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GEOLOGICAL SURVEY

HYDROGEOLOGIC DATA FOR SELECTED COAL AREAS,

EAST-CENTRAL MONTANA

By Robert S. Roberts

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METRIC CONVERSION TABLE

The following factors can be used to convert inch-pound units in this report to the International System (SI) of metric units.

<u>Multiply inch-pound unit</u>	<u>By</u>	<u>To obtain SI unit</u>
acre	4047	square meter (m ²)
inch (in.)	25.40	millimeter (mm)
foot (ft)	0.3048	meter (m)
gallon per minute (gal/min)	0.06309	liter per second (L/s)
mile (mi)	1.609	kilometer (km)

temperature, degrees Celsius (°C) = 0.556 (°F-32)

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ABSTRACT

Hydrogeologic data were collected in selected coal areas of east-central Montana to provide a basis for evaluating the effects of future coal development on the ground-water resources. Inventory records for 916 domestic, stock, public supply, commercial, and test wells are tabulated in the report; the data were collected principally from 1975 through 1976. The locations of the wells are shown on a map at a scale of 1:250,000. Lithologic logs are also included for 149 wells. Chemical analyses of water samples from selected wells consist of 167 samples analyzed for major cations and anions and 24 samples analyzed for miscellaneous constituents.

INTRODUCTION

Numerous lignite coal deposits occur in the east-central Montana part of the Northern Great Plains. Because the coal occurs at shallow depths, it can be extracted by surface-mining operations. Such operations may significantly affect the water resources of the area, both areally and with time. As a result, data describing the water resources prior to any large-scale mining are needed to provide a basis for making land-use and water-use decisions and development-impact predictions.

In July 1975, the U.S. Geological Survey, in cooperation with the U.S. Environmental Protection Agency, initiated a program of ground-water data

collection in selected coal areas of east-central Montana (fig. 1). The purpose of this report is to present the data collected to aid in evaluating the effects of future development on the ground-water resources.

Inventory data were obtained for 916 domestic, stock, public supply, commercial, and test wells in parts of Dawson, Garfield, McCone, Richland, and Wibaux Counties. The data were collected principally from 1975 through 1976; however, a few water levels and discharges were reported for earlier dates, some as early as 1936 and 1940, respectively. Records of inventoried wells are listed in table 1 and well locations are shown on plate 1.

Logs describing the lithology of stratigraphic units penetrated in drilling a well were obtained mostly from landowners, well drillers, and State and county records. Some logs also were obtained from test holes drilled and cased to assist in monitoring water levels, providing water samples for chemical analysis, and determining aquifer characteristics. The logs for 149 wells are in table 2. The lithologic descriptions are as reported by well drillers or geologists, except for minor word changes made for consistent presentation.

From the wells inventoried, 167 water samples were collected and analyzed for major cations and anions. The results of these analyses are in table 3. Water samples from 24 selected wells were also analyzed for miscellaneous-constituent concentrations (table 4). Data in the tables are reported as dissolved. The dissolved concentration is determined for a water sample after it is passed through a filter having a pore-diameter size of 0.45 micrometer (micron). The chemical analyses were performed by the laboratory of the Montana Bureau of Mines and Geology in Butte, Mont., and the USGS National Water Quality Laboratory in Denver, Colo.

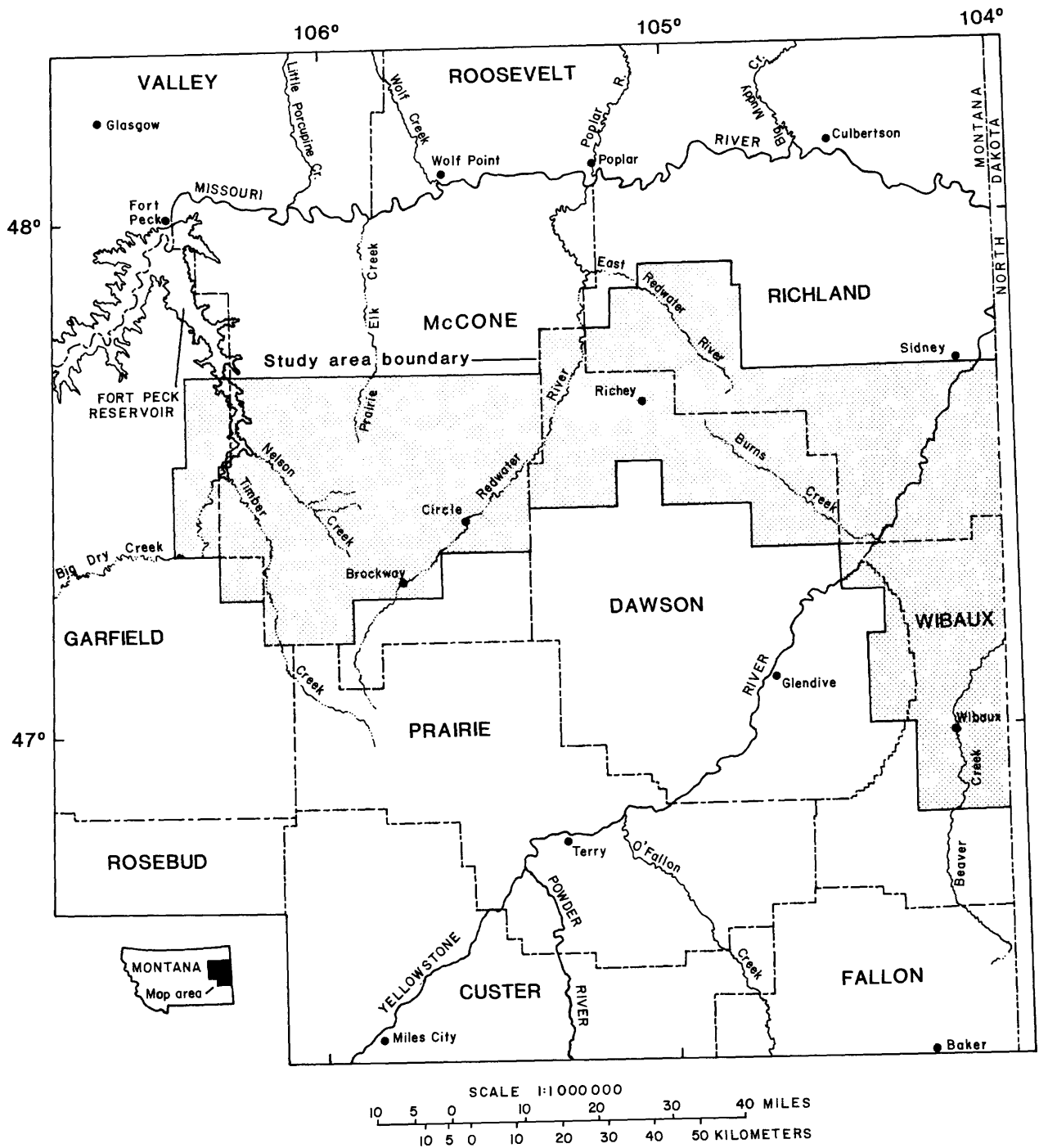


Figure 1.--Location of study area.

Appreciation is expressed to those well owners and city officials who permitted access to their wells for measurement and collection of water samples. Landowners who gave permission to install observation test wells, periodically measure water levels, and run aquifer tests are also acknowledged.

WELL-NUMBERING SYSTEM

In this report, locations are numbered according to geographic position within the rectangular grid system used by the U.S. Bureau of Land Management (fig. 2). The location number consists of as many as 13 characters. The first three characters specify the township and its position north (N) of the Montana Base Line. The next three characters specify the range and its position east (E) of the Montana Principal Meridian. The next two characters are the section number. The next one to four characters designate the quarter section (160-acre tract), quarter-quarter section (40-acre tract), quarter-quarter-quarter section (10-acre tract), and quarter-quarter-quarter-quarter section ($2\frac{1}{2}$ -acre tract), respectively, in which the well is located. The subdivisions of the section are designated A, B, C, and D in a counterclockwise direction, beginning in the northeast quadrant. When more than one well is described within a tract, consecutive digits beginning with 2 are added to the well number. For example, as shown on figure 2, well 17N45E06ABBD is the first well inventoried in the $SE\frac{1}{4}NW\frac{1}{4}NW\frac{1}{4}NE\frac{1}{4}$ sec. 6, T. 17 N., R. 45 E.

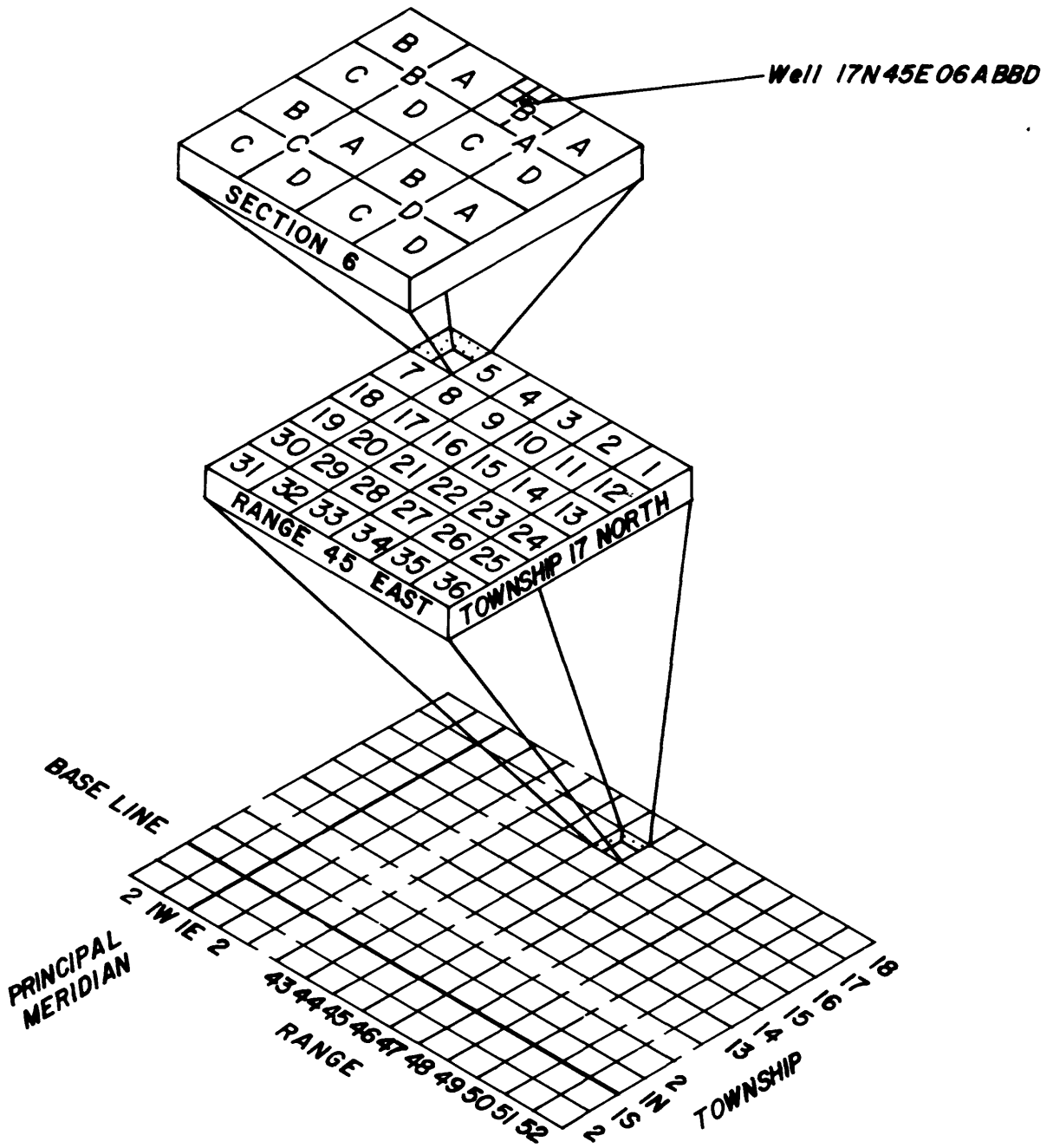


Figure 2.--Well-numbering system.

DATA

Table 1.--Records of wells

Local number--well-numbering system described in text.

County--021, Dawson; 033, Garfield; 055, McCone; 083, Richland; 109, Wibaux.

Depth of well--in feet below land surface.

Type of lift--C, centrifugal; J, jet; P, piston; S, submersible.

Type of power--E, electric; G, gasoline; H, hand; W, wind.

Use of water--C, commercial; H, domestic; P, public supply; S, stock; U, unused.

Altitude of land surface--in feet above National Geodetic Vertical Datum of 1929 (mean sea level).

Water level--in feet above (+) or below land surface datum. Method of water-level measurement: G, measured with pressure gage; R, reported; S, measured with steel tape; V, measured with electric tape. Site status at time of water-level measurement: D, dry; F, flowing; P, pumping; R, recently pumped.

Discharge--Method of discharge measurement: B, bailer; E, estimated; R, reported; V, measured volumetrically. Type of production: no letter, pumped; F, flowing.

Table 1.--Records of wells--Continued

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAMETER (INCHES)	TYPE OF LIFT	TYPE OF POWER	USE OF WATER	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED
13N59E01BAAA	109	95	4	S	E	H,S	2750	64.00	SR 09/28/1976	4 V	09/28/1976
13N59E06DDAB	109	130	4	P	E	S	2950	57.00	SR 09/30/1976	--	--
13N59E23CDDD	109	245	4	S	E	H,S	2900	78.80	SR 09/29/1976	2 V	09/29/1976
13N59E24HDD	109	252	4	S	E	H	2795	80.00	R 06/28/1973	--	--
13N59E29AAAB	109	400	4	--	--	H,S	2950	113.70	SR 09/29/1976	5 V	09/29/1976
13N59E32BADA	109	68	4	P	G	S	3000	48.00	SR 09/29/1976	--	--
13N60E06CBBB	109	80	4	J	E	H	2700	12.60	SR 09/29/1976	9 V	09/29/1976
13N60E07CB	109	80	4	P	G	S	2800	15.30	SR 09/29/1976	8 V	09/29/1976
13N60E24HBB	109	180	6	S	E	H,S	2650	23.70	SR 09/29/1976	4 V	09/29/1976
13N60E30AAAA	109	115	4	S	E	H	2850	36.70	SR 09/29/1976	5 V	09/29/1976
13N61E18CCA	109	60	2	--	--	U	2815	15.68	SR 11/08/1976	--	--
14N59E12C8D	109	916	--	--	--	P	2661	240.00	R --	--	--
14N59E15A8BB	109	116	5	P	E	S	2800	87.50	SR 09/30/1976	5 V	09/30/1976
14N59E23AADA	109	120	5	S	E	H,S	2750	17.40	SR 09/30/1976	6 V	09/30/1976
14N59E35D0D	109	98	4	S	E	H,S	2800	61.20	SR 09/28/1976	8 V	09/28/1976
14N60E02CCC	109	180	4	S	E	H	2800	169.40	SR 09/29/1976	4 V	09/30/1976
14N60E07BDA	109	260	5	--	--	U	2677	90.00	R 05/31/1968	--	--
14N60E10DDD	109	47	2	--	--	U	2755	18.14	SR 11/08/1976	--	--
14N60E20CCC	109	200	5	S	E	S,H	2790	90.00	R 07/09/1971	--	--
14N60E26ADBC	109	200	6	S	E	S	2500	23.80	SR 09/30/1976	10 V	09/30/1976
14N60E26BAA	109	114	2	--	--	U	2804	41.03	SR 11/08/1976	--	--
14N60E34CBAD	109	130	4	P	W	U	2800	65.00	S 09/30/1976	--	--
14N60E36C0CA	109	80	24	S	E	H	2650	19.20	SR 09/30/1976	3 V	09/30/1976
14N61E06CCA	109	155	2	--	--	U	2739	54.71	SR 11/08/1976	--	--
14N61E06CCA2	109	124	2	--	--	U	2739	51.47	SR 11/08/1976	--	--
15N58E01CA	021	140	4	P	E	S	2600	47.00	SR 09/30/1976	5 V	09/30/1976
15N58E08BD	021	162	4	P	E	H,S	2650	30.10	SR 09/30/1976	4 V	09/30/1976
15N58E33AC	021	168	4	P	W	S	2700	52.40	SR 09/28/1976	1 V	09/28/1976
15N59E01AA	109	60	24	P	W	S	2700	11.50	SR 09/29/1976	4 V	09/29/1976
15N59E07AAAA	109	117	4	S	E	H,S	2600	52.90	SR 09/30/1976	10 V	09/30/1976
15N59E12AAA	109	202	4	--	--	S	2700	52.60	SR 09/29/1976	--	--
15N59E26DD	109	46	4	S	E	H,S	2650	14.50	SR 09/30/1976	6 V	09/30/1976
15N59E33DCC	109	180	4	P	E	H,S	2750	23.50	SR 09/30/1976	5 V	09/30/1976
15N59E36CCD	109	900	4.5	S	E	S,H	2641	180.00	R 08/26/1972	8 B	08/26/1972
15N60E18AAA	109	100	3	--	--	S	2550	F	--	--	--
15N60E22CCDD	109	150	6	S	E	H,S	2500	123.70	SR 09/30/1976	10 V	09/30/1976
15N60E26BCC	109	60	6	P	H	U	2700	26.60	SR 09/30/1976	4 V	09/30/1976
15N60E30ADD	109	380	6	S	E	S	2737	140.00	R 03/22/1968	--	--
15N60E32AAAD	109	220	6	S	E	H	2700	139.70	SR 09/30/1976	20 V	09/30/1976
16N58E18BD	021	110	24	P	G	S	2400	14.70	SR 09/28/1976	--	--

Table 1.--Records of wells--Continued

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAMETER (INCHES)	TYPE OF LIFT	TYPE OF POWER	USE OF WATER	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED	DISCHARGE PER MINUTE)	DATE DISCHARGE MEASURED
16N58E24DA	021	225	4	S	E	S	2550	113.80 SR	09/28/1976	10 V	09/29/1976
16N58E24AAA	021	132	4	S	E	H,S	2450	18.00 SR	09/28/1976	10 V	09/28/1976
16N58E28DB	021	168	4	P	W	S	2550	112.20 SR	09/29/1976	0.5 V	09/29/1976
16N59E07DB	109	310	5	P	W	S	--	175.00 R	03/27/1973	--	--
16N59E13CC	109	1055	7	S	E	S,H	2577	235.00 R	08/21/1971	--	--
16N59E258C	109	120	6	P	G	S	2650	67.60 SR	09/29/1976	7 V	09/29/1976
16N59E29ABA	109	265	4	P	E	S	2592	125.00 R	07/29/1967	7 B	07/29/1967
16N60E028DB	109	1220	4.5	S	E	H	2600	400.00 RP	09/29/1976	10 V	09/29/1976
16N60E31AAA	109	95	18	P	W	S	2650	26.80 SR	09/29/1976	6 V	09/29/1976
17N44E01ACAA	055	72	5.5	S	E	S	2542	30.00 RR	07/22/1975	30 R	10/24/1969
17N44E028AAB	055	53	5	--	--	U	2570	27.60 S	07/23/1975	--	--
17N44E028ABA	055	40	5	P	H	S	2570	7.80 SR	07/23/1975	--	--
17N44E03ADCD	055	34	4	P	W	S	2580	24.60 SP	07/23/1975	2 V	07/23/1975
17N44E08AAAU	055	100	4	P	W	S	2620	95.00 SR	07/24/1975	--	--
17N44E10ABAA	055	108	4	P	G	S	2600	55.00 RR	07/24/1975	5 R	12/28/1960
17N44E12ABBC	055	--	5.5	--	--	--	2600	--	--	--	--
17N44E12ABBC2	055	100	5	P	W	S	2594	3.10 SR	07/22/1975	3 V	07/22/1975
17N44E13CDB	055	140	4	P	H	S	2580	35.00 RR	07/28/1975	2 V	07/28/1975
17N44E16DABC	055	125	4	P	W	S	2597	62.80 SR	07/24/1975	--	--
17N44E17BAAD	055	47	5	P	W	S	2531	13.10 SP	07/23/1975	4 V	07/23/1975
17N44E19ABBB	055	180	4	P	W	S	2587	75.00 RP	07/23/1975	2 V	07/23/1975
17N44E23ADBB	055	140	6	--	--	U	2697	75.00 R	07/28/1975	--	--
17N44E24AAA	055	317	4	S	E	S	2740	183.00 R	06/14/1973	10 R	06/14/1973
17N44E24DAAA	055	143	4.5	P	H	S	2680	115.00 RR	07/28/1975	5 V	07/28/1975
17N44E27ABBC	055	54	7	P	H	S	2578	11.50 SR	07/24/1975	--	--
17N44E29ABBB	055	180	5	P	W	S	2546	7.90 SR	07/23/1975	5 V	07/23/1975
17N44E30ABBC	055	203	4	P	W	S	2640	29.20 SP	07/23/1975	3 V	07/23/1975
17N44E32ADAA	055	42	6	P	E	S	2568	12.30 SR	07/24/1975	4 V	07/24/1975
17N44E32ADAC	055	785	--	S	E	H	2568	0.20 S	--	--	--
17N44E32ADAC2	055	47	6	P	E	S	2568	22.40 SR	07/24/1975	4 V	07/24/1975
17N44E32ADAC3	055	341	5	--	--	U	2568	19.60 S	07/24/1975	--	--
17N44E32ADAD	055	37	6	P	E	S	2568	12.90 SR	07/24/1975	--	--
17N44E340DBA	055	126	4	P	W	S	2642	76.80 SR	07/24/1974	2 V	07/24/1975
17N44E35AABA	055	26	4	P	H	U	2599	0.20 S	07/24/1975	--	--
17N44E36ACDD	055	106	4	P	W	S	2559	13.80 SR	07/29/1975	5 V	07/29/1975
17N45E01DCAA	055	50	4	P	E	S	2740	23.10 SP	07/28/1975	3 V	07/28/1975
17N45E048DBB	055	140	4	P	E	S	2800	120.20 SR	07/22/1975	2 V	07/22/1975
17N45E05CAAA	055	146	4.5	P	W	S	2720	13.70 SR	07/29/1975	--	--
17N45E06AAAA	055	120	4	P	H	S	2660	41.20 SR	07/29/1975	--	--
17N45E06ABBD	055	55	4	--	--	U	2640	34.00 S	07/22/1975	5 R	10/16/1963

Table 1.--Records of wells--Continued

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAM-ETER (INCHES)	TYPE OF LIFT	TYPE OF POWER	USE OF WATER	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED
17N45E10ADC	055	220	4	S	W	U	2762	85.60 S	07/29/1975	--	--
17N45E11ACDD	055	65	4	S	E	S	2709	35.00 RR	07/28/1975	5 V	07/28/1975
17N45E12BCBD	055	105	7	S	E	S	2700	35.00 RR	07/28/1975	5 V	07/28/1975
17N45E23B8AB	055	130	5	P	W	S	2786	76.30 SR	07/22/1975	1 V	07/22/1975
17N45E25BABC	055	86	6	P	W	S	2737	52.20 SP	07/29/1975	3 V	07/29/1975
17N58E10ACA	109	840	4	--	--	H	2260	8.05+ R	03/23/1970	--	--
17N58E10ADB	109	855	1.25	--	--	S	2260	F	--	8 V	05/29/1971
17N58E19CAA	021	325	5	P	W	S	--	275.00 R	04/09/1973	--	--
17N58E34BAA	109	520	5	P	G	S	--	318.00 R	04/02/1973	--	--
17N58E35DDD	109	835	--	--	--	H	2450	F	--	5 V	09/28/1976
17N59E14AC8D	109	145	4	P	W	S	2700	110.60 SP	09/28/1976	4 V	09/28/1976
17N59E15AC	109	330	4	P	W	S	2500	260.00 RP	09/29/1976	2 V	09/29/1976
17N59E23BACD	109	60	24	P	W	S	2550	30.40 S	09/28/1976	3 V	09/28/1976
17N59E24BCC	109	80	--	P	E	S	2500	31.00 S	09/28/1976	--	--
17N59E26D9A	109	230	4	P	E	H,S	2600	160.00 RH	09/29/1976	3 V	09/28/1976
17N59E36BA	109	80	4	P	G	S	2600	60.00 RR	09/29/1976	3 V	09/29/1976
17N60E05BBB	109	116	4	S	E	S	2400	76.60 SR	09/22/1976	--	--
17N60E07CCB	109	151	4	S	E	S	2600	91.30 SR	09/28/1976	20 V	09/28/1976
17N60E17DCAB	109	62	4	P	E	U	2500	29.30 S	09/28/1976	--	--
18N43E02CC	033	87	4	P	W	U	2600	46.40 S	09/08/1975	--	--
18N43E04DB	033	39	4	P	W	U	2580	21.90 S	09/08/1975	--	--
18N43E06BB	033	60	4	P	E	S	2484	30.50 SR	09/08/1975	2 V	09/08/1975
18N43E10ACD	033	53	4	P	E	S	2619	23.10 SR	09/08/1975	--	--
18N43E10DABD	033	110	6	J	E	H	2582	28.10 SR	09/08/1975	--	--
18N43E12AAB	033	160	4	S	E	H	2496	11.10 SR	09/05/1975	18 V	05/01/1972
18N43E13AAA	033	300	--	--	--	--	2480	F	--	2 V	09/05/1975
18N43E13BAAA	033	99	4	S	E	H	2540	60.30 SR	09/09/1975	--	--
18N43E13DD	033	150	--	--	--	S	2520	F	--	3 V	09/05/1975
18N43E14AA	033	18	4	P	G	S	2530	7.00 SH	09/09/1975	4 V	09/09/1975
18N43E15CD	033	45	4	P	E	S	2600	28.90 SR	09/09/1975	2 V	09/09/1975
18N43E24AAB	033	160	4	--	--	S	2515	F	--	2 V	09/08/1975
18N43E28AABA	033	64	4	P	E	H,S	2700	37.10 SR	09/09/1975	3 V	09/09/1975
18N43E28C6DB	033	246	4	P	G	S	2585	120.00 RR	08/27/1970	7 R	08/27/1970
18N43E28CD	033	106	4	P	G	S	2680	97.50 SR	09/08/1975	--	--
18N43E29AA	033	184	8	P	E	S	2660	80.00 SR	09/08/1975	--	--
18N44E08BAA	055	78	2	--	--	U	2520	62.40 S	05/14/1976	--	--
18N44E13AAA	055	278	4	--	--	U	2600	95.50 S	02/11/1976	3 V	05/05/1976
18N44E14ABAC	055	150	4	P	W	S	2580	60.70 SR	07/17/1975	--	--
18N44E14B8BD	055	132	4	P	E	S	2580	39.10 SP	01/17/1975	2 V	07/17/1975
18N44E16CCC	055	123	4	P	H	S	2500	0.60 SR	07/16/1975	8 V	07/16/1975

