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Neklason Lake Radio Relay
Preliminary Assessment Report
Palmer, Alaska
TDD: 98-07-0021

Contract: 68-W6-0008
September 1999

Region 10

START

Superfund Technical Assessment and Response Team

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NEKLASON LAKE RADIO RELAY SITE
PRELIMINARY ASSESSMENT REPORT
PALMER, ALASKA

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ACRONYM LIST

Acronym	Definition
ADCRA	Alaska Department of Community and Regional Affairs
ADEC	Alaska Department of Environment Conservation
ADFG	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
Air Force	United States Air Force
bgs	below ground surface
E & E	Ecology and Environment, Inc.
EPA	United States Environmental Protection Agency
mg/kg	milligrams per kilogram
PA	Preliminary Assessment
PCBs	polychlorinated biphenyls
PPE	probable point of entry
RR	Radio Relay
START	Superfund Technical Assessment and Response Team
TDL	target distance limit
USAED	Alaska United States Army Engineer District, Alaska
USFWS	United States Fish and Wildlife Service
USTs	underground storage tanks
WACS	White Alice Communications System
WCC	Woodward-Clyde Consultants

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NEKLASON LAKE RADIO RELAY
PRELIMINARY ASSESSMENT REPORT
PALMER, ALASKA

1. INTRODUCTION

Ecology and Environment, Inc., (E & E) was tasked by the United States Environmental Protection Agency (EPA) to provide technical support for completion of a Preliminary Assessment (PA) at the Neklason Lake Radio Relay (RR) site located in Palmer, Alaska. E & E completed PA activities under Technical Direction Document No. 98-07-0021, issued under EPA, Region 10, Superfund Technical Assessment and Response Team (START) Contract No. 68-W6-0008.

The specific goals for the Neklason Lake RR PA, identified by the EPA, are to:

- Determine the potential threat to public health or the environment posed by the site;
- Determine the potential for a release of hazardous constituents into the environment; and
- Determine the potential for placement of the site on the National Priorities List.

Completion of the PA included reviewing existing site information, collecting receptor information within the range of site influence, determining regional characteristics, and conducting a site visit. This document includes a discussion of site background information (Section 2), a discussion of migration/exposure pathways and potential receptors (targets; Section 3), and a list of pertinent references (Section 4).

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2. SITE BACKGROUND

2.1 SITE LOCATION

Site Name:	Neklason Lake RR Site
CERCLIS ID No.:	AKSFN1002132
Location:	Palmer, Alaska
Latitude:	61°37′10″North
Longitude:	149°15′30″West
Legal Description:	Northeast ¼ Southwest ¼ of Section 27, Township 18 North, Range 1 East, Seward Meridian
Congressional District:	Alaska
Site Owner/Contact:	AT&T/Alascom, Inc. 210 East Bluff Drive Anchorage, Alaska 99501 (907) 264-7343 Attn: Mr. Jim Wickes
Site Contacts:	Ms. Heather Gillihan United States Army Engineer District, Alaska (USAED Alaska) P.O. Box 898 Anchorage, Alaska 99506 (907) 753-5656 Mr. John Halverson Alaska Department of Environmental Conservation (ADEC) 555 Cordova Street Anchorage, Alaska 99501 (907) 269-7545

2.2 SITE DESCRIPTION/OWNERSHIP HISTORY

The Neklason Lake RR site is located at mile 0.25 of Engstrom Road, north of Bogard Road, approximately 5 miles northwest of Palmer, Alaska, and approximately 6 miles northeast of Wasilla, Alaska. The site covers 14.42 acres and is approximately ¾ mile south of Neklason Lake (Figures 2-1 and 2-2).

In 1955, the United States Air Force (Air Force) leased 65.51 acres from Mr. John R. Neklason to establish a communications facility. The site was one of the first facilities constructed as part of the White Alice Communication System (WACS) in Alaska. Of the area leased, 51.19 acres was used as a clear zone for radio wave paths (USAED Alaska 1991). The remaining 14.42 acres were used to construct the actual communication facilities.

The Air Force operated the Neklason Lake RR site from 1955 to 1983. The site was one of the two original facilities of the WACS in Alaska. The WACS provided the only communication link between Alaska and the rest of the United States until the advent of satellite communication technology. Although the WACS was a military program, it increasingly served the private sector over time. The passage of the Alaska Communications Disposal Act in 1967 began to divest the military of this responsibility (WCC 1995).

The Air Force constructed numerous improvements at the Neklason Lake RR site. A 6,000-square-foot communications building housed equipment for the daily operation of the facility. A 1,500-square-foot Automatic Voice Network (Autovon) building located west of the communications building was used for emergency operations . The Autovon was converted into a garage at an unknown time during operation of the site. A fire pump house and 30,000-gallon water tank were located northwest of the communications building. The fire pump house was approximately 100 square feet in size. A maintenance shed located northeast of the communications building reportedly housed various supplies and equipment. An 800-square-foot building was located east of the communications building (WCC 1995). A barracks was located on the western edge of the 14.42 acres. Two dump sites/burn pits were located south of the barracks (URS 1987; Aeromap 1974). Two underground storage tanks (USTs), 10,000 and 3,000 gallons in size, supplied diesel fuel for the facility (WCC 1995). Lastly, five antenna towers provided communication relays for the facility (Aeromap 1974). Figure 2-3 depicts most of these structures.

The Neklason Lake RR site was disposed of under the authority of the Alaska Communications Disposal Act. The 14.42 acres containing the improvements was conveyed to AT&T/Alascom Inc., in October 1983. A 12.34 acre parcel of clear zone right-of-way (ROW) was relinquished to the Bureau of Land Management in December 1984. The remaining 38.85 acres of the clear-zone easement was relinquished by quitclaim deeds to private individuals between 1983 and 1989 (USAED Alaska 1991).

The Neklason Lake RR site now is owned and operated by AT&T/Alascom, Inc. The facility and remaining improvements are used by AT&T/Alascom, Inc., to provide communications services to its customers.

2.3 PREVIOUS INVESTIGATIONS

A cleanup of polychlorinated biphenyls (PCBs) at Neklason Lake RR was conducted in October 1983. Whether the Air Force or AT&T/Alascom, Inc., was the lead party for the cleanup is not known. The cleanup, performed by Crowley Environmental Services, occurred at the garage located west of the communications building. The garage housed transformers during the operation of the WACS. Crowley Environmental Services removed sections of the garage concrete floor which reportedly was contaminated by PCBs (WCC 1995). Sampling data from this investigation were not available from AT&T/Alascom, Inc.

In 1991, New Horizons Telecom, Inc., removed a 10,000-gallon UST and a 3,000-gallon UST that were installed by the Air Force. The USTs reportedly contained diesel. Samples colleted from the bottom of the excavations indicated low levels of diesel contamination (25 milligrams per kilogram [mg/kg]) at the location of the 10,000-gallon tank and no observed contamination at the location of the 3,000-gallon tank. Based on the Site Assessment Report prepared by New Horizons Telecom, Inc., the ADEC issued a "no further action" letter to AT&T/Alascom, Inc., in 1992 (WCC 1995, ADEC 1992, New Horizons Telecom, Inc. 1991).

WCC, under contract to AT&T/Alascom, Inc., conducted a Phase I Environmental Site Assessment for the Neklason Lake RR site in 1995. WCC reviewed historical information and conducted an investigation of current site conditions for the site assessment. An inventory of possible hazardous substances was documented by WCC during the site assessment. The inventory mostly detailed substances related to the current operation of the facility by AT&T/Alascom, Inc. WCC (1995) recommended a Phase II investigation for the facility, but only the former dump sites/burn pits and PCB-contaminated soil near the garage were related to former military operations.

During the site visit, Mr. Len McKee, the facility operator, told the START that WCC removed PCB-contaminated soil near the garage in 1998. An area of approximately 150 square feet on the eastern side of the garage was excavated, sampled, and backfilled. A report for this removal was not available from AT&T/Alascom, Inc.

2.4 SITE OPERATIONS AND WASTE CHARACTERISTICS

Little information concerning the daily operations of Neklason Lake RR exists. The facility relayed transmissions from Soldotna, Alaska, located on the Kenai Peninsula, to other radio relay stations in Alaska.

Possible hazardous substances may be associated with some of the former activities or buildings at the facility. Oils, solvents, and other chemical products probably were used at some time for cleaning and maintaining equipment in the garage and former maintenance shed. PCBs reportedly were used to insulate oils in the transformers located in the garage west of the communication building. Because a removal of PCB-contaminated soil has occurred at the garage, used PCB-containing oils possibly were disposed of on the ground outside the garage. Two former dump sites burn pits were located on the western edge of the facility. The former contents of the dump site/burn pits are not known.

2.5 START ACTIONS

The START conducted a site visit on June 2, 1999. The START traveled to the Neklason Lake RR site by road from Anchorage, Alaska. Photographic documentation of the site visit is presented in Attachment A.

The START met with Mr. McKee, facility operator for AT&T/Alascom, Inc., at the site. Mr. McKee has been the facility operator since the Air Force relinquished ownership of the facility. He accompanied the START on a walk-through of the facility and pointed out the various buildings, foundations of former buildings, and other site features. He also answered questions concerning former operations and related to the START his knowledge of the removal of PCBs at the garage west of the communications building.

Many alterations have occurred at the Neklason RR site since the Air Force was the operator of the facility. Only one original antenna remains. The maintenance shed and quarters have been removed. A foundation remains at the location of the maintenance shed, but no potential sources of hazardous substances were identified. The barracks is no longer present, and no foundation exists. AT&T/Alascom, Inc., has erected a fence around the facility, but the fence does not surround the facility entirely. The dump sites/burn pits and barracks area are outside the fenced portion of the property.

The first area investigated by the START was the southern dump site/fire pit. This source area is approximately 50 by 25 feet and is covered with grasses and sapling cottonwoods and alders. The area mostly is enclosed with earthen, manmade berms, which also have vegetative cover. No debris or discoloration of soil was identified.

The START next investigated the former barracks and northern dump site/fire pit. The former barracks location covers approximately 10,000 square feet. Based on an aerial photograph, the Air Force graded and backfilled this location with gravel (Aeromap 1974). The START encountered similar conditions during the site visit. A trailer supposedly had served as the barracks, but is no longer present. The northern dump site/fire pit location is densely vegetated. The location is marked by an earthen,

manmade berm. The START identified debris around the berm, including rebar, broken concrete, cable and cable conduits, and wooden refuse.

