UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

HYDROLOGY AND GEOCHEMICAL PROCESSES OF A SUB-ARCTIC LANDFILL, FAIRBANKS, ALASKA: BASIC DATA

by David M. Flynn

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UNITED STATES DEPARTMENT OF THE INTERIOR

DONALD PAUL HODEL, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For additional information write to:

District Chief
U.S. Geological Survey
Water Resources Division
4230 University Drive, Suite 201
Anchorage, Alaska 99508-4664

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CONTENTS

ILLUSTRATIONS

TABLES

CONVERSION TABLE

Multiply	By	To obtain
inch (in.)	25.40	millimeter (mm)
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
degree Fahrenheit (°F)	(°F-32)/1.8	degree Celsius (°C)

Other abbreviations in this report are:
mg/L, milligram per liter
µg/L, microgram per liter
µS/cm, microsiemens per centimeter at 25 °C

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ABSTRACT

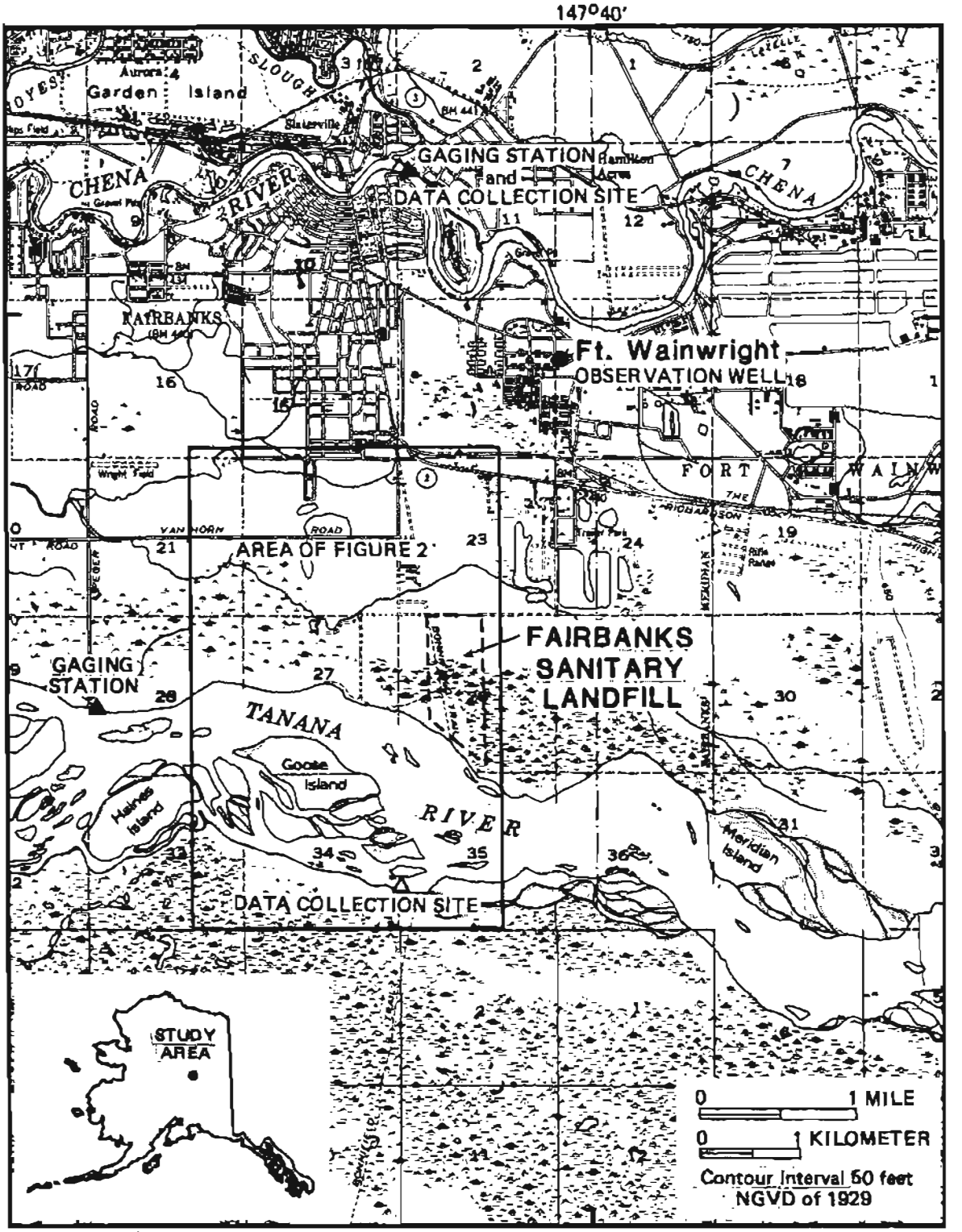
In August 1982, the U.S. Geological Survey, in cooperation with the Fairbanks North Star Borough, undertook a study of the ground-water system in and near the Fairbanks Sanitary Landfill. Water quality and hydrologic data were collected at 22 observation wells and at 2 river sites. The water table beneath the landfill is less than 10 feet below land surface and fluctuates seasonally about 2 feet. The slope of the water table to the north indicates the general direction of ground-water flow from the Tanana River toward the Chena River. Several wells within the landfill show anomalously high concentrations (compared to background levels) of chloride, iron, and manganese, and relatively low values of pH and dissolved-oxygen concentrations. However, the values of these constituents and properties remain at background levels in wells north and west of the landfill.

INTRODUCTION

For about 20 years the site of the Fairbanks Sanitary Landfill near the Tanana River (fig. 1) has received refuse from the Fairbanks area. Until the early 1970's disposal practices included dumping of refuse in a gravel pit excavated to below the water table and leaving the refuse uncovered. The site was largely unattended, and no restrictions were placed on the type of materials allowed in the refuse. In 1974, the landfill was closed because of deteriorating conditions, but was reopened later in the year and "semi-sanitary" landfill practices have been employed since that time. In 1979 the Fairbanks North Star Borough installed a high-pressure baler at the landfill. The baler compacts refuse into 4-foot-square bales which are transported to the landfill area, stacked in tiers, and covered with a 6-inch thick layer of earth. No further compaction is provided.

In 1975, R and M Consultants (1975) conducted a brief survey of the quality of ground water in the vicinity of the landfill. Their report stated "while a certain amount of leachate is indicated under the landfill, concentrations are not high and they reduce to background levels within a short distance of the landfill."

In 1982, the U.S. Geological Survey, in cooperation with the Fairbanks North Star Borough, began a study of hydrology and geochemistry of the ground-water system in and near the landfill site. The purpose of the study was to assess the existing or potential effects of the landfill on municipal water-supply aquifers down-gradient from the landfill. This report presents the data collected during the study.



Base from U.S. Geological Survey, Fairbanks, Alaska, 1:63,360, 1955

Figure 1.--Location of study area, river stage stations, and the Ft. Wainwright observation well.

HYDROLOGIC SETTING

The Fairbanks Sanitary Landfill covers about 75 acres and consists mainly of solid and liquid industrial waste and municipal refuse, (including but not limited to junk car bodies, appliances, steel drums, tires, etc.). The landfill is within the Tanana River flood plain, approximately 1 mi north of the Tanana River (fig. 1) and about 3 mi south of the Chena River and the water-supply wells of the City of Fairbanks. The Tanana River levee, located directly south of the landfill area (fig. 2), extends approximately 16 mi to the east and about 4 mi to the west where it terminates just south of Fairbanks.

Ground-water head data indicate that the water flows north-northwest beneath the landfill and towards the City of Fairbanks. The flow direction and water-table altitude may change seasonally due to effects of changing stage (altitude of the water surface) in the Tanana River and may be affected by ground-water pumping for dewatering during gravel extraction near the landfill (Nelson 1978).

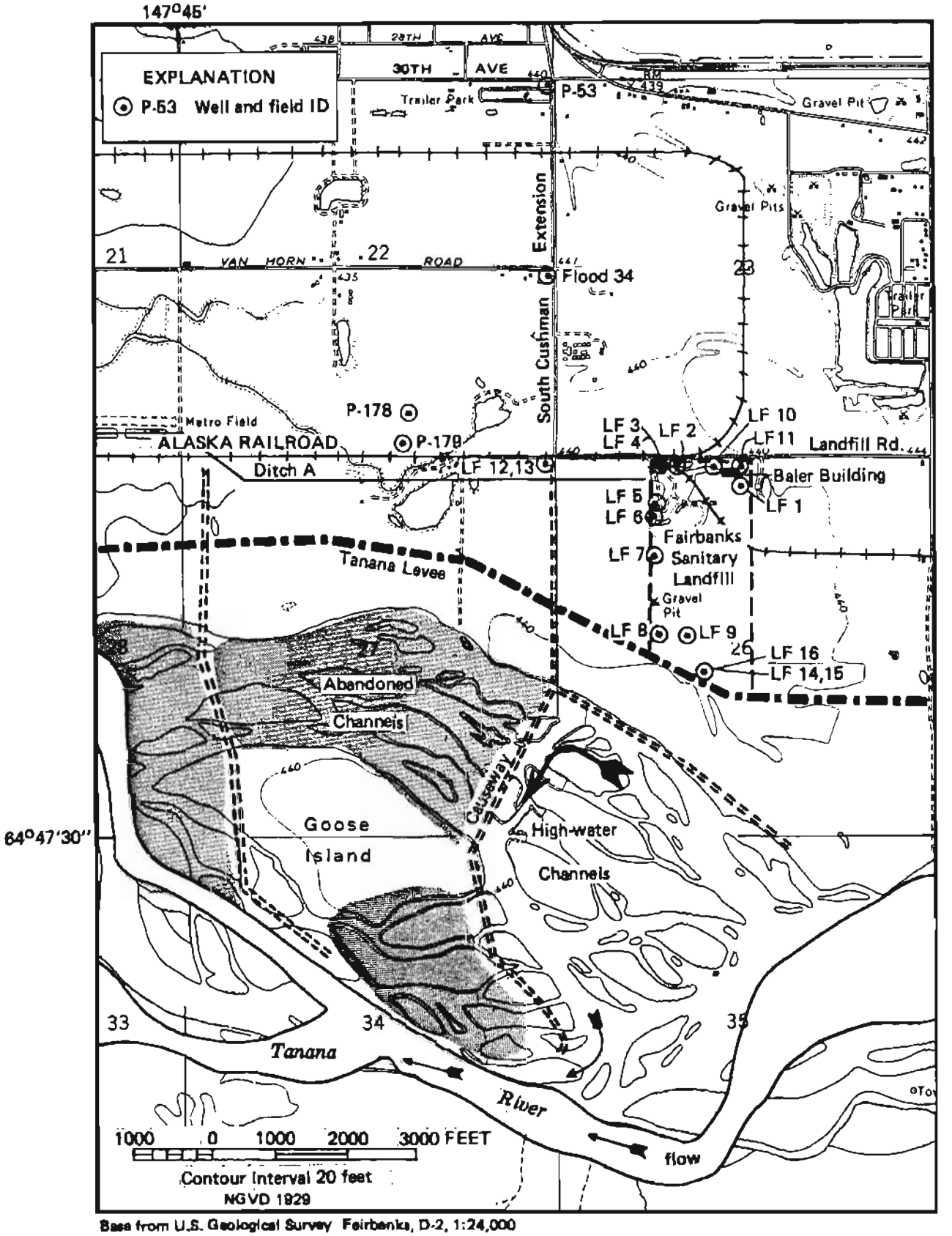
In 1983, The U.S. Army of Corps of Engineers constructed a drainage channel, commonly referred to as Ditch 'A', extending westward 4 mi from the west boundary of the Fairbanks Sanitary Landfill to a point south of Fairbanks where it empties into the Tanana River (fig. 2). The channel is designed to provide protection from seepage under the Tanana River levee and coincident local surface-water runoff.

DATA-COLLECTION SITES

A data-collection network was designed so that water quality and water levels could be analyzed for areas upgradient, directly beneath, and downgradient of the landfill. The network consists of 22 wells (commonly referred to as test, monitoring, or observation wells) and 2 river stations (figs. 1 and 2).

Four wells in the network (Landfill 10, 11, 12, and 13) are auger holes drilled by the U.S. Geological Survey specifically for this study. Ten wells (Landfill 1 through Landfill 9 and the "Baler Building well") drilled in 1979 by the Fairbanks North Star Borough (FNSB), and six wells (designated Landfill 14, 15, and 16; P-53, P-178 and P-179) drilled by the U.S. Corps of Engineers as part of the Chena Lakes Flood Control Project were incorporated into the network for this study. Other wells in the study network include the U.S. Geological Survey's Flood 34, drilled shortly after the 1967 Fairbanks flood, and the U.S. Army well on Ft. Wainwright, where the USGS has collected water-level data since 1976.