Table 1.--Records of wells--Continued

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAMETER (INCHES)	TYPE OF LIFT	TYPE OF POWER	USE OF WATER	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED
18N44E19B0AD	055	100	4	P	W	S	2480	50.00	07/16/1975	3 V	07/16/1975
18N44E20B8BC	055	73	4	P	W	S	2521	34.70	07/16/1975	--	--
18N44E30B0CA	055	140	5	--	--	S	2480		--	1 V F	07/17/1975
18N44E30C0DD	055	60	2	--	--	U	2485	12.89	08/31/1976	--	--
18N45E24C0DC	055	100	4.5	P	W	S	2740	70.00	07/21/1975	16 R	06/30/1966
18N45E25B8AC	055	40	7	--	--	U	2760	9.20	07/21/1975	8 R	03/20/1961
18N45E27DADD	055	54	4	--	--	S	2800	34.90	07/18/1975	2 V	07/18/1975
18N45E30D0CB	055	152	4.5	P	W	S	2680	120.00	07/21/1975	2 V	07/21/1975
18N45E34ACCD	055	364	5	S	E	H,S	2900	254.00	1936	3 V	07/18/1975
18N45E34DB8B	055	426	4	S	E	S	2800		--	5 V	07/18/1975
18N45E34DB8B2	055	47	7	--	--	U	2800	39.00	07/18/1975	--	--
18N46E01B0AB	055	176	4	P	W	S	2720	145.10	08/01/1975	3 V	08/01/1975
18N46E03DBDA	055	40	8	P	W	S	2620	10.10	07/31/1975	--	--
18N46E04DBAB	055	71	18	P	H	S	2680	41.10	07/31/1975	--	--
18N46E04DBCC	055	67	4	P	E	S	2680	49.30	07/31/1975	4 V	07/31/1975
18N46E08CB8C	055	90	4	S	E	H,S	2720	47.00	07/31/1975	3 V	07/31/1975
18N46E09BDAD	055	192	4	P	E	S	2740	99.80	07/31/1975	4 V	07/31/1975
18N46E13ADD8	055	30	5	P	E	S	2600	3.50	08/01/1975	5 V	08/01/1975
18N46E16DDAD	055	51	4	P	W	S	2700	--	--	--	--
18N46E17AD6B	055	48	4	P	E	S	2700	43.80	07/31/1975	4 V	07/31/1975
18N46E18ADCA	055	13	6	S	E	H	2680	7.00	08/01/1975	--	--
18N46E18ADCA2	055	18	22	S	E	H	2680	6.00	08/02/1975	--	--
18N46E19AB8C	055	96	4	P	E	S	2740	81.30	08/01/1975	4 V	08/01/1975
18N46E21DC8D	055	87	4	S	E	S	2620	19.10	08/04/1975	2 V	08/04/1975
18N46E24ACCC	055	105	4	P	W	S	2640	26.60	08/01/1975	8 V	08/01/1975
18N46E26B0CA	055	30	5	P	G	S	2600	10.10	08/04/1975	--	--
18N46E26CB8A	055	300	4	P	E	H,S	2600	44.40	08/04/1975	5 R	1972
18N46E27AAD8	055	20	9	P	G	S	2580	5.30	08/04/1975	--	--
18N46E27CADC	055	124	6	P	W	S	2680	56.30	08/04/1975	5 V	08/04/1975
18N46E28DABC	055	60	6	S	E	S	2620	47.00	08/04/1975	5 V	08/04/1975
18N46E28DBAD	055	140	6	S	E	H	2620	60.00	08/04/1975	--	--
18N46E29ADD8	055	67	6	S	E	H,S	2640	47.00	08/04/1975	5 V	08/04/1975
18N46E30ADAC	055	31	7.5	P	E	S	2660	10.10	08/04/1975	5 V	08/04/1975
18N46E33B8CA	055	155	4	P	G	S	2720	84.80	08/04/1975	--	--
18N46E33DAAA	055	136	4	P	G	S	2720	93.20	08/04/1975	2 V	08/04/1975
18N46E35B8AD	055	174	4	S	E	S	2700	44.00	08/04/1975	5 V	08/04/1975
18N47E07ADAB	055	156	5	P	W	S	2680	72.90	08/21/1975	15 R	10/20/1961
18N47E18DBCC	055	75	5	P	E	S	2600	46.10	08/01/1975	4 V	08/01/1975
18N57E03ABAB	021	36	4	S	E	H,S	2020	32.30	09/14/1976	10 V	09/14/1976
18N57E09DBAB	021	28	4	S	E	S	1980	3.40	09/14/1976	--	--

Table 1.--Records of wells--Continued

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAMETER (INCHES)	TYPE OF LIFT	TYPE OF PUMPER	USE OF WATER	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED
18N57E11DACB	109	688	1.25	--	--	S	2125	F	--	18 V	09/23/1976
18N57E15ADCC	109	705	4	--	--	S	2020	F	--	20 V	09/23/1976
18N57E24DDAA	109	675	4	--	--	S	2090	F	--	15 V	09/23/1976
18N57E29DD8D	021	131	6	S	E	S	2060	SR	09/22/1976	--	--
18N58E01CC	109	1220	6	S	E	S	2370	R	06/20/1972	--	--
18N58E14CD8B	109	180	4	P	E	S	2220	SR	09/22/1970	20 V	09/22/1976
18N58E158DAC	109	160	4	E	E	H,S	2180	SR	09/22/1976	10 R	10/15/1965
18N58E21CDD	109	195	4	P	W	S	2320	SR	09/22/1976	2 V	09/22/1976
18N58E278AAD	109	194	4	P	W	S	2380	SR	09/22/1976	2 V	09/22/1976
18N58E34DCCD	109	180	6	P	W	H,S	2300	SP	09/23/1976	1 V	09/23/1976
18N59E208CDC	109	20	40	C	E	H	2350	SR	09/21/1976	2 V	09/21/1976
18N59E23CCC	109	380	4	--	--	U	2350	S	09/22/1976	--	--
18N59E25CCB	109	320	4	P	G	S	2450	SR	09/22/1976	5 V	09/22/1976
18N59E26CB8D	109	70	6	P	W	S	2400	SP	09/23/1976	2 V	09/23/1976
18N59E31DCC	109	300	4	P	W	S	2575	R	05/05/1966	--	--
18N59E33AAC	109	600	4	--	--	S	2450	S	09/23/1976	--	--
18N59E36CAC	109	44	4	P	W	U	2500	SR	09/22/1976	--	--
18N60E04AD	109	160	4	P	G	S	2400	SR	09/21/1976	4 V	09/21/1976
18N60E07CCB	109	167	5.5	--	--	U	2250	S	09/22/1976	--	--
18N60E09AAD	109	470	5	--	--	U	--	R	05/26/1971	--	--
18N60E15C88B	109	240	5	S	E	S	2400	S	09/23/1976	--	--
18N60E1988B	109	380	5	--	--	U	--	R	05/17/1971	--	--
18N60E22DCCC	109	260	4	P	G	S	2400	RP	--	2 V	09/21/1976
18N60E298DCC	109	167	4	S	E	S	2300	SR	09/22/1976	12 V	09/22/1976
18N60E32DADB	109	110	4	S	E	S	2250	SR	09/21/1976	5 V	09/21/1976
19N42E038B	033	300	4	--	--	S	2300	F	--	1 V	09/01/1976
19N42E09AAAD	033	325	3	--	--	S	2300	G	09/26/1978	10 V	09/26/1978
19N42E14AD	033	240	4	P	W	S	2350	SR	09/01/1976	1 R	1961
19N42E25DA	033	229	4	S	E	S	2400	SR	09/01/1976	--	--
19N42E27ADB	033	189	4	P	E	H,S	2350	SR	09/01/1976	6 V	09/01/1976
19N42E33888B	033	370	--	S	E	S	2500	SR	08/31/1976	10 V	08/ /1976
19N42E3388CB	033	370	4	S	E	S	2485	SR	09/26/1978	10 V	09/26/1978
19N43E02BACA	055	113	5	P	G	S	2400	SR	08/05/1975	--	--
19N43E03A88D	055	224	6	S	E	H,S	2440	SR	08/05/1975	--	--
19N43E048ADD	055	214	5	S	E	H,S	2540	SR	08/05/1975	2 V	08/05/1975
19N43E09ABDD	055	264	4	P	E	S	2640	SR	08/06/1975	2 V	08/06/1975
19N43E23AADC	055	236	3	P	E	U,S	2605	SR	08/05/1975	2 R	06/02/1972
19N43E24AADC	055	80	5	J	E	S	2443	SR	08/05/1975	--	--
19N43E25DAAC	055	77	6	S	E	U	2540	S	08/05/1975	--	--
19N44E01ADCD	055	60	--	--	--	S	2620	S	07/15/1975	3 V	07/15/1975

Table 1.--Records of wells--Continued

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAMETER (INCHES)	TYPE OF LIFT	TYPE OF POWER	USE OF WATER	ALTITUDE		WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED
							OF LAND SURFACE (FEET)	OF WELL (FEET)				
19N44E1988AB	055	141	6	P	E	S	2400	4.20	SR	07/17/1975	3 V	07/17/1975
19N44E20DADD	055	26	4	P	H	S	2500	3.70	SR	07/15/1975	12 V	07/15/1975
19N44E29ADC	055	60	4	P	E	S	2440	26.60	SR	07/15/1975	3 V	07/15/1975
19N44E29C88B	055	90	4	P	E	S	2440	60.00	R	07/15/1972	4 V	07/15/1975
19N44E31CCDA	055	78	4	P	E	S	2481	24.10	SR	07/15/1975	4 V	07/15/1975
19N45E048BBA	055	28	4	P	W	U	2540	19.20	S	07/19/1975	3 V	07/19/1975
19N45E06CCCD	055	110	4	---	---	U	2580	49.72	S	10/08/1976	8 V	10/08/1976
19N45E10DDCA	055	189	5	P	E	H,S	2618	100.00	RP	07/17/1975	3 V	07/17/1975
19N45E11ACCA	055	66	4	P	E	S	2600	17.60	VP	07/19/1975	5 R	07/19/1975
19N45E228BAC	055	43	4	P	E	S	2570	25.60	SR	07/19/1975	---	---
19N45E350D8B	055	128	4	P	G	S	2780	91.30	SR	07/17/1975	5 V	07/17/1975
19N46E08ACDA	055	63	5	P	W	S	2740	50.00	KP	07/22/1975	0.5 V	07/22/1975
19N46E08CDAC	055	150	4	P	E	S	2760	---	P	---	0.5 V	07/22/1975
19N46E08CDD8	055	135	4	P	E	H,S	2760	105.00	KR	07/22/1975	5 R	07/22/1975
19N46E10CCDA	055	105	8	P	E	S	2700	46.80	SR	07/20/1975	6 R	07/20/1975
19N46E15C8CA	055	80	4	J	E	H	2660	70.00	RR	07/22/1958	15 R	1958
19N46E17AD8D	055	84	4	P	G	U	2720	76.10	S	07/22/1975	7 V	07/22/1975
19N46E170AAC	055	135	4	P	E	S,H	2700	110.00	RR	12/19/1958	2 V	07/22/1975
19N46E17DAAD	055	157	5	P	E	H	2700	70.00	RR	06/10/1971	5 R	06/10/1971
19N46E2188B8	055	102	4	P	G	S	2720	39.90	SR	07/22/1975	---	---
19N46E2388D8	055	58	4	P	W	U	2660	19.40	S	07/23/1975	4 V	07/23/1975
19N46E2708CA	055	48	4	P	E	S	2760	33.10	SK	07/23/1975	4 V	07/23/1975
19N46E2888BA	055	120	4	P	W	S	2760	100.00	RR	1959	2 V	07/07/1975
19N46E29CAAA	055	131	4	P	W	S	2680	59.80	SR	07/23/1975	12 V	07/23/1975
19N46E32CCCD	055	93	4	P	G	S	2720	60.30	SR	07/23/1975	6 V	07/23/1975
19N46E32DCDD	055	56	4	P	E	S	2680	45.10	SR	07/23/1975	4 V	07/23/1973
19N47E018BAD	055	100	4	P	W	S	2480	26.00	RR	---	30 V	07/28/1975
19N47E02AD8B	055	63	4	P	E	S,H	2540	55.10	SR	07/28/1975	3 V	07/28/1975
19N47E02AD8B2	055	90	---	S	E	---	2540	---	R	---	5 V	07/28/1975
19N47E08CCDC	055	85	---	J	E	H	2680	20.00	RR	07/29/1975	---	---
19N47E08DCDC	055	61	4	P	E	S	2680	37.20	SP	07/29/1971	1 V	07/29/1975
19N47E10ACDC	055	20	4	P	E	S	2600	13.10	SR	07/28/1975	4 V	07/28/1975
19N47E10DB6A	055	130	4	P	E	H	2600	75.00	RR	07/28/1975	18 R	07/28/1975
19N47E10DB8D	055	60	---	S	E	S	2600	25.00	RR	07/28/1975	2 V	07/28/1975
19N47E11DDDD	055	70	---	P	E	S	2540	30.00	RR	07/30/1975	---	---
19N47E1388BA	055	50	4	P	E	S	2540	26.80	SK	07/28/1975	3 V	07/28/1975
19N47E13DDCB	055	33	4	P	W	S	2540	25.20	SP	07/28/1975	2 V	07/28/1975
19N47E148AAA	055	32	---	S	E	H	2580	16.00	RR	07/30/1975	---	---
19N47E148AAA2	055	28	6	P	E	S	2580	18.00	RR	07/30/1975	---	---
19N47E14DD8B	055	114	4	P	H	S	2600	54.90	SR	07/30/1975	3 V	07/30/1975

Table 1.--Records of wells--Continued

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAMETER (INCHES)	TYPE OF LIFT	TYPE OF POWER	USE OF WATER	ALTITUDE OF SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED
19N47E17R8C8	055	44	4	P	E	S	2600	14.90	SR 07/29/1975	--	--
19N47E20ADD	055	100	4	S	E	H	2580		R --	--	--
19N47E20ADD2	055	20	51	P	E	S	2580	7.00	SR 07/29/1975	6 V	07/29/1975
19N47E20CDAC	055	18	57	P	W	S	2600	6.00	VR 07/29/1975	1 V	07/29/1975
19N47E21CD8D	055	23	57	--	--	U	2560	16.80	S 07/29/1975	--	--
19N47E25D8C8	055	184	4	P	G	S	2600	108.00	RR 04/17/1961	30 R	04/17/1961
19N47E26CDD	055	60	48	P	W	S	2560	25.80	VR 07/31/1975	2 V	07/31/1975
19N47E26CDD	055	50	6	P	G	U	2540	36.00	R 07/31/1975	--	--
19N47E28C8C	055	55	4	--	--	U	2580	41.30	S 08/02/1975	--	--
19N47E30CDD	055	37	5.5	--	--	U	2680	24.70	S 07/01/1975	--	--
19N47E32BCCA	055	75	4	--	--	U	2640	50.90	S 07/30/1975	--	--
19N47E33D8B8	055	99	4	P	W	S	2620	81.80	SR 07/20/1975	--	--
19N47E36D8B8	055	68	6	P	G	S	2480	16.00	RR 07/31/1975	22 R	08/26/1963
19N48E02C8AA	055	160	4	S	E	S	2500	72.00	HR --	--	--
19N48E02C8DA	055	109	4	S	E	S	2500	18.40	SR 11/18/1975	6 V	11/18/1975
19N48E08B8CA	055	132	6	P	H	U	2500	108.50	S 08/04/1975	--	--
19N48E10B8C	055	114	6	--	--	U	2460	36.00	R 01/18/1954	20 R	01/18/1954
19N48E10CADC	055	300	5	S	E	U	2460	100.00	R 08/29/1971	50 R	08/28/1971
19N48E10C8C	055	1623	12	--	--	P	2517	304.10	S 02/12/1976	--	--
19N48E10DACA	055	1518	12.75	--	--	P	2442	159.00	V 06/17/1972	--	--
19N48E11C8DC	055	49	6	P	E	S,H	2460	24.30	SR 11/13/1975	3 V	11/13/1975
19N48E12BAAA	055	80	6	S	E	S	2480	38.00	RR 11/18/1975	--	--
19N48E12B8AB	055	80	6	S	E	H	2480	46.60	SR 11/18/1975	5 V	11/18/1975
19N48E12CCDC	055	86	4	S	E	C	2500	39.80	SR 11/18/1975	--	--
19N48E12DABC	055	137	4	S	E	H	2520	62.20	SR --	--	--
19N48E12DCCA	055	130	6	S	E	S	2520	20.00	SR 11/18/1975	--	--
19N48E158DDC	055	78	4	S	E	P	2440	18.30	SR 08/02/1975	25 R	06/06/1961
19N48E15D8B8	055	50	4	S	E	H	2440	18.60	SR 08/02/1975	--	--
19N48E16D8DB	055	72	6	J	E	H,S	2480	14.00	RR 08/01/1975	15 R	08/ /1955
19N48E19AADD	055	36	--	P	E	S	2480	12.00	RR 08/04/1970	--	--
19N48E19UCBA	055	159	4	S	E	S	2620	99.00	RR 08/04/1975	20 R	02/18/1961
19N48E20DDC	055	15	36	P	E	S	2480	11.50	V 08/01/1975	2 V	08/01/1975
19N48E20UDDC	055	24	6	J	E	H	2480	20.00	RR 08/01/1975	2 V	08/01/1975
19N48E20DDDC2	055	26	4	S	E	S	2480	20.90	VR 08/01/1975	12 R	1973
19N48E28C8B8	055	20	3	P	E	S	2460	18.00	V 08/02/1975	4 V	08/02/1975
19N48E28C8C	055	43	6	J	E	H	2460	35.50	SR 08/02/1975	--	--
19N48E33AC8C	055	90	6	P	E	U	2480	14.70	S 08/02/1975	--	--
19N48E34DBAA	055	60	6	J	E	H	2580	45.00	RR --	5 R	08/02/1975
19N48E34DBAD	055	40	24	P	E	S	2580	24.00	RR 1974	6 R	1940
19N49E13CABA	055	15	24	P	H	U	2580	10.20	V 10/29/1975	--	--

Table 1.--Records of wells--Continued

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAMETER (INCHES)	TYPE OF LIFT	TYPE OF POWER	USE OF WATER	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED
19N49E13CAD	055	23	24	P	H	U	2580	6.80 V	10/29/1975	--	--
19N49E13CAD2	055	60	6	P	E	S	2580	30.00 RR	10/29/1975	--	--
19N49E22C8CB	055	15	24	J	E	H	2580	13.00 RR	--	7 R	11/13/1975
19N49E27AB8C	055	60	5	S	E	S	2680	42.00 RR	10/29/1975	--	--
19N49E27DB8D	055	86	24	J	E	H,S	2680	30.00 RP	--	--	--
19N49E33ACAA	055	66	4	P	G	S	2680	40.40 SR	10/29/1975	--	--
19N49E34AABD	055	81	4	S	E	S	2700	22.50 SP	10/29/1975	16 V	10/29/1975
19N55E04DDAD	021	38	4	S	E	H	2250	26.20 SP	09/14/1976	4 V	09/14/1976
19N55E06BAAD	021	173	4	P	G	S	2670	119.50 SR	09/10/1976	3 V	09/10/1976
19N55E12BD8D	021	89	4	P	W	S	2500	64.90 SR	09/14/1976	4 V	09/14/1976
19N55E14BCDD	021	285	5	P	E	S	2730	256.80 SP	09/13/1976	2 V	09/13/1976
19N55E18BD8D	021	24	3.7	P	H	U	2445	20.90 S	09/10/1976	--	--
19N55E22CACD	021	52	4	P	H	S	2470	25.40 SR	09/13/1976	5 V	09/13/1976
19N55E26CCCA	021	21	8	P	E	S	2350	17.10 SR	09/13/1976	10 V	09/13/1976
19N56E26CBCA	021	120	24	P	E	H,S	2450	47.60 SR	09/22/1976	6 V	09/22/1976
19N57E08ACCC	083	100	36	P	E	S	2240	94.70 SP	09/13/1976	1 V	09/13/1976
19N57E10BB8C	083	160	4	P	G	S	2220	123.20 SR	09/13/1976	--	--
19N57E21BAB8	083	220	5.5	S	E	H	2240	171.20 SR	09/13/1976	8 V	09/13/1976
19N57E27DDAC	083	17	4	---	---	U	1998	8.48 S	11/06/1975	--	--
19N58E02DB8B	083	1029	1.25	---	---	H,S	2180	F	--	10 R	09/14/1976
19N58E03DB8B	083	450	4	---	---	S	1950	F	--	1 V	09/28/1976
19N58E04DDC	083	915	1.25	---	---	S	1960	207.00+ R	10/01/1971	--	--
19N58E04DDCA	083	400	4	---	---	S	1940	F	--	1 V	09/28/1976
19N59E02ACDD	083	300	4	S	E	S	2370	226.10 SR	09/21/1976	4 V	09/21/1976
19N59E05DCDB	083	161	4	P	W	U	2180	107.00 S	09/16/1976	--	--
19N59E07AAD	083	1110	4	---	---	S	2165	69.00+ R	05/28/1968	--	--
19N59E10CC8C	083	285	4	P	---	U	2310	111.50 SR	09/22/1976	--	--
19N59E12BCCA	083	20	6	P	E	S	2348	4.60 SP	09/22/1976	2 V	09/22/1976
19N59E13BDAD	083	310	4	S	E	S	2360	220.80 SR	09/22/1976	--	--
19N59E25ABAB	083	133	6	P	E	S	2236	88.10 SP	09/21/1976	3 V	09/21/1976
19N60E17CD	083	72	4	P	W	S	2300	45.00 SP	09/22/1976	6 V	09/22/1976
19N60E27AC	109	84	4	S	E	H,S	2250	47.60 SP	09/22/1976	25 V	09/22/1976
19N60E28BA	109	120	6	S	E	S	2300	102.60 SR	09/22/1976	10 V	09/22/1976
19N60E28CB	109	41	4	P	H	S	2200	13.50 SR	09/22/1976	10 V	09/22/1976
19N60E32AB	109	101	4	P	E	S	2200	36.50 SR	09/21/1976	6 V	09/21/1976
19N60E34BA	109	84	5	P	E	S	2250	32.90 SR	09/21/1976	12 V	09/21/1976
20N42E22CA	033	80	4	P	E	S	2350	44.90 SR	09/01/1976	2 V	09/01/1976
20N42E23AB	033	--	4	---	---	H,S	2300	F	--	1 V	09/01/1976
20N42E28CD	033	--	2.25	---	---	S	2350	F	--	1 V	09/01/1976
20N42E34AB	033	225	4	---	---	S	2300	F	--	30 V	09/01/1976

Table 1.--Records of wells--Continued

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAMETER (INCHES)	TYPE OF LIFT	TYPE OF POWER	USE OF WATER	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED
20N42E34AC	033	250	5	--	--	H,S	2300	F	--	45 V F	09/01/1976
20N42E34CA	033	120	4	--	--	H,S	2300	F	09/01/1976	0.9 VF	09/01/1976
20N43E01AABD	055	288	6	P	W	U	2480	S	08/07/1975	11 R	07/09/1967
20N44E24BDAC	055	107	5.5	P	E	S	2561	SR	08/19/1975	--	--
20N44E27CBDA	055	224	5	P	E	S	2560	SR	08/20/1975	--	--
20N45E08DDAC	055	1300	8	P	G	S	2650	RR	08/19/1975	--	--
20N45E10DCCD	055	122	5.5	P	G	S	2656	RR	08/19/1975	--	--
20N45E118ADC	055	186	6	P	E	S	2640	SR	08/20/1975	3 V	08/20/1975
20N45E17CCBB	055	281	5.5	P	G	S	2680	SR	08/18/1975	6 V	08/20/1975
20N45E190DDD	055	122	6	--	--	U	2560	V	08/19/1975	--	--
20N45E20DDBC	055	120	4	--	--	U	2545	S	10/05/1976	9 V	10/05/1976
20N45E22BCCA	055	21	4	P	E	S	2560	SR	09/05/1975	8 V	09/05/1975
20N45E22DACC	055	104	4	P	E	U	2636	V	08/14/1975	--	--
20N45E27ACCC	055	42	4	P	E	S	2590	VP	08/14/1975	0.8 V	08/14/1975
20N45E28B8BD	055	56	6.5	P	G	S	2519	SR	09/05/1975	--	--
20N45E30D8AB	055	57	4	--	--	U	2495	S	10/05/1976	8 V	10/05/1976
20N45E34DBCC	055	278	4	--	--	U	2610	S	02/11/1976	10 V	05/07/1976
20N45E35DAAB	055	32	4	--	--	U	2541	S	08/13/1975	--	--
20N46E02ADCD	055	30	36	P	E	S	2579	SR	08/08/1975	7 V	08/08/1975
20N46E04CACC	055	105	4	P	E	S	2639	SR	09/20/1975	3 V	09/20/1975
20N46E09BDCC	055	180	5.5	S	G	S	2735	SR	08/20/1975	--	--
20N46E11AACC	055	76	5	--	--	U	2581	S	08/07/1975	--	--
20N46E11ADBC	055	60	4	J	E	S	2560	RR	08/07/1975	--	--
20N46E13B8CC	055	60	4	J	E	H	2578	RR	08/07/1975	--	--
20N46E19B8AC	055	84	5	P	W	U	2710	S	08/13/1975	3 R	1961
20N46E20CADA	055	170	4	S	E	S	2791	SR	08/13/1975	--	--
20N46E24CCDD	055	144	--	S	E	H	2564	SR	08/15/1975	10 R	08/15/1975
20N46E24CDCC	055	17	4	J	E	S	2561	SR	08/15/1975	--	--
20N46E24D8CB	055	44	4	P	G	S	2541	SR	09/10/1975	--	--
20N46E27BCAB	055	84	4	S	E	S	2635	SR	08/12/1975	10 V	08/12/1975
20N46E28A8BC	055	120	6	S	E	H	2637	SR	08/12/1975	--	--
20N46E28BAAD	055	61	4	P	E	S	2643	SR	08/12/1975	3 V	08/12/1975
20N46E338BAC	055	119	6.5	P	W	U	2675	S	08/13/1975	8 R	04/10/1958
20N46E34BCAA	055	181	4	S	E	S	2700	SR	08/12/1975	8 V	08/12/1975
20N46E35DCAC	055	75	4	S	E	S	2680	SR	08/12/1975	4 V	08/12/1975
20N46E36B8DA	055	54	6.5	P	E	S	2600	SR	08/13/1975	5 V	08/13/1975
20N47E048B8B	055	247	4	--	--	U	2565	S	10/06/1976	--	--
20N47E04DCBD	055	24	16	P	E	S	2580	SR	08/15/1975	--	--
20N47E04DCCB	055	70	6	P	E	S	2580	SR	08/15/1975	--	--
20N47E10ACRD	055	35	15	P	G	S	2560	SR	08/15/1975	--	--

