RECONNAISSANCE OF THE SHALLOW-UNCONFINED AQUIFER IN SALT LAKE VALLEY, UTAH

by R. L. Seiler and K. M. Waddell

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UNITED STATES DEPARTMENT OF THE INTERIOR

WILLIAM P. CLARK, Secretary

GEOLOGICAL SURVEY

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CONVERSION FACTORS

For use of readers who prefer to use metric units, conversion factors for terms used in this report are listed below:

Multiply	By	To obtain
acre	0.4047	square hectometer
foot	0.3048	meter
inch	25.40	millimeter
square mile	2.590	square kilometer

Concentration of chemical constituents are given in milligrams per liter (mg/L) or micrograms per liter (µg/L). Milligrams per liter is a unit expressing the concentration of a chemical constituent as the weight (milligrams) of solute per unit volume (liter of water). One thousand micrograms per liter is equivalent to 1 milligram per liter. The concentration of chemical constituents, in parts per million, is about the same as the concentration, in milligrams per liter for concentrations less than 7,000 mg/L.

Water temperature is given in degrees Celsius (°C), which can be converted to degrees Fahrenheit (°F) by the following equation:

$$^{\circ}F = 1.8(^{\circ}C) + 32$$

National Geodetic Vertical Datum of 1929 (NGVD of 1929): A geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, called NGVD of 1929, is referred to as sea level in this report.

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ABSTRACT

The shallow-unconfined aquifer in the Salt Lake Valley, Utah, seldom is used as a source of water for domestic or industrial purposes because it yields water slowly and is readily contaminated, thus generally yielding water of poor quality. The water in the aquifer, however, can flood basements and is a potential source of contamination to other water supplies.

In about one-half of the valley, water in the shallow-unconfined aquifer is less than 10 feet below the land surface. The general direction of flow in the aquifer is toward the Jordan River, except in the extreme northwest part where it moves directly toward Great Salt Lake. Water levels in the north part of the valley and along the Jordan River are highest in March or April, but in the south part of the valley water levels are highest in late summer.

The smallest concentrations of dissolved solids are in water from wells along the east side of the valley, and the greatest concentrations are in the northwest part of the valley near the Great Salt Lake. Large dissolved-solids concentrations were in water from wells near some landfills and tailings areas.

Nitrate-nitrogen concentrations ranged from less than 0.1 to 86 milligrams per liter and nitrite-nitrogen concentrations from less than 0.02 to 0.85 milligram per liter. Some of the largest nitrate-nitrogen concentrations were in water from wells near animal pens.

The greatest concentrations of trace elements generally were in water from wells near landfills or tailings areas. The greatest measured concentration of cadmium was 200 micrograms per liter, of mercury 0.1 microgram per liter, of iron 37,000 micrograms per liter, and of arsenic 360 micrograms per liter. All these concentrations, except for mercury, exceed the quality criteria of the U.S. Environmental Protection Agency (1977 and 1980) for domestic water supply.

Organic chemicals were in water from several wells, with the greatest concentrations in water from wells near landfills or tailings areas. The greatest measured concentration of benzene was 400 micrograms per liter, of phenol 660 micrograms per liter, of 1,1 dichloroethane 20 micrograms per liter, of trichloroethylene 8 micrograms per liter, and of chloroethylene 11 micrograms per liter. All these concentrations exceed the recommended limit by the U.S. Environmental Protection Agency (1980) of zero for carcinogens.

INTRODUCTION

The shallow-unconfined (water-table) aquifer in Salt Lake Valley (fig. 1), is the source of water for small-scale irrigation; but it seldom is used to supply water for domestic or industrial purposes because it yields water slowly and it is readily contaminated, thus generally yielding water of poor quality. The aquifer is of major interest, however, because of potential flooding of basements if water levels rise. It also is a potential source of contaminated water for streams and the underlying confined (artesian) aquifer, which is a source of water suitable for public supply and industrial use in the valley.

An example of the problems caused by contamination of the shallow-unconfined aquifer is the explosive gas that moved from the aquifer into sewer lines, causing the evacuation of more than 700 people from homes and businesses in West Valley City (Salt Lake Tribune, May 27, 1981, p. B-1). The source of the gas was leaking gasoline tanks. Contamination also can result from leakage from drains and sewers, chemical spills, and infiltration of water through landfills and tailings areas. Contaminants can be transported for long distances in the shallow-unconfined aquifer before discharging into surface waters or moving down into the underlying confined aquifer.

In July 1981, the U.S. Geological Survey, in cooperation with the Salt Lake County Water Conservancy District, began a 4-year study of the ground-water resources of Salt Lake Valley. Part of this study involves describing the chemical and hydraulic characteristics of the shallow-unconfined aquifer to define areas where downward leakage might contaminate the underlying confined aquifer. The Salt Lake County Division of Flood Control and Water Quality provided additional funding to enhance this phase of the study, the results of which are presented in this report.

Purpose and Scope

The principal objectives of this part of the study, which was done from July 1982 to April 1983, were to define the altitude of the water table in the shallow-unconfined aquifer, to determine the direction of movement of the water, and to describe the chemical quality of the water, especially near abandoned landfills. Existing wells in the shallow-unconfined aquifer were located and 55 new wells were drilled to extend coverage. Samples of water were collected from selected wells and analyzed for chemical quality. The authors are grateful to the land owners who gave permission to drill observation wells on their property and to the Salt Lake City Water Department for providing water-level measurements for their wells.

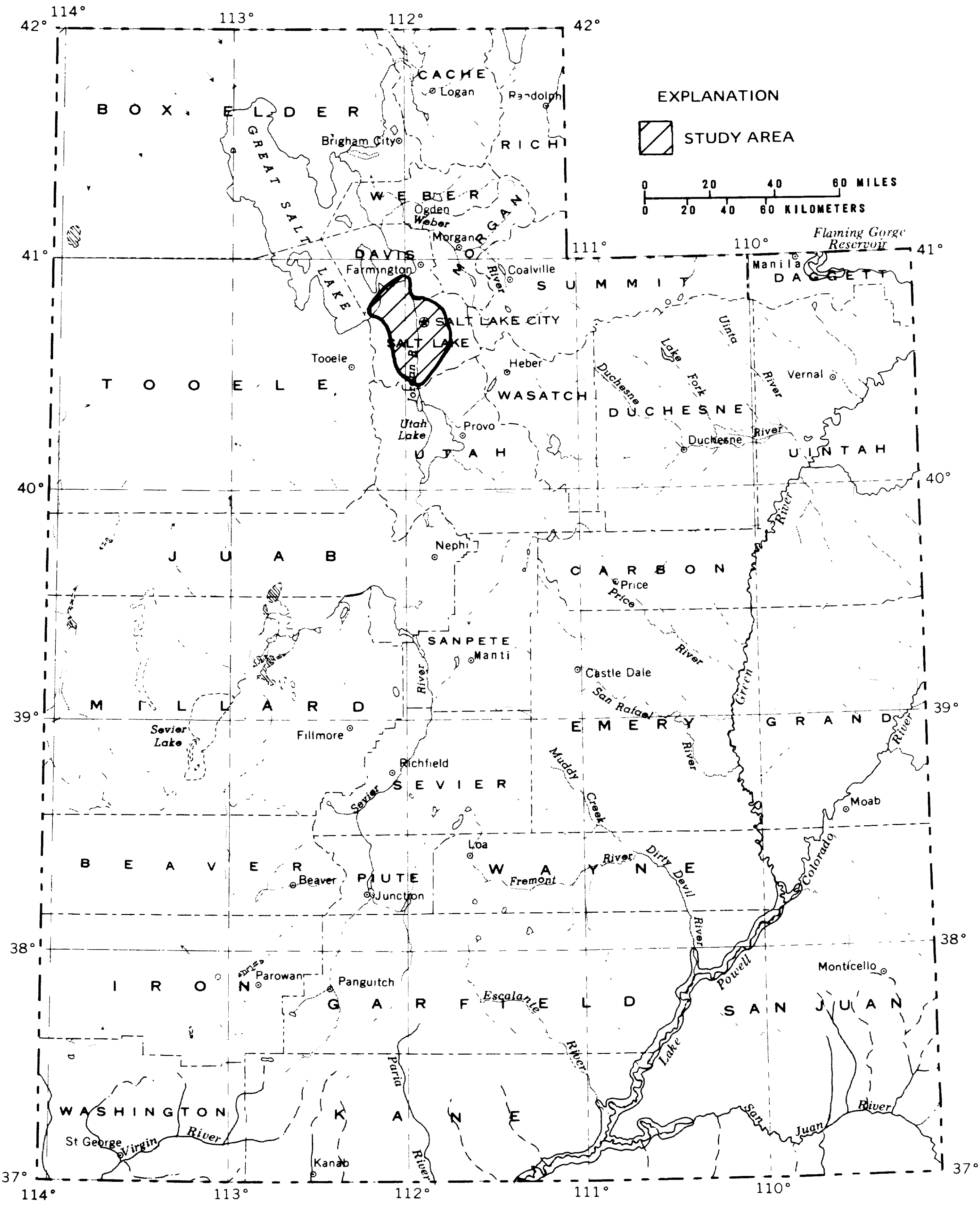

Figure 1.—Location of the study area.

Previous Investigations

Hely and others (1971) described the general ground-water system in Salt Lake Valley, including the relation between the confined aquifer and the shallow-unconfined aquifer. A relatively large proportion of the material in the shallow-unconfined aquifer is sand, silt, and clay according to drillers' logs (Marine and Price, 1963; Iorns and others, 1966a, b; and Hely and others, 1967, 68, 69). Near the city of Murray, the saturated thickness of the aquifer exceeds 25 feet, and the deposits contain coarse sand and some gravel (Hely and others, 1971, p. 116). They estimate the maximum thickness of the shallow aquifer to be about 50 feet.

Mower and Van Horn (1973) mapped the depth to water in the shallow-unconfined aquifer in the east-central part of the Salt Lake Valley. They reported that the highest water levels are between April and August in response to recharge from snowmelt and applied irrigation water. Water levels in this area can fluctuate as much as 10 feet during the year.

Lund (1981) described the reasons for basement flooding in subdivisions built over the shallow-unconfined aquifer in the city of Sandy. The subdivisions were constructed during a drought, and basement flooding began when water levels rose during later periods of normal and greater than normal precipitation.

Methods of Investigation

The U.S. Geological Survey drilled 55 observation wells in the shallow-unconfined aquifer in Salt Lake Valley during the summer and fall of 1982. These wells usually were 20 feet, or less, deep and were cased with polyvinyl chloride (PVC) casing, 2 inches in diameter, perforated in the lower 12 feet. Land-surface altitudes were established by instrument level for most of the wells drilled by the Geological Survey, and a brass cap was set in concrete near each well. In addition, 34 wells belonging to other agencies and to private individuals were used as observation wells. The altitudes for these wells were determined from U.S. Geological Survey topographic maps, scale 1:24,000. Data from wells drilled to depths greater than 50 feet, the estimated maximum depth of the shallow-unconfined aquifer, were not used.

Samples of water were collected from most of the wells. These samples were analyzed for specific conductance and nitrate-nitrogen concentration, and that information was used as a basis for selection of wells for sampling for more complete analysis. Samples for analysis of inorganic constituents were collected by using a small peristaltic pump and a tygon tube lowered into the well. Before samples were collected, the well was pumped to evacuate at least twice the volume of water stored in the casing, and the sample was not collected until the specific conductance stabilized.

Water to be analyzed for volatile organics was collected in a 100-milliliter volumetric pipette connected to the bottom of the tygon tubing. The water was never exposed to the air or to the plastic tubing. The well was pumped to evacuate at least twice the volume of water stored in the casing; therefore, the sample was not in contact with the casing for long.

