Proposed Plan for ERP Activities at

Lake Louise Recreation Camp

Lake Louise, Alaska

Public Comment Period: May 7 to June 5, 2012

April 2012

INTRODUCTION

The U.S. Air Force (USAF) requests your comments on this Proposed Plan for the Environmental Restoration Program (ERP) site at Lake Louise Recreation Camp (LLRC), Alaska. This Proposed Plan is prepared under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Contingency Plan (NCP), 40 Code of Federal Regulations (CFR) 300.430(f)(2). These federal laws regulate the cleanup of hazardous waste sites that contain substances covered under CERCLA.

The ERP site discussed in this Proposed Plan is referred to as **Lake Louise Recreation Camp (OT001).** This Proposed Plan describes the environmental investigations performed at the site and the proposed action. This Proposed Plan:

- Provides background information;
- Provides a summary of the remedial alternatives evaluated for the site;
- Identifies the preferred alternative proposed for the site;
- Provides the rationale for the selection of the preferred alternative; and
- Provides information on how the public can comment on the Proposed Plan and become involved in the remedy selection process.

This Proposed Plan summarizes information that can be found in greater detail in the Remedial Investigation/Feasibility Study (RI/FS) Report and other documents. Reports and other documentation related to this Proposed Plan can be found at the following locations:

- Online at http://www.adminrec.com/PACAF.asp?Location=Alaska
- In the Administrative Record at Joint Base Elmendorf Richardson (JBER) near Anchorage

The United States Environmental Protection Agency (USEPA) is a supporting regulatory agency but has deferred regulatory authority to the Alaska Department of Environmental Conservation (ADEC); therefore, no comments for this Proposed Plan were provided by the USEPA. ADEC is the lead regulator for LLRC and the USAF is the lead cleanup agency. ADEC agrees that proper implementation of the proposed actions will comply with state laws.

Federal CERCLA law (42 United States Code [USC] 9601 et seq.) applies to sites where CERCLA listed hazardous substances were released into the environment. Four of the eight *areas of interest* (sites) at LLRC had identified CERCLA hazardous substance releases. CERCLA and the Defense Environmental Restoration Program require USAF to comply with CERCLA, overlapping federal law such as Resource Conservation and Recovery Act (RCRA), and applicable or relevant and appropriate State laws. The State of Alaska has promulgated environmental cleanup laws that parallel CERCLA and are applicable to all areas of interest at LLRC. The USAF must simultaneously comply with federal and State law. The USAF does this by integrating RCRA and State corrective action requirements into the

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CERCLA process. Petroleum products such as crude oil or refined fuel such as diesel are not considered hazardous substances under CERCLA. Due to the CERCLA petroleum exclusion, at LLRC the ADEC Contaminated Sites Program has exclusive regulatory authority under Title 18 Alaska Administrative Code (AAC) 18 AAC 75, Article 3 'Discharge Reporting, Cleanup, and Disposal of Oil and Other Hazardous Substances' where strictly petroleum and no CERCLA hazardous substance was released into the environment. In addition, CERCLA does not address potentially hazardous substances or constituents in materials or products which are part of a structure and result in exposure within the structure. These potential hazards (e.g., buildings containing PCB or lead paint, or asbestos) are regulated under other federal and state regulations and, if present at LLRC, will be addressed by the USAF under those regulations.

The LLRC site is not on the USEPA NPL. The NPL is the list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories.

A Proposed Plan is a document that the USAF, as the lead agency, is required to issue to fulfill the public participation requirement under CERCLA and the NCP. Involving the public in the decision-making process is required by 40 CFR 300(f)(2) for sites on the NPL. As part of its ERP, the USAF is following the notification process to inform and involve the public as it makes a decision on how to address the environmental contamination at LLRC.

Public comments on this Proposed Plan will become part of the Record of Decision (ROD). The ROD will include a summary of public comments received during the comment period for this Proposed Plan, and responses by the USAF. The USAF shall be responsible for implementing, maintaining, monitoring, reporting, and enforcing the remedial actions identified for the duration of the remedies selected in this Proposed Plan. Final decisions on the selection of a preferred alternative will not be made until all comments submitted by the end of the public comment period have been reviewed and considered. Changes to the preferred alternatives may be made if public comments or additional data indicate that such changes would result in more appropriate remedies.

Within the LLRC site (OT001), eight areas of interest were identified and investigated. Figure 1 (page 3) shows locations of the areas of interest. Table 1 (page 4) lists the areas investigated and the corresponding proposed actions included in this Proposed Plan. Figure 1 shows key features and areas of interest at the LLRC site. No contaminants of concern (COCs) were identified at two of the eight areas investigated. As a result, no further action is proposed for these two areas under the ERP. "No further action" indicates no further investigations, sampling, or cleanup actions will be performed at the area. As indicated on Table 1, CERCLA hazardous substance releases were identified at four of the eight areas of interest investigated. The CERCLA hazardous substances were polychlorinated biphenyls (PCBs), benzo(a)pyrene (BaP), and lead. Three of the eight areas contain fuel-contaminated soil or groundwater, which is being addressed under Alaska State laws and regulations (18 AAC 75). The primary contaminant detected was diesel range organics (DRO), which is a component of diesel fuel.

Pages 9 through 29 of this Proposed Plan further detail RIs, extent of contamination, site risk, remedial alternatives, and proposed actions for the LLRC site (OT001). The discussion regarding proposed action is separated into CERCLA and non-CERCLA contaminants.

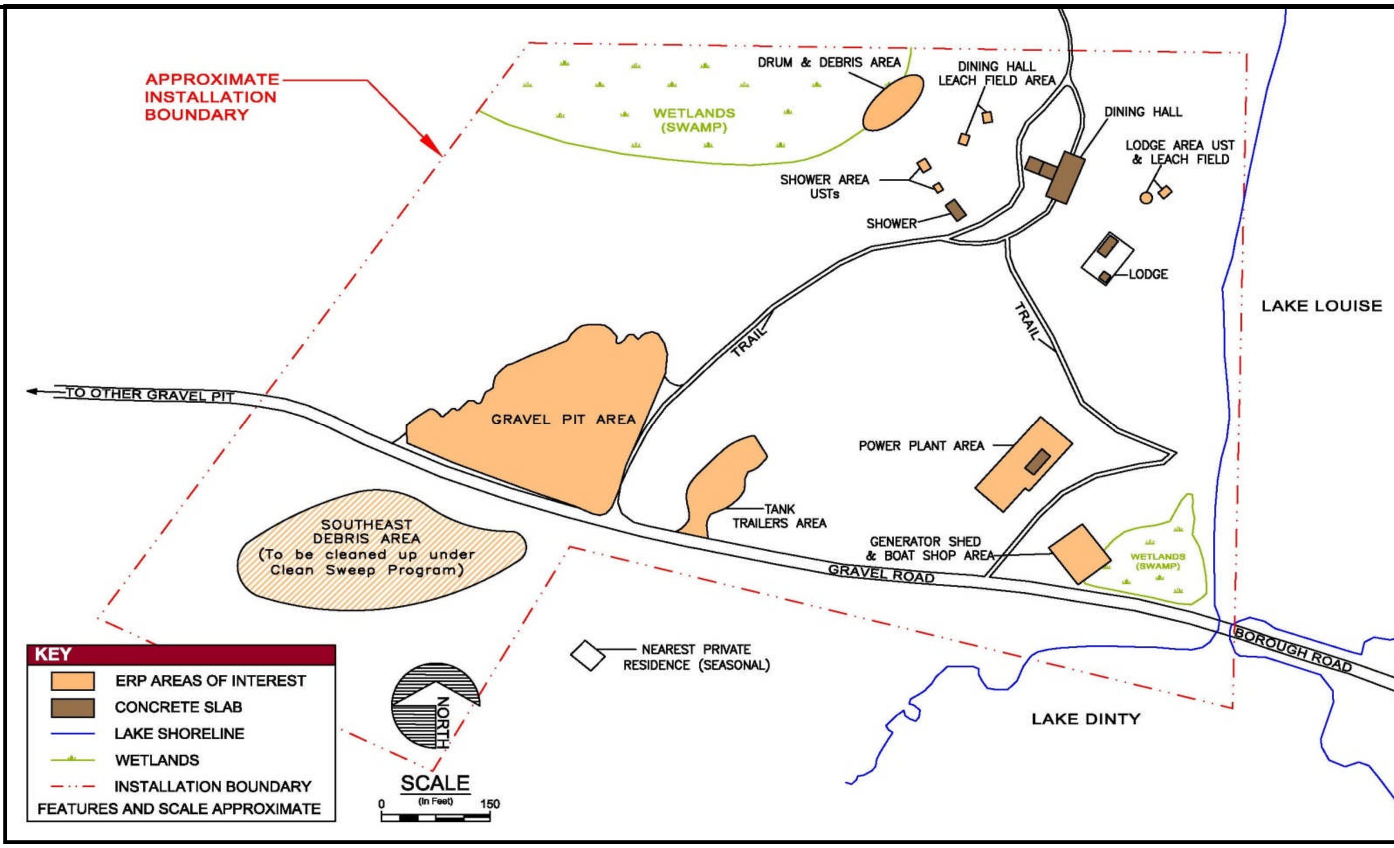


Figure 1—Primary Features and Areas of Interest

Common Acronyms Used in This Proposed Plan

General Terms

AAC- Alaska Administrative Code
ADEC -Alaska Department of Environmental Conservation
ARARs - Applicable or Relevant and Appropriate Requirements
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
CES- Civil Engineer Squadron
CFR - Code of Federal Regulations
COC - Contaminant of Concern
ERP - Environmental Restoration Program
FS - Feasibility Study
HI-Hazard Index
JBER – Joint Base Elmendorf Richardson
LLRC -Lake Louise Recreation Camp
LUC[1] – Land use control
NCP – National Contingency Plan
NPL - National Priority List
PA-Preliminary Assessment
RCRA – Resource Conservation and Recovery Act
RI - Remedial Investigation
ROD -Record of Decision
SI-Site Investigation
USAF - United States Air Force
USEPA - United States Environmental Protection Agency
UST -Underground Storage Tank
TSDF – Treatment, storage, and disposal facility

Chemicals

BaP - benzo(a)pyrene
BTEX - benzene, toluene, ethylbenzene, and xylenes
DRO - diesel range organics
GRO - gasoline range organics
PAHs - polycyclic aromatic hydrocarbons
PCBs - polychlorinated biphenyls
RRO - residual range organics
VOC – volatile organic compound

Units

mg/Kg -milligrams per kilogram
mg/L- milligrams per liter
yd^3 - cubic yards

[1] Land use controls (LUCs) are used to provide protection from exposure to contaminants that exist or remain on a site. LUCs are classified as institutional (administrative and/or legal) controls or engineering (physical) controls.

Table 1 – LLRC (OT001) Areas of interest and Proposed Actions

Site	CERCLA Hazardous Substances?	Proposed Action	
		Under CERCLA (Federal Regulations)	Under 18 AAC 75 (State Regulations)
LLRC (OT001)	Yes	Remedial Action	Remedial Action
Specifics Regarding Areas of Interest Investigated at LLRC (OT001)			
Gravel Pit Area	No	No Further Action	
Dining Hall Leach Field Area	Yes	Remedial Action[2]	
Lodge Area UST	Yes	Remedial Action[2]	
Shower Area USTs	Yes	Remedial Action[2]	
Drum and Debris Area	No	No Further Action with CERCLA closure and proceed under Alaska statutes (laws)	Remedial Action[1]
Generator Shed and Boat Shop Area	No	No Further Action	
Power Plant Area	Yes	Remedial Action[2]	
Tank Trailers Area	No	No Further Action with CERCLA closure and proceed under Alaska statutes (laws)	Remedial Action[1]

Notes:
[1]Remediation of petroleum contaminated soil will be performed in accordance with Alaska State regulations.
[2]Remediation of contamination will be performed in accordance with CERCLA and Alaska State laws and regulations.

SITE HISTORY AND BACKGROUND

The LLRC is located in the Copper River Valley, bound to the north by the foothills of the Alaska Range, the east by the Wrangell Mountains, the south by the Chugach Mountains, and the west by the Talkeetna Mountains. The LLRC is 173 road miles northeast of Anchorage and 16 miles north of the Glenn Highway at milepost 157, at an elevation of 2,362 feet. The LLRC is adjacent to the community of Lake Louise with a current estimated population of 91. The Lake Louise area is a designated State Recreation area and is popular for boating, fishing, and snowmobiling.

The USAF operated the LLRC as a recreational fishing and boating facility from 1955 to 1965. The camp consisted of a lodge, dining hall, airmen's dormitory, boat house and cabins, and a picnic area. A gravel pit (quarry) was also located on the property west of the camp area. A map of the key features is provided on Figure 1. An airstrip located southeast of the LLRC was presumably used for site access.

