

# Ground-Water Levels in the United States 1956

## North-Central States

*Prepared under the direction of* PHILIP E. LAMOREAUX, *Chief, Ground Water Branch*

---

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1456

*Prepared in cooperation with the States  
of Iowa, Kansas, Minnesota, Nebraska,  
North Dakota, and Wisconsin, and with  
other agencies*



**UNITED STATES DEPARTMENT OF THE INTERIOR**

**FRED A. SEATON, *Secretary***

**GEOLOGICAL SURVEY**

**Thomas B. Nolan, *Director***

## PREFACE

This report was prepared by the Geological Survey in cooperation with the States of Iowa, Kansas, Minnesota, Nebraska, North Dakota, and Wisconsin, and with other agencies, by personnel of the Water Resources Division under the direction of:

Luna B. Leopold-----	Chief Hydraulic Engineer
Philip E. LaMoreaux-----	Chief, Ground Water Branch
W. L. Steinhilber----	District Geologist (Ground Water), Iowa City, Iowa
V. C. Fishel-----	District Engineer (Ground Water), Lawrence, Kans.
Robert Schneider-----	District Geologist (Ground Water), St. Paul, Minn.
Charles F. Keech-----	District Engineer (Ground Water), Lincoln, Nebr.
J. W. Brookhart	
	District Geologist (Ground Water), Grand Forks, N. Dak.
J. R. Jones-----	District Geologist (Ground Water), Huron, S. Dak.
W. J. Drescher-----	District Engineer (Ground Water), Madison, Wis.

## CONTENTS

---

	Page
Introduction, by Philip E. La Moreaux .....	1
Illinois, by W. L. Steinhilber .....	3
Iowa, by W. L. Steinhilber and L. L. Steele .....	5
Kansas, by Betty J. Mason .....	11
Minnesota, by G. C. Straka .....	20
Missouri, by W. L. Steinhilber .....	29
Nebraska, by C. F. Keech .....	32
North Dakota, by Donald G. Adolphson .....	45
South Dakota, by R. L. Barnell .....	57
Wisconsin, by R. E. Audini .....	64

---

## ILLUSTRATIONS

---

Figure	1. Outline map of the United States showing States included in this volume ....	2
	2. Location of observation wells in Illinois, 1956 .....	4
	3. Location of observation wells in Iowa, 1956 .....	6
	4. Location of observation wells in Kansas, 1956 .....	12
	5. Location of observation wells in Minnesota, 1956 .....	22
	6. Location of observation wells in Missouri, 1956 .....	30
	7. Location of observation wells in Nebraska, 1956 .....	33
	8. Location of observation wells in North Dakota, 1956 .....	46
	9. Location of observation wells in South Dakota, 1956 .....	58
	10. Location of observation wells in Wisconsin, 1956 .....	66

# GROUND-WATER LEVELS IN THE UNITED STATES

1956

## NORTH-CENTRAL STATES

### INTRODUCTION

By Philip E. La Moreaux

Publication of records of water levels in the United States in the annual series of water-supply papers was begun by the Geological Survey in 1935. From 1935 through 1939, 5 volumes were issued as Water-Supply Papers 777, 817, 840, 845, and 886. From 1940 through 1955, 6 volumes, each for a separate section of the United States as shown in figure 1, were published annually. The following table gives the numbers of water-supply papers by year and section.

Year	North-eastern (1)	South-eastern (2)	North-central (3)	South-central (4)	North-western (5)	South-western (6)
1940	906	907	908	909	910	911
1941	936	937	938	939	940	941
1942	944	945	946	947	948	949
1943	986	987	988	989	990	991
1944	1016	1017	1018	1019	1020	1021
1945	1023	1024	1025	1026	1027	1028
1946	1071	1072	1073	1074	1075	1076
1947	1096	1097	1098	1099	1100	1101
1948	1126	1127	1128	1129	1130	1131
1949	1156	1157	1158	1159	1160	1161
1950	1165	1166	1167	1168	1169	1170
1951	1191	1192	1193	1194	1195	1196
1952	1221	1222	1223	1224	1225	1226
1953	1265	1266	1267	1268	1269	1270
1954	1321	1322	1323	1324	1325	1326
1955	1404	1405	1406	1407	1408	1409

The program begun in 1956 provides for the publication of 5 years of record in 1 volume for each geographic section. During a 4-year transitional period, however, 4 of the volumes will not contain 5 years of record, as shown in the following schedule.

North-central:	1956, 1957-61, 1962-66, etc.
Northeastern:	1956-57, 1958-62, 1963-67, etc.
Southeastern:	1956-58, 1959-63, 1964-68, etc.
South-central:	1956-59, 1960-64, 1965-69, etc.
Northwestern:	1956-60, 1961-65, 1966-70, etc.
Southwestern:	1956-60, 1961-65, 1966-70, etc.

Moreover, beginning in 1956, only water-level data from a basic network of observation wells will be published. The minimum basic network provides observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers. In some States the basic network forms the skeletal index of a more comprehensive observation-well program. Publications that contain substantial additional water-level data are listed at the end of each State report in this volume.

Water-level measurements in this report are given in feet with reference to land-surface datum (lsd), a precise datum plane that is approximately at land surface at each well. A plus sign (+) is placed before a measurement if the level is above land-surface datum. If known, the altitude of the land-surface datum above mean sea level is given in the well description. Mean sea level (msl) is the datum plane on which the national network of precise levels is based. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Measurements of water levels in wells equipped with recording gages are given for every fifth day and for the end of each month (eom).

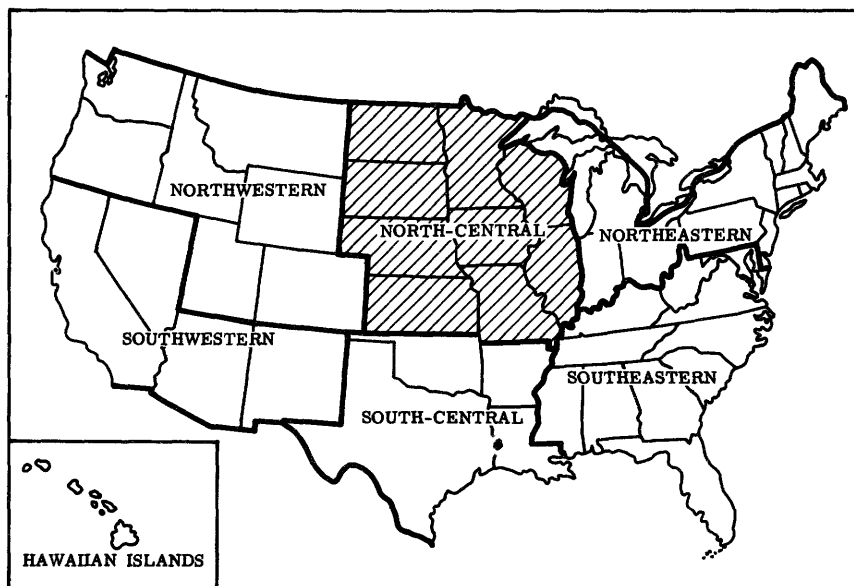


Figure 1. --Outline map of the United States showing States included in this volume.

In the collection of water-level data to serve the objectives of the observation-well program, the problem generally is to measure changes in water level accurately, rather than to determine the absolute position of the water surface. Because the measurements are made in many types of wells, under varying conditions of access and at different temperatures, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the best possible combination of measuring technique and equipment is selected, and so long as it is not changed the measurements at each well will be consistent.

Water levels are reported to as many significant figures as can be justified by the local conditions and the end use of the information. For example, in a measurement of a depth to water of several hundred feet, the error in determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water the accuracy is greater. Accordingly, in view of the principal use to which the data are put, most measurements are reported to a hundredth of a foot, but some are given only to a tenth of a foot or a larger unit.

Measurements were made under the direction of the district supervisors of the Ground Water Branch in the several States.

# ILLINOIS

By W. L. Steinhilber

Figure 2 shows the location of observation wells in Illinois.

## Well-Numbering System

The number assigned to the Bureau County well shows its location according to the Bureau of Land Management's system for subdivision of public land, which is explained on page 5. Wells in Du Page County are numbered serially.

## Well Descriptions and Water-Level Measurements

Water levels are in feet below land-surface datum.

### Bureau County

16-9E-9N1. R. E. Neff, 326 1st St., Princeton. Dug unused water-table well in glacial drift, diam 32 in, depth 29 ft, cribbed with brick. MP top of hole in board cover, at lsd. Highest water level 2.94 below lsd, May 15, 1943; lowest 24.91 below lsd, Dec. 29, 1956. Records available: 1942-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 1	14.27	Aug. 11	20.86	Sept. 29	22.12	Nov. 24	23.88
July 6	18.80	18	21.00	Oct. 6	22.33	Dec. 1	24.13
7	18.83	25	21.18	13	22.56	8	24.28
14	19.17	Sept. 1	21.35	20	22.77	15	24.48
21	19.70	8	21.54	Nov. 3	23.24	22	24.71
28	20.25	15	21.72	10	23.45	29	24.91
Aug. 4	20.64	22	21.91	17	23.67		

### Du Page County

ANL 9. Argonne National Laboratory. NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 9, T. 37 N., R. 11 E. Drilled observation artesian well in Niagara dolomite, diam 4 in, depth 140 ft, cased to 90. Lsd 733 ft above msl. MP top of casing, 0.31 ft above lsd. Highest water level 88.97 below lsd, May 27, 1951; lowest 93.94 below lsd, Dec. 17-18, 1956. Records available: 1948-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	e92.30	e92.60	91.86	92.18	92.74	92.41	e92.75	92.74	92.99	93.18	93.41	93.68
10	e92.35	92.69	92.15	92.37	92.56	92.55	e92.75	92.85	93.07	93.36	93.47	93.85
15	e92.40	92.85	92.23	92.43	92.38	e92.55	e92.85	92.86	92.92	93.20	93.36	93.74
20	e92.45	92.79	92.30	93.03	92.46	e92.60	92.86	92.92	93.16	93.21	93.58	93.82
25	e92.50	e92.40	92.32	93.15	92.48	e92.65	92.73	92.97	93.05	93.23	93.47	93.69
Eom	e92.55	e92.00	92.26	93.05	92.31	e92.70	92.83	92.83	93.17	93.20	93.58	93.75

e Estimated.

ANL 10. Argonne National Laboratory. SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 9, T. 37 N., R. 11 E. Drilled observation artesian well in Niagara dolomite, diam 10 in, reported depth 186 ft, cased to 86. Lsd 705 ft above msl. MP top of casing, 2.40 ft above lsd. Highest water level 57.79 below lsd, May 8, 1950; lowest 74.88 below lsd, June 15, 1956. Records available: 1948-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	70.04	70.60	71.53	72.84	72.11	72.48	70.28	69.76	69.91	69.80	72.32	73.69
10	70.97	71.50	71.93	72.40	72.23	73.08	72.02	70.29	70.11	70.07	72.86	73.28
15	71.03	71.75	72.00	72.06	72.67	74.88	69.78	70.30	71.89	70.75	73.18	73.88
20	70.92	71.71	72.19	72.72	71.45	e71.20	72.33	69.71	72.19	72.57	73.20	73.80
25	71.30	71.71	72.27	72.64	72.50	70.69	69.83	69.48	69.58	72.60	73.06	72.79
Eom	71.48	71.82	71.75	72.71	72.80	70.29	69.68	70.20	70.02	71.39	73.58	73.15

e Estimated.

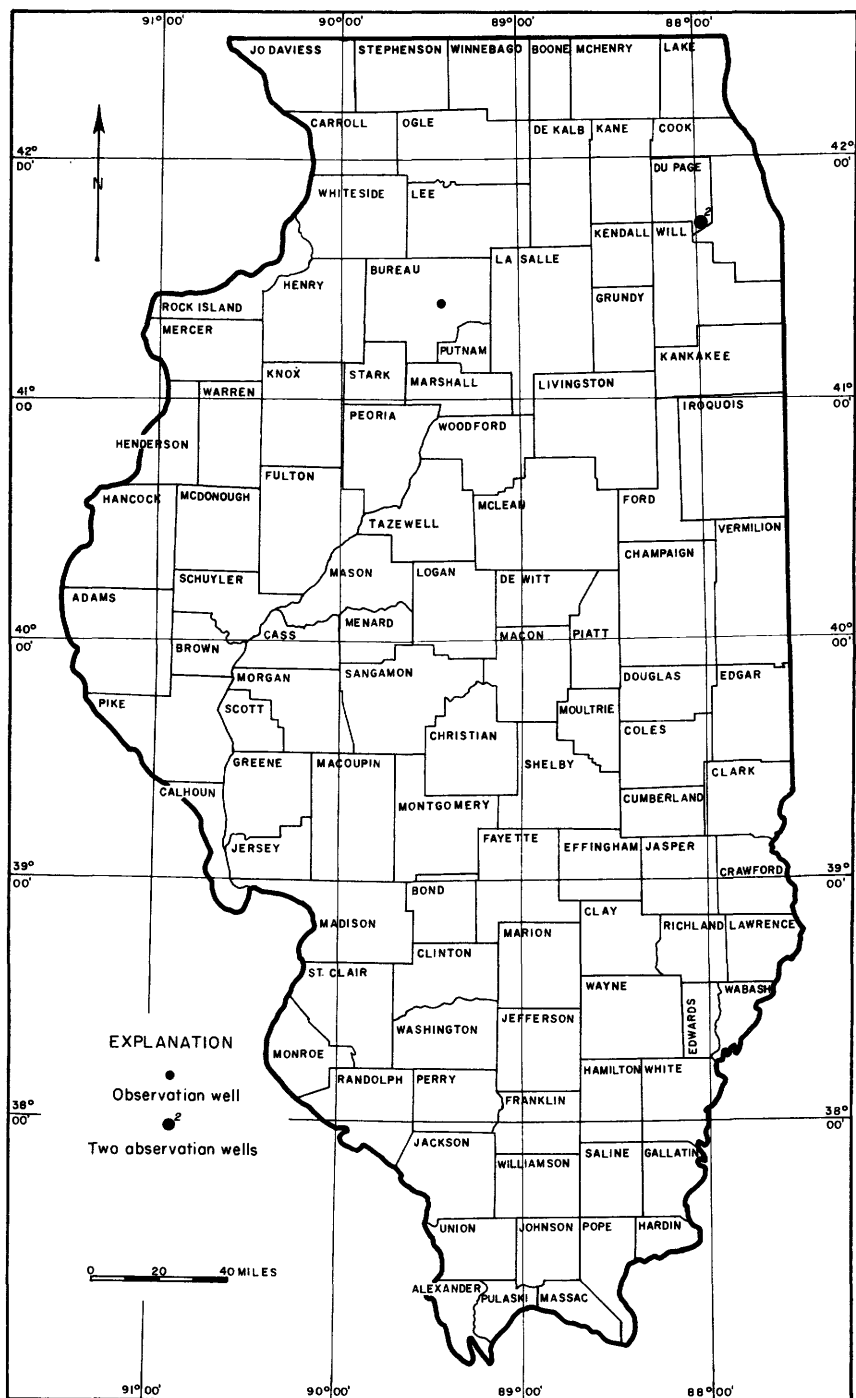


Figure 2. --Location of observation wells in Illinois, 1956.



## IOWA

By W. L. Steinhilber and L. L. Steele

The observation-well program in Iowa was continued in 1956 in cooperation with the State Geological Survey. Figure 3 shows the location of observation wells included in this report.

### Well-Numbering System

Wells are numbered in accordance with the Bureau of Land Management's system of land subdivision. Each well number is made up of three segments. The first segment indicates the township, the second the range, and the third the section in which the well is situated. The letter after the section number represents the 40-acre subdivision of the section, as shown in the diagram. Numbers are added as suffixes to distinguish wells in the same tract. Thus, the number 75-30-17E1 designates well 1 in the SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 17, T. 75 N., R. 30 W.

D	C	B	A
E	F	G	H
M	L	K	J
N	P	Q	R

### Well Descriptions and Water-Level Measurements

Water levels are in feet below land-surface datum unless otherwise indicated. Barometric leveling is used in referencing land-surface datum.

#### Adair County

75-30-17E1. F. E. Robert. Drilled unused water-table well in glacial drift, diam 12 in, depth 26 ft, lined with tile. MP top of plank platform, 0.51 ft above lsd. Highest water level 0.18 above lsd, Mar. 23, 1943; lowest 8.40 below lsd, July 28, 1953. Records available: 1942-56. Apr. 27, 3.32; July 18, 4.39.

#### Buena Vista County

90-37-34B1. Ed Zinn. Dug unused water-table well in glacial drift, diam 36 in, depth 29 ft. MP top east side of concrete platform, 2.00 ft above lsd. Highest water level 3.77 below lsd, Oct. 15, 1946; lowest 18.32 below lsd, Aug. 27, 1941. Records available: 1940-56. Feb. 21, 11.81; May 2, 11.13; Aug. 29, 15.43.

#### Carroll County

84-35-25F1. City of Carroll test hole 1. Drilled observation artesian well in Dakota sandstone, diam 8 in, depth 120 ft, cased to 106. MP top of casing, 0.49 ft above lsd. Highest water level 34.55 below lsd, Sept. 8, 1945; lowest 72.12 below lsd, Aug. 28, 1956. Records available: 1939-49, 1952-56. Feb. 20, 62.01; May 2, 53.98; Aug. 28, 72.12.

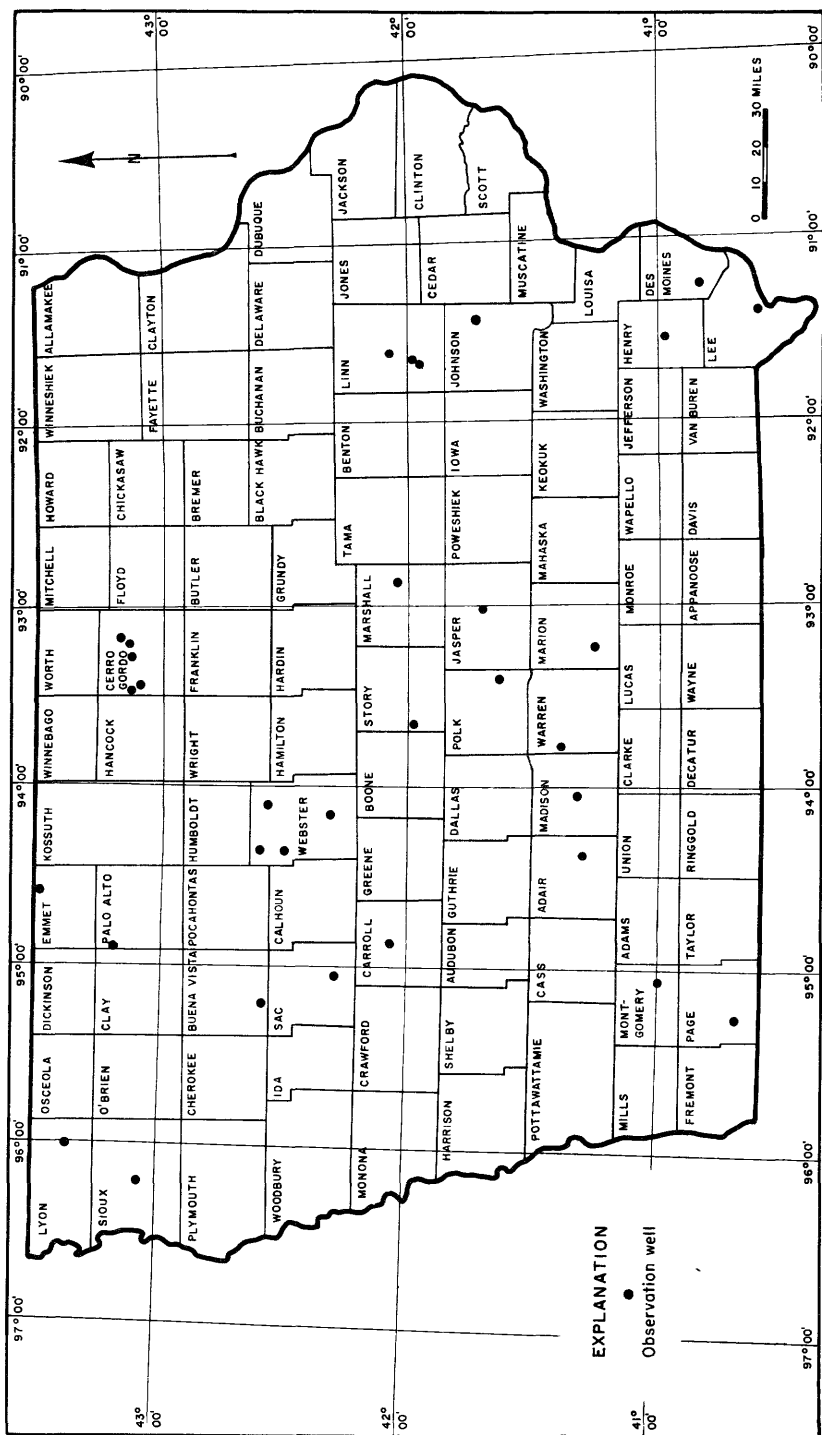


Figure 3. --Location of observation wells in Iowa, 1956.

Cerro Gordo County

95-22-3B1. Knut Olson. Drilled domestic and stock artesian well in limestone of Devonian age, diam 4 in, depth 134 ft. Lsd 1,260 ft above msl. MP top of casing, 1.40 ft above lsd. Highest water level 14.34 below lsd, July 3, 1945; lowest 21.63 below lsd, Feb. 23, 1956. Records available: 1941-56. Feb. 23, 21.63.

96-20-3P1. Minneapolis & St. Louis Ry. Co. Drilled unused artesian well in St. Peter sandstone, diam 12 to 10 in, depth 805 ft, cased 12-in 0-30, 10-in 614-730. Lsd 1,120 ft above msl. MP hole in plank cover, at lsd. Highest water level 32.71 below lsd, May 7, 1951; lowest 55.07 below lsd, Sept. 29, 1949. Records available: 1941-56.

Water level at noon, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	49.66	50.38	50.52	50.66	51.46	51.78	50.85	52.06	52.37	.....	.....	.....
10	50.02	50.53	50.85	50.68	51.57	51.37	50.76	51.87	52.08	.....	.....	.....
15	.....	50.80	50.94	50.78	51.84	50.97	50.59	51.69	51.87	.....	.....	.....
20	50.16	50.73	50.52	50.35	51.78	50.63	50.91	51.64	51.75	.....	.....	.....
25	50.30	50.85	50.07	50.15	51.71	50.60	50.62	51.65	.....	.....	.....	.....
Eom	50.60	51.00	50.72	50.48	51.69	50.61	52.32	51.60	.....	.....	.....	.....

96-20-16J1. Mason City well 11. Drilled municipal artesian well in Jordan sandstone, diam 20 to 10 in, depth 1,306 ft, cased 20-in 0-143, 10-in 713-900. Lsd 1,170 ft above msl. MP hole in plate over casing, 1.21 ft above lsd. Highest water level 162.23 below lsd, June 25, 1942; lowest 284.20 below lsd, Sept. 8, 1948. Records available: 1939-43, 1947-56. Feb. 24, 318.80 (pumping).

96-21-13E1. Mason City and Clear Lake RR. Drilled unused water-table well, diam 5 in, depth 29 ft. Lsd 1,170 ft above msl. MP top of casing, 0.61 ft above lsd. Highest water level 1.73 below lsd, June 28, 1951; lowest 17.26 below lsd, Nov. 18, 1955. Records available: 1940-56. Feb. 23, 15.60.

96-22-20L1. Boy Scouts of America. Drilled unused water-table well in glacial drift, diam 5 in, depth 126 ft. Lsd 1,250 ft above msl. MP hole in casing, 1.30 ft above lsd. Highest water level 29.65 below lsd, Mar. 25, 1942; lowest 41.97 below lsd, July 21, 1955. Records available: 1940-56. Feb. 23, 36.57.

Des Moines County

69-3-6A1. Iowa Ordnance Plant well 3. Drilled unused artesian well in St. Peter sandstone, diam 16 in, depth 1,205 ft, cased to 855. Lsd 720 ft above msl. MP top of recorder platform, 1.61 ft above lsd. Highest water level 162.70 below lsd, Mar. 27, 1950; lowest 181.19 below lsd, Apr. 12, 1954. Records available: 1950-56.

Water level at noon, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	173.98	174.16	174.05	174.97	174.14	174.75	175.21	175.45	176.12	.....	177.21	177.20
10	174.30	174.05	174.91	175.20	174.18	174.94	175.17	175.53	175.98	.....	177.22	.....
15	173.81	174.22	175.40	.....	174.18	174.82	174.97	175.52	175.91	177.09	176.98	177.29
20	174.04	174.27	175.38	174.45	174.50	174.84	175.20	175.76	176.53	177.03	177.12	177.42
25	174.16	173.85	175.12	174.32	.....	174.99	175.17	175.89	176.56	176.96	177.03	177.42
Eom	174.61	174.15	175.15	.....	174.46	174.92	175.25	175.95	176.69	177.00	177.16	177.37

Emmet County

100-32-11R1. Okamanpedan Lake Reserve State Park. Drilled public-supply artesian well in Dakota sandstone, diam 6 in, depth 277 ft. Lsd 1,230 ft above msl. MP hole north side of pump, 1.49 ft above lsd. Highest water level 59.60 below lsd, Dec. 19, 1946; lowest 68.45 below lsd, Aug. 29, 1956. Records available: 1939-56. Feb. 21, 67.37; Aug. 29, 68.45.

Henry County

71-6-9B1. City of Mount Pleasant well 2. Drilled municipal artesian well in Jordan sandstone, diam 10 to 6 in, depth 1,820 ft, cased 10-in 0-500, 6-in 500-567, 6-in 567-678. Lsd 730 ft above msl. MP hole in plate over casing, 1.22 ft above lsd. Highest water level 132.40 below lsd, Sept. 5, 1945; lowest 166.09 below lsd, Oct. 30, 1956. Records available: 1945-56. Affected by nearby wells being pumped. Jan. 26, 160.76; Apr. 25, 162.16; July 17, 164.10; Oct. 30, 166.09.

Jasper County

80-18-31C1. P. W. Beukema. Dug unused water-table well in glacial drift, diam 36 in, depth 37 ft, cribbed with brick. Lsd 940 ft above msl. MP top of concrete platform, 1.00 ft above lsd. Highest water level 2.67 below lsd, June 10, 1947; lowest 27.15 below lsd, Dec. 18, 1948. Records available: 1940-56. Apr. 27, 23.10.

Johnson County

80-5-22M1. Chicago, Rock Island & Pacific RR. Co. Dug unused water-table well in glacial drift, diam 4 ft, depth 20 ft, cribbed with brick. Lsd 750 ft above msl. MP base of recorder shelter, 0.30 ft above lsd. Highest water level 5.88 below lsd, May 2, 1953; dry, Dec. 2-31, 1955. Records available: 1941-56.

Water level at noon, from recorder graph

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 26	18.62	May 10	17.78	June 20	17.85	July 31	17.52
29	18.58	15	16.85	25	17.97	Aug. 5	15.49
Mar. 5	18.51	20	16.63	30	18.05	10	15.57
10	18.51	25	16.69	July 5	18.23	Sept. 10	12.97
15	18.55	31	16.79	10	18.37	15	13.77
20	18.55	June 5	17.08	15	18.56	20	14.82
25	18.52	10	17.38	20	18.51	25	15.58
31	18.47	15	17.64	25	17.75		

80-5-22M2. Chicago, Rock Island & Pacific RR. Co. Drilled unused artesian well, diam 5 in, depth 82 ft. Lsd 750 ft above msl. MP base of recorder shelter, 0.30 ft above lsd. Highest water level 8.15 below lsd, Apr. 21, 1952; lowest 20.21 below lsd, Aug. 31, 1948. Records available: 1941-56. Feb. 2, 19.50; Apr. 19, 19.61; May 9, 18.55; Sept. 7, 17.96.

Lee County

67-5-14L1. U. S. Geol. Survey. Driven observation water-table well in alluvial sand, diam 1½ in, depth 13 ft, screened 11-13. Lsd 530 ft above msl. MP top of casing, 1.50 ft above lsd. Highest water level 6.50 below lsd, Apr. 24, 1952; lowest 9.33 below lsd, Oct. 30, 1956. Records available: 1950-56. Jan. 26, 9.02; Apr. 25, 8.82; July 17, 9.22; Oct. 30, 9.33.

Linn County

83-7-21K1. Wapsi Valley Creamery. Cedar Rapids. Drilled unused artesian well in dolomite of Silurian age, diam 8 to 6 in, depth 261 ft (previously reported as 156, cased to 105), cased 8-in 0-28, 6-in 21-154. Lsd 770 ft above msl. MP top of casing, 1.75 ft above lsd. Highest water level 56.76 below lsd, Apr. 23, 1944; lowest 74.15 below lsd, Sept. 9, 1956. Records available: 1943-56. Affected by nearby wells being pumped.

Water level at noon, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	71.24	71.29	71.20	71.78	71.05	72.06	72.37	72.51	73.47	.....	.....	.....
10	.....	71.97	71.10	71.74	71.75	72.01	72.67	73.32	73.86	.....	.....	.....
15	70.91	.....	72.08	71.36	71.72	72.89	72.53	73.17	74.07	.....	.....	.....
20	.....	.....	72.00	71.27	71.30	69.55	73.09	73.38	73.41	.....	.....	.....
25	.....	.....	71.36	71.77	72.08	70.05	73.52	73.14	73.35	.....	.....	.....
Eom	71.89	.....	71.43	71.45	72.00	65.59	73.07	73.24	.....	.....	.....	.....

83-7-32G1. Floyd Felter. 22d Ave. SW. and 11th St. SW., Cedar Rapids. Drilled unused artesian well in limestone, diam 5 in, depth 282 ft. Lsd 800 ft above msl. MP top of cover, at lsd. Highest water level 75.88 below lsd, Jan. 26, 1942; lowest 97.25 below lsd, Aug. 31, 1955. Records available: 1940-56. Mar. 1, 95.06; Mar. 30, 95.19; Apr. 30, 92.93; May 31, 95.19; July 2, 93.99; July 31, 95.46; Dec. 3, 92.46.

84-7-13E2. U. S. Geol. Survey. Drilled observation water-table well in glacial drift, diam 1½ in, depth 17 ft, screened 15-17. Lsd 890 ft above msl. MP top of casing, 0.75 ft above lsd. Highest water level 1.56 below lsd, Mar. 29, 1951; lowest 12.90 below lsd, Dec. 3, 1956. Records available: 1940-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 30	11.86	Apr. 30	8.57	July 31	5.70	Nov. 1	12.51
Mar. 1	11.25	May 31	4.59	Aug. 29	6.45	Dec. 3	12.90
30	11.25	July 2	7.09	Oct. 3	10.91		

Lyon County

99-44-26R1. State of Iowa. Drilled unused water-table well in glacial drift, diam 20 in, depth 38 ft, lined with tile. MP top west side of casing, 2.01 ft above lsd. Highest water level 0.50 below lsd, June 26, 1951; lowest 9.74 below lsd, Oct. 24, 1940. Records available: 1940-43, 1947-56. Feb. 21, 7.66; May 2, 5.85; Aug. 29, 5.75.

Madison County

75-28-2B1. Glen Newton. Drilled unused water-table well in glacial drift, diam 24 in, depth 32 ft, cribbed with rock. Lsd 1,090 ft above msl. MP top of plank platform, 0.50 ft above lsd. Highest water level 9.93 below lsd, Oct. 23, 1946; lowest 20.59 below lsd, Oct. 1, 1943. Records available: 1940-56. Apr. 27, 16.36; July 18, 17.27.

Marion County

75-20-31C2. Amanda Elliot. Drilled unused water-table well in glacial drift, diam 15 in, depth 29 ft, lined with tile. MP top of plank platform, 1.31 ft above lsd. Highest water level 2.31 below lsd, June 11, 1947; lowest 27.42 below lsd, Oct. 28, 1953. Records available: 1940-56. Apr. 25, 20.75; July 18, 20.68; Dec. 4, 18.81.

Marshall County

84-18-24Q1. City of Marshalltown. Drilled unused artesian well in glacial sand and gravel of Pleistocene age, diam 8 in, depth 200 ft, cased to 190, screened 190-200. Lsd 870 ft above msl. MP hole in plate over casing, 1.80 ft above lsd. Highest water level 4.92 below lsd, July 13, 1951; lowest 21.85 below lsd, Aug. 28, 1956. Records available: 1949-56. Feb. 20, 20.82; May 4, 20.84; Aug. 28, 21.85.

Montgomery County

71-36-6J1. State of Iowa. Formerly Donald Templeton. Drilled observation water-table well in glacial drift, diam 1½ in, depth 38 ft, screened 36-38. Lsd 1,080 ft above msl. MP top of casing, 3.02 ft above lsd. Highest water level 2.52 below lsd, May 31, 1951; lowest 30.99 below lsd, Apr. 26, 1950. Records available: 1950-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 4	18.05	Apr. 25	18.10	Aug. 3	16.26	Oct. 24	15.35
28	18.10	May 24	17.94	24	14.96	Nov. 13	14.53
Mar. 26	18.20	June 28	17.40	Sept. 25	15.90	Dec. 31	15.30

Page County

68-38-7N1. John Cutter. Formerly John Toft. Drilled unused water-table well in glacial drift, diam 12 in, depth 44 ft, lined with tile. Lsd 1,090 ft above msl. MP top of ¾-in pipe inserted through board cover, 1.50 ft above lsd. Highest water level 1.44 below lsd, June 23, 1947; lowest 19.44 below lsd, Mar. 28, 1938. Records available: 1934-56.

Feb. 14	15.99	Apr. 23	15.40	July 30	17.10	Oct. 31	17.70
22	15.90	May 21	16.10	Aug. 27	17.23	Nov. 12	17.64
Apr. 5	16.40	June 24	16.90	Sept. 28	17.39	Dec. 26	16.86

Palo Alto County

97-34-30Q1. Norman Broadwell. Dug domestic water-table well in glacial drift, diam 48 to 18 in, depth 25 ft, cribbed with rock. MP top of plank platform, 0.50 ft above lsd. Highest water level 15.63 below lsd, July 20, 1955; lowest 21.04 below lsd, Nov. 16, 1955. Records available: 1940-45, 1948-56. May 3, 18.29; Aug. 30, 18.60.

Polk County

79-22-22A1. J. G. Reed. Dug unused water-table well in glacial drift, diam 36 in, depth 39 ft, cribbed with tile. MP top west side of concrete curb, 0.20 ft above lsd. Highest water level 2.23 below lsd, Mar. 31, 1942; lowest 11.22 below lsd, Dec. 6, 1956. Records available: 1940-56. Apr. 27, 7.53; July 18, 9.64; Dec. 6, 11.22.

Sac County

86-36-4N1. State Conservation Commission. Dug unused water-table well in glacial drift, diam 36 in, depth 9 ft, cribbed with concrete. MP top north side of casing, 2.52 ft above lsd. Highest water level 2.48 below lsd, June 28, 1945; dry, Aug. 29, 1956. Records available: 1940-56. Feb. 21, 7.85; May 2, 7.70; Aug. 29, dry.

Sioux County

95-45-5A1. City of Sioux Center. Drilled unused artesian well in Dakota sandstone, diam 5 in, depth 456 ft. Lsd 1,450 ft above msl. MP top of casing, 3.75 ft below lsd. Highest water level 266.94 below lsd, Sept. 8, 1945; lowest 269.09 below lsd, July 14, 1948. Records available: 1939-45, 1948-49, 1952-56. Feb. 21, 269.05; May 2, 268.73; Aug. 29, 268.45.

Story County

83-24-20J1. Agricultural Engineering Experiment Station. Dug unused water-table well in glacial drift, diam 36 in, depth 38 ft, cribbed with brick. MP top west side of concrete platform, 0.25 ft above lsd. Highest water level 5.90 below lsd, May 31, 1944; lowest 26.09 below lsd, July 14, 1939. Records available: 1939-56. Feb. 20, 17.58; May 1, 17.31; Aug. 28, 18.36.

Warren County

76-25-8Q1. Iowa State College. Dug domestic water-table well in glacial drift, diam 36 in, depth 30 ft, cribbed with rock. Lsd 980 ft above msl. MP top of concrete cover, 0.91 ft above lsd. Highest water level 3.95 below lsd, Jan. 4, 1946; lowest 27.75 below lsd, Feb. 4, 1954. Records available: 1940-56. Apr. 27, 16.78; July 18, 23.63.

Webster County

87-28-29N1. Grant Spangler. Drilled unused water-table well in glacial drift, diam 12 in, depth 42 ft, lined with tile. Lsd 1,160 ft above msl. MP top of recorder platform, 4.10 ft above lsd. Highest water level 0.52 below lsd, June 12, 1947; lowest 13.62 below lsd, Mar. 12, 1956. Records available: 1942-56.

Water level at noon, from recorder graph

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 5	11.89	Feb. 29	13.41	Mar. 25	12.50	May 10	8.54
10	12.20	Mar. 5	13.33	31	11.96	25	7.47
15	12.10	10	13.44	Apr. 5	11.69	31	7.32
20	12.35	15	13.57	May 5	9.59	June 5	7.30
Feb. 25	13.21	20	13.35				

89-30-23R1. Johnson Township Consolidated School. Barnum. Drilled unused artesian well in sandstone, dia. 4 in, reported depth 208 ft, perforated 203-208. Lsd 1,170 ft above msl. MP top of casing, 6.40 ft below lsd. Highest water level 30.86 below lsd, July 2, 1945; lowest 37.47 below lsd, Aug. 30, 1956. Records available: 1942-45, 1947-56. Feb. 22, 35.83; May 3, 36.41; Aug. 30, 37.47.

90-27-31N1. C. S. Knudson. Drilled unused water-table well in glacial drift, diam 15 in, depth 53 ft, lined with tile. Lsd 1,120 ft above msl. MP top of plank platform, 1.00 ft above lsd. Highest water level 4.08 below lsd, June 28, 1951; lowest 13.90 below lsd, Dec. 17, 1948. Records available: 1942-43, 1948-54, 1956. May 4, 11.22; Aug. 31, 10.78.

90-30-26A1. County of Webster. Clare. Drilled domestic water-table well in glacial sand, depth 37 ft, lined with tile. Lsd 1,230 ft above msl. MP top of plank platform, 0.30 ft above lsd. Highest water level 4.91 below lsd, June 27, 1951; lowest 26.19 below lsd, Dec. 29, 1945. Records available: 1942-56. Feb. 23, 20.22; May 3, 24.66; Aug. 30, 23.97.

