

Is surface water drainage resulting in obvious erosion at the site?

Have any events (sloughing, landslides, past flood events) resulted in newly exposed subsurface soils? If yes, describe location, condition, severity, and provide square footage. Sketch location and provide location coordinates on reverse side of this form and provide a digital photograph.

Minimal erosion noted (most likely due to natural stream flow events), No major erosion at site

Land Use Verification

The intent is to verify that land use assumptions used as a basis for remedy selection at the site (i.e. recreational use in areas with 30 degree or lower slope and little if any access or use of areas with greater than 30 degrees slope) remain valid.

1. Is there manmade debris (including potential OE/UXO items) or evidence of disturbance visible on the slope above the re-vegetated and restored area (i.e. trails, footprints and/or trampled vegetation, litter (beer cans/bottles, cigarette butts, etc.), campfire remnants, tent stakes, etc.)? If yes, note type of debris, location, and square footage. Sketch location and provide location coordinates on the reverse of this form and provide a digital photograph(s) of affected area. Forward to the remedial project manager.

Minimal metal debris, ATV trails around the site, no evidence of UXO items

2. Is there any evidence of permanent development adjacent to re-vegetated, restored, remediated area (i.e. grading of site, survey stakes, buildings (temporary or permanent), or building foundations, etc.)? Note such evidence photographically and with a sketch of site that identifies the approximate location of the evidence.

No

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: OUB-1-ML-01

Direction Photo Taken:

West

Description: Site overview looking west towards site from hillside across valley.

Site Name: OUB-1-ML-01

Direction Photo Taken:

West

Description: Stream divert from Lake Bonnie Rose upgradient.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: OUB-1-ML-01

Direction Photo Taken:

West

Description: Metallic debris observed within site. Damaged ARGO tire treads.

Site Name: OUB-1-ML-01

Direction Photo Taken:

West

Description: Rusted 55-gallon drum within stream on site.

OU B-1 Land Use and Visual Site Inspection Checklist

Purpose: This inspection checklist is intended to document general land uses occurring at OU B-1 sites. In addition, the checklist is also intended to document any significant changes in site conditions that could result in a greater potential for exposure to hazards from OE/UXO.

Inspectors: Josie Smith **Date/Time**: 6/6/2021 16:00
Note: Navy will provide advance notice of inspection to regulatory agencies to allow their participation if they so desire.

Company: AECOM, NAVFAC Northwest

Weather/Temperature: 40 F, Partly Cloudy

Site Designation (see OU B-1 ROD) MM-10F, MM-10G, and MM-10F

Site Environmental Inspection

Erosion, Subsurface Soil Exposure Patterns

Is surface water drainage resulting in obvious erosion at the site?

Have any events (sloughing, landslides, past flood events) resulted in newly exposed subsurface soils? If yes, describe location, condition, severity, and provide square footage. Sketch location and provide location coordinates on reverse side of this form and provide a digital photograph.

No significant erosional issues observed; conditions consistent with Mt. Moffett terrain

Land Use Verification

The intent is to verify that land use assumptions used as a basis for remedy selection at the site (i.e. recreational use in areas with 30 degree or lower slope and little if any access or use of areas with greater than 30 degrees slope) remain valid.

1. Is there manmade debris (including potential OE/UXO items) or evidence of disturbance visible on the slope above the re-vegetated and restored area (i.e. trails, footprints and/or trampled vegetation, litter (beer cans/bottles, cigarette butts, etc.), campfire remnants, tent stakes, etc.)? If yes, note type of debris, location, and square footage. Sketch location and provide location coordinates on the reverse of this form and provide a digital photograph(s) of affected area. Forward to the remedial project manager.

Signs of recreational use, at parking area going up the hill to Mt. Moffett. ATV tracks and footprints.

2. Is there any evidence of permanent development adjacent to re-vegetated, restored, remediated area (i.e. grading of site, survey stakes, buildings (temporary or permanent), or building foundations, etc.)? Note such evidence photographically and with a sketch of site that identifies the approximate location of the evidence.

No

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 4/19/2021

Site Name: OUB-1-MM

Direction Photo Taken: Northwest

Description: No vehicles beyond this point sign adjacent to the parking lot.

Site Name: OUB-1-MM

Direction Photo Taken: North

Description: Photo of no trespassing sign for MM.

AECOM	PHOTOGRAPHIC LOG	
Department of the Navy Naval Facilities Engineering Command Northwest	5-Year Review Site Inspection Photos	AECOM Project No.: 60636935 Date: 6/6/2021

Site Name: OUB-1-MM

Direction Photo Taken: North

Description: Overview of Mt Moffett, no signs of recent activity.

Site Name: OUB-1-MM

Direction Photo Taken: North

Description: Overview of Mt Moffett, no signs of recent activity.

Appendix E:
Interview Forms

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INTERVIEW RECORD FOR FIFTH FIVE-YEAR REVIEW
2016 through 2020
Type 1 Interview – Navy Personnel
Operable Units A and B-1, and Petroleum Sites
Former Adak Naval Complex
Adak, Alaska

Individual Contacted: Steven Skeehan
Title: Navy Technical Representative and Government Designated Authority
Organization: NAVFAC NW EV32
Contact made by: AECOM
Response type: Email
Date: 1/6/2021

Summary of Communication

1. Since the end of 2016, are you aware of any changes in land uses, public access to lands, or site conditions that you feel may impact the protectiveness of the remedies selected in the RODs (interim ROD [1995], final OU A ROD [2000], and final OU B-1 ROD [2001]) or the decision documents for the petroleum sites?

   Response: No. Various landfills and sites require occasional maintenance as site conditions may change and may be effected by weather. Ongoing remedies appear to be doing a good job of identifying maintenance requirements via required inspections.

2. Are you aware of concerns from the local community regarding implementation or overall environmental protectiveness of the selected remedies for OU A, OU B-1, and the petroleum sites?

   Response: No, not specifically, however many locals show ongoing concern by asking questions and staying engaged in the RAB.

3. Has there continued to be a regular program of on-site inspection and operation, maintenance, and monitoring (OMM) since 2016?

   Response: Yes, see answer #2.

4. Have there been any unexpected difficulties associated with OMM since 2016?

   Response: No. The difficulties that do occur are well documented and expected.

