

STATE OF SOUTH DAKOTA
Richard Kneip, Governor

SOUTH DAKOTA GEOLOGICAL SURVEY
Duncan J. McGregor, State Geologist

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Preliminary Report

**GROUND-WATER STUDY
FOR THE TRAIL CITY AND
GLENCROSS WATER ASSOCIATION**

by
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GROUND-WATER STUDY FOR THE TRAIL CITY AND GLENCROSS WATER ASSOCIATION

At the request of the Trail City and Glencross Water Association, the South Dakota Geological Survey conducted a ground-water study from August 3 to August 27, 1971 in part of Corson and Dewey Counties, South Dakota (fig. 1). The purpose of the investigation was to assist the Association in locating a future community water supply.

Included in this study were: (1) a review of the geology as mapped by the South Dakota Geological Survey (W. A. Pettyjohn, 1961, and R. E. Stevenson, 1959, 1960 a and b), (2) the drilling of 36 auger test holes, (3) a well inventory, (4) a collection and analyses of 20 water samples. In addition seven water samples were collected by a member of the Association, H. A. Lippert, and were analyzed by the Geological Survey.

The exposed rocks are the members of the Fox Hills Formation (fig. 1) which cover most of the study area. These rocks consist of very fine sand mixed with clay to medium size sand. Locally there are cemented sand layers in the area which halt auger test-hole drilling. Figure 2 shows the location of the test holes drilled in the area. The logs of the test holes are presented in Appendix A; also, figure 3 shows the summary of the test-hole logs. Figure 4 shows the depth to water table and the thickness of saturated sand in the test holes. The above figures and logs indicate that the most favorable sand (larger sand particles and thicker saturated sand) was found in test hole 12 approximately 3 miles north and 3 miles east of the city of Timber Lake (fig. 5). Test hole 12 was drilled through approximately 75 feet of saturated fine to medium sand.

A feasibility report on the Trail City and Glencross water was presented to the Association by an engineering firm in 1971. This report proposes a well site south of the railroad in sec. 12, T. 17 N., R. 25 E. This location is near the proposed stand pipe. Figures 3, 5, and the logs of the test holes from this area indicate that drilling was halted in most of the test holes due to cemented sand layers. Test holes 28 and 29 south of section 12 were drilled through the Fox Hills Formation to Pierre Shale. Approximately 55 feet of saturated fine to very fine sand was penetrated in each test hole.

Water from the Fox Hills Formation is generally of good quality. The results of chemical analyses of 20 water samples collected in August 1971 are shown in table 1. All analyzed chemicals are within the standard limits set by the South Dakota Department of Health except for high manganese in samples W-4, W-12, W-13, and W-15. The samples were not analyzed for fluoride content, but water samples from Timber Lake city wells analyzed by the South Dakota Department of Health indicate that the water has less fluoride than the recommended limits.

If the Association should decide to test the potential of water in either of the following two areas: i.e., (1) in the vicinity of test hole 12 (figs. 2 and 5) where larger sand particles and thicker saturated sand was found, and/or (2) in sec. 12, T. 17 N., R. 25 E., which was proposed by the engineering firm (fig. 5), it is recommended a test well be drilled for the purpose of conducting a pump test. Sand from the test well should be sent to a well company for sand analysis and design of a screen.

The South Dakota Geological Survey will provide technical assistance and supervise the conducting of the pump test and the values of transmissivity and storage coefficient will be calculated. At least two observation wells should be drilled to measure the drawdown in addition to measuring water level in the well. The distance to the observation wells should be decided after water level is measured in the test well. The test should be conducted by a hydrologist or a qualified engineer and continued for at least 72 hours. Water samples taken during the test should be analyzed for chemical content. The chemical analyses of water should also include sodium, fluoride, and manganese which were not measured in all the samples collected in 1971. The results of the aquifer tests will afford a basis for deciding if the area will provide the required quality and quantity of water, determine the proper spacing of the production wells, and provide data for the design of well(s).

Before a permanent well is drilled the Trail City and Glencross Association should consult with the South Dakota Water Resources Commission with regard to obtaining water rights and a permit to drill a community well and the State Department of Health with regard to the biological and chemical suitability of the water.

Figure 1. Generalized geologic map of the Trail City and Glencross study area and location of the water samples collected in August, 1971.

Figure 2. Map showing location of test holes in the Trail City and Glencross study area.

Figure 3. Map showing the summary of logs of test holes drilled in the Trail City and Glencross study area.

Figure 4. Map showing depth to water table and thickness of saturated sand in test holes drilled in the Trail City and Glencross study area.

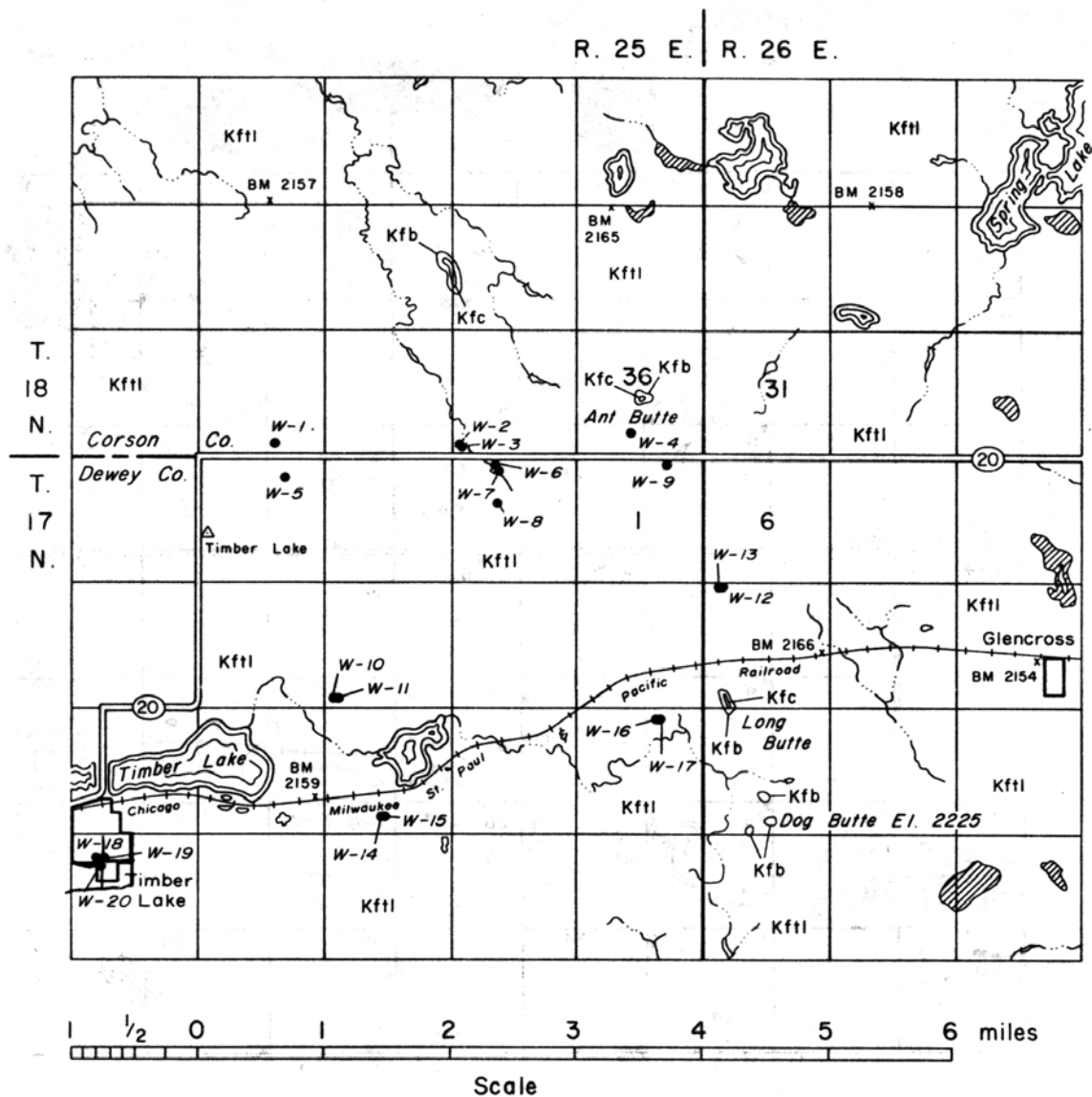
Figure 5. Map showing the location of the well site proposed by the consulting engineering firm and location of the most favorable sand.