## Reference

Hale, W. E., 1955, Geology and ground-water resources of Webster County, Iowa: Iowa Geol. Survey Water-Supply Bull. 4.

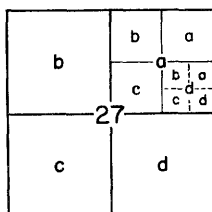
# KANSAS

By Betty J. Mason

The observation-well program in Kansas was continued during 1956 in cooperation with the State Geological Survey, the Division of Water Resources of the State Board of Agriculture, the Division of Sanitation of the State Board of Health, and, in the Missouri Basin, the U. S. Bureau of Reclamation. In addition, the city of Wichita cooperated in Harvey, McPherson, and Sedgwick Counties. Figure 4 shows the location of observation wells included in this report.

## Well-Numbering System

Wells are numbered either serially within counties or in accordance with the Bureau of Land Management's system of land subdivision. By the latter method each well number is made up of three segments. The first segment indicates the township, the second the range, and the third the section in which the well is situated. The letters after the section number, which are assigned in a counterclockwise direction as shown in the following diagram, represent subdivisions of the section. The first letter denotes the 160-acre tract, the second the 40-acre tract, and the third the 10-acre tract. Thus, the number 1-38-27adb designates the well in the NW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 27, T. 1 S., R. 38 W.



## Well Descriptions and Water-Level Measurements

Water levels are in feet below land-surface datum.

### Barber County

1. D. S. Shaw. SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 19, T. 31 S., R. 15 W. Drilled unused water-table well in deposits of Permian age, diam 8 to 6 in, depth 97 ft. MP top of well cover, 1.05 ft above lsd. Highest water level 56.40 below lsd, June 20, 1951; lowest 82.99 below lsd, Oct. 17, 1940. Records available: 1940-56. Mar. 19, 73.40; Sept. 19, 73.32; Dec. 19, 73.87.

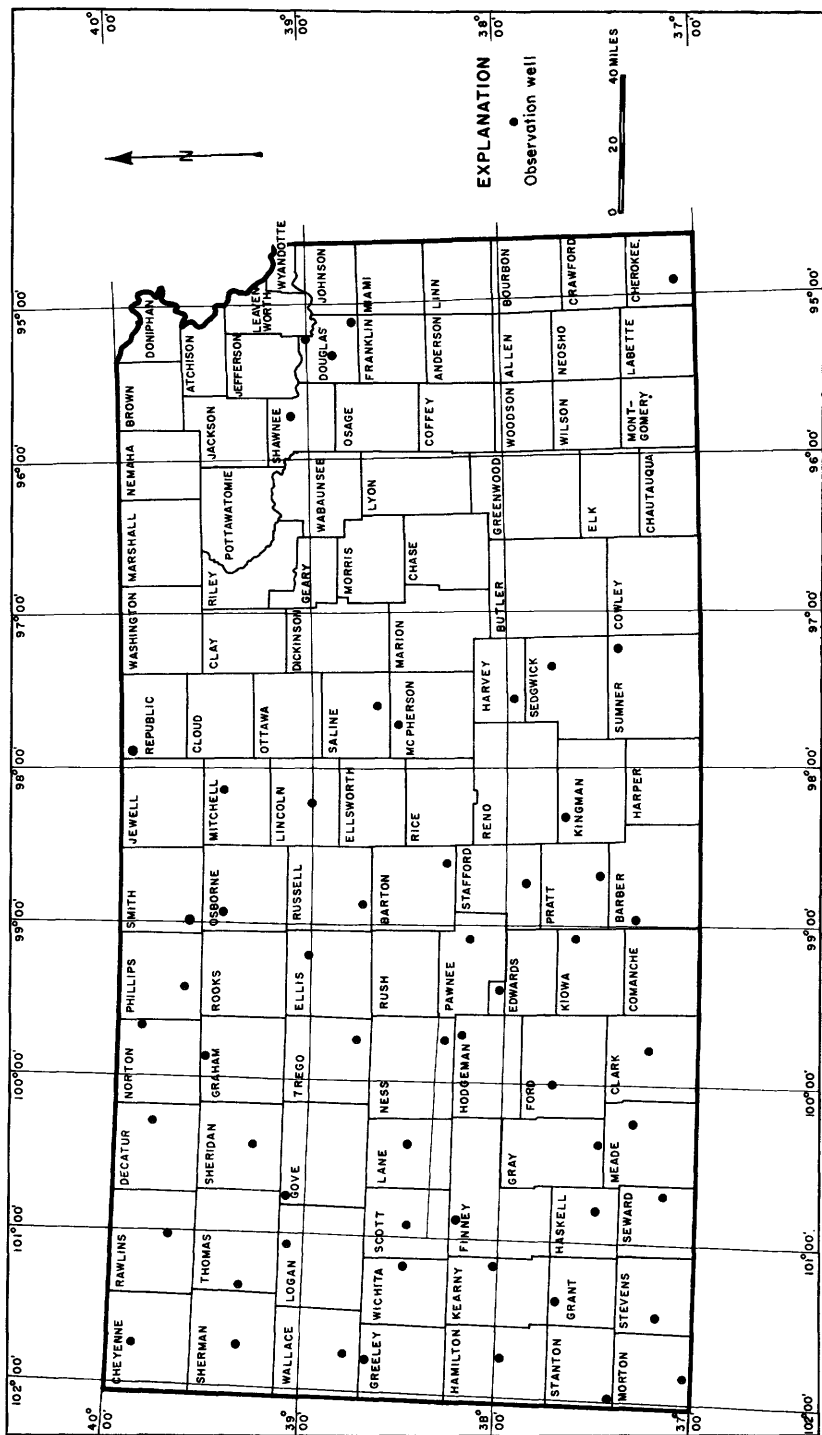
### Barton County

43. M. Hagen. SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 20, T. 20 S., R. 11 W. Drilled observation water-table well in deposits of Pleistocene age, diam 6 in, depth 46 ft. MP top west edge of casing, 0.50 ft above lsd. Highest water level 12.97 below lsd, Aug. 21, 1951; lowest 33.98 below lsd, Nov. 19, 1952. Records available: 1942-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 16	21.42	Apr. 16	22.42	July 24	23.08	Oct. 22	23.63
Feb. 25	22.38	May 9	22.42	Aug. 15	20.31	Nov. 20	23.58
Mar. 14	22.38	June 13	22.75	Sept. 18	23.46	Dec. 12	23.67

### Cherokee County

1. W. L. Stiles. NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 2, T. 34 S., R. 23 E. Dug domestic water-table well in Bluejacket sandstone member of Cherokee shale, diam 6 ft, depth 27 ft, cribbed with rock. MP top of opening in well curb, 0.80 ft above lsd. Highest water level 5.50 below lsd, May 26, 1943; lowest 19.07 below lsd, Nov. 30, 1956. Records available: 1942-45, 1948, 1950-56.





## 1--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 30	14.40	May 31	14.65	July 31	15.80	Nov. 5	18.82
Feb. 29	14.40	June 29	15.10	Aug. 29	16.58	30	19.07
Mar. 30	14.45	July 13	15.36	Sept. 29	17.68	Dec. 3	18.08
Apr. 30	14.60						

Cheyenne County

2-39-19ccc. A. C. Keller. Drilled domestic water-table well in alluvium, diam 4 in, depth 23 ft. MP edge of casing, at lsd. Highest water level 13.68 below lsd, May 25, 1955; lowest 17.48 below lsd, Sept. 2, 1953. Records available: 1948-50, 1952-56. Feb. 20, 16.46; May 22, 16.62; Aug. 21, 17.45.

Clark County

10. J. F. Folks Estate. SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 24, T. 32 S., R. 23 W. Drilled stock water-table well in deposits of Pleistocene age, diam 6 in, depth 21 ft. MP top south side of casing, 1.50 ft above lsd. Highest water level 13.97 below lsd, June 13, 1955; lowest 17.63 below lsd, Sept. 27, 1946. Records available: 1940-47, 1954-56. Mar. 19, 14.20; June 9, 14.39; Sept. 19, 15.07; Dec. 19, 14.93.

Decatur County

3-26-5cc. John Hicks. Drilled unused water-table well in Ogallala formation, diam 5 in, depth 147 ft. MP top of casing, 1.10 ft above lsd. Highest water level 141.02 below lsd, Aug. 22, 1952; lowest 143.10 below lsd, Feb. 8, 1954. Records available: 1952-56. Feb. 20, 141.64; May 16, 141.24; Aug. 28, 141.64; Nov. 26, 141.44.

Douglas County

12-20-17ccb. Frank D. Walters. Drilled observation water-table well in terrace deposits, diam 10 in, depth 50 ft. MP hole in top east side of box, 3.00 ft above lsd. Highest water level 14.47 below lsd, Apr. 29, 1952; lowest 25.88 below lsd, Dec. 25, 30, 1956. Records available: 1952-56.

## Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	24.36	24.46	24.53	24.79	24.86	25.16	25.03	25.20	25.36	25.63	25.78	25.82
10	24.37	24.47	24.54	.....	24.87	25.15	25.02	25.24	25.39	25.63	24.78	.....
15	24.39	24.48	24.57	.....	24.89	25.20	25.03	25.24	25.42	25.69	25.79	.....
20	24.40	24.42	24.58	.....	.....	25.22	25.04	25.26	25.47	25.71	25.80	.....
25	24.42	24.51	24.62	24.86	25.03	25.22	25.01	25.29	25.49	25.74	25.80	25.88
Eom	24.44	24.52	24.72	24.86	25.10	25.23	25.09	25.32	25.62	25.76	25.81	25.88

13-19-21bb. C. E. Banning. Drilled domestic and stock artesian well in Tonganoxie sandstone member of Stranger formation, diam 6 in, depth 96 ft. MP top of casing cover plate, 3.10 ft below lsd. Highest water level 23.48 below lsd, May 20, 1952; lowest 37.90 below lsd, May 27, 1956. Records available: 1952-56. May 27, 37.90.

15-21-4bcc. U. S. Geol. Survey and Kansas Geol. Survey. Drilled observation water-table well in Ireland sandstone member of Lawrence shale, diam 5 in, depth 144 ft. MP top of well seal, 2.00 ft above lsd. Records available: 1956. May 14, 22.40; Oct. 2, 24.28.

Edwards County

10. E. F. Lippoldt. SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 22, T. 23 S., R. 19 W. Dug unused water-table well in terrace deposits of Pleistocene age, diam 4 $\frac{1}{2}$  ft, depth 70 ft, cribbed with rock. MP top of hole in concrete cover, 0.60 ft above lsd. Highest water level 63.11 below lsd, Aug. 15, Oct. 22, 1956; lowest 68.20 below lsd, Mar. 13, 1946. Records available: 1944-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 16	63.17	May 9	63.48	Aug. 15	63.11	Nov. 20	63.16
Feb. 23	63.24	June 13	63.42	Sept. 18	63.18	Dec. 12	63.23
Apr. 16	63.15	July 24	63.23	Oct. 22	63.11		

Ellis County

218. W. W. Bemis. NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 16, T. 12 S., R. 17 W. Dug unused water-table well in Codell sandstone member of Carlile shale, diam 24 in, depth 83 ft, cribbed with rock. MP top of hole in north side of 2 x 8 cover, 0.50 ft above lsd. Highest water level 11.76 below lsd, July 23, 1951; lowest 55.02 below lsd, Apr. 17, 1956. Records available: 1941-56. Jan. 11, 54.23; Apr. 17, 55.02; July 25, 48.74; Oct. 23, 53.36.

Finney County

5. E. Alberta Reeves. SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 19, T. 21 S., R. 32 W. Drilled unused water-table well in deposits of Pleistocene age, diam 6 in, depth 32 ft. MP hole east side of pump base, 0.40 ft above lsd. Highest water level 15.30 below lsd, Aug. 14, 1951; lowest 22.57 below lsd, Nov. 19, 1956. Records available: 1939-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 12	20.04	May 8	20.60	Aug. 6	21.47	Nov. 19	22.57
Mar. 22	20.40	June 12	20.95	Sept. 12	21.90	Dec. 17	21.73
Apr. 24	20.55	July 11	21.16	Oct. 11	21.83		

Ford County

8. F. H. Diehl. NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 34, T. 26 S., R. 25 W. Drilled irrigation water-table well in alluvium, diam 20 in, depth 23 ft. MP top of casing, 0.80 ft above lsd. Highest water level 0.86 below lsd, May 13, 1942; lowest 8.53 below lsd, Nov. 19, 1956. Records available: 1938-56. Jan. 16, 7.23; Feb. 23, 7.06; Mar. 14, 6.94; Apr. 16, 7.43; May 9, 7.63; Sept. 17, 8.05; Nov. 19, 8.53.

Gove County

11-31-10aa. Thos. P. Johnstone. Drilled observation water-table well in Ogallala formation, diam 5 in, depth 97 ft. MP top of casing, 0.80 ft above lsd. Highest water level 88.69 below lsd, Aug. 11, 1952; lowest 91.36 below lsd, Nov. 26, 1956. Records available: 1952-56. Feb. 20, 90.70; May 16, 91.24; Aug. 27, 91.18; Nov. 26, 91.36.

Graham County

6-23-12ccb. H. Hauser. Drilled stock water-table well in Ogallala formation, diam 5 in, depth 70 ft. MP top of casing, 1.30 ft above lsd. Highest water level 61.90 below lsd, July 23, 1952; lowest 63.80 below lsd, Nov. 26, 1956. Records available: 1952-56. Feb. 20, 63.45; May 16, 63.38; Aug. 27, 63.54; Nov. 26, 63.80.

Grant County

5. C. L. Jury. NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 4, T. 27 S., R. 37 W. Drilled unused water-table well in Ogallala formation, diam 6 in, depth 78 ft. MP top of casing, 0.40 ft above lsd. Highest water level 65.53 below lsd, May 9, Nov. 28, 1951; lowest 79.44 below lsd, Aug. 21, 1956. Records available: 1941-56. Feb. 13, 67.65; May 15, 76.29; Aug. 21, 79.44; Nov. 13, 75.44.

Gray County

11. J. D. Wetmore. NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 35, T. 29 S., R. 28 W. Drilled unused water-table well in deposits of Pleistocene age, diam 5 in, depth 61 ft. MP top east side of casing, 1.00 ft above lsd. Highest water level 47.87 below lsd, Dec. 28, 1955; lowest 59.74 below lsd, Aug. 18, 1943. Records available: 1939-56. Mar. 13, 57.33; June 7, 57.67; Sept. 13, 58.33; Dec. 4, 58.99.

Greeley County

16-41-20ba. J. Howell. Drilled observation water-table well in Ogallala formation, diam 6 in, depth 153 ft. MP top of casing, 0.40 ft above lsd. Highest water level 127.96 below lsd, Jan. 6, 1949; lowest 133.02 below lsd, July 20, 1949. Records available: 1947-56. Jan. 24, 130.35; Mar. 22, 130.37; May 8, 130.51; July 12, 131.04; Sept. 12, 131.45; Nov. 19, 131.86.

Hamilton County

3. B. Rees. SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 8, T. 24 S., R. 40 W. Dug and drilled unused water-table well in alluvium, diam 12 in, depth 25 ft. MP top of bolt in west side of concrete, 0.25 ft above lsd. Highest water level 11.45 below lsd, May 31, 1951; lowest 17.29 below lsd, Sept. 21, 1956. Records available: 1939-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 27	15.29	Apr. 27	15.55	July 27	16.66	Oct. 26	17.10
Feb. 24	15.28	May 18	15.60	Aug. 24	17.14	Nov. 30	16.55
Mar. 23	15.54	June 22	16.41	Sept. 21	17.29	Dec. 21	16.63

Harvey County

839. City of Wichita. NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 35, T. 24 S., R. 2 W. Drilled observation water-table well in deposits of Pleistocene age, diam 1 $\frac{1}{2}$  in, depth 27 ft. MP top of pipe, 1.00 ft above lsd. Highest water level 10.62 below lsd, Aug. 21, 1939; lowest 32.00 below lsd, Nov. 30, 1956. Records available: 1938-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 3	30.11	May 1	31.74	Aug. 1	31.36	Nov. 1	31.97
31	30.37	31	30.85	31	31.61	30	32.00
Mar. 2	30.42	July 2	31.15	Oct. 1	31.76	Dec. 31	31.99
Apr. 2	30.50						

Haskell County

29-32-26cb. D. E. McClure. Drilled unused water-table well in Ogallala formation, diam 5 in, depth 205 ft. MP top west side of wooden pipe clamp, 1.55 ft above lsd. Highest water level 190.01 below lsd, Aug. 10, 1953; lowest 196.79 below lsd, May 15, 1956. Records available: 1941, 1952-56. May 15, 196.79; Aug. 21, 196.08; Nov. 13, 194.87.

Hodgeman County

3. C. A. Bradley. SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 12, T. 21 S., R. 22 W. Dug and drilled irrigation water-table well in alluvium, diam 60 to 20 in, depth 76 ft. MP top south side of concrete curb, 1.00 ft above lsd. Highest water level 23.84 below lsd, Oct. 24, 1951; lowest 39.74 below lsd, Oct. 24, 1956. Records available: 1940-56. Jan. 18, 35.65; Apr. 18, 35.35; Oct. 24, 39.74.

Kearny County

16. C. B. Campbell. SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 15, T. 23 S., R. 35 W. Drilled unused water-table well in Ogallala formation, diam 6 in, depth 60 ft. MP top north side of casing, 0.40 ft above lsd. Highest water level 23.69 below lsd, May 31, 1951; lowest 55.79 below lsd, Nov. 27, 1956. Records available: 1939-56. May 21, 52.15; Aug. 30, 54.96; Nov. 27, 55.79.

Kingman County

4. N. Lawson. NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 9, T. 27 S., R. 9 W. Drilled observation water-table well in deposits of Pleistocene age, diam 2 in, depth 76 ft. MP top opening of pump, 0.30 ft above lsd. Highest water level 55.58 below lsd, Sept. 1, 1953; lowest 65.13 below lsd, Feb. 6, 1947. Records available: 1945-56. Mar. 20, 57.60; June 20, 57.92; Sept. 20, 58.15; Dec. 20, 58.44.

Kiowa County

4. H. E. Davis. SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 4, T. 28 S., R. 16 W. Drilled domestic and irrigation water-table well in deposits of Pleistocene age, diam 6 in, depth 109 ft. MP top south side of casing, 0.50 ft above lsd. Highest water level 63.87 below lsd, Sept. 4, 1952; lowest 76.07 below lsd, Aug. 20, 1943. Records available: 1940-56. Mar. 20, 66.21; June 20, 66.06; Sept. 20, 67.04; Dec. 20, 67.30.

Lane County

18-28-15ccc. C. S. and F. E. Boone. Drilled observation water-table well in Ogallala formation, diam 6 in, depth 61 ft. MP top southwest side of casing, 0.50 ft above lsd. Highest water level 54.23 below lsd, Aug. 25, 1952; lowest 56.28 below lsd, June 26, 1950. Records available: 1950-56. Oct. 11, 55.96; Dec. 10, 55.73.

Lincoln County

12-8-11cb. Jim and Ed Herby. Dug domestic and stock water-table well in alluvium, diam 4 ft, depth 32 ft, cribbed with rock. MP top of concrete curb, at lsd. Highest water level 4.76 below lsd, July 25, 1951; lowest 20.90 below lsd, Dec. 20, 1956. Records available: 1947-56. Mar. 8, 20.42; June 26, 19.88; Sept. 21, 20.79; Dec. 20, 20.90.

Logan County

11-34-16cc. A. T. and Helen Peterson. Drilled observation water-table well in Ogallala formation, diam 5 in, depth 143 ft (previously reported as 14). MP top of casing, 0.70 ft above lsd. Highest water level 125.77 below lsd, Nov. 27, 1956; lowest 126.63 below lsd, Jan. 6, 1953. Records available: 1952-56. Feb. 21, 126.10; May 16, 125.98; Aug. 28, 126.03; Nov. 27, 125.77.

McPherson County

17-3-17dd. U. S. Geol. Survey. Drilled observation water-table well in alluvium, diam  $1\frac{1}{2}$  in, depth 39 ft. MP top of pipe, 1.20 ft above lsd. Highest water level 16.75 below lsd, July 24, 1951; lowest 29.80 below lsd, Sept. 7, 1956. Records available: 1946-56. Jan. 4, 27.85; May 11, 29.10; July 31, 29.40; Sept. 7, 29.80; Dec. 17, 28.76.

Meade County

61. John Meyer. NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 26, T. 31 S., R. 27 W. Drilled unused water-table well in Ogallala formation and deposits of Pleistocene age, diam 6 in, depth 87 ft. MP top south side of casing, 0.60 ft above lsd. Highest water level 56.34 below lsd, Dec. 28, 1955; lowest 60.77 below lsd, May 17, 1940. Records available: 1939-56. Mar. 13, 56.43; June 7, 56.37; Sept. 13, 56.35; Dec. 4, 56.39.

Mitchell County

7-7-7aaa. A. McDysan. Drilled domestic and stock water-table well in Greenhorn limestone, diam 6 in, depth 43 ft. MP top of rock curb, 1.00 ft above lsd. Highest water level 16.05 below lsd, Jan. 22, 1951; lowest 34.68 below lsd, Dec. 19, 1956. Records available: 1946-56. Mar. 5, 29.82; June 25, 31.47; Sept. 18, 32.48; Dec. 19, 34.68.

Morton County

117. W. C. Washburn. SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 4, T. 35 S., R. 42 W. Drilled unused water-table well in Ogallala formation, diam 6 in, depth 216 ft. MP top west side of casing, 1.20 ft above lsd. Highest water level 155.44 below lsd, May 7, 1956; lowest 166.54 below lsd, May 25, 1948. Records available: 1939-56. Feb. 14, 156.22; May 7, 155.44; Nov. 15, 155.48.

Ness County

2. C. L. Whitley. SW $\frac{1}{4}$  sec. 20, T. 20 S., R. 22 W. Dug and drilled irrigation water-table well in alluvium, diam 20 in, depth 58 ft. MP top south side of concrete curb, 0.50 ft above lsd. Highest water level 17.81 below lsd, July 12, 1951; lowest 33.69 below lsd, July 26, 1956. Records available: 1940-56. Jan. 18, 27.67; July 26, 33.69; Oct. 24, 31.79.

Norton County

2-21-1bb. Verner Ross. Drilled irrigation water-table well in alluvium, diam 24 in, depth 70 ft. MP top east side of pump base, 1.30 ft above lsd. Highest water level 18.76 below lsd, July 23, 1951; lowest 31.35 below lsd, July 7, 1955. Records available: 1946-56. Feb. 7, 26.94; Mar. 26, 26.43; Apr. 27, 30.85.

Osborne County

7-14-6cb. J. A. Guttery. Drilled stock water-table well in alluvium, diam 12 in, depth 29 ft, cased with tile. MP top east side of board platform, 0.40 ft above lsd. Highest water level 19.97 below lsd, Aug. 27, 1951; lowest 24.89 below lsd, Dec. 19, 1956. Records available: 1946-56. June 26, 24.55; Sept. 18, 24.78; Dec. 19, 24.89.

Pawnee County

8. F. B. Reed. NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 6, T. 22 S., R. 16 W. Drilled irrigation water-table well in alluvium, diam 19 in, depth 34 ft. MP top south side of concrete curb, 1.50 ft above lsd. Highest water level 7.01 below lsd, Aug. 29, 1950; lowest 18.72 below lsd, Sept. 18, 1956. Records available: 1940-56. Feb. 23, 15.06; Mar. 14, 15.29; June 13, 15.63; Sept. 18, 18.72; Oct. 22, 17.35; Nov. 20, 17.04; Dec. 12, 16.62.

Phillips County

4-19-35ab. Glenn Seeger. Drilled domestic and stock water-table well in alluvium, diam 10 in, depth 35 ft. MP top of casing, 1.30 ft above lsd. Highest water level 7.43 below lsd, May 24, 1952; lowest 15.78 below lsd, Jan. 19, 1951. Records available: 1946-56. Mar. 6, 14.10; June 25, 14.50; Sept. 18, 15.16; Dec. 19, 15.55.

Pratt County

29-13-13aa. E. R. Kessler. Drilled irrigation water-table well in deposits of Pleistocene age, diam 10 in, depth 125 ft. MP top south side of concrete platform, 0.40 ft above lsd. Highest water level 87.65 below lsd, June 29, 1953; lowest 92.25 below lsd, Dec. 15, 1954. Records available: 1951-56. Mar. 19, 89.47; June 20, 88.85; Sept. 19, 89.12; Dec. 19, 89.65.

Rawlins County

4-33-18dd. W. B. Minney. Drilled unused water-table well in Ogallala formation, diam 5 in, depth 103 ft. MP top of hole north side of pump base, 1.30 ft above lsd. Highest water level 86.61 below lsd, Aug. 4, 1952; lowest 88.30 below lsd, Aug. 28, 1956. Records available: 1952-56. May 17, 88.10; Aug. 28, 88.30; Nov. 27, 88.28.

Republic County

1-5-7bb. U. S. Geol. Survey. Drilled and driven observation water-table well in alluvium, diam  $1\frac{1}{4}$  in, depth 13 ft. MP top of pipe, 1.00 ft above lsd. Highest water level 3.20 below lsd, July 24, 1951; lowest 9.62 below lsd, Mar. 28, 1956. Records available: 1947-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 29	9.03	May 3	9.20	July 11	6.63	Sept. 19	8.95
Mar. 28	9.62	June 7	9.20	Aug. 8	7.53	Nov. 7	9.42

Russell County

45. Jacob Flegler. NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 11, T. 15 S., R. 14 W. Dug stock water-table well in alluvium, diam 28 to 32 in, depth 27 ft, cribbed with rock. MP top east edge of rock casing, 0.70 ft above lsd. Highest water level 18.39 below lsd, July 12, 1945; lowest 24.28 below lsd, Aug. 20, 1941. Records available: 1941-56. Jan. 17, 21.06; Apr. 17, 21.33; July 25, 20.75; Oct. 23, 21.58.

Saline County

15-2-18cd. U. S. Geol. Survey. Drilled and driven observation water-table well in terrace deposits, diam  $1\frac{1}{2}$  in, depth 45 ft. MP top of pipe, 1.40 ft above lsd. Highest water level 11.50 below lsd, Sept. 18, 1951; lowest 28.65 below lsd, Sept. 7, 1956. Records available: 1946-56. Jan. 4, 26.39; May 11, 26.92; July 31, 27.53; Sept. 7, 28.65; Dec. 17, 27.65.

Scott County

2. E. E. Coffin. NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 25, T. 18 S., R. 33 W. Drilled unused water-table well in deposits of Pleistocene age, diam 18 in, depth 47 ft (previously reported as 44). MP top south edge of casing, at lsd. Highest water level 20.48 below lsd, June 11, 1952; lowest 45.50 below lsd, Dec. 17, 1956. Records available: 1934-56. Jan. 12, 39.93; May 2, 40.32; June 12, 40.79; July 11, 43.42; Aug. 6, 42.22; Oct. 16, 43.28; Dec. 17, 45.50.

Sedgwick County

809. City of Wichita. NW cor. NW $\frac{1}{4}$  sec. 21, T. 26 S., R. 1 E. Driven observation water-table well in deposits of Pleistocene age, diam  $1\frac{1}{2}$  in, depth 32 ft. MP top of pipe, 3.60 ft above lsd. Highest water level 5.91 below lsd, July 11, 1951; lowest 17.61 below lsd, Dec. 31, 1956. Records available: 1938-56.

Jan. 3	15.87	May 1	15.98	Aug. 1	16.77	Nov. 1	17.48
31	16.02	13	16.25	31	17.05	29	15.54
Mar. 1	15.90	July 2	18.56	Oct. 1	17.34	Dec. 31	17.61
30	16.04						

Seward County

122. Mrs. Flora Atwell. NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 9, T. 33 S., R. 31 W. Drilled domestic and stock water-table well in Ogallala formation and deposits of Pleistocene age, diam 5 in, depth 213 ft. MP top northwest side of casing, 0.70 ft above lsd. Highest water level 197.42 below lsd, Aug. 17, 1955; lowest 205.76 below lsd, Oct. 21, 1947. Records available: 1940-56. Jan. 9, 200.10; Feb. 13, 200.51; Mar. 12, 199.01.

Shawnee County

11-15-16c. State Board of Agriculture. Drilled observation water-table well in alluvium, diam 18 in, depth 47 ft. MP top of casing, 0.80 ft above lsd. Highest water level 8.87 below lsd, July 16, 1951; lowest 30.78 below lsd, Dec. 30, 1956. Records available: 1950-56.

Lowest water level for the day, from recorder graph												
Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	29.74	29.95	30.08	30.29	30.51	30.50	30.42	29.60	29.57	30.02	30.34	30.58
10	29.78	29.98	30.10	30.33	30.53	30.48	30.30	29.60	29.65	30.07	30.39	30.63
15	29.81	30.01	30.14	30.36	30.53	30.49	29.18	29.59	29.70	30.13	30.42	30.65
20	29.85	30.04	30.16	30.40	30.53	30.51	29.00	29.51	29.79	30.18	30.47	30.70
25	29.88	30.04	30.19	30.45	30.54	30.51	29.83	29.46	29.86	30.23	30.51	30.74
Eom	29.92	30.07	30.23	30.49	30.51	30.49	29.68	29.52	29.95	30.29	30.55	30.79

Sheridan County

8-28-33dc. School District. Drilled unused water-table well in Ogallala formation, diam 8 in, depth 58 ft. MP top of casing, 0.90 ft above lsd. Highest water level 48.35 below lsd, Aug. 7, 1952; dry, Aug. 27, 1956. Records available: 1952-56. Feb. 20, 52.78; May 16, 52.84; Aug. 27, dry.

Sherman County

8-40-24baa. Victoria Van Drasek Estate. Drilled unused water-table well in Ogallala formation, diam 6 in, depth 164 ft. MP top west side of casing, 0.70 ft above lsd. Highest water level 135.54 below lsd, Apr. 21, 1953; lowest 137.47 below lsd, Oct. 16, 1956. Records available: 1948-56. Jan. 23, 137.12; Feb. 11, 137.19; Apr. 24, 136.76; Oct. 16, 137.47.

Smith County

5-15-2dc. George K. Wamhoff. Drilled unused water-table well in terrace deposits, diam 10 in, depth 42 ft. MP top west side of board platform, 1.20 ft above lsd. Highest water level 23.95 below lsd, Oct. 22, 1951; lowest 33.84 below lsd, Nov. 30, 1948. Records available: 1945-56. Mar. 6, 31.27; June 25, 31.30; Sept. 18, 32.63; Dec. 19, 32.96.

Stafford County

25-13-3bb. M. L. Halley. Driven unused water-table well in deposits of Pleistocene age, diam 4 in, depth 30 ft. MP top edge of oil barrel, 0.20 ft above lsd. Highest water level 2.75 below lsd, May 21, 1952; dry, Aug. 15, Oct. 22, Nov. 20, 1956. Records available: 1951-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 16	18.63	Apr. 16	18.70	July 24	20.07	Oct. 22	(f)
Feb. 25	18.74	May 9	18.99	Aug. 15	(f)	Nov. 20	(f)
Mar. 14	18.81	June 13	19.61				

f Dry.

Stanton County

146. C. M. Harrison. SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 27, T. 30 S., R. 43 W. Drilled unused water-table well in Dakota formation, diam 5 in, depth 55 ft. MP hole in southwest side of steel cylinder, at lsd. Highest water level 31.54 below lsd, Nov. 29, 1951; lowest 47.10 below lsd, Nov. 15, 1956. Records available: 1939-51, 1953-56. Feb. 14, 38.96; May 7, 39.18; Aug. 22, 45.82; Nov. 15, 47.10.

Stevens County

33-38-20aa. Forrest Farrar. Drilled domestic water-table well in Ogallala formation, diam 5 in, depth 119 ft. MP slit in steel plate over casing, 0.60 ft above lsd. Highest water level 87.70 below lsd, Nov. 15, 1956; lowest 97.29 below lsd, Apr. 7, 1956. Records available: 1956. Apr. 7, 97.29; Aug. 21, 91.84; Nov. 15, 87.70.

Sumner County

19. Thomas Graber. NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 17, T. 30 S., R. 2 E. Bored observation water-table well in terrace deposits, diam 1 $\frac{1}{4}$  in, depth 30 ft. MP top of pipe, 1.60 ft above lsd. Highest water level 9.94 below lsd, Nov. 8, 1955; lowest 12.18 below lsd, Sept. 13, 1956. Records available: 1954-56. Feb. 21, 10.89; May 1, 11.15; July 17, 11.85; Sept. 13, 12.18; Dec. 19, 12.12.

Thomas County

7. City of Brewster. NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 18, T. 8 S., R. 36 W. Drilled unused water-table well in Ogallala formation, diam 6 in, depth 139 ft. MP top west side of casing, 0.30 ft above lsd. Highest water level 110.85 below lsd, July 8, 1953; lowest 128.02 below lsd, Oct. 14, 1948. Records available: 1942-56. Jan. 23, 124.40; Apr. 24, 125.27; May 11, 126.55; Oct. 16, 126.26.

Trego County

14-22-36aa. U. S. Geol. Survey. Drilled observation water-table well in deposits of Pleistocene age, diam 1 $\frac{1}{4}$  in, depth 74 ft. MP top of pipe, 1.50 ft above lsd. Highest water level 28.52 below lsd, Jan. 9, 1956; lowest 43.11 below lsd, Mar. 16, 1950. Records available: 1949-54, 1956. Jan. 9, 28.52; June 8, 28.72; Oct. 15, 28.57.

Wallace County

14-40-34ddd. C. Popp. Drilled unused water-table well in Ogallala formation, diam 6 in, depth 91 ft. MP top west side of casing, 0.75 ft above lsd. Highest water level 82.20 below lsd, Apr. 24, 1956; lowest 90.18 below lsd, Oct. 17, 1956. Records available: 1948-56. Jan. 24, 89.24; Apr. 24, 82.20; July 12, 89.65; Oct. 17, 90.18.

Wichita County

18-35-14bb. A. C. Felt. Drilled domestic water-table well in Ogallala formation, diam 5 in, depth 95 ft. MP top southeast side of casing, 0.20 ft above lsd. Highest water level 81.33 below lsd, Aug. 11, 1949; lowest 84.95 below lsd, Dec. 17, 1956. Records available: 1947-56. Apr. 25, 84.20; June 12, 84.32; Aug. 6, 84.44; Oct. 17, 84.71; Dec. 17, 84.95.

## References

- Berry, D. W., 1952, Geology and ground-water resources of Lincoln County, Kansas: Kansas Geol. Survey Bull. 95.
- Byrne, F. E., and McLaughlin, T. G., 1947, Geology and ground-water resources of Seward County, Kansas: Kansas Geol. Survey Bull. 69.
- Fent, O. S., 1950, Geology and ground-water resources of Rice County, Kansas: Kansas Geol. Survey Bull. 85.
- Fishel, V. C., 1948, Geology and ground-water resources of Republic County and northern Cloud County, Kansas: Kansas Geol. Survey Bull. 73.
- \_\_\_\_\_, 1952, Ground-water resources of Pawnee Valley, Kansas: Kansas Geol. Survey Bull. 94.
- Fishel, V. C., and Leonard, A. R., 1956, Geology and ground-water resources of Jewell County, Kansas: Kansas Geol. Survey Bull. 115.
- Fishel, V. C., and Mason, B. J., 1957, Ground-water levels in observation wells in Kansas, 1956: Kansas Geol. Survey Bull. 125.
- Frye, J. C., 1942, Geology and ground-water resources of Meade County, Kansas: Kansas Geol. Survey Bull. 45.
- \_\_\_\_\_, 1945, Geology and ground-water resources of Thomas County, Kansas: Kansas Geol. Survey Bull. 59.
- Frye, J. C., and Brazil, J. J., 1943, Ground water in the oil-field areas of Ellis and Russell Counties, Kansas: Kansas Geol. Survey Bull. 50.
- Frye, J. C., and Leonard, A. R., 1949, Geology and ground-water resources of Norton County and northwestern Phillips County, Kansas: Kansas Geol. Survey Bull. 81.
- Latta, B. F., 1941, Geology and ground-water resources of Stanton County, Kansas: Kansas Geol. Survey Bull. 37.
- \_\_\_\_\_, 1944, Geology and ground-water resources of Finney and Gray Counties, Kansas: Kansas Geol. Survey Bull. 55.
- \_\_\_\_\_, 1948, Geology and ground-water resources of Kiowa County, Kansas: Kansas Geol. Survey Bull. 65.
- \_\_\_\_\_, 1950, Geology and ground-water resources of Barton and Stafford Counties, Kansas: Kansas Geol. Survey Bull. 88.
- Leonard, A. R., 1952, Geology and ground-water resources of the North Fork Solomon River in Mitchell, Osborne, Smith, and Phillips Counties, Kansas: Kansas Geol. Survey Bull. 98.
- McLaughlin, T. G., 1942, Geology and ground-water resources of Morton County, Kansas: Kansas Geol. Survey Bull. 40.
- \_\_\_\_\_, 1943, Geology and ground-water resources of Hamilton and Kearny Counties, Kansas: Kansas Geol. Survey Bull. 49.
- \_\_\_\_\_, 1946, Geology and ground-water resources of Grant, Haskell, and Stevens Counties, Kansas: Kansas Geol. Survey Bull. 61.
- \_\_\_\_\_, 1949, Geology and ground-water resources of Pawnee and Edwards Counties, Kansas: Kansas Geol. Survey Bull. 80.
- Prescott, G. C., Jr., 1952, Geology and ground-water resources of Cheyenne County, Kansas: Kansas Geol. Survey Bull. 100.
- \_\_\_\_\_, 1953, Geology and ground-water resources of Sherman County, Kansas: Kansas Geol. Survey Bull. 105.
- Prescott, G. C., Jr., Branch, J. R., and Wilson, W. W., 1954, Geology and ground-water resources of Wichita and Greeley Counties, Kansas: Kansas Geol. Survey Bull. 108.
- Waite, H. A., 1942, Geology and ground-water resources of Ford County, Kansas: Kansas Geol. Survey Bull. 43.
- \_\_\_\_\_, 1947, Geology and ground-water resources of Scott County, Kansas: Kansas Geol. Survey Bull. 66.
- Williams, C. C., 1944, Ground-water conditions in the Neosho River valley in the vicinity of Parsons, Kansas: Kansas Geol. Survey Bull. 52, pt. 2.
- Williams, C. C., and Lohman, S. W., 1949, Geology and ground-water resources of a part of south-central Kansas, with special reference to the Wichita municipal water supply: Kansas Geol. Survey Bull. 79.