5. Have there been any substantial changes to inspection and OMM requirements or activities? If so, do you feel that these changes have impacted the protectiveness of the remedies selected in the RODs?

   Response: No.

6. Are you aware of any violations of the institutional controls requirements at any of the OUs that could impact the protectiveness of this component of the remedy (e.g., unauthorized excavation, drilling of water supply wells, trespass into prohibited areas, handling of ordnance items)?

   Response: No. Ongoing monitoring and inspections continue to identify any changes in site conditions or potential violations, resulting in near immediate ability to address concerns resulting in continued protection of any violations that may occur.

7. What measures have been taken to implement institutional controls required by the RODs?

   Response: Ongoing monitoring and inspection along with follow-up maintenance continue to be performed. Example; inspections have identified damaged or missing signage at multiple locations. Signs have been repaired or replaced.

8. Do you have any other comments, concerns, or suggestions regarding the effectiveness of the cleanup measures implemented so far in protecting human health and the environment at OU A, OU B-1, or the petroleum sites at the former Adak Naval Complex?

   Response: Continue current requirements.

INTERVIEW RECORD FOR FIFTH FIVE-YEAR REVIEW
2016 through 2020
Type 1 Interview – Navy Personnel
Operable Units A and B-1, and Petroleum Sites
Former Adak Naval Complex
Adak, Alaska

Individual Contacted: Justin Peach
Title: Senior Project Manager
Organization: NAVFAC NW
Contact made by: Estelle Bonny
Response type: Filled out form, emailed it back
Date: December 16, 2020

Summary of Communication

1. Since the end of 2016, are you aware of any changes in land uses, public access to lands, or site conditions that you feel may impact the protectiveness of the remedies selected in the RODs (interim ROD [1995], final OU A ROD [2000], and final OU B-1 ROD [2001]) or the decision documents for the petroleum sites?

   Response: The only change in land use I can think of is the DOD Marines and Navy training exercise conducted in 2019. However, I do not believe the exercise resulted in a threat to the remedies as they had environmental and archaeological observers on-site and did extensive coordination with the Navy environmental group, plus the City, ADOT, and regulatory environmental agencies prior to conducting their work, and by 2020, almost all traces of their exercise were gone.

2. Are you aware of concerns from the local community regarding implementation or overall environmental protectiveness of the selected remedies for OU A, OU B-1, and the petroleum sites?

   Response: Yes. A complaint was filed with the EPA regarding the protectiveness of the remedy at Palisades Landfill in August 2020, and a concern was forwarded directly to the Navy in December 2020 by Carrie Plant regarding the landfill.

3. Has there continued to be a regular program of on-site inspection and operation, maintenance, and monitoring (OMM) since 2016?

   Response: Yes, annually as part of the LTM program, monthly as part of the Free-Product Recovery Program, as scheduled as part of remediation efforts (such as SWMU 60, SWMU 62, Marine Monitoring, Vapor Intrusion, East Canal, Lake Andrew, PFAS, etc) and as identified during routine Navy visits to the island.

4. Have there been any unexpected difficulties associated with OMM since 2016?

   Response: No.

5. Have there been any substantial changes to inspection and OMM requirements or activities? If so, do you feel that these changes have impacted the protectiveness of the remedies selected in the RODs?

   Response: There have been no substantial changes. There have been isolated incidences where monitoring endpoints have been reached or a testing of a particular monitoring well is no longer necessary, and an adjustment to the environmental program is made. All of these changes are approved by the regulatory agencies and shared with the community.

6. Are you aware of any violations of the institutional controls requirements at any of the OUs that could impact the protectiveness of this component of the remedy (e.g., unauthorized excavation, drilling of water supply wells, trespass into prohibited areas, handling of ordnance items)?

   Response: There was an excavation at the White Alice antennae site in 2018. While this excavation was within the signed area that prohibited excavation, it was not in the area where the geomembrane cap was placed over the PCB spill site.

7. What measures have been taken to implement institutional controls required by the RODs?

   Response: Signs, inspections, interviews, Fact Sheets, DVD playing at the airport, presentations to the school, RAB Meetings, fences at some of the landfills, and fences and gates at Parcel 4 (the munitions area).

8. Do you have any other comments, concerns, or suggestions regarding the effectiveness of the cleanup measures implemented so far in protecting human health and the environment at OU A, OU B-1, or the petroleum sites at the former Adak Naval Complex?

   Response: No.

INTERVIEW RECORD FOR FIFTH FIVE-YEAR REVIEW
2016 through 2020
Type 1 Interview – Navy Personnel
Operable Units A and B-1, and Petroleum Sites
Former Adak Naval Complex
Adak, Alaska

Individual Contacted: Joederick Carl Garcia-Lata
Title: Project Manager
Organization: NAVFAC NW
Contact made by: Estelle Bonny
Response type: Written and Email
Date: 12/29/2020

Summary of Communication

1. Since the end of 2016, are you aware of any changes in land uses, public access to lands, or site conditions that you feel may impact the protectiveness of the remedies selected in the RODs (interim ROD [1995], final OU A ROD [2000], and final OU B-1 ROD [2001]) or the decision documents for the petroleum sites?

   Response: No. I am not aware of any changes.

2. Are you aware of concerns from the local community regarding implementation or overall environmental protectiveness of the selected remedies for OU A, OU B-1, and the petroleum sites?

   Response: Yes. A complaint was filed with the EPA regarding the protectiveness of the remedy at Palisades Landfill in August 2020, and a concern was forwarded directly to the Navy in December 2020 regarding the landfill.

   The Navy is working to address the complaint properly.

3. Has there continued to be a regular program of on-site inspection and operation, maintenance, and monitoring (OMM) since 2016?

   Response: Yes. The Navy conducts OMM on Adak. The LTM program occurs annually and the Free Product Recovery Program is conducted monthly. Other remediation efforts such as Marine Monitoring, Vapor Intrusion, and PFAS have occurred as well.

4. Have there been any unexpected difficulties associated with OMM since 2016?

   Response: No. I am not aware of any difficulties.

5. Have there been any substantial changes to inspection and OMM requirements or activities? If so, do you feel that these changes have impacted the protectiveness of the remedies selected in the RODs?

   Response: No. I am not aware of any substantial changes to the inspection and OMM requirements or activities. The Comprehensive Monitoring Plan is updated according to data from LTM events. Monitoring reductions are implemented when endpoint criteria are met. These changes are approved by the regulatory agencies and available to the community.

