

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

HYDROLOGIC DATA FROM SELECTED WELLS
IN THE HELENA VALLEY, LEWIS AND CLARK
COUNTY, MONTANA

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U.S. GEOLOGICAL SURVEY

Open-File Report 79-1676

Prepared in cooperation with
Lewis and Clark County

Helena, Montana

November 1979

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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)
foot (ft)	0.3048	meter (m)
gallon per minute (gal/min)	0.06309	liter per second (L/s)
inch (in.)	0.02540	meter (m)
mile (mi)	1.609	kilometer (km)
temperature, degrees Celsius (°C) = 0.556 (°F-32)		

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ABSTRACT

Hydrologic data were collected during 1978-79 to aid in evaluating the hydrologic conditions in shallow aquifers beneath the Helena valley. The locations of 52 shallow test wells augered during the study are shown on a map at a scale of 1:48,000. Periodic water-level measurements and water-quality analyses for the test holes are listed in tables. Water temperature, specific conductance, and nitrate concentration are given for water samples collected from 98 domestic wells, and chemical analyses are included for 11 domestic and irrigation wells. In addition, water-level drawdown and recovery data are plotted on graphs for five pumped wells and three observation wells.

INTRODUCTION

During 1978 and 1979, personnel of the Montana district, U.S. Geological Survey, and the City-County Health Department, Lewis and Clark County, collected hydrologic information from wells in the Helena valley (fig. 1). This informa-

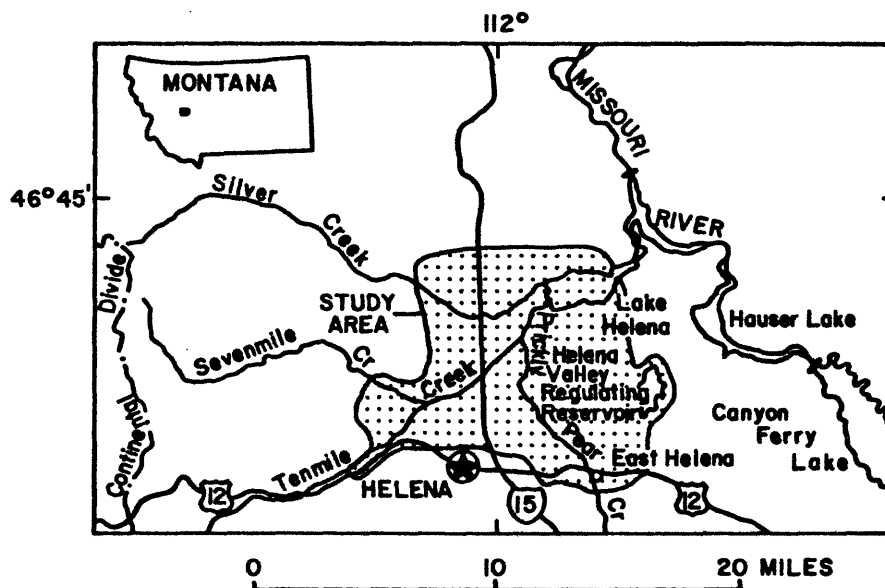


Figure 1.--Map showing location of Helena valley

tion was collected as part of a cooperative investigation by the U.S. Geological Survey and Lewis and Clark County to evaluate the hydrologic conditions in shallow aquifers underlying the Helena valley. This report, which contains the information obtained during the study, was prepared to make the data readily available to interested parties.

At the beginning of the study, 52 shallow test wells were augered at selected sites to provide information on water levels, water quality, and lithology (pl. 1). The wells ranged in depth from 19.6 to 67.0 feet. Each well was cased with 1.5-inch diameter steel pipe. A 3-foot screened drive point, 1.25 inches in diameter, was installed at the bottom of each test well to limit inflow to a specific level. The augered holes were backfilled with fine-grained material to restrict vertical circulation of water in the borehole.

After the test wells were installed, water levels were measured periodically. In addition, most wells were pumped or bailed to obtain water samples for laboratory determination of chemical constituents. Water-level measurements are listed in table 1; water-quality analyses are listed in table 2. Several of the shallower wells were dry throughout the period of study.

In May and June 1979, field water-quality parameters were measured in 98 domestic wells throughout the Helena valley (pl. 1). Although information about well depths or perforated intervals was lacking, the field measurements provide important information about the quality of water from aquifers currently being used as a domestic supply for valley residents. Water temperature, specific conductance, and nitrate concentrations (reported as nitrogen) are listed in table 3.

To further document the quality of water in aquifers used as a domestic supply, water samples were collected from 11 domestic and irrigation wells (pl. 1) for laboratory analysis. These analyses are listed in table 4.

Aquifer tests were performed on five wells to provide information on aquifer characteristics. Water-level drawdowns and recoveries were recorded in the pumped wells and, where available, in nearby observation wells. Drawdown and recovery information is shown on figures 3-18 in the data section of this report.

Geophysical logs were obtained from selected wells and test holes to determine the vertical and areal extent of fine-grained sediments in the valley. The locations of wells for which gamma-ray logs are available are shown on plate 1. The logs are on file in the U.S. Geological Survey office in Helena.

NUMBERING SYSTEM FOR WELLS

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 14 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 west (W) of the Montana Principal Meridian. The next two characters are the section number. The next three or 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 ($2\frac{1}{4}$ -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. The final two characters are sequence numbers that represent the order in which the wells are inventoried. For example, as shown on figure 2, well 11N03W21BAAA01 is the first well inventoried in the NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 21, T. 11 N., R. 3 W.

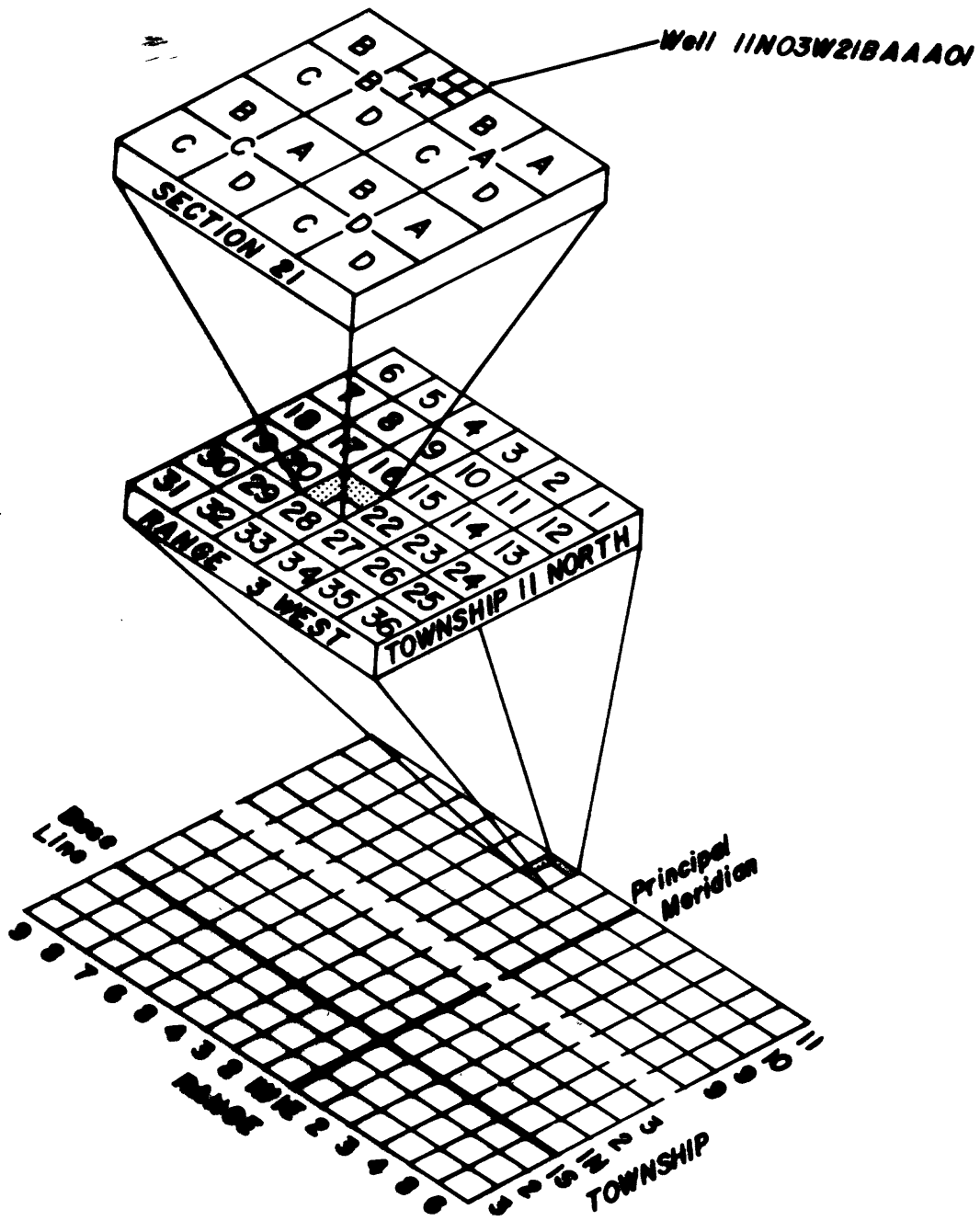


Figure 2.--System for numbering wells.

DATA

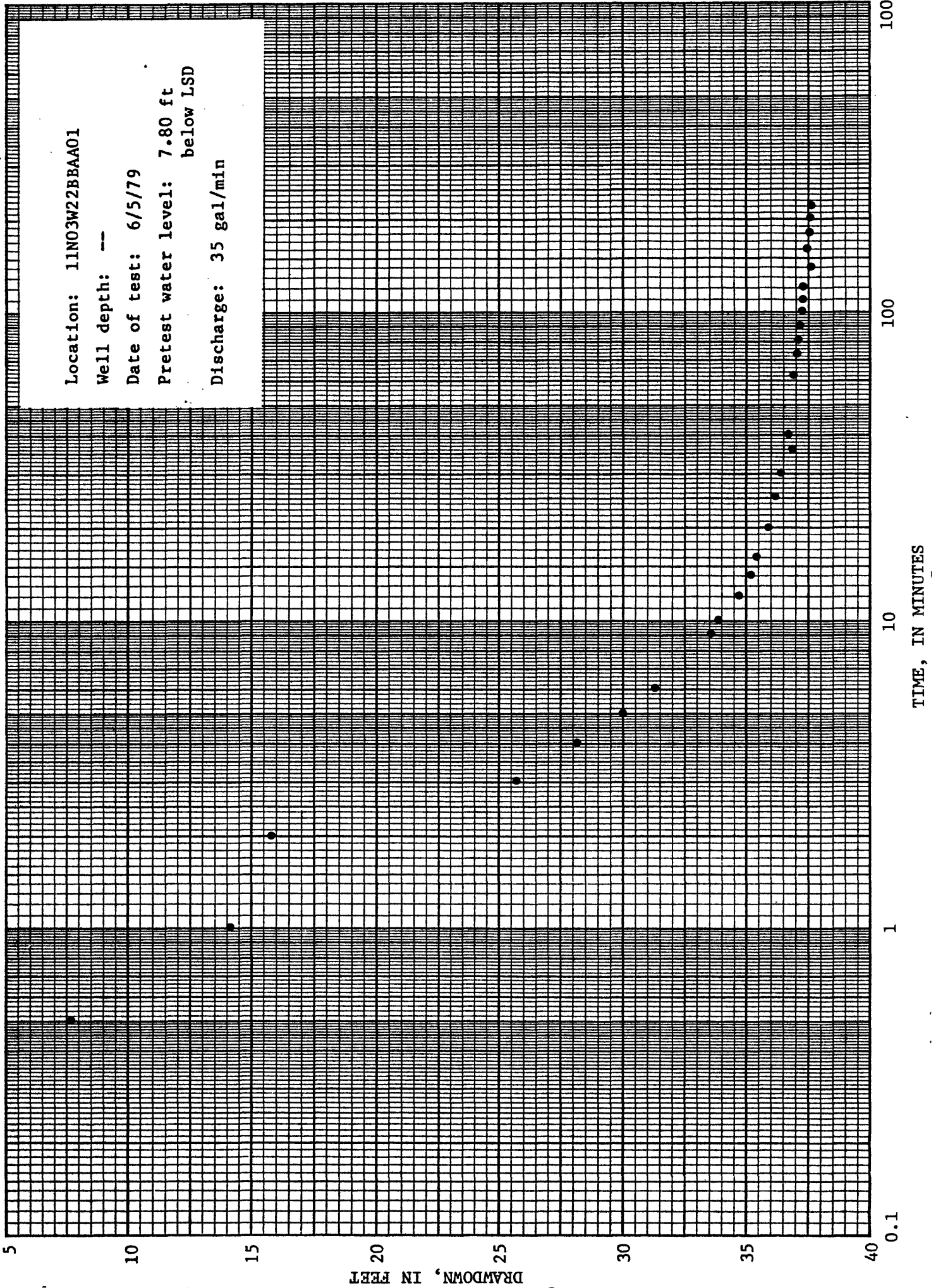


Figure 3.--Drawdown in pumped well 11N03W22BBAA01.

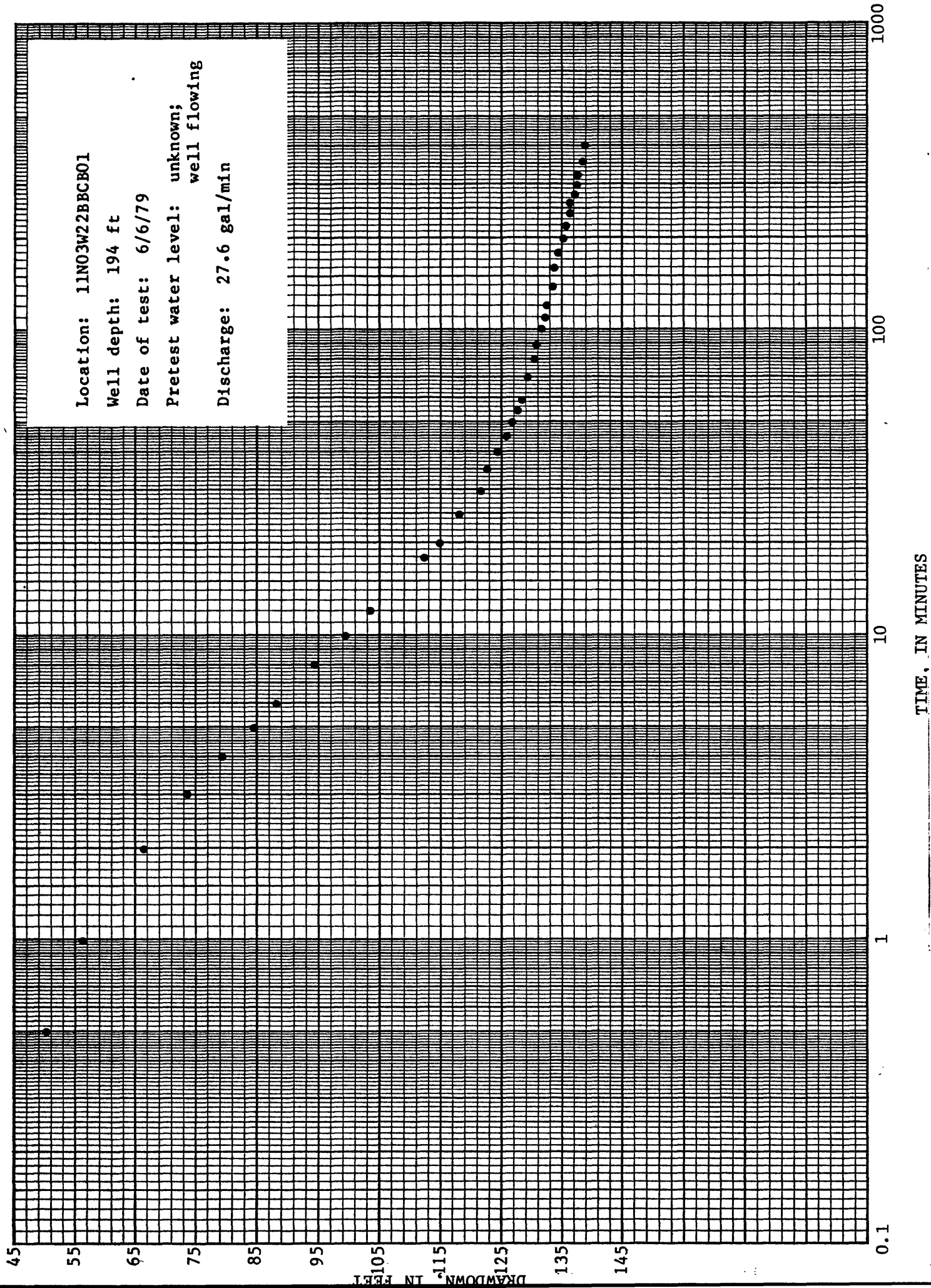


Figure 5.--Drawdown in pumped well 11N03W22BBCB01.