## MINNESOTA

By G. C. Straka

The observation-well program in Minnesota was continued in 1956 in cooperation with the Division of Waters of the State Department of Conservation, the Iron Range Resources and Rehabilitation Commission, and the Board of County Commissioners of Hennepin County. Figure 5 shows the location of observation wells included in this report.

### Well-Numbering System

Wells are numbered in accordance with the Bureau of Land Management's system of land subdivision. Each well number is made up of three segments. The first segment indicates the township, the second the range, and the third the section in which the well is situated. The letters after the section number, which are assigned in a counterclockwise direction as shown in the diagram on page 11, represent subdivisions of the section. The first letter denotes the 160-acre tract, the second the 40-acre tract, and the third the 10-acre tract. The letter "B" before the township number designates a well in the northwest quadrant of the fourth principal meridian and base-line system. (If the well is in the northwest quadrant of the fifth principal meridian and base-line system, no letter is included.) Numbers are added as suffixes to distinguish wells in the same tract. Thus, the number 108.30.9add designates the well in the SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 9, T. 108 N., R. 30 W.

### Well Descriptions and Water-Level Measurements

Water levels are in feet below land-surface datum.

#### Brown County

108.30.9add. Erwin Kjelshus. Drilled unused water-table well in glacial drift, diam 16 in, depth 32 ft. MP top of concrete cover, 0.40 ft above lsd. Highest water level 2.70 below lsd, May 2, 1951; lowest 17.68 below lsd, Feb. 28, 1956. Records available: 1942-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	16.60	Apr. 2	15.66	July 4	5.42	Oct. 5	9.69
10	16.81	10	12.53	12	5.65	13	10.67
17	16.85	18	11.66	18	6.16	19	11.27
24	16.99	24	11.48	25	5.93	26	11.80
31	17.34	May 2	11.46	Aug. 1	5.93	Nov. 3	11.89
Feb. 7	17.20	7	10.18	8	5.30	14	10.32
14	17.38	16	9.66	15	5.35	27	9.18
20	17.59	21	8.97	23	5.95	Dec. 3	9.09
28	17.68	31	8.65	29	6.48	11	9.07
Mar. 5	17.65	June 7	8.60	Sept. 5	6.87	18	9.22
13	16.96	12	8.93	14	7.47	24	9.28
19	17.38	20	6.80	20	7.87	31	9.39
27	17.15	27	5.10	27	8.55		



Carlton County

B49. 17.23caa. City of Cloquet. Drilled unused water-table well in glacial sand and gravel, diam 12 in, depth 51 ft, screened 26-46. MP top of wood platform, 1.40 ft above lsd. Highest water level 4.66 below lsd, Aug. 17, 1953; lowest 10.83 below lsd, Feb. 7, 1950. Records available: 1948-56. Measured by S. O. Hanson.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 3	7.87	Apr. 2	7.52	July 2	7.84	Oct. 9	8.59
9	7.93	9	7.18	9	7.65	15	8.52
16	8.03	16	6.93	16	7.69	22	8.56
23	8.11	23	7.12	23	7.90	29	8.60
30	8.19	30	7.21	Aug. 13	7.79	Nov. 5	8.56
Feb. 6	8.22	May 7	7.29	20	7.84	12	8.59
13	8.34	14	7.07	27	8.01	19	8.66
20	8.41	21	7.20	Sept. 4	8.02	Dec. 3	8.87
Mar. 5	8.24	June 4	7.31	10	8.12	10	8.89
12	8.43	18	7.57	17	8.14	26	9.12
19	8.52	26	7.70	24	8.20	31	9.24
26	7.79						

Clay County

137.45.30cdb1. City of Barnesville. Drilled unused water-table well in glacial drift, diam 10 in, depth 73 ft. MP top of casing, 1.50 ft above lsd. Highest water level 3.16 below lsd, June 20, 1953; lowest 7.41 below lsd, Oct. 25, 27, 1949. Records available: 1949-56.

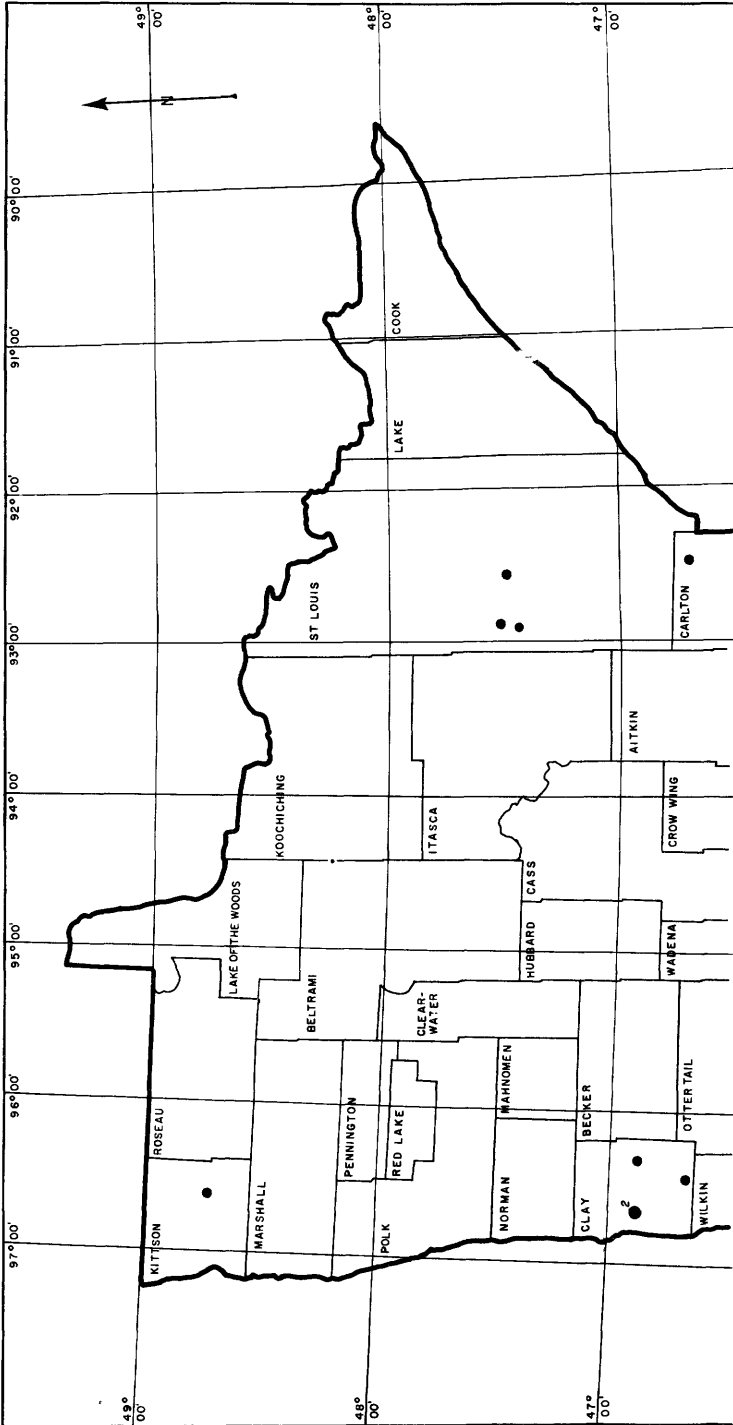
Jan. 7	6.42	Apr. 7	4.99	July 7	5.83	Oct. 6	6.53
14	6.48	14	4.64	14	5.94	13	6.54
21	6.46	21	4.66	21	5.92	20	6.48
28	6.52	28	4.70	28	6.22	27	6.45
Feb. 4	6.56	May 5	4.63	Aug. 4	6.16	Nov. 3	6.47
11	6.60	12	4.26	11	5.96	10	6.18
18	6.64	19	4.56	18	6.24	17	6.12
25	6.62	26	4.92	25	6.36	27	6.14
Mar. 3	6.64	June 2	4.76	Sept. 1	6.38	Dec. 1	6.16
10	6.66	9	4.74	8	6.42	8	6.14
17	6.72	16	5.18	15	6.46	15	6.22
24	6.34	23	5.48	22	6.48	22	6.30
31	6.07	30	5.66	29	6.54	29	6.38

139.45.1ccd2. Village of Hawley. Drilled unused water-table well in glacial drift, diam 10 in, depth 122 ft. MP top west side of casing, 2.05 ft above lsd. Highest water level 12.09 below lsd, Aug. 6, 1955; lowest 18.61 below lsd, Dec. 24, 1954. Records available: 1949-56. For additional measurements, see Straka and Schneider (1957).

## Lowest water level for the day, from recorder graph

Day	Feb.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	....	....	16.6	16.7	16.1	16.20	17.80	15.85	16.45
10	17.4	....	15.6	16.4	16.2	17.56	17.66	16.21	16.26
15	17.5	....	16.0	17.3	16.2	17.39	17.69	16.09	16.61
20	....	....	....	17.5	16.3	17.49	17.53	16.27	16.37
25	....	....	17.3	16.4	17.67	16.62	17.39	16.22	16.22
Eom	....	16.7	16.7	16.4	17.53	16.85	16.01	16.33	16.71

139.47.5cdc. City of Moorhead. Drilled observation water-table well in glacial sand and gravel, diam 8 in, depth 131 ft, slotted 91-107. MP wood floor of instrument shelter, 3.60 ft above lsd. Highest water level 12.19 below lsd, July 15, 1947; lowest 27.52 below lsd, Oct. 22, 1956. Records available: 1947-56. For additional measurements, see Straka and Schneider (1957).



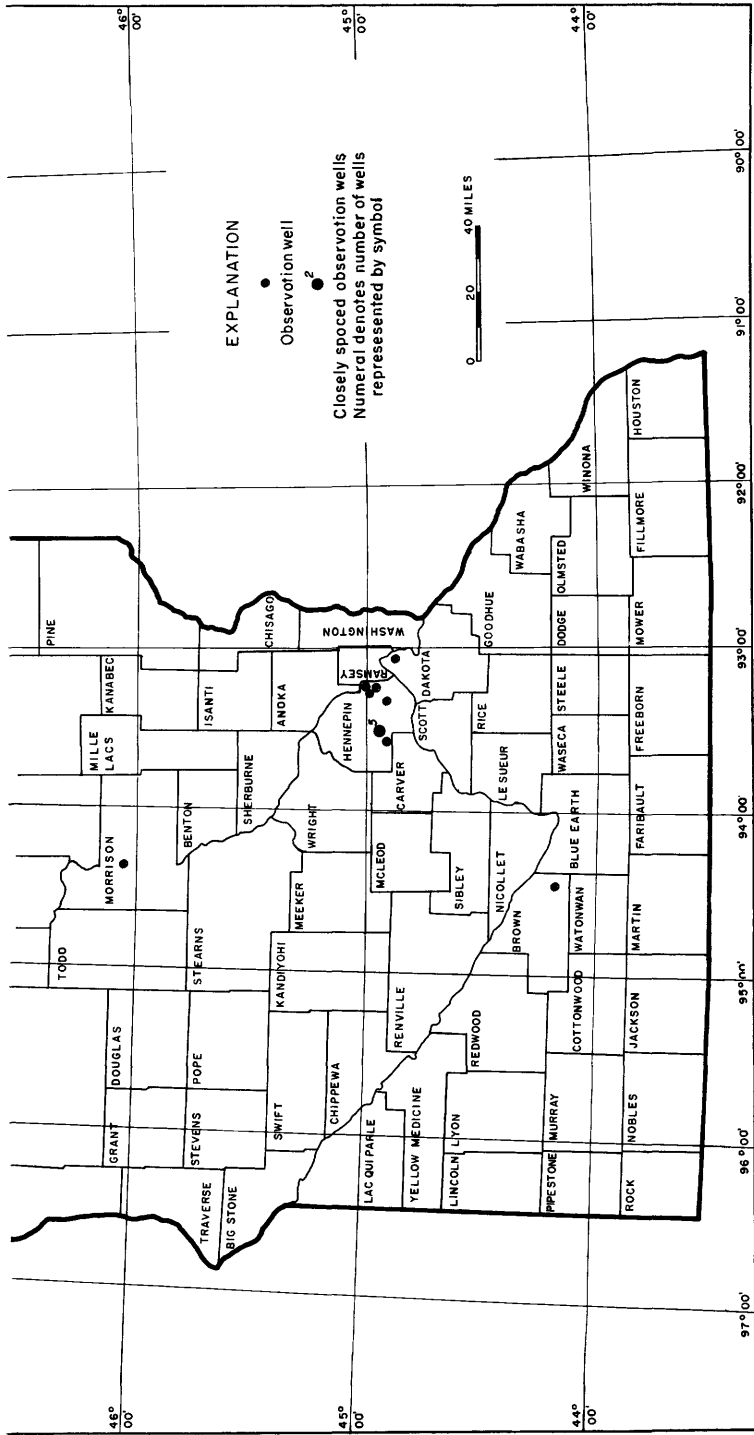


Figure 5. --Location of observation wells in Minnesota, 1956.

## 139. 47. 5cdc--Continued.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	26.48	26.26	.....	26.39	26.10	26.54	27.08	26.89	26.97	27.41	27.09	27.15
10	26.43	26.36	h26.32	26.21	25.99	26.80	26.90	26.91	27.06	27.30	27.09	27.00
15	26.44	26.32	.....	26.09	26.10	26.98	27.17	27.15	27.12	27.42	27.10	27.03
20	26.36	26.33	26.40	26.02	26.17	27.08	26.97	27.14	27.10	27.49	27.11	26.91
25	26.33	26.34	26.36	25.98	26.38	27.21	27.06	27.36	27.23	27.26	27.02	26.72
Eom	26.32	.....	.....	25.95	26.58	27.08	27.08	.....	27.30	27.15	27.11	26.83

h Tape measurement.

139. 47. 6aaa. U. S. Geol. Survey. Drilled observation water-table well in glacial gravel, diam 3 in, depth 103 ft, casing slotted near bottom. MP top of casing, 2.50 ft above lsd. Highest water level 1.88 below lsd, May 21, 1956; lowest 25.15 below lsd, Dec. 7, 1956. Records available: 1949-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	24.25	Mar. 26	24.57	June 3	15.34	Aug. 12	24.57
14	24.32	Apr. 1	24.58	10	18.50	19	24.64
21	24.38	8	24.60	17	20.44	26	24.70
28	24.38	15	24.54	24	21.80	Sept. 1	24.75
Feb. 4	24.42	23	24.40	July 1	22.72	9	24.78
11	24.43	29	24.33	9	23.38	16	24.87
18	24.46	May 6	24.31	15	23.76	20	24.86
25	24.48	13	24.31	22	24.08	Oct. 18	24.98
Mar. 4	24.44	21	1.88	29	24.28	Nov. 9	25.07
10	24.52	27	10.40	Aug. 5	24.45	Dec. 7	25.15
17	24.55						

Dakota County

B28. 22. 22bdd1. Chicago Great Western Ry. Drilled unused artesian well in Jordan sandstone, diam 10 in, reported depth 300 ft. MP top of wood platform, 3.90 ft below lsd. Highest water level 8.00 below lsd, Apr. 14, 1952; lowest 18.19 below lsd, Feb. 1, 1952. Records available: 1951-56. For additional measurements, see Straka and Schneider (1957).

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	16.14	16.12	16.25	16.01	13.33	15.84	15.73	.....	15.72	16.18	15.94	15.93
10	16.26	16.35	16.21	14.01	13.33	15.97	15.39	.....	15.88	16.37	15.77	15.76
15	15.98	16.51	16.29	12.64	13.15	16.38	15.30	15.71	15.58	16.13	15.88	15.90
20	16.35	16.30	16.13	13.51	12.82	15.73	15.73	15.84	15.63	16.08	15.88	15.93
25	16.45	16.41	15.76	13.25	15.18	15.14	16.06	16.24	16.11	16.00	15.60	15.59
Eom	16.34	16.54	15.89	13.90	14.82	15.25	15.91	16.05	15.78	16.04	16.10	15.85

Hennepin County

B29. 23. 19cdd1. Great Northern Ry. Drilled unused artesian well in sandstones of late Precambrian and Late Cambrian age, diam 8 to 6 in, reported depth 1,016 ft, slotted 925-1,016. MP wood floor of instrument shelter, 3.40 ft above lsd. Highest water level 142.99 below lsd, Apr. 4, 1955; lowest 154.00 below lsd, July 5, 1956. Records available: 1954-56. For additional measurements, see Straka and Schneider (1957).

Lowest water level for the day, from recorder graph

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 25	h149.09	Sept. 25	h152.52	Oct. 25	151.23	Nov. 25	148.56
Mar. 2	h150.25	30	152.84	31	150.73	30	148.26
Apr. 30	h151.42	Oct. 5	152.47	Nov. 5	150.53	Dec. 5	148.01
June 14	h152.68	10	152.47	10	150.17	10	147.84
July 5	h154.00	15	151.86	15	149.47	25	147.08
20	152.59	20	151.74	20	149.30	31	146.42
Aug. 13	h152.60						

h Tape measurement.

B29. 23. 30bda1. Smith Welding Equipment Corp. 2633 4th St. SE., Minneapolis. Drilled unused artesian well in Jordan sandstone, diam 8 in, depth 445 ft, reportedly cased to 262. MP top of platform, 12.20 ft below lsd. Highest water level 77.9 below lsd, Apr. 21, Dec. 26, 1952; lowest 122.7 below lsd, Aug. 10, 1956. Records available: 1952-56. For additional measurements, see Straka and Schneider (1957).

## B29. 23. 30bda1--Continued.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	102.2	97.4	102.4	104.3	105.2	.....	105.8	109.8	.....	113.5	106.3	106.8
10	100.4	101.3	101.8	105.4	107.4	.....	107.1	122.7	.....	111.3	104.6	102.4
15	98.5	104.4	105.6	101.6	107.3	.....	101.8	.....	112.3	112.1	107.1	103.3
20	104.0	100.8	97.6	107.6	102.1	.....	106.5	.....	112.3	115.0	105.2	104.1
25	100.5	102.2	101.4	106.2	.....	116.7	113.3	.....	112.1	112.4	97.2	85.2
Eom	103.5	105.0	100.5	100.0	.....	116.2	115.1	.....	108.6	110.1	105.3	94.6

B29. 24. 27dba. City of Minneapolis. Auditorium. East Grant St. and 3d Ave. South. Drilled industrial artesian well in sandstones of Late Cambrian and Early Ordovician age, diam 20 in, depth 823 ft, reportedly cased to 275. MP top of breather pipe at pump base, 21.65 ft below lsd. Highest water level 59.0 below lsd, Jan. 11-12, Feb. 2, 1932; lowest 107 below lsd, Sept. 1, 1953. Records available: 1931-32, 1940-41, 1943-46, 1948-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 5	83.28	Apr. 5	83.92	July 19	100.71	Oct. 18	94.78
12	84.58	12	83.80	26	103.92	22	91.61
19	83.20	19	83.92	Aug. 2	101.15	29	90.98
26	83.58	26	83.35	9	104.73	Nov. 5	91.32
Feb. 2	83.42	May 3	82.85	16	105.23	12	89.11
9	82.70	10	87.19	23	103.56	19	88.54
16	83.08	17	90.22	30	104.89	26	87.47
23	82.93	24	92.07	Sept. 6	102.21	Dec. 3	86.58
Mar. 1	82.46	31	92.74	13	99.96	10	85.57
8	83.54	June 26	101.63	20	93.81	17	85.77
15	83.22	28	102.72	27	97.68	24	84.71
22	82.92	July 5	99.90	Oct. 4	95.71	31	84.05
29	890.47	12	103.11	11	92.51		

a Well being pumped.

117. 21. 16cca. City of St. Louis Park. Drilled unused artesian well in Jordan sandstone, diam 16 in, depth 421 ft, reportedly cased to 280. Lsd 916.82 ft above msl. MP floor of well-house, 0.70 ft above lsd. Highest water level 66.0 below lsd, Mar. 23, 1953; lowest 102.8 below lsd, June 13, 1956. Records available: 1953-56. For additional measurements, see Straka and Schneider (1957).

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	72.8	....	75.4	76.0	76.8	94.2	83.6	76.9	80.7	84.3	77.7	75.2
10	73.6	....	75.3	76.0	80.8	93.1	84.5	84.0	83.9	82.6	77.0	74.2
15	72.3	....	74.8	75.2	81.1	94.3	82.9	86.8	84.5	82.4	77.5	74.3
20	....	....	74.4	82.8	83.5	84.8	82.2	88.5	79.8	82.1	76.3	75.2
25	....	75.3	75.1	80.2	84.5	80.0	84.5	92.6	84.5	80.5	74.3	73.2
Eom	....	75.6	75.1	77.1	81.1	81.6	80.6	83.0	83.4	78.9	75.0	73.3

117. 22. 5abd2. Hennepin County Highway Dept. Drilled observation artesian well in sandstones of Late Cambrian and Early Ordovician age, diam 6 in, depth 483 ft, cased to 201. Lsd 942.79 ft above msl. MP wood floor of instrument shelter, 3.00 ft above lsd. Highest water level 38.51 below lsd, Nov. 23, 1954; lowest 47.63 below lsd, May 21, 1955. Records available: 1953-56. For additional measurements, see Straka and Schneider (1957).

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	39.25	39.19	40.00	....	39.97	44.20	43.33	42.27	44.72	43.93	42.23	41.36
10	39.54	39.26	40.36	....	40.63	46.69	42.90	42.56	43.56	44.55	41.80	40.82
15	39.10	39.70	40.44	....	40.26	46.58	43.99	42.89	43.84	44.49	41.97	41.07
20	39.40	39.87	....	42.1	40.76	44.40	43.45	44.12	44.26	43.64	41.96	41.34
25	39.48	39.64	....	41.07	41.94	43.29	42.75	45.77	44.34	43.03	41.7	40.88
Eom	39.68	40.12	....	40.62	42.22	42.55	42.95	45.20	44.08	42.99	41.24	41.21

117. 22. 6cab1. Formerly 117. 23. 6cab1. City of Wayzata. Drilled unused artesian well in sandstones of Late Cambrian age, diam 16 in, reported depth 725 ft, reportedly cased to about 245. MP top of breather pipe at concrete pump base, 1.05 ft above lsd. Highest water level 30.4 below lsd, Feb. 24, 1948; lowest 40.44 below lsd, June 24, 1955. Records available: 1937-39, 1942-46, 1948-56.

## 117.22.6cab1--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 5	33.35	Apr. 12	c47.39	July 12	35.56	Oct. 11	36.24
12	33.71	19	36.39	19	36.00	18	31.84
19	33.36	26	37.19	26	35.20	29	34.53
26	33.44	May 3	34.40	Aug. 2	34.59	Nov. 5	33.65
Feb. 2	33.70	10	34.56	9	34.53	12	33.48
9	33.21	17	34.19	16	35.37	19	33.40
16	33.23	24	35.45	23	36.65	26	33.34
23	33.09	31	35.19	30	36.22	Dec. 3	32.93
Mar. 1	33.19	June 7	37.13	Sept. 6	35.91	10	32.69
8	33.34	14	38.98	13	36.25	17	32.99
15	33.49	21	38.38	20	35.79	24	32.87
29	c46.53	28	35.48	27	35.52	31	32.65
Apr. 5	c47.40	July 5	35.54	Oct. 4	36.20		

c Nearby well being pumped.

117.22.8dbb2. Hennepin County Highway Dept. Drilled observation artesian well in Jordan sandstone, diam 6 in, depth 503 ft, cased to 228. Lsd 931.62 ft above msl. MP wood floor of instrument shelter, 4.30 ft above lsd. Highest water level 20.47 below lsd, Apr. 11, 1955; lowest 30.41 below lsd, June 10, 1956. Records available: 1953-56. For additional measurements, see Straka and Schneider (1957).

## Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	22.69	22.38	22.68	c29.12	22.88	25.83	24.32	.....	26.0	24.36	23.02	21.90
10	22.80	22.28	22.92	c28.88	24.15	30.41	24.18	23.13	24.33	25.58	22.69	21.67
15	22.57	22.56	22.96	c27.69	22.74	29.00	26.06	23.18	24.68	24.57	22.55	21.65
20	22.58	22.72	22.78	24.30	24.22	25.96	24.39	24.54	25.41	23.90	.....	21.65
25	22.58	22.65	c27.60	24.02	24.02	24.82	23.78	25.58	24.36	23.48	.....	21.51
Eom	22.68	22.73	c29.60	23.4	23.90	24.15	23.70	26.41	24.60	23.43	.....	21.62

c Nearby well being pumped.

117.23.11bbd1. Minnetonka Boat Works. Orono. Drilled observation artesian well in Jordan sandstone, diam 6 in, depth 437 ft, cased to 270. Lsd 930.81 ft above msl. MP wood floor of instrument shelter, 3.30 ft above lsd. Highest water level 14.05 below lsd, Apr. 30, 1954; lowest 21.70 below lsd, Apr. 16, 1956. Records available: 1942-46, 1948-56. For additional measurements, see Straka and Schneider (1957).

## Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	16.23	15.95	15.84	c23.42	17.21	19.24	17.88	16.51	17.68	17.44	16.34	15.95
10	16.35	15.90	16.01	c23.54	17.60	20.43	17.03	16.72	17.35	17.93	16.36	15.95
15	16.04	16.10	16.10	c21.83	16.93	20.28	18.12	17.80	17.46	17.61	16.02	15.92
20	16.02	16.04	16.12	19.36	17.33	17.98	17.22	17.80	17.08	17.97	16.12	16.05
25	16.13	15.82	c20.50	18.32	17.50	17.32	17.74	19.32	17.19	16.98	16.09	15.92
Eom	16.30	15.98	c22.51	17.77	17.18	17.43	17.26	17.32	17.56	16.44	15.96	16.05

c Nearby well being pumped.

117.23.34daa2. Hennepin County Highway Dept. Drilled observation artesian well in sandstones of Late Cambrian and Early Ordovician age, diam 6 in, depth 468 ft, cased to 199. Lsd 946.84 ft above msl. MP wood floor of instrument shelter, 4.20 ft above lsd. Highest water level 51.55 below lsd, Nov. 27, 1954; lowest 59.03 below lsd, Apr. 16, 1956. Records available: 1953-56. For additional measurements, see Straka and Schneider (1957).

## Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	53.34	53.25	53.18	.....	54.89	55.34	55.43	54.88	55.44	55.29	54.84	54.44
10	53.63	53.14	53.50	.....	54.75	55.81	55.32	54.90	55.15	55.46	54.72	54.42
15	53.17	53.41	53.65	c61.74	54.78	56.25	55.38	54.91	55.14	55.25	54.44	54.40
20	53.25	53.48	.....	56.33	54.85	55.77	55.33	55.30	55.11	55.10	54.72	54.50
25	53.36	53.13	.....	55.47	55.14	55.55	55.12	55.63	55.10	54.86	54.65	54.31
Eom	53.60	53.37	c61.36	55.31	55.12	55.15	55.10	55.26	55.35	54.80	54.46	54.48

c Nearby well being pumped.

118.23.35aaa2. Hennepin County Highway Dept. Drilled observation water-table well in glacial drift, diam 2 in, depth 151 ft. MP top of casing, 2.50 ft above lsd. Highest water level 19.08 below lsd, Mar. 13, 1954; lowest 37.4 below lsd, June 9, 1942. Records available: 1942, 1944-46, 1948-56.

118. 23. 35aaa2--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 5	21.52	Apr. 12	23.17	July 12	22.57	Oct. 11	22.23
12	21.38	16	23.39	19	22.66	18	22.42
19	21.56	19	23.39	26	22.59	22	22.32
26	21.60	26	23.07	Aug. 2	22.54	29	22.30
Feb. 2	21.45	May 3	23.03	9	22.51	Nov. 5	22.24
9	21.52	10	22.83	16	22.40	12	22.39
16	21.47	17	22.89	23	22.52	19	22.31
23	21.25	24	22.83	30	22.29	26	22.20
Mar. 1	21.18	31	22.76	Sept. 6	22.57	Dec. 3	22.17
8	21.33	June 7	22.85	15	22.39	10	21.59
15	21.41	14	22.93	20	22.33	17	22.29
22	21.37	21	22.72	27	22.25	24	22.01
29	22.09	28	22.75	Oct. 4	22.47	31	22.09
Apr. 5	22.69	July 5	22.76				

Kittson County

160. 46. 5dccc1. Dale R. Bronson. Dug domestic water-table well in glacial outwash, diam 36 in, depth 8 ft, lined with concrete. MP top of wood cover, 1.90 ft above lsd. Highest water level 0.65 below lsd, June 11, 1956; lowest 4.94 below lsd, Mar. 18, 1956. Records available: 1956.

Jan. 5	4.33	Mar. 25	4.88	May 24	1.66	Sept. 6	0.69
11	4.48	26	4.91	25	1.65	11	1.23
17	4.54	28	4.86	28	1.78	19	1.55
24	4.62	30	4.93	29	1.24	26	1.77
Feb. 1	4.72	Apr. 3	4.83	June 4	1.72	Oct. 2	2.19
8	4.73	9	4.91	11	.65	9	2.28
15	4.72	16	3.40	19	1.23	16	2.37
22	4.78	17	3.67	26	1.37	24	2.73
29	4.82	May 4	1.61	July 4	.89	31	1.87
Mar. 7	4.88	7	1.73	10	.96	Nov. 6	1.35
13	4.86	9	1.57	18	.92	14	1.44
15	4.91	10	1.59	25	.93	20	1.69
16	4.86	12	1.26	Aug. 1	1.32	27	1.59
18	4.94	14	1.37	10	1.74	Dec. 5	2.72
20	4.88	16	1.11	15	1.99	12	2.50
22	4.93	19	1.47	21	2.22	19	2.65
23	4.91	20	1.42	28	2.58	26	2.51
24	4.92						

Morrison County

130. 29. 8dcc. U. S. Geol. Survey. Drilled observation water-table well in glacial gravel, diam 12 in, depth 59 ft, screened 56-59. MP top of casing, 2.10 ft above lsd. Highest water level 8.93 below lsd, Aug. 14, 1953; lowest 15.89 below lsd, Mar. 23, 1956. Records available: 1949-56.

Jan. 6	14.29	Apr. 6	14.95	July 6	13.67	Oct. 5	13.30
13	14.34	13	14.40	13	14.13	12	13.39
20	14.39	20	14.14	20	13.91	19	13.40
27	14.43	27	14.03	27	13.52	26	13.44
Feb. 3	14.55	May 4	14.11	Aug. 3	13.18	Nov. 2	13.48
10	14.59	11	14.28	10	13.10	9	13.40
17	14.63	18	13.86	17	13.35	16	13.38
24	14.71	25	13.65	24	14.37	30	13.48
Mar. 2	14.78	June 1	13.37	31	14.73	Dec. 7	13.64
8	14.88	8	13.15	Sept. 7	13.37	14	13.71
16	14.86	15	13.82	14	13.27	21	13.87
23	15.89	22	14.01	21	13.17	28	13.85
30	15.88	29	14.28	28	13.27		

St. Louis County

B57. 20. 5dad1. Great Northern Ry. Drilled unused artesian well in Biwabik iron-formation, diam 12 to 6 in, depth 430 ft, cased to 315. MP top of wood platform, 1.20 ft above lsd. Highest water level 58.76 below lsd, Aug. 9, 1955; lowest 67.07 below lsd, Aug. 16, 1955. Records available: 1955-56.

B57. 20. 5dad1--Continued.

Lowest water level for the day, from recorder graph

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Aug. 2, 1955	h58.98	Oct. 6, 1955	h58.89	May 25, 1956	h62.38	Oct. 10, 1956	64.16
9	h58.76	14	h59.00	June 20	h62.70	15	64.16
16	h67.07	24	h61.07	July 20	h62.74	20	64.27
17	h60.74	Nov. 1	h59.25	Aug. 15	h62.98	25	64.28
23	h59.23	29	h59.84	Sept. 15	63.48	31	64.32
26	h60.21	Jan. 26, 1956	h60.53	20	63.62	Nov. 5	64.46
30	h59.70	Feb. 28	h60.59	25	63.74	25	64.55
Sept. 8	h59.07	Mar. 30	h61.47	30	63.90	30	64.68
20	h59.18	Apr. 24	h62.19	Oct. 5	64.01	Dec. 5	64.71
26	h59.02						

h Tape measurement.

B58. 18. 12ccc1. Oliver Iron Mining Division, U. S. Steel Corp. Drilled observation artesian well in glacial sand and gravel, diam 6 in, depth 97 ft, slotted 76-97. MP wood floor of instrument shelter, 2.04 ft above lsd. Highest water level 11.03 below lsd, July 22-23, 1955; lowest 15.09 below lsd, Mar. 30, 1955. Records available: 1954-56. For additional measurements, see Straka and Schneider (1957).

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	.....	13.41	13.73	12.15	11.49	12.04	12.53	12.95	13.28	13.73	14.09	h14.39
10	13.17	13.47	13.81	11.98	11.59	12.12	12.59	13.01	13.34	13.83	14.10	.....
15	13.2	13.57	13.88	11.43	11.73	12.22	12.68	13.04	13.42	13.87	14.15	.....
20	.....	13.63	13.91	11.55	11.82	12.28	12.74	13.01	13.51	13.94	14.22	.....
25	13.30	13.64	13.87	11.65	11.89	.....	12.83	13.09	13.59	13.99	.....	.....
Eom	13.41	13.70	13.63	11.74	11.94	.....	12.97	13.14	13.66	14.01	.....	.....

h Tape measurement.

B58. 20. 16dbc1. City of Chisholm. Drilled unused artesian well in glacial outwash sand and gravel, diam 12 in, depth 40 ft, screened 30-40. MP top of wood platform, 1.70 ft above lsd. Highest water level 0.23 below lsd, May 10, 1954; lowest 14.80 below lsd, Mar. 31, 1955. Records available: 1953-56. For additional measurements, see Straka and Schneider (1957).

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	9.74	10.77	11.65	10.09	5.57	7.91	9.95	11.38	12.17	13.48	13.22	.....
10	9.97	11.13	11.69	6.29	5.81	8.40	10.06	11.56	12.41	13.30	13.13	13.30
15	10.06	11.10	11.76	3.51	6.08	9.20	10.22	11.51	12.40	13.33	13.03	13.44
20	10.32	.....	11.91	3.80	6.38	9.72	10.33	11.61	12.62	13.21	13.06	13.50
25	10.44	.....	11.90	4.60	7.12	9.66	10.79	11.70	13.66	13.20	13.10	13.51
Eom	10.88	11.62	11.85	5.43	7.23	9.70	11.39	11.94	13.24	13.17	13.26	13.65

## References

- Akin, P. D., and Jones, J. R., 1952, Geology and ground-water resources of the Cloquet area, Carlton County, Minnesota: Minnesota Div. Waters Bull. 6.
- Byers, A. C., Wenzel, L. K., Laird, W. M., and Dennis, P. E., 1946, Ground water in the Fargo-Moorhead area, North Dakota and Minnesota: U. S. Geol. Survey open-file rept. (mimeo.)
- Dennis, P. E., Akin, P. D., and Worts, G. F., Jr., 1949, Geology and ground-water resources of parts of Cass and Clay Counties, North Dakota and Minnesota: North Dakota Ground-Water Studies No. 11, Minnesota Ground-Water Studies No. 1.
- Straka, G. C., and Schneider, Robert, 1957, Graphs of ground-water levels in Minnesota through 1956: Minnesota Div. Waters Bull. 9.



## MISSOURI

By W. L. Steinhilber

Figure 6 shows the location of observation wells in Missouri.

### Well-Numbering System

The numbers assigned to the observation wells show their location according to the Bureau of Land Management's system for subdivision of public land, which is explained on page 5.

### Well Descriptions and Water-Level Measurements

Water levels are in feet below land-surface datum.

#### Grundy County

61-24-17R1. W. W. Brummitt. 105 East 4th St., Trenton. Dug unused water-table well in glacial drift, diam 36 in, depth 21 ft, cribbed with rock. MP top of hole in plank cover, at lsd. Highest water level 0.03 below lsd, June 21, 1947; lowest 14.86 below lsd, Dec. 9, 16, 1956. Records available: 1942-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 1	13.46	Apr. 1	13.29	July 8	13.72	Oct. 14	14.29
8	13.48	8	13.20	15	13.67	21	14.40
15	13.50	15	13.18	22	13.74	28	14.50
22	13.46	22	13.05	29	13.79	Nov. 4	14.61
27	13.47	29	12.90	Aug. 5	13.82	11	14.72
Feb. 5	13.40	May 6	13.10	12	13.90	18	14.76
12	13.42	12	12.80	19	12.90	25	14.74
19	13.41	13	12.90	26	12.88	Dec. 2	14.82
26	13.40	27	12.68	Sept. 2	12.90	9	14.86
Mar. 4	13.40	June 3	12.69	9	13.15	16	14.86
11	13.38	17	13.15	22	13.60	23	14.68
18	13.35	24	13.42	30	13.84	30	14.69
25	13.32	July 1	13.60	Oct. 7	13.85		

#### Jasper County

29-34-22H1. Barnsdall Zinc Co. Drilled unused water-table well in Roubidoux dolomite, diam 8 in, depth 901 ft. MP bottom edge of opening in Y joint in air line, 1.00 ft below lsd. Highest water level 123.23 below lsd, Jan. 30, 1952; lowest 161.55 below lsd, Nov. 27, Dec. 27, 1943. Records available: 1942-43, 1950-56. Measurement discontinued.

Jan. 30	133.30	Mar. 30	134.10	May 31	133.80	July 11	133.90
Feb. 29	133.90	Apr. 30	133.95	June 29	133.92	31	131.90

#### Phelps County

37-10-13K1. S. V. Allen. Jerome. Drilled unused water-table well in Gasconade dolomite, diam 6 in, depth 34 ft. MP top south side of casing, 0.50 ft above lsd. Highest water level 4.38 below lsd, Apr. 2, 1945; lowest 12.62 below lsd, Sept. 30, 1954. Records available: 1942-56.