6. Are you aware of any violations of the institutional controls requirements at any of the OUs that could impact the protectiveness of this component of the remedy (e.g., unauthorized excavation, drilling of water supply wells, trespass into prohibited areas, handling of ordnance items)?

   Response: Yes. An excavation at the White Alice antennae site in 2018 was brought to the Navy's attention and reviewed. While this excavation was within the signed area that prohibited excavation, it was not in the area where the geomembrane cap was placed over the PCB spill site. Thus, the excavation was deemed as not posing a risk.

7. What measures have been taken to implement institutional controls required by the RODs?

   Response: Institutional control inspections are reported and documented to the regulatory bodies. Institutional controls include signs, inspections, interviews, Fact Sheets, UXO Safety DVD playing at the airport, presentations to the school, coloring books, maps RAB Meetings, and fences and gates.

8. Do you have any other comments, concerns, or suggestions regarding the effectiveness of the cleanup measures implemented so far in protecting human health and the environment at OU A, OU B-1, or the petroleum sites at the former Adak Naval Complex?

   Response: No. I do not have any other comments, concerns, or suggestions at this time.

INTERVIEW RECORD FOR FIFTH FIVE-YEAR REVIEW
2016 through 2020
Type 1 Interview – Navy Personnel
Operable Units A and B-1, and Petroleum Sites
Former Adak Naval Complex
Adak, Alaska

Individual Contacted:	**Catherine I. Weber, PE**
Title:	**Remedial Project Manager**
Organization:	**NAVFAC**
Contact made by:	**AECOM**
Response type:	**Written**
Date:	**12/17/2020**

Summary of Communication

1. Since the end of 2016, are you aware of any changes in land uses, public access to lands, or site conditions that you feel may impact the protectiveness of the remedies selected in the RODs (interim ROD [1995], final OU A ROD [2000], and final OU B-1 ROD [2001]) or the decision documents for the petroleum sites?

   Response: I am not aware of any such changes.

2. Are you aware of concerns from the local community regarding implementation or overall environmental protectiveness of the selected remedies for OU A, OU B-1, and the petroleum sites?

   Response: Yes. A complaint was filed with the EPA regarding the protectiveness of the remedy at Palisades Landfill in August 2020. One community member also expressed concern regarding the Palisades Landfill via an e-mail to me on December 15, 2020 following the Five Year Review Notice of Intent Fact Sheet being circulated to the Restoration Advisory Board (RAB).

   This concern stated was with respect to Palisades landfill: "Last winter I went on a beach walk from Clam Lagoon all the way south to airport beach and I was shocked at the giant tires and other debris coming out of Palisades landfill on the Oceanside. The tires are strewn about on the beach and I'd be concerned that they'd wash away and create water pollution. It also made me wonder what else is popping/leaking out of that landfill."

   The Navy is evaluating this concern at this time.

3. Has there continued to be a regular program of on-site inspection and operation, maintenance, and monitoring (OMM) since 2016?

   Response: Yes, the Navy is actively conducting a regular OMM program at Adak. There is an annual long-term monitoring (LTM) program and monthly free product recovery program.

4. Have there been any unexpected difficulties associated with OMM since 2016?

   Response: No unexpected difficulties that I am aware of since 2016.

5. Have there been any substantial changes to inspection and OMM requirements or activities? If so, do you feel that these changes have impacted the protectiveness of the remedies selected in the RODs?

   Response: I'm not aware of any substantial changes to the inspection and OMM requirements or activities. As part of the Comprehensive Monitoring Program, monitoring reductions are implemented when endpoint criteria are met, which are approved by the overseeing regulatory bodies.

6. Are you aware of any violations of the institutional controls requirements at any of the OUs that could impact the protectiveness of this component of the remedy (e.g., unauthorized excavation, drilling of water supply wells, trespass into prohibited areas, handling of ordnance items)?

   Response: There was one unauthorized excavation that was identified to the Navy after it was performed during the past review period but was not identified as posing a risk. I am not aware of any other unauthorized excavation, drilling of water supply wells, trespass into prohibited areas, handling of ordnance items.

7. What measures have been taken to implement institutional controls required by the RODs?

   Response: Institutional control inspections are conducted at specified frequencies and reported and documented to the regulatory bodies. Institutional controls include signs, inspections, interviews, Fact Sheets, DVD playing at the airport, presentations to the school, RAB Meetings, and fences and gates.

8. Do you have any other comments, concerns, or suggestions regarding the effectiveness of the cleanup measures implemented so far in protecting human health and the environment at OU A, OU B-1, or the petroleum sites at the former Adak Naval Complex?

   Response: No.

INTERVIEW RECORD FOR FIFTH FIVE-YEAR REVIEW
2016 through 2020
Type 2 Interview – Regulatory/Advisory Agency
Operable Units A and B-1, and Petroleum Sites
Former Adak Naval Complex
Adak, Alaska

Individual Contacted: Christopher Cora
Title: Remedial Project Manager
Organization: U.S. Environmental Protection Agency
Contact made by: AECOM, Bonnie Estelle
Response type: E-mail Word document
Date: 12/04/2020

Summary of Communication

1. Since the end of 2016, are you aware of any changes in land uses or public access to lands that you feel may impact the protectiveness of the remedies selected in the RODs (interim ROD [1995], final OU A ROD [2000], and final OU B-1 ROD [2001]) or the decisions documents for the petroleum sites?

   Response: NO

2. Do you feel well informed about site activities at OU A, OU B-1, and the petroleum sites?

   Response: YES

3. To the best of your knowledge, since the end of 2016, have there been any new scientific findings that relate to potential site risks and that might call into question the protectiveness of the remedies for OU A, OU B-1, or the petroleum sites? Have there been any changes to the ARARs upon which the remedy decision was based?

   Response: Besides PFAS, which was identified as a concern in 2016 Five Year Review, which the Navy has conducted a PA/SI and is continuing evaluating the situation. Unaware of any new ARARs.

4. Are you aware of any changes in site conditions that you feel may impact the protectiveness of the remedies selected in the RODs or decision documents?

   Response: NO

5. Since the end of 2016, have there been any complaints, violations, or other incidents related to OU A, OU B-1, or the petroleum sites that required a response by your office? If so, please provide details of the events and results of the responses.