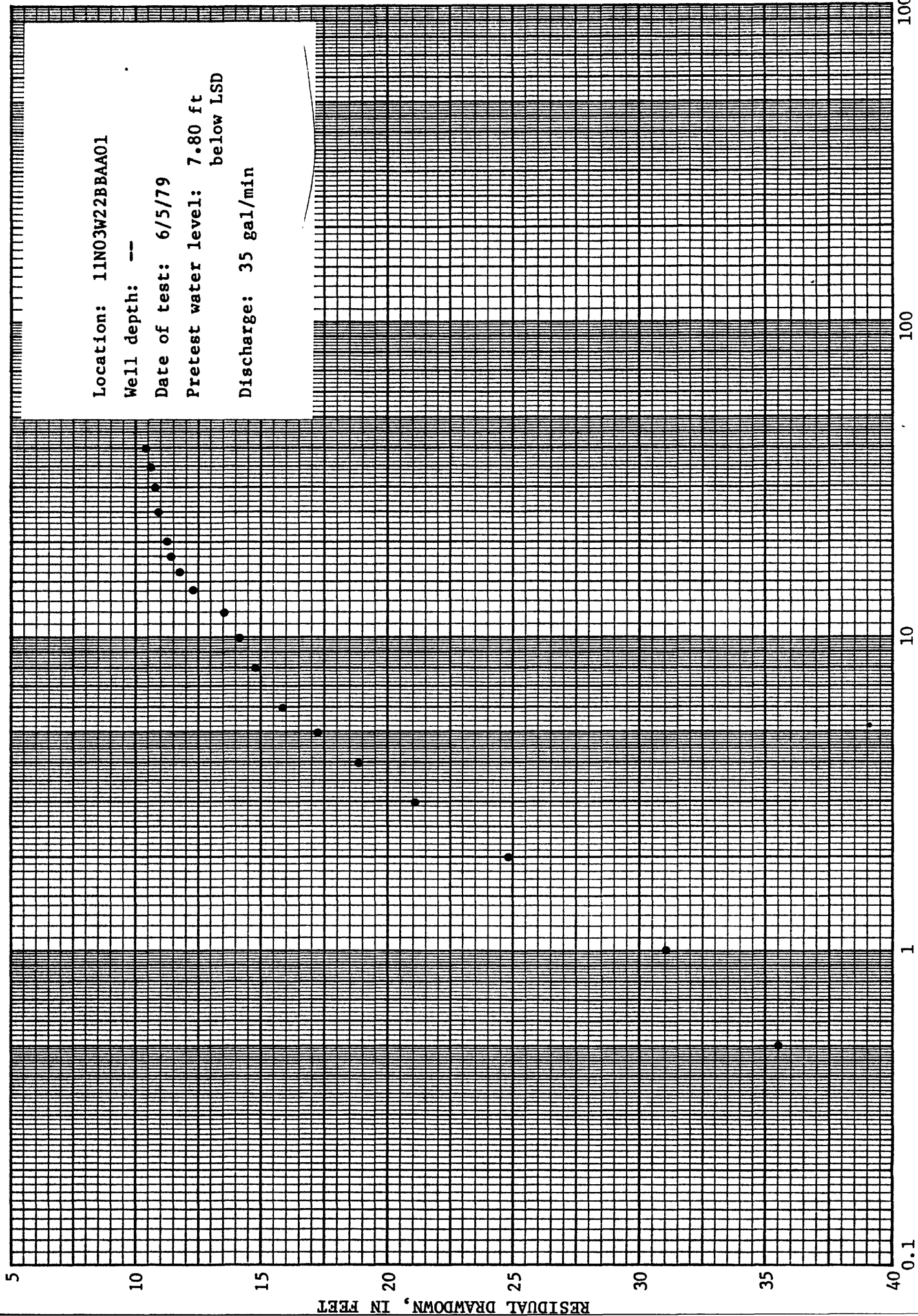


Figure 4.--Recovery in pumped well 11N03W22BBAA01.

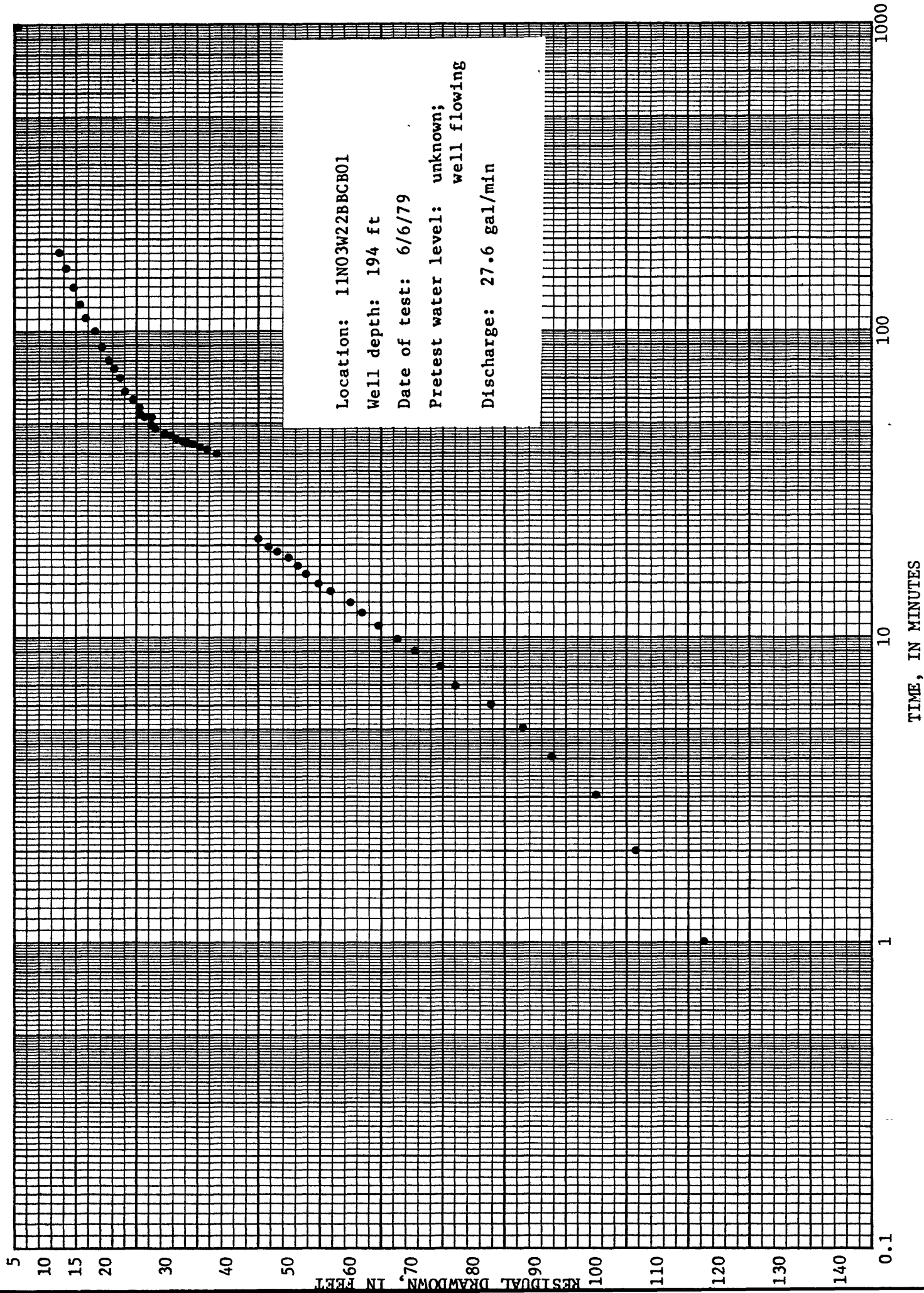


Figure 6.--Recovery in pumped well 11N03W22BBCB01.

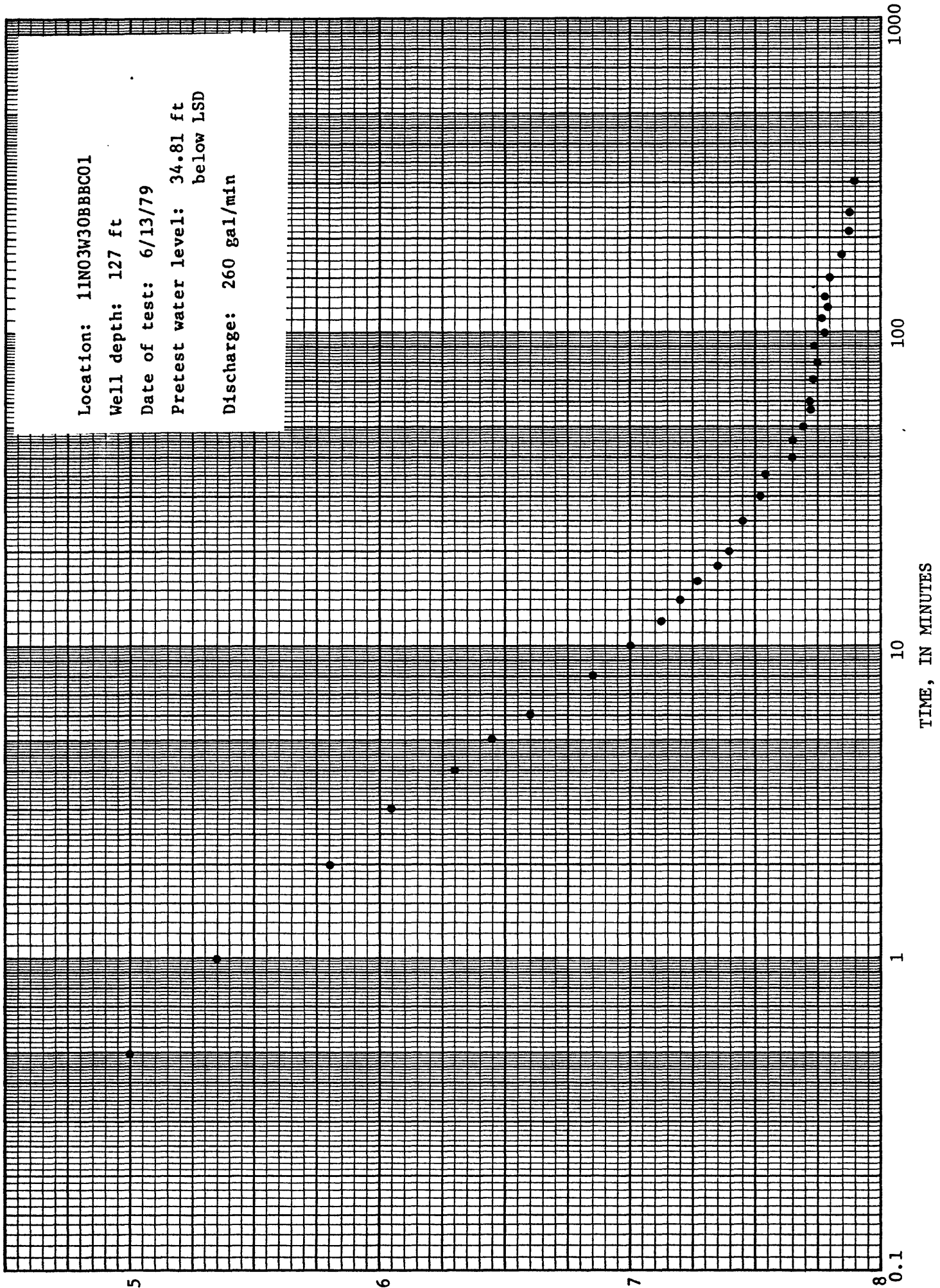


Figure 7.--Drawdown in pumped well 11N03W30BBBC01.

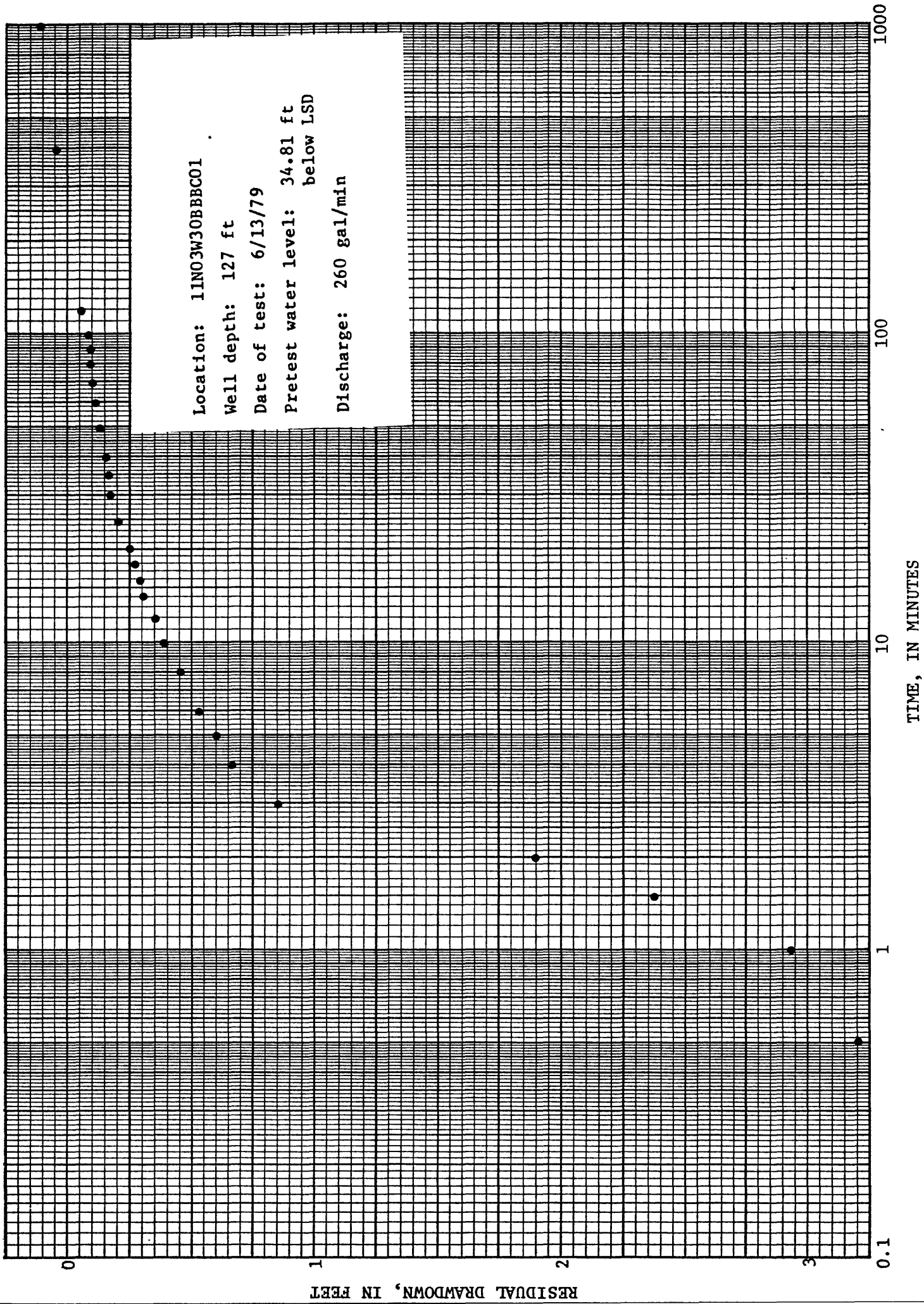


Figure 8.--Recovery in pumped well 11N03W30BBBC01.

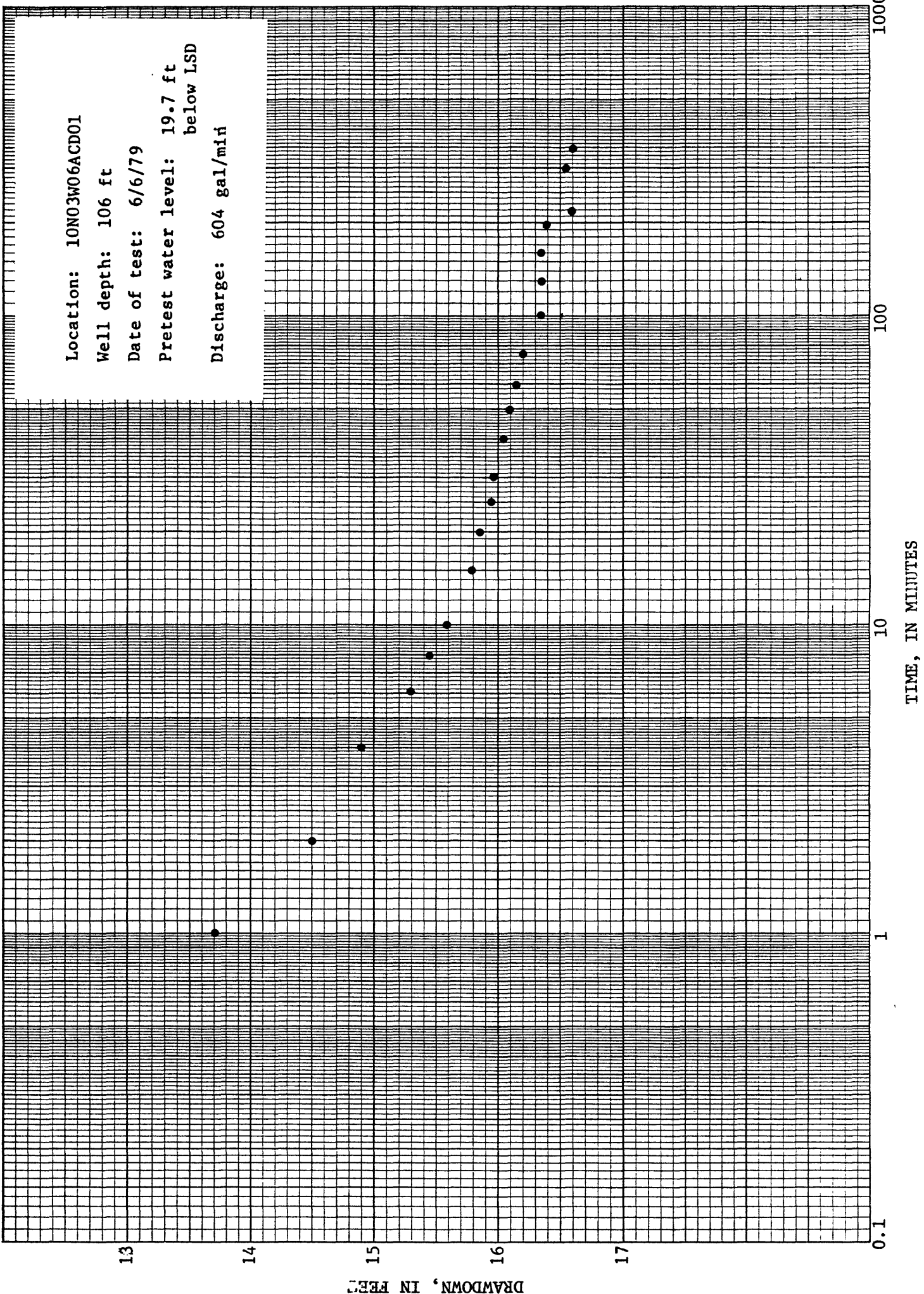


Figure 9.--Drawdown in pumped well 10N03W06ACD01.