The USAF discontinued use of the site in 1965 after the March 1964 earthquake due to extensive damage to property. Buildings at the site were demolished or relocated in 1971, leaving only the concrete foundations. There is no documentation of where solid waste from the building demolition and related cleanup was disposed but it is believed most, if not all, was disposed of off the LLRC property. In the fall of 2010 additional solid waste was removed as part of building demolition and debris removal activities conducted under the USAF Clean Sweep Program. Miscellaneous surface debris (drums, small cans, cables, and piping), underground storage tanks (USTs) used for septic systems, and any residue in the tanks were removed and disposed offsite. Inert concrete was buried onsite in the former gravel pit. Future work by the USAF includes removing any solid waste and conducting environmental cleanup.

The USAF acquired the approximately 25 acres that comprises the LLRC via Public Land Order 1509 from the United States Bureau of Land Management. The USAF has no further use for the property and intends to relinquish it once cleanup is complete. The State of Alaska has applied (top-filed) to receive the property after it is relinquished by the federal government. No schedule for the property transfer has been formalized.

Geology and Hydrology
The geology of the Copper River Valley where the LLRC is located is dominated by glacial deposits formed during the Pleistocene Era. The nearly level to rolling plain has many lakes and wetlands. The surficial deposits at the site are described as kame-esker and glaciolacustrine deposits, which are composed of gravels, sands, and wind-blown silts.

Permafrost generally underlies the entire Copper River Valley at varying depths except on flood plains and under lakes. Massive ice wedges and lenses do occur in the subsoil in some areas. A perched water table and saturated conditions are common above the permafrost due to restricted drainage.

Three borings drilled in the Copper River Valley region had an average depth to the base of permafrost of about 99 feet. The drilling log for a nearby Army recreation camp well indicated the permafrost was 16 feet thick. Other observations that suggest the presence of permafrost in the area immediately surrounding the LLRC include massive ice exposed in a gravel pit located a few hundred feet west of the site and rapid subsidence during construction of a nearby air strip in 2008. During drilling at LLRC in 2009 and 2010, permafrost was encountered in borings ranging from about 0.5 to 20 feet below ground surface.

At the LLRC, drilling and monitoring well installation has indicated that groundwater is intermittent and, where it occurs, it is typically a shallow thin layer located above the permafrost (i.e., less than 5 feet below ground surface and less than 5 feet thick). Therefore it is considered a "supra-permafrost" aquifer (i.e., an aquifer that resides above the permafrost). However, the majority of the site was found to have very little or no supra-permafrost groundwater. Many borings encountered permafrost but no groundwater. Figure 2 (page 6) shows monitoring well locations and groundwater flow at the LLRC site. It should be noted that the closest drinking water well is located more than a mile away and most residents haul their water from another source as opposed to installing wells on their property.

Source of Potential Contamination
Past activities potentially resulting in contaminant releases to the environment at the LLRC include:

- Spills during the transfer of fuels in and out of storage tanks;
- Leaks from fuel lines, tanks, or drums;
- Spills or leaks of fuel, lubricants, or solvents during vehicle and equipment maintenance activities; and
- Improper disposal of wastes and other discarded material containing hazardous substances.

Environmental Investigations
Environmental investigations to determine whether contamination was present from past USAF activities have been conducted at the LLRC since the early 1990s, to the present. The initial investigation was a Preliminary Assessment/Site Investigation (PA/SI) in 1993. A limited SI and an archaeological survey were conducted in 2000. Phase I of a more extensive SI was conducted in September 2008. This SI reviewed past reports and surveyed current conditions. It identified eight areas with existing or potential environmental contamination. These areas were then sampled as part of a Phase II SI in June of 2009. In the fall of 2009, further sampling was conducted at four of these areas to fill data gaps. This sampling was performed as part of a RI/FS. During the 2009 SI and RI/FS, over one hundred and ten soil, surface water, or groundwater samples were collected and analyzed for a variety of potential contaminants. Analytical results were screened against ADEC cleanup levels (soil and groundwater) and Alaska Water Quality Standards for surface water to identify COCs and evaluate whether cleanup was necessary. The 2009 investigations and associated RI/FS report are the primary basis for this Proposed Plan. Some additional soil and groundwater samples were collected in September 2010 as part of a Focused FS to fill data gaps and verify assumptions put forth in the 2009 RI/FS report. In addition, some soil samples were collected and analyzed after surface debris was removed in 2010 to determine if any contamination remained at those locations. These results were also evaluated as part of the ERP. In September 2011, groundwater samples were collected from wells installed in 2009 and 2010 to provide additional groundwater data.

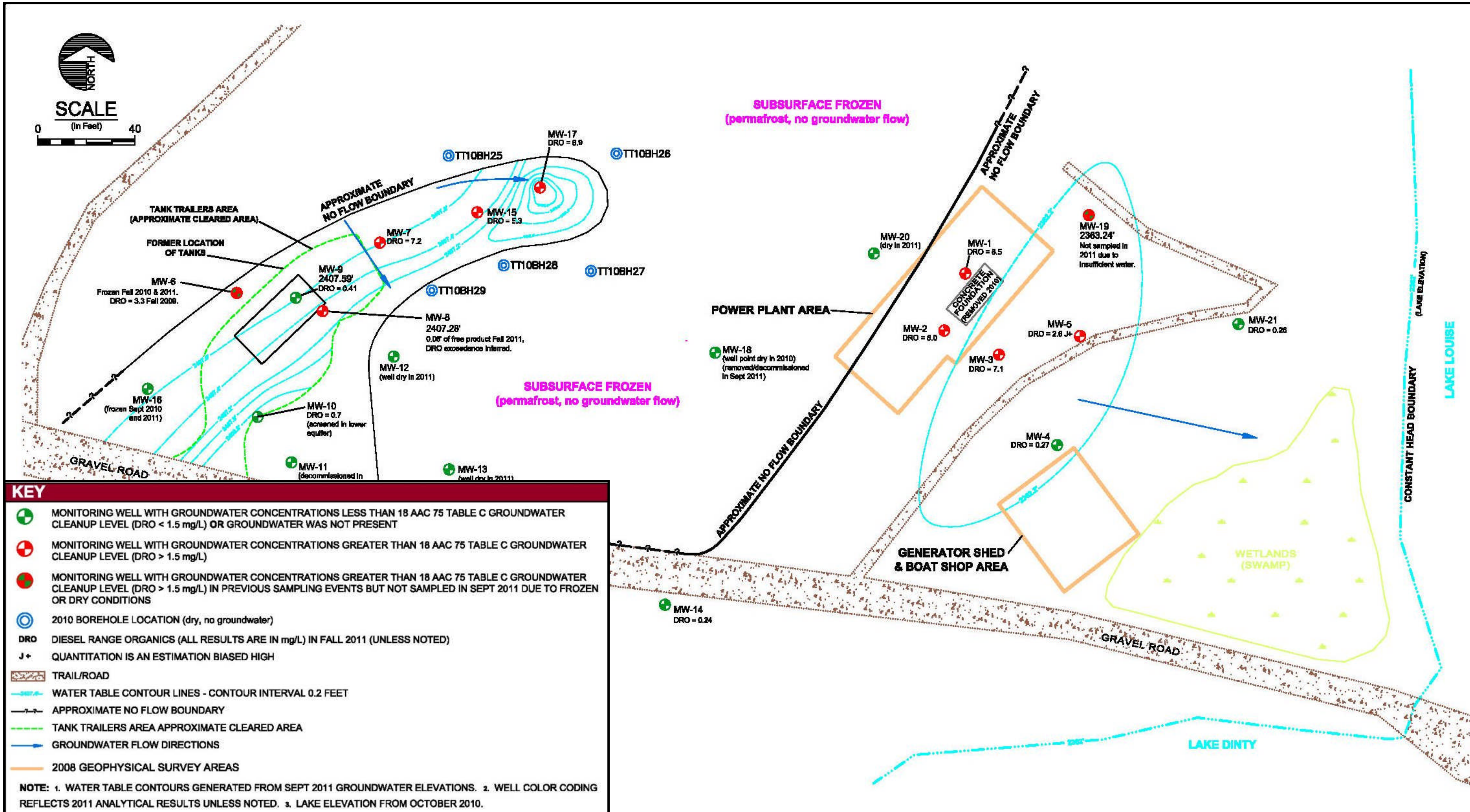
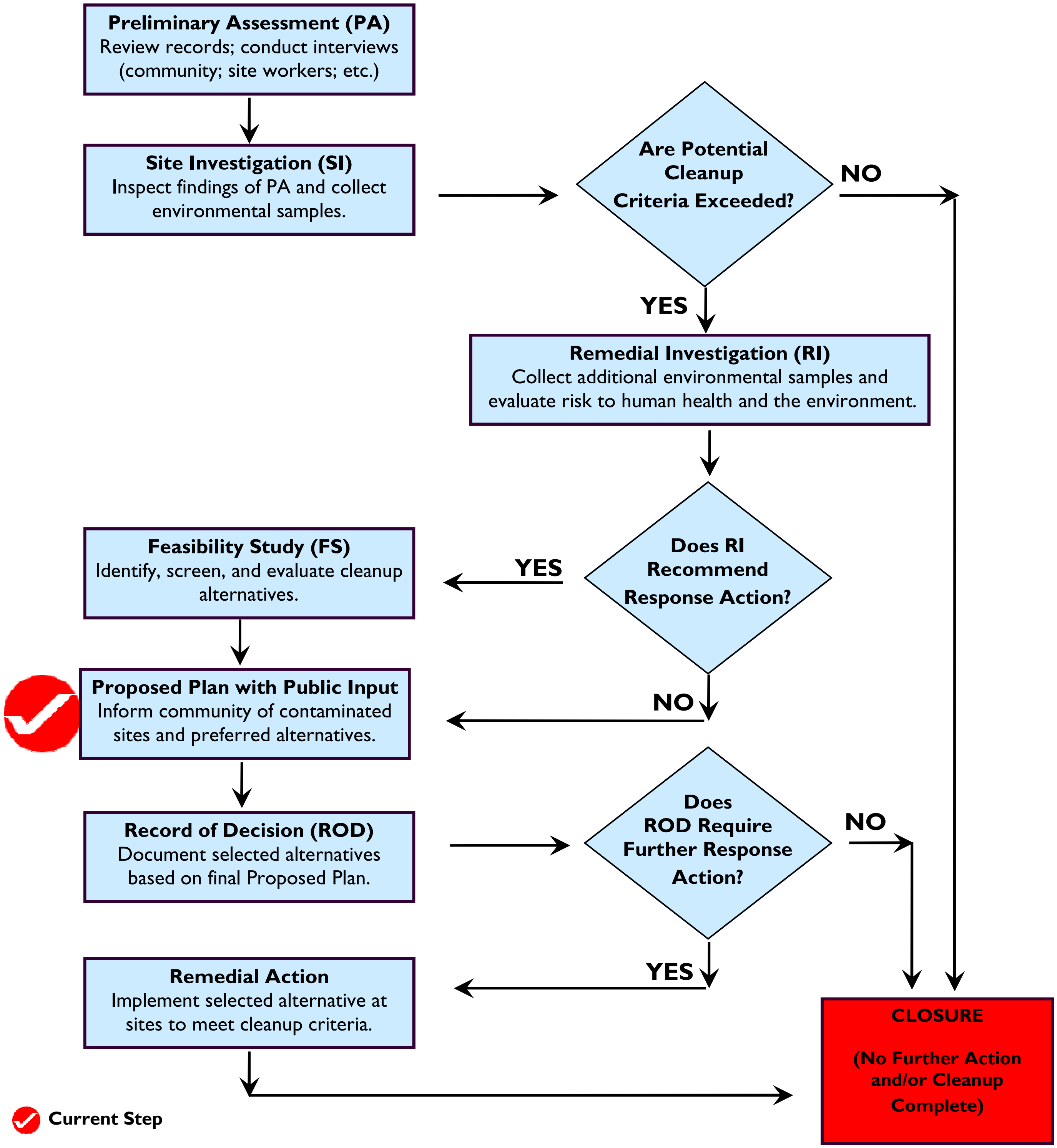


Figure 2 —Summary of Groundwater Monitoring Locations and Results 2009-2011

SUMMARY OF CERCLA INVESTIGATION N AND REMEDIATION PROCESS

The environmental investigations and cleanup at LLRC are being performed as part of the USAF ERP, which is subject to and consistent with CERCLA. The ERP is designed to identify, quantify, and remedy problems associated with past and current management of hazardous substances and hazardous waste at USAF facilities. The steps involved in evaluation and cleanup of sites under the ERP are summarized in the flow chart on this page.