Well-Numbering System

The system of numbering wells in Utah is based on the cadastral land-survey system of the U.S. Government. The number, in addition to designating the well, describes its position in the land net. By the land-survey system, the State is divided into four quadrants by the Salt Lake base line and meridian, and these quadrants are designated by the uppercase letters A, B, C, and D, indicating the northeast, northwest, southwest, and southeast quadrants. Numbers designating the township and range (in that order) follow the quadrant letter, and all three are enclosed in parentheses. The number after the parentheses indicates the section and is followed by three letters indicating the quarter section, the quarter-quarter section, and the quarter-quarter-quarter section--generally 10 acres.[1] The letters a, b, c, and d indicate the northeast, northwest, southwest, and southeast quarters of each subdivision. The number after the letters is the serial number of the well within the 10-acre tract. Thus, (D-1-1)18dad-1 designates the first well constructed or visited in the SE1/4NE1/4SE1/4 sec. 18, T. 1 S., R. 1 E. The numbering system is illustrated in figure 2.

GROUND WATER

Ground water in Salt Lake Valley (Hely and others, 1971, p. 107) occurs (1) in a confined aquifer, (2) in a deep-unconfined aquifer between the confined aquifer and the mountains, (3) in a shallow-unconfined aquifer overlying the confined aquifer, and (4) locally in perched aquifers (fig. 3). The confined aquifer in Salt Lake Valley usually is called the principal aquifer. The shallow-unconfined aquifer is recharged by leakage upward from the confined aquifer through confining layers as well as by downward infiltration from precipitation, canals, irrigated lands, and streams. The maximum thickness of the shallow-unconfined aquifer is about 50 feet.

Water Levels

Water-level, chemical-quality, and construction data for the wells used in this investigation are given in table 1 (at the end of report). Water-level measurements for selected wells for which more than two measurements are available are given in table 2 (at the end of report).

The altitude of the water table in the shallow-unconfined aquifer, the direction of flow, and the location of the observation wells are shown on plate 1. Water in the shallow-unconfined aquifer moves toward the Jordan River in most parts of the valley, however, in the extreme northwest part of the valley, water moves directly toward the Great Salt Lake.

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[1] Although the basic land unit, the section, is theoretically 1 square mile, many sections are irregular. Such sections are subdivided into 10-acre tracts, generally beginning at the southeast corner, and the surplus or shortage is added to or subtracted from the tracts along the north and west sides of the section.

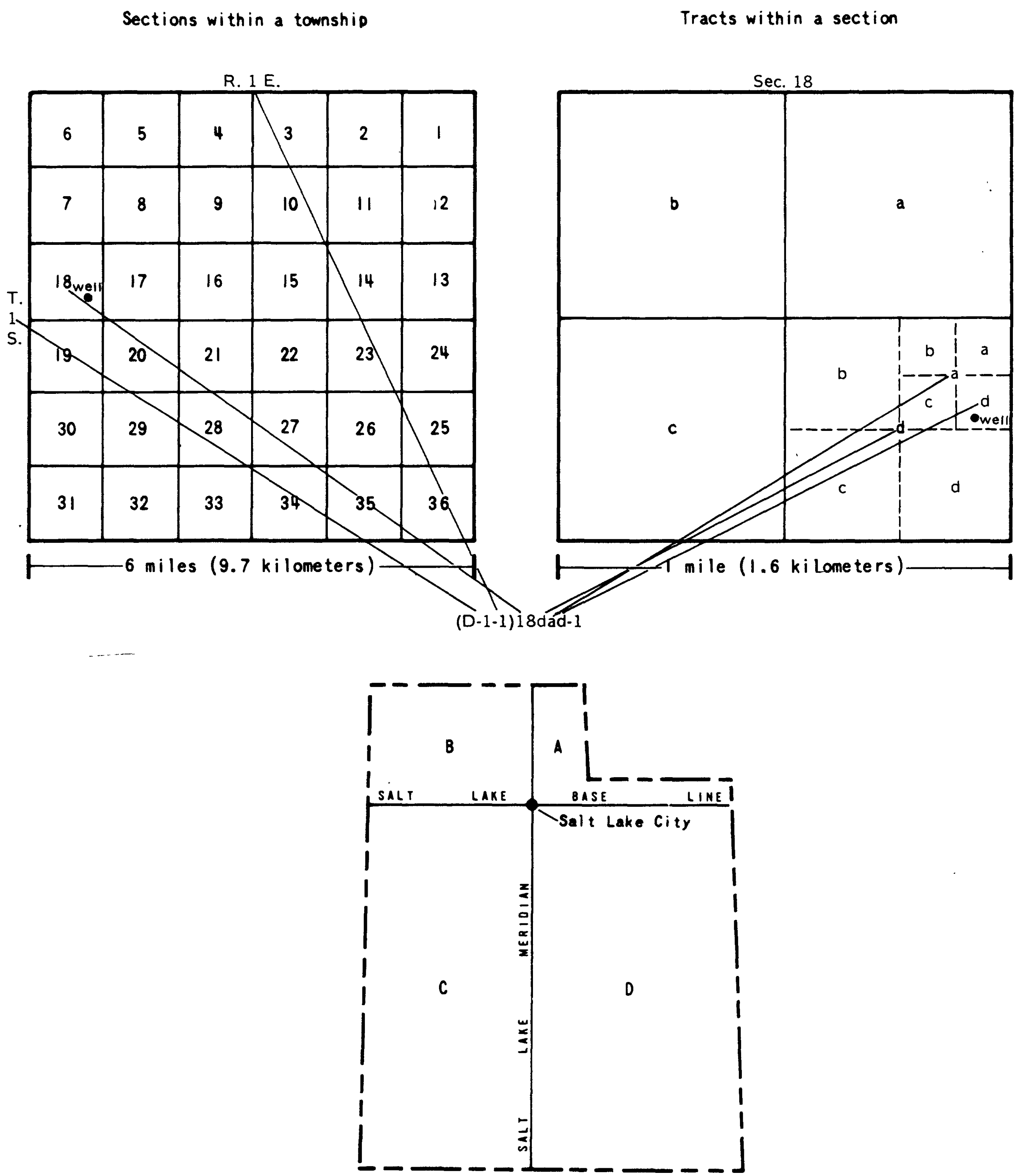

Figure 2.—Well - numbering system used in Utah.

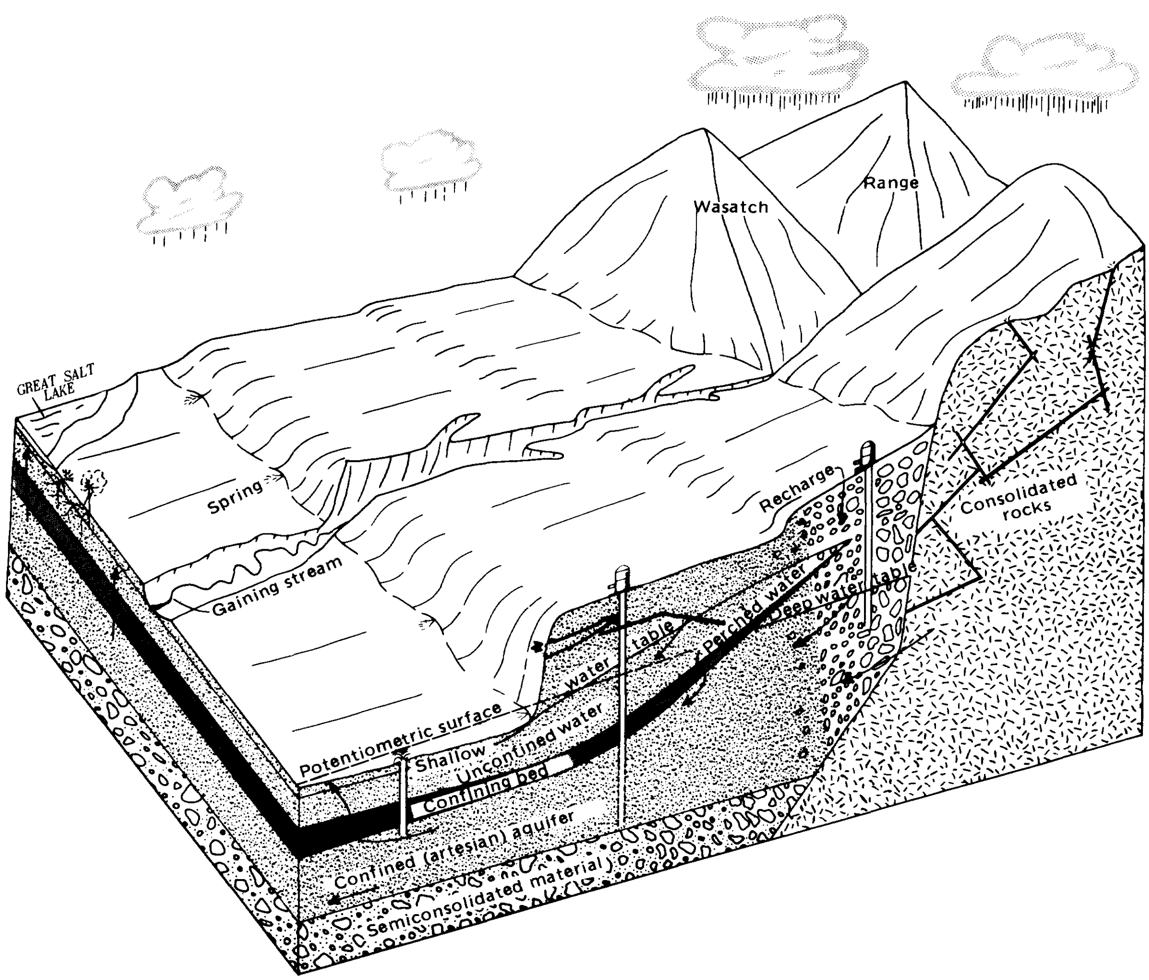

Figure 3.—Ground water under unconfined, perched, and confined conditions in the study area. Modified from Hely and others (1971, fig. 57.)

The depth to water in the shallow-unconfined aquifer is shown on plate 2. This map is based on the highest water level measured during the investigation. In approximately one-half of the valley, water is less than 10 feet below land surface; and in much of West Valley City, South Salt Lake, and in west Salt Lake City, and along the Jordan River, the depth to water is less than 5 feet below land surface. Although no wells were completed as part of this investigation in the west-central part of the valley, examination of well drillers' logs indicates depth to water in the shallow-unconfined aquifer is greater than 40 feet in this area.