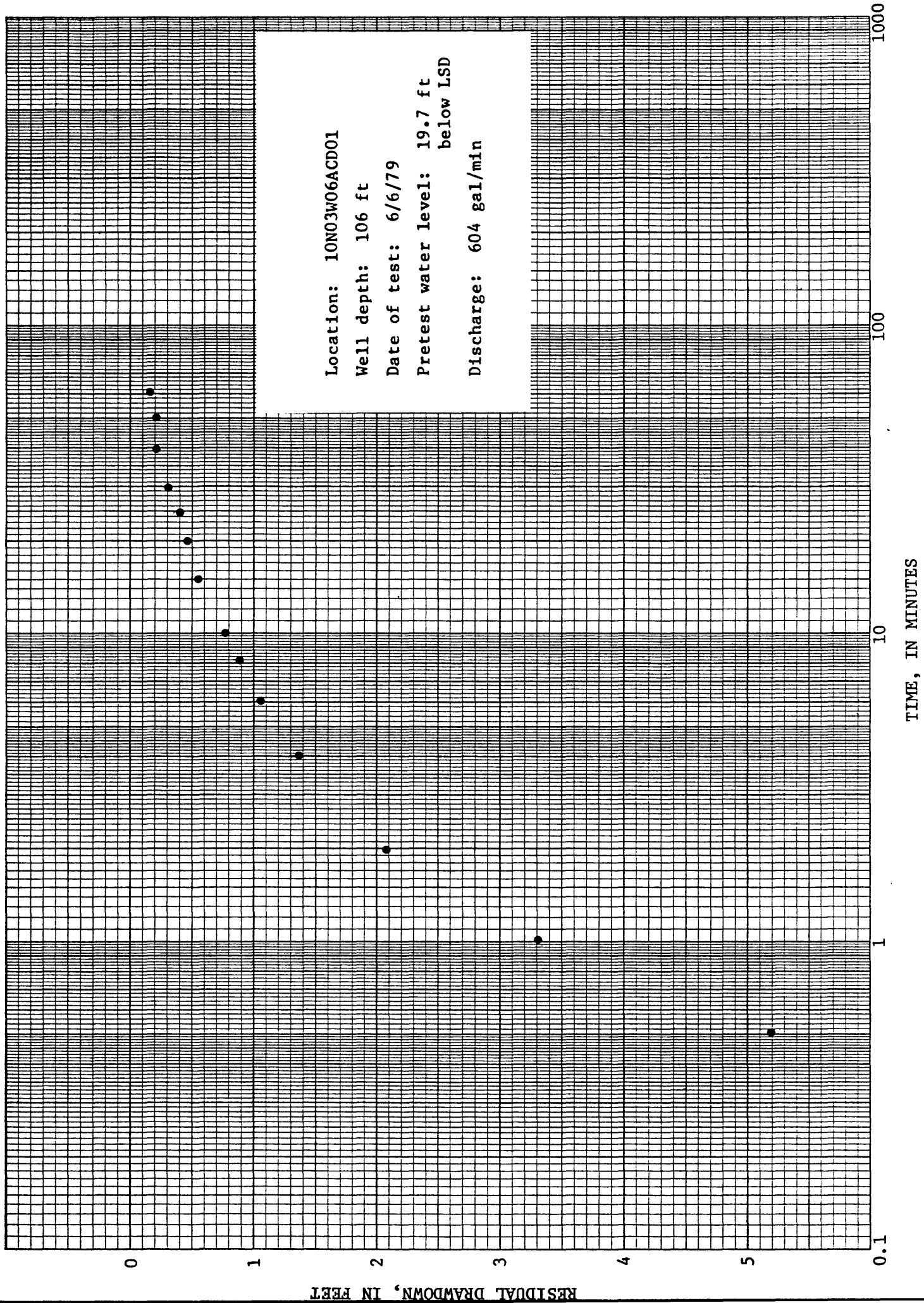


Figure 10.---Recovery in pumped well 10N03W06ACD01.

Location: 10N03W06DBAA01

Well depth: 34.0 ft

Date of test: 6/6/79

Pretest water level: 19.79 ft
below LSD

Discharge: 604 gal/min

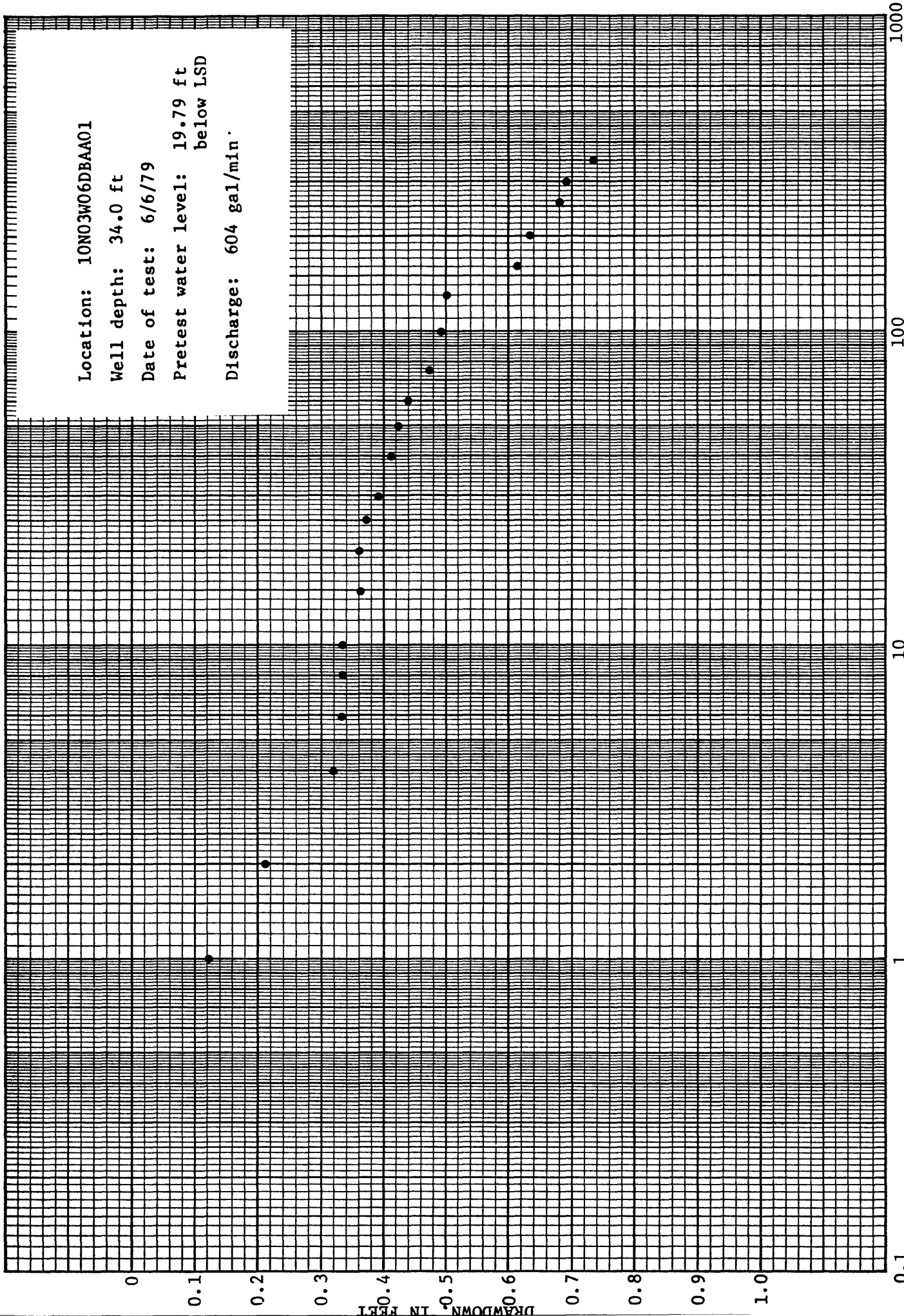


Figure 11.--Drawdown in observation well 10N03W06DBAA01.

Location: 10N03W06DBAA01

Well depth: 34.0 ft

Date of test: 6/6/79

Pretest water level: 19.79 ft
below LSD

Discharge: 604 gal/min

RESIDUAL DRAWDOWN, IN FEET

0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0

0.1

1

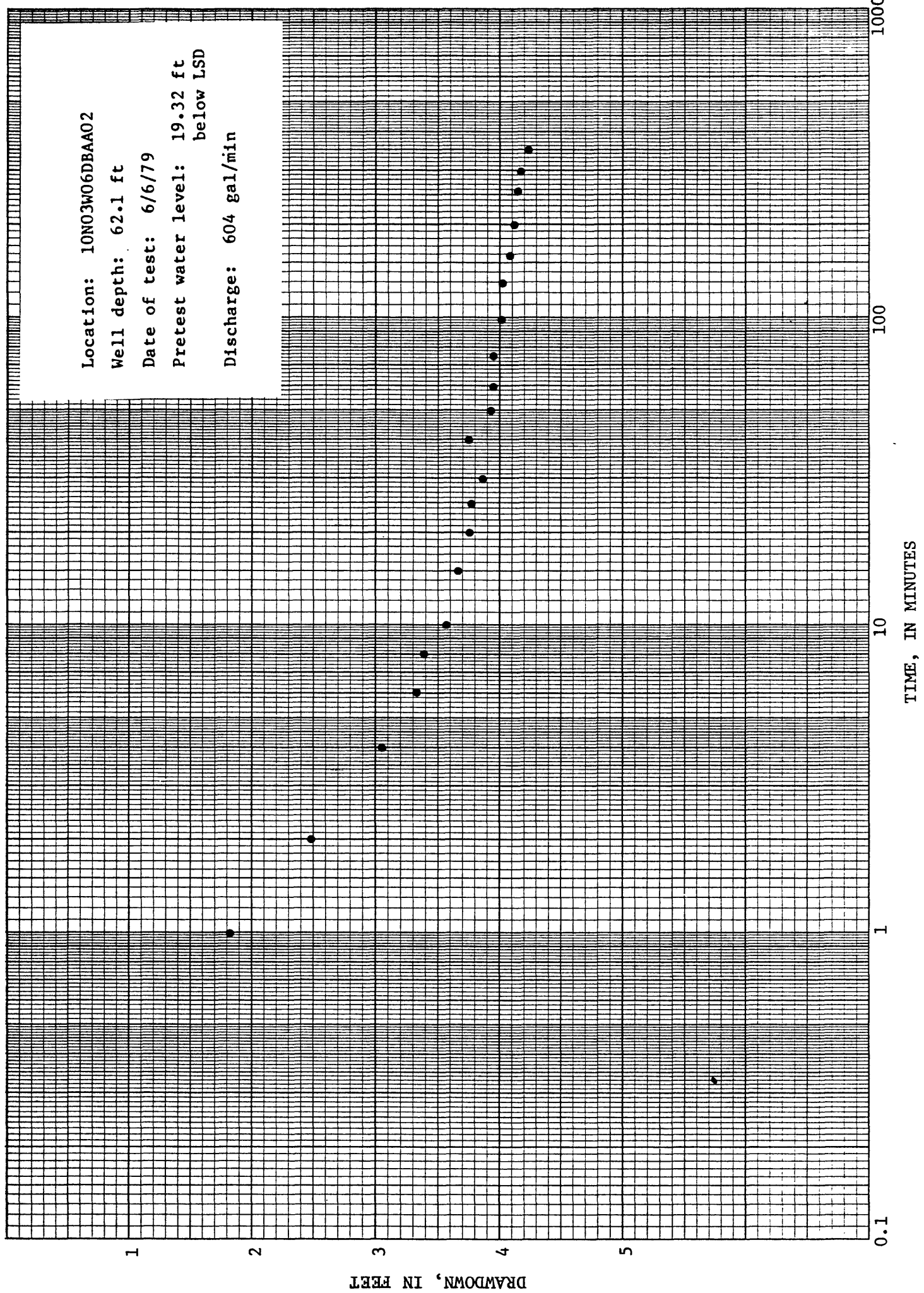
10

100

1000

TIME, IN MINUTES

Figure 12.--Recovery in observation well 10N03W06DBAA01.



Location: 10N03W06DBAA02
 Well depth: 62.1 ft
 Date of test: 6/6/79
 Pretest water level: 19.32 ft
 below LSD
 Discharge: 604 gal/min

Figure 13.--Drawdown in observation well 10N03W06DBAA02.

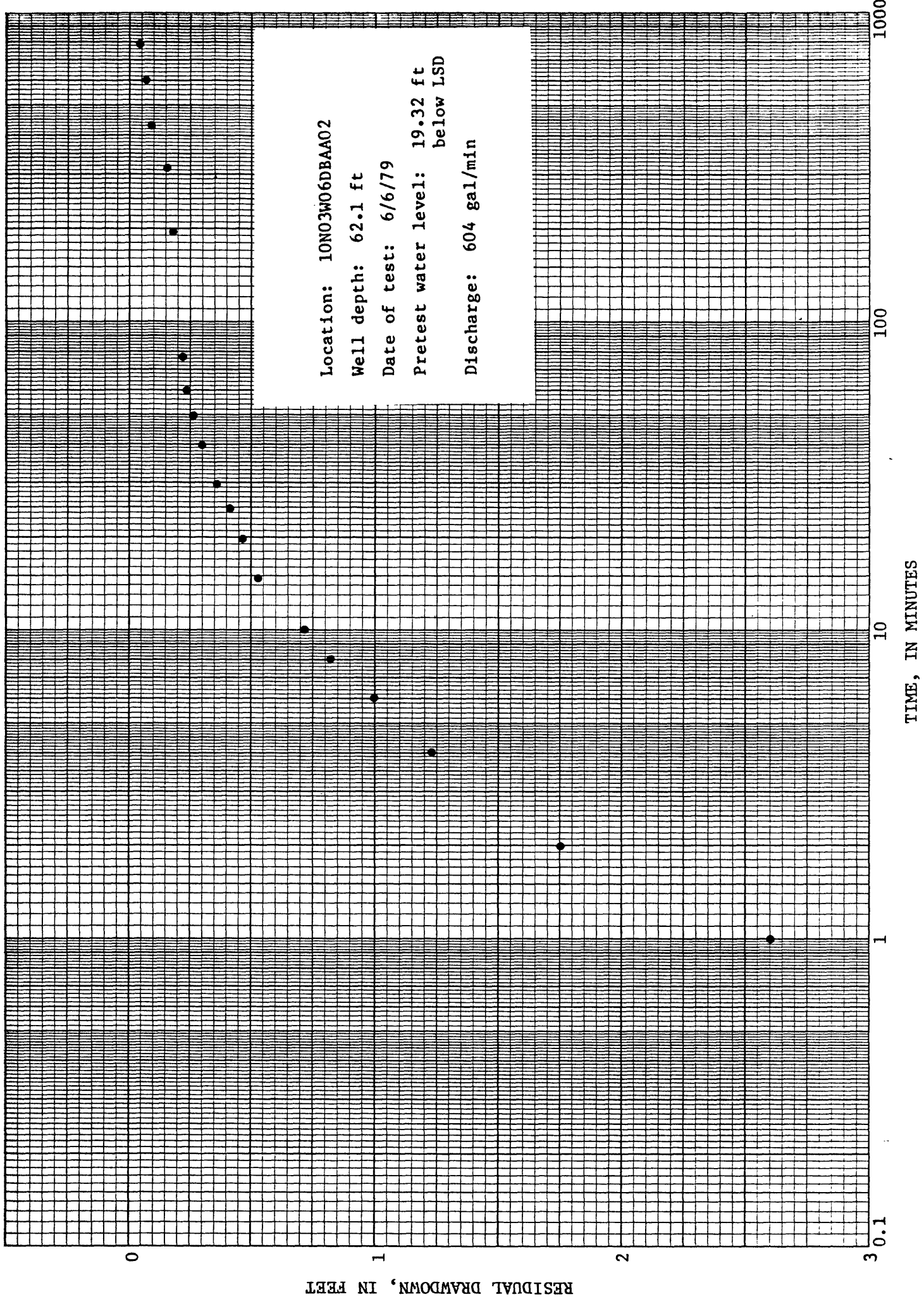


Figure 14.--Recovery in observation well 10N03W06DBAA02.