   Response: I am not responsible for Petroleum contamination. I am not aware of any complaints, violations, or incidents.

6. Are you aware of any community concerns regarding implementation of the remedies at OU A, OU B-1, or the petroleum sites? If so, please give details.

   Response: NO

7. Do you have any suggestions regarding implementation of the remedies (including institutional controls)? If so, please give details.

   Response: NO

8. Do you have any suggestions for changes in how monitoring of the remedies is being conducted?

   Response: Nothing besides what we routinely do in evaluating the data and revising the monitoring accordingly.

9. Do you have any other comments, concerns, or suggestions regarding the effectiveness of the cleanup measures implemented so far in protecting human health and the environment at OU A, OU B-1, or the petroleum sites at the former Adak Naval Complex?

   Response: NO

INTERVIEW RECORD FOR FIFTH FIVE-YEAR REVIEW
2016 through 2020
Type 2 Interview – Regulatory/Advisory Agency
Operable Units A and B-1, and Petroleum Sites
Former Adak Naval Complex
Adak, Alaska

Individual Contacted: Darren Mulkey
Title: Project Manager
Organization: ADEC
Contact made by: Email – Estelle Bonny
Response type: Written
Date: 12/04/20

Summary of Communication

1. Since the end of 2016, are you aware of any changes in land uses or public access to lands that you feel may impact the protectiveness of the remedies selected in the RODs (interim ROD [1995], final OU A ROD [2000], and final OU B-1 ROD [2001]) or the decisions documents for the petroleum sites?

   Response: No

2. Do you feel well informed about site activities at OU A, OU B-1, and the petroleum sites?

   Response: Yes

3. To the best of your knowledge, since the end of 2016, have there been any new scientific findings that relate to potential site risks and that might call into question the protectiveness of the remedies for OU A, OU B-1, or the petroleum sites? Have there been any changes to the ARARs upon which the remedy decision was based?

   Response: Not really scientific findings but PFAS has been identified as an emerging contaminant that wasn't address is any of the previous decision documents. The Navy initiated ongoing characterization of known sites.

4. Are you aware of any changes in site conditions that you feel may impact the protectiveness of the remedies selected in the RODs or decision documents?

   Response: No

5. Since the end of 2016, have there been any complaints, violations, or other incidents related to OU A, OU B-1, or the petroleum sites that required a response by your office? If so, please provide details of the events and results of the responses.

   Response: No

6. Are you aware of any community concerns regarding implementation of the remedies at OU A, OU B-1, or the petroleum sites? If so, please give details.

   Response: No

7. Do you have any suggestions regarding implementation of the remedies (including institutional controls)? If so, please give details.

   Response: No

8. Do you have any suggestions for changes in how monitoring of the remedies is being conducted?

   Response: No

9. Do you have any other comments, concerns, or suggestions regarding the effectiveness of the cleanup measures implemented so far in protecting human health and the environment at OU A, OU B-1, or the petroleum sites at the former Adak Naval Complex?

   Response: No

INTERVIEW RECORD FOR FIFTH FIVE-YEAR REVIEW
2016 through 2020
Type 3 Interview – Community Member
Operable Units A and B-1, and Petroleum Sites
Former Adak Naval Complex
Adak, Alaska

Individual Contacted: Greg Burgess
Title: Hydrogeologist
Organization: AECOM
Contact made by: Estelle Bonny
Response type: E-mail
Date: 01/06/2021

Summary of Communication

1. Do you feel well informed about the environmental cleanup activities and progress at the former Adak Naval Complex, since the end of 2016?

   Response:
   Yes, very much so.

2. What is your overall impression of the on-going environmental cleanup activities, especially since the end of 2016?

   Response:
   The Navy is doing an admirable job with the remedies given the remote nature of the island and the extremely limited access.

3. What effects on the community have you observed as a result of on-going remedy implementation, especially since the end of 2016?

   Response:
   I do not live on Adak and cannot speak to this.

4. Are you aware of any community concerns regarding implementation of the remedies? If so, please give details.

   Response:
   I am not aware of specific community concerns.

5. Since the end of 2016, are you aware of any events, incidents, or activities (e.g., vandalism, trespassing, or emergency response) related to environmental cleanup or ordnance? If so, please provide details of the events and results of the responses.

   Response:
   I am not aware of specific events, incidents, or activities that are detrimental to the environmental restoration on Adak.

6. Do you have any other comments, concerns, or suggestions regarding the effectiveness of the cleanup measures implemented so far in protecting human health and the environment at OU A, OU B-1, or the petroleum sites at the former Adak Naval Complex?

   Response:
   I have no concerns with the current path for the Navy's restoration program on Adak.

7. Are you satisfied with the level and quality of information provided to the Restoration Advisory Board (RAB) through RAB meetings, associated presentations, and by way of the Adak Update website?

   Response:
   The Navy has done a very good job with the level and quality of information provided to the RAB.

INTERVIEW RECORD FOR FIFTH FIVE-YEAR REVIEW
2016 through 2020
Type 3 Interview – Community Member
Operable Units A and B-1, and Petroleum Sites
Former Adak Naval Complex
Adak, Alaska

Individual Contacted: Cathy Villa
Title: RAB member
Organization: EPA
Contact made by: Estelle Bonny
Response type: Community
Date: 12/08/2020

Summary of Communication

1. Do you feel well informed about the environmental cleanup activities and progress at the former Adak Naval Complex, since the end of 2016?

   Response: Yes.

2. What is your overall impression of the on-going environmental cleanup activities, especially since the end of 2016?

   Response: Seems to be going well.

3. What effects on the community have you observed as a result of on-going remedy implementation, especially since the end of 2016?

   Response: I have not observed any.

4. Are you aware of any community concerns regarding implementation of the remedies? If so, please give details.

   Response: No new concerns.

5. Since the end of 2016, are you aware of any events, incidents, or activities (e.g., vandalism, trespassing, or emergency response) related to environmental cleanup or ordnance? If so, please provide details of the events and results of the responses.

   Response: No, I'm not aware, I do not live there now.

6. Do you have any other comments, concerns, or suggestions regarding the effectiveness of the cleanup measures implemented so far in protecting human health and the environment at OU A, OU B-1, or the petroleum sites at the former Adak Naval Complex?