Table 1. Chemical analyses of water samples from the Trail City and Glencross study area (collected August 1971).

Table 2. Chemical analyses of water samples from the Trail City and Glencross area collected by the Association prior to the study.

Appendix A. Logs of test holes in the Trail City and Glencross study area.

Appendix B. Well records in the Trail City and Glencross area.



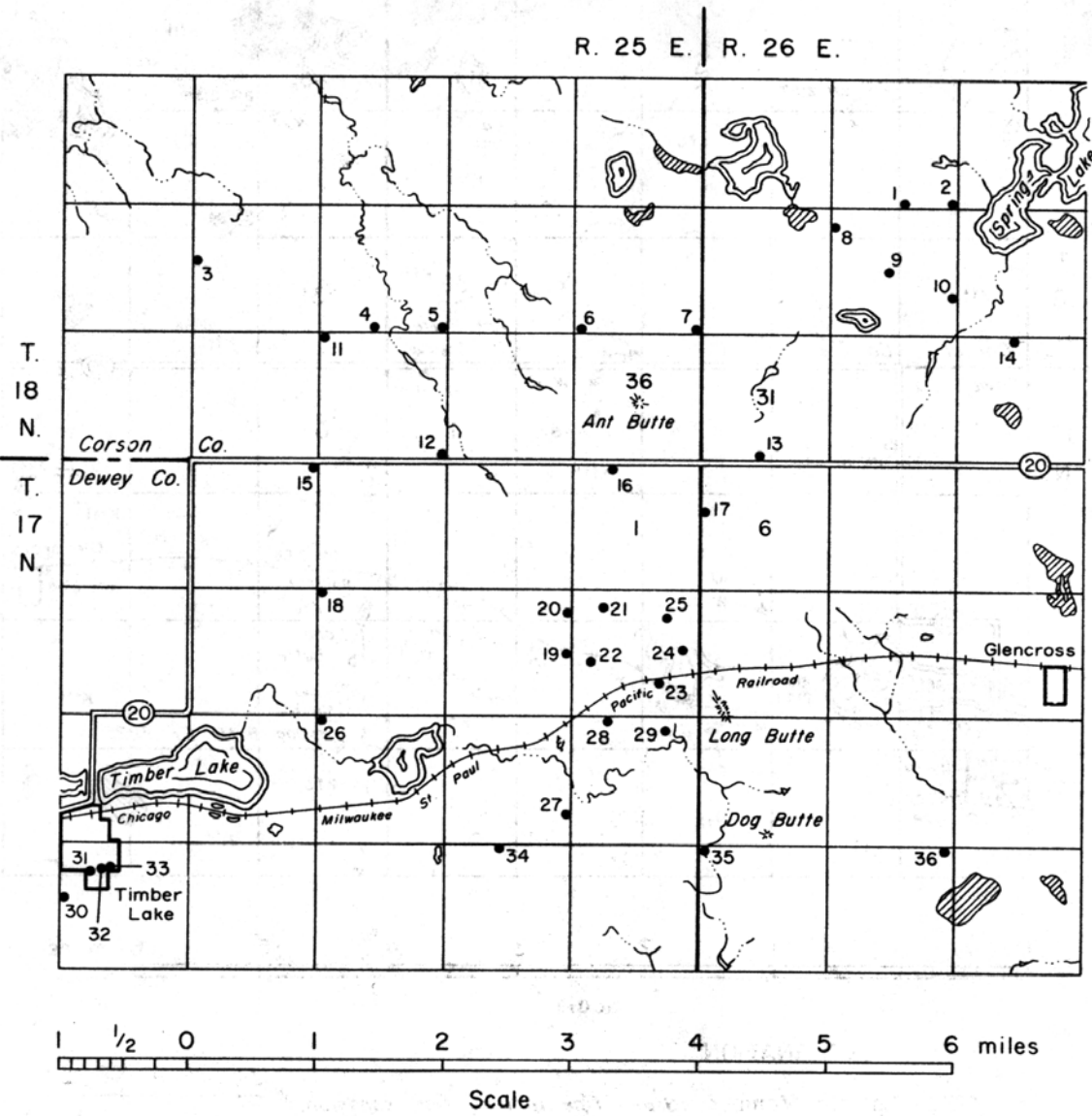
EXPLANATION

- | | | |
|---------------------|--|-----------------------|
| Fox Hills Formation | <p>Kfc - Colgate Member (<i>Gray, fine to very fine sandstone</i>)</p> <p>Kfb - Bullhead Member (<i>Beds of light gray to buff and dark gray clay</i>)</p> <p>Kftl - Timber Lake Member (<i>Fine grained light gray to buff sand with reddish brown cemented layers</i>)</p> | Upper Cretaceous |
| W-9 • | Δ | x |
| Water sample | | Triangulation station |
| | | Bench Mark |

by Assad Barari, 1971

drafted by D. W. Johnson

Figure 1. Generalized geologic map of the Trail City and Glencross study area, (*modified from W. A. Pettyjohn 1961, and R. E. Stevenson 1959-1960, a and b*) and location of water samples collected in August, 1971.