Hydrographs of water levels in two wells completed in the shallow-unconfined aquifer are shown in figure 4. Well (C-1-1)28cab-1, in West Valley City, is typical of wells in the north part of the valley and along the Jordan River. The highest annual water levels are in March or April and the lowest water levels are in mid-to-late summer. This seasonal pattern is caused

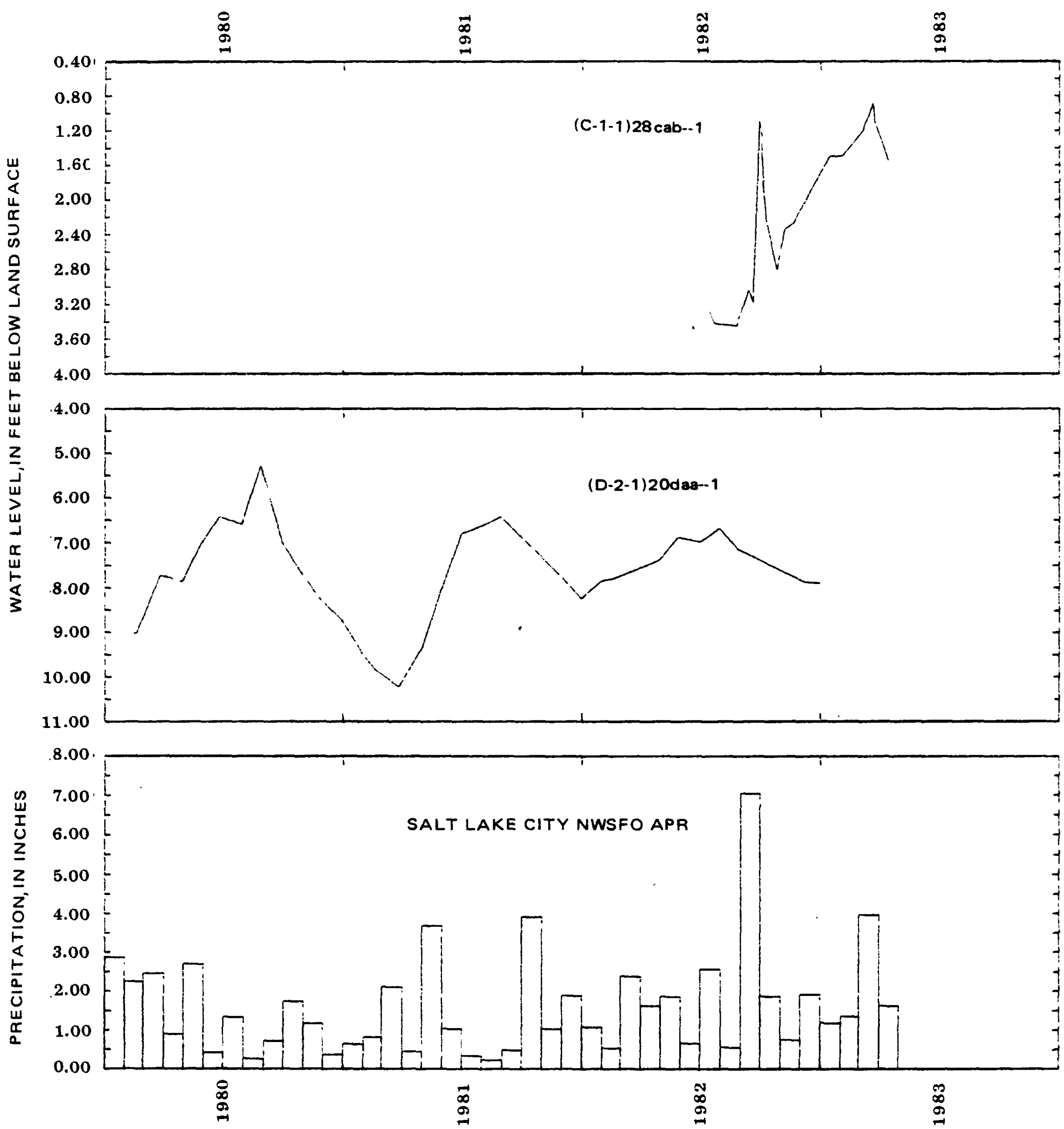

Figure 4.—Hydrographs of two wells completed in the shallow-unconfined aquifer and monthly precipitation at Salt Lake City NWSFO APR (International Airport).

primarily by recharge from the confined aquifer, which in the north part of the valley also reaches its seasonal high in March or April and its low in mid-to-late summer (Hely and others, 1971, p. 144). The high water levels in September and October 1982 were caused by recharge from unusually large quantities of precipitation (fig. 4). Recharge from precipitation can cause rapid rises in the water level; however, as the aquifer drains, water levels also decline rapidly.

Well (D-2-1)20daa-1 is typical of many wells completed in the shallow-unconfined aquifer in the south part of the valley where water levels are lowest in April and highest in late summer. The water levels in the confined aquifer in this part of the valley have a similar pattern of seasonal highs and lows (Hely and others, 1971, p. 144). In the south part of the valley, water levels in the shallow-unconfined aquifer as well as the confined aquifer are affected by recharge from irrigation. Seasonal high levels occur in most wells near the end of the irrigation season.

Water Quality

The results of the chemical analyses for inorganic constituents are given in table 3 (at the end of report) and for organic constituents are given in table 4 (at the end of report). The location of selected landfills and tailings areas and the dissolved-solids and nitrate-nitrogen concentrations of water from the shallow-unconfined aquifer are shown on plate 3. The location of the landfills were obtained from the U.S. Soil Conservation Service (1974).

Dissolved-solids concentration was measured in water from 24 wells for which specific conductance also was available. A regression equation between the specific conductance and the dissolved solids was used to estimate the dissolved-solids concentration of water from wells for which only the specific conductance was available.

The smallest concentrations of dissolved solids (pl. 3) are in water from wells on the east side of the valley, and the greatest concentrations are in the northwest part of the valley near the Great Salt Lake. Dissolved-solids concentrations along the center of the valley ranged from 490 milligrams per liter in water from well (D-3-1)32aaa-1 east of Draper, to about 29,000 milligrams per liter in water from well (B-1-2)31aaa-1 west of Salt Lake City. Dissolved-solids concentrations are large near some landfills and tailings areas.

Water types vary considerably throughout the valley. The predominant cations and anions in water from well (D-3-1)32aaa-1 are calcium and bicarbonate, but nearby well (D-3-1)31cda-1 yields a sodium chloride water. This variability may be due to localized differences in evaporation and transpiration, application of fertilizers or road salt, and differences in source and quantity of recharge water. Water near the Great Salt Lake probably is of the sodium chloride type.

Nitrate and nitrite concentrations were measured in water from 31 wells. Nitrate-nitrogen concentrations varied from less than 0.1 to 86 milligrams per liter (pl. 3), and nitrite-nitrogen concentrations varied from less than 0.02 to 0.85 milligram per liter. Several of the largest nitrogen concentrations were found in water from wells near animal pens.

Water from 16 wells was analyzed for trace elements. Maximum concentrations of all the trace elements discussed below, except mercury, exceeded criteria for domestic water supplies recommended by the U.S. Environmental Protection Agency (1977). The criteria are given in table 3. Concentrations of cadmium varied from less than 1 to 200 micrograms per liter; iron from less than 3 to 37,000 micrograms per liter; and mercury from less than 0.1 to 0.1 microgram per liter. Manganese, which was measured in water from 24 wells, had concentrations ranging from 1 to 1,800 micrograms per liter.

Water from wells near landfills or tailings areas generally had the greatest concentrations of trace elements. Water from well (C-2-1)35baa-1 in West Jordan, within 50 feet of the Jordan River and downgradient from a tailings area, contained 200 micrograms per liter of cadmium, 1,900 micrograms per liter of iron, 46 micrograms per liter of lead, 1,800 micrograms per liter of manganese, and 0.1 microgram per liter of mercury. These concentrations were much greater than those in nearby well (C-2-1)35bab-1, on the other side of the Jordan River. Well (C-2-1)14bdb-1, near Murray, between a tailings area and the Jordan River, contained 37,000 micrograms per liter of iron. The water in this well was red and was acidic, with a pH of 6.3. Well (B-1-1)26bad-1, near a landfill in northwest Salt Lake City, contained 0.1 microgram per liter of mercury.

Water from 15 wells was analyzed for phenol, and the concentrations ranged from 3 to 660 micrograms per liter. For the protection of public health, the recommended limit is 3.5 milligrams per liter (U.S. Environmental Protection Agency, 1980, p. 79338), and to control odor and undesirable taste the recommended limit is 0.3 milligram per liter. The small concentrations of phenol in water from many of the wells may be from decomposing plant litter, which can contribute phenolic compounds to the aquatic environment (McConnell, 1968, p. 343). The greatest concentration of phenol, 660 micrograms per liter, was in water from well (C-2-1)14bdb-1 near a tailings area near Murray. The next largest concentration, 190 micrograms per liter, was in water from well (C-1-1)4ddb-1 near a landfill west of Salt Lake City.

The policy of the Environmental Protection Agency (1980, p. 79323) is that there is no scientific basis for estimating "safe" levels for carcinogens; therefore, their recommended concentration for the maximum protection of human health for arsenic and the organic compounds discussed below is zero. The U.S. Environmental Protection Agency (1980) also presents a range of concentrations corresponding to incremental cancer risks of 1 additional case of cancer in populations ranging from 100,000 to 10 million.

Arsenic concentration was measured in water from 23 wells and was found to be present in small concentrations in most of the wells. Arsenic compounds occur naturally in some waters of the western United States (McKee and Wolf, 1963, p. 140). The smallest concentrations (less than 1 microgram per liter) generally were on the east side of the valley. The two largest concentrations of arsenic (360 and 130 micrograms per liter) were in water from wells (B-1-1)32ccd-1 and (C-1-1)4ddb-1 near landfills near Salt Lake City. However, the next largest values of 110 and 99 micrograms per liter were in water from wells (C-1-1)30aca-1, in West Valley City, and (C-3-1)3acc-1, in South Jordan, neither of which is near a landfill.

Synthetic organic compounds were found in water from 6 of the 16 wells sampled for volatile organic compounds. Water from well (C-3-1)1bbc-1 near Sandy and well (C-1-1)24cdc-1 in South Salt Lake, both near landfills, had the greatest concentrations of organic contaminants. The water from the well near Sandy contained 400 micrograms per liter of benzene and 11 micrograms per liter of 1,2 dichloroethane. Water from the well in South Salt Lake contained 11 micrograms per liter of chloroethylene, 8 micrograms per liter of trichloroethylene, 3 micrograms per liter of tetrachloroethylene, and 20 micrograms per liter of 1,1 dichloroethane.

RELATIONSHIP TO CONFINED AQUIFER

It isn't presently (1983) known how much, if any, contamination of the confined aquifer in Salt Lake Valley is caused by downward movement of contaminated water from the shallow-unconfined aquifer. The difference in hydraulic head between the two aquifers presently results in the upward movement of water from the confined aquifer into the shallow-unconfined aquifer. The potential for contamination of the confined aquifer exists, however, if hydraulic head in the confined aquifer declines so that the direction of flow between the two aquifers reverses. It is conceivable that localized percolation of water from the shallow-unconfined aquifer into the confined aquifer could occur now in the area of the cone of depression caused by large-scale pumping from wells developed in the confined aquifer.

NEED FOR ADDITIONAL STUDIES

Additional monitoring of the chemical quality of the water in the shallow-unconfined aquifer is needed to define the extent and sources of contamination. Hydraulic tests also are needed to determine the effectiveness of the confining layer between the shallow-unconfined and confined aquifers as a barrier to the possible downward migration of contaminated water.

SUMMARY

The shallow-unconfined aquifer in the Salt Lake Valley, Utah, seldom is used for domestic or industrial purposes because it yields water slowly and is readily contaminated, thus generally yielding water of poor quality. In about one-half of the valley, water in the shallow-unconfined aquifer is less than 10 feet below land surface. The general direction of flow in the shallow aquifer is toward the Jordan River, except in the extreme northwest part where it moves directly toward the Great Salt Lake.

The smallest concentrations of dissolved solids are in water from wells along the east side of the valley, and the greatest concentrations are in the northwest part of the valley near the Great Salt Lake. Large dissolved-solids concentrations were in water from wells near some landfills and tailings areas.

Nitrate-nitrogen concentrations ranged from less than 0.1 to 86 milligrams per liter and nitrite-nitrogen concentrations from less than 0.02 to 0.85 milligram per liter. Some of the largest nitrate-nitrogen concentrations were found in water from wells near animal pens.

The greatest concentrations of trace elements generally were in water from wells near landfills and tailings areas. The greatest measured concentration of cadmium was 200 micrograms per liter, of mercury 0.1 microgram per liter, of lead 46 micrograms per liter, of iron 37,000 micrograms per liter, and of arsenic 360 micrograms per liter.

Synthetic organic chemicals were found in water from several wells. The greatest measured concentration of benzene was 400 micrograms per liter, of phenol 660 micrograms per liter, of 1,1 dichloroethane 20 micrograms per liter, of trichloroethylene 8 micrograms per liter, and of chloroethylene 11 micrograms per liter. The greatest concentrations were in water from wells near landfills.