Location: 10N03W15DDD01

Well depth: 95 ft

Date of test: 6/21/79

Pretest water level: 7.97 ft
below LSD

Discharge: 312 gal/min

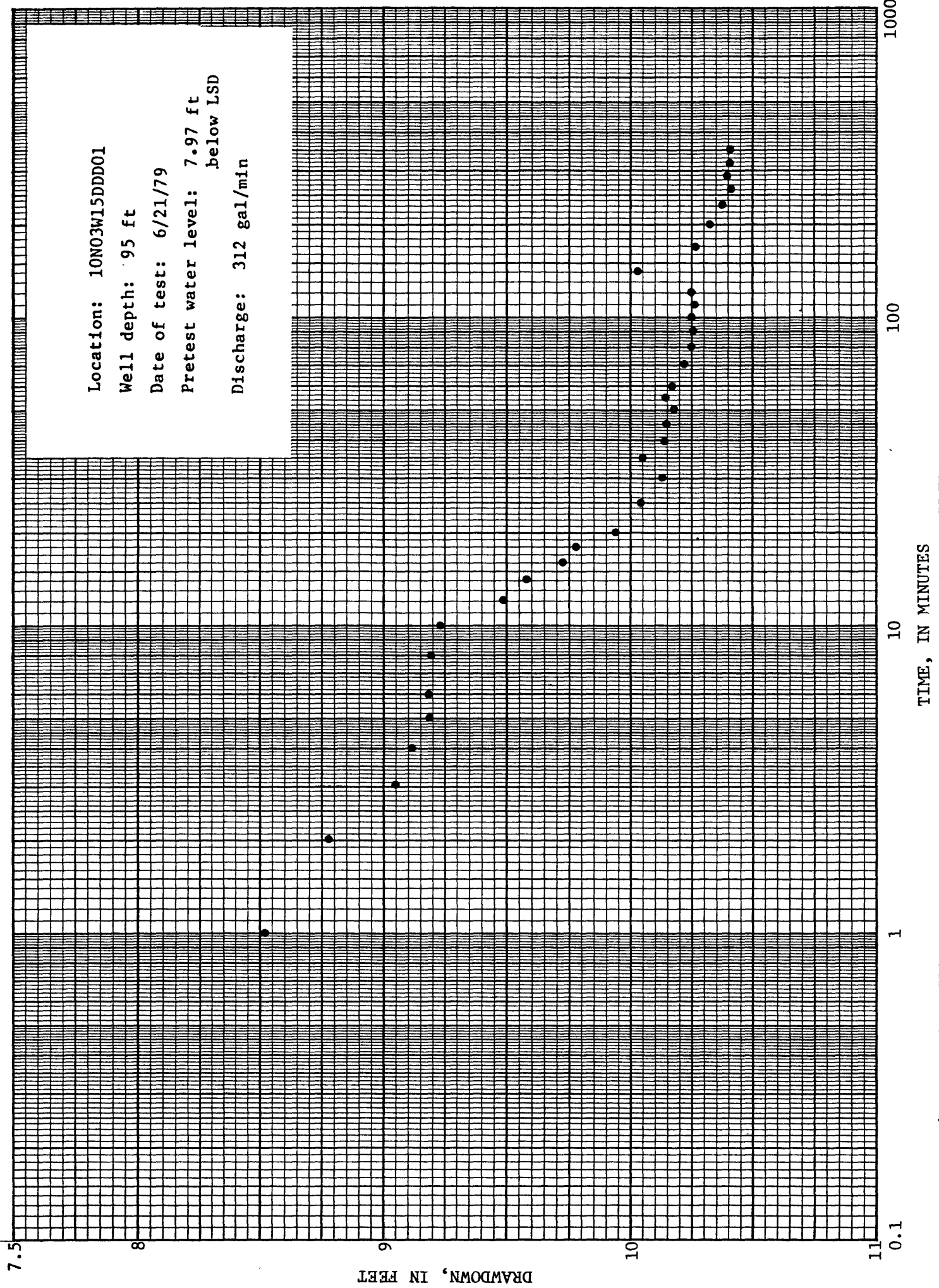


Figure 15.--Drawdown in pumped well 10N03W15DDD01.

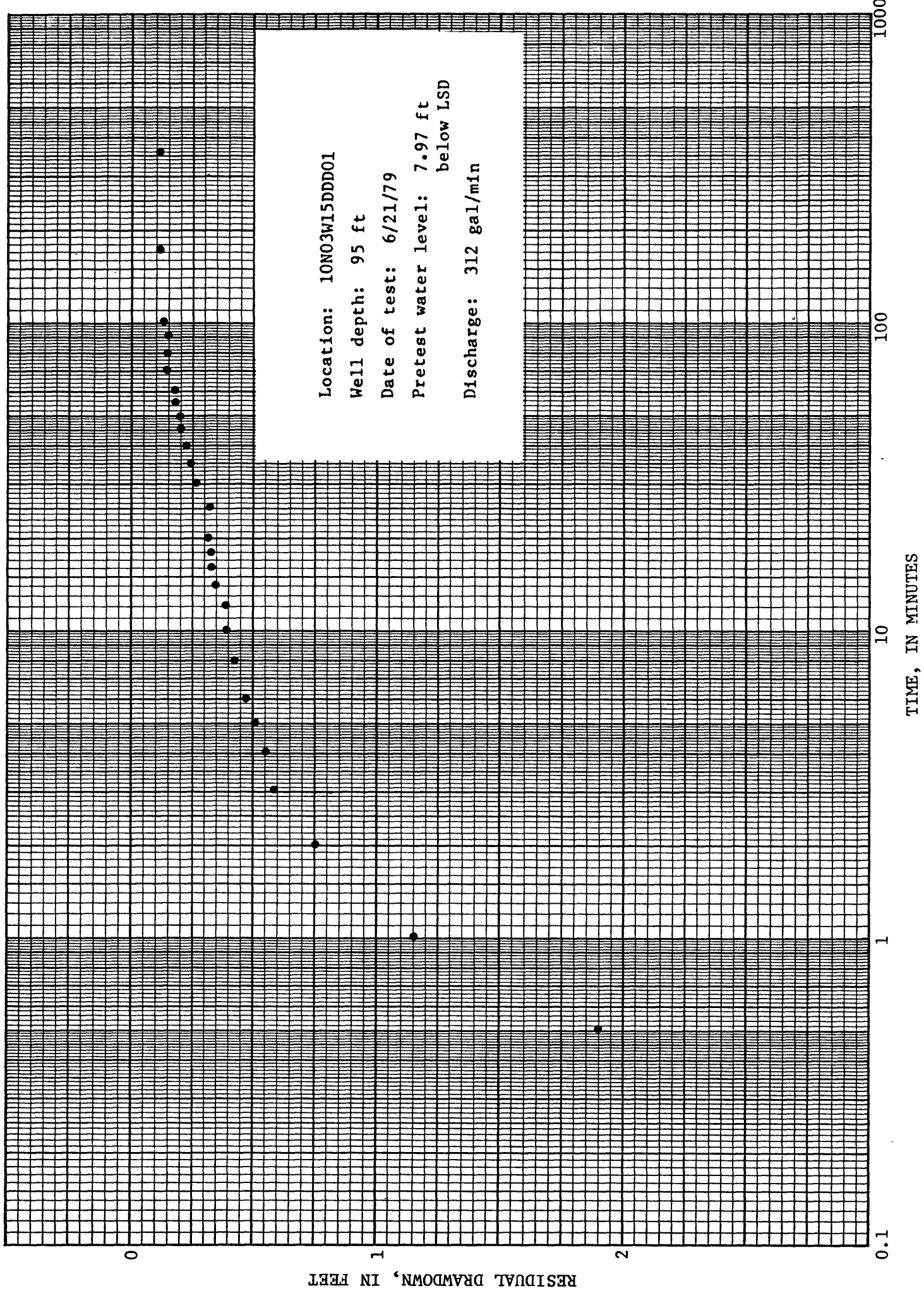


Figure 16.--Recovery in pumped well 10N03W15DDD01.

Location: 10N03W15DDD02

Well depth: 42.0 ft

Date of test: 6/21/79

Pretest water level: 8.14 ft
below LSD

Discharge: 312 gal/min

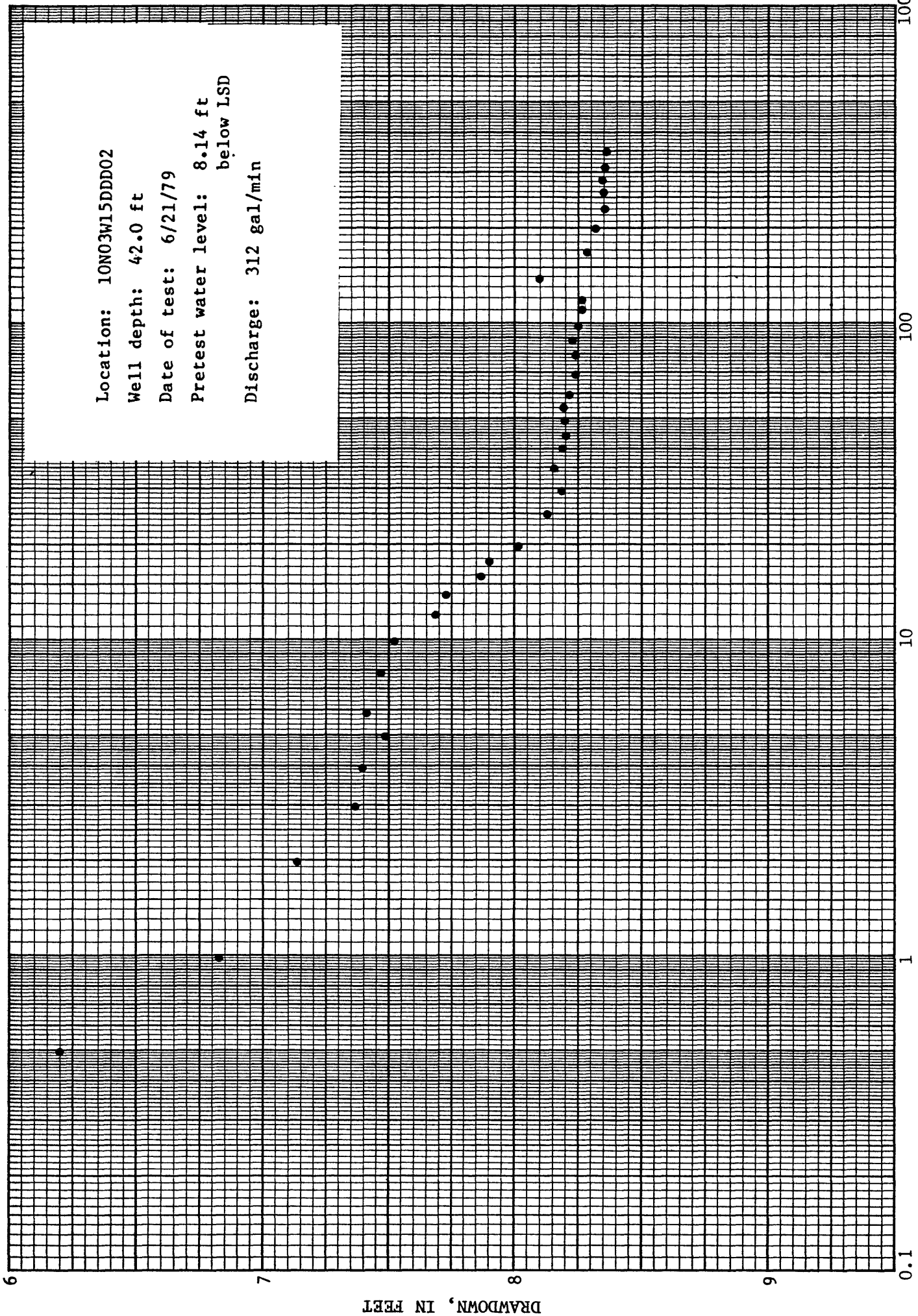


Figure 17.--Drawdown in observation well 10N03W15DDD02.

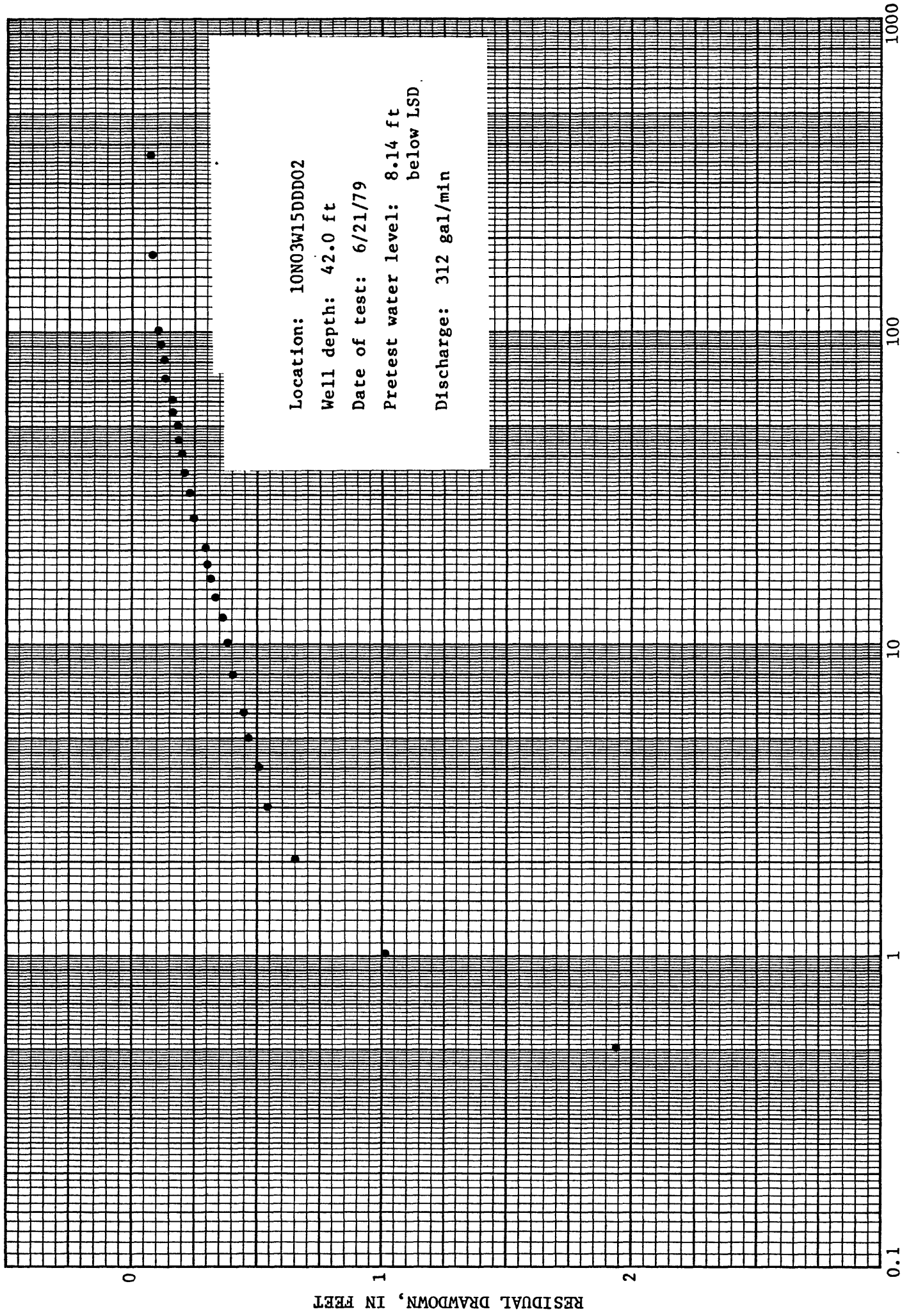


Figure 18.--Recovery in observation well 10N03W15DDD02.

Table 1.--Water levels in test wells

[Depths given in feet below land surface. Depths determined by steel-tape measurement except as indicated otherwise.
C, continuous recorder value]

Date	Depth to water	Date	Depth to water	Date	Depth to water
11N02W30DCAD01 (well depth = 45.4 ft)					
12-27-78	29.19	3-08-79	29.75	5-15-79	28.68
12-29-78	29.08	3-14-79	29.56	5-25-79	29.52
1-03-79	29.12	3-23-79	29.53	6-10-79	23.92
1-04-79	29.17	3-26-79	29.65	7-09-79	22.57
1-22-79	29.46	3-28-79	29.65	7-24-79	23.10
2-02-79	29.55	4-06-79	29.62	8-13-79	23.06
2-20-79	29.72	4-10-79	29.62	8-30-79	23.73
2-26-79	29.68	4-20-79	29.70	9-13-79	24.69
3-05-79	29.64	4-25-79	29.61		
11N02W31ACAA01 (well depth = 44.0 ft)					
12-27-78	27.95	3-05-79	28.67	4-25-79	28.72
12-29-78	28.04	3-08-79	28.72	5-25-79	28.39
1-03-79	28.06	3-14-79	28.63	6-10-79	25.99
1-04-79	28.01	3-23-79	28.65	7-10-79	25.74
1-22-79	28.32	3-26-79	28.65	7-24-79	23.45
2-02-79	28.45	3-28-79	28.67	8-13-79	22.52
2-20-79	28.63	4-06-79	28.55	8-30-79	25.34
2-26-79	28.73	4-10-79	28.62	9-13-79	26.36
11N03W15CCBB01 (well depth = 22.9 ft)					
9-26-78	3.42	3-05-79	4.03	5-25-79	1.18
12-27-78	3.51	3-08-79	3.68	6-10-79	1.51
12-29-78	3.63	3-14-79	2.79	6-29-79	2.88
1-03-79	4.99	3-23-79	2.08	7-09-79	1.87
1-04-79	5.07	3-26-79	2.11	7-20-79	1.40
1-22-79	5.26	3-28-79	2.13	8-13-79	5.09
2-02-79	4.55	4-05-79	2.09	8-30-79	5.30
2-20-79	4.22	4-10-79	1.55	9-13-79	5.47
2-27-79	3.88	5-15-79	2.68		

Table 1.--Water levels in test wells--Continued

Date	Depth to water	Date	Depth to water	Date	Depth to water
11N03W15DCDD01 (well depth = 24.2 ft)					
1-03-79	4.38	5-15-79	5.95	7-23-79	1.90
1-04-79	4.61	6-10-79	3.12	8-13-79	3.00
1-22-79	5.04	6-29-79	2.45	8-30-79	3.88
4-25-79	5.94	7-09-79	1.26	9-13-79	3.76
11N03W18CCCC01 (well depth = 24.7 ft)					
Dry					
11N03W20BBBB01 (well depth = 23.0 ft)					
12-05-78	Dry	7-09-79	13.82	8-30-79	11.87
5-15-79	18.48	7-20-79	13.40	9-13-79	12.07
6-10-79	14.74	8-13-79	12.66		
11N03W21BAAA01 (well depth = 46.4 ft)					
9-26-78	3.36	3-08-79	3.28	5-15-79	3.45
12-27-78	3.66	3-14-79	2.91	5-25-79	3.14
12-29-78	3.76	3-23-79	2.81	6-10-79	3.19
2-02-79	4.35	3-26-79	2.82	7-09-79	1.86
2-20-79	4.02	3-28-79	2.87	7-20-79	1.90
2-27-79	4.04	4-05-79	2.90	8-13-79	1.75
3-05-79	3.97	4-10-79	3.38	8-30-79	2.62
				9-13-79	3.46