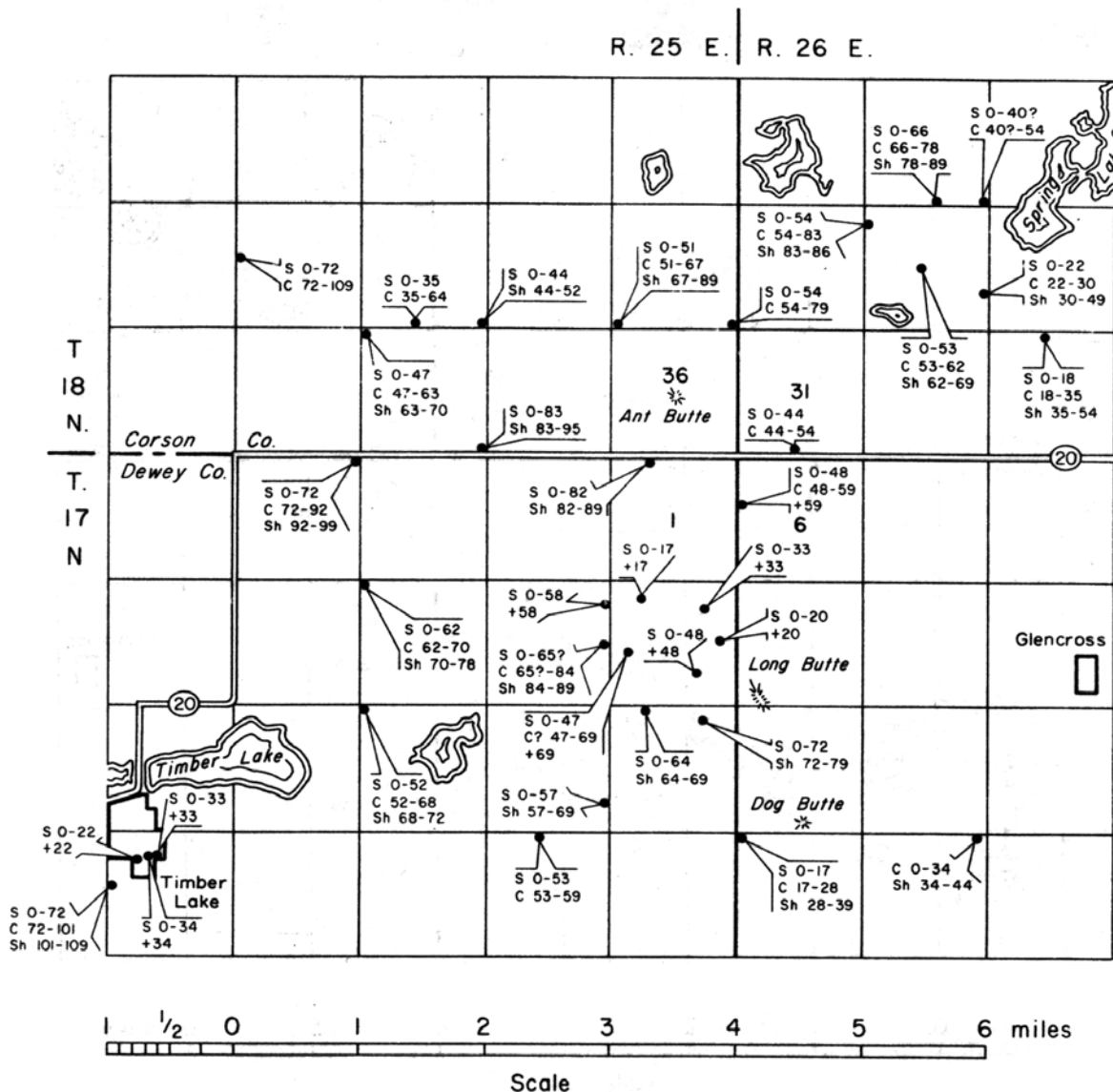


EXPLANATION

- ⁹ Test hole, number refers to test holes in Appendix A
- ◻ Lake ◻ Intermittent lake — Intermittent stream

by Assad Barari, 1971 drafted by D. W. Johnson

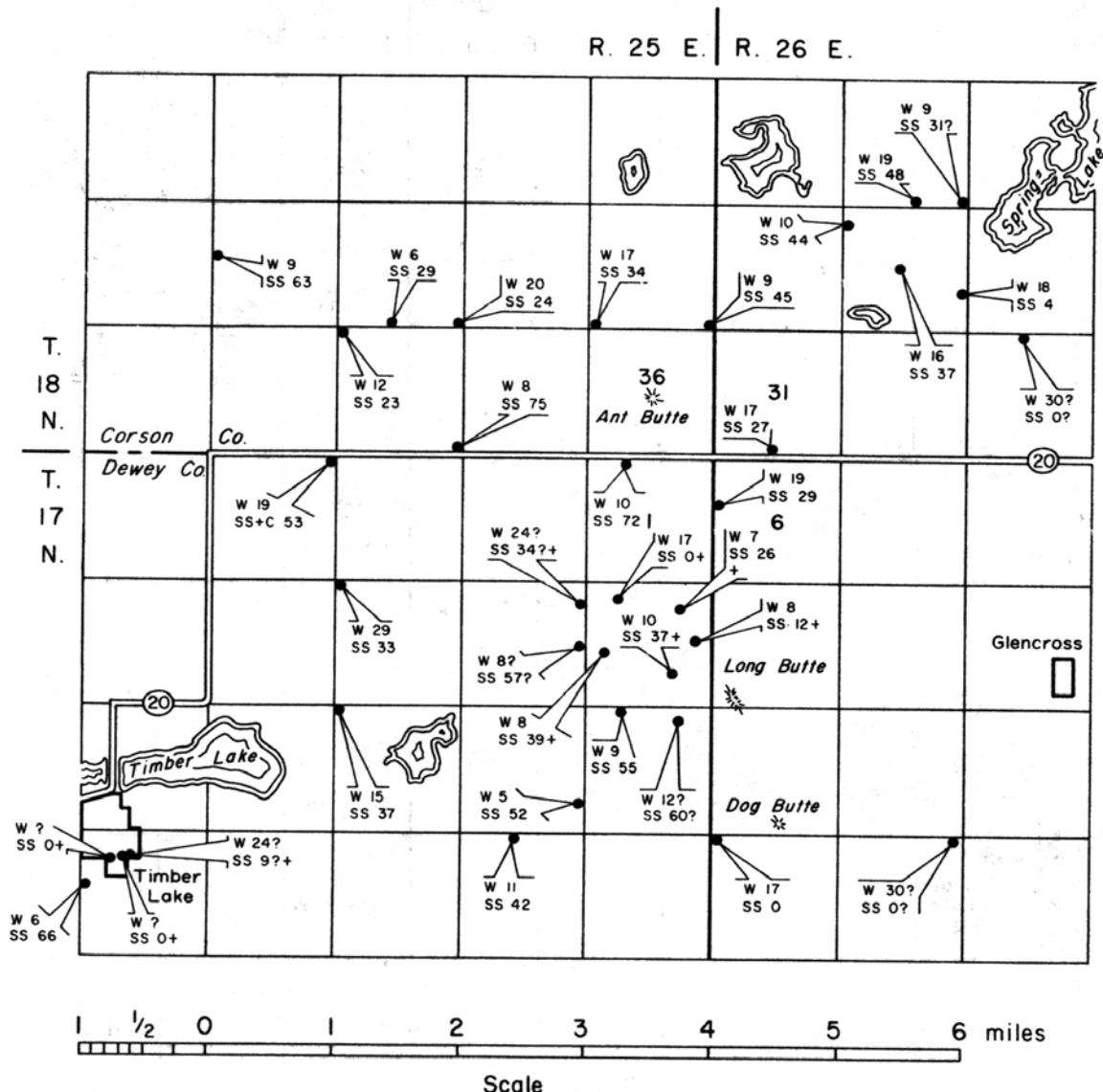
Figure 2. Map showing location of test holes in the Trail City and Glencross study area.



EXPLANATION

- S 0-48? Test hole,
 - C 48?-60
 - Sh 60-72
 - +72
- | | | |
|------------|---|---|
| S = sand | } | The numbers refer to depths in feet below ground level. |
| C = clay | | |
| Sh = shale | | |
- A plus indicates drilling was halted due to a cemented layer.

Figure 3. Map showing the summary of logs of test holes drilled in the Trail City and Glencross study area.

