



**US Army Corps
of Engineers**

**Alaska District
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Decision Document

Haines Military Cutoff Road Haines, AK

FUDS Project No. F10AK056603

12 July 2006

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LIST OF ACRONYMS 5

EXECUTIVE SUMMARY 7

PART 1: THE DECLARATION..... 8

 SITE NAME AND LOCATION..... 8

 STATEMENT OF BASIS AND PURPOSE 8

 ASSESSMENT OF SITE..... 8

 DESCRIPTION OF SELECTED REMEDY..... 9

 STATUTORY DETERMINATIONS 9

 DATA CERTIFICATION CHECKLIST 9

 AUTHORIZING SIGNATURES 10

PART 2: THE DECISION SUMMARY..... 11

 1.0 SITE NAME, LOCATION, AND BRIEF DESCRIPTION 11

 2.0 SITE HISTORY AND ENFORCEMENT ACTIVITIES..... 13

 2.1 *Site History*..... 13

 2.2 *Actions to Date*..... 13

 2.3 *Investigation History*..... 13

 2.4 *Enforcement History*..... 14

 3.0 COMMUNITY PARTICIPATION..... 14

 4.0 SCOPE AND ROLE OF RESPONSE ACTION 15

 5.0 SITE CHARACTERISTICS 15

 5.1 *Overview* 15

 5.2 *Conceptual Site Model, Human Health and Ecological Receptors*..... 15

 5.3 *Conceptual Site Model for Human Health*..... 16

 5.4 *Ecological Conceptual Site Model*..... 17

 5.5 *Surface and Subsurface Features* 19

 5.6 *Sampling Strategy*..... 19

 5.7 *Known or Suspected Sources of Contamination*..... 20

 5.8 *Types of Contamination and the Affected Media*..... 20

 5.9 *Location of Contamination and Known / Potential Routes of Migration*..... 21

 5.10 *Nature and Extent of Contamination* 21

Table 1. Contaminants Detected Above Cleanup Levels..... 22

 6.0 CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES..... 22

 6.1 *Land Use* 22

 6.2 *Groundwater Use*..... 22

 6.3 *Surface Water Use* 22

 7.0 SUMMARY OF SITE RISKS..... 22

 7.1 *Summary of Human Health Risk Evaluation* 23

 7.2 *Identification of Chemicals of Concern* 23

 7.3 *Exposure Assessment* 23

 7.4 *Toxicity Assessment* 23

 7.5 *Risk Characterization* 23

 7.6 *Uncertainties*..... 23

 7.7 *Ecological Risks*..... 24

 7.8 *Ecological Uncertainty*..... 24

7.9 Basis for Response Action.....	24
8.0 REMEDIATION OBJECTIVE.....	24
8.1 Applicable or Relevant and Appropriate Requirements (ARARs).....	24
9.0 DESCRIPTION OF ALTERNATIVES.....	24
10.0 COMPARATIVE ANALYSIS OF ALTERNATIVES.....	24
10.1 Overall Protection of Human Health and the Environment.....	25
10.2 Compliance with Applicable or Relevant and Appropriate Requirements (ARARs).....	25
10.3 Short-term Effectiveness and Potential Exposure During Remedial Action. ...	25
10.4 Long-term Effectiveness and Permanence.....	25
10.5 Reduction of Toxicity, Mobility and Volume through Treatment.....	25
10.6 Implementability.....	26
10.7 Cost.....	26
10.8 State Acceptance.....	26
10.9 Public Acceptance.....	26
10.10 Principal Threat Waste.....	26
11.0 SELECTED REMEDY.....	27
11.1 Summary of the Rational for the Selected Remedy.....	27
11.2 Description of the Selected Remedy.....	27
11.3 Summary of the Estimated Remedy Costs.....	28
11.4 Expected Outcomes of the Selected Remedy.....	28
11.5 Statutory Determinations.....	28
11.6 Protection of Human Health and the Environment.....	29
11.7 Compliance with ARARs.....	29
11.8 Cost-Effectiveness.....	29
11.9 Utilization of Permanent Solutions and Alternative Treatment Technologies (or Resource Recovery Technologies) to the Maximum Extent Practicable.....	29
11.10 Preference for Treatment as a Principal Element.....	29
11.11 Five-Year Review Requirements.....	29
11.12 Documentation of Significant Changes.....	30
PART 3: RESPONSIVENESS SUMMARY.....	31
STAKEHOLDER COMMENTS AND LEAD AGENCY RESPONSES.....	31
RESPONSIVENESS SUMMARY.....	31
REFERENCES.....	33

LIST OF ACRONYMS

AAC	Alaska Administrative Code
ACMP	Alaska Coastal Management Program
ADEC	Alaska Department of Environmental Conservation
ADOT&PF	Alaska Department of Transportation and Public Facilities
ARAR	Applicable or Relevant and Appropriate Requirements
ATSDR	Agency for Toxic Substances and Disease Registry
BSI	Bethel Services, Inc.
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene and xylene compounds
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CSM	Conceptual Site Model
1,2-DCP	1,2-dichloropropane
DoD	Department of Defense
COC	Chemicals of Concern
COPC	Chemicals of Potential Concern
DD	Decision Document
DERA	Defense Environmental and Restoration Account
DERP	Defense Environmental Restoration Program
DRO	Diesel Range Organics
DSMOA	Defense and State Memorandum of Agreement
EA	Environmental Assessment
E&E	Ecology and Environment
EPA	Environmental Protection Agency
F	Fahrenheit
FONSI	Finding of No Significant Impact
FUDS	Formerly Used Defense Site.
GRO	Gasoline Range Organics
mg/kg	Milligram per kilogram
mg/L	Milligram per Liter
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
ND	Not detected
O&M	Operations and Maintenance
PAH	Polynuclear Aromatic Hydrocarbons
PF	Public Facilities
POL	Petroleum, Oil, and Lubricants
PP	Proposed Plan
PW	Present Worth
RAB	Restoration Advisory Board
RA	Remedial Action
RD	Remedial Design

RAOs	Remedial Action Objectives
RI/FS	Remedial Investigation / Feasibility Study
ROST	Rapid Optical Scanning Technology
RRO	Residual Range Organics
RV	Recreational Vehicle
SARA	Superfund Amendments and Reauthorization Act
SBL	Smith Bayliss LeResche Inc.
S&W	Shannon and Wilson Inc.
SOW	Scope of Work
SVOCs	Semivolatile Organic Compounds
TCE	Trichloroethylene
TRPH	Total Recoverable Petroleum Hydrocarbons
USACE	U.S. Army Corps of Engineers
USEPA	U. S. Environmental Protection Agency
USC	United States Code
UST	Underground Storage Tank
VOCs	Volatile Organic Compound

**Decision Document
For
Haines Military Cutoff Road
Formerly Used Defense Site F10AK0566
June 2006**

EXECUTIVE SUMMARY

This Decision Document was developed consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The decision is based upon the Administrative Record. The Alaska Department of Environmental Conservation (ADEC), the lead regulatory agency, concurs with the decision.