The USGS auger holes and FNSB wells (except at the Baler Building) are cased with 2-inch diameter PVC plastic pipe and the Corps of Engineers' wells are cased with 1.5-inch diameter PVC plastic pipe. The other wells are cased with steel pipe: 2-inch diameter at Flood 34, 6-inch diameter at the Baler Building, and 8-inch diameter at the Ft. Wainwright well. Completion details for wells P-53, P-178, P-179, and Flood 34 are not available, but all other wells are open to the aquifer through slotted screens at their lower ends.



Base from U.S. Geological Survey Fairbanks, D-2, 1:24,000

Figure 2.–Location of Fairbanks Sanitary Landfill area and ground-water data-collection sites (wells).

River stage data were collected at two sites: Tanana River at Fairbanks and Chena River at Fairbanks (fig. 1). The latter site has been a U.S. Geological Survey stream-gaging station since 1947.

WATER LEVEL DATA

Water-level data and logs of the wells are given in table 1. Hydrographs of water levels in the Landfill-3 well and the Ft. Wainwright well, and river stages at the Tanana and Chena Rivers are shown in figure 3.

A steel tape was used to measure water levels at each visit to the wells. Some wells have missing measurements and these are noted in table 1. In addition, the Ft. Wainwright well and Landfill-3 well were equipped with water-level recorders.

Measurements of ground-water levels in this report are given in feet referred to both National Geodetic Vertical Datum of 1929 (NGVD) and to land surface datum (lsd). NGVD is the datum plane on which the national network of precise levels is based; land-surface datum is a datum plane that is approximately at land surface at each well. Each well was surveyed by levels to NGVD and the altitude of the land surface datum is given in the well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month.

NUMBERING SYSTEM FOR WELLS

Three identifying numbers are assigned to each well: a site ID (identification) number, a "local" number and a field identifier. The site ID number is based on the grid system of latitude and longitude. This 15-digit number provides the geographic location of the well and a unique number for each site. The first six digits denote degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the wells within a 1-second grid. It is important to note, however, that once this number is assigned to a well it has no locational significance and is not changed even if the latitude and longitude are later found to be in error. When such errors are corrected the latitude may differ from the site ID.

Latitude and longitude are convenient identifiers for plotting by computers. However, for hand plotting, an identifier associated with the township, range, and section number is more convenient. The local number is based on the rectangular division of public lands. The first two letters indicate the principal meridian and the quadrant formed by the intersection of the base line and the principal meridian. The first three digits indicate the township in which the well is located, the next three digits the range, and the following two digits the section. Letters following the section number indicate the quarter section, the quarter-quarter section, and so forth to the fourth order quarter section. Each of these subdivisions is lettered counterclockwise from the northeast corner. Each well within the smallest order of subdivision is then given a sequential number. Finally, each well within a section may be assigned an optional sequential map number using the last three digits.

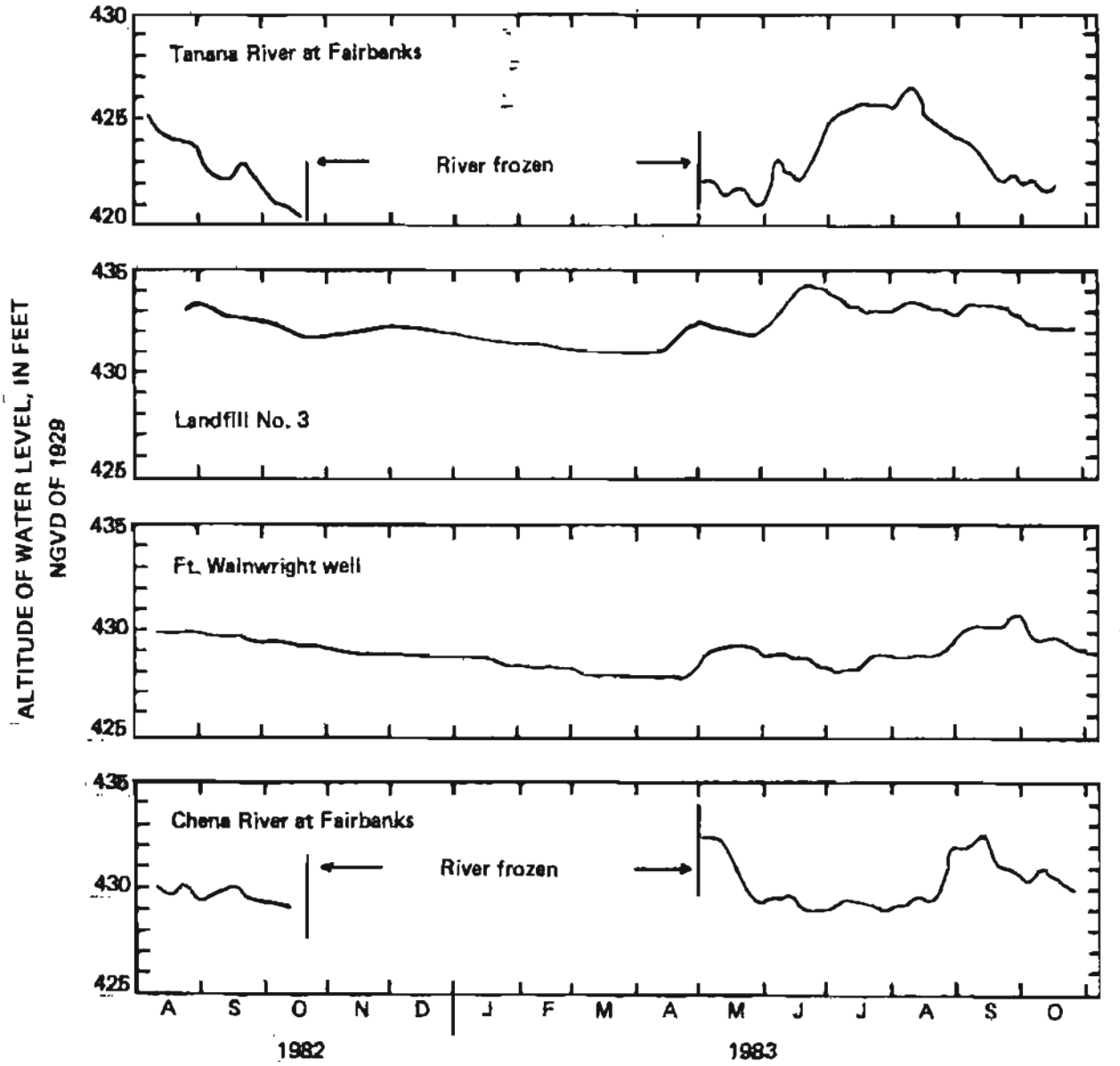


Figure 3.--River and ground-water levels in the Fairbanks Sanitary Landfill area.

For example, FC00100126BABB3005 (Landfill well 4) indicates the Fairbanks meridian (F), the southwest quadrant (C), township 1 south, range 1 west, section 26; and the well is in the NW ¼ (B) of the NW ¼ (B) of the NE ¼ (A) of the NW ¼ (B) of the section (BABB). The 3 indicates that it was the third well assigned a sequential number in the fourth order quarter section. The next three digits, 005, indicate that this was the fifth well located on the map and plotted in the 1-square-mile section. This number, without the leading zeroes, appears adjacent to the well location symbol on maps on file in the U.S. Geological Survey offices.

Finally, a short field identifier is commonly assigned to a well for the purposes of a specific project or observation/monitoring network. This number is commonly used in notes and on sketches or maps compiled in the field. LF-1, P-53, and Flood 34 are examples of field identifiers used on the maps and in the text of this report.

WATER-QUALITY DATA

The mineral constituents and physical properties of water collected at well and river sites include those that have a practical bearing on the quality of the water for most uses. The water samples were collected using standard U.S. Geological Survey ground-water sampling techniques and methods. The wells were developed (purged) by air a day or two prior to sampling. At the time of sampling, the wells were pumped for a minumum of 5 minutes and until the water temperature, conductivity, and pH readings stabilized. Field water-quality tests (table 2) were performed for temperature, pH, specific conductance, alkalinity, and dissolved oxygen at each well and river site prior to the collection of a sample for lab analysis.

The water samples collected at well and river sites were analyzed (table 3) for: trace metals (cadmium, copper, lead, mercury, zinc); major cations (potassium, calcium) and anions (chloride, fluoride, sulfate); iron and manganese; magnesium; sodium (or sodium and potassium together calculated as sodium); carbonate and bicarbonate alkalinity; boron; dissolved solids; pH; specific conductance; volatile organics (benzene, carbon tetrachloride, methylene chloride, toluene); total organic carbon; and nitrogen species. Additionally, water samples were collected for laboratory analysis of stable isotopes: 1 H, proteum; 2 H, deuterium; 16 O and 18 O, both oxygen isotopes; 34 S and 32 S, both sulfur isotopes; and finally, tritium 3 H, a radioactive isotope with a half-life of 12.3 years. The chemical analyses were made by the U.S. Geological Survey Water Quality Laboratory in Lakewood, Colorado.

A 1-inch diameter, 2-foot-long, 500-mL capacity teflon bailer was used to sample organic constituents in the ground water beneath the landfill. The bailer was cleaned and sterilized prior to field use and rinsed with distilled water between samples. The bailer was lowered into the well to the desired depth: either to the static water level (obtained just before sampling), or to the depth of the casing openings. The unit is designed so that the water to be sampled is allowed to flow through the unit until the desired depth or zone is reached in the well. Upon retrieval, check balls (located at the top and the bottom of the bailer) seat themselves, the bailer is pulled out of the well, and the water sample emptied into

bottles. These procedures were followed in order to retrieve organic contaminants which float on top of the water surface or which are passing through the casing openings at various depths.

Samples for isotope analyses were collected using a peristaltic pump equipped with silicone rubber tubing. The tubing was lowered into the well to the depth of the water and the pump then turned on and allowed to run long enough to completely rinse the tubing out and field rinse the sample bottles. The collection bottles (plastic for the sulfur isotope analyses and glass for all other isotope analyses) were provided by the Water Quality Lab. The glass sampling bottles were baked at 120 °F overnight before collection of a sample. No other sample preservation techniques were used.

REFERENCES CITED

Nelson, G. L., 1978, Hydrologic information for land-use planning, Fairbanks vicinity, Alaska: U.S. Geological Survey Open-File Report 78-959, 47 p.

R and M Consultants, Inc., and Arctic Environment Engineers, 1975, Groundwater leachate survey at the Fairbanks North Star Borough Sanitary Landfill: 41 p.

U.S. Geological Survey, 1984, Water resources data for Alaska—water year 1983: U.S. Geological Survey Water-Data Report AK-83-1, 357 p.

Table 1.--Water-level data and drilling logs for wells in and adjacent to Fairbanks Sanitary Landfill

Site ID No. 644751147415401

Local No. FC00100126BAAA1016 Field ID: Baler (Fairbanks Sanitary Landfill Baler Building well)

LOCATION: Lat 64°48'20", long 147°41'36"; NE¼ NE¼ NE¼ NW¼, sec. 26, T.1 S., R.1 W., Fairbanks Meridian; in well and pump room of Baler Building, Fairbanks Sanitary Landfill.

OWNER: Fairbanks North Star Borough.

WELL CHARACTERISTICS: Drilled used institutional well, diameter 6 in., steel casing from 2.30 ft above land-surface datum to 90 ft; slotted screen openings from 80 ft to 90 ft; casing annulus backfilled with gravel to 8 ft and with bentonite above 8 ft.

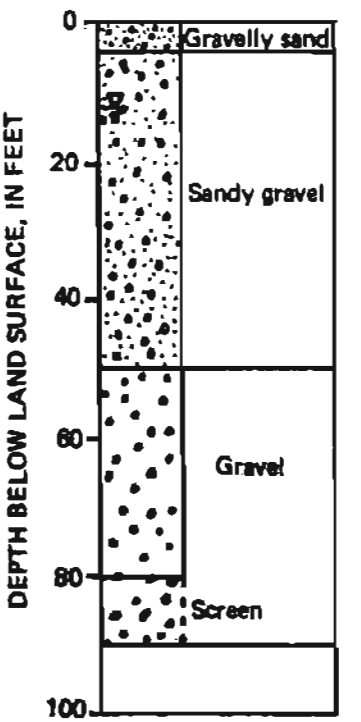
DATUM: Altitude of land-surface datum is 443.6 ft NGVD.
Measuring Point: tapped-hole in top of casing, 2.3 ft above land-surface datum.

REMARKS: Well is used for fire protection and support of baler operations and personnel. The well is frequently pumped.

WATER-LEVEL DATA

Date	Depth to water (ft)	Altitude of water level (ft)
8-11-83	10.04	433.56
26	10.70	432.90
31	10.41	433.19
9-26-83	12.50	431.10
27	11.53	432.07
10-28-83	11.19	432.41
11-22-83	11.78	431.82

WELL LOG



▽ Represents water table on all well logs

Table 1.--Continued

Site ID No. 644820147420001

Local No. FC00100126BAAD1007 Field ID: FNSB LF-1

LOCATION: Lat 64°48'18", long 147°41'29", SE¼ NE¼ NE¼ NW¼, sec.26, T.1 S., R.1 W., Fairbanks Meridian; 75 ft southeast of the southeast corner of the Baler Building and at the intersection of the fence lines of the Fairbanks Sanitary Landfill.

