UNITED STATES AIR FORCE
611TH AIR SUPPORT GROUP
611TH CIVIL ENGINEER SQUADRON
ELMENDORF AFB, ALASKA

FINAL

TECHNICAL DOCUMENT TO SUPPORT NO FURTHER ACTION DECISION FOR SITE SS17-BUILDING 102

INSTALLATION RESTORATION PROGRAM (IRP) REMEDIAL INVESTIGATION/FEASIBILITY STUDY

KOTZEBUE LONG RANGE RADAR STATION, ALASKA

JULY 1995

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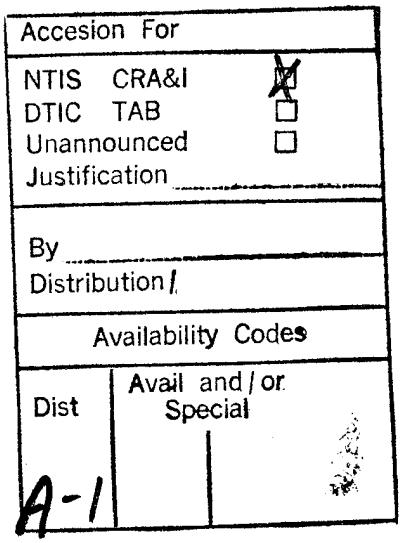

JULY1995

PREPARED BY:

TETRA TECH INC.
15400 NE 90TH, SUITE 100
REDMOND, WA 98052

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Tetra Tech, Inc.

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

Tetra Tech, Inc.
15400 NE 90th Street, Suite 100
Redmond, Washington 98052

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This decision document is to support the No Further Action alternative for Site SS17-Building 102 at the Kotzebue LRRS, Alaska. The purpose of the decision document is to summarize existing data for the site and describe the Air Force's rationale for selecting the no-further-action alternative.

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Technical Document to Support No Further Action Decision for Site SS17-Building 102.

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TECHNICAL DOCUMENT TO SUPPORT NO FURTHER ACTION

SITE NAME AND LOCATION

Installation Restoration Program
Site SS17-Building 102
Kotzebue Long Range Radar Station (LRRS), Kotzebue, Alaska

STATEMENT OF BASIS

This decision is based on the results of several Installation Restoration Program (IRP) investigations conducted at Kotzebue LRRS including:

- IRP Phase I Record Search (USAF 1985)
- IRP Stage I RI/FS (USAF 1990a)
- IRP Stage II RI/FS (USAF 1990b)
- 1994 IRP RI/FS (USAF 1995a)
- 1994 IRP Baseline Human Health and Ecological Risk Assessment (USAF 1995b)

DESCRIPTION OF THE SELECTED REMEDY

Based on the current conditions at IRP Site SS17-Building 102, it has been determined that no significant risk or threat to public health or the environment exists. Therefore, no further action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, is required.

DECLARATION

This DD represents the selected action for this site developed in accordance with CERCLA, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and the National Contingency Plan (NCP). It also satisfies the requirements of the National Environmental Policy Act that apply to CERCLA response actions. It has been determined that the selected remedy of no further action is protective of human health and the environment, attains federal and state requirements that are applicable or relevant and appropriate, and is cost-effective. The statutory preference for further treatment is not satisfied because further treatment was not found to be necessary. Contaminant levels at the site have been determined to present no significant threat to human health or the environment; thus, no treatment is necessary.

_____ Date: _____

Samuel C. Johnson, III, Colonel, USAF
Commander, 611th Air Support Group

1.0 INTRODUCTION

This decision document (DD) supports the No Further Action alternative for Site SS17-Building 102 at the Kotzebue LRRS, Alaska. The purpose of the DD is to summarize the existing data for the site and describe the Air Force's rationale for selecting the No Further Action alternative. The objectives of the DD for Site SS17 are:

- To briefly describe the location, history, and environmental setting of the Kotzebue LRRS and Site SS17;
- To summarize the results from previous Installation Restoration Program (IRP) investigations;
- To describe the current status of Site SS17 based on results of the 1994 Remedial Investigation; and
- To assess the risk to human health and the environment.

This DD is supported by several separate documents prepared for Kotzebue LRRS including, Stage 1 RI/FS Report (USAF 1990a), Stage 2 RI/FS Report (USAF 1990b), RI/FS Report (USAF 1995a), and Baseline Human Health and Ecological Risk Assessment Report (USAF 1995b).