The selected remedy is consistent with the Proposed Plan (PP).

The remedial alternatives evaluated were:

- Alternative 1 – No Action (required by the NCP)
- Alternative 2 – Excavation and off-site disposal

The excavation of petroleum, oil, and lubricant (POL) contaminated soil and trichloroethylene and 1,2-dichloropropane (1,2-DCP) contaminated soils followed by off-site disposal has been selected as the remedy for the Haines Military Cutoff Road Formerly Used Defense Site (FUDS) No. F10AK0566, project F10AK056603. The total Present Worth (PW) cost for this remedy is estimated to be between \$500,000 and \$1,000,000.

Implementation of the selected remedy will reduce the risk at the site to a level acceptable to the ADEC and the stakeholders. Removing the principle threat source material will eliminate the potential exposure of future workers or residents at the site. No land use controls will be required after the remedy is implemented.

Long-term remedial action operations will not be required with the selected remedy. The selected response action will conclude the necessary cleanup actions on this FUDS property. Remedial Action (RA) will begin in 2006, dependent on the availability of funds.

PART 1: THE DECLARATION

Site Name and Location

The Haines Hitch-Up Recreational Vehicle (RV) Park is located in southeast Alaska in the city of Haines. The property is located between the Haines Highway and Main Street.

The Haines Military Cutoff Road is a Formerly Used Defense Site (FUDS). The FUDS property number is F10AK0566. The site is not on the National Priorities List (NPL). The Alaska Department of Environmental Conservation (ADEC) tracking number is 198911X100501. The RV Park measures approximately 500 feet on the north and south borders, 200 feet on the east border, and 100 feet on the west border, covering an area of approximately five acres.

Statement of Basis and Purpose

Authorities: Defense Environmental Restoration Program, 10 United States Code (USC) 2701 et seq.; Comprehensive Environmental Response, Compensation and Liability Act of 1980 as amended by, 42 USC 9601 et seq.; Executive Order 12580, 52 Federal Register 2923 (23 January 1987); National Contingency Plan, 40 Code of Federal Regulations 300.

This Decision Document (DD) presents the selected remedy for the Haines Military Cutoff Road, which was chosen in accordance with Comprehensive Environmental Response Compensation and Liability Act (CERCLA), as amended by Superfund Amendments and Reauthorization Act (SARA) and to the extent practicable the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the Administrative Record for this site.

The ADEC concurs with the selected remedy.

Assessment of Site

The response action selected in this DD is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances, pollutants or contaminants into the environment, which present an imminent and substantial endangerment to public health or welfare.

Description of Selected Remedy

The selected remedy involves excavation and off-site disposal of approximately 950 cubic yards of petroleum contaminated soils from the area around borehole 10, the area between the former tank locations, and an additional 20 cubic yards of chlorinated solvent contaminated soil from the area around Monitoring Well 1 (MW-1). The cleanup action will remove all contaminated soil above cleanup levels at the site. Cleanup levels for the site are based on the ADEC 18 Alaska Administrative Code (AAC) 75.340 Table B1 and B2 Method 2 Migration to Groundwater Cleanup levels for the over 40-inch Zone.

Statutory Determinations

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to the remedial action, is cost-effective and utilizes permanent solutions to the maximum extent practicable. This remedy also satisfies the statutory preference for treatment as a principal element of the remedy (i.e., reduces the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants as a principal element through treatment). Because this remedy will not result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a five-year review will not be required for this remedial action.

Data Certification Checklist

The following information is included in the *Decision Summary* section of this DD. Additional information can be found in the Administrative Record file for this site that is located at the United States Army Corps of Engineers (USACE) office on Elmendorf Air Force Base.

- Chemicals of potential concern (COPC)
- Cleanup levels established and basis for the levels (see [Section 8](#), Remediation Objective)
- How contaminated source materials are addressed (see [Section 5.8](#), Types of Contamination and the Affected Media & Section 11, Selected Remedy)
- Current and reasonably anticipated future land use assumptions and current and potential future beneficial uses of groundwater used in the baseline risk evaluation and DD (see [Section 6](#), Current and Potential Future Site and Resource Uses)
- Estimated capital, annual operation and maintenance (O&M), and total present worth costs; discount rate; and the number of years over which the remedy cost estimates are projected (see [Section 11.3](#), Summary of the Estimated Remedy Costs)

- Key factors that led to selecting the remedy (see [Section 10](#), Comparative Analysis of Alternatives)

Authorizing Signatures

This Decision Document presents the selected remedy at the Haines Military Cutoff Road, Haines, Alaska. The U.S. Army Corps of Engineers is the lead agency under the Defense Environmental Restoration Program (DERP) at the Haines Military Cutoff Road Formerly Used Defense Site F10AK0566, and has developed this Decision Document consistent with the CERCLA, as amended, and the NCP. This Decision Document will be incorporated into the Administrative Record file for the former Haines Military Cutoff Road Site, which is available for public view at the Haines Borough Public Library in Haines, Alaska, and at the Alaska District Corps of Engineers Office on Elmendorf AFB, Alaska. This document, presenting a selected remedy with a present worth cost estimate of less than two million dollars, is approved by the undersigned, pursuant to Memorandum, DAIM-ZA, September 9, 2003, Subject: Policies for Staffing and Approving Decision Documents (DDs), and to Engineer Regulation 200-3-1, FUDS Program Policy.

APPROVED:

COL Timothy J. Gallagher
District Commander
Alaska Corps of Engineers

Date

This signature sheet documents the decision made for the Haines Military Cutoff Road, Haines, Alaska. The Alaska Department of Environmental Conservation concurs with the Corps of Engineers' selected remedy. The decision may be reviewed and modified in the future if new information becomes available that indicates the presence of previously undiscovered contamination or exposures that may cause unacceptable risk to human health or the environment.

John Halverson
Alaska Department of Environmental Conservation
Contaminated Sites Program, DoD Section Manager

Date

PART 2: THE DECISION SUMMARY

1.0 SITE NAME, LOCATION, AND BRIEF DESCRIPTION

The Haines Military Cutoff Road property was acquired for the War Department between 1943 and 1945. The Haines Military Cutoff Road site consists 976.13 acres of the right of way between Haines and the Canadian border. Constructed at this site were barracks, mess halls, storage tanks, and other facilities in support of the construction camps. These camps were located at mileposts 6.6, 17.7, 27.2, and 38.5 of the Haines Military Cutoff road. This property is now owned by the State of Alaska, the school district, and private ownership.

Contaminated soil remains in the area of a former fuel storage yard that is now a privately-owned recreational vehicle (RV) park. The Haines Hitch-Up RV Park is located in southeast Alaska in the city of Haines. The property is located between the Haines Highway and Main Street. The contamination on this property was caused by the Army during construction and operation of the military cut-off road. The Army operated garages, oil storage tanks, and associated structures at the current site of the RV park. Military use of the property resulted in oil and solvent contamination of the site.