OWNER: Fairbanks North Star Borough.

WELL CHARACTERISTICS: Drilled observation and monitoring well, diameter 2 in., depth 22 ft; PVC casing from 0.70 ft above land-surface datum to 22 ft; slotted screen openings from 17 ft to 22 ft.

DATUM: Altitude of land-surface datum is 441.1 ft NGVD.
Measuring point: top of casing 0.70 ft above land-surface datum.

REMARKS: Fairbanks North Star Borough drilled well as part of their leachate monitoring program at the Fairbanks Sanitary Landfill. Well is designated Landfill No. 1.

WATER-LEVEL DATA

Date	Depth to water (ft)	Altitude of water level (ft)
8-28-82	6.99	434.11
10-1882	8.08	433.02
11-15-82	8.01	433.09
12-22-82	8.03	433.07
1-26-83	8.85	432.25
2-17-83	8.75	432.35
3-30-83	9.04	432.06
4-26-83	7.87	433.23
5-16-83	8.09	433.01
6-22-83	8.29	432.81
7-27-83	7.03	434.07
8-23-83	6.94	434.16
9-27-83	7.83	433.27
10-29-83	7.85	433.25
11-22-83	8.52	432.58

WELL LOG

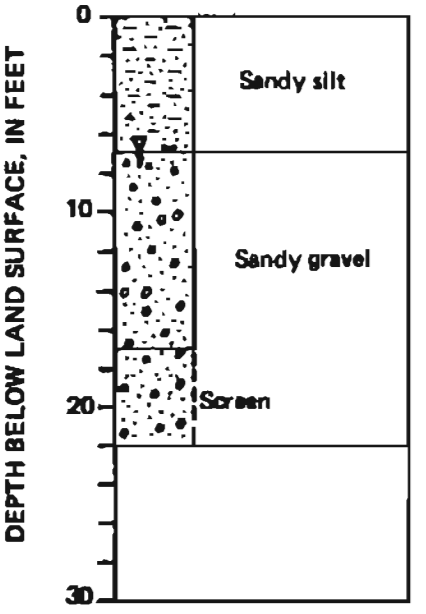


Table 1.--Continued

Site ID No. 644821147420801

Local No. FC00100126BABB2005 Field ID: FNSB LF-2

LOCATION: Lat 64°48'21", long 147°41'55", NW¼ NW¼ NE¼ NW¼, sec. 26, T.1 S., R.1 W., Fairbanks Meridian; 75 ft south of Landfill Road along Alaska Railroad tracks entering Fairbanks Sanitary Landfill.

OWNER: Fairbanks North Star Borough.

WELL CHARACTERISTICS: Drilled observation and monitoring well, diameter 2 in., depth 17 ft; PVC casing from 0.53 ft above land-surface datum to 17 ft; slotted screen openings from 12 ft to 17 ft.

DATUM: Altitude of land-surface datum is 440.2 ft NGVD. Measuring point: top of casing 0.53 ft above land-surface datum.

REMARKS: Fairbanks North Star Borough drilled well as part of their leachate monitoring program at the Fairbanks Sanitary Landfill. Well is designated Landfill No. 2.

WATER-LEVEL DATA

Date	Depth to water (ft)	Altitude of water level (ft)
8-27-82	6.97	433.23
10-18-82	8.03	432.17
11-15-82	7.92	432.28
12-22-82	7.91	432.29
1-26-83	8.37	431.83
2-17-83	8.56	431.64
3-24-83	8.85	431.35
4-26-83	7.67	432.53
5-16-83	7.90	432.30
6-22-83	8.11	432.09
7-27-83	6.95	433.25
8-23-83	6.85	433.35
9-27-83	7.64	432.56
10-28-83	7.65	432.55
11-22-83	8.27	431.93

WELL LOG

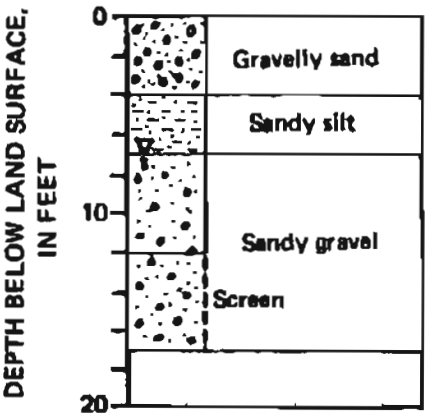


Table 1.—Continued

Site ID No. 644820147421401

Local No. FC00100126BABB1005 Field ID: FNSB LF-3

LOCATION: Lat 64°48'21", long 147°41'58", NW¼ NW¼ NE¼ NW¼, sec. 26, T.1 S., R.1 W., Fairbanks Meridian; 40 ft east of locked gate at northwest boundary of Fairbanks Sanitary Landfill.

OWNER: Fairbanks North Star Borough.

WELL CHARACTERISTICS: Drilled observation and monitoring well, diameter 2 in., depth 17 ft; PVC casing from 1.25 ft above land-surface datum to 17 ft; slotted screen openings from 12 ft to 17 ft.

DATUM: Altitude of land-surface datum is 440.3 ft NGVD. Measuring point: top of casing is 2.75 ft above land-surface datum.

REMARKS: Fairbanks North Star Borough drilled well as part of their leachate monitoring program at the Fairbanks Sanitary Landfill. Well is designated Landfill No. 3. Water-level graphic recorder operated August 1982 to October 1983.

WATER-LEVEL DATA

Date	Depth to water (ft)	Altitude of water level (ft)
8-23-82	7.22	433.08
27	6.97	433.33
31	6.93	433.37
9-5-82	7.18	433.12
10	7.37	432.93
15	7.41	432.89
20	7.47	432.83
25	7.50	432.80
30	7.59	432.71
10-18-82	8.33	431.97
11-15-82	8.23	432.07
12-22-82	8.22	432.08
1-26-83	8.69	431.61
2-17-83	8.96	431.34
3-24-83	9.24	431.06
4-10-83	9.10	431.20
15	8.98	431.32
20	8.51	431.79
25	8.06	432.24
28	8.06	432.24
4-30-83	7.71	432.59

WELL LOG

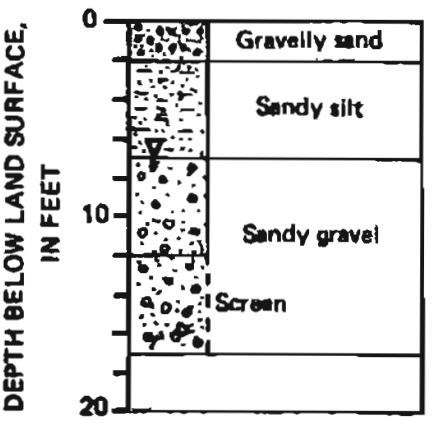


Table 1.—Continued

Site ID No. 644820147421401

Local No. FC00100126BABB1005 Field ID: FNSB LF-3

WATER-LEVEL DATA (continued)

Date	Depth to water (ft)	Altitude of water level (ft)
5-5-83	7.93	432.37
10	8.10	432.20
15	8.16	432.14
16	8.15	432.15
20	8.24	432.06
25	8.38	431.92
6-22-83	6.11	434.19
25	6.14	434.16
30	6.36	433.94
7-5-83	6.62	433.68
10	6.91	433.39
15	7.11	433.19
20	7.25	433.05
25	7.19	433.11
27	7.27	433.03
30	7.30	433.00
8-5-83	6.95	433.35
11	6.80	433.50
23	7.14	433.16
26	7.20	433.10
31	7.50	432.80
9-5-83	7.33	432.97
10	7.34	432.96
15	7.37	432.93
20	7.37	432.93
25	7.43	432.87
27	7.95	432.35
30	7.98	432.32
10-5-83	7.96	432.34
10	7.98	432.32
15	8.13	432.17
10-28-83	7.94	432.36

Table 1.--Continued

Site ID No. 644818147421801

Local No. FC00100126BABB3005 Field ID: FNSB LF-4

LOCATION: Lat 64°48'21", long 147°42'00", NW¼ NW¼ NE¼ NW¼, sec. 26, T.1 S., R.1 W., Fairbanks Meridian; in extreme northwest corner at fence-line intersection of Fairbanks Sanitary Landfill.

OWNER: Fairbanks North Star Borough.

WELL CHARACTERISTICS: Drilled observation and monitoring well, diameter 2 in., depth 17 ft; PVC casing from 0.41 ft above land-surface datum to 17 ft; slotted screen openings from 12 ft to 17 ft.

DATUM: Altitude of land-surface datum is 440.8 ft NGVD.
Measuring point: top of casing 0.41 ft above land-surface datum.

REMARKS: Fairbanks North Star Borough drilled well as part of their leachate monitoring program at the Fairbanks Sanitary Landfill. Well is designated Landfill No. 4.

WATER-LEVEL DATA

Date	Depth to water (ft)	Altitude of water level (ft)
8-27-83	7.37	433.43
10-18-82	8.42	432.38
11-15-82	8.32	432.48
12-22-82	8.20	432.60
1-26-83	8.90	431.90
2-17-83	9.07	432.73
3-24-83	9.40	431.40
4-26-83	8.27	432.53
5-16-83	8.39	432.41
6-22-83	8.52	432.28
7-27-83	7.40	433.40
8-23-83	7.29	433.51
9-27-83	8.09	432.71
10-28-83	8.09	432.71
11-22-83	8.79	432.01

WELL LOG

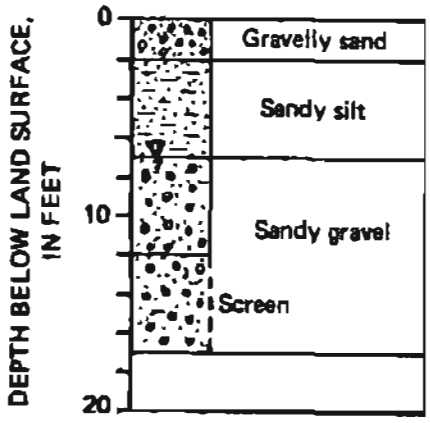


Table 1.--Continued

Site ID No. 644813147421701

Local No. FC00100126BACB2008 Field ID: FNSB LF-5

LOCATION: Lat 64°48'16", long 147°41'59", NW¼ SW¼ NE¼ NW¼, sec. 26, T.1 S., R.1 W., Fairbanks Meridian; 500 ft south of Landfill Road and along west boundary fence line of Fairbanks Sanitary Landfill.

OWNER: Fairbanks North Star Borough.

WELL CHARACTERISTICS: Drilled observation and monitoring well, diameter 2 in., depth 17 ft; PVC casing from 0.56 ft above land-surface datum to 17 ft; slotted screen openings from 12 ft to 17 ft.

DATUM: Altitude of land-surface datum is 439.1 ft NGVD. Measuring point: top of casing 0.56 ft above land-surface datum.

REMARKS: Fairbanks North Star Borough drilled well as part of their leachate monitoring program at the Fairbanks Sanitary Landfill. Well is designated Landfill No. 5.

WATER-LEVEL DATA

Date	Depth to water (ft)	Altitude of water level (ft)
8-27-82	5.41	433.69
10-18-82	6.46	432.64
11-15-82	6.12	432.98
12-22-82	6.26	432.84
1-27-83	6.80	432.30
2-17-83	6.97	432.13
3-24-83	7.27	431.83
4-26-83	5.94	433.16
5-16-83	6.40	432.70
6-22-83	6.58	432.52
7-27-83	5.35	433.75
8-23-83	5.30	433.80
9-27-83	6.20	432.90
10-28-83	6.08	433.02
11-22-83	6.79	432.31

WELL LOG

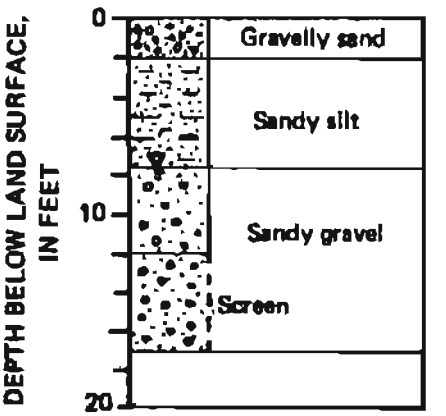


Table 1.--Continued

Site ID No. 644809147421501

Local No. FC00100126BACB1008 Field ID: FNSB- LF-6

LOCATION: Lat 64°48'14", long 147°41'59", NW¼ SW¼ NE¼ NW¼, sec. 26, T.1 S., R.1 W., Fairbanks Meridian; 900 ft south of Landfill Road and along west boundary fence line of Fairbanks Sanitary Landfill.

