



**CAPE ROMANZOF LRRS
ALASKA**

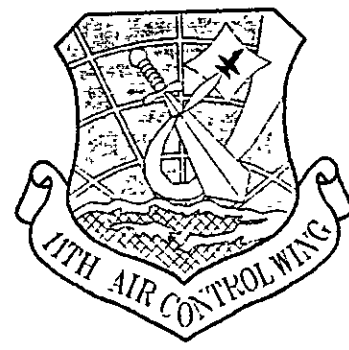
**ADMINISTRATIVE RECORD
COVER SHEET**

AR File Number 15

1992

PRELIMINARY ASSESSMENT
FOR
Cape Romanzof
Long Range Radar Site

11th Civil Engineering
Operations Squadron
Elmendorf AFB, AK



Prepared By 11th
Environmental & Contract Planning Section

FINAL
CAPE ROMANZOF LRRS
PRELIMINARY ASSESSMENT

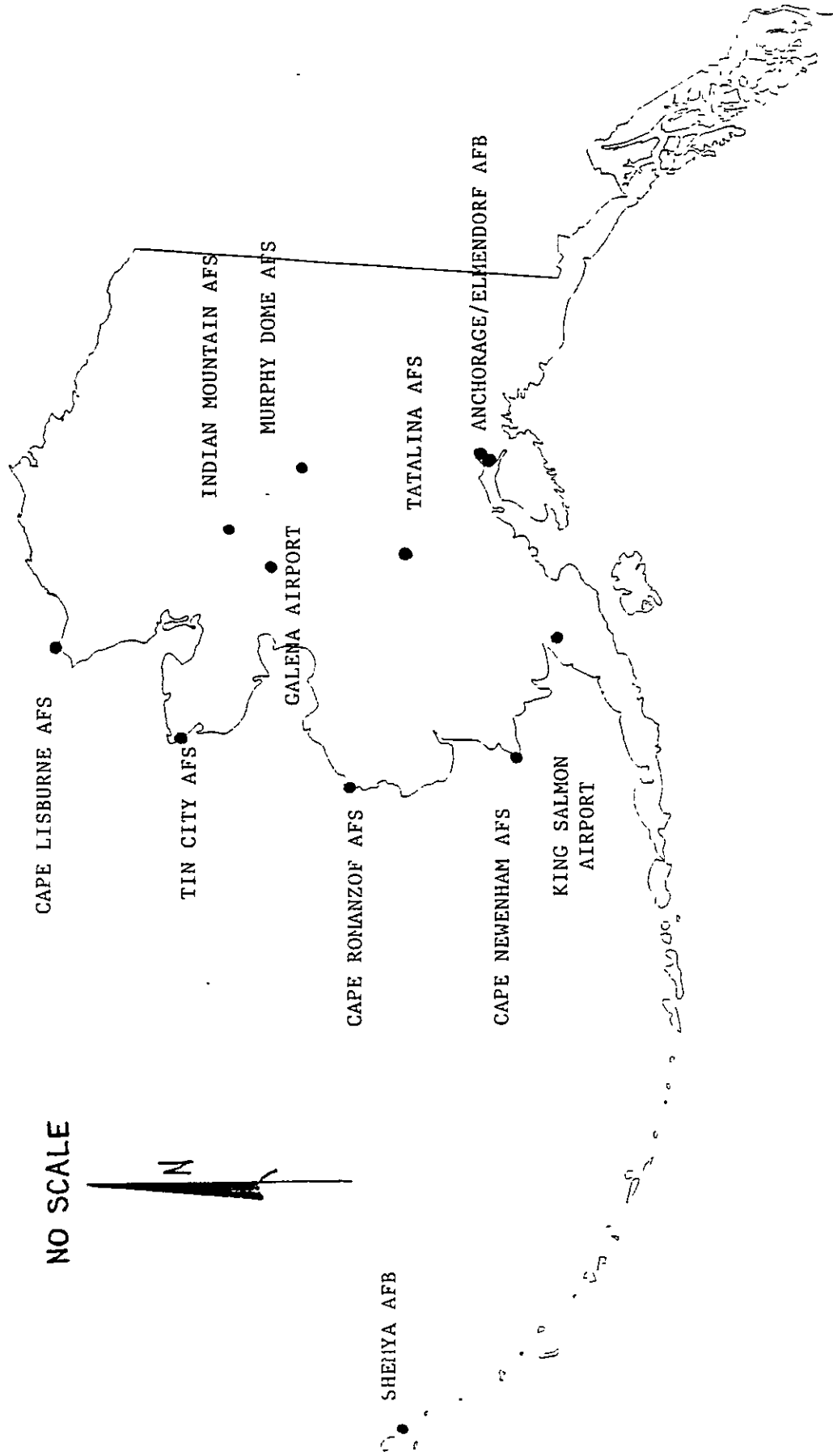
CONTENTS

DESCRIPTION	PAGE
Preliminary Assessment Requirements with Figures 1-8	1-15
References	16
Attachment 1, Harvest, Catch, and Participation in Alaska Fisheries During 1990	

ALASKA

VICINITY MAP

NO SCALE



FINAL
CAPE ROMANZOF LRRS
PRELIMINARY ASSESSMENT

1. EPA QUESTION

Supply copies of all existing sampling data, on-site and off-site, including location map, detection limits (see definitions, pg.5), raw data sheets, QA/QC documents, date(s) sampled, analytical method(s) used, well or boring logs, and sampling techniques(s).

AIR FORCE RESPONSE

See References on Page 16 of this document.

- Figures 1-5 (IRP RI/FS Fig 4-4 through 4-8) are copies of well logs, and geologic information from the Installation Restoration Program, Remedial Investigation/Feasibility Study, Stage I, prepared by Woodward-Clyde Consultants, March 1991.

2. EPA QUESTION

Locate and identify on a topo map all known or suspected sources (see definitions, pg 5). Supply all information about source(s) such as; dates of operation, use, and spillage; amounts of material deposited, stored, or spilled; dimensions of source(s); known or suspected hazardous substances (see definitions, pg 5), etc.

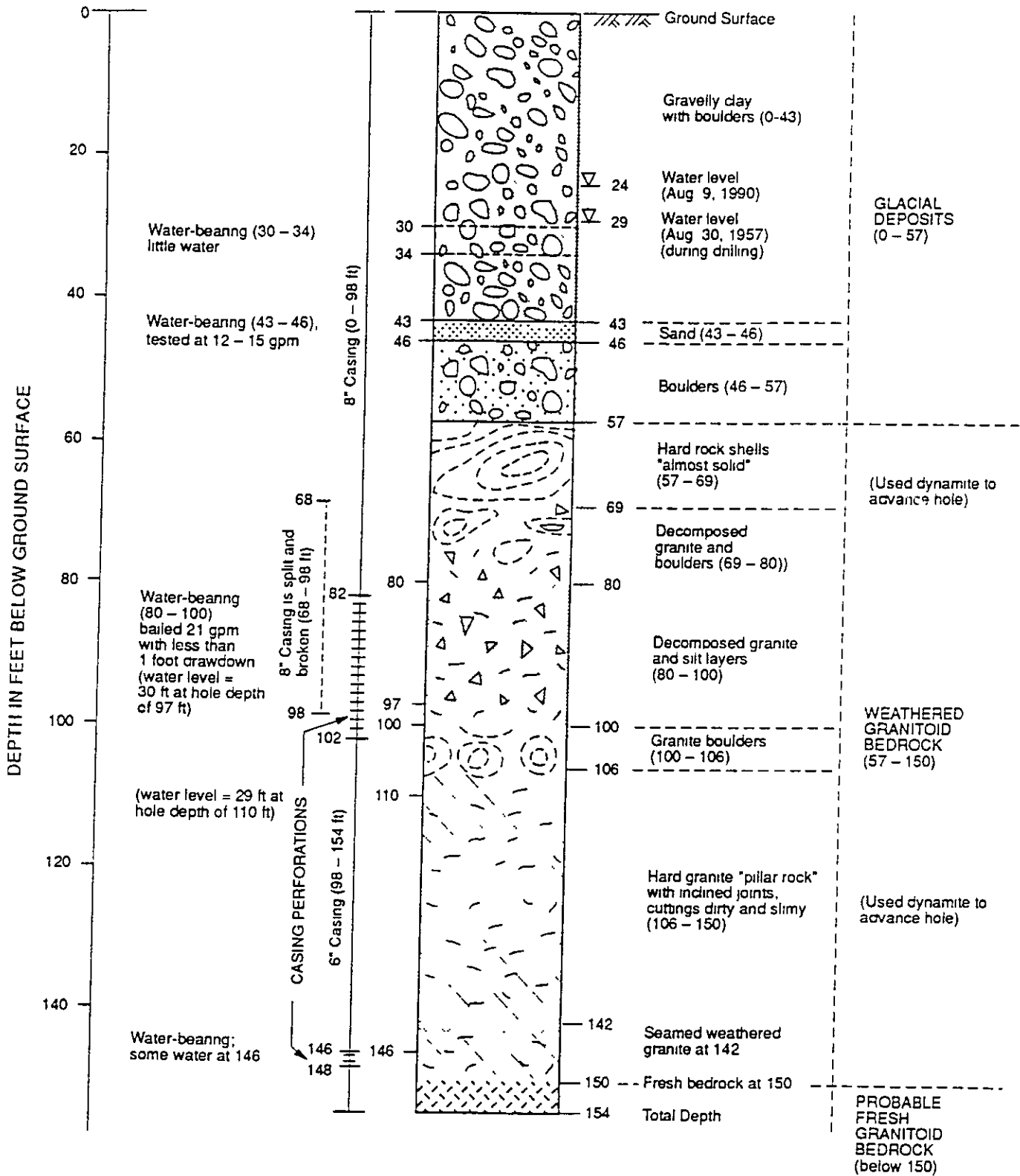
AIR FORCE RESPONSE

- Refer to Figure 6, for the location of the following sources.