Feb. 2	9.92	Apr. 30	9.26	Aug. 1	10.03	Oct. 29	11.50
Mar. 1	8.88	May 31	6.26	31	11.54	Dec. 3	11.90
31	9.40	June 30	9.96	Oct. 1	12.03		

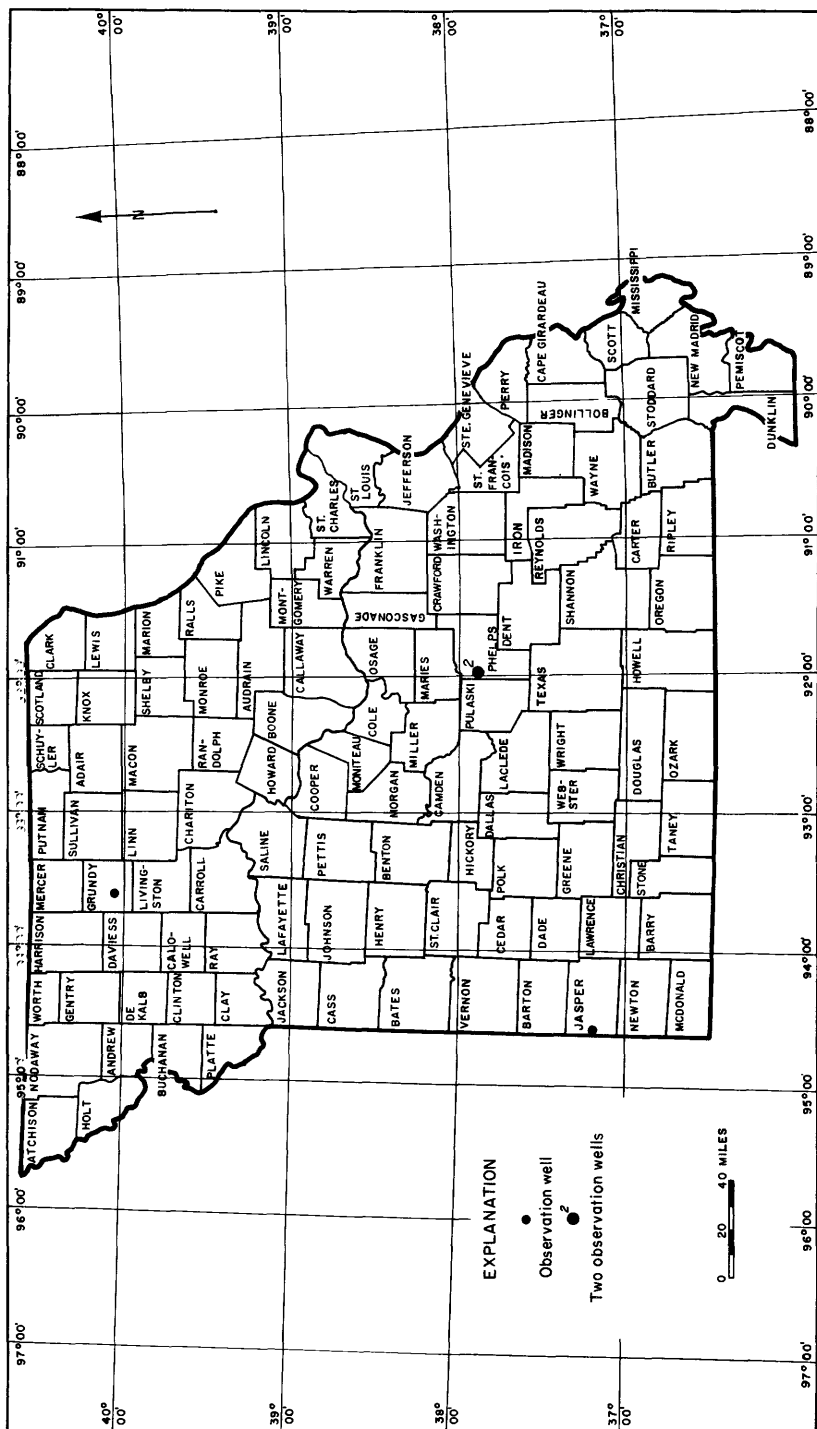


Figure 6. --Location of observation wells in Missouri, 1956.

37-10-24A1. Fred Pillman. Arlington. Dug and drilled unused water-table well in Gasconade dolomite, diam 6 in, depth 15 ft. MP top south side of casing inside concrete box, 1.00 ft above lsd. Highest water level 4.16 below lsd, Apr. 2, 1945; dry several times, 1953-56. Records available: 1942-56. Feb. 2, dry; Mar. 31, dry; Apr. 30, dry; May 31, 5.31; Aug. 1, dry; Oct. 29, dry.

## NEBRASKA

By C. F. Keech

The observation-well program in Nebraska, begun in 1934 in cooperation with the Conservation and Survey Division, University of Nebraska, was continued in 1956. Many of the well records in this report have been compiled as part of the Missouri River Basin development program. Figure 7 shows the location of observation wells whose measurements are included in this report.

### Well-Numbering System

Wells are numbered in accordance with the Bureau of Land Management's system of land subdivision. Each well number is made up of three segments. The first segment indicates the township, the second the range, and the third the section in which the well is situated. The letters after the section number, which are assigned in a counterclockwise direction as shown in the diagram on page 11, represent subdivisions of the section. The first letter denotes the 160-acre tract, the second the 40-acre tract, and the third the 10-acre tract. The letter "A" before the township number designates a well east of the sixth principal meridian. (If the well is west of the meridian, no letter is included.) Numbers are added as suffixes to distinguish wells in the same tract. Thus, the number A1-10-27adc designates the well in the SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 27, T. 1 N., R. 10 E.

### Well Descriptions and Water-Level Measurements

Water levels are in feet below land-surface datum unless otherwise indicated.

#### Adams County

7-10-23ab. Henry Fricke. Drilled unused water-table well in sand and gravel of Pleistocene age, diam 8 in, depth 155 ft, casing perforated below water table. Lsd 1,927 ft above msl. MP top of casing, 1.00 ft above lsd. Highest water level 99.95 below lsd, Jan. 22, Mar. 14, 1935; lowest 104.66 below lsd, Dec. 5, 1956. Records available: 1934-38, 1948-56. Dec. 5, 104.66.

#### Blaine County

22-24-33ca. U. S. Geol. Survey. Drilled observation water-table well in fine sand of Pleistocene age, diam 1 in, depth 13 ft, well point 11-13. MP top of casing, 1.40 ft above lsd. Highest water level 1.04 below lsd, Mar. 8, 1950; lowest 6.97 below lsd, Aug. 8, 1951. Records available: 1934-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 10	3.95	Apr. 2	3.75	June 25	4.85	Oct. 15	5.50
24	3.88	18	3.53	July 9	5.20	29	5.20
Feb. 6	3.83	May 14	3.82	Aug. 6	5.38	Nov. 13	4.77
20	3.78	21	4.03	20	5.54	26	4.54
Mar. 5	3.13	29	4.19	Sept. 17	5.87	Dec. 26	4.60
19	3.50	June 11	4.52	Oct. 2	5.70		

#### Boone County

18-7-4ca. U. S. Geol. Survey. Drilled observation water-table well in sand of Pleistocene age, diam 1 in, depth 22 ft, well point 20-22. MP top of casing, 2.90 ft above lsd. Highest water level 10.82 below lsd, July 24, 1950; lowest 15.17 below lsd, Oct. 26, 1940. Records available: 1937-42, 1948-56. Apr. 17, 13.43.

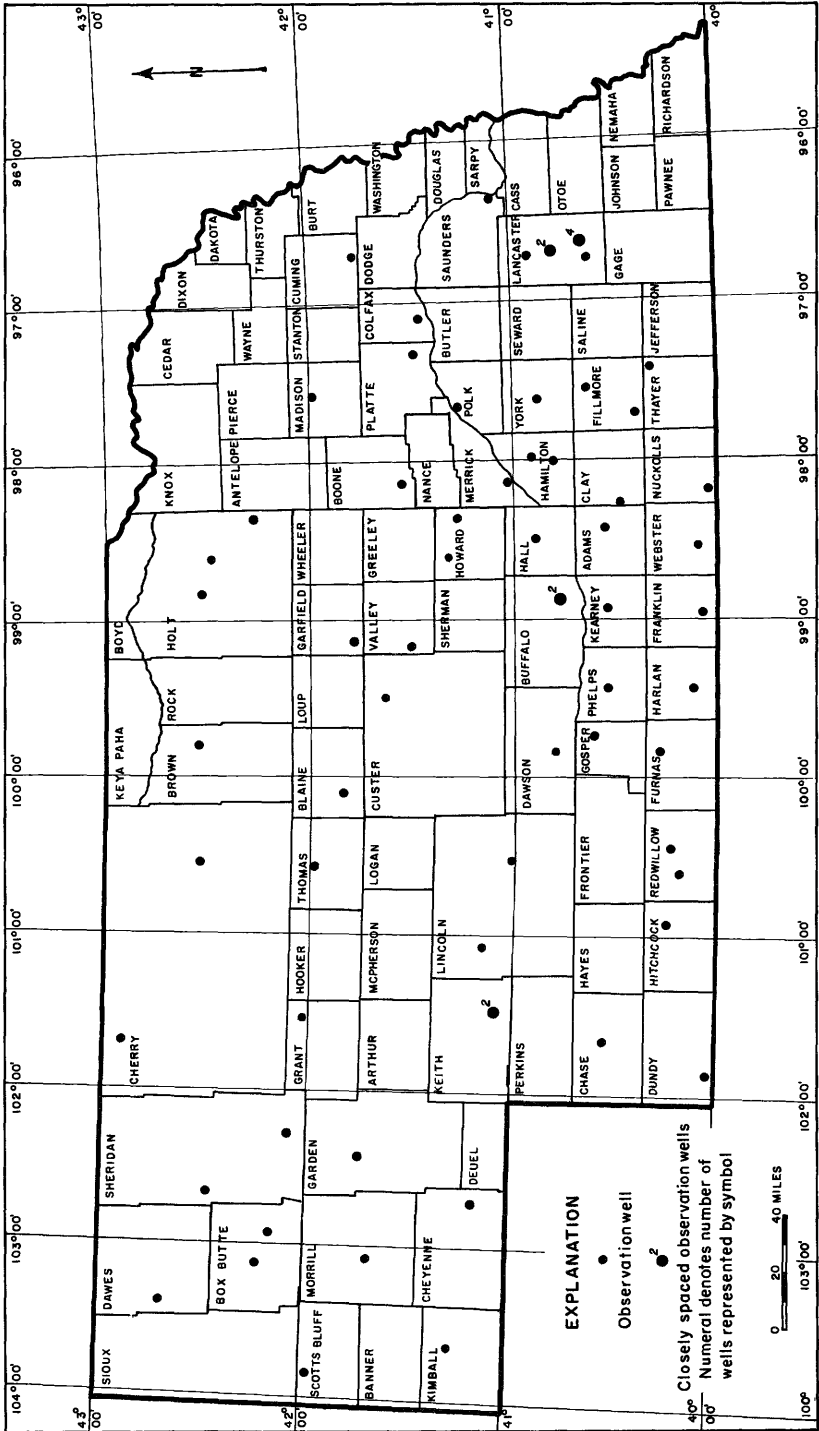


Figure 7. --Location of observation wells in Nebraska, 1956.

Box Butte County

25-48-4ddd1. U. S. Geol. Survey. Drilled observation water-table well in sand of Marsland formation of Tertiary age, diam  $1\frac{1}{4}$  in, depth 98 ft, well point and screen 92-98. Lsd 4, 032.95 ft above msl. MP top of casing, 1.85 ft above lsd. Highest water level 63.14 below lsd, Jan. 25, 1950; lowest 70.25 below lsd, Oct. 13, 1956. Records available: 1946-56. Mar. 12, 69.42; Oct. 13, 70.25.

26-50-12dc. Mrs. L. A. Rosenberg. Hemingford. Dug domestic water-table well in sandstone of Tertiary age, diam 4 ft, depth 106 ft, lined with concrete. Lsd 4, 231.51 ft above msl. MP top of platform, 1.00 ft above lsd. Highest water level 99.59 below lsd, Sept. 19, 1954; lowest 102.38 below lsd, Nov. 12, 1946. Records available: 1938, 1942, 1946-51, 1953-56. Mar. 12, 101.23; Oct. 12, 101.42.

Brown County

30-21-19cc. Consumers Public Power District. Ainsworth. Drilled unused water-table well in sand of Pleistocene age, diam 6 in, depth 57 ft, casing perforated below water table. Lsd, 2, 509.07 ft above msl. MP top of casing, 0.20 ft above lsd. Highest water level 34.40 below lsd, Oct. 23-25, 29, 1952; lowest 40.59 below lsd, Sept. 15-20, 1956. Records available: 1947-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	38.46	.....	38.39	38.30	38.34	38.56	39.09	.....	40.48	40.41	40.11	.....
10	38.45	38.38	38.39	38.34	38.34	38.66	39.20	40.02	40.54	40.36	40.07	39.87
15	38.42	38.35	38.38	38.34	38.34	38.75	39.35	40.06	40.59	40.30	40.05	39.85
20	.....	38.35	38.38	38.34	38.34	38.83	39.47	40.16	40.59	40.24	40.01	39.83
25	.....	38.33	38.38	38.33	38.34	38.93	39.61	40.23	40.56	40.18	39.98	39.80
Eom	.....	38.33	38.37	38.34	38.40	39.00	39.81	40.31	40.48	40.13	39.95	39.77

Buffalo County

9-14-1dc. U. S. Geol. Survey. Drilled observation water-table well in sand of Pleistocene age, diam 8 in, depth 37 ft, casing perforated below water table. Lsd 2, 060.43 ft above msl. MP top of casing, 0.80 ft above lsd. Highest water level 15.36 below lsd, June 11, 1952; lowest 26.98 below lsd, Sept. 5, 1956. Records available: 1946-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	24.10	24.04	23.95	23.86	.....	.....	23.90	.....	26.98	26.46	.....	.....
10	24.10	24.03	23.95	23.85	.....	23.71	23.92	25.93	26.90	26.42	.....	.....
15	24.08	24.02	23.93	23.83	.....	23.88	24.42	26.12	26.90	26.37	.....	.....
20	24.08	24.00	23.92	23.82	.....	24.00	24.78	26.36	26.72	26.33	.....	.....
25	24.06	23.98	23.90	23.80	.....	23.99	25.25	26.62	26.60	26.31	.....	.....
Eom	24.05	23.97	23.88	23.80	.....	23.94	25.65	26.87	26.53	.....	.....	.....

9-14-19dd. Robert D. Lewis. Gibbon. Drilled irrigation water-table well in sand and gravel of Pleistocene age, diam 24 in, depth 54 ft, casing perforated below water table. Lsd 2, 102.16 ft above msl. MP hole in pump base, 0.70 ft above lsd. Highest water level 22.55 below lsd, June 9, 1931; lowest 34.70 below lsd, Sept. 15, 1956. Records available: 1930-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 15	31.40	Apr. 15	30.60	July 15	31.40	Oct. 18	34.20
Feb. 16	31.00	May 16	30.40	Aug. 17	34.20	Nov. 14	33.80
Mar. 15	30.90	June 16	30.40	Sept. 15	34.70	Dec. 17	33.35

Chase County

7-38-28cc. Roy Hust. Imperial. Drilled unused water-table well in sand of Pleistocene age, diam 18 in, depth 143 ft, casing perforated below water table. MP top of casing, 0.30 ft above lsd. Highest water level 74.03 below lsd, May 5, 1951; lowest 76.85 below lsd, Dec. 9, 1944. Records available: 1944, 1946-56.

7-38-28cc--Continued.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	75.88	75.72	75.70	75.85	76.12	76.20	76.41	76.59	76.70	76.64	76.55	76.47
10	75.86	75.74	75.88	75.85	76.18	76.25	76.33	76.60	76.63	76.64	76.52	76.40
15	75.82	75.74	75.82	75.88	76.23	76.22	76.34	76.52	76.63	76.64	76.59	76.46
20	75.77	75.80	75.76	75.98	76.21	76.20	76.42	76.55	76.59	76.65	76.51	76.46
25	75.83	75.79	75.72	75.99	76.28	76.40	76.43	76.47	76.62	76.60	76.53	76.47
Eom	75.84	75.74	75.72	76.07	76.35	76.42	76.54	76.66	76.68	76.54	76.45	76.40

Cherry County

30-28-36aa. U. S. Geol. Survey. Drilled observation water-table well in sand of Pleistocene age, diam 1½ in, depth 12 ft, well point 10-12. Lsd 2,896.36 ft above msl. MP top of casing, 3.00 ft above lsd. Highest water level 0.25 above lsd, Apr. 1, 1955; lowest 4.46 below lsd, Nov. 1, 1956. Records available: 1949-56. Mar. 13, 1.99; May 22, 2.69; Nov. 1, 4.46.

34-38-14bc. U. S. Geol. Survey. Drilled observation water-table well in sand of Pleistocene age, diam 1 in, depth 17 ft, well point 15-17. MP top of casing, 2.30 ft above lsd. Highest water level 5.20 below lsd, Apr. 2, 1952; lowest 8.14 below lsd, Aug. 9, 1937. Records available: 1936-41, 1944-47, 1951-56. Mar. 13, 6.31.

Cheyenne County

14-47-26cb. U. S. Geol. Survey. Drilled observation water-table well in sand and gravel of Pleistocene age, diam 1 in, depth 29 ft, well point 27-29. Lsd 3,872.80 ft above msl. MP top of casing, 1.20 ft above lsd. Highest water level 18.32 below lsd, Mar. 28, 1951; lowest 21.81 below lsd, Oct. 10, 1956. Records available: 1940-42, 1944, 1947, 1950-52, 1954-56. Oct. 10, 21.81.

Clay County

6-8-17bb. Willard W. Kissinger. Hastings. Drilled irrigation water-table well in sand of Pleistocene age, diam 18 in, depth 151 ft, casing perforated below water table. Lsd 1,846 ft above msl. MP hole in turbine base, at lsd. Highest water level 95.53 below lsd, June 24, 1954; lowest 98.00 below lsd, Dec. 7, 1956. Records available: 1952, 1954-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 21, 1952	97.74	Jan. 25, 1955	95.81	Nov. 1, 1955	97.11	Mar. 6, 1956	96.38
June 24, 1954	95.53	Feb. 14	95.76	Dec. 23	96.52	Apr. 13	96.22
Aug. 20	97.12	Mar. 15	95.76	Jan. 31, 1956	96.46	Dec. 7	98.00
Dec. 10	95.86	Apr. 15	95.64				

Colfax County

A17-3-4cc. U. S. Geol. Survey. Drilled observation water-table well in sand of Pleistocene age, diam 1½ in, depth 16 ft, well point 14-16. Lsd 1,370.58 ft above msl. MP top of casing, 1.00 ft above lsd. Highest water level 4.15 below lsd, Apr. 1, 1952; lowest 7.62 below lsd, Nov. 28, 1956. Records available: 1946-56. Nov. 28, 7.62.

Cuming County

A21-6-23bb. U. S. Geol. Survey. Drilled observation water-table well in sand and gravel of Pleistocene age, diam 1 in, depth 23 ft, well point 21-23. MP top of casing, 1.30 ft above lsd. Highest water level 3.68 below lsd, Nov. 6, 1951; lowest 8.93 below lsd, Oct. 10, 1941. Records available: 1934-44, 1946, 1948, 1950-56. Nov. 13, 6.40.

Custer County

19-19-2bb. Ralph Slagel. Sargent. Drilled irrigation water-table well in sand and gravel of Pleistocene age, diam 18 in, depth 69 ft, casing perforated below water table. Lsd 2,361.95 ft above msl. MP hole in turbine base, at lsd. Highest water level 15.56 below lsd, Sept. 11, 1951; lowest 19.41 below lsd, Sept. 1, 1954. Records available: 1949-55. No measurement made in 1956.

Dawes County

31-52-3dc. T. P. Moody. Crawford. Drilled observation water-table well in sand and alluvium, diam 8 in, depth 39 ft, casing perforated below water table. MP edge of iron plate, 1.07 ft above lsd. Highest water level 15.87 below lsd, May 30, 1948; lowest 22.28 below lsd, Oct. 31, 1956. Records available: 1934-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	20.61	Feb. 29	20.79	June 25	20.91	Aug. 28	21.44
27	20.61	Apr. 24	20.57	July 23	21.33	Oct. 31	22.28

Dawson County

10-22-29aa. U. S. Geol. Survey. Drilled observation water-table well in gravel of Pleistocene age, diam 1 in, depth 12 ft, well point 10-12. Lsd 2,435.14 ft above msl. MP top of casing, 1.80 ft above lsd. Highest water level 1.52 below lsd, July 12, 1947; lowest 8.34 below lsd, Dec. 28, 1955. Records available: 1931-43, 1945-55. No measurement made in 1956.

Dundy County

1-40-29bb. U. S. Geol. Survey. Drilled observation water-table well in silt and clay, diam 8 in, depth 21 ft, casing perforated below water table. Lsd 3,207 ft above msl. MP top of casing, 1.60 ft above lsd. Highest water level 10.12 below lsd, Aug. 22-23, 1950; lowest 14.19 below lsd, Sept. 15, 1955. Records available: 1946-56.

Lowest water level for the day, from recorder graph

Day	Jan.	July	Aug.	Sept.	Oct.	Nov.
5	13.65	.....	13.57	13.44	13.29	13.16
10	13.63	12.87	13.77	13.32	13.27	13.12
15	13.61	12.89	13.54	13.42	13.25	13.08
20	.....	12.93	13.34	13.46	13.23	.....
25	.....	12.95	13.13	13.36	13.21	.....
Eom	.....	13.32	13.21	13.31	13.19	.....

Fillmore County

5-4-12bc. U. S. Geol. Survey. Drilled observation water-table well in sand and gravel of Pleistocene age, diam 8 in, depth 100 ft, perforated 80-100. MP top of casing, at lsd. Highest water level 73.41 below lsd, Dec. 10, 1956; lowest 73.69 below lsd, Oct. 25, 1956. Records available: 1956.

Lowest water level for the day, from recorder graph

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 25	73.69	Nov. 15	73.65	Dec. 5	73.54	Dec. 20	73.46
31	73.64	20	73.56	10	73.41	25	73.45
Nov. 5	73.63	25	73.60	15	73.49	31	73.48
10	73.59	30	73.55				

8-2-26ad1. U. S. Geol. Survey. Drilled observation water-table well in Peorian loess, diam 8 in, depth 40 ft, perforated 25-40. MP top of casing, at lsd. Highest water level 23.83 below lsd, Dec. 10, 1956; lowest 24.14 below lsd, Oct. 25, 1956. Records available: 1956.

Lowest water level for the day, from recorder graph

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 25	24.14	Nov. 15	23.99	Dec. 5	23.85	Dec. 20	23.85
31	24.10	20	23.90	10	23.83	25	23.85
Nov. 5	24.04	25	23.94	15	23.84	31	23.89
10	23.95	30	23.85				

Franklin County

1-14-7bb1. U. S. Geol. Survey. Drilled observation water-table well in gravel of Pleistocene age, diam 1 in, depth 20 ft, well point 18-20. Lsd 1,805.88 ft above msl. MP top of casing, 2.50 ft above lsd. Highest water level 0.07 below lsd, May 23, 1949; lowest 5.90 below lsd, July 19, 1956. Records available: 1940-42, 1946-56. Mar. 1, 4.39; Apr. 26, 4.53; June 8, 4.68; July 19, 5.90; Oct. 28, 4.70; Dec. 20, 4.55.



Furnas County

4-22-29ad. U. S. Geol. Survey. Drilled observation water-table well in sand of Pleistocene age, diam  $1\frac{1}{2}$  in, depth 23 ft, well point 21-23. Lsd 2, 134 ft above msl. MP top of casing, 1.00 ft above lsd. Highest water level 7.78 below lsd, Aug. 11, 1955; lowest 17.60 below lsd, Aug. 13, 1946. Records available: 1946-56. Mar. 6, 12.94; Apr. 18, 13.23; May 18, 13.02; June 28, 3.82; Sept. 13, 9.12; Dec. 28, 12.80.

Garden County

20-44-5db. Crescent Lake Migratory Bird Refuge. Drilled observation water-table well in fine sand, diam  $1\frac{1}{2}$  in, depth 20 ft, well point 18-20. Lsd 3,798.19 ft above msl. MP top of casing, 2.50 ft above lsd. Highest water level 4.30 below lsd, Oct. 21, 1934; lowest 8.70 below lsd, Apr. 11, 1941. Records available: 1934-56. Measured by U. S. Fish and Wildlife Service.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Mar. 28, 1950	6.10	Mar. 27, 1952	6.10	Dec. 11, 1953	5.80	Oct. 11, 1955	6.90
June 13	6.00	July 1	4.60	Mar. 15, 1954	5.80	Dec. 27	7.00
Dec. 15	6.30	Sept. 26	5.30	July 6	5.80	Mar. 23, 1956	6.90
Mar. 20, 1951	6.20	Dec. 29	5.50	Sept. 28	6.30	June 27	7.00
June 11	5.80	Mar. 26, 1953	5.30	Dec. 17	6.50	Oct. 5	7.20
Sept. 26	5.30	June 23	5.00	Mar. 15, 1955	6.40	Dec. 20	7.59
Dec. 26	5.40	Sept. 25	5.50	July 22	6.50		

Garfield County

21-16-14cb. Frank Smolik. Burwell. Drilled irrigation water-table well in gravel of Pleistocene age, diam 18 in, depth 154 ft, casing perforated below water table. MP hole in turbine base, 2.00 ft above lsd. Highest water level 23.82 below lsd, Oct. 24, 1950; lowest 24.89 below lsd, Feb. 9, 1955. Records available: 1950-56. June 28, 24.22.

Gosper County

7-21-6bc. Andy Larson Estate. Holdrege. Drilled unused water-table well in Ogallala formation, diam 4 in, depth 132 ft, casing perforated below water table. Lsd 2,466.95 ft above msl. MP top of casing, 0.40 ft above lsd. Highest water level 88.75 below lsd, Dec. 11, 1956; lowest 117.80 below lsd, Sept. 26, 1935. Records available: 1934-40, 1948-56. Dec. 11, 88.75.

Grant County

24-36-30bb. U. S. Geol. Survey. Drilled observation water-table well in fine sand, diam 1 in, depth 15 ft, well point 13-15. MP top of casing, 1.20 ft above lsd. Highest water level 3.59 below lsd, June 8, 1935; lowest 6.62 below lsd, July 22, 1940. Records available: 1934-42, 1946-55. No measurement made in 1956.

Hall County

11-11-25cc. U. S. Geol. Survey. Drilled observation water-table well in sand of Pleistocene age, diam 8 in, depth 37 ft, casing perforated below water table. Lsd 1,922.4 ft above msl. MP top of casing, 1.60 ft above lsd. Highest water level 12.18 below lsd, June 25, 1949; lowest 23.69 below lsd, Sept. 5, 1956. Records available: 1946-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	20.06	20.10	20.11	20.11	20.12	.....	20.23	22.29	23.69	22.57	22.44	22.41
10	20.07	20.10	20.11	20.11	20.11	.....	20.25	22.61	23.11	22.53	22.43	22.41
15	20.07	20.10	20.11	20.12	20.10	.....	20.31	22.83	22.89	22.50	22.43	22.41
20	20.08	20.10	20.10	20.12	20.10	20.16	20.75	22.99	22.78	22.48	22.42	22.41
25	20.09	20.10	20.11	20.12	.....	20.19	21.49	23.21	22.68	22.45	22.42	22.41
Eom	20.09	20.11	20.11	20.12	.....	20.20	21.97	23.54	22.61	22.44	22.41	22.40

Hamilton County

10-6-26bc. U. S. Geol. Survey. Drilled observation water-table well in sand and gravel of Pleistocene age, diam 8 in, depth 130 ft, casing perforated below water table. MP top of casing, 1.50 ft above lsd. Highest water level 84.90 below lsd, June 20, 1956; lowest 90.01 below lsd, Sept. 5, 1956. Records available: 1956.

10-6-26bc--Continued.

Lowest water level for the day, from recorder graph

Day	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	.....	84.95	85.00	85.44	88.44	90.01	88.75	88.30	88.06
10	.....	.....	84.97	85.84	88.58	.....	88.64	88.24	87.95
15	85.00	84.93	84.93	86.37	88.35	89.20	88.57	88.27	87.94
20	84.99	84.92	84.90	87.12	88.62	89.05	88.52	.....	87.89
25	84.98	85.12	85.04	87.49	88.87	88.93	88.47	88.14	87.87
Eom	84.98	85.08	85.16	88.29	89.63	88.83	88.37	88.07	87.85

11-6-13cb1. O. S. Swedberg. Aurora. Drilled irrigation water-table well in sand and gravel of Pleistocene age, diam 2½ in, depth 194 ft, casing perforated below water table. MP end of discharge pipe, at lsd. Highest water level 90.30 below lsd, Jan. 24, 1935; lowest 105.98 below lsd, Dec. 3, 1956. Records available: 1934-42, 1944, 1946-56. Feb. 7, 95.72; Apr. 6, 95.43; Oct. 25, 100.86; Dec. 3, 105.98.

Harlan County

2-19-28dd. U. S. Geol. Survey. Drilled observation water-table well in sand and gravel of Pleistocene age, diam 1 in, depth 22 ft, well point 20-22. MP top of casing, 1.20 ft above lsd. Highest water level 6.59 below lsd, June 11, 1949; lowest 12.14 below lsd, Sept. 13, 1955. Records available: 1940-41, 1946-56. Mar. 9, 9.99; Apr. 19, 10.20; May 21, 10.73; Sept. 14, 11.75; Dec. 31, 11.19.

Hitchcock County

3-32-11bb. U. S. Geol. Survey. Drilled observation water-table well in silt and fine sand of Pleistocene age, diam 1½ in, depth 18 ft, well point 16-18. MP top of casing, 1.00 ft above lsd. Highest water level 12.65 below lsd, Feb. 8, 1949; lowest 14.88 below lsd, Nov. 10, 1955. Records available: 1946-56. Jan. 10, 14.11; Mar. 12, 14.12; May 8, 13.73; June 14, 13.50; July 23, 14.12; Sept. 19, 14.60; Nov. 26, 14.18.

Holt County

27-9-34da. U. S. Geol. Survey. Drilled observation water-table well in sand and gravel of Pleistocene age, diam 1 in, depth 17 ft, well point 15-17. MP top of casing, 1.10 ft above lsd. Highest water level 3.73 below lsd, Mar. 29, 1952; lowest 9.90 below lsd, Sept. 1, 1948. Records available: 1934-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	7.56	Mar. 27	7.44	June 27	8.39	Oct. 3	8.82
20	7.49	Apr. 12	7.46	July 12	8.49	17	8.67
Feb. 3	7.31	May 3	7.46	Aug. 14	8.78	Nov. 8	8.34
Mar. 1	7.10	16	7.62	23	8.71	16	8.38
14	7.32	June 14	8.16	Sept. 21	8.89		

29-11-21bbb. Murphy. Drilled stock water-table well in sand of Pleistocene age, diam 5 in, depth 55 ft, casing perforated below water table. Lsd 2,001.06 ft above msl. MP top of casing, 1.20 ft above lsd. Highest water level 16.87 below lsd, Jan. 14, 1948; lowest 25.47 below lsd, Feb. 16, 1948. Records available: 1947-53, 1955-56.

Feb. 2, 1950	22.93	July 24, 1951	22.43	June 30, 1952	19.98	Oct. 20, 1955	22.47
Apr. 25	22.90	Sept. 13	21.69	Sept. 25	19.86	Mar. 15, 1956	23.40
May 19	22.92	Nov. 20	20.80	Jan. 5, 1953	20.07	May 23	23.22
June 7	22.83	Jan. 15, 1952	20.61	July 23	20.40	Oct. 29	23.76
Mar. 24, 1951	23.33	Apr. 1	20.39				

30-13-27cc. John Tenborg. Drilled unused water-table well in sand of Pleistocene age, diam 6 in, depth 87 ft, casing perforated below water table. Lsd 2,064.64 ft above msl. MP top of casing, 1.20 ft above lsd. Highest water level 18.29 below lsd, July 23, 1953; lowest 30.80 below lsd, Oct. 13, 1948. Records available: 1947-56. Mar. 15, 24.61; May 23, 24.95; Oct. 30, 25.47.

Howard County

15-9-9aa1. Wilber Edwards. Cushing. Drilled unused water-table well in sand of Pleistocene age, diam 18 in, depth 90 ft, casing perforated below water table. Lsd 1,780.23 ft above msl. MP top of casing, 0.40 ft above lsd. Highest water level 30.94 below lsd, Sept. 11, Oct. 2-3, 1951; lowest 35.27 below lsd, Apr. 17, 1956. Records available: 1948-56. Apr. 17, 35.27; Aug. 28, 32.31.

16-11-19cb1. Ray Parker. Cotesfield. Drilled irrigation water-table well in sand of Pleistocene age, diam 18 in, depth 96 ft, casing perforated below water table. Lsd 1,904.72 ft above msl. MP top of casing, 0.50 ft below lsd. Highest water level 40.56 below lsd, May 31-June 1, 1951; lowest 50.53 below lsd, Sept. 4, 1953. Records available: 1950-55. No measurement made in 1956.

#### Kearney County

6-15-1cb. Roy Youngson. Minden. Drilled irrigation water-table well in gravel, diam 18 in, depth 176 ft, casing perforated below water table. Lsd 2,171.80 ft above msl. MP hole in turbine base, 1.00 ft above lsd. Highest water level 62.20 below lsd, Dec. 5, 1956; lowest 71.36 below lsd, June 29, 1948. Records available: 1948-56. Dec. 5, 62.20.

#### Keith County

13-36-8cc. U. S. Geol. Survey. Drilled unused water-table well in Platte Valley alluvium, diam 15 in, depth 11 ft, casing perforated below water table. Lsd 3,111.83 ft above msl. MP top of casing, 1.00 ft above lsd. Highest water level 1.22 below lsd, Mar. 17, 1952; lowest 5.79 below lsd, Aug. 17-22, 1946. Records available: 1946-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	3.57	3.53	3.38	3.60	3.72	3.93	....	4.35	4.97	....	5.49	....
10	....	3.51	3.44	3.65	3.79	3.98	....	4.51	5.07	5.48	4.31	3.56
15	....	3.43	3.46	3.67	3.88	....	3.86	4.62	5.18	5.51	3.85	3.51
20	3.67	3.40	3.45	3.73	....	....	....	4.70	5.25	5.54	....	3.49
25	3.65	3.33	3.47	3.68	4.04	....	4.22	....	5.32	....	3.60	3.70
Eom	3.56	3.33	3.54	3.70	3.75	....	4.38	4.87	5.40	5.53	....	3.80

13-36-9ad. U. S. Geol. Survey. Drilled observation water-table well in Platte Valley alluvium, diam 15 in, depth 11 ft, casing perforated below water table. Lsd, 3,093.68 ft above msl. MP top of casing, 1.00 ft above lsd. Highest water level 0.04 above lsd, Mar. 17, 1952; lowest 3.85 below lsd, Aug. 27-28, 1955. Records available: 1946-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	2.33	2.29	1.69	1.82	2.00	2.83	....	3.37	3.47	....	3.19	....
10	2.35	2.17	....	1.92	2.17	2.89	....	3.37	3.48	3.49	3.11	2.56
15	....	2.05	1.73	2.05	2.34	....	3.07	3.38	3.53	3.44	3.10	2.52
20	2.49	1.94	1.70	2.15	....	....	....	3.40	3.54	3.40	....	2.47
25	2.43	1.85	1.65	1.89	2.66	....	3.34	....	3.55	....	2.75	2.44
Eom	2.31	1.76	1.87	1.90	2.51	3.35	3.46	3.40	3.56	3.23	2.65	2.39

#### Kimball County

15-55-17cc. Kimball Irrigation District. Kimball. Drilled unused water-table well in gravel, diam 4 in, depth 114 ft, casing perforated below water table. MP top of casing, 0.84 ft above lsd. Highest water level 92.18 below lsd, Jan. 2, 1936; lowest 97.10 below lsd, Oct. 11, 1956. Records available: 1935-42, 1950-56. Oct. 11, 97.10.

#### Lancaster County

A8-6-34dd. U. S. Geol. Survey. Drilled observation water-table well in sand, diam 8 in, depth 53 ft, casing perforated below water table. MP top of casing, 1.00 ft above lsd. Highest water level 5.59 below lsd, May 10, 1956; lowest 8.90 below lsd, July 31, 1954. Records available: 1954-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	6.36	6.12	6.29	5.74	5.63	5.85	6.73	....	7.67	7.60	7.06	6.95
10	6.30	6.07	6.21	5.80	5.59	5.82	6.87	....	....	7.56	7.17	....
15	6.24	6.02	6.15	5.70	5.79	6.23	6.95	7.62	7.70	7.45	6.80	....
20	6.25	6.01	6.03	5.71	5.68	6.16	6.99	....	7.68	7.36	....	....
25	6.26	6.18	5.90	5.67	5.96	6.31	7.04	7.45	7.67	7.29	....	6.56
Eom	6.25	6.10	6.26	....	5.92	6.16	7.11	7.60	7.62	7.21	....	....

A8-7-18ddb. U. S. Geol. Survey. Drilled observation water-table well in sand and gravel, diam 8 in, depth 41 ft, perforated 36-41. MP top of casing, 2.00 ft above lsd. Highest water level 1.63 below lsd, Aug. 25, 1954; lowest 12.55 below lsd, June 20, 1956. Records available: 1954-56.