Table 1.--Water levels in test wells--Continued

Date	Depth to water	Date	Depth to water	Date	Depth to water
11N03W21DDAD01 (well depth = 65.4 ft)					
11-15-78	6.37 C	3-29-79	6.53	6-07-79	6.04 C
12-18-78	6.74 C	3-30-79	6.51 C	6-08-79	5.92 C
2-20-79	7.00	3-31-79	6.52 C	6-09-79	5.86 C
2-21-79	7.00 C	4-01-79	6.54 C	6-10-79	5.75 C
2-22-79	7.02 C	4-02-79	6.55 C	6-11-79	5.71 C
2-23-79	7.03 C	4-03-79	6.53 C	6-12-79	5.66 C
2-24-79	7.06 C	4-04-79	6.50 C	6-13-79	5.65 C
2-25-79	7.10 C	4-05-79	6.43 C	6-14-79	5.67 C
2-26-79	7.13 C	4-06-79	6.40 C	6-15-79	5.62 C
2-27-79	7.14 C	4-07-79	6.41 C	6-16-79	5.56 C
2-28-79	7.12 C	4-08-79	6.42 C	6-17-79	5.37 C
3-01-79	7.10 C	4-09-79	6.45 C	6-18-79	5.19 C
3-02-79	7.09 C	4-10-79	6.43 C	6-19-79	5.05 C
3-03-79	7.07 C	4-11-79	6.39 C	6-20-79	5.10 C
3-04-79	7.05 C	4-12-79	6.33 C	6-21-79	5.17 C
3-05-79	7.05 C	5-30-79	6.08	6-22-79	5.20 C
3-06-79	7.02 C	5-31-79	6.07 C	6-23-79	5.25 C
3-07-79	6.87 C	6-01-79	5.99 C	7-03-79	5.39 C
3-08-79	6.72 C	6-02-79	5.97 C	7-04-79	5.67 C
3-09-79	6.63 C	6-03-79	6.05 C	7-05-79	5.38 C
3-10-79	6.60 C	6-04-79	6.12 C	7-23-79	5.50 C
3-11-79	6.57 C	6-05-79	6.08 C	8-22-79	5.37
3-12-79	6.55	6-06-79	6.11 C	8-30-79	5.38
				9-13-79	5.53

Table 1.--Water levels in test wells--Continued

Date	Depth to water	Date	Depth to water	Date	Depth to water
11N03W21DDAD02 (well depth = 23.5 ft)					
2-02-79	7.42	5-03-79	5.66 C	5-31-79	5.68 C
3-08-79	6.73	5-04-79	5.64 C	6-01-79	5.23 C
3-09-79	6.59 C	5-05-79	5.63 C	6-02-79	4.94 C
3-10-79	6.53 C	5-06-79	5.62 C	6-03-79	5.06 C
3-11-79	6.42 C	5-07-79	5.59 C	6-04-79	5.17 C
3-13-79	6.35	5-08-79	5.54 C	6-05-79	5.28 C
3-12-79	6.35 C	5-09-79	5.49 C	6-06-79	5.38 C
3-29-79	6.32	5-10-79	5.44 C	6-07-79	5.43 C
3-30-79	6.28 C	5-11-79	5.39 C	6-08-79	5.40 C
3-31-79	6.30 C	5-17-79	5.26 C	6-09-79	5.35 C
4-01-79	6.33 C	5-18-79	5.23 C	6-10-79	5.31 C
4-02-79	6.34 C	5-19-79	5.18 C	6-11-79	5.25 C
4-03-79	6.34 C	5-20-79	5.14 C	6-12-79	5.24 C
4-04-79	6.33 C	5-21-79	5.09 C	6-13-79	5.23 C
4-24-79	5.56 C	5-22-79	5.05 C	6-14-79	5.26 C
4-25-79	5.65 C	5-23-79	5.02 C	6-15-79	5.24 C
4-26-79	5.71 C	5-24-79	5.02 C	6-16-79	5.24 C
4-27-79	5.72 C	5-25-79	5.15 C	6-17-79	4.62 C
4-28-79	5.69 C	5-26-79	5.75 C	7-25-79	4.50
4-29-79	5.69 C	5-27-79	5.82 C	8-22-79	5.30
4-30-79	5.69 C	5-28-79	5.81 C	8-30-79	5.56
5-01-79	5.68 C	5-29-79	5.79 C	9-13-79	5.82
5-02-79	5.68 C	5-30-79	5.74		
11N03W30BAAA01 (well depth = 23.6 ft)					
12-05-78	Dry	7-09-79	13.22	8-13-79	7.29
5-15-79	Dry	7-20-79	10.80	8-30-79	10.82
				9-13-79	13.24

Table 1.--Water levels in test wells--Continued

Date	Depth to water	Date	Depth to water	Date	Depth to water
11N03W30DADA01 (well depth = 44.0 ft)					
12-27-78	4.23	3-05-79	3.97	4-24-79	3.00
12-29-78	4.22	3-08-79	4.15	5-15-79	3.85
1-03-79	4.27	3-13-79	3.92	5-24-79	3.50
1-04-79	4.32	3-14-79	3.94	6-10-79	3.44
1-22-79	4.14	3-19-79	3.48	7-09-79	0.25
2-01-79	4.08	3-26-79	3.48	7-20-79	0.10
2-08-79	4.09	3-28-79	3.05	8-13-79	-1.16
2-20-79	4.07	4-05-79	3.50	8-28-79	-1.17
2-26-79	4.08	4-10-79	3.50	8-30-79	-1.00
				9-14-79	-.75
11N03W30DADA02 (well depth = 24.8 ft)					
12-27-78	7.95	3-05-79	7.97	4-24-79	5.91
12-29-78	8.03	3-08-79	6.24	5-15-79	5.19
1-03-79	7.80	3-13-79	6.16	5-25-79	6.55
1-04-79	7.94	3-14-79	6.22	6-10-79	6.48
1-22-79	8.12	3-19-79	6.22	7-09-79	3.42
2-01-79	8.09	3-26-79	6.24	7-20-79	2.90
2-08-79	8.16	3-28-79	6.55	8-13-79	1.87
2-20-79	8.06	4-05-79	6.21	8-28-79	4.53
2-26-79	7.99	4-10-79	6.25	8-30-79	4.75
				9-14-79	6.10
11N03W31DABA01 (well depth = 23.7 ft)					
9-26-78	4.45	2-26-79	6.08	4-24-79	5.79
12-27-78	4.16	3-01-79	6.13	5-15-79	5.74
12-29-78	5.18	3-07-79	6.08	5-24-79	5.56
1-03-79	5.15	3-14-79	5.79	6-10-79	5.38
1-04-79	5.40	3-19-79	5.72	6-29-79	5.31
1-22-79	5.77	3-26-79	5.28	7-09-79	5.33
2-01-79	5.87	3-28-79	5.65	7-23-79	5.15
2-08-79	5.92	4-05-79	5.64	8-13-79	5.01
2-20-79	6.02	4-10-79	5.54	8-30-79	4.65
				9-14-79	4.70

Table 1.--Water levels in test wells--Continued

Date	Depth to water	Date	Depth to water	Date	Depth to water
11N03W35DCCC01 (well depth = 22.1 ft)					
9-26-78	2.88	2-27-79	5.10	4-06-79	4.78
12-28-78	4.42	3-05-79	5.13	6-10-79	2.31
12-29-78	4.54	3-08-79	3.92	7-10-79	2.87
1-03-79	4.52	3-13-79	4.72	7-24-79	2.20
1-04-79	4.51	3-14-79	4.74	8-13-79	2.88
1-22-79	4.80	3-23-79	4.87	8-30-79	3.23
2-02-79	4.89	3-26-79	4.86	9-13-79	3.64
2-20-79	5.02	3-28-79	4.89		
11N04W25ADDD01 (well depth = 23.5 ft)					
12-27-78	10.54	7-09-79	Dry	9-06-79	17.82
3-13-79	10.00	8-13-79	17.80	9-13-79	17.60
5-15-79	Dry	8-30-79	17.78		
11N04W25DDDD01 (well depth = 19.6 ft)					
12-27-78	9.08	3-05-79	12.71	5-15-79	12.00
12-29-78	9.63	3-14-79	11.29	5-17-79	12.60
1-03-79	9.54	3-19-79	11.50	5-24-79	12.10
1-04-79	9.67	3-26-79	11.68	6-10-79	11.87
1-22-79	11.41	3-28-79	11.72	7-09-79	4.61
2-01-79	11.53	4-05-79	12.00	7-19-79	3.95
2-08-79	10.93	4-10-79	12.10	8-13-79	3.64
2-20-79	11.37	4-17-79	12.18	8-30-79	4.09
2-26-79	11.50	4-24-79	11.91	9-13-79	5.07

Table 1.--Water levels in test wells--Continued

Date	Depth to water	Date	Depth to water	Date	Depth to water
10N02W06CBCC01 (well depth = 24.0 ft)					
12-05-78	9.00	3-05-79	10.47	5-16-79	10.35
12-28-78	9.03	3-08-79	10.32	5-25-79	10.34
1-02-79	9.16	3-14-79	10.28	6-13-79	5.84
1-03-79	9.15	3-23-79	10.29	7-10-79	5.57
1-15-79	9.47	3-26-79	10.94	7-24-79	3.80
1-22-79	9.64	3-28-79	10.49	8-13-79	4.74
2-02-79	9.60	4-06-79	10.47	8-30-79	6.20
2-20-79	9.89	4-11-79	10.47	9-13-79	6.83
2-27-79	10.35	4-25-79	10.52		
10N02W06DDBC01 (well depth = 24.0 ft)					
12-06-78	7.90	3-05-79	8.72	4-25-79	10.55
12-28-78	7.93	3-08-79	8.23	5-16-79	8.40
1-02-79	7.99	3-14-79	8.44	5-25-79	8.33
1-03-79	7.92	3-23-79	8.48	6-13-79	8.24
1-04-79	8.13	3-26-79	8.42	7-10-79	5.75
1-25-79	8.87	3-28-79	8.55	7-26-79	5.25
2-02-79	8.24	4-06-79	8.64	8-13-79	6.98
2-27-79	8.44	4-12-79	8.57	8-30-79	6.84
				9-13-79	6.87
10N02W07BBBB01 (well depth = 24.0 ft)					
12-05-78	11.20	3-05-79	13.50	4-25-79	13.71
12-28-78	11.68	3-08-79	13.05	5-16-79	13.50
1-02-79	11.83	3-14-79	13.39	5-25-79	13.28
1-04-79	12.20	3-23-79	13.57	6-10-79	12.97
1-22-79	12.42	3-26-79	13.62	7-24-79	6.75
2-02-79	12.61	3-28-79	13.67	8-13-79	7.30
2-20-79	13.07	4-06-79	13.64	8-30-79	8.61
2-27-79	13.29	4-11-79	13.75	9-13-79	8.99

Table 1.--Water levels in test wells--Continued

Date	Depth to water	Date	Depth to water	Date	Depth to water
10N03W01DBCC01 (well depth = 22.0 ft)					
12-06-78	6.10	2-27-79	9.65	4-25-79	10.46
12-28-78	8.06	3-05-79	9.78	5-16-79	9.86
12-29-78	8.21	3-08-79	9.76	5-25-79	9.78
1-03-79	8.28	3-14-79	9.70	6-10-79	6.26
1-04-79	8.30	3-23-79	9.80	7-10-79	4.97
1-15-79	8.58	3-26-79	9.85	7-25-79	1.45
1-22-79	8.80	3-28-79	9.90	8-13-79	4.41
1-25-79	8.12	4-06-79	9.86	8-30-79	5.36
2-20-79	9.39	4-16-79	10.16	9-13-79	6.09
10N03W01DBCC02 (well depth = 67.0 ft)					
12-06-78	6.20	2-27-79	9.59	5-16-79	9.67
12-28-78	8.25	3-05-79	9.83	5-25-79	10.23
1-02-79	8.37	3-08-79	9.82	6-13-79	5.91
1-03-79	8.37	3-23-79	9.94	7-10-79	4.27
1-15-79	8.73	3-26-79	9.96	7-25-79	2.65
1-22-79	8.92	3-28-79	9.79	8-13-79	4.05
1-25-79	7.38	4-06-79	9.70	8-30-79	4.92
2-02-79	9.14	4-06-79	10.28	9-13-79	5.57
2-20-79	9.59	4-25-79	9.97		
10N03W03BACB01 (well depth = 64.8 ft)					
9-26-78	0.57	2-27-79	2.19	4-16-79	1.58
12-28-78	2.22	3-05-79	2.17	4-25-79	1.51
12-29-78	2.30	3-08-79	1.76	5-16-79	1.25
1-03-79	1.93	3-14-79	1.43	5-25-79	1.47
1-04-79	2.06	3-23-79	1.46	6-10-79	1.22
1-22-79	2.16	3-26-79	1.59	7-10-79	1.28
2-02-79	1.53	3-28-79	1.55	8-13-79	1.42
2-20-79	2.14	4-06-79	1.68	8-30-79	1.44
				9-13-79	1.38

Table 1.--Water levels in test wells--Continued

Date	Depth to water	Date	Depth to water	Date	Depth to water
10N03W03BACB02 (well depth = 24.0 ft)					
9-26-78	3.51	3-05-79	4.32	4-25-79	3.76
12-28-78	4.11	3-08-79	3.66	5-16-79	3.41
12-29-78	4.25	3-13-79	4.38	5-25-79	3.58
1-03-79	4.27	3-14-79	4.39	6-13-79	3.42
1-04-79	4.22	3-23-79	3.66	7-10-79	3.60
1-22-79	4.36	3-26-79	3.68	8-13-79	3.85
2-20-79	4.29	3-28-79	3.75	8-30-79	3.83
2-27-79	4.33	4-06-79	3.79	9-13-79	3.77
10N03W05BAAA01 (well depth = 64.5 ft)					
9-26-78	8.74	2-26-79	10.78	4-24-79	9.61
12-27-78	9.55	3-01-79	10.78	5-15-79	10.89
12-29-78	9.62	3-08-79	9.58	5-24-79	8.64
1-03-79	9.75	3-14-79	8.73	6-10-79	8.77
1-04-79	9.72	3-19-79	9.89	7-09-79	8.62
1-22-79	10.23	3-26-79	9.07	7-23-79	8.00
2-01-79	10.43	3-28-79	8.93	8-13-79	8.52
2-08-79	10.66	4-05-79	9.22	8-28-79	8.78
2-20-79	10.80	4-10-79	8.99	8-30-79	9.80
				9-13-79	9.00
10N03W05BAAB01 (well depth = 27.7 ft)					
9-26-78	8.89	2-26-79	10.86	7-09-79	8.39
12-27-78	9.82	3-01-79	9.78	7-23-79	8.35
12-29-78	9.84	5-15-79	9.58	8-13-79	8.41
1-03-79	9.88	5-24-79	9.34	8-28-79	8.80
1-04-79	9.87	6-10-79	9.94	8-30-79	8.83
2-20-79	10.78	6-29-79	8.15	9-13-79	8.96

Table 1.--Water levels in test wells--Continued

Date	Depth to water	Date	Depth to water	Date	Depth to water
10N03W06ABBC01 (well depth = 61.9 ft)					
11-30-78	17.70	2-26-79	19.49	4-11-79	18.03
12-27-78	17.03	3-01-79	20.66	4-24-79	19.91
12-29-78	15.92	3-07-79	19.65	5-15-79	18.15
1-03-79	18.16	3-14-79	19.32	5-24-79	19.56
1-04-79	18.18	3-19-79	19.24	6-10-79	19.10
1-22-79	18.65	3-26-79	18.35	7-09-79	17.20
2-01-79	18.76	3-28-79	19.28	7-23-79	17.95
2-08-79	17.43	4-05-79	19.06	8-13-79	17.43
2-20-79	19.37	4-10-79	19.40	8-30-79	16.44
				9-14-79	16.58
10N03W06DBAA01 (well depth = 34.0 ft)					
11-15-78	17.35	3-15-79	19.92 C	4-23-79	20.22 C
12-18-78	18.21	3-16-79	19.89 C	4-24-79	20.24 C
2-20-79	20.08	3-17-79	19.90 C	4-25-79	20.25 C
2-21-79	20.09 C	3-18-79	19.90 C	4-26-79	20.28 C
2-22-79	20.11 C	3-19-79	19.89 C	4-27-79	20.30 C
2-23-79	20.13 C	3-20-79	19.87 C	4-28-79	20.30 C
2-24-79	20.15 C	3-21-79	19.86 C	4-29-79	20.29 C
2-25-79	20.18 C	3-22-79	19.87 C	4-30-79	20.31 C
2-26-79	20.18 C	3-23-79	19.86 C	4-31-79	20.19 C
2-27-79	20.19 C	3-24-79	19.85 C	5-01-79	20.11 C
2-28-79	20.19 C	3-25-79	19.86 C	5-02-79	20.03 C
3-01-79	20.22 C	3-26-79	19.85 C	5-03-79	19.97 C
3-02-79	20.22 C	3-27-79	19.85 C	5-04-79	19.91 C
3-03-79	20.24 C	3-28-79	19.85 C	5-05-79	19.86 C
3-04-79	20.24 C	3-29-79	19.85 C	5-06-79	19.79 C
3-05-79	20.25 C	3-30-79	19.87 C	5-07-79	19.93 C
3-06-79	20.26 C	3-31-79	19.88 C	5-08-79	19.80 C
3-07-79	20.21 C	4-01-79	19.89 C	5-09-79	19.69 C
3-08-79	20.15 C	4-02-79	19.89 C	5-10-79	19.61 C
3-09-79	20.09 C	4-03-79	19.90 C	5-11-79	19.73 C
3-10-79	20.06 C	4-18-79	20.17 C	5-12-79	19.95 C
3-11-79	20.01 C	4-19-79	20.17 C	5-13-79	19.96 C
3-12-79	19.98 C	4-20-79	20.18 C	6-06-79	19.79
3-13-79	19.97 C	4-21-79	20.20 C	6-14-79	19.65 C
3-14-79	19.95 C	4-22-79	20.21 C	6-15-79	19.58 C