- SOURCE 1, WASTE ACCUMULATION AREA NO.3 AND SPILL/LEAKS NO. 3, 5, 6, 7, 8, AND 9:

-- WASTE ACCUMULATION AREA NO. 3: Located south of the access road, across from Waste Accumulation Area No. 2. This area was used from the 1950s through 1982 for storing drummed products and liquid wastes. Historically, the area received leaking drums which caused spills within the area.

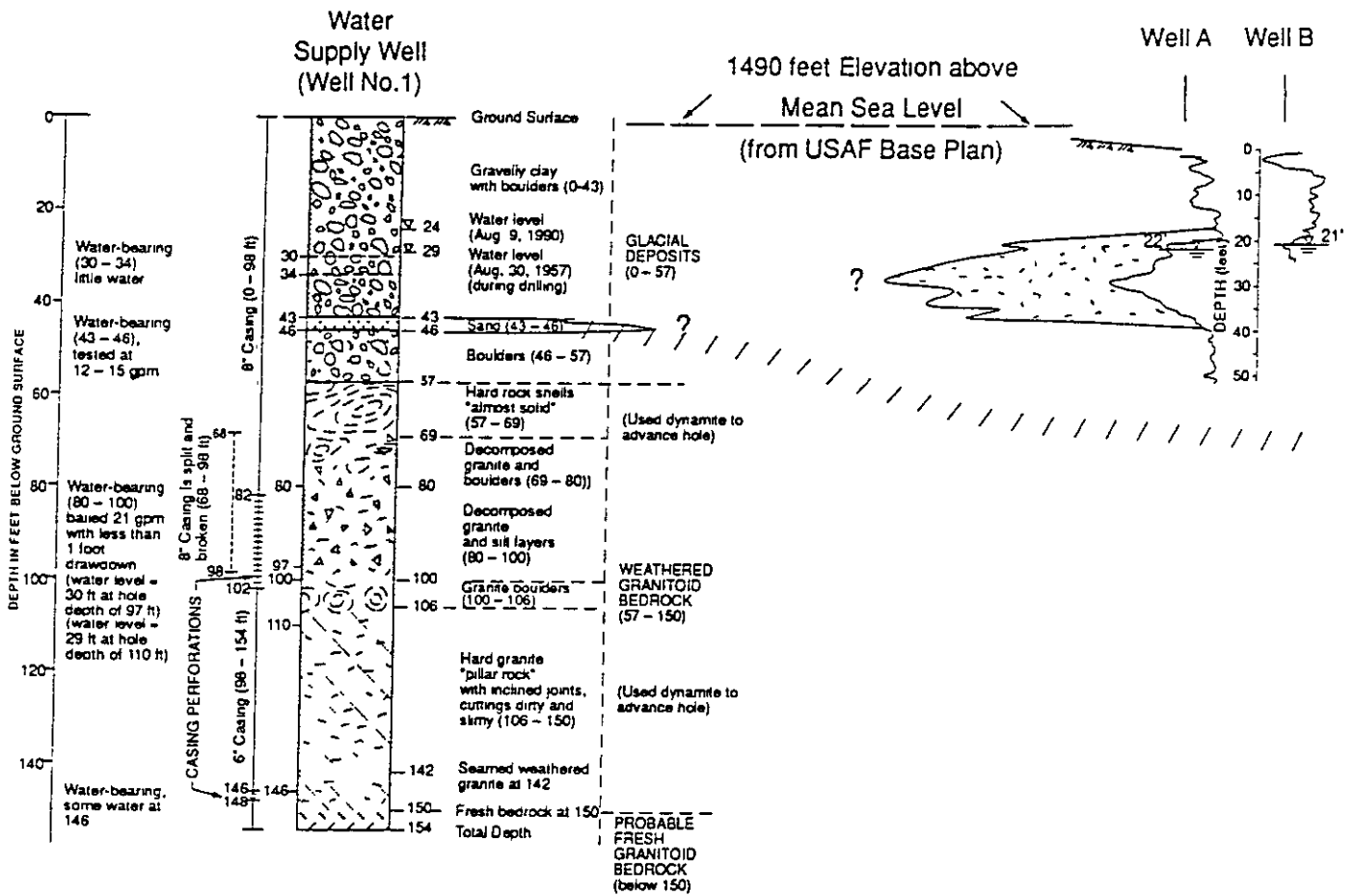
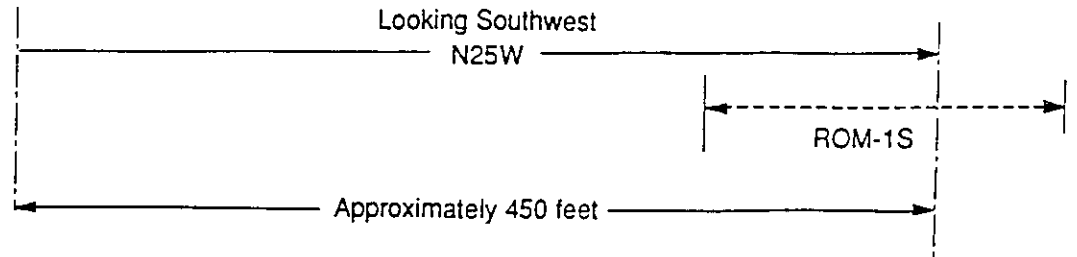
-- SPILL/LEAK NO. 5: Occurred in 1979 when approximately 14,000 gallons of diesel fuel leaked near the incinerator, Bldg 2-219. The fuel flowed under the dining hall and commissary. Approximately 300 gallons were recovered, the remaining fuel seeped into the ground.



Note: Well No. 1 drilled in August/September 1957

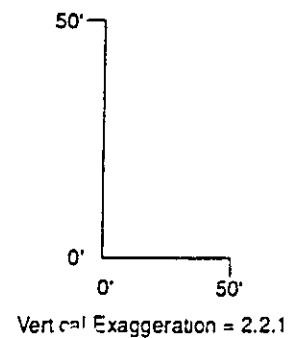
Source: Modified from U.S. Geological Survey Water Resources Division File Data, Undated

Project No. 90275L	Cape Romanzof LRRS	LOG AND WELL CONSTRUCTION DATA WELL NO.1	Figure 4-4
Woodward-Clyde Consultants		LOWER CAMP AREA	



LEGEND

- Depth of water below ground surface measured August 9, 1990
- Gamma ray geophysical log in Wells A and B with interpreted permeable (sandy) zone shown
- Top of saturated zone (inferred from seismic refraction data)



Project No. 90275L	Cape Romanzof LRRS	LOCAL GEOLOGIC CROSS SECTION ALONG WATER SUPPLY PIPELINE WELL NO. 1 TO ROM-1S	Figure 4-5
Woodward-Clyde Consultants			