Table 1.--Records of wells--Continued

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAMETER (INCHES)	TYPE OF LIFT	TYPE OF POWER	USE OF WATER	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED
20N47E18ABAD	055	78	4	--	--	U	2647	D	--	--	--
20N47E29ABAA	055	161	4	S	E	H	2520	SR	09/10/1975	--	--
20N47E29ABAA2	055	108	4	S	E	U	2520	S	09/10/1975	--	--
20N47E29BBD8	055	25	6	S	E	S	2520	SR	09/10/1975	--	--
20N47E30ACCC	055	60	6	S	E	H	2500	RR	09/10/1975	20 R	10/06/1972
20N47E30ACCC2	055	116	4	J	E	H	2600	SR	09/10/1975	5 R	09/10/1975
20N47E30ACCC3	055	25	24	P	E	S	2600	SR	09/10/1975	5 R	09/10/1975
20N47E30DBBA	055	110	5	S	E	S	2600	RR	--	--	--
20N47E31DDBC	055	60	4	P	E	S	2600	SR	09/10/1975	--	--
20N47E36ADDD	055	220	4	--	--	U	2495	S	02/11/1976	3 V	04/19/1976
20N48E02CCCC	055	79	4	P	E	S	2480	SR	09/13/1975	3 V	09/13/1975
20N48E02CCCC2	055	68	6	S	E	H	2480	SR	09/13/1975	--	--
20N48E04CCDC	055	194	4	P	E	S	2480	SR	09/12/1971	--	--
20N48E04CCDD	055	30	12	S	E	H	2480	SR	09/27/1975	--	--
20N48E06CAAC	055	81	4	S	E	S	2560	SR	09/11/1975	5 R	1974
20N48E06DCDD	055	50	4	S	E	S	2540	SR	09/12/1975	20 R	09/12/1975
20N48E07BDAC	055	55	6	P	E	S	2580	SR	09/12/1975	4 V	09/12/1975
20N48E08AAAC	055	32	4	S	E	S	2500	SR	09/12/1975	10 V	09/12/1975
20N48E08AAAC2	055	40	4	S	E	S	2500	SR	09/12/1975	9 V	09/12/1975
20N48E08AABA	055	80	4	S	E	H	2500	SR	09/12/1975	--	--
20N48E08CDCA	055	110	6	S	E	S	2600	SR	09/12/1975	--	--
20N48E10ABAB	055	90	6	P	H	U	2460	S	09/13/1975	--	--
20N48E10ABAB2	055	27	18	S	E	S	2460	SR	09/13/1975	--	--
20N48E11B8CC	055	101	6	S	E	H	2460	SR	09/12/1975	--	--
20N48E11B8CC2	055	90	5	P	E	U	2460	S	09/12/1975	--	--
20N48E15BAAC	055	200	4	S	E	U	2520	S	09/13/1975	--	--
20N48E20BACD	055	89	4	--	--	U	2580	S	09/11/1975	--	--
20N48E20CCDD	055	60	6	P	H	U	2600	S	09/11/1975	--	--
20N48E22CCDD	055	276	4	P	E	H	2600	SR	09/27/1975	2 V	09/27/1975
20N48E28DC8D	055	25	4	S	E	S	2540	RR	--	--	--
20N48E28DC8D2	055	43	5	S	E	H	2540	RR	--	--	--
20N48E28DDCA	055	120	4	S	E	H	2480	RR	08/20/1975	--	--
20N48E36BAA8	055	65	6	--	--	U	2500	S	11/19/1975	--	--
20N48E36BCDD	055	97	4	--	--	U	2480	S	11/18/1975	--	--
20N49E07CB8A	055	350	--	S	E	H	2640	R	--	--	--
20N49E08AB8A	055	50	24	P	H	S	2440	SR	09/22/1975	--	--
20N49E17ADDA	055	45	--	P	W	U	2460	SP	10/11/1975	2 V	10/11/1975
20N49E18CCDD	055	12	7	P	H	U	--	S	12/30/1975	--	--
20N49E18CCDD	055	120	4	--	--	U	2420	S	02/11/1976	10 V	05/06/1976
20N49E27AADC	055	29	6	P	G	S	2480	SR	11/18/1975	7 V	11/18/1975

Table 1.--Records of wells--Continued

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAMETER (INCHES)	TYPE OF LIFT	TYPE OF POWER	USE OF WATER	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED
20N49E34DCC	055	183	4	S	E	S	2620	66.30 SR	11/18/1975	6 V	11/18/1975
20N49E35AAD	055	28	6	--	--	S	2500	5.00 R	11/18/1975	--	--
20N50E06ABB	021	63	5	P	E	H	2320	34.80 SR	10/02/1975	4 V	10/02/1975
20N50E06BACD	021	38	24	P	H	S	2360	31.00 SR	10/02/1975	--	--
20N50E11ACCC	021	19	6	P	W	S	2500	5.50 SP	10/05/1975	2 V	10/05/1975
20N50E12BABA	021	76	6	--	--	S	2440	20.00 RP	10/11/1975	2 V	10/11/1975
20N50E13ABBC	021	61	4	P	W	S	2580	28.30 SP	10/04/1975	1 V	10/04/1975
20N50E14CABA	021	54	18	P	E	S	2500	34.60 SR	10/05/1975	3 V	10/05/1975
20N50E16ABBD	021	186	6	P	E	S	2480	80.40 SR	10/14/1975	4 V	10/14/1975
20N50E16CACH	021	47	4	--	--	U	2480	41.30 S	10/05/1975	--	--
20N50E18BDCD	021	104	6	P	E	S	2480	74.20 SR	10/06/1975	3 V	10/06/1975
20N50E18CDDA	021	110	8	S	E	H,S	2480	73.00 SR	10/01/1975	4 R	06/21/1971
20N50E19DACH	021	70	6	--	--	--	2520	22.30 S	10/05/1975	--	--
20N50E22DBDD	021	14	36	J	E	H	2480	14.00 VR	10/06/1975	--	--
20N50E24DDCA	021	25	4	S	E	S	2580	10.00 RR	10/04/1975	--	--
20N50E26C8CC	021	70	--	S	E	H	2600	25.00 RK	10/06/1975	--	--
20N50E28DDDD	021	87	4	--	--	U	2540	56.60 S	10/04/1975	--	--
20N50E30AAAB	021	87	4	P	E	S	2560	68.10 SR	10/04/1975	--	--
20N50E30AABD	021	84	4	P	E	S	2560	76.70 SR	10/01/1975	--	--
20N51E07ADAB	021	147	4	P	E	S	2600	61.80 SR	10/04/1975	2 R	11/30/1961
20N51E17ADAD	021	239	4	S	E	S	2680	119.30 SR	10/09/1975	8 V	10/09/1975
20N51E18DADB	021	21	12	P	E	S	2520	7.10 SP	10/09/1975	--	--
20N51E30CAAD	021	35	18	S	E	H	2620	26.40 SR	--	--	--
20N51E30CAAD2	021	125	4	S	E	S	2620	122.00 SR	10/07/1975	--	--
20N51E30CAAD3	021	14	36	P	E	S	2620	3.30 SR	10/08/1975	--	--
20N51E32CABC	021	128	6	P	E	S	2680	46.40 SR	10/08/1975	--	--
20N51E32CABC2	021	49	24	--	--	U	2680	18.60 S	10/08/1975	--	--
20N53E16AADB	021	115	5	P	W	H	2790	79.10 SP	09/02/1976	3 V	09/02/1976
20N53E26AAAD	021	81	18	S	E	S	2685	17.40 SR	09/02/1976	20 V	09/02/1976
20N53E26BCCB	021	69	18	P	W	U	2703	32.80 S	09/02/1976	--	--
20N53E32DBBD	021	23	18	P	E	S	2730	6.60 SR	09/02/1976	8 V	09/02/1976
20N54E01CB88	021	33	8	P	E	S	2664	21.70 SR	09/09/1976	3 V	09/09/1976
20N54E01DCDD	021	220	4	--	--	U	2660	57.80 S	10/08/1975	10 V	05/04/1976
20N54E02BCAA	021	116	4	P	E	H,S	2730	57.20 SR	09/09/1976	5 V	09/09/1976
20N54E06DCCA	021	29	24	P	H	U	2650	11.20 S	09/01/1976	6 E	09/01/1976
20N54E18AC	021	40	18	P	W	H,S	2650	21.90 SR	09/08/1976	4 V	09/08/1976
20N54E19DC	021	108	5	P	E	H	2650	76.50 SR	09/08/1976	--	--
20N54E28DCCA	021	15	24	P	W	U	2550	11.00 S	09/09/1976	--	--
20N55E06DCCC	021	79	3	P	E	S	2650	37.50 SR	09/09/1976	3 V	09/09/1976
20N55E12BC	021	150	3.7	--	--	S	2600	40.70 SR	09/11/1976	4 V	09/11/1976

Table 1.--Records of wells--Continued

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAMETER (INCHES)	TYPE OF LIFT	TYPE OF POWER	USE OF WATER	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED
20N55E15BACB	021	42	8	P	G	S	2530	16.80	09/10/1976	15 V	09/10/1976
20N55E19DBCD	021	53	18	P	E	H,S	2695	22.00	09/10/1976	3 V	09/10/1976
20N55E20CBCA	021	66	12	P	E	S	2750	26.40	09/10/1976	4 V	09/10/1976
20N55E22BBCC	021	60	5	P	G	S	2730	33.00	09/13/1976	--	--
20N55E30DABD	021	42	5.7	S	E	S	2760	34.20	09/10/1976	6 V	09/10/1976
20N56E01DB	021	72	6	P	G	S	2400	53.20	09/11/1976	5 V	09/11/1976
20N56E09AD	021	257	4	P	G	S	2450	160.80	09/14/1976	2 V	09/14/1976
20N56E13CBAA	021	121	4	P	G	S	2260	36.60	09/11/1976	10 V	09/11/1976
20N56E18ADBB	021	26	3.7	P	E	S	2430	9.20	09/14/1976	2 V	09/14/1976
20N56E24CBDB	021	103	6	S	E	H	2230	26.10	09/11/1976	8 R	09/11/1976
20N56E25BABB	021	90	4	P	E	S	2230	21.60	09/11/1976	3 V	09/11/1976
20N56E26DCCB	021	85	6	S	E	H	2270	48.30	09/14/1976	9 V	09/14/1976
20N56E32CDAA	021	55	5	S	E	H	2330	14.60	09/14/1976	10 V	09/14/1976
20N57E16CDD	083	273	6	S	E	H	2385	230.80	09/16/1976	5 V	09/16/1976
20N57E21CDD	083	392	4	S	E	H	2365	230.00	07/18/1967	--	--
20N57E21CDDA	083	392	4	S	E	H,S	2365	256.60	09/16/1976	10 R	09/16/1976
20N57E27DCDC	083	223	4	S	E	H	2240	149.00	09/09/1976	12 V	09/09/1976
20N57E30DDAB	083	60	24	P	E	S	2260	40.40	09/12/1976	4 V	09/12/1976
20N58E24ABAA	083	106	4	--	--	S	1945	F	09/16/1976	2 V F	09/16/1976
20N58E25CCAC	083	138	4	--	--	S	1970	F	09/16/1976	6 V F	09/16/1976
20N58E29C8C	083	1083	5	--	--	H	2015	F	--	75 R	08/20/1970
20N58E34DD	083	620	5	--	--	S	1975	80.50+	09/15/1971	--	--
20N59E03DBA	083	1320	6	--	--	S	2180	57.50+	05/09/1972	2 V F	08/14/1975
20N59E04DAC	083	242	4	--	--	S	2090	120.00	10/10/1964	--	--
20N59E04DDDB	083	242	4	P	H	U	2100	131.20	09/16/1976	--	--
20N59E11BDC	083	1390	5	--	--	S	2140	57.50+	04/02/1971	1 V F	08/14/1975
20N59E13ABBA	083	177	4	P	H	S	2260	175.60	09/21/1976	--	--
20N59E35CBAC	083	230	5	--	--	S	2357	189.90	09/21/1976	--	--
20N60E04BAAD	083	--	--	S	E	S	2280	277.90	09/15/1976	2 V	09/15/1976
20N60E10BDBC	083	250	4	P	E	S	2337	209.30	09/15/1976	4 V	09/15/1976
20N60E17AD	083	140	4	P	E	S	2400	115.70	09/24/1976	2 V	09/24/1976
20N60E19CCCB	083	20	8	P	E	S	2140	7.30	09/21/1976	6 V	09/21/1976
21N42E14C	033	108	4	P	E	S	2350	90.60	08/31/1976	--	--
21N42E15DDCC	033	256	6	S	E	S	2340	91.10	08/31/1976	5 V	09/22/1978
21N42E18BA	033	225	4	--	--	U	2450	189.20	08/31/1976	--	--
21N43E36BCCD	055	18	4	--	--	U	2296	6.40	11/04/1975	--	--
21N43E36DAAC	055	70	5	S	E	S	--	46.60	08/31/1976	--	--
21N43E36DAAD	055	--	5	S	E	--	2360	46.00	--	--	--
21N44E04DCCB	055	160	5.5	S	E	U	2200	19.90	08/31/1976	4 R	11/05/1964
21N44E11CDAC	055	94	4	S	E	S	2440	40.00	09/03/1975	15 R	10/23/1964

Table 1.--Records of wells--Continued

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAMETER (INCHES)	TYPE OF LIFT	TYPE OF POWER	USE OF WATER	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED
21N44E11DCDA	055	155	6	S	E	H,S	2440	100.00	RR 09/03/1975	5 V	09/03/1975
21N44E16DBCD	055	15	54	--	--	S	--	12.20	VR 08/31/1976	30 V	08/31/1976
21N44E23B8DC	055	123	4	S	E	S	2460	43.80	SR 08/07/1975	4 V	08/07/1975
21N44E23C8CD	055	112	4	S	E	S	2516	58.10	SR 08/07/1975	--	--
21N44E24BDC	055	117	4	--	--	U	2510	59.00	S 08/07/1975	--	--
21N44E28DBCC	055	117	5	S	E	S	2500	109.70	SR 08/06/1975	8 V	08/06/1975
21N45E02DADB	055	146	4	--	--	U	2513	103.20	V 09/05/1975	--	--
21N45E05CDBB	055	225	4	P	E	U	2541	131.70	SR 09/04/1975	5 V	09/04/1975
21N45E05DDCA	055	125	6	S	E	H	2505	70.00	RR --	--	--
21N45E07BCDD	055	230	8	S	E	S	2620	212.70	SR 09/04/1975	--	--
21N45E08CACC	055	67	4	P	H	U	2500	51.60	S 09/04/1975	--	--
21N45E08CACC2	055	12	48	P	H	U	2500	6.30	S 09/04/1975	--	--
21N45E08DBCC	055	18	6	P	H	U	2479	13.50	S 09/04/1975	--	--
21N45E10BACC	055	125	4	S	E	S	2529	63.60	SR 09/20/1975	--	--
21N45E15BAAA	055	67	4	P	E	S	2520	17.80	SP 09/03/1975	6 V	09/03/1975
21N45E16ABB	055	201	5	S	E	S	2500	34.20	SR 09/03/1975	10 V	09/03/1975
21N45E16ADAB	055	120	4	S	E	H	2497	14.80	SR 09/03/1975	--	--
21N45E16ADAB2	055	35	6	P	W	S	2497	19.00	RR --	--	--
21N45E16DDDB	055	61	4	P	H	U	2500	11.80	S 09/03/1975	--	--
21N45E17ADCA	055	99	4	S	E	S	2460	55.20	SR 09/04/1975	--	--
21N45E17ADCA2	055	246	5	S	E	H	2460	80.00	RP --	--	--
21N45E18CAAB	055	150	6	S	E	H,S	2460	20.60	SR 09/04/1975	6 V	09/04/1975
21N45E20DCCD	055	89	4	S	E	U	2480	22.50	S 09/04/1975	4 V	09/04/1975
21N45E23DCBB	055	38	8	--	--	U	2540	15.70	S 09/03/1975	--	--
21N45E26DAAD	055	95	4	--	--	U	2585	50.43	S 10/06/1976	0.5 V	10/06/1976
21N45E29DABC	055	185	8	--	--	U	2520	41.90	S 08/19/1975	--	--
21N45E34B8DA	055	189	4	S	E	H	2520	37.20	SR 08/19/1975	15 R	07/ /1955
21N45E34B8DA2	055	17	6	J	E	S	2520	13.10	SR 08/18/1975	2 V	08/18/1975
21N45E35B8DC	055	118	6	P	E	S	2609	67.30	SR 08/11/1975	2 V	08/11/1975
21N45E36ACCC	055	169	4	P	H	U	2730	167.50	S 09/03/1975	--	--
21N46E05AABA	055	100	4	P	E	S	2482	79.10	SR 09/05/1975	2 V	09/05/1975
21N46E09CDBC	055	85	4	P	W	S	2581	60.00	SP 08/08/1975	4 V	08/08/1975
21N46E15ADDA	055	200	6	S	E	S	2590	71.80	SR 08/08/1975	--	--
21N46E17BCDA	055	206	6	P	W	S	2700	184.20	SR 08/08/1975	--	--
21N46E19BCDA	055	105	4	P	E	S	2656	80.80	SR 09/20/1975	10 V	09/20/1975
21N46E24CDCA	055	129	4	P	W	S	2651	90.20	SR 08/12/1975	--	--
21N46E25CAAC	055	50	4	P	W	S	2621	45.20	SR 08/13/1975	4 V	08/13/1975
21N46E29AACA	055	110	6	--	--	U	2717	--	--	--	--
21N46E29ACDA	055	240	4	S	E	H	2655	164.00	SR 09/20/1975	11 R	09/20/1975
21N46E29DCCB	055	112	4	P	H	S	2680	44.20	SR 09/20/1975	4 R	1961

Table 1.--Records of wells--Continued

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAMETER (INCHES)	TYPE OF LIFT	TYPE OF POWER	USE OF WATER	ALTITUDE OF SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER MEASURED	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED	
21N46E30BACC	055	110	4	P	E	S	2602	30.00	RR	09/20/1975	3 V	09/20/1975
21N46E32CCAA	055	215	4	S	E	S	2720	130.40	SR	09/20/1975	3 V	09/20/1975
21N46E32CCCC	055	250	4	P	W	S	2680	198.90	SR	09/20/1975	2 V	09/20/1975
21N47E03CDAC	055	180	4	S	E	H	2680	130.00	RR	09/09/1975	1 R	1960
21N47E03CDCC	055	60	4	P	E	S	2660	27.90	SR	09/09/1975	--	--
21N47E04BCAA	055	76	6	P	G	S	2600	4.30	VR	08/13/1975	--	--
21N47E08CDCC	055	71	25	P	H	S	2580	54.50	SR	09/09/1975	--	--
21N47E10ABBC	055	81	4	P	E	S	2680	63.70	SR	09/09/1975	--	--
21N47E10ADDD	055	122	4	--	--	S	2700	109.20	SR	09/10/1975	2 V	09/10/1975
21N47E12CCCC	055	213	4	--	--	U	2600	55.82	S	10/07/1976	--	--
21N47E17BDAA	055	26	4	S	E	S	2580	4.60	SR	08/12/1975	8 V	08/12/1975
21N47E17DAAB	055	44	5	S	E	H	2580	14.00	RP	08/12/1975	--	--
21N47E17DAAD	055	22	4	S	E	H,S	2580	14.80	SR	08/12/1975	--	--
21N47E18DCAA	055	16	4	P	G	S	2600	2.50	SR	08/12/1975	--	--
21N47E21DBAC	055	77	4	--	--	U	2580	69.20	S	08/12/1975	--	--
21N47E31CACC	055	50	6	P	G	S	2580	14.30	SR	08/15/1975	5 V	08/15/1975
21N47E31CCCC	055	47	4	--	--	U	2580	12.10	S	08/15/1975	--	--
21N47E36ABBC	055	140	4	--	--	U	2480	6.60	S	02/11/1976	--	--
21N48E02ADDD	055	28	36	P	H	U	2460	17.90	S	09/16/1975	--	--
21N48E09BACA	055	53	4	P	E	S	2550	22.60	SR	09/17/1975	--	--
21N48E108DDD	055	50	4	P	E	S	2480	19.60	SR	09/17/1975	5 V	09/17/1975
21N48E100DDC	055	17	5	P	H	S	2480	8.10	SR	09/17/1975	3 V	09/17/1975
21N48E100DDC2	055	70	6	J	E	H	2480	8.00	SR	09/16/1975	--	--
21N48E128BCB	055	260	6	S	E	H	2500	91.60	SR	09/19/1975	--	--
21N48E15ADBD	055	72	4	P	E	S	2500	25.10	SR	09/17/1975	4 V	09/17/1975
21N48E228CAC	055	35	24	P	G	H,S	2500	10.00	RR	09/18/1975	3 V	09/18/1975
21N48E22DDA5	055	18	36	P	H	U	2480	10.70	S	09/19/1975	--	--
21N48E25BAB3	055	108	4	P	E	H,S	2520	98.60	SR	09/18/1975	3 V	09/18/1975
21N48E268BBC	055	50	4	J	E	H	2460	13.10	SR	09/20/1975	--	--
21N48E268BCC	055	75	4	J	E	H	2500	14.00	RR	09/16/1975	4 V	01/28/1971
21N48E268BCC	055	24	24	J	E	S	2480	18.00	RR	09/16/1975	--	--
21N48E278DCC	055	162	4	P	W	S	2560	80.00	RR	09/17/1975	5 V	04/10/1975
21N48E30CDAA	055	160	5	S	E	H	2600	95.60	SR	09/19/1975	6 R	09/19/1975
21N48E31DABC	055	54	5.5	S	E	S	2480	26.50	SR	09/12/1975	4 V	09/12/1975
21N49E06ABBA	055	35	6	J	E	H	2380	30.20	SR	09/19/1975	10 V	09/19/1975
21N49E06BAAA	055	28	4	P	E	S	2380	12.90	SR	09/17/1975	--	--
21N49E06BAAA2	055	22	6	J	E	H	2380	18.50	SR	09/17/1975	--	--
21N49E19CCCD	055	26	4	P	E	S	2440	3.70	SR	09/18/1975	--	--
21N49E20CCBA	055	76	6	S	E	S	2440	21.60	SR	09/18/1975	--	--
21N49E20CCBC	055	53	6	P	H	U	2440	31.80	S	09/18/1975	--	--

Table 1.--Records of wells--Continued

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAMETER (INCHES)	TYPE OF LIFT	TYPE OF POWER	USE OF WATER	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED
21N49E20CC8C2	055	110	6	P	E	H	2440	91.20	SR 09/22/1975	--	--
21N49E32AABC	055	45	36	P	G	S	2440	19.00	SR 09/18/1975	--	--
21N50E10DAAA	021	48	4	P	E	S	2380	23.00	SR 09/26/1975	4 V	09/26/1975
21N50E10DAAC	021	110	4	S	E	H	2380	30.00	RR 09/26/1975	--	--
21N50E10DAAC2	021	49	4	--	--	U	--	25.30	S 09/26/1975	--	--
21N50E13DCBC	021	30	4	P	G	S	2380	12.50	SR 09/12/1975	--	--
21N50E15ACAD	021	109	4	P	E	S	2480	83.50	SR 09/22/1975	--	--
21N50E23CDDC	021	163	4	P	G	S	2500	119.10	SR 09/22/1975	--	--
21N50E23DDDC	021	110	4	--	--	U	2440	34.80	S 09/22/1975	--	--
21N50E25CCDA	021	61	4	J	E	H	2460	15.80	SR 09/22/1975	--	--
21N50E25CCDA2	021	60	4	--	--	U	2480	12.90	S 09/22/1975	--	--
21N50E25CCDD	021	22	24	P	E	S	2480	14.30	SR 09/22/1975	--	--
21N50E36ABBB	021	44	4	P	E	S	2460	37.80	SR 09/25/1975	3 V	09/25/1975
21N51E10AABD	021	131	6	--	--	U	2380	15.10	S 09/23/1975	--	--
21N51E10ABBC	021	100	4	P	E	S	2380	20.00	RP 09/23/1975	2 V	09/23/1975
21N51E14BA8D	021	60	4	P	E	S	2400	13.70	SR 09/23/1975	3 V	09/23/1975
21N51E14BABD2	021	80	6	S	E	H	2400	30.00	RR 09/24/1975	--	--
21N51E14BABD3	021	42	18	P	E	S	2400	28.40	SR 09/23/1975	3 V	09/23/1975
21N51E14CB88	021	138	4	S	E	S	2440	50.00	RP --	--	--
21N51E18BAAB	021	100	4	S	E	H	2420	62.30	SR 09/23/1975	--	--
21N51E19AB88	021	45	6	--	--	U	2480	36.00	S 09/24/1975	--	--
21N51E19BABC	021	13	24	P	G	S	2440	3.60	SR 09/24/1975	--	--
21N52E05AAB	021	71	5	P	E	S	--	58.80	9P 10/03/1975	--	--
21N52E05ACCC	021	39	4	--	--	--	--	23.40	V 10/03/1975	--	--
21N52E05CAAA	021	14	50	P	E	S	2500	6.70	VR 10/03/1975	--	--
21N52E17DA	021	38	32	P	E	H	2500	22.30	SR 09/08/1976	8 V	09/08/1976
21N52E17DB	021	53	5.5	P	G	S	2450	14.00	SR 09/08/1976	6 V	09/08/1976
21N52E23ADC	021	66	3.5	--	--	S	--	58.70	SR 09/01/1976	5 V	09/01/1976
21N52E28DC	021	67	5	S	E	S	2620	19.40	SR 09/08/1976	15 E	09/08/1976
21N52E32DA	021	99	18	P	E	S	2650	61.40	SR 09/08/1976	3 V	09/08/1976
21N52E33DB	021	70	--	P	W	U	2600	61.20	S 09/11/1976	--	--
21N53E01DCCB	021	65	18	J	G	H	2890	34.00	SP 09/01/1976	6 R	09/01/1976
21N53E06CAAA	021	103	5	S	E	H	2610	53.30	SR 09/01/1976	8 V	09/01/1976
21N53E08ADCC	021	70	4	--	--	U	2703	26.60	S 10/08/1975	3 V	05/04/1976
21N53E08CCBB	021	53	16	P	H	U	2755	38.60	S 09/11/1976	--	--
21N53E10BBAD	021	77	4	P	W	S	2770	27.70	SR 09/01/1976	--	--
21N53E21CAAB	021	93	30	P	W	U	2950	46.40	S 09/01/1976	--	--
21N53E22DAAB	021	128	6	S	E	H	2870	73.20	SP 09/01/1976	8 V	09/01/1976
21N54E04BCCB	021	346	4	S	E	S	2630	174.10	SR 09/11/1976	4 V	09/11/1976
21N54E08CDDD	021	42	4	S	E	S	2810	19.90	SR 09/14/1976	3 V	09/14/1976