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TABLE 1.--RECORDS OF

Location: See text for explanation of well-numbering system.
Owner or user: Refers to latest known owner or user.
Depth: Finished depth; drilled depth may be greater.
Casing: Finish--O, open end; P, perforated; S, screened; W, walled; X, uncased; upper and lower limits of perforations or screen given in feet below land surface, if known.
Abbreviations: IN., inches; FT, feet, ^{O}C, degrees Celsius; and UMHOS/CM AT $25^{O}C$, micromhos per centimeter at 25^{O} Celsius.

LOCATION	OWNER OR USER	DATE COMPLETED	CASING		
			DIAMETER (IN.)	DEPTH (FT)	FINISH
(B-1-1) 9ADC-1	R. GUALAZZI	08-25-82	2	19.5	P7.5-19.5
22DCA-1	SLC WATER DEPARTMENT	01- -82	1.25	15	P
25CDD-1	SALT LAKE PATTERN CO.	08-31-82	2	19.0	P7-19
25DCB-1	SLC WATER DEPARTMENT	01- -82	1.25	15	P
26BAD-1	P. ATKINSON	08-31-82	2	18.5	P6.5-18.5
26CDA-1	J. NELSON	08-19-82	2	19.5	P7.5-19.5
27CAA-1	D. LARKIN	09-23-82	2	18.5	P6.5-18.5
27DDC-1	SLC WATER DEPARTMENT	01- -82	1.25	15	P
28DCA-1	DO	01- -82	1.25	15	P
32CCD-1	UTAH DEPT. OF TRANS.	10-05-82	2	19.1	P7.1-19.1
32DCA-1	SLC WATER DEPARTMENT	01- -82	1.25	15	P
35CBA-1	DO	01- -82	1.25	15	P
35DCB-1	R. MARTINEZ	08-25-82	2	19.5	P7.5-19.5
(B-1-2) 31AAA-1	SALT LAKE COUNTY	09-28-82	2	19.0	P7-19
34AAB-1	SALT LAKE COUNTY	09-23-82	2	18.7	P6.7-18.7
36ABC-1	SLC WATER DEPARTMENT	01- -82	1.25	15	P
(C-1-1) 1BDD-1	DO	01- -82	1.25	15	P
2DCA-2	D. HANSEN	07-21-82	2	19.6	P7.6-19.6
3DAB-1	SLC WATER DEPARTMENT	01- -82	1.25	15	P
4DDB-1	MINERAL SERVICES INC.	08-12-82	2	19.7	P7.7-19.7
5DAB-1	SLC WATER DEPARTMENT	01- -82	1.25	15	P
11BAC-1	M. RUSSILL	07-26-82	2	19.7	P7.7-19.7
11DBC-1	SLC WATER DEPARTMENT	01- -82	1.25	15	P
13ABD-1	DO	01- -82	1.25	15	P
14CBA-1	SLC WATER DEPARTMENT	01- -82	1.25	15	P

SELECTED WELLS

Altitude of land surface: Surveyed altitudes given in feet and decimal fractions; altitudes interpolated from U.S. Geological Survey topographic maps given in full feet.
Water level: Measured distances to water are given in feet and decimal fractions.
Water-quality parameters: Measured in the field on indicated date except for those noted with an L, which were measured in the laboratory within a few days of sample collection. Samples collected by pumping except for those noted with an H, which were obtained by hand.
Other data available: C, additional water-quality data in tables 3 or 4; W, water levels in table 2.

ALTITUDE OF LAND SURFACE (FT)	WATER LEVEL BELOW LAND SURFACE		WATER-QUALITY PROPERTIES			OTHER DATA AVAILABLE
	(FT)	DATE	WATER TEMPERATURE (^{o}C)	SPECIFIC CONDUCTANCE (UMHOS/CM AT $25^{o}C$)	DATE	
4210	6.51	08-25-82	7.0	6590	02-01-83	C,W
4215	7.9	05-25-82	--	--	--	W
4228.78	3.08	08-31-82	--	1650	11-19-82	W
4260	5.4	05-25-82	--	--	--	W
4216.39	7.67	08-31-82	9.0	2530	02-07-83	C,W
4217.69	10.30	08-19-82	11.5	1200	01-17-83	C,W
4213.34	3.64	09-23-82	--	2060L	12-06-82	W
4215	6.2	05-25-82	--	--	--	W
4215	3.4	05-25-82	--	--	--	W
4220	1.03	10-05-82	8.0	8590	02-01-83	C,W
4220	5.4	05-25-82	--	--	--	W
4220	9.3	05-25-82	--	--	--	W
4221.40	8.00	08-25-82	11.0	3680	02-02-83	C,W
4215	2.40	10-01-82	--	36200L	11-16-82	W
4219	2.99	09-23-82	10.0	14400	02-01-83	C,W
4220	7.6	05-25-82	--	--	--	W
4237	7.8	05-25-82	--	--	--	W
4222.18	8.33	07-21-82	12.5	2320	01-07-83	C,W
4225	4.0	05-25-82	--	--	--	W
4221.23	2.26	08-12-82	7.5	4370	02-02-83	C,W
4227	4.6	05-25-82	--	--	--	W
4232.00	7.82	07-26-82	10.5	10900	01-07-83	C,W
4220	4.4	05-25-82	--	--	--	W
4230	9.7	05-25-82	--	--	--	W
4230	5.3	05-25-82	--	--	--	W

TABLE 1.--RECORDS OF

LOCATION	OWNER OR USER	DATE COMPLETED	CASING DIAMETER (IN.)	CASING DEPTH (FT)	CASING FINISH
(C-1-1)15CAA-1	US GEOLOGICAL SURVEY	06-04-82	2	15	P8-15
24CDC-1	UTAH DEPT. OF TRANS.	10-06-82	2	18.7	P6.7-18.7
26ACA-1	US DEPT. OF ENERGY	03-02-83	3	10.0	P6.0-8.5
26DCA-1	J. PAGNANELLI	08-26-82	2	19.7	P7.7-19.7
28CAB-1	C. APPEL	07-08-82	2	19.7	P7.7-19.7
(C-1-1)30ACA-1	K. PERKINS	08-12-82	2	19.7	P7.7-19.7
31ABB-1	J. MCDONALD	09-02-82	2	14.3	P2.3-14.3
33DBC-2	OSBORNE	—	8	18	P
36DCB-1	V. FENNING	09-16-82	2	7.8	P0-7.8
(C-1-2) 1CDC-1	P. COOK	08-26-82	2	17.9	P5.9-17.9
16DCC-1	L. PETRIE	09-02-82	2	19.0	P7.0-19.0
22CBB-2	F. FOWLER	07-30-82	2	19.7	P7.7-19.7
23DDD-1	D. BISHOP	08-19-82	2	19.7	P7.7-19.7
29ACA-1	M. ENRIGHT	07-21-82	2	16.5	P4.5-16.5
(C-2-1) 3DBA-1	L. HIGGINSON	06- -75	6	22	P16-22
9BBB-1	L. MULLERN	10-12-82	2	20	X
12BDA-1	UTAH DEPT. OF TRANS.	09-28-82	2	18.7	P6.7-18.7
13DAD-1	A. LLOYD	1970	6	34	O
14AAC-1	—	—	1.50	20	P
14BDB-1	K. NILSSON	09-03-82	2	11.0	S7.0-11.0
15ABC-1	L. BROWN	09-16-82	2	19.6	P7.6-19.6
26ABB-1	MIDVALE SEWAGE PLANT	09-20-82	2	12.8	P0.8-12.8
33AAA-1	—	10-15-82	1	39.0	P29.0-39.0
34DDA-3	D. GARDNER	09-01-82	2	18.9	P6.9-18.9
(C-2-1)35BAA-1	UTAH DEPT. OF TRANS.	09-21-82	2	12.5	P0.5-12.5
35BAB-1	J. ORTEGA	08-27-82	2	19.7	P7.7-19.7
35DCC-1	FUR BREEDERS AGRI. COOP	09-21-82	2	12.3	P0.3-12.3
36AAD-1	D. GILBERT	08-04-82	2	16.8	P4.8-16.8
36BAC-1	D. PRICE	07-19-82	2	20.0	P8.0-20.0
(C-2-2) 1BCD-1	G. RUSHTON	1930	36	30	W
(C-3-1) 1BBC-1	SANDY CITY PUBLIC WORKS	07-22-82	2	16.2	P4.2-16.2
3ACC-1	L. JONES	08-03-82	2	15.0	P3.0-15.0
12CCB-2	A. HARRISON	08-27-82	2	10.8	P0-10.8
14ACC-1	T. BUTCHER	08-17-82	2	19.7	P7.7-19.7
25CAC-1	L. WEBB	08-04-82	2	19.0	P7.0-19.0

ALTITUDE OF LAND SURFACE (FT)	WATER LEVEL BELOW LAND SURFACE		WATER-QUALITY PROPERTIES			OTHER DATA AVAILABLE
	(FT)	DATE	WATER TEMPER-ATURE (°C)	SPECIFIC CONDUCTANCE (UMHOS/CM AT 25°C)	DATE	
4231.05	4.40	06-04-82	--	3410	10-26-82	C,W
4235	2.60	10-06-82	7.0	3220	02-04-83	C,W
4234.50	4.06	04-06-83	11.0	10400	03-29-83	--
4239.75	5.85	08-26-82	8.0	4230	02-02-83	C,W
4244.77	2.33	07-08-82	13.0	1030	02-02-83	C,W
4249.19	4.94	08-12-82	9.5	4640	02-07-83	C,W
4275.43	7.18	09-02-82	10.5	1990	02-07-83	C,W
4262.60	5.81	10-23-81	--	--	--	W
4253.30	4.60	09-16-82	--	2060L	11-29-82	W
4236.8	7.17	08-26-82	--	8000L	11-16-82	W
4226.1	2.88	09-02-82	--	3250L	11-16-82	W
4233.3	3.05	07-30-82	--	2170L	11-16-82	W
4249.24	7.14	08-19-82	--	1740L	11-19-82	W
4300.75	DRY	07-21-82	--	--	--	--
4270	7.0	06- -75	--	2390L	11-19-82	W
4375	DRY	10-12-82	--	--	--	--
4260	10.03	09-28-82	11.0	2310	02-03-83	C,W
4332.38	19.0	07-30-75	--	--	--	W
4310	9.20	07-27-82	17.5	760	07-27-82	--
4263.85	5.82	09-03-82	9.0	2310	02-03-83	C,W
4331.36	5.94	09-16-82	10.5	2240	02-07-83	C,W
4278	6.35	09-20-82	7.0	8960	02-03-83	C,W
4410	30.30	10-15-82	--	--	--	--
4347.1	4.45	09-01-82	10.0	3450	01-17-83	C,W
4288.98	6.73	09-21-82	9.5	3160	02-03-83	C,W
4304.41	14.89	08-27-82	12.5	2500	01-17-83	C,W
4293.94	6.35	09-21-82	--	2640L	11-18-82	W
4393.23	DRY	08-04-82	--	--	--	--
4360	11.10	07-20-82	20.0	2000H	07-20-82	--
4510	9.63	11-12-81	--	--	--	W
4298.03	9.22	07-22-82	10.5	2340	02-04-83	C,W
4391.28	7.76	08-03-82	13.0	2910	01-14-83	C,W
4324.55	6.55	08-27-82	--	2600L	11-18-82	W
4389.16	7.07	08-17-82	15.5	--	08-17-82	W
4409.0	5.52	08-04-82	--	2750L	11-30-82	W