FIGURE 2

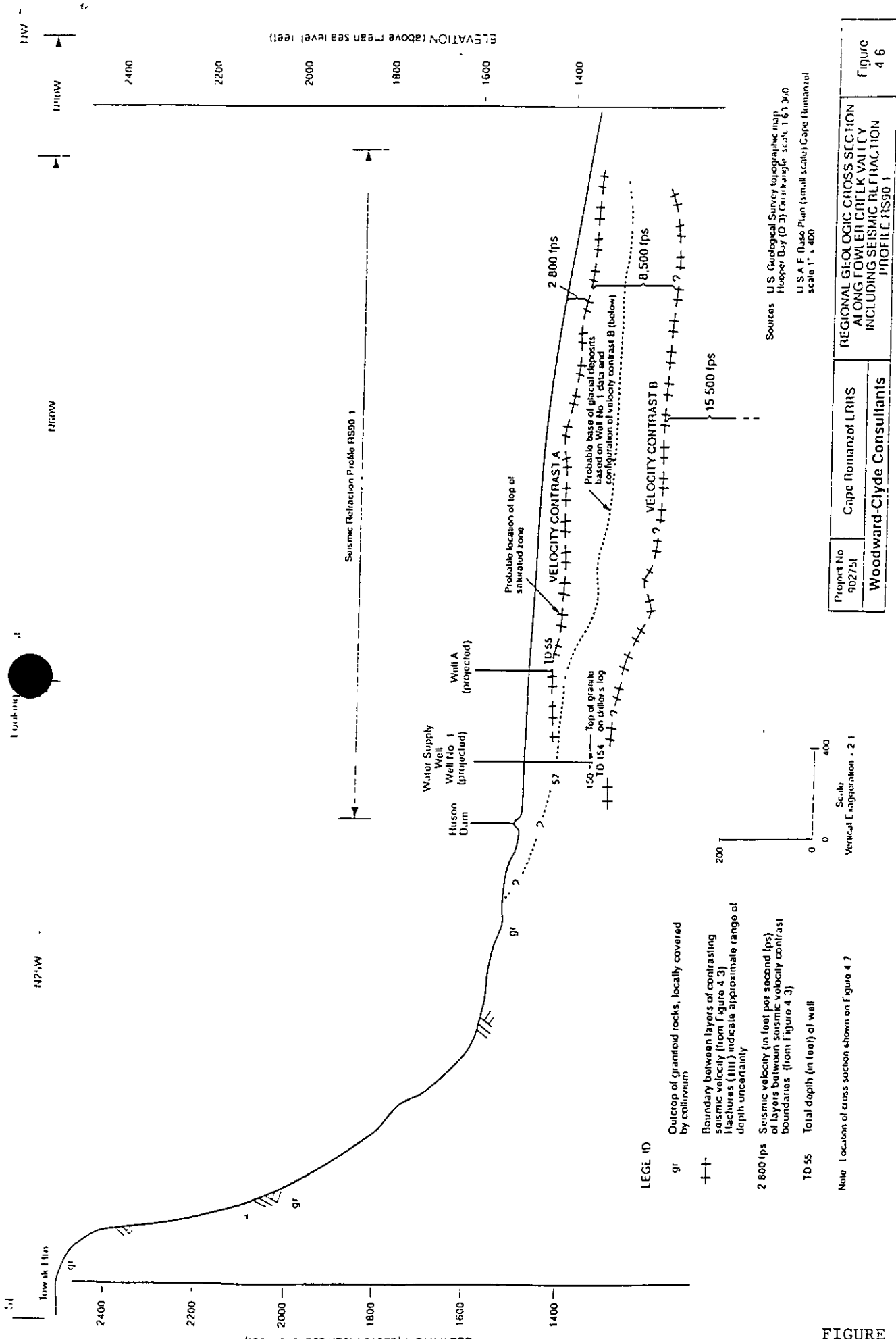
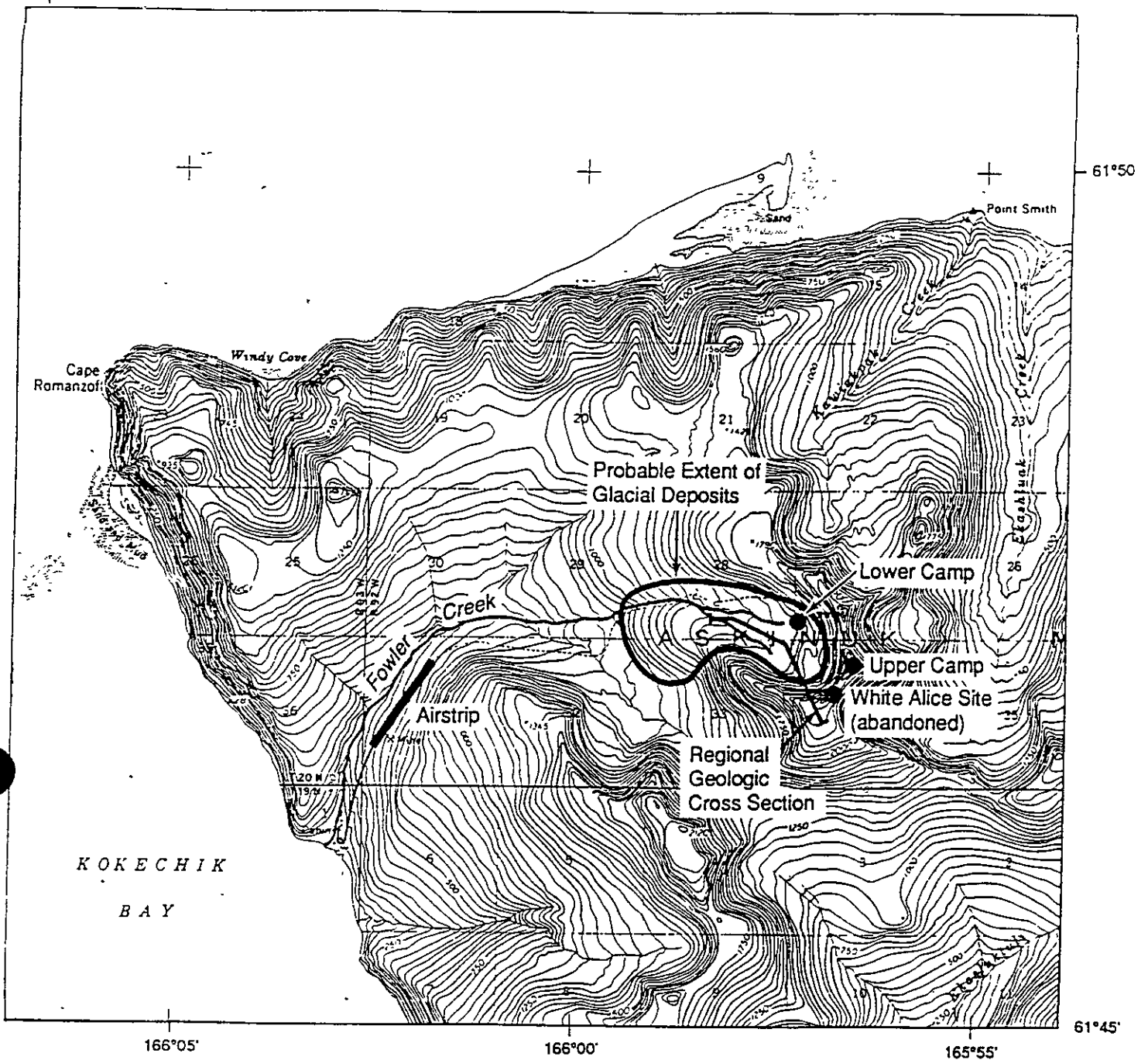
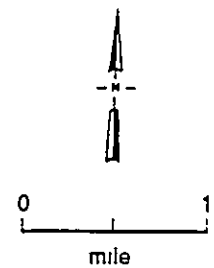