   Response: Concerns haven't changed. I understand PFAS is being investigated. The PFAS PFOS is a known carcinogen. Are the results delayed?

7. Are you satisfied with the level and quality of information provided to the Restoration Advisory Board (RAB) through RAB meetings, associated presentations, and by way of the Adak Update website?

   Response: Yes

INTERVIEW RECORD FOR FIFTH FIVE-YEAR REVIEW
2016 through 2020
Type 4 Interview – Land Owner
Operable Units A and B-1, and Petroleum Sites
Former Adak Naval Complex
Adak, Alaska

Individual Contacted: Jana V Lekanoff
Title: Logistics Coordinator
Organization: The Aleut Corporation (ARE/AE)
Contact made by: AECOM
Response type: Email
Date: 12/17/2020

Summary of Communication

1. Do you feel well informed about the environmental cleanup activities and progress at the former Adak Naval Complex, since the end of 2016?

   Response: Generally yes, there is info available online, signage across the island, and representatives of government agencies and contractors are present in Adak.

2. What is your overall impression of the on-going environmental cleanup activities, especially since the end of 2016?

   Response: I see attention being paid to Sweeper Creek and areas around the runway – booms in the water, etc. I hear of upcoming projects to shore up the landfills. Also there is yearly work in Parcel 4.

3. Are you aware of any changes in site conditions (such as changes in land use or public access to lands) that you feel may impact the protectiveness of the remedies selected in the Records of Decision (RODs) or petroleum site decision documents?

   Response: More hunters, birders, and other interested parties are utilizing Adak's private and public lands.

4. What effects on land owners and the Adak community have you observed as a result of on-going remedy implementation, especially since the end of 2016?

   Response: Seems like there is plenty of monitoring but very little actual clean-up occurring near town.

5. Do you have any suggestions regarding implementation and monitoring of the remedies (including institutional controls)? If so, please give details.

   Response: Website seems out of date – meetings are infrequent

6. Are you aware of any community concerns regarding implementation of the remedies? If so, please give details.

   Response: Not sure that we know what they are, but we trust they are necessary for remediation

7. Since the end of 2016, are you aware of any events, incidents, or activities (e.g., vandalism, trespassing, or emergency response) related to OU A, OU B-1, or the petroleum sites? If so, please provide details of the events and results of the responses.

   Response: No

8. Do you have any other comments, concerns, or suggestions regarding the effectiveness of the cleanup measures implemented so far in protecting human health and the environment at OU A, OU B-1, or the petroleum sites at the former Adak Naval Complex?

   Response: There's a lot of nasty stuff all over the island from buried landfills and petro-chemical type work/accidents. Its sad that I would question the safety of groundwater – whereas in Unalaska / Dutch Harbor I have confidence in the water not being contaminated with chemicals. Also, the rats are terrible for endemic wildlife as well as locals.

INTERVIEW RECORD FOR FIFTH FIVE-YEAR REVIEW
2016 through 2020
Type 4 Interview – Land Owner
Operable Units A and B-1, and Petroleum Sites
Former Adak Naval Complex
Adak, Alaska

Individual Contacted: Christy Gentemann
Title: Environmental Impact Analyst
Organization: Alaska Department of Transportation and Public Facilities (DOT&PF)
Contact made by: AECOM
Response type: Email
Date: 12/23/2020

Note: I coordinated with Sammy Cummings, DOT&PF's PFAS Program Manager (Statewide Aviation) on these responses.

Summary of Communication

1. Do you feel well informed about the environmental cleanup activities and progress at the former Adak Naval Complex, since the end of 2016?

   Response:
   I became aware of this work in late 2019 when I began working on a DOT&PF project at the Adak Airport and came into contact with the Navy. My involvement on Adak has been related to the environmental review on the DOT&PF Adak Airport Improvements project. Our DOT&PF PFAS Program Manager, Sammy Cummings, was only informed of this work at the end of 2020.

2. What is your overall impression of the on-going environmental cleanup activities, especially since the end of 2016?

   Response:
   It appears that a lot of work has taken place ranging from a desktop study to sampling. This is the only report that DOT&PF has seen but it doesn't appear that much sampling to characterize the PFAS plume has taken place. There were 12 locations identified there were only 7 samples collected within 3 of those areas to determine presence. All of the groundwater samples exceeded action levels for PFOS and PFOA and 2 of the 5 soil samples exceeded action levels for both PFOS and PFOA and one exceeded for PFOS. Why has it taken so long to just establish presence this site has been active since 2016?

3. Are you aware of any changes in site conditions (such as changes in land use or public access to lands) that you feel may impact the protectiveness of the remedies selected in the Records of Decision (RODs) or petroleum site decision documents?

   Response:
   No, I am not aware of any changes in site conditions that may impact the the protectiveness of the remedies selected in the Records of Decision (RODs) or petroleum site decision documents.

4. What effects on land owners and the Adak community have you observed as a result of on-going remedy implementation, especially since the end of 2016?

   Response:
   I am unaware of effects on land owners and the Adak community as a result of on-going remedy implementation since the end of 2016.

5. Do you have any suggestions regarding implementation and monitoring of the remedies (including institutional controls)? If so, please give details.

   Response:
   A full site characterization to identify plume boundaries both horizontally and vertically to understand where PFAS is going and where it went. It appears at least the fire training areas are source areas, consider injecting PlumeStop around major source areas to slow and mitigate further mobilization.

6. Are you aware of any community concerns regarding implementation of the remedies? If so, please give details.

   Response:
   No, I am not aware of any community concerns regarding implementation of the remedies.

7. Since the end of 2016, are you aware of any events, incidents, or activities (e.g., vandalism, trespassing, or emergency response) related to OU A, OU B-1, or the petroleum sites? If so, please provide details of the events and results of the responses.

   Response:
   No, I am not aware of any events, incidents, or activities related to OU A, OU B-1, or the petroleum sites since the end of 2016.

8. Do you have any other comments, concerns, or suggestions regarding the effectiveness of the cleanup measures implemented so far in protecting human health and the environment at OU A, OU B-1, or the petroleum sites at the former Adak Naval Complex?