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAMETER (INCHES)	TYPE OF LIFT	TYPE OF POWER	USE OF WATER	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED
21N54E12ACCC	021	238	6	P	W	S	2567	30.00	RP	2 V	09/14/1976
21N54E14CACB	021	35	4	P	W	S	2650	22.30	SP	3 V	09/09/1976
21N54E22CBDD	021	85	6	S	E	H	2790	49.60	SR	12 V	09/10/1976
21N54E33DCAC	021	103	4	S	E	H	2670	30.80	SP	30 V	09/10/1976
21N55E02AADA	021	101	16	P	E	H	2730	49.30	SR	15 V	09/09/1976
21N55E03BABC	021	110	24	P	E	U	2745	63.70	S	--	--
21N55E06BAAA	021	50	24	P	G	U	2429	26.20	S	--	--
21N55E11ADAC	021	124	4	--	--	U	2705	45.00	S	--	--
21N55E14ABAD	021	406	4	S	E	U	2510	262.70	SR	12 V	09/10/1976
21N55E32ACDD	021	120	4	--	--	U	2750	33.40	S	--	--
21N56E106D8A	083	169	6	P	E	S	2620	155.40	SR	4 V	09/13/1976
21N56E20CABC	083	90	4	P	W	U	2700	83.30	S	--	--
21N56E21DBAD	083	25	4	P	G	S	--	22.30	SR	--	--
21N56E248ADC	083	323	4	P	E	S	2521	250.00	SR	12 V	09/06/1976
21N56E268AAC	083	90	4	J	E	H	2520	38.60	SR	10 V	09/13/1976
21N56E28ADDC	083	220	2	--	--	U	2515	50.60	S	--	--
21N57E10CDDD	083	214	6	S	E	H,S	2320	117.10	SR	11 V	09/13/1976
21N57E13ACDC	083	60	36	S	E	S	2139	25.30	SR	11 V	09/13/1976
21N57E14CDDC	083	85	4	S	E	H,S	--	20.60	SR	9 V	09/06/1976
21N57E16DCCB	083	133	6	--	--	U	2340	55.80	S	--	--
21N57E19AAAA	083	163	6	S	E	H,S	2426	144.90	SR	10 V	09/07/1976
21N57E31DDCD	083	65	36	P	E	S	2330	46.20	SR	4 V	09/07/1976
21N57E36CDDC	083	249	6	P	G	S	2220	172.60	SR	6 V	09/13/1976
21N58E03CB8C	083	1240	--	--	--	S	2010	F	F	15 R	04/17/1972
21N58E03D88	083	1240	6.6	--	--	S	2040	50.60+	R	0.3 VF	08/13/1975
21N58E06A8BC	083	214	4	P	E	S	2150	87.40	SR	--	--
21N58E08DDAD	083	40	4	S	E	H	2000	19.00	SR	6 V	09/13/1976
21N58E30DDA	083	830	4	--	--	S	2045	49.45+	R	--	--
21N58E31ADDD	083	47	4	S	E	H	1982	7.30	SR	--	--
21N59E08BCD	083	1270	6	--	--	S,H	1975	119.60+	G	12 V	08/12/1975
21N59E13CDC	083	1368	4	--	--	S	2080	69.00+	R	12 V	08/12/1975
21N59E148CA	083	1330	4	--	--	S,H	2065	124.20+	R	8 V	08/12/1975
21N59E15DD8A	083	132	4	--	--	S	2104	74.30	SR	--	--
21N59E20AAAC	083	125	4.5	P	W	S	2020	92.80	S	--	--
21N59E22DDC	083	306	4	--	--	S	2300	165.00	R	--	--
21N59E23D8AA	083	--	--	S	E	S	2140	178.80	SR	0.8 V	09/15/1976
21N59E3088CA	083	194	6	J	E	H	1980	53.20	SR	4 V	09/15/1976
21N59E33D88B	083	1300	5	--	--	S	2100	F	F	12 R	09/13/1976
21N59E35CCAA	083	450	4	S	E	S	2320	309.30	SP	10 V	09/13/1976
21N60E18DCCB	083	--	--	S	E	S	2230	170.60	SR	4 V	09/25/1976

Table 1.--Records of wells--Continued

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAMETER (INCHES)	TYPE OF LIFT	TYPE OF POWER	USE OF WATER	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED
21N60E29BABA	083	--	--	S	E	S	2280	199.60	09/15/1976	4 V	09/15/1976
22N42E05DB	033	125	4	--	--	S	2350	78.00	08/31/1976	12 V	08/31/1976
22N42E34CC	033	210	4	J	E	S	2300	24.50	08/31/1976	15 V	08/31/1976
22N43E03ACAD	055	138	--	S	E	S	2350	112.60	08/31/1976	12 V	08/31/1976
22N44E23DDBC	055	37	6	P	E	U	2540	11.00	08/07/1975	5 V	08/07/1975
22N44E35BAAA	055	28	4	--	--	U	2480	19.10	08/07/1975	--	--
22N44E35BACB	055	15	--	P	H	U	2480	13.30	08/07/1975	--	--
22N44E35BACB2	055	19	5	P	H	U	2480	13.80	08/07/1975	6 V	08/07/1975
22N44E36CBB8	055	120	6	S	E	U	2520	78.40	08/07/1975	--	--
22N45E22DDB8	055	311	5	--	--	U	2600	38.90	09/03/1975	--	--
22N45E24ADB	055	113	5	S	E	S	2400	107.30	08/08/1975	--	--
22N45E24ADD82	055	115	5	--	--	S	--	104.20	08/08/1975	--	--
22N45E25ADC8	055	116	5	S	E	U	2459	100.50	08/08/1975	4 V	08/08/1975
22N45E26D8DD	055	150	6	S	E	H	2450	76.40	08/08/1975	--	--
22N45E27AAD8	055	151	4	S	E	S	2540	75.80	09/03/1975	6 R	12/10/1965
22N45E30BADC	055	150	4	P	W	S	2640	97.70	09/03/1975	2 V	09/03/1975
22N45E318BD8	055	269	4	S	E	S	2660	231.80	09/08/1965	--	--
22N45E33DC88	055	120	4	--	--	U	2500	69.50	09/03/1975	--	--
22N45E33DC8D	055	113	4	--	--	U	2505	71.30	09/03/1975	--	--
22N45E33DC8D2	055	150	4	S	E	S	2505	69.80	09/03/1975	6 V	09/03/1975
22N46E07ABDD	055	214	6	P	E	S	2360	78.60	09/04/1975	6 V	09/04/1975
22N46E18ADAA	055	168	4	P	G	S	2400	74.60	09/04/1975	--	--
22N46E22DDBC	055	--	--	--	--	--	2600	37.40	08/07/1975	--	--
22N46E24BAAC	055	169	7	P	W	S	2680	155.70	08/14/1975	--	--
22N46E27DDAB	055	170	5	P	E	S	2540	123.60	09/05/1975	--	--
22N46E33DB8D	055	210	4	S	E	S,H	2487	31.60	09/05/1975	7 V	09/05/1975
22N47E01ACAD	055	82	4	P	W	S	2540	40.00	09/11/1975	3 V	09/11/1975
22N47E038AAA	055	40	16	--	--	U	2480	16.30	09/10/1975	--	--
22N47E148CCD	055	54	5	P	W	S	2580	27.20	09/11/1975	--	--
22N47E19ABDD	055	75	24	P	W	S	2580	20.40	08/13/1975	--	--
22N47E21CDDC	055	20	18	P	G	S	2580	6.90	08/13/1975	--	--
22N47E21CDDC2	055	70	5	P	G	S	2580	21.80	08/13/1975	5 V	08/13/1975
22N47E228BBC	055	--	4	--	--	--	2560	--	--	--	--
22N47E23DDBC	055	90	5	P	W	U	2520	24.10	09/11/1975	--	--
22N47E26ADAD	055	90	6	S	E	H	2560	48.60	09/10/1975	--	--
22N47E26DAAA	055	40	6	P	H	U	2560	20.40	09/10/1975	--	--
22N47E28CADD	055	80	6	P	H	U	2580	25.20	09/11/1975	--	--
22N47E368ACB	055	15	36	P	G	S	2540	6.20	09/10/1975	--	--
22N48E05CCBB	055	1215	6	--	--	U	2550	380.00	--	--	--
22N48E06ABBC	055	48	4	J	E	S	2440	27.30	09/16/1975	3 V	09/16/1975

Table 1.--Records of wells--Continued

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAMETER (INCHES)	TYPE OF LIFT	TYPE OF POWER	USE OF WATER	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED
22N48E10DD8	055	76	6	S	E	H	2400	19.30	SR 09/16/1975	--	--
22N48E158CCA	055	44	5	P	G	S	2480	16.40	SR 09/16/1975	--	--
22N48E17DDCA	055	154	4	P	W	S	2600	60.10	SR 09/16/1975	--	--
22N48E188CAD	055	116	3	--	--	U	2560	52.10	V 09/17/1975	--	--
22N48E258DBC	055	1258	4	--	--	U	2550	207.00	R --	--	--
22N48E26CDA	055	48	5	J	E	H	2440	43.70	SR 09/16/1975	--	--
22N48E338ABD	055	1258	4	--	--	U	2500	360.00	R --	--	--
22N48E34DDC	055	51	4	E	E	S	2460	42.10	VR 09/16/1975	--	--
22N49E06CABA	055	76	4	J	E	S	2380	1.00	SR 09/18/1975	--	--
22N49E08ADD	055	42	6	S	E	H	2320	7.60	VR 09/19/1975	5 V	09/19/1975
22N49E088DD	055	48	5	P	E	S	2320	6.10	SR 09/18/1975	--	--
22N49E188CCB	055	212	5	S	E	H,S	2360	71.20	SR 09/22/1975	--	--
22N49E20AAC	055	40	4	P	H	S	2380	3.70	SR 09/18/1975	--	--
22N49E21CAB	055	75	5	P	W	S	2380	59.10	VP 09/19/1975	--	--
22N49E288CCB	055	212	5	P	G	S	2500	196.60	SR 09/18/1975	--	--
22N49E29CCDC	055	70	6	P	E	S	2400	0.70	SP 09/18/1975	--	--
22N49E30ACCC	055	86	4	S	E	H,S	2500	65.40	SR 09/18/1975	--	--
22N49E33CCD	055	36	5	--	--	U	2380	24.20	V 09/18/1975	--	--
22N50E08CAC	021	91	4	P	W	S	2380	75.80	SR 09/22/1975	--	--
22N50E08ADB	021	206	5	P	E	S	2420	126.80	SR 09/22/1975	--	--
22N50E138A08	021	152	4	P	G	S	2300	105.80	SR 09/24/1975	--	--
22N50E20DADC	021	94	4	P	H	S	2260	36.70	SR 09/22/1975	--	--
22N50E22ACAD	021	49	5	--	--	U	2220	19.50	V 09/23/1975	--	--
22N50E24BABA	021	130	4	P	G	S	2360	94.60	SR 09/24/1975	--	--
22N50E29CCCA	021	50	6	S	E	H	2280	18.00	RR 09/17/1975	--	--
22N50E29CCCB	021	22	18	S	E	H	2280	18.00	RR 09/17/1975	--	--
22N50E29CCCC	021	20	5	S	E	S	2280	18.00	RR 09/17/1975	--	--
22N50E29CCDB	021	25	6	S	E	S	2280	18.00	RR 09/17/1975	7 R	1968
22N50E35AAAD	021	56	5	P	E	S	2320	40.20	SP 09/22/1975	--	--
22N51E01ADDA	021	40	5	P	W	S	2480	19.30	SR 09/24/1975	--	--
22N51E02C8BB	021	140	4	P	E	H	2480	53.40	SK 09/23/1975	--	--
22N51E02CBBC	021	170	5	S	E	H,S	2500	80.60	SK 09/24/1975	--	--
22N51E03BAAA	021	85	4	P	E	S	2460	40.20	SR 10/24/1975	--	--
22N51E05A0DD	021	149	4	P	G	S	2460	60.10	SR 09/24/1975	--	--
22N51E07CCDD	021	79	5	S	E	H,S	2280	49.10	SR 09/24/1975	--	--
22N51E10ADDA	021	111	4	S	E	H	2400	108.70	SK 09/24/1975	7 V	09/24/1975
22N51E10ADDD	021	53	4	P	E	S	2380	35.80	SR 09/24/1975	--	--
22N51E118CCA	021	190	5	S	E	H,S	2380	95.00	RR 09/24/1975	--	--
22N51E118CCA2	021	280	5	S	E	H,S	2380	103.00	RR 09/24/1975	--	--
22N51E19C8BB	021	182	5	P	H	S	2400	36.90	SR 09/25/1975	--	--

Table 1.--Records of wells--Continued

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAMETER (INCHES)	TYPE OF LIFT	TYPE OF POWER	USE OF WATER	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED
22N51E22DBAD	021	74	4	P	H	U	2350	38.20	S 09/23/1975	--	--
22N51E23DDCB	021	55	5	S	E	S	2450	40.00	RP 10/06/1975	--	--
22N51E26ABAD	021	55	5	P	G	S	2400	30.00	RR 10/06/1975	--	--
22N51E27BAAB	021	69	4	P	H	U	2320	49.80	S 09/23/1975	--	--
22N51E27BABD	021	50	5	S	E	S	2300	22.80	SR 09/22/1975	--	--
22N51E28BAAA	021	99	4	P	H	S	2400	83.90	SR 09/25/1975	--	--
22N52E01BD8D	021	80	4	--	--	U	2500	3.20	V 09/30/1975	--	--
22N52E04CABD	021	30	18	P	E	S	2440	2.20	SK 10/04/1975	--	--
22N52E06BACA	021	106	18	P	G	S	2400	41.00	SR 10/23/1975	--	--
22N52E14BACD	021	45	16	P	W	S,H	2480	20.00	RR 09/30/1975	--	--
22N52E17BACC	021	91	4	--	--	U	2600	49.10	S 10/06/1975	--	--
22N52E20DCC	021	125	2	--	--	P	2473	315.00	R 08/14/1970	--	--
22N52E24DADD	021	98	4	S	E	S	2643	81.60	SR 09/30/1975	--	--
22N52E25C8CA	021	153	4	P	E	H,S	2516	50.30	SR 10/10/1975	3 V	10/10/1975
22N52E28B	021	1183	5.2	--	--	P	2495	325.00	R --	--	--
22N52E30ABBD	021	120	6	S	E	S	2500	35.70	SR 09/30/1975	--	--
22N52E30ABBD2	021	52	6	--	--	U	2500	30.00	RR 09/30/1975	--	--
22N52E30ADDC	021	139	12	--	--	U	2480	25.70	V 09/30/1975	--	--
22N52E30DCCD	021	60	6	P	E	H,S	2480	20.50	SR 09/30/1975	4 V	09/30/1975
22N52E33ABBA	021	114	5	P	E	S	2580	69.90	SP 10/03/1975	--	--
22N53E05CDA	083	176	4	S	E	S	2477	106.90	SR 10/08/1975	--	--
22N53E10ABBD	083	58	4	P	E	S	2459	45.90	SR 10/10/1975	--	--
22N53E16ACCC	083	130	4	--	--	S	2519	81.40	SR 10/06/1975	--	--
22N53E18CAB	083	96	5	P	G	S	2480	72.90	SR 10/08/1975	--	--
22N53E22B0CB	083	196	5	P	W	S	2576	123.70	SP 10/08/1975	5 V	10/08/1975
22N53E23ABBD	083	109	4	P	W	--	2553	75.70	SP 10/06/1975	--	--
22N53E26HAAA	083	201	5	S	E	S	2682	187.70	SR 10/06/1975	--	--
22N53E29HD8D	083	199	5	S	E	S	2620	127.90	SR 10/10/1975	--	--
22N53E30ABBB	083	101	4	P	E	S	2576	78.40	SR 10/10/1975	--	--
22N53E35CCCD	083	191	6	P	W	S	2680	134.70	SR 10/07/1975	--	--
22N54E06DABD	083	240	6	P	E	S	2365	26.10	SR 09/08/1976	3 V	09/08/1976
22N54E10CCCA	083	101	24	P	E	S	2500	71.00	SR 09/11/1976	3 V	09/11/1976
22N54E18ACBC	083	121	4	P	G	U	2510	84.20	S 09/08/1976	--	--
22N54E21CB8D	085	320	4	S	E	S	2690	258.90	SP 09/11/1976	12 V	09/11/1976
22N54E22B8CB	085	190	4	S	E	S	2610	153.20	SR 09/11/1976	3 V	09/11/1976
22N54E32B9AC	083	230	4	S	E	S	2670	189.10	SP 09/14/1976	12 V	09/14/1976
22N55E01AACA	083	90	6	--	--	U	2345	4.50	SR 09/08/1976	--	--
22N55E07ABCD	083	38	4	--	--	U	2370	3.00	S 09/10/1976	--	--
22N55E23AD8D	083	56	6	S	E	S	2394	23.50	SR 09/09/1976	4 V	09/09/1976
22N55E26AD	083	90	16	P	W	U	2450	28.10	S 09/09/1976	--	--

Table 1.--Records of wells--Continued

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAMETER (INCHES)	TYPE OF LIFT	TYPE OF POWER	USE OF WATER	ALTITUDE OF SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED
22N55E31D8D0	085	103	6	P	E	S	2415	14.10	SR 09/13/1976	3 V	09/13/1976
22N55E32A8D8	083	140	4	S	E	S	2470	106.30	SR 09/13/1976	12 V	09/13/1976
22N56E02U8B8	083	95	6	P	H	S	2660	64.80	SR 09/11/1976	2 V	09/11/1976
22N56E058C4C	083	160	4	P	E	S	2377	35.60	SR 09/08/1976	--	--
22N56E12C4D0	083	36	6	--	--	S	2480	19.40	S 09/08/1976	--	--
22N56E15B8D0	083	150	4	P	G	S	2420	102.80	SR 09/11/1976	4 V	09/11/1976
22N56E22C4D4	083	30	36	P	E	S	2300	9.30	SR 09/09/1976	--	--
22N56E33C4C0	083	40	6	P	E	S	2685	12.50	SR 09/08/1976	--	--
22N57E07C4D4	083	76	6	P	W	S	2405	3.70	SR 09/08/1976	--	--
22N57E17A4C8	083	68	6	P	G	S	2364	20.70	SR 09/08/1976	3 V	09/08/1976
22N57E20B4D0	083	160	6	P	G	S	2440	137.00	SR 09/08/1976	4 V	09/08/1976
22N57E21D4C8	083	113	6	P	W	S	2358	74.00	SR 09/02/1976	--	--
22N57E27C0B8	083	400	6	S	E	S	2360	161.60	SR 09/02/1976	10 V	09/ /1976
22N58E03C0B8	083	60	36	P	E	S	2362	52.90	SK 09/02/1976	--	--
22N58E06B4B8	083	90	6	S	E	H	2290	44.50	SR 09/11/1976	10 V	09/11/1976
22N58E07D4C0	083	140	4	S	E	H,S	2290	98.80	SR 09/03/1967	--	--
22N58E09B4B8	083	167	4	S	E	H	2280	116.90	SR 09/16/1976	10 R	03/21/1976
22N58E10C4C0	083	135	8	S	E	--	2180	51.40	SR 09/11/1976	7 R	09/11/1976
22N58E12D4C0	083	1140	5	--	--	S	1975	92.00+	R 04/12/1972	--	--
22N58E176B8B	083	29	16	S	E	C	1940	9.80	SR 09/14/1976	--	--
22N58E19B4C8	083	30	6	S	E	S	2116	9.00	SR 09/02/1976	6 V	09/02/1976
22N58E36A4B8	083	28	4	S	E	S	1928	15.70	SR 09/15/1976	6 V	09/15/1976
22N58E36D4D0	083	1120	5	--	--	S,H	1915	193.20+	R 08/03/1971	--	--
22N59E06A8B8	083	29	4	S	E	H	1970	19.60	SR 09/15/1976	6 V	09/15/1976
22N59E13C4C8	083	410	4	S	E	S	2082	179.30	SR 09/11/1976	5 V	09/11/1976
22N59E15D4C8	083	85	6	P	E	S	1950	55.10	SR 09/09/1976	6 V	09/09/1976
22N59E24C8B8	083	1300	4	--	--	S	2040	--	F --	--	--
22N59E28B4C0	083	1172	4	--	--	S,H	1960	195.50+	R 12/19/1970	--	--
22N60E07C4D8	083	148	4	P	E	S	1940	26.40	SR 09/09/1976	4 V	09/09/1976
23N50E04B4B4	021	60	12	--	--	U	2360	37.00	V 09/30/1975	--	--
23N50E04B4B8	021	95	6	P	E	S,H	2360	45.00	RH 09/30/1975	--	--
23N50E04D4C0	021	120	4	P	E	S	2420	85.00	SR 10/01/1975	--	--
23N50E04D4C8	021	96	5	--	--	U	2420	70.60	S 10/01/1975	--	--
23N50E06D8D0	021	1000	5.5	--	--	U	2450	85.30	S 09/29/1976	--	--
23N50E10B8B4	021	90	12	--	--	U	2400	32.10	S 10/01/1975	--	--
23N50E12B4C4	021	103	4	J	E	H	2200	31.70	SR 09/29/1975	--	--
23N50E12B4C8	021	99	4	S	E	S	2200	36.70	SR 09/29/1975	--	--
23N50E14C4B8	021	56	7	P	E	S	2280	14.10	SR 09/23/1975	--	--
23N50E14C4C8	021	39	5	J	E	S	2280	15.90	SR 09/25/1975	10 V	09/25/1975
23N50E14C4C0	021	26	7	--	--	U	2280	17.50	V 09/25/1975	4 V	09/25/1975

Table 1.--Records of wells--Continued

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAMETER (INCHES)	TYPE OF LIFT	TYPE OF POWER	TYPE OF WATER	USE OF WATER	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED
23N50E14C8DA	021	67	4	P	H	S	S	2280	37.20	SR 09/25/1975	--	--
23N50E19B8B	021	1156	--	--	--	U	U	2495	--	--	--	--
23N50E19DCC	021	1096	--	--	--	U	U	2490	325.00	R 05/10/1952	--	--
23N50E22C8CD	021	119	4	S	E	S	S	2380	92.10	SR 09/25/1975	--	--
23N50E24D0CD	021	36	4	J	E	S	S	2180	15.80	SR 09/29/1975	--	--
23N50E26ACAD	021	36	4	J	E	S	S	2260	13.80	SR 09/29/1975	--	--
23N50E27ADAD	021	66	6	P	E	S	S	2320	50.30	SR 09/25/1975	--	--
23N50E30B8AB	021	108	5	P	G	S	S	2420	49.10	SR 09/29/1975	--	--
23N50E34D8BC	021	100	4	P	E	S	S	2320	94.30	SR 09/29/1975	--	--
23N50E35CCAC	021	20	6	P	E	S,H	S,H	2200	8.00	SR 09/29/1975	--	--
23N51E04A8BB	083	40	24	S	E	H	H	2220	35.00	RR 10/23/1975	4 V	10/27/1975
23N51E04A8BC	083	40	24	C	E	S	S	2220	35.00	RR 10/27/1975	--	--
23N51E04A8BC2	083	40	24	S	E	U	U	2220	35.00	RR 10/27/1975	--	--
23N51E12ADCC	083	39	4	--	--	U	U	2280	15.60	V 10/21/1975	--	--
23N51E13A8AB	083	135	4	P	M	S	S	2380	34.00	RR 10/21/1975	3 V	10/21/1975
23N51E14C8CB	083	39	8.5	P	G	S	S	2400	7.70	SR 10/23/1975	--	--
23N51E14D0DAD	083	120	4	S	E	S	S	2280	36.00	RR 10/21/1975	--	--
23N51E20B8BB	083	175	6	S	E	S	S	2360	27.00	SR 10/24/1975	--	--
23N51E20B8BC	083	42	6	S	E	S	S	2360	24.60	SR 10/24/1975	--	--
23N51E22CBAC	083	120	4	S	E	H	H	2380	75.00	HR 10/28/1975	--	--
23N51E22C8DB	083	60	18	J	E	S	S	2380	6.00	RR 10/28/1975	--	--
23N51E23ACAD	083	17	18	P	E	S	S	2300	6.40	VR 10/23/1975	--	--
23N51E26B8DB	083	127	4	P	G	S	S	2420	37.20	SR 10/21/1975	--	--
23N51E34D0CA	083	88	5	P	E	S,H	S,H	2500	44.20	SR 10/21/1975	--	--
23N52E07C0CA	083	43	4	P	E	S	S	2280	13.40	VP 10/21/1975	--	--
23N52E07C0DB	083	42	18	P	E	S	S	2280	12.30	VR 10/21/1975	--	--
23N52E09BCAB	083	41	36	P	E	S	S	2380	33.40	VR 10/27/1975	--	--
23N52E14C0CD	083	110	5	P	H	S	S	2500	51.80	SR 10/17/1975	--	--
23N52E15D0CA	083	136	4	P	E	S	S	2460	104.80	SR 10/17/1975	--	--
23N52E16C8CD	083	25	24	P	E	S	S	2340	8.40	VR 10/17/1975	--	--
23N52E18B0AC	083	88	4	P	E	S	S	2380	38.10	SR 10/21/1975	--	--
23N52E18B0BA	083	190	6	S	E	H	H	2380	100.00	RR 10/21/1975	5 V	10/21/1975
23N52E20A0ED	083	72	24	S	E	--	--	2400	29.00	RR 10/20/1975	--	--
23N52E22B0DC	083	11	24	P	E	S	S	2360	2.20	SR 10/23/1975	3 V	10/23/1975
23N52E24C8CB	083	150	5	P	E	S	S	2500	40.60	SP 10/23/1975	--	--
23N52E27B0AD	083	69	4	P	E	S	S	2380	38.30	SP 10/23/1975	--	--
23N52E28AA	083	315	4	S	E	H,S	H,S	2450	95.00	R 08/06/1973	6 B	08/06/1978
23N52E28AAAC	083	370	4	S	E	H,S	H,S	2420	176.00	RR 10/17/1975	--	--
23N52E29C0DC	083	109	4	--	--	U	U	2460	58.10	S 10/17/1975	--	--
23N52E32C0CA	083	35	4	S	E	H	H	2380	30.40	SR 10/17/1975	--	--

Table 1.--Records of wells--Continued

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAMETER (INCHES)	TYPE OF LIFT	TYPE OF POWER	USE OF WATER	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED
23N52E320C08	083	30	24	P	E	S	2380	11.20	VR 10/17/1975	5 V	10/17/1975
23N52E34AADD	083	120	4	P	W	S	2440	93.00	RP 10/17/1975	--	--
23N53E01ABA4	083	20	20	P	G	S	2380	4.40	SR 10/20/1975	--	--
23N53E10DD08	083	78	6	P	E	S	2360	23.10	SR 10/16/1975	--	--
23N53E13DDCC	083	40	18	P	G	S	2480	20.00	RR 10/16/1975	--	--
23N53E14BAA	083	177	4	---	---	S,H	---	65.00	R 03/15/1963	--	--
23N53E14BAAB	083	177	5	S	E	H	2380	68.50	SR 10/16/1975	7 V	10/16/1975
23N53E14BABD	083	43	20	---	---	U	2380	8.70	V 10/16/1975	--	--
23N53E14BADA	083	78	5	---	---	U	2380	36.00	V 10/16/1975	--	--
23N53E14BADD	083	14	36	---	---	U	2380	3.80	V 10/16/1975	--	--
23N53E14BBAD	083	24	4	S	E	H	2380	10.00	RR 10/16/1975	--	--
23N53E14BBDA	083	325	6	S	E	H	2400	100.00	RR 10/16/1975	--	--
23N53E18ACCD	083	46	18	P	E	S,H	2360	32.30	SR 10/17/1975	--	--
23N53E26CAAC	083	42	4	P	G	S	2336	24.70	SR 10/16/1975	--	--
23N53E27BBDA	083	26	4	P	E	S	2400	21.70	SR 10/16/1975	--	--
23N53E27BBDB	083	40	24	S	E	H,S	2419	22.10	SR 10/16/1975	--	--
23N53E28RABB	083	75	4	S	E	S	2360	60.00	RR 10/16/1975	--	--
23N53E30DCAA	083	139	6	S	E	S	2500	132.80	SR 10/08/1975	--	--
23N53E31ABCA	083	73	4	---	---	U	2520	24.10	S 10/08/1975	--	--
23N53E32CCBD	083	126	6	J	E	H,S	2380	41.60	SP 10/08/1975	--	--
23N54E07ABAB	083	100	6	P	E	S	2400	50.40	SR 10/20/1975	--	--
23N54E08ACDH	083	100	5	P	E	S	2480	74.20	SP 10/20/1975	--	--
23N54E18ADPC	083	196	4	S	E	H,S	2500	179.60	SR 10/17/1975	--	--
23N54E18ADPA	083	51	36	P	E	S	2500	38.30	VP 10/17/1975	5 V	10/17/1975
23N54E18CADC	083	200	4	S	E	S	2480	102.00	SR 10/10/1975	--	--
23N54E18CD8D	083	200	4	S	E	H	2480	110.00	RR 10/10/1975	--	--
23N54E19BACD	083	100	22	---	---	U	2480	56.90	V 10/10/1975	--	--
23N54E20BCDD	083	91	24	P	E	S	2505	78.80	VR 10/14/1975	--	--
23N54E32CABB	083	66	5	P	E	H	2420	40.40	SR 10/10/1975	--	--
24N51E24DDAB	083	40	24	J	E	H	2360	25.00	RR 10/08/1975	--	--
24N52E18CABB	083	20	24	J	E	S	2280	18.30	SR 10/10/1975	4 R	1951
24N52E22C8BD	083	90	4	J	E	H	2300	46.00	RR --	--	--
24N52E22CBCA	083	72	16	---	---	U	2300	40.10	S 10/07/1975	--	--
24N52E22DCDD	083	30	36	---	---	U	2320	10.00	R 10/07/1975	--	--
24N52E28BBAD	083	33	6	P	E	S	2340	10.40	SR 10/07/1975	4 V	10/07/1975
24N52E28CAAB	083	20	30	P	E	U	2340	11.30	S 10/13/1975	--	--
24N52E29AB8A	083	37	24	P	G	S	2400	27.20	VR 10/08/1975	5 V	10/08/1975
24N52E33BB8A	083	37	36	---	---	U	2500	17.90	S 10/07/1975	--	--
24N53E01DADC	083	42	36	J	E	---	2360	14.00	RR 10/20/1975	--	--
24N53E01DACD2	083	50	36	P	E	S	2360	29.00	VR 10/20/1975	--	--