The START also inspected the garage area where a PCB spill and cleanup has occurred. Three small soil stains were identified on the eastern side of the garage, covering a total square area of less than 10 feet. The stains appeared fresh and likely from motor oil. The START investigated the area that was excavated in 1998 for removal of PCB contamination. Gravel backfill apparently had been placed in the excavation area.

The other buildings and structures at the facility were unremarkable. The concrete foundation of the maintenance shed had scattered metal debris on it, but no signs of contamination were evident around the foundation. The START also found no indication of possible contamination near the heated storage room.

The START collected three surface soil samples and two subsurface soil samples during the site visit. The first sample point was located on the eastern side of the southern dump site/burn pit. A surface soil sample, EPA sample No. 99060001, and a collocated subsurface soil sample, EPA sample No. 99060002, was collected at this location (Figure 2-4 and Attachment A, Photographs 1 and 2, respectively).

The next sample point was located on the western side of the southern dump site/burn pit. A surface soil sample, EPA sample No. 99060003, and a collocated subsurface soil sample, EPA sample No. 99060004, was collected at this location (Figure 2-4 and Attachment A, Photographs 3 and 4, respectively).

The final sample, EPA sample No. 99060005, was located at the garage building in an area of unstained soil (Figure 2-4 and Attachment A, Photographs 9 and 10).

Sample locations were dug with a decontaminated shovel, and each sample was collected with a dedicated stainless steel spoon. All surface soil samples were collected between 0 and 6 inches below ground surface (bgs), and both subsurface soil samples were collected from 2 to 2.6 foot bgs. Each sample was analyzed for polynuclear aromatic hydrocarbons (PAHsEPA SW-846 Method 8270), PCBs (EPA SW-846 Method 8082), and total petroleum hydrocarbons (TPHs; EPA Method 418.1). Samples were analyzed by OnSite Environmental, Inc., of Redmond, Washington. Substances that were detected and their reported concentrations are presented in Table 2-1. A list of all substances analyzed for is presented in Attachment B. The analytical data have not been validated. The analytical laboratory data forms are presented in Attachment C.

ADEC ecological checklists are presented in Attachment D.

Table 2-1

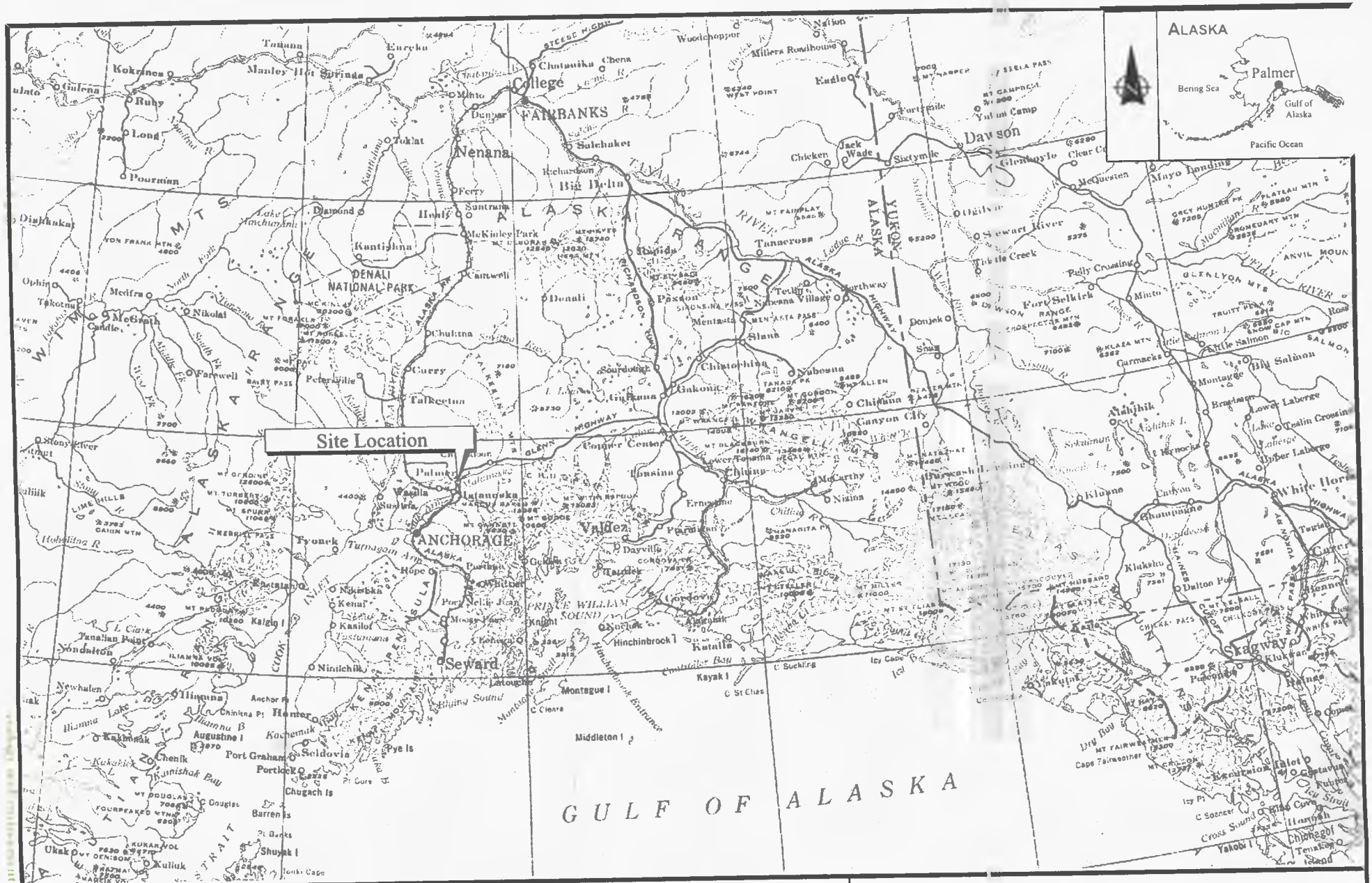
ANALYTICAL DATA SUMMARY
NEKLASON LAKE RADIO RELAY SITE PRELIMINARY ASSESSMENT
PALMER, ALASKA

EPA Sample No.:	99060001	99060002	99060003	99060004	99060005
Matrix:	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil	Surface Soil
Location:	East Side Southern Drum/fire Pit	East Side Southern Drum/fire Pit	West Side Southern Drum/fire Pit	West Side Southern Drum/fire Pit	Garage
Polychlorinated Biphenyls (µg/kg)					
Aroclor 1260	67 U	67 U	76 U	69 U	**290**
Total Petroleum Hydrocarbons (mg/kg)					
TPHs	33 U	33 U	**70**	**54**	**30**
Polynuclear Aromatic Hydrocarbons	ND	ND	ND	ND	ND

Note: Data have not been validated.
Bold text indicates concentrations above the detection limit.

Key:

EPA = United States Environmental Protection Agency.
mg/kg = Milligrams per kilogram.
ND = Nondetect.
TPHs = Total petroleum hydrocarbons.
U = The material was analyzed for but not detected. The associated numerical value is the sample quantitation limit.
µg/kg = Micrograms per kilogram.



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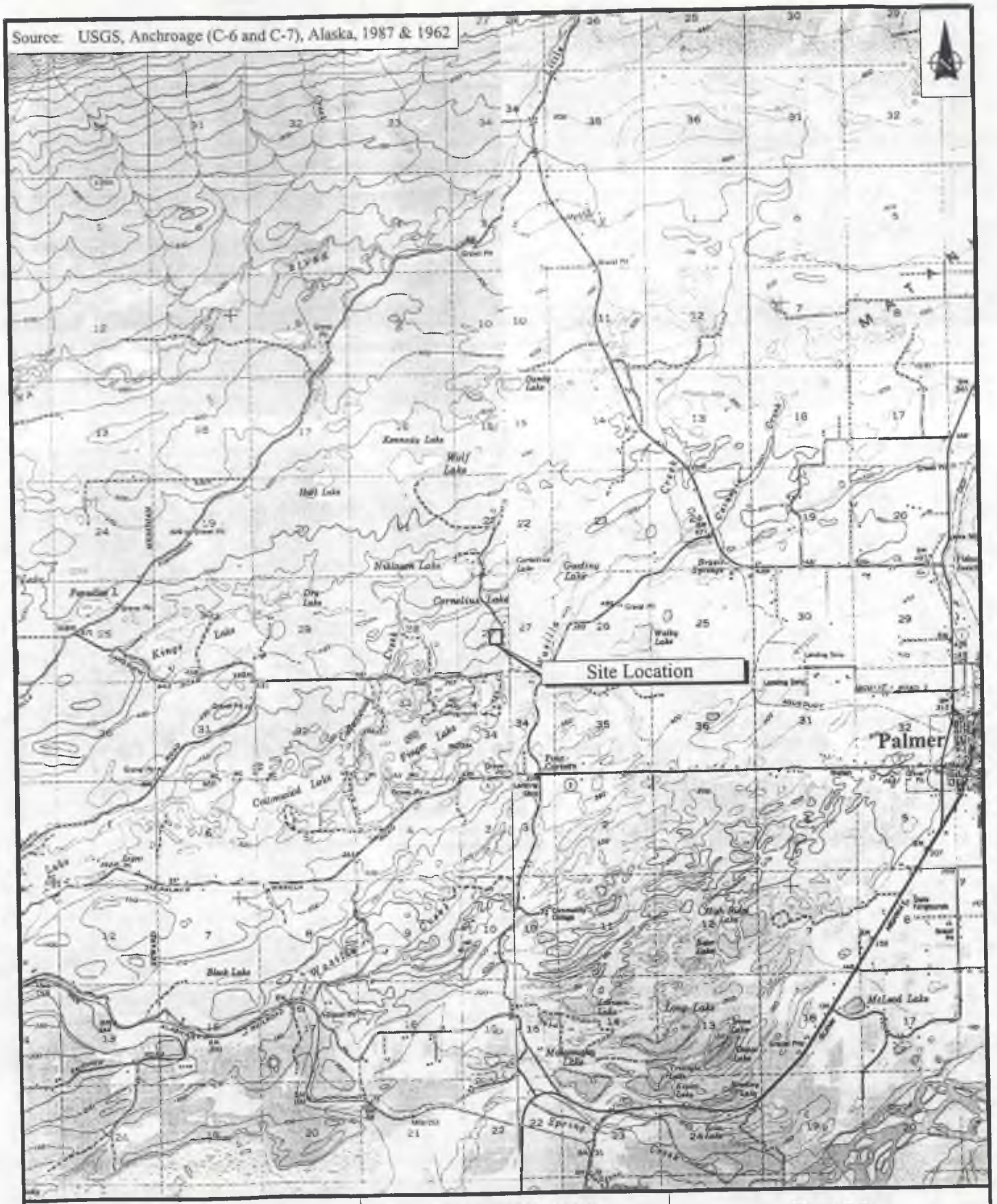
Anchorage, Alaska