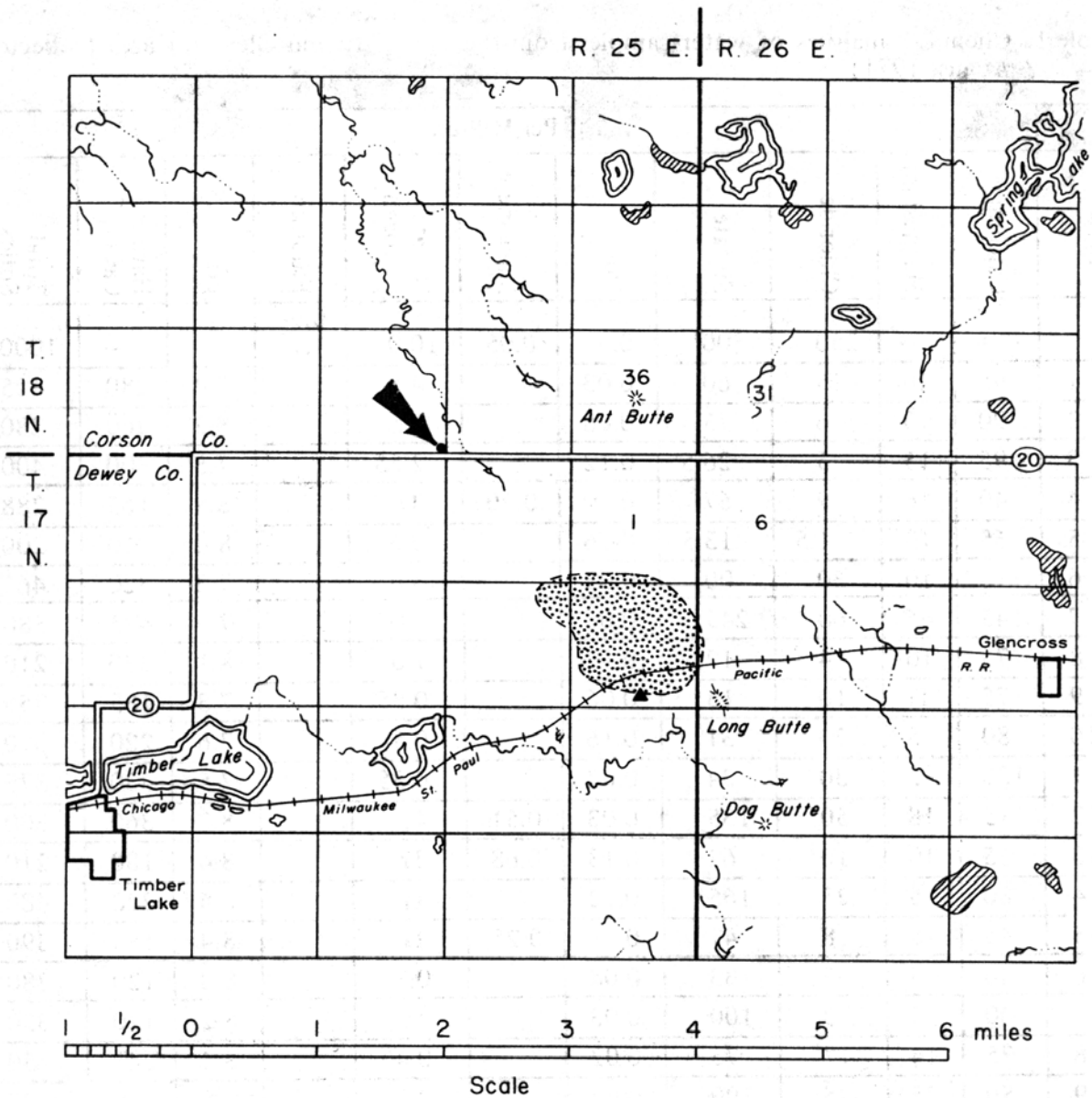


EXPLANATION

- W 24?
SS 9?+ Test hole, the letter W indicates water table and the letters SS indicate saturated sand. The numbers refer to depths in feet below ground level, and thickness in feet, respectively.
- A plus (+) indicates that the full thickness was not penetrated due to a cemented layer. A question mark (?) indicates the water level or thickness of saturated sand was estimated.

by Assad Barari, 1971 drafted by D. W. Johnson

Figure 4. Map showing depth to water table and thickness of saturated sand in test holes drilled in the Trail City and Glencross study area.



EXPLANATION

- ▲ Location of well site as proposed by the consulting engineer.
- Test hole with most favorable sand.

Area in which drilling was halted due to cemented layers.
(smaller isolated cemented layers are not shown on the map)

Lake Intermittent lake Intermittent stream

by Assad Barari, 1971

drafted by D. W. Johnson

Figure 5. Map showing the location of the well site proposed by the consulting engineering firm and location of the most favorable sand.

Table 1. Chemical analyses of water samples from the Trail City and Glencross area (collected August 1971).

Sample	Parts Per Million										
	Calcium	Magnesium	Chloride	Sulfate	Iron	Manganese	Nitrate Nitrogen	Fluoride	pH	Hardness CaCO ₃	Total Solids
A	--	--	250	500 ¹	0.3	0.05	10.0	0.9-1.7 ²	--	--	1000 ¹
W- 1	95	10	15	60	0.03		4.5		7.4	280	425
W- 2	90	10	6	75	0.08		Tr		8.3	260	280
W- 3	95	15	5	26.5	0.12		2.55		7.5	300	400
W- 4	40	16	9	67	0.10	0.20	Tr		8.5	165	288
W- 5	65	10	1.5	13.5	0.16		0.6		8.4	210	200
W- 6	110	10	30	100	0.03		3.0		7.3	320	465
W- 7	145	46	60	245	0.06		7.0		7.9	425	580
W- 8	75	10	4	12.5	0.12		1.0		8.1	230	210
W- 9	75	Tr	10	13	0.06		0.85		7.3	185	255
W-10	80	5	20	31	0.16		0.5		7.6	220	370
W-11	130	2	30	34	0.02		0.35		7.5	330	375
W-12	115	18	50	135	0.03	0.51	4		8.2	360	300
W-13	55	10	10	62	0.13	0.68	Tr		8.4	180	210
W-14	80	5	25	165	0.12		Tr		8.4	220	480
W-15	45	18	8	47	0	0.25	Tr		8.4	185	390
W-16	40	5	5	33	0.08		0.3		8.3	120	380
W-17	40	5	3	100	0.03		Tr		8.2	120	330
W-18	75	14	17	75	0.02		0.4		8.2	245	450
W-19	50	45	25	190	0.02		0.5		7.8	300	620
W-20	55	2	10	38	0.03		0.5		7.8	145	410

A. Drinking water standards, U. S. Public Health Service (1962).

¹ Modified for South Dakota by the Department of Health (written communication, Water Sanitation Section, September 24, 1968).

² 1.2 is optimum for South Dakota.

Location of water samples from Trail City and Glencross study area
 Collected in August 1971
 (For map location, fig. 1.)

- A. Drinking water standards, U. S. Public Health Service (1962).
- W- 1. NE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 33, T. 18 N., R. 25 E., R. Hacecky.
- W- 2. SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 35, T. 18 N., R. 25 E., L. Jung, 32 feet deep, 4 feet to water (stock use).
- W- 3. SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 35, T. 18 N., R. 25 E., L. Jung, 42 feet deep (domestic use).
- W- 4. NE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 36, T. 18 N., R. 25 E., L. Jung, 60 feet deep (stock use).
- W- 5. SE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 4, T. 17 N., R. 25 E. (stock use).
- W- 6. SE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 2, T. 17 N., R. 25 E., G. Quinn, 28 feet deep (domestic use).
- W- 7. SE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 2, T. 17 N., R. 25 E., G. Quinn, 34 feet deep (stock use).
- W- 8. SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 2, T. 17 N., R. 25 E., G. Quinn, 34 feet deep, 10 feet to water (stock use).
- W- 9. NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 1, T. 17 N., R. 25 E., J. Tichi, 40 feet deep, 20 feet to water.
- W-10. NE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 10, T. 17 N., R. 25 E., P. Martian, 60 feet deep.
- W-11. NW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 10, T. 17 N., R. 25 E., P. Martian, 45 feet deep.
- W-12. NW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 7, T. 17 N., R. 26 E., D. Lipp, 35-60 feet (stock use).
- W-13. NW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 7, T. 17 N., R. 26 E., D. Lipp, depth of well 35-60 feet (domestic use).
- W-14. SE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 15, T. 17 N., R. 25 E., A. Engel, 35 feet deep, depth to water 25? feet.
- W-15. SE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 15, T. 17 N., R. 25 E., A. Engel, 35 feet deep (stock use).
- W-16. SW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 13, T. 17 N., R. 25 E. (farm well).
- W-17. SW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 13, T. 17 N., R. 25 E. (farm well).
- W-18. NW $\frac{1}{4}$ sec. 20, T. 17 N., R. 25 E., Timber Lake west city well, 90 feet deep.
- W-19. NW $\frac{1}{4}$ sec. 20, T. 17 N., R. 25 E., Timber Lake north city well, 67 feet deep.
- W-20. NW $\frac{1}{4}$ sec. 20, T. 17 N., R. 25 E., Timber Lake new city well.

Table 2. Chemical analyses of water samples from the Trail City and Glencross area, collected by the Association prior to the Study.