Table 1.--Records of wells--Continued

LOCAL NUMBER	COUNTY	DEPTH OF WELL (FEET)	CASING DIAMETER (INCHES)	TYPE OF LIFT	TYPE OF POWER	USE OF WATER	ALTITUDE OF SURFACE (FEET)	WATER LEVEL (FEET)	DATE WATER LEVEL MEASURED	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED
24N53E03C8CB	083	75	24	P	G	S	2400	27.00 VR	10/22/1975	--	--
24N53E09AB8B	083	29	24	P	G	S	2380	8.40 SR	10/25/1975	--	--
24N53E12AB8C	083	70	4	P	E	S	2380	35.00 RK	10/21/1975	--	--
24N53E13BC8C	083	57	6	P	W	U	2380	33.40 S	10/09/1975	6 R	11/29/1962
24N53E14CBAA	083	52	16	--	--	U	2360	15.00 R	07/15/1961	--	--
24N53E14CBAA2	083	216	5	S	E	H	2360	35.00 RR	10/09/1975	--	--
24N53E14DBBA	083	87	6	P	W	U	2380	28.50 S	10/09/1975	--	--
24N53E15CC8D	083	30	18	P	W	S	2300	13.90 SR	10/13/1975	--	--
24N53E24DD8B	083	40	18	P	E	S	2340	16.90 SR	10/13/1975	--	--
24N53E24DD8B2	083	60	4	S	E	S	2340	40.00 RR	--	--	--
24N53E256C8B	083	40	18	P	E	S	2340	15.10 SR	10/23/1960	10 R	10/23/1960
24N53E25DA8D	083	160	6	S	E	H,S	2360	80.00 K	07/10/1954	10 V	07/10/1954
24N53E33BD8D	083	196	6	--	--	U	2400	152.50 S	10/13/1975	--	--
24N53E34AA8B	083	50	18	--	--	U	2360	27.80 S	10/13/1975	--	--
24N54E08BAAA	083	63	4	P	E	S	2320	27.00 SR	10/13/1975	--	--
24N54E09C8DD	083	40	48	P	G	S	2380	11.20 SR	10/24/1975	5 V	10/24/1975
24N54E16CC8D	083	40	18	P	E	S	2480	29.80 SR	10/23/1975	--	--
24N54E19DA8B	083	74	48	--	--	U	2380	39.40 S	10/24/1975	--	--
24N54E20BC8D	083	64	36	--	--	U	2420	60.80 S	10/25/1957	--	--
24N54E21DB	083	485	4	S	E	S,H	2600	254.00 R	04/10/1975	5 R	04/10/1975
24N54E21DB8C	083	30	18	P	H	S	2550	10.00 RR	10/25/1975	--	--
24N54E21DB8D	083	500	6	S	E	H,S	2550	200.00 RR	10/25/1975	--	--
24N54E29CACB	083	190	6	P	E	S	2400	62.70 SR	10/16/1975	--	--
24N54E30CB8A	083	50	36	P	E	S	2440	9.70 SR	10/16/1975	--	--
24N54E30DC8C	083	50	36	S	E	S	2440	10.20 SR	10/16/1975	--	--
25N52E22C8CA	083	60	12	J	E	S	2340	35.80 SR	11/12/1975	--	--
25N52E27B8BA	083	--	24	--	--	--	2340	--	--	--	--
25N52E27B8BA2	083	40	24	P	E	S	2300	14.20 SR	11/12/1975	3 V	11/12/1975
25N52E30D	083	168	6	S	G	S	2300	39.40 V	09/16/1978	10 R	08/22/1974
25N53E30C8B8	083	27	24	P	H	S	2420	12.00 RR	11/12/1975	2 V	11/12/1975
25N53E30C8C	083	33	24	J	E	H	2420	19.00 RR	11/02/1975	--	--
25N53E32AD8A	083	30	12	--	--	U	2380	10.20 R	11/12/1975	--	--
25N53E32DB8D	083	30	16	--	--	U	2360	13.00 R	11/12/1975	--	--
25N53E32DB8C	083	40	16	P	W	U	2360	23.10 SR	11/12/1975	--	--
25N53E32DB8C2	083	346	4.5	S	E	H	2400	168.40 S	11/12/1975	12 R	08/05/1969
25N53E33C8BA	083	72	12	P	W	U	2440	59.00 S	11/12/1975	1 V	11/12/1975

Table 2.--Logs of wells

[Thickness is in feet. Depth is in feet below land surface]

	Thick- ness	Depth		Thick- ness	Depth
<u>13N59E24BDD</u>			<u>14N60E26BAA--Continued</u>		
Clay.	6	6	Clay, very silty, light-olive-gray to medium-gray. . . .	10	40
Gravel.	6	12	Sand, very fine, rounded, well-sort- ed, clayey, medium- gray; very silty below 45 ft; hard ledge at 60 ft . .	57	97
Shale	28	40	Lignite, black; water bearing. . .	19	116
Sand.	6	46	Clay, silty, medium- gray to greenish- gray	4	120
Shale	34	80			
Rock.	5	85	<u>14N61E06CCA</u>		
Shale	5	90	Clay, silty, moder- ately sandy, moder- ate-yellowish-brown to pale-yellow to light-brown; very sandy at 30 ft . .	35	35
Coal.	10	100	Clay, very silty, slightly sandy, medium-light-gray to dark-gray, car- bonaceous; lignite seams at 43 and 50 ft	16	51
Shale	40	140	Sand, very fine to fine, rounded, well-sorted, med- ium-light-gray; saturated at 60 ft.	25	76
Sand.	10	150	Lignite, black to reddish-brown, brittle.	2	78
Coal.	30	180	Clay, silty, med- ium-light-gray to medium-gray, hard	17	95
Rock.	6	186	Clay, silty, greenish-gray. . .	13	108
Shale	54	240	Lignite, black to reddish-brown, hard, saturated. .	19	127
Sand (good water) .	15	255			
Shale with coal streaks.	12	267			
<u>13N61E18CCA</u>					
Clay.	7	7			
Yellow sand	4	11			
Shale	4	15			
Sand (water). . . .	3	18			
Coal.	1	19			
Shale	15	34			
Coal.	27	61			
Shale	6	67			
<u>14N60E10DDD</u>					
Sand, very fine to fine, rounded, well-sorted. . . .	22	22			
Clay, very silty, medium-gray to medium-dark-gray .	11	33			
Lignite, black to reddish-brown; saturated.	14	47			
Clay, slightly sandy, greenish- blue-gray.	13	60			
<u>14N60E26BAA</u>					
Clay, moderately sandy, moderate- yellowish-brown to pale-yellow; rust- brown below 20 ft.	30	30			

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>14N61E06CCA--Continued</u>			<u>16N58E28DB</u>		
Clay, silty, slight- ly sandy, moderate- gray to olive-gray.	6	133	Brown clay.	6	6
Sand, very fine, rounded, well- sorted, medium- light-gray; seams of lignite at 172 and 177 ft produce water.	67	200	Gray clay	72	78
			Coal.	4	82
			Rock.	14	96
			Coal.	3	99
			Gravel and shale. . .	4	103
			Gray shale.	49	152
			Sand (water).	10	162
			Sand and gray shale	6	168
<u>15N59E12AAA</u>			<u>16N59E07DBB</u>		
Surface sand.	10	10	Brown sand and clay	10	10
Gravel.	20	30	Coal.	2	12
Blue shale.	12	42	Brown clay.	18	30
Gray shale.	23	65	Gray clay	27	57
Rock.	1	66	Coal.	13	70
Sand and shale. . .	31	97	Gray clay	28	98
Rock.	3	100	Coal.	7	105
Sand.	22	122	Gray shale.	165	270
Coal.	13	135	Sandstone	1	271
Gray shale.	7	142	Layers of fine gray sand (water)	27	298
Sand.	60	202	Coal.	5	303
			Gray shale.	7	310
<u>15N59E36CCD</u>			<u>16N59E13CCB</u>		
Fill.	8	8	Sand.	80	80
Gravel.	17	25	Coal (water).	12	92
Shale	60	85	Clay.	13	105
Coal.	10	95	Sandstone	3	108
Shale	165	260	Gray shale.	58	166
Rock.	2	262	Rock.	2	168
Shale	48	310	Shale	425	593
Coal.	20	330	Rock.	4	597
Shale	240	570	Shale	11	608
Rock.	3	573	Rock.	1	609
Shale	47	620	Shale	106	715
Coal.	5	625	Fine gray shale . . .	27	742
Shale	160	785	Rock ledges	4	746
Rock.	5	790	Shale	37	783
Sand.	110	900	Rock.	1	784
			Shale	1	785
			Rock.	1	786
			Shale	43	829
			Rock.	1	830
			Shale	120	950
			Rock.	2	952
<u>15N60E18AAA</u>					
Sand fill	8	8			
Gravel.	7	15			
Sand.	20	35			
Sand and shale. . .	50	85			
Gravel and sand . .	15	100			

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>16N59E13CCB--Continued</u>			<u>17N44E24DAAA--Continued</u>		
Sandstone layers.	41	993	Sandstone	13	39
Rock.	4	997	Black shale	6	45
Shale	58	1055	Blue shale.	2	47
Sand (water).	40	1095	Black shale	16	63
<u>16N59E29ABA</u>			Coal.	2	65
Overburden.	5	5	Gray shale.	18	83
Yellow clay	17	22	Sand (1 gal/min).	4	87
Gray clay	22	44	Gray shale.	10	97
Dark shale.	14	58	Gray sandy shale.	4	101
Coal.	2	60	Sand, dry	4	105
Gray shale.	24	84	Sandstone	4	109
Coal.	10	94	Blue shale.	16	125
Gray shale.	31	125	Sand (10 gal/min)	16	141
Dark shale.	25	150	Black shale	2	143
Gray shale.	56	206	<u>17N44E30ABBC</u>		
Sand and bento- nite (water)	12	218	Yellow loam and sandstone.	70	70
Gray shale.	8	226	Coal.	15	85
Sandy clay.	31	257	Blue shale.	20	105
Dark sand (water)	8	265	Gray shale.	44	149
<u>16N60E02BDDB</u>			Bluish-gray shale	21	170
Surface sand.	20	20	Blue sandstone.	25	195
Shale	140	160	Blue shale.	8	203
Sand.	20	180	<u>17N44E36ACDD</u>		
Shale	40	220	Yellow sandy loam	20	20
Sand.	20	240	Brown quicksand	10	30
Shale	20	260	Yellow shale.	15	45
Coal.	10	270	Gravel.	5	50
Sand.	10	280	Light-blue shale.	25	75
Shale	50	330	Coal (water).	15	90
Sand.	10	340	Light-blue shale.	16	106
Shale	20	360	<u>17N45E06AAAA</u>		
Sand.	20	380	Yellow sandy loam	32	32
Coal.	20	400	Sand.	26	58
Shale	120	520	Sandrock.	2	60
Sand.	15	535	Coal.	5	65
Shale	325	860	Blue clay	35	100
Sand.	55	915	Clay (water).	15	115
Shale	185	1100	Blue clay	5	120
Sand.	115	1215	<u>17N45E06ABBD</u>		
Shale	5	1220	Yellow shale.	12	12
<u>17N44E24DAAA</u>			Blue shale.	2	14
Yellow shale.	2	2	Yellow shale.	20	34
Blue shale.	24	26			

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>17N45E06ABBD--Continued</u>			<u>17N58E10ACA--Continued</u>		
Sandrock.	12	46	Rock.	3	481
Sand (water).	6	52	Dark-gray shale . .	41	522
Blue shale.	3	55	Sandstone	8	530
<u>17N45E11ACDD</u>			Rock.	1	531
Topsoil	1	1	Hard gray and brown shale.	46	577
Yellow clay	2	3	Rock.	2	579
Quicksand	5	8	Gray and brown shale.	89	668
Sandstone	6	14	Rock.	5	673
Gumbo	6	20	Hard gray shale . .	33	706
Sand (water).	5	25	Rock.	5	711
Coal (3 gal/min). . .	5	30	Hard gray shale . .	24	735
Gumbo	12	42	Rock.	3	738
Sand (25 gal/min) . .	23	65	Gray shale.	58	796
<u>17N45E12BCBD</u>			Rock.	9	805
Yellow shale.	10	10	Gray to black sand- stone; artesian strata	35	840
Sand and gravel (little water)	11	21	<u>17N58E10ADB</u>		
Gray shale.	37	58	Log not available .	138	138
Coal.	4	62	Coal.	3	141
Gray shale (little water)	4	66	Shale, gray	79	220
Brown shale	30	96	Coal.	4	224
Sand (water).	9	105	Shale, Gray	26	250
<u>17N58E10ACA</u>			Coal.	4	254
Topsoil and clay. . .	17	17	Shale, gray	26	280
Sandy clay.	18	35	Rock.	1	281
Gray clay	16	51	Shale, gray	91	372
Coal.	4	55	Rock.	3	375
Gray clay	43	98	Shale, gray	100	475
Coal.	4	102	Coal.	7	482
Gray shale.	17	119	Shale, gray	213	695
Rock.	3	122	Sandstone, fine- grained, gray. . . .	25	720
Sandstone	5	127	Shale, gray	79	799
Hard gray shale . . .	11	138	Sandstone, fine- grained, gray. . . .	21	820
Sandstone	3	141	Shale, hard, gray . .	10	830
Hard gray shale . . .	10	151	Sandstone, coarse- grained.	25	855
Sandstone	4	155			
Hard shale.	5	160			
Coal.	2	162			
Gray shale.	83	245			
Rock.	1	246			
Gray shale.	135	381			
Rock.	2	383			
Gray shale.	95	478			

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>17N58E19CAA</u>			<u>18N44E08BAAB--Continued</u>		
Gray clay	8	8	Claystone, gray	3	37
Coal.	10	18	Sandstone, fine-		
Brown sand.	17	35	grained, brown	18	55
Gray clay	35	70	Claystone, gray	3	58
Coal.	10	80	Coal.	4	62
Gray clay	8	88	Claystone, gray	18	80
Sandstone	1	89	<u>18N44E14BABD</u>		
Gray shale.	24	113	Sandy loam.	3	3
Coal.	2	115	Yellow shale.	23	26
Gray shale.	85	200	Gray shale.	3	29
Sandstone	1	201	Rock.	1	30
Gray shale.	79	280	Yellow shale.	26	56
Gray sand (water)	45	325	Sand (1 gal/min).	1	57
Coal.	---	325	Blue shale.	30	87
<u>17N58E34BAA</u>			Sand (1 gal/min).	1	88
Gray sandy clay	12	12	Blue shale.	14	102
Brown sand and			Coal (2 gal/min).	4	106
clay	43	55	Blue shale.	16	122
Gray clay	5	60	Sand (8 gal/min).	8	130
Coal.	14	74	Blue shale.	2	132
Gray clay	64	138	<u>18N44E16CCCB</u>		
Coal.	6	144	Yellow loam	4	4
Gray shale.	48	192	Brown quicksand	11	15
Coal.	11	203	Yellowish-brown		
Gray shale; small			shale and rock	6	21
layers of coal	107	310	Coal.	7	28
Sandstone	1	311	Gray shale.	40	68
Shale	9	320	Coal.	2	70
Sandstone	3	323	Gray shale.	15	85
Gray shale.	167	490	Gray sandstone.	30	115
Gray sand (water)	15	505	Gray shale.	8	123
Coal.	2	507	<u>18N44E30BDCA</u>		
Gray shale.	13	520	Sand.	10	10
<u>18N43E12AAAB</u>			Gravel.	10	20
Clay.	35	35	Coal.	20	40
Gravel.	5	40	Shale	77	117
Shale	24	64	Sand.	20	137
Coal.	8	72	Shale	3	140
Shale	58	130	<u>18N44E30CDD</u>		
Sand.	27	157	Sandstone, very fine		
Shale	3	160	grained; some brown		
<u>18N44E08BAAB</u>			to gray gravel	38	38
Sandstone, fine-					
grained, brown	34	34			

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>18N44E30CDD--Continued</u>			<u>18N45E34DBBB--Continued</u>		
Coal.	8	46	Sand.	10	306
Siltstone to very fine grained gray sandstone.	14	60	Shale	74	380
			Sand and coal . . .	15	395
			Sand.	31	426
<u>18N45E24CDDC</u>			<u>18N46E09BDAD</u>		
Black loam.	1	1	Yellow shale. . . .	30	30
Yellow clay	23	24	Brown shale	6	36
Sand rock	65	89	Blue gumbo.	8	44
Gumbo	10	99	Gray shale.	4	48
Coal.	8	107	Blue shale.	18	66
			Gray shale, soft. .	3	69
			Blue shale.	23	92
			Coal slack.	5	97
			Blue shale.	15	112
			Gray shale, soft. .	8	120
			Blue shale, hard. .	16	136
			Brown shale; some coal	4	140
			Gray shale.	10	150
			Gray shale, soft. .	8	158
			Blue shale.	6	164
			Hardrock.	3	167
			Gray shale.	7	174
			Sand (water). . . .	14	188
			Shale	4	192
			<u>18N46E24ACCC</u>		
			Sand and seepage. .	28	28
			Blue loam	67	95
			Sand (water). . . .	4	99
			Blue clay	6	105
			<u>18N46E33BBCA</u>		
			Black sandy loam. .	4	4
			Yellow shale. . . .	22	26
			Gray shale.	14	40
			Black shale	2	42
			Coal.	2	44
			Blue shale.	28	72
			Sand (1 gal/min). .	2	74
			Blue shale.	22	96
			Sand (1 gal/min). .	2	98
			Blue shale.	28	126
			Sand (9 gal/min). .	20	146
			Gray shale.	9	155
<u>18N45E34DBBB</u>					
Clay.	15	15			
Shale	25	40			
Coal.	4	44			
Shale	66	110			
Coal.	9	119			
Shale	77	196			
Coal.	9	205			
Shale	91	296			

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>18N46E33DAAA</u>			<u>18N57E11DACB--Continued</u>		
Topsoil	1	1	Sandstone	30	647
Yellow clay	63	64	Hard gray shale . .	12	659
Coal mixed with clay	8	72	Sandstone (water) .	29	688
Sandy clay.	33	105	<u>18N57E15ADCC</u>		
Gumbo	4	109	Topsoil and yellow clay	10	10
Rock.	2	111	Gravel and sand . .	11	21
Sandy clay.	3	114	Gray shale.	10	31
Sand (water).	14	128	Hard sheet rock . .	3	34
Gumbo	8	136	Gray shale.	12	46
<u>18N46E35BBAD</u>			Rock.	3	49
Black loam.	4	4	Gray shale.	17	66
Yellow shale.	24	28	Coal.	4	70
Sandstone	24	52	Gray shale.	22	92
Blue shale.	36	88	Coal.	3	95
Coal.	6	94	Gray shale.	55	150
Gray shale.	34	128	Hard shale.	78	228
Sand (water).	2	130	Sandstone	8	236
Blue shale.	20	150	Hard shale.	7	243
Sand (10 gal/min) .	16	166	Sandstone	13	256
Blue shale.	8	174	Hard shale.	20	276
<u>18N57E11DACB</u>			Coal.	7	283
Topsoil and sandy clay	18	18	Gray shale.	87	370
Gravel and sand . .	10	28	Shale	65	435
Gray shale.	67	95	Gray shale.	48	483
Coal.	3	98	Rock.	1	484
Gray shale.	54	152	Coal.	6	490
Soft rock	2	154	Gray shale.	62	552
Gray shale.	15	169	Gray sandstone. . .	22	574
Coal.	4	173	Fine sand; firm gray shale;		
Gray shale.	20	193	artesian strata. .	11	585
Hard rock	3	196	Hard gray shale . .	75	660
Firm gray shale . .	29	225	Sandstone (water) .	45	705
Hard rock	54	279	<u>18N58E01CCC</u>		
Gray shale.	11	290	Topsoil and brown sand and clay	53	53
Coal.	3	293	Coal.	13	66
Gray shale.	224	517	Gray clay	51	117
Coal.	11	528	Coal.	3	120
Hard gray shale . .	40	568	Gray clay	70	190
Rock.	1	569	Layers of coal and shale.	50	240
Hard gray shale . .	26	595	Gray shale	110	350
Sand (4-1/2 gal/min flow).	20	615	Sandstone.	2	352
Soft rock	2	617			

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>18N58E01CCC--Continued</u>			<u>18N58E21CDDD--Continued</u>		
Gray shale	123	475	Gray shale.	3	76
Sandstone.	4	479	Coal.	10	86
Gray shale	56	535	Gray shale.	19	105
Fine gray sand (water)	25	560	Dark-gray shale . .	15	120
Gray shale	102	662	Sandstone	45	165
Sandstone.	1	663	Sandstone (water) .	30	195
Gray shale.	169	832	<u>18N58E27BAAD</u>		
Sandstone	3	835	Topsoil and scoria.	15	15
Gray shale.	33	868	Yellow clay	45	60
Sandstone	1	869	Blue gumbo and soft shale.	25	85
Gray shale.	21	890	Coal.	3	88
Sandstone	1	891	Blue soft shale . .	48	136
Gray shale.	132	1023	Coal.	2	138
Sandstone	1	1024	Sandstone (water) .	41	179
Gray shale.	146	1170	Coal.	11	190
Sand (water).	50	1220	Shale	4	194
<u>18N58E14CDBB</u>			<u>18N60E04AD</u>		
Sandy yellow clay .	16	16	Scoria and sand fill	20	20
Yellow clay	30	46	Shale	55	75
Gray shale.	6	52	Hard rock	5	80
Coal.	1	53	Shale	7	87
Gray shale.	7	60	Rock.	4	91
Coal.	2	62	Shale	9	100
Gray shale.	3	65	Sand with shale layers	60	160
Coal.	2	67	<u>19N43E23AADC</u>		
Gray shale.	75	142	Yellow clay	25	25
Coal (little water)	14	156	Blue clay	30	55
Sandstone (water) .	24	180	Bentonite	43	98
<u>18N58E15BDAC</u>			Gray clay	17	115
Topsoil	20	20	Gray clay (water) .	5	120
Coal.	6	26	Bentonite	85	205
Gray clay	64	90	Rock.	1	206
Coal.	4	94	Bentonite	14	220
Gray shale.	15	109	Gray sand (water) .	5	225
Rock.	4	113	Bentonite	7	232
Gray shale.	33	146	Rock.	2	234
Coal; streaks of sand (water)	14	160	Bentonite	3	237
<u>18N58E21CDDD</u>			<u>19N45E06CCCD</u>		
Topsoil	15	15	Sandstone, fine- to medium-grained, brown to gray. . .	82	82
White clay.	10	25			
Coal.	4	29			
Gray shale.	41	70			
Coal.	3	73			

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>19N45E06CCCD--Continued</u>			<u>19N48E10CADC--Continued</u>		
Coal with parting of gray claystone at 87 ft	24	106	Coal seep	3	98
Sandstone, brown, highly oxidized; some loose gravel.	4	110	Blue clay	12	110
Claystone, gray . .	5	115	Coal seep	2	112
			Blue clay	7	119
			Coal.	1	120
			Blue clay	6	126
			Rock.	1	127
			Blue clay	25	152
			Coal (water).	4	156
<u>19N46E10CDCA</u>			Brown clay.	10	166
Yellow clay	10	10	Blue clay	9	175
Soap.	5	15	Rock.	2	177
Yellow clay	17	32	Blue clay	93	270
Coal slack.	2	34	Gray sand (water) .	25	295
Blue clay	26	60	Blue clay	5	300
Blue sand (water) .	5	65			
Gray clay	27	92	<u>19N57E27DDAC</u>		
Gray sand (water) .	6	98	Topsoil and brown silt	3	3
Gray clay	7	105	Silt, clayey, brown	3	6
<u>19N46E29CAAA</u>			Gravel and sand, grayish-brown (water).	2	8
Yellow loam	35	35	Sand, fine, brown. .	1	9
Sand and seepage. .	1	36	Sand and gravel, gray.	2	11
Yellow loam	8	44	Sand and gravel, brown.	1	12
Blue clay	12	56	Gravel and some sand	1	13
Gray clay	9	65	Gravel and sand, dark-brown	1	14
Blue loam	10	75	Sandstone	1	15
Gray loam	27	102	Shale, gray to black.	2	17
Sand (water).	16	118			
Coal.	6	124	<u>19N58E02DBBB</u>		
Blue loam	7	131	Log not available.	509	509
<u>19N47E01ABAD</u>			Hard gray shale . .	11	520
Yellow sandy dirt .	24	24	Coal.	7	527
Sand.	14	38	Crumbly shale . . .	10	537
Blue clay	9	47	Fine sandstone. . .	30	567
Sand (water).	12	59	Shale	16	583
Brown sand.	7	66	Rock.	2	585
Sand (water).	3	69	Shale	41	626
Blue sandy loam . .	18	87	Coal.	7	633
Sand (water).	8	95			
Blue clay	5	100			
<u>19N48E10CADC</u>					
Sand and gravel . .	5	5			
Yellow clay	55	60			
Blue clay	25	85			
Yellow sand	10	95			

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>19N58E02DBBB--Continued</u>			<u>19N59E07AAD--Continued</u>		
Shale	54	687	Scoria and yellow clay	8	18
Coal.	7	694	Gray clay	7	25
Hard shale.	29	723	Coal.	2	27
Hard rock	2	725	Gray shale.	44	71
Hard brown shale. .	210	935	Rock.	3	74
Hard gray shale . .	74	1009	Gray shale and thin rock layers. . . .	24	98
Crumbly gray sandstone.	20	1029	Coal.	3	101
<u>19N58E04DDC</u>			Gray shale.	24	125
Log not available .	448	448	Coal.	3	128
Coal.	5	453	Gray shale.	172	300
Gray clay	69	522	Fine-grained sand- stone.	23	323
Coal.	10	532	Coarse sand and clay	39	362
Gray shale.	28	560	Rock.	7	369
Sand.	20	580	Coarse sand	24	393
Gray shale.	32	612	Rock.	4	397
Sandstone	1	613	Gray shale.	58	455
Gray shale.	123	736	Brown shale	43	498
Sandstone	3	739	Rock.	4	502
Gray shale.	70	809	Gray shale.	8	510
Sandstone	3	812	Rock.	6	516
Gray clay	53	865	Light-gray sandstone	78	594
Sandstone	1	866	Rock.	4	598
Artesian-water strata	49	915	Hard gray shale . .	42	640
<u>19N59E02ACDD</u>			Rock.	2	642
Topsoil and yellow clay	35	35	Hard gray shale . .	6	648
Gray clay	15	50	Rock.	1	649
Black clay.	3	53	Hard brown and gray shale.	86	735
Gray clay	17	70	Rock.	1	736
Coal.	5	75	Hard gray shale . .	148	884
Gray shale.	27	102	Rock.	5	889
Fine-grained sandstone.	34	136	Gray shale.	25	914
Gray shale.	87	223	Rock.	5	919
Coal.	3	226	Hard gray shale . .	63	982
Gray shale.	26	252	Rock.	2	984
Rock.	2	254	Gray shale.	56	1040
Firm gray shale . .	16	270	Hard sandstone. . .	43	1083
Fine-grained gray sandstone.	30	300	Sandstone; artesian strata	24	1107
<u>19N59E07AAD</u>			Hard shale.	3	1110
Topsoil and clay. .	10	10	<u>19N59E13BDAD</u>		
			Brown sand and clay	85	85