FIGURE 3

Note: Location of cross section shown on Figure 4.7



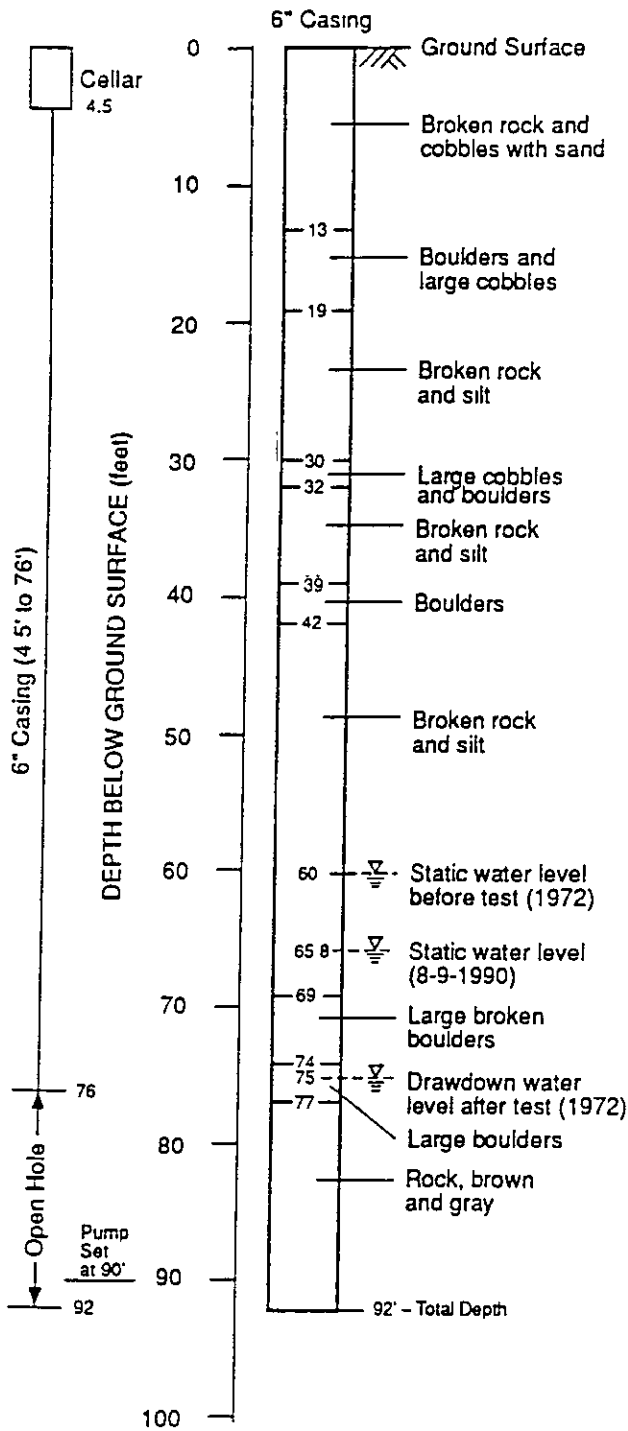
Source: U.S. Geological Survey Topographic Map, Hooper Bay (D-3) Quadrangle, Scale 1:63,360



Project No. 90275L	Cape Romanzof LRRS	LOCATION OF REGIONAL GEOLOGIC CROSS SECTION ON FIGURE 4-6	Figure 4-7
Woodward-Clyde Consultants			

FIGURE 4

WELL NO. 3
(Existing)
(constructed in 1972)

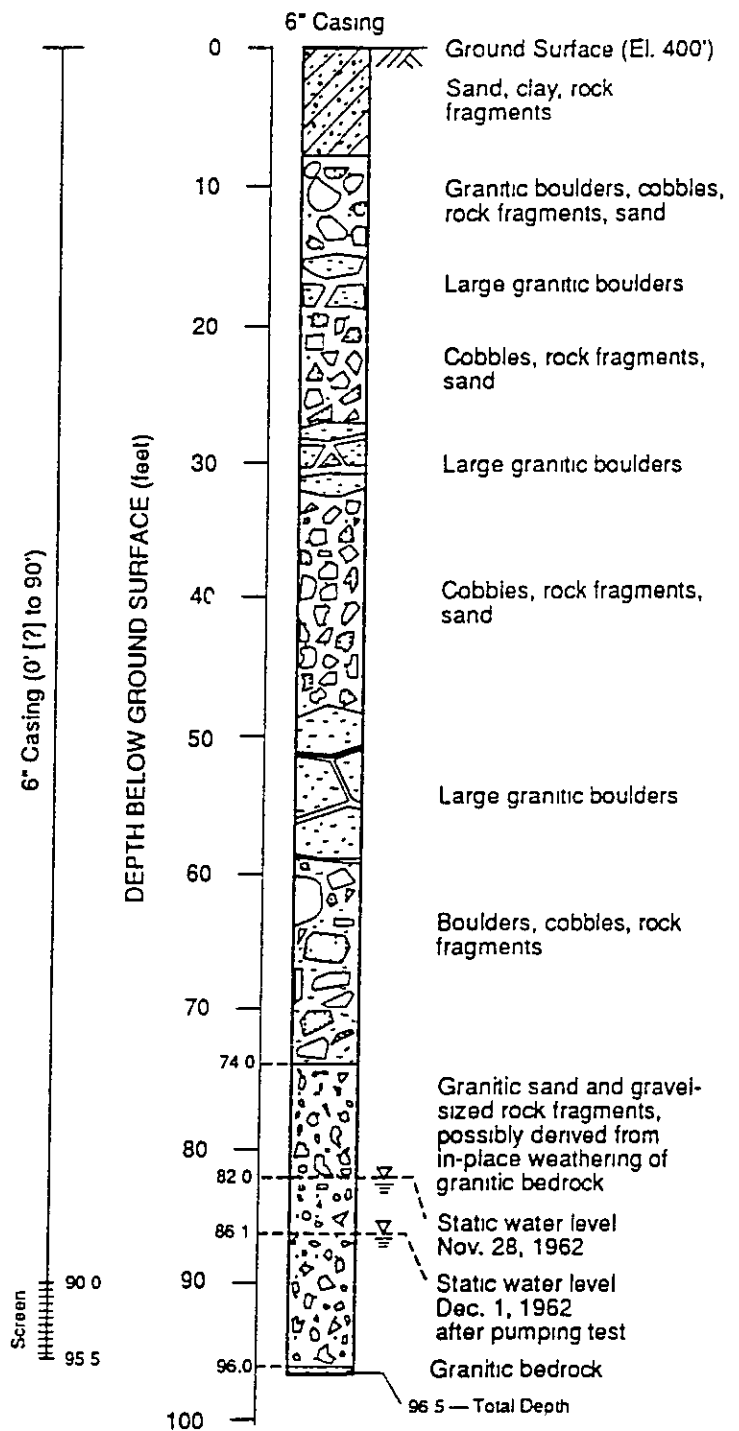


Source. U.S Corps of Engineers (unpublished file data)

Note Water-bearing stratum was encountered at 77.0 to 77.5 foot depth

Well was drilled Aug. 23 to Nov. 8, 1972. The hole was surged and bailed with casing to 76 ft. and open hole at 76 to 92 ft.

WELL NO. 2
(not found)
(constructed in 1962)



Source. U.S Corps of Engineers (1963)

Note. No frozen formations reported during drilling

Well was drilled Oct. 25 - Nov. 17, 1962 by F&M Braneb A 6" dia 20-slot screen, 5.5 ft long was set with bottom at 95.5 ft, and well was developed by surging and bailing 2 hrs 10 min. Nov. 27 1962

Project No. 90275L	Cape Romanzof LRRS	LOGS AND WELL CONSTRUCTION DATA WELLS NO. 2 AND 3 (ROM-2)	Figure 4-8
Woodward-Clyde Consultants			

FIGURE 5

-- SPILL/LEAK NO. 6: Occurred in 1980, resulting from a pipeline leak in the access road, near the Lower Camp (LC) bulk POL storage tank.

-- SPILL/LEAK NO. 7: Occurred in 1984 when a MOGAS pump fill nozzle leaked over a 24 hour period. The leak was at facility 76-200, located west of the supply building, Bldg 2-218. Approximately 1,000 gallons were lost into the snow and ground. Fire fighting foam was applied to the ground which absorbed a portion of the fuel. Snow was removed and placed into the landfill. Water was used to flush the area.

-- SPILL/LEAK NO. 8: Located in the same area as Spill/Leak No. 7, resulting from MOGAS tanks leaking up until the time they were abandoned in the 1970s.

-- SPILL/LEAK NO. 9: Occurred in 1985 in the same vicinity as spills 7 and 8, resulting from approximately 1,500 gallons of diesel fuel leaking from piping outside the bulk POL storage area.

- SOURCE 2, SPILL/LEAK NO. 4: No specific records were found on the details of spills at this site, but one reported incident in 1979 involved a loss of 500 gallons of diesel fuel from a tank near the runway, that may have been on this site.

- SOURCE 3, WASTE ACCUMULATION AREA NO. 1 AND SPILL/LEAK 1 AND 2:

-- WASTE ACCUMULATION AREA NO. 1: Located next to the power plant, is currently being used to store waste oils, hydraulic fluids, solvents, and ethylene glycol. This site has been active since the 1950s and has had considerable spills and leaks.

-- SPILL/LEAK NO. 1: Is the underground diesel fuel storage tank, adjacent to the power plant. This site has been in use since the 1950s and has experienced several spills and leak as a result of fueling vehicles and other equipment.

-- SPILL/LEAK NO. 2: Occurred in 1979 when a diesel fuel bladder being towed over the snow by a track vehicle, ruptured and spilled approximately 470 gallons of fuel. This spill occurred in the vicinity of the power plant and Waste Accumulation Area No. 1.

- SOURCE 4, ROAD OILING; UPPER CAMP (UC) AND LOWER CAMP (LC): Occurred from the 1950s through the 1970s as a means of controlling dust and disposing of waste oils, hydraulic fluids, solvents, and ethylene glycol.

- SOURCE 5, LANDFILL NO. 3 (LC): The current landfill is located adjacent to and northeast of where the Upper Camp road meets the Lower Camp road. Landfilling in this area began in the mid 1970s. A portion of the landfill was excavated during the construction of the new composite facility. This landfill uses the area fill method with relatively shallow depths, up to six feet.