   Response:
   There could be better coordination in regards to PFAS with the current landowner/Adak operator to coordinate PFAS investigations. An active four years of this project to only identify presence is too long. Further sampling needs to take place to understand the plume. It needs to be confirmed that other bodies of water aren't impacted that could potentially expose wild game, fish, etc. It's a good start knowing that the majority are on a public water system due to other contaminants this needs to be confirmed and other exposure pathways need to be identified with confirmed sampling results.

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Appendix F:
Response to Comments

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Project Title: Draft Revision 1, Fifth Five-Year Review, Operable Units A and B-1
Location: Former Adak Naval Complex, Naval Air Station Adak, Adak Island, Alaska
Reviewer: Mulkey (ADEC)
Date: September 13, 2021

Item	Section No.	Comment
1	Page vi, Protectiveness Statements	For sites where the Navy has confirmed the presence of PFAS and the current risk from PFAS has not been evaluated, the protectiveness determination should be "protectiveness deferred" per EPA's OSWER 9200.2-111, "Clarifying the Use of Protectiveness Determinations for Comprehensive Environmental Response, Compensation, and Liability Act Five-Year Reviews."
Response: The OU A protectiveness statement will be revised as follows: "*The OU A ROD-specified remedies (DON 2000) are protective of human health and the environment for the chemicals of concern identified therein. No exposure is occurring at these sites because all exposure pathways that could result in unacceptable risks are being controlled through the implementation of ICs and, where applicable, ECs. ICs and ECs are assessed biennially or every 5 years to ensure the remedy remains protective.* *The emerging chemical PFAS has been identified at OU A SWMUs 16, 32, and 33. A remedy has not been established for PFAS and the evaluation is ongoing. The OU A ROD has established ICs for non-PFAS impacts and these ICs are effective for PFAS at this time. Based on these conditions, the OU A ROD remedies are protective in the short term for PFAS.*"		
2	Page 1-7, Table 1-3, The status of SWMU 17 and SWMU 55	The is a superscript "a" in the Current Status column. What ADEC letter are you awaiting?
Response: The superscript will be deleted and the status of the two sites will be updated to "Active with ICs."		
3	Page 1-9, Line 12	"submitted" should be changed to "approved"
Response: The subject language will be replaced with the following: *"The NTCRA has not been completed at this time; therefore, no ROD has been approved for OU B-2 and this Five-Year Review does not address OU B-2 protectiveness."*		
4	Page 2-1, Table 2-1	Under the COCs for Sediment, Methylnaphthalene is misspelled.
Response: This misspelling will be corrected.		
5	Page 2-8, Line 26	"Deed Restrictions/Restrictive Covenants" should be replaced with "Soil Excavation Restrictions" to be consistent with the OU-A ROD.
Response: The OU A ROD refers to both deed restrictions/restrictive covenants and soil excavation restrictions. Language for the "Deed Restrictions/Restrictive Covenants" beginning on line 26 will be replaced with the following: "*In the event of a property transfer, restrictive property covenants would be included in the land transfer agreement. The covenants would be binding on the owner's successors and assignees, place limiting conditions on property conveyance, and restrict land use and construction activity that would disturb the area. Covenants would also require notice to the Navy of any intent to transfer interest or initiate construction activities."* Soil Excavation Restrictions are addressed separately on Page 2-9.		
6	Page 3-3, Table 3-2, Issue No. 6	Remove the last sentence on the "Current Implementation Status Description" column. There is no preliminary conclusion determination. List only final conclusions.
Response: The subject sentence will be removed.		

Project Title: Draft Revision 1, Fifth Five-Year Review, Operable Units A and B-1
Location: Former Adak Naval Complex, Naval Air Station Adak, Adak Island, Alaska
Reviewer: Mulkey (ADEC)
Date: September 13, 2021

Item	Section No.	Comment
7	Page 4-22, Section 4.2.8, Lines 9 and 10	Remove "and the site will not require additional removal actions (Draft SI is in progress)". We haven't seen the draft SI yet.
Response: The last paragraph of Section 4.2.8 will be replaced with: "*SWMU 16 (Former Firefighting Training Area), a CERCLA site, has a site status of cleanup complete with ICs based on meeting remedial action objectives of the OU A ROD, including soil removal for PCBs. However, the PFAS were recently identified at SWMUs 16, 32, and 33. Sampling results indicate concentrations of PFOS and PFOA in groundwater above screening levels and perfluorobutane sulfonate in groundwater below screening levels. A SI is being finalized at the time of this writing. The final disposition of the site will be determined based on the results of the final SI."*		
8	Page 4-23, Table 4-6	Section 4.2.4 indicates there was unauthorized excavations but it is not reflected in this table. Why not?
Response: Table 4-6 presents a summary of the five-year review inspection conducted in 2021 and no unauthorized excavations were observed at that time. Section 4.2.4 presents information from all previous site inspections since the Fourth Five-Year Review which is why it is not reflected in Table 4-6. No change is recommended.		
9	Page 6-1, Table 6-1	Bottom row has EPA listed for this SAERA site. Should be ADEC.
Response: Table 6-1 will be revised to replace "EPA" with "ADEC."		

Project Title: Draft Fifth Five-Year Review Operable Units A and B-1
Location: Former Adak Naval Complex, Naval Air Station, Adak Island, Alaska
Reviewer: Cora (EPA)
Date: August 2021