As indicated in the flow chart on page 7, areas which potentially contain environmental contamination are first sampled as part of a SI. If the sample concentrations exceed screening criteria indicating a concern, then a more detailed RI is conducted. The purpose of a RI is to do the following:

- Identify the hazardous substances that have been released to the environment;
- Determine the nature, extent, and distribution of the hazardous substances in the affected media and identify the COCs;
- Identify migration pathways and receptors;
- Determine the direction and rate of migration of the COCs;
- Evaluate the risk to human health and the environment; and
- Determine the need for remedial action.

The sampling results from the RI are compared against applicable regulatory screening criteria to determine whether there are COCs that require remedial actions to protect human health or the environment. A chemical is considered a COC if it exceeds the screening criteria, unless further evaluation indicated the contaminant posed little risk.

The screening criteria used to identify COCs and evaluate the need for cleanup are conservative standards, meaning they were developed to be protective of sensitive human populations (e.g., residents or children) and ecological **receptors** under typical conditions. They are selected based on the current and projected land use of the site.

Initial risk assessment of the site involves identifying COCs in site matrices (e.g. soil, sediment, and water) through a comparison of sample results to applicable screening criteria. Next, for areas with COCs identified, the potential for humans or ecological receptors to be exposed to these COCs is evaluated by examining complete or potentially complete **exposure pathways**.

Finally, risks are determined to be significant or insignificant for complete exposure pathways by calculating the human noncancer and cancer risks associated with exposure to COCs. Ecological risks are evaluated by comparing contaminant levels to **ecological risk standards**. Risks to humans are evaluated by calculating the noncancer and cancer risks associated with exposure to COCs and comparing them to **ADEC risk management standards** (see inset). Conceptual Site Models are developed for human and ecological **exposure pathways** for areas with contaminated media to illustrate complete and incomplete exposure pathway and determine whether remedial action is warranted.

At sites where the RI determines that there is a need for remedial action, an FS is performed. The objectives of an FS are to:

- Identify and evaluate remedial alternatives, where necessary; and
- Select a preferred remedial action alternative.

Unless a waiver is justified, CERCLA Section 121(d)(2)(A) requires that remedial actions meet federal and state standards.

Contaminant of Concern (COC) - *A COC is a chemical that exists at a concentration that poses an unacceptable risk to human health or the environment. The concentration at which a chemical poses an unacceptable risk depends upon many factors including its toxicity and the frequency or chance that an individual may become exposed to the chemical. Therefore, the location and size of a contaminated area affects the potential risk. A small area of contamination that is unlikely to come into contact with animals or humans typically represents a low risk.*

Receptors - *Receptors are the site-specific populations that could be exposed to contamination. Examples include: humans, plants, aquatic organisms, birds, and mammals.*

Exposure Pathways - *Pathways are the means by which receptors may be exposed to contamination. Examples include: direct contact, ingestion, or inhalation. ADEC defines complete exposure pathways as those that are currently complete or could be complete in the future based on contaminant migration or future land use.*

Ecological Risk Standards - *ADEC permits several different methods for evaluating the potential adverse effects to ecological receptors. The ecological risk assessment process is based on two major elements: characterization of effects and characterization of exposure. Ecological risk standards are used to evaluate data, information, assumptions, and uncertainties in order to understand and predict the relationships between stressors and ecological effects in a way that is useful for environmental decision making.*

ADEC Risk Management Standards - *ADEC has set standards to protect people from health risks caused by exposure to contaminants in soil and water (18 AAC 75.325[g]). The cancer risk standard is 1 in 100,000. This means that contact with contaminants at the site over a 70-year lifetime will not increase the cancer risk among individuals by more than 1 in 100,000 ($1x10^{-5}$). The noncancer risk standard is a hazard index (HI) of 1. This HI measures the likelihood that a person who comes into contact with contaminants at the site over the course of a lifetime will experience noncancer health effects. A HI of 1 is the maximum level at which people are not expected to experience any unacceptable health effects. These levels are calculated to protect people who are both easily affected by the chemicals and often come into contact with the contaminants at the site. They are calculated assuming that the person is living at the site for their lifetime (residential exposure scenario).*

SITE CHARACTERISTICS

Environmental investigations have been conducted at the LLRC from 1993 to the present. Areas with known or potential contamination were investigated. Most areas were sampled for a wide variety of potential contaminants, including fuel related compounds, metals, pesticides, PCBs, volatile organic compounds (VOCs), and polycyclic aromatic hydrocarbons (PAHs). A summary of each area investigated is provided below. Locations are shown in Figure 1.

The Gravel Pit Area is located immediately north of the access road on the western end of the property. The area appears to be a common place for local residents or seasonal recreationalists to park vehicles, trailers, and boats for short periods of time. It was suspected this area may have been used as a burial site for waste. However, investigations found no COCs or significant geophysical (magnetic) anomalies to indicate the area was used for a dump or landfill. No additional investigation or remedial action is planned for this area.

Drums at the Drum and Debris Area

The Dining Hall Leach Field Area, the Lodge Area USTs and Shower Area USTs. These three areas appear to have been used for sewage or grey water disposal. The septic systems had underground tanks, pits lined with wood or drums, and leach fields. There were no COCs identified at these locations during the 2009 investigation. However, the open tank and pits were considered physical hazards and, in some cases, tanks contained solids (sludge and soil). In the fall of 2010, as part of the Clean Sweep Program, concrete slabs, tanks, and drums were removed and pits were backfilled to grade with clean fill. Solid waste was removed for offsite disposal. Prior to backfilling, soil sampling was conducted to verify there were no petroleum products or other COCs present. BaP was detected in the soil at the Dining Hall leach Field and Shower Areas above the ADEC Method Two Human Health soil cleanup level of 0.49 milligram per kilogram (mg/Kg), at 0.6 mg/Kg and 1.3 mg/Kg, respectively. Lead was detected in one soil sample at the Lodge Area at 3,720 mg/Kg, above the ADEC Method Two Human Health soil cleanup level of 400 mg/Kg. Remedial action under CERCLA is proposed to address these areas.

The Drum and Debris Area is located on a hillside along the northern boundary of the LLRC installation. The base of the hillside is bordered by the low-lying wetlands. Approximately 20 empty 55-gallon drums were present in the area adjacent to or within the wetland. DRO was detected in soil exceeding the ADEC Method Two Human Health soil cleanup level (10,250 mg/Kg), with a maximum concentration of 43,000 mg/Kg. Low-level benzene, toluene, ethylbenzene, and xylenes (BTEX) and PAHs were also detected in soil. However, the BTEX and PAH concentrations were below all compound specific ADEC Method Two soil cleanup levels, including the Migration to Groundwater cleanup level. The calculated cumulative risk for these detected compounds was below the ADEC risk management standards under 18 AAC 75.325(3)(g). The RI identified DRO as a COC in soil due to its exceedance of the ADEC Method Two Human Health cleanup level. DRO was also detected in groundwater and surface water but below screening criteria, so no COCs were identified in the surface water or groundwater. Remedial action is proposed under 18 AAC 75 for this area to address the DRO contamination in the soil.

The Generator Shed and Boat Shop Area is located in the southeast corner of the LLRC property. There is shallow groundwater in the immediate area located within 2 feet of the ground surface, and there are wetlands towards the east. None of the five soil samples collected at the Generator Shed and Boat Shop

Area had contaminant concentrations exceeding the ADEC Method Two Human Health soil cleanup level. In one sample, DRO exceeded the Migration to Groundwater soil cleanup level of 250 mg/Kg with a concentration of 370 mg/Kg. However, DRO in groundwater was well below the Groundwater cleanup level (1.5 milligram per liter [mg/L]) indicating the DRO in the soil was not causing adverse impacts to groundwater. In addition, two surface water locations were sampled from the wetlands area but no compounds were detected above Alaska Water Quality Standards or other screening criteria. Therefore, it was concluded DRO in the soil was not a concern.

One groundwater sample had a concentration of 1.7 mg/L residual range organics (RRO), which exceeded the ADEC Groundwater cleanup level of 1.1 mg/L. The groundwater sample was collocated with the maximum DRO soil concentration of 370 mg/Kg. RRO was detected at this location at 2,700 mg/Kg, the maximum concentration of RRO at the site. RRO in the groundwater was not retained as a COC. There was no indication of impact to surface water in the downgradient wetlands. Therefore, it was determined that the extent of contamination was limited and that any release was likely small and localized, and did not migrate. Additionally, the shallow groundwater beneath the LLRC is not considered a suitable drinking water source under ADEC regulatory criteria (18 AAC 75.350). Therefore, the probability of exposure was considered low. The RI concluded that there are no COCs in the soil, surface water, or groundwater. No further investigation or action is planned for the Generator Shed and Boat Shop area.


Monitoring Well Locations (yellow casings) at the Power Plant Area

The Power Plant Area is located approximately 100 feet to the northwest and upslope of the Generator Shed and Boat House Area. The Power Plant Area contained three diesel powered generators, which provided electrical power to the LLRC. The generators were located on a concrete slab enclosed in a building.

Sampling of the soil at the power plant detected petroleum hydrocarbons (mainly DRO) in the soil. In the surface soils, the DRO concentrations were below the most stringent applicable cleanup level of 250 mg/Kg (Migration to Groundwater cleanup level). In deeper subsurface soil, DRO concentrations ranged from 370 mg/Kg to 4,600 mg/Kg. The maximum DRO concentration was detected at 6 feet below ground surface. Arsenic slightly exceeded the ADEC Method Two Human Health soil cleanup level of 4.5 mg/Kg in two of four samples. Concentrations of arsenic ranged from 3.5 to 6.7 mg/Kg. Chromium slightly exceeded the ADEC Method Two soil cleanup level for Migration to Groundwater of 25 mg/Kg in two of four samples; concentrations of chromium ranged from 17.4 to 30.1 mg/Kg. The arsenic and chromium concentrations were consistent with other areas at the LLRC and were attributed to natural conditions. In addition, seven soil samples were collected in the surface soil surrounding the edge of the concrete slab. Three samples contained detectable PCBs. However, no samples contained PCBs above the ADEC cleanup level of 1 mg/Kg. The highest concentration was 0.3 mg/Kg, detected in a sample near the north corner of the slab.


Installation of a groundwater monitoring well at the Tank Trailers Area.

DRO was the only analyte in the groundwater to exceed ADEC Groundwater cleanup levels. DRO exceeded the cleanup level of 1.5 mg/L in four of five wells in 2009, five of seven wells in 2010, and four of seven wells in 2011. The maximum concentration of DRO detected was 8.5 mg/L. In all three sampling events, DRO was only detected at trace concentrations downgradient of the Power Plant in wells closest to the lake and wetlands (Figure 2, MW-4 and MW-21). This indicated the groundwater contamination was localized around the power plant, and the contamination plume was not expanding. Although no other compounds were detected in groundwater at concentrations exceeding Groundwater cleanup levels, 1-methylnaphthalene and 2- methylnaphthalene were detected at concentrations greater than one-tenth the Groundwater cleanup level. The RI concluded DRO was a COC in the groundwater at this area and further action was recommended.

In preparation for demolition and removal of the concrete slab, chips of concrete from the surface of the slab were collected and analyzed for PCBs in September 2010. PCBs were detected in four of six samples. Three detections were at very trace concentrations (less than 0.1 mg/Kg). One concrete sample from the north corner of the slab detected PCBs at 1.2 mg/Kg. In comparison, the ADEC cleanup level for PCBs in soil is 1 mg/Kg. This cleanup level was used as an action level for identifying contaminated concrete, although not directly applicable.

The source of the PCBs is not positively known but it is suspected they were contained in paint applied to the surface of the concrete slab. In the 1950 and 1960s, PCB amended paint was used as a fire retardant and it has been found on many USAF facilities constructed in Alaska during that period. The surface of the concrete slab at the Power Plant was painted in some areas, although most paint was weathered and barely visible. The paint was most noticeable on the north corner of the slab. Therefore, the detectable PCBs were attributed to the paint.

The concrete slab was removed in October 2010 as part of the Clean Sweep Program. The concrete with PCBs greater than 1 mg/Kg was segregated and will be disposed of in a landfill offsite. After the slab was removed, six additional soil samples were collected from the surface soil surrounding the former slab. Two of those samples contained PCB greater than 1 mg/Kg, with a maximum detection of 1.9 mg/Kg. Both samples with PCBs greater than 1 mg/Kg were detected near the north corner of the slab; the same location where PCBs were detected in the concrete above 1 mg/Kg. Therefore, the presence of PCBs in the soil was attributed to PCB amended paint flaking off the slab. The volume of soil with PCBs greater than 1 mg/Kg was estimated to be less than 1 cubic yard (yd^3). Remedial action under CERCLA is planned to address the soil with PCBs greater than 1 mg/Kg.