1.1 KOTZEBUE LRRS INSTALLATION DESCRIPTION

The Kotzebue LRRS installation is located 26 miles north of the Arctic Circle, approximately 610 miles northwest of Anchorage and 450 miles west-northwest of Fairbanks, Alaska (Figure 1). The installation occupies 676 acres of land adjacent to Kotzebue Sound on the Baldwin Peninsula within the Kobuk-

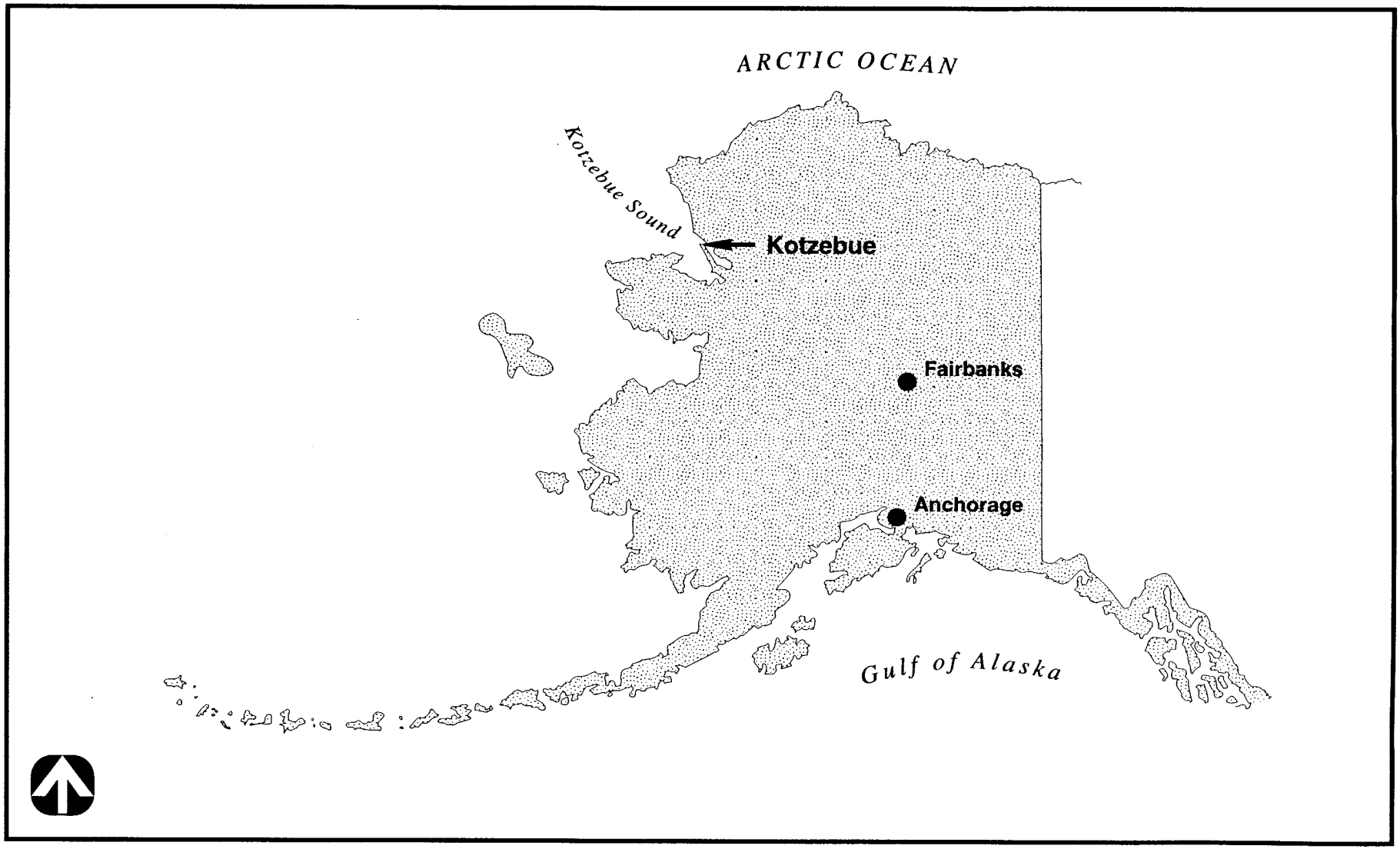


Figure 1. Location of Kotzebue, Alaska.

Selawik Lowland section of Coastal Central Alaska (Figure 2). The LRRS installation, in operation since 1950, operated as a ground-controlled intercept site until 1973, when it was converted to a North American Air Defense Command (NORAD) surveillance station. In 1982, installation of Joint Surveillance System (JSS) equipment enabled radar and beacon data to be transmitted by satellite to the Elmendorf Region Operations Control Center (ROCC), thereby decreasing the number of personnel employed at the site. A Minimally Attended Radar (MAR) system, installed in 1985, enabled deactivation of the site, with the exception of the radome. One radar maintenance technician is currently housed in the nearby City of Kotzebue. Additional personnel provide maintenance on an as-needed basis. Figure 3 provides an illustration of the Kotzebue LRRS facility.

1.2 ENVIRONMENTAL SETTING

Two distinct environmental settings are associated with the Kotzebue LRRS: 1) the beach environment adjacent to Kotzebue Sound, and 2) the tundra hill and surrounding area. Because Kotzebue lies above the Arctic Circle, the environmental setting is dominated by long cold winters with short daylight hours and a short cool summer growing season with extended periods of daylight. The environmental setting of Kotzebue LRRS and the Baldwin Peninsula is discussed in regards to physiography, climate, geologic characteristics, and land use. A more detailed discussion of the environmental setting of Kotzebue Sound and the Baldwin Peninsula including hydrogeologic characteristics, surface water, oceanography, biological habitats, and demographics is provided in the RI/FS Report (USAF 1995a). Site-specific environmental conditions are discussed in Section 2.0, Site SS17-Building 102 Status and Recommendations.