The RV Park measures approximately 500 feet on the north and south borders, 200 feet on the east border, and 100 feet on the west border, and is approximately five acres in size (see Figure 1). The site is generally flat and covered in lawn grasses. Within the RV Park are parking sites for 92 RVs. Each site has electrical and sewer hookups. The main building serves as the owner's home and a customer laundromat, restroom, and gift shop.

The site is within an area zoned as industrial/light commercial. The Alaska Department of Transportation and Public Facilities (ADOT & PF) Haines Maintenance Station is northeast of the site. A carwash and a restaurant are directly north of the site. The Alaska Department of Fish and Game office is to the east. The property adjacent to the western and southern boundaries of the site is undeveloped. Sawmill Creek flows parallel to the southern property boundary.

The investigation at the Haines Military Cutoff Road and the identification and evaluation of cleanup actions were conducted under the Defense Environmental Restoration Program (DERP), Department of Defense (DoD), Formerly Used Defense Sites (FUDS) Program. The DoD plans to pay all regulatory oversight (as part of the Defense and State Memorandum of Agreement [DSMOA]), investigation, and cleanup costs from the Defense Environmental Restoration Account (DERA).

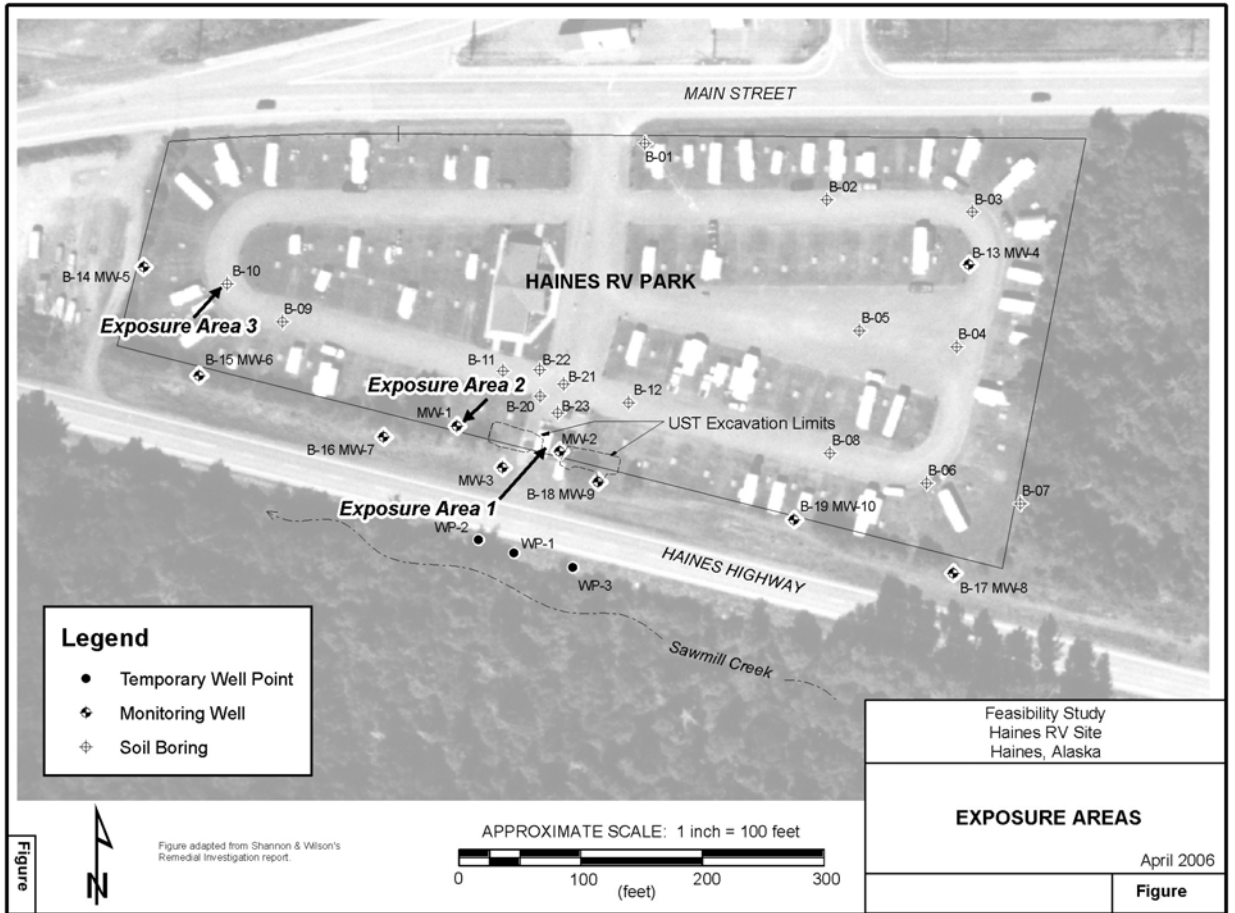


Figure 1 Site Location

2.0 SITE HISTORY AND ENFORCEMENT ACTIVITIES

2.1 Site History

The site improvements related to the military included a motor park which serviced military vehicles traveling the Haines Highway around 1942. As-built drawings of the site show two 96-foot by 64-foot garages, two vehicle inspection areas, and ten underground storage tanks (USTs).

In 1961, the site was sold to a private owner. Aerial photographs from the time period show that the buildings appear to have been removed and the site had been cleared of brush. In 1984, Mr. John Floreske purchased the property from Lynden Transport. According to the review of a 1982 aerial photograph, improvements to the property included a small building in the northwest portion of the property and up to 3 feet of fill across the site. In 1985, the site was converted to a RV park. In 1996, Mr. Fred Bretthauer purchased the property.

2.2 Actions to Date

Site activities include a site investigation performed by Ecology and Environment (E&E) in 1994, an investigation by the landowner in 2003, an interim removal action performed by Bethel Services Inc. (BSI) in 2004, a Rapid Optical Scanning Technology (ROST) investigation performed by the USACE in 2004, and a Remedial Investigation (RI) performed by Shannon and Wilson Inc. (S&W) in 2004.

2.3 Investigation History

In October of 1994, E&E performed a site investigation at the property under contract with the United States Army Corps of Engineers (USACE). E&E advanced ten soil borings in accordance with the Scope of Work (SOW). Two samples were collected from each boring at a depth of 5 and 10 feet bgs. Samples were analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX), total recoverable petroleum hydrocarbons (TRPH), and Resource Conservation and Recovery Act (RCRA) metals.

In 2003, the property owner hired Smith Bayliss LeResche Inc. (SBL) to conduct further investigation at the site. On April 25, 2003, SBL uncovered piping, potentially contaminated soil, and four abandoned USTs at space 33 of the RV Park. One analytical soil sample collected near the tanks exceeded ADEC Cleanup levels for diesel range organics (DRO), gasoline range organics (GRO), and BTEX.

In 2004, the USACE contracted BSI to conduct a preliminary site investigation and interim removal action at the RV Park. BSI conducted an electromagnetic ground-penetrating radar survey, installed three monitoring wells (MW-1, MW-2, and MW-3);

and removed ten 1000-gallon USTs, their associated piping, and approximately 100 cubic yard of POL-impacted soils. Soil samples were collected from the soil borings converted to monitoring wells and from the limits of the excavation. Water samples were collected from each of the three wells.