## A8-7-18ddb--Continued.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	12.40	12.31	12.18	12.22	12.04	12.27	4.60	....	6.40	.....	.....	10.94
10	.....	12.30	12.31	12.29	12.03	12.24	....	9.45	6.72	9.89	10.54	.....
15	.....	12.31	12.37	12.23	12.21	12.43	....	9.90	7.40	10.12	10.68	10.92
20	12.32	12.34	12.35	12.33	12.29	12.55	....	....	8.07	10.26	10.70	10.98
25	12.35	12.26	12.33	12.28	12.40	12.53	8.77	....	8.74	10.41	10.81	11.04
Eom	12.41	12.29	12.30	12.26	12.07	12.33	9.46	5.62	9.21	.....	.....	11.11

A8-7-20dda. U. S. Geol. Survey. Drilled observation water-table well in sand, diam 8 in, depth 33 ft, casing perforated below water table. MP top of casing, 1.00 ft above lsd. Highest water level 2.93 below lsd, Aug. 25, 1954; lowest 11.20 below lsd, Dec. 31, 1956. Records available: 1954-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	10.38	10.54	10.67	10.84	10.19	10.94	9.21	.....	9.58	10.79	10.98	11.13
10	10.41	10.56	10.72	10.87	10.16	10.65	9.62	.....	9.83	10.86	11.00	11.15
15	10.42	10.60	10.76	10.88	10.42	10.92	....	10.47	10.06	10.91	11.02	11.17
20	10.46	10.63	10.77	10.91	10.59	10.69	9.71	.....	10.30	10.93	11.03	11.16
25	10.49	10.64	10.79	10.89	10.76	10.62	9.95	9.26	10.52	10.94	11.05	11.17
Eom	10.52	10.71	10.82	10.47	10.87	10.71	10.25	9.56	10.67	10.96	11.10	11.20

A8-7-21bb. U. S. Geol. Survey. Drilled observation water-table well in silt, sand, and gravel, diam 8 in, depth 16 ft, casing perforated below water table. MP top of casing, 2.00 ft above lsd. Highest water level 8.06 below lsd, June 17, 1954; lowest 13.35 below lsd, Oct. 25, 31, 1956. Records available: 1954-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	12.48	12.41	12.02	12.09	11.72	12.36	10.47	.....	12.51	13.10	13.34	13.17
10	12.47	12.35	12.09	12.15	11.55	12.27	10.99	12.11	12.13	13.17	13.28	13.15
15	12.46	12.26	12.14	12.15	11.75	12.55	11.43	12.33	12.45	13.24	13.26	13.13
20	12.46	12.28	12.14	12.18	11.97	12.55	11.69	11.51	12.66	13.29	13.25	13.11
25	12.46	12.16	12.14	12.21	12.17	12.38	11.96	11.95	12.85	13.35	13.19	13.08
Eom	12.46	12.09	12.15	11.88	12.16	11.78	12.30	12.31	12.98	13.35	13.20	13.05

A8-7-30cd. U. S. Geol. Survey. Drilled observation water-table well in sand, diam 8 in, depth 22 ft, casing perforated below water table. MP top of casing, 2.00 ft above lsd. Highest water level 11.96 below lsd, Sept. 2-3, 1954; lowest 16.31 below lsd, Dec. 31, 1956. Records available: 1954-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	15.99	16.10	16.10	16.16	16.14	15.91	15.33	.....	14.97	15.56	16.01	16.20
10	16.02	16.10	16.13	16.19	16.07	15.88	14.97	15.16	14.96	15.67	16.04	16.20
15	16.03	16.13	16.19	16.14	16.09	15.84	14.92	15.12	15.04	15.77	16.12	16.27
20	16.05	16.14	16.17	16.17	16.08	15.86	14.96	14.95	15.20	15.83	16.12	16.28
25	16.07	16.14	16.16	16.17	16.09	15.87	14.98	14.70	15.33	15.91	16.18	16.30
Eom	16.10	16.15	16.15	16.20	15.99	15.88	15.03	14.85	15.45	15.95	16.18	16.31

A10-6-34ca. U. S. Geol. Survey. Drilled observation water-table well in sand of Pleistocene age, diam 8 in, depth 36 ft, casing perforated below water table. MP top of casing, 2.00 ft above lsd. Highest water level 10.00 below lsd, July 15, 1952; lowest 18.51 below lsd, Dec. 25, 1956. Records available: 1951-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	18.27	18.32	18.35	18.41	18.44	18.27	17.42	.....	18.09	18.05	18.35	.....
10	18.28	18.32	18.36	18.42	18.45	17.59	17.86	17.93	16.95	18.13	18.38	.....
15	18.29	18.33	18.38	18.42	18.47	17.99	.....	18.08	17.47	18.18	18.41	.....
20	18.29	18.33	18.38	18.41	18.47	18.11	.....	17.14	17.72	.....	18.42	.....
25	18.31	18.34	18.40	18.44	18.49	18.23	18.15	17.79	17.88	18.29	18.45	18.51
Eom	18.31	18.35	18.41	18.43	18.02	17.42	18.23	17.99	17.97	18.33	.....	.....

A10-6-36cdd. City of Lincoln. Drilled unused water-table well in Dakota sandstone, diam 16 in, depth 170 ft, casing perforated below water table. MP top of casing, 1.00 ft above lsd. Highest water level 67.97 below lsd, June 18, 1953; lowest 71.19 below lsd, Sept. 5, 1956. Records available: 1951-56.

## A10-6-36cdd--Continued

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	.....	70.70	70.53	70.73	70.93	70.96	70.87	.....	71.19	71.09	71.05	70.95
10	.....	70.64	70.93	70.85	70.82	71.00	70.81	71.00	70.94	71.13	71.01	70.89
15	.....	70.80	70.92	70.76	71.02	70.91	70.76	70.92	70.87	71.06	71.17	70.87
20	70.83	70.86	70.76	70.98	70.98	70.89	70.79	71.03	70.97	71.06	71.08	70.87
25	70.84	70.75	70.73	70.90	70.99	70.70	70.72	70.92	71.03	71.08	71.12	70.85
Eom	70.96	70.78	70.65	71.12	71.15	70.71	.....	70.98	71.14	71.03	70.95	70.85

A11-6-20dc. U. S. Geol. Survey. Drilled observation water-table well in sand and alluvium, diam 8 in, depth 34 ft, casing perforated below water table. MP top of casing, 3.00 ft above lsd. Highest water level 12.40 below lsd, Apr. 24, 1952; lowest 17.52 below lsd, Dec. 5-10, 1956. Records available: 1951-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	17.07	17.04	17.03	.....	17.25	17.30	17.31	17.38	17.41	17.45	17.50	17.52
10	17.09	17.02	17.08	17.20	17.25	17.27	17.35	17.40	16.94	17.47	17.51	17.52
15	17.10	17.04	17.13	17.21	17.23	17.31	17.36	17.41	17.10	17.49	17.50	17.51
20	17.07	17.09	17.15	17.23	17.25	17.34	17.19	17.16	17.23	17.50	17.50	17.51
25	17.03	17.10	17.15	17.24	17.27	17.35	17.33	17.17	17.33	17.50	17.50	17.50
Eom	17.02	17.10	17.16	17.26	17.27	17.31	17.40	17.34	17.39	17.50	17.50	17.51

Lincoln County

12-28-9bc. Central Nebraska Public Power and Irrigation District. Hastings. Drilled observation water-table well in alluvium, sand, and gravel, diam 2 in, depth 14 ft, perforated 9-14. Lsd 2,702.68 ft above msl. MP top of casing, 0.40 ft above lsd. Highest water level 3.58 below lsd, Mar. 3, 1949; lowest 10.48 below lsd, Nov. 1, 1939. Records available: 1938-55. No measurement made in 1956.

14-33-27da. U. S. Geol. Survey. Dug and drilled observation water-table well in alluvium of Recent age, diam 15 in, depth 10 ft (previously reported as 102), casing perforated below water table. Lsd 2,934.06 ft above msl. MP top of casing, 0.80 ft above lsd. Highest water level 1.58 below lsd, June 27, 1949; lowest 6.70 below lsd, Feb. 20-22, 1952. Records available: 1943-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	6.09	6.21	.....	6.24	6.21	5.98	5.56	.....	5.53	.....	5.64	.....
10	6.11	.....	.....	6.24	6.17	.....	.....	5.46	.....	.....	5.65	5.87
15	.....	6.21	.....	.....	.....	.....	5.65	.....	.....	5.67	5.68	.....
20	6.15	6.23	6.25	.....	.....	.....	5.51	.....	.....	.....	.....	.....
25	6.17	6.23	.....	.....	.....	.....	.....	.....	5.65	5.64	.....	.....
Eom	6.19	.....	.....	.....	.....	5.49	.....	5.53	.....	5.62	.....	6.01

Madison County

23-2-5aa. John Bredehoff. Battle Creek. Dug and driven unused water-table well in alluvial sand, diam 1½ in, depth 31 ft, well point 29-31. MP top of casing, 2.30 ft above lsd. Highest water level 2.93 below lsd, June 4, 1935; lowest 5.24 below lsd, Sept. 12, 1955. Records available: 1934-37, 1940-42, 1944-56. Nov. 13, 4.31.

Merrick County

12-7-7aa. U. S. Geol. Survey. Drilled observation water-table well in sand and gravel of Pleistocene age, diam 1½ in, depth 13 ft, well point 11-13. Lsd 1,762.16 ft above msl. MP top of casing, 1.00 ft above lsd. Highest water level 4.34 below lsd, July 10, 1947; lowest 10.26 below lsd, Nov. 5, 1956. Records available: 1945-56. May and November 1956 measurements by Midstate Irrigation District. Apr. 18, 9.48; May 22, 9.30; Nov. 5, 10.26.

Morrill County

20-50-28bb. Fred Smith. Northport. Drilled unused water-table well in sand and gravel of Pleistocene age, diam 1½ in, depth 35 ft, well point 33-35. MP top of casing, 2.80 ft above lsd. Highest water level 11.87 below lsd, Sept. 7, 1951; lowest 17.33 below lsd, Oct. 26, 1954. Records available: 1934-42, 1944-56. Oct. 13, 13.57.

Nuckolls County

1-8-23ab. U. S. Geol. Survey. Drilled observation water-table well in silt, loess, and clay of Pleistocene age, diam 8 in, depth 18 ft, casing perforated below water table. Lsd 1,598.15 ft above msl. MP top of casing, 1.50 ft above lsd. Highest water level 0.02 below lsd, July 29, 1951; lowest 7.91 below lsd, July 8-9, 1950. Records available: 1950-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	5.11	5.37	5.15	5.37	5.54	5.62	2.06	4.42	3.90	4.99	4.94	....
10	5.15	5.37	5.15	5.41	5.38	5.65	3.50	4.60	4.08	4.95	4.95	....
15	5.15	5.05	5.19	5.48	5.37	5.77	4.25	4.76	4.35	5.00	4.99	....
20	5.24	5.21	5.22	5.53	5.39	5.75	4.59	1.62	4.53	4.98	5.05	....
25	5.32	5.25	5.23	5.59	5.47	5.71	4.50	2.62	4.78	5.00	5.07	....
Eom	5.34	5.24	5.30	5.63	5.58	5.10	4.58	3.64	4.88	4.88	5.10	....

Phelps County

6-19-2aa. Central Nebraska Public Power and Irrigation District. Holdrege. Drilled observation water-table well in sand of Pleistocene age, diam 1 in, depth 151 ft, well point 149-151. Lsd 2,360.81 ft above msl. MP top of casing, 1.00 ft above lsd. Highest water level 80.89 below lsd, Dec. 6, 1956; lowest 123.70 below lsd, Mar. 9, 1945. Records available: 1945-56. Dec. 6, 80.89.

Platte County

A18-1-28cd. Loup River Public Power District. Drilled observation water-table well in sand of Pleistocene age, diam 2 in, depth 99 ft, well point 97-99. Lsd 1,511.8 ft above msl. MP top of casing, 0.50 ft above lsd. Highest water level 60.30 below lsd, Mar. 27, Apr. 24, 1940; lowest 71.89 below lsd, Nov. 28, 1956. Records available: 1935-40, 1942-53, 1956. Nov. 28, 71.89.

Polk County

15-3-20cc. Ray Norris. Silver Creek. Dug irrigation water-table well in sand of Pleistocene age, diam 12 in, depth 21 ft, casing perforated below water table. Lsd 1,582.83 ft above msl. MP hole in turbine base, 0.20 ft above lsd. Highest water level 4.31 below lsd, Apr. 20, 1949; lowest 9.33 below lsd, Sept. 22, 1953. Records available: 1946-56. Nov. 28, 9.15.

Redwillow County

2-29-4ad. Rex S. Haberman. Hastings. Drilled unused water-table well in sand of Pleistocene age, diam 26 in, depth 40 ft, casing perforated below water table. MP top of casing, 3.00 ft below lsd. Highest water level 27.58 below lsd, May 27-June 2, 1952; lowest 37.10 below lsd, July 11, 1953. Records available: 1950-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	33.27	33.37	33.08	32.86	32.81	32.73	33.70	35.83	37.05	35.80	34.97	34.39
10	33.33	33.32	33.05	32.83	32.76	32.92	33.65	36.17	36.86	35.63	34.85	34.32
15	33.60	33.26	33.02	32.79	32.75	33.61	33.86	36.37	36.58	35.50	34.75	34.24
20	33.54	33.21	32.98	32.82	.....	33.72	34.40	36.58	36.31	35.36	34.65	34.17
25	33.48	33.15	32.94	32.84	32.78	33.74	34.93	36.66	36.07	35.24	34.56	34.10
Eom	33.42	33.12	32.90	32.84	32.75	33.74	35.57	36.83	35.86	35.10	34.48	34.02

3-28-20bb2. Leo D. England. McCook. Drilled unused water-table well in sand of Pleistocene age, diam 14 in, depth 36 ft, casing perforated below water table. MP top of casing, 0.50 ft above lsd. Highest water level 5.53 below lsd, Sept. 9-10, 1951; lowest 9.70 below lsd, Oct. 15, 20, 1956. Records available: 1950-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	8.15	7.89	7.66	7.63	7.71	8.53	9.00	9.24	9.40	9.67	9.57	9.15
10	8.10	7.85	7.72	7.60	7.82	8.55	9.01	9.28	9.47	9.69	9.52	9.12
15	8.09	7.80	7.69	7.60	7.97	8.67	8.95	9.30	9.54	9.70	9.47	9.08
20	8.05	7.77	7.65	7.62	8.14	8.73	8.98	9.31	9.59	9.70	9.40	9.04
25	8.00	7.75	7.63	7.63	8.25	8.83	9.08	9.27	9.63	9.66	9.32	9.00
Eom	7.95	7.72	7.60	7.69	8.40	8.91	9.18	9.33	9.65	9.62	9.23	8.94

Saunders County

A13-9-24cc. City of Lincoln. Drilled observation water-table well in sand of Pleistocene age, diam  $1\frac{1}{2}$  in, depth 12 ft, well point 10-12. Lsd 1,065.22 ft above msl. MP top of casing, 4.50 ft above lsd. Highest water level 0.48 below lsd, July 31, 1948; lowest 8.49 below lsd, Sept. 25, 1955. Records available: 1933-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 25	6.83	Apr. 25	6.02	July 25	7.72	Nov. 29	7.75
Feb. 25	6.57	May 25	6.52	Oct. 25	8.22	Dec. 25	6.92
Mar. 25	6.17	June 25	7.19	Nov. 25	7.66		

Scotts Bluff County

23-56-6aa. Carl Gompert. Drilled irrigation water-table well in alluvium of Quaternary age, diam 18 in, depth 118 ft, casing perforated below water table. Lsd 4,087.7 ft above msl. MP hole in turbine base, 0.70 ft above lsd. Highest water level 29.24 below lsd, Oct. 26, 1949; lowest 40.53 below lsd, Oct. 11, 1956. Records available: 1948-56. Oct. 11, 40.53.

Sheridan County

24-43-15da. U. S. Geol. Survey. Drilled observation water-table well in sand of Pleistocene age, diam  $1\frac{1}{2}$  in, depth 21 ft, well point 19-21. MP top of casing, 1.80 ft above lsd. Highest water level 5.66 below lsd, June 8, 1949; lowest 8.08 below lsd, Nov. 4, 1940. Records available: 1940-42, 1944-56. Mar. 12, 6.86.

29-46-10aa. U. S. Geol. Survey. Drilled observation water-table well in sand of Pleistocene age, diam 6 in, depth 100 ft, casing perforated below water table. MP top of casing, 1.50 ft above lsd. Highest water level 37.39 below lsd, Nov. 10, 1955; lowest 38.95 below lsd, May 29, 1954. Records available: 1953-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	37.67	37.69	37.79	37.91	38.02	38.10	38.24	38.10	.....	.....	38.17	38.22
10	37.70	37.72	37.91	37.91	37.99	38.16	38.22	38.12	.....	.....	38.17	38.15
15	37.66	37.75	37.87	37.93	38.11	38.19	38.30	38.11	.....	38.15	38.23	38.25
20	37.61	37.82	37.86	38.00	38.09	38.17	38.25	38.13	.....	38.20	38.21	38.25
25	37.68	37.80	37.84	37.98	38.10	38.28	38.20	38.07	.....	38.15	38.27	38.30
Eom	37.76	37.85	37.80	38.02	38.18	38.19	38.19	38.10	.....	38.12	38.20	38.31

Thayer County

4-1-9bac. U. S. Geol. Survey. Formerly State of Nebraska. Drilled observation water-table well in sand of Pleistocene age, diam 8 in, depth 95 ft, casing perforated below water table. MP top of casing, 2.00 ft above lsd. Highest water level 87.83 below lsd, Sept. 28, 1953; lowest 90.01 below lsd, June 25, 1953. Records available: 1953-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	88.39	88.36	88.34	88.41	88.58	88.59	88.68	89.02	89.24	89.17	89.09	89.09
10	88.38	88.34	.....	88.42	88.59	88.58	88.68	89.10	89.13	89.10	89.07	89.02
15	88.36	.....	.....	88.45	88.56	88.56	88.72	89.10	89.11	89.09	89.11	89.09
20	88.37	.....	.....	88.46	88.54	88.60	88.72	89.17	89.10	89.08	89.15	89.06
25	88.41	88.41	88.38	88.51	88.57	88.68	89.48	89.15	89.10	89.18	89.12	89.07
Eom	.....	88.37	88.36	88.53	88.63	88.67	89.00	89.25	89.10	89.09	89.09	89.11

Thomas County

23-28-9da. U. S. Geol. Survey. Formerly University of Nebraska. Driven observation water-table well in fine sand and alluvium, diam  $1\frac{1}{2}$  in, depth 15 ft, well point 13-15. MP top of casing, 1.60 ft above lsd. Highest water level 9.15 below lsd, June 19, 1954, Mar. 12, 1956; lowest 10.98 below lsd, July 23, 1940. Records available: 1934-40, 1942, 1944-50, 1953-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 23, 1950	10.36	June 19, 1954	9.15	July 11, 1955	9.33	Mar. 12, 1956	9.15
June 15, 1953	9.39	Sept. 19	9.54	Oct. 17	9.49	Nov. 1	9.28
Oct. 30	9.49						

Valley County

18-16-30cc. U. S. Geol. Survey. Drilled observation water-table well in sand of Pleistocene age, diam  $\frac{3}{4}$  in, depth 14 ft, well point 12-14. Lsd 2,217.61 ft above msl. MP top of casing, 2.00 ft above lsd. Highest water level 3.75 below lsd, Sept. 17, 1951; lowest 5.64 below lsd, June 20, 1956. Records available: 1949-56. June 20, 5.64.

Webster County

1-11-11ab. U. S. Geol. Survey. Drilled observation water-table well in silt and fine sand of Pleistocene age, diam 8 in, depth 17 ft, casing perforated below water table. Lsd 1,684.9 ft above msl. MP south side of casing, 1.10 ft above lsd. Highest water level 1.34 below lsd, July 11-12, 1951; lowest 10.45 below lsd, Dec. 31, 1956. Records available: 1946-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	10.01	10.11	10.14	10.15	10.21	10.33	9.90	8.00	8.83	9.63	10.08	10.27
10	10.02	10.12	10.14	10.15	10.24	10.35	7.23	7.95	9.05	9.74	10.13	10.29
15	10.07	10.13	10.14	10.15	10.27	10.35	7.53	7.95	9.21	9.81	10.16	10.32
20	10.09	10.14	10.16	10.17	10.29	10.36	7.74	8.10	9.35	9.90	10.20	10.36
25	10.10	10.14	10.16	10.17	10.29	10.36	7.78	8.31	9.48	9.97	10.22	10.41
Eom	10.10	10.14	10.16	10.18	10.32	10.10	7.97	8.60	9.53	10.03	10.25	10.45

York County

11-3-36ab. Mother Jewel Home. York. Drilled irrigation water-table well in sand of Pleistocene age, diam 12 in, depth 175 ft, casing perforated below water table. MP hole in turbine base, at lsd. Highest water level 65.82 below lsd, Sept. 11, 1952; lowest 69.46 below lsd, Oct. 25, 1956. Records available: 1948-56. Feb. 7, 67.53; Apr. 6, 67.49; July 3, 67.94; Oct. 25, 69.46; Dec. 3, 69.23.

## References

- Keech, C. F., 1956, Water levels in observation wells in Nebraska during 1955: U. S. Geol. Survey open-file rept. (mimeo.)
- \_\_\_\_\_, 1957, Water levels in observation wells in Nebraska during 1956: U. S. Geol. Survey open-file rept. (mimeo.)
- Keech, C. F., and Case, R. L., 1954, Water levels prior to January 1, 1954, in observation wells in Nebraska: U. S. Geol. Survey open-file rept. (mimeo.)
- \_\_\_\_\_, 1955, Water levels in observation wells in Nebraska during 1954: U. S. Geol. Survey open-file rept. (mimeo.)



## NORTH DAKOTA

By Donald G. Adolphson

The observation-well program in North Dakota was continued in 1956 in cooperation with the State Water Conservation Commission and the State Geological Survey. Figure 8 shows the location of the observation wells whose measurements are included in this report.

### Well-Numbering System

Wells are numbered in accordance with the Bureau of Land Management's system of land subdivision. Each well number is made up of three segments. The first segment indicates the township, the second the range, and the third the section in which the well is situated. The letters after the section number, which are assigned in a counterclockwise direction as shown in the diagram on page 11, represent subdivisions of the section. The first letter denotes the 160-acre tract, the second the 40-acre tract, and the third the 10-acre tract. Numbers are added as suffixes to distinguish wells in the same tract. Thus, the number 140-61-16dcc designates the well in the SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 16, T. 140 N., R. 61 W.

### Well Descriptions and Water-Level Measurements

Water levels are in feet below land-surface datum unless otherwise indicated.

#### Adams County

130-97-14cc1. Mrs. P. R. Halverson. Drilled domestic and stock water-table well in Fort Union formation, diam 4 in, depth 77 ft, slotted 70-77. MP hole east side of pump base, 2.00 ft above lsd. Highest water level 44.34 below lsd, Dec. 4, 1951; lowest 53.59 below lsd, Apr. 16, 1941. Records available: 1940-49, 1951-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 26	48.52	May 21	48.48	Aug. 9	48.88	Nov. 26	48.96
Feb. 24	48.76	June 18	48.66	Oct. 30	48.99	Dec. 11	48.98
Apr. 26	48.67	July 19	48.84				

#### Barnes County

140-61-16dcc. L. A. Flynn. Drilled unused water-table well in glacial drift, diam 12 in, depth 51 ft, slotted 45-51. MP hole east side of pump base, 1.20 ft above lsd. Highest water level 36.05 below lsd, Apr. 28, 1954; lowest 37.22 below lsd, Sept. 13, 1956. Records available: 1953-56. May 8, 36.77; Sept. 13, 37.22.

143-61-30ccc1. U. S. Geol. Survey. Drilled unused water-table well in glacial sand and gravel, diam 1 $\frac{1}{2}$  in, depth 66 ft, well point. MP top of pipe, 2.70 ft above lsd. Highest water level 15.29 below lsd, May 24, 1950; lowest 36.36 below lsd, Sept. 13, 1956. Records available: 1950, 1952-56. Affected by nearby municipal well being pumped. Apr. 12, 35.54; Sept. 13, 36.36.

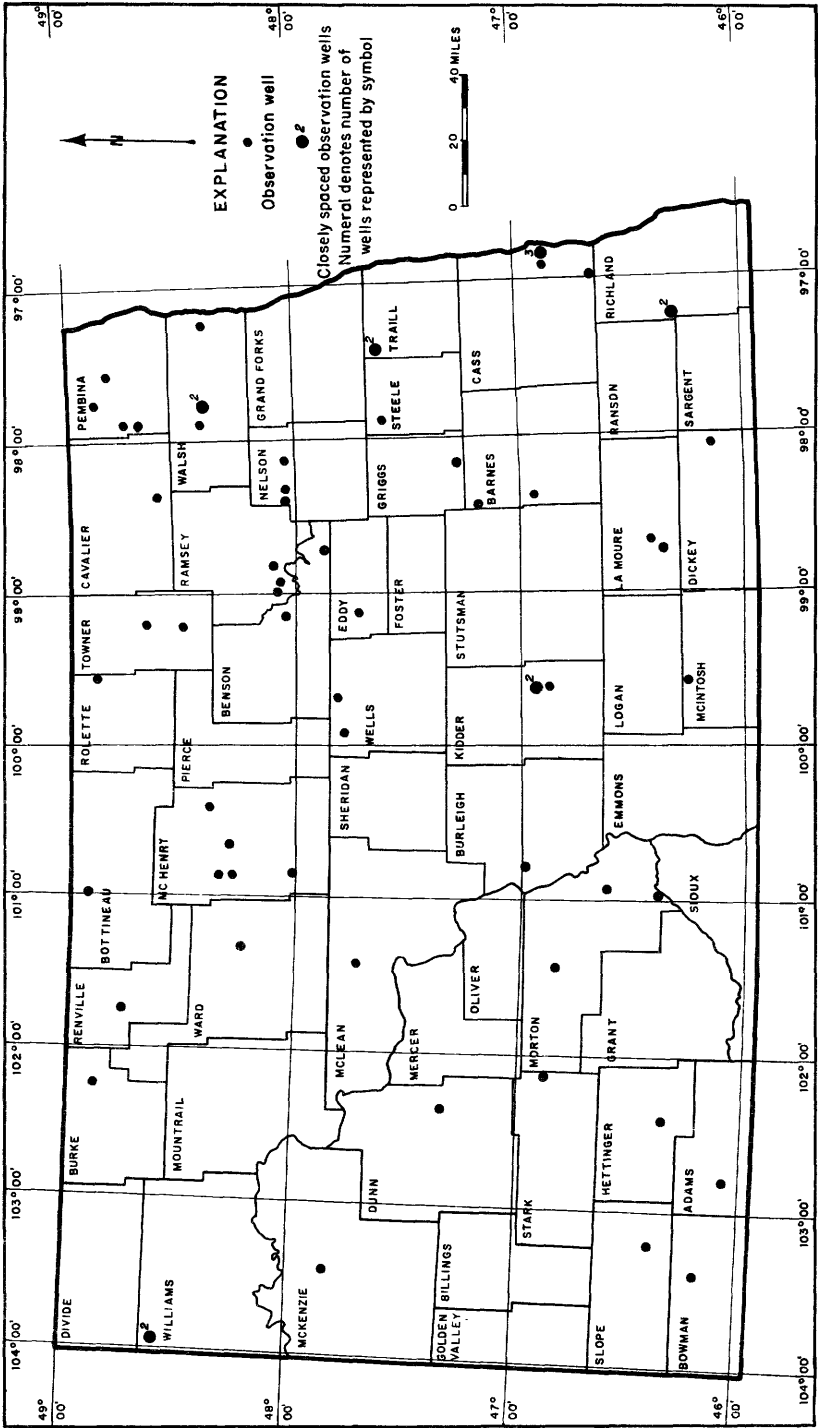


Figure 8. --Location of observation wells in North Dakota, 1956.

Benson County

151-63-29acc. U. S. Geol. Survey. Drilled unused water-table well in glacial outwash sand and gravel, diam 6 in, depth 67 ft, slotted 57-67. MP top of casing, 0.50 ft above lsd. Highest water level 15.86 below lsd, Aug. 18, 1951; lowest 17.38 below lsd, Apr. 12-13, 1956. Records available: 1951-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	17.20	.....	17.31	.....	.....	.....	.....	.....	16.13	16.11	16.20	16.24
10	17.22	.....	17.35	.....	.....	.....	.....	16.07	16.12	16.14	16.17	.....
15	17.21	.....	17.35	17.23	.....	.....	.....	16.04	16.10	16.13	16.22	.....
20	17.22	.....	.....	17.11	.....	.....	16.05	16.04	16.10	16.14	16.22	.....
25	17.24	.....	.....	.....	16.82	.....	15.96	16.03	16.10	16.12	16.22	.....
Eom	.....	.....	.....	.....	.....	.....	.....	16.02	16.11	16.16	16.22	.....

153-66-21aab. U. S. Geol. Survey. Drilled unused water-table well in glacial sand and gravel, diam 6 in, depth 103 ft, slotted 83-103. MP top of 5-in pipe, 3.50 ft above lsd. Highest water level 0.07 below lsd, May 18, 1956; lowest 5.61 below lsd, Apr. 28, 1953. Records available: 1950-56. May 18, 0.07; Sept. 6, 1.18.

Bottineau County

163-80-25ccb. City of Westhope. Drilled observation artesian well in Fox Hills sandstone, diam 1½ in, depth 145 ft, screened 135-145. MP top of casing, at lsd. Highest water level 94.82 below lsd, Oct. 15, 1953; lowest 108.94 below lsd, Sept. 20, 1956. Records available: 1953-56. Affected by nearby municipal wells being pumped. May 4, 106.68; Sept. 20, 108.94.

Bowman County

131-102-11ca1. City of Bowman. Drilled unused water-table well in Fort Union formation, diam 8 in, depth 69 ft, screened 59-69. MP top of casing, 1.17 ft above lsd. Highest water level 16.53 below lsd, June 9, 1952; lowest 24.88 below lsd, Sept. 19, 1955. Records available: 1938-42, 1944-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 23	19.40	May 21	19.13	Aug. 9	19.58	Oct. 25	21.57
Feb. 14	19.21	June 20	19.59	28	19.99	Nov. 27	19.99
Apr. 4	18.95	July 11	19.63	Sept. 24	21.61	Dec. 10	21.43

Burke County

162-89-5dd1. C. B. Cron. Drilled unused artesian well in glacial drift, diam 3 in, depth 394 ft, well point 388-394. MP top of casing, 2.49 ft above lsd. Highest water level 65.95 below lsd, Oct. 19, 1955; lowest 70.60 below lsd, Sept. 30, 1946. Records available: 1937-56. June 26, 69.95; Sept. 20, 70.05.

Burleigh County

141-80-35cc1. Celja DeLong. Dug domestic water-table well in valley alluvium, 36 by 36 in, depth 19 ft. MP hole in wood platform, 0.20 ft above lsd. Highest water level 13.22 below lsd, Nov. 25, 1950; lowest 17.14 below lsd, Nov. 14, 1956. Records available: 1940-46, 1948-56. May 4, 13.28; Nov. 14, 17.14.

Cass County

137-50-29dda5. City of Kindred. Drilled public-supply water-table well in deposits of glacial Lake Agassiz, diam 16 in, depth 100 ft (previously reported as 35). MP top of wood cover at hole about 1.00 ft south of pump, at lsd. Highest water level 2.68 below lsd, Apr. 11, 1952; lowest 9.70 below lsd, Oct. 29, 1948. Records available: 1948-52, 1954-56. Oct. 12, 8.00.

139-48-6ccd1. The Pierce Co. 1019 1st Ave. North, Fargo. Drilled unused artesian well, diam 6 in, depth 403 ft, screened 393-403. Granite reached at 280, glacial-drift aquifer at 180. MP edge of coupling on top of casing, about 5.00 ft below lsd. Highest water level 28.01 below lsd, July 3, 1940; lowest 43.52 below lsd, Dec. 31, 1956. Records available: 1940-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	35.82	35.72	35.63	35.75	35.82	36.08	39.22	41.44	42.56	42.35	41.75	42.19
10	35.88	35.71	35.68	35.80	35.81	36.44	39.75	41.63	42.62	42.28	41.73	42.49
15	35.80	35.70	35.69	35.76	35.80	36.71	35.24	41.78	42.62	42.09	41.71	42.87
20	35.79	35.68	35.79	35.81	35.86	37.20	40.65	41.98	42.55	41.99	41.73	43.19
25	35.78	.....	35.86	35.82	35.87	37.89	40.96	42.11	42.48	41.85	41.84	43.39
Eom	35.75	35.65	35.80	35.85	35.92	.....	41.31	42.24	42.43	41.75	41.95	43.52

139-48-7acbl. City of Fargo. Island Park. Drilled unused artesian well in glacial drift, diam 10 in, depth 228 ft, screened 218-228. MP edge of coupling on top of casing, 2.80 ft above lsd. Highest water level 36.68 below lsd, July 19, 1940; lowest 43.75 below lsd, June 10, 1948. Records available: 1940-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 3	42.69	Apr. 2	42.44	July 1	42.68	Oct. 3	43.19
10	42.70	8	42.38	11	42.75	10	43.34
16	42.70	15	42.08	18	42.78	17	43.28
24	42.63	24	42.44	25	42.82	25	43.20
31	42.70	29	42.48	29	42.90	31	43.20
Feb. 4	42.60	May 8	42.43	Aug. 5	42.96	Nov. 7	43.20
11	42.56	13	42.40	12	42.94	14	43.14
21	42.53	21	41.93	19	43.10	21	43.15
28	42.57	29	42.45	26	43.02	28	43.22
Mar. 6	42.52	June 3	42.44	Sept. 5	42.98	Dec. 5	43.19
13	42.52	10	42.47	9	43.16	12	43.25
21	42.60	19	42.58	16	43.16	19	43.19
26	42.57	24	42.64	25	43.20	26	43.18

139-49-1cc1. City of Fargo. Drilled unused artesian well in glacial drift, diam 2 in, depth 198 ft, slotted 190-198. MP top of pipe, 0.80 ft above lsd. Highest water level 14.61 below lsd, July 16, 1955; dry, June 19-Dec. 19, 1956. Records available: 1954-56. Affected by nearby municipal wells being pumped.

Jan. 3	58.14	Feb. 21	57.48	Apr. 10	59.17	May 21	58.87
10	58.00	28	57.56	17	59.00	29	59.78
16	57.90	Mar. 6	57.48	24	59.98	June 5	58.55
24	57.80	13	57.58	May 1	58.93	12	59.82
31	57.66	21	59.40	8	58.90	19	(f)
Feb. 4	57.67	27	59.45	15	58.88	Dec. 19	(f)
14	57.64	Apr. 2	59.40				

f Dry.

139-49-6ad1. Union Stockyards. Drilled unused artesian well in glacial drift, diam 8 in, depth 230 ft, screened 220-230. MP top of casing, 0.40 ft above lsd. Highest water level 24.90 below lsd, May 7, 1938; lowest 84.38 below lsd, May 1, 1956. Records available: 1938-56.

Jan. 3	80.04	Apr. 3	83.45	July 3	81.75	Oct. 3	83.87
10	80.85	10	83.79	11	81.80	10	84.06
16	81.32	13	84.10	18	82.34	17	84.14
24	81.65	24	84.29	24	82.50	26	84.25
31	82.10	May 1	84.38	31	82.66	31	84.27
Feb. 7	82.52	8	83.79	Aug. 8	82.84	Nov. 7	84.28
14	81.87	15	83.19	14	82.90	14	84.28
21	81.54	22	82.85	22	83.06	21	84.25
28	81.30	29	82.35	28	83.15	28	84.26
Mar. 6	81.32	June 5	81.74	Sept. 5	83.26	Dec. 5	83.97
13	81.80	12	81.53	11	83.47	12	83.78
21	82.34	19	81.65	18	83.65	19	83.66
27	82.75	26	81.70	25	83.75	26	83.25

#### Cavalier County

161-80-14da1. City of Langdon. Dug public-supply water-table well in glacial drift, diam 12 ft, depth 27 ft, lined with brick. MP top of platform, 1.02 ft above lsd. Highest water level 1.29 below lsd, May 22, 1948; lowest 14.13 below lsd, July 13, 1940. Records available: 1937-56.

Jan. 7	7.58	Apr. 7	9.63	July 7	1.81	Oct. 6	4.54
14	7.71	14	9.28	14	1.30	13	4.80
21	7.98	21	8.23	21	1.50	20	4.98
28	8.18	28	6.54	28	2.40	27	5.03
Feb. 4	8.33	May 5	4.90	Aug. 4	3.00	Nov. 3	4.66
11	8.53	12	1.90	11	3.07	10	3.19
18	8.71	19	2.68	18	3.15	17	3.49
25	8.82	26	3.27	25	3.78	24	3.84
Mar. 3	9.00	June 2	3.18	Sept. 1	2.60	Dec. 1	4.30
10	9.18	9	1.88	8	2.84	8	4.84
17	9.35	16	2.74	15	3.28	15	5.38
24	9.44	23	2.33	22	3.96	22	5.78
31	9.53	30	2.68	29	4.14	29	6.23

Dickey County

131-59-28ba1. City of Oakes. Driven observation water-table well in deposits of glacial Lake Dakota, diam  $1\frac{1}{2}$  in, depth 24 ft, well point. MP top of casing, 1.50 ft above lsd. Highest water level 6.60 below lsd, May 17, 1948; lowest 10.98 below lsd, Jan. 9, 1956. Records available: 1940-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 2	10.94	Apr. 2	9.82	July 2	9.90	Oct. 1	10.27
9	10.98	9	9.70	9	10.00	8	10.29
17	10.46	16	9.64	16	10.00	15	10.29
23	10.44	23	9.54	23	9.97	22	10.28
30	10.45	30	10.40	30	10.06	29	10.26
Feb. 6	9.97	May 7	9.54	Aug. 6	10.04	Nov. 6	10.09
13	9.95	14	9.51	13	10.10	12	10.09
20	9.94	21	9.47	20	10.10	19	10.07
27	9.97	28	8.60	28	10.17	27	10.05
Mar. 5	9.96	June 4	9.63	Sept. 4	10.20	Dec. 3	10.06
13	9.97	11	9.67	10	10.19	10	10.05
19	9.98	18	9.78	17	10.24	18	10.04
26	9.84	25	9.87	24	10.25	24	10.05

Dunn County

145-92-25ad1. S. F. Lesmeister. Dug domestic and stock water-table well in Fort Union formation, diam 4 ft, depth 17 ft, lined with wood. MP top of wood curbing, 2.00 ft above lsd. Highest water level 0.90 above lsd, Jan. 20, 1956; lowest 11.97 below lsd, Oct. 1, 1947. Records available: 1942-56.

Jan. 6	+0.80	Apr. 1	8.06	July 20	10.20	Oct. 12	11.80
13	+ .70	8	8.03	27	11.50	19	11.70
20	+ .90	15	8.05	Aug. 3	9.80	26	11.50
27	+ .70	22	8.08	10	9.10	Nov. 2	11.20
Feb. 3	10.20	29	8.03	17	9.30	9	10.50
10	10.20	June 6	9.50	24	9.70	16	10.20
17	10.40	8	9.80	31	9.70	23	10.20
24	9.60	15	9.30	Sept. 7	9.40	30	10.10
Mar. 2	9.40	22	9.60	14	9.60	Dec. 7	10.30
9	9.60	29	9.50	21	9.70	14	10.20
16	9.70	July 6	9.80	28	9.80	21	10.50
23	9.30	13	9.60	Oct. 5	11.90	28	10.70

Eddy County

149-66-28bbb. Oscar Holton. Dug unused water-table well in glacial drift, diam 30 in, depth 8 ft, lined with concrete. MP top west edge of casing, 0.50 ft above lsd. Highest water level 1.83 below lsd, Apr. 22, 1955; lowest 5.25 below lsd, Nov. 13, 1953. Records available: 1953-56. Apr. 12, 4.14; Sept. 19, 2.72.