Sample	Parts Per Million										
	Calcium	Magnesium	Chloride	Sulfate	Iron	Manganese	Nitrate Nitrogen	Fluoride	pH	Hardness CaCO ₃	Total Solids
A	—	—	250	500 ¹	0.3	0.05	10.0	0.9-1.7 ²	—	—	1000 ¹
W-105	86.7	18	11.5	200	0.07	0.35	2		8.1	290	640
W-107	110	40.5	35	1480	0.03	0.11	3.5		7.8	440	2404
W-108	140	32	27	1120	0.06	0.25	3.5		8.1	480	2068
W-109	42.1	11.5	14.6	73	0.07	0.13	5		8	152	462
W-110	98.2	38.8	44.7	212	0.02	0.35	28		8.1	404	1026
W-111	393	173	115	3580	0.01	0.11	8.0		7.8	1690	4906
W-139	42.1	20.5	5.6	31	0	0.07	4		7.9	189	268
W-142	32.6	18.7	6.5	138	0.15	0.09	3.5		8.1	158	650

A. Drinking water standards, U. S. Public Health Service (1962).

¹Modified for South Dakota by the Department of Health (written communication, Water Sanitation Section, September 24, 1968).

²1.2 is optimum for South Dakota.

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Location of water samples from the Trail City and Glencross area.
Collected by the Association

A. Drinking water standards, U. S. Public Health Service (1962).

W-105. SE¼ sec. 33, T. 19 N., R. 27 E., 41 feet deep.

W-107. SE¼ sec. 15, T. 18 N., R. 27 E.

W-108. SW¼ sec. 22, T. 18 N., R. 27 E., 58 feet deep.

W-109. SE¼ sec. 27, T. 18 N., R. 27 E., 26 feet deep.

W-110. NE¼ sec. 34, T. 18 N., R. 27 E., 40 feet deep.

W-111. SE¼ sec. 34, T. 18 N., R. 27 E., 49 feet deep.

W-139. SE¼ sec. 4, T. 17 N., R. 27 E., 40 feet deep.

W-142. NE¼ sec. 32, T. 18 N., R. 27 E., 82 feet deep.

APPENDIX A

Logs of test holes in the Trail City and Glencross Study Area

(For map location, fig. 2.)

Test Hole 1

Location: SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 20, T. 18 N., R. 26 E.

Depth to water: 19 feet

0- 8	Sand, tan, fine
8- 29	Sand, yellowish-brown, fine to medium; some clay
29- 66	Sand, blue-gray, fine to medium
66- 78	Sandy clay, gray
78- 89	Clay, blue-gray, (shale)

* * * *

Test Hole 2

Location: SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 20, T. 18 N., R. 26 E.

Depth to water: 9 feet

0 - 7	Sandy clay, yellowish-brown, fine
7 - 13	Sand, yellowish-orange, fine to medium
13 - 40?	Sand, grayish-blue, medium
40?- 54	Sandy clay

* * * *

Test Hole 3

Location: NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 28, T. 18 N., R. 25 E.

Depth to water: 9 feet

0- 3	Sand, tan, fine to medium
3- 11	Sand, yellowish-orange, fine to medium, lots of clay
11- 72	Sand, greenish-blue, fine to medium; some clay, well-sorted, compact
72-102	Clay, sandy
102-109	Clay, dark-gray, compact

* * * *

Test Hole 4

Location: SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 27, T. 18 N., R. 25 E.

Depth to water: 6 feet

0- 3	Sand, tan, fine to medium
3- 11	Sand, dark-gray, fine to medium
11- 35	Sand, greenish-gray, fine to medium; lots of clay
35- 58	Clay, gray
58- 64	Clay, dark-gray, (shale)

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Test Hole 5

Location: SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 27, T. 18 N., R. 25 E.

Depth to water: 20 feet

Test Hole 5 -- continued.

0- 5	Sand, tan, fine
5- 16	Sandy clay, brown
16- 21	Sand, yellowish-brown, fine to medium
21- 44	Sand, blue-gray, fine to medium
44- 52	Clay, gray, (shale)

* * * *

Test Hole 6

Location: SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 25, T. 18 N., R. 25 E.

Depth to water: 17 feet

0- 7	Sand, tan, fine
7- 22	Sand, brown, fine to medium; some clay
22- 35	Sand, blue-gray, fine to medium
35- 51	Sand, blue-gray, fine to medium, compact
51- 67	Sandy clay, blue-gray
67- 89	Clay, blue-gray, (shale)

* * * *

Test Hole 7

Location: SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 25, T. 18 N., R. 25 E.

Depth to water: 9 feet

0- 2	Sand, tan, fine
2- 17	Sand, yellowish-orange, fine to medium
17- 54	Sand, blue-gray, fine to medium, compact
54- 79	Sandy clay, gray

* * * *

Test Hole 8

Location: SW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 29, T. 18 N., R. 26 E.

Depth to water: 10 feet

0- 4	Sand, grayish-tan, fine
4- 13	Sand, yellowish-orange, fine to medium
13- 28	Sand, blue-gray, fine to medium; some clay
28- 54	Sand, gray, fine to medium
54- 83	Sandy clay, compact
83- 86	Clay, dark-gray, (shale)

* * * *

Test Hole 9

Location: SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 29, T. 18 N., R. 26 E.

Depth to water: 16 feet

0- 8	Sand, tan, fine
8- 25	Sand, yellowish-brown, fine to medium
25- 38	Sand, blue-gray, fine to medium
38- 53	Sand, dark-gray, medium; some clay
53- 62	Sandy clay
62- 69	Clay, blue-gray, (shale)

Test Hole 10

Location: NE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 29, T. 18 N., R. 26 E.

Depth to water: 18 feet

0- 2	Sand, fine
2- 13	Sand, yellowish-orange, fine to medium
13- 22	Sand, yellowish-brown, fine to medium; some clay, compact
22- 30	Sandy clay, gray, compact
30- 49	Clay, dark-gray, (shale)

* * * *

Test Hole 11

Location: NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 34, T. 18 N., R. 25 E.

Depth to water: 24 feet

0- 2	Sand, tan, fine
2- 21	Sandy clay, yellowish-brown
21- 31	Sand, yellowish-brown, fine to medium
31- 47	Sand, blue-gray, fine to medium
47- 63	Clay, blue-gray
63- 70	Clay, dark-gray, (shale)

* * * *

Test Hole 12

Location: SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 34, T. 18 N., R. 25 E.

Depth to water: 8 feet

0- 8	Sand, tan, fine, well-sorted
8- 17	Sand, yellowish-brown, fine to medium, compact
17- 38	Sand, greenish-gray, fine to medium, compact
38- 83	Sand, gray, fine; some clay; more clay from 70-83 feet
83- 95	Clay, dark-gray, very compact, (shale)

* * * *

Test Hole 13

Location: SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 31, T. 18 N., R. 26 E.

Depth to water: 17 feet

0- 4	Sand, yellowish-orange, fine to medium
4- 22	Sand, yellow, fine to medium; some clay
22- 44	Sand, gray, fine to medium; cemented layer at 43 feet
44- 54	Sandy clay, gray

* * * *

Test Hole 14

Location: NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 33, T. 18 N., R. 26 E.

Depth to water: 30? feet

0- 5	Sand, tan, fine
5- 18	Sandy clay, yellowish-brown
18- 35	Sandy clay, blue-gray
35- 54	Clay, dark-gray, (shale)

* * * *

Test Hole 15

Location: NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 4, T. 17 N., R. 25 E.

Depth to water: 19 feet

0- 20	Sand, yellowish-orange, fine to medium
20- 32	Sand, brownish-orange, fine
32- 92	Sand, gray, fine to medium; lots of clay; more clay from 77-92 feet
92- 99	Clay, dark-gray, (shale)

* * * *

Test Hole 16

Location: NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 1, T. 17 N., R. 25 E.