NEKLASON LAKE RADIO RELAY SITE PA
Palmer, Alaska

0 40 80
Approximate Scale in Miles

Figure 2-1
SITE VICINITY MAP

Drawn:	Date	Job No.	Dwg.No.
AES	7/6/99	CG2123SAT0	CG2123 2-1



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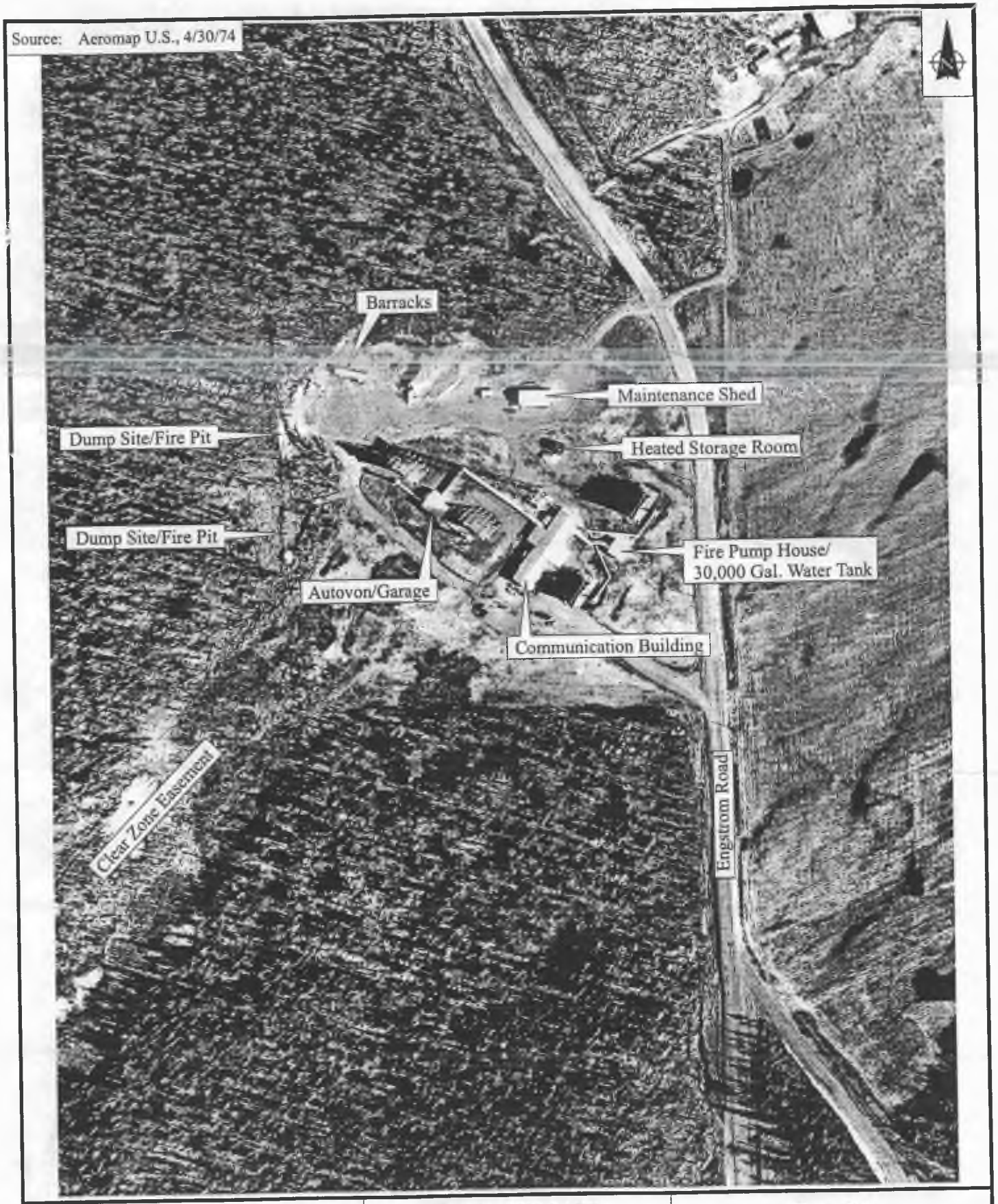
NEKLASON LAKE
RADIO RELAY SITE PA
Palmer, Alaska

Figure 2-2
SITE LOCATION MAP

0 1 2
Approximate Scale in Miles

Drawn:	DATE:	JOB NO.	Dwg.No.
AES	7/6/99	CG2123SAT0	CG2123 2-2



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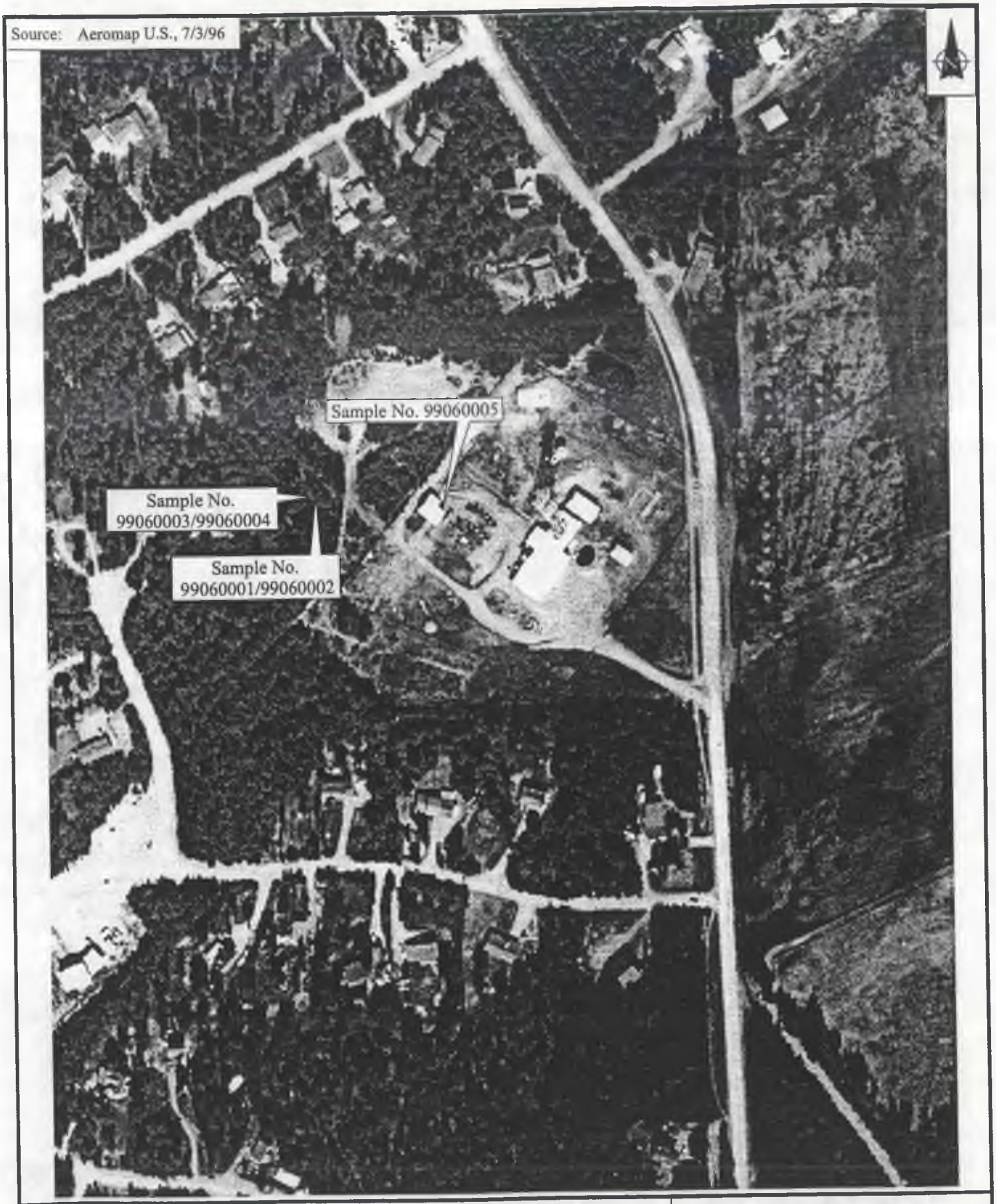
NEKLASON LAKE
RADIO RELAY SITE PA
Palmer, Alaska

0 100 200
Approximate Scale in Feet

Figure 2-3
1974 AERIAL PHOTOGRAPH

Drawn:	DATE:	JOB NO.	Dwg.No.
AES	9/15/99	CG2123SAT0	CG2123 2-3



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NEKLASON LAKE
RADIO RELAY SITE PA
Palmer, Alaska

0 100 200
Approximate Scale in Feet

Figure 2-4
SAMPLE LOCATION MAP

Drawn:	DATE:	JOB NO.	Dwg.No.
AES	8/4/99	CG2123SAT0	CG2123 2-4

3. MIGRATION/EXPOSURE PATHWAYS AND TARGETS

The following sections describe migration/exposure pathways and potential targets within the site's range of influence (Figures 3-1 and 3-2).

3.1 GROUNDWATER MIGRATION PATHWAY

The groundwater pathway target distance limit (TDL) for the Neklason RR site is a 4-mile radius extending from the site's property boundaries (Figure 3-1). No aquifer discontinuities were identified, within the TDL so- all aquifers are considered interconnected. Additionally, no aquifer is considered karst within the groundwater TDL.

The source area is approximately 150 square feet of PCB contaminated soil. An observed release of hazardous substances, including PCBs, to groundwater has not been established at the site, but based on soil sample results, a potential to release exists. The potential to release from the source area to groundwater is based on containment of the source material, net precipitation, depth to the aquifer, and travel time (hydraulic conductivity).

The source, PCB-contaminated soil at the garage, is not a surface impound or land treatment area and does not have any containment such as a liner or runoff controls. The mean annual precipitation in the Palmer, Alaska area is 16.61 inches. The actual evapotranspiration for Palmer is 16.61 inches (Patric and Black 1968). Therefore, the net mean annual precipitation for Palmer is 0 inches.

The dominant surface features in the vicinity of Neklason Lake are eskers, pitted outwash deposits, and outwash terraces, all of which comprise or are underlain by sand and gravel. These outwash deposits range from a few feet to 100 feet or greater in thickness. Wells drilled through these till deposits usually produce artesian water from the sands and gravels beneath the till. Unconfined groundwater is also present at shallow depths beneath the till.