In the summer of 2005, the USACE contracted S&W to perform a RI at the site to determine the nature and extent of contamination. S&W advanced 23 soil borings at the site, seven of which were converted to monitoring wells. Three temporary well points adjacent to Sawmill Creek were also installed and sampled.

2.4 Enforcement History

Work at the Haines Military Cutoff Road has been carried out under the DERP FUDS program. There have been no enforcement activities, notices of violation or lawsuits pertaining to the DoD activities at the former Haines Military Cutoff Road.

3.0 COMMUNITY PARTICIPATION

The Proposed Plan that presented the cleanup alternatives proposed by the USACE for the Haines Military Cutoff Road site was submitted for public review on May 16, 2006. A notice of availability for the Proposed Plan was published in the Chilkat Valley News on May 18, 2006.

The public comment period for the Proposed Plan was from May 16 to June 16, 2006. The proposed plan issued in May 2006 provided for a public meeting if requested by a member of the public. No such request was made, so no meeting was held.

The Administrative Record file is located at the USACE Alaska District Office on Elmendorf Air Force Base, Alaska, and is continually updated. The Administrative Record file for the Haines Military Cutoff Road site contains the information used to support the decisions and is accessible to the public. A copy of the administrative record file documents is located at the Haines Borough Public Library.

At the beginning of the project, a public notice dated May 14, 2004 was issued announcing an Environmental Assessment (EA) and consistency determination with the Alaska Coastal Management Program (ACMP). The EA, which described both the tank removal action and the subsequent remedial investigation activities, included provision for a thirty day public comment period. No comments were received, and a Finding of No Significant Impact (FONSI) was signed on June 28, 2004. A modification to the ACMP's negative determination was approved in October 2004 to account for additional buried tanks being located by the field personnel.

4.0 SCOPE AND ROLE OF RESPONSE ACTION

The areas of contamination at the Haines Military Cutoff Road site consists of the area between the former tank locations, the soils directly around MW-1, and the soil around borehole 10. The remediation of these areas, the subject of this DD, addresses the POL-contaminated soils and the chlorinated-solvent contaminated soils on site. The remedy involves the excavation and off-site disposal of approximately 950 cubic yards of POL-contaminated soil from the tank area and borehole 10 and an additional 20 cubic yards of chlorinated-solvent contaminated soil from the MW-1 area.

These soils will be excavated, removed from the site, and disposed or remediated at the appropriate permitted facilities.

5.0 SITE CHARACTERISTICS

5.1 Overview

The site is underlain by Quaternary emergent marine deposits. These deposits consist predominantly of sediments deposited in fjords by settling of fine-grained material derived from glaciers, rivers, and streams, which were later elevated by isostatic uplift during regional deglaciation. The soils consist primarily of clay and silt with minor sand and gravel.

Soils encountered during the remedial investigation consisted of gray to brown, silty, sandy gravel to a depth of about 10 feet below ground surface (bgs). The silty, sandy gravel is underlain by gray, lean clay. A road cut to the south of the site revealed similar stratigraphy, with sandy gravels overlying clay. Groundwater was measured between 2.64 and 5.53 feet bgs. The water is inferred to be perched above the underlying clays. Tides do not affect the groundwater at the site. Groundwater flows in a north to northwest direction.

Haines has a maritime climate characterized by cool summers and mild winters. Summer temperatures range from 46 degrees to 66 degrees Fahrenheit (F); winters range from 10 degrees to 36 degrees F. Temperature extremes have been recorded from -16 degrees to 90 degrees F. Total precipitation averages 52 inches a year with 133 inches of snowfall.

5.2 Conceptual Site Model, Human Health and Ecological Receptors

Figure 2 shows a graphical presentation of the CSM. The CSM depicts the potential sources of chemicals, release mechanisms, means of retention in or migration to media, exposure routes, and potential receptors. Required elements for a complete exposure pathway include a source of contamination, a mechanism of chemical release to the environment, an exposure medium, a point of contact between the receptor and the exposure medium, and an intake route for the receptor.

Contaminated media at the site are limited to subsurface soils; groundwater and surface water have not yet been affected by past site uses. Potential current receptors are limited to onsite workers who may be exposed via contact with subsurface soil during excavation activities. Inhalation and ingestion represent potentially complete but insignificant exposure pathways during excavation activities. A nearby stream is likely hydraulically connected to the groundwater. Current ecological receptors are likely limited to terrestrial plants and soil invertebrates on the site.

5.3 Conceptual Site Model for Human Health

The primary source for chemicals released at the Haines Military Cutoff Road site was petroleum underground storage tanks and associated distribution piping. Petroleum and chlorinated solvent releases were historically common at military garage sites due to vehicle refueling, oil changes, and parts cleaning. Petroleum used and stored in the tanks was released to the environment from spills and leaks. Contaminated soils are a secondary source and contain diesel and gasoline range organics (DRO and GRO) and the chlorinated organic compounds trichloroethylene (TCE) and 1,2-dichloropropane (1,2-DCP).

The migration and retention mechanisms affecting contaminant concentrations and migration include dispersion, dilution, and sorption. The mobility of contamination from secondary sources is limited by adsorption to the fine-grained organic soils in the subsurface. Soils associated with the former USTs and at the western portion of the site are likely to be an exposure medium. Chemical migration from soil to groundwater to surface water is a complete pathway, but based on the age of the spilled fuel and the absence of contamination in the shallow groundwater system, this is not considered a significant migration mechanism.

Human receptors and associated exposure routes were evaluated based on the likely current and potential future uses of the site and surrounding area. The Haines RV Park is located in an industrial/light commercial area within the Haines city limits, with on-site residents during the summer. Human receptors are expected to include residents of the site, campers, visitors, and construction or utility workers.

Exposure to soil is considered to be a possible future pathway for residents, campers, visitors, and site workers and a potentially complete current pathway for industrial or construction workers that may be excavating in the former UST area. Transient guests of the RV Park are not likely to be exposed to subsurface soils unless excavated or exposed at some future time. Both incidental soil ingestion and dermal absorption are possible exposure pathways.

A shallow groundwater system exists at the site, with a water table measured at approximately 5 feet bgs. The groundwater system is not a current source of drinking water; however, per ADEC regulations, the groundwater must be considered a potential drinking water source. The current source of drinking water for Haines is derived from Lilly Lake. Groundwater at the site does not currently contain contaminants above

cleanup levels, however; a change in site use may result in impacts to groundwater. If contamination migrates to groundwater from the known contaminated soil on site, receptors could potentially be exposed through ingestion of groundwater, dermal absorption of contaminations in groundwater, or inhalation of volatile compounds in groundwater used as tap water. These exposure pathways are not complete at this time, but may become complete in the future.