Depth to water: 10 feet

0- 4	Sand, brown, fine to medium
4- 28	Sand, yellowish-orange, fine to medium; some clay
28- 52	Sand, gray, fine to medium; cemented layer at 51 feet
52- 82	Sand, blue-gray, fine to medium, very compact
82- 89	Clay, dark-gray, compact, (shale)

* * * *

Test Hole 17

Location: NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 6, T. 17 N., R. 26 E.

Depth to water: 19 feet

0- 8	Sand, tan, fine to medium
8- 24	Sand, yellowish-orange, fine to medium, very compact, lots of clay
24- 32	Sand, greenish-gray, fine to medium
32- 48	Sand, blue-gray, fine to medium; some clay, compact
48- 58	Sandy clay; cemented layer at 53 feet

* * * *

Test Hole 18

Location: NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 10, T. 17 N., R. 25 E.

Depth to water: 29 feet

0- 7	Sand, brown, fine to medium
7- 32	Sand, tan, fine to medium, compact; some cemented layers
32- 40	Sand, yellowish-brown, fine to medium, compact
40- 62	Sand, blue-gray, fine to medium, compact
62- 70	Sandy clay, blue-gray
70- 78	Clay, dark-gray, (shale)

* * * *

Test Hole 19

Location: NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 11, T. 17 N., R. 25 E.

Depth to water: 8? feet

0 - 2	Sand, tan, fine
2 - 17	Sand, yellowish-brown, fine; some clay
17 - 30	Sand, gray; some clay, compact

Test Hole 19 – continued.

30 - 65?	Sand, gray, fine; some clay, compact
65?- 84	Sandy clay?, very compact
84 - 89	Clay, dark-gray, compact, (shale)

* * * *

Test Hole 20

Location: SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 11, T. 17 N., R. 25 E.

Depth to water: 24? feet

0- 3	Sand, tan, fine
3- 17	Sand, yellowish-brown, fine, compact
17- 58	Sand, fine to medium; some clay
58-	Cemented sand

* * * *

Test Hole 21

Location: SW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 12, T. 17 N., R. 25 E.

Depth to water: 17 feet

0- 10	Sand, yellowish-brown, fine to medium, well-sorted
10- 17	Sand, yellowish-brown, fine to medium, well-sorted, compact
17-	Cemented sand

* * * *

Test Hole 22 (Observation Well)

Location: NW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 12, T. 17 N., R. 25 E.

Depth to water: 8 feet

0- 7	Sand, yellowish-orange, fine, compact
7- 47	Sand, blue-gray, fine to medium; some clay, compact
47- 69	Sandy clay?, gray; cemented layer at 69 feet

* * * *

Test Hole 23

Location: SE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 12, T. 17 N., R. 25 E.

Depth to water: 10 feet

0- 4	Sand, tan, fine to medium
4- 17	Sand, yellowish-orange, fine to medium, compact
17- 33	Sand, blue-gray, fine to medium
33- 48	Sand, blue-gray, fine to medium; some clay
48-	Cemented sand

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Test Hole 24

Location: SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 12, T. 17 N., R. 25 E.

Depth to water: 8 feet

0- 2	Sand, dark-gray, fine to medium
2- 9	Sand, yellowish-orange, fine to medium, well-sorted; some clay, compact

Test Hole 24 -- continued.

9- 20 Sand, blue-gray, fine to medium, well-sorted; some clay, compact
20- Cemented sand

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Test Hole 25

Location: SW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 12, T. 17 N., R. 25 E.

Depth to water: 7 feet

1- 13 Sand, tan, fine to medium
13- 33 Sand, blue-gray, fine to medium; some clay, compact, well-sorted
33- Cemented sand

* * * *

Test Hole 26

Location: NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 15, T. 17 N., R. 25 E.

Depth to water: 15 feet

0- 15 Sand, yellowish-orange, fine to medium; some clay, compact
15- 52 Sand, blue-gray, fine to medium; some clay, compact
52- 68 Sandy clay, blue-gray
68- 74 Clay, blue-gray, compact, (shale)

* * * *

Test Hole 27

Location: NE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 14, T. 17 N., R. 25 E.

Depth to water: 5 feet

0- 2 Sand, tan, fine
2- 12 Sand, yellowish-brown; some clay, compact
12- 57 Sand, gray, very fine; some clay, more clay from 45-57,
cemented layer at 52 feet
57- 69 Clay, blue-gray, compact, (shale)

* * * *

Test Hole 28

Location: NW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 13, T. 17 N., R. 25 E.

Depth to water: 9 feet

0- 2 Sand, fine
2- 7 Sand, yellow, fine
7- 42 Sand, gray, very fine; some clay
42- 43 Sand, cemented
43- 64 Sand, gray; some clay; more clay from 54-64 feet
64- 69 Clay, blue-gray, compact, (shale)

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Test Hole 29

Location: SE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 13, T. 17 N., R. 25 E.

Depth to water: 12? feet

Test Hole 29 – continued.

0- 8	Sand, light-brown, very fine
8- 18	Sand, yellowish-brown; some clay
18- 72	Sand, greenish-gray, very fine; some clay
72- 79	Clay, dark-gray, (shale)

* * * *

Test Hole 30

Location: SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 20, T. 17 N., R. 25 E.

Depth to water: 6 feet

0- 2	Sand, tan, fine to medium
2- 6	Sand, yellowish-orange, fine to medium, compact, cemented
6- 33	Sand, blue-gray, fine to medium; some clay, compact
33- 72	Sand, blue-gray, fine to medium, well-sorted
72-101	Clay, gray
101-109	Clay, gray, compact, (shale)

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Test Hole 31

Location: NE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 20, T. 17 N., R. 25 E.

(50 feet west of Timber Lake South City Well)

Depth to water: not measured

0- 6	Sand, tan, fine
6- 22	Sand, yellowish-brown, fine, compact; some clay
22-	Cemented sand

* * * *

Test Hole 32

Location: SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 20, T. 17 N., R. 25 E.

(50 feet west of Timber Lake East City Well)

Depth to water: not measured

0- 5	Sand, tan, fine
5- 23	Sand, yellowish-brown, fine, very compact
23- 34	Sand, blue-gray, fine, compact
34-	Cemented sand

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Test Hole 33

Location: SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 20, T. 17 N., R. 25 E.

(50 feet south of Timber Lake East City Well)

Depth to water: 24? feet

0- 2	Sand, tan, fine
2- 9	Sand, yellow; some clay
9- 33	Sand, brownish-orange, fine, compact
33-	Cemented sand

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Test Hole 34

Location: NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 23, T. 17 N., R. 25 E.

Depth to water: 11 feet

0- 26	Sand, yellowish-brown, fine; some clay
26- 53	Sand, gray, very fine, compact
53- 59	Clay, dark-gray

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Test Hole 35

Location: NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 19, T. 17 N., R. 26 E.

Depth to water: 17 feet

0- 3	Sand, tan, fine to medium
3- 14	Sand, yellowish-orange, fine to medium
14- 17	Sandy clay, brown
17- 28	Sandy clay, blue-gray
28- 39	Clay, blue-gray, (shale)

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Test Hole 36

Location: NW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 20, T. 17 N., R. 26 E.

Depth to water: 30? feet

0- 18	Clay, yellowish-brown, sandy
18- 34	Clay, gray
34- 44	Clay, blue-gray, (shale)

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APPENDIX B

Well Records in the Trail City and Glencross Area

Use: D, domestic; S, stock.

Corson County data was obtained from the United States Geological Survey.