OWNER: Fairbanks North Star Borough.

WELL CHARACTERISTICS: Drilled observation and monitoring well, diameter 2 in., depth 17 ft; PVC casing from 1.60 ft above land-surface datum to 17 ft; slotted screen openings from 12 ft to 17 ft.

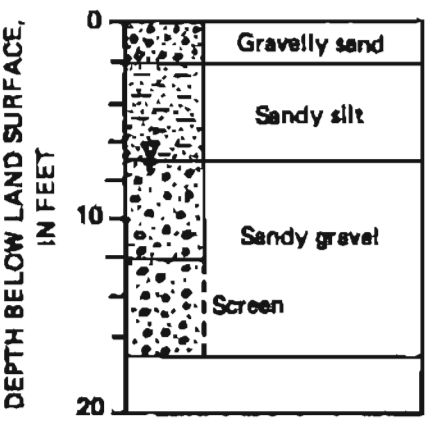
DATUM: Altitude of land-surface datum is 439.2 ft NGVD. Measuring point: top of casing 1.60 ft above land-surface datum.

REMARKS: Fairbanks North Star Borough drilled well as part of their leachate monitoring program at the Fairbanks Sanitary Landfill. Well is designated Landfill No. 6.

WATER-LEVEL DATA

Date	Depth to water (ft)	Altitude of water level (ft)
8-27-82	5.63	433.57
10-1882	6.79	432.41
11-15-82	6.53	432.67
12-22-82	6.62	432.58
1-27-83	7.24	431.96
2-17-83	7.41	431.79
3-24-83	7.74	431.46
4-28-83	6.38	432.82
5-16-83	6.84	432.36
6-22-83	7.04	432.16
7-27-83	5.72	433.48
8-23-83	5.65	433.55
9-28-83	6.68	432.52
10-28-83	6.58	432.62
11-22-83	7.36	431.84

WELL LOG



Site ID No. 644808147420801

Local No. FC00100126BDBB1010 Field ID: FNSB LF-7

LOCATION: Lat 64°48'09", long 147°41'59", NW¼ NW¼ SE¼ NW¼, sec. 26, T.1 S., R.1 W., Fairbanks Meridian; 1500 ft south of Landfill Road along west boundary fence line of Fairbanks Sanitary Landfill.

OWNER: Fairbanks North Star Borough.

WELL CHARACTERISTICS: Drilled observation and monitoring well, diameter 2 in., depth 17 ft; PVC casing from 1.75 ft above land-surface datum to 17 ft; slotted screen openings from 12 ft to 17 ft.

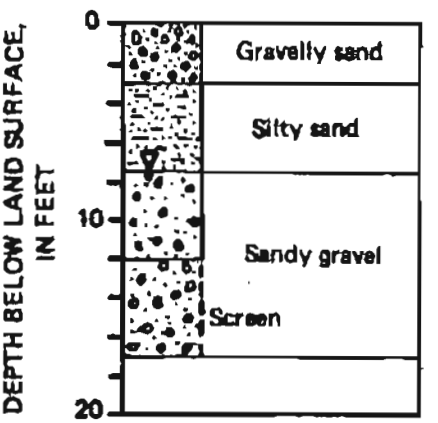
DATUM: Altitude of land-surface datum is 440.4 ft NGVD. Measuring point: top of casing 1.75 ft above land-surface datum.

REMARKS: Fairbanks North Star Borough drilled well as part of their leachate monitoring program at the Fairbanks Sanitary Landfill. Well is designated Landfill No. 7.

WATER-LEVEL DATA

Date	Depth to water (ft)	Altitude of water level (ft)
8-27-82	6.59	433.81
10-18-82	7.59	432.81
11-15-82	6.35	434.05
12-22-82	7.43	432.97
1-27-83	8.01	432.39
2-17-83	8.21	432.19
3-24-83	8.51	431.89
4-28-83	7.15	433.25
5-16-83	7.69	432.71
6-22-83	7.80	432.60
7-27-83	6.43	433.97
8-23-83	6.45	433.95
9-27-83	7.49	432.91
10-28-83	7.33	433.07
11-22-83	8.13	432.27

WELL LOG



Site ID No. 644804147415901

Local No. FC00100126BDCC1011 Field ID: FNSB LF-8

LOCATION: Lat 64°47'58", long 147°41'55", SW¼ SW¼ SE¼ NW¼, sec. 26,T.1 S., R.1 W., Fairbanks Meridian; in scrub-brush area, 800 ft southeast of LF-7 and south of active fill area of Fairbanks Sanitary Landfill.

OWNER: Fairbanks North Star Borough.

WELL CHARACTERISTICS: Drilled observation and monitoring well, diameter 2 in., depth 17 ft; PVC casing from 1.96 ft above land-surface datum to 17 ft; slotted screen openings from 12 ft to 17 ft.

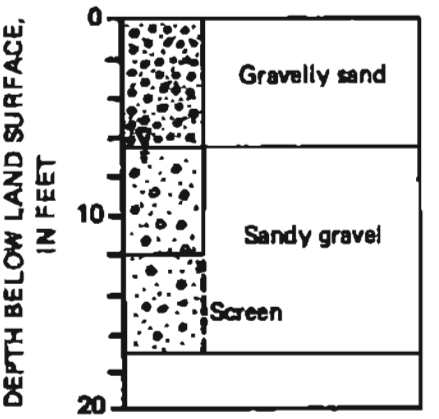
DATUM: Altitude of land-surface datum is 440 ft NGVD. Measuring point: top of casing 1.96 ft above land-surface datum.

REMARKS: Fairbanks North Star Borough drilled well as part of their leachate monitoring program at the Fairbanks Sanitary Landfill. Well is designated Landfill No. 8.

WATER-LEVEL DATA

Date	Depth to water (ft)	Altitude of water level (ft)
8-27-82	5.10	434.90
10-18-82	6.32	433.68
11-15-82	6.33	433.67
12-22-82	5.78	434.22
1-27-83	6.52	433.48
2-17-83	6.99	433.01
3-24-83	7.31	432.69
4-28-83	5.66	434.34
5-16-83	6.42	433.58
6-22-83	6.62	433.38
7-27-83	5.03	434.97
8-23-83	4.82	435.18
9-27-83	6.30	433.70
10-29-83	6.16	433.84
11-22-83	7.04	432.96

WELL LOG



Site ID No. 644806147413601

Local No. FC00100126BDCD1012 Field ID: FNSB LF-9

LOCATION: Lat 64°47'58", long 147°41'47", SE¼ SW¼ SE¼ NW¼, sec. 26, T.1 S., R.1 W., Fairbanks Meridian; 125 ft east of LF-8 well of Fairbanks Sanitary Landfill.

OWNER: Fairbanks North Star Borough.

WELL CHARACTERISTICS: Drilled observation and monitoring well, diameter 2 in., depth 17 ft; PVC casing from 0.86 ft above land-surface datum to 17 ft; slotted screen openings from 12 ft to 17 ft.

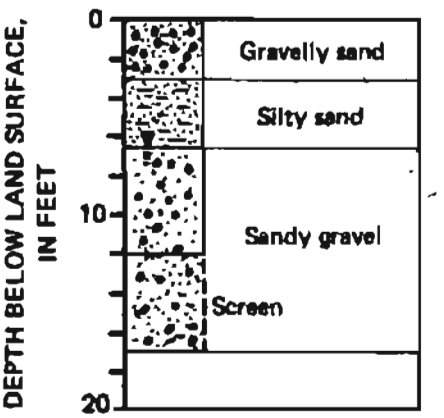
DATUM: Altitude of land-surface datum is 440 ft NGVD. Measuring point: top of casing 0.86 ft above land-surface datum.

REMARKS: Fairbanks North Star Borough drilled well as part of their leachate monitoring program at Fairbanks Sanitary Landfill. Well is designated Landfill No. 9.

WATER-LEVEL DATA

Date	Depth to water (ft)	Altitude of water level (ft)
8-27-82	6.00	434.00
10-18-82	7.21	432.79
11-15-82	7.16	432.84
12-22-82	7.12	432.88
1-27-83	7.89	432.11
2-17-83	7.80	432.20
3-24-83	8.09	431.91
4-28-83	6.37	433.63
5-16-83	7.12	432.88
6-22-83	7.19	432.81
7-27-83	5.49	434.51
8-23-83	5.31	434.69
9-27-83	6.85	433.15
10-29-83	6.71	433.29
11-22-83	7.54	432.46

WELL LOG



Site ID No. 644752147420201

Local No. FC00100126BAAB1004 Field ID: FNSB LF-10

LOCATION: Lat 64°48'21", long 147°41'39", NW¼ NE¼ NE¼ NW¼, sec. 26, T.1 S., R.1 W., Fairbanks Meridian; 50 ft west and 30 ft south of main entrance and within boundaries of Fairbanks Sanitary Landfill.

OWNER: U.S. Geological Survey.

WELL CHARACTERISTICS: Drilled observation and monitoring well, diameter 2 in., depth 13.85 ft; PVC casing from 2.25 ft above land-surface datum to 13.85 ft; slotted screen openings from 11.85 ft to 13.85 ft.

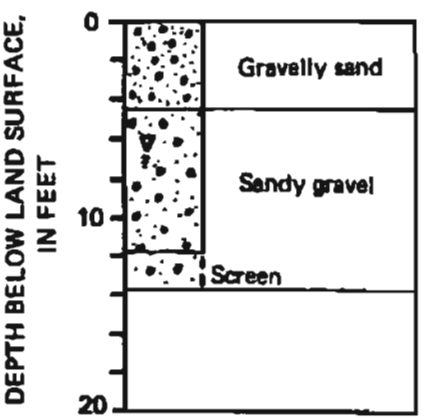
DATUM: Altitude of land-surface datum is 441.2 ft NGVD. Measuring point: top of casing 2.25 ft above land-surface datum.

REMARKS: U.S. Geological Survey drilled well as part of the Fairbanks Sanitary Landfill ground-water monitoring project. Well is designated LF-10.

WATER-LEVEL DATA

Date	Depth to water (ft)	Altitude of water level (ft)
9-13-82	7.43	433.77
10-18-82	8.16	433.04
well buried in snow till April 1983		
4-26-83	7.90	433.30
5-16-83	8.04	433.16
6-22-83	8.31	432.89
7-27-83	7.12	434.08
8-23-83	7.01	434.19
9-27-83	7.82	433.38
10-28-83	7.79	433.41
11-22-83	8.43	432.77

WELL LOG



Site ID No. 644752147415801

Local No. FC00100126BAAA2016 Field ID: FNSB LF-11

LOCATION: Lat 64°48'22", long 147°41'30", NE¼ NE¼ NE¼ NW¼, sec. 26, T.1 S., R.1 W., Fairbanks Meridian; 120 ft northeast of the northeast corner of the Baler Building and at the intersection of the fence line of the Fairbanks Sanitary Landfill.

OWNER: Fairbanks North Star Borough.

WELL CHARACTERISTICS: Drilled observation and monitoring well, diameter 2 in., depth 13.65 ft; PVC casing from 2.80 ft above land-surface datum to 13.65 ft; slotted screen openings from 11.65 ft to 13.65 ft.

DATUM: Altitude of land-surface datum is 441.3 ft NGVD.
Measuring point: top of casing 2.80 ft above land-surface datum.

REMARKS: U.S. Geological Survey drilled well as part of the Fairbanks Sanitary Landfill ground-water monitoring project. Well is designated LF-11.

WATER-LEVEL DATA

Date	Depth to water (ft)	Altitude of water level (ft)
9-13-82	7.34	433.96
10-18-82	8.13	433.17
11-15-82	8.04	433.26
12-22-82	7.92	433.38
1-26-83	5.55	435.75
2-17-83	8.64	432.66
3-24-83	9.09	432.21
4-26-83	7.93	433.37
5-16-83	8.05	433.25
6-22-83	8.31	432.99
7-27-83	7.12	434.18
8-23-83	6.98	434.32
9-27-83	7.81	433.49
10-29-83	7.87	433.43
11-22-83	8.42	432.88

WELL LOG

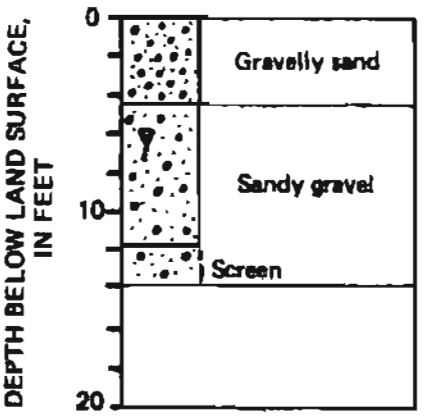


Table 1.--Continued

Site ID No. 644749147423401

Local No. FC00100127AAAA2004 Field ID: FNSB LF-12

LOCATION: Lat 64°48'19", long 147°42'31", NE¼ NE¼ NE¼ NE¼, sec. 27, T.1 S., R.1 W., Fairbanks Meridian; 40 ft south of intersection of South Cushman Street Extension and Landfill Road.