Table 1.--Water levels in test wells--Continued

Date	Depth to water	Date	Depth to water	Date	Depth to water
10N03W06DBAA01--Continued					
6-16-79	19.59 C	6-24-79	18.70 C	7-02-79	18.26 C
6-17-79	19.46 C	6-25-79	18.62 C	7-03-79	18.23 C
6-18-79	19.32 C	6-26-79	18.58 C	7-04-79	18.18 C
6-19-79	19.20 C	6-27-79	18.74 C	7-05-79	18.14 C
6-20-79	19.11 C	6-28-79	18.60 C	7-06-79	18.37
6-21-79	18.99 C	6-29-79	18.50 C	7-23-79	17.65
6-22-79	18.89 C	6-30-79	18.41 C	8-22-79	17.02
6-23-79	18.78 C	7-01-79	18.32 C	8-30-79	16.81
				9-14-79	17.04
10N03W06DBAA02 (well depth = 62.1 ft)					
9-26-78	16.34	1-05-79	18.56 C	4-25-79	19.96 C
11-20-78	17.37 C	3-05-79	20.16 C	4-30-79	19.91 C
11-25-78	17.48 C	3-10-79	19.97 C	5-05-79	19.88 C
11-30-78	17.58 C	3-15-79	19.77 C	5-10-79	19.87 C
12-01-78	17.64 C	3-20-79	19.68 C	5-15-79	19.94 C
12-05-78	17.75 C	3-25-79	19.68 C	5-20-79	20.02 C
12-10-78	17.89 C	3-30-79	19.71 C	5-25-79	20.01 C
12-15-78	18.01 C	4-01-79	19.73 C	5-30-79	19.92 C
12-20-78	18.14 C	4-05-79	19.77 C	7-23-79	16.50
12-25-78	18.28 C	4-10-79	19.84 C	8-22-79	17.11
12-30-78	18.41 C	4-15-79	19.91 C	8-30-79	16.98
1-01-79	18.46 C	4-20-79	19.98 C	9-14-79	17.15
10N03W07BBBA01 (well depth = 24.0 ft)					
9-12-78	17.00	2-26-79	20.43	4-24-79	21.01
12-27-78	18.57	3-01-79	20.52	5-15-79	17.80
12-29-78	18.67	3-07-79	20.46	5-17-79	16.22
1-03-79	19.00	3-14-79	20.23	5-24-79	12.48
1-04-79	19.03	3-19-79	20.29	7-09-79	11.04
1-15-79	19.51	3-26-79	20.02	7-19-79	11.35
2-01-79	20.05	3-28-79	20.49	8-13-79	10.23
2-08-79	20.21	4-05-79	20.59	9-13-79	11.10
2-20-79	20.32	4-10-79	20.03		

Table 1.--Water levels in test wells--Continued

Date	Depth to water	Date	Depth to water	Date	Depth to water
10N03W08BBAA01 (well depth = 23.0 ft)					
11-28-78	5.00	2-26-79	6.29	4-24-79	7.91
12-27-78	7.62	3-01-79	6.20	5-15-79	7.85
12-29-78	7.78	3-07-79	5.77	5-24-79	7.08
1-03-79	7.97	3-14-79	6.34	6-10-79	7.22
1-04-79	8.25	3-19-79	6.93	7-09-79	7.49
1-15-79	6.52	3-26-79	7.08	7-23-79	8.50
2-01-79	9.59	3-28-79	7.40	8-13-79	9.20
2-08-79	9.19	4-05-79	7.74	8-30-79	7.90
2-20-79	6.82	4-10-79	7.47	9-14-79	7.60
10N03W08CBCC01 (well depth = 23.3 ft)					
9-12-78	3.50	3-26-79	11.38	5-24-79	11.87
12-27-78	8.92	3-28-79	11.40	6-10-79	11.08
12-29-78	11.09	4-05-79	11.69	6-29-79	10.64
1-03-79	11.25	4-10-79	11.56	7-09-79	10.50
1-04-79	11.19	4-11-79	11.47	7-19-79	10.35
3-14-79	11.30	4-24-79	12.31	8-13-79	8.84
3-19-79	11.34	5-15-79	11.99	8-30-79	9.32
				9-13-79	9.80
10N03W09ACCC01 (well depth = 22.3 ft)					
12-06-78	1.08	1-26-79	2.11	5-25-79	1.48
12-28-78	1.77	2-02-79	2.60	6-13-79	1.29
1-02-79	1.02	4-23-79	1.28	7-10-79	0.69
1-04-79	2.03	4-26-79	1.14	7-25-79	1.50
1-15-79	2.02	5-16-79	1.53	8-30-79	1.16
				9-14-79	1.26

Table 1.--Water levels in test wells--Continued

Date	Depth to water	Date	Depth to water	Date	Depth to water
10N03W09ACCC02 (well depth = 64.5 ft)					
12-06-78	3.19	2-21-79	4.55	4-26-79	3.79
12-28-78	4.35	2-27-79	4.50	5-16-79	4.08
1-02-79	3.45	3-08-79	3.93	5-25-79	4.05
1-04-79	4.60	3-22-79	4.08	6-13-79	3.68
1-15-79	5.16	3-26-79	4.01	7-10-79	1.21
1-26-79	5.68	3-28-79	4.64	8-14-79	1.44
2-02-79	5.36	4-06-79	4.66	8-30-79	3.88
				9-14-79	3.93
10N03W11ABBB01 (well depth = 24.0 ft)					
9-26-78	6.99	3-05-79	12.57	5-16-79	13.02
12-28-78	10.30	3-08-79	12.47	5-25-79	12.89
1-02-79	10.55	3-14-79	12.03	6-13-79	5.76
1-04-79	10.66	3-23-79	12.46	7-10-79	4.49
1-15-79	11.17	3-26-79	13.12	7-24-79	3.75
1-23-79	11.28	3-28-79	13.17	8-13-79	5.37
2-02-79	11.61	4-06-79	13.16	8-30-79	5.49
2-21-79	12.55	4-18-79	13.46	9-13-79	6.21
2-27-79	12.73	4-25-79	13.14		
10N03W11CBAA01 (well depth = 23.0 ft)					
11-11-78	6.56	3-11-79	12.57 C	3-25-79	12.89 C
12-05-78	9.54	3-13-79	12.48	3-26-79	12.90 C
12-19-78	9.60	3-14-79	12.55 C	3-27-79	12.92 C
2-21-79	12.44	3-15-79	12.60 C	3-28-79	12.94 C
2-22-79	12.47 C	3-16-79	12.63 C	3-29-79	12.95
2-23-79	12.50 C	3-17-79	12.67 C	3-30-79	12.97 C
2-24-79	12.53 C	3-18-79	12.71 C	3-31-79	12.99 C
3-05-79	12.79	3-19-79	12.75 C	4-01-79	13.01 C
3-06-79	12.93	3-20-79	12.78 C	4-02-79	13.02 C
3-07-79	12.50 C	3-21-79	12.81 C	4-03-79	13.03 C
3-08-79	12.29 C	3-22-79	12.84 C	4-04-79	13.05 C
3-09-79	12.45 C	3-23-79	12.86 C	4-05-79	13.06 C
3-10-79	12.54 C	3-24-79	12.88 C	4-06-79	13.08 C

Table 1.--Water levels in test wells--Continued

Date	Depth to water	Date	Depth to water	Date	Depth to water
10N03W11CBAA01--Continued					
4-07-79	13.10 C	4-19-79	13.38 C	6-06-79	4.51 C
4-08-79	13.12 C	4-20-79	13.42 C	6-07-79	4.39 C
4-09-79	13.13 C	4-21-79	13.45 C	6-08-79	4.17 C
4-10-79	13.15 C	4-22-79	13.48 C	6-09-79	3.65 C
4-11-79	13.16 C	4-23-79	13.52 C	6-10-79	3.75 C
4-12-79	13.18 C	5-30-79	7.74	6-11-79	4.00 C
4-13-79	13.20 C	5-31-79	8.05 C	6-12-79	4.58 C
4-14-79	13.23 C	6-01-79	7.89 C	6-13-79	4.69 C
4-15-79	13.26 C	6-02-79	7.43 C	7-05-79	1.97
4-16-79	13.29 C	6-03-79	6.54 C	8-22-79	1.30
4-17-79	13.32 C	6-04-79	5.34 C	8-30-79	3.40
4-18-79	13.35 C	6-05-79	4.76 C	9-13-79	5.46
10N03W11DDCC01 (well depth = 39.6 ft)					
12-07-78	19.00	2-27-79	22.75	4-12-79	23.80
12-28-78	20.13	3-05-79	22.95	4-25-79	23.32
1-02-79	19.97	3-08-79	23.88	5-16-79	23.20
1-04-79	20.52	3-14-79	22.86	5-25-79	23.24
1-15-79	21.11	3-23-79	23.12	6-13-79	17.86
1-23-79	21.63	3-26-79	23.14	7-10-79	15.05
2-02-79	21.84	3-28-79	23.27	7-24-79	15.70
2-21-79	22.56	4-06-79	23.37	8-30-79	14.47
				9-13-79	15.83
10N03W15BCBA01 (well depth = 24.6 ft)					
9-26-78	1.75	2-02-79	2.04	6-13-79	2.15
12-28-78	5.04	2-21-79	2.52	6-29-79	1.78
1-02-79	3.20	2-27-79	1.94	7-10-79	1.68
1-04-79	3.18	3-05-79	1.82	7-24-79	2.15
1-15-79	3.05	3-08-79	1.05	8-14-79	2.21
1-23-79	2.06	4-17-79	2.44	8-30-79	1.99
				9-13-79	2.20

Table 1.--Water levels in test wells--Continued

Date	Depth to water	Date	Depth to water	Date	Depth to water
10N03W16CCAA01 (well depth = 42.7 ft)					
12-28-78	33.63	3-05-79	38.56	5-16-79	38.40
1-02-79	35.19	3-08-79	38.78	5-25-79	38.54
1-04-79	35.41	3-23-79	37.18	7-10-79	25.85
1-15-79	35.97	3-26-79	38.52	7-24-79	24.20
2-02-79	36.17	3-28-79	38.53	8-14-79	21.40
2-21-79	37.98	4-06-79	38.49	8-30-79	22.91
2-27-79	37.84	4-25-79	38.47	9-14-79	24.38
10N03W16CCAA02 (well depth = 24.8 ft)					
Dry					
10N03W16CCDC01 (well depth = 43.7 ft)					
8-31-79	36.48	9-04-79	36.38	9-05-79	36.29
				9-13-79	36.20
10N03W16DBAD01 (well depth = 43.9 ft)					
9-26-78	8.19	3-05-79	12.20	4-25-79	12.02
12-28-78	12.44	3-08-79	11.99	5-16-79	11.79
1-02-79	11.27	3-13-79	11.68	5-25-79	11.72
1-04-79	11.33	3-14-79	11.83	6-13-79	10.17
1-15-79	11.72	3-23-79	11.61	6-29-79	9.48
1-23-79	11.85	3-26-79	11.90	7-10-79	7.80
2-02-79	11.98	3-28-79	11.98	7-24-79	8.80
2-20-79	12.15	4-06-79	12.04	8-14-79	7.01
2-27-79	12.24	4-17-79	12.18	8-30-79	8.13
				9-13-79	8.85

Table 1.--Water levels in test wells--Continued

Date	Depth to water	Date	Depth to water	Date	Depth to water
10N03W17ABBB01 (well depth = 28.2 ft)					
12-28-78	22.07	3-23-79	22.59	5-25-79	22.57
1-02-79	22.07	3-26-79	22.46	6-13-79	19.90
1-04-79	21.79	3-28-79	22.62	6-29-79	19.06
1-15-79	22.34	4-06-79	22.63	7-10-79	19.38
2-02-79	22.24	4-18-79	22.91	7-24-79	17.55
2-27-79	22.95	4-25-79	22.61	8-14-79	21.41
3-08-79	22.82	5-16-79	22.51	8-30-79	18.13
				9-14-79	18.35
10N03W17ACAD01 (well depth = 28.2 ft)					
12-06-78	14.10	2-27-79	22.29	4-25-79	23.12
12-28-78	19.86	3-05-79	22.31	5-16-79	22.69
1-02-79	19.94	3-08-79	22.63	5-25-79	22.77
1-04-79	20.92	3-23-79	22.80	6-13-79	22.52
1-15-79	20.93	3-26-79	22.83	7-10-79	17.77
1-26-79	21.63	3-28-79	22.88	7-24-79	16.90
2-02-79	21.14	4-06-79	22.89	8-14-79	15.45
2-21-79	21.24	4-11-79	23.14	8-30-79	15.16
				9-14-79	15.73
10N03W17ACCC01 (well depth = 31.7 ft)					
12-28-78	26.09	3-05-79	29.34	5-25-79	29.32
1-02-79	27.39	3-08-79	29.34	6-13-79	29.23
1-04-79	27.45	3-23-79	29.43	7-10-79	24.41
1-15-79	26.89	3-26-79	29.44	7-24-79	23.40
1-26-79	28.88	3-28-79	29.49	8-14-79	22.08
2-02-79	26.92	4-06-79	29.47	8-30-79	21.81
2-21-79	28.47	4-25-79	29.72	9-14-79	22.24
2-27-79	28.96	5-16-79	29.32		

Table 1.--Water levels in test wells--Continued

Date	Depth to water	Date	Depth to water	Date	Depth to water
10N03W17ACCC02 (well depth = 44.5 ft)					
12-28-78	26.02	2-27-79	28.89	4-25-79	29.53
1-02-79	27.18	3-05-79	29.03	5-16-79	29.30
1-04-79	27.42	3-08-79	29.31	5-25-79	29.21
1-15-79	27.37	3-23-79	28.83	6-13-79	29.41
1-25-79	27.65	3-26-79	29.36	7-10-79	24.30
1-26-79	28.40	3-28-79	29.44	7-24-79	23.30
2-02-79	27.32	4-06-79	29.34	8-14-79	22.02
2-21-79	28.87	4-19-79	30.27	8-30-79	21.76
				9-14-79	22.17
10N03W22AAAA01 (well depth = 23.3 ft)					
12-17-78	12.38	4-19-79	11.43 C	6-17-79	10.66 C
3-29-79	10.35	4-20-79	11.46 C	6-18-79	10.64 C
3-30-79	10.41 C	4-21-79	11.53 C	6-19-79	10.53 C
3-31-79	10.48 C	4-22-79	11.61 C	6-20-79	10.35
4-01-79	10.52 C	5-30-79	11.97	6-21-79	10.25 C
4-02-79	10.63 C	5-31-79	11.85 C	6-22-79	10.18 C
4-03-79	10.72 C	6-01-79	11.71 C	6-23-79	10.14 C
4-04-79	10.78 C	6-02-79	11.56 C	6-24-79	10.11 C
4-05-79	10.82 C	6-03-79	11.42 C	6-25-79	10.07 C
4-06-79	10.82 C	6-04-79	11.28 C	6-26-79	10.03 C
4-07-79	10.84 C	6-05-79	11.13 C	6-27-79	9.97 C
4-08-79	10.86 C	6-06-79	11.03 C	6-28-79	9.95 C
4-09-79	10.89 C	6-07-79	10.96 C	6-29-79	9.88 C
4-10-79	10.93 C	6-08-79	10.91 C	6-30-79	9.86 C
4-11-79	10.98 C	6-09-79	10.87 C	7-01-79	9.82 C
4-12-79	11.05 C	6-10-79	10.85 C	7-02-79	9.83 C
4-13-79	11.12 C	6-11-79	10.79 C	7-03-79	9.88 C
4-14-79	11.18 C	6-12-79	10.72 C	7-04-79	9.87 C
4-15-79	11.26 C	6-13-79	10.65 C	7-26-79	10.45
4-16-79	11.33 C	6-14-79	10.61 C	7-30-79	10.67
4-17-79	11.38 C	6-15-79	10.60 C	9-13-79	10.02
4-18-79	11.42 C	6-16-79	10.61 C		

Table 1.--Water levels in test wells--Continued

Date	Depth to water	Date	Depth to water	Date	Depth to water
10N04W10DDDA01 (well depth = 22.8 ft)					
9-26-78	3.73	2-26-79	5.42	4-24-79	2.61
12-27-78	4.13	3-01-79	5.39	5-15-79	2.66
12-29-78	4.23	3-08-79	3.08	5-17-79	3.47
1-03-79	4.67	3-14-79	2.73	5-24-79	2.78
1-04-79	4.83	3-19-79	2.00	6-16-79	2.25
1-15-79	5.42	3-26-79	2.35	7-09-79	3.53
2-01-79	6.77	3-28-79	2.37	7-19-79	4.10
2-05-79	5.85	4-05-79	2.28	8-13-79	3.33
2-20-79	5.55	4-10-79	2.04	8-30-79	3.82
				9-13-79	4.67
10N04W12ACDA01 (well depth = 23.0 ft)					
12-05-78	10.00	2-26-79	9.63	4-24-79	11.29
12-27-78	10.22	3-01-79	9.67	5-15-79	9.08
12-29-78	10.22	3-07-79	9.57	5-17-79	8.90
1-03-79	10.23	3-14-79	9.25	5-24-79	7.71
1-04-79	10.35	3-19-79	9.73	7-09-79	6.33
1-15-79	10.42	3-26-79	9.96	7-19-79	6.65
2-01-79	9.69	3-28-79	10.02	8-13-79	7.10
2-08-79	9.60	4-05-79	10.19	8-30-79	7.12
2-20-79	9.38	4-10-79	10.14	9-13-79	7.72
10N04W12CADB01 (well depth = 22.7 ft)					
9-12-78	12.80	2-26-79	17.11	4-24-79	17.91
9-26-78	14.86	3-01-79	17.16	5-15-79	15.85
12-27-78	16.57	3-07-79	17.32	5-17-79	15.65
12-29-78	16.37	3-14-79	17.06	5-24-79	14.67
1-04-79	16.74	3-19-79	17.00	6-10-79	16.86
1-15-79	16.88	3-26-79	17.05	7-09-79	12.30
2-01-79	16.12	3-28-79	17.10	7-19-79	13.60
2-08-79	16.57	4-05-79	17.20	8-13-79	13.56
2-20-79	16.89	4-10-79	17.07	8-30-79	12.56
				9-13-79	13.09