Name	Location	Depth of Well (feet)	Depth of Water (feet)	Use
Kraft, F.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 7, T. 18 N., R. 28 E.	55		S
Kraft, F.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 7, T. 18 N., R. 28 E.	60		S
Kraft, F.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 7, T. 18 N., R. 28 E.	80		D
Kelley, J.	SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 31, T. 18 N., R. 28 E.	24	18	D
Kelley, J.	SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 31, T. 18 N., R. 28 E.	25	18	S
Hacecky, R.	NE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 33, T. 18 N., R. 28 E.			D,S
Holzer, K.	SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 12, T. 18 N., R. 27 E.	80		D
Holzer, J.	NE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 13, T. 18 N., R. 27 E.	57	50	S
Holzer, K.	SW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 13, T. 18 N., R. 27 E.	75		S
Holzer, J.	NE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 13, T. 18 N., R. 27 E.	30	19	D
Reinbolt, J.	SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 14, T. 18 N., R. 27 E.	82		D,S
Melhoff, C.	NE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 16, T. 18 N., R. 27 E.	250		D,S
Melhoff, C.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 16, T. 18 N., R. 27 E.	80		D
Melhoff, C.	NE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 16, T. 18 N., R. 27 E.	60		
Balliett, W.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 17, T. 18 N., R. 27 E.	30		

Name	Location	Depth of Well (feet)	Depth of Water (feet)	Use
Balliett, W.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 17, T. 18 N., R. 27 E.	40		S
Bieber, R.	NE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 18, T. 18 N., R. 27 E.	35		
Hommel, J.	SW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 22, T. 18 N., R. 27 E.	58		S
Hommel, J.	SW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 22, T. 18 N., R. 27 E.	58	10	D
Hommel, J.	SW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 22, T. 18 N., R. 27 E.	30		S
Reinbolt, J.	NW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 23, T. 18 N., R. 27 E.	82		S
Holzer, F.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 24, T. 18 N., R. 27 E.	40		D
Holzer, F.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 24, T. 18 N., R. 27 E.	28	12	S
Keller, V.	SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 25, T. 18 N., R. 27 E.	22		D
Keller, V.	SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 25, T. 18 N., R. 27 E.	60		
Keller, V.	SE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 25, T. 18 N., R. 27 E.	160	20	
Keller, B.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 27, T. 18 N., R. 27 E.	32		S
Keller, B.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 27, T. 18 N., R. 27 E.	26		D,S
Keller, B.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 27, T. 18 N., R. 27 E.	55		S
Keller, B.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 27, T. 18 N., R. 27 E.	20		D
Roshau, L.	NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 30, T. 18 N., R. 27 E.	36		D,S
Roshau, L.	NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 30, T. 18 N., R. 27 E.	41		D,S
Mastel, G.	SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 32, T. 18 N., R. 27 E.	60		

Name	Location	Depth of Well (feet)	Depth of Water (feet)	Use
Mastel, G.	SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 32, T. 18 N., R. 27 E.	50	15	D,S
Mastel, G.	SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 32 T. 18 N., R. 27 E.	22	20	D
Aberle, P.	SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 34, T. 18 N., R. 27 E.	45	14	D
Glatt, S.	SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 34, T. 18 N., R. 27 E.	49		D
Aberle, P.	SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 34, T. 18 N., R. 27 E.	42		S
Aberle, P.	SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 34, T. 18 N., R. 27 E.	42		S
Yukor, L.	NE $\frac{1}{4}$ sec. 9, T. 18 N., R. 26 E.	60		S
Meyer, J.	NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 9, T. 18 N., R. 26 E.	80		S
Meyer, J.	SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 9, T. 18 N., R. 26 E.	50		S
Meyer, J.	NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 9, T. 18 N., R. 26 E.	50		S
Meyer, J.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 9, T. 18 N., R. 26 E.	50		S
Meyer, J.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 9, T. 18 N., R. 26 E.	50		D
Martian, J.	NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 10, T. 18 N., R. 26 E.	50		S
Martian, J.	NE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 11, T. 18 N., R. 26 E.	50		S
Keller, V.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 12, T. 18 N., R. 26 E.	40		S
Bieber, R.	NE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 13, T. 18 N., R. 26 E.	35		S
Bieber, R.	SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 13, T. 18 N., R. 26 E.	85		D
Martian, G.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 14, T. 18 N., R. 26 E.	50		D

Name	Location	Depth of Well (feet)	Depth of Water (feet)	Use
Martian, G.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 14, T. 18 N., R. 26 E.	45	13	S
Martian, G.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 14, T. 18 N., R. 26 E.			
Martian, G.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 15, T. 18 N., R. 26 E.	20		S
Marshall, G.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 19, T. 18 N., R. 26 E.	35	6	S
Selzler, A.	NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 21, T. 18 N., R. 26 E.	75	30	D,S
Keller, V.	SW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 24, T. 18 N., R. 26 E.	63		S
Keller, V.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 25, T. 18 N., R. 26 E.	33		S
Keller, V.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 25, T. 18 N., R. 26 E.	35		S
Keller, V.	NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 25, T. 18 N., R. 26 E.	52		S
Keller, V.	SE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 25, T. 18 N., R. 26 E.	62		S
Keller, D.	SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 25, T. 18 N., R. 26 E.	62		S
Keller, V.	NE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 25, T. 18 N., R. 26 E.	30		D
Schweitzer, P.	NE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 25, T. 18 N., R. 26 E.	45	20	S
Keller, V.	NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 25, T. 18 N., R. 26 E.	100		S
Keller, L.	SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 26, T. 18 N., R. 26 E.	80		
Keller, L.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 26, T. 18 N., R. 26 E.	80		
Keller, L.	SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 26, T. 18 N., R. 26 E.			
Schweitzer, P.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 30, T. 18 N., R. 26 E.	45		D,S

Name	Location	Depth of Well (feet)	Depth of Water (feet)	Use
Schweitzer, P.	NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 30, T. 18 N., R. 26 E.	45	20	D,S
Voller, J.	SW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 32, T. 18 N., R. 26 E.	20	15	D
Voller, J.	SW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 32, T. 18 N., R. 26 E.	40	15	S
Voller, J.	SW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 32, T. 18 N., R. 26 E.	20	15	S
Voller, J.	SW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 32, T. 18 N., R. 26 E.	20	15	S
Voller, J.	NE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 33, T. 18 N., R. 26 E.	65	15	S
Keller, E.	SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 34, T. 18 N., R. 26 E.	50		S
Keller, P.	SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 35, T. 18 N., R. 26 E.	28	24	S
Keller, E.	SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 36, T. 18 N., R. 26 E.	68	16	S
Keller, E.	SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 36, T. 18 N., R. 26 E.	26	3	S
Keller, E.	SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 36, T. 18 N., R. 26 E.	167	70	S
Enright, B.	SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 12, T. 18 N., R. 25 E.	40		S
Enright, B.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 13, T. 18 N., R. 25 E.	58		D
Enright, B.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 13, T. 18 N., R. 25 E.	35		S
Marshall, G.	SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 13, T. 18 N., R. 25 E.	78	60	S
Enright, B.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 13, T. 18 N., R. 25 E.	33		S
Enright, B.	SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 14, T. 18 N., R. 25 E.	50		D
Enright, B.	SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 14, T. 18 N., R. 25 E.	33		S

Name	Location	Depth of Well (feet)	Depth of Water (feet)	Use
Enright, L.	NW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 23, T. 18 N., R. 25 E.	22	10	D
Enright, L.	NW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 23, T. 18 N., R. 25 E.	22	10	S
Marshall, G.	NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 24, T. 18 N., R. 25 E.	104	35	D,S
Marshall, G.	NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 24, T. 18 N., R. 25 E.	44	35	D,S
Marshall, G.	SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 24, T. 18 N., R. 25 E.	44	35	S
Marshall, G.	NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 24, T. 18 N., R. 25 E.	35	9	S
Schweitzer, P.	SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 25, T. 18 N., R. 25 E.	45		
Switzer, J.	SW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 25, T. 18 N., R. 25 E.	60		
Gill, L.	SW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 26, T. 18 N., R. 25 E.	30		S
Gill, L.	SW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 26, T. 18 N., R. 25 E.	60	20	D
Chapel, E.	SE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 33, T. 18 N., R. 25 E.	55	12	D,S
Chapel, E.	SE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 33, T. 18 N., R. 25 E.	85	25	S
Jung, L.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 35, T. 18 N., R. 25 E.	32	4	S
Jung, L.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 35, T. 18 N., R. 25 E.	60		S
Jung, L.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 35, T. 18 N., R. 25 E.	42	16	D
Jung, L.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 35, T. 18 N., R. 25 E.	42	4	S
Fritz, E.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 1, T. 17 N., R. 27 E.	65		S
Fritz, E.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 1, T. 17 N., R. 27 E.	58		S