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>19N59E13BDAD--Continued</u>			<u>20N45E17CCBB</u>		
Gray clay	5	90	Yellow clay	18	18
Coal.	3	93	Sand rock	3	21
Gray clay and coal layers	61	154	Gray clay	70	91
Coal.	3	157	Rocks	4	95
Gray shale.	73	230	Clay.	43	138
Sandstone	2	232	Coal.	4	142
Gray shale.	20	252	Clay.	98	240
Gray sand (water) . .	43	295	Coal.	14	254
Gray shale.	15	310	Sand.	27	281
<u>19N60E17CD</u>			<u>20N45E20DDBC</u>		
Topsoil and yellow clay	10	10	Siltstone and very fine grained sand- stone, gray to brown; iron nodules	15	15
Yellow clay	20	30	Claystone, gray . .	15	30
Fine scoria and clay	3	33	Siltstone, gray to brown.	10	40
Gray shale.	19	52	Claystone, carbon- aceous, gray . . .	5	45
Coal.	3	55	Siltstone and very fine grained sand- stone, brown to gray; iron nodules	37	82
Gray sand (water) . .	17	72	Claystone, carbon- aceous, gray . . .	14	96
<u>20N42E34AB</u>			Coal.	19	115
Sand and gravel . . .	20	20	Claystone, gray . .	15	130
Rock.	2	22	Siltstone, gray . .	10	140
Shale	19	41	<u>20N45E30DBAB</u>		
Rock.	6	47	Claystone, brown. .	13	13
Shale	93	140	Siltstone, brown. .	19	32
Sand.	15	155	Coal.	20	52
Shale	55	210	Claystone, gray . .	6	58
Sand.	15	225	Sandstone, gray to blue	6	64
<u>20N44E27CBDA</u>			Claystone, gray . .	16	80
Yellow clay	60	60	<u>20N46E19BBAC</u>		
Gray clay	10	70	Yellow clay	39	39
Coal.	8	78	Coal.	6	45
Gray clay	12	90	Blue shale.	8	53
Coal.	19	109	Rock.	22	75
Sand (1 gal/min). . .	5	114	Blue shale.	10	85
Gray clay	26	140			
Sand (1-1/2 gal/min)	5	145			
Gray clay	35	180			
Dry sand.	8	188			
Gray clay	4	192			
Coal.	13	205			
Gray clay	7	212			
Sand (7 gal/min). . .	12	224			

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>20N46E20CADA</u>			<u>20N47E29ABAA--Continued</u>		
Topsoil	70	70	Clay.	30	155
Brown clay.	15	85	Sand.	7	162
Blue shale.	5	90	<u>20N47E30ACCC</u>		
Gray sand rock.	13	103	Brown clay.	4	4
Blue shale.	64	167	Yellow clay	27	31
Coal.	3	170	Yellow sand rock.	4	35
<u>20N46E27BCAB</u>			Rock.	15	50
Yellow loam	15	15	Blue clay	2	52
Blue clay	6	21	Coal.	5	57
Sandy loam.	11	32	Gray sand	8	65
Blue shale.	15	47	Blue clay	-	65
Sand (water).	20	67	<u>20N47E30ACCC2</u>		
Coal.	6	73	Topsoil	2	2
Sand (water).	11	84	Brown shale and rock	28	30
<u>20N47E04BBBB</u>			Light-blue shale.	17	47
Sandstone, very fine grained, brown; contains gravel.	11	11	Coal.	5	52
Claystone, carbon- aceous, gray	2	13	Blue shale.	48	100
Soapstone, iron nodules, brown	4	17	Sandy shale (water)	8	108
Claystone, carbon- aceous, gray	4	21	Coal.	4	112
Siltstone and very fine grained sand- stone, gray.	31	52	Blue shale.	4	116
Claystone, carbon- aceous, gray	25	77	<u>20N48E04ACDC</u>		
Siltstone and very fine grained sand- stone, gray.	35	112	Sandy clay.	20	20
Claystone, blue	4	116	Shale	34	54
Sandstone, fine- to medium-grained, gray	112	228	Sand rock	6	60
Coal.	16	244	Shale	25	85
Siltstone and very fine grained sand- stone.	16	260	Coal.	11	96
<u>20N47E29ABAA</u>			Shale	74	170
Clay and sandstone.	65	65	Sand.	24	194
Silt.	30	95	<u>20N48E11BCC</u>		
Blue sandy clay	30	125	Sand and gravel (water).	23	23
			Blue clay	16	39
			Sandy clay.	5	44
			Sand (water).	56	100
			Blue clay	1	101
			<u>20N50E18CDDA</u>		
			Sandy clay.	18	18
			Gravel.	2	20
			Shale	9	29
			Coal.	3	32
			Shale	18	50

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>20N50E18CDDA--Continued</u>			<u>20N54E01DCDD--Continued</u>		
Coal.	8	58	Sand, fine to medium, blue to grayish-brown. . .	15	110
Shale	36	94	Sand, as above; con- tains pyrite . . .	4	114
Sand.	26	120	Clay, silty, blue .	2	116
Shale	5	125	Sandstone, fine- to medium-grained, grayish-brown. . .	9	125
<u>20N51E07ADAB</u>			Clay, silty, blue .	5	130
Yellow loam	12	12	Sand, fine to med- ium, carbonaceous, gray	15	145
Gravel.	2	14	Clay, silty, gray to bluish-gray . .	31	176
Blue clay	12	26	Coal.	16	192
Sand and seepage. .	4	30	Clay, carbonaceous, gray	4	196
Blue clay	12	42	Coal.	13	209
Brown clay.	6	48	Clay, silty, carbon- aceous, gray . . .	11	220
Sand.	2	50	<u>20N56E24CBDB</u>		
Blue clay	5	55	Clay.	10	10
Sand.	2	57	Soft clay	37	47
Blue clay	25	82	Sand and gravel . .	25	72
Coal.	13	95	Shale	20	92
Blue clay	5	100	Sand (water). . . .	11	103
Shale	6	106	<u>20N57E21CDDA</u>		
Gray loam	4	110	Brown clay.	14	14
Brown loam.	16	126	Gravel and sand . .	34	48
Gray loam	4	130	Yellow clay	36	84
Sand (water). . . .	9	139	Coal and black shale.	23	107
Blue clay	3	142	Gray sandy shale. .	19	126
Sandstone	5	147	Gray shale.	9	135
<u>20N54E01DCDD</u>			Gray shale and sand	6	141
Gravel and gray carbonaceous clay	5	5	Gray shale.	22	163
Clay, silty, carbonaceous, gray	10	15	Gray sandy shale. .	6	169
Silt to very fine sand, carbonaceous, gray to light-blue; iron	27	42	Grayish-brown shale	2	171
Very fine sand, reddish-brown. . .	3	45	Gray sandy shale. .	7	178
Clay, silty to very fine sandy, blue .	30	75	Gray shale and bentonite.	5	183
Clay, as above, very carbonaceous.	8	83	Gray sandy shale. .	15	198
Sandstone, medium- grained, grayish- brown.	4	87	Gray shale.	6	204
Silt, reddish-gray; high iron.	8	95	Brown shale	3	207

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>20N57E21CDAA--Continued</u>			<u>20N58E29CBC--Continued</u>		
Gray sandy shale. . .	37	244	Rock.	2	932
Gray shale; thin vein of coal . . .	32	276	Sandstone	16	948
Gray shale.	17	293	Hard sandstone. . .	21	969
Gray and black shale and coal . .	3	296	Gray shale.	18	987
Gray shaly sand . .	43	339	Brown shale	24	1011
Coal.	6	345	Gray shale.	31	1042
Gray shale.	16	361	Sandstone (water) .	31	1073
Hard shell.	2	363	Gray shale.	10	1083
Grayish-green sandy shale.	21	384	<u>20N58E34DDD</u>		
Hard shell.	2	386	Topsoil and yellow clay	45	45
Sandstone (water) .	6	392	Sand.	10	55
<u>20N58E29CBC</u>			Gravel.	18	73
Gravel.	42	42	Gray sand	17	90
Blue clay	3	45	Coal.	8	98
Gravel.	42	87	Sandstone	3	101
Blue clay	44	131	Gray sand	13	114
Sand.	7	138	Gray clay	21	135
Blue clay	23	161	Coal.	2	137
Rock.	3	164	Gray clay	108	245
Blue clay	46	210	Coal.	11	256
Rock.	4	214	Gray sandy clay . .	14	270
Blue shale.	106	320	Sandstone	1	271
Rock.	3	323	Gray shale.	41	312
Blue shale.	137	460	Coal.	3	315
Rock.	8	468	Gray shale.	26	341
Blue shale.	122	590	Sandstone	1	342
Rock.	2	592	Gray shale.	163	505
Blue shale.	107	699	Gray sandy clay . .	27	532
Sandstone	9	708	Coal.	5	537
Rock.	4	712	Gray shale.	33	570
Gray shale.	43	755	Artesian-water strata	50	620
Rock.	2	757	<u>20N59E03DBA</u>		
Gray shale.	10	767	Brown sand and clay	38	38
Sandstone	10	777	Gray clay	9	47
Rock.	2	779	Coal.	5	52
Gray shale.	30	809	Gray clay	76	128
Sand.	6	815	Coal.	14	142
Gray shale.	27	842	Gray shale.	16	158
Rock.	4	846	Sandstone	1	159
Gray shale.	26	872	Gray shale.	38	197
Rock.	1	873	Coal.	8	205
Gray sandy shale. .	5	878	Gray shale.	10	215
Sandstone	52	930	Sand.	18	233

Table 2.-- Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>20N59E03DBA--Continued</u>			<u>20N59E11BDC--Continued</u>		
Sandstone	2	235	Coal.	2	62
Gray shale.	62	297	Gray clay	72	134
Gray sandy clay . .	196	493	Coal.	9	143
Sandstone	3	496	Gray shale.	63	206
Sand and sandy clay	74	570	Coal.	9	215
Gray shale.	83	653	Gray shale.	11	226
Sandstone	1	654	Coal.	11	237
Gray shale.	95	749	Gray shale.	75	312
Sandstone	2	751	Coal.	6	318
Gray shale.	79	830	Gray shale.	21	339
Sandstone	2	832	Sandstone	4	343
Gray shale.	141	973	Gray shale.	27	370
Sandstone	2	975	Coal.	12	382
Gray shale.	242	1217	Gray shale.	11	393
Sandstone	3	1220	Sandstone	12	405
Gray shale.	47	1267	Gray shale.	102	507
Sandstone	1	1268	Rock.	2	509
Gray shale.	12	1280	Gray shale.	92	601
Artesian-water			Coal.	6	607
strata	40	1320	Hard gray shale . .	45	652
Shale	-	1320	Coal.	5	657
			Gray shale.	79	736
			Rock.	4	740
<u>20N59E04DDDB</u>					
Topsoil, sand,			Gray shale.	82	822
gravel, and clay .	12	12	Rock.	2	824
Gray clay	18	30	Hard gray shale . .	163	987
Sandy clay.	25	55	Rock.	2	989
Gravel.	1	56	Gray shale.	4	993
Dark-gray clay. . .	58	114	Rock.	2	995
Soft sandy clay . .	6	120	Gray shale.	55	1050
Dark-gray clay. . .	11	131	Hard gray shale . .	300	1350
Coal.	11	142	Hard shale and rock	17	1367
Dark-gray clay. . .	23	165	Layers of sandstone		
Soft shale.	11	176	and hard gray		
Coal.	7	183	shale; artesian		
Sandstone	29	212	strata	23	1390
Coal.	3	215			
Coarse sandstone			<u>20N60E10BDBC</u>		
(water).	11	226	Topsoil and sandy		
Rock.	2	228	clay fill.	12	12
Gray shale.	14	242	Yellow clay	13	25
			Gray and yellow		
			clay	20	45
<u>20N59E11BDC</u>			Firm gray clay. . .	76	121
Topsoil and sandy			Soft rock	3	124
yellow clay. . . .	35	35	Sand, coal, and		
Gravel and clay . .	15	50	shale; layered . .	16	140
Gray clay	10	60			

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>20N60E10BDBC--Continued</u>			<u>21N45E16ABBC--Continued</u>		
Gray shale.	23	163	Blue shale.	1	201
Soft rock	3	166			
Shale; coal 1 ft. . .	19	185	<u>21N45E26DAAD</u>		
Rock.	2	187	Sandstone, very		
Gray sandstone. . .	51	238	fine to medium-		
Gray sandstone			grained; some		
(water).	12	250	carbonaceous; iron		
			stained.	78	78
<u>21N42E15DDCC</u>			Coal.	15	93
Brown sand.	5	5	Claystone, blue to		
Gray sandstone. . .	5	10	gray	2	95
Brown sand.	17	27			
Brown shale	8	35	<u>21N45E35BCDC</u>		
Gray sandstone. . .	2	37	Yellow clay and		
Brown shale	13	50	sand	63	63
Gray sand	30	80	Blue shale.	4	67
Gray sandstone. . .	5	85	Gray sand	29	96
Gray sand	30	115	Coal (water).	22	118
Gray shale.	40	155			
Gray sand	18	173	<u>21N46E19BCDA</u>		
Gray shale.	30	203	Yellow sand	28	28
Gray sand	28	231	Rock.	2	30
Black shale	25	256	Yellow sand	30	60
			Gray sand	40	100
<u>21N43E36BCCD</u>			Coal (water).	6	106
Silt, clayey.	1	1			
Silt and very fine			<u>21N46E29DCCB</u>		
to fine sand,			Yellow clay	25	25
brown.	3	4	Coal.	1	26
Sand, very fine to			Yellow clay	10	36
fine	3	7	Gray clay	14	50
Sand and gravel,			Sand.	10	60
brown.	1	8	Gray clay	8	68
Sand, fine, and			Rock.	10	78
gravel	2	10	Gray clay	1	79
Sand, fine, and			Sand.	1	80
silt, brown; some			Coal.	4	84
pebbles.	2	12	Gray clay	16	100
Clay, silty, dark-			Sand (water).	12	112
brown.	5	17			
Clay, silty,			<u>21N46E32CCAA</u>		
grayish-blue . . .	1	18	Yellow sand	61	61
			Blue clay	7	68
<u>21N45E16ABBC</u>			Sand (water).	2	70
Yellow clay	20	20	Blue clay	83	153
Sand and clay . . .	175	195	Sand.	5	158
Gray sand (water) .	5	200	Blue clay	52	210

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>21N46E32CCAA--Continued</u>			<u>21N53E08ADCC--Continued</u>		
Sand (water).	5	215	Coal.	15	52
<u>21N47E17BDDB</u>			Clay, carbonaceous, gray	13	65
Sand.	20	20	Clay, very silty, light-brown.	5	70
Sand, blue clay, and coal.	15	35	<u>21N54E04BCCB</u>		
<u>21N47E17DAAB</u>			Yellow clay	47	47
Sand	20	20	Blue clay	3	50
Blue clay.	20	40	Shale rock.	2	52
Coal and sand.	4	44	Blue clay	25	77
<u>21N47E17DAAD</u>			Sandy clay.	11	88
Sand	20	20	Clay.	2	90
Sand, rocks, and coal.	9	29	Sand.	4	94
<u>21N48E26BBCC</u>			Clay.	10	104
Clay	49	49	Coal.	18	122
Coal	3	52	Clay.	2	124
Blue clay.	18	70	Sand.	3	127
Coal and sand (water)	1	71	Clay.	5	132
Blue clay	4	75	Sand.	2	134
<u>21N48E27BDCC</u>			Coal.	6	140
Yellow clay	29	29	Sand.	9	149
Rock.	2	31	Clay.	11	160
Yellow clay	19	50	Sand.	3	163
Coal.	5	55	Coal shale.	2	165
Yellow clay	10	65	Clay.	11	176
Blue clay	17	82	Sandy	6	182
Sand (1 gal/min).	3	85	Clay.	21	203
Blue clay	61	146	Sandstone	3	206
Rock.	2	148	Clay and sand	24	230
Blue clay	6	154	Clay.	2	232
Sand (water).	6	160	Soft coal	2	234
Blue clay	2	162	Clay.	2	236
<u>21N53E08ADCC</u>			Coal.	1	237
Silt to very fine sand, clayey, brown.	25	25	Clay.	1	238
Gravel.	7	32	Coal.	2	240
Clay, carbonaceous, gray; contains iron	5	37	Clay.	10	250
			Sand.	2	252
			Coal.	2	254
			Clay.	30	284
			Sand.	3	287
			Clay.	2	289
			Coal.	1	290
			Clay.	17	307
			Sand.	2	309
			Coal.	2	311
			Clay.	32	343

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>21N54E04BCCB--Continued</u>			<u>21N56E28ADDC--Continued</u>		
Sand (water). . . .	3	346	Sand, very fine, bluish-gray. . . .	12	98
<u>21N54E12ACCC</u>			Clay, silty, car- bonaceous, dark- gray	10	108
Yellow clay	28	28	Silt to very fine sand, carbona- ceous, blue . . .	12	120
Brown clay.	32	60	Clay, silty, car- bonaceous, gray	6	126
Pink clay	28	88	Silt to fine sand, gray	8	134
Brown sand.	12	100	Clay, silty, car- bonaceous, gray to light-blue; some gray silt to very fine sand	46	180
Blue shale.	16	116	Silt to very fine sand, gray	10	190
Coal.	17	133	Coal.	7	197
Blue shale.	43	176	Clay, silty, gray	2	199
Coal.	10	186	Coal.	5	204
Blue shale.	17	203	Clay, silty, gray, to very fine sand.	16	220
Coal.	6	209	<u>21N57E10CDDD</u>		
Blue shale.	21	230	Dirt.	6	6
Sand.	8	238	Gravel.	22	28
<u>21N54E33DCAC</u>			Brown clay.	35	63
Gravel.	17	17	Coal.	18	81
Bluish-green clay .	29	46	Coal and sand . . .	12	93
Rock.	11	57	Gray shale.	22	115
Bluish-green clay .	23	80	Gray shale and sand	68	183
Sand (water). . . .	23	103	Coal.	6	189
<u>21N56E26BAAC</u>			Gray shale.	23	212
Gravel.	16	16	Coal (water). . . .	8	220
Clay.	5	21	<u>21N57E16DCCB</u>		
Quicksand	16	37	Gravel and dark clay	7	7
Clay and sandstone	5	42	Yellow clay	7	14
Blue clay	13	55	Gravel and coarse sand	14	28
Blue clay and sand	26	81			
Coal (2-1/2 gal/ min)	4	85			
Sand and blue clay	5	90			
<u>21N56E28ADDC</u>					
Sand, coarse. . . .	4	4			
Clay, silty, brown.	6	10			
Clay, silty, car- bonaceous, gray, brown and blue . .	47	57			
Silt to very fine sand, blue. .	13	70			
Clay, silty, car- bonaceous, blue. .	16	86			

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>21N57E16DCCB--Continued</u>			<u>21N58E03DBB--Continued</u>		
Gray sand	5	33	Gray shale.	57	732
Gravel and sand . .	4	37	Sandstone	2	734
Gravel and coarse sand	16	53	Gray shale.	100	834
Green clay.	9	62	Sandstone	2	836
Gummy coal.	1	63	Gray shale and sandy clay	248	1084
Rough gravel.	1	64	Sandstone	2	1086
Hard coal	3	67	Gray shale.	49	1135
Hard gray clay. . .	2	69	Gray sand (3 gal/ min)	30	1165
Sandy gray clay; water.	8	77	Gray shale.	60	1225
Gray clay	5	82	Layers sandstone and sand (5 gal/min) .	15	1240
Coal.	1	83	Shale	85	1325
Blue clay	9	92			
Gray clay	22	114	<u>21N58E06ABBC</u>		
Sandy gray clay . .	6	120	Topsoil	11	11
Sandy gray clay (water).	4	124	Soft yellow clay. .	8	19
Coarse blue sand. .	4	128	Crumbly coal. . . .	3	22
Blue sand (water) .	4	132	Gray clay; few gravel	22	44
Sand.	1	133	Yellow clay	23	67
			Hard blue clay; few gravel and a little water at 48 ft	4	71
<u>21N57E36CDCC</u>			Gray clay.	11	82
Sandstone	30	30	Slightly sandy gray clay	32	114
Sand.	215	245	Hard gray clay. . .	2	116
Gravel and sand (water).	4	249	Soupy gray clay . .	12	128
			Hard gray clay. . .	11	139
<u>21N58E03DBB</u>			Dark gray clay. . .	9	148
Gravel and boulders	10	10	Sand and gray clay	4	152
Brown sand.	115	125	Fine gray sand. . .	11	163
Gravel.	18	143	Hard coal	6	169
Gray clay	45	188	Hard gray clay. . .	3	172
Coal.	9	197	Sand and gravelly clay	5	177
Gray clay	34	231	Fine blue clay (water).	15	192
Sandstone	1	232	Hard gray clay. . .	6	198
Gray shale.	38	270	Sand and gray clay	9	207
Sandstone	1	271	Hard coal	2	209
Gray shale.	57	328	Dark-gray clay and sand	5	214
Coal.	8	336			
Gray shale.	40	376			
Sand.	34	410			
Gray shale.	86	496			
Sandstone	1	497			
Gray shale.	160	657			
Sandstone	1	658			
Gray sand (water) .	17	675			

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>21N58E06ABBC--Continued</u>			<u>21N59E08BCD--Continued</u>		
Fine bluish-gray sand (water)	-	214	Rock.	2	36
			Light-gray clay . .	28	64
			Rock.	5	69
<u>21N58E30DDA</u>			Firm gray shale and thin layers of		
Topsoil and yellow clay	30	30	sandstone.	89	158
Coal.	10	40	Coal.	15	173
Gray clay	36	76	Hard shale.	27	200
Coal.	11	87	Light-gray shale. .	35	235
Gray shale.	78	165	Coal.	4	239
Sandstone	25	190	Light and dark shale.	68	307
Shale	36	226	Coal.	4	311
Coal.	4	230	Sandy shale	26	337
Gray shale.	34	264	Coal.	2	339
Coal.	5	269	Firm gray shale . .	65	404
Gray shale.	18	287	Coal.	3	407
Rock.	1	288	Soft gray shale and thin layers of		
Gray shale.	9	297	drift sand (3 gal/min)	173	580
Rock.	3	300	Hard gray shale . .	62	642
Crumbly gray shale.	32	332	Rock.	1	643
Coal.	4	336	Hard dark-gray shale.	99	742
Shale	44	380	Hard rock	4	746
Sandstone	25	405	Hard gray and brown shale.	101	847
Hard gray shale . .	84	489	Rock.	3	850
Coal.	6	495	Medium-hard gray shale.	30	880
Hard gray shale . .	7	502	Rock.	3	883
Coal.	4	506	Hard gray shale . .	154	1037
Gray shale.	54	560	Hard rock	5	1042
Hard rock	4	564	Hard firm shale . .	116	1158
Hard brown shale. .	25	589	Rock.	1	1159
Coal.	6	595	Hard gray shale . .	81	1240
Hard gray shale . .	125	720	Sandstone; artesian strata (20 gal/min)	30	1270
Sandstone (2-1/2 gal/min flow). . .	21	741			
Coal.	4	745	<u>21N59E13CDC</u>		
Hard gray shale . .	30	775	Yellow clay fill. . .	18	18
Rock, soft.	2	777	Soft gravel and clay fill.	7	25
Sandstone (3-1/2 gal/min)	21	798	Soft rock	6	31
Firm gray shale . .	32	830	Gray clay	14	45
			Gray shale.	47	92
<u>21N59E08BCD</u>					
Topsoil and sandy clay	12	12			
Sand, scoria, and gravel	16	28			
Gray clay	6	34			

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>21N59E13CDC--Continued</u>			<u>21N59E14BCA</u>		
Coal.	2	94	Topsoil and yellow clay fill.	44	44
Gray shale.	26	120	Sand fill	10	54
Firm sandstone. . .	7	127	Coal.	5	59
Sandstone	25	152	Gray clay	11	70
Gray shale.	76	228	Coal.	4	74
Coal.	7	235	Gray clay	43	117
Gray shale.	74	309	Rock.	2	119
Hard rock	2	311	Gray shale.	35	154
Sandstone	24	335	Rock.	6	160
Gray shale.	72	407	Shale, sandstone, and soft rock, layered.	61	221
Hard rock	7	414	Coal.	24	245
Sandstone	16	430	Sandstone	30	275
Firm gray shale . .	100	530	Gray shale.	47	322
Gray shale; layers brown to black . .	70	600	Rock.	1	323
Gray shale.	22	622	Sandstone and hard shale layers . . .	25	348
Rock.	5	627	Gray shale.	14	362
Hard tough gray shale.	125	752	Rock.	4	366
Rock.	8	760	Firm gray shale . .	16	382
Hard gray shale . .	40	800	Coal.	3	385
Medium-hard gray shale.	26	826	Gray shale.	92	477
Hard gray shale . .	99	925	Coal.	5	482
Medium-hard gray shale.	76	1001	Gray shale.	118	600
Hard gray shale . .	14	1015	Sandy yellowish- brown shale. . . .	28	628
Hard rock	1	1016	Rock.	3	631
Gray shale.	29	1045	Hard gray shale . .	198	829
Hard rock	1	1046	Rock.	2	831
Hard gray shale . .	34	1080	Hard gray shale . .	138	969
Hard rock	3	1083	Rock.	6	975
Hard gray shale . .	31	1114	Hard gray shale . .	135	1110
Hard dark-gray shale.	23	1137	Rock.	2	1112
Rock.	1	1138	Hard gray shale . .	146	1258
Hard dark shale . .	29	1167	Medium-hard shale .	42	1300
Rock.	3	1170	Hard gray shale . .	9	1309
Hard gray shale . .	28	1198	Sandstone; artesian strata	21	1330
Medium-hard shale .	38	1236			
Rock.	3	1239			
Hard gray shale . .	37	1276			
Hard shale or hard sandstone.	60	1336	<u>21N59E15DDBA</u>		
Sandstone; artesian strata	32	1368	Brown sandy clay. .	3	3
			Sandstone and gravel	8	11
			Yellow clay	24	35