- SOURCE 6, WASTE ACCUMULATION AREA NO. 2, (LC): Located near the lower camp bulk storage tanks and has been used to store both unused products and drummed waste since 1982. Spills have occurred at this site, although specific records are not available.

- SOURCE 7, DUMP AREAS (UC): The east slope of the mountain ridge where the upper camp and White Alice facilities are located received considerable waste from the 1950s through the mid 1970s. Debris, including scrap metal, wood, plastic, drums, two or three vehicles, and other materials are disposed in this area. During site clean-ups in 1976, 1977, and 1984 much of this waste was removed and disposed of in Landfill Number 5. Barrels containing waste oils and other liquids were collected and barged to Elmendorf AFB for eventual disposal.

- SOURCE 8, LANDFILL NO. 2, (LC): Located south of the access road between the runway and Lower Camp, about 0.5 miles west of the road leading to Upper Camp. This site was used until the mid 1970s, receiving garbage, rubbish, wood, metal, plastic, construction and demolition debris, incinerator ash, and some shop wastes. Burning of wastes occurred in the 1950s and 1960s. In 1984 four ground water monitoring wells were installed at this area. Two wells upgradient and two wells downgradient, at the outer/lower limits of the landfill.

- SOURCE 9, LANDFILL NO. 1, (UC AND LC): Located on the back side of the mountain ridge, north of Lower Camp. The actual operation dates of this site are unknown and the contents of the landfill may be similar to that of Landfill No. 2.

- SOURCE 10, SPILL/LEAK NO. 3: Located on the beach at the truck fill stand. This site has been the location of numerous routine POL losses onto the ground since the 1950s.

- SOURCE 11, WHITE ALICE SITE (UC): This facility is located near Upper Camp. At one time over 200 drums may have accumulated at the site; about half of which were unused product and the remaining, waste oils. A garage on the site also contained numerous leaking drums of oil. There may have been considerable drainage of oil from electrical equipment at the site. The drainage may have been directed to a sump excavated into rock on the mountain side. In 1983-1984, clean-up efforts were conducted at the site. Also, in 1984, soil samples were collected from around the building areas and tested. It was noted in file data that all tests of soils were negative for PCB contaminants.

- SOURCE 12, HARDFILL AREAS NO. 1, 2, 3:

-- Hardfill No. 1, located north of the road between the runway and Lower Camp, in an area where concrete, wood, road marker drums and other demolition debris were periodically dumped since the facility has operated. Grading and road repairs have often covered the disposed items.

-- Hardfill No. 2: This area is located in a small trench area west of the road leading to the beach from the runway. This site was used for a one-time burial of debris from a beach warehouse in the 1960s.

-- Hardfill No. 3: Located in the same beach area as Hardfill No. 2. An old quarry located near the cargo beaching area was used for disposal of heavy equipment (dozers, clamshell buckets, etc.) from the 1950s-1970s.

- SOURCE 13, INCINERATOR: This site used an incinerator in the early 1970s to burn garbage and refuse generated at the installations. Waste oils and diesel fuel were often used as auxiliary fuel to burn the slud wastes. Ash from the incinerators was buried in landfills.

- SOURCE 14, SURFACE DRAINAGE: Due to steep slopes and extensive rock found at this installation, extensive drainage systems have not been required. Most surface drainage takes place as overland flow and in some road ditches. While the surface drainage systems may have received hazardous waste residuals from spills and leaks or leachate from disposal areas, dumping of materials directly into the surface drainage system has not occurred.

- SOURCE 15, SANITARY SEWER SYSTEM: The UC is served by a septic tank/leach field system. Very little hazardous materials were discharged to the sewerage systems. Diluted and usually neutralized battery acid and ethylene glycol and water are the types of industrial wastes normally were handled by these systems.

3. EPA QUESTION

Provide a description of all aquifers beneath the site. Include description of overlying materials (i.e., hydraulic conductivity/permeability), thickness, composition, and depth aquifer is first encountered. *NOTE: This data requirement involves a literature search of all current or existing geologic information.

AIR FORCE RESPONSE

- Figures 1 and 5, are well logs for Wells No. 1, 2, and 3.

- Woodward-Clyde Consultants IRP, Technical Report Addendum (August 1990-March 1991), pages 4-6 through 4-15, paragraphs 4.1.5.1-4.2.4.3 for specific detailed aquifers and geologic data relating to Cape Romanzof LRRS.

4. EPA QUESTION

For each source, choose one description from Table 1 (page 6-7) that describes the ground water containment. Provide complete documentation (i.e., engineering diagrams, photographs [originals]) as to why the source meets that description and not any other in the table.

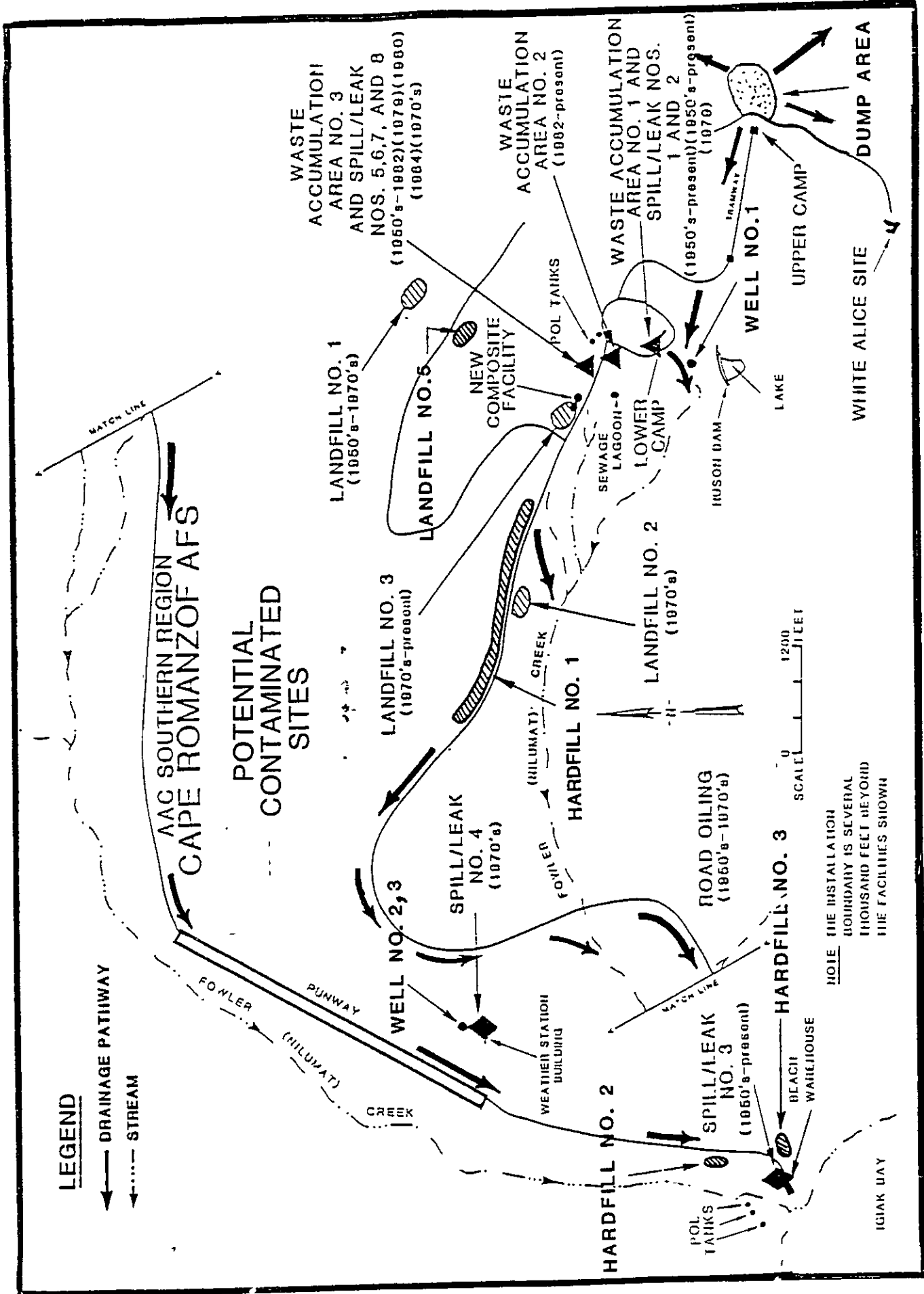


FIGURE 6

AIR FORCE RESPONSE

- Refer to the IRP RI/FS, Stage 1 Report by Woodward-Clyde Consultants, June 1990. This document contains much of the information such as engineering diagrams, photographs, etc.