Outdoor exposure to volatile hydrocarbons and solvents is a complete exposure pathway. If contaminated soils were exposed to air, receptors might inhale volatile compounds from outdoor air. Indoor air exposure is not considered a complete pathway because of the weathered fuel products in soil and a lack of volatile organics. This exposure pathway is not complete at this time, but may become complete in the future.

Indoor exposure to receptors from the ingestion or absorption of surface water is a potential future pathway. If the future use of the site changes, surface waters could become impacted. This exposure pathway is not complete at this time, but could become complete in the future.

If contamination migrates to groundwater, it might be transported to the nearby surface water creek. Once present in the creek, receptors might be exposed via ingestion of surface water or dermal absorption of contaminants in surface water. These exposure pathways are not complete at this time, but may become complete in the future.

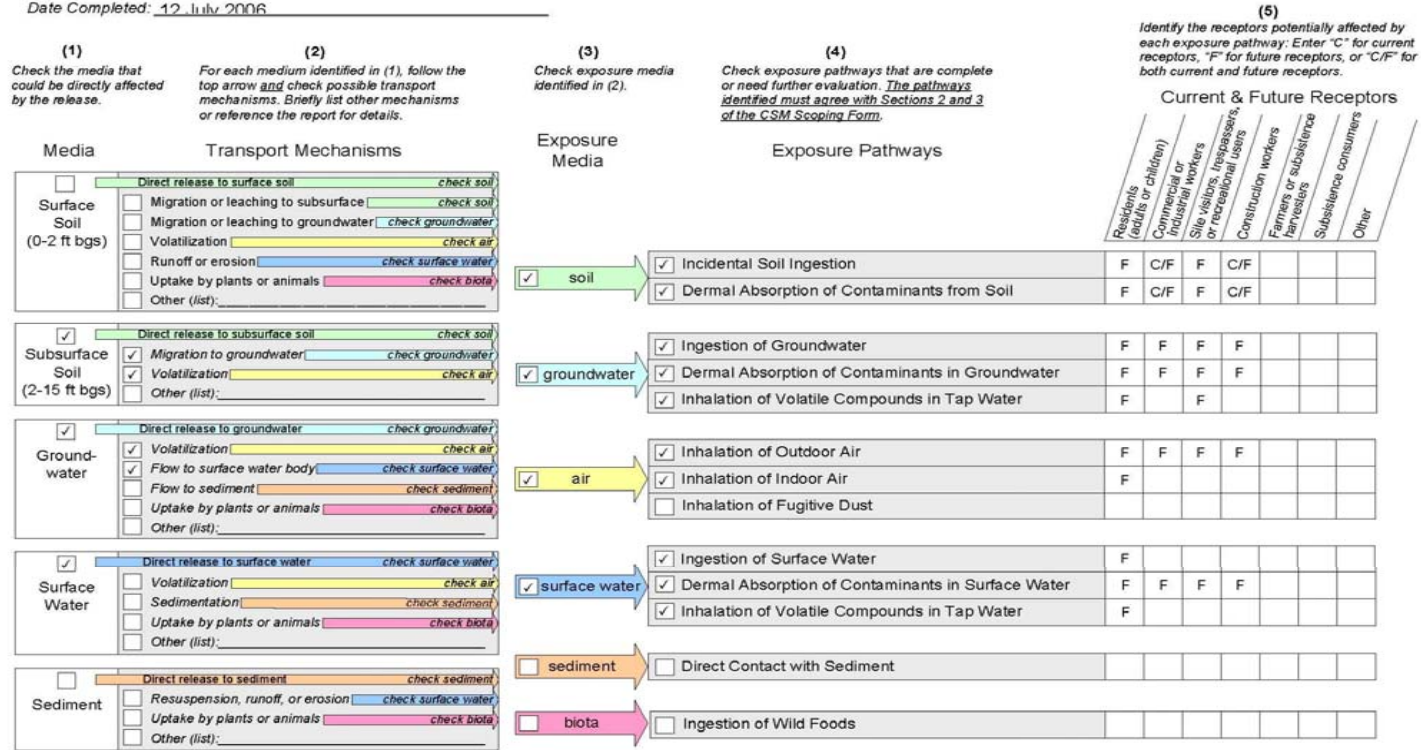
5.4 Ecological Conceptual Site Model

Ecological receptors are likely limited to terrestrial plants and soil invertebrates on the site. The potential for adverse effects is low. A graphical ecological conceptual site model was not created for the site.

HUMAN HEALTH CONCEPTUAL SITE MODEL

Site: Haines Military Cutoff Road

Completed By: USACE
 Date Completed: 12 July 2006



Revised 3/21/06

Figure 2.
Conceptual Site Model

5.5 Surface and Subsurface Features

There are no known remaining tanks, lagoons, structures, or drums on the site from past military activities. There is inert buried debris in the southeast corner of the RV Park identified during the geophysical survey.

5.6 Sampling Strategy

In October of 1994, E&E performed a site investigation at the property. Soil borings were advanced and two samples were collected from each boring at a depth of 5 and 10 feet bgs. Samples were analyzed for BTEX, TRPH, and RCRA metals. Based upon high results from field screening instrumentation, it was recommended that further sampling for DRO and GRO be conducted.

In 2003, the property owner hired SBL to conduct further investigation at the site. One analytical soil sample collected near the tanks exceeded ADEC cleanup levels for DRO, GRO, and BTEX.

In 2004, the USACE contracted BSI to conduct a preliminary site investigation at the RV Park. BSI conducted an electromagnetic ground-penetrating radar survey to determine if additional buried tanks were present. Three soil borings were installed and converted to groundwater monitoring wells (MW-1, MW-2, and MW-3). The purpose of the soil borings and their associated wells was to determine the flow of groundwater at the site, determine if the USTs had impacted groundwater, and to determine if leaking tanks had impacted soils.

In addition, the USACE contracted BSI to perform an interim removal action at the site. The purpose of the interim removal action was to eliminate the point-source of potential contamination. BSI removed ten 1,000-gallon USTs, their associated piping, and approximately 100 cubic yard of POL-impacted soils. Soil samples were collected during installation of the monitoring wells and from the limits of the excavation to delineate contamination boundaries. Water samples were collected from each of the three wells.

In 2004 the USACE performed a ROST survey at the site to determine the extent of near-surface fuel contamination in the soils. The area around the former tank locations, a buried debris area discovered during geophysical surveying, and the areas near the former garages were screened for potential POL contamination.

In the summer of 2005, the USACE contracted S&W to perform a RI at the site to determine the nature and extent of contamination. S&W advanced 23 soil borings at the site, seven of which were converted to monitoring wells. Three temporary well points adjacent to Sawmill Creek were also installed and sampled to determine if contamination was moving off-site into Sawmill Creek.

Soil contamination appears to consist of fuels around the area of the former tank locations and at the former garage, and low-level chlorinated compounds around MW-1. The contamination is relatively deep (4 to 6 feet bgs) and is localized to small hot spots at the site.