The Tank Trailers Area consists of a cleared, relatively flat, gravel pad located north of the gravel access road and east of the Gravel Pit Area. It is believed that diesel fuel was stored in tank trailers at this location and was transported to the power plant through an above ground hose. Surface water occurs as seeps that flow intermittently east-southeast of the area directly below where the tanks were located. The surface seeps merge into a drainage that flows easterly alongside the gravel road. Based on drilling in 2009 and 2010, permafrost occurs at variable depths beneath and surrounding the Tank Trailers Area. The permafrost appears to be deepest (around 10 feet below ground surface) in the middle of the tank farm and rises to within a couple feet of the surface on all sides. Groundwater is present in the immediate tank farm area and towards the northeast. It is absent in surrounding areas with shallow permafrost (2-3 feet below ground surface), (Figure 2).

Tank Trailers Area, facing south.

DRO was detected in most soil samples collected from within and downgradient of the Tank Trailers Area, except for samples towards the northeast. DRO is the primary petroleum hydrocarbon component in diesel fuel, and its presence is attributed to past spills. The maximum concentration detected was 88,000 mg/Kg in 2009 and 110,000 mg/Kg in 2010. The highest concentrations were detected in a drainage downgradient and southeast of the Tank Trailers Area. In this area, DRO exceeded the ADEC Method Two Human Health soil cleanup level (10,250 mg/Kg). High DRO concentrations were generally located at depths less than 3 feet below ground surface. Permafrost in the area is located close to the surface and underneath a peat mat. RRO was detected in the majority of the samples, but not above the most stringent ADEC

Method Two Human Health cleanup level of 10,000 mg/Kg. The maximum concentration was 1,200 mg/Kg.

Ten PAH compounds were detected in soil samples. PAHs are a component of diesel fuel, and most were detected at very low concentrations. Only one compound, naphthalene, exceeded the ADEC Method Two Human Health soil cleanup level (this sample also had very high DRO). In addition, 1-methylnaphthalene and 2-methylnaphthalene exceeded the Migration to Groundwater cleanup level. The volatile BTEX compounds were generally non-detectable and none exceeded cleanup levels.

Sampling a groundwater monitoring well at the Power Plant Area.

In the groundwater, DRO, 1-methylnaphthalene, and 2-methylnaphthalene were the only compounds detected at concentrations exceeding ADEC Groundwater cleanup levels or one-tenth these levels. DRO concentrations exceeded the ADEC Groundwater cleanup level in four wells located on the north portion of the tank storage area, and to the east (Figure 2). The maximum concentration of DRO detected was 7.2 mg/L. However, a layer of free-product (diesel fuel) was present in one well (MW-8) about 3.5 inches thick in 2010, and 0.7 inches thick in 2011. The groundwater in this well was not sampled due to the presence of fuel. For groundwater, DRO, 1-methylnaphthalene and 2-methylnaphthalene were considered COCs.

Based on the 2009 to 2011 sampling, the DRO groundwater plume extends to the north-northeast of the Tank Trailer Area and is confined by permafrost from migrating further downgradient. It is speculated that the permafrost in the tank farm area is deeper as a result of thawing due to clearing of vegetation, ground disturbance, and diesel fuel mixing with groundwater. The fuel release and impacted groundwater appears confined to this thaw bulb, and the contaminant plume is not expanding.

Wooded area downgradient of the tank areas with high DRO contamination in the soil. The area has peaty soil, shallow permafrost, and no groundwater.

Surface water locations were sampled within the tank farm area and in the downgradient drainages that flow intermittently near the road to the southeast. None of the compounds tested, DRO, gasoline range organics (GRO), RRO, BTEX, and PAHs, exceeded the Alaska Water Quality Standards or other screening criteria. In addition, no hydrocarbon sheens were observed on the water. This indicated the petroleum hydrocarbons in the soil and groundwater were not migrating and impacting the surface water where they could pose a risk to receptors.

The RI concluded that DRO was a COC in soil and groundwater. Based on cumulative risk exceeding ADEC risk management standards, 1-methylnaphthalene, and 2-methylnaphthalene were also identified as COCs in soil and groundwater and naphthalene was identified as a COC in soil. Areas where naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene are sufficiently high to be a concern in the soil are co-located with areas of high DRO. The RI recommended the Tank Trailers Area for action to address the DRO and PAH contamination. Remedial action is planned under 18 AAC 75.

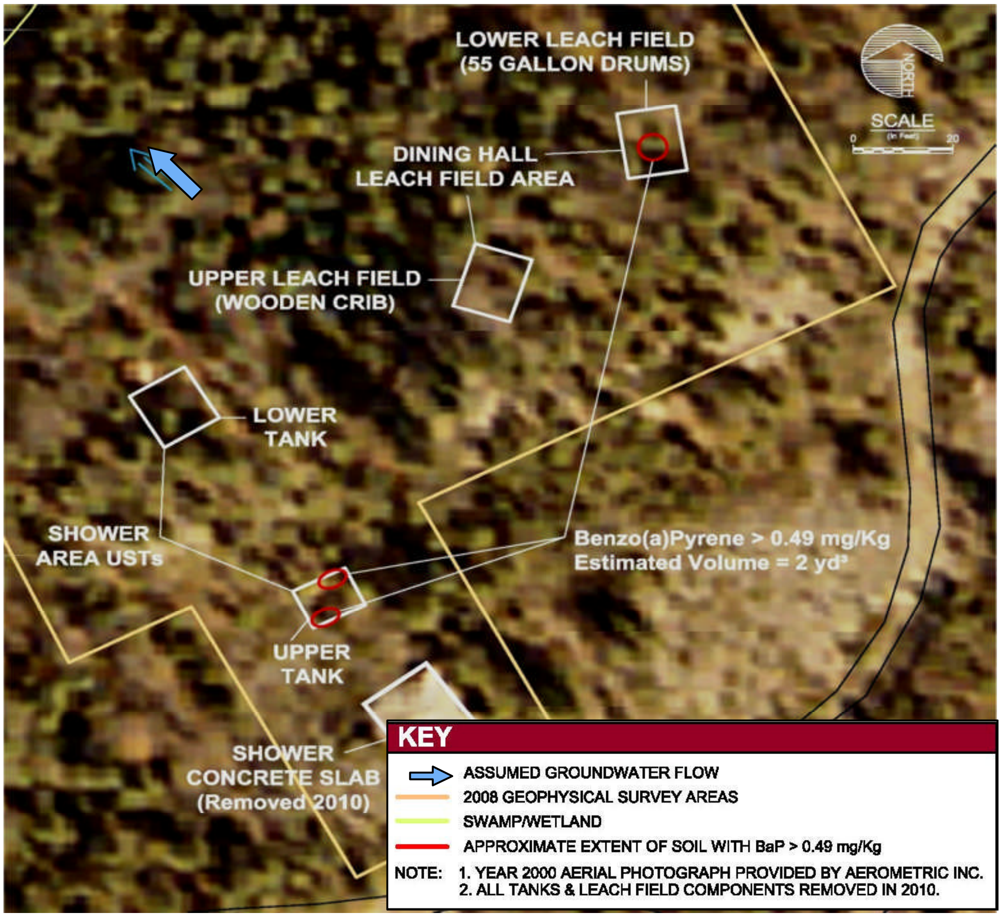


Figure 3— Dining Hall Leach Field and Shower UST Areas Approximate Location and Extent of Soil with BaP > 0.49 mg/Kg

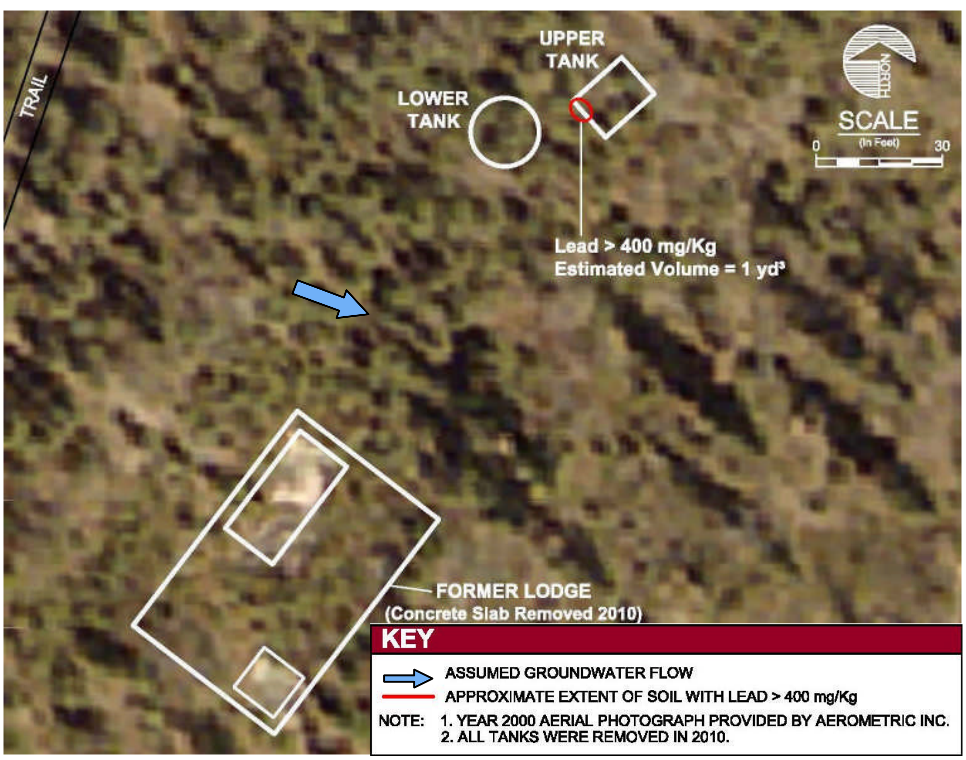


Figure 4— Lodge Area Approximate Location and Extent of Soil with Lead > 400 mg/Kg

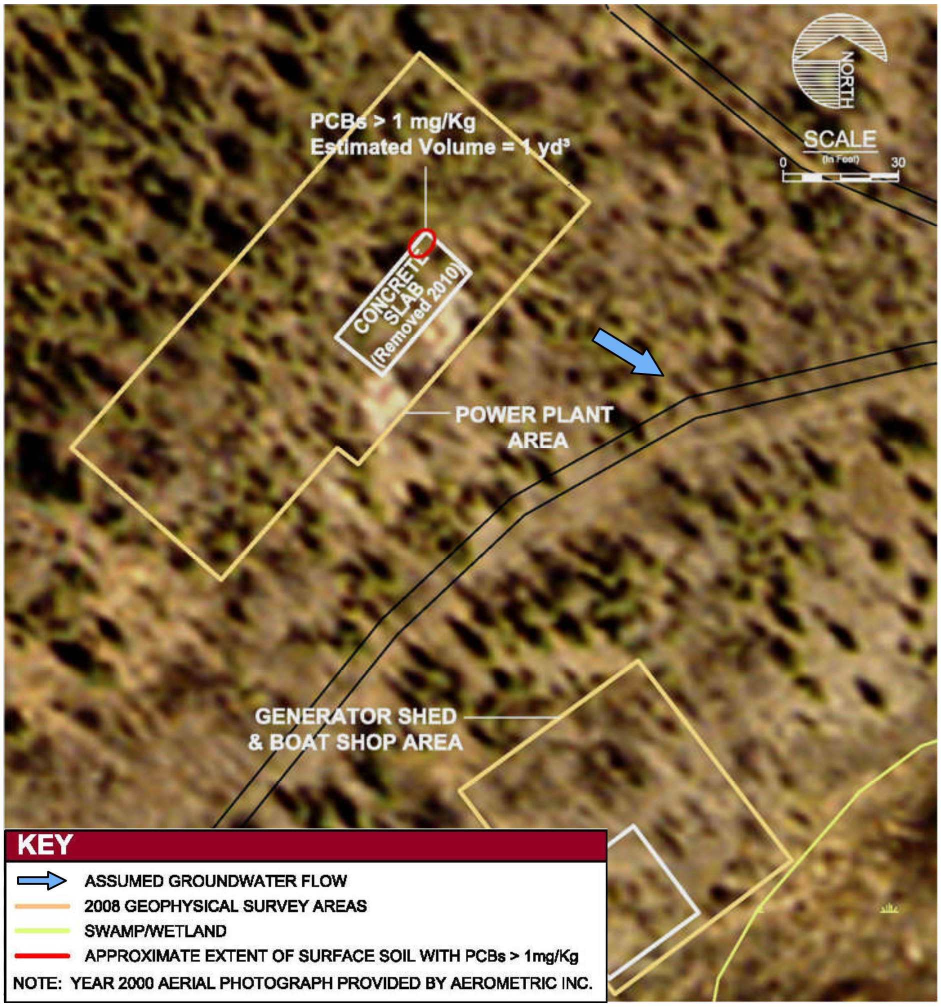


Figure 5— Power Plant Area Approximate Location and Extent of Soil with PCBs > 1 mg/Kg

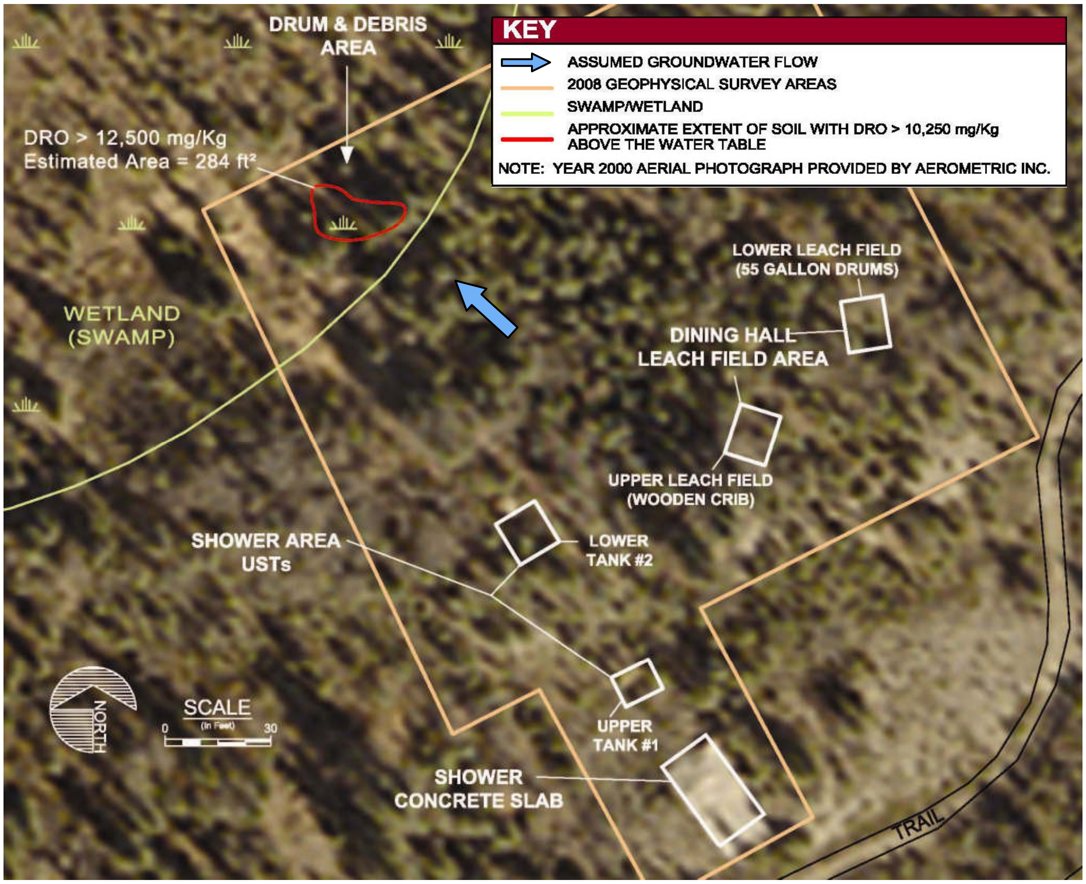


Figure 6— Drum and Debris Area Approximate Location and Extent of Soil with DRO > 10,250 mg/Kg

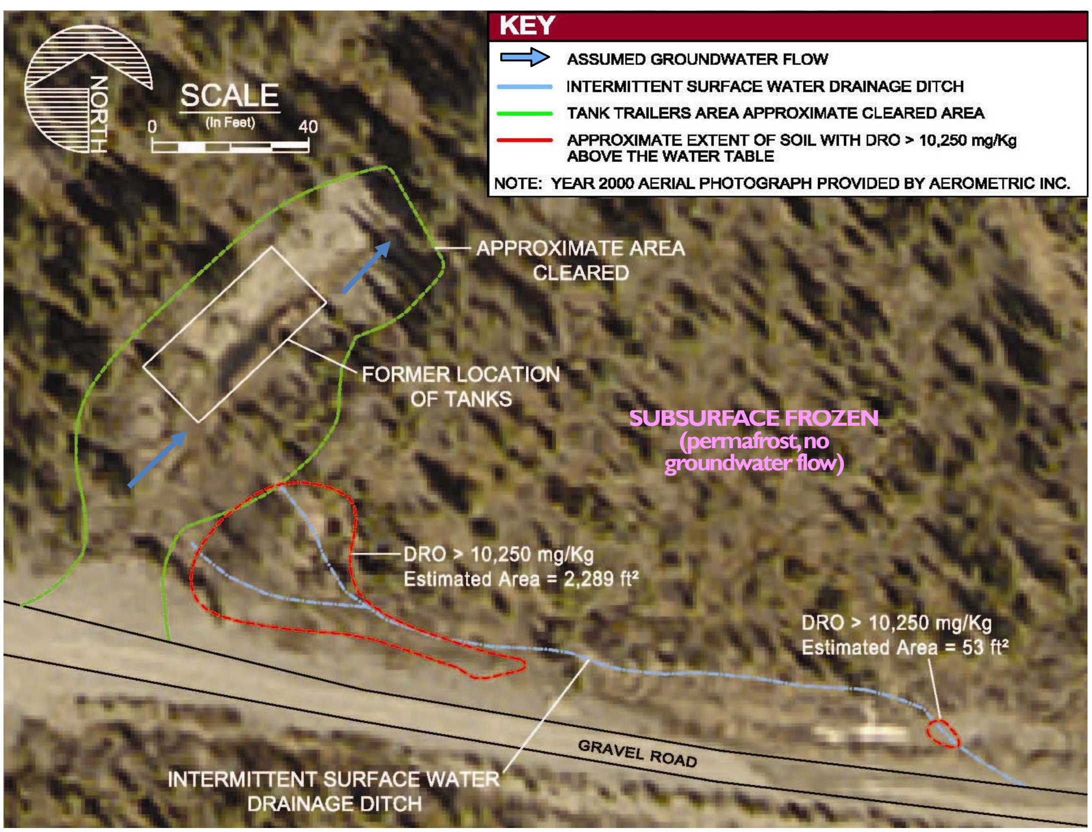


Figure 7 — Tank Trailers Area Approximate Location(s) and Extent of Soil with DRO > 10,250 mg/Kg

SUMMARY OF SITE RISKS

The sampling results from the RI conducted at LLRC were compared against screening criteria to determine whether there were COCs that require remedial actions to protect human health or the environment. Table 2 contains the primary regulatory and risk-based screening criteria used for LLRC to identify COCs and evaluate risk.

Table 2—Primary Regulatory and Risk-Based Screening Criteria Used to Identify COCs and Evaluate Risk

Media	Screening Criteria
Soil	• Primary: Method Two Human Health cleanup level[1] • Secondary: Cumulative Risk (one-tenth Method Two)[2] • Secondary: Migration to Groundwater cleanup level[3]
Groundwater	• Primary: 18 AAC 75 Table C Groundwater cleanup level[4] • Secondary: Cumulative Risk one-tenth 18 AAC 75 Table C[5]
Surface Water	• 18 AAC 70 (Alaska Water Quality Standards) • *Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances*

Notes:

[1] The cleanup levels correspond to the lowest value for the direct contact, ingestion or inhalation exposure pathway to soil as listed in 18 AAC 75.341, Tables B1 and B2, (ADEC Method Two cleanup levels) for the under 40-inch zone (October 2011).

[2] This value corresponds to one-tenth of the ADEC Method Two Human Health cleanup level. Per 18 AAC 75.341(k), a chemical ≥ this value must be included in cumulative risk calculations. This requirement is not applicable to GRO, DRO, RRO, and lead.

[3] This cleanup level corresponds to the value listed in 18 AAC 75.341, Tables B1 and B2, Migration to Groundwater (October 2011).

[4] The cleanup level corresponds to the value listed in 18 AAC 75.345, Table C, Groundwater cleanup levels (October 2011).

[5] This value corresponds to one-tenth the groundwater cleanup level (Table C). Per 18 AAC 75.345(k), a chemical ≥ this value must be included in cumulative risk calculations. This requirement is not applicable to GRO, DRO, RRO, and lead.

In considering exposure pathways, the accidental ingestion (eating or drinking) of contaminated soil or groundwater is considered the most probable human exposure pathway to contaminants. However, the shallow groundwater beneath the LLRC site was deemed unsuitable as a drinking water source by the USAF and ADEC 18 AAC 75.350 criteria. The limited extent and thickness of the groundwater implies the volume is relatively small and could only yield small quantities of water. In addition, the shallow nature of the groundwater makes it susceptible to infiltration of bacteria and other naturally occurring impurities from the surface. This eliminates the Migration to Groundwater exposure pathway and the risk of exposure to contaminated groundwater so long as the contaminants remain on the site (within USAF property boundary) and surface water is not impacted or threatened. Contaminants were not detected above risk based screening criteria in the surface water, so that exposure pathway is not complete or considered a risk. The subsurface (vertical) migration of contaminants is limited in many areas by the presence of permafrost. Air transportation is not a significant pathway of exposure to contaminants because of the lack of volatiles detected in the soil or water.

Human Health Risk

The cumulative risk was calculated for the entire LLRC (OT001) site under a residential scenario based on maximum concentrations of potential contaminants detected in 2008 through 2010 to determine whether remedial action is warranted. For both soil and groundwater, concentrations exceeding the secondary cumulative risk levels (Table 2) were included in the calculations. The calculations were performed in accordance with ADEC guidance. In accordance with this guidance, GRO, DRO, RRO, and lead were excluded. For soils, the cumulative carcinogenic risk for the entire site is 7×10^{-5} and the noncancer risk is 1.2, which exceeds ADEC risk management standards of 1×10^{-5} and 1. For groundwater, the cumulative carcinogenic risk is 0 and the noncancer risk is 1.33.

Ecological Risk

An ecological risk assessment has not been performed at LLRC. The regulatory criteria used to evaluate risk to human health were considered protective of ecological receptors. For soil, it was assumed that ADEC cleanup levels would be protective of the environment, including ecological receptors. Surface water data were compared to National Oceanic Atmospheric Associated Screening Quick Reference Tables and Alaska Water Quality Standards (18 AAC 70), which are intended to be protective of aquatic receptors. The surface water criteria are protective of multiple uses of marine and freshwater, including drinking water and growth and propagation of fish, shellfish, other aquatic life, and wildlife.

Action Proposed

It is the USAF's current judgment that action at LLRC is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment. Six areas within the LLRC have been determined to have contamination warranting action to protect human health or the environment and/or comply with environmental regulations. Table 3 (page 17) lists the areas proposed for remedial action and associated COCs. The CERCLA COCs are PCBs, lead, and BaP in soil. These compounds bioaccumulate and are not likely to degrade naturally. For petroleum hydrocarbons being addressed under 18 AAC 75, the primary COC is DRO in the soil and groundwater. The DRO and PAH compounds (naphthalene, 1-methylnapthalene, and 2-methylnaphthalene) identified as COCs are all attributed to spills of diesel fuel. Based on the site history, these spills occurred prior to 1965. Petroleum hydrocarbons naturally degrade so the concentrations will diminish over time. However, local site conditions will likely impede the degradation. In addition, current concentrations are sufficiently high. Therefore, some type of action is warranted.

Table 3—Areas Proposed for Remedial Action & Associated COCs

Area	Media	COCs	Regulatory Cleanup Standard[1]
Dining Hall Leach Field Area	Soil	BaP[3]	0.49 mg/Kg
Lodge Area UST	Soil	Lead[3]	400 mg/Kg
Shower Area USTs	Soil	BaP[3]	0.49 mg/Kg
Drum and Debris Area	Soil	DRO	10,250[1]/250[2] mg/Kg
Power Plant Area	Soil	PCBs[3]	1 mg/Kg
	Groundwater	DRO	1.5 mg/L
Tank Trailer Area	Soil	DRO	10,250 mg/Kg
		Naphthalene	28 mg/Kg
		1-Methylnaphthalene	280 mg/Kg
		2-Methylnaphthalene	280 mg/Kg
	Groundwater	DRO	1.5 mg/L
		1-Methylnaphthalene	0.15 mg/L
		2-Methylnaphthalene	0.15 mg/L

Notes:
[1] Cleanup levels for soil are ADEC Method Two Human Health cleanup levels for the under 40-inch zone for the most conservative human health exposure pathway, direct contact or inhalation, as listed in 18 AAC 75.341(c) and (d). Groundwater cleanup levels are listed in 18 AAC 75.345, Table C.
[2] Cleanup level for soil is ADEC Method Two cleanup level for the Migration to Groundwater pathway. This level is applicable for cleanup complete without LUCs (Reference Table 5, page 19).
[3] These are CERCLA COCs.

It is estimated that 1 yd^3 of BaP-Contaminated soil is present at both the Dining Hall Leach Field Area and the Shower Area USTs above the ADEC Method Two Human Health cleanup level of 0.49 mg/Kg, with maximum detected concentrations of 0.6 mg/Kg and 1.3 mg/Kg, respectively. Figure 3 (page 13) shows the approximate location and extent of soil with BaP above 0.49 mg/Kg. One yd^3 of Lead-Contaminated soil is estimated to be present at the Lodge Area UST above the ADEC Method Two Human Health cleanup level of 400 mg/Kg, with a maximum concentration of 3,720 mg/Kg. Figure 4 (page 13) shows the approximate location and extent of soil with lead above 400 mg/Kg at the Lodge Area UST. One yd^3 of PCB-Contaminated soil is estimated to be present at the Power Plant Area above the ADEC Method Two Human Health cleanup level of 1 mg/Kg, with a maximum concentration of 1.9 mg/Kg. Figure 5 (page 14) shows the approximate location and extent of soil with PCBs above 1 mg/Kg at the Power Plant Area.

Table 4 (page 18) lists the estimated volume of soil with DRO concentrations above the primary, ADEC Method Two Human Health cleanup level (10,250 mg/Kg), and secondary, Migration to Groundwater cleanup level (250 mg/Kg), screening criteria. Figure 6 (page 15) shows the approximate location and extent of soil with DRO above 10,250 mg/Kg at the Drum and Debris Area. Figure 7 (page 15) shows the approximate location(s) and extent of soil with DRO above 10,250 mg/Kg at the Tank Trailers Area.

Table 4—Estimated Volume of Petroleum-Contaminated Soil Exceeding Cleanup Standards

LLRC Area	Maximum Concentration of DRO (mg/Kg)	Estimated Volume > 10,250 mg/Kg[1] (In-Place yd^3)	Estimated Volume > 250 mg/Kg[2] (In-Place yd^3)
Tank Trailers Area	110,000	261	937
Drum & Debris Area	43,000	16	67
Power Plant Area	4,600	N/A	1,032
Total	**N/A**	**441**	**2,350**

Notes:

[1] This cleanup level (ADEC Method Two Human Health cleanup level) corresponds to the lowest value for the direct contact, ingestion or inhalation exposure pathway to soil as listed in 18 AAC 75.341, Tables B1 and B2, for the under 40-inch zone (October 2011).

[2] This cleanup level corresponds to the value listed in 18 AAC 75.341, Tables B1 and B2, Migration to Groundwater (October 2011).

REMEDIAL ACTION OBJECTIVES

The remedial action objectives for the LLRC site are to:

1. Protect human health and the environment;
2. Comply with applicable Federal, State and local laws and regulations;
3. Implement remedies that are consistent with the USAF's limited presence at the LLRC and the long term goal of transferring the property to another party, to the extent practical given the relative costs and benefits; and
4. Obtain a designation of "cleanup complete," with or without land use controls (LUCs), under 18 AAC 75.

The anticipated future land use for LLRC is recreational, or residential, similar to the surrounding areas. The remedial objectives are to return the soil and groundwater to unrestricted use. However, restriction on land use may be implemented for a period of time to allow for petroleum contamination to degrade. The proposed cleanup levels (with and without LUCs) to meet the remedial action objectives at LLRC are presented in Table 5. To meet three of the four remedial objectives (objectives 1, 2, and 4), contaminant concentrations in the soil and groundwater need to be reduced to the most conservative (lowest) regulatory cleanup levels (Table 5) or LUCs need to be implemented that prevent exposure above those levels. The third remedial objective is easiest to meet if there are no LUCs or if the LUCs are relatively easily to implement and maintain.

The cleanup levels presented in Table 5 are based on State of Alaska regulations and are consistent with the ADEC risk management standards set forth in 18 AAC 75.325 (3)(g), a cancer risk standard of $1x10^{-5}$ and a noncancer risk standard HI of 1. Therefore, all levels listed in the table are considered protective of human health. The proposed soil cleanup levels to meet the remedial objectives at LLRC are equal to or less than the ADEC Method Two soil cleanup levels for the under 40-inch zone (18 AAC 75.341, Tables B1 and B2). ADEC Method Two cleanup levels are protective of humans using the land for residential purposes over their lifetime. These cleanup levels are also protective of site workers or visitors, who would spend less time at the site. If the proposed cleanup levels are met, the LLRC site will receive the status of Cleanup Complete from the ADEC under 18 AAC 75 with or without LUCs. The carcinogenic and noncarcinogenic risk for will meet ADEC risk management standards of $1 X 10^5$ and 1, respectively, for complete exposure pathways. This status is consistent with the USAF's limited presence and management at LLRC.

Table 5—Proposed Cleanup Levels for LLRC

Media (cleanup level units)	COC	Regulatory Cleanup Standard	
		Cleanup Complete with LUCs	Cleanup Complete without LUCs
CERCLA COCs			
Soil (milligrams per kilogram [mg/Kg])	polychlorinated biphenyls	N/A (prevent exposure)[2]	1 mg/Kg[1]
	Lead	N/A (prevent exposure)[2]	400 mg/Kg[1]
	BaP	N/A (prevent exposure)[2]	0.49 mg/Kg[1]
NON-CERCLA COCs[5]			
Soil (mg/Kg)	diesel range organics	≤ 10,250[1]	≤ 250[3]
Groundwater (milligrams per liter [mg/L])	diesel range organics	N/A (prevent exposure)[5]	≤ 1.5[4]

Notes:
[1]The ADEC Method Two Human Health cleanup level as listed in 18 AAC 75.341(c) Tables B1 and B2, most conservative of the direct contact/ingestion or inhalation exposure pathway in under 40-inch rainfall zone.
[2]Exposure to the contaminated soil would be prevented by LUCs, including capping. No cleanup would be performed.
[3]The cleanup level as listed in 18 AAC 75.341(c) Table B2 for the Migration to Groundwater exposure pathway in under 40-inch rainfall zone.
[4]The cleanup level as listed in 18 AAC 75.345(b) Table C.
[5]Exposure to contaminated groundwater would be prevented by LUCs, including a deed notice restricting the use of groundwater as a drinking water source.

SUMMARY OF REMEDIAL ALTERNATIVES

REMEDIAL ALTERNATIVES AND PROPOSED ACTION FOR CERCLA COCs

LLRC (OT001) is proposed for remedial action under CERCLA to address CERCLA hazardous substances detected in the soil. As listed in Table 1 (page 4), CERCLA hazardous substances were detected at four areas of interest at LLRC at concentrations above the ADEC Human Health cleanup level for the under 40-inch zone. Therefore, these areas are proposed for cleanup under CERCLA. Three of these areas also contain fuel contaminated soil or groundwater which will be addressed under Alaska State laws and regulations. The remedies for petroleum (DRO)-contaminated soil and groundwater are presented separately, beginning on pages 24 and 27 respectively.

Remedial alternatives for CERCLA sites are compared and judged based on nine criteria as outlined under CERCLA guidance. The nine evaluation criteria are described below. Each are classified as threshold criteria (a standard that an alternative must meet in order to be eligible for selection), balancing criteria (a standard that weighs the tradeoffs between alternatives), or modifying criteria (community and agency acceptance).

<u>Threshold Criteria</u> (standards that an alternative must meet in order to be eligible for selection):

Protection of Human Health and the Environment – Addresses how well an alternative provides adequate protection of human health and the environment. It includes how risks posed through each exposure pathway are reduced, eliminated, or controlled.

Compliance with Applicable and Relevant or Appropriate Requirements (ARARs) – Addresses whether an alternative will meet all of the requirements of Federal and State environmental statutes.

<u>Balancing Criteria</u> (standards that weigh the tradeoffs between alternatives):

Long-Term Effectiveness and Permanence – Refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time. It includes the adequacy and reliability of controls, along with the degree of certainty that the alternative will prove successful.

Reduction of Toxicity, Mobility, or Volume through Treatment – Addresses the extent to which the treatment reduces the toxicity, mobility, or volume of contaminated media.

Short-Term Effectiveness – Addresses the period of time needed to implement the remedy and any adverse impacts that may be posed to workers, the community, and the environment during the construction and operation of a remedial alternative until cleanup levels are achieved.

Implementability – Addresses the technical and administrative feasibility of an alternative from design through construction and operation. It includes the availability of services and materials, administrative feasibility, and coordination with other governmental agencies.

Cost – The full cost of an alternative.

<u>Modifying Criteria</u> (standards that address acceptance of an alternative):

State Acceptance – Refers to the approval of an alternative by the State of Alaska and any comments or concerns expressed.

Community Acceptance – Addresses the reaction by the community during the public comment period about an alternative. It includes comments and concerns expressed at the time, and whether there is support for an alternative.

Remedial Alternatives Considered for PCB-, Lead-, and BaP-Contaminated Soil

Based on the remedial action objectives, three alternatives were identified and evaluated for addressing CERCLA COCs in the soil at LLRC with concentrations above ADEC Human Health cleanup levels for the under 40-inch zone (Reference Table 5).

- Alternative 1: No Action;
- Alternative 2: LUCs; and
- Alternative 3: Source Removal and Offsite Disposal.

Under Alternative 1, No Action, no response action would be taken. The alternative would result in PCB, lead, and BaP-Contaminated soil remaining at the site above the ADEC Method Two Human Health cleanup levels for the under 40-inch zone (1 mg/Kg, 400 mg/Kg, and 0.49 mg/Kg). The No Action alternative was evaluated to provide a baseline for comparison.

Under Alternative 2, LUCs, site access would be controlled to reduce exposure to contaminants. Fencing and signs would be installed and contaminated soil would be capped with clean gravel. Long-term maintenance and monitoring would be required. A review would be performed every five years to ensure the controls are in place and effective.

Under Alternative 3, Source Removal and Offsite Disposal, contaminated soil with PCBs, lead, and BaP would be excavated and disposed of at a Treatment Storage or Disposal Facility (e.g., landfill) permitted to accept the waste.

In order to compare alternative in the FS, each alternative was evaluated based on relative achievement of each of the nine CERCLA criteria (page 20). The purpose was to identify the advantages and disadvantages of the alternatives relative to one another so the best alternative could be identified. The criteria scores for each alternative were tallied to determine the total relative ranking.

A summary of the comparison of these alternatives with respect to the nine CERCLA criteria is discussed below on pages 21-22 and shown in Table 6 (page 23).

<u>Protection of Human Health and the Environment and Compliance with Applicable or Relevant and Appropriate Requirements</u>
Alternative 1 (No Action) would result in PCB, Lead, and BaP-Contaminated soil remaining at LLRC above ADEC Method Two Human Health cleanup levels for the under 40-inch zone. This would not be protective of human health or the environment and would not comply with the ARARs. Alternatives 2 and 3 provide protection of human health and the environment and can be implemented to comply with ARARs.

<u>Long-Term Effectiveness and Permanence</u>
Alternative 1 (No Action) does not provide long-term effectiveness. PCBs, Lead, and BaP are not expected to naturally degrade. Alternatives 2 and 3 provide long-term effectiveness and permanence provided the LUCs are maintained. Alternative 2 requires long-term maintenance and monitoring. Alternative 3 is a permanent solution as all three CERCLA COCs above ADEC Method Two Human Health cleanup levels would be removed from LLRC. Therefore, alternative 3 is considered to have the best long-term effectiveness and permanence.

<u>Reduction of Toxicity, Mobility, or Volume through Treatment</u>
None of the alternatives meet the preference for treatment.

<u>Short-Term Effectiveness</u>
Alternative 1 (No Action) would have no adverse impacts due to construction or implementation because no activities would be performed. However, the three CERCLA COCs would remain in the soil at concentrations above ADEC Method Two Human Health cleanup levels. With respect to the action alternatives, Alternative 2 has the best short-term effectiveness. Alternative 2 results in less risk of exposure to site workers and releases to the environment than Alternative 3 because there is minimal ground

disturbance and no shipping involved. Alternative 3 involves soil excavation and shipping over land and water. These actions generate air emissions and there is the risk of spills or accidents to workers.

Implementability

Alternative 1 (No Action) is required by the NCP. Alternative 2 is the easiest action to implement in terms of the logistical and technical requirements, but it would require USAF to maintain management of the LLRC property, which is not desired indefinitely. Alternative 3 has the most complicated logistics due to the removal and shipping of soil offsite. However, this type of activity is performed routinely.

Cost

Alternative 1 (No Action) would have no cost associated with it. However, it would not achieve the remedial action objectives. Alternative 2 has a higher cost than Alternative 3 because the LUCs would need to be maintained indefinitely. The three CERCLA COCs (PCB, Lead, and BaP) are not likely to degrade in place.

State Acceptance

The ADEC does not accept Alternative 1 (No Action) because it does not protect human health and the environment and is not in compliance with the ARARs. The ADEC does not object to Alternative 2 (LUCs), but concurs that Alternative 3 (Source Removal and Offsite Disposal) is the preferred alternative and it complies with State Law if properly implemented.

Community Acceptance

Community acceptance is to be determined. The community will have the opportunity to review and comment on the proposed plan. Community concerns will be addressed in the responsiveness summary of the ROD.

Proposed Action

Based on the analysis of alternatives, the USAF's preferred and proposed alternative for addressing the PCB-, lead-, and BaP-Contaminated soil is **Alternative 3**, **Source Removal and Offsite Disposal**. Under Alternative 3, all soil with concentrations of the three CERCLA contaminants above ADEC Method Two Human Health cleanup levels would be containerized for shipment and offsite disposal at a treatment, storage, and disposal facility (TSDF). This alternative is an effective and implementable remedy, and has the lowest long-term costs. After the contaminated soil is removed the excavations will be filled with clean fill and graded to match the surrounding ground.

Table 6—Evaluation of Alternatives for Addressing PCB-, Lead-, and BaP-Contaminated Soil

Response Alternative	Threshold Criteria		Balancing Criteria					Cumulative Evaluation Result
	Protection of Human Health and the Environment	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, and Volume Through Treatment	Short-Term Effectiveness	Implementabilty	Cost	
(1) No Action	Fail	Fail	Worst	Worst	Worse than Average	Worst	Best ($0)	Worst (Fails)
(2) LUCs	Pass	Pass	Average	Worst	Better than Average	Worst	Worse than Average Capital Cost $77,815 O&M $157,740 Total Cost $235,555	Worse than Average
(3) Removal and Offsite Disposal	Pass	Pass	Best	Worst	Average	Better than Average	Average Capital Cost $66,633 O&M $0 Total Cost $66,663	Better than Average

Symbol Key
- Best (fully filled circle)
- Better than Average (three-quarters filled circle)
- Average (half filled circle)
- Worse than Average (one-quarter filled circle)
- Worst (empty circle)

Description of Alternatives

1) No Action—No response action would be taken. This alternative would result in PCB, lead, and BaP-Contaminated soil remaining at the site (soil with contaminants above the ADEC Method Two Human Health cleanup levels for the under 40-inch zone, 1 mg/Kg, 400 mg/Kg, and 0.49 mg/Kg, respectively).

2) LUCs—Site access would be controlled to reduce exposure. Fencing and signs would be installed. Contaminated soil would be capped with clean gravel. Long-term maintenance and monitoring would be required. A review would be performed every five years to ensure the controls are in place and effective.

3) Source Removal and Offsite Disposal – Contaminated soil with PCBs, lead, and BaP would be excavated and disposed of at a Treatment Storage or Disposal Facility (e.g., landfill) permitted to accept the waste.

REMEDIAL ALTERNATIVES AND PROPOSED ACTION FOR NON-CERCLA COCs

The non-CERCLA regulated COCs at LLRC (OT001) are derived from petroleum products (diesel fuel) and are proposed for remedial action under Alaska State laws and regulations. Based on the site history and investigations to date, the fuel was spilled prior to 1965 and there are no new sources. When evaluating remedial alternatives, it was recognized these petroleum hydrocarbon COCs would degrade naturally with time (decrease in concentration). However, this degradation could take a very long time (decades) due to the cold temperatures and limited groundwater flow.

The FS evaluated remedies for two petroleum-contaminated media at LLRC, DRO contaminated soil and DRO contaminated groundwater. It was also assumed that the remedy to address DRO in the soil and groundwater would also address the other diesel fuel derived COCs (e.g., PAH compounds) because the PAH compounds are co-located with the high DRO contamination. To select the preferred alternative, the potential alternatives were compared using three primary evaluation criteria, which are used to screen alternatives under CERCLA: effectiveness, implementability, and cost (see definition box).

In order to compare alternatives in the FS, each alternative was evaluated based on relative achievement of each of the three criteria. The purpose was to identify the advantages and disadvantages of each alternative relative to one another so the best alternative for that criteria could be identified. The criteria scores for each alternative were tallied to determine the total relative ranking. To provide a baseline, a "No Action" alternative was also evaluated for each media.

The evaluation of alternatives for DRO impacted soil and DRO impacted groundwater are discussed separately below.

The cleanup of DRO in the soil to 250 mg/Kg was only evaluated as a remedial alternative to reduce the groundwater contamination. The FS recognized that soil with DRO concentrations below 10,250 mg/Kg do not pose a risk to human health or ecological receptors through direct exposure (ingestion or inhalation). This DRO concentration corresponds to the ADEC Method Two cleanup level for human health (Table 5 [page 19]). It is also considered sufficiently protective of surface water and associated ecological receptors because current levels of petroleum hydrocarbons in the soil are not causing exceedances of Alaska Water Quality Standards. Therefore, the cleanup of the DRO in the soil to 250 mg/Kg is only potentially needed to prevent the migration of DRO from the soil to the groundwater. However, if the groundwater is not used as a drinking water source there is no exposure pathway to the petroleum hydrocarbons in the groundwater. Therefore, cleanup of soil to 250 mg/Kg is not necessary to protect human health if LUCs are implemented. The objective of the LUCs would be to prevent groundwater use, document residual contamination, and ensure proper soil management.

Effectiveness - *This evaluation criteria focuses on: (1) the potential effectiveness of the remedial alternative (technology) in addressing the estimated areas and volumes of contaminated media and meeting the remediation goals identified in the remedial action objectives, (2) the potential impacts to human health and environment during construction and implementation of the alternative, and 3) how proven and reliable the alternative is with respect to addressing the contaminants and conditions at the site. To be effective, the alternative must protect human health and the environment.*

Implementability - *This evaluation criterion encompasses the technical and administrative feasibility of implementing the alternative. The focus is on such factors as whether the alternative will be workable and the availability of the necessary permits, space, facilities, equipment and workers.*

Cost - *Cost includes the initial capital cost and operation and maintenance costs of the remedial alternative. Costs of each alternative are evaluated relative to one another (low, medium, and high).*

Remedy for DRO Impacted Soil

Based on the remedial action objectives, three alternatives were identified and evaluated for addressing petroleum-contaminated soil with DRO above 10,250 mg/Kg.

- Alternative 1: No Action;
- Alternative 2: Excavation and Landfarming at LLRC; and
- Alternative 3: Excavation and Offsite Thermal Treatment.

Under Alternative 1, No Action, no response action would be taken. Under this alternative, DRO soil would remain at the site above the ADEC Method Two Human Health cleanup level for the under 40-inch zone (10,250 mg/Kg).

Under Alternative 2, Excavation and Landfarming at LLRC, soil with petroleum hydrocarbons (DRO) above the ADEC Method Two Human Health cleanup level for the under 40-inch zone (10,250 mg/Kg) would be excavated and treated by spreading the soil at a location at LLRC approved by ADEC (e.g., gravel pit). The soil would be tilled using a utility vehicle and a disc tilling attachment to help aerate the soil and increase biodegradation and volatilization. Fencing and signage would be installed to restrict access. Periodic sampling and analysis would be performed to monitor DRO concentrations in the soil and determine when cleanup levels are achieved.

Under Alternative 3, Excavation and Offsite Thermal Treatment, soil with petroleum hydrocarbons (DRO) above the ADEC Method Two Human Health cleanup level for the under 40-inch zone (10,250 mg/Kg) would be excavated and transported to an offsite facility for thermal treatment. An LUC in the form of a notation in the appropriate LLRC land records would be put in place indicating that environmental contamination remains at the site above cleanup levels. ADEC approval would be needed to relocate soil at the site to prevent soil from being placed in sensitive areas because DRO soil would remain above the ADEC Method Two Migration to Groundwater cleanup level of 250 mg/Kg.

A summary of the comparison of these alternatives with respect to the three primary criteria (see inset page 24) is discussed below and shown in Table 7 (page 26).

<u>Effectiveness</u>
Alternative 1 (No Action) was considered to be the least effective. The alternative is not protective of human health and the environment and does not comply with State Law. The petroleum hydrocarbons in the soil will naturally degrade, but very slowly due to the cold temperatures. Contaminant levels would remain above regulatory levels, including risk based cleanup levels for the protection of human health, for decades. The soil would be susceptible to erosion and dispersion during this time and may also leach into the groundwater as a dissolved phase. Alternative 2 (Excavation and Landfarming at LLRC) and Alternative 3 (Excavation and Offsite Thermal Treatment) have similar effectiveness to one another in the long-term. Both alternatives would result in the excavation and cleanup of soil with concentrations above ADEC cleanup levels protective of human health and the environment. The advantage of Alternative 3 is that thermal treatment achieves cleanup levels in the shortest time period, and there is no onsite treatment area with restricted land use. However, Alternative 3 would utilize large trucks to haul soil, which would increase the potential for traffic accidents and spills and would also contribute to air emissions. Alternative 2 would take longer (at least two years); during that time access to the area containing the landfarm would be restricted and the USAF would have no way to enforce the restrictions.

<u>Implementability</u>
Alternative 1 (No Action) would be the simplest to implement because there is no action associated with it. Alternatives 2 (Excavation and Landfarming at LLRC) and 3 (Excavation and Offsite Thermal Treatment) have similar implementability to each other. However, Alternative 3 is slightly easier to implement; the treatment facility is already permitted and operational. The area likely to be used for landfarming under Alternative 2 (gravel pit) is adjacent to a public road and access would need to be controlled while the landfarm is active. There would also be a need to control surface water runoff and the dispersion of soil in the landfarm area. In addition, there would be restrictions on the disturbance and re-location of the soil from the landfarm area until the residual DRO contamination attenuates to less than 250 mg/Kg. Therefore, Alternative 3 also involves less onsite management.

<u>Cost</u>
The No Action Alternative would have no cost associated with it. However, it would not achieve the remedial action objectives. Alternative 3 (Excavation and Offsite Thermal Treatment) has the highest cost. Alternative 2 (Excavation and Landfarming at LLRC) is slightly more cost effective than Alternative 3.

Proposed Action

Based on the evaluation of alternatives, the USAF is proposing to select and implement **Alternative 3, Excavation and Offsite Thermal Treatment**. The No Action Alternative was eliminated because it failed to meet the threshold criteria (protection of human health and compliance with applicable regulations). Alternatives 2 and 3 ranked similarly. Both protect human health, comply with regulations, and should result in a cleanup complete with institutional controls status for LLRC (assuming groundwater concerns are to be addressed). Thermal treatment (Alternative 3) achieves ADEC cleanup levels in the shortest time frame and requires less onsite management. The advantage of less onsite management and shorter treatment time is preferred by the USAF, despite the higher cost.

Under Alternative 3, the petroleum-contaminated soil with DRO > 10,250 mg/Kg will be removed down to the water table or permafrost and sent offsite for thermal treatment. After the contaminated soil is removed the excavation will be backfilled. The backfilling will occur as soon as practical to minimize thawing of the underlying permafrost. The backfilled area will also be seeded with a grass seed mix suitable for the area. Although it is anticipated native plants will colonize the area, reestablishing vegetation as soon as possible is desirable because it will minimize erosion and permafrost degradation (thawing). Because soil will remain onsite with DRO between 250 mg/Kg and 10,250 mg/Kg, there will still be restrictions to the movement of this soil until the DRO naturally attenuates. This will prevent the DRO impacted soil from being moved and placed in environmentally sensitive areas, such as nearby wetlands, and potentially impacting water quality. An LUC in the form of a notation in the appropriate LLRC land records would be put in place indicating that environmental contamination remains at the site above cleanup levels.

Table 7—Evaluation of Alternatives for Addressing Petroleum-Contaminated Soil

Response Action	Effectiveness	Implementability	Relative Cost	Summary
(1) No Action	○ (Fails)	●	● ($0)	○ (Fails)
(2) Excavation and Landfarming at LLRC	◑	◕	◕ Total Cost ~$197,700	◕
(3) Excavation and Offsite Thermal Treatment	◕	●	◔ Total Cost~ $237,000	●

Footnote:
The cost figures above are derived from the FS prepared in 2010 (updated from 2009). In 2010, additional sampling was performed to better delineate the extent of soil with DRO concentrations greater than 10,250 mg/Kg. The sampling reduced the uncertainty associated with the estimated volume of contaminated soil; the total volume of contaminated soil was determined to be less than the original estimate and comparable to Alternative 2.

Symbol Key
● Best ◕ Better than Average ◑ Average ◔ Worse than Average ○ Worst

Remedy for DRO Impacted Groundwater

Three Alternatives for addressing petroleum-contaminated groundwater were identified and evaluated:

- Alternative 1: No Action;
- Alternative 2: Natural Attenuation with Monitoring and LUCs; and
- Alternative 3: Source Removal (soil with DRO > 250 mg/Kg) with Monitoring and LUCs

Under Alternative 1, No Action, no response action would be taken to address the DRO in the groundwater. Over time the DRO would naturally attenuate but it would likely take a long time before groundwater concentrations are below the regulatory cleanup level of 1.5 mg/L. DRO degradation rates are assumed to be slow due to the cold subsurface temperatures and the petroleum hydrocarbons in the soil could serve as a long term source of DRO in the groundwater. If not action is taken, it is possible that future users of the area could install a drinking water well in the impacted areas and be exposed to the DRO in the groundwater above regulatory levels.

Under Alternative 2, Natural Attenuation with Monitoring and LUCs, no active treatment would occur. The DRO in the groundwater would be left to naturally attenuate over time. As discussed above for Alternative 1, it would likely take a long time for DRO concentrations to attenuate below the regulatory cleanup level of 1.5 mg/L. To prevent the possibility of exposure to DRO in the groundwater as it attenuates, LUCs in the form of a deed notation would be put into place preventing the groundwater from being used as a drinking water source in the impacted area. Installation of drinking water wells would be prohibited. Regulatory acceptance of this alternative and its effectiveness is contingent upon the DRO groundwater concentrations being at a steady state or decreasing.

Long term monitoring would be conducted to assess groundwater concentrations and determine when the LUCs are no longer needed. For cost estimating purposes, it was assumed that wells would be sampled for at least three years to verify DRO concentrations are steady state or decreasing. The cost estimate assumed that, following the initial sampling, wells would be sampled every 5 years for 30 years. However, at the first five year point and each successful five year interval, a review would be conducted to evaluate the data and determine if the remedy is effective or needs modification. Based on that review, the monitoring program would be modified accordingly (in terms of both sample frequency and number of wells).

There is currently insufficient data to determine when the DRO will naturally attenuate to 1.5 mg/L. However, as more data is acquired, the degradation rate of the DRO in the groundwater can be better quantified. After 30 years, it is possible that the DRO in groundwater may not be below 1.5 mg/L. If the DRO still exceeds the regulatory cleanup level, monitoring would need to continue. However, the frequency or number of wells may be able to be reduced significantly. Cost would vary accordingly.

Under Alternative 3, Source (Soil) Removal with Monitoring and LUCs, soil with petroleum contaminated (DRO) concentrations above the ADEC Method Two Migration to Groundwater cleanup level of 250 mg/Kg would be removed from the ground surface down to the water table. Excavated soil would be thermally treated at an offsite facility (likely Anchorage).The purpose of the action would be to remove all soil above the migration to groundwater cleanup level and thus eliminate the potential for this soil to leach into the groundwater.

In addition to addressing groundwater contamination, this alternative would result in all of the soil above the most restrictive DRO cleanup level being removed from the impacted area. Therefore, there would no longer be restrictions on the disturbance or movement of the soil. However, even with the removal of soil above 250 mg/Kg, it is anticipated that groundwater concentrations will remain elevated for some time period after the removal action is completed. The existing mass of DRO dissolved in the groundwater would need to attenuate below 1.5 mg/L. In addition, the RI indicated that Light Non-Aqueous Phase Liquid was present in the pore spaces of the soil below the water table. This Light Non-Aqueous Phase Liquid will serve as a persistent source for dissolved phase DRO in the groundwater. The time period for which DRO would remain above 1.5 mg/L cannot be quantified with existing information. However, it can be assumed that the removal of the soil would shorten the time interval for the DRO in the groundwater to attenuate to below 1.5 mg/L. Until this level is reached, LUCs would be needed to prevent the groundwater from being used as a drinking water source. In addition, groundwater monitoring similar to Alternative 2 would be needed to verify when cleanup levels are reached. The cost estimate assumes three monitoring events would be needed, one every 5 years for 15 years, after the soil removal action is complete.

A summary of the comparison of these alternatives with respect to the three primary criteria (page 24) is discussed below and shown in Table 8 (page 29). All of the alternatives, except for Alternative 1, include the use of LUCs to prevent the groundwater in the impacted area from being used as a drinking water source.

Effectiveness

Alternative 1 (No Action) is not considered protective of human health or compliant with regulations. If no action is taken, it is possible that future users of the area could install drinking water wells in the impacted area and be exposed to DRO and PAH compounds in the groundwater above groundwater cleanup levels. Alternative 2 (Natural Attenuation with Monitoring and LUCs) is considered protective of human health and the environment. There is currently no risk to human health because groundwater is not used as a drinking water source. LUCs (deed notation) would limit future risk. Alternative 3 (Source Removal [soil with DRO > 250 mg/Kg] with Monitoring and LUCs) is the most effective. Similarly, to Alternative 2, LUCs (deed notation) would eliminate future risk until DRO concentrations attenuate to below 1.5 mg/L. In addition, DRO concentrations in the groundwater would decrease more quickly because the DRO in the soil would be removed. Therefore, it could not leach into the groundwater.

Implementability

Alternative 1 (No Action) would be the simplest to implement because no action would be performed. Alternative 3 (Source Removal with Monitoring and LUCs) would be the most difficult to implement because it involves significant soil excavation and handling. The equipment and personnel needed for soil removal must be mobilized to the site and a large number of trips by truck would be required to transport soil between the site and a thermal treatment plant. It also disturbs a large area of woods and wetlands and would require procedures to reduce the potential for permafrost degradation and surface water impacts. Alternatives 2 (Natural Attenuation with Monitoring and LUCs) would be relatively simple to implement.

The LUCs considered under Alternatives 2 and 3 are predominantly administrative or informational (e.g., deed notation) and not considered too difficult to implement at this site. On the LLRC property, there are currently no drinking water wells present and there are no known plans to install drinking wells in the future. In addition, the hydrologic characteristics of the shallow, impacted, aquifer make it a poor drinking water source. The ADEC has also made a determination that the shallow groundwater is not likely a future drinking water source under 18 AAC 75.350 criteria. Therefore, preventing the shallow water from being used as a drinking water source is considered practical and relatively easy to implement.

Cost

Alternative 1 (No Action) would have no cost associated with it. Alternative 2 (Natural Attenuation with Monitoring and LUCs) has the second lowest cost (approximately $680,000). Alternative 3 (Source Removal with Monitoring and LUCs) has the highest cost ($1,500,000), approximately twice the cost of Alternative 2. For Alternatives 2 and 3, the cost could be higher or lower depending on the degradation rate of DRO in groundwater. The cost estimate assumes 30 years of monitoring for Alternative 2 and 15 years for Alternative 3.

Proposed Action

Based on the FS, the USAF proposes to implement **Alternative 2, Natural Attenuation with Monitoring and LUCs**. The No Action Alternative was eliminated because it fails to meet the threshold criteria (protection of human health and compliance with regulations). Alternatives 2 and 3 both meet threshold criteria and are effective. However, Alternative 2 is the preferred alternative over 3 due to the lower cost and additional uncertainties associated with Alternative 3. In particular, the rate at which source removal will accelerate groundwater cleanup is not certain so it is difficult to weigh the cost versus the benefits. Because there is no current use of groundwater at LLRC, and groundwater is not a reasonably anticipated future drinking water source, natural attenuation with groundwater use restriction (Alternative 2) is the most implementable and cost effective remedy that is protective of human health and the environment.

It is noted that under the proposed remedy for the petroleum contaminated soil, DRO contaminated soil with concentrations above 10,250 mg/Kg will be removed down to permafrost or the water table (see pages 24-26). The removal of this soil should help to shorten the time required for DRO in the groundwater to naturally attenuate to less than 1.5 mg/L.

Table 8—Evaluation of Alternatives for Addressing Petroleum-Contaminated Groundwater

Response Action	Effectiveness	Implementability	Relative Cost	Summary
(1) No Action	○ (Fails)	●	● ($0)	○ (Fails)
(2) Natural Attenuation with Long Term Monitoring and LUCs	◕	◕	◑ Total Cost ~$680,000	◕
(3) Source (Soil) Removal with Monitoring and LUCs	●	◑	○ Total Cost ~$1,500,000	◑

Description of Alternatives

1) No Action—No response action would be taken. Concentrations of petroleum hydrocarbons in the groundwater would slowly degrade through natural attenuation. There would be no monitoring to verify DRO concentrations in the water and no controls in place to prevent exposure.

2) Natural Attenuation with Monitoring and LUCs –Initial groundwater monitoring would be conducted to demonstrate that DRO concentrations in the groundwater are steady state or decreasing. The concentration of DRO in groundwater would be monitored on a periodic basis (e.g., once every 5 years) until it decreases below the cleanup level of 1.5 mg/L. LUCs (deed notation) would be put in place to eliminate the use of groundwater as a drinking water source. No drinking water wells could be installed in the impacted area until the cleanup level of 1.5 mg/L is achieved.

3) Source (Soil) Removal with Monitoring and LUCs—Excavation of DRO contaminated soil with concentrations above the ADEC Method Two Migration to Groundwater cleanup level of 250 mg/Kg. The removal of this soil prevents potential leaching of DRO in the soil to the groundwater. Excavated soil would be thermally treated at an offsite facility (likely Anchorage). LUCs and groundwater monitoring similar to Alternative 2 would apply. However, the groundwater monitoring would be less than for Alternative 2.

Symbol Key

● Best ◕ Better than Average ◑ Average ◔ Worse than Average ○ Worst

Additional Information

You are encouraged to provide comments on any of the alternatives presented in this Proposed Plan for LLRC. Use the comment form provided on page 31. A final decision on the alternatives for the site will not be made until public comments are considered. Your comments can be provided to the USAF by any of the following methods:

- Mailing in the included Comment Form;
- Discussing your comments or questions over the phone with USAF Community Involvement Coordinator Tommie Baker at 1-800-222-4137 or 907-552-4506;
- Submitting a completed Comment Form at the public meeting (see scheduled date and time below); or
- Presenting your comments verbally at the following scheduled public meeting:

Date: May 7, 2012

Time: 5:30 PM

Place: Lake Louise Lodge; Lake Louise, Alaska

The public comment period will end **June 5, 2012**.

Involving the public in the ERP decision-making process is required by 40 CFR 300 for sites on the NPL. Although the LLRC is not on the NPL, the USAF is committed to keeping the community informed of activities, investigations, and cleanup schedules at the site. Some of the community relations activities that the 611 Civil Engineer Squadron (CES) spearheads include the following:

Information Repositories and Online Web Site

Additional information can be found in the information repositories located at JBER. The information repositories contain newspaper clippings and community relations documents relating to Proposed Plans and response actions for all of the ERP sites maintained by the 611 CES Community Relations Coordinator at JBER.

A Web Site is also available to the public for additional information on LLRC:

http://www.adminrec.com/PACAF.asp?Location=Alaska

Additional Information Continued on page 33

Lake Louise Recreation Camp Proposed Plan Comment Form

You are encouraged to comment on this Lake Louise Recreation Camp Proposed Plan. The USAF and ADEC will consider all comments received. Use the space provided to submit your comments. Fold, tape, and mail this form when you are finished. A return address has been provided on the back of this page for your convenience. Comments must be postmarked by June 5, 2012. If you have any questions or concerns, feel free to contact the Community Relations Coordinator at 1-800-222-4137.

Name:

Address:

City & State:

Zip Code:

Telephone Number:

Proposed Plan for Environmental Restoration at
Lake Louise Recreation Camp

Please Affix
First Class
Postage Here

Community Relations Coordinator
10471 20th Street, Suite 340
JBER, AK 99506-2201

Additional Information (Continued)

Updated Mailing List

A mailing list of interested parties is maintained and updated regularly by the USAF Community Relations Coordinator. These mailing lists are used to provide interested parties with copies of the newsletters, fact sheets, and public notices and to announce public meetings that pertain to environmental issues at the various installations.

1-800 Hotline

A toll-free number to the 611 CES Community Relations Coordinator provides immediate access to the 611 CES for questions and information relating to environmental activities at 611 CES sites. The number is **1-800-222-4137**.

Administrative Record

An Administrative Record has been established in the 611 CES offices on JBER. The Administrative Record contains information that has been used to support USAF decision making and is accessible to the public.

Management Action Plan

The Management Action Plan is updated periodically and made available to the public to provide a summary of all restoration activities in one document.

Proposed Plan Online

An electronic copy of this Proposed Plan can be found on the following website:

http://www.dec.state.ak.us/spar/csp/list.htm#northern

Community Relations Coordinator
611 CES/CEVR
10471 20th Street, Suite 340
JBER, AK 99506-2201

AFFIX ADDRESS LABEL HERE

Please remember to complete the included Comment Form.