Name	Location	Depth of Well (feet)	Depth of Water (feet)	Use
Hulm, H.	SE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 4, T. 17 N., R. 27 E.	40	25	D,S
Hulm, H.	SE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 4, T. 17 N., R. 27 E.	70	50	S
Reiss, L.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 8, T. 17 N., R. 27 E.	69	45	D,S
Reiss, L.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 8, T. 17 N., R. 27 E.	96	60	D,S
Reiss, L.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 8, T. 17 N., R. 27 E.	25		D,S
Rice, C.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 8, T. 17 N., R. 27 E.	78	28	D,S
Silbernagel, F.	SE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 10, T. 17 N., R. 27 E.	63	40	S
Silbernagel, F.	SE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 10, T. 17 N., R. 27 E.	40	16	S
Silbernagel, F.	SE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 10, T. 17 N., R. 27 E.	100	16	S
Aberle, L.	SE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 19, T. 17 N., R. 27 E.	80	60	D,S
Aberle, L.	SE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 19, T. 17 N., R. 27 E.	125	115	D,S
Aberle, L.	SE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 19, T. 17 N., R. 27 E.	60	40	S
Jones, L.	NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 1, T. 17 N., R. 26 E.	56	35	D,S
Keller, P.	SE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 2, T. 17 N., R. 26 E.	156	20	D
Keller, P.	SE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 2, T. 17 N., R. 26 E.	40	12	S
Keller, E.	SE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 3, T. 17 N., R. 26 E.	50		S
Keller, E.	SE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 3, T. 17 N., R. 26 E.	90		D
Keller, E.	SE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 3, T. 17 N., R. 26 E.	90		S

Name	Location	Depth of Well (feet)	Depth of Water (feet)	Use
Yukor, L.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 4, T. 17 N., R. 26 E.	143		D,S
Yukor, L.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 4, T. 17 N., R. 26 E.	40		S
Lipp, D.	NW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 7, T. 17 N., R. 26 E.	40	25	D,S
Schweitzer, T.	NW $\frac{1}{4}$ sec. 7, T. 17 N., R. 26 E.	9		S
Leibel, A.	SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 8, T. 17 N., R. 26 E.	30		S
Leibel, A.	SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 8, T. 17 N., R. 26 E.	50		S
Leibel, A.	SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 8, T. 17 N., R. 26 E.	120		D
Leibel, L.	NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 9, T. 17 N., R. 26 E.	45	36	S
Leibel, L.	NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 9, T. 17 N., R. 26 E.	110	50	D
Leibel, L.	NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 9, T. 17 N., R. 26 E.	60	50	S
Schweitzer, F.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 10, T. 17 N., R. 26 E.	150		S
Schweitzer, F.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 10, T. 17 N., R. 26 E.	150		D,S
Franks, D & P	SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 13, T. 17 N., R. 26 E.	56	17	S
Franks, D & P	SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 13, T. 17 N., R. 26 E.	100	15	D,S
Leibel, El.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 14, T. 17 N., R. 26 E.	80	30	D,S
Senger, R.	SE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 15, T. 17 N., R. 26 E.	70	15	S
Senger, R.	NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 16, T. 17 N., R. 26 E.	110	95	D,S
Senger, R.	NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 16, T. 17 N., R. 26 E.	65	55	S

Name	Location	Depth of Well (feet)	Depth of Water (feet)	Use
Schweitzer, T.	NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 17, T. 17 N., R. 26 E.	75	50	S
Schweitzer, T.	SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 17, T. 17 N., R. 26 E.	21		S
Schweitzer, T.	NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 17, T. 17 N., R. 26 E.	130	55	D
Schweitzer, T.	NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 17, T. 17 N., R. 26 E.	23	19	S
Welder, M.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 22, T. 17 N., R. 26 E.	25		S
Welder, M.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 22, T. 17 N., R. 26 E.	100		S
Welder, M.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 22, T. 17 N., R. 26 E.	25		D,S
Lenling, M.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 24, T. 17 N., R. 26 E.	150	75	D,S
Merkel, L.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 25, T. 17 N., R. 26 E.	100	80	S
Merkel, L.	SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 25, T. 17 N., R. 26 E.	60	20	D,S
Jewett, J.	NE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 28, T. 17 N., R. 26 E.	120		D
Jewett, J.	NE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 28, T. 17 N., R. 26 E.	45	10	S
Tichi, J.	NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 1, T. 17 N., R. 25 E.	70	20	D,S
Tichi, J.	NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 1, T. 17 N., R. 25 E.	40	20	D,S
Quinn, G.	SE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 2, T. 17 N., R. 25 E.	34	10	D,S
Quinn, G.	SE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 2, T. 17 N., R. 25 E.	34	10	S
Quinn, G.	SE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 2, T. 17 N., R. 25 E.	28		D
Dickoff, J.	NE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 4, T. 17 N., R. 25 E.			D,S

Name	Location	Depth of Well (feet)	Depth of Water (feet)	Use
Milliken, J.	SE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 4, T. 17 N., R. 25 E.	74		D
Milliken, J.	SE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 4, T. 17 N., R. 25 E.	66		S
Wilcox, H.	NW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 8, T. 17 N., R. 25 E.	33		D,S
Gill, L.	NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 8, T. 17 N., R. 25 E.	80	25	D,S
Wilcox, H.	NW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 8, T. 17 N., R. 25 E.	27		D,S
Schweitzer, M.	SE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 9, T. 17 N., R. 25 E.	33		D,S
Martian, P.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 10, T. 17 N., R. 25 E.	45		S
Martian, P.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 10, T. 17 N., R. 25 E.	60		D
Engel, A.	SE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 15, T. 17 N., R. 25 E.	35	27	D,S
Keller, T. J.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 16, T. 17 N., R. 25 E.	58	40	S
Keller, T. J.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 16, T. 17 N., R. 25 E.	25	10	D,S
Hulm, A.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 17, T. 17 N., R. 25 E.	60	30	D,S
Robley, L.	SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 18, T. 17 N., R. 25 E.	40		S
Robley, L.	SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 18, T. 17 N., R. 25 E.	36		S
Robley, L.	SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 18, T. 17 N., R. 25 E.	42		D
Robley, L.	SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 18, T. 17 N., R. 25 E.	22		D
Robley, L.	SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 18, T. 17 N., R. 25 E.	22	6	S
Hodgman, H.	SW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 20, T. 17 N., R. 25 E.	70	25	D,S

Name	Location	Depth of Well (feet)	Depth of Water (feet)	Use
Springer, H.	SW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 21, T. 17 N., R. 25 E.	50	30	D,S
Maciejewski, J.	NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 25, T. 17 N., R. 25 E.	200	10	D,S
Maciejewski, J.	NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 25, T. 17 N., R. 25 E.	40	10	D,S
Maciejewski, J.	NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 25, T. 17 N., R. 25 E.	40	10	D,S
Maciejewski, J.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 26, T. 17 N., R. 25 E.	40	10	D,S
Kraft, J.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 29, T. 17 N., R. 25 E.	50	20	D,S
Kraft, J.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 29, T. 17 N., R. 25 E.	75	25	S
Kraft, J.	NE $\frac{1}{4}$ sec. 30, T. 17 N., R. 25 E.	90	25	S
Kraft, J.	SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 30, T. 17 N., R. 25 E.	90	30	S
Long, K.	NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 33, T. 17 N., R. 25 E.	55	40	D,S

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