Griggs County

144-59-20bc1. Griffith Loan & Investment Co. Drilled unused water-table well in glacial drift, diam 5 in, depth 51 ft, screened 45-51. MP top of casing, 0.90 ft below lsd. Highest water level 15.68 below lsd, Oct. 20, 1951; lowest 27.95 below lsd, Apr. 6, 1941. Records available: 1940-56. May 8, 20.04; Sept. 16, 17.99.

Hettinger County

133-93-5bd1. L. F. Everhart. Drilled unused water-table well in Fort Union formation, diam 6 in, depth 50 ft, screened 45-50. MP top of casing, 0.60 ft above lsd. Highest water level 45.27 below lsd, Sept. 21, 1955; lowest 52.61 below lsd, Feb. 15, 1955. Records available: 1938-42, 1946-56. Jan. 24, 46.16; Apr. 2, 46.19; May 23, 45.34; June 25, 46.34; July 23, 46.37; Sept. 30, 46.26; Oct. 23, 46.26.

Kidder County

139-71-10bc1. Village of Tappen. Dug fire-protection water-table well in glacial drift, diam 8 ft, depth 15 ft, lined with concrete. MP chiseled cross on west side of manhole, 0.10 ft above lsd. Highest water level 3.69 below lsd, May 26, 1950; lowest 12.46 below lsd, Feb. 1, 1941. Records available: 1940-56. May 3, 7.01; Nov. 19, 5.80.

140-71-23ccb. U. S. Geol. Survey. Drilled observation water-table well in glacial drift, diam 8 in, depth 240 ft, cased to 70, perforated 30-70. MP top of casing, 2.20 ft above lsd. Highest water level 39.60 below lsd, Nov. 19, 1956; lowest 40.60 below lsd, May 3, 1956. Records available: 1955-56. May 3, 40.60; Nov. 19, 39.60.

140-71-28bba. U. S. Geol. Survey. Drilled observation water-table well in glacial drift, diam 8 in, depth 90 ft, cased to 60, perforated. MP top edge of casing, 1.20 ft above lsd. Highest water level 11.75 below lsd, Dec. 3, 1956; lowest 13.80 below lsd, May 10, 1956. Records available: 1955-56.

Lowest water level for the day, from recorder graph

Day	May	June	July	Aug.	Sept.	Nov.	Dec.
5	13.06	12.50	12.03	11.93	11.95	.....	11.78
10	13.80	12.20	11.97	11.95	11.95	.....	.....
15	12.75	12.18	11.97	11.93	.....	.....	.....
20	12.75	12.15	11.97	11.99	.....	11.82	.....
25	12.75	12.08	11.97	12.00	.....	11.84	.....
Eom	12.68	12.03	11.95	11.90	.....	11.78	.....

#### La Moure County

133-64-3bc1. City of Edgeley. Drilled unused water-table well in Pierre shale, diam 6 in, depth 92 ft, gravel-packed. MP basement-floor level, edge of flange, 9.00 ft below lsd. Highest water level 20.57 below lsd, Apr. 19, 1955; lowest 28.05 below lsd, Aug. 29, 1946. Records available: 1940-56. Apr. 9, 22.26; Sept. 14, 22.56.

134-64-24dc1. Mrs. Fidela Davis. Drilled unused artesian well in Dakota sandstone, diam 4 to 1½ in, depth 1,265 ft, well point 1,255-1,265. MP top of casing, 0.60 ft above lsd. Highest water level 1.39 above lsd, Oct. 27, 1955; lowest 3.26 below lsd, Feb. 18, 1938. Records available: 1937-39, 1950, 1955-56. Apr. 9, +0.56; Sept. 19, +1.08.

#### McHenry County

152-79-6bc1. Minneapolis, St. Paul & Sault Ste. Marie RR. Dug railroad water-table well in glacial drift, diam 10 ft, depth 23 ft, lined with brick. MP flange of manhole south side of railway grade, 2.00 ft above lsd. Highest water level 9.22 below lsd, Sept. 30, 1954; lowest 22.86 below lsd, Nov. 10, 1940. Records available: 1940-48, 1950-56. June 9, 10.86; Sept. 19, 11.57.

156-78-36bc1. U. S. Forest Service. Denbigh Forest Experiment Station well 1. Dug unused water-table well in deposits of glacial Lake Souris, 4 by 4 ft, depth 12 ft, lined with wood. MP two brass hubs set in concrete on opposite sides of well, 0.70 ft above lsd. Highest water level 1.29 below lsd, Apr. 15, 1955; lowest 8.18 below lsd, Nov. 15, 1940. Records available: 1932-41, 1943-56. May 24, 3.08; Sept. 20, 5.35.

156-79-10aad. U. S. Geol. Survey. Drilled unused water-table well in glacial drift, diam 4 in, depth 121 ft, cased to 102. MP top of casing, 2.70 ft above lsd. Highest water level 1.35 above lsd, May 3, 1949; lowest 7.80 below lsd, July 16, 1947. Records available: 1947, 1949, 1952-56. May 24, 1.76; Sept. 20, 2.11.

156-79-33dc1. Harold H. Sullwold. Drilled unused water-table well in glacial drift, diam 12 in, depth 38 ft, cased to 35. MP top of tile curb, 1.60 ft above lsd. Highest water level 4.68 below lsd, May 24, 1950; lowest 14.62 below lsd, Nov. 11, 1940. Records available: 1940-56. May 24, 5.99; Sept. 20, 8.30.

157-75-31dc1. U. S. Forest Service. Dug observation water-table well in glacial drift, diam 12 in, depth 12 ft. MP flange of manhole at north point, 3.00 ft above lsd. Highest water level 2.11 below lsd, June 23, 1943; lowest 8.08 below lsd, Aug. 1, 1940. Records available: 1940-50, 1952-56. May 24, 3.35; Sept. 20, 3.61.

#### McIntosh County

132-71-15aa1. City of Wishek. Dug public-supply water-table well in glacial drift, diam 6 ft, depth 27 ft, lined with concrete. MP cross southeast side of concrete curb, 0.50 ft above lsd. Highest water level 19.09 below lsd, Oct. 7, 1944; lowest 25.03 below lsd, Sept. 15, 1948. Records available: 1940-46, 1948-56.

## 132-71-15aa1--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 1	23.96	Apr. 2	24.09	July 2	23.95	Oct. 1	23.89
9	23.93	9	23.99	9	23.96	8	23.92
16	23.81	16	24.12	16	23.79	15	23.99
24	23.83	23	23.95	24	24.43	22	23.92
30	23.99	30	24.17	30	23.87	30	23.85
Feb. 6	23.86	May 6	24.02	Aug. 6	23.94	Nov. 5	23.82
13	23.99	13	23.87	13	23.94	13	23.76
20	24.24	20	23.93	20	24.18	17	23.74
27	24.19	27	23.90	27	24.36	27	23.69
Mar. 5	24.13	June 4	23.84	Sept. 3	23.97	Dec. 3	23.62
12	24.18	11	24.07	10	23.86	10	23.59
19	24.17	16	24.21	17	23.78	18	23.64
26	24.04	25	24.02	25	24.03	24	23.63

McKenzie County

150-100-12cc1. Chas. E. Fleck. Drilled unused water-table well in Fort Union formation, diam 6 in, depth 138 ft, screened 130-136. MP top of casing, 0.95 ft above lsd. Highest water level 112.00 below lsd, Oct. 8, 1955; lowest 114.94 below lsd, Mar. 31, 1945. Records available: 1938-56.

Jan. 7	112.62	Apr. 21	112.80	July 21	112.68	Oct. 13	112.74
14	112.83	28	112.78	28	112.70	20	112.69
21	112.81	May 5	112.68	Aug. 4	112.71	27	112.50
Feb. 4	112.64	12	112.80	11	112.52	Nov. 3	112.65
11	112.95	19	112.61	18	112.83	10	112.52
18	112.97	26	112.68	25	112.60	17	112.30
25	112.72	June 2	112.65	Sept. 1	112.57	24	112.65
Mar. 3	112.43	9	112.68	8	112.65	Dec. 1	112.61
17	112.91	16	112.65	15	112.51	8	112.74
24	112.71	23	112.63	22	112.78	15	112.63
31	112.50	30	112.74	29	112.70	22	112.80
Apr. 7	112.75	July 7	112.67	Oct. 6	112.61	29	112.57
14	112.77	14	112.69				

McLean County

149-84-15bc1. T. A. Welsh. Drilled unused water-table well in Fort Union formation, diam 6 in, depth 62 ft, screened 60-62. MP top of casing, 0.40 ft above lsd. Highest water level 40.66 below lsd, June 25, 1951; lowest 47.43 below lsd, Mar. 22, 1941. Records available: 1937-49, 1951-56. May 4, 42.40; Nov. 14, 42.85.

Morton County

134-82-36cb. Albrecht & Johnson. Dug unused water-table well in Fort Union formation, diam 16 in, depth 20 ft, lined with wood. MP top east side of curb, 0.30 ft above lsd. Highest water level 12.90 below lsd, May 9, 1956; lowest 18.04 below lsd, Apr. 15, 1941. Records available: 1941-47, 1949, 1953-56. May 9, 12.90.

136-81-6dcl. Joe Lanz, Jr. Drilled domestic water-table well in Hell Creek formation, diam 24 in, depth 67 ft, cased to 60. MP top south side of wood curb, 0.50 ft above lsd. Highest water level 20.14 below lsd, July 10, 1950; lowest 25.23 below lsd, Apr. 15, 1941. Records available: 1941-56. May 9, 21.60; Nov. 15, 21.85.

139-85-15cc1. Fred Lehde. Drilled irrigation water-table well in Hell Creek formation, diam 24 to 16 in, depth 72 ft, lined with wood. MP north point of wood curbing, 0.50 ft above lsd. Highest water level 28.97 below lsd Apr. 7, 1951; lowest 71.54 below lsd, Aug. 21, 1955. Records available: 1941-56. Pumped during growing season.

Jan. 11	44.29	Apr. 3	39.79	June 23	50.71	Sept. 30	65.30
17	34.82	10	29.77	July 8	38.08	Oct. 16	65.07
21	43.62	16	35.36	21	29.56	23	66.59
29	43.44	22	42.10	28	39.52	30	66.92
Feb. 5	43.28	29	59.70	Aug. 6	31.40	Nov. 8	67.19
11	43.17	May 7	69.70	15	35.80	18	69.51
18	43.10	13	63.86	29	59.08	24	70.40
25	43.05	22	65.01	Sept. 3	59.36	Dec. 3	67.10
Mar. 4	43.11	26	64.10	9	63.10	10	64.66
12	43.01	June 2	47.80	16	61.70	16	64.05
19	58.00	9	46.12	22	67.19	26	64.89
26	41.40	16	48.74				

Nelson County

153-58-32dbb. Michigan City. Drilled unused artesian well in Pierre shale, diam 5 in, depth 120 ft, slotted 110-120. MP top of casing, 1.70 ft above lsd. Highest water level 11.80 below lsd, June 23, 1950; lowest 24.00 below lsd, Sept. 6, 1955. Records available: 1948-56. Affected by city supply wells being pumped. May 16, 21.40; July 6, 22.60; Sept. 12, 23.20.

153-60-32aba. A. W. Goldammer. Drilled unused artesian well in Pierre shale, diam 5 in, depth 103 ft, slotted 96-103. MP hole south side of pump base, 1.70 ft above lsd. Highest water level 35.84 below lsd, Apr. 12, 1955; lowest 37.70 below lsd, May 18, 1956. Records available: 1954-56. May 18, 37.70; Sept. 5, 36.18.

153-60-35aaa. U. S. Geol. Survey. Drilled unused artesian well in glacial drift, diam 1½ in, depth 60 ft, well point 57-60. MP top of casing, 3.50 ft above lsd. Highest water level 10.25 below lsd, June 12, 1951; lowest 28.92 below lsd, Oct. 24, 1955. Records available: 1949-56. Affected by nearby municipal wells being pumped. May 18, 27.84; Sept. 5, 15.71.

Pembina County

160-56-16aaa1. S. J. Hanson. Dug domestic and stock water-table well in deposits of glacial Lake Agassiz, diam 5 ft, depth 12 ft, lined with wood. MP top east side of well curb, 1.00 ft above lsd. Highest water level 5.31 below lsd, May 22, 1951; lowest 9.99 below lsd, Dec. 3, 1953. Records available: 1946-56. June 27, 6.19; Sept. 12, 5.94.

161-56-22bb1. E. J. Lander Co. Dug domestic and stock water-table well in deposits of glacial Lake Agassiz, diam 5 ft, depth 14 ft, lined with concrete. MP edge of small hole in shed floor, 0.50 ft above lsd. Highest water level 3.02 below lsd, May 20, 1950; lowest 11.76 below lsd, Apr. 26, 1941. Records available: 1941-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	8.27	Apr. 7	8.60	July 7	5.26	Oct. 6	6.28
14	8.26	14	8.07	14	5.38	13	6.33
21	8.32	21	6.83	21	4.70	20	6.49
28	8.32	28	5.94	28	5.04	27	6.50
Feb. 4	8.39	May 5	5.39	Aug. 4	5.40	Nov. 3	6.37
11	8.40	12	4.91	11	5.60	10	5.83
18	8.44	19	4.73	18	5.84	17	5.70
25	8.47	26	4.81	25	6.05	24	5.70
Mar. 3	8.50	June 2	4.50	Sept. 1	5.64	Dec. 1	5.88
10	8.55	9	4.21	8	5.53	8	5.91
17	8.57	16	4.79	15	5.70	15	6.20
24	8.60	23	4.85	22	5.95	22	6.33
31	8.67	30	5.15	29	6.13	29	6.29

162-53-31cc1. Garnett A. Snell. Dug domestic and stock water-table well in deposits of glacial Lake Agassiz, 4 by 4 ft, depth 17 ft, lined with wood. MP edge of northeast curb support, vertical 2-by-4-in plank, 1.50 ft above lsd. Highest water level 3.92 below lsd, May 20, 1950; lowest 12.07 below lsd, Oct. 2, 1943. Records available: 1941-56.

Jan. 7	10.23	Apr. 7	10.39	July 7	6.36	Oct. 6	8.61
14	10.25	14	9.95	14	6.14	13	8.61
21	10.24	21	7.90	21	7.38	20	8.74
28	10.21	28	7.64	28	6.96	27	8.80
Feb. 4	10.26	May 5	7.23	Aug. 4	7.26	Nov. 3	8.70
11	10.27	12	5.94	11	7.59	10	8.17
18	10.37	19	5.18	18	7.96	17	7.94
25	10.33	26	5.19	25	8.24	24	7.79
Mar. 3	10.35	June 2	5.08	Sept. 1	8.41	Dec. 1	7.87
10	10.46	9	5.08	8	8.10	8	7.92
17	10.50	16	5.72	15	8.13	15	7.99
24	10.45	23	6.01	22	8.32	22	8.14
31	10.40	30	6.24	29	8.54	29	8.27

162-55-3dd1. Albert C. McCurdy. Dug observation water-table well in deposits of glacial Lake Agassiz, diam 5 ft, depth 17 ft, lined with concrete. MP hole in recorder platform, 0.20 ft above lsd. Highest water level 2.88 below lsd, May 19, 1950; lowest 11.98 below lsd, Apr. 1, 1944. Records available: 1941-56.



## 162-55-3dd1--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 1	7.42	Apr. 1	7.98	July 1	5.34	Sept. 30	6.97
8	7.54	8	7.80	8	5.30	Oct. 7	7.09
15	7.63	15	7.35	15	5.34	14	7.18
22	7.74	22	6.55	22	5.42	21	7.28
29	7.87	29	5.47	29	5.72	28	7.30
Feb. 5	7.95	May 6	4.54	Aug. 5	5.99	Nov. 4	7.01
12	7.99	13	4.05	12	6.16	11	6.24
19	8.03	20	4.16	19	6.45	18	6.09
26	8.06	27	4.57	26	6.69	25	6.19
Mar. 4	8.11	June 3	4.16	Sept. 2	6.42	Dec. 2	6.26
11	8.20	10	4.23	9	6.48	9	6.46
18	8.21	17	4.84	16	6.53	16	6.77
24	8.22	24	5.03	23	6.80	23	7.04

Ramsey County

153-64-5aa1. Ray Young. Dug domestic and stock water-table well in glacial drift, diam 4 ft, depth 45 ft, cased to 35. MP top of casing, 1.50 ft above lsd. Highest water level 20.60 below lsd, May 24, 1950; lowest 32.31 below lsd, June 22, 1944. Records available: 1942-50, 1952-56. May 18, 24.50; Sept. 6, 20.83.

153-64-19da1. Camp Grafton Military Reserve. Drilled public-supply water-table well in glacial drift, diam 4 in, depth 148 ft, slotted 140-148. MP hole in casing, 0.50 ft above lsd. Highest water level 46.37 below lsd, Sept. 6, 1956; lowest 59.44 below lsd, May 29, 1951. Records available: 1943-56. May 18, 47.35; Sept. 6, 46.37.

153-65-14ac1. Mrs. Bonnie Boland. Drilled unused artesian well in glacial drift, diam 4 in, depth 285 ft, cased 275-285. MP top of casing, 1.72 ft above lsd. Highest water level 49.47 below lsd, Sept. 6, 1956; lowest 59.32 below lsd, Oct. 14, 1944. Records available: 1937-56. May 18, 50.51; Sept. 6, 49.47.

Renville County

161-85-20aa1. Minnesota Trust Co. Drilled unused artesian well in Fort Union formation, diam 4 in, depth 400 ft, slotted 390-400. MP top of pump, 4.28 ft above lsd. Highest water level 77.46 below lsd, June 21, 1951; lowest 83.04 below lsd, Sept. 26, 1946. Records available: 1937-56. June 26, 81.90; Sept. 20, 82.12.

Richland County

133-52-32cd1. Owner unknown. Driven unused water-table well in deposits of glacial Lake Agassiz, diam 1½ in, depth 20 ft, well point. MP top of 1½-in pipe, 2.32 ft above lsd. Highest water level 3.58 below lsd, Apr. 16, 1946; lowest 7.76 below lsd, June 13, 1948. Records available: 1946-51, 1953-56. Oct. 12, 6.71.

133-52-33cdd. Max A. Jensen. Driven observation water-table well in deposits of glacial Lake Agassiz, diam 1½ in, depth 20 ft, well point 15-20. MP top of casing, 1.56 ft above lsd. Highest water level 0.75 below lsd, June 27, 1943; lowest 8.97 below lsd, Mar. 3, 1956. Records available: 1937-56.

Jan. 7	8.48	Mar. 31	7.98	June 23	6.24	Oct. 13	7.66
14	8.54	Apr. 7	6.82	30	6.74	20	7.72
21	8.64	14	4.84	July 7	5.48	28	7.61
28	8.69	21	4.59	14	5.54	Nov. 4	7.28
Feb. 4	8.69	28	3.24	21	6.04	11	6.59
11	8.74	May 5	3.92	28	6.68	17	6.54
18	8.76	12	2.79	Sept. 1	6.68	24	6.54
25	8.79	19	4.99	8	6.64	Dec. 1	6.68
Mar. 3	8.97	26	5.24	15	6.89	8	7.03
10	8.92	June 2	5.24	22	7.19	15	7.44
18	8.96	10	5.94	29	7.44	22	7.51
24	8.12	17	6.64	Oct. 6	7.60	29	7.52

Rolette County

162-69-20aba. Formerly 162-69-2aba. City of Rolla. Driven unused water-table well in glacial drift, diam  $1\frac{1}{4}$  in, depth 8 ft, well point 4-8. MP top of casing, 3.50 ft above lsd. Highest water level 1.74 below lsd, Oct. 20, 1955; lowest 4.62 below lsd, May 4, 1956. Records available: 1953-56. Affected by nearby city-supply well being pumped. May 4, 4.62.

Slope County

134-100-14ad1. Arthur Nesselth. Drilled domestic and stock water-table well in Fort Union formation, diam 24 in, depth 67 ft, slotted 60-67. MP top north point of iron casing, 0.60 ft above lsd. Highest water level 14.07 below lsd, Oct. 7, 1947; lowest 18.91 below lsd, Apr. 17, 1941. Records available: 1940-48, 1951-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 24	16.15	July 11	15.11	Sept. 24	15.82	Nov. 26	16.06
May 21	16.41	Aug. 9	16.17	Oct. 25	15.79	Dec. 10	15.98
June 18	16.44	27	16.10				

Stark County

139-91-2baa. Roland and George Funk. Dug unused water-table well in Fort Union formation, diam 42 in, depth 17 ft, lined with wood. MP top of platform, 1.80 ft above lsd. Highest water level 2.33 below lsd, July 9, 1944; lowest 5.09 below lsd, Sept. 25, 1952. Records available: 1940-50, 1952-56. May 9, 4.03; Nov. 20, 4.54.

Steele County

148-57-35bbd. City of Sharon. Drilled unused artesian well in glacial drift, diam 24 in, depth 70 ft, cased to 65. MP top west edge of casing, 0.35 ft above lsd. Highest water level 29.67 below lsd, May 25, 1956; lowest 32.98 below lsd, Oct. 8, 1953. Records available: 1953-56. May 25, 29.67; Sept. 12, 30.99.

Towner County

158-66-20d1. S. L. Isaacson. Cando. Dug domestic water-table well in glacial drift, diam 4 ft, depth 30 ft, lined with wood. MP bored hole at red arrow on top of platform, at lsd. Highest water level 13.67 below lsd, June 19, 1951; lowest 27.59 below lsd, Oct. 8, 1953. Records available: 1942-44, 1947-56. May 4, 20.48; Sept. 6, 22.01.

160-66-28ba1. Alvin D. Krueger. Drilled unused water-table well in glacial drift, diam 4 in, depth 135 ft, cased 0-125, slotted 125-135. MP top of casing, 2.66 ft above lsd. Highest water level 13.58 below lsd, May 26, June 2, 1956; lowest 17.15 below lsd, Dec. 26, 1942. Records available: 1937-56.

Jan. 7	13.82	Apr. 7	13.69	July 7	13.63	Oct. 6	13.84
14	13.81	14	13.68	14	13.65	13	13.84
21	13.60	21	13.66	21	13.67	20	13.85
28	13.78	27	13.64	28	13.70	27	13.85
Feb. 4	13.77	May 5	13.62	Aug. 4	13.72	Nov. 3	13.84
11	13.76	12	13.60	11	13.74	10	13.63
18	13.75	19	13.59	18	13.75	17	13.82
25	13.74	26	13.58	25	13.77	27	13.80
Mar. 3	13.74	June 2	13.58	Sept. 1	13.78	Dec. 1	13.79
10	13.73	9	13.59	8	12.79	8	13.78
17	13.72	16	13.59	15	13.81	15	13.76
24	13.71	23	13.60	22	13.82	22	13.74
31	13.70	30	13.61	29	13.83	29	13.73

Traill County

148-53-18ac1. City of Hatton. Dug domestic water-table well in glacial drift, diam 6 ft, depth 33 ft, cased to 30. MP flange on manhole cover, 0.10 ft above lsd. Highest water level 6.11 below lsd, July 3, 1942; lowest 30.84 below lsd, July 27, 1940. Records available: 1937-43, 1955-56. May 10, 8.46; Sept. 13, 11.53.

148-53-18ad3. City of Hatton. Dug domestic water-table well in glacial drift, diam 5 ft, depth 45 ft, curbed with brick. MP top of flange on manhole opposite pump, 0.10 ft above lsd. Highest water level 3.24 below lsd, June 25, 1950; lowest 34.40 below lsd, Sept. 2, 1939. Records available: 1937-56. May 10, 11.56; Sept. 12, 13.65.

#### Walsh County

157-51-16dc2. Henry Dipple. Dug unused water-table well in deposits of glacial Lake Agassiz, diam 4 ft, depth 16 ft, lined with wood. MP top of wood curb, 2.00 ft above lsd. Highest water level 0.12 below lsd, Apr. 12, 1941; lowest 12.09 below lsd, Mar. 11, 1939. Records available: 1937-56. June 28, 1.80; Sept. 12, 2.60.

157-55-17cc1. C. D. Lewis. Dug unused water-table well in deposits of glacial Lake Agassiz, diam 36 in, depth 9 ft, lined with wood. MP arrow at edge of hole in wood platform, 0.40 ft above lsd. Highest water level 1.37 below lsd, Apr. 24, 1948; dry, Sept. 10, 1938. Records available: 1938-56. June 27, 2.02; Sept. 12, 4.22.

157-55-17cd1. C. D. Lewis. Driven unused water-table well in deposits of glacial Lake Agassiz, diam 1½ in, depth 15 ft, screened 10-15. MP top of pipe, 3.00 ft above lsd. Highest water level 1.38 below lsd, June 12, 1943; lowest 10.47 below lsd, Nov. 11, 1938. Records available: 1937-38, 1946-56. June 27, 2.98; Sept. 12, 4.84.

157-56-20cb. Mrs. Alfred Christianson. Drilled unused water-table well in glacial outwash, diam 5 in, depth 25 ft, slotted 20-25. MP top of casing, 0.10 ft above lsd. Highest water level 11.80 below lsd, Sept. 12, 1956; lowest 15.39 below lsd, May 15, 1953. Records available: 1953-56. June 27, 13.33; Sept. 12, 11.80.

#### Ward County

155-83-23baa1. City of Minot. Drilled unused artesian well in glacial drift, diam 12 in, depth 132 ft, cased 120-132. MP top edge of recorder shelf, 19.88 ft below lsd. Highest water level 33.18 below lsd, Oct. 25, 1955; lowest 55.54 below lsd, July 25, 1951. Records available: 1944-56. Sept. 20, 43.17.

#### Wells County

150-70-20dad. Great Northern Ry. Dug unused water-table well in glacial drift, 5 by 5 ft, depth 12 ft, lined with wood. MP top of board cover, 2.90 ft above lsd. Highest water level 0.72 above lsd, June 11, 1956; lowest 5.80 below lsd, Mar. 16, 1953. Records available: 1951-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 2	5.03	Apr. 2	5.09	July 2	0.75	Oct. 8	3.06
9	5.14	9	4.70	9	.66	15	2.84
16	5.20	16	+.17	16	1.10	22	3.22
23	5.25	23	+.51	23	1.15	29	3.10
30	5.33	30	+.28	30	1.46	Nov. 5	2.30
Feb. 6	5.38	May 7	+.14	Aug. 6	1.97	12	1.88
13	5.40	14	+.07	13	1.99	19	2.20
20	5.44	21	.20	20	2.53	26	2.33
27	5.46	28	.34	27	3.00	Dec. 3	2.62
Mar. 5	5.47	June 4	.52	Sept. 3	2.15	10	2.84
12	5.48	11	+.72	10	2.56	17	3.33
19	5.50	18	.28	17	2.28	24	3.42
26	5.28	25	.45	24	2.80	31	3.44

150-72-28ba1. City of Harvey. Drilled public-supply water-table well in glacial drift, diam 26 in, depth 40 ft, screened 32-40. MP top of board cover level with concrete casing, 3.33 ft above lsd. Highest water level 0.44 below lsd, July 16, 1951; lowest 20.17 below lsd, Aug. 31, 1944. Records available: 1937-48, 1950-56. June 9, 4.49; Sept. 19, 6.62.

#### Williams County

159-103-24da1. Albert Fischer. Dug domestic water-table well in glacial drift, diam 18 in, depth 43 ft, slotted 35-43. MP top of platform, 0.91 ft above lsd. Highest water level 1.29 below lsd, July 5, 1953; lowest 39.66 below lsd, Mar. 15, 1941. Records available: 1939-56.

159-103-24da1--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 1	15.14	Apr. 1	16.40	July 1	16.65	Sept. 30	18.63
8	15.53	8	16.44	8	17.30	Oct. 7	18.63
15	15.70	15	16.50	15	17.60	14	18.71
22	15.90	22	16.57	22	17.85	21	18.71
29	15.84	29	16.65	29	18.65	30	18.63
Feb. 5	15.75	May 6	16.85	Aug. 5	17.67	Nov. 4	18.42
12	15.77	13	17.16	12	18.17	11	18.88
19	16.15	20	17.45	19	18.26	18	18.88
26	16.20	27	17.34	26	18.40	Dec. 2	18.59
Mar. 4	16.20	June 3	17.23	Sept. 2	18.26	9	19.09
11	16.29	10	17.45	9	18.42	16	19.09
18	16.33	17	16.57	16	18.34	23	19.09
25	16.36	24	16.33	23	18.13		

159-103-24da2. Albert Fischer. Dug stock water-table well in glacial drift, 24 by 24 in., depth 40 ft, cased to 30. MP top of platform, 1.17 ft above lsd. Highest water level 1.30 below lsd, July 5, 1953; lowest 39.0 below lsd, Dec. 28, 1940. Records available: 1938-56.

Jan. 1	13.05	Apr. 8	14.14	July 8	15.47	Sept. 30	16.70
8	13.41	15	14.32	15	15.00	Oct. 7	16.70
15	13.57	22	14.34	22	15.08	14	15.83
22	13.64	29	14.41	29	13.41	21	17.83
Feb. 5	13.47	May 6	14.96	Aug. 5	14.89	30	15.66
12	13.50	13	15.16	12	15.16	Nov. 4	15.62
19	13.60	20	15.41	19	15.25	11	16.20
26	13.92	27	16.65	26	15.47	18	16.00
Mar. 4	13.94	June 3	16.91	Sept. 2	14.88	Dec. 2	16.25
11	13.92	10	16.83	9	14.89	9	16.33
18	13.97	17	16.34	16	15.41	16	13.25
25	13.95	24	15.97	23	15.41	23	13.25
Apr. 1	14.01	July 1	15.83				

## References

- Akin, P. D., 1947, Geology and ground-water conditions at Minot, North Dakota: North Dakota Ground-Water Studies No. 6.
- Byers, A. C., Wenzel, L. K., Laird, W. M., and Dennis, P. E., 1946, Ground water in the Fargo-Moorhead area, North Dakota and Minnesota: U. S. Geol. Survey open-file rept. (mimeo.)
- Dennis, P. E., Akin, P. D., and Jones, S. L., 1950, Ground water in the Kindred area, Cass and Richland Counties, North Dakota: North Dakota Ground-Water Studies No. 14.
- Dennis, P. E., Akin, P. D., and Worts, G. F., Jr., 1949, Geology and ground-water resources of parts of Cass and Clay Counties, North Dakota and Minnesota: North Dakota Ground-Water Studies No. 11, Minnesota Ground-Water Studies No. 1.

## SOUTH DAKOTA

By R. L. Barnell

The observation-well program in South Dakota has been continued since 1946 as a part of the Missouri Basin program and since 1955 also in cooperation with the South Dakota Water Resources Commission. Figure 9 shows the location of the wells listed in this report.

### Well-Numbering System

Wells are numbered in accordance with the Bureau of Land Management's system of land subdivision. Each well number is made up of three segments. The first segment indicates the township, the second the range, and the third the section in which the well is situated. The letters after the section number, which are assigned in a counterclockwise direction as shown in the diagram on page 11, represent subdivisions of the section. The first letter denotes the 160-acre tract, the second the 40-acre tract, and the third the 10-acre tract. If the well can be located within a  $2\frac{1}{2}$ -acre tract, 4 letters are shown in the well number. The letters "A" or "D" before the township number designate a well in the northeast or southeast quadrant of the Black Hills meridian and base-line system. (If the well is in the fifth or sixth principal meridian and base-line system, no letter is included.) Numbers are added as suffixes to distinguish wells in the same tract. Thus, the number 113-65-12cdbl1 designates well 1 in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 12, T. 113 N., R. 65 W.

### Well Descriptions and Water-Level Measurements

Water levels are in feet below land-surface datum.

#### Beadle County

109-62-9ad1. Hildur Erickson. Drilled unused well in glacial drift, diam 18 in, depth 26 ft, cased to 26. Lsd 1,321.6 ft above msl. MP top of casing, 1.30 ft above lsd. Highest water level 9.95 below lsd, June 16, 1947; lowest 27.09 below lsd, Feb. 9, 1938. Records available: 1935-38, 1941, 1944, 1946-56. May 11, 17.82; Oct. 15, 17.41; Dec. 12, 18.18.

110-62-9bcc1. City of Huron. Drilled municipal artesian well in glacial drift, diam 12 in, depth 74 ft, cased to 74, perforated 38-74. Lsd 1,307 ft above msl. MP top of platform, 2.00 ft above lsd. Highest water level 10.81 below lsd, Feb. 4, 1954; lowest 16.32 below lsd, Nov. 20, 1956. Records available: 1954-56.

Water level at noon, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	13.15	.....	h13.41	13.50	d15.11	14.23	14.21	15.54	.....	16.00	15.95	15.91
10	13.24	.....	13.48	13.57	d14.64	14.28	14.11	15.70	.....	15.97	16.28	15.70
15	13.23	.....	13.55	13.59	d14.45	14.28	14.18	15.70	.....	15.95	16.29	15.60
20	13.26	.....	13.56	13.68	14.35	14.27	14.31	15.68	.....	.....	16.32	15.47
25	h13.26	.....	13.56	13.76	h14.30	h14.26	h14.47	15.70	h15.92	h15.94	16.22	15.37
Eom	13.30	.....	13.53	c18.55	14.27	14.21	15.23	.....	16.12	15.80	16.07	15.27

c Nearby well being pumped.

d Nearby well pumped recently.

h Tape measurement.

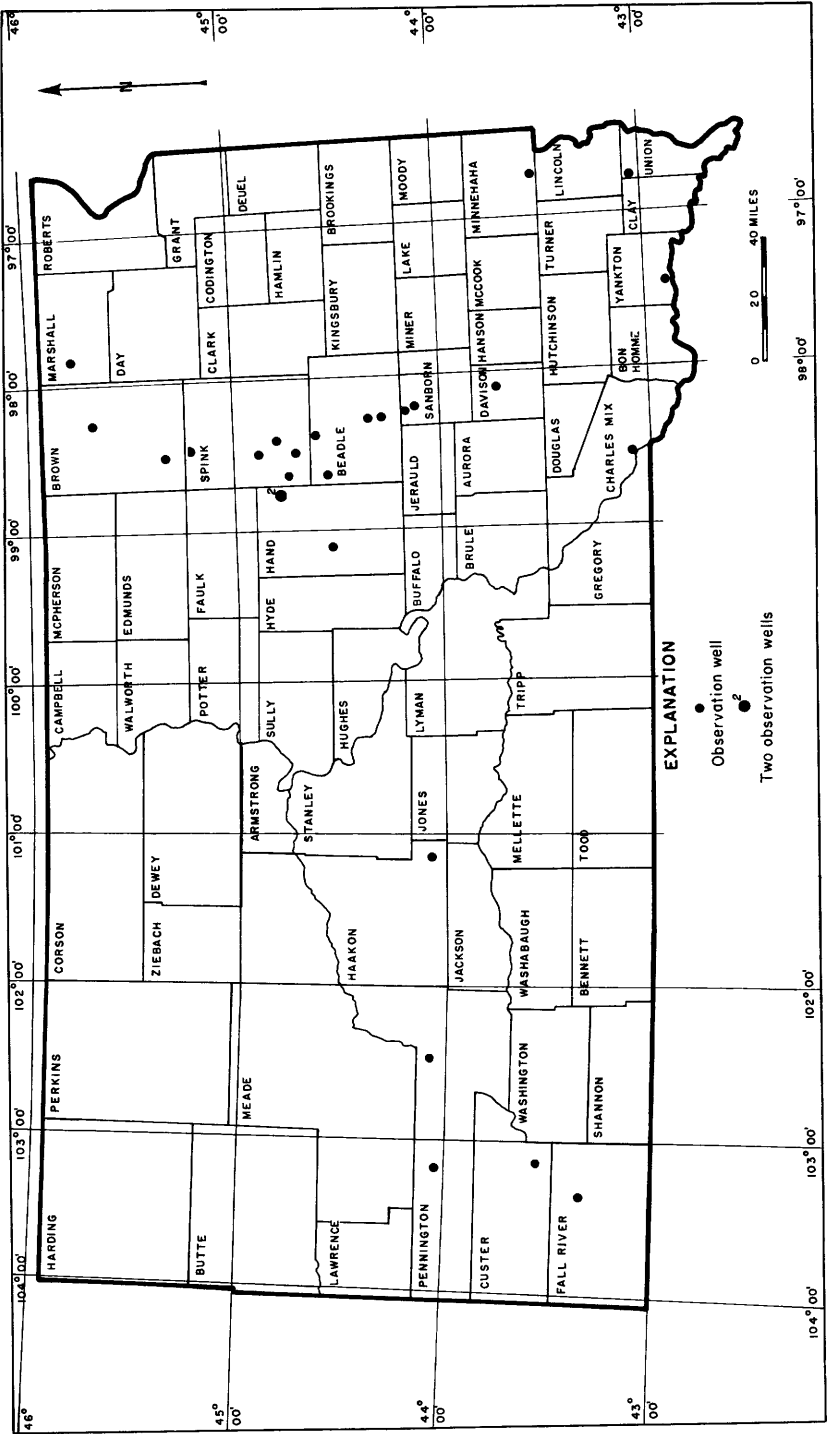


Figure 9. --Location of observation wells in South Dakota, 1956.

113-63-2bbbb1. U. S. Bureau of Reclamation. Drilled observation water-table well in glacial drift, diam 4 in, depth 155 ft, perforated 19-70. Lsd 1,307.3 ft above msl. MP top of platform, 2.50 ft above lsd. Highest water level 27.10 below lsd, Oct. 16, 1953; lowest 28.03 below lsd, Feb. 16, 21, 1953. Records available: 1953-56.

Water level at noon, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	27.58	27.61	27.61	27.72	27.77	27.74	27.78	27.81	.....	.....	27.78	27.83
10	27.63	27.62	.....	27.73	27.70	27.76	27.77	27.81	.....	.....	27.76	27.72
15	27.60	27.66	.....	27.73	27.77	27.75	27.76	27.79	.....	.....	27.80	27.82
20	27.62	27.66	.....	27.77	27.75	27.75	27.78	27.82	.....	.....	27.77	27.79
25	h27.63	27.61	.....	27.77	h27.75	h27.76	h27.77	27.77	.....	h27.78	27.82	27.82
Eom	27.65	27.61	27.68	27.77	27.78	27.75	27.80	.....	.....	27.75	27.81	27.83

h Tape measurement.

113-65-34cccc2. U. S. Bureau of Reclamation. Drilled observation water-table well in glacial drift, diam 1 in, depth 40 ft, perforated 1-40. Lsd 1,380.4 ft above msl. MP top of casing, 1.00 ft below lsd. Highest water level 4.77 below lsd, May 4, 1953; lowest 18.90 below lsd, Dec. 31, 1955. Records available: 1950-56. Mar. 27, 10.65; May 29, 13.27; June 29, 14.46; Aug. 21, 15.62; Nov. 20, 17.04.