TABLE 1.--RECORDS OF

LOCATION	OWNER OR USER	DATE COMPLETED	CASING		
			DIAMETER (IN.)	DEPTH (FT)	FINISH
(C-3-1)34AAA-1	R. LAW	08-05-82	2	19.4	P7.4-19.4
(C-4-1)10ACD-1	L. CRUMP	10-13-82	1	6.0	P0-6.0
12CBB-1	—	—	36	14.0	W
(D-1-1) 7AAA-1	W. DORMAN-LIGH	08-20-82	2	19.5	P7.5-19.5
9ACB-1	SLC WATER DEPARTMENT	01- -82	1.25	15	P
17BBB-1	DO	01- -82	1.25	15	P
18DAD-1	P. BLANCHARD	08-20-82	2	19.5	P7.5-19.5
20AAB-1	CARBO-CHEMICAL CO.	09-20-74	12	32	P20-32
20AAB-2	HYGEIA ICE CO.	—	—	30	—
30AAA-1	SLC WATER DEPARTMENT	01- -82	1.25	15	P
30BBB-1	K. BRYAN	07-29-82	2	19.7	P7.7-19.7
31DBA-1	F. GODNICK	08-10-82	2	19.7	P7.7-19.7
(D-2-1) 8BBA-1	H. SCHMIDT	08-06-82	2	11.3	P0-11.3
17CAA-1	G. ANDERSON	08-10-82	2	19.7	P7.7-19.7
19DAD-1	UTAH DEPT. OF TRANS	1979	6	36.5	O
20CAC-2	DO	01- -80	2	36.5	O
20DAA-1	DO	—	2	15	O
21ADD-1	DO	1980	—	34.5	O
22ACB-1	R. FULMER	—	36	12.0	O
22ADA-1	UTAH DEPT. OF TRANS.	—	—	26.5	O
22BDA-1	DO	—	2	27.0	O
29CDD-1	R. ROBINSON	08-13-82	2	16.6	P4.6-16.6
(D-3-1) 5CDB-1(1)	—	07-21-80	1	14	—
6BCD-1	C. MARGETTS	08-05-82	2	19.5	P7.5-19.5
7CCB-1	DESERET MORTUARY	07-12-82	2	19.7	P7.7-19.7
19ABB-1	J. OAKESON	09-01-82	2	19.0	P7.0-19.0
31CDA-1	V. MCEWEN	07-26-82	2	19.7	P7.7-19.7
32AAA-1	A. CHRISTENSEN	08-18-82	2	19.7	P7.7-19.7
32CDA-1	D. BALLARD	1982	36	13.0	W

(1) Referred to in Lund (1981) as well SW-3.

ALTITUDE OF LAND SURFACE (FT)	WATER LEVEL BELOW LAND SURFACE (FT)	WATER LEVEL BELOW LAND SURFACE DATE	WATER-QUALITY PROPERTIES: WATER TEMPER-ATURE (°C)	WATER-QUALITY PROPERTIES: SPECIFIC CONDUCTANCE (UMHOS/CM AT 25°C)	WATER-QUALITY PROPERTIES: DATE	OTHER DATA AVAILABLE
4410.76	8.45	08-05-82	12.5	3470	01-17-83	C,W
4382.32	0.80	10-13-82	--	--	--	W
4470	2.05	09-09-82	--	2520L,H	11-30-82	W
4279.5	11.16	08-20-82	--	1380L	11-12-82	W
4665	DRY	05-25-82	--	--	--	W
4275	4.3	05-25-82	--	--	--	W
4288.1	7.58	08-20-82	12.0	1460	01-07-83	C,W
4400	12.0	09-20-74	--	--	--	W
4400	17.39	02-04-83	--	930L	11-19-82	--
	17.45	04-20-83				
4275	2.9	05-25-82	--	--	--	W
4248.67	5.07	07-29-82	--	1810L	11-12-82	W
4277.26	4.79	08-10-82	12.0	2040	01-12-83	C,W
4285.04	4.92	08-06-82	11.5	2120	01-12-83	C,W
4361.89	10.95	08-10-82	--	1580	11-29-82	W
4400	29.51	07-28-80	--	--	--	W
4405	5.73	07-28-80	--	1360L	12-06-82	W
4410	7.41	10-30-79	--	--	--	W
4464	34.23	05-13-82	--	--	--	--
4520.62	2.84	01-29-79	--	--	--	W
4595	15.54	10-30-79	--	--	--	W
4515	5.07	05-29-81	--	--	--	W
4496.85	10.00	08-13-82	19.5	--	08-13-82	--
4560	5.63	07-15-82	7.0	395	02-04-83	C,W
4426.91	14.11	08-05-82	14.5	1560	01-12-83	C,W
4399.76	14.41	07-15-82	--	580L	12-02-82	W
4485.07	DRY	09-01-82	--	--	--	--
4437.9	3.91	07-26-82	10.5	2830	01-12-83	C,W
4510.33	10.66	08-18-82	11.0	760	01-12-83	C,W
4487	7.16	12-06-82	--	1040L,H	12-06-82	W

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Table 2.--Water levels in selected wells

[Water levels are in feet below land surface. See text for explanation of well-numbering system. Water-level measurements to hundredths of a foot were made by the U.S. Geological Survey, and measurements to tenths of a foot were made by the Salt Lake City Water Department unless indicated otherwise.]

Altitude (Alt.) of land surface: Surveyed altitudes given in feet and decimal fractions; altitudes interpolated from U.S. Geological Survey topographic maps given in full feet.

(B-1-1) 9ADC-1. Alt. 4210

AUG 25, 1982	6.51	NOV 16, 1982	4.65	JAN 14, 1983	4.24	MAR 07,1983	3.65
SEP 10	6.35	DEC 06	4.30	FEB 01	3.45	APR 12	3.70
OCT 01	3.41	22	2.78				

(B-1-1)22DCA-1. Alt. 4215

FEB 02, 1982	9.4	JUN 15, 1982	8.2	SEP 29, 1982	4.6	FEB 4, 1983	4.6
MAR 02	9.0	JUL 13	8.3	OCT 14	7.0	25	4.1
APR 09	7.0	AUG 09	9.2	NOV 16	7.3	MAR 10	4.2
30	7.7	25	9.8	DEC 27	5.2	29	2.1
MAY 25	7.9	SEP 16	8.0	JAN 21, 1983	5.8	APR 13	3.6

(B-1-1)25CDD-1. Alt. 4228.78

AUG 31, 1982	3.08	NOV 16, 1982	3.94	JAN 14, 1983	3.82	MAR 07, 1983	3.57
SEP 14	3.84	19	3.81	FEB 02	3.29	APR 12	3.40
OCT 01	2.44	DEC 22	3.27				

(B-1-1)25DCB-1. Alt. 4260

FEB 02, 1982	DRY	JUN 15, 1982	5.0	SEP 29, 1982	5.8	FEB 25, 1983	DRY
MAR 02	DRY	JUL 13	5.5	OCT 14	DRY	MAR 11	DRY
APR 09	5.1	AUG 09	5.4	JAN 21, 1983	DRY	29	DRY
30	4.9	25	5.4	FEB 04	DRY	APR 14	DRY
MAY 25	5.4	SEP 16	5.5				

(B-1-1)26BAD-1. Alt. 4216.39

AUG 31, 1982	7.67	NOV 16, 1982	7.11	JAN 14, 1983	6.95	MAR 28, 1983	3.62
SEP 14	6.73	23	7.19	FEB 07	6.50	APR 12	5.15
OCT 01	4.34	DEC 22	6.50	MAR 07	6.21		

(B-1-1)26CDA-1. Alt. 4217.69

AUG 19, 1982	10.30	NOV 16, 1982	9.03	JAN 14, 1983	8.50	MAR 07, 1983	7.41
SEP 14	9.87	23	9.20	17	8.58	28	4.35
OCT 01	6.21	DEC 22	8.29	FEB 02	7.54	APR 12	6.55

Table 2.--Water levels in selected wells--Continued

(B-1-1)27CAA-1. Alt. 4213.34

SEP 23, 1982	3.64	NOV 16, 1982	4.04	DEC 22, 1982	4.77	FEB 02, 1983	4.47
OCT 21	4.61	DEC 06	5.31	JAN 14, 1983	4.84	MAR 07	3.96

(B-1-1)27DDC-1. Alt. 4215

FEB 02, 1982	7.5	JUN 15, 1982	6.2	SEP 29, 1982	3.0	FEB 04, 1983	4.8
MAR 02	7.0	JUL 13	7.0	OCT 14	4.3	25	4.9
APR 09	5.2	AUG 09	7.0	NOV 16	5.8	MAR 10	4.6
30	5.6	25	7.3	DEC 27	4.8	29	2.9
MAY 25	6.2	SEP 16	5.0	JAN 21, 1983	5.5	APR 13	3.2

(B-1-1)28DCA-1. Alt. 4215

FEB 02, 1982	4.5	JUL 13, 1982	4.2	SEP 29, 1982	2.2	FEB 04, 1983	2.7
MAR 02	4.4	28	4.75	OCT 14	3.0	25	2.9
APR 09	2.5	AUG 09	4.3	NOV 16	4.6	MAR 10	2.7
30	3.5	25	4.7	DEC 27	2.6	29	1.8
MAY 25	3.4	SEP 16	4.1	JAN 21, 1983	3.2	APR 13	2.5
JUN 15	3.9						

(B-1-1)32CCD-1. Alt. 4220

OCT 05, 1982	1.03	NOV 16, 1982	4.47	FEB 01, 1983	3.70	MAR 28, 1983	2.93
21	4.53	DEC 22	3.67	MAR 07	3.93	APR 12	3.77
27	4.07	JAN 14, 1983	4.27				

(B-1-1)32DCA-1. Alt. 4220

FEB 02, 1982	6.3	APR 30, 1982	5.2	JUL 13, 1982	5.6	SEP 14, 1982	6.68
MAR 02	6.2	MAY 25	5.4	AUG 09	5.8	16	6.3
APR 09	5.0	JUN 15	5.4	25	6.2		

(B-1-1)35CBA-1. Alt. 4220

FEB 02, 1982	10.3	JUL 13, 1982	9.9	OCT 14, 1982	8.1	FEB 25, 1983	9.0
MAR 02	10.0	AUG 09	9.6	NOV 16	9.1	MAR 10	9.0
APR 09	8.9	25	9.9	DEC 27	9.3	29	7.2
30	9.1	SEP 16	8.5	JAN 21, 1983	9.3	APR 13	7.9
MAY 25	9.3	29	4.9	FEB 04	8.9		

(B-1-1)35DCB-1. Alt. 4221.40

AUG 25, 1982	8.00	OCT 21, 1982	6.44	DEC 22, 1982	6.20	MAR 07, 1983	5.52
SEP 14	7.92	NOV 16	6.69	JAN 14, 1983	6.42	28	3.73
OCT 01	5.83	23	6.85	FEB 02	6.04	APR 12	4.49

Table 2.--Water levels in selected wells--Continued

(B-1-2)31AAA-1. Alt. 4215

OCT 01, 1982	2.40	DEC 22, 1982	0.00	FEB 02, 1983	0.16	APR 12, 1983	0.00
NOV 16	2.08	JAN 14, 1983	1.24	MAR 07	0.00		

(B-1-2)34AAB-1. Alt. 4219

SEP 23, 1982	2.99	NOV 08, 1982	0.88	FEB 01, 1983	0.16	MAR 28, 1983	0.00
OCT 01	0.00	DEC 22	0.01	MAR 07	0.30	APR 12	0.00
21	1.28	JAN 14, 1983	1.15				

(B-1-2)36ABC-1. Alt. 4220

FEB 02, 1982	8.5	AUG 09, 1982	7.6	OCT 14, 1982	7.1	FEB 25, 1983	6.5
MAR 02	8.3	25	7.3	NOV 16	8.1	MAR 07	6.44
APR 09	7.2	SEP 09	7.42	DEC 06	7.28	10	6.2
30	7.5	16	7.1	27	7.0	28	5.10
MAY 25	7.6	29	6.0	JAN 21, 1983	7.1	29	5.2
JUN 15	7.3	OCT 04	6.52	FEB 04	6.1	APR 13	6.0
JUL 13	7.6						