OWNER: U.S. Geological Survey.

WELL CHARACTERISTICS: Drilled observation and monitoring well, diameter 2 in., depth 50.4 ft; PVC casing from 3.60 ft above land-surface datum to 50.4 ft; slotted screen openings from 48.4 ft to 50.4 ft.

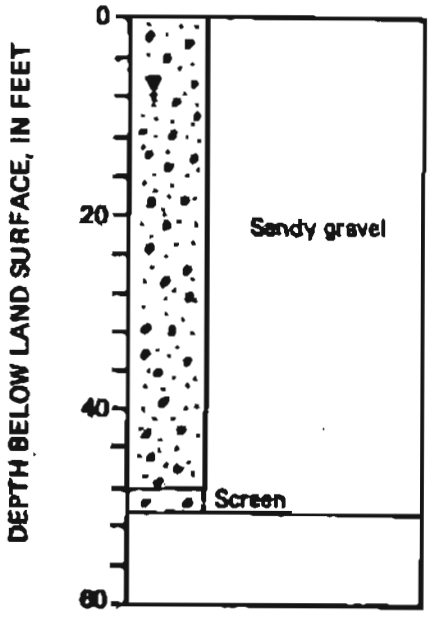
DATUM: Altitude of land-surface datum is 438.7 ft NGVD.
Measuring point: top of casing 3.60 ft above land-surface datum.

REMARKS: U.S. Geological Survey drilled well as part of the Fairbanks Sanitary Landfill ground-water monitoring project. Well designated LF-12.

WATER-LEVEL DATA

Date	Depth to water (ft)	Altitude of water level (ft)
9-13-82	5.86	432.84
10-18-82	6.64	432.06
11-15-82	6.51	432.19
12-22-82	6.50	432.20
1-26-83	6.98	431.72
2-17-83	7.20	431.50
3-24-83	8.32	430.38
4-26-83	6.42	432.28
5-16-83	6.62	432.08
6-22-83	6.94	431.76
7-27-83	5.37	433.33
8-23-83	5.77	432.93
9-27-83	6.47	432.23
10-29-83	6.48	432.22
11-22-83	7.23	431.47

WELL LOG



Site ID No. 644751147423501

Local No. FC00100127AAAA1004 Field ID: FNSB LF-13

LOCATION: Lat 64°48'20", long 147°42'30", NE¼ NE¼ NE¼ NE¼, sec. 27, T.1 S., R.1 W., Fairbanks Meridian; 30 ft south of intersection of South Cushman Street Extension and Landfill Road.

OWNER: U.S. Geological Survey.

WELL CHARACTERISTICS: Drilled observation and monitoring well, diameter 2 in., depth 16.53 ft; PVC casing from 3.0 ft above land-surface datum to 16.53 ft; slotted screen openings from 14.53 ft to 16.53 ft.

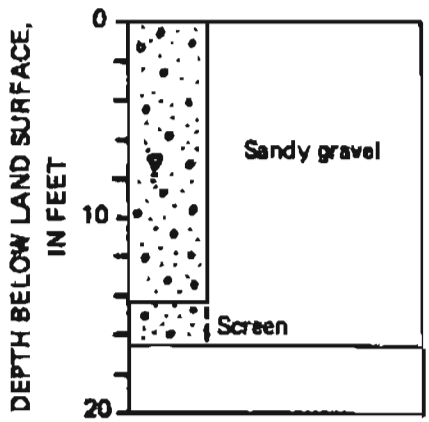
DATUM: Altitude of land-surface datum is 439.2 ft NGVD.
Measuring point: top of casing 3.00 ft above land-surface datum.

REMARKS: U.S. Geological Survey drilled well as part of the Fairbanks Sanitary Landfill ground-water monitoring project. Well is designated LF-13.

WATER-LEVEL DATA

Date	Depth to water (ft)	Altitude of water level (ft)
9-13-82	6.44	432.76
10-18-82	6.95	432.25
11-15-82	6.84	432.36
12-22-82	6.90	432.30
1-26-83	7.35	431.85
2-17-83	7.64	431.56
3-24-83	7.96	431.24
4-26-83	6.73	432.47
5-16-83	6.70	432.50
6-22-83	7.02	432.18
7-27-83	6.49	432.71
8-23-83	5.84	433.26
9-27-83	6.53	432.67
10-29-83	6.57	432.63
11-22-83	7.31	431.89

WELL LOG



Site ID No. 644739147411501

Local No. FC00100126CAAC2006 Field ID: FNSB LF-14

LOCATION: Lat 64°47'51", long 147°41'41", SW¼ NE¼ NE¼ SW¼, sec. 26, T.1 S., R.1 W., Fairbanks Meridian; 2000 ft east along levee access road, at crest of levee, from intersection of South Cushman Street Extension and Tanana River levee and directly south of Fairbanks Sanitary Landfill.

OWNER: U.S. Army Corps of Engineers.

WELL CHARACTERISTICS: Drilled unused observation well, diameter 1.5 in., depth 28.7 ft; PVC casing from 0.28 ft above land-surface datum to 28.7 ft; slotted screen openings from 23.7 ft to 28.7 ft.

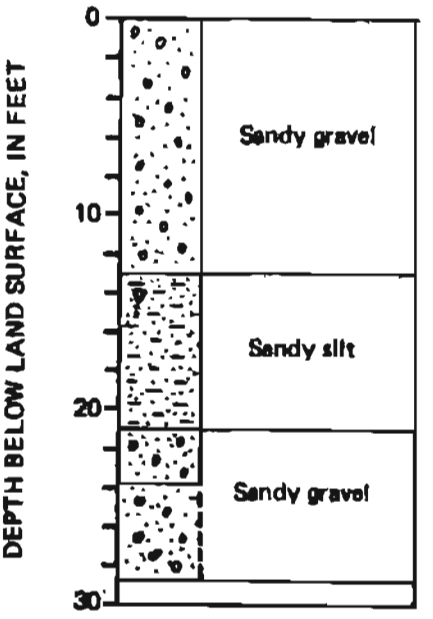
DATUM: Altitude of land-surface datum is 448.3 ft NGVD.
Measuring point: top of casing 0.28 ft above land-surface datum.

REMARKS: U.S. Army Corps of Engineers drilled well as part of the Chena River Flood Control Project and named well Piezometer-290.

WATER-LEVEL DATA

Date	Depth to water (ft)	Altitude of water level (ft)
9-2-82	14.08	434.22
10-18-82	14.87	433.43
11-15-82	14.46	433.84
12-22-82	14.71	433.59
1-27-83	15.30	433.00
2-17-83	15.44	432.86
3-24-83	15.67	432.63
4-26-83	13.76	434.54
5-16-83	14.98	433.32
6-22-83	14.96	433.34
7-27-83	12.74	435.56
8-23-83	13.02	435.28
9-27-83	14.96	433.34
10-28-83	14.18	434.12
11-22-83	15.37	432.93

WELL LOG



Site ID No. 644741147411501

Local No. FC00100126CAAC1006 Field ID: FNSB LF-15

LOCATION: Lat 64°47'52", long 147°41'41", SW¼ NE¼ NE¼ SW¼, sec. 26, T.1 S., R.1 W., Fairbanks Meridian; 2000 ft east along levee access road, at road level, from intersection of South Cushman Street Extension and Tanana River levee and directly south of Fairbanks Sanitary Landfill.

OWNER: U.S. Army Corps of Engineers.

WELL CHARACTERISTICS: Drilled unused observation well, diameter 1.5 in., depth 24 ft; PVC casing from 1.38 ft above land-surface datum to 24 ft; slotted screen openings from 18.9 ft to 23.9 ft.

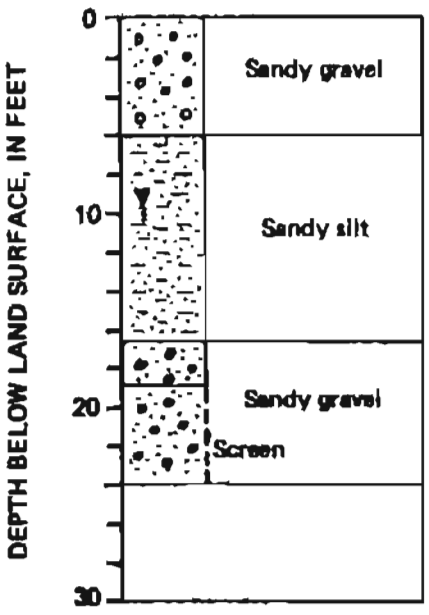
DATUM: Altitude of land-surface datum is 443.4 ft NGVD.
Measuring point: top of casing 1.38 ft above land-surface datum.

REMARKS: U.S. Army Corps of Engineers drilled well as part of the Chena River Flood Control Project and named well Piezometer-289.

WATER-LEVEL DATA

Date	Depth to water (ft)	Altitude of water level (ft)
9-2-82	8.29	435.11
10-18-82	9.09	434.31
11-15-82	8.96	434.44
12-22-82	8.95	434.45
1-27-83	9.53	433.87
2-17-83	9.70	433.70
3-24-83	9.95	433.45
4-26-83	8.02	435.38
5-16-83	9.25	434.15
6-22-83	9.25	434.15
7-27-83	7.01	436.39
8-23-83	5.89	437.51
9-27-83	9.22	434.18
10-28-83	8.77	434.63
11-22-83	9.66	433.74

WELL LOG



Site ID No. 644745147411401

Local No. FC00100126CAAB1014 Field ID: FNSB LF-16

LOCATION: Lat 64°47'53", long 147°41'41", NW¼ NE¼ NE¼ SW¼, sec. 26, T. 1 S., R. 1 W., Fairbanks Meridian; 2000 ft east, then 30 ft north, along levee access road from intersection of South Cushman Extension and Tanana River levee and directly south of Fairbanks Sanitary Landfill.

OWNER: U.S. Army Corps of Engineers.

WELL CHARACTERISTICS: Drilled unused observation well, diameter 1.5 in., depth 23.5 ft; PVC casing from 5.40 ft above land-surface datum to 23.5 ft; slotted screen openings from 18.2 ft to 23.2 ft.

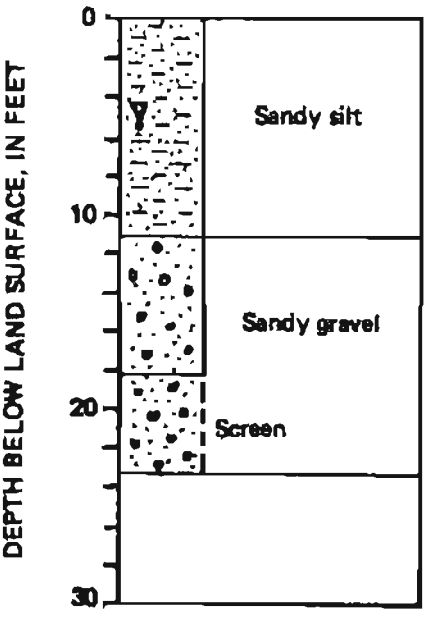
DATUM: Altitude of land-surface is 441.3 ft NGVD. Measuring point: top of casing 5.4 ft above land-surface datum.

REMARKS: U.S. Army Corps of Engineers drilled well as part of the Chena River Flood Control Project and named well Piezometer-288.

WATER-LEVEL DATA

Date	Depth to water (ft)	Altitude of water level (ft)
9- 2-82	5.62	435.68
10-18-82	4.51	436.79
11-15-82	4.43	436.87
12-22-82	4.32	436.98
1-27-83	5.14	436.16
2-17-83	5.40	435.90
3-24-83	5.85	435.45
4-26-83	3.96	437.34
5-16-83	5.16	436.14
6-22-83	5.20	436.10
7-27-83	3.02	438.28
8-23-83	3.18	438.12
9-27-83	5.13	436.17
10-28-83	4.70	436.60
11-22-83	5.64	435.66

WELL LOG



Site ID No. 644912147423202

Local No. FC00100122AAAA2002 Field ID: USCE P-53

LOCATION: Lat 64°49'12", long 147°42'32", NE¼ NE¼ NE¼ NE¼, sec. 22 T.1 S., R.1 W., Fairbanks Meridian; 25 ft south of the intersection of South Cushman Street and 30th Avenue.

OWNER: U.S. Army Corps of Engineers.

WELL CHARACTERISTICS: Drilled unused observation well, diameter 1.5 in., depth 17.7 ft; PVC casing from 0.65 ft above land-surface datum to 17.7 ft; casing openings information not available.