Item	Section No.	Comment
1	General Comment	For comparison of average concentration to an action level in CERCLA, the average is always defined as the 95% UCL of the mean. Please revise in this FYR.
Response: The average concentration for fish tissue is compared to the action level, not the 95% UCL of the mean. Per the CMP Rev 8, Marine Monitoring SAP (DON 2020e in the Five-Year Review): "EPA provides guidance on the statistical methodology for evaluating tissue residue data. The recommended statistical methodology is to compare the arithmetic mean concentration of target analytes measured in composite samples to the action level using hypothesis testing (EPA 2000)." The 5-Year Review will be revised to indicate that the next version of the Comprehensive Monitoring Plan will require that the 95% UCL be calculated and used as a comparison to the Risk-Based Action Level for decision making purposes. The Five-Year Review will require that this revision to the CMP will be completed prior to the next marine monitoring event, which is planned for 2025.		
2	General Comment	Recent sampling data indicates that PCB concentrations in Sweeper Cove haven't been fully achieved and that concentrations have increased. Additional investigation is needed to determine the reasons for the increase in concentrations, and whether ICs alone are the appropriate remedy. EPA recommends the previous sampling frequency of every two years instead of every five years.
Response: When the city or The Aleut Corporation (TAC) dredges or otherwise disturbs Sweeper Cove, there is a spike in PCB concentrations. EPA (Cora), ADEC (Mulkey), and NAVFAC (Peach) all discussed that we expected to see a spike when ADEC let us know that the fish plant was required to harrow fish waste in the bottom of Sweeper Cove to spread out the oxygen demand of the waste decomposition (they were dumping it off the end of the pier, it was a concentrated oxygen demand). So, while the expected spike in concentrations did occur with the last round of sampling in Sweeper Cove, the overall trend remains downward. There is no evidence of a new source, and if there were, it would not be Navy. The ICs are functioning as designed and the terrestrial PCB issue is closed in a ROD approved remedy. The Navy recommends monitoring be continued at five year intervals and the concentrations at the next sampling event considered in the overall statistical trend of PCB impact.		
3	Page iv, Table ES-1	Under CERCLA and SAERA sites, do the 4 sites with "required remedial actions" have an EPA signed ROD and does it address just the CERCLA actions?
Response: These 4 sites have an EPA signed ROD (OU A ROD, DON 2000) and it was evaluated under both CERCLA and SAERA. SWMU 55 has only CERCLA actions required.		
4	Page v, Review Status, Review Period	Was there a specific time frame in the summer when the site inspections occurred? The review period should reflect the time of the actual review and not the entire 4 years.
Response: The site inspections occurred in April–June 2021. The dates will be updated accordingly in the review status. The review period will be updated to May 7, 2020-December 30, 2021.		

Project Title: Draft Fifth Five-Year Review Operable Units A and B-1
Location: Former Adak Naval Complex, Naval Air Station, Adak Island, Alaska
Reviewer: Cora (EPA)
Date: August 2021

Item	Section No.	Comment
5	Page vi, Issues and Recommendations, Protectiveness Statements	What OU is this? The format on this is confusing. Please follow EPA templates for issues/recommendations. For the SAERA OU: For the determination it must be protective OR will be protective. Is the remedy selected expected to ultimately be protective? Regarding the use of "currently" in the statement- should this be short term protective due to the uncertainty of the increase? Have these sites been cleaned up under State lead? The protectiveness of "will be protective" is made when the site is still under construction. Is that the case?
Response: This is for OU A SAERA Sites. The issues/recommendations table will be revised to follow the EPA template. The protectiveness statement for the SAERA OU will be revised to the following: *"The SAERA OU remedies will be protective once the 2022 construction of oleophilic bio-barrier at SWMU 60 is complete. With the exception of petroleum at SAERA Site SWMU 60, Tank Farm A, no exposure is occurring at these sites because all exposure pathways that could result in unacceptable risks are being controlled through the implementation of ICs. For these sites, the IC component of the remedy is protective and is expected to remain so as long as the ICs are maintained. ICs are assessed biennially or every 5 years to ensure the remedy remains protective. The significant sediment DRO increase at SWMU 60 represents an exposure pathway that needs to be addressed.* *Under SAERA, follow-up actions are recommended with respect to DRO at SWMU 60, Tank Farm A, to ensure the remedy is protective due to the presence of a sheen on the adjacent surface water body and sediment impacts. The remedy at SWMU 60, Tank Farm A, will be protective once the planned 2022 enhancement action has been completed."*		
6	Page 1-7, Table 1-3	A table is needed that clearly lays out the CERCLA OUs and their associated COCs.
Response: Table 1-1 will be revised to include CERCLA COCs by site.		
7	Page 2-4, Section 2.2.2.1	b) If these are subsistence fishers, would additional removals be needed to address the Aroclors? Is there any evidence that ICs are adequate? What are the standards for sediment/surface water for Aroclor 1260? c) It would be helpful to clarify if these are petroleum related COCs or CERCLA COCs?
Response: It is the Navy's opinion that no additional removals are required. Response to Comment #2 addresses the recent slight increase in tissue PCB concentrations. Regularly scheduled inspections concluded that the ICs have been performing well and are expected to continue performing well. The Sweeper Cove OU A ROD action levels for Aroclor 1260 are 0.0065 mg/kg in fish tissue and 0.031 mg/kg in shellfish tissue. The language related to Item C of the comment will be replaced with the following: "*The RAOs at the SWMU 17 waste oil and retention ponds are to prevent uptake of and contact with impacted freshwater sediments by benthic infauna and impacted surface water by birds. The SWMU 17 RAOs are relative to both CERCLA and SAERA COCs. The RAOs at South Sweeper Creek are to protect benthic infauna from contacting and ingesting sediments affected by CERCLA COCs."*		
8	Page 2-8, Section 2.3.1	Signage/fish advisories are not an engineering control, it is an institutional control.
Response: Signage and fishing advisory bullets will be relocated from the EC category to the IC category on this page.		

Project Title: Draft Fifth Five-Year Review Operable Units A and B-1
Location: Former Adak Naval Complex, Naval Air Station, Adak Island, Alaska
Reviewer: Cora (EPA)
Date: August 2021

Item	Section No.	Comment
9	Page 2-9, Section 2.3.1	Fishing Advisory Fact Sheet: It seems that more frequent updates and targeted distribution of the fish advisory fact sheet is needed.

Response: The subject section will be revised as follows:

"The fact sheets warned that subsistence fishing reliant on resident fish and shellfish is potentially hazardous to human health. Fact sheets were first mailed to residents in October 2003 and July 2004, and following monitoring events after that. Fact sheets were updated in 2021, 2018, 2016, 2014, etc. with each monitoring event. Copies can be found online and at the City of Adak and the USFWS offices on the island. The fact sheets are introduced to the community at the RAB meetings when they are developed. Laminated copies are posted in town. The Navy intends to continue to issue fact sheets coincident with each monitoring event until tissue concentrations in fish and shellfish meet cleanup levels."

10	Pages 4-15 and 4-16, Section 4.2.3	It doesn't appear that monitoring in Sweeper Cove should be reduced to one every five years. Results from 2017 to 2020 shows rock sole PCB concentrations increased from 20.6 to 23.3 ug/kg and mussels from increased in PCB concentration in Sweeper Cove and Kulak. There doesn't seem to be a decreasing trend as stated in last paragraph on 4-16. What is the PCB RBAL for rock sole? The numbers are conflicting on these pages (6.5 and 11.1). What is the PCB RBAL for mussels? The number are conflicting on these pages (31 and 53.8). The ESD discussion later helps clarify the RBAL question but that should be incorporated into the PCB trend summary.