(C-1-1) 1BDD-1. Alt. 4237

FEB 02, 1982	8.0	APR 30, 1982	7.1	JUL 13, 1982	7.9	SEP 16, 1982	7.4
MAR 02	8.0	MAY 25	7.8	AUG 09	7.7	29	6.8
APR 09	7.1	JUN 15	7.5	25	7.4	OCT 14	7.6

(C-1-1) 2DCA-2. Alt. 4222.18

JUL 21, 1982	8.33	NOV 18, 1982	8.23	FEB 02, 1983	8.18	MAR 28, 1983	7.22
SEP 14	7.79	DEC 22	8.21	MAR 07	7.98	APR 12	7.28
OCT 01	7.52	JAN 07, 1983	8.23				

(C-1-1) 3DAB-1. Alt. 4225

FEB 02, 1982	3.5	MAY 25, 1982	4.0	NOV 16, 1982	4.0	FEB 25, 1983	3.2
MAR 02	4.0	JUN 15	4.0	DEC 27	2.7	MAR 11	3.4
APR 09	2.2	JUL 13	3.9	JAN 21, 1983	3.8	29	1.3
30	3.7	OCT 14	2.9	FEB 04	2.9	APR 13	3.2

(C-1-1) 4DDB-1. Alt. 4221.23

AUG 12, 1982	2.26	OCT 21, 1982	0.61	JAN 14, 1983	0.30	MAR 28, 1983	0.00
SEP 14	1.67	NOV 23	0.46	FEB 02	0.14	APR 12	0.10
OCT 01	0.33	DEC 23	0.13	MAR 07	0.02		

Table 2.--Water levels in selected wells--Continued

(C-1-1) 5DAB-1. Alt. 4227

FEB 02, 1982	3.1	JUN 15, 1982	DRY	SEP 29, 1982	2.9	FEB 25, 1983	2.9
MAR 03	3.2	JUL 13	4.9	NOV 16	3.7	MAR 10	2.8
APR 09	2.6	AUG 09	DRY	DEC 27	2.9	29	2.8
30	4.1	25	DRY	JAN 21, 1983	2.6	APR 13	2.9
MAY 25	4.6	SEP 16	5.2	FEB 04	2.8		

(C-1-1)11BAC-1. Alt. 4232.00

JUL 26, 1982	7.82	NOV 23, 1982	9.57	FEB 02, 1983	7.55	MAR 28, 1983	5.20
SEP 14	9.11	DEC 22	7.77	MAR 07	6.91	APR 12	5.33
OCT 01	8.47	JAN 07, 1983	7.71				

(C-1-1)11DBC-1. Alt. 4220

FEB 02, 1982	4.6	JUN 15, 1982	4.1	SEP 29, 1982	2.2	FEB 04, 1983	4.0
MAR 02	7.4	JUL 13	4.9	OCT 14	5.0	25	4.1
APR 09	3.6	AUG 09	4.8	NOV 16	4.6	MAR 11	4.0
30	4.1	25	5.0	DEC 29	4.0		
MAY 25	4.4	SEP 16	4.6	JAN 21, 1983	4.2		

(C-1-1)13ABD-1. Alt. 4230

FEB 02, 1982	8.5	APR 09, 1982	9.1	MAY 25, 1982	9.7	JUL 13, 1982	10.0
MAR 03	9.9	30	9.3	JUN 15	9.8		

(C-1-1)14CBA-1. Alt. 4230

FEB 02, 1982	5.5	JUN 15, 1982	5.2	SEP 29, 1982	3.1	FEB 04, 1983	4.3
MAR 03	5.3	JUL 13	5.1	OCT 14	4.4	25	4.2
APR 09	4.3	AUG 09	5.0	NOV 16	5.4	MAR 10	4.7
30	5.2	25	5.2	DEC 27	4.9	29	3.5
MAY 25	5.3	SEP 16	5.0	JAN 21, 1983	5.0	APR 13	4.3

(C-1-1)15CAA-1. Alt. 4231.05

JUN 04, 1982	4.40	NOV 01, 1982	3.74	MAR 04, 1983	4.17	MAR 28, 1983	3.11
JUL 15	5.03	DEC 23	4.31	07	4.25	APR 05	2.87
OCT 05	3.09	JAN 20, 1983	4.85	21	4.02	14	3.77
26	4.26	FEB 02	4.19	24	4.01		

(C-1-1)24CDC-1. Alt. 4235

OCT 06, 1982	2.60	NOV 19, 1982	2.86	FEB 09, 1983	2.97	APR 06, 1983	2.13
21	3.25	DEC 23	2.65	MAR 07	2.79	APR 14	2.72
NOV 09	3.09						

Table 2.--Water levels in selected wells--Continued

(C-1-1)26DCA-1. Alt. 4239.75

AUG 26, 1982	5.85	OCT 21, 1982	6.10	FEB 02, 1983	4.96	MAR 30, 1983	4.17
SEP 09	8.45	NOV 07	5.69	MAR 07	4.91	APR 14	4.48
30	5.16	DEC 21	5.28				

(C-1-1)28CAB-1. Alt. 4244.77

JUL 08, 1982	2.33	SEP 12, 1982	3.04	OCT 25 1982	2.80	MAR 07, 1983	1.16
10	3.19	19	3.17	NOV 06	2.34	21	0.88
11	3.22	29	1.09	19	2.27	24	1.10
20	3.40	30	1.15	DEC 30	1.69	APR 14	1.54
25	3.42	OCT 02	1.25	JAN 14 1983	1.50		
AUG 24	3.45	05	1.90	FEB 02	1.49		
31	3.29	09	2.24	MAR 06	1.20		

(C-1-1)30ACA-1. Alt. 4249.19

AUG 12, 1982	4.94	OCT 21, 1982	4.21	DEC 22, 1982	4.15	MAR 07, 1983	4.29
SEP 30	1.78	NOV 19	4.85	FEB 07, 1983	4.17	APR 14	3.70

(C-1-1)31ABB-1. Alt. 4275.43

SEP 02, 1982	7.18	OCT 21, 1982	7.61	DEC 22, 1982	7.68	MAR 07, 1983	8.37
30	5.83	NOV 29	8.09	FEB 07, 1983	8.20	APR 14	8.29

(C-1-1)33DBC-2. Alt. 4262.60

OCT 23, 1981	5.81	OCT 04, 1982	3.25	DEC 29, 1982	5.65	MAR 07, 1983	6.48
FEB 10, 1982	6.05	NOV 10	5.55	FEB 02, 1983	5.96	APR 14	5.63
SEP 13	5.09						

(C-1-1)36DCB-1. Alt. 4253.30

SEP 16, 1982	4.60	NOV 29, 1982	4.19	FEB 04, 1983	3.35	APR 14, 1983	2.88
30	0.98	DEC 21	4.00	MAR 07	2.95		

(C-1-2) 1CDC-1. Alt. 4236.8

AUG 26, 1982	7.17	OCT 21, 1982	6.38	DEC 22, 1982	6.22	MAR 07, 1983	5.68
SEP 14	7.52	NOV 08	6.30	JAN 14, 1983	6.11	30	4.04
OCT 01	6.37	16	6.37	FEB 02	5.93	APR 12	3.88

(C-1-2)16DCC-1. Alt. 4226.1

SEP 02, 1982	2.88	OCT 21, 1982	1.28	DEC 22, 1982	0.00	MAR 07, 1983	0.00
14	3.75	NOV 08	0.12	JAN 14, 1983	0.35	APR 14	0.15
OCT 01	0.00	16	0.77	FEB 02	0.00		

Table 2.--Water levels in selected wells--Continued

(C-1-2)22CBB-2. Alt. 4233.3

JUL 30, 1982	3.05	OCT 21, 1982	3.49	DEC 22, 1982	2.79	MAR 07, 1983	3.07
SEP 14	4.32	NOV 08	2.29	JAN 14, 1983	3.50	APR 14	3.03
OCT 01	2.00	16	2.27	FEB 02	2.92		

(C-1-2)23DDD-1. Alt. 4249.24

AUG 19, 1982	7.14	OCT 21, 1982	2.54	DEC 22, 1982	2.81	MAR 07, 1983	5.14
SEP 14	5.82	NOV 16	2.35	FEB 02, 1983	4.81	APR 14	4.77
OCT 01	3.09						

(C-2-1) 3DBA-1. Alt. 4270

JUN , 1975	7.0[1]	NOV 10, 1982	6.39	FEB 02, 1983	6.60	APR 14, 1983	6.50
OCT 26, 1981	6.90						

(C-2-1)12BDA-1. Alt. 4260

SEP 28, 1982	10.03	NOV 09, 1982	9.70	FEB 03, 1983	9.84	MAR 24, 1983	9.30
SEP 30	9.35	DEC 23	9.87	MAR 07	8.64	APR 14	8.52

(C-2-1)13DAD-1. Alt. 4332.38

JUL 30, 1975	19.0[1]	FEB 19, 1982	15.55	JUL 29, 1982	15.63	DEC 29, 1982	14.09
OCT 27, 1981	15.36	MAR 29	15.57	AUG 27	15.61	JAN 31, 1983	14.44
NOV 25	15.40	APR 29	15.32	SEP 29	14.81	FEB 09	14.42
DEC 30	15.48	MAY 27	15.23	OCT 28	13.55	MAR 30	14.18
JAN 28, 1982	15.55	JUN 30	15.57	NOV 29	13.90		

(C-2-1)14BDB-1. Alt. 4263.85

SEP 03, 1982	5.82	DEC 03, 1982	3.59	FEB 03, 1983	3.49	APR 14, 1983	3.41
30	4.35	DEC 21	3.55	MAR 07	3.40		

(C-2-1)15ABC-1. Alt. 4331.36

SEP 16, 1982	5.94	NOV 10, 1982	5.99	DEC 21, 1982	6.48	MAR 07, 1983	7.03
30	4.77	19	5.91	FEB 07, 1983	6.93	APR 14	6.91

(C-2-1)26ABB-1. Alt. 4278

SEP 20, 1982	6.35	NOV 18, 1982	3.22	FEB 03, 1983	2.97	APR 14, 1983	2.95
SEP 30	4.30	DEC 21	3.04	MAR 07	2.95		

(C-2-1)34DDA-3. Alt. 4347.1

SEP 01, 1982	4.45	NOV 29, 1982	5.52	JAN 17, 1983	5.66	MAR 07, 1983	5.67
30	2.66	DEC 21	5.54	FEB 02	5.60	APR 14	5.31

Table 2.--Water levels in selected wells--Continued

(C-2-1)35BAA-1. Alt. 4288.98

SEP 21, 1982	6.73	NOV 18, 1982	3.88	FEB 03, 1983	3.43	MAR 24, 1983	2.92
30	5.82	DEC 21	3.58	MAR 07	3.28	APR 14	3.13
NOV 15	4.02						

(C-2-1)35BAB-1. Alt. 4304.41

AUG 27, 1982	14.89	NOV 17, 1982	15.94	JAN 17, 1983	16.13	MAR 07, 1983	15.83
SEP 09	16.39	DEC 21	16.03	FEB 02	16.00	APR 14	15.77
30	15.62						

(C-2-1)35DCC-1. Alt. 4293.94

SEP 21, 1982	6.35	SEP 30, 1982	4.91	NOV 18, 1982	3.31	DEC 21, 1982	2.87

(C-2-2) 1BCD-1. Alt. 4510

NOV 12, 1981	9.63	OCT 01, 1982	9.26	FEB 02, 1983	6.72	APR 14, 1983	5.90
FEB 09, 1982	7.47	DEC 29	6.98				

(C-3-1) 1BBC-1. Alt. 4298.03

JUL 22, 1982	9.22	SEP 30, 1982	6.05	DEC 21, 1982	3.65	MAR 24, 1983	4.45
AUG 03	8.44	NOV 15	4.14	FEB 04, 1983	3.53	APR 14	3.33
SEP 09	8.79	NOV 30	3.81	MAR 07	3.49		