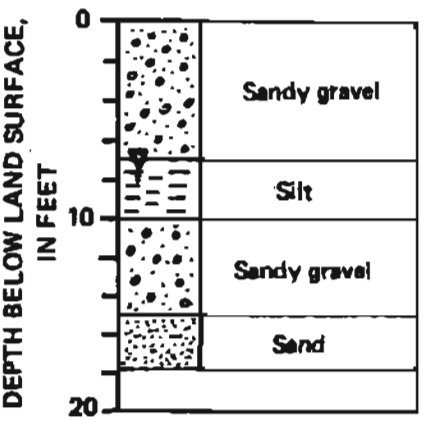
DATUM: Altitude of land-surface datum is 437.4 ft NGVD. Measuring point: top of casing 0.65 ft above land-surface datum.

REMARKS: U.S. Army Corps of Engineers drilled well as part of the Chena River Flood Control project and named well Piezometer-53

WATER-LEVEL DATA

Date	Depth to water (ft)	Altitude of water level (ft)
9-2-82	7.45	429.95
11-15-82	8.73	428.67
12-22-82	8.81	428.59
1-26-83	9.11	428.29
2-17-83	9.33	428.07
3-23-83	9.62	427.78
4-26-83	8.64	428.76
5-16-83	8.16	429.24
6-22-83	8.64	428.76
7-27-83	8.10	429.30
8-23-83	7.74	429.66
9-27-83	7.79	429.61
10-29-83	8.13	429.27
11-22-83	8.62	428.78

WELL LOG



Site ID No. 644827147432201

Local No. FC00100122DCCA1005 Field ID: USCE P-178

LOCATION: Lat 64°48'27", long 147°43'22", NE¼ SW¼ SW¼ SE¼, sec. 22, T.1 S., R.1 W., Fairbanks Meridian; 1.0 mi west of Fairbanks Sanitary Landfill and 200 ft north of Landfill Road.

OWNER: U.S. Army Corps of Engineers.

WELL CHARACTERISTICS: Drilled observation well, diameter 1.5 in., depth 20 ft; PVC casing from 4.31 ft above land-surface datum to 20 ft; casing openings information not available.

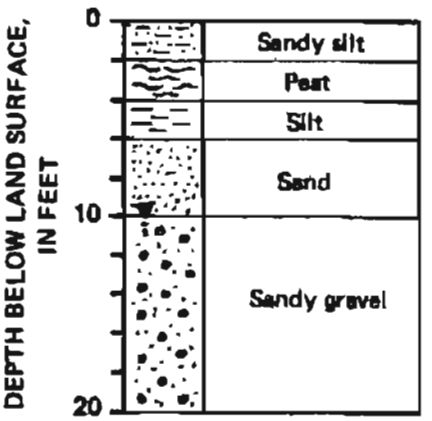
DATUM: Altitude of land-surface datum is 437.6 ft NGVD.
Measuring point: top of casing 4.31 ft above land-surface datum.

REMARKS: U.S. Army Corps of Engineers drilled well as part of the Chena River Flood Control Project and named well Piezometer-178.

WATER-LEVEL DATA

Date	Depth to water (ft)	Altitude of water level (ft)
9-2-82	4.61	432.99
10-18-82	5.65	431.95
11-15-82	5.66	431.94
12-22-82	5.58	432.02
1-27-83	6.08	431.52
2-17-83	6.26	431.34
3-24-83	5.65	431.95
4-26-83	5.47	432.13
5-16-83	5.67	431.93
6-22-83	6.08	431.52
7-27-83	5.09	432.51
8-23-83	4.86	432.74
9-27-83	5.58	432.02
10-29-83	5.62	431.98
11-22-83	6.43	431.17

WELL LOG



Site ID No. 644825147432401

Local No. FC00100122DCCC1006 Field ID: USCE P-179

LOCATION: Lat 64°48'25", long 147°43'24", SW¼ SW¼ SW¼ SE¼, sec.22, T.1 S., R.1 W., Fairbanks Meridian; 1.0 mi west of Fairbanks Sanitary Landfill and 100 ft north of Landfill Road.

OWNER: U.S. Army Corps of Engineers.

WELL CHARACTERISTICS: Drilled observation well, diameter 1.5 in., depth 20 ft; PVC casing from 2.65 ft above land-surface datum to 20 ft; casing openings information not available.

DATUM: Altitude of land-surface datum is 437.6 ft NGVD. Measuring point: top of casing 2.65 ft above land-surface datum.

REMARKS: U.S. Army Corps of Engineers drilled well as part of the Chena River Flood Control Project and named well Piezometer-179.

WATER-LEVEL DATA

Date	Depth to water (ft)	Altitude of water level (ft)
9-2-82	4.98	432.62
10-18-82	6.03	431.57
11-15-82	5.93	431.67
12-22-82	6.00	431.60
1-27-83	7.51	430.09
2-17-83	6.66	430.94
3-24-83	6.99	430.61
4-26-83	5.77	431.83
5-16-83	7.02	430.58
6-22-83	6.37	431.23
7-27-83	5.34	432.26
8-23-83	5.15	432.45
9-27-83	5.92	431.68
10-29-83	5.99	431.61
11-22-83	6.79	430.81

WELL LOG

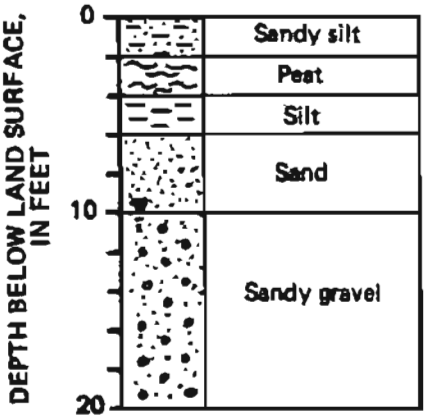


Table 1.--Continued

Site ID No. 644944147402501

Local No. FC00100113BCCC1022 Field ID: Ft. Wainwright well

LOCATION: Lat 64°49'44", long 147°40'25", SW¼ SW¼ SW¼ NW¼, sec. 13, T.1 S., R.1 W., Fairbanks Meridian; at former building site 4005, Fort Wainwright Army Base.

OWNER: U.S. Army

WELL CHARACTERISTICS: Drilled unused water-table well, diameter 8 in., depth 113 ft; steel casing from 1.5 ft above land-surface datum to 113 ft; slotted screen openings from 100 ft to 113 ft; open end at bottom of casing at 113 ft.

DATUM: Altitude of land-surface datum is 442.8 ft NGVD.
Measuring point: top of casing 1.50 ft above land-surface datum.

REMARKS: Water level reflects seasonal changes in the Chena River 0.4 mi to the north and the Tanana River 2.5 mi to the south. Water-level graphic recorder operating from March 1976 to current year.

WATER-LEVEL DATA

Date	Depth to water (ft)	Altitude of water level (ft)
8-6-82	12.91	429.90
10	12.94	429.87
15	12.99	429.82
20	13.02	429.79
25	13.10	429.71
31	13.16	429.65
9-5-82	13.20	429.61
10	13.24	429.57
15	13.27	429.54
20	13.30	429.51
25	13.34	429.47
30	13.38	429.43
10-5-82	13.44	429.37
10	13.49	429.32
15	13.56	429.25
20	13.65	429.16
25	13.72	429.09
31	13.80	429.01
11-5-82	13.85	428.96
10	13.90	428.91
15	13.93	428.88
20	13.96	428.85
25	13.98	428.83
11-30-82	14.00	428.81

WELL LOG

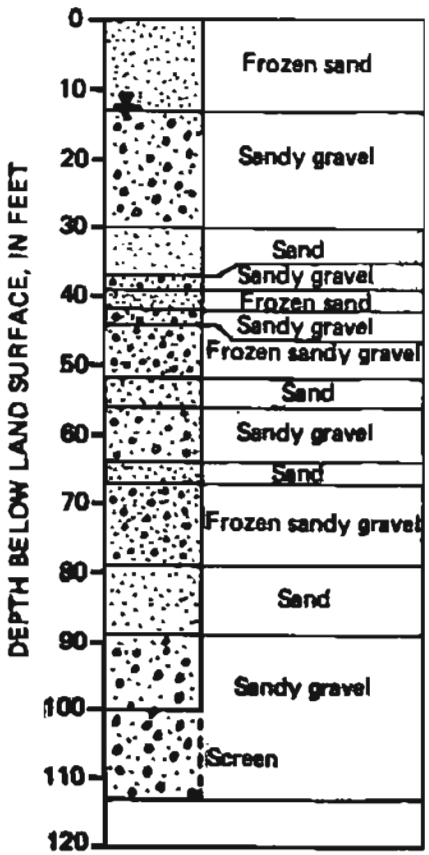


Table 1.--Continued

Site ID No. 644944147402501

Local No. FC00100113BCCC1022 Field ID: Ft. Wainwright well

WATER-LEVEL DATA (continued)

Date	Depth to water (ft)	Altitude of water level (ft)
12-5-82	14.04	428.77
10	14.06	428.75
15	14.09	428.72
20	14.11	428.70
25	14.15	428.66
31	14.19	428.62
1-5-83	14.23	428.58
10	14.27	428.54
15	14.31	428.50
20	14.35	428.46
25	14.45	428.36
31	14.46	428.35
2-5-83	14.50	428.31
10	14.53	428.28
15	14.58	428.23
20	14.62	428.19
25	14.79	428.02
28	14.81	428.00
3-5-83	14.85	427.96
10	14.89	427.92
15	14.92	427.89
20	14.96	427.85
25	14.99	427.82
31	15.02	427.79
4-5-83	15.04	427.77
10	15.06	427.75
15	15.07	427.74
20	15.12	427.69
25	14.94	427.87
30	14.21	428.60
5-5-83	13.73	429.08
10	13.71	429.10
15	13.57	429.24
20	13.53	429.28
25	13.55	429.26
5-31-83	13.96	428.85

WATER-LEVEL DATA (continued)

Date	Depth to water (ft)	Altitude of water level (ft)
6-5-83	13.95	428.86
10	13.87	428.94
15	14.03	428.78
20	14.19	428.62
25	14.34	428.47
30	14.44	428.37
7-5-83	14.28	428.53
10	14.22	428.59
15	14.19	428.62
20	13.94	428.87
25	13.79	429.02
31	13.91	428.90
8-5-83	13.98	428.83
10	13.85	428.96
15	13.88	428.93
20	13.89	428.92
25	13.40	429.41
31	12.92	429.89
9-5-83	12.59	430.22
10	12.46	430.35
15	12.53	430.28
20	12.72	430.09
25	12.95	430.86
30	12.94	430.87
10-5-83	13.18	429.63
10	13.28	429.53
15	13.08	429.73
20	13.25	429.56
25	13.52	429.29
10-31-83	13.52	429.29

Site ID No. 644848147423101

Local No. FC00100122DAAA1003 Field ID: USGS Flood 34

LOCATION: Lat 64°48'48", long 147°42'31", NE¼ NE¼ NE¼ SE¼, sec. 22, T.1 S., R.1 W., Fairbanks Meridian; 25 ft south of the intersection of South Cushman Street and Van Horn Road.

OWNER: U.S. Geological Survey.

WELL CHARACTERISTICS: Drilled unused observation well, diameter 2 in., depth 20.09 ft; steel casing from 2.83 ft above land-surface datum to 20.09 ft; casing openings information not available.

DATUM: Altitude of land-surface datum is 438.2 ft NGVD.
Measuring point: top of casing 2.83 ft above land-surface datum.

REMARKS: The U.S. Geological Survey drilled well after Fairbanks Flood of 1967 and named well Flood 34.