#### Brown County

122-64-36ccdd1. U. S. Bureau of Reclamation. Drilled observation water-table well in lake sediments of Pleistocene age, diam 4 in, depth 48 ft, perforated 6-48. Lsd 1,298.7 ft above msl. MP top of platform, 3.10 ft above lsd. Highest water level 13.8 below lsd, July 3, 1953; lowest 21.86 below lsd, Dec. 17, 1956. Records available: 1953-56.

Water level at noon, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	h21.23	.....	.....	.....	19.00	18.51	19.26	20.42	21.15	h21.46	21.58	21.78
10	.....	.....	.....	20.78	18.43	18.59	19.51	20.58	21.17	21.55	21.58	21.68
15	.....	.....	.....	19.86	18.68	18.62	.....	20.73	21.17	21.61	21.66	21.79
20	.....	.....	.....	19.47	18.55	18.69	19.91	20.87	21.30	21.66	21.68	21.82
25	.....	.....	.....	19.30	18.50	18.79	19.97	20.95	21.33	21.58	21.72	21.85
Eom	.....	.....	.....	19.16	18.67	18.98	20.31	20.99	21.43	21.61	21.68	21.84

h Tape measurement.

126-62-34ab1. U. S. Geol. Survey. Jetted observation water-table well in glacial drift, diam  $\frac{1}{2}$  in, depth 16 ft, screened 15 $\frac{1}{2}$ -16. Lsd 1,290.5 ft above msl. MP top of casing, 5.40 ft above lsd. Highest water level 2.51 below lsd, June 2, 1951; lowest 9.38 below lsd, Oct. 10, 1956. Records available: 1950-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 26	8.61	Apr. 11	6.95	June 22	7.65	Oct. 10	9.38
Feb. 28	8.76	May 22	7.17	Aug. 29	9.14	Dec. 18	9.04

#### Charles Mix County

95-65-9aacd1. U. S. Army Corps of Engineers. Drilled unused artesian well in Codell sandstone member of Carlile shale, diam 12 to 8 in, depth 380 ft, cased to 350. Lsd 1,474.9 ft above msl. MP top of platform, 3.00 ft above lsd. Highest water level 213.22 below lsd, Aug. 27, 1956; lowest 236.66 below lsd, Apr. 19, 1953. Records available: 1952-56.

95-65-9aacd1--Continued.

## Water level at noon, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	214.70	214.48	214.44	214.21	213.70	213.64	213.57	213.46	213.68	214.01	215.58	216.31
10	214.94	214.53	214.66	214.22	213.50	213.69	213.62	213.46	213.52	214.27	215.63	215.99
15	214.73	214.67	214.65	214.04	213.86	213.86	213.55	213.30	213.50	214.49	215.91	216.35
20	214.67	214.67	214.54	214.10	213.70	213.45	213.58	213.47	213.63	214.85	216.00	216.35
25	214.64	214.50	214.55	214.03	213.69	213.52	213.50	213.30	213.82	215.10	216.18	216.44
Eom	214.84	214.59	214.35	213.99	213.83	213.32	213.52	213.43	213.85	215.34	216.17	216.49

h Tape measurement.

Custer County

D-6-8-26aac1. W. B. Englebrecht. Dug unused water-table well in terrace sand and gravel of Quaternary age, diam 4 ft, depth 38 ft, cribbed with rock to 36. Lsd 3,041.0 ft above msl. MP top of cover, 0.30 ft above lsd. Highest water level 31.41 below lsd, July 2, 1947; lowest 37.48 below lsd, Sept. 5, 1946. Records available: 1946-52, 1954-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 17	31.56	Apr. 14	31.48	June 26	32.67	Sept. 27	32.47
Mar. 14	31.46	May 15	32.68	July 20	32.61	Nov. 20	32.63

Davison County

103-61-13ca1. H. J. Carstens. Dug domestic water-table well in glacial drift, diam 30 in, depth 24 ft, cribbed with rock to 24. MP top of cover, at lsd. Highest water level 6.42 below lsd, Feb. 27, 1952; lowest 13.94 below lsd, Oct. 30, 1956. Records available: 1950-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 15	11.90	Apr. 10	10.37	July 25	12.85	Sept. 12	13.14
Mar. 9	12.47	May 21	10.49	Aug. 14	13.10	Oct. 30	13.94
21	12.12	July 5	12.57	28	12.81	Dec. 10	13.33

Fall River County

D-8-6-13bad1. H. J. Larson. Dug domestic water-table well in eolian sand of Quaternary age, diam 24 in, depth 13 ft, cribbed with rock to 13. Lsd 3,213.1 ft above msl. MP top of curb, 0.30 ft above lsd. Highest water level 6.70 below lsd, Aug. 4, 1947; lowest 11.28 below lsd, July 15, 1955. Records available: 1946-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 17	10.73	Apr. 14	10.90	June 26	10.36	Sept. 27	11.17
Mar. 15	10.75	May 15	10.82	July 24	10.77	Nov. 21	11.00

Haakon County

A-1-25-6dd1. A. Elrod. Dug stock water-table well, diam 24 in, depth 30 ft, cribbed with wood to 30. MP pump base, 0.90 ft above lsd. Highest water level 20.40 below lsd, May 13, 1953; lowest 23.95 below lsd, Feb. 5, 1951. Records available: 1946-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 11	22.96	Apr. 19	22.69	July 9	22.95	Oct. 9	23.20
Feb. 7	22.86	24	22.67	25	22.93	24	23.15
Mar. 1	22.86	May 15	22.71	Aug. 7	23.01	29	23.20
15	22.85	28	22.66	20	23.03	Nov. 26	23.21
19	22.82	June 11	22.76	Sept. 10	23.09	Dec. 17	23.26
Apr. 4	22.62	26	22.86				

Hand County

112-69-3dc1. C. Losey. Dug stock water-table well in glacial drift, diam 4 ft, depth 21 ft, cribbed with brick to 21. MP top of casing, at lsd. Highest water level 2.41 below lsd, May 5, 1953; lowest 19.42 below lsd, Nov. 28, 1948. Records available: 1946-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 19	9.50	May 14	5.46	Aug. 6	5.73	Oct. 15	7.92
Feb. 14	8.41	June 5	6.21	27	6.28	Nov. 6	7.04
Mar. 13	10.16	July 16	5.77	Sept. 17	7.10	Dec. 3	7.11
Apr. 25	4.57						



115-66-2aaaa1. U. S. Bureau of Reclamation. Drilled observation artesian well in glacial drift, diam 4 in, depth 149 ft, cased to 62, perforated 40-61, seal set at 40. Lsd 1,359.65 ft above msl. MP top of platform, 2.70 ft above lsd. Highest water level 19.98 below lsd, Aug. 29, 1953; lowest 23.98 below lsd, Mar. 11, 1956. Records available: 1953-56.

Water level at noon, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	23.03	23.30	23.51	23.73	23.63	23.38	23.13	22.80	.....	22.87	23.19	23.50
10	23.48	23.38	23.80	23.81	23.40	23.45	22.94	22.82	.....	23.08	23.08	22.95
15	23.27	23.61	23.82	23.74	23.77	23.39	22.93	22.72	.....	23.09	23.38	23.50
20	23.34	23.69	23.72	23.75	23.60	23.28	22.89	22.84	.....	23.17	23.27	23.40
25	h23.39	23.48	23.72	23.74	h23.53	23.18	h22.70	22.67	h22.97	h23.01	23.55	23.57
Eom	23.63	23.59	23.62	23.88	23.72	23.11	22.90	.....	22.85	23.03	23.34	23.59

h Tape measurement.

115-66-2aaaa3. U. S. Bureau of Reclamation. Jetted observation water-table well in glacial drift, diam 4 in, depth 26 ft, screened 14½-15, perforated 0-26. Lsd 1,355.9 ft above msl. MP top of platform, 1.50 ft above lsd. Highest water level 16.36 below lsd, Sept. 29, 1954; lowest 22.50 below lsd, Apr. 10, 1956. Records available: 1954-56.

Water level at noon, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	21.12	.....	21.63	.....	22.12	21.82	21.36	20.59	20.58	20.46	20.74	21.01
10	21.40	.....	21.84	22.50	21.93	21.81	21.15	20.54	20.45	20.63	20.72	20.84
15	21.28	.....	22.00	22.20	22.21	21.74	20.97	20.48	20.35	20.59	20.85	21.06
20	21.40	.....	21.90	22.41	22.08	21.59	20.86	20.52	20.43	20.65	20.94	21.12
25	h21.45	21.57	21.95	22.23	h21.99	h21.52	h20.70	20.40	h20.46	20.52	21.00	21.16
Eom	.....	21.72	.....	22.33	22.06	21.38	20.69	20.33	20.49	20.62	20.90	21.19

h Tape measurement.

#### Marshall County

127-58-19cc1. U. S. Geol. Survey. Jetted observation water-table well in glacial drift, diam 3 in, depth 15 ft, screened 14½-15. Lsd 1,291.6 ft above msl. MP top of casing, 3.40 ft above lsd. Highest water level 1.89 below lsd, May 27, 1952; lowest 9.40 below lsd, Oct. 9, 1956. Records available: 1950-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 27	8.75	Apr. 12	6.89	June 21	7.53	Oct. 9	9.40
Feb. 28	8.83	May 22	6.78	Aug. 27	9.02	Dec. 19	9.34

#### Minnehaha County

101-49-33bb1. C. Donaldson. Dug unused water-table well, diam 30 in, depth 12 ft, cased to 12. MP top of casing, 0.70 ft above lsd. Highest water level 7.34 below lsd, Apr. 30, 1952; lowest 13.40 below lsd, Sept. 14, 1955. Records available: 1946-56.

Feb. 1	10.44	Apr. 26	10.78	July 25	10.49	Oct. 3	10.92
Mar. 2	10.88	May 22	10.38	Aug. 21	10.41	31	11.05
28	10.65	July 10	10.23	Sept. 14	10.79	Dec. 11	11.07

#### Pennington County

A-1-8-17ddd1. E. H. Hoff. Dug unused water-table well in alluvial sand and gravel, diam 5 ft, depth 16 ft, cribbed with rock to 16. MP top of cover, 0.60 ft above lsd. Highest water level 3.58 below lsd, May 19, 1950; lowest 17.27 below lsd, Mar. 14, 1956. Records available: 1946-56.

Jan. 18	15.40	May 23	12.99	July 23	13.32	Oct. 29	16.12
Feb. 21	16.17	25	13.52	Aug. 23	13.49	Nov. 28	15.45
Mar. 14	17.27	June 27	11.58	Sept. 26	15.19		

A-2-14-29cdcc1. Previously reported as A-1-14-29cdcc1. M. Trask. Dug stock water-table well, diam 36 in, depth 14 ft, cribbed with wood to 14. MP pump base, 0.20 ft above lsd. Highest water level 1.54 below lsd, Mar. 9, 1949; lowest 10.94 below lsd, Aug. 12, 1955. Records available: 1946-56.

Mar. 13	7.55	June 25	5.75	Sept. 18	7.36	Nov. 27	6.23
May 5	5.00	July 23	7.38	Oct. 30	7.26	Dec. 27	6.98
22	3.80	Aug. 20	7.24				

Sanborn County

108-61-31bc1. George Doering. Drilled domestic artesian well in Niobrara formation, diam 3 in, depth 150 ft. MP top of casing, 0.50 ft above lsd. Highest water level 6.16 below lsd, June 13, 1946; lowest 11.63 below lsd, Oct. 15, 1956. Records available: 1946-47, 1949-56. Jan. 3, 11.60; May 11, 11.20; Oct. 15, 11.63; Dec. 12, 11.42.

108-62-1cc1. Mrs. A. Nielson. Dug domestic well in glacial drift, diam 36 in, depth 53 ft, cribbed with rock to 53. MP pump base, 1.50 ft above lsd. Highest water level 33.80 below lsd, June 4, 1947; lowest 49.78 below lsd, Dec. 12, 1956. Records available: 1947-56. Jan. 3, 49.01; Oct. 15, 48.89; Dec. 12, 49.78.

Spink County

114-64-11bbbb1. U. S. Bureau of Reclamation. Drilled observation artesian well in glacial drift, diam 4 in, depth 60 ft, perforated 20-60. Lsd 1,310.8 ft above msl. MP top of platform, 3.20 ft above lsd. Highest water level 3.98 below lsd, June 20, July 1-2, 1953; lowest 10.09 below lsd, July 29-30, 1956. Records available: 1953-56.

Water level at noon, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	7.98	8.06	8.12	....	7.66	7.84	8.43	8.97	....	8.30	8.25	8.19
10	8.06	8.08	8.14	....	7.58	8.10	....	8.61	....	8.35	8.24	8.14
15	8.01	8.10	8.20	....	7.65	8.39	9.18	8.33	....	8.33	8.21	8.19
20	8.05	8.11	8.18	....	7.65	8.00	9.92	8.25	....	8.35	8.22	8.20
25	h8.04	8.09	8.05	....	h7.66	h7.90	9.78	8.18	h8.30	h8.26	8.23	8.20
Eom	8.10	8.13	7.93	7.71	7.71	7.95	9.85	....	8.29	8.26	8.20	8.19

h Tape measurement.

115-63-4aaa1. U. S. Bureau of Reclamation. Drilled observation water-table well in lake sediments of Pleistocene age, diam 1½ in, depth 24 ft, cased to 24. Lsd 1,293.8 ft above msl. MP top of casing, 1.20 ft above lsd. Highest water level 10.80 below lsd, July 26, Aug. 26, 1948; lowest 17.60 below lsd, Sept. 22, 1950. Records available: 1948-56. Mar. 23, 16.31; Apr. 26, 16.52; May 21, 16.73; May 28, 16.80; June 25, 16.89; Aug. 30, 14.80; Nov. 29, 14.13.

115-65-28aaa1. U. S. Bureau of Reclamation. Drilled observation artesian well in glacial drift, diam 8 in, depth 107 ft, cased to 105, perforated 58-105, seal set at 58. Lsd 1,340.4 ft above msl. MP top of platform, 3.00 ft above lsd. Highest water level 22.02 below lsd, June 27, 1953; lowest 26.06 below lsd, Aug. 1, 1956. Records available: 1951-56.

Water level at noon, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	24.68	24.71	24.69	24.46	24.44	24.48	c24.99	.....	.....	25.19	25.16	25.06
10	24.71	24.72	24.73	24.49	24.38	24.55	.....	.....	.....	25.20	25.13	25.01
15	24.71	24.70	24.77	24.44	24.45	24.43	.....	.....	.....	25.22	25.09	25.07
20	24.71	24.70	24.70	24.48	24.46	24.43	.....	.....	.....	25.61	25.08	25.09
25	h24.69	24.68	24.64	24.45	h24.48	h24.39	h25.83	.....	25.22	h25.30	25.10	25.08
Eom	24.72	24.71	24.54	24.45	24.47	c24.71	c25.94	.....	25.21	25.21	25.08	25.07

c Nearby irrigation well being pumped.

h Tape measurement.

116-64-3db1. L. J. Hillested. Dug domestic water-table well in glacial drift, diam 18 in, depth 22 ft, cased to 22. MP pump base, 2.20 ft above lsd. Highest water level 9.86 below lsd, July 3, 1953; lowest 13.78 below lsd, Mar. 18, 1951. Records available: 1946-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 17	12.60	Apr. 24	12.65	July 17	11.73	Oct. 15	12.58
Feb. 14	12.70	May 15	12.57	Aug. 6	11.87	Nov. 6	12.61
Mar. 13	12.78	June 6	12.47	27	12.05	Dec. 3	12.63
Apr. 5	12.84	25	11.82	Sept. 17	12.35		

120-63-6bbbb1. U. S. Bureau of Reclamation. Drilled observation water-table well in lake sediments of Pleistocene age, diam 1½ in, depth 24 ft, cased to 24. Lsd 1,297.4 ft above msl. MP top of casing, 1.50 ft above lsd. Highest water level 16.52 below lsd, July 15, 1954; lowest 21.00 below lsd, Apr. 20, 1950. Records available: 1948-52, 1954-56.

Jan. 31	18.55	May 21	18.78	June 21	18.74	Aug. 29	18.89
Feb. 15	18.65	24	18.78	July 26	18.79	Oct. 4	19.05
Mar. 22	18.86	June 19	18.75	Aug. 27	18.87	Nov. 28	19.26

Union County

95-50-8ab1. J. J. Dolan. Dug unused well in sand and gravel of Pleistocene age, diam 24 in, depth 42 ft, cased to 42. MP top of casing, 2.50 ft above lsd. Highest water level 0.51 below lsd, Apr. 11, 1947; lowest 13.84 below lsd, Dec. 27, 1956. Records available: 1936-44, 1946-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 1	12.43	Mar. 28	12.81	Sept. 20	12.66	Nov. 26	13.50
Mar. 2	12.66	June 7	12.30	Oct. 5	12.85	Dec. 27	13.84

Yankton County

93-56-14aa1. Mrs. J. N. Kayser. Drilled well, depth 80 ft. MP, pump base, 1.20 ft above lsd. Highest water level 37.52 below lsd, June 26, 1951; lowest 47.52 below lsd, June 11, 1947. Records available: 1946-56.

Feb. 2	a45.56	June 4	a42.90	Sept. 20	46.70	Nov. 27	46.57
Mar. 6	b44.38	Aug. 29	46.32	Oct. 24	46.53	Dec. 28	46.55
28	45.88						

a Well being pumped.

b Well pumped recently.

## References

- Davis, R. W., 1957, Records of selected artesian wells in South Dakota: U. S. Geol. Survey open-file rept.
- Koopman, F. C., 1957, Ground water in the Crow Creek-Sand Lake area, Brown and Marshall Counties, South Dakota: U. S. Geol. Survey Water-Supply Paper 1425.
- Littleton, R. T., 1949, Geology and ground-water hydrology of the Angostura irrigation project, South Dakota, with a section on the mineral quality of the waters, by H. A. Swenson: U. S. Geol. Survey Circ. 54.
- Maclay, R. W., 1952, Occurrence of ground water in the Cheyenne River and Standing Rock Indian Reservations, North and South Dakota: U. S. Geol. Survey open-file rept.
- Rosier, A. J., 1951, Reconnaissance of the geology and ground-water hydrology of the Belle Fourche irrigation project, South Dakota: U. S. Geol. Survey open-file rept. [1952].
- Tychsen, P. C., and Vorhis, R. C., 1955, Reconnaissance of geology and ground water in the lower Grand River valley, South Dakota: U. S. Geol. Survey Water-Supply Paper 1298.

## WISCONSIN

By R. E. Audini

The observation-well program was continued in 1956 in cooperation with the University of Wisconsin, Wisconsin Geological and Natural History Survey. The State Conservation Department measured 6 wells in the State. One well in Forest County and one well in Marinette County, both near the Michigan boundary, were measured as part of the ground-water studies in the Northern Peninsula of Michigan. Figure 10 shows the location of observation wells included in this report.

### Well-Numbering System

Wells are designated by abbreviations derived from county names and by serial numbers. For example, Ad 2 designates well 2 in Adams County.

### Well Descriptions and Water-Level Measurements

Water levels are in feet below land-surface datum unless otherwise indicated.

#### Adams County

Ad 2. Wisconsin Conservation Dept. NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 5, T. 17 N., R. 6 E. Jetted observation water-table well in sand of Pleistocene age, diam 2 in, depth 21 ft, well point 19-21. MP top of casing, 1.70 ft above lsd. Highest water level 12.96 below lsd, Aug. 18, 1952; lowest 16.69 below lsd, May 3, 1954. Records available: 1952-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 30	15.94	Apr. 9	16.62	July 3	15.44	Oct. 29	15.38
Feb. 27	16.30	May 7	16.31	Aug. 6	15.25	Nov. 26	15.47
Mar. 26	16.57	June 4	15.75	Sept. 24	15.22	Dec. 24	15.48

#### Ashland County

As 1. Lake Superior District Power Co. NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 6, T. 46 N., R. 4 W. Drilled unused water-table well in sandstone, diam 4 in, reported depth 90 ft, cased to 15. MP top of casing, 0.75 ft above lsd. Highest water level 1.05 below lsd, Apr. 10, 1950, Mar. 23, 1953; lowest 4.15 below lsd, Sept. 27, 1948. Records available: 1943-45, 1947-55. No measurement made in 1956.

#### Brown County

Bn 43. Harry Nick. SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 2, T. 24 N., R. 20 E. Drilled unused artesian well in St. Peter sandstone, diam 5 in, depth 297 ft, reportedly cased to 60. MP top of 1 $\frac{1}{2}$ -in pipe, 2.00 ft above lsd. Highest water level 7.72 below lsd, Mar. 18, 1948; lowest 63.99 below lsd, Sept. 25, 1956. Records available: 1948-56. Jan. 10, 54.03; Mar. 22, 51.76; May 23, 51.42; July 26, 56.32; Sept. 25, 63.99; Nov. 28, 61.21.

Bn 76. Wisconsin Public Service Corp. SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 24, T. 24 N., R. 20 E. Drilled unused artesian well in sandstone, diam 5 in, reported depth 500 ft, cased to 150. MP top of 3-in pipe, 4.00 ft above lsd. Highest water level 166.33 below lsd, Apr. 26, 1950; lowest 248.97 below lsd, Aug. 30, 1955. Records available: 1950-56. Jan. 10, 218.60; Mar. 22, 220.03; May 23, 222.25; July 25, 237.54; Sept. 25, 248.74; Nov. 28, 234.59.

#### Burnett County

Bt 2. Wisconsin Conservation Dept. NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 17, T. 39 N., R. 16 W. Drilled observation water-table well in sand of Pleistocene age, diam 8 in, depth 46 ft, perforated 44 $\frac{1}{2}$ -46. Lsd 980 ft above msl. MP pointer on float gage, 4.87 ft above lsd. Highest water level 31.16 below lsd, July 20, 1952; lowest 34.99 below lsd, Mar. 25, 1951. Records available: 1937-56.

## Bt 2--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 13	32.67	Apr. 27	32.71	July 6	32.77	Oct. 5	32.68
Feb. 17	32.64	May 25	32.71	Aug. 10	32.75	Nov. 9	32.68
Mar. 23	32.68	June 29	32.75	Sept. 7	32.74	Dec. 28	32.57

Clark County

Ck 1. Wisconsin Conservation Dept. North Mound Tower. SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 4, T. 26 N., R. 3 W. Drilled domestic artesian well in sandstone of Cambrian age, diam 6 in, reported depth 150 ft, cased to 53. MP hole in pump base, at lsd. Highest water level 64.84 below lsd, Aug. 13, 1956; lowest 67.80 below lsd, July 7, 1954. Records available: 1953-56. Feb. 22, 65.83; Apr. 26, 65.78; July 12, 65.05; Aug. 13, 64.84; Dec. 19, 65.64.

Columbia County

Co 22. Wisconsin Fur and Game Farm. NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 36, T. 11 N., R. 9 E. Drilled unused water-table well in sandstone, diam 6 in, depth 75 ft. MP rim of casing, at lsd. Highest water level 50.92 below lsd, Oct. 13, 1955; lowest 56.30 below lsd, Aug. 5, 1955. Records available: 1949-56. Jan. 6, 53.21; Mar. 14, 52.35; May 15, 52.02; July 17, 52.20; Sept. 18, 52.48; Dec. 10, 52.77.

Co 28. Flanders. SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 5, T. 12 N., R. 9 E. Drilled unused water-table well in sandstone, diam 6 in, depth 71 ft. MP top of casing, 2.00 ft above lsd. Highest water level 0.13 below lsd, Apr. 25, 1951; lowest 2.66 below lsd, Feb. 6-7, 1950. Records available: 1949-55. No measurement made in 1956.

Dane County

Dn 5. State of Wisconsin. South wing of State Capitol Bldg. NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 23, T. 7 N., R. 9 E. Drilled unused artesian well in sandstone of Cambrian age, diam 8 in, depth 316 ft (previously reported as 1,015), cased to 265. MP top of pipe tee, 3.50 ft below lsd. Highest water level 78.59 below lsd, Dec. 3, 1956; lowest 105.28 below lsd, July 21, 1946. Records available: 1946-54, 1956. Nov. 30, 78.66; Dec. 3, 78.59; Dec. 31, 79.22.

Dodge County

Dg 4. City of Horicon. NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 5, T. 11 N., R. 16 E. Drilled unused artesian well in sandstone, diam 8 in, depth 475 ft (previously reported as 650), cased to 140. Lsd 980 ft above msl. MP top of concrete floor, 5.00 ft below lsd. Highest water level 114.10 below lsd, Apr. 24, 1955; lowest 122.57 below lsd, Sept. 18, 1953. Records available: 1947-56.

## Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	116.92	117.01	117.20	116.40	116.95	116.31	119.02	117.10	118.13	117.33	116.71	116.30
10	117.22	117.50	117.00	116.53	115.50	116.74	118.63	116.90	117.99	117.12	116.60	115.78
15	117.00	117.50	117.35	116.20	115.50	117.00	117.68	118.38	118.39	117.42	116.00	116.22
20	117.04	117.31	117.20	116.52	115.71	116.19	118.02	117.40	117.31	117.41	115.98	116.46
25	117.27	117.45	116.67	116.87	115.97	117.30	117.30	118.51	117.64	117.21	115.98	116.01
Eom	117.53	117.51	116.77	116.48	116.11	116.89	117.90	118.15	116.50	117.48	116.20	116.22

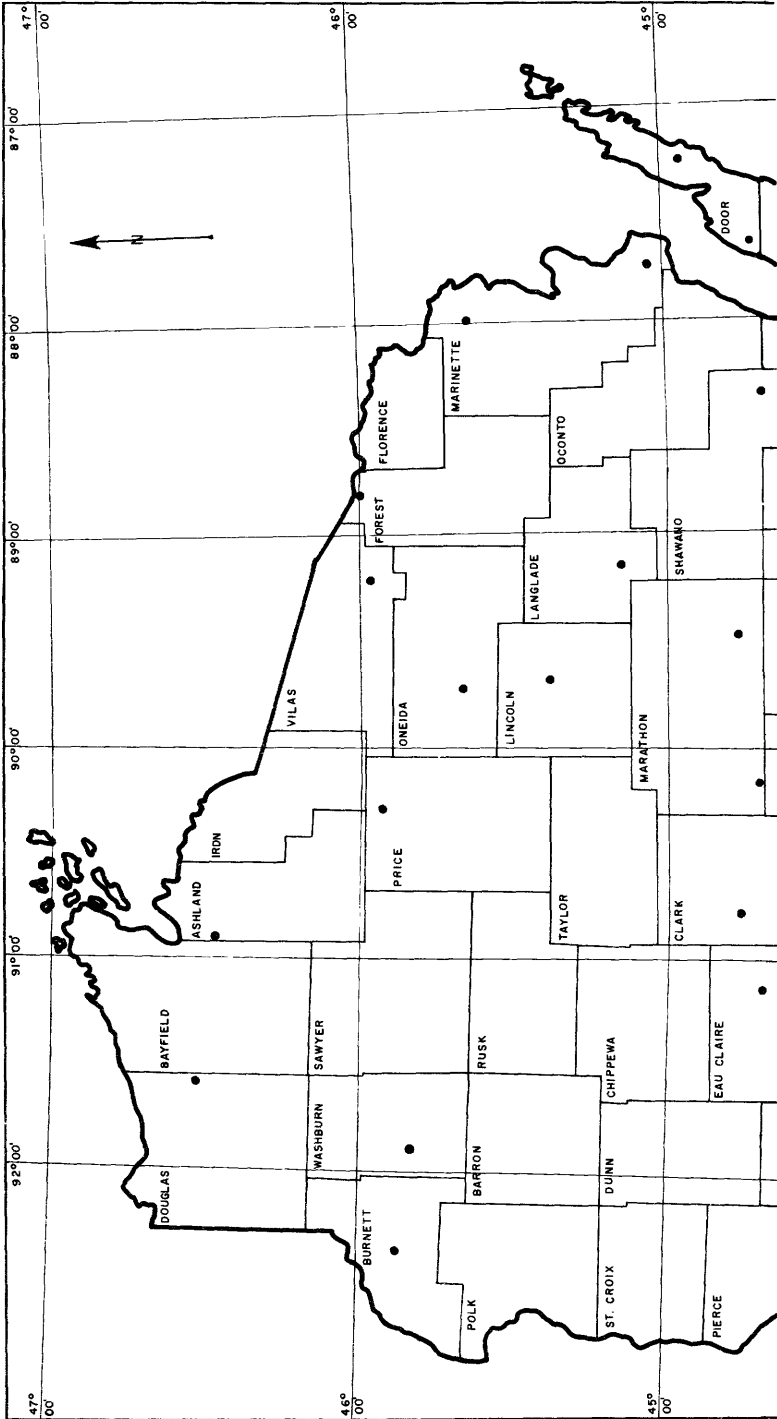
Door County

Dr 7. Fred Peterson. NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 30, T. 29 N., R. 27 E. Drilled unused artesian well in Niagara dolomite, diam 4 in, depth 111 ft. MP hole in pump base, 1.00 ft above lsd. Highest water level 12.18 below lsd, Mar. 24, 1947; lowest 52.40 below lsd, Dec. 7, 1949. Records available: 1946-56. Jan. 10, 46.36; Mar. 21, 45.34; May 23, 38.54; July 25, 29.24; Sept. 25, 46.40; Nov. 28, 45.69.

Dr 11. Wilfred LeMense. NW $\frac{1}{4}$ SW $\frac{1}{4}$  (previously shown as SW $\frac{1}{4}$ SW $\frac{1}{4}$ ) sec. 22, T. 26 N., R. 23 E. Drilled stock artesian well in sandstone and Niagara dolomite, diam 6 in, reported depth 816 ft, cased to 60. Lsd 630 ft above msl. MP hole in side of casing, 1.00 ft above lsd. Highest water level 40.95 below lsd, Oct. 25, 1955; lowest 60.49 below lsd, Nov. 28, 1956. Records available: 1950-56. Jan. 10, 56.44; Mar. 22; 57.10; May 23, 57.68; July 25, 57.70; Sept. 25, 58.13; Nov. 28, 60.49.

Douglas County

Ds 1. Wisconsin Conservation Dept. NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 23, T. 47 N., R. 10 W. Drilled observation artesian well in sand, diam 8 in, depth 40 ft, cased to 40. Lsd 980 ft above msl. MP pointer on float gage, 4.33 ft above lsd. Highest water level 25.51 below lsd, Apr. 3, 1953; lowest 29.59 below lsd, July 29, 1939. Records available: 1937-41, 1944-56.



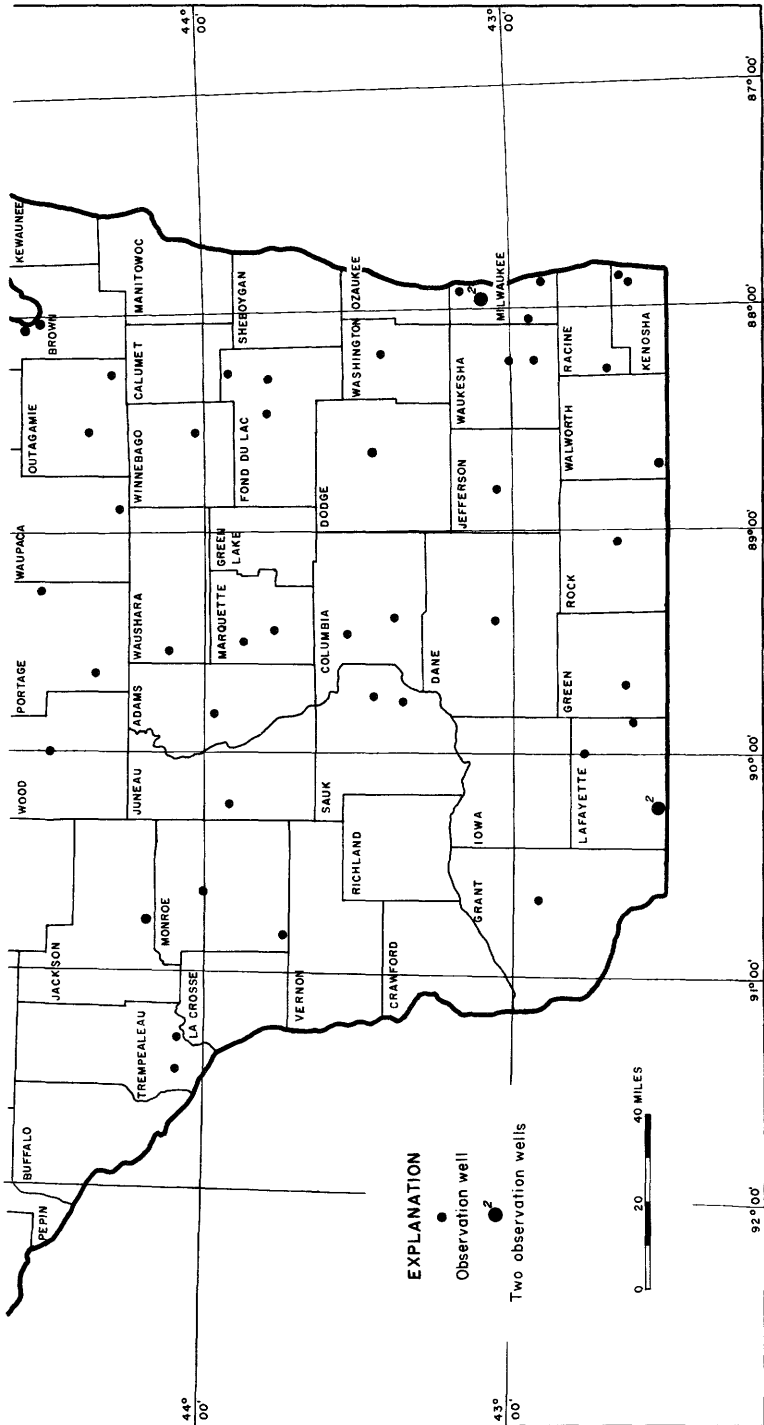


Figure 10. --Location of observation wells in Wisconsin, 1956.

Ds 1--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 27	27.19	Apr. 27	27.15	July 20	27.41	Oct. 26	27.49
Feb. 24	27.23	May 25	27.21	Aug. 31	27.44	Nov. 30	27.49
Mar. 30	27.35	June 29	27.36	Sept. 28	27.47	Dec. 28	27.53

Eau Claire County

EC 13. Eau Claire County. SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 32, T. 26 N., R. 6 W. Driven unused water-table well in alluvium, diam 1 $\frac{1}{4}$  in, depth 26 ft, well point 24-26. MP top of second block of cribbing, at lsd. Highest water level 10.86 below lsd, Apr. 26, 1956; lowest 14.98 below lsd, Nov. 29, 1951. Records available: 1951-56. Feb. 22, 14.12; Apr. 26, 10.86; July 11, 12.83; Aug. 13, 13.35; Dec. 19, 14.06.

Fond du Lac County

FL 19. John Steffin. NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 30, T. 17 N., R. 19 E. Drilled stock artesian well in sandstone, diam 6 to 4 in, reported depth 695 ft, cased to 590. Lsd 895 ft above msl. MP top of casing, 1.50 ft above lsd. Highest water level 132.75 below lsd, Jan. 8, 1948; lowest 147.44 below lsd, Mar. 14, 1955. Records available: 1948-56. Jan. 9, 144.55; Mar. 21, 144.57; May 22, 144.37; July 26, 145.62; Sept. 24, 145.55; Nov. 27, 145.19.

FL 20. City of Fond du Lac. SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 3, T. 15 N., R. 17 E. Drilled unused artesian well in sandstone, diam 6 in, reported depth 765 ft (previously reported as 700), cased to 60. Lsd 750 ft above msl. MP top of casing, 2.00 ft above lsd. Highest water level 61.77 below lsd, Apr. 22, 1952; lowest 85.09 below lsd, July 30, 1954. Records available: 1950-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	77.39	80.32	e80.00	80.84	e80.60	78.08	75.40	71.15	66.70	66.29	65.00	64.07
10	78.67	80.37	e80.00	82.10	e80.40	78.08	73.35	70.20	72.32	64.99	64.70	63.94
15	78.85	80.53	e80.00	80.97	e80.20	78.63	71.72	69.73	71.50	64.70	64.47	63.84
20	80.00	80.31	80.51	e81.50	e80.00	78.27	69.84	69.02	68.90	64.02	64.08	63.68
25	81.28	79.73	e81.10	e81.00	79.70	78.31	70.30	68.48	65.59	66.10	64.72	64.28
Eom	79.74	e80.00	e80.90	e80.80	78.80	77.53	71.77	68.78	65.30	65.45	64.30	64.16

e Estimated.

FL 300. City of Fond du Lac. NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 11, T. 15 N., R. 18 E. Drilled observation artesian well in Niagara dolomite, diam 8 to 6 in, depth 135 ft, cased to 16. Lsd 995 ft above msl. MP top of casing, 1.00 ft above lsd. Highest water level 2.03 below lsd, Sept. 6, 1956; lowest 5.93 below lsd, May 7, 1956. Records available: 1956.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 7	5.93	Aug. 1	3.74	Sept. 30	3.13	Nov. 3	4.09
June 30	4.53	Sept. 6	2.03	Oct. 31	3.96	Dec. 18	3.98
July 12	5.55						

Forest County

Fr 2. Wisconsin State Highway Comm. Wisconsin-Michigan Power Co. Brule River Profile well 5. NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 18, T. 41 N., R. 14 E. Driven observation water-table well in sand and gravel, diam 1 $\frac{1}{4}$  in, depth 18 ft, well point 15-18. Lsd 1,551.69 ft above msl. MP top of casing, 1.70 ft above lsd. Highest water level 7.96 below lsd, Apr. 29, 1954; lowest 11.88 below lsd, May 16, 1949. Records available: 1948-56.

Jan. 30	10.55	Apr. 30	11.01	Aug. 1	11.00	Nov. 1	11.58
Feb. 28	10.59	May 31	10.81	Sept. 1	11.34	30	11.26
Mar. 29	10.50	July 3	10.41	Oct. 1	11.46		

Grant County

Gr 5. Oscar Gilbertson. SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 6, T. 5 N., R. 2 W. Drilled unused water-table well in limestone, diam 5 in, depth 35 ft, cased to 5. MP edge of pump base, 0.50 ft above lsd. Highest water level 8.90 below lsd, July 16, 1947; lowest 17.33 below lsd, Feb. 28, 1950. Records available: 1946-56. Feb. 14, 15.35; Apr. 12, 15.14; June 12, 15.70; Aug. 8, 15.99; Oct. 25, 16.86.