5.7 Known or Suspected Sources of Contamination

Petroleum hydrocarbons and chlorinated solvents are suspected to have been released at the Haines Military Cutoff Road site due to past military activities. Petroleum contamination was probably the result of fuel storage and leaking underground tanks at the site. The source of the chlorinated solvent contamination is unknown, but may be associated with historical use at vehicle garages and inspection facilities.

5.8 Types of Contamination and the Affected Media

The major contaminants of concern are DRO, GRO, TCE, and 1,2-DCP. The affected medium is soil. Initial groundwater analyses indicated that lead was present above ADEC Groundwater Cleanup levels; however, additional groundwater monitoring indicates that the elevated lead levels were caused by soil turbidity resulting from the interim removal action conducted in 2004. Lead is not considered a chemical of concern (COC) at the site, and groundwater has not been impacted by past military activities.

DRO includes mid-range petroleum products such as diesel fuel, with petroleum hydrocarbon compounds corresponding to an alkane range from the beginning of C10 to the beginning of C25 and a boiling point range between approximately 170° Centigrade and 400° Centigrade ([ADEC 2000](#)). DRO tends to evaporate from the soil or water and enter the atmosphere where it will be degraded.

GRO includes gasoline fuels and by-products with petroleum hydrocarbon compounds corresponding to an alkane range from the beginning of C6 to the beginning of C10 ([ADEC 2000](#)). The boiling points and flash points vary depending on the blend.

TCE is a nonflammable, colorless liquid with a somewhat sweet odor and a sweet, burning taste. It is used mainly as a solvent to remove grease from metal parts, but it is also an ingredient in adhesives, paint removers, typewriter correction fluids, and spot removers. TCE dissolves to some extent in water, but it can remain persistent in ground water. TCE evaporates less easily from the soil than from surface water ([ATSDR 2003](#)).

1,2-DCP was historically used in the past as a soil fumigant, chemical intermediate, and industrial solvent and was found in parts cleaners, paint strippers, varnishes, and furniture finish removers. Today, almost all of the 1,2-dichloropropane is used as a chemical intermediate to make perchloroethylene and several other related chlorinated chemicals. When released to soil, it is not easily broken down by bacteria, but will easily evaporate to the air and migrate into the groundwater ([ATSDR 1999](#)).

5.9 Location of Contamination and Known / Potential Routes of Migration

The location of contamination is limited to several small isolated areas throughout the site.

5.10 Nature and Extent of Contamination

The 1994 E&E site investigation consisted of advancing soil borings at the site and collecting samples at depths of 5 and 10 bgs. Samples were analyzed for BTEX, TRPH, and RCRA metals. Elevated levels of BTEX and TRPH were noted at 1.1 mg/kg and 550 mg/kg respectively. These concentrations were below the ADEC cleanup levels at that time; but it was recommended that further investigation be conducted at the site.

In the 2003 SBL investigation, soil samples were collected and analyzed for DRO, GRO, and BTEX. One sample collected near the underground storage tanks contained 490 mg/kg DRO; 2,800 mg/kg GRO; and 16.7 mg/kg BTEX. DRO, GRO, and BTEX were in excess of the ADEC Method 2 Table B1 and B2 Migration to Groundwater Cleanup levels.

In the 2004 BSI site investigation/interim removal action, soil samples were collected from soil borings and from the limits of the UST excavation. GRO, DRO, TCE, and 1,2-DCP exceeded the ADEC Method 2 Table B1 and B2 Migration to Groundwater Cleanup levels. The highest analytical results for soil samples were DRO at 2,600 mg/kg; GRO at 1,760 mg/kg, 1,2-DCP at 0.106 mg/kg; and TCE at 0.113 mg/kg.

In the 2005 S&W RI, 23 soil borings were advanced and soil samples were collected from each boring. One soil boring located near the former vehicle inspection garages contained DRO at 490 mg/kg, in excess of the ADEC Method 2 Table B1 and B2 Migration to Groundwater Cleanup levels. Groundwater samples collected from seven monitoring wells and three temporary probes installed near Sawmill Creek did not exceed the ADEC Table C Groundwater Cleanup levels.

The evaluation of the nature and extent of contamination was based primarily on data collected during the four sampling events. Analytical results in each area of interest were compared to background concentrations and [18 AAC 75](#) cleanup levels to determine chemicals of potential concern (COPCs) for the site. Based on this approach DRO, GRO, 1,2-DCP, and TCE were identified as COPCs at one or more areas. Table 1 summarizes the field sampling results and the contaminants above cleanup levels. The cleanup levels shown are based on ADEC Method 2 as codified in 18 AAC 75.341, Tables of B1 and B2, migration to groundwater pathway, over 40 inch zone.

Table 1. Contaminants Detected Above Cleanup Levels

Chemical of Concern	ADEC Method 2 Cleanup Level ^a	Range of Detected Values	Number of Detections in Project Samples	Number of Detections above Cleanup levels
DRO	230	ND – 2,600	41/60	2/60
GRO	260	ND – 1,760	48/60	2/60
1,2-dichloropropane	0.015	ND – 0.106	1	1/60
Trichloroethylene	0.02	ND – 0.113	1	1/60

^a ADEC Method 2 cleanup levels from 18 AAC 75.341, Tables B2 and B2, Migration to Groundwater Pathway, Over 40 Inch Zone, as amended through October 16, 2005.

ND – not detected

All results shown in milligrams per kilogram (mg/kg)

Soil contamination consists of low-level fuel contamination in isolated areas around the former location of the USTs and Borehole 10. Groundwater is not contaminated at the site.

6.0 CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

6.1 Land Use

The land at the Haines Military Cutoff Road is currently used as a park for recreation campers in their recreational vehicles. The site has been used in this capacity since 1985. It is anticipated that the site will continue to be used as an RV park.

6.2 Groundwater Use

The groundwater associated with this site is not used as a current source of drinking water or for any other purpose. Future use of the groundwater at this site is expected to remain unchanged.

6.3 Surface Water Use

Surface water at the site is limited to storm water runoff and the adjacent stream. There is currently no use of surface water at the site as a drinking water source. Future use of the surface water at the site is not expected to change.

7.0 SUMMARY OF SITE RISKS

A site-specific human health and ecological risk assessment was not conducted for the Haines Military Cutoff Road. The Conceptual Site Model indicates that there are several complete exposure pathways at the site.

The response action selected in this DD is necessary to protect the public health and welfare and the environment from actual or threatened releases of hazardous substances, pollutants or contaminants into the environment.

7.1 Summary of Human Health Risk Evaluation

The health risk of site contamination was not quantified. For administrative convenience, risk-based state cleanup levels are applied to protect human health and the environment.

7.2 Identification of Chemicals of Concern

DRO, GRO and 1,2-DCP and TCE are the COCs at the Haines Military Cutoff Road because they exceed current ADEC Method 2 cleanup levels in Table B1 and B2 for the migration to groundwater, over 40-inch zone.

7.3 Exposure Assessment

There are several potential and completed exposure pathways at the site. Complete exposure pathways include soil ingestion and dermal absorption; groundwater ingestion, inhalation, and absorption; and ingestion, dermal absorption and inhalation of surface water. (see Figure 2).