WATER-LEVEL DATA

Date	Depth to water (ft)	Altitude of water level (ft)
8-16-82	5.89	432.31
18	5.99	432.21
21	6.09	432.11
9-2-82	6.12	432.08
well damaged and obstructed until April 1983		
4-26-83	6.96	431.24
5-16-83	6.82	431.38
6-22-83	7.29	430.91
7-27-83	6.36	431.84
8-23-83	6.20	432.00
9-27-83	6.66	431.54
1031-83	7.42	430.78
11-22-83	7.28	430.92

WELL LOG

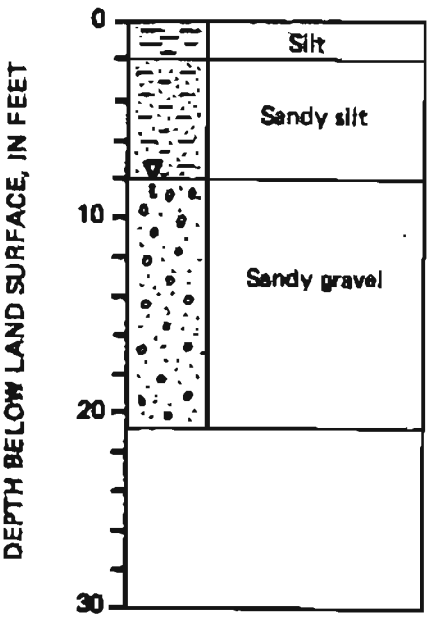


Table 2.--Field water-quality test results at data-collection sites

Field ID	Sampling date	Temperature (°C)	pH (units)	Oxygen, dissolved (mg/L)	Specific conductance (µS/cm)	Alkalinity (mg/L as $CaCO_3$)
			WELLS			
Fairbanks Landfill Baler	8-31-83	11.5	7.30	1.30	350	139
FNSB	3-23-83	2.5	6.65	.00	1500	341
LF-1	3-30-83	2.6	6.52	1.13	1800	303
	5-23-83	5.3	6.55	.00	1550	287
FNSB LF-2	3-14-83	2.8	7.30	.00	1088	262
FNSB LF-3	3-14-83	2.9	7.50	.00	1045	271
FNSB LF-4	3-2-83	1.5	7.10	5.70	1250	290
FNSB LF-5	3-28-83	4.4	6.82	.00	700	216
FNSB LF-6	3-28-83	3.0	6.70	.00	650	235
FNSB	3-3-83	1.0	6.75	.00	1400	670
LF-7	5-23-83	5.0	6.72	.00	1500	353
FNSB LF-8	3-28-83	.0	6.75	.00	545	142
FNSB LF-9	3-28-83	.5	6.80	.00	500	203
FNSB LF-10	5-24-83	4.5	6.90	.00	1750	409
FNSB	3-23-83	2.0	6.98	1.23	380	139
LF-11	3-30-83	1.5	6.70	.41	400	156
	6-29-83	4.5	7.50	.31	555	172

Table 2.--Continued

Field ID	Sampling date	Temperature (°C)	pH (units)	Oxygen, dissolved (mg/L)	Specific conductance (µS/cm)	Alkalinity (mg/L as $CaCO_3$)
			WELLS--(continued)			
FNSB LF-12	2-23-83	1.0	7.55	0.00	500	205
	2-28-83	2.0	7.80	.00	500	218
	6-29-83	4.5	7.60	.51	690	238
FNSB LF-13	2-23-83	2.0	7.00	.00	700	270
	2-24-83	2.0	7.12	.00	700	250
	6-29-83	5.0	7.30	.82	700	213
FNSB LF-14	4-1-83	2.0	6.58	.00	485	230
FNSB LF-15	4-1-83	1.5	6.60	.00	455	142
FNSB LF-16	4-1-83	1.5	6.60	.00	475	154
	6-27-83	5.0	6.75	.00	400	164
USCE P-53	3-24-83	2.5	6.95	.03	550	175
USCE P-178	3-24-83	.0	6.90	.00	255	137
USCE P-179	3-3-83	1.5	6.00	.00	536	174
	6-27-83	8.0	6.80	.00	610	242
US ARMY Ft. Wainwright	6-30-83	5.0	8.40	1.03	150	48
USGS Flood 34	5-24-83	3.0	7.20	.00	360	120
	6-27-83	4.0	7.70	.00	425	106
			STREAMS			
TANANA R. at Upper End Goose Island nr. Fairbanks,	4-6-83	.0	7.20	10.1	265	121
CHENA R. nr. Fairbanks	9-6-83	4.5	8.20	7.90	95	60

Table 3.–Chemical analyses of water samples from wells in and adjacent to Fairbanks Sanitary Landfill and two river sites near Fairbanks (data from U.S. Geological Survey, 1984)

FIELD ID	STATION NUMBER	LOCAL IDENTIFIER		DATE OF SAMPLE	TIME	PUMP OR FLOW PERIOD PRIOR TO SAMPLING (MIN)	SAMPLE SOURCE	SAMPLING CONDITION	DEPTH OF WELL, TOTAL (FEET)	DEPTH OF HOLE, TOTAL (FEET)	DEPTH TO TOP OF SAMPLE INTERVAL (FT)
LF-16	644745147411401	FC001001126CAAB1	014	83-06-27	0930	5	1/26	3/1.00	23.50	25	18
LF-12	644749147423401	FC001001127AAAA2	004	83-02-28	1330	5	26	1.00	50.40	52	48
				83-06-29	1330	5	26	1.00	50.00	52	48
Baler	644751147415401	FC001001126BAAA1	016	83-08-31	1400	5	26	1.00	90.00	90	80
LF-13	644751147423501	FC001001127AAAA1	004	83-02-23	1400	0	2/33	4/15.00	16.50	17	14
				83-02-24	1100	5	26	1.00	16.50	17	14
				83-06-29	1230	5	26	1.00	16.50	17	14
LF-11	644752147415801	FC001001126BAAA2	016	83-03-30	1130	5	26	1.00	13.70	16	11
				83-06-29	1030	5	26	1.00	13.70	16	11
LF-7	644808147420801	FC001001126BDB81	010	83-03-03	1500	0	33	15.00	17.00	18	12
				83-05-23	1230	0	33	15.00	17.00	18	7.8
LF-4	644818147421801	FC001001126BAB83	005	83-03-02	1430	5	26	1.00	17.00	18	12
LF-1	644820147420001	FC001001126BAAD1	007	83-03-30	1230	5	33	15.00	22.00	23	17
				83-05-23	1400	0	33	15.00	22.00	23	8.3

FIELD ID	DATE OF SAMPLE	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE, AIR (DEG C)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
LF-16	83-06-27	23	4.80	400	6.8	24.0	5.0	35	756	.0	0
LF-12	83-02-28	50	7.30	500	7.7	--	2.0	--	--	.0	--
	83-06-29	50	6.60	690	7.6	23.0	4.5	5.3	756	.5	4
Baler	83-08-31	90	10.40	350	7.3	16.0	11.5	2.5	757	1.3	12
LF-13	83-02-23	16	7.70	700	7.0	--	2.0	--	--	.0	--
	83-02-24	16	7.70	700	7.1	--	1.5	--	--	.0	--
	83-06-29	16	6.70	700	7.3	23.0	5.0	.70	755	.8	6
LF-11	83-03-30	13	9.10	400	6.7	--	1.5	66	--	.4	--
	83-06-29	13	8.00	535	7.5	22.0	4.5	32	756	.0	0
LF-7	83-03-03	17	8.40	1400	6.7	--	1.0	230	--	.0	--
	83-05-23	9.8	7.80	1500	6.7	16.0	5.0	--	755	.0	0
LF-4	83-03-02	17	9.20	1250	7.1	--	1.5	--	--	.0	--
LF-1	83-03-30	22	9.00	1800	6.5	--	2.5	120	--	.0	--
	83-05-23	10	8.30	1550	6.6	16.0	5.5	--	754	.0	0

FIELD ID	DATE OF SAMPLE	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	BICARBONATE IT-FLD (MG/L AS HCO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
LF-16	83-06-27	240	74	62	20	5.4	3.3	164	200	41	2.6
LF-12	83-02-28	240	26	71	16	14	4.0	218	--	19	11
	83-06-29	250	13	72	17	17	4.3	238	290	19	14
Baler	83-08-31	140	4	41	9.9	5.4	3.3	139	170	15	2.1
LF-13	83-02-23	--	--	--	--	--	--	270	--	--	--
	83-02-24	340	88	89	28	12	4.6	250	--	58	19
	83-06-29	320	110	84	27	9.4	4.2	213	260	63	15
LF-11	83-03-30	180	28	52	13	6.8	3.6	156	190	35	3.8
	83-06-29	260	92	76	18	9.3	4.0	172	210	48	5.2
LF-7	83-03-03	540	0	150	39	74	13	670	--	4.4	53
	83-05-23	--	--	--	--	--	--	353	650	--	--
LF-4	83-03-02	390	100	110	28	70	13	290	--	58	130
LF-1	83-03-30	250	0	69	18	220	14	303	370	22	280
	83-05-23	--	--	--	--	--	--	287	350	--	--

1/ PUMP
2/ BAILER
3/ TESTING
4/ BAILING

Table 3.--Continued

FIELD ID	DATE OF SAMPLE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)
LF-16	83-06-27	.10	28	301	280	--	<.020	--	--	--	--
LF-12	83-02-28	.20	34	--	300	<.020	--	<.100	1.20	.290	.270
	83-06-29	.20	32	333	320	--	<.020	--	--	--	--
Baler	83-08-31	.30	16	165	180	--	<.020	--	--	--	--
LF-13	83-02-23	--	--	--	--	--	--	--	--	--	--
	83-02-24	.10	22	--	380	<.020	--	<.100	<.100	.120	.120
	83-06-29	.10	22	372	350	--	.020	--	--	--	--
LF-11	83-03-30	.20	26	214	230	--	--	--	--	--	--
	83-06-29	.10	27	311	290	--	<.020	--	--	--	--
LF-7	83-03-03	.20	23	840	810	--	--	--	--	--	--
	83-05-23	--	--	--	--	--	--	--	--	--	--
LF-4	83-03-02	.20	34	--	630	.020	--	<.100	<.100	1.60	1.60
LF-1	83-03-30	.20	37	828	860	--	--	--	--	--	--
	83-05-23	--	--	--	--	--	--	--	--	--	--

FIELD ID	DATE OF SAMPLE	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN DISSOLVED (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
LF-16	83-06-27	--	--	--	--	--	--	--	--	--	17
LF-12	83-02-28	.71	.63	1.0	.10	.90	2.1	.130	.140	.100	7.8
	83-06-29	--	--	--	--	--	--	--	--	--	6.2
Baler	83-08-31	--	--	--	--	--	--	--	--	--	--
LF-13	83-02-23	--	--	--	--	--	--	--	--	--	--
	83-02-24	.48	.48	.60	.00	.60	--	.010	.010	.010	5.9
	83-06-29	--	--	--	--	--	--	--	--	--	4.3
LF-11	83-03-30	--	--	--	--	--	--	--	--	--	--
	83-06-29	--	--	--	--	--	--	--	--	--	4.1
LF-7	83-03-03	--	--	--	--	--	--	--	--	--	--
	83-05-23	--	--	--	--	--	--	--	--	--	--
LF-4	83-03-02	.80	.50	2.4	.30	2.1	--	.050	.050	.010	8.8
LF-1	83-03-30	--	--	--	--	--	--	--	--	--	--
	83-05-23	--	--	--	--	--	--	--	--	--	--

FIELD ID	DATE OF SAMPLE	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	BORON, DISSOLVED (UG/L AS B)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)
LF-16	83-06-27	20	--	--	30	280	.5	--	--	<1	--
LF-12	83-02-28	--	21	1	20	--	--	90	<1	<1	<10
	83-06-29	<10	--	--	12	210	<.5	--	--	<1	--
Baler	83-08-31	<10	--	--	1	50	<.5	--	--	<1	--
LF-13	83-02-23	--	--	--	--	--	--	--	--	--	--
	83-02-24	--	1	0	1	--	--	40	4	<1	<10
	83-06-29	<10	--	--	1	180	<.5	--	--	<1	--
LF-11	83-03-30	10	--	--	9	150	.6	--	--	<1	--
	83-06-29	10	--	--	11	220	.6	--	--	<1	--
LF-7	83-03-03	20	--	--	3	1300	<.5	--	--	<1	
	83-05-23	--	--	--	--	--	--	--	--	--	--
LF-4	83-03-02	--	16	3	13	--	--	390	<1	<1	10
LF-1	83-03-30	10	--	--	8	820	.5	--	--	<1	--
	83-05-23	--	--	--	--	--	--	--	--	--	--

Table 3.–Continued

FIELD ID	DATE OF SAMPLE	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)
LF-16	83-06-27	1	--	--	<3	--	--	1	--	--	17000
LF-12	83-02-28	<10	1	0	1	9	0	13	1300	0	1300
	83-06-29	<1	--	--	<3	--	--	<1	--	--	2100
Baler	83-08-31	<1	--	--	<3	--	--	2	--	--	150
LF-13	83-02-23	--	--	--	--	--	--	--	--	--	--
	83-02-24	<10	2	1	1	4	0	8	50	40	10
	83-06-29	1	--	--	<3	--	--	7	--	--	23
LF-11	83-03-30	<1	--	--	4	--	--	6	--	--	<3
	83-06-29	<1	--	--	<3	--	--	1	--	--	4
LF-7	83-03-03	<1	--	--	<3	--	--	2	--	--	42000
	83-05-23	--	--	--	--	--	--	--	--	--	--
LF-4	83-03-02	<10	1	0	1	1	--	<1	10000	0	10000
LF-1	83-03-30	<1	--	--	6	--	--	<1	--	--	11000
	83-05-23	--	--	--	--	--	--	--	--	--	--

FIELD ID	DATE OF SAMPLE	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)
LF-16	83-06-27	--	--	<1	14	--	--	1400	--	--	.2
LF-12	83-02-28	1	--	<1	--	2500	0	2500	.1	.0	.1
	83-06-29	--	--	3	12	--	--	2400	--	--	<.1
Baler	83-08-31	--	--	<1	11	--	--	660	--	--	<.1
LF-13	83-02-23	--	--	--	--	--	--	--	--	--	--
	83-02-24	7	0	7	--	950	0	1000	.2	--	<.1
	83-06-29	--	--	1	13	--	--	740	--	--	<.1
LF-11	83-03-30	--	--	<1	12	--	--	2	--	--	.1
	83-06-29	--	--	2	12	--	--	2000	--	--	<.1
LF-7	83-03-03	--	--	<1	9	--	--	3500	--	--	.3
	83-05-23	--	--	--	--	--	--	--	--	--	--
LF-4	83-03-02	<1	--	<1	--	4800	0	4900	.2	--	<.1
LF-1	83-03-30	--	--	1	11	--	--	2700	--	--	.1
	83-05-23	--	--	--	--	--	--	--	--	--	--