(C-3-1) 3ACC-1. Alt. 4391.28

AUG 03, 1982	7.76	OCT 07, 1982	7.48	DEC 21, 1982	9.50	MAR 07, 1983	10.90
SEP 14	7.73	NOV 15	8.85	JAN 14, 1983	10.07	MAR 24	10.70
30	7.16	29	9.17	FEB 02	10.32	APR 14	10.70

(C-3-1)12CCB-2. Alt. 4324.55

AUG 27, 1982	6.55	SEP 30, 1982	2.54	NOV 18, 1982	3.20	MAR 07, 1983	2.46
SEP 14	5.72	OCT 04	3.12	DEC 21	1.61	APR 14	2.82

(C-3-1)14ACC-1. Alt. 4389.16

AUG 17, 1982	7.07	SEP 14, 1982	8.53	SEP 30, 1982	9.83	OCT 07, 1982	10.25

(C-3-1)25CAC-1. Alt. 4409.0

AUG 04, 1982	5.52	OCT 07, 1982	6.26	DEC 21, 1982	8.48	MAR 07, 1983	8.19
SEP 14	7.08	NOV 15	7.63	FEB 04, 1983	7.81	APR 14	8.71
30	5.32	30	8.25				

Table 2.--Water levels in selected wells--Continued

(C-3-1)34AAA-1. Alt. 4410.76

AUG 05, 1982	8.45	OCT 07, 1982	7.87	DEC 21, 1982	8.36	MAR 07, 1983	8.34
SEP 14	8.26	NOV 15	8.26	JAN 17, 1983	8.47	APR 14	8.35
30	5.90	30	8.25	FEB 04	8.37		

(C-4-1)10ACD-1. Alt. 4382.32

OCT 13, 1982	0.80	DEC 21, 1982	0.10	MAR 07, 1983	0.32	APR 14, 1983	0.33
NOV 15	0.40	FEB 04, 1983	0.22				

(C-4-1)12CBB-1. Alt. 4470

SEP 09, 1982	2.05	NOV 15, 1982	2.17	DEC 21, 1982	2.62	MAR 07, 1983	3.59
30	1.05	30	1.93	FEB 04, 1983	3.78	APR 14	2.67

(D-1-1) 7AAA-1. Alt. 4279.5

AUG 20, 1982	11.16	NOV 12, 1982	10.85	FEB 04, 1983	9.65	APR 12, 1983	9.33
OCT 01	7.59	DEC 22	10.22	MAR 07	10.19		

(D-1-1) 9ACB-1. Alt. 4665

FEB 02, 1982	DRY	JUN 15, 1982	DRY	SEP 29, 1982	DRY	FEB 04, 1983	14.1
MAR 02	DRY	JUL 13	DRY	OCT 14	DRY	25	14.7
APR 09	DRY	AUG 09	DRY	NOV 16	DRY	MAR 21	14.1
30	DRY	25	DRY	DEC 27	14.7	29	14.1
MAY 25	DRY	SEP 16	14.0	JAN 21, 1983	14.1	APR 13	14.0

(D-1-1)17BBB-1. Alt. 4275

FEB 01, 1982	4.9	JUN 15, 1982	4.1	SEP 29, 1982	2.0	JAN 21, 1983	4.1
MAR 02	4.8	JUL 13	4.1	OCT 01	2.70	FEB 04	4.4
APR 09	3.9	AUG 09	4.5	14	2.8	25	3.9
30	4.2	25	4.0	NOV 16	4.3	MAR 29	3.0
MAY 25	4.3	SEP 16	3.7	DEC 27	4.3	APR 13	3.2

(D-1-1)18DAD-1. Alt. 4288.1

AUG 20, 1982	7.58	DEC 03, 1982	8.40	JAN 07, 1983	8.46	MAR 07, 1983	8.42
OCT 01	7.85	22	8.42	FEB 04	8.36	APR 12	8.15

(D-1-1)20AAB-1. Alt. 4400

SEP 20, 1974	12.0[1]	FEB 18, 1983	18.06	MAR 07, 1983	18.00	APR 12, 1983	17.60
DEC 29, 1982	18.25						

Table 2.--Water levels in selected wells--Continued

(D-1-1)30AAA-1. Alt. 4275

FEB 02, 1982	3.7	JUN 15, 1982	3.1	SEP 29, 1982	1.8	FEB 04, 1983	2.9
MAR 02	3.6	JUL 13	3.8	OCT 14	3.1	25	3.1
APR 09	2.1	AUG 09	3.8	NOV 16	3.7	MAR 21	2.2
30	3.1	AUG 25	3.9	DEC 27	3.1	29	2.0
MAY 25	2.9	SEP 16	3.5	JAN 21, 1983	3.0	APR 13	2.8

(D-1-1)30BBB-1. Alt. 4248.67

JUL 29, 1982	5.07	OCT 04, 1982	4.75	OCT 20, 1982	5.14	JAN 30, 1983	4.44
SEP 08	6.84	05	4.75	NOV 07	4.93	FEB 04	4.63
30	3.85	06	4.84	12	4.89	MAR 07	4.73
OCT 01	4.07	08	4.85	DEC 09	4.72	APR 06	4.38
02	4.50	12	5.01	JAN 10, 1983	4.90	12	4.63
03	4.65	17	5.13	22	4.90		

(D-1-1)31DBA-1. Alt. 4277.26

AUG 10, 1982	4.79	NOV 12, 1982	6.94	JAN 12, 1983	7.21	MAR 07, 1983	6.77
OCT 01	5.64	DEC 23	7.09	FEB 04	6.80	APR 12	6.26

(D-2-1) 8BBA-1. Alt. 4285.04

AUG 06, 1982	4.92	NOV 29, 1982	4.58	JAN 12, 1983	4.50	MAR 07, 1983	4.30
OCT 01	3.48	DEC 23	4.33	FEB 04	4.30	APR 12	4.15

(D-2-1)17CAA-1. Alt. 4361.89

AUG 10, 1982	10.95	NOV 29, 1982	9.87	FEB 04, 1983	9.08	APR 14, 1983	8.93
OCT 01	7.66	DEC 21	9.31	MAR 07	9.12		

(D-2-1)19DAD-1. Alt. 4400

JUL 28, 1980	29.51	MAR 26, 1981	DRY	OCT 27, 1981	34.70	APR 28, 1982	DRY
AUG 27	28.25	APR 30	DRY	NOV 25	DRY	MAY 27	DRY
SEP 29	29.82	MAY 29	36.50	DEC 30	DRY	JUN 30	DRY
OCT 28	31.82	JUN 30	DRY	JAN 28, 1982	DRY	JUL 29	34.53
DEC 30	DRY	JUL 31	34.14	FEB 19	DRY	AUG 27	33.86
JAN 29, 1981	DRY	AUG 28	33.45	MAR 29	DRY	NOV 29	35.14
FEB 19	DRY	SEP 29	33.09				

Table 2.--Water levels in selected wells--Continued

(D-2-1)20CAC-2. Alt. 4405

JUL 28, 1980	5.73	APR 30, 1981	8.66	JAN 28, 1982	7.69	OCT 28, 1982	6.69
AUG 27	5.94	MAY 29	7.59	FEB 19	8.20	NOV 29	7.60
SEP 29	6.76	JUN 30	6.82	MAR 29	8.17	DEC 06	7.52
OCT 28	7.35	JUL 31	6.98	APR 28	7.70	29	7.64
NOV 26	7.24	AUG 28	6.99	MAY 27	7.67	JAN 31, 1983	7.71
DEC 30	8.17	SEP 29	7.14	JUN 30	7.17	FEB 09	8.05
JAN 29, 1981	8.54	OCT 27	7.43	JUL 29	8.10	MAR 30	7.43
FEB 19	8.74	NOV 25	7.53	AUG 27	7.35		
MAR 26	8.92	DEC 30	7.54				

(D-2-1)20DAA-1. Alt. 4410

OCT 30, 1979	7.41	SEP 29, 1980	7.01	JUN 30, 1981	6.80	MAR 29, 1982	7.56
JAN 31, 1980	9.08	OCT 28	7.66	JUL 31	6.63	APR 28,	7.38
FEB 19	9.00	NOV 26	8.25	AUG 28	6.42	MAY 27	6.88
MAR 26	7.72	DEC 30	8.74	SEP 29	6.86	JUN 30	6.98
APR 29	7.85	JAN 29, 1981	9.46	OCT 27	7.26	JUL 29	6.68
MAY 27	7.04	FEB 19	9.85	NOV 25	7.68	AUG 27	7.14
JUN 24	6.43	MAR 26	10.22	DEC 30	8.23	DEC 06	7.87
JUL 28	6.59	APR 30	9.36	JAN 28, 1982	7.86	29	7.90
AUG 27	5.28	MAY 29	8.07	FEB 19	7.78		

(D-2-1)22ACB-1. Alt. 4520.62

JAN 29, 1979	2.84	DEC 27, 1979	2.88	NOV 26, 1980	2.44	FEB 19, 1982	2.60
FEB 22	2.46	JAN 31, 1980	2.96	JAN 29, 1981	2.83	APR 28	2.60
MAR 28	2.82	FEB 19	1.92	APR 30	3.04	MAY 27	2.78
APR 27	3.01	MAR 26	2.24	MAY 29	2.58	JUN 30	3.08
MAY 30	2.77	APR 29	2.94	JUN 30	3.18	JUL 29	2.58
JUN 29	2.98	MAY 27	3.00	JUL 31	3.15	AUG 27	3.26
JUL 30	3.28	JUN 24	3.34	AUG 28	3.13	OCT 28	2.00
AUG 30	3.36	JUL 28	3.22	SEP 29	3.28	JAN 31, 1983	2.15
SEP 28	3.30	AUG 27	2.88	OCT 27	2.92	FEB 16	2.29
OCT 30	2.89	SEP 29	2.96	DEC 30	2.80	MAR 30	1.61
NOV 28	2.99	OCT 28	2.57	JAN 28, 1982	2.29		

(D-2-1)22ADA-1. Alt. 4595

OCT 30, 1979	15.54	AUG 27, 1980	15.02	APR 30, 1981	20.47	DEC 30, 1981	DRY
JAN 31, 1980	17.68	SEP 29	13.40	MAY 29	24.66	JAN 28, 1982	DRY
FEB 19	11.48	OCT 28	13.53	JUN 30	DRY	FEB 19	DRY
MAR 26	12.33	NOV 26	13.17	JUL 31	DRY	MAR 29	DRY
APR 29	16.68	DEC 30	13.42	AUG 28	DRY	APR 28	DRY
MAY 27	15.54	JAN 29, 1981	24.19	SEP 29	DRY	JUL 29	DRY
JUN 24	16.48	FEB 19	23.56	OCT 27	DRY	AUG 27	DRY
JUL 28	16.77	MAR 26	DRY	NOV 25	DRY		

Table 2.--Water levels in selected wells--Continued

(D-2-1)22BDA-1. Alt. 4515

MAY 29, 1981	5.07	OCT 27, 1981	4.60	JUN 30,1982	4.79	NOV 29, 1982	5.44
JUN 30	5.78	NOV 25	4.35	JUL 29	4.54	DEC 29	4.98
JUL 31	5.92	DEC 30	4.21	AUG 27	5.00	JAN 31, 1983	4.89
AUG 28	5.62	JAN 28, 1982	4.46	OCT 28	4.45	FEB 09	5.30
SEP 29	5.01	APR 28	4.65				

(D-3-1) 5CDB-1. Alt. 4560

JUL 15, 1982	5.63	SEP 30, 1982	4.53	FEB 03, 1983	7.13	APR 14, 1983	7.02
SEP 14	5.55	DEC 02	6.18	MAR 08	7.39		

(D-3-1) 6BCD-1. Alt. 4426.91

AUG 05, 1982	14.11	OCT 04, 1982	12.37	JAN 12, 1983	15.63	MAR 24, 1983	16.92
SEP 14	13.30	NOV 29	14.47	FEB 04	16.16	APR 14	16.76
30	12.50	DEC 21	15.05	MAR 07	16.71		

(D-3-1) 7CCB-1. Alt. 4399.76

JUL 15, 1982	14.41	SEP 30, 1982	6.00	NOV 01, 1982	12.02	DEC 02, 1982	11.03
SEP 09	15.05	OCT 07	10.81				

(D-3-1)31CDA-1. Alt. 4437.9

JUL 26, 1982	3.91	NOV 15, 1982	5.81	JAN 12, 1983	5.89	MAR 07, 1983	5.43
SEP 08	5.01	30	5.83	FEB 04	5.61	APR 14	5.00
30	2.09	DEC 21	5.49				

(D-3-1)32AAA-1. Alt. 4510.33

AUG 18, 1982	10.66	DEC 06, 1982	10.12	JAN 12, 1983	10.24	MAR 07, 1983	10.27
SEP 30	9.90	21	10.21	FEB 04	10.30	APR 14	10.15
OCT 07	10.04						

(D-3-1)32CDA-1. Alt. 4487

DEC 06, 1982	7.16	FEB 04, 1983	8.36	MAR 07, 1983	8.45	APR 14, 1983	8.51
21	7.78						

[1] Water-level measurement made by well driller.