Surficial sediments in the site vicinity comprise Quaternary-age till and outwash deposits. Till deposits typically are unconsolidated and unsorted, consisting of subangular to rounded rock fragments that range in size from clay to boulders (USGS 1960). Till in the Matanuska Valley agricultural area is relatively impermeable (USGS 1960). Outwash stream deposits are predominantly sand, pebbly sand,

and sandy gravel with minor silty sand and silt (USGS 1960). Typically, a thin layer of outwash deposits mainly comprising gravel overlies the till and thicker deposits of sandy gravel outwash underlie the till.

Bedrock in the Matanuska Valley comprises Mesozoic-age metamorphosed sedimentary rocks mainly comprising slate, argillite, graywacke, and greenstone. Bedrock has been described as relatively impermeable and transmits water through fractures (USGS 1960).

Permafrost has been mapped in poorly drained bog areas in the Matanuska Valley; however, non-permafrost has been found in well-drained deposits such as till and outwash deposits (USGS 1960).

Typically, the thin surficial layer of outwash deposit is a few feet thick and makes an unconfined aquifer overlying the till. The START assumes that the hydraulic conductivity of the outwash sediments is 10^{-2}. The till is also the confining layer for an underlying confined aquifer also comprising outwash sediments. The START assumes that the hydraulic conductivity of the till is 10^{-8}. The lower outwash sediments are typically 50 to60 feet thick with an estimated hydraulic conductivity of 10^{-2} (USGS 1960).

A well log for a well located on site indicates that a confined aquifer is present at 94 feet bgs (USGS 1960). The well log indicates that the confining layer comprises 7 feet of interbedded clay, silt, sand, and gravel. The confined aquifer produces 20 gallons per minute. Based on the well logs of two wells located within ¼ mile of the site, these wells are installed in a shallow unconfined aquifer comprising gravel (USGS 1960; Ireland 1999). The unconfined aquifer in the site vicinity occurs between 14 and 19 feet bgs.

Evaluation of impact to targets within the groundwater pathway is performed by determining the distance to the nearest well, the population using groundwater for drinking, and whether or not groundwater is used as a resourse.

The nearest well is located on site and serves one worker. The Neklason Lake RR site is located in a suburban/rural area of Southcentral Alaska. The residences and businesses surrounding the site use groundwater as a drinking water source (ADCRA 1999). A groundwater database search of water wells within a 4-mile radius of the site was conducted at the ¼ to ½ mile, ½ to 1 mile, 1 to 2 miles, 2 to 3 miles, and 3 to 4 miles from the site are presented in Table 3-1. The populations presented in Table 3-1 include the worker on site and all residents, students, and teachers within the groundwater TDL.

The site lies within the Matanuska-Susitna Valley, a region of Alaska known for its fertile farm country, and farming occurs near the site. The land east of the site, across Engstrom Road, is used for agricultural purposes. Although groundwater is not expected to be used to irrigate more than 5 acres of commercial food or forage crops, the START assumes that groundwater is used for watering commercial

livestock within 4 miles of the site. Groundwater is not expected to be used for commercial aquaculture or to supply a major or designated water recreation area.

In Alaska, Safe Drinking Water Act Well Head Protection Areas have not been established; therefore, a Well Head Protection Area does not exist within the site's TDL.

3.2 SURFACE WATER MIGRATION PATHWAY

The surface water pathway TDL includes those rivers, lakes, oceans, and coastal tidal waters located within 15 miles downstream of the probable point of entry (PPE) of a hazardous substance for the site. An observed release of hazardous substances to surface water has not been established at the site, but based on soil sample results, a potential to release exists. The potential to release from the source area to surface water is based on containment of the source material, runoff (including rainfall, drainage area, and soil type), distance to surface water, containment for floods, and flood frequency at the site.

For the Neklason Lake RR site, the PPE is located at an unimproved, intermittent drainage ditch along the western side of Engstrom Road. The overland route from the source area to this PPE is approximately 800 feet. From the PPE, it is ½ mile south to Finger Lake. Finger Lake has no outflow and is the terminus of the surface water TDL for this site (Figure 3-2).

The source, PCB-contaminated soil at the garage, is not a surface impound or land treatment area and does not have any containment such as a liner, dikes, or runoff controls.

The two-year, 24-hour rainfall event for the Palmer area is 1.5 inches (Miller 1963). The drainage area for the source at the site is 150 square feet. No upgradient area is expected to drain through this source area. Surficial soils in the site vicinity comprise Typic Cryorthents (USDA 1979). Typic Cryorthents in the Matanuska Valley typically have 1 to 3 inches of organic mat, underlain by 2 to 4 inches of gravelly silt loam, underlain by 4 to 18 inches sand and gravel (USDA 1979). The START assumes that these soils have a high infiltration rate.

Based on information from the USAED Alaska (1993) and the site's location in relation to other surface water bodies, the START estimates that the site lies within the 500-year flood plain. No source area at the site has any flood containment mechanisms.

Evaluation of impact to targets within the surface water pathway is performed by determining drinking water threats, human food chain threats (fisheries), and environmental threats (sensitive environments). Factors for evaluating drinking water threats include population using surface water for drinking water, nearest intake, and use of surface water as a resource.

Surface water is not used for drinking water purposes within the surface water TDL (ADCRA 1999). The use of surface water within the TDL for irrigation of commercial food or forage crops, for watering of commercial livestock, or as an ingredient in commercial food preparation is not expected.

The Alaska Department of Fish and Game (ADFG) tabulates the sport fishing harvest for the State of Alaska. However, the ADFG does not maintain harvest data for Finger Lake. The START assumes that sport fishing occurs at Finger lake, and has estimated the 1997 sport fish harvest for that water body by using available data for Campbell Lake in Anchorage, Alaska, a lake of similar size. Sport fish harvest is reported in number of fish, not poundage. The START has calculated the total poundage by estimating the size of sport fish harvested within the surface water TDL (Howe et al. 1998). No subsistence or commercial fish harvest is known or suspected to occur within the site's TDL. Table 3-2 provides estimated fish harvest data for the site.

Sensitive environments associated with the surface water TDL may include critical habitats or habitats known to be used by a threatened or endangered species; national or state parks, wilderness, or recreation areas; spawning areas or migratory pathways critical to the maintenance of fish or shellfish; lands designated for wildlife or game management or maintenance of aquatic life; and wetlands. The United States Fish and Wildlife Service (USFWS) manages terrestrial threatened and endangered species in the United States. Following are all federally listed terrestrial threatened or endangered species known to occur in Alaska (USFWS 1998):

- Aleutian Canada goose (*Branta canadensis leucopareia*);
- Eskimo curlew (*Numenius borealis*);
- Short-tailed albatross (*Diomedea albatrus*);
- Spectacled eider (*Somateria fischeri*); and
- Aleutian shield fern (*polystichum aleuticum*).

Additionally, the Steller's eider (*Polysticta stelleri*) is a proposed threatened species.

The National Marine Fisheries Service manages all marine threatened or endangered species in the United States. Following are all federally listed marine threatened or endangered species known to occur in Alaska (USFWS 1998):

- Northern right whale (*Balaena glacialis*);
- Bowhead whale (*Balaena mysticetus*);

- Sei whale (*Balaenoptera borealis*);
- Blue whale (*Balaenoptera musculus*);
- Fin whale (*Balaenoptera physalus*);
- Humpback whale (*Megaptera novaeangliae*);
- Sperm whale (*Physeter macrocephalus*);
- Stellar sea lion (*Eumetopias jubatus*);
- Green sea turtle (*Chelonia mydas*);
- Leatherback sea turtle (*Dermochelys coriacea*);
- Loggerhead sea turtle (*Caretta carretta*);
- Olive ridley sea turtle (*Lepidochelys olivacea*);
- Snake River sockeye salmon (*Oncorhynchus nerka*); and
- Snake River Chinook salmon (*Oncorhynchus tshawytscha*).

Of the above species, none occur within the site's surface water TDL. However, Finger Lake is a designated state recreation area. Additionally, the site is located within Alaska Game Management Unit 14A; however, no state land managed directly for the taking of game is expected in the surface water TDL. Using USFWS wetlands maps, no linear miles of wetlands frontage occur within the site's surface water TDL (USFWS 1978a, 1978b).

3.3 SOIL EXPOSURE PATHWAY

The soil exposure pathway is evaluated based on threat to resident and nearby populations from soil contamination within the first 2 feet bgs. Based on previous investigations and samples collected by the START, approximately 150 square feet of PCB-contaminated soil exists on the eastern side of the garage. Results of samples collected by the START indicate PCB levels of 0.290 mg/kg.

The resident population includes those individuals located within the property boundary of a workplace, residence, school, or day care center where an area of observed contamination is located on that property and within 200 feet of the respective workplace, residence, school, or day care center. The nearby population includes those individuals who live or attend school within a 1-mile travel distance of the site.

Evaluation of impact to the resident population target is based on the number of resident individuals, resources, and terrestrial sensitive environments. Evaluation of impact to the nearby population target is based on the number of nearby resident individuals, area of contamination, and attractiveness or accessibility of an area of contamination.

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No residents are located at the site, and no school or day care facility is located within 200 feet of the site. The facility has one worker whose workplace is within 200 feet of the source. The nearest home (three residents) is located 200 feet west of the dump sites/fire pits and 500 feet west of the PCB-contaminated soil (Aeromap 1996). 665 individuals are within a 1-mile travel distance of the site (Table 3-3).

No resources such as commercial agriculture, silviculture, or livestock production or grazing occur on an area of contaminated soil at the site. Additionally, no terrestrial sensitive environments occur on an area of contaminated soil at the site

The Neklason Lake RR site is surrounded by a fence with a locked gate.

3.4 AIR MIGRATION PATHWAY

The air migration pathway TDL is a 4-mile radius extending from the property boundaries of the site (Figure 3-1). An observed release to the air pathway has not been established at the site; however, a potential to release exists. The potential to release for the air pathway is determined by gas and particulate containment factors and the source type (e.g., burn pit, contaminated soil, or surface impound). At the Neklason Lake RR site, the source area is PCB-contaminated soil with no containment.

Evaluation of impact to targets included determining distance to the nearest individual, total population within 4 miles of the site, resources (commercial agriculture and silviculture or a designated recreation area) within ½ mile of the site, and sensitive environments (as defined in Section 3.2) within 4 miles of the site.

The Neklason Lake RR site is located in a suburban/rural area between Palmer and Wasilla, Alaska. The facility has one worker at the site. The total population within 4 miles of the site is 10,782 (USCB 1999; ADCRA 1999). Population within 0 to ¼ mile, ¼ to ½ mile, ½ to 1 mile, 1 to 2 miles, 2 to 3 miles, and 3 to 4 miles of the site is presented in Table 3-4. The START assumes that commercial agriculture occurs within ½ mile of the site.

Sensitive environments within the Neklason Lake RR site air pathway TDL include wetlands, state recreational areas, and state game management areas. Based on wetlands maps from the USFWS (1978a, 1987b), the START estimates that there are 1,035 acres of wetlands within 4 miles of the site. Table 3-4 presents wetlands acreage per target distance ring. Three designated state recreational areas lie within four miles of the site. Finger Lake State Recreation Area is located ½ mile south of the site Wolf Lake State Recreation Site is 1.8 miles to the north and Kepler-Bradley Lakes State Recreation Area is 4 miles to the south (USGS 1993b, 1992a, 1992b). The site is located within Alaska Game Management

Unit 14A, and the taking of game on state land within the TDL is likely. No threatened or endangered species occur within 4 miles of the site (USFWS 1999).

Table 3-1

GROUNDWATER DRINKING WATER POPULATION WITHIN A 4-MILE RADIUS NEKLASON LAKE RADIO RELAY SITE PRELIMINARY ASSESSMENT PALMER, ALASKA

Distance (Miles)	Wells	Population
0-¼	35	123
¼-½	67	253
½-1	61	363
1-2	243	1,267
2-3	458	3,121
3-4	438	3,283
Total	**1,302**	**8,410**

Table 3-2

ANNUAL FISH HARVEST WITHIN THE SITE'S RANGE OF INFLUENCE NEKLASON LAKE RADIO RELAY SITE PRELIMINARY ASSESSMENT PALMER, ALASKA

Species	Number Harvested	Average Pound Per Fish *	Pounds Harvested
Landlocked salmon (*Oncorhynchus tshawytscha and O. kisutch*)	387	6	2,322
Arctic char (*Salvelinus alpinus*)	11	2	22
Rainbow trout (*O. mykiss*)	794	2.5	1,985
Total Harvest	**1,192**		**4,329**

* Average pound per fish estimated by the START.

Table 3-3

POPULATION WITHIN A 1-MILE TRAVEL DISTANCE OF THE SITE NEKLASON LAKE RADIO RELAY SITE PRELIMINARY ASSESSMENT PALMER, ALASKA

Distance (Miles)	Population
On site	1*
0-¼	122
¼-½	253
½-1	290
Total	**666**

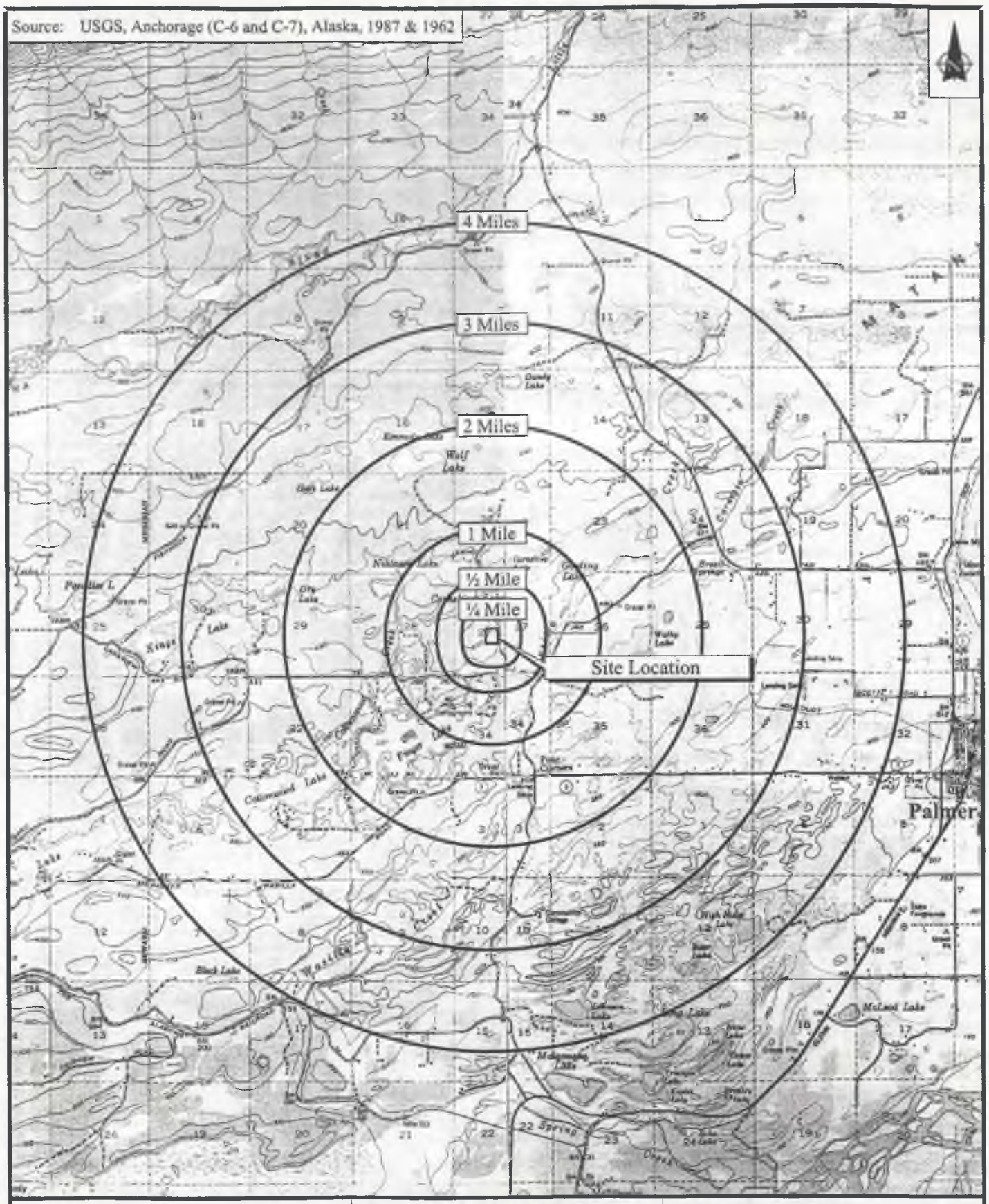
* Includes one on-site marker.

Table 3-4

POPULATION AND WETLANDS WITHIN A 4-MILE RADIUS NEKLASON LAKE RADIO RELAY SITE PRELIMINARY ASSESSMENT PALMER, ALASKA

Distance Ring (Miles)	Population	Wetlands (Acreage)
On site	1	0
0-¼	122	0
¼-½	253	15
½-1	363	100
1-2	3,099 *	300
2-3	3,121	260
3-4	3,283	360
Total	**10,242**	**1,035**

* Value comprises7 students and 53 staff members of Colony High School 862 students and 45 staff members of Colony Middle School; 525 students and 34 staff members of Finger Lake Elementary School and, 476 students and 27 staff members of Pioneer Peak Elementary School (ADCRA 1999).



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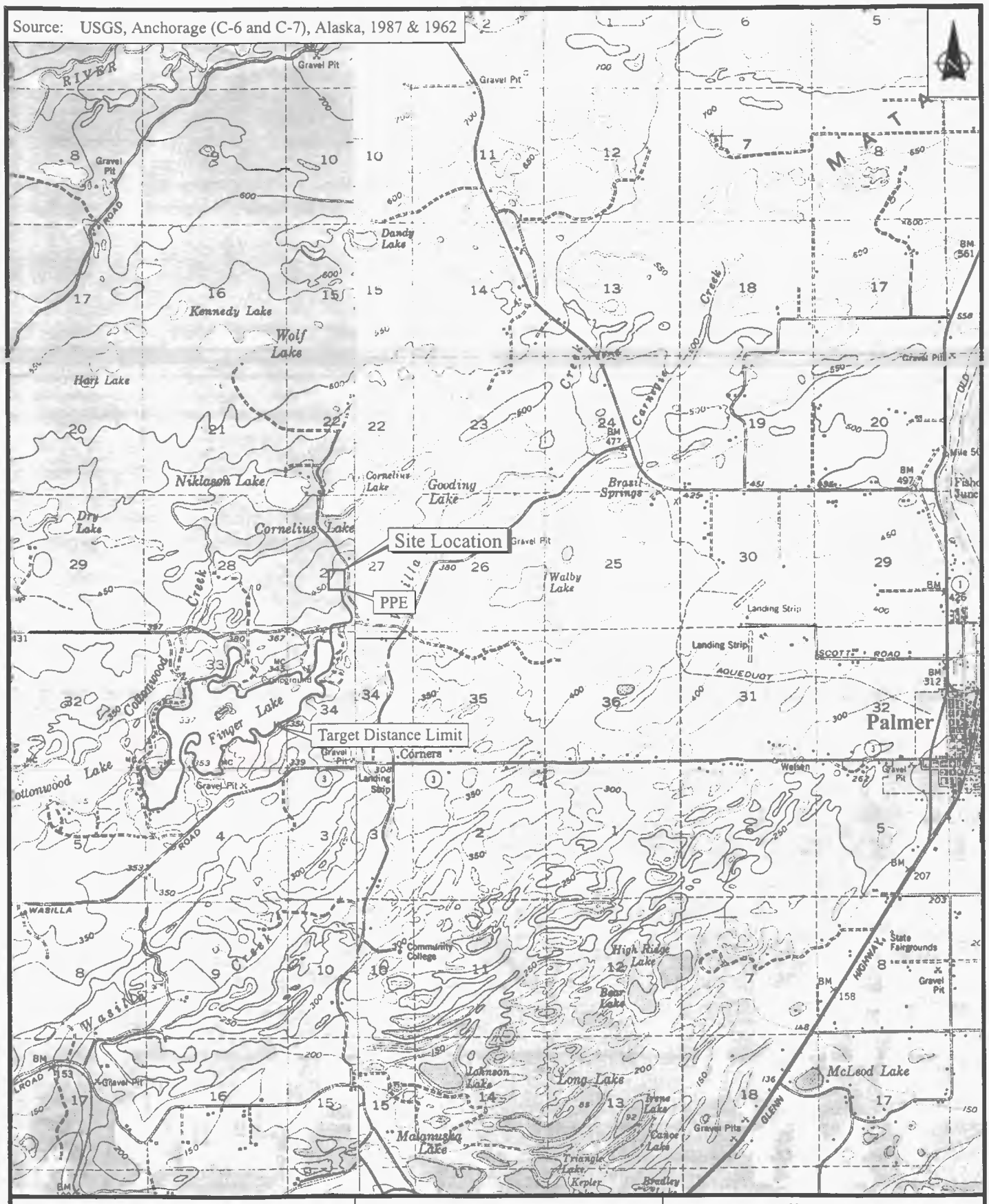
Anchorage, Alaska

NEKLASON LAKE
RADIO RELAY SITE PA
Palmer, Alaska

Figure 3-1
4-MILE MAP

0 1 2
Approximate Scale in Miles

Drawn:	DATE	JOB NO.	Dwg.No.
AES	9/17/99	CG2123SAT0	CG2123 3-1



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International Specialists in the Environment
Anchorage, Alaska

NEKLASON LAKE
RADIO RELAY SITE PA
Palmer, Alaska

0 .5 1
Approximate Scale in Miles

Figure 3-2

SURFACE WATER
TARGET DISTANCE LIMIT MAP

Drawn:	DATE:	JOB NO.	Dwg.No.
AES	9/17/99	CG2123SAT0	CG2123 3-2

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4. REFERENCE LIST

Aeromap U.S., Inc., (Aeromap) July 3, 1996, *Aerial Photograph*, Project: Mat-Su, Roll #96-7c, Exposure #12-27, Anchorage, Alaska.