Green County

Gn 1. Charles Segner. NW $\frac{1}{4}$ NW $\frac{1}{4}$  (previously shown as NE $\frac{1}{4}$ NE $\frac{1}{4}$ ) sec. 21, T. 2 N., R. 7 E. Drilled unused water-table well in Platteville formation, diam 6 in, depth 71 ft. MP hole in pump base, 0.50 ft above lsd. Highest water level 50.33 below lsd, May 20, 1948; lowest 67.33 below lsd, Oct. 25, 1956. Records available: 1946-56. Feb. 14, 65.07; Apr. 12, 64.05; June 12, 64.28; Aug. 8, 65.33; Oct. 25, 67.33.

Jackson County

Ja 5. Henry Lange. NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 30, T. 20 N., R. 3 W. Drilled domestic artesian well in sandstone of Cambrian age, diam 10 in, reported depth 190 ft, cased to 54. MP hole in pump base, at lsd. Highest water level 16.99 below lsd, Oct. 21, 1954; lowest 20.98 below lsd, Mar. 24, 1954. Records available: 1953-56. Feb. 22, 20.75; Apr. 26, 19.69; July 12, 19.48; Sept. 13, 20.01; Dec. 19, 20.81.

Jefferson County

Je 9. Chicago & North Western Ry. SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 25, T. 7 N., R. 14 E. Drilled railroad artesian well in sandstone, diam 8 in, reported depth 716 ft, cased to 326. Lsd 813 ft above msl. MP pump base, 2.10 ft above lsd. Highest water level 15.16 below lsd, Feb. 28, 1949; lowest 46.66 below lsd, Sept. 28, 1954. Records available: 1946-56. Jan. 4, 41.44; Apr. 5, 37.99; Aug. 1, 41.71; Oct. 18, 45.70.

Juneau County

Ju 8. Camp Douglas. SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 21, T. 17 N., R. 2 E. Drilled unused water-table well in sandstone, diam 4 in, depth 64 ft. MP top of casing, 1.00 ft above lsd. Highest water level 5.12 below lsd, Oct. 21, 1954; lowest 9.80 below lsd, Mar. 3, 1950. Records available: 1949-56. Corrected measurements for 1953, 1954, and 1955.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Sept. 17, 1953	8.76	Aug. 12, 1954	6.30	June 23, 1955	5.35	Apr. 24, 1956	7.20
Nov. 20	8.05	Oct. 21	5.12	Sept. 13	6.17	July 10	6.92
Feb. 10, 1954	8.99	Jan. 12, 1955	6.32	Nov. 30	7.36	Sept. 11	7.17
Mar. 24	9.25	Mar. 28	7.23	Feb. 20, 1956	8.42	Dec. 17	8.20
June 10	7.71						

Kenosha County

Ke 4. Sunset Ridge Memorial Park. NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 27, T. 2 N., R. 22 E. Drilled domestic and irrigation water-table well in Niagara dolomite, diam 6 in, reported depth 190 ft. Lsd 725 ft above msl. MP top of casing, 7.00 ft below lsd. Highest water level 73.70 below lsd, Apr. 16, 1952; lowest 83.40 below lsd, Aug. 7, 1956. Records available: 1946-56. Jan. 18, 82.00; Apr. 4, 82.47; May 28, 82.28; Aug. 7, 83.40; Nov. 13, 83.28.

Ke 6. Kenosha County. NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 11, T. 2 N., R. 22 E. Drilled irrigation artesian well in sandstone, diam 10 in, reported depth 1,751 ft, cased to 492. Lsd 630 ft above msl. MP tin casing under pump, 2.00 ft below lsd. Highest water level 21.10 below lsd, Dec. 3, 1947; lowest 53.14 below lsd, Nov. 13, 1956. Records available: 1946-56. Jan. 18, 50.58; Apr. 4, 50.89; May 28, 51.83; Aug. 7, 52.55; Nov. 13, 53.14.

Lafayette County

Lf 1. Ernest J. Legler. Formerly Erickson. NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 25, T. 3 N., R. 5 E. Drilled unused water-table well in Prairie du Chien group, diam 6 in, depth 55 ft. Lsd 820 ft above msl. MP bent edge of casing, 0.50 ft above lsd. Highest water level 16.00 below lsd, June 15, 1947; lowest 23.44 below lsd, Aug. 8, 1956. Records available: 1946-56. Feb. 14, 23.18; Apr. 12, 23.17; June 12, 23.28; Aug. 8, 23.44; Oct. 25, 23.05.

Lf 57. Coulthard Estate. Shullsburg. NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 33, T. 1 N., R. 2 E. Drilled unused artesian well in Galena dolomite and Platteville formation, diam 10 in, reported depth 265 ft, cased to 16. Lsd 1,000 ft above msl. MP top of casing, 3.00 ft above lsd. Highest water level 63.67 below lsd, Apr. 29, 1952; lowest 91.26 below lsd, Dec. 31, 1956. Records available: 1952-56.

Lf 57--Continued.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	85.31	85.47	85.43	85.66	85.79	86.04	86.34	87.10	87.93	88.78	89.75	90.60
10	85.32	85.39	85.55	85.61	85.83	86.12	86.47	87.24	87.95	88.98	89.88	90.59
15	85.26	85.55	85.62	85.58	85.81	86.20	86.55	87.35	88.13	89.08	90.05	90.79
20	85.39	85.54	85.57	85.72	85.79	86.26	86.63	87.52	88.30	89.24	90.20	90.86
25	e85.42	85.55	85.51	e85.75	85.90	86.43	86.78	87.68	88.41	89.36	90.42	91.01
Eom.	85.54	85.49	85.55	85.85	86.02	86.20	86.95	87.82	88.65	89.60	90.48	91.26

e Estimated.

Lf 78. Wisconsin Conservation Dept. SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 35, T. 4 N., R. 4 E. Drilled unused artesian well in St. Peter sandstone, diam 6 in, depth 29 ft, cased to 4. MP top of casing, at lsd. Highest water level 8.52 below lsd, Apr. 21, 1955; lowest 19.40 below lsd, Dec. 31, 1956. Records available: 1953-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	17.53	17.85	17.97	18.10	18.11	16.95	17.53	17.95	18.19	18.58	18.87	19.14
10	17.76	17.82	18.02	18.09	18.06	17.00	17.65	18.01	18.15	18.66	18.91	19.08
15	17.69	17.92	18.06	18.01	17.69	e17.09	17.66	e18.05	18.14	18.67	18.97	19.15
20	17.81	17.93	18.05	18.20	17.35	e17.17	17.74	e18.05	18.40	18.65	18.98	19.20
25	17.84	17.93	18.01	18.17	17.09	17.32	17.82	18.14	18.44	18.68	19.08	19.25
Eom.	17.91	17.95	18.09	18.20	16.97	17.37	17.91	18.15	18.55	18.76	19.08	19.40

e Estimated.

Lf 121. Arthur Hancock. SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 35, T. 1 N., R. 2 E. Drilled unused artesian well in Galena dolomite, diam 6 in, depth 237 ft (previously reported as 300), cased to 20. Lsd 1,030 ft (previously reported as 1,130) above msl. MP top south side of casing, 1.00 ft above lsd. Highest water level 69.17 below lsd, July 1, 1955; lowest 77.83 below lsd, Dec. 18, 1956. Records available: 1953-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	73.52	74.41	74.63	75.22	76.04	75.60	75.34	75.29	75.91	76.37	76.84	76.96
10	74.22	74.50	75.12	75.60	76.01	75.53	75.25	75.49	75.92	76.73	76.79	77.31
15	73.57	74.74	75.44	74.96	75.99	75.35	75.17	75.52	75.72	76.44	e77.07	77.28
20	74.01	74.90	75.45	75.99	76.21	75.12	75.18	75.71	76.03	76.46	76.95	77.56
25	74.24	74.44	75.42	76.00	76.01	75.17	75.19	75.76	75.94	76.56	77.01	77.45
Eom.	74.74	74.79	75.43	76.28	75.57	75.07	75.38	75.54	76.30	76.53	76.83	77.61

e Estimated.

## Langlade County

La 118. Wisconsin Public Service Corp. NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 20, T. 31 N., R. 11 E. Driven observation water-table well in sand, diam 1 $\frac{1}{2}$  in, depth 21 ft, well point 19-21. Lsd 1,510.45 ft above msl. MP top of casing, 0.50 ft above lsd. Highest water level 6.88 below lsd, July 19, 1943; lowest 13.84 below lsd, Feb. 28, 1949. Records available: 1942-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 30	12.78	Apr. 2	13.22	July 2	11.15	Oct. 30	11.76
Feb. 27	13.04	May 7	11.19	Aug. 27	10.80	Nov. 26	12.3
Mar. 26	13.30	June 26	11.25	Sept. 24	11.18	Dec. 31	12.51

## Lincoln County

Ln 25a. U. S. Geol. Survey. SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 36, T. 34 N., R. 6 E. Driven observation water-table well in deposits of Pleistocene age, diam 1 $\frac{1}{2}$  in, depth 22 ft, well point 20-22. MP top of pipe, 3.00 ft above lsd. Highest water level 7.75 below lsd, Apr. 16, 1956; lowest 9.42 below lsd, Oct. 29, 1956. Records available: 1955-56.

July 25, 1955	8.87	Sept. 26, 1955	9.02	Nov. 20, 1955	8.78	May 27, 1956	8.22
Aug. 1	8.69	Oct. 2	9.06	27	8.80	June 26	8.52
8	8.43	10	8.96	Dec. 18	9.01	July 3	8.62
15	8.51	16	9.01	26	9.03	Aug. 28	8.86
22	8.67	23	9.03	Jan. 29, 1956	9.17	Sept. 30	9.27
30	8.62	30	8.84	Feb. 26	9.26	Oct. 29	9.42
Sept. 6	8.84	Nov. 6	8.78	Mar. 19	9.19	Nov. 6	9.21
12	8.91	13	8.76	Apr. 16	7.75	Dec. 30	9.26
19	8.97						

Marathon County

Mr 7. City of Marshfield. SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 33, T. 26 N., R. 3 E. Drilled unused water-table well in sand and gravel of Pleistocene age, diam 7 in, reported depth 49 ft, cased to 30, screened 30-49. MP top of casing, 1.00 ft above lsd. Highest water level 16.92 below lsd, June 12, 1950; lowest 31.79 below lsd, May 19, 22-23, 1956. Records available: 1950-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	30.92	e31.15	31.39	31.41	31.58	31.61	31.58	31.65	31.58	30.90	29.95	29.35
10	e30.95	31.25	e31.45	31.47	31.65	31.66	e31.60	31.55	31.37	30.74	29.78	29.24
15	31.02	31.30	e31.43	31.54	31.74	31.71	31.57	e31.48	e31.33	30.55	29.66	29.13
20	e31.00	31.31	e31.41	31.59	31.64	31.74	31.64	e31.43	31.31	30.38	29.73	e29.04
25	31.00	31.34	31.39	31.62	31.65	e31.60	31.55	31.45	31.19	30.26	e29.70	29.00
Eom	e31.01	31.37	31.48	31.58	31.56	31.68	31.65	31.52	31.01	30.05	29.63	28.85

e Estimated.

Mr 28. U. S. Geol. Survey. NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 31, T. 27 N., R. 9 E. Driven observation water-table well in sand and gravel of Pleistocene age, diam 1 $\frac{1}{2}$  in, depth 27 ft, well point 25-27. Lsd 1,229 ft above msl. MP top of pipe, 0.80 ft above lsd. Highest water level 17.30 below lsd, Sept. 10, 1945; lowest 24.84 below lsd, Mar. 26, 1951. Records available: 1944-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 30	22.10	Apr. 2	22.60	July 30	22.36	Oct. 29	22.86
Feb. 27	22.29	May 28	21.95	Aug. 27	22.48	Nov. 26	23.02
Mar. 26	22.55	June 25	22.18	Sept. 24	22.64	Dec. 31	23.22

Marinette County

Mt 5. City of Peshtigo. SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 19, T. 30 N., R. 23 E. Drilled unused artesian well in sandstone, diam 5 in, depth 703 ft (previously reported as 700), cased to 31. MP top of casing, 0.50 ft above lsd. Highest water level 17.24 below lsd, May 1, 1950; lowest 28.25 below lsd, Aug. 20, 1955. Records available: 1947-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	25.19	27.15	27.34	25.88	26.06	26.72	23.10	25.91	24.06	26.81	20.01	19.34
10	26.80	27.31	27.30	26.15	26.29	27.88	25.74	25.82	26.05	26.74	20.40	18.20
15	26.83	27.60	27.51	26.20	25.40	27.35	26.08	25.44	26.46	26.05	19.63	19.11
20	27.12	27.74	27.65	26.07	26.73	26.44	26.17	24.25	e26.15	26.88	19.27	19.50
25	27.48	27.58	27.39	26.46	26.67	25.09	26.11	26.12	26.45	24.11	19.50	e18.04
Eom	26.62	27.20	26.90	26.43	26.81	26.28	25.13	26.28	26.65	21.40	19.09	18.88

e Estimated.

Mt 7. Wisconsin Conservation Dept. NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 34, T. 37 N., R. 20 E. Drilled unused water-table well in deposits of Pleistocene age, diam 8 in, reported depth 33 ft. MP pointer on float gage, 4.00 ft above lsd. Highest water level 19.87 below lsd, July 17, 1951; lowest 23.26 below lsd, Nov. 2, 1948. Records available: 1948-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 31	22.45	Apr. 3	22.50	July 31	22.31	Oct. 30	22.42
Feb. 28	22.55	May 29	21.84	Aug. 7	22.21	Nov. 13	22.46
Mar. 27	22.50	June 26	22.26	Sept. 25	22.18	Dec. 25	22.50

Marquette County

Mq 9. Village of Westfield. SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 12, T. 16 N., R. 8 E. Drilled unused artesian well in sandstone, diam 6 in, depth 274 ft. MP top of casing, 1.00 ft above lsd. Highest water level 15.06 below lsd, May 20, 1952; lowest 17.38 below lsd, May 15, 1956. Records available: 1949-56. Jan. 6, 16.71; Mar. 14, 16.97; May 15, 17.38; July 17, 16.62; Sept. 18, 16.57; Dec. 10, 16.50.

Mq 11. U. S. Geol. Survey. NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 17, T. 15 N., R. 9 E. Driven observation water-table well in fine sand, diam 1 $\frac{1}{2}$  in, depth 12 ft, well point 10-12. MP top of casing, 2.00 ft above lsd. Highest water level 0.57 below lsd, May 3, 1954; lowest 3.88 below lsd, Oct. 13, 1955. Records available: 1950-56. Jan. 6, 3.23; Mar. 14, 2.84; May 15, 0.96; July 17, 2.95; Sept. 18, 2.45; Dec. 10, 2.12.

Milwaukee County

Ml 36. A. O. Smith Corp. NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 12, T. 7 N., R. 21 E. Drilled unused artesian well in sandstone, diam 14 in, reported depth 1,091 ft, cased to 774. Lsd 673 ft above msl. MP top of flange, 3.00 ft above lsd. Highest water level 134.26 below lsd, June 25, 1947; lowest 213.39 below lsd, Sept. 1, 1955. Records available: 1946-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 1	193.12	Apr. 25	187.12	July 31	202.63	Oct. 31	210.78
Feb. 1	187.73	June 1	190.62	Aug. 29	201.74	Dec. 3	205.96
Mar. 29	183.54	28	201.73	Sept. 27	205.06		

Ml 95. Allis Chalmers Mfg. Co. SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 24, T. 5 N., R. 22 E. Drilled unused artesian well in Mount Simon, Eau Claire, and St. Peter sandstones, diam 8 in, reported depth 1,622 ft. Lsd 656 ft above msl. MP breather hole, 1.00 ft above lsd. Highest water level 116.16 below lsd, May 5, 1952; lowest 127.09 below lsd, Oct. 17, 1956. Records available: 1952-56. Jan. 18, 124.37; Mar. 28, 124.94; Aug. 1, 126.30; Oct. 17, 127.09.

Ml 120. Nunn-Bush Shoe Co. North 5th and Hadley Sts., Milwaukee. SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 17, T. 7 N., R. 22 E. Drilled unused artesian well in Niagara dolomite, diam 10 in, reported depth 400 ft, cased to 104. Lsd 685 ft above msl. MP top of concrete, 8.75 ft below lsd. Highest water level 81.82 below lsd, May 20, 1946; lowest 102.85 below lsd, Oct. 3, 1955. Records available: 1946-49, 1951-56. Jan. 30, 100.63; July 31, 101.93; Oct. 31, 102.15.

Ml 146. Stanley Larsen. 9090 Lake Dr., Milwaukee. SW $\frac{1}{4}$ SE $\frac{1}{4}$  (previously shown as SE $\frac{1}{4}$ SW $\frac{1}{4}$ ) sec. 4, T. 8 N., R. 22 E. Drilled unused artesian well in limestone, diam 5 in, depth 116 ft (previously reported as 110). Lsd 680 ft above msl. MP top of casing, 5.00 ft below lsd. Highest water level 58.70 below lsd, June 20, 1946; lowest 76.25 below lsd, Sept. 1, 1953. Records available: 1946-56. Jan. 31, 70.88; Apr. 10, 71.30; June 1, 71.07; Aug. 29, 73.68; Oct. 30, 75.56.

Ml 148. Milwaukee County. NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 32, T. 6 N., R. 21 E. Drilled unused water-table well in Niagara dolomite, diam 5 in, depth 180 ft, cased to 43. Lsd 774 ft above msl. MP top of casing, 1.00 ft above lsd. Highest water level 25.44 below lsd, May 3, 1951; lowest 34.85 below lsd, Dec. 31, 1956. Records available: 1946-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	32.59	33.33	33.48	32.83	32.43	31.06	31.38	31.62	32.36	33.29	33.48	33.79
10	32.71	33.49	33.60	32.79	32.14	31.18	31.53	31.82	32.34	33.26	33.48	33.72
15	32.52	33.85	33.44	32.46	31.55	31.25	31.39	31.90	32.48	33.18	33.45	33.86
20	32.86	33.85	33.48	32.95	31.17	31.04	31.35	32.08	32.73	33.17	33.70	33.97
25	33.02	33.96	33.39	32.86	31.02	31.33	31.49	32.23	32.80	33.29	33.74	34.00
Eom	33.40	33.96	33.06	32.94	30.97	31.18	31.68	32.24	33.06	33.27	33.73	34.85

Monroe County

Mo 2. Joseph Anderson. SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 34, T. 15 N., R. 4 W. Drilled unused water-table well in sandstone, diam 5 in, depth 44 ft. Lsd 1,100 ft above msl. MP top of casing, 0.50 ft above lsd. Highest water level 5.06 below lsd, June 26, 1952; lowest 15.83 below lsd, Mar. 11, 1940. Records available: 1934-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 26	10.80	May 3	8.00	July 25	10.50	Oct. 25	12.80
Feb. 26	11.57	28	8.51	Aug. 27	11.50	Nov. 26	11.54
Mar. 26	10.24	June 26	9.15	Sept. 24	11.99	Dec. 27	12.60

Mo 17. U. S. Army, Camp McCoy. NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 29, T. 18 N., R. 2 W. Drilled unused artesian well in sandstone, diam 9 in, depth 192 ft, cased to 109. MP top of casing, 1.00 ft above lsd. Highest water level 1.78 below lsd, July 1, 1952; lowest 6.37 below lsd, Feb. 27-28, 1956. Records available: 1949-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	5.10	e5.94	6.01	5.13	4.32	3.58	e4.08	3.60	e3.75	4.86	e4.76	e4.40
10	5.29	e6.00	5.53	4.04	4.20	3.83	e4.15	3.78	e3.80	5.05	e4.65	e4.35
15	5.40	e6.06	5.91	4.45	4.10	3.80	4.34	3.91	3.98	5.25	e4.60	e4.30
20	5.58	6.13	6.02	e4.55	4.06	e3.87	4.60	4.12	4.20	5.29	e4.55	4.25
25	e5.78	6.29	6.08	4.72	3.97	e3.94	4.68	4.30	4.47	4.36	e4.50	4.34
Eom	e5.87	6.33	6.18	4.69	3.40	e4.01	4.90	3.70	4.67	4.51	e4.45	4.60

e Estimated.

Oneida County

On 23. U. S. Geol. Survey. NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 27, T. 37 N., R. 6 E. Driven observation water-table well in sand, diam  $1\frac{1}{4}$  in, depth 37 ft, well point 35-37. Lsd 1,529 ft above msl. MP top of casing, 1.00 ft above lsd. Highest water level 27.31 below lsd, Aug. 18, 1952; lowest 32.96 below lsd, July 25, 1949. Records available: 1944-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 31	29.89	Apr. 24	30.40	July 3	30.16	Oct. 30	29.70
Feb. 21	30.08	May 22	30.41	Aug. 7	29.68	Nov. 27	29.88
Mar. 27	30.30	June 5	30.33	Sept. 4	29.49	Dec. 18	30.10

Outagamie County

Ou 2. City of Kaukauna. Kaukauna Water & Electric Co. NE $\frac{1}{4}$ SW $\frac{1}{4}$  (previously shown as SW $\frac{1}{4}$ SW $\frac{1}{4}$ ) sec. 24, T. 21 N., R. 18 E. Drilled unused artesian well in sandstone and dolomite, diam 12 in, reported depth 700 ft, cased to 208 (previously reported as depth 798, cased to 100). Lsd 645 ft above msl. MP top of casing, 8.00 ft above lsd. Highest water level 6.44 below lsd, Apr. 7, 1947; lowest 49.10 below lsd, Sept. 25, 1953. Records available: 1946-56.

## Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	e14.60	e12.00	10.43	10.19	10.38	19.59	30.00	31.33	36.13	35.64	30.54	23.48
10	e13.20	e11.20	e11.75	9.72	10.40	24.55	29.82	34.65	36.07	35.19	30.85	27.0
15	e12.80	10.55	e11.65	7.78	9.66	e30.80	31.60	37.42	36.91	35.12	30.20	21.0
20	13.35	11.12	e11.55	9.99	8.01	30.18	33.62	37.30	36.82	35.31	26.92	22.80
25	e13.80	11.10	9.50	10.55	17.72	29.62	33.94	36.84	35.90	33.81	e26.00	15.78
Eom	14.38	e11.10	10.82	9.95	18.28	30.32	32.04	39.25	34.70	33.91	23.76	e19.00

e Estimated.

Ou 95. August H. Seehawer. Formerly John Ross. NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 20, T. 22 N., R. 16 E. Drilled unused water-table well in sand and gravel, diam 6 in, reported depth 112 ft, cased to 111. Lsd 777 ft above msl. MP top of casing, 1.00 ft above lsd. Highest water level 6.36 below lsd, Apr. 26, 1955; lowest 10.24 below lsd, Jan. 8, 1954. Records available: 1952-56. Jan. 11, 8.02; Mar. 23, 7.84; May 24, 7.64; July 26, 7.57; Sept. 26, 7.82; Nov. 29, 7.97.

Portage County

Pt 15. Lawrence Krogwold. NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 28, T. 24 N., R. 10 E. Driven unused water-table well in sand, diam 2 in, depth 53 ft, screened 51-53. MP rim of casing, 1.50 ft above lsd. Highest water level 33.50 below lsd, July 10, 1952; lowest 36.55 below lsd, Mar. 29, 1951. Records available: 1950-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	35.78	Apr. 7	35.70	July 4	35.28	Oct. 27	35.59
Feb. 23	35.94	May 24	35.25	Sept. 7	35.33	Nov. 27	35.77
Mar. 30	36.16	June 20	35.26	21	35.40	Dec. 27	35.90

Pt 35. U. S. Geol. Survey. NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 35, T. 22 N., R. 7 E. Driven observation water-table well in sand, diam  $1\frac{1}{4}$  in, depth 11 ft, well point 9-11. MP rim of casing, 1.00 ft above lsd. Highest water level 0.99 below lsd, Apr. 9, 1951; lowest 5.95 below lsd, Dec. 1, 1952. Records available: 1950-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 2	5.00	Apr. 23	3.55	July 24	4.60	Oct. 29	5.10
Feb. 6	4.40	May 28	4.2	Aug. 27	4.60	Nov. 5	5.25
Mar. 6	3.90	June 25	4.85	Sept. 24	4.90	Dec. 24	4.60

Price County

Pr 6. Wisconsin Conservation Dept. NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 24, T. 40 N., R. 1 E. Jetted unused water-table well in sand and gravel, diam 8 in, reported depth 15 ft, cased to 15. Lsd 1,490 ft above msl. MP top of casing, 5.00 ft above lsd. Highest water level 0.41 above lsd, June 29, 1946; lowest 5.67 below lsd, Oct. 31, 1948. Records available: 1937-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 31	3.30	Apr. 30	1.40	July 31	2.45	Oct. 31	3.35
Feb. 29	3.50	May 31	1.79	Aug. 1	2.45	Nov. 3	3.36
Mar. 3	3.54	June 9	2.12	Sept. 30	2.89	Dec. 31	3.53

Racine County

Ra 1. City of Burlington. Sec. 32, T. 3 N., R. 19 E. Drilled unused artesian well, diam 6 in, reported depth 600 ft. Lsd 770 ft above msl. MP top of 4-in pipe on top of casing, 5.00 ft above lsd. Highest water level 23.10 below lsd, Apr. 5, 1956; lowest 37.05 below lsd, Sept. 3, 1947. Records available: 1946-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Aug. 1, 1946	28.95	July 25, 1949	36.37	Oct. 16, 1952	26.37	Nov. 8, 1955	24.02
12	33.29	Apr. 3, 1950	33.98	Aug. 13, 1953	29.89	Jan. 19, 1956	26.72
June 11, 1947	23.22	May 10	32.10	Oct. 22	36.61	Apr. 5	23.10
Sept. 3	37.05	Jan. 23, 1951	32.82	Jan. 25, 1954	32.68	May 29	23.57
Jan. 14, 1948	35.04	Oct. 2	25.21	May 12	23.65	Aug. 8	23.23
Dec. 1	28.05	Aug. 19, 1952	31.81	Apr. 13, 1955	28.20	Nov. 13	26.55
May 2, 1949	32.24						

Rock County

Ro 3. School for the Blind, Janesville. SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 2, T. 2 N., R. 12 E. Drilled unused artesian well in sandstone, diam 10 in, reported depth 470 ft, cased to 113. Lsd 824 ft above msl. MP  $\frac{1}{4}$ -in hole in casing, 2.00 ft above lsd. Highest water level 54.47 below lsd, Apr. 16, 1952; lowest 59.07 below lsd, Sept. 29, 1948. Records available: 1947-56. Jan. 19, 56.24; Apr. 4, 56.12; May 28, 56.36; Aug. 7, 56.87; Nov. 13, 57.10.

Sauk County

Sk 1. Badger Ordnance Works. SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 3, T. 10 N., R. 6 E. Drilled unused artesian well in sandstone, diam 16 in, depth 426 ft (previously reported as 435), cased to 203. Lsd 917 ft above msl. MP top of casing, 1.43 ft above lsd. Highest water level 58.45 below lsd, May 20, 1953; lowest 85.30 below lsd, May 11, 1951. Records available: 1946-56.

## Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	60.97	61.28	61.39	61.57	61.68	61.30	61.52	61.54	61.78	61.89	61.94	e62.05
10	61.25	61.25	61.66	61.76	61.61	61.30	61.50	61.62	61.71	62.02	61.80	e62.10
15	60.99	61.47	61.75	61.43	61.41	61.27	61.50	61.63	61.61	61.84	61.54	e62.15
20	61.13	61.54	61.77	61.89	61.44	61.24	61.49	61.73	61.74	61.81	e61.90	62.02
25	61.35	61.34	61.75	61.78	61.40	61.28	61.52	61.77	61.74	61.82	e61.95	61.93
End	61.51	61.52	61.67	61.82	61.12	61.34	61.58	61.50	61.87	61.74	e62.00	62.12

e Estimated.

Sk 6. A. W. Rohn. Baraboo Iron Works. SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 1, T. 11 N., R. 6 E. Drilled unused artesian well in sandstone, diam 5 to 4 in, depth 318 ft, cased to 266. Lsd 819 ft above msl. MP top of casing, 5.00 ft above lsd. Highest water level 5.79 above lsd, Jan. 3, 1953; lowest 0.94 below lsd, Mar. 7, 1953. Records available: 1946-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 14	+1.20	Apr. 28	+3.39	July 14	+2.47	Oct. 20	+2.56
Feb. 11	+2.18	May 26	+3.46	Aug. 18	+2.41	Nov. 3	+2.23
Mar. 3	+3.02	June 23	+2.66	Sept. 29	+2.74	Dec. 8	+2.78

Shawano County

Sh 1. Harry Sievert. NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 30, T. 26 N., R. 18 E. Drilled unused water-table well in limestone, diam 6 in, depth 132 ft. Lsd 917 ft above msl. MP hole in pump base, 1.00 ft above lsd. Highest water level 53.47 below lsd, Dec. 6, 1951; lowest 64.60 below lsd, Jan. 11, 1956. Records available: 1947-56. Jan. 11, 64.60; May 24, 60.91; July 7, 60.12; Sept. 26, 61.42; Nov. 29, 62.34.

Trempealeau County

Tr 1. Mrs. William Davidson. SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 35, T. 19 N., R. 8 W. Drilled unused water-table well in sandstone, diam 6 in. MP top of casing, 1.00 ft above lsd. Highest water level 133.18 below lsd, Jan. 13, 1955; lowest 142.39 below lsd, Sept. 28, 1949. Records available: 1947-56. Feb. 21, 134.60; Apr. 25, 133.96; July 10, 134.22; Sept. 12, 135.08; Dec. 18, 136.35.

Tr 9. Village of Centerville. SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 33, T. 19 N., R. 9 W. Drilled public-supply water-table well in drift of Pleistocene age, diam 6 in, reported depth 71 ft, cased to 66, screened 66-71. MP top of breather pipe, at lsd. Highest water level 49.22 below lsd, July 11, 1956; lowest 52.56 below lsd, Feb. 21, 1956. Records available: 1953-56. Feb. 21, 52.56; Apr. 25, 49.45; July 11, 49.22; Sept. 12, 49.64; Dec. 18, 50.50.

Vilas County

Vi 21. U. S. Geol. Survey. NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 10, T. 40 N., R. 10 E. Driven observation water-table well in sand, diam 1 $\frac{1}{2}$  in, depth 27 ft, well point 25-27. MP top of casing, 1.00 ft above lsd. Highest water level 12.25 below lsd, May 31, 1954; lowest 16.86 below lsd, Mar. 21, 1949. Records available: 1944-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 23	14.38	Apr. 3	14.79	July 5	14.15	Oct. 29	14.12
Feb. 27	14.60	May 7	14.33	Aug. 1	14.07	Nov. 20	14.25
Mar. 26	14.77	June 5	14.24	Sept. 25	13.86	Dec. 27	14.48

Walworth County

Ww 4. United Milk Products. SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 33, T. 1 N., R. 15 E. Drilled unused artesian well in sandstone and limestone, diam 6 in, reported depth 626 ft, cased to 352. Lsd 997 ft above msl. MP top of casing, 1.80 ft above lsd. Highest water level 42.22 below lsd, Apr. 16, 1952; lowest 59.33 below lsd, Nov. 13, 1956. Records available: 1946-56. Jan. 19, 54.82; Apr. 4, 56.32; May 28, 56.66; Aug. 7, 57.74; Nov. 13, 59.33.

Washburn County

Wb 1. Wisconsin Conservation Dept. NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 31, T. 39 N., R. 12 W. Driven observation water-table well in sand, diam 1 $\frac{1}{4}$  in, depth 18 ft, well point 16-18. Lsd 1,065 ft above msl. MP top of casing, 1.70 ft above lsd. Highest water level 2.83 below lsd, Aug. 10, 1953; lowest 6.20 below lsd, May 18, 1953. Records available: 1948-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 16	5.22	Apr. 2	5.15	July 2	4.17	Oct. 29	4.90
Feb. 6	5.41	May 7	4.93	Aug. 27	3.88	Nov. 26	5.00
Mar. 26	5.40	June 11	4.90	Sept. 24	4.62	Dec. 31	5.00

Washington County

Wn 3. City of West Bend. City Hall. NE $\frac{1}{4}$  sec. 14, T. 11 N., R. 19 E. Drilled unused artesian well in sandstone and limestone, diam 8 in, reported depth 1,200 ft, cased to 75. Lsd 920 ft above msl. MP top of 2-in pipe, 3.00 ft below lsd. Highest water level 12.32 below lsd, Dec. 12, 1951; lowest 19.88 below lsd, Aug. 14, 1947. Records available: 1946-56. Jan. 17, 15.20; Mar. 27, 12.94; May 31, 13.27; Aug. 15, 16.15; Oct. 16, 14.09.

Waukesha County

Wk 14. Veterans Administration Hospital. State Highway 59 and County Highway "Y", Waukesha. SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 2, T. 6 N., R. 19 E. Drilled unused artesian well in sandstone, diam 8 in, reported depth 1,300 ft. Lsd 875.03 ft above msl. MP top of casing, at lsd. Highest water level 249.86 below lsd, July 6, 1947; lowest 331.91 below lsd, Sept. 29, 1956. Records available: 1946-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	321.37	314.78	322.28	325.44	327.42	323.06	324.68	328.18	327.92	330.88	329.22	326.87
10	321.38	321.65	323.00	325.52	326.03	326.19	326.03	328.87	327.03	330.62	328.68	326.16
15	321.51	321.76	323.57	326.35	323.82	328.73	325.90	327.85	329.90	330.16	328.80	327.89
20	323.14	321.00	323.15	327.22	325.40	326.47	325.46	325.94	330.41	328.79	327.38	327.81
25	322.06	323.30	324.97	326.48	325.11	327.42	325.47	329.72	330.45	329.30	326.43	325.15
Eom	322.26	322.27	325.51	326.50	323.10	327.35	326.95	329.60	330.80	329.22	327.90	325.20

e Estimated.

Wk 31. William M. Foss. NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 2, T. 5 N., R. 19 E. Drilled unused artesian well in limestone, diam 6 in, depth 508 ft (previously reported as 600), cased to 434. Lsd 963 ft above msl. MP top of casing, 1.00 ft above lsd. Highest water level 129.02 below lsd, Aug. 4, 1952; lowest 135.52 below lsd, Dec. 31, 1956. Records available: 1947-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	133.68	133.94	134.05	133.92	133.89	133.69	134.06	134.09	134.45	134.85	135.16	135.28
10	133.77	133.96	134.17	133.96	133.79	133.75	134.05	134.22	134.50	134.90	135.11	135.31
15	133.68	134.10	134.18	133.79	133.69	133.91	134.01	134.27	134.55	134.95	135.05	135.33
20	133.78	134.12	134.20	134.09	133.71	133.77	134.05	134.36	134.65	135.01	135.21	135.38
25	133.90	134.04	134.15	134.06	133.67	133.92	134.04	134.42	134.70	135.06	135.23	135.37
Eom	134.02	134.15	134.08	133.94	133.56	133.96	134.04	134.36	134.75	135.01	135.26	135.52

e Estimated.

Waupaca County

Wp 2. Village of Fremont. NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 26, T. 21 N., R. 13 E. Drilled public-supply artesian well in sandstone, diam 8 in, reported depth 205 ft, cased to 109. MP edge of plug in cap, 1.00 ft above lsd. Highest water level 10.81 below lsd, Apr. 23, 1951; lowest 15.91 below lsd, Feb. 23, 1954. Records available: 1950-56. Mar. 3, 15, 12.

Waushara County

Ws 9. University of Wisconsin Experiment Farm. Hancock. NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 15, T. 19 N., R. 8 E. Jetted observation water-table well in sand and gravel, diam 4 in, depth 26 ft. Lsd 1,090 ft above msl. MP top of casing, 1.00 ft above lsd. Highest water level 15.03 below lsd, May 14, 1952; lowest 19.64 below lsd, Apr. 1, 1956. Records available: 1951-56.

Lowest water level for the day, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	18.88	19.16	19.43	19.00	18.64	17.80	e17.90	e18.12	18.29	18.47	e18.85	18.89
10	18.93	19.20	19.46	18.75	18.55	17.77	17.94	e18.14	18.32	18.48	e18.80	18.92
15	e18.98	19.26	19.50	18.68	18.34	17.78	e17.99	e18.15	18.36	18.50	18.76	18.94
20	19.00	19.30	19.56	18.67	18.16	17.78	18.02	18.18	18.39	18.62	18.78	18.96
25	19.06	19.34	e19.58	18.66	18.01	17.82	18.07	18.22	18.41	18.70	18.82	18.98
Eom	19.11	19.39	19.63	18.65	17.86	17.85	e18.10	18.25	18.43	18.84	18.86	19.01

e Estimated.

Winnebago County

Wi 6. City of Oshkosh. Board of Education. Wisconsin Ave. and Algoma Blvd. NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 23, T. 18 N., R. 16 E. Drilled unused artesian well in sandstone and limestone, diam 8 in, reported depth 200 ft. MP  $\frac{3}{4}$ -in bushing on top of well, 6.00 ft below lsd. Highest water level 27.25 below lsd, Apr. 13, 1951; lowest 36.08 below lsd, Oct. 26, 1955. Records available: 1950-56. Jan. 12, 30.81; Apr. 20, 29.94; June 26, 28.94; Aug. 23, 28.85; Oct. 24, 28.66.

Wood County

Wd 29. Elmer Aschenbrenner. NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 2, T. 23 N., R. 4 E. Drilled unused water-table well in sand, diam 8 to 6 in, depth 18 ft. MP top of casing, 0.40 ft above lsd. Highest water level 2.86 below lsd, Apr. 23, 1951; lowest 13.99 below lsd, Feb. 15, 1954. Records available: 1944-56.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 30	11.84	Apr. 2	11.70	July 2	6.15	Oct. 29	9.84
Feb. 6	12.15	May 7	8.64	Aug. 27	6.78	Nov. 26	11.30
Mar. 19	12.81	June 25	6.00	Sept. 24	7.50	Dec. 31	11.48

## References

- Foley, F. C., Walton, W. C., and Drescher, W. J., 1953, Ground-water conditions in the Milwaukee-Waukesha area, Wisconsin: U. S. Geol. Survey Water-Supply Paper 1229.  
 Harder, A. H., and Drescher, W. J., 1954, Ground-water conditions in southwestern Langlade County, Wisconsin: U. S. Geol. Survey Water-Supply Paper 1294.  
 LeRoux, E. F., 1957, Geology and ground-water resources of Outagamie County, Wisconsin: U. S. Geol. Survey Water-Supply Paper 1421.