TABLE 3.—CHEMICAL ANALYSES OF INORGANIC
[°C, degrees Celsius; UMHOS/CM AT 25°C,
MG/L, milligrams per liter; UG/L,

LOCATION	DATE OF SAMPLE	WATER TEMPER-ATURE (°C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS/CM AT 25°C)	PH (UNITS)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
(B-1-1) 9ADC-1	83-02-01	7.0	6590	8.0	20	28	1500	54	1250	240	1300	5.3
26BAD-1	83-02-07	9.0	2530	7.0	390	80	110	77	424	980	120	5.3
26CDA-1	83-01-17	11.5	1200	7.5	42	110	50	7.8	428	150	72	1.1
32CCD-1	83-02-01	8.0	8590	7.6	—	—	—	—	—	—	—	—
35DCB-1	83-02-02	11.0	3680	7.6	26	320	440	42	1290	600	160	1.1
(B-1-2) 34AAB-1	83-02-01	10.0	14400	7.8	—	—	—	—	—	—	—	—
(C-1-1) 2DCA-1	83-01-07	12.5	2320	6.9	470	50	60	8.1	373	990	67	.7
4DDB-1	83-02-02	7.5	4370	7.7	—	—	—	—	—	—	—	—
11BAC-1	83-01-07	10.5	10900	7.1	310	660	1600	200	948	3900	1700	.6
15CAA-1	82-10-26	—	3410	7.2	—	—	—	—	—	—	—	—
24CDC-1	83-02-04	7.0	3220	7.1	—	—	—	—	—	—	—	—
26DCA-1	83-02-02	8.0	4230	7.4	170	250	430	81	439	950	650	1.2
28CAB-1	83-02-02	13.0	1030	8.0	40	34	120	20	185	95	170	.7
30ACA-1	83-02-07	9.5	4640	7.6	51	120	920	44	1050	870	540	2.6
31ABB-1	83-02-07	10.5	1990	7.4	90	86	230	37	416	320	260	.7
(C-2-1) 12BDA-1	83-02-03	11.0	2310	7.3	—	—	—	—	—	—	—	—
14BDB-1	83-02-03	9.0	2310	6.3	180	110	180	15	103	910	210	3.1
15ABC-1	83-02-07	10.5	2240	7.1	190	80	180	25	325	480	290	.9
26ABB-1	83-02-03	7.0	8960	7.3	—	—	—	—	—	—	—	—
34DDA-3	83-01-17	10.0	3450	7.1	260	140	340	17	426	810	520	.5
35BAA-1	83-02-03	9.5	3160	6.9	390	140	190	17	282	1200	300	2.9
35BAB-1	83-01-17	12.5	2500	7.0	170	87	250	12	332	450	370	.6
(C-3-1) 1BBC-1	83-02-04	10.5	2340	6.7	200	110	200	32	892	180	250	.9
3ACC-1	83-01-14	13.0	2910	7.2	230	72	140	36	455	690	180	.3
34AAA-1	83-01-17	12.5	3470	7.1	420	98	280	33	316	1300	340	.7
(D-1-1) 18DAD-1	83-01-07	12.0	1460	7.0	160	41	100	4.5	318	220	160	.2
31DBA-1	83-01-12	12.0	2040	7.1	160	73	180	13	443	170	350	.6
(D-2-1) 8BBA-1	83-01-12	11.5	2120	7.0	210	96	140	9.9	405	550	210	.4
(D-3-1) 5CDB-1	83-02-04	7.0	395	7.6	—	—	—	—	—	—	—	—
6BCB-1	83-01-12	14.5	1560	7.3	95	63	150	14	322	180	230	.8
31CDA-1	83-01-12	10.5	2830	7.3	140	130	270	25	266	530	420	1.3
32AAA-1	83-01-12	11.0	760	6.8	62	22	66	3.4	180	100	83	<.1
Recommended maximum concentration for domestic water supply (U.S. Environmental Protection Agency, 1977, 1980)		—	—	5.0–9.0	—	—	—	—	—	—	—	—

CONSTITUENTS IN WATER FROM SELECTED WELLS
micromhos per centimeter at 25° Celsius;
micrograms per liter]

NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	ARSENIC DIS- SOLVED (UG/L AS AS)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)
18.0	.850	14	4240	170	—	—	—	—	540	—	90	—
0.70	<.020	50	2150	1300	60	<1	<10	9	540	1	60	.1
2.7	<.020	24	724	560	—	—	—	—	<3	—	1	—
5.0	<.020	—	—	—	360	—	—	—	—	—	—	—
86.0	.020	30	2670	1400	—	—	—	—	10	—	10	—
<0.10	<.020	—	—	—	3	—	—	—	—	—	—	—
13.0	.030	19	1880	1400	<1	<1	10	2	30	2	510	<.1
0.10	<.020	—	—	—	130	—	—	—	—	—	—	—
<0.10	<.020	31	8920	3500	—	—	—	—	190	—	560	—
—	—	—	—	—	—	—	—	—	—	—	—	—
6.00	.020	—	—	—	4	—	—	—	—	—	—	—
51	<.020	31	3040	1500	44	<1	10	9	30	<1	30	<.1
<0.10	<.020	24	586	240	40	<1	<10	<1	130	<1	100	<.1
8.60	.020	32	3150	620	110	<1	<10	10	20	<1	100	<.1
5.80	<.020	39	1330	580	16	<1	10	3	30	2	10	<.1
5.5	<.020	—	—	—	2	—	—	—	—	—	—	—
0.45	<.020	27	1750	900	50	<1	<10	<1	37000	<1	480	<.1
5.6	<.020	32	1520	800	8	<1	10	2	30	<1	<10	<.1
8.6	<.020	—	—	—	60	—	—	—	—	—	—	—
14	<.020	33	2480	1200	6	<1	10	5	40	<1	30	<.1
0.12	<.020	17	2550	1600	10	200	10	8	1900	46	1800	.1
1.70	.020	43	1660	780	17	<1	10	9	20	<1	30	<.1
<0.10	<.020	39	1520	950	51	<1	<10	<1	1100	<1	510	<.1
25.0	.540	30	1600	870	99	<1	10	2	4200	<1	670	<.1
4.2	<.020	37	2810	1500	—	—	—	—	30	—	30	—
7.9	<.020	14	778	570	<1	<1	<10	2	<3	1	<3	<.1
0.22	<.020	22	1270	700	—	—	—	—	30	—	180	—
0.19	<.020	21	1510	920	4	<1	<10	1	850	<1	530	<.1
2.9	<.020	—	—	—	5	—	—	—	—	—	—	—
4.3	<.020	27	966	500	14	<1	<10	4	18	14	4	<.1
21	<.020	49	1960	880	—	—	—	—	40	—	10	—
4.5	<.020	13	490	250	—	—	—	—	17	—	3	—
10	10	—	—	—	0	10	50	1000	300	50	50	0.2

TABLE 4.—CHEMICAL ANALYSES OF ORGANIC CONSTITUENTS IN WATER FROM SELECTED WELLS
[UG/L, micrograms per liter]

LOCATION	DATE OF SAMPLE	CHLORO-ETHYL-ENE TOTAL (UG/L)	BENZENE TOTAL (UG/L)	BROM-OFORM TOTAL (UG/L)	CARBON-TETRA-CHLO-RIDE TOTAL (UG/L)	CHLORO-BENZENE TOTAL (UG/L)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L)	CHLORO-ETHANE TOTAL (UG/L)	CHLORO-FORM TOTAL (UG/L)	DI-CHLORO-BROMO-METHANE TOTAL (UG/L)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L)
(B-1-1) 26BAD-1	83-02-07	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
32CCD-1	83-02-01	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	<1.0	<1.0
(B-1-2) 34AAB-1	83-02-01	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
(C-1-1) 4DDB-1	83-02-02	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
24CDC-1	83-02-04	11	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
26DCA-1	83-02-02	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
28CAB-1	83-02-02	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
30ACA-1	83-02-07	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	<1.0	<1.0
31ABB-1	83-02-07	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
(C-2-1) 12BDA-1	83-02-03	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
14BDB-1	83-02-03	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
15ABC-1	83-02-07	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	8.0	<1.0	<1.0
26ABB-1	83-02-03	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
35BAA-1	83-02-03	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.0	<1.0	<1.0
(C-3-1) 1BBC-1	83-02-04	<1.0	400	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
(D-3-1) 5CDB-1	83-02-04	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

LOCATION	ETHYL-BENZENE TOTAL (UG/L)	METHYL-BROMIDE TOTAL (UG/L)	METHYL-ENE CHLO-RIDE TOTAL (UG/L)	TETRA-CHLORO-ETHYL-ENE TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	TRI-CHLORO-ETHYL-ENE TOTAL (UG/L)	TRI-CHLORO-FLUORO-METHANE TOTAL (UG/L)	VINYL CHLO-RIDE TOTAL (UG/L)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L)	1,1,1-TRI-CHLORO-ETHANE TOTAL (UG/L)
(B-1-1) 26BAD-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
32CCD-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
(B-1-2) 34AAB-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
(C-1-1) 4DDB-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
24CDC-1	<1.0	<1.0	<1.0	3.0	<1.0	8.0	<1.0	<1.0	<1.0	20	<1.0
26DCA-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
28CAB-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
30ACA-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
31ABB-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
(C-2-1) 12BDA-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
14BDB-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
15ABC-1	<1.0	<1.0	<1.0	4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
26ABB-1	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
35BAA-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
(C-3-1) 1BBC-1	<1.0	<1.0	<1.0	<1.0	8.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
(D-3-1) 5CDB-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

LOCATION	1,1,2-TRI-CHLORO-ETHANE TOTAL (UG/L)	1,1,2,2 TETRA-CHLORO-ETHANE TOTAL (UG/L)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L)	1,3-DI-CHLORO-PROPANE TOTAL (UG/L)	2-CHLORO-ETHYL-VINYL-ETHER TOTAL (UG/L)	PHENOLS (UG/L)
(B-1-1) 26BAD-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	8
32CCD-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3
(B-1-2) 34AAB-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	35
(C-1-1) 4DDB-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	190
24CDC-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	33
26DCA-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	32
28CAB-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6
30ACA-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6
31ABB-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
(C-2-1) 12BDA-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	4
14BDB-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	660
15ABC-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	7
26ABB-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	10
35BAA-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	4
(C-3-1) 1BBC-1	<1.0	<1.0	11	<1.0	<1.0	<1.0	44
(D-3-1) 5CDB-1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	—

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