- SOURCE 1, WASTE ACCUMULATION AREA NO.3 AND SPILL/LEAKS NO. 3, 5, 6, 7, 8, AND 9: Spill with no containment
- SOURCE 2, SPILL/LEAK NO. 4: Spill with no containment
- SOURCE 3, WASTE ACCUMULATION AREA NO. 1 AND SPILL/LEAK 1 AND 2: Spill with no containment
- SOURCE 4, ROAD OILING; UPPER CAMP (UC) AND LOWER CAMP (LC): Spill with no containment
- SOURCE 5, LANDFILL NO. 3 (LC): Landfill with no liner
- SOURCE 6, WASTE ACCUMULATION AREA NO. 2, (LC): Spill with no containment
- SOURCE 7, DUMP AREAS (UC): Landfill with no liner
- SOURCE 8, LANDFILL NO. 2, (LC): Landfill with no liner
- SOURCE 9, LANDFILL NO. 1, (UC AND LC): Landfill with no liner
- SOURCE 10, SPILL/LEAK NO. 3: Spill with no containment
- SOURCE 11, WHITE ALICE SITE (UC): Spill with no containment
- SOURCE 12, HARDFILL AREAS NO. 1, 2, 3: Landfill with no containment
- SOURCE 13, INCINERATOR: Ash disposed of in a landfill with no liner
- SOURCE 14, SURFACE DRAINAGE: No deficiencies under this table
- SOURCE 15, SANITARY SEWER SYSTEM: No deficiencies under this table

5. EPA QUESTION

Provide the location of all drinking water wells (by HRSII distance rings in table format) in all aquifers within 4-mile radius from site (property boundary). Show on topo map all wells within 1-mile radius. Provide information on depth of well(s), screening interval(s), depth aquifer(s) encountered, and population served. For multiple wells (i.e., municipal system) provide the number of wells, location of all wells (regardless of 4-mile limit), average annual pumpage of each well (regardless of 4-mile limit), and total population served by system. Include information on all standby wells.

AIR FORCE RESPONSE

- No additional wells are located within four miles of the installation (reference USGS and ADNR Ground Water Database).

6. EPA QUESTION

Provide information and location of wells within 4-miles (on topo map show all wells within 1-mile radius) that are used:

- a) to irrigate 5 or more acres of commercial food or forage crops,
- b) for watering of commercial livestock,
- c) as an ingredient in commercial food preparation,
- d) as a supply to aquaculture, or
- e) as a supply for a major or designated water recreation area, excluding drinking water use.

AIR FORCE RESPONSE

- Refer to Figure 7, and the answer to question 5.
- No other wells are located within four miles of this installation.

7. EPA QUESTION

What is the average number of persons per residence (Borough, city, village, community, etc.) that site is located in?

AIR FORCE RESPONSE

- The population of the site is six civilian contract personnel living and working on-site. No other people live at this site.

- Cape Romanzof is located 540 miles west of Anchorage on a small peninsula which extends into the Bering Sea. The nearest towns are Scammon Bay, 15 miles east of the site, with a population of 317 and the town of Hooper Bay, 15 miles south of the site, with a population of 807. Population data is derived from the State of Alaska, Department of Community and Regional Affairs 1990 data. Based on US Census Bureau data of 2.79 persons per household, we estimate 113 residences in Scammon Bay and 290 residences in Hooper Bay.

8. EPA QUESTION

Identify and locate all surface water bodies within 2 miles of site. Indicate the drainage routes (shown on topo map) from each source to applicable surface water bodies. Provide the average annual flow (cubic feet per second) for each surface water body within 15 miles downstream (river, stream, etc.) or 1.5-mile radius (lakes, bays, etc.) from the point of probable entry into surface water. For lakes, provide information on inflow and outflow.

AIR FORCE RESPONSE

Refer to Figure 8 for stream flow information.

- Surface water bodies are shown on topo map. The drainage of the Cape Romanzof area is surface flow to Fowler Creek (identified as Nilumat Creek on USGS topo maps). Some Upper Camp drainage may be directed eastward to Ekashluak Creek. The surface water of Cape Romanzof study area generally occur as ephemeral streams which drain to Kokechik Bay on the Bering Sea.

9. EPA QUESTION

For each source, choose one description from Table 2 (page 7-8) that best describes the surface water containment. Provide complete documentation (i.e., engineering diagrams, photographs [originals]) as to why the source meets that description and not any other in the table.

AIR FORCE RESPONSE

- SOURCE 1, WASTE ACCUMULATION AREA NO.3 AND SPILL/LEAKS NO. 3, 5, 6, 7, 8, AND 9: Spill with no containment
- SOURCE 2, SPILL/LEAK NO. 4: Spill with no containment
- SOURCE 3, WASTE ACCUMULATION AREA NO. 1 AND SPILL/LEAK 1 AND 2: Spill with no containment
- SOURCE 4, ROAD OILING; UPPER CAMP (UC) AND LOWER CAMP (LC): Spill with no containment
- SOURCE 5, LANDFILL NO. 3 (LC): Landfill with no liner
- SOURCE 6, WASTE ACCUMULATION AREA NO. 2, (LC): Spill with no containment
- SOURCE 7, DUMP AREAS (UC): Landfill with no liner
- SOURCE 8, LANDFILL NO. 2, (LC): Landfill with no liner
- SOURCE 9, LANDFILL NO. 1, (UC AND LC): Landfill with no liner
- SOURCE 10, SPILL/LEAK NO. 3: Spill with no containment
- SOURCE 11, WHITE ALICE SITE (UC): Spill with no containment
- SOURCE 12, HARDFILL AREAS NO. 1, 2, 3: Landfill with no containment
- SOURCE 13, INCINERATOR: Ash disposed of in a landfill with no liner
- SOURCE 14, SURFACE DRAINAGE: No deficiencies under this table
- SOURCE 15, SANITARY SEWER SYSTEM: No deficiencies under this table

STREAM FLOW INFORMATION

<u>DRAINAGE BASIN</u>	<u>PRECIPITATION</u> (inches/year)	<u>DRAINAGE AREA</u> (sq. miles)	<u>MEAN ANNUAL</u> <u>STREAMFLOW (cfs)</u>
	P	A	Q
Nilumat Creek	26.8	8.32	12.3
Kawiakpak Creek	26.8	2.67	4.1
Ekashluak Creek	26.8	5.00	7.5
Towak Creek	26.8	5.76	8.6
Ekasluktuli Creek	26.8	10.42	15.4
Unnamed Creek, Sec 9	26.8	3.58	5.4

Stream flow calculated based on a multiple linear regression equation with basin characteristics as independent variables.

$$\text{Log } Q = \text{Log } a + b_1 \text{ Log } A + b_2 \text{ Log } P$$

a = regression constant
b = regression coefficients

FIGURE 8

10. EPA QUESTION

What is the number of acres in each drainage basin?

AIR FORCE RESPONSE

<u>DRAINAGE BASIN</u>	<u>ACRES</u>
- Unnamed Creek, Sec 9	2,291
- Nilumat Creek	5,312
- Kawiakpak Creek	1,708
- Ekashluak Creek	3,200
- Towak Creek	3,686
- Ekasluktuli Creek	6,669

11. EPA QUESTION

From Table 3, choose the predominant soil group (surface soil) which comprises the largest total area within each drainage area.

AIR FORCE RESPONSE

<u>DRAINAGE BASIN</u>	<u>SOIL TYPE</u>
- Unnamed Creek, Sec 9	Coarse Textured with high infiltration rate
- Nilumat Creek	"
- Kawiakpak Creek	"
- Ekashluak Creek	"
- Towak Creek	"
- Ekasluktuli Creek	"

12. EPA QUESTION

What is the 2-year, 24-hour rainfall? What is the Annual Net Precipitation?

AIR FORCE RESPONSE

- During the period of 1953 through 1981, the maximum 24 hour precipitation was 2.8 inches and the mean annual precipitation was 26.8 inches.

13. EPA QUESTION

From Table 4 (page 8), choose the floodplain category for each source (supply Federal Emergency Management Agency or U.S. Army Corps of Engineers floodplain map) and determine if each source meets the criteria from Table 5 (page 9) (engineer's certification).

AIR FORCE RESPONSE

- 500 year flood plain
- Floodplain information was requested from the US Corps of Engineers, Alaska Branch, Chief of Flood Plains Management and the senior planner for the State of Alaska, Department of Community and Regional Affairs, however, there is no floodplain data for this region.

14. EPA QUESTION

Provide the location (by HRSII distance rings in table format) of all drinking water intakes within 15 miles downstream (rivers, streams, etc.) or 15-mile radius (lakes, bays, etc.). Show on topo map all intakes within 1-mile radius/downstream. Provide information on population served. For multiple intakes (i.e., municipal system) provide information on the number of intakes, location of all intakes (regardless of 15-mile limit), average annual pumpage of each intake (regardless of 15-mile limit), and total population served by system. Include information on all standby intakes.