_____, April 30, 1974, *Aerial Photograph*, Project: Mat. Valley, Roll #74-2np, Exposure #3-47, Anchorage, Alaska.

Alaska Department of Community and Regional Affairs (ADCRA), Accessed August 4, 1999, mcushing@comregaf.state.ak.us, *Community Database, Detailed Query Results*, http://www.comregaf.state.ak.us/CF_BLOCK.CFM.

Alaska Department of Environmental Conservation (ADEC), May 7, 1992, letter, Susan Bulkow, Environmental Specialist, ADEC, Wasilla, Alaska, to Jack Gamble, Alascom, Inc., regarding underground storage tank removal by New Horizons Telacom, Inc., AT&T/Alascom, Inc, Anchorage, Alaska.

Alaska Department of Natural Resources, (ANDR) August 10, 1999, *Groundwater Site Inventory Database Search*, conducted by Roy Ireland.

Howe, Allen L., Fidler, Gary, Olnes, Cynthia, Bingham, Allen E., and Mills, Michael J., 1998, *Harvest, Catch, and Participation in Alaska Sport Fisheries During 1997*, Alaska Department of Fish and Game, Division of Sport Fish, Anchorage, Alaska.

Ireland, Roy, July 26, 1999, Water well survey within 4 miles of the Neklason Lake Radio Relay site, Alaska Department of Natural Resources, Anchorage, Alaska.

Miller, J.F., 1963, *Probable Maximum Precipitation and Rainfall-Frequency Data for Alaska for Areas to 400 Square Miles, Durations to 24 Hours and Return Periods from 1 to 100 Years, Technical Paper No. 47*, United States Department of Commerce, Weather Bureau, Washington, D.C.

New Horizons Telecom, Inc., 1991, *Alascom Underground Storage Tank Replacement Program, Closure Assessment for UST Removal at Neklason Lake*, AT&T/Alascom, Inc., Anchorage, Alaska.

Patric, J.H., and Black, P.E., 1968, *Potential Evapotranspiration and Climate in Alaska by Thornthwaite's Classification*, United States Department of Agriculture, Forest Service, Research Paper PNW-71, Pacific Northwest Forest and Range Experiment Station, Juneau, Alaska.

United States Army Engineer District, Alaska, (USAED Alaska) 1993, *Alaska Communities Flood Hazard Data*, Department of the Army, Anchorage, Alaska.

_____, September 9, 1991, Site Survey Summary Sheet for DERP-FUDS Site No. F10AK016800, Neklason Lake Radio Relay site, Palmer, Alaska.

United States Department of Agriculture (USDA), 1979, *Exploratory Soil Survey of Alaska*, by Rieger, S., Schoephorster, D.B., and Furbush, C.E, Soil Conservation Service.

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URS Corporation (URS), January 1987, *Inventory Report for Neklason Lake, Matanuska-Susitna Borough*, prepared for U. S. Army Engineer District, Alaska, Defense Environmental Restoration Account, Anchorage, Alaska.

United States Census Bureau (USCB), Accessed August 3, 1999, *Geocorr.htm, Population Database Search*, http://www.census.gov/plue.

United States Fish and Wildlife Service (USFWS), 1978a, Anchorage (C-7) National Wetlands Inventory Quadrangle, Alaska, 1:63,360 series, Anchorage, Alaska.

———, 1978b, Anchorage (C-6) National Wetlands Inventory Quadrangle, Alaska, 1:63,360 series, Anchorage, Alaska.

———, 1998, *Endangered, Threatened and Candidate Species in Alaska, Unpublished Report*, Office of Ecological Services, Anchorage, Alaska.

United States Geological Survey (USGS), 1996, State of Alaska Map A, 1:5,000,000 series, topographic map, Anchorage, Alaska.

_____, August 10,1999, *Groundwater Site Inventory Database Search*, conducted by Eric Kletka.

_____, 1993a, Anchorage (C-6 NW) Quadrangle, 1:25,000 series, topographic map, Anchorage, Alaska.

_____, 1993b, Anchorage (C-7 NE) Quadrangle, 1:25,000 series, topographic map, Anchorage, Alaska.

_____, 1992a, Anchorage (C-6 SW) Quadrangle, 1:25,000 series, topographic map, Anchorage, Alaska.

_____, 1992b, Anchorage (C-7 SE) Quadrangle, 1:25,000 series, topographic map, Anchorage, Alaska.

_____, 1987, Anchorage (C-6) Quadrangle,, 1:63,360 series, topographic map, Anchorage, Alaska.

_____, 1962, Anchorage (C-7) Quadrangle,, 1:63,360 series, topographic map, Anchorage, Alaska.

_____, 1960, *Geology and Groundwater Resources of the Matanuska Valley Agricultural Area, Alaska*, Geological Survey Water-Supply Paper 1494.

Woodward-Clyde Consultants (WCC), April 1995, *Phase I Environmental Site Assessment, Neklason Lake Communications Site,* prepared for AT&T, Basking Ridge, New Jersey.

ATTACHMENT A

PHOTOGRAPHIC DOCUMENTATION

PHOTOGRAPH IDENTIFICATION SHEET

Camera Serial #: 52712087 **TDD #: 98-07-0021**
Lens Type: Minolta Freedom Zoom 140 EX **Site Name: Neklason Lake RR**

Photo	Date	Time	Photographer	Direction	Description and Orientation
1	06/02/99	1253	B. Martich	Northwest	Location of sample No. 99060001.
2	06/02/99	1302	B. Martich	Down	Location of sample No. 99060002.
3	06/02/99	1310	B. Martich	Down	Location of sample No. 99060003.
4	06/02/99	1320	B. Martich	Down	Location of sample No. 99060004.
5	06/02/99	1326	B. Martich	North	Location of former barracks.
6	06/02/99	1328	B. Martich	North	Berm from the northern dump site/fire pit.
7	06/02/99	1332	B. Martich	Southeast	Location of former barracks.
8	06/02/99	1344	B. Martich	East	Southern dump site/fire pit.
9	06/02/99	1401	B. Martich	Southeast	Location of sample No. 99060005.
10	06/02/99	1404	B. Martich	Southwest	Garage where PCBs were formerly used.
11	06/02/99	1404	B. Martich	Southwest	Area of PCB-contaminated soil that was excavated in 1998.
12	06/02/99	1405	B. Martich	Southeast	Location of a former antenna.
13	06/02/99	1407	B. Martich	East	The remaining Air Force antenna and communications building.
14	06/02/99	1409	B. Martich	Southeast	Concrete foundation of the former 300-gallon water tank.
15	06/02/99	1410	B. Martich	Southwest	Concrete foundation of the former maintenance shed.
16	06/02/99	1412	B. Martich	Southwest	Active communications building.
17	06/02/99	1417	B. Martich	South	Concrete pad of the former antenna and the heated storage shed.
18	06/02/99	1436	B. Martich	Southwest	Fallen antenna that has not been removed from the site.

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'99 8 6

4

5

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8
'98 6 2

'99 6 2

11

'99 6 2

13

14
'99 6 2

'93 6 2

16

17

18

ATTACHMENT B

LIST OF COMPOUNDS ANALYZED

Polynuclear Aromatic Hydrocarbons (PAHs)
Naphthalene
2-Methylnaphthalene
Acenaphthylene
Acenaphthene
Fluorene
Phenanthrene
Anthracene
Fluoranthene
Pyrene
Benzo(a)anthracene
Chrysene
Benzo(b)fluoranthene
Benzo(k)fluoranthene
Benzo(a)pyrene
Indeno(1,2,3-cd)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

Polychlorinated Biphenyls (PCBs)
Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260

Total Petroleum Hydrocarbons (TPHs)
TPHs

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ATTACHMENT C

ANALYTICAL DATA FORMS

1B EPA SAMPLE

SEMIVOLATILE ORGANICS ANALYSIS DATA

99060001

Laboratory: Onsite Environmental Inc. Contract E & E

Lab ID: OSE Case: KJ0104 SDG#: 06-038

Matrix: SOIL Lab Sample ID: 06-038-01

Sample Amount: 30 (g/ml) G Lab File ID: 0609003.D

Level: LOW Date Received: 06/07/99

% Moisture: 25 Date Extracted: 06/08/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/09/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

CAS Number	COMPOUND NAME	CONCENTRATION UG/KG	FLAG
91-20-3	Naphthalene	44	U
91-57-6	2-Methylnaphthalene	44	U
208-96-8	Acenaphthylene	44	U
83-32-9	Acenaphthene	44	U
86-73-7	Fluorene	44	U
85-01-8	Phenanthrene	44	U
120-12-7	Anthracene	44	U
206-44-0	Fluoranthene	44	U
129-00-0	Pyrene	44	U
56-55-3	Benzo[a]anthracene	44	U
218-01-9	Chrysene	44	U
205-99-2	Benzo[b]fluoranthene	44	U
207-08-9	Benzo[k]fluoranthene	44	U
50-32-8	Benzo[a]pyrene	44	U
193-39-5	Indeno[1,2,3-cd]pyrene	44	U
53-70-3	Dibenz[a,h]anthracene	44	U
191-24-2	Benzo[g,h,i]perylene	44	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA

SAMPLE ID:

99060002

Laboratory: Onsite Environmental Inc. Contract: E & E

Lab ID: OSE Case: KJ0104 SDG #: 06-038

Matrix: SOIL Lab Sample ID: 06-038-02

Sample Amount: 30 (g/ml) g Lab File ID: 0617020.D

Level: LOW Date Received: 06/07/99

% Moisture: 25 Date Extracted: 06/08/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/17/99

Injection Volume: 1.0 (uL) Dilution Factor: 2.0

CAS NUMBER	COMPOUND NAME	CONCENTRATION UG/KG	FLAG
91-20-3	Naphthalene	89	U
91-57-6	2-Methylnaphthalene	89	U
208-96-8	Acenaphthylene	89	U
83-32-9	Acenaphthene	89	U
86-73-7	Fluorene	89	U
85-01-8	Phenanthrene	89	U
120-12-7	Anthracene	89	U
206-44-0	Fluoranthene	89	U
129-00-0	Pyrene	89	U
56-55-3	Benzo[a]anthracene	89	U
218-01-9	Chrysene	89	U
205-99-2	Benzo[b]fluoranthene	89	U
207-08-9	Benzo[k]fluoranthene	89	U
50-32-8	Benzo[a]pyrene	89	U
193-39-5	Indeno[1,2,3-cd]pyrene	89	U
53-70-3	Dibenz[a,h]anthracene	89	U
191-24-2	Benzo[g,h,i]perylene	89	U

1B EPA SAMPLE

SEMIVOLATILE ORGANICS ANALYSIS DATA

99060003

Laboratory: Onsite Environmental Inc. Contract E & E

Lab ID: OSE Case: KJ0104 SDG#: 06-038

Matrix: SOIL Lab Sample ID: 06-038-03

Sample Amount: 30 (g/ml) G Lab File ID: 0609007.D

Level: LOW Date Received: 06/07/99

% Moisture: 34 Date Extracted: 06/08/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/09/99

Injection Volume: 1.0 (uL) Dilution Factor: 2.0

CAS Number	COMPOUND NAME	CONCENTRATION UG/KG	FLAG
91-20-3	Naphthalene	100	U
91-57-6	2-Methylnaphthalene	100	U
208-96-8	Acenaphthylene	100	U
83-32-9	Acenaphthene	100	U
86-73-7	Fluorene	100	U
85-01-8	Phenanthrene	100	U
120-12-7	Anthracene	100	U
206-44-0	Fluoranthene	100	U
129-00-0	Pyrene	100	U
56-55-3	Benzo[a]anthracene	100	U
218-01-9	Chrysene	100	U
205-99-2	Benzo[b]fluoranthene	100	U
207-08-9	Benzo[k]fluoranthene	100	U
50-32-8	Benzo[a]pyrene	100	U
193-39-5	Indeno[1,2,3-cd]pyrene	100	U
53-70-3	Dibenz[a,h]anthracene	100	U
191-24-2	Benzo[g,h,i]perylene	100	U

1B EPA SAMPLE

SEMIVOLATILE ORGANICS ANALYSIS DATA

99060004

Laboratory: Onsite Environmental Inc. Contract E & E

Lab ID: OSE Case: KJ0104 SDG#: 06-038

Matrix: SOIL Lab Sample ID: 06-038-04

Sample Amount: 30 (g/ml) G Lab File ID: 0608019.D

Level: LOW Date Received: 06/07/99

% Moisture: 28 Date Extracted: 06/08/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/08/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

CAS Number	COMPOUND NAME	CONCENTRATION UG/KG	FLAG
91-20-3	Naphthalene	46	U
91-57-6	2-Methylnaphthalene	46	U
208-96-8	Acenaphthylene	46	U
83-32-9	Acenaphthene	46	U
86-73-7	Fluorene	46	U
85-01-8	Phenanthrene	46	U
120-12-7	Anthracene	46	U
206-44-0	Fluoranthene	46	U
129-00-0	Pyrene	46	U
56-55-3	Benzo[a]anthracene	46	U
218-01-9	Chrysene	46	U
205-99-2	Benzo[b]fluoranthene	46	U
207-08-9	Benzo[k]fluoranthene	46	U
50-32-8	Benzo[a]pyrene	46	U
193-39-5	Indeno[1,2,3-cd]pyrene	46	U
53-70-3	Dibenz[a,h]anthracene	46	U
191-24-2	Benzo[g,h,i]perylene	46	U

1B EPA SAMPLE

SEMIVOLATILE ORGANICS ANALYSIS DATA

99060005

Laboratory: Onsite Environmental Inc. Contract E & E

Lab ID: OSE Case: KJ0104 SDG#: 06-038

Matrix: SOIL Lab Sample ID: 06-038-05

Sample Amount: 30 (g/ml) G Lab File ID: 0609004.D

Level: LOW Date Received: 06/07/99

% Moisture: 6 Date Extracted: 06/08/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/09/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

CAS Number	COMPOUND NAME	CONCENTRATION UG/KG	FLAG
91-20-3	Naphthalene	35	U
91-57-6	2-Methylnaphthalene	35	U
208-96-8	Acenaphthylene	35	U
83-32-9	Acenaphthene	35	U
86-73-7	Fluorene	35	U
85-01-8	Phenanthrene	35	U
120-12-7	Anthracene	35	U
206-44-0	Fluoranthene	35	U
129-00-0	Pyrene	35	U
56-55-3	Benzo[a]anthracene	35	U
218-01-9	Chrysene	35	U
205-99-2	Benzo[b]fluoranthene	35	U
207-08-9	Benzo[k]fluoranthene	35	U
50-32-8	Benzo[a]pyrene	35	U
193-39-5	Indeno[1,2,3-cd]pyrene	35	U
53-70-3	Dibenz[a,h]anthracene	35	U
191-24-2	Benzo[g,h,i]perylene	35	U

1 PCB
PCB ANALYSIS DATA SHEET

SAMPLE NO.
99060001

Lab Name: ONSITE ENVIRONMENTAL INC. Contract: E&E

Project No.: KJ04 Group: 06-038S

Matrix: (soil/water) SOIL Lab Sample ID: 06-038-01

Sample wt/vol: 20 (g/mL) g Lab File ID: 0611 009.D

Level: (low/med) LOW Date Received: 6/7/99

% Moisture: 25 decanted: (Y/N): N Date Extracted: 6/10/99

Concentrated Extract Volume: 20000 (uL) Date Analyzed: 6/11/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
Aroclor 1016	67	U
Aroclor 1221	67	U
Aroclor 1232	67	U
Aroclor 1242	67	U
Aroclor 1248	67	U
Aroclor 1254	67	U
Aroclor 1260	67	U

1 PCB
PCB ANALYSIS DATA SHEET

SAMPLE NO.
99060002

Lab Name: ONSITE ENVIRONMENTAL INC. Contract: E&E

Project No.: KJ04 Group: 06-038S

Matrix: (soil/water) SOIL Lab Sample ID: 06-038-02

Sample wt/vol: 20 (g/mL) g Lab File ID: 0611 010.D

Level: (low/med) LOW Date Received: 6/7/99

% Moisture: 25 decanted: (Y/N): N Date Extracted: 6/10/99

Concentrated Extract Volume: 20000 (uL) Date Analyzed: 6/11/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
Aroclor 1016	67	U
Aroclor 1221	67	U
Aroclor 1232	67	U
Aroclor 1242	67	U
Aroclor 1248	67	U
Aroclor 1254	67	U
Aroclor 1260	67	U

1 PCB
PCB ANALYSIS DATA SHEET

SAMPLE NO.
99060003

Lab Name: ONSITE ENVIRONMENTAL INC. Contract: E&E

Project No.: KJ04 Group: 06-038S

Matrix: (soil/water) SOIL Lab Sample ID: 06-038-03

Sample wt/vol: 20 (g/mL) g Lab File ID: 0611 013.D

Level: (low/med) LOW Date Received: 6/7/99

% Moisture: 34 decanted: (Y/N): N Date Extracted: 6/10/99

Concentrated Extract Volume: 20000 (uL) Date Analyzed: 6/11/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

Concentration Units:

Compound	ug/L or ug/Kg	ug/Kg	Q
Aroclor 1016		76	U
Aroclor 1221		76	U
Aroclor 1232		76	U
Aroclor 1242		76	U
Aroclor 1248		76	U
Aroclor 1254		76	U
Aroclor 1260		76	U

1 PCB
PCB ANALYSIS DATA SHEET

SAMPLE NO.
99060004

Lab Name: ONSITE ENVIRONMENTAL INC. Contract: E&E

Project No.: KJ04 Group: 06-038S

Matrix: (soil/water) SOIL Lab Sample ID: 06-038-04

Sample wt/vol: 20 (g/mL) g Lab File ID: 0611 014.D

Level: (low/med) LOW Date Received: 6/7/99

% Moisture: 28 decanted: (Y/N): N Date Extracted: 6/10/99

Concentrated Extract Volume: 20000 (uL) Date Analyzed: 6/11/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

Concentration Units:

Compound	(ug/L or ug/Kg) ug/Kg	Q
Aroclor 1016	69	U
Aroclor 1221	69	U
Aroclor 1232	69	U
Aroclor 1242	69	U
Aroclor 1248	69	U
Aroclor 1254	69	U
Aroclor 1260	69	U

1 PCB
PCB ANALYSIS DATA SHEET

SAMPLE NO.
99060005

Lab Name: ONSITE ENVIRONMENTAL INC. Contract: E&E

Project No.: KJ04 Group: 06-038S

Matrix: (soil/water) SOIL Lab Sample ID: 06-038-05

Sample wt/vol: 20 (g/mL) g Lab File ID: 0611 015.D

Level: (low/med) LOW Date Received: 6/7/99

% Moisture: 6 decanted: (Y/N): N Date Extracted: 6/10/99

Concentrated Extract Volume: 20000 (uL) Date Analyzed: 6/11/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
Aroclor 1016	53	U
Aroclor 1221	53	U
Aroclor 1232	53	U
Aroclor 1242	53	U
Aroclor 1248	53	U
Aroclor 1254	53	U
Aroclor 1260	290	

1 WTPH-418.1
TOTAL PETROLEUM HYDROCARBONS ANALYSIS DATA SHEET

SAMPLE NO.
99060001

Lab Name: ONSITE ENVIRONMENTAL INC. Contract: E&E

Project No.: KJ0104 Group: 06-038S

Matrix: (soil/water) SOIL Lab Sample ID: 06-038-01

Sample wt/vol: 20.0 (g/mL) G

Date Received: 6/7/99

% Moisture: 25 decanted: (Y/N): N Date Extracted: 6/8/99

Concentrated Extract Volume: 100 (mL) Date Analyzed: 6/8/99

Dilution Factor: 1.0

Concentration Units:

Compound	(ug/L or mg/Kg) mg/Kg	Q
Total Petroluem Hydrocarbons	33	U

FORM I TPH

3/90

1 WTPH-418.1
TOTAL PETROLEUM HYDROCARBONS ANALYSIS DATA SHEET

SAMPLE NO.
99060002

Lab Name: ONSITE ENVIRONMENTAL INC. Contract: E&E

Project No.: KJ0104 Group: 06-038S

Matrix: (soil/water) SOIL Lab Sample ID: 06-038-02

Sample wt/vol: 20.0 (g/mL) G

Date Received: 6/7/99

% Moisture: 25 decanted: (Y/N): N Date Extracted: 6/8/99

Concentrated Extract Volume: 100 (mL) Date Analyzed: 6/8/99

Dilution Factor: 1.0

Concentration Units:

Compound	(ug/L or mg/kg)	mg/kg	Q
Total Petroluem Hydrocarbons		33	U

1 WTPH-418.1
TOTAL PETROLEUM HYDROCARBONS ANALYSIS DATA SHEET

SAMPLE NO.
99060003

Lab Name: ONSITE ENVIRONMENTAL INC. Contract: E&E

Project No.: KJ0104 Group: 06-038S

Matrix: (soil/water) SOIL Lab Sample ID: 06-038-03

Sample wt/vol: 20.0 (g/mL) G

Date Received: 6/7/99

% Moisture: 34 decanted: (Y/N): N Date Extracted: 6/8/99

Concentrated Extract Volume: 100 (mL) Date Analyzed: 6/8/99

Dilution Factor: 1.0

Concentration Units:

Compound	ug/L or mg/Kg	mg/Kg	Q
Total Petroluem Hydrocarbons		70	

1 WTPH-418.1
TOTAL PETROLEUM HYDROCARBONS ANALYSIS DATA SHEET

SAMPLE NO.
99060004

Lab Name: ONSITE ENVIRONMENTAL INC. Contract: E&E

Project No.: KJ0104 Group: 06-038S

Matrix: (soil/water) SOIL Lab Sample ID: 06-038-04

Sample wt/vol: 20.0 (g/mL) G

Date Received: 6/7/99

% Moisture: 28 decanted: (Y/N): N Date Extracted: 6/8/99

Concentrated Extract Volume: 100 (mL) Date Analyzed: 6/8/99

Dilution Factor: 1.0

Concentration Units:

Compound	(ug/L or mg/Kg) mg/Kg	U
Total Petroluem Hydrocarbons	54	

1 WTPH-418.1
TOTAL PETROLEUM HYDROCARBONS ANALYSIS DATA SHEET

SAMPLE NO.
99060005

Lab Name: ONSITE ENVIRONMENTAL INC. Contract: E&E

Project No.: KJ0104 Group: 06-038S

Matrix: (soil/water) SOIL Lab Sample ID: 06-038-05

Sample wt/vol: 20.0 (g/mL) G

Date Received: 6/7/99

% Moisture: 6 decanted: (Y/N): N Date Extracted: 6/8/99

Concentrated Extract Volume: 100 (mL) Date Analyzed: 6/8/99

Dilution Factor: 1.0

Compound	Concentration Units: (ug/L or mg/Kg) mg/Kg	Q
Total Petroluem Hydrocarbons	30	

ATTACHMENT D

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ECOLOGICAL CHECKLISTS

ECOLOGICAL CHECKLIST #1: GENERAL

1. SITE NAME: Neklason Lake Radio Relay Site

   ADEC LO: _____

2. LOCATION: Palmer, Alaska

3. LATITUDE: 61°37'10"N
4. LONGITUDE: 149°15'30"W

5. APPROXIMATE SITE AREA: 14.42 acres

6. DATES OF SITE VISITS:
   6/2/99
   _____
   _____
   _____

   ❒ ATTACH USGS TOPOGRAPHIC MAP
   ❒ ATTACH AVAILABLE PHOTOS

7. LAND USE ON THE SITE

   _____ % RESIDENTIAL
   _____ % RURAL
   _____ % URBAN
   100 % INDUSTRIAL/COMMERCIAL
   _____ % AGRICULTURAL
   _____ % RECREATIONAL
   _____ % FOREST/WOODED
   _____ % WETLANDS
   _____ % UNDISTURBED
   _____ % OTHER

8. LAND USE SURROUNDING THE SITE

   10 % RESIDENTIAL
   20 % RURAL
   _____ % URBAN
   _____ % INDUSTRIAL/COMMERCIAL
   20 % AGRICULTURAL
   _____ % RECREATIONAL
   40 % FOREST/WOODED
   _____ % WETLANDS
   _____ % UNDISTURBED
   _____ % OTHER

9. DESCRIBE MOVEMENT OF SOIL ON THE SITE

- ☐ AGRICULTURAL USE
- ☒ NATURAL EVENTS
- ☒ EROSION
- ☒ HEAVY EQUIPMENT
- ☐ MINING
- ☐ OTHER

10. IDENTIFY SENSITIVE ENVIRONMENTS
(PLEASE SEE SECTION 4.2.4.2 State Sensitive Environments AND 4.2.4.3 Federal Sensitive Environments)

_____
_____
_____
_____
_____
_____
_____

11. POTENTIAL ROUTES OF OFF-SITE MIGRATION

- ☐ SWALES
- ☒ RUNOFF
- ☒ DEPRESSIONS
- ☒ WINDBLOWN PARTICULATES
- ☐ DRAINAGE DITCHES
- ☒ VEHICULAR TRAFFIC
- ☐ OTHER _____

12. DEPTH OF WATER TABLE_____

13. IDENTIFY WATER BODIES ON THE VICINITY OF THE SITE

14. EVIDENCE OF FLOODING

- ☐ YES
- ☒ NO

ECOLOGICAL CHECKLIST #2: TERRESTRIAL

A. WOODED AREAS

1. ARE THERE WOODED AREAS AT THE SITE
   - ☒ YES
   - ❒ NO

2. PERCENTAGE OF SITE WOODED
   __10__ %
   _____ acres

3. DOMINANT TYPE OF VEGETATION
   - ☒ DECIDUOUS
   - ❒ MIXED
   - ❒ OTHER_____

4. DOMINANT TREE SIZE BY DIAMETER
   - ❒ 0-6 INCH
   - ☒ 6-12 INCH
   - ❒ > 12 INCH

B. SHRUB/SCRUB

1. IS THERE SHRUB/SCRUB VEGETATION PRESENT AT THE SITE
   - ❒ YES
   - ☒ NO

2. PERCENTAGE OF SITE COVERED WITH SHRUB/SCRUB
   _____ %
   _____ acres

3. DOMINANT TYPE OF VEGETATION
   - ❒
   - ❒

4. DOMINANT HEIGHT OF SHRUB/SCRUB VEGETATION
   - ❒ 0-2 FEET
   - ❒ 2-5 FEET
   - ❒ > 5 FEET

5. SHRUB/SCRUB DENSITY
   - ❒ DENSE
   - ❒ PATCHY
   - ❒ SPARSE

C. OPEN AREAS

1. ARE THERE OPEN (BARE, BARREN) FIELD AREAS PRESENT AT THE SITE
   - ☒ YES
   - ❒ NO

2. PERCENTAGE OF SITE OPEN FIELD
   90 %
   _____ acres

3. DOMINANT TYPE OF PLANT
   - ❒ Grasses
   - ❒
   - ❒

4. DOMINANT HEIGHT OF DOMINANT PLANT
   - ☒ 0-2 FEET
   - ❒ 2-5 FEET
   - ❒ > 5 FEET

5. SHRUB/SCRUB DENSITY
   - ☒ DENSE
   - ❒ PATCHY
   - ❒ SPARSE

ECOLOGICAL CHECKLIST #4:
AQUATIC NON-FLOWING SYSTEMS

1. TYPE OF OPEN WATER NON-FLOWING SYSTEMS PRESENT AT SITE
   FLOWING WATER SYSTEMS PRESENT AT SITE
   - ❒ NATURAL
   - ❒ MAN MADE

2. KNOWN USES OF WATER BODY
   - ❒ RECREATIONAL
   - ❒ NAVIGATIONAL
   - ❒ SUBSISTENCE
   - ❒ OTHER

3. APPROXIMATE SIZE OF WATER BODY
   _____ ACRES

4. TYPE OF AQUATIC VEGETATION PRESENT
   - ❒ EMERGENT
   - ❒ SUBMERGENT
   - ❒ FLOATING

5. DEPTH OF WATER
   _____ FEET

6. GENERAL COMPOSITION OF SUBSTRATE
   - ❒ BEDROCK
   - ❒ SAND
   - ❒ SILT
   - ❒ BOULDER
   - ❒ COBBLE
   - ❒ GRAVEL
   - ❒ MARL
   - ❒ CLAY
   - ❒ MUCK
   - ❒ DEBRIS
   - ❒ MUCK
   - ❒ CONCRETE
   - ❒ OTHER

recycled paper

7. SOURCE OF WATER IN THE WATER BODY
   - ❒ RIVER/STREAM/CREEK
   - ❒ GROUNDWATER
   - ❒ SURFACE RUNOFF
   - ❒ INDUSTRIAL DISCHARGE
   - ❒ OTHER

8. DISCHARGE FROM SITE TO WATER BODY
   - ❒ YES
   - ❒ NO

9. DISCHARGE FROM WATER BODY

❒	RIVER STREAM	❒ ON-SITE	❒ OFF-SITE
❒	GROUNDWATER	❒ ON-SITE	❒ OFF-SITE
❒	WETLAND	❒ ON-SITE	❒ OFF-SITE
❒	IMPOUNDMENT	❒ ON-SITE	❒ OFF-SITE

ECOLOGICAL CHECKLIST #5: WETLANDS

1. ANY DESIGNATED OR KNOWN WETLANDS AT THE SITE

   ☐ YES
   ☒ NO

2. ARE WETLAND HABITATS EXPECTED

   ☐ YES
   ☐ NO

3. TYPES OF VEGETATION PRESENT

   ☐ EMERGENT
   ☐ SUBMERGENT
   ☐ SCRUB/SHRUB
   ☐ WOODED
   ☐ OTHER

4. DISCHARGE FROM SITE TO WETLANDS

   ☐ YES
   ☐ NO

5. DISCHARGE FROM WETLAND

☐	RIVER STREAM	☐ ON-SITE	OFF-SITE
☐	GROUNDWATER	ON-SITE	☐ OFF-SITE
☐	LAKE/POND	☐ ON-SITE	☐ OFF-SITE
☐	MARINE	☐ ON-SITE	☐ OFF-SITE