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>21N59E15DDBA--Continued</u>			<u>21N59E33DBBB--Continued</u>		
Sandstone	2	37	Gray shale.	76	354
Sandy blue clay	11	48	Coal.	3	357
Blue clay	31	79	Gray shale.	60	417
Hard sandstone.	29	108	Coal.	3	420
Sand.	12	120	Gray shale.	232	652
Yellow clay	12	132	Coal.	7	659
<u>21N59E22DDC</u>			Gray shale.	173	832
Brown sandy clay.	14	14	Sandstone	3	835
Coal slack.	1	15	Gray shale.	77	912
Brown sandy clay.	13	28	Rock.	3	915
Gray sandy clay	26	54	Gray shale.	59	974
Gray shale.	84	138	Rock.	2	976
Sand.	14	152	Gray shale.	209	1185
Gray shaly sand	55	207	Rock.	1	1186
Coal.	3	210	Gray shale.	70	1256
Gray shale.	22	232	Rock.	3	1259
Coal.	3	235	Hard dark-gray		
Gray shale.	41	276	shale.	3	1262
Gray shaly sand	4	280	Gray sandstone;		
Gray shale and sand	15	295	artesian strata.	38	1300
Gray shale.	6	301	<u>21N59E35CCAA</u>		
Coal (water).	5	306	Topsoil and brown		
<u>21N59E30BBCA</u>			sandy clay	55	55
Brown sand and clay	43	43	Gray clay	40	95
Gray clay	27	70	Coal.	3	98
Coal.	8	78	Gray clay and shale	79	177
Clay.	22	100	Coal.	5	182
Coal.	5	105	Gray shale.	128	310
Clay and sand;			Fine sand and		
layered.	15	120	shale; layered	35	345
Gray clay	41	161	Gray shale.	20	365
Sandstone	2	163	Coal.	11	376
Gray sand (water)	31	194	Gray shale.	21	397
Coal.	-	194	Sandstone	2	399
<u>21N59E33DBBB</u>			Sandstone (water)	51	450
Topsoil	7	7	<u>22N45E27AADB</u>		
Fine gray clay.	48	55	Clay.	19	19
Coal.	3	58	Brown sand.	13	32
Gray shale.	50	108	Coal.	2	34
Gray sandstone.	17	125	Sticky blue clay.	22	56
Gray shale.	22	147	Fine sandy clay	5	61
Coal.	10	157	Hard coal (3 gal/ min)	1	62
Gray shale and			Clay.	10	72
sandstone.	115	272	Fine sandy clay	4	76
Coal.	6	278	Fine sharp sand	2	78

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>22N45E27AADB--Continued</u>			<u>22N51E11BCCA--Continued</u>		
Medium-hard coal.	2	80	Soft gray clay.	11	38
Blue clay	25	105	Gray clay	18	56
Extra hard sand- stone.	2	107	Fine sand (1 gal/ min)	4	60
Blue clay	24	131	Coal.	47	107
Clay with coal.	6	137	Gray shale.	3	110
Clay with coal streaks.	14	151	Coal.	11	121
			Gray shale.	5	126
			Rock.	30	156
			Gray and brown shale, layered	2	158
			Fine sand (water)	32	190
<u>22N45E31BBDB</u>			<u>22N51E19CBBB</u>		
Sandy soil.	40	40	Clay.	35	35
Shale	20	60	Coal.	2	37
Coal.	2	62	Gray clay	37	74
Shale	133	195	Coal.	5	79
Coal.	3	198	Gray clay	89	168
Shale	27	225	Soft sandstone.	6	174
Sandstone	45	270	Fine sand (water)	8	182
<u>22N47E01ACAD</u>			<u>22N52E14BACD</u>		
Yellow clay	38	38	Clay.	44	44
Sand rock	2	40	Sandstone	1	45
Gray clay	23	63			
Brown clay.	11	74			
Fine sand (4 gal/ min)	8	82			
<u>22N48E06ABBC</u>			<u>22N52E20DC</u>		
Yellow clay	40	40	Yellow sandy clay	70	70
Sand (water).	8	48	Shale and thin coal veins.	958	1028
			Sand (water).	20	1048
			Rock.	2	1050
			Sand (water).	5	1055
			Shale	85	1140
			Very hard brown sandstone.	45	1185
			Sand.	37	1222
			Shale	3	1225
<u>22N48E17DDCA</u>			<u>22N52E28B</u>		
Yellow clay	45	45	Yellow sandy clay	140	140
Gray clay	91	136	Shale and various coal veins	902	1042
Sand (water).	18	154	Hard rock	10	1052
			Fine sand (water)	10	1062
			Hard sandstone.	8	1070
			Sand (water).	10	1080
<u>22N49E08ADDC</u>					
Topsoil	2	2			
Brown clay.	8	10			
Very soft clay.	10	20			
Yellow clay	20	40			
Sand and gravel (water).	2	42			
<u>22N51E11BCCA</u>					
Clay, sand and gravel	4	4			
Soft yellow clay.	23	27			

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>22N52E28B--Continued</u>			<u>22N58E12DCC</u>		
Dark shale and sand rock	85	1165	Clay and layers of gravel	45	45
Coarse sand (water)	32	1197	Gray clay	17	62
Hard rock	4	1201	Coarse sand	44	106
<u>22N52E30DCCD</u>			Gravel.	32	138
Yellow sandy clay .	33	33	Gray clay	107	245
Blue clay	3	36	Gray sand	23	268
Yellow sand	6	42	Sandstone	3	271
Coal.	2	44	Gray shale.	75	346
Yellow sandstone. .	5	49	Coal.	12	358
Blue clay	11	60	Gray shale.	92	450
<u>22N56E02DBBB</u>			Sandstone	1	451
Sand gravel	40	40	Gray shale.	62	513
Brown clay.	40	80	Sandstone	1	514
Brown sand.	12	92	Gray shale.	129	643
Brown shale	3	95	Coal.	5	648
<u>22N56E15BDCC</u>			Gray shale.	44	692
Brown clay.	42	42	Coal.	6	698
Gray shale.	43	85	Gray shale.	14	712
Coal.	2	87	Sandstone	1	713
Gray shale.	28	115	Gray shale.	58	771
Gray shale and sand (water).	32	147	Coal.	6	777
Gray shale.	9	156	Gray shale.	77	854
<u>22N58E09BABB</u>			Sandstone	2	856
Sand gravel	57	57	Fine gray sand. . .	9	865
Red shaly sand. . .	56	113	Gray shale.	205	1070
Gray shaly sand . .	1	114	Sandstone	1	1071
Rock.	5	119	Shale and sandy clay	45	1116
Grayish-brown shale	38	157	Sandstone	1	1117
Gray sand and shale streaks. . .	5	162	Artesian-water strata	13	1130
Coal.	3	165	Sandstone	1	1131
Gray shale.	2	167	Shale	9	1140
<u>22N58E10CCCC</u>			<u>22N58E36DDD</u>		
Gravel.	40	40	Topsoil and brown sand	30	30
Blue clay	48	88	Gravel.	37	67
Brown sandy clay. .	10	98	Gray clay	5	72
Blue sandy clay . .	17	115	Gray sand and clay.	113	185
Sandstone (water) .	19	134	Gray clay	10	195
Blue clay	1	135	Coal.	3	198
			Gray clay	20	218
			Coal.	22	240
			Gray shale.	8	248

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>22N58E36DDD--Continued</u>			<u>22N59E28BCC</u>		
Sandstone	8	256	Topsoil and sandy clay	16	16
Gray shale.	19	275	Sand and fine gravel	16	32
Coal.	10	285	Clay.	11	43
Gray shale.	8	293	Soft rock	4	47
Sandstone	1	294	Gray clay	16	63
Gray sand	46	340	Gray shale.	32	95
Gray shale.	52	392	Sandstone	26	121
Sandstone	3	395	Gray shale.	199	320
Gray shale.	55	450	Sandstone	5	325
Sandy clay.	86	536	Gray shale.	105	430
Sandstone	1	537	Sandstone	12	442
Gray shale.	66	603	Gray shale.	68	510
Coal.	9	612	Rock.	2	512
Gray shale.	31	643	Sandstone	18	530
Coal.	4	647	Gray shale.	274	804
Gray shale.	43	690	Sandstone	18	822
Sandstone	7	697	Hard gray shale . .	222	1044
Gray sandy clay . .	12	709	Rock.	2	1046
Coal.	4	713	Hard gray shale . .	43	1089
Gray shale.	53	766	Rock.	2	1091
Sandstone	2	768	Hard shale.	12	1103
Gray shale.	129	897	Sandstone; artesian strata	69	1172
Sandstone	4	901			
Gray shale.	88	989	<u>22N60E07CCDB</u>		
Sandstone	2	991	Topsoil and clay. .	8	8
Gray shale.	89	1080	Quicksand and coal.	38	46
Artesian-water strata	40	1120	Gray shale.	37	83
			Coal.	3	86
<u>22N59E13CCBB</u>			Blue shale.	19	105
Brown sandy clay. .	25	25	Rock.	1	106
Coal.	3	28	Shale	12	118
Gray clay	7	35	Soft clay or sand .	5	123
Brown sand.	6	41	Clay or bentonite and fine sand. . .	4	127
Gray sandy clay . .	6	47	Sand (water). . . .	21	148
Sandstone	2	49			
Gray shale.	67	116	<u>23N50E30BBAB</u>		
Coal.	4	120	Drift	23	23
Gray shale.	125	245	Shale	66	89
Coal.	15	260	Sand (water). . . .	19	108
Gray shale.	56	316			
Coal.	22	338	<u>23N51E04ABBB</u>		
Gray shale.	22	360	Sandy loam.	25	25
Sandy clay.	32	392			
Sandy shale	5	397			
Gray coarse-grained sandstone.	13	410			

Table 2.--Logs of wells--Continued

	Thick- ness	Depth		Thick- ness	Depth
<u>23N51E04ABBB--Continued</u>			<u>23N53E14BAAB--Continued</u>		
Clay.	9	34	Gray shale.	16	137
Sand and gravel (water).	6	40	Coal.	2	139
			Gray sand (water)	4	143
			Gray shale.	31	174
			Coal (water).	3	177
<u>23N51E04ABBC</u>			<u>24N53E13BCCC</u>		
Sandy loam.	25	25	Topsoil	2	2
Clay.	9	34	Sand.	13	15
Sand and gravel	6	40	Yellow clay	15	30
			Coal.	5	35
			Blue clay (water)	5	40
			Sand (water).	15	55
			Coal.	2	57
<u>23N51E04ABBC2</u>			<u>25N52E27BABA2</u>		
Sand loam	25	25	Topsoil	1	1
Clay.	9	34	Dark clay	19	20
Sand and gravel	6	40	Gravel (water).	9	29
Water strata.	-	40	Clay.	11	40
<u>23N53E01ABAA</u>			<u>25N53E32DBCD2</u>		
Clay.	12	12	Brown sand and clay	18	18
Gravel.	6	18	Gray sandy shale.	32	50
Coal.	2	20	Gray shale.	38	88
Clay.	20	40	Black shale	2	90
			Gray shale.	36	126
			Rock.	1	127
			Gray shale.	14	141
			Gray shale with		
			coal streaks	4	145
			Gray shale.	5	150
			Sandy gray shale (1		
			gal/min)	18	168
			Gray shale.	24	192
			Gray sandy shale.	3	195
			Gray sticky shale	46	241
			Gray shale.	26	267
			Muddy sand.	6	273
			Gray shale with		
			coal streaks	6	279
			Gray shale.	17	296
			Sandy gray shale		
			(water).	4	300
			Coal.	2	302
			Gray shale.	24	326
			Loose sand.	18	344
			Sandstone (water)	2	346
<u>23N53E14BAAB</u>					
Hand dug well	27	27			
Sand and coal slack	8	35			
Brown shale and					
coal	7	42			
Gray shale.	31	73			
Coal.	3	76			
Gray shale.	8	84			
Coal.	15	99			
Gray sandy shale.	5	104			
Hard rock	1	105			
Gray shale and coal	10	115			
Gray shale and sand					
(water).	6	121			

Table 3.--Chemical analyses of water from wells

[Except as indicated otherwise, constituents are dissolved and constituent values are reported in milligrams per liter. Laboratory specific conductance and laboratory pH: f, field determination. Analysis by: MBMG, Montana Bureau of Mines and Geology; USGS, U.S. Geological Survey. $\mu\text{g/L}$, microgram per liter; $\mu\text{mho/cm}$, micromho per centimeter]

Sample location	Date of collection	Depth of well (feet)	Laboratory specific conductance ($\mu\text{mho/cm}$ at 25°C)	Laboratory pH	Field temperature (°C)	Total hardness as CaCO_3	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Sodium adsorption ratio	Potassium (K)	Bicarbonate (HCO_3)
13N59E29AAAB	9-29-76	400	3,220	7.7	13.5	260	54	31	740	20	6	890
13N60E06CBBB	9-29-76	80	1,440	7.6	7.5	350	62	48	210	5	6	530
13N61E18CCA	8-18-76	60	3,000f	7.0f	10.0	1,100	210	130	480	6	13	990
14N59E12CBD	12-10-75	916	1,900f	8.8f	14.5	9	2.3	.9	480	68	1	620
14N59E15ABBB	9-30-76	116	2,300	7.3	8.5	1,120	190	160	160	2	10	630
14N60E10DDD	7-28-76	47	1,000f	6.5f	11.0	570	130	58	11	.2	4	360
14N60E26BAA	8-17-76	114	1,550f	7.1f	12.0	740	140	95	150	2	8	680
14N61E06CCA	7-29-76	155	1,650	7.6	10.0	470	82	65	250	5	10	680
14N61E06CCA2	7-29-76	124	4,000	8.2	11.0	160	27	21	920	32	7	900
15N60E18AAA	11-29-76	100	7,030	7.4	12.0	490	95	62	1,700	34	8	1,760
15N60E22CCCD	9-30-76	150	2,800	7.6	10.0	420	77	55	530	11	6	810
16N58E28DB	9-29-76	168	2,120	7.6	13.0	260	50	34	410	11	5	660
16N60E02BDDB	9-29-76	1,220	1,860	8.3	10.0	8	2.4	.5	500	77	2	1,230
17N44E01ACAA	7-22-75	72	3,050	7.1	15.0	1,000	180	140	440	6	11	1,060
17N44E03ADCD	7-23-75	34	2,140	8.0	10.0	820	190	81	230	4	6	720
17N44E12ABBC2	7-22-75	100	3,830	7.6	10.0	950	170	130	710	10	9	1,260
17N44E13CCBD	7-28-75	140	3,130	10.4	9.0	3	1.2	.0	720	176	4	60
17N44E17BAAD	7-25-75	47	2,860	8.2	9.0	730	120	100	450	7	6	720
17N44E19ABBB	7-23-75	180	3,020	8.6	11.0	48	11	5.3	690	43	3	480
17N44E24AAAA	7-28-75	317	3,350	7.8	9.0	57	11	7.3	810	47	3	1,060
17N44E29ABBB	7-23-75	180	4,960	8.2	8.0	1,100	200	140	970	13	11	980
17N44E30ABBC	7-23-75	203	3,400	8.4	11.0	150	35	14	790	28	4	940
17N44E32ADAA	7-24-75	42	4,950	8.6	8.0	810	79	150	980	15	10	400
17N44E32ADAC	7-24-75	785	2,230	9.2	13.0	14	4.4	.8	560	65	2	1,120
17N44E32ADAC2	7-24-75	47	4,410	8.4	9.0	1,200	140	200	710	9	12	370
17N44E34DDBA	7-24-75	126	3,530	8.9	10.5	200	9.8	44	780	24	8	520
17N44E36ACDD	7-29-75	106	3,190	7.8	9.0	260	45	35	710	19	7	1,110
17N45E01DCAA	7-28-75	50	897	7.2	10.0	500	120	49	6.6	.1	3	500
17N45E04BDBB	7-22-75	140	4,140	7.0	10.0	820	140	120	790	12	10	1,180
17N45E11ACDD	7-28-75	65	2,150	7.4	9.0	960	160	140	170	2	8	840
17N45E12BCBD	7-28-75	105	1,060	6.7	10.0	560	110	68	17	.3	4	320
17N45E23BBAB	7-22-75	130	3,700	7.7	10.5	390	50	65	810	18	8	1,430
17N45E25BABC	7-29-75	86	1,270	7.3	10.5	710	140	86	21	.3	5	810
17N59E26DBA	9-29-76	230	2,730	8.4	10.0	42	8.4	5	650	44	3	880
18N43E10DABD	9-08-75	110	2,200	7.6	10.5	1,200	190	180	90	1	6	580
18N43E13AAAA	9-09-75	300	2,190	6.6	11.0	17	4.2	1.6	500	53	2	640
18N44E13AAAB	5-05-76	278	2,850	8.5	13.0	44	8.4	5.5	720	47	3	490
18N44E14BABD	7-17-75	132	2,880	8.2	11.0	46	8.0	6.3	670	43	3	620
18N44E16CCCB	7-16-75	123	4,640	9.3	10.0	140	9.4	29	1,100	39	5	310
18N44E19BDAD	7-16-75	100	2,650	8.0	10.0	33	7.4	3.6	630	47	2	630
18N44E30BDCA	7-17-75	140	3,270	8.1	11.0	56	10	7.3	820	48	3	980
18N45E27DADD	7-18-75	54	1,240	7.0	9.0	670	120	88	34	.5	5	410
18N45E30DDCB	7-21-75	152	2,900	7.3	9.5	660	98	100	490	8	12	1,080
18N45E34ACCD	7-18-75	364	3,310	8.1	13.0	110	17	16	820	34	6	1,040
18N45E34DBBB	7-18-75	426	3,080	8.0	11.0	140	22	20	750	28	5	1,050
18N46E35BBAD	8-4-75	174	4,640	7.7	11.0	430	80	56	1,200	24	7	1,800
18N57E11DACB	9-23-76	688	1,790	8.8	15.0	6	1.8	.5	450	77	1	830
18N58E15BDAC	9-22-76	160	2,080	8.6	13.5	11	2.2	1.2	510	68	2	810
18N59E25CCB	9-22-76	320	3,040	8.6	10.0	50	10	5.8	690	42	3	590
18N60E04AD	9-21-76	160	5,330	7.4	9.5	530	100	66	1,200	23	7	1,350
19N43E04BADD	8-05-75	214	1,670	8.8	17.0	7	2.1	.5	430	70	1	930
19N44E01ADCD	7-15-75	60	1,910	8.1	9.0	520	98	66	300	6	5	570
19N44E19BBAB	7-17-75	141	2,230	8.4	10.5	16	3.8	1.6	590	64	2	1,050
19N44E20DADD	7-15-75	26	1,010	7.7	10.0	170	30	24	180	6	4	320
19N44E29CBBB	7-15-75	90	2,090	8.3	10.0	14	3.4	1.3	510	60	2	750

Date of collection	Car-bonate (CO ₃)	Total alka-linity as CaCO ₃	Sulfate (SO ₄)	Chloride (Cl)	Fluo-ride (F)	Silica (SiO ₂)	Dis-solved solids, sum of consti-tuents	Ni-trate as N	Iron (Fe) (µg/L)	Lith-ium (Li) (µg/L)	Man-ganese (Mn) (µg/L)	Anal-ysis by
9-29-76	0	730	1,000	20	0.4	11	2,360	0.12	510	100	110	MBMG
9-29-76	0	440	360	3.5	.3	17	966	<.02	1,300	50	310	MBMG
8-18-76	0	810	1,200	8.0	.2	14	2,550	--	270	70	500	USGS
12-10-75	83	640	350	18	1.9	13	1,260	--	20	--	10	USGS
9-30-76	0	520	920	8.5	<.1	12	1,780	.03	7,700	80	240	MBMG
7-28-76	0	290	270	5.7	.1	13	670	--	30	20	200	USGS
8-17-76	0	560	460	7.6	.2	16	1,220	--	20	50	210	USGS
7-29-76	0	560	440	4.6	.1	11	1,200	--	20	70	40	USGS
7-29-76	42	810	1,300	5.5	.6	8.0	2,780	--	20	70	50	USGS
11-29-76	0	1,450	2,700	19	.2	9.8	5,500	.97	800	200	170	MBMG
9-30-76	0	670	870	4.0	.4	9.6	1,960	.04	3,300	70	70	MBMG
9-29-76	0	540	610	4.5	.2	10	1,450	<.02	1,600	60	100	MBMG
9-29-76	4	1,020	.2	48	4.5	23	1,190	.10	350	60	10	MBMG
7-29-75	0	870	1,100	5.9	0.1	10	2,400	1.7	10	--	100	MBMG
7-23-75	0	590	680	6.0	.1	9.4	1,560	1.8	40	--	1,400	MBMG
7-22-75	0	1,030	1,400	6.0	.1	8.1	3,100	2.0	50	--	580	MBMG
7-28-75	230	430	1,100	18	.4	1.1	2,120	1.7	<10	--	<10	MBMG
7-25-75	0	590	1,100	7.8	.2	9.3	2,130	.56	10	--	<10	MBMG
7-23-75	30	440	1,100	12	.7	7.2	2,080	.77	<10	--	<10	MBMG
7-28-75	0	870	880	11	.4	7.9	2,260	1.7	10	--	10	MBMG
7-23-75	0	800	2,300	7.6	.1	11	4,070	2.3	20	--	170	MBMG
7-23-75	29	820	1,000	11	.4	8.8	2,370	.59	<10	--	30	MBMG
7-24-75	19	360	2,500	13	<.1	5.8	3,980	1.6	40	--	<10	MBMG
7-24-75	110	1,100	34	55	1.9	8.2	1,330	.70	40	--	<10	MBMG
7-24-75	10	320	2,300	4.3	<.1	9.8	3,590	3.3	10	--	10	MBMG
7-24-75	38	490	1,400	12	.1	6.8	2,510	1.3	10	--	<10	MBMG
7-29-75	0	910	880	7.0	.1	9.5	2,240	2.5	10	--	50	MBMG
7-28-75	0	410	100	1.4	.2	12	550	.45	20	--	600	MBMG
7-22-75	0	960	1,500	2.6	.2	8.1	3,170	4.4	30	--	80	MBMG
7-28-75	0	690	640	4.3	.2	13	1,540	1.2	10	--	10	MBMG
7-28-75	0	260	320	11	0.2	11	700	0.27	700	--	190	MBMG
7-22-75	0	1,170	970	7.2	.2	5.1	2,620	2.0	20	--	60	MBMG
7-29-75	0	660	100	2.2	.1	11	772	0.81	10	--	100	MBMG
9-29-76	4	730	710	5.0	.4	8.2	1,820	.40	70	50	20	MBMG
9-08-75	0	480	750	44	.1	12	1,570	21	40	50	110	MBMG
9-09-75	0	530	480	25	2.3	6.8	1,350	1.9	20	--	<10	MBMG
5-05-76	21	440	1,000	31	2.0	6.9	2,040	--	30	--	--	USGS
7-17-75	0	510	910	24	1.3	7.1	1,940	.95	<10	--	20	MBMG
7-16-75	52	340	2,000	21	.5	.9	3,350	4.5	10	--	10	MBMG
7-16-75	0	510	850	18	1.6	6.7	1,820	1.5	10	--	10	MBMG
7-17-75	0	810	1,000	7.2	.6	6.9	2,380	1.4	10	--	10	MBMG
7-17-75	0	330	390	7.0	<.1	11	856	1.3	410	--	220	MBMG
7-21-75	0	890	810	4.8	.1	9.9	2,070	2.1	30	--	70	MBMG
7-18-75	0	850	950	23	.5	7.3	2,360	14	20	--	40	MBMG
7-18-75	0	860	870	15	.6	7.5	2,210	1.9	<10	--	30	MBMG
8-04-75	0	1,480	1,400	21	.4	9.0	3,640	2.4	10	--	50	MBMG
9-22-76	35	740	180	48	4.4	11	1,130	<.02	20	50	<10	MBMG
9-22-76	17	690	390	8.5	3.1	7.0	1,340	<.02	770	30	10	MBMG
9-22-76	14	500	980	9.0	1.3	7.8	2,010	<.02	100	50	30	MBMG
9-21-76	0	1,100	1,900	9.0	.4	9.0	4,000	.28	800	150	80	MBMG
8-05-75	36	820	57	50	5.4	8.3	1,050	.79	10	--	<10	MBMG
7-15-75	0	460	660	6.1	.2	8.1	1,420	.40	20	--	140	MBMG
7-17-75	20	900	330	43	2.0	6.6	1,520	2.6	50	--	<10	MBMG
7-15-75	0	260	290	2.2	.3	5.8	691	.45	<10	--	<10	MBMG
7-15-75	0	610	460	22	2.4	6.4	1,380	.97	10	--	<10	MBMG