1.2.1 Physiography

Kotzebue LRRS is located on the Baldwin Peninsula, a marine spit that extends into Kotzebue Sound. The Baldwin Peninsula lies within the Kobuk-Selawik Lowland section of Coastal Western Alaska (see Figure 1). This region is characterized by broad river floodplains and lowlands, forming deltas along their seaward margins. The ground surface is composed of moist tundra vegetation, with wet silts and permafrost underlying most of the area (USAF 1990a). Figure 4 is a reproduction of a 1986 aerial photograph of Kotzebue LRRS showing general site features. Figure 5 is a reproduction of a 1980 aerial photograph of the Kotzebue area, showing the City of Kotzebue in relation to the site.

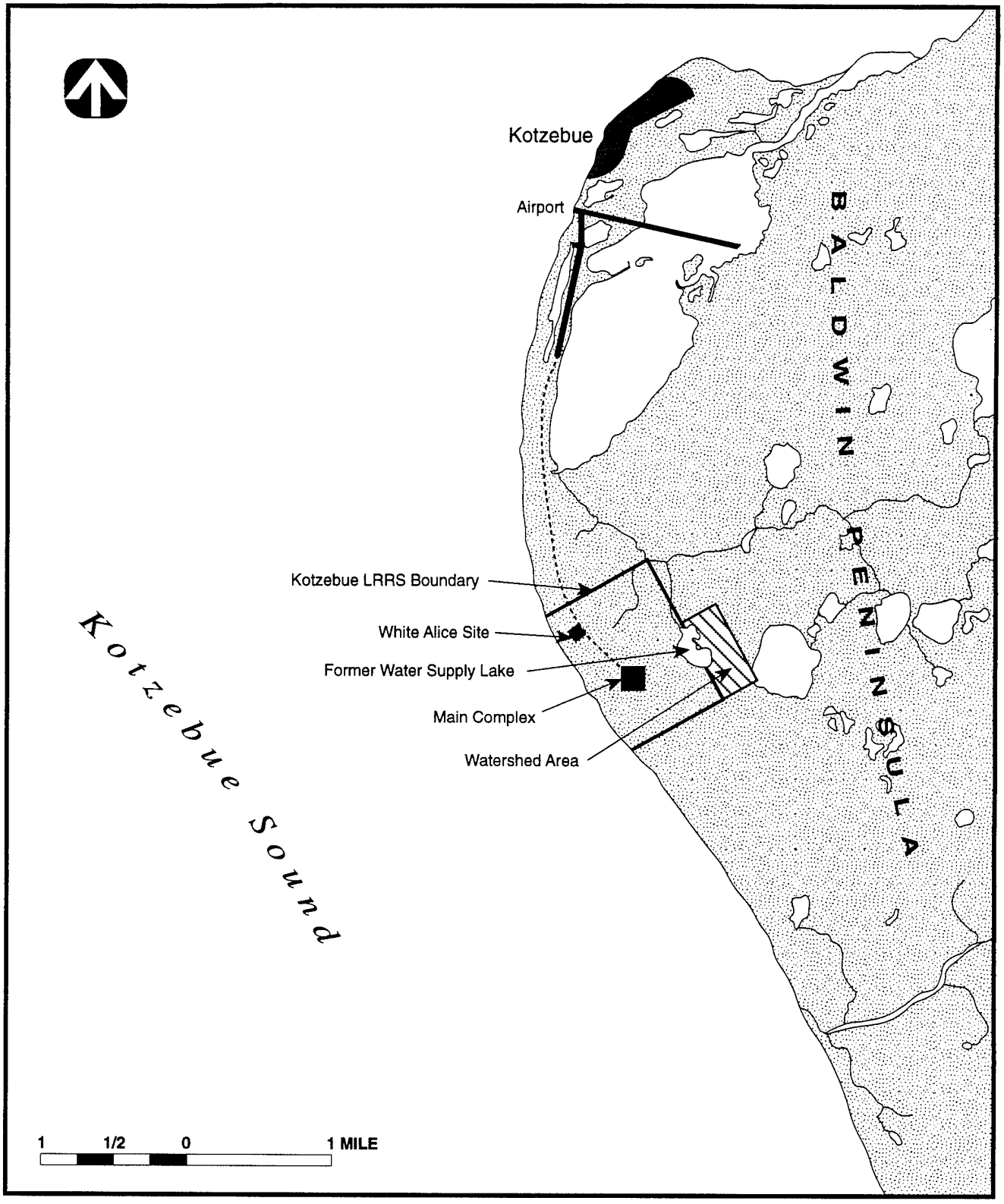


Figure 2. Location of the Kotzebue Long Range Radar Station (LRRS), Alaska.

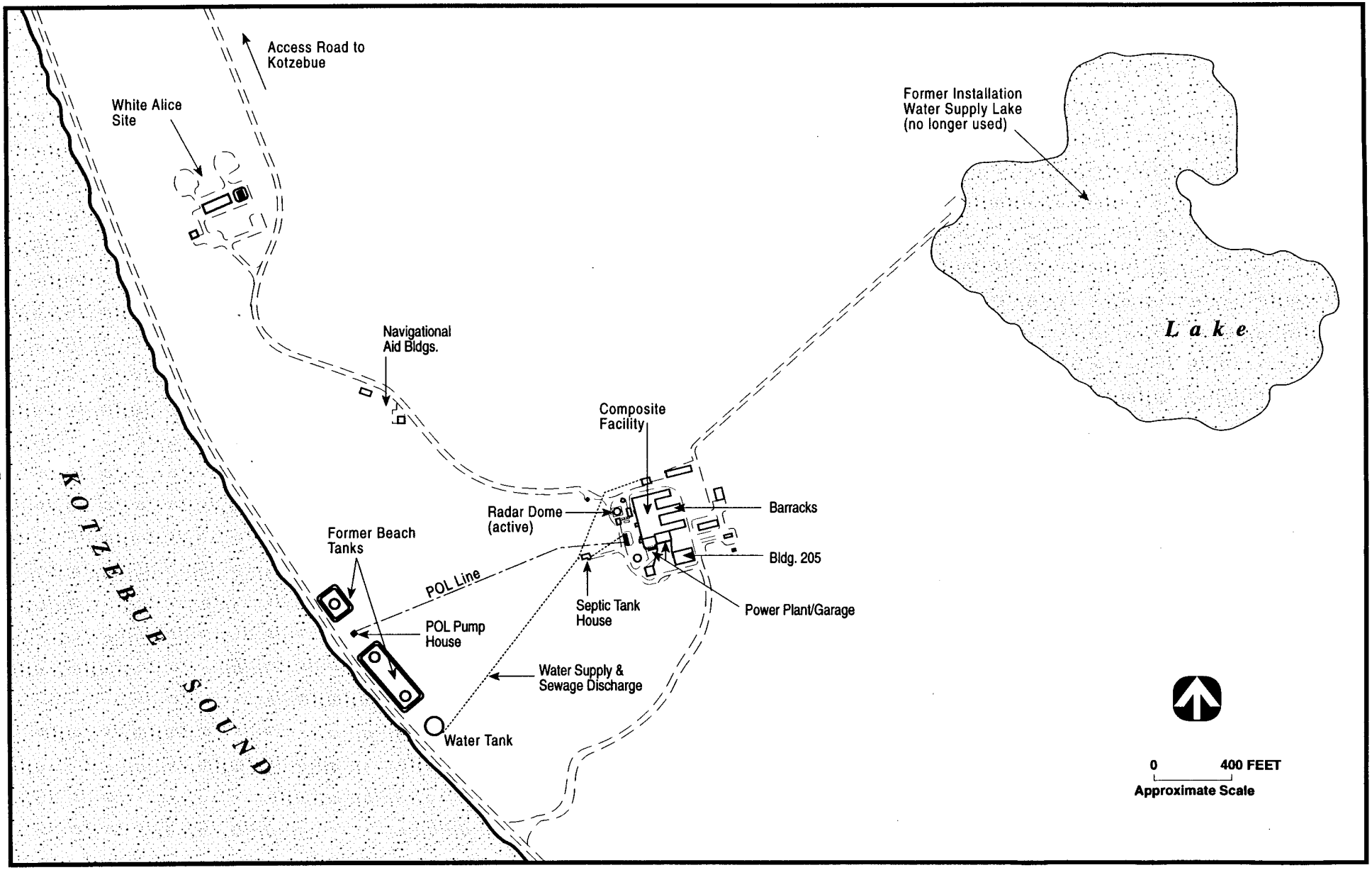


Figure 3. Facility Locations at Kotzebue LRRS, Alaska.

Figure 4. 1986 Aerial Photograph of Kotzebue LRRS (reproduction).

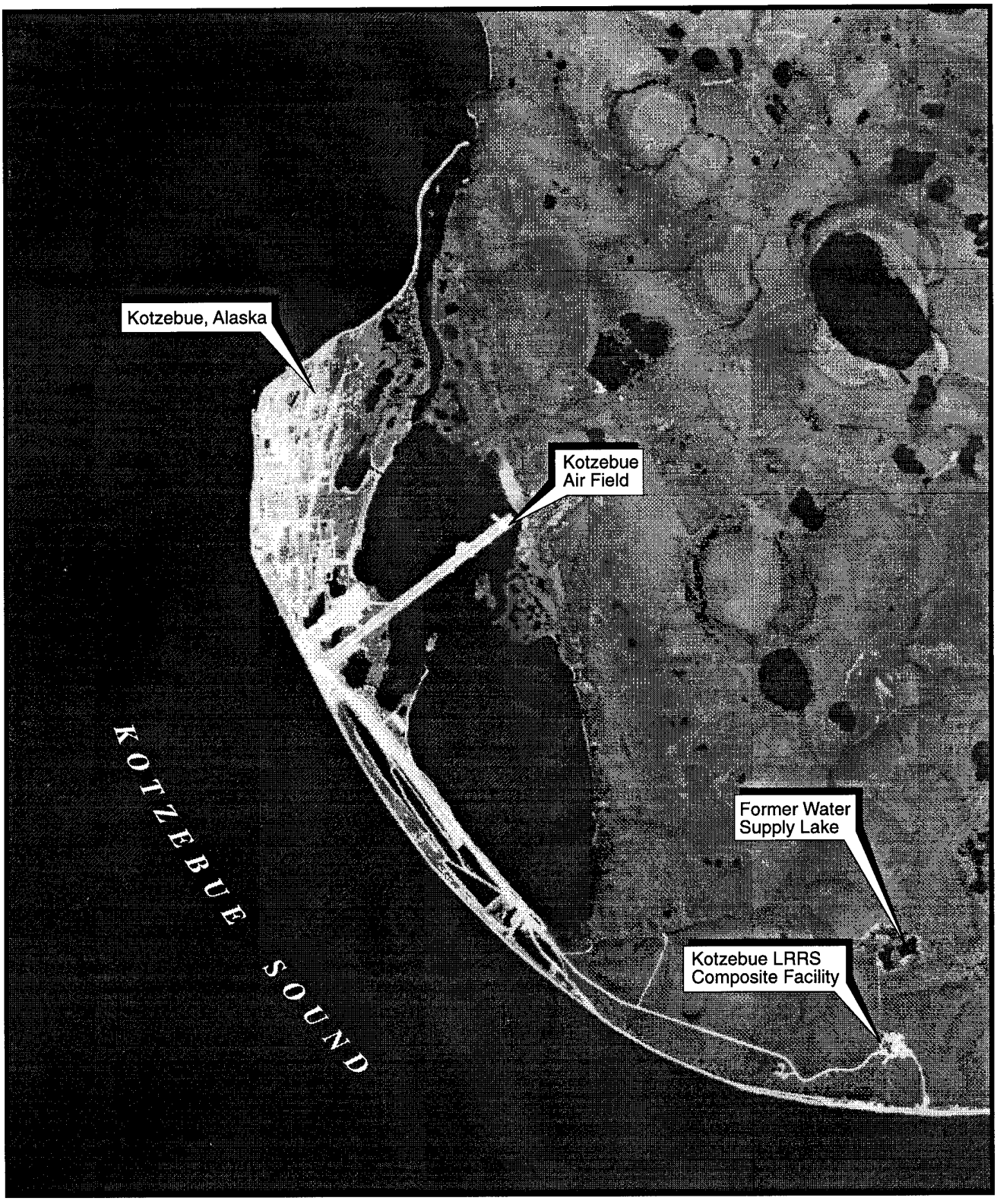


Figure 5. 1980 Aerial Photograph of Kotzebue, Alaska (reproduction).

The maximum topographic relief at Kotzebue LRRS is the crest of the tundra hill (elevation of approximately 155 ft above mean sea level) which extends from the Composite Facility toward Kotzebue Sound. Flooding is not known to have been a problem in the area, although the U.S. Army Corps of Engineers indicated that the site is located in a coastal flood hazard zone as designated by the Federal Insurance Administration (USAF 1990a). Periodic flooding of local beaches and adjacent low-lying areas occurs when high tides and high shoreward winds coincide. However, with the exception of two sites located along the beach area adjacent to Kotzebue Sound, all sites at Kotzebue LRRS are located topographically above anticipated flood zones, at elevations ranging from 120 to 155 ft above mean sea level (MSL).

1.2.2 Climate

The climate of Kotzebue is strongly influenced by the seasonal coverage of sea ice in Kotzebue Sound, which in turn influences water movements and the occurrence and feeding patterns of the migrant and resident organisms that inhabit this region. A maritime climate predominates in summer when the sound is ice-free; a continental climate predominates in winter when the sound is covered with ice. Kotzebue Sound begins to freeze in mid-October and is covered with ice from November to May. Leads begin to develop in the pack ice as early as late May, and typically by late July Kotzebue Sound is free of pack ice. Coastal areas may be covered by shorefast ice for about 8 months of the year. Average annual temperatures range from maximum of 27° F to a minimum of 14° F. The historical record of precipitation indicates relatively low precipitation (mean annual precipitation of 8.5 inches), with over half of the precipitation occurring as rainfall during the summer months of Juy, August, and September. Mean annual snowfall is 43 inches, which occurs primarily during the months of October through April (Selkregg 1975). The total average annual precipitation is approximately 12 inches (USAF 1990a). The maximum 2-year, 24-hour precipitation is 1.8 inches (USAF 1985). No evapotranspiration data are reported for the area. The prevailing wind direction is out of the east-southeast, at an average speed of 11 knots.

1.2.3 Geology

The Baldwin Peninsula is composed of Quaternary glacial deposits with thicknesses exceeding 150 ft. Beaches are composed of sands and gravels, and the relatively straight shorelines are backed by wavecut terraces that form moderately steep sea cliffs in the unconsolidated glacial sediments (Hayes and Ruby 1979). The area around the Kotzebue LRRS is dominated by glacial moraine and drift deposits, which are overlain locally by a thin sandy beach deposit. The moraine and drift deposits are comprised of

clays, silts, sands, and gravels; their total thickness is not known (USAF 1990a). A test well installed by the U.S. Geological Survey in 1950 indicated a silty clay (blue clay) marine deposit approximately 60 feet thick underlying approximately 19 feet of beach gravels at Kotzebue, Alaska (Cederstrom 1961).

Permafrost has been identified at relatively shallow depths, ranging from less than 1 ft in native tundra, to a maximum of 7 ft below ground surface (BGS) at gravel pad sites, located on the tundra hill above the Kotzebue Sound beach area. Frozen ground was encountered at varying depths (i.e., minimum depth encountered was approximately 6 ft below ground surface) during the installation of monitoring wells at the Kotzebue LRRS beach area (USAF 1995a). Permafrost is moderately thick in the Kotzebue area and has been reported to a depth of 238 ft below grade. The permafrost is underlain by fine-grained sediments containing brackish subpermafrost water (Williams 1970).

1.2.4 Land Use

Currently, Kotzebue LRRS is used solely as a minimally attended radar facility, with no active housing facilities or military presence. PMC-Frontec is responsible for maintenance of the active portion of the installation, including the radar facility and nearby structures which are completely fenced and secure.

The property occupied by Kotzebue LRRS is not used by other private or governmental agencies, with the exception of the Navigational Aid Building 101 currently used to house experimental equipment belonging to the Geophysical Institute at the University of Alaska. The area provides suitable habitat for a wide variety of wildlife, and subsistence and recreational use may occur within or near installation boundaries. Subsistence use may include berry picking in adjacent tundra wetlands, terrestrial hunting along the tundra hill and surrounding area, and marine hunting and fishing along the Kotzebue Sound beach area. Recreational uses may include all terrain vehicle (ATV) use along roads and beach areas, summer picnicking and wading along beach areas, beach combing, and recreational hunting and fishing. Additionally, the beach area near Kotzebue LRRS has been reportedly used as a staging area for commercial fishing of chum salmon and as a rifle range by local residents (USAF 1993).

Kotzebue LRRS is anticipated to maintain radar facility operations at current (or possibly reduced) levels over the next few years. Remedial actions at IRP sites and demolition of abandoned structures are future activities anticipated at the installation. Future demands on fisheries and wildlife are primarily linked to native subsistence use, with resource management in the area under the jurisdiction of the Alaska

Department of Fish and Game. Future outdoor recreation activities at Kotzebue LRRS and surrounding area are anticipated to be consistent with current recreational uses associated with the area (USAF 1993). Future land use issues and strategies associated with Kotzebue, Alaska and surrounding areas have been considered by the Northwest Arctic Borough (NAB) and are presented in the NAB Comprehensive Plan (NAB 1992).

2.0 SITE SS17-BUILDING 102 STATUS AND RECOMMENDATION

Site SS17-Building 102 is a 72 square foot area of stained soil, located in a gravel driveway at the Navigational Aid Building (Building 102). Site SS17 was formally identified by the USAF based on preliminary PCB field screening results which identified PCBs in stained soil. However, subsequent analytical results for soil samples collected from the stained soil do not indicate the presence of PCBs at the site. It is suspected that elevated concentrations of petroleum hydrocarbons interfered with the PCB field test kits, causing a false positive result. The area of stained soil at Site SS17 is included in the characterization of Site SS16-Navigational Aid Buildings; therefore, no further action is recommended at Site SS17. A No Further Action Decision Document will be prepared for Site SS17.

2.1 SITE DESCRIPTION

Site SS17 is an area of stained soil approximately 6 feet by 12 feet, located in a gravel driveway at the Navigational Aid Building No. 102 (Figure 6). The area of stained soils extends from the gravel drive entrance to the edge of the facility access road. This site is incorporated in the characterization of Site SS16-Navigational Aid Buildings.

2.2 IRP INVESTIGATION SUMMARY

During the 1994 RI, two surface soil samples were collected from within an area of stained soils approximately 6 feet by 12 feet, located at the Navigational Aid Building No. 102 (Figure 7). The samples were screened for PCBs using Dexsil CLOR-N-SOIL™ field test kits. The PCB field test kits provide a colorimetric indication of PCB concentrations equal to or greater than 50 mg/kg in soil. Field screening results detected PCBs in both soil samples collected from the stained soil. Based on these preliminary findings, the USAF formally identified the area of stained soils as Site SS17-Building 102.

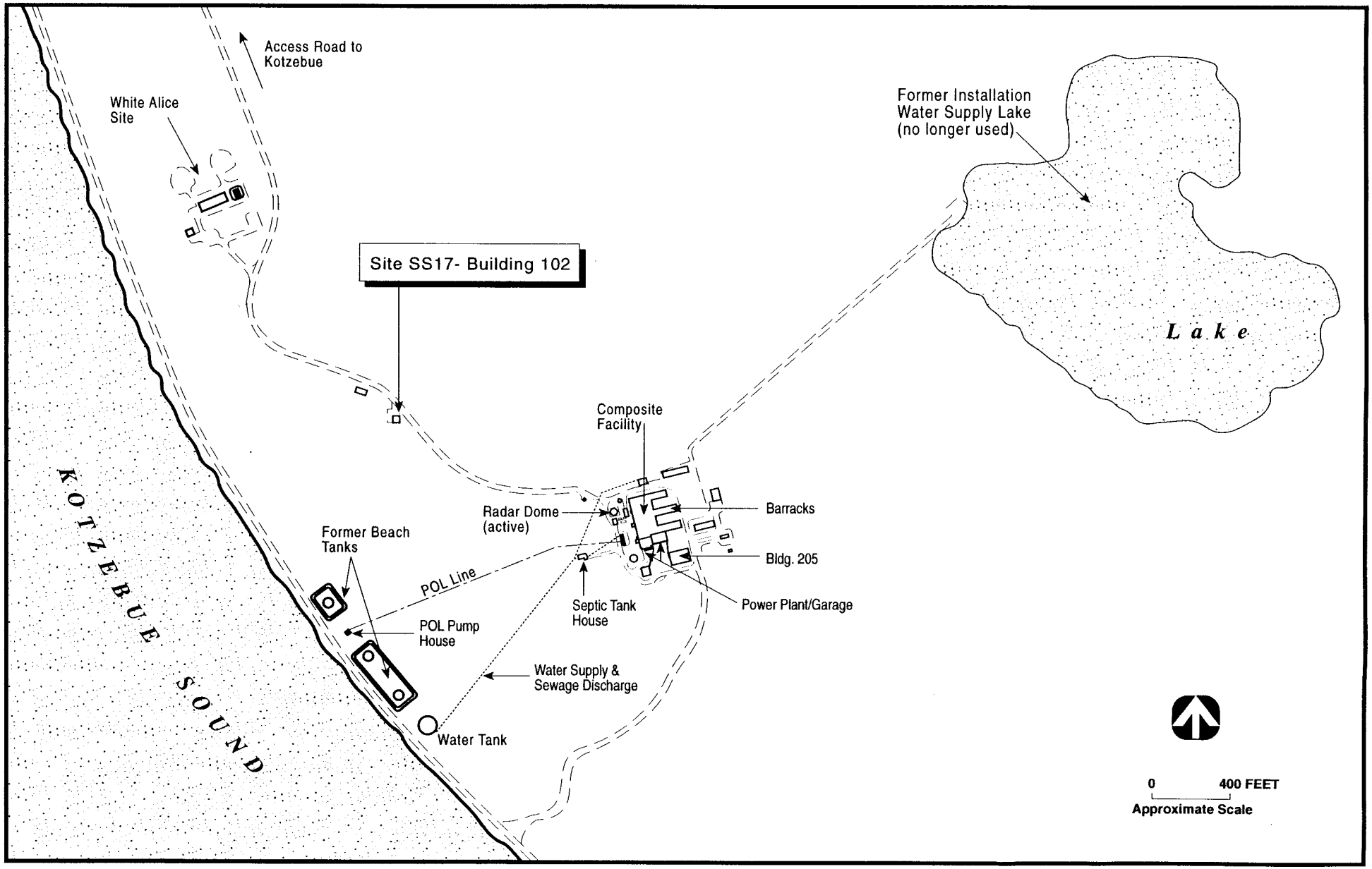
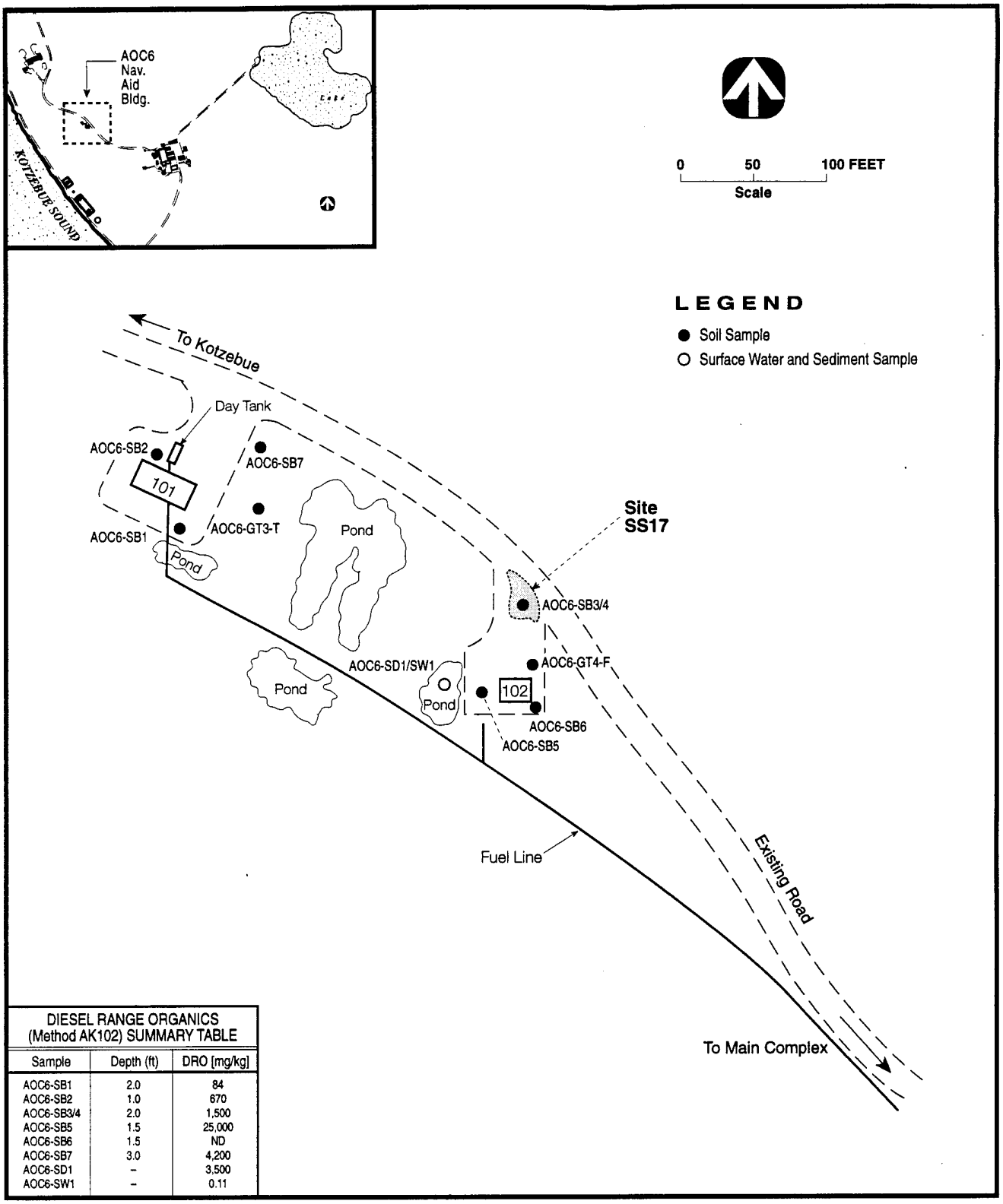


Figure 6. Location of Site SS17-Building 102, Kotzebue LRRS, Alaska.



DIESEL RANGE ORGANICS
(Method AK102) SUMMARY TABLE

Sample	Depth (ft)	DRO [mg/kg]
AOC6-SB1	2.0	84
AOC6-SB2	1.0	670
AOC6-SB3/4	2.0	1,500
AOC6-SB5	1.5	25,000
AOC6-SB6	1.5	ND
AOC6-SB7	3.0	4,200
AOC6-SD1	–	3,500
AOC6-SW1	–	0.11

Figure 7. Location of Sample Stations at Site SS17-Building 102 (AOC6), 1994 Remedial Investigation, Kotzebue LRRS, Alaska.

During the 1994 RI, a soil sample (AOC6-SB3) was collected from the area of stained soil at Building 102 (see Figure 7). Sample AOC6-SB3 was analyzed for diesel range organics (Method AK102), volatile organic compounds (EPA Method SW 8260), semivolatile organic compounds (EPA Method SW 8270), and pesticide and PCBs (EPA Method SW 8081). No PCBs were detected in Sample AOC6-SB3. It is suspected that the petroleum hydrocarbon contamination found in stained soils interfered with the PCB field test kit, causing false positive results. A summary of maximum detected concentrations identified in the single soil sample collected at Site SS17 is provided below:

SUMMARY OF MAXIMUM ORGANIC COMPOUND CONCENTRATIONS DETECTED IN SOIL SAMPLE COLLECTED AT SITE SS17 DURING THE 1994 REMEDIAL INVESTIGATION AT KOTZEBUE LRRS

	Volatile Organics (mg/kg)		Semivolatile Organics (mg/kg)				Pesticides and PCBs (mg/kg)					
Diesel Range Organics (mg/kg)	Methylene Chloride	Toluene	Phenanthrene	Fluoranthene	Pyrene	bis(2-Ethyl-hexyl)-phthalate	Alpha-BHC	4,4'-DDE	4,4'-DDD	4,4'-DDT	Endrin	Heptachlor
1,500	0.007**B**	0.0014**J**	0.6	0.6	0.9	2.4	0.018**X**	0.064	0.14	0.33	0.030	0.0022**X**

Note: Definitions for laboratory reported data qualifiers include the following:

J Indicates an estimated value when the value is less than the Practical Quantitation Limit (PQL) but greater than the Method Detection Limit (MDL).

B Indicates possible/probable blank contamination. Flagged when the analyte is detected in the blank as well as the sample.

X For Pesticides/PCBs: In the opinion of the analyst, the relevant compound was not actually present in the sample, even though it is detected in the sample on both columns, within each compound's respective set of retention time windows.

2.3 REMAINING SITE CONCERNS

State and federal ARARs established to guide the 1994 RI are at least as stringent as those criteria developed during previous IRP investigations at Kotzebue LRRS (see RI/FS Report; USAF 1995a). Petroleum hydrocarbon contamination in gravel fill material is the only environmental concern at the site. Diesel range organics were detected in Sample AOC6-SB3 at 1,500 mg/kg, exceeding the 1,000 mg/kg ADEC soil target level established for Kotzebue LRRS.

2.4 SITE RECOMMENDATIONS

Analytical results did not indicate PCBs are present in the stained soil associated with Site SS17. The area of stained soil at Site SS17 is included in the characterization of Site SS16-Navigational Aid Buildings); therefore, no further action is recommended at Site SS17.

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