Table 1.--Water levels in test wells--Continued

Date	Depth to water	Date	Depth to water	Date	Depth to water
10N04W15DBBB01 (well depth = 35.0 ft)					
11-28-78	29.20	2-26-79	30.52	4-24-79	30.43
12-27-78	29.02	3-01-79	30.26	5-15-79	29.55
12-29-78	28.99	3-07-79	30.73	5-24-79	27.86
1-03-79	29.23	3-14-79	30.23	6-10-79	29.57
1-04-79	29.32	3-19-79	29.69	7-09-79	22.78
1-15-79	29.32	3-26-79	28.82	7-19-79	18.90
2-01-79	29.82	3-28-79	29.74	8-13-79	16.67
2-05-79	30.09	4-05-79	29.76	8-22-79	19.02
2-20-79	30.47	4-10-79	29.99	8-30-79	20.29
				9-13-79	22.53
10N04W23BBBB01 (well depth = 23.2 ft)					
11-30-78	3.32	2-26-79	6.94	4-10-79	6.46
12-27-78	5.36	3-01-79	7.01	4-24-79	6.70
12-29-78	5.92	3-07-79	6.50	5-15-79	5.59
1-03-79	6.12	3-13-79	6.32	5-17-79	6.56
1-04-79	6.01	3-14-79	6.06	5-24-79	5.24
1-15-79	6.22	3-19-79	6.08	6-10-79	6.26
2-01-79	6.71	3-26-79	6.29	7-09-79	4.41
2-05-79	6.75	3-28-79	6.48	7-19-79	4.40
2-20-79	6.45	4-05-79	6.53	9-13-79	4.55

Table 2.--Water-quality data for test wells

[Constituents are dissolved and values are reported in milligrams per liter.
Analyses by Montana Bureau of Mines and Geology except as indicated otherwise]

Sample location	Date of collection	Well depth (feet)	Laboratory specific conductance ($\mu\text{mho/cm}$ at 25°C)	Laboratory pH	Field temperature (°C)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)
11N02W30DCAD01	01-23-79	45.4	521	7.5	9.0	79	10	24	3	280
	04-20-79		581	7.6	11.0	84	12	26	4	310
	07-03-79		598	7.4	10.0	91	8.9	27	1	310
11N02W31ACAA01	01-23-79	44.0	450	7.5	9.5	50	16	21	2	220
	04-20-79		435	7.5	12.0	42	13	23	4	210
	07-03-79		482	7.4	10.5	55	17	21	1	240
11N03W15CCBB01	10-31-78	22.9	832	8.1	8.0	62	32	80	1	310
	01-10-79		737	7.7	6.0	56	30	73	1	290
	03-14-79		700	7.7	9.0	52	27	67	1	290
	04-13-79		720	7.8	8.5	50	25	64	.9	290
	06-26-79		760	7.6	--	54	30	73	.8	310
11N03W15DCDD01	10-31-78	24.2	900	7.8	8.0	62	32	81	1	270
	04-13-79		866	7.7	8.5	64	37	79	2	420
	06-26-79		883	7.4	11.5	68	37	78	1	410
11N03W20BBBB01	10-18-78	23.0	392	8.0	17.0	48	11	21	2	190
	07-05-79		397	7.6	--	43	9.3	21	2	180
11N03W21BAAA01	01-17-79	46.4	333	8.3	5.0	33	14	16	2	170
	03-14-79		388	8.3	9.0	35	18	19	2	200
	04-13-79		383	8.4	9.0	35	17	18	2	200
	06-26-79		475	7.5	--	44	18	25	2	220
11N03W21DDAD01	04-23-79	65.4	412	7.9	8.5	30	20	20	3	190
	07-06-79		503	7.4	9.5	66	18	21	3	240
11N03W21DDAD02	01-09-79	23.5	869	7.5	7.5	64	31	84	4	400
	03-15-79		848	7.6	10.0	67	31	77	4	390
	04-23-79		815	7.7	8.5	68	32	70	4	380
	07-06-79		838	7.6	9.0	73	34	64	4	390
11N03W30BAAA01	07-05-79	23.6	475	7.6	--	45	19	24	4	230
11N03W30DADA01	11-14-78	44.0	370	8.2	8.0	36	17	16	4	120
	12-20-78		358	8.0	5.0	27	19	13	4	110
	03-13-79		323	8.4	16.0	19	18	12	4	80
	04-13-79		335	8.3	7.5	20	16	12	4	100
	07-02-79		417	8.0	--	56	22	11	4	160
11N03W30DADA02	11-14-78	24.8	569	8.2	8.0	69	24	24	4	260
	12-20-78		665	7.7	8.0	76	27	24	3	300
	03-13-79		669	7.6	17.0	78	27	27	3	300
	04-13-79		692	7.8	8.0	76	27	28	3	300
	06-28-79		669	7.3	12.0	74	26	28	2	290
11N03W31DABA01	10-18-78	23.7	679	8.0	15.0	89	25	23	4	310
	01-11-79		652	7.6	7.0	86	24	21	4	290
	04-12-79		675	7.7	7.5	84	22	21	3	300
	06-26-79		658	7.3	--	84	24	20	3	300
11N03W35DCCC01	10-18-78	22.1	403	8.0	12.0	54	11	14	3	180
	12-26-78		412	7.5	--	54	12	14	3	180
	03-13-79		418	7.4	10.0	54	12	14	3	180
	04-13-79		421	7.5	11.5	54	12	15	3	190
	06-27-79		418	7.3	12.0	54	11	15	3	190

Date of collection	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Silica (SiO ₂)	Dissolved solids (sum of constituents)	Nitrate as N	Remarks
01-23-79	0	41	14	0.5	29	338	0.41	
04-20-79	0	41	16	.3	29	366	1.1	
07-03-79	0	46	12	.4	42	383	1.7	
01-23-79	0	43	13	.5	33	289	1.2	
04-20-79	0	40	14	.4	41	284	1.6	
07-03-79	0	48	10	.4	38	311	.23	
10-31-78	0	180	21	.3	25	553	.70	
01-10-79	0	140	18	.4	23	489	.38	
03-14-79	0	120	17	.3	22	446	1.6	
04-13-79	0	110	16	.4	24	438	.80	
06-26-79	0	130	17	.3	25	484	1.2	
10-31-78	0	180	28	.3	25	548	1.3	(1)
04-13-79	0	100	19	.4	24	537	1.4	
06-26-79	0	120	19	.5	29	554	1.8	
10-18-78	0	37	7.9	1.1	23	245	.32	
07-05-79	0	42	8.0	1.1	24	237	.28	
01-17-79	0	24	13	.2	3.5	190	.09	(2)
03-14-79	0	21	17	.2	1.7	211	.10	(3)
04-13-79	4	16	16	.2	2.0	200	.11	(3)
06-26-79	0	35	20	.2	20	274	1.1	
04-23-79	0	42	15	<.1	2.7	224	.08	(3)
07-06-79	0	41	27	.1	16	313	1.6	
01-09-79	0	96	28	.2	21	528	2.7	
03-15-79	0	91	29	.2	19	520	3.0	
04-23-79	0	84	25	.2	21	494	2.9	
07-06-79	0	90	24	.2	21	506	2.4	
07-05-79	0	42	10	.9	22	280	.14	
11-14-78	0	66	18	.3	.8	217	.46	
12-20-78	0	61	20	.2	1.2	199	.37	
03-13-79	2	56	22	.2	.4	173	.08	
04-13-79	0	46	20	.2	.4	168	<.02	
07-02-79	0	59	16	.2	4.0	248	.16	(3)
11-14-78	0	78	13	.2	17	362	1.6	
12-20-78	0	94	16	.2	15	403	.76	
03-13-79	0	92	16	.1	15	409	1.6	
04-13-79	0	96	14	.2	18	412	2.0	
06-28-79	0	93	15	.1	18	404	2.2	
10-18-78	0	92	14	.3	21	423	.90	
01-11-79	0	87	13	.2	22	411	5.9	
04-12-79	0	83	13	.2	20	400	2.7	
06-26-79	0	84	14	.2	22	401	3.5	
10-18-78	0	50	7.1	.2	23	254	1.0	
12-26-78	0	52	7.0	.2	22	258	1.4	
03-13-79	0	50	7.4	.2	22	258	.79	
04-13-79	0	50	7.0	.2	22	256	1.8	
06-27-79	0	51	6.6	.2	24	258	1.7	

Table 2.--Water-quality data for test wells--Continued

Sample location	Date of collection	Well depth (feet)	Laboratory specific conductance ($\mu\text{mho}/\text{cm}$ at 25°C)	Laboratory pH	Field temperature (°C)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)
11N04W25DDDD01	02-28-79	19.6	491	8.5	--	43	25	26	4	160
	04-17-79		712	7.9	9.5	68	38	27	2	350
	07-03-79		509	7.9	14.5	50	27	23	2	260
10N02W06CBCC01	11-14-78	24.0	384	7.8	--	45	10	21	4	180
	12-26-78		374	7.5	11.0	39	11	22	4	93
	04-11-79		394	7.4	7.0	45	11	18	3	170
	06-26-79		383	7.3	14.5	42	11	20	3	170
10N02W06DDBC01	11-14-78	24.0	579	8.2	10.0	58	14	45	7	250
	01-16-79		603	7.8	3.5	60	14	46	8	290
	04-12-79		625	7.9	8.0	64	14	42	5	280
	06-27-79		606	7.0	15.0	66	16	38	5	310
10N02W07EBBB01	11-14-78	24.0	349	7.9	--	37	8.8	21	4	260
	12-26-78		388	7.6	13.0	45	11	20	4	180
	04-11-79		381	7.6	9.0	44	10	18	3	170
	06-27-79		399	7.0	13.0	42	10	19	3	180
10N03W01DBCC01	04-16-79	22.0	357	7.5	10.0	41	9.9	14	3	130
	06-21-79		367	7.1	14.0	44	10	14	3	130
10N03W01DBCC02	11-15-78	67.0	452	7.5	10.0	53	13	23	4	190
	01-11-79		466	7.6	7.0	56	13	22	4	220
	04-16-79		444	7.5	9.5	51	12	20	5	190
	06-21-79		426	7.3	12.0	50	12	20	5	180
10N03W03BACB01	04-16-79	64.8	399	8.1	8.5	42	13	15	3	150
	06-26-79		377	7.6	11.5	41	13	14	3	150
10N03W03BACB02	10-18-78	24.0	463	8.0	11.0	60	14	17	3	210
	01-17-79		434	8.1	4.5	55	14	16	3	200
	04-13-79		447	7.8	8.0	55	14	16	3	200
	06-26-79		472	7.7	12.0	61	14	17	3	210
10N03W05BAAA01	01-09-79	64.5	330	8.2	8.0	33	12	14	3	130
	04-11-79		358	8.0	8.0	27	12	14	3	130
	06-27-79		469	7.3	11.0	56	15	17	3	180
10N03W05BAAB01	10-17-78	27.7	459	7.7	10.0	58	14	16	3	190
	12-19-78		491	7.5	10.0	61	15	17	4	210
	05-14-79		538	7.5	--	66	16	20	3	220
	06-27-79		541	7.5	10.5	66	17	19	3	220
10N03W06ABEC01	01-09-79	61.9	434	7.7	7.0	43	15	22	5	190
	04-11-79		532	7.4	9.0	61	18	20	5	230
	06-21-79		543	7.6	--	68	18	21	4	270
10N03W06DBAA01	11-02-78	34.0	664	7.7	11.5	84	21	28	4	280
	01-24-79		651	7.6	8.0	77	20	28	4	260
	04-24-79		678	7.7	9.5	82	22	28	4	290
	07-06-79		661	8.0	10.0	94	19	27	4	300
10N03W06DBAA02	04-24-79	62.1	512	7.5	9.0	59	16	23	5	240
	07-06-79		519	7.3	10.0	61	15	23	4	240
10N03W07BBBA01	11-14-78	24.0	658	7.6	10.0	87	26	22	5	320
	04-12-79		696	7.7	9.5	84	27	23	4	350
	06-20-79		432	7.6	13.5	51	16	16	3	210

Date of collection	Car-bonate (CO ₃)	Sul-fate (SO ₄)	Chloride (Cl)	Fluoride (F)	Silica (SiO ₂)	Dissolved solids (sum of consti-tuents)	Nitrate as N	Remarks
02-28-79	6	78	20	.6	6.8	334	.14	(3)
04-17-79	0	84	14	.4	23	429	1.3	
07-03-79	0	57	12	.4	18	318	.13	
11-14-78	0	38	9.4	.8	22	238	.23	
12-26-78	0	39	10	.7	20	227	1.2	(4)
04-11-79	0	41	9.9	.6	20	235	.77	
06-26-79	0	43	10	.6	21	235	.11	
11-14-78	0	66	25	.8	11	357	.71	(3)
01-16-79	0	61	19	.6	12	372	2.9	(3)
04-12-79	0	54	23	.4	18	365	1.0	
06-27-79	0	48	14	.4	26	370	.35	
11-14-78	0	36	10	.9	10	248	.42	(3)
12-26-78	0	40	9.4	.8	20	241	.31	
04-11-79	0	37	20	.7	19	238	.02	
06-27-79	0	39	9.1	.8	21	231	<.01	
04-16-79	0	65	4.8	.2	7.6	210	.41	
06-21-79	0	67	4.7	.2	19	227	1.8	
11-15-78	0	59	9.1	0.5	22	278	0.79	
01-11-79	0	62	11	.4	22	310	1.9	
04-16-79	0	52	9.8	.3	20	268	.89	
06-21-79	0	42	9.6	.3	21	250	1.1	
04-16-79	0	62	.8	.2	18	229	.56	
06-26-79	0	51	2.7	.2	25	226	.69	
10-18-78	0	68	3.4	.2	25	297	.86	(3)
01-17-79	0	65	3.5	.2	16	273	.28	(3)
04-13-79	0	65	2.8	.2	25	279	1.8	
06-26-79	0	64	2.5	.2	25	292	1.4	
01-09-79	0	50	12	.3	1.9	192	.17	(2)
04-11-79	0	42	15	.2	1.8	181	.18	(2)
06-27-79	0	51	16	.3	19	271	3.2	
10-17-78	0	55	18	.3	20	281	1.0	(3)
12-19-78	0	47	16	.3	20	283	1.5	
05-14-79	0	60	18	.3	20	313	1.6	
06-27-79	0	63	8.3	.3	21	312	2.7	
01-09-79	0	59	11	.5	3.2	253	.40	(2)
04-11-79	0	56	8.0	.4	12	295	<.02	
06-21-79	0	60	8.0	.3	18	332	.48	
11-02-78	0	78	23	.3	17	399	5.5	
01-24-79	0	79	25	.4	17	387	4.6	
04-24-79	0	64	24	.2	20	391	5.6	
07-06-79	0	74	19	.3	20	411	4.2	
04-24-79	0	63	9.9	.3	18	311	.44	
07-06-79	0	60	8.6	.3	21	309	.53	
11-14-78	0	82	12	.4	23	414	.70	
04-12-79	0	77	9.5	.3	23	422	1.7	
06-20-79	0	40	5.0	.4	22	260	.68	

Table 2.--Water-quality data for test wells--Continued

Sample location	Date of collection	Well depth (feet)	Laboratory specific conductance ($\mu\text{mho/cm}$ at 25°C)	Laboratory pH	Field temperature (°C)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)
10N03W08BBAA01	11-02-78	23.0	384	7.7	12.5	50	9.8	14	3	180
	01-10-79		390	7.8	7.0	51	10	15	3	190
	03-14-79		426	7.4	10.0	58	11	14	4	190
	04-12-79		427	7.5	9.0	53	11	14	4	190
	06-20-79		390	7.0	13.0	51	10	14	3	180
10N03W08CBCC01	11-01-78	23.3	419	8.5	12.5	55	15	19	4	200
	01-10-79		487	7.7	7.0	60	16	19	3	230
	04-11-79		490	7.6	5.5	59	16	19	3	220
	06-21-79		508	7.5	--	62	16	19	3	220
10N03W09ACCC01	11-02-78	22.3	203	8.0	11.5	27	5.5	5.3	2	84
	01-31-79		207	8.0	--	29	5.7	5.7	3	82
	04-23-79		201	8.8	6.0	18	7.6	8.3	2	58
	07-06-79		235	8.9	11.0	15	8.8	12	3	51
10N03W09ACCC02	10-02-78	64.5	559	8.1	10.0	70	20	20	3	240
	01-31-79		294	8.0	--	26	14	18	3	99
	04-23-79		611	7.8	6.0	78	23	22	4	280
	06-26-79		624	7.6	--	76	23	22	4	260
10N03W11ABBB01	10-18-78	24.0	462	7.8	15.0	64	14	14	4	240
	12-26-78		380	7.3	12.0	50	11	13	3	160
	03-14-79		367	7.2	11.0	47	10	12	4	150
	04-18-79		360	7.3	9.0	45	10	12	3	150
	06-29-79		270	7.1	--	37	2.5	12	3	110
10N03W11CBAA01	10-11-78	23.0	354	7.7	--	46	11	11	3	170
	01-19-79		400	8.0	9.0	44	11	10	3	140
	04-23-79		373	7.4	9.5	48	11	11	3	160
	07-06-79		341	7.3	13.0	49	10	11	4	180
10N03W11DDCC01	01-19-79	39.6	358	7.4	9.0	42	9.4	13	4	150
	04-11-79		363	7.3	10.0	44	10	12	3	150
	04-12-79		399	7.6	10.0	48	9.9	13	3	160
	06-29-79		247	7.3	--	30	6.5	9.7	2	96
10N03W15BCBA01	10-18-78	24.6	552	8.0	9.0	75	19	20	5	270
	01-17-79		670	7.4	5.0	91	24	21	4	280
	04-17-79		691	7.6	8.5	89	24	21	4	300
	06-29-79		604	7.1	--	78	21	20	4	280
10N03W16CCAA01	01-30-79	42.7	1,060	7.4	10.0	120	43	31	6	320
	04-19-79		1,620	7.3	11.5	150	75	42	3	280
	07-05-79		402	7.6	--	34	14	21	3	160
10N03W16DEAD01	01-17-79	43.9	739	8.2	8.0	51	34	52	6	200
	03-13-79		693	8.2	10.0	49	34	53	6	170
	04-17-79		794	7.9	10.0	54	34	54	6	210
	07-02-79		764	7.8	--	57	32	54	7	200
10N03W17ABBB01	02-26-79	28.2	684	7.2	15.0	88	21	31	6	330
	04-18-79		641	7.6	10.5	66	22	35	4	320
	07-02-79		657	7.0	10.5	71	25	36	4	330
10N03W17ACAD01	11-15-78	28.2	901	7.5	11.0	120	30	25	4	320
	04-11-79		1,560	7.2	11.0	230	58	44	5	560
	07-02-79		736	7.3	9.5	96	25	19	3	240

Date of collection	Car-bonate (CO ₃)	Sul-fate (SO ₄)	Chloride (Cl)	Fluoride (F)	Silica (SiO ₂)	Dissolved solids (sum of constituents)	Nitrate as N	Remarks
11-02-78	0	47	5.0	.3	19	238	.99	
01-10-79	0	44	5.6	.3	22	249	.73	
03-14-79	0	52	9.1	.3	14	257	.47	
04-12-79	0	51	8.6	.3	19	255	.47	
06-20-79	0	43	6.4	.3	21	237	.85	
11-01-78	4	53	12	.6	20	281	.98	(3)
01-10-79	0	60	11	.5	23	306	.43	
04-11-79	0	59	11	.4	19	294	1.0	
06-21-79	0	62	12	.4	21	308	2.0	
11-02-78	0	22	5.6	.3	2.5	114	2.1	(3)
01-31-79	0	26	6.2	.3	.9	117	.06	(3)
04-23-79	3	32	9.1	.3	.2	111	.03	
07-06-79	5	36	12	.3	<1	117	.11	
10-02-78	0	70	15	.3	26	354	8.4	(3)
01-31-79	0	68	14	.2	2.1	194	.08	
04-23-79	0	75	16	.3	29	386	.18	
06-26-79	0	73	17	.3	29	384	1.7	
10-18-78	0	45	2.1	.3	20	292	1.1	
12-26-78	0	54	3.0	.3	22	246	1.4	
03-14-79	0	50	2.6	.3	23	225	1.4	
04-18-79	0	50	2.8	.3	23	224	1.9	
06-29-79	0	41	1.6	.3	24	175	.69	
10-11-78	0	41	2.2	.3	22	222	.34	
01-19-79	0	54	3.8	.3	23	221	1.9	
04-23-79	0	49	5.5	.2	22	231	1.2	
07-06-79	0	41	.5	.3	23	225	.12	
01-19-79	0	50	8.0	.4	9.6	224	12	
04-11-79	0	50	2.6	.3	24	223	2.1	
04-12-79	0	51	5.9	.2	20	229	1.4	
06-29-79	0	40	1.4	.2	24	162	.19	
10-18-78	0	73	5.2	.3	36	366	.63	
01-17-79	0	120	5.4	.3	36	446	1.5	
04-17-79	0	120	6.1	.2	30	437	1.3	
06-29-79	0	88	4.6	.2	35	390	1.6	
01-30-79	0	30	200	.5	13	599	.31	(3)
04-19-79	0	16	390	.4	18	835	.21	
07-05-79	0	39	10	.8	13	216	.05	
01-17-79	0	130	52	.4	32	462	.28	(3)
03-13-79	0	140	56	.3	20	442	.39	(3)
04-17-79	0	150	60	.3	35	497	.90	
07-02-79	0	150	57	.3	42	495	.99	
02-26-79	0	71	25	.4	9.4	416	.47	(3)
04-18-79	0	51	14	.2	23	376	3.2	
07-02-79	0	56	13	.2	23	394	4.2	
11-15-78	0	120	35	.1	22	531	14	
04-11-79	0	220	23	.1	25	936	52	
07-02-79	0	120	39	.1	20	445	3.4	

Table 2.--Water-quality data for test wells--Continued

Sample location	Date of collection	Well depth (feet)	Laboratory specific conductance ($\mu\text{mho}/\text{cm}$ at 25°C)	Laboratory pH	Field temperature (°C)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)
10N03W17ACCC01	01-30-79	31.7	454	7.5	7.0	57	14	16	2	210
	07-03-79		456	7.6	12.0	57	14	15	2	200
10N03W17ACCC02	01-25-79	44.5	473	8.2	10.0	58	16	20	4	200
	04-19-79		487	7.8	10.5	54	14	20	3	210
	07-03-79		473	7.7	11.0	61	16	21	3	240
10N03W22AAAA01	01-17-79	23.3	307	7.4	8.5	37	8.1	12	3	110
	04-23-79		301	7.6	5.5	39	7.7	11	3	110
	07-06-79		214	7.6	9.0	23	4.8	11	3	79
10N04W10DDDA01	01-10-79	22.8	784	7.6	6.0	97	36	24	6	380
	03-14-79		670	7.6	6.5	86	35	32	6	320
	04-12-79		764	7.7	3.5	85	34	28	5	390
	06-20-79		828	7.6	10.0	110	39	20	4	680
10N04W12ACDA01	01-17-79	23.0	627	7.4	5.0	82	24	22	4	330
	03-15-79		604	7.7	9.0	79	23	20	4	320
	04-12-79		604	7.6	8.5	76	22	19	4	320
	06-20-79		589	7.5	12.0	78	25	18	4	320
10N04W12CADBC1	01-24-79	22.7	600	7.5	9.0	80	24	15	6	330
	04-12-79		588	7.8	9.0	75	24	14	4	320
	06-20-79		593	7.7	11.5	88	24	15	4	360
10N04W15DEBB01	01-30-79	35.0	1,250	7.5	9.0	72	66	110	6	300
	04-19-79		1,380	7.5	10.5	79	67	110	6	280
	07-05-79		1,490	7.7	--	73	81	130	6	240
10N04W23BBBB01	01-09-79	23.2	356	7.4	8.0	39	8.3	18	8	170
	03-13-79		323	7.2	17.0	35	7.7	16	7	140
	04-12-79		322	7.1	8.5	33	7.4	16	7	140
	06-19-79		342	7.0	11.0	37	8.3	17	8	140

- Footnotes: 1 Nitrate value includes nitrite. Analysis by U.S. Geological Survey.
2 Sample of questionable value; water-quality analysis suggests that the well may have contained water from source other than aquifer. Well had been flushed with water at time of installation of pump and some injected water may have been mixed with the sample.
3 Sample of questionable value; cations and anions did not balance indicating that the water sample may have been collected before the well casing was completely flushed. The sample may represent a mixture of aquifer water and water which had been standing in the casing.
4 Sample of questionable value; bicarbonate value abnormally low indicating degassing may have occurred after sample collection.

Date of collection	Car-bonate (CO ₃)	Sul-fate (SO ₄)	Chloride (Cl)	Fluoride (F)	Silica (SiO ₂)	Dissolved solids (sum of constituents)	Nitrate as N	Remarks
01-30-79	0	61	17	.2	17	288	.82	(3)
07-03-79	0	45	15	.1	24	273	1.3	
01-25-79	0	53	24	.1	13	290	1.7	
04-19-79	0	50	20	.1	18	284	1.4	
07-03-79	0	48	15	.1	22	304	1.2	
01-17-79	0	62	3.1	.4	17	197	.36	
04-23-79	0	60	2.5	.3	14	190	.38	
07-06-79	0	36	1.4	.4	17	136	.18	
01-10-79	0	120	15	.3	14	522	.72	(3)
03-14-79	0	96	12	.3	9.3	437	<.02	(3)
04-12-79	0	90	11	.3	7.0	454	.14	
06-20-79	0	110	13	.2	22	652	.26	
01-17-79	0	65	7.2	.3	24	393	1.2	
03-15-79	0	58	7.4	.3	23	372	.85	
04-12-79	0	56	8.0	.3	22	366	1.1	
06-20-79	0	57	7.0	.3	22	367	.65	
01-24-79	0	50	7.6	.4	17	363	.02	(3)
04-12-79	0	53	5.9	.3	20	353	.40	
06-20-79	0	57	5.7	.3	21	392	.91	
01-30-79	0	330	84	.4	24	841	.69	
04-19-79	0	340	120	.3	25	895	1.6	
07-05-79	0	360	160	.3	34	962	1.6	
01-09-79	0	41	3.3	.7	26	228	.69	
03-13-79	0	39	3.3	.6	21	201	.47	
04-12-79	0	40	3.6	.6	22	199	.38	
06-19-79	0	46	4.7	.6	23	214	.82	

Table 3.--Water temperature, specific conductance, and nitrate concentrations for selected domestic wells

[Field determinations]

Sample location	Date of collection	Temperature (°C)	Specific conductance (µmho/cm at 25°C)	Nitrate, dissolved as N (mg/L)
11N02W30CCB01	06-06-79	9.0	326	0.7
11N02W30DCA01	06-06-79	11.0	817	1.6
11N02W31AAC01	06-06-79	12.5	963	2.6
11N02W31BCC01	06-06-79	10.0	429	.2
11N03W07BCC01	06-05-79	12.0	369	1.0
11N03W17DDD01	06-07-79	9.0	667	7.6
11N03W18ADA01	05-31-79	12.0	339	.2
11N03W18CCB01	06-05-79	12.0	408	1.6
11N03W18DCC01	06-05-79	12.5	438	.3
11N03W18DDD01	05-17-79	12.5	569	.4
11N03W19CCC01	06-05-79	11.0	524	1.2
11N03W19DAA01	05-31-79	13.0	488	.9
11N03W21BBB01	06-08-79	11.5	711	2.0
11N03W21DCC01	06-07-79	10.5	441	1.4
11N03W22BCC01	06-07-79	9.0	383	.6
11N03W29BAC01	05-31-79	14.0	521	1.4
11N03W30ABA01	06-05-79	13.0	552	1.0
11N03W30BCC01	06-05-79	11.0	771	.5
11N03W30DAD01	05-17-79	9.5	582	.4
11N03W30DBC01	06-08-79	9.5	735	1.8
11N03W31AAA01	05-31-79	11.0	591	0.9
11N03W31DCB01	06-08-79	10.0	625	1.6
11N03W31DDA02	05-31-79	11.0	496	.6
11N03W32CAB01	06-05-79	10.5	577	--
11N03W32CDB01	06-08-79	10.5	587	1.4
11N03W32DDD01	05-17-79	12.0	431	2.7
11N03W33DCC01	06-08-79	9.5	501	.1
11N03W34CCD01	05-17-79	12.0	241	.2
11N03W35DBB01	06-06-79	10.0	400	2.0
11N04W1LAAD01	05-17-79	12.5	241	.2

Table 3.--Water temperature, specific conductance, and nitrate concentrations for selected domestic wells--Continued

Sample location	Date of collection	Temperature (°C)	Specific conductance (µmho/cm at 25°C)	Nitrate, dissolved as N (mg/L)
11N04W13AAD01	06-05-79	11.5	390	.6
11N04W13BCC01	06-01-79	13.0	581	.2
11N04W13CCC01	05-17-79	10.5	762	.2
11N04W24ABD01	06-08-79	12.0	859	1.0
11N04W24ADA01	06-05-79	11.5	847	1.6
11N04W24CCA01	06-01-79	14.0	638	.4
11N04W24DCC01	06-05-79	12.0	672	.7
11N04W25BDD01	05-17-79	12.5	1220	3.8
11N04W25DDC01	06-05-79	12.5	672	1.6
10N02W06CCC01	05-29-79	13.0	321	1.4
10N02W06DDD01	05-29-79	10.0	698	0.9
10N02W07ABA01	05-29-79	11.0	431	1.8
10N02W18AAD01	05-30-79	14.0	370	.7
10N02W19ABC01	05-30-79	12.0	387	.9
10N02W19BBB01	05-30-79	14.0	343	1.4
10N02W19CCD01	06-07-79	11.0	293	1.2
10N03W02BDA01	06-06-79	11.0	442	1.8
10N03W03CBD01	06-06-79	10.0	367	.9
10N03W05AAA01	05-17-79	11.5	397	.5
10N03W05CCD01	05-14-79	18.0	400	.9
10N03W06AAA01	05-17-79	16.5	471	.3
10N03W06ACD02	06-04-79	12.0	523	.8
10N03W06CBA01	06-04-79	10.0	568	.8
10N03W06DCD01	05-14-79	12.0	441	.9
10N03W07AAA01	05-14-79	10.5	438	.2
10N03W07ABB01	05-14-79	11.5	540	.4
10N03W07ACC01	05-14-79	13.0	490	.3
10N03W07ADB01	05-14-79	12.5	432	.4
10N03W07BAA01	05-14-79	13.5	458	.3
10N03W07DBC01	05-14-79	10.5	404	.2

Table 3.--Water temperature, specific conductance, and nitrate concentrations for selected domestic wells--Continued

Sample location	Date of collection	Temperature (°C)	Specific conductance (µmho/cm at 25°C)	Nitrate, dissolved as N (mg/L)
10NO3W07DDO1	05-14-79	14.0	687	0.4
10NO3W08ADC01	06-08-79	10.0	571	1.0
10NO3W08CAD01	05-11-79	11.5	541	.5
10NO3W08CBB01	05-14-79	12.5	458	.6
10NO3W08CCO1	05-11-79	11.5	669	.6
10NO3W08CCD01	05-17-79	13.5	685	2.3
10NO3W08CDC01	05-11-79	15.5	569	.9
10NO3W08CDD02	05-11-79	14.0	542	.4
10NO3W08DDBO1	06-06-79	10.0	729	1.8
10NO3W10BBD01	06-06-79	8.0	398	1.0
10NO3W10DDC01	05-29-79	12.0	302	.6
10NO3W11ABB01	06-06-79	9.5	412	1.6
10NO3W11ACC01	05-29-79	12.0	321	.6
10NO3W11CCA01	06-08-79	11.0	386	1.0
10NO3W11DCD01	06-07-79	11.0	393	1.2
10NO3W12ABB01	05-29-79	11.0	247	.8
10NO3W12BCD01	06-08-79	10.5	452	2.6
10NO3W12CDA01	06-08-79	12.5	352	2.4
10NO3W12DDO1	06-07-79	9.5	388	.6
10NO3W13BCC01	06-07-79	11.0	304	1.0
10NO3W13DCC01	05-30-79	11.0	375	2.0
10NO3W15BBD01	05-29-79	10.0	281	.1
10NO3W16DCB01	05-24-79	11.0	415	.2
10NO3W16DCC01	05-31-79	15.0	391	.3
10NO3W18ADB01	05-14-79	15.5	591	.3
10NO3W18ADD01	05-14-79	9.5	592	.7
10NO3W18BAD01	05-14-79	11.0	682	.5
10NO3W23BBB01	05-31-79	10.0	246	.2
10NO3W24ADB01	06-07-79	10.5	403	3.0
10NO3W24BBB01	05-30-79	11.0	304	1.2

Table 3.--Water temperature, specific conductance, and nitrate concentrations for selected domestic wells--Continued

Sample location	Date of collection	Temperature (°C)	Specific conductance (μ mho/cm at 25°C)	Nitrate, dissolved as N (mg/L)
10N03W24CBC01	06-08-79	--	296	.3
10N04W01AAB01	05-17-79	12.5	359	.2
10N04W01DAB01	08-04-79	12.0	446	1.2
10N04W01DBD01	06-01-79	13.0	504	.8
10N04W12AAB01	05-17-79	12.0	635	.4
10N04W12ABC01	06-04-79	13.0	745	.9
10N04W12DBC01	06-04-79	11.0	608	.4
10N04W13AAC01	05-17-79	9.5	408	.1

Table 4.--Water-quality data for selected supply wells
 [Constituents are dissolved and values are reported in milligrams
 per liter. Analyses by Montana Bureau of Mines and Geology]

Sample location	Date of collection	Well depth (feet)	Laboratory specific conductance ($\mu\text{mho/cm}$ at 25°C)	Lab oratory pH	Field temperature (°C)	Calcium (Ca)	Magne-sium (Mg)	Sodium (Na)	Potas-sium (K)
11N03W15DBA01	11-02-78	193	405	8.0	10.0	45	16	17	2
11N03W31DDA01	11-06-78	54	569	7.8	10.0	75	19	19	3
	02-20-79		582	7.5	14.0	76	19	19	4
10N03W05ABA01	11-06-78	42	426	8.0	10.0	57	12	16	3
	02-13-79		436	7.4	15.0	58	13	17	3
10N03W06ACD01	11-06-78	48	502	7.6	14.0	62	16	22	3
	02-13-79		505	7.7	18.5	63	16	26	4
10N03W08BBA01	11-06-78	60	491	7.7	8.5	60	14	21	3
	02-13-79		454	7.4	16.0	58	14	19	3
10N03W08CDD01	11-06-78	52	671	8.0	10.0	79	25	24	4
	02-13-79		672	7.4	14.5	82	26	24	4
10N03W18ACC01	02-13-79	40	586	7.6	17.0	77	22	19	3
10N03W18ADA01	02-13-79	41	755	7.5	14.0	91	33	26	4
10N03W18ADA02	11-06-78	41	781	8.0	8.0	91	32	29	4
	02-20-79		737	7.4	13.5	89	32	28	4
10N03W18BAA01	11-06-78	52	647	7.7	12.0	71	24	34	4
	02-13-79		654	7.4	17.0	70	24	33	4
10N04W12CCB01	04-26-78	106	482	7.5	10.5	68	19	12	3

Date of collection	Bicar- bonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Silica (SiO ₂)	Dissolved solids, (sum of consti- tuents)	Nitrate as N
11-02-78	196	0	25	21	0.2	20	243	0.84
11-06-78	289	0	56	4.4	.2	21	342	1.0
02-20-79	289	0	62	10	.3	23	357	.96
11-06-78	211	0	45	6.8	.3	21	266	.88
02-13-79	211	0	46	7.7	.3	22	272	.63
11-06-78	238	0	64	9.1	.4	21	316	.50
02-13-09	238	0	62	11	.4	23	322	.64
11-06-78	210	0	65	13	.2	21	302	1.9
02-13-79	200	0	61	10	.3	23	289	1.4
11-06-78	309	0	57	27	.3	28	400	3.9
02-13-79	305	0	61	28	.3	30	409	3.8
02-13-79	295	0	51	19	.2	22	361	1.1
02-13-79	354	0	85	22	.3	25	464	3.7
11-06-78	365	0	87	21	.2	23	471	4.8
02-20-79	348	0	82	20	.2	24	452	3.5
11-06-78	269	0	90	21	.2	28	409	2.1
02-13-79	266	0	89	25	.6	28	407	1.3
04-26-78	285	0	32	4.2	.2	22	301	.35