Table 3.--Chemical analyses of water from wells--Continued

Sample location	Date of collection	Depth of well (feet)	Laboratory specific conductance (µmho/cm at 25°C)	Laboratory pH	Field temperature (°C)	Total hardness as CaCO ₃	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Sodium adsorption ratio	Potassium (K)	Bicarbonate (HCO ₃)
19N44E31CCDA	7-15-75	78	3,440	7.4	9.5	470	78	66	700	14	6	910
19N45E10DDCA	7-17-75	189	3,280	8.2	10.5	230	42	31	740	21	6	730
19N45E11ACCA	7-01-75	66	4,320	7.3	11.0	1,500	230	230	610	7	15	870
19N45E35DDBB	7-17-75	128	1,500	7.4	10.5	780	84	140	77	1	7	660
19N46E08ACDA	7-22-75	63	1,020	7.2	9.0	560	130	57	15	.2	3	660
19N46E08CDAC	7-22-75	150	2,670	7.9	9.0	61	11	8.2	630	35	4	840
19N46E08CDDB	7-22-75	135	990	8.3	12.0	320	50	46	97	2	5	530
19N46E10CDCA	7-21-75	105	3,260	7.8	9.0	290	43	44	760	20	5	1,170
19N46E15CBCA	7-22-75	80	3,920	7.8	11.0	11	1.3	1.9	970	126	2	1,240
19N46E17DAAC	7-22-75	135	710	7.4	9.5	320	48	50	29	.7	3	390
19N46E17DAAD	7-22-75	157	2,610	7.7	10.0	700	110	110	400	6	5	750
19N46E27DBCA	7-23-75	48	1,000	6.6	9.0	540	110	67	18	.3	4	420
19N46E28ABBA	7-23-75	120	1,820	8.4	--	670	32	140	190	3	11	410
19N46E29CAAA	7-23-75	131	860	6.7	9.5	430	48	74	27	.5	6	460
19N46E32CCCD	7-23-75	93	1,010	6.7	9.0	390	45	67	72	2	7	470
19N46E32DCDD	7-23-75	56	620	6.3	9.5	330	84	29	3.4	0	2	370
19N47E01ABAD	7-28-75	100	2,980	7.4	9.0	560	87	84	510	9	5	630
19N47E02ADBB	7-28-75	63	1,640	7.7	9.0	240	29	41	290	8	5	500
19N47E02ADBB2	7-28-75	90	3,230	7.7	10.0	600	100	83	570	10	6	850
19N47E08CCDC	7-29-75	85	1,980	7.4	10.0	1,000	180	140	92	1	4	490
19N47E08DCDC	7-29-75	61	2,000	6.9	8.0	770	110	120	200	3	8	940
19N47E10ACDC	7-28-75	20	3,200	6.6	8.0	1,600	240	250	230	2	3	380
19N47E10DBBA	7-28-75	130	3,660	7.1	10.0	96	16	14	880	39	4	960
19N47E10DBBD	7-28-75	60	4,160	6.9	8.0	1,000	120	170	760	10	11	670
19N47E13ABBA	7-28-75	50	4,310	6.8	--	1,700	300	230	530	6	10	780
19N47E13DDCB	7-28-75	33	2,060	6.7	9.0	1,000	170	140	140	2	6	900
19N47E20ADDC2	7-29-75	20	2,370	7.3	5.5	430	63	66	440	9	5	880
19N48E02CBDA	11-19-75	109	2,320	8.2	10.5	62	9.4	9.4	580	32	3	1,190
19N48E10DACA	10-03-75	1,518	1,800	8.6f	21.5	4	1.6	.1	460	95	1	980
19N48E12BAAB	11-18-75	80	1,230	7.8	10.0	320	56	44	160	4	4	430
19N49E34AABD	10-29-75	81	1,760	7.8	6.0	560	90	80	220	4	6	480
19N56E26CBCA	9-22-76	120	1,770	7.7	8.5	910	160	120	60	.9	7	390
19N58E03DBBB	9-28-76	450	2,640	8.4	10.5	13	2.9	1.4	730	89	2	1,840
19N60E17CD	9-22-76	72	4,130	6.9	8.0	2,240	420	290	330	3	11	740
20N42E22CA	9-01-76	80	2,510	8.0	10.0	15	4	1.1	590	67	2	700
20N45E11BADC	8-20-75	186	5,510	6.8	10.0	130	22	17	1,400	54	5	1,140
20N45E17CCBB	8-20-75	281	3,490	7.0	9.5	640	95	98	670	11	8	1,230
20N45E34DBCC	5-07-76	278	2,080	8.4	11.0	22	3.7	3.1	520	48	2	910
20N46E02ADCD	8-08-75	30	1,020	8.1	7.0	460	78	63	51	1	4	280
20N46E28ABBC	8-12-75	120	1,440	7.0	12.0	620	99	91	120	2	6	640
20N47E36ADDD	5-06-76	220	3,400	8.3	11.5	26	4.8	3.4	610	52	3	1,660
20N48E07BDAC	9-12-75	55	1,340	7.8	9.5	400	77	50	160	4	5	480
20N48E22CCCD	9-27-75	276	3,090	7.8	10.0	570	66	97	570	10	7	930
20N49E18CCDC	5-06-76	120	3,400	7.7	9.0	190	31	27	820	26	5	1,190
20N49E27AADC	11-21-75	29	1,890	7.8	9.5	780	110	120	100	2	5	500
20N49E34DDCC	11-18-75	183	5,070	8.2	11.0	110	16	17	1,300	53	5	1,460
20N50E18CDDA	10-01-75	110	1,280	7.9	9.5	530	98	69	98	2	5	400
20N53E26AAAD	9-02-76	81	2,510	7.4	11.0	1,480	300	180	97	1	5	420
20N54E01DCDD	5-04-76	220	1,830	7.0	9.0	1,100	210	150	43	.6	8	570
20N54E02BCAA	9-09-76	116	2,370	7.2	8.0	1,500	290	190	50	.6	8	600
20N55E19DBCD	9-10-76	53	620	7.7	8.0	300	56	38	13	.3	2	270
20N56E24CBDB	9-11-76	103	2,830	7.6	9.5	410	66	59	550	12	10	910
20N57E21CDDA	9-16-76	392	2,130	8.5	14.0	11	2.1	1.4	520	69	2	1,000
20N58E34DDD	10-02-75	620	1,700f	8.8f	14.0	6	2.2	.1	540	81	1	770
21N42E15DDCC	9-01-76	256	3,710	7.9	10.5	41	11	3.1	940	63	3	1,520
21N44E16DBCD	9-03-76	15	770	7.8	10.5	300	55	39	59	2	3	290
21N44E23BBDC	8-07-75	123	4,990	7.6	11.0	120	28	11	1,200	50	5	1,280
21N45E16ABBC	9-03-75	201	5,010	6.9	10.0	480	120	43	1,100	22	5	1,020
21N45E20DDCD	11-19-75	89	3,530	7.9	10.0	290	57	37	810	21	6	870
21N45E34BBDA	8-18-75	189	3,590	6.8	10.0	130	24	17	820	31	5	820

Date of collection	Car-bonate (CO ₃)	Total alka-linity as CaCO ₃	Sulfate (SO ₄)	Chloride (Cl)	Fluo-ride (F)	Silica (SiO ₂)	Dis-solved solids, sum of consti-tuents	Ni-trate as N	Iron (Fe) (µg/L)	Lith-ium (Li) (µg/L)	Man-ganese (Mn) (µg/L)	Anal-ysis by
7-15-75	0	750	1,200	8.1	.3	7.1	2,540	.77	30	--	80	MBMG
7-17-75	0	600	1,200	18	.6	6.6	2,420	5.7	<10	--	50	MBMG
7-01-75	0	710	2,100	9.6	<.1	9.4	3,650	4.5	30	--	90	MBMG
7-17-75	0	540	390	6.8	<.1	9.0	1,030	1.1	10	--	140	MBMG
7-22-75	0	540	36	3.8	.1	11	586	5.7	10	--	10	MBMG
7-22-75	0	690	710	9.6	.3	6.6	1,800	.90	<10	--	20	MBMG
7-22-75	0	430	99	2.1	.1	9.6	572	.50	70	--	10	MBMG
7-21-75	0	960	970	9.6	.2	7.2	2,420	1.8	10	--	100	MBMG
7-22-75	0	1,020	1,100	12	.3	8.3	2,670	3.6	<10	--	<10	MBMG
7-22-75	0	320	68	2.7	0.1	10	406	0.86	10	--	40	MBMG
7-22-75	0	620	880	12	.2	8.6	1,890	3.1	<10	--	20	MBMG
7-23-75	0	350	240	5.3	0.2	8.6	659	.20	60	--	200	MBMG
7-23-75	14	360	670	3.3	<.1	12	1,280	2.1	<10	--	20	MBMG
7-23-75	0	380	100	2.4	<.1	5.8	498	.14	50	--	40	MBMG
7-23-75	0	380	160	2.4	.1	13	597	.61	<10	--	130	MBMG
7-23-75	0	300	26	3.8	.1	9.0	342	1.3	10	--	<10	MBMG
7-28-75	0	520	1,100	6.6	.7	7.3	2,110	1.2	10	--	<10	MBMG
7-28-75	0	400	450	3.2	.3	6.6	1,070	1.0	10	--	<10	MBMG
7-28-75	0	700	1,100	6.7	.4	7.7	2,280	4.0	10	--	<10	MBMG
7-29-75	0	400	670	45	.1	11	1,410	20	10	--	<10	MBMG
7-29-75	0	770	430	4.3	.1	11	1,350	3.9	10	--	70	MBMG
7-28-75	0	310	1,700	3.6	.2	9.9	2,630	7.1	20	--	<10	MBMG
7-28-75	0	780	1,200	19	1.5	7.2	2,620	1.9	<10	--	<10	MBMG
7-28-75	0	550	2,000	5.6	.2	4.5	3,400	3.4	20	--	60	MBMG
7-28-75	0	640	2,100	8.0	.2	8.3	3,600	4.4	40	--	700	MBMG
7-28-75	0	740	510	1.2	.2	8.7	1,420	1.4	50	--	600	MBMG
7-29-75	0	720	670	5.7	0.3	8.6	1,700	0.84	180	--	80	MBMG
11-19-75	0	980	340	17	1.7	7.9	1,560	.14	50	30	10	MBMG
10-03-75	24	840	3.4	100	4.7	13	1,090	--	20	--	10	USGS
11-18-75	0	350	310	6.3	0.5	11	803	.32	10	--	50	MBMG
10-29-75	0	390	640	6.6	.2	8.8	1,300	1.1	20	--	<10	MBMG
9-22-76	0	320	480	84	.2	22	1,170	33	50	40	10	MBMG
9-28-76	5	1,520	.3	61	2.4	7.9	1,720	.03	100	70	10	MBMG
9-22-76	0	600	2,200	11	.2	11	3,670	.17	3,800	190	420	MBMG
9-01-76	0	570	630	27	2.4	8.3	1,600	.44	240	100	10	MBMG
8-20-75	0	940	2,100	16	.6	6.7	4,100	13	350	--	<10	MBMG
8-20-75	0	1,000	1,100	11	.2	11	2,550	5.2	20	--	40	MBMG
5-07-76	41	820	360	18	3.3	6.4	1,410	--	130	30	<20	USGS
8-08-75	0	230	280	48	.1	10	671	.88	<10	--	<10	MBMG
8-12-75	0	520	350	3.8	.1	13	996	.25	60	--	140	MBMG
5-06-76	0	1,360	14	22	2.8	6.9	1,490	--	210	--	--	USGS
9-12-75	0	400	320	3.0	.1	8.7	1,730	2.8	<10	--	<10	MBMG
9-27-75	0	760	1,000	11	.6	6.1	2,240	1.4	<10	--	40	MBMG
5-06-76	0	980	1,000	24	0.9	7.6	2,500	--	20	70	40	USGS
11-21-75	0	410	600	7.7	.2	11	1,210	1.5	630	30	60	MBMG
11-18-75	0	1,200	1,600	15	1.5	6.3	3,640	3.9	20	--	<10	MBMG
10-01-75	0	330	390	2.7	.3	10	869	.77	<10	--	20	MBMG
9-02-76	0	340	1,200	22	.2	9.6	2,060	.27	130	40	510	MBMG
5-04-76	0	470	770	2.9	.1	18	1,490	--	1,300	40	130	USGS
9-09-76	0	500	1,000	8.4	<.1	14	1,890	.22	870	50	880	MBMG
9-10-76	0	220	20	14	.2	15	307	20	30	10	<10	MBMG
9-11-76	0	750	810	6.0	1.1	13	1,970	1.9	1,600	80	70	MBMG
9-16-76	21	850	300	3.8	3.2	8.8	1,350	.06	160	30	10	MBMG
10-02-75	47	710	200	61	3.5	11	1,160	--	30	--	10	USGS
9-01-76	0	1,240	740	26	1.4	9.4	2,470	.04	780	150	20	MBMG
9-03-76	0	240	150	10	1.0	7.9	471	5.0	40	30	<10	MBMG
8-07-75	0	1,050	1,700	15	1.0	6.8	3,590	2.9	20	--	20	MBMG
9-03-75	0	840	2,000	9.8	.6	16	3,840	3.5	20	--	170	MBMG
11-19-75	0	710	1,300	9.0	.7	9.6	2,680	.32	490	80	110	MBMG
8-18-75	0	680	1,200	16	.8	7.7	2,540	13	<10	--	10	MBMG

Table 3.--Chemical analyses of water from wells--Continued

Sample location	Date of collection	Depth of well (feet)	Laboratory specific conductance ($\mu\text{mho}/\text{cm}$ at 25°C)	Laboratory pH	Field temperature (°C)	Total hardness as CaCO ₃	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Sodium adsorption ratio	Potassium (K)	Bicarbonate (HCO ₃)
21N45E34BBDA2	8-18-75	17	6,540	7.2	8.0	1,700	160	310	1,100	12	19	920
21N45E35BCDC	8-20-75	118	3,490	6.9	9.5	200	27	32	790	24	5	1,120
21N46E19BCDA	11-19-75	105	2,840	7.4	9.5	1,400	190	220	220	3	9	770
21N46E29ACDA	9-20-75	240	2,980	7.8	12.0	570	70	95	520	10	10	1,000
21N48E12BBCE	9-19-75	260	2,980	8.3	12.0	28	6.2	3.1	700	57	2	680
21N49E20CCBA	9-18-75	76	4,180	7.9	11.0	390	57	60	940	21	7	1,220
21N51E14CBBB	9-24-75	138	3,230	8.2	12.0	920	160	120	500	7	8	730
21N52E17DA	9-08-76	38	890	7.6	8.5	280	38	45	110	3	3	550
21N53E08ADCC	5-04-76	70	2,630	6.9	11.0	1,700	270	240	67	.7	8	650
21N53E22DAAB	9-01-76	128	1,300	7.3	10.0	760	180	77	12	.2	4	580
21N54E04BCCB	9-11-76	346	1,870	8.4	10.5	16	3.3	1.9	440	48	2	630
21N54E22CBDD	9-10-76	85	730	7.5	12.0	360	72	44	23	.5	3	410
21N55E14ABAD	9-10-76	406	3,970	7.8	10.0	410	68	58	860	18	7	920
21N56E26BAAC	9-13-76	90	520	7.8	12.5	250	47	33	14	.4	3	330
21N57E10CDDD	9-13-76	214	1,220	7.5	9.0	240	33	38	200	6	5	570
21N58E03CBBC	9-09-76	1,240	1,760	8.8	13.0	6	1.7	.4	440	81	2	910
21N59E30BBCA	9-15-76	194	2,610	8.1	12.0	14	2.5	2.0	720	82	2	1,850
21N60E29BABA	9-15-76	--	5,740	8.1	9.5	113	20	16	1,500	60	5	1,390
22N44E23DDBC	8-07-75	37	1,570	7.9	7.0	480	91	60	190	4	4	450
22N45E30BADC	9-03-75	150	4,720	7.2	13.0	160	35	18	1,100	38	5	1,290
22N46E33DBBD	9-05-75	210	3,460	6.7	10.0	37	8.2	3.9	820	59	3	820
22N47E21CDCC2	8-13-75	70	1,440	7.2	8.5	830	140	120	34	.5	4	610
22N48E06ABCC	9-16-75	48	680	8.0	10.5	360	72	43	12	.3	3	370
22N49E08ADCC	9-19-75	42	1,570	7.8	9.0	500	78	74	190	4	4	510
22N50E29CCDB	9-17-75	25	1,650	8.7	9.0	340	26	68	250	6	5	350
22N51E01ADDA	11-21-75	40	1,700	7.4	7.5	770	110	120	120	2	5	450
22N51E10ADDA	9-24-75	111	2,600	8.5	10.5	20	3.8	2.5	620	60	2	660
22N52E20DC	10-03-75	1,225	1,650f	8.6f	19.0	5	1.9	.1	440	84	2	850
22N52E25CBCA	10-10-75	153	5,310	8.0	7.0	220	39	30	1,300	39	6	620
22N52E30DCCD	9-30-75	60	1,140	7.8	8.5	580	68	100	37	.6	7	460
22N53E22BDCE	10-08-75	196	3,700	7.9	8.0	850	150	120	630	9	11	710
22N54E32BAAC	9-14-76	230	1,950	7.3	10.5	560	93	80	260	5	7	690
22N55E32ABDE	9-13-76	140	6,440	7.1	10.5	2,480	400	360	920	8	19	1,040
22N56E15BDCC	9-11-76	150	1,010	7.5	9.0	520	100	65	29	0.6	5	420
22N58E09BABB	9-16-76	167	2,480	7.8	11.0	1,340	150	240	96	1	11	350
22N58E12DCC	10-02-75	1,140	1,980f	8.6f	16.5	8	1.8	.9	480	73	2	1,010
22N59E13CCBB	9-11-76	410	2,410	8.1	10.0	15	2.7	2	660	74	3	1,740
23N50E14CACE	9-25-75	39	2,370	8.1	11.5	310	51	46	460	11	5	770
23N50E14CACC	9-25-75	26	2,170	8.0	12.5	320	59	43	440	10	5	810
23N51E04ABBB	10-27-75	40	2,290	8.1	7.0	270	46	37	460	12	5	760
23N51E13ABAB	10-21-75	135	2,560	8.5	8.5	170	32	22	590	20	4	1,060
23N52E18BDAC	11-21-75	88	4,090	8.2	9.5	95	15	14	1,000	46	5	1,420
23N52E18BDDBA	10-21-75	190	1,940	8.5	9.0	11	2.2	1.4	510	66	2	1,140
23N52E22BDCC	10-23-75	11	1,340	8.0	7.5	580	100	78	120	2	4	480
23N53E14BAAB	10-16-75	177	3,120	8.4	8.5	37	5.8	5.4	780	56	3	1,050
23N54E18ADDA	10-17-75	51	600	8.2	8.5	340	85	31	3.1	.1	2	390
24N52E28BBAD	10-07-75	33	2,250	8.2	10.0	600	49	120	320	6	2	440
24N53E15CCDD	10-13-75	30	1,240	8.0	8.0	630	120	83	46	.8	3	400
24N54E09CDDD	10-24-75	40	2,390	7.9	9.5	1,100	170	160	230	3	9	680
25N52E27BABA2	11-12-75	40	1,710	7.8	7.0	820	160	100	130	2	4	480
25N53E32DBCD2	11-12-75	346	2,450	8.4	10.5	16	2.8	2.2	600	66	2	1,140
25N53E33CABA	11-21-75	72	1,330	7.6	7.5	780	180	81	18	.3	4	500

Date of collection	Car-bonate (CO ₃)	Total alka-linity as CaCO ₃	Sulfate (SO ₄)	Chloride (Cl)	Fluo-ride (F)	Silica (SiO ₂)	Dis-solved solids, sum of consti-tuents	Ni-trate as N	Iron (Fe) (ug/L)	Lith-ium (Li) (ug/L)	Man-ganese (Mn) (ug/L)	Anal-ysis by
8-18-75	0	750	3,200	44	.5	17	5,320	26	30	--	110.	MBMG
8-20-75	0	920	980	9.8	.5	5.6	2,400	2.6	70	--	40	MBMG
11-19-75	0	630	1,200	7.4	<.1	12	2,240	1.1	1,600	70	110	MBMG
9-20-75	0	820	840	5.8	.1	11	2,040	2.8	10	--	30	MBMG
9-19-75	0	560	890	22	2.7	6.0	1,970	1.0	<10	--	<10	MBMG
9-18-75	0	1,000	1,400	7.2	.4	8.6	3,050	2.2	10	--	90	MBMG
9-24-75	0	600	1,400	5.2	.5	11	2,540	1.9	<10	--	150	MBMG
9-08-76	0	450	62	18	.3	7.9	559	<.02	3,500	30	80	MBMG
5-04-76	0	540	1,200	6.4	.1	16	2,130	--	830	60	460	USGS
9-01-76	0	470	280	14	.2	14	867	3.1	70	30	<10	MBMG
9-11-76	10	540	400	10	1.4	8.1	1,190	.15	30	30	10	MBMG
9-10-76	0	330	52	11.6	.2	13	424	4.0	30	30	10	MBMG
9-10-76	0	760	1,500	18	.3	6.8	2,920	<.02	380	120	60	MBMG
9-13-76	0	270	14	2.0	.3	14	293	.06	110	20	40	MBMG
9-13-76	0	470	200	2.6	.4	11	778	.41	2,400	60	40	MBMG
9-09-76	38	810	19	100	5.3	13	1,070	<.02	20	60	10	MBMG
9-15-76	0	1,520	.3	24	3.4	7.1	1,670	<.02	150	50	10	MBMG
9-15-76	0	1,140	2,000	18	1.2	7.8	4,270	.14	1,700	110	50	MBMG
8-07-75	0	370	520	7.0	.4	8.9	1,110	.25	10	--	10	MBMG
9-03-75	0	1,060	1,400	11	.6	8.8	3,280	3.5	20	--	30	MBMG
9-05-75	0	670	1,100	22	2.3	7.8	2,350	5.6	40	--	10	MBMG
8-13-75	0	500	400	4.0	.2	12	1,010	.59	50	--	890	MBMG
9-16-75	0	300	45	18	.2	10	390	2.6	<10	--	60	MBMG
9-19-75	0	420	490	5.0	.4	12	1,100	.56	<10	--	690	MBMG
9-17-75	61	390	350	110	.4	14	1,060	.09	200	--	<10	MBMG
11-21-75	0	370	640	6.4	.1	8.6	1,230	.20	5,600	40	150	MBMG
9-24-75	34	600	700	13	2.7	6.2	1,700	.68	10	--	<10	MBMG
10-03-75	88	850	3.9	85	4.5	12	1,060	--	60	--	10	USGS
10-10-75	0	510	2,600	5.8	.4	6.2	4,340	1.9	20	--	40	MBMG
9-30-75	0	380	240	12	.1	10	716	13	<10	--	<10	MBMG
10-08-75	0	580	1,600	4.8	<.1	9.2	2,850	.50	10	--	60	MBMG
9-14-76	0	560	530	5.0	.2	14	1,330	<.02	1,600	50	30	MBMG
9-13-76	0	860	3,500	12	<.1	12	5,700	.04	5,100	160	370	MBMG
9-11-76	0	340	220	8.5	0.1	13	651	0.04	4,400	40	210	MBMG
9-16-76	0	290	1,000	130	.2	7.5	1,800	2.6	460	90	170	MBMG
10-02-75	33	880	4.5	110	4.7	10	1,150	--	40	--	10	USGS
9-11-76	0	1,420	.2	24	4.1	7.0	1,560	.04	270	60	<10	MBMG
9-25-75	0	630	680	8.2	.2	8.9	1,640	2.8	<10	--	<10	MBMG
9-25-75	0	660	610	4.8	1.3	8.1	1,570	.90	10	--	40	MBMG
10-27-75	0	620	640	7.6	1.0	13	1,580	.25	<10	--	160	MBMG
10-21-75	24	910	540	8.3	1.9	5.3	1,750	1.1	60	--	<10	MBMG
11-21-75	0	1,160	1,100	12	1.3	6.6	2,930	1.6	60	100	20	MBMG
10-21-75	38	1,000	100	12	4.8	6.6	1,240	.70	<10	--	<10	MBMG
10-23-75	0	400	440	3.4	.2	11	1,000	.34	<10	--	<10	MBMG
10-16-75	14	880	860	1.5	1.3	6.5	2,190	1.1	250	--	<10	MBMG
10-17-75	0	320	30	2.3	.2	7.9	358	1.2	80	--	<10	MBMG
10-07-75	0	360	810	26	<.1	10	1,570	23	10	--	20	MBMG
10-13-75	0	330	380	3.0	.2	10	847	3.0	<10	--	<10	MBMG
10-24-75	0	560	1,000	15	.1	10	1,940	.25	10	--	1,200	MBMG
11-12-75	0	390	650	3.5	.1	13	1,300	3.9	10	--	10	MBMG
11-12-75	19	960	360	33	4.5	8.1	1,600	.79	30	--	<10	MBMG
11-21-75	0	410	390	7.2	.1	10	934	1.2	130	20	20	MBMG

Table 4.--Miscellaneous-constituent concentrations of water from selected wells
 [Except as indicated otherwise, constituents are dissolved, constituent values
 are reported in micrograms per liter, and analyses are by U.S. Geological Survey,
 JTU, Jackson turbidity unit; mg/L, milligram per liter]

Sample location	Date of collection	Depth of well (feet)	Turbidity (JTU)	Noncar-bonate hardness (mg/L)	Per-cent so-dium	Bro-mide (Br) (mg/L)	Nitro-gen, ammonia as N (mg/L)	Nitrogen, kjeldahl as N (mg/L)	Phos-phorus (P) (mg/L)	Alum-inum (Al)	Arse-nic (As)	Barium (Ba)	Beryl-lium (Be)
13N61E18CCA	08-18-76	60	30	250	49	--	1.1	1.1	0.07	10	0	0	10
14N59E12CBD	12-10-75	916	--	0	99	--	--	--	.34	--	--	--	--
14N60E10DDD	07-28-76	47	10	270	4	--	--	--	.01	0	2	0	0
14N60E26BAA	08-17-76	114	10	190	30	--	.68	.53	.06	10	0	0	0
14N61E06CCA	07-29-76	155	90	0	53	--	--	--	.02	0	1	0	0
14N61E06CCA2	07-29-76	124	35	0	93	--	.76	.96	.04	20	2	0	0
18N43E10DABD	09-08-75	110	--	--	--	0.1a	--	--	--	--	--	<30a	--
18N44E13AAAB	05-05-76	278	480	0	97	.3a	.62	9.2	3.3	--	24	--	--
19N48E02CBDA	11-19-75	109	--	--	--	.3a	--	--	--	--	--	<30a	--
19N48E10DACA	10-03-75	1,518	--	0	99	--	--	--	.15	--	--	--	--
20N45E34DRCC	05-07-76	278	320	--	98	.2a	.53	1.1	.44	400	0	100	<6
20N47E36ADDD	05-06-76	220	380	0	98	.3a	.19	2.5	.54	--	1	--	--
20N49E18CGDC	05-06-76	120	9	0	90	.1a	.84	1.5	.05	--	0	--	--
20N49E27AADC	11-21-75	29	--	--	--	.0a	--	--	--	--	--	<30a	--
20N54E01DCDD	05-04-76	220	45	670	8	.0a	.86	1.7	.16	300	9	20	<2
20N58E34DDDD	10-02-75	620	--	0	99	--	--	--	.42	--	--	--	--
21N45E20DCGD	11-19-75	89	--	--	--	.0a	--	--	--	--	--	<30a	--
21N46E19BCDA	11-19-75	105	--	--	--	.0a	--	--	--	--	--	<30a	--
21N53E08ADCC	05-04-76	70	160	1,100	8	.1a	.63	1.2	.30	80	0	20	<3
22N51E01ADDA	11-21-75	40	--	--	--	.0a	--	--	--	--	--	<30a	--
22N52E20DC	10-03-75	1,225	--	0	99	--	--	--	.26	--	--	--	--
22N58E12DCC	10-02-75	1,140	--	0	99	--	--	--	.24	--	--	--	--
23N52E18BDAC	11-21-75	88	--	--	--	.1a	--	--	--	--	--	<30a	--
25N53E33CABA	11-21-75	72	--	--	--	.0a	--	--	--	--	--	90a	--

Date of collection	Boron (B)	Cadmium (Cd)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Lead (Pb)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Selenium (Se)	Strontium (Sr)	Vanadium (V)	Zinc (Zn)	Carbon, organic as C
08-18-76	1,200	0	0	0	0	2	0	0	0	0	6,500	0	0	23
12-10-75	750	--	--	--	--	--	--	--	--	--	--	--	--	--
07-28-76	290	0	0	0	0	0	0	0	0	0	1,300	0	0	12
08-17-76	500	2	0	0	4	8	0	0	2	0	2,800	0	40	21
07-29-76	360	0	0	0	3	4	1.5	4	2	0	2,000	.5	0	4.8
07-29-76	490	1	0	0	2	13	0	2	1	0	970	0	20	--
09-08-75	800a	--	--	--	--	<50a	--	<10a	--	<2a	3,900a	--	--	--
05-05-76	--	--	--	--	2	--	0	--	--	0	--	--	--	110
11-19-75	180a	--	--	--	--	<50a	--	<10a	--	--	600a	--	--	--
10-03-75	1,400	--	--	--	--	--	--	--	--	--	--	--	--	--
05-07-76	320	0	<30	<30	<6	<20	--	40	<27	0	200	<20	0	26
05-06-76	--	--	--	--	15	--	0	--	--	0	--	--	--	24
05-06-76	--	--	--	--	2	--	0	--	--	0	--	--	--	44
11-21-75	280a	--	--	--	--	<50a	--	<10a	--	<2a	2,400a	--	--	--
05-04-76	140	0	<10	<10	1	<10	0	5	<10	0	3,600	<10	10	7.1
10-02-75	1,200	--	--	--	--	--	--	--	--	--	--	--	--	--
11-19-75	590a	--	--	--	--	50a	--	<10a	--	--	1,800a	--	--	--
11-19-75	1,100a	--	--	--	--	80a	--	<10a	--	--	9,500a	--	--	--
05-04-76	240	0	<10	<10	1	<10	--	20	<10	--	6,900	<10	110	6.2
11-21-75	390a	--	--	--	--	50a	--	<10a	--	--	3,400a	--	--	--
10-03-75	1,200	--	--	--	--	--	--	--	--	--	--	--	--	--
10-02-75	1,400	--	--	--	--	--	--	--	--	--	--	--	--	--
11-21-75	260a	--	--	--	--	50a	--	10a	--	--	1,200a	--	--	--
11-21-75	120a	--	--	--	--	<50a	--	10a	--	--	1,400a	--	--	--

a, Analysis by Montana Bureau of Mines and Geology