Response: The subject paragraph will be replaced with the following:

"The mean total PCB concentration in rock sole from Kuluk Bay remained less than the RBAL for the fourth consecutive monitoring round and an apparent decreasing trend was confirmed. The mean total PCB concentration in rock sole from Sweeper Cove increased slightly from 2017 to 2020 (by 2.7 ug/kg), which is likely due to nearby non-Navy-related bay floor agitation. However, the concentration trend has decreased significantly since 1999. Continuing the consumption advisory for rock sole collected in Sweeper Cove was recommended until further sampling and testing demonstrate that PCB concentrations have declined to the point that removal of the related fishing advisory is warranted. As with every sampling event, the status of the consumption advisory shall be assessed after sampling results from the next sampling event are evaluated. The EPA, ADEC and Navy have agreed to a prescribed frequency of blue mussel and rock sole monitoring once every 5 years at the same locations in Sweeper Cove and discontinuation of the monitoring of blue mussel and rock sole at Kuluk Bay."

The RBAL for rock sole and mussels changed between the 2017 and 2020 marine tissue monitoring reports and that explains why the values are different. This change was discussed in section 2.4. However, to improve clarity we added a sentence in the 2020 monitoring report section:

"In 2018, an Explanation of Significant Differences (ESD) was submitted and the risk-based action levels (RBALs) for rock sole and mussels were updated (DON 2018f)."

11	Page 4-19, Section 4.2.6	Site closure is typically not part of a FYR. What is the purpose of this here?

Response: Section 4.2.6 will be relocated to Appendix C.

Project Title: Draft Fifth Five-Year Review Operable Units A and B-1
Location: Former Adak Naval Complex, Naval Air Station, Adak Island, Alaska
Reviewer: Cora (EPA)
Date: August 2021

Item	Section No.	Comment
12	Page 4-21, Section 4.2.8	Include the screening levels used here and elsewhere in the FYR for the PFAS PA.
Response: The following will be added to the text. *"As per the Office of the Secretary of Defense (DoD 2021), the screening level for PFOA and PFOS in soil is 0.13 mg/kg, and 0.04 µg/L in groundwater. The DoD 2021 screening level for PFBS in soil is 1.9 mg/kg and in groundwater is 0.6 µg/L."*		
13	Page 5-1, Section 5.1	The remedy for Sweeper is still not meeting fish tissue RBALs for Rock Sole and mussels. The recent 3 yr data shows an increasing trend. Additional investigations are warranted since this is subsistence fishery and the ROD was implemented years ago. Last sentence, first paragraph: Are the COCs referenced here related to the CERCLA site? Which CERCLA COCs exceed concentrations?
Response: There was an increase in rock sole and blue mussel tissue PCB concentration from 2017 to 2020. This is a result of conditions described in response to Comment #2. In addition, the overall trend in tissue PCB concentrations has been a steady decrease since 1999. Based on these conditions, it is the Navy's opinion that additional investigation is not warranted. The last sentence refers to 3 sites that are all SAERA and SAREA-related COCs. The subject paragraph will be revised to clarify this.		
14	Page 5-2, Section 5.1	First paragraph, second sentence: Are COCs exceeding CULs? That should be stated here.
Response: The endpoint criteria are the CULs. The endpoint criteria for groundwater are presented in Table 5-1. A reference to Table 5-1 was added to the subject sentence.		
15	Page 5-6, Section 5.2.1	Groundwater classification is based on the national criteria not on "reasonably used". Is the groundwater classified as potable based on the 1986 guidance?
Response: The subject paragraph will be replaced with the following: *"The OU A ROD established the federal MCLs or state criteria (18 AAC 75.345 Table C) as the groundwater monitoring endpoint criteria. In the last 5 years, the federal MCLs remain unchanged, but the Alaska groundwater CULs have decreased for several VOCs and PAHs that are site COCs (Table 5-1). The endpoint criteria listed in Table 5-1 are the current and relevant ARARs for groundwater and have been incorporated in Revision 8 of the CMP (DON 2020e)."*		

Project Title: Draft Fifth Five-Year Review Operable Units A and B-1
Location: Former Adak Naval Complex, Naval Air Station, Adak Island, Alaska
Reviewer: Cora (EPA)
Date: August 2021

Item	Section No.	Comment
16	Page 6-1, Section 7-1, Protectiveness Statements	SAERA site SMWU 60: On the Table-6-1, Issues and Recommendations, it seems that the issue affects current and future protectiveness so it's unclear how the remedy is protective. The table on 7-1 states "protective or will be protective" but the determination should be "not protective" until the petroleum release is properly addressed. "Will be protective" is used for remedies which are in process but not yet complete. Please clarify.
Response: The remedy will be protective for SWMU 60 upon completion of the OBB. The OBB has been designed and planning is underway for a 2022 construction. The protectiveness statement will be revised to: *"The SAERA OU remedies will be protective once the 2022 construction of oleophilic bio-barrier at SWMU 60 is complete. With the exception of petroleum at SAERA Site SWMU 60, Tank Farm A, no exposure is occurring at these sites because all exposure pathways that could result in unacceptable risks are being controlled through the implementation of ICs. For these sites, the IC component of the remedy is protective and is expected to remain so as long as the ICs are maintained. ICs are assessed biennially or every 5 years to ensure the remedy remains protective. The significant sediment DRO increase at SWMU 60 represents an exposure pathway that needs to be addressed.* *Under SAERA, follow-up actions are recommended with respect to DRO at SWMU 60, Tank Farm A, to ensure the remedy is protective due to the presence of a sheen on the adjacent surface water body and sediment impacts. The remedy at SWMU 60, Tank Farm A, will be protective once the planned 2022 enhancement action has been completed."*		
17	Page 6-1, Section 6.1	Under 6.1, Other Findings some of the findings do impact long term protectiveness and these findings be identified in Table 6-1.
Response: The Navy would appreciate the opportunity to discuss specific concerns EPA has identified in the "Other Issued" section.		

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