AIR FORCE RESPONSE

- No other drinking, irrigation, food preparation etc., water sources are known within 15 miles of the installation.

15. EPA QUESTION

Provide information and location of intakes within 15 miles downstream (rivers, streams, etc.) or 15-mile radius (lakes, bays, etc.) that are used:*

- a) to irrigate 5 or more acres of commercial food or forage crops,
- b) for watering of commercial livestock,
- c) as an ingredient in commercial food preparation,
- d) as a supply for aquaculture, or
- e) as a supply for a major or designated water recreation area, excluding drinking water use.

*On topo map show location of intakes within 1-mile radius/downstream.

AIR FORCE RESPONSE

- Refer to answer for question 14. Besides the wells on this military installation, no other drinking, irrigation, food preparation etc., water sources were found to be within 15 miles of the installation.

16. EPA QUESTION

What is the average human food chain production (pounds per year per acre) for each surface water body within 15 miles downstream (rivers, streams, etc.) or 15-mile radius (lakes, bays, etc.)?

AIR FORCE RESPONSE

- The human food chain production in pounds per acre would be greater than 10,000 and less than 100,000.

-Hooper Bay is the largest Eskimo Village in this region, and is a very traditional village where the people practice subsistence extensively. Scammon Bay and Chevak are also located near the installation. The residents of these villages also practice subsistence considerably. Sea mammal hunting is a very large subsistence activity in this area; and Walrus and Beluga Whale are harvested as well as five species of seal, and sea lions which are hunted extensively. A commercial bottom fishery exists out of Hooper Bay (Black Cod), as well as a commercial salmon fishery. Subsistence Salmon and Whitefish fishing is extensive, as well as marine waterfowl hunting, sea bird colony hunting and eggging. There is an extensive subsistence razor clam fishery during June near Hooper Bay.

17. EPA QUESTION

Identify all sensitive environments (Table 6, page 9) that exist within a 4-mile radius on land, 15 miles downstream (rivers, streams, etc.), or 15-mile radius (lakes, bays, etc.), in HRSII distance ring table format. Provide original documentation (U.S. Fish & Wildlife, Natural Heritage Database, State agencies, National Oceanic and Atmospheric Administration, etc.) and locate each environment within 1-mile on a topo map. Note that there could be multiple sensitive environments within the appropriate limit.

AIR FORCE RESPONSE

- This installation does not lie in any of the categories of Table 6.

- According to the State of Alaska, Department of Fish and Game maps, Cape Romanzof has a general distribution of brown bear population, stretching from the site, 12 miles south, and up to 25 miles to the east. Also, according to the US Fish and Wildlife Service, Marine Mammals Division, Cape Romanzof off shore is used by walrus.

18. EPA QUESTION

What is the linear frontage (miles) of all wetlands 15 miles downstream (rivers, streams, etc.) or 15-mile radius (lakes, bays, etc.)? *All sides of waterbody.

AIR FORCE RESPONSE

- There are no wetlands downstream of this installation.

- This site is located at the extreme west end of the Askinuk Mountains, a low steep mountain range of about 65 square miles. All drainages from the site lead directly to the ocean. Wetlands are located approximately 8 miles to the east and southeast at the end of the mountain range where the topography changes to almost 100 percent wetlands (tundra) i.e., the Yukon-Kuskokwim Delta.

19. EPA QUESTION

What is the location and number of persons residing, working, attending school or day care within 200 feet of each source?

AIR FORCE RESPONSE

- Six personnel live and work on-site year around. Their specific duties take them within 200 feet of each source.

20. EPA QUESTION

Identify all terrestrial sensitive environments (Table 7, page 10) that exist on-site. Provide original documentation (U.S. Fish & Wildlife, Natural Heritage Database, State agencies, National Oceanic and Atmospheric Administration, etc.) and locate each on a topo map. Note that there may be multiple sensitive environments within the site limits/boundaries.

AIR FORCE RESPONSE

- This installation has no sources which exist in a category in Table 7.
- Refer to question 17. Although brown bears and walrus frequent the areas surrounding the site, the site has not been identified as a national, state, or locally designated sensitive environment.

21. EPA QUESTION

For each source, choose one description from Table 8 (page 10) that describes the accessibility of the site. Provide complete documentation (i.e., engineering diagrams, photographs [originals]) as to why the source meets that description and not any other in the table.

AIR FORCE RESPONSE

- SOURCE 1, WASTE ACCUMULATION AREA NO.3 AND SPILL/LEAKS NO. 3, 5, 6, 7, 8, AND 9: Spill with no containment
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- SOURCE 9, LANDFILL NO. 1, (UC AND LC): Landfill with no liner
- SOURCE 10, SPILL/LEAK NO. 3: Spill with no containment
- SOURCE 11, WHITE ALICE SITE (UC): Spill with no containment
- SOURCE 12, HARDFILL AREAS NO. 1, 2, 3: Landfill with no containment
- SOURCE 13, INCINERATOR: Ash disposed of in a landfill with no liner
- SOURCE 14, SURFACE DRAINAGE: No deficiencies under this table
- SOURCE 15, SANITARY SEWER SYSTEM: No deficiencies under this table

22. EPA QUESTION

What is the total number of people within the following distance categories?: Use current/available Census data and/or actual house counts. Document how calculated.

AIR FORCE RESPONSE

<u>Distance</u>	<u>People</u>
0-1/4 mile	6
1/4-1/2 mile	6
1/2-1 mile	0
1-2 miles	0
2-3 miles	0
3-4 miles	0

23. EPA QUESTION

For each source, choose one description from Table 9 (page 10) that describes the gaseous containment. From Table 10 (page 11), choose the appropriate description of each source type. For each source, choose one description from Table 11 (page 11) that describes the particulate containment. Provide complete documentation (i.e., engineering diagrams, photographs [originals]) as to why the source meets that description and not any other in the table.

AIR FORCE RESPONSE

- SOURCE 1, WASTE ACCUMULATION AREA NO.3 AND SPILL/LEAKS NO. 3, 5, 6, 7, 8, AND 9: Spill with no containment
- SOURCE 2, SPILL/LEAK NO. 4: Spill with no containment
- SOURCE 3, WASTE ACCUMULATION AREA NO. 1 AND SPILL/LEAK 1 AND 2: Spill with no containment
- SOURCE 4, ROAD OILING; UPPER CAMP (UC) AND LOWER CAMP (LC): Spill with no containment
- SOURCE 5, LANDFILL NO. 3 (LC): Landfill with no liner
- SOURCE 6, WASTE ACCUMULATION AREA NO. 2, (LC): Spill with no containment
- SOURCE 7, DUMP AREAS (UC): Landfill with no liner
- SOURCE 8, LANDFILL NO. 2, (LC): Landfill with no liner
- SOURCE 9, LANDFILL NO. 1, (UC AND LC): Landfill with no liner
- SOURCE 10, SPILL/LEAK NO. 3: Spill with no containment
- SOURCE 11, WHITE ALICE SITE (UC): Spill with no containment
- SOURCE 12, LANDFILL AREAS NO. 1, 2, 3: Landfill with no containment
- SOURCE 13, INCINERATOR: Ash disposed of in a landfill with no liner
- SOURCE 14, SURFACE DRAINAGE: No deficiencies under this table
- SOURCE 15, SANITARY SEWER SYSTEM: No deficiencies under this table

24. EPA QUESTION

What is the location and area (in acres) of all wetlands within 4 miles of site?

AIR FORCE RESPONSE

- No wetlands are located within four miles of the site.
- There may possibly be small riparian wetlands along the upper reaches of Nilumat Creek and small delta wetlands at it's mouth, approximately three miles from the site. However, this stream is on the opposite side of the mountain from the site.

REFERENCES

Installation Restoration Program (IRP), Phase I-Records Search, AAC-Southern Region, Engineering-Science, September 1985

IRP, Phases I and II, Woodward-Clydes Consultants, 1989, which included sampling data on the identified sites. Supplemental field work and testing was accomplished by Woodward-Clydes Consultants in the summer of 1990, during the Remedial Investigation/Feasibility Study (Stage I) and published by WCC and dated March 1991.