FIELD ID	DATE OF SAMPLE	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
LF-16	83-06-27	<10	<1	--	<1	<1	280	<6	--	--	9
LF-12	83-02-28	--	--	<1	<1	--	--	--	20	9	11
	83-06-29	<10	2	--	<1	<1	330	<6	--	--	8
Baler	83-08-31	<10	1	--	<1	<1	170	<6	--	--	290
LF-13	83-02-23	--	--	--	--	--	--	--	--	--	--
	83-02-24	--	--	<1	<1	--	--	--	20	0	27
	83-06-29	<10	27	--	1	<1	340	<6	--	--	33
LF-11	83-03-30	<10	4	--	<1	<1	220	<6	--	--	15
	83-06-29	<10	3	--	<1	<1	300	<6	--	--	14
LF-7	83-03-03	<10	1	--	<1	<1	820	13	--	--	18
	83-05-23	--	--	--	--	--	--	--	--	--	--
LF-4	83-03-02	--	--	<1	<1	--	--	--	20	10	8
LF-1	83-03-30	<10	1	--	<1	<1	370	<6	--	--	5
	83-05-23	--	--	--	--	--	--	--	--	--	--

Table 3.–Continued

FIELD ID	LOCAL IDENTIFIER		DATE OF SAMPLE	TIME	DICHLOROBROMOMETHANE TOTAL (UG/L)	CARBON TETRACHLORIDE TOTAL (UG/L)	1,2-DICHLOROETHANE TOTAL (UG/L)	BROMOFORM TOTAL (UG/L)	CHLORODIBROMOMETHANE TOTAL (UG/L)	CHLOROFORM TOTAL (UG/L)
Baler	FC00100126BAAA1	016	83-08-31	1400	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
LF-13	FC00100127AAAA1	004	83-02-23	1400	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
			83-08-23	1400	3.0	3.0	3.0	3.0	3.0	3.0
LF-11	FC00100126BAAA2	016	83-03-30	1130	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
LF-7	FC00100126BD881	010	83-03-03	1500	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
			83-05-23	1230	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
LF-1	FC00100126BAAD1	007	83-03-30	1230	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
			83-05-23	1400	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0

FIELD ID	DATE OF SAMPLE	TOLUENE TOTAL (UG/L)	BENZENE TOTAL (UG/L)	CHLOROBENZENE TOTAL (UG/L)	CHLOROETHANE TOTAL (UG/L)	ETHYLBENZENE TOTAL (UG/L)	METHYLBROMIDE TOTAL (UG/L)	METHYLENE CHLORIDE TOTAL (UG/L)	TETRACHLOROETHYLENE TOTAL (UG/L)	TRICHLOROFLOUROMETHANE TOTAL (UG/L)	1,1-DICHLOROETHANE TOTAL (UG/L)
Baler	83-08-31	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	12	<3.0
LF-13	83-02-23	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
	83-08-23	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
LF-11	83-03-30	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
LF-7	83-03-03	<3.0	<3.0	<3.0	<3.0	4.0	<3.0	<3.0	<3.0	<3.0	<3.0
	83-05-23	<3.0	8.0	<3.0	<3.0	5.0	<3.0	<3.0	<3.0	<3.0	<3.0
LF-1	83-03-30	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	6.0
	83-05-23	<3.0	3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	4.0

FIELD ID	DATE OF SAMPLE	1,1-DICHLOROETHYLENE TOTAL (UG/L)	1,1,1-TRICHLOROETHANE TOTAL (UG/L)	1,1,2-TRICHLOROETHANE TOTAL (UG/L)	1,1,2,2 TETRACHLOROETHANE TOTAL (UG/L)	1,2-DICHLOROPROPANE TOTAL (UG/L)	CHLOROETHYLENE TOTAL (UG/L)	1,3-DICHLOROPROPANE TOTAL (UG/L)	2-CHLOROETHYLVINYLETHER TOTAL (UG/L)
Baler	83-08-31	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
LF-13	83-02-23	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
	83-08-23	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
LF-11	83-03-30	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
LF-7	83-03-03	<3.0	<3.0	<3.0	<3.0	<3.0	150	<3.0	<3.0
	83-05-23	<3.0	<3.0	<3.0	<3.0	<3.0	170	<3.0	<3.0
LF-1	83-03-30	<3.0	<3.0	<3.0	<3.0	<3.0	6.0	<3.0	<3.0
	83-05-23	<3.0	<3.0	<3.0	<3.0	<3.0	6.0	<3.0	<3.0

FIELD ID	DATE OF SAMPLE	DICHLORODIFLUOROMETHANE TOTAL (UG/L)	VINYL CHLORIDE TOTAL (UG/L)	TRICHLOROETHYLENE TOTAL (UG/L)
Baler	*3-08-31	<3.0	<3.0	<3.0
LF-13	83-02-23	<3.0	<3.0	<3.0
	83-08-23	3.0	3.0	3.0
LF-11	*3-03-30	<3.0	<3.0	<3.0
LF-7	83-03-03	<3.0	<3.0	<3.0
	83-05-23	<3.0	<3.0	<3.0
LF-1	83-03-30	<3.0	<3.0	<3.0
	83-05-23	<3.0	<3.0	3.0

Table 3.--Continued

FIELD ID	STATION NUMBER	LOCAL IDENTIFIER		DATE OF SAMPLE	TIME	PUMP OR FLOW PERIOD PRIOR TO SAMPLING (MIN)	SAMPLE SOURCE	SAMPLING CONDITION	DEPTH OF WELL, TOTAL (FEET)	DEPTH OF HOLE, TOTAL (FEET)	DEPTH TO TOP OF SAMPLE INTERVAL (FT)
USCE P-179	644825147432401	FC00100122DCCC1006	51179	83-03-03	1330	0	1/33	3/15.00	20.00	20	--
				83-06-27	1130	5	2/26	4/1.00	20.00	20	--
USGS Flood 34	644848147423101	FC00100122DAAA1003	51034	83-06-27	1300	5	26	1.00	20.10	21	--
Ft. Wainwright	644944147402501	FC00100113BCCC1022	50006	83-06-30	1330	5	26	1.00	100	113	100

FIELD ID	DATE OF SAMPLE	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE, AIR (DEG C)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
USCE P-179	83-03-03	--	6.80	536	6.0	--	1.5	140	--	.0	--
	83-06-27	--	5.30	610	6.8	24.0	8.0	130	756	.0	0
USGS Flood 34	83-06-27	--	7.20	425	7.7	24.0	4.0	86	757	.0	0
Ft. Wainwright	83-06-30	113	14.90	150	8.4	21.0	5.0	27	755	1.0	8

FIELD ID	DATE OF SAMPLE	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	BICARBONATE IT-FLD (MG/L AS HCO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
USCE P-179	83-03-03	270	94	74	20	6.8	2.8	174	--	6.6	18
	83-06-27	270	22	74	20	6.9	2.9	246	300	5.9	17
USGS Flood 34	83-06-27	170	63	48	12	4.3	2.7	107	130	28	3.3
Ft. Wainwright	83-06-30	61	13	18	3.9	2.3	2.4	48	59	12	4.5

FIELD ID	DATE OF SAMPLE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	CARBON, ORGANIC TOTAL (MG/L AS C)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)
USCE P-179	83-03-03	.20	34	316	280	--	--	--	<10	--	7
	83-06-27	.20	33	341	320	<.020	--	5.5	50	--	7
USGS Flood 34	83-06-27	.10	26	202	200	<.020	--	4.0	20	--	13
Ft. Wainwright	83-06-30	.10	.6	89	73	<.020	--	19	10	--	1

FIELD ID	DATE OF SAMPLE	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)
USCE P-179	83-03-03	100	.6	<1	<1	<3	<1	--	16000	<1	8
	83-06-27	110	<.5	<1	1	<3	3	--	16000	2	13
USGS Flood 34	83-06-27	170	<.5	<1	<1	<3	4	--	13000	2	13
Ft. Wainwright	83-06-30	39	<.5	<1	<1	<3	8	--	61	3	<4

1/ Bailer
2/ Pump
3/ Bailing
4/ Testing

Table 3.--Continued

FIELD ID	DATE OF SAMPLE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)
USCE P-179	83-03-03	350	.2	<10	1	<1	<1	290	<6	48
	83-06-27	410	<.1	<10	1	<1	<1	290	<6	12
USGS Flood 34	83-06-27	980	<.1	<10	1	<1	<1	190	<6	13
Ft. Wainwright	83-06-30	69	<.1	<10	<1	<1	<1	78	<6	<3

FIELD ID	LOCAL IDENTIFIER		DATE OF SAMPLE	TIME	DICHLOROBROMOMETHANE TOTAL (UG/L)	CARBON TETRACHLORIDE TOTAL (UG/L)	1,2-DICHLOROETHANE TOTAL (UG/L)	BROMOFORM TOTAL (UG/L)	CHLORODIBROMOMETHANE TOTAL (UG/L)	CHLOROFORM TOTAL (UG/L)
USCE P-179	FC00100122DCCC1006	51179	83-03-03	1330	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Ft. Wainwright	FC00100113BCCC1022	50006	83-06-30	1330	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0

FIELD ID	DATE OF SAMPLE	TOLUENE TOTAL (UG/L)	BENZENE TOTAL (UG/L)	CHLOROBENZENE TOTAL (UG/L)	CHLOROETHANE TOTAL (UG/L)	ETHYLBENZENE TOTAL (UG/L)	METHYLBROMIDE TOTAL (UG/L)	METHYLENE CHLORIDE TOTAL (UG/L)	TETRACHLOROETHYLENE TOTAL (UG/L)	TRICHLOROFLOUROMETHANE TOTAL (UG/L)	1,1-DICHLOROETHANE TOTAL (UG/L)
USCE P-179	83-03-03	<9.0	<9.0	<3.0	<3.0	<7.0	<3.0	<3.0	<3.0	<3.0	<3.0
Ft. Wainwright	83-06-30	<3.0	3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0

FIELD ID	DATE OF SAMPLE	1,1-DICHLOROETHYLENE TOTAL (UG/L)	1,1,1-TRICHLOROETHANE TOTAL (UG/L)	1,1,2-TRICHLOROETHANE TOTAL (UG/L)	1,1,2,2 TETRACHLOROETHANE TOTAL (UG/L)	1,2-DICHLOROPROPANE TOTAL (UG/L)	CHLOROETHYLENE TOTAL (UG/L)	1,3-DICHLOROPROPANE TOTAL (UG/L)	2-CHLOROETHYLVINYLETHER TOTAL (UG/L)
USCE P-179	83-03-03	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Ft. Wainwright	83-06-30	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0

FIELD ID	DATE OF SAMPLE	DICHLORODIFLUOROMETHANE TOTAL (UG/L)	VINYL CHLORIDE TOTAL (UG/L)	TRICHLOROETHYLENE TOTAL (UG/L)
USCE P-179	83-03-03	<3.0	<3.0	<3.0
Ft. Wainwright	83-06-30	<3.0	<3.0	<3.0

Table 3.– Continued

Station No. 15514000, CHENA RIVER AT FAIRBANKS, 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
SEP 06...	1000	3700	8.2	5.0	4.5	6.8	777	7.9	60	68	8	20

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY FIELD (MG/L AS CACO3) (00410)	BICAR-BONATE IT-FLD (MG/L AS HCO3) (99440)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
SEP 06...	4.3	2.0	1.1	60	73	19	.70	.20	8.0	95	92

DATE	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
SEP 06...	<.020	7.4	50	<1	28	<.5	<1	<1	<3	27	250

DATE	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
SEP 06...	2	16	43	1.3	<10	5	1	<1	100	<6	38

Station No. 644656147422700, TANANA RIVER AT GOOSE ISLAND NEAR FAIRBANKS, 1983

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
APR 06...	1130	5140	265	7.2	.0	10.1	150	26	45

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY FIELD (MG/L AS CACO3) (00410)	BICAR-BONATE IT-FLD (MG/L AS HCO3) (99440)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
APR 06...	8.8	4.1	2.1	123	150	32	1.2	.20	13

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	TRITIUM TOTAL (PCI/L) (07000)	H-2/ H-1/ STABLE ISOTOPE RATIO PER MIL (82082)	O-18/ O-16 STABLE ISOTOPE RATIO PER MIL (82085)
APR 06...	169	180	.160	.030	20	12	<200	-170	-22.0