7.4 Toxicity Assessment

A toxicity assessment was not conducted for this site because state risk-based cleanup levels are being used.

7.5 Risk Characterization

A quantitative risk characterization was not conducted for the site.

7.6 Uncertainties

Risk assessment relies on the use of assumptions that have varying degrees of accuracy and validity. The uncertainty surrounding a risk estimate has a number of components, including: parameter variability, calculation simplification, and knowledge of the underlying reality of the exposure assumptions and pathways. A formal risk assessment was not conducted for the site, but a risk-management decision has been made to remove the contaminated soils. As such, the approach is conservative and should mitigate any uncertainties.

7.7 Ecological Risks

An ecological risk assessment was not conducted for the Haines Military Cutoff Road.

7.8 Ecological Uncertainty

Ecological uncertainty is not applicable because there is no ecological risk assessment for the site.

7.9 Basis for Response Action

The Basis for the Response Action is a risk-management decision to remediate soils to risk-based ADEC Method 2 Migration to Groundwater Cleanup Levels.

8.0 REMEDIATION OBJECTIVE

The Remedial Action Objectives (RAOs) for the Haines Military Cutoff Road are to;

- Reduce concentrations of DRO, GRO, TCE, and 1,2-DCP in soil to regulatory cleanup levels

This proposed action would reduce the contaminant levels at the site to attenuate risk to human health and the environment.

8.1 Applicable or Relevant and Appropriate Requirements (ARARs)

The ADEC Method 2 Cleanup Levels found in 18 AAC 75.341 Tables B1 and B2 provide soil cleanup levels for specific organic compounds and metals. Method Two Cleanup levels are not ARARs, but are risk-based cleanup levels promulgated by the state that are being adopted as a matter of administrative convenience. Migration to groundwater, inhalation, and ingestion are the pathways considered under Method 2. The migration to groundwater cleanup levels are typically the most conservative values and are considered appropriate for the Haines Military Cutoff Road.

9.0 DESCRIPTION OF ALTERNATIVES

The proposed remedy for the Haines Military Cutoff Road was compared to the no-action alternative and to the nine CERCLA evaluation criteria.

10.0 COMPARATIVE ANALYSIS OF ALTERNATIVES

This section summarizes and compares each alternative using the nine evaluation criteria.

10.1 Overall Protection of Human Health and the Environment

- The No-Action Alternative is not protective of human health and the environment.
- The Ex-situ Excavation and Off-site Disposal Alternative is protective of human health and the environment. The contaminated soils are removed from the site so no future exposure to humans or the environment is anticipated. The potential risks are limited to receptors that may be affected if the soils were excavated and disposed in a location where groundwater could be affected.

10.2 Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

- The No-Action Alternative would not comply with the ARARs.
- The Ex-situ Excavation and Off-site Disposal Alternative meets all cleanup ARARs. Excavated soils would require treatment at an off-site disposal facility in order to meet disposal ARARs.

10.3 Short-term Effectiveness and Potential Exposure During Remedial Action.

- The No-Action Alternative has poor short-term effectiveness and no potential exposure during remedial action since the soils will not be disturbed.
- The Ex-situ Excavation and Off-site Disposal Alternative has the potential to expose site workers during remedial activities. These risks can be mitigated by engineering controls employed during remediation.

10.4 Long-term Effectiveness and Permanence

- The No-Action Alternative has poor long-term effectiveness and poor permanence because contaminated soils remain at the site.
- The Ex-situ Excavation and Off-site Disposal Alternative has excellent long-term effectiveness and permanence. This alternative is highly effective and permanent. The contaminated soils will be removed from the site and the contaminants will be destroyed through treatment.

10.5 Reduction of Toxicity, Mobility and Volume through Treatment

- The No-Action Alternative has poor reduction of toxicity, mobility, and volume through treatment because no treatment is conducted under this alternative.
- The Ex-situ Excavation and Off-site Disposal Alternative has excellent reduction of toxicity, mobility, and volume through treatment. The contaminated soils will no longer be on site and the contaminants will be destroyed through treatment.

10.6 Implementability

- The No-Action Alternative has good implementability. No additional work will be required at the site under this alternative.
- The Ex-situ Excavation and Off-site Disposal Alternative has good implementability. Soils will be excavated and removed off-site. This approach has been successfully used at many sites in the State of Alaska.

10.7 Cost

- There are no costs for the no action alternative.
- The Ex-situ Excavation and Off-site Disposal Alternative estimated cost is approximately \$500,000 to \$1,000,000.

10.8 State Acceptance

The State of Alaska concurs with the selection of the Excavate and Off-Site Disposal Alternative presented in the Proposed Plan in a letter dated June 02, 2006.

10.9 Public Acceptance

No comments were received that presented new information or requested significant changes to the proposed remedial action.

10.10 Principal Threat Waste

The NCP establishes an expectation that treatment will be used to address the principal threats posed by a site wherever practicable (NCP §300.430(a)(1)(iii)(A)). Identifying principal threat wastes combines concepts of both hazard and risk. In general, principal threat wastes are those source materials considered to be highly toxic or highly mobile which generally cannot be contained in a reliable manner or would present a significant risk to human health or the environment should exposure occur. Conversely, non-principal threat wastes are those source materials that generally can be reliably contained and that would present only a low risk in the event of exposure.

Wastes that are generally considered to constitute principal threats include, but are not limited to, the following:

- Liquid source material – waste contained in drums, lagoons or tanks, free product in the subsurface (i.e., non-aqueous phase liquids) containing contaminants of concern (generally excluding ground water).
- Mobile source material – surface soil or subsurface soil containing high concentrations of chemicals of concern that are (or potentially are) mobile due to

- wind entrainment, volatilization (e.g., volatile organic compounds), surface runoff, or subsurface transport.
- Highly-toxic source material – buried drummed non-liquid wastes, buried tanks containing non-liquid wastes, or soils containing significant concentrations of highly toxic materials.

Wastes that generally will not constitute principal threats include, but are not limited to, the following:

- Non-mobile contaminated source material of low to moderate toxicity – surface soil containing chemicals of concern that generally are relatively immobile in air or ground water (i.e., non-liquid, low volatility, low leachability contaminants such as high molecular weight compounds) in the specific environmental setting.
- Low toxicity source material – soil and subsurface soil concentrations not greatly above reference dose levels or that present an excess cancer risk near the acceptable risk range were exposure to occur.

The contamination at the Haines Military Cutoff Road is not classified as source material constituting principal threats. The contamination does not appear to be mobile.

11.0 SELECTED REMEDY

The Selected Remedy is to excavate soil and dispose off-site. This section expands upon the details of the Selected Remedy.

11.1 Summary of the Rational for the Selected Remedy

The selected remedy satisfies all the nine selection criteria set forth in the NCP, 40 CFR 300.430(e)(9)(iii) and discussed in Section 10 of this DD. The removal of the contamination from the site satisfies community concerns to have all contamination removed.

11.2 Description of the Selected Remedy

An estimated 950 cubic yards of POL-contaminated soil will be removed from the area between the former underground storage tank locations and borehole 10. An additional 20 cubic yards of soil contaminated with chlorinated solvents will be removed from the area around MW-1. Clean backfill will be imported to the site, and the site will be revegetated. The goal for the cleanup action will be to remove all contaminated soil that exceeds the ADEC Method 2 migration to groundwater cleanup levels.

- The excavated POL contaminated soils will be transported off-site to a permitted waste disposal facility. The removal plan, including the confirmatory sampling plan, will follow appropriate guidance for POL removals and will be coordinated with the ADEC. This will achieve RAOs that are protective for residential land use, and which are protective for all other uses. Disposal will be at either a State or Federal permitted facility.
- The chlorinated solvent contaminated soils will be excavated and transported off-site to a permitted facility.
- Containment (or Storage) Components: None
- Institutional Control Components: None
- Operations and Maintenance (O&M) Activities: None

11.3 Summary of the Estimated Remedy Costs

The estimated remedy cost is between \$500,000 and \$1,000,000 dollars. Since this DD is a public document, details supporting the cost estimate information are not included. The cost information is considered sensitive information and disclosure would hinder the competitive bidding and/or negotiation process.

11.4 Expected Outcomes of the Selected Remedy

Exposure will be controlled through excavation of contaminated soil and off-site disposal (i.e., remaining soil left on-site will meet regulatory levels). Land use will be unrestricted after completion of the remedial action (i.e., land could be used for residential development). Groundwater and surface water are not currently impacted and their use will also be unrestricted. Target cleanup levels are based upon administrative acceptance of ADEC Method 2 Cleanup levels.

11.5 Statutory Determinations

CERCLA and the NCP require that the selected remedy is protective of human health and the environment, complies with ARARs, is cost effective, and utilizes permanent solutions to the maximum extent practical. In addition, CERCLA includes a preference for remedies whose principal element is treatment that significantly and permanently reduces the volume, toxicity or mobility of hazardous substances. The selected remedy best meets these objectives because:

- It protects human health and the environment by removing the source of contamination, and eliminating potential exposure pathways with contaminated media.
- It complies with state and federal regulations, and other applicable ARARs.
- It eliminates the need for long-term onsite management (institutional controls and monitoring) at project completion because the contaminated soil is permanently removed from the site.
- It eliminates the volume and mobility of contamination remaining at the site by physically removing the waste.

- The short-term risks posed by the remedial activities are acceptable and manageable.

The implementability is high because the selected remedy relies on conventional removal and disposal methods.

11.6 Protection of Human Health and the Environment

The selected remedy, excavation and off-site disposal, will protect human health and the environment through the excavation and off-site disposal of contaminated soil.

11.7 Compliance with ARARs

The selected remedy of excavation and off-site disposal complies with all ARARs. Method Two Cleanup levels are not ARARs, but are risk-based cleanup levels promulgated by the state that are being adopted as a matter of administrative convenience and to demonstrate that the proposed action results in acceptable risk per State regulations.

Method Two – Migration to Groundwater Soil Cleanup Levels Over 40-inch Zone ([18 AAC 75.341](#)).

11.8 Cost-Effectiveness

In the lead agency's judgment, the selected remedy is cost-effective and represents a reasonable value for the money to be spent.

11.9 Utilization of Permanent Solutions and Alternative Treatment Technologies (or Resource Recovery Technologies) to the Maximum Extent Practicable

USACE has determined that the selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner at the site.

The selected remedy removes the source materials constituting threats at the site. The selected remedy satisfies the criteria for long-term effectiveness by removing contamination from the soil. There are no special implementability issues that set the selected remedy apart from any of the other alternatives evaluated.

11.10 Preference for Treatment as a Principal Element

The selected remedy does not meet the preference for treatment as a principal element, since contamination would be removed from the site.

11.11 Five-Year Review Requirements

Since this remedy will result in no hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a five-year review will not be required.

11.12 Documentation of Significant Changes

No comments were received that presented new information or requested significant changes to the proposed remedial actions.

PART 3: RESPONSIVENESS SUMMARY

STAKEHOLDER COMMENTS AND LEAD AGENCY RESPONSES

RESPONSIVENESS SUMMARY

The following comments were received on the *Proposed Plan for Remedial Action, Haines Military Cutoff Road, May 2006*.

COMMENT

The site location and background lists the incorrect footage for the site area. This is about one-half of the actual property size. Please recheck to the survey completed thru (sic) Shannon & Wilson and correct this narrative.

RESPONSE

The survey data from Shannon and Wilson has been rechecked and the actual sizes are noted; however, the Proposed Plan will not be re-submitted with the updated values.

COMMENT

Would it be possible to get a copy of the survey performed for S&W?

RESPONSE

The survey data can be provided as requested.

COMMENT

In your summary of preferred remedial alternative – it is not clear as to which Alaska DEC clean up level you will take the clean up to. Is this a level that will allow the State DEC to issue a clean “No further Action Letter”?

RESPONSE

The Proposed Plan states that the ADEC Method 2 Migration to Groundwater Cleanup Levels are the accepted regulatory cleanup levels for the site. The USACE cannot dictate the regulatory action that the ADEC will take; however, it was noted in an ADEC letter dated June 2, 2006 that cleanup to these levels will result in a site closure letter with no institutional controls for the property.

COMMENT

Is your goal to receive a clean “No Further Action Letter” from Alaska DEC?

RESPONSE

The goal of the remedial action is to excavate soils that present unacceptable risk to human health or the environment. The issuance of a “No Further Action” letter from the ADEC is not identified as a remedial objective. However, it is anticipated that if soils are successfully remediated to the Method 2 Migration to Groundwater Cleanup Levels, a No Further Action letter will be issued.

COMMENT

Also, the time frame in which the work will be completed is not disclosed.

RESPONSE

A general time frame is included in this Decision Document. The actual dates of work and completion are contingent upon funding, contractor schedules, regulatory and management concurrence, etc. As the project moves forward through the process, actual dates will be established.

REFERENCES

- Agency for Toxic Substance and Disease Registry (ATSDR). 2003. ToxFAQs for Trichloroethylene (TCE). July. <http://www.atsdr.cdc.gov/tfacts19.html>.
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- Alaska Department of Environmental Conservation (ADEC). 2005. Oil and Other Hazardous Substances Pollution Control, 18 AAC 75, as amended through October 16, 2005.
- ADEC. 2000. Guidance for Cleanup of Petroleum Contaminated Sites. Division of Spill Prevention and Response. September.
- Bethel Services, Inc. (BSI). 2005. Final Technical Memorandum for Haines Military Cutoff Road Formerly Used Defense Site Interim Action Tank Removal. July.
- Ecology and Environment, Inc. (E&E). 1995. Inventory Project Report, Haines Hitch-Up Recreational Vehicle (RV) Park, Haines, Alaska. January.
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- United States Army Corps of Engineers (USACE). 2005. Contamination Delineation, Haines Military Cutoff Road, Final. March.