Fisheries Data Series No. 91-58, Harvest, Catch, and Participation in Alaska Sport Fisheries During 1990, October 1991

Prepared by Michael J. Mills, Alaska Dept of Fish and Game, Division of Sport Fish, Anchorage Alaska

FISHERY DATA SERIES NO. 91-58
HARVEST, CATCH, AND PARTICIPATION IN ALASKA
SPORT FISHERIES DURING 1990¹

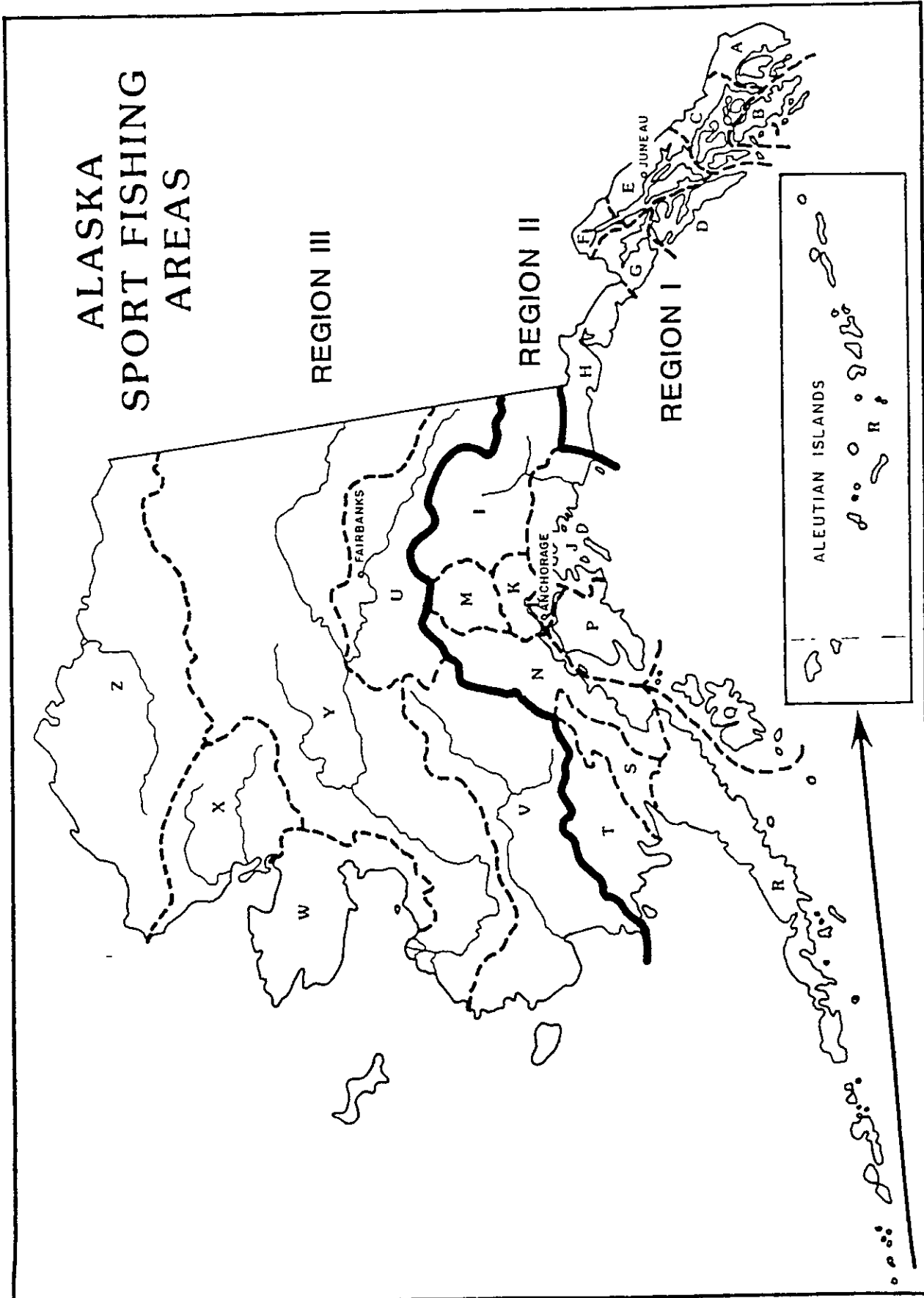
By

Michael J. Mills

Alaska Department of Fish and Game
Division of Sport Fish
Anchorage, Alaska

October 1991

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Appendix A1. Map of Alaska sport fishing regions and areas.

Appendix A2. List of Alaska sport fishing regions and areas.

Regions

- I Southeast Alaska
- II Southcentral Alaska
- III Arctic-Yukon-Kuskokwim

Areas

Southeast Alaska

- A Ketchikan
- B Prince of Wales Island
- C Kake, Petersburg,
Wrangell, Stikine
- D Sitka
- E Juneau
- F Haines-Skagway
- G Glacier Bay
- H Yakutat

Southcentral Alaska

- I Glennallen
- J Prince William Sound
- K Knik Arm Drainage
- L Anchorage
- M East Susitna River Drainage
- N West Cook Inlet-
West Susitna River Drainages
- P Kenai Peninsula
- Q Kodiak
- R Naknek River Drainage-
Alaska Peninsula
- S Kvichak River Drainage
- T Nushagak

Arctic-Yukon-Kuskokwim

- U Tanana River Drainage
 - V Kuskokwim River Drainage
 - W Seward Peninsula-
Norton Sound
 - X Northwest Alaska
 - Y Yukon River Drainage
 - Z North Slope Brooks Range
-

Appendix A3. List of common names, scientific names, and abbreviations.

Common Name	Scientific Name	Abbreviation
Chinook salmon	<i>Oncorhynchus tshawytscha</i>	KS
Small chinook salmon	<i>Oncorhynchus tshawytscha</i>	KI
Coho salmon	<i>Oncorhynchus kisutch</i>	SS
Landlocked salmon		LL
coho	<i>Oncorhynchus kisutch</i>	
chinook	<i>Oncorhynchus tshawytscha</i>	
Sockeye salmon	<i>Oncorhynchus nerka</i>	RS
Kokanee salmon	<i>Oncorhynchus nerka</i>	KO
Pink salmon	<i>Oncorhynchus gorbuscha</i>	PS
Chum salmon	<i>Oncorhynchus keta</i>	CS
Steelhead	<i>Oncorhynchus mykiss</i>	SH
Rainbow trout	<i>Oncorhynchus mykiss</i>	RT
Cutthroat trout	<i>Oncorhynchus clarki</i>	CT
Brook trout	<i>Salvelinus fontinalis</i>	BT
Lake trout	<i>Salvelinus namaycush</i>	LT
Dolly Varden	<i>Salvelinus malma</i>	DV
Arctic char	<i>Salvelinus alpinus</i>	AC
Arctic grayling	<i>Thymallus arcticus</i>	GR
Northern pike	<i>Esox lucius</i>	NP
Whitefish	<i>Coregonus</i> spp. and <i>Prosopium</i> spp.	WF
Burbot	<i>Lota lota</i>	BB

-continued-

Appendix A94 Kuskokwim River Drainage Area^a sport fish harvest and effort by fisheries and species, 1990

	Anglers	Trips	Days Fished	KI ^b	KS	SS	LL	RS	PS	CS	LT	AC	RT	GR	WF	SF	NP	BB	SM	HA	OTHER	
SALTWATER ^c																						
Boat	123	246	226	0	0	12	0	24	0	0	0	18	0	0	0	0	0	0	0	0	144	0
Shoreline	71	194	119	0	0	0	0	12	0	14	0	0	0	0	0	0	0	0	0	0	0	0
SALTWATER TOTAL	176 ^c	440	345	0	0	12	0	36	0	14	0	18	0	0	0	0	0	0	0	0	144	0
FRESHWATER																						
Kanektok River	932	1,337	4,525	299	204	644	0	462	145	202	0	1,020	281	123	0	0	0	0	0	211	0	0
Aniak River	493	1,214	1,964	95	190	182	0	49	29	159	18	598	35	422	0	0	18	0	0	0	0	0
Other Streams	1,569	1,973	8,515	55	54	520	0	73	173	374	0	161	159	442	88	107	213	1,125	0	0	0	0
Lakes	230	299	509	0	0	0	0	0	0	0	54	0	0	353	0	0	0	0	0	0	0	0
FRESHWATER TOTAL	2,639 ^c	4,823	15,513	449	448	1,346	0	584	347	735	72	1,779	475	1,340	88	107	231	1,125	211	0	0	0
GRAND TOTAL	2,691 ^c	5,263	15,858	449	449	1,358	0	620	347	749	72	1,797	475	1,340	88	107	231	1,125	211	144	144	0

^a Kuskokwim River Drainage (Area V). The Kuskokwim River drainage and all waters flowing into Kuskokwim Bay; adjacent saltwater from Cape Newenham north to the Naskonat Peninsula (north of Nelson Island) Does not include the Yukon, Tanana or Koyukuk River drainages

^b King salmon less than 28 inches

^c Angler totals may not equal sum of sites due to some anglers fishing at more than one site

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE