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County Ground Water Studies I

**GEOLOGY AND GROUND WATER RESOURCES
OF
KIDDER COUNTY, NORTH DAKOTA
PART II
GROUND WATER BASIC DATA**

by

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Geological Survey

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This is one of a series of county reports which will be published cooperatively by the North Dakota Geological Survey and the North Dakota State Water Conservation Commission in three parts. Part I is concerned with geology, Part II, basic data which includes information on existing wells and test drilling, and Part III which will be a study of hydrology in the county. Part III will be published later and will be distributed as soon as possible.

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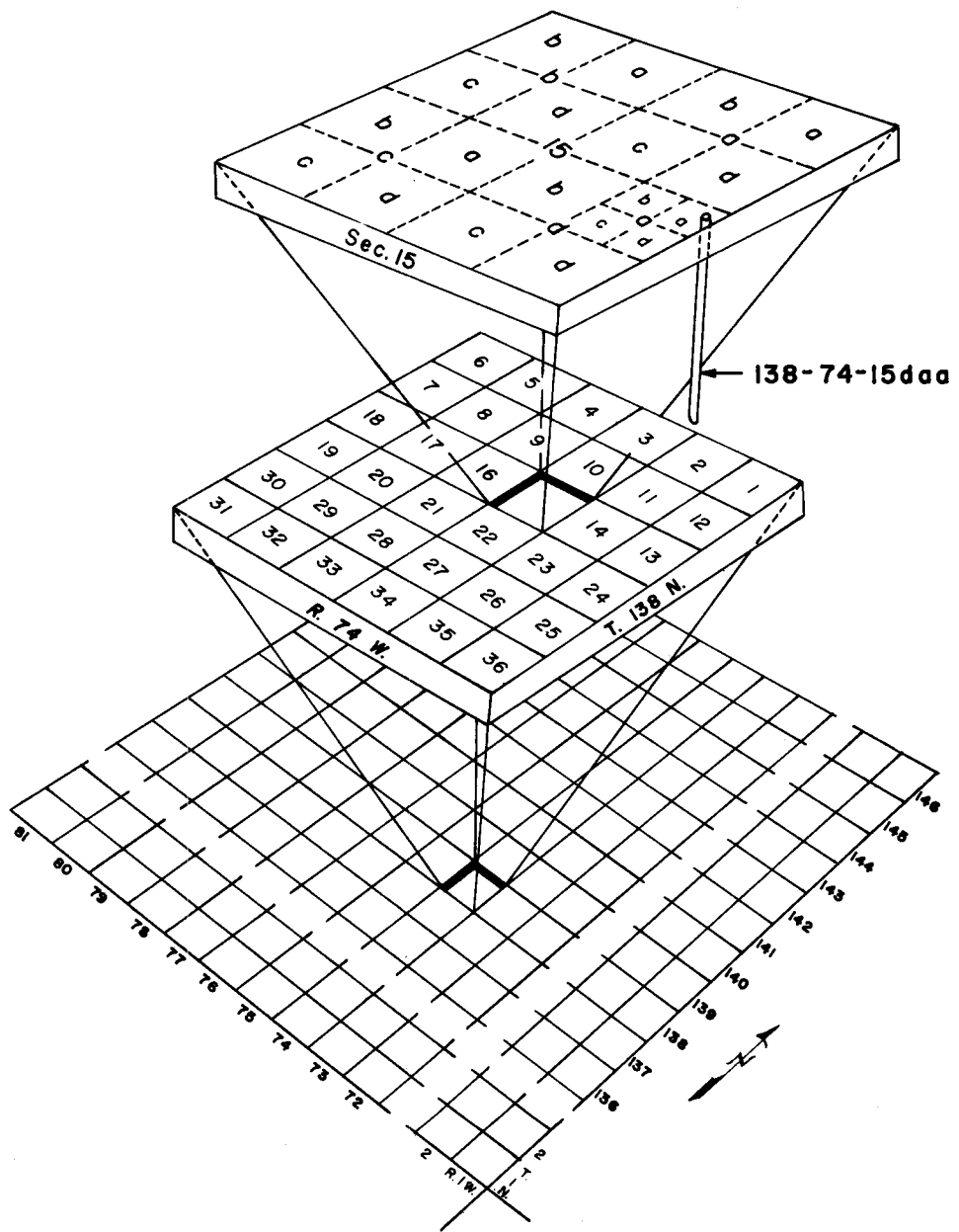


Figure 1--System of numbering wells, springs, and test holes.

Introduction

This report serves two purposes: (1) to make available basic ground-water data useful for planning and studying water-resources development in Kidder County and (2) to supplement interpretive reports on the geology and on the ground water and its quality that will be published separately.

The records were collected during the period 1955 to 1961 as a part of a cooperative investigation of the geology and ground-water resources of Kidder County, N. Dak., made by the U. S. Geological Survey, North Dakota Geological Survey, and North Dakota State Water Conservation Commission. An interpretive report on the geology of the area by J. A. Rau and others is being published by the North Dakota Geological Survey; an interpretive report on the ground-water resources and their quality by D. G. Adolphson and L. R. Petri also will be published.

Records of water-level fluctuations in wells in Kidder County prior to 1957 have been published in the following Water-Supply Papers of the U. S. Geological Survey: 840, p. 323; 845, p. 357; 886, p. 538; 908, p. 360-61; 938, p. 206-07; 988, p. 321; 1018, p. 243-44; 1025, p. 232; 1073, p. 322-23; 1098, p. 301-02; 1128, p. 270; 1158, p. 313-14; 1167, p. 146; 1193, p. 174; 1223, p. 169; 1267, p. 184; 1323, p. 202, 1406, p. 198-99; and 1456, p. 49-50 (Water-Supply Papers showing water levels and artesian pressures in wells in the United States).

The wells, test holes, and springs in the tables are numbered according to a system based on the public land classification of the U. S. Bureau of Land Management. It is illustrated in fig. 1. The first numeral denotes the township north of the base line, the second numeral the range west of the fifth principal meridian, and the third the section in which the well or test hole is located. The letters a, b, c, and d designate respectively the northeast, northwest, southwest and southeast quarter sections, quarter-quarter sections, and quarter-quarter-quarter sections (10-acre tract). For example, well 141-73-12bcc is in the SW1/4 SW1/4 NW1/4 of sec. 12, T. 141 N., R. 73 W. Consecutive terminal numerals are added if more than one well is recorded within a 10-acre tract.

The data collected in this report are useful for predicting subsurface conditions in Kidder County. The depth and thickness of water-bearing rocks and, in selected areas, the quality of water may be determined at a given site by examining the tables of records of nearby wells, springs and test holes. The general usefulness of these data can be enhanced considerably by examining the interpretive reports on the geology and ground water in Kidder County in conjunction with the use of this report.

TABLE 1.--Records of wells, test holes, and springs in Kidder County, N. Dak.

Depth of well: Measured depths are given in feet, tenths and (or) hundredths; reported depths are in feet.

Depth to water: Measured depths are given in feet and hundredths; reported depths are in feet or feet and tenths.

Type of well is indicated by symbol as follows: Du, dug; Dr, drilled; Dv, driven.

Use of water or well is shown by symbol as follows: D, domestic; O, observation of water level; PS, public supply; RR, railroad; S, stock; T, test hole, U; unused.

Remarks: Chemical analyses are in table 2 and 3; water-level records are in table 4; logs are in table 5.

Location no.	Owner or name	Depth of well (feet)	Casing diameter or size (inches)	Type	Date completed	Depth to water below land surface (feet)	Date of measurement	Use of water or well	Aquifer	Altitude of land surface (feet)	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
<u>137-70</u>											
2ddd1	John Neinow	70	3	Dr	....	8	8-11-49	D,S	Gravel	.....	Supply reported adequate.
2ddd2	Dr. Stocks	100	...	Dr	....	3	.....	D,S	..do..	1,910	
4cbc	John Schmidt	28	...	Du	....	23	.....	D,S	..do..	1,880	..Do...
6aaa	G. Buchfink	212	...	Dr	1924	30	.....	D,S	.....	1,950	..Do...
8aad1	Ray Schmidt	8	...	Du	....	3	.....	D,S	Sand	1,880	..Do...
8aad2	Percy Horst	70	...	..	....	35	.....	D,S	Clay	1,915	..Do...
8daa	Ed Schmidt	50	...	Dr	....	.....	.....	D,S	.....	1,895	..Do...
10dcc	Otto Wurtle	96	3	Dr	....	65	.....	D,S	.....	1,890	..Do...
12cbb1	Jake Scharer	19.90	36 x 36	Du	....	17.25	8-11-49	D,S	Sand	1,900	Supply reported inadequate
14aad	August Schauer	180	3	Dr	1943	Flow	.....	D,S	Shale	1,905	Supply reported adequate.

1	2	3	4	5	6	7	8	9	10	11	12
<u>137-70</u> (Cont.)											
14dad	Walter Sharer	300	3	Dr	1929	98.3	8-11-49	D,S	Shale	.....	Supply reported adequate.
17aaa	Unknown	14.33	...	Du	....	8.25	8-11-55	D,S	.....	1,875	Do.
20aaa	John Spitzer	40	...	..	....	.....	.....	D,S	.....	1,920	Do.
20add	Helmuth Spitzer	180	...	Dr	....	40	.....	D,S	.....	1,885	Do.
21ada	Jake Wittmier	110	...	Dr	....	80	.....	D,S	.....	1,908	Do.
22ddc	Fred Schumaker	250	3	Dr	1932	148.76	8-11-49	D,S	Sand	.....	Do.
24ccb1	Emil Schwartzwalter	18.88	32	Du	1947	13.76	8-11-49	D	..do..	1,935	Do.
24ddd	Gilbert Fischer	130	3	Dr	....	73.8	8-11-49	D,S	..do..	1,880	Supply reported inadequate.
26abb	Emil Wieland	60	3	Dr	1943	33.30	8-11-49	D,S	..do..	1,935	Supply reported adequate; see chemical analysis.
26cba	Walter Schwartzwalter	100	3	Dr	1927	23	8-11-49	D,S	..do..	1,940	Do.
26dcd	Milton Schwartzwalter	24.82	41 x 41	Du	....	20.00	8-11-49	D,S	Gravel	1,920	Supply reported adequate.
26ddd	Edwin Schwartzwalter	60	...	..	....	20	.....	D,S	..do..	1,920	Do.
28bb	Edwin Koestler	45	...	Dr	....	.....	.....	D,S	.....	1,990	Do.
32dcd	E. Bender	.....	...	Du	....	10	.....	D,S	.....	.....	Do.
33ada	Gideon Kirschenman	36	...	Du	....	.....	.....	D,S	Gravel	1,895	Do.
34aba1	Wesly Eisenbeis	9.80	32	Du	1939	6.98	8-11-49	S	Sand	1,890	Do.
34aba2	do	13.20	32	Du	1947	9.87	8-11-49	D	..do..	1,890	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>137-71</u>											
2bcc	Louie Chmulewski	16	...	Du	....	.....	.....	D,S	Gravel	2,070	Supply reported adequate.
4aad	T. Torgison	200	...	Dr	....	180	.....	D,S	Clay	2,110	Do.
8ac	Frank A. Fettig	135	...	..	....	.....	.....	D,S	.....	2,000	Do.
8ba	Art J. Werre	210	...	..	....	140	.....	D,S	.....	2,075	Do.
8ccc	John Mertz Jr.	155	...	..	....	40	.....	D,S	.....	2,040	Do.
10aba	Stanley Chmulewski	108	...	Dr	....	105	.....	D,S	Clay	2,075	Do.
10caa	A. J. Buschee	260	...	..	....	85	.....	D,S	.....	2,035	Do.
14adc	R. G. Schmidt	60	...	Dr	....	20	.....	D,S	Sand	2,010	Do.
18dca	F. Hoffer	200	...	..	....	.....	.....	D,S	..do..	2,020	Do.
25ad	Edwin Fergeson	65	...	Dr	....	.....	.....	D,S	..do..	1,945	Do.
26ab	Henry Schumacker	100	...	Dr	....	70	.....	...	..do..	1,990	Do.
26bc	Ernest Hoffer	185	...	Dr	....	95	.....	D,S	.....	1,995	Do.
28cd	Joe P. Fettig	100+	...	Dr	....	.....	.....	D,S	.....	1,995	Do.
30bd	A. Lachenmlie	240	...	Dr	....	180	.....	D,S	Sand	2,070	Do.
30ccc	J. P. Kuhn	192	...	Dr	....	155	.....	D,S	.....	2,070	Do.
32bb	Fred Lang	340	...	..	....	140	.....	D,S	Sand	2,035	Do.
32ddd	do	100	...	..	....	.....	.....	D,S	.....	1,990	Do.
34ad1	Adam Schumacker	20	...	Du	....	10	.....	D,S	Sand	1,940	Do.
34ad2	do	45	...	Dr	....	12	.....	D,S	..do..	1,940	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>137-72</u>											
1aaa	Jake Staal	140	...	Dr	....	.....	.....	D,S	.....	2,065	Supply reported adequate.
2ba	R. Kleppe	130	2	Dr	....	30	.....	D,S	Shale	1,940	Do.
3aa	H. P. Plath	95	...	..	....	4	.....	D,S	Gravel	1,900	Do.
3acb	M. Kemmet	235	2 1/2	Dr	....	10	.....	D,S	..do..	1,938	Do.
4bba1	E. DeVore	150	2 1/2	Dr	....	25	.....	D,S	Clay	.....
4bba2	do	24	2 1/2	Dr	....	13	.....	D,S	..do..	.....
6ca	A. Dexter	149	...	Dr	....	30	.....	D,S	Sandstone	1,870	Do.
6da1	N. Gebbard	115	...	Dr	....	87	.....	D,S	Sand	1,875	Do.
6da2	T. Dexter	104	2	Dr	....	75	.....	D,S	..do..	1,900	Do.
8aaa	F. Kemmet	100	...	Dr	1951	.....	.....	D,S	Gravel	1,985	Do.
10ab	E. Reuer	190	...	Dr	....	150	.....	D,S	..do..	1,990	Do.
10ccb	Q. Shower	140	...	Dr	....	.....	.....	D,S	Sand	1,995	Do.
14cc	C. Kemmet	210	...	Dr	....	.....	.....	D,S	Gravel	1,890	Do.
14dd	A. Jab	18	...	Dr	....	12	.....	D,S	Sand	2,000	Do.
18ad	F. Albrecht	225	...	Dr	....	150	.....	D,S	..do..	1,920	Do.
20aa	Ernest Albrecht	276	...	Dr	....	.....	.....	D,S	..do..	1,950	Do.
20bc	C. Albrecht	285	...	Dr	....	.....	.....	D,S	..do..	1,970	Do.
22aa	S. Kienzle	145	...	Dr	....	40	.....	D,S	..do..	1,968	Do.
22bb	E. G. Reuer	60	...	Dr	....	20	.....	D,S	Gravel	1,982	Supply reported adequate; see chemical analysis.
22cc	G. L. Jackson	220	...	Dr	....	.....	.....	D,S	Sand	2,030	Supply reported adequate.

1	2	3	4	5	6	7	8	9	10	11	12
<u>137-72</u> (Cont.)											
24bb	W. J. Werre	220	...	..	....	80	.....	D,S	Gravel	2,020	Supply reported adequate.
28aa	Christ Holtman	350	...	Dr	....	80	.....	D,S	Lignite	2,100	Do.
30ab	Ed Albrecht	29	...	Dr	....	10	.....	D,S	Sand	2,100	Do.
34db	M. Welder	200	...	Dr	....	.....	.....	D,S	Gravel	2,060	Supply reported adequate.
<u>137-73</u>											
4bb	Martin Janke	112	...	Dr	....	5	.....	D,S	.....	1,745	Do.
4bbb	Test hole 1027	130	5	Dr	6-24-55	.....	.....	T	.....	.....	See log.
6cc1	Russell Haivech	125	...	..	.....	10	.....	D,S	Sand	1,728	Supply reported adequate.
6cc2	do	100	...	..	....	Flow	.....	D,S	..do..	1,728	Do.
8ad1	M. Peterson	32	...	Du	....	1	.....	D,S	..do..	1,810	Do.
8ad2	do	94	...	Dr	....	1	.....	D,S	..do..	1,810	Do.
9bbb	Test hole 1026	180	5	Dr	6-23-55	.....	.....	T	.....	.....	See log.
9cc	Test hole 1025	170	5	Dr	6-22-55	.....	.....	T	.....	.....	Do.
10da	A. Morris	91	...	Dr	.....	3	.....	D,S	Sandstone	1,780	Supply reported adequate.
14da	G. Murphy	125	...	Dr	.....	20	.....	D,S	Gravel	1,800	Do.
20aa1	Wm. Werner	32	...	Du	....	10	.....	D,S	Sand	1,805	Do.
20aa2	M. Hatfield	118	...	Dr	....	20	.....	D,S	..do..	1,815	Do.
24ad	M. Baatz	90	...	Dr	....	65	.....	D,S	Gravel	1,855	Do.
28bc	M. Thompson	120	...	Dr	....	30	.....	D,S	Sand	1,828	Supply reported adequate; see chemical analysis.

1	2	3	4	5	6	7	8	9	10	11	12
<u>137-73</u> (Cont.)											
32aa	J. Janke	80	...	..	....	.....	.....	D,S	Shale	1,880	Supply reported adequate.
32aaa	Test hole 1028	120	5	Dr	6-24-55	.....	.....	T	.....	.....	See log.
32dd	M. Janke	115	...	Dr	....	60	.....	D,S	Sand	1,810	Supply reported adequate.
<u>137-74</u>											
3cd	John L. Leier	...	...	Dr	....	Flow	.....	D,S	.....	1,700	Do.
4bd	Frank Johnson	36	...	..	....	Flow	8-9-55	D,S	.....	1,665	Do.
4cc	Alvin Merkel	160	...	Dr	....	20	.....	D,S	Sand	1,720	Supply reported adequate.
5dc	Ben Hager	90	...	..	....	1	.....	D,S	..do..	1,695	Do.
6dd	John Raemmich	240	...	Dr	....	80	.....	D,S	.....	1,695	Do.
10dd	Frank Pukluk	84	...	Dr	....	Flow	.....	D,S	Sand	1,705	Do.
11bab	..do..	110	2	Dr	1957	Flow	.....	S	..do..	.....	See chemical analysis.
14dbb	A. Riskfdahl	7	...	Du	....	Flow	.....	D,S	..do..	1,740	Supply reported adequate
18daa	Mike Schmidt	180	...	Dr	....	Flow	.....	D,S	.....	1,770	Do.
20bc	Joe C. Leier	125+	...	Dr	....	60	.....	D,S	.....	1,778	Do.
20cc	C. Maly	80	...	..	....	.....	.....	D,S	Sand	1,762	Do.
20dd	J. S. Bite	130	...	Dr	....	.....	.....	D,S	..do..	1,750	Do.
22baa	Bill Adams	147	...	Dr	....	7	.....	D,S	Shale	1,760	Do.
23ccc	H. W. Gorder	135	...	Dr	....	.....	.....	D,S	Sand	1,732	Do.
24da	E. Barte	...	...	..	....	Flow	.....	D,S	.....	1,755	Do.
26cc	C. Gorder	30	...	Du	....	10	.....	D,S	Clay	1,732	Supply reported inadequate, unfit for drinking.

1	2	3	4	5	6	7	8	9	10	11	12
<u>137-74 (Cont.)</u>											
26dc	Joe T. Wald	80	...	..	....	Flow	.....	D,S	Sand	1,935	Supply reported adequate.
30bc	W. Reese	75	...	Dr	....	.....	.....	D,S	.....	1,751	Do.
30ccc1	E. Swanson	90	...	Dr	....	.....	.....	D,S	Gravel	1,755	Do.
30ccc2	Vern Schuette	200	...	Dr	....	70	.....	D,S	Sand	1,820	Do.
32cc	M. Schuette	207	...	Dr	....	90	.....	D,S	Gravel	1,808	Do.
32dcc	J. P. Mach	140	...	Dr	....	30	.....	D,S	.....	1,825	Do.
33bcc	H. McCoy	127	...	Dr	....	2	.....	D,S	.....	1,760	Do.
34bba	E. Schack	25	...	Du	....	.....	.....	S	Sand	1,740	Do.
<u>138-70</u>											
2ccc	Chester Deverliaux	240	...	Dr	....	80	.....	D,S	Sand and gravel	2,015	Supply reported adequate.
4cc	Emel Shrock	200	...	Dr	....	140	.....	D,S	Sandstone	2,120	Do.
6aaa	M. Damarex	80	...	Dr	....	75	.....	D,S	Sand	2,050	Supply reported inadequate.
6ddd	G. Stoulii	200	...	Dr	....	140	.....	D,S	Sandstone	2,050	Supply reported adequate; see chemical analysis.
8bb	C. F. Salughter	200	...	Dr	....	180	.....	D,S	Gravel	2,090	Supply reported adequate.
12dc	Wm. Deverliaux	14	...	Du	....	9	.....	D,S	..do..	2,005	Do.
14dcc1	August Wanner	11	...	Du	....	6	.....	D	..do..	1,960	Do.
14dcc2	..do..	8	...	Du	....	7	.....	S	..do..	1,960	Do.
14dcc3	..do..	14	...	Du	....	12	.....	S	..do..	1,960	Do.
20dcl	Sam Traff	135	...	Dr	....	.....	.....	D,S	Sand	1,900	Supply reported inadequate.

1	2	3	4	5	6	7	8	9	10	11	12
<u>138-70</u> (Cont.)											
20dc2	Sam Traff	19	...	Dr	....	11	.....	D,S	..do..	1,900	Supply reported inadequate.
26da1	G. M. Iszlic	52	...	Dr	....	27	.....	D	Gravel	1,925	Supply reported adequate.
26da2	..do..	28	...	Dr	....	1.2	8-8-55	S	..do..	1,925	Do.
28db	Alvin Spitzer	28	...	Dr	....	13	.....	D,S	Sand	1,910	Do.
30bb	Ray Hauden	38	...	Dr	....	15	.....	D,S	..do..	1,860	Supply reported adequate; see chemical analysis.
31dd	Chris Buckfink, Jr.	230	...	Dr	....	25	.....	D,S	.....	1,940	Supply reported adequate.
32bb	S. Iszler	120	...	Dr	....	25	.....	D,S	Shale	1,850	Do.
32dd	Ed Iszler	13.75	...	Du	....	11.17	8-11-55	D,S	Sand	1,860	Do.
35bbb	Test hole 1143	330	5	Dr	8-8-56	.....	.....	T	.....	.....	See log.
<u>138-71</u>											
4ba	G. Rieker	30	...	Du	....	5	.....	D,S	.....	1,810	Supply reported adequate.
5bb	A. Falk	300	3	Dr	1920	30	.....	D,S	.....	1,790	Supply reported adequate; see chemical analysis.
8caa	E. Roemmick	36	...	Du	....	30	.....	D,S	Sand	1,823	Supply reported adequate.
9daa	Test hole 1050	190	5	Dr	8-20-55	.....	.....	T	.....	1,753	See log.
10ccc	Test hole 1049	370	5	Dr	8-19-55	.....	.....	T	.....	1,766	Do.
10db	A. C. Niles	16	...	Du	....	4	.....	D,S	Lignite	1,818	
12da	R. C. Olson	100	...	Dr	....	85	.....	D,S	Sand	1,845	Supply reported adequate.
14ada	Donald Hasse	20	...	Du	....	16	.....	D,S	Gravel	1,835	Do.
14cbb1	Clarence Hasse	21	...	..	....	16	.....	D,S	..do..	1,820	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>138-71</u> 14cbb2	(Cont.) Clarence Hasse	32	...	..	....	24	.....	D,S	Sand	1,820	Supply reported adequate.
16ac	School land	110	...	Dr	....	36	.....	D,S	.....	1,950	Do.
16add	Test hole 1048	340	5	Dr	8-17-55	.....	.....	T	.....	1,789	See log.
20aa	J. Niese	140	...	Dr	....	4	.....	D,S	Shale	1,845	Supply reported adequate.
20ac	Gust Giese	20	...	..	....	10	.....	D,S	Sand	1,920	Do.
21bab	B. Albrecht	12	...	Du	....	10	.....	D,S	..do..	1,840	Supply reported inadequate.
22ccd	Fred Oster	225	...	Dr	....	30	.....	D,S	..do..	1,925	Supply reported adequate.
25caa	Test hole 1042	70	5	Dr	8-7-56	.....	.....	T	.....	.....	See log.
26cca	Walter Walt	235	...	Dr	....	100	.....	D,S	.....	1,970	Supply reported adequate.
28cb	Fred Martin	190	...	Dr	....	.....	.....	D,S	.....	2,070	Do.
31dd	Jacob Doerr	260	...	Dr	....	160	.....	D,S	.....	2,075	Do.
32ba	Jacob Doeue, Jr.	250	...	Dr	....	180	.....	D,S	Clay	1,995	
32cd	J. Reuer	200	...	Dr	....	40	.....	D,S	Sand	2,000	
33cc	Harvey Schlumagn	400+	...	Dr	....	.....	.....	...	Clay	2,135	
34dc	O. Nickelson	160	...	Dr	....	130	.....	D,S	.....	.....
<u>138-72</u> 2cba	Niesner	92	2	Dr	....	.....	.....	D,S	Gravel	1,770	Supply reported adequate; see chemical analysis.
3cac	Bert Sprague	73	...	Dr	....	20	.....	D,S	.....	1,750	Supply reported adequate.
5ac	Peter A. DeWald	75	...	Dr	....	60	.....	D,S	Gravel	1,740	Do.
6aba	August Stein	80	...	Dr	1956	60	.....	D,S	.....	1,743	Supply reported adequate; see chemical analysis.

1	2	3	4	5	6	7	8	9	10	11	12
<u>138-72</u>	(Cont.)										
7cc1	Melvin Wald	39	...	Du	....	30	.....	D	.....	1,752	Supply reported adequate.
7cc2	..do..	80	...	Dr	....	12	.....	S	.....	1,752	Do.
7ddc	John Jenning	25	...	Du	....	22	.....	D,S	Sand	1,760	Do.
10aab	R. Schmidt	15	...	Dr	....	6	.....	D,S	Sand	1,765	Supply reported adequate; see chemical analysis.
10bbb	Test hole 1045	250	5	Dr	8-12-55	.....	.....	T	.....	.....	See log.
10cc	Herman Berreth	52	...	Dr	....	25	.....	D,S	Sand	1,770	Supply reported adequate.
16ddd	Test hole 1046	170	5	Dr	8-13-55	.....	.....	T	.....	1,776	See log.
18aa	Sam Pendill	12	...	Du	....	6	.....	D,S	Sand	1,730	Supply reported adequate.
18cd	Reinhold Roennich	50	...	Dr	....	25	.....	D,S	Clay	1,753	Do.
21aa1	Ted W. Schauer	48	...	Du	....	10	.....	D,S	Sand	1,800	Supply reported adequate; see chemical analysis.
21aa2	J. Abbot	90	...	Dr	....	.....	.....	D,S	..do..	.....	Supply reported adequate.
26dc	H. Kleppe	14	...	Du	....	4	.....	D,S	Gravel	1,855	Do.
27ccc	Test hole 1047	370	5	Dr	8-16-55	.....	.....	T	.....	.....	See log.
28cd	Jacob Gunsch	60	...	..	....	12	.....	...	Sand	.....	Supply reported adequate.
33aa	G. J. Long	90	...	Dr	....	60	.....	D,S	Gravel	1,850	Supply reported inadequate.
33ab	D. Wise	96	...	Dr	....	4	.....	D,S	Sand	1,860	Supply reported adequate; see chemical analysis.
34aab	C. Nickelson	96	...	Dr	....	6	.....	D,S	Gravel	1,865	Supply reported adequate.
<u>138-73</u>											
1bbd	Alfred Person	75	3	Dr	....	.....	.....	D,S	.....	1,822	Do.
2bbc	John Reuer	66	...	Dr	....	14	.....	D,S	.....	1,788	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>138-73</u> (Cont.)											
2cba	Walter Kaester	99	...	Dr	....	.....	.....	D,S	.....	1,845	
4dbb	George Thompson	7	36	Du	1920	.....	.....	D,S	.....	.....	Measured 2.4 g.p.m.
5aaa1	Test hole 1033	200	5	Dr	7-7-55	.....	.....	T	.....	1,750	See log.
5bcc	Harry Houghton	85	3	Dr	....	.....	.....	S	Sand	1,775	Supply reported adequate.
5ddd	Test hole 1032	120	5	Dr	7-6-55	.....	.....	T	.....	1,732	See log.
6daa1	Harry Houghton	105	2 1/2	Dr	1949	.....	.....	D	.....	1,775	Supply reported adequate.
6daa2	..do..	85	3	Dr	....	.....	.....	S	.....	1,775	Do.
7abb1	Paul Koester	...	...	..	....	Flow	.....	S	.....	1,770	3 seep springs; unfit for drinking.
7abb2	..do..	17	36	Du	....	.....	.....	D	Gravel	1,770	Supply reported adequate.
7abb3	..do..	80	3	Dr	....	.....	.....	S	.....	1,770	Do.
9cc	Herman Peterson	120	2 1/2	Dr	....	8.18	11-6-37	O	.....	.....	Unused well.
10daa	R. J. Koester	60	...	..	....	40	.....	D,S	Sand	1,750	Supply reported adequate.
12db	O. L. Adams	130	...	Dr	....	6	.....	D,S	..do..	1,740	Do.
15abc	Leo Koester	90	3	Dr	....	.....	.....	D,S	..do..	.....	Do.
16bbb	Test hole 1031	290	5	Dr	7-1-55	.....	.....	T	.....	1,738	See log.
16ccc	Test hole 1030	310	5	Dr	6-29-55	.....	.....	T	.....	1,729	Do.
17ada	Otto Dahn	85	3	Dr	....	.....	.....	D,S	Sand	.....	Supply reported adequate; see chemical analysis.
24dd	R. C. Fallgatter	10	...	Du	....	8	.....	D,S	Sand	1,780	Supply reported adequate.
26dcc	Hugo Janke	111	...	Dr	....	6	.....	D,S	Clay	.....	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>138-73</u> (Cont.)											
28bbb	Test hole 1029	160	5	Dr	6-25-55	.....	.....	T	.....	1,725	See log.
29aab1	O. Adams,	12	...	Du	....	4	.....	D,S	Sand	1,725	Supply reported adequate.
29aab2	..do..	80	...	Dr	....	12	.....	D,S	..do..	1,725	Do.
29dd	Emil Janke	110	...	Dr	....	15	.....	D,S	..do..	1,705	Do.
30ad	Frank Privatski	85	...	Dr	....	20	.....	D,S	..do..	1,738	Do.
31bd	John Hoff	32	...	Dr	....	20	.....	D,S	Sand	1,720	Do.
34bba	John Kelch	52	36	Dr	....	.....	.....	S	Sand	.....	Measured discharge, 4 g.p.m. on 6-7-55
34bbb	..do..	62	3	Dr	....	.....	.....	D,S	..do..	.....
<u>138-74</u>											
2aab	John Person	80	3	Dr	1936	.....	.....	D,S	.....	1,785	Supply reported adequate.
2acc	..do..	75	3	Dr	....	.....	.....	S	.....	1,800	Do.
4aba	Dewey Martin	100	...	Dr	....	.....	.....	D,S	Sand	.....	Do.
11bbc	Nord Huseby	80	...	Dr	1946	.....	.....	D,S	Sand	.....	Supply reported adequate.
12bab	Walter M. Brown	101	3	Dr	1905 ⁺	D,S	.....	1,833	Do.
14ccc	Walter Pfefferkorn	48	3	Dr	1920	.....	.....	D,S	Sand	1,730	Do.
15daa	Edward Forsberg	42	3	Dr	1949	.....	.....	D,S	Gravel	1,745	Do.
17add	Eluyn Vanous	82	3	Dr	1946	.....	.....	D,S	..do..	.....	Do.
18aaa	George Krous	100	...	Dr	....	20	.....	D,S	.....	.....	Do.
19abb	William Fried	100	...	Dr	....	.....	.....	D,S	Sand	.....	Do.
20add	Harvey Vanous	38	...	Dr	1936	23.14	7-8-55	D,S	Clay	.....	Supply reported adequate.

1	2	3	4	5	6	7	8	9	10	11	12
<u>138-74</u> (Con.t)											
21cda	F. H. Pfefferkorn	17	5	Dr	....	.....	.....	D	Gravel	.....
21dcb	..do..	17	...	Du	....	Flow	7-8-55	S	..do..	1,720	Spring; discharge 1 g.p.m.
25ab1	Avery Bandforth	85	...	Dr	....	15	.....	D,S	Sand	1,745	Supply reported adequate.
25ab2	..do..	6	...	Du	....	1	.....	D,S	..do..	1,745	Do.
<u>139-70</u>											
1dcc	O. T. Burton	Spring	...	..	....	Flow	.....	D,PS	Gravel	1,752	Estimated flow 10-15 g.p.m.
2ddc1	Ed Rott	40	...	Dr	1953	30	.....	D,S	Sand	1,810	Supply reported adequate.
2ddc2	..do..	60	...	Dr	1953	45	.....	D,S	..do..	1,810	Supply reported adequate; see chemical analyses.
3dd1	P. J. Robinson	70	...	Dr	....	.....	.....	D,S	Clay	.....	Supply reported adequate.
3dd2	..do..	20	...	Du	....	8	.....	D,S	Sand	.....	Do.
4cc	R. Erlinmire	23	...	Du	....	20	.....	D,S	Gravel	1,800	Do.
7ad	Schaeffer	30	...	Du	....	.....	.....	D,S	..do..	1,800	Supply reported adequate; see chemical analysis.
7bbb	Test hole 985	160	5	Dr	9-29-54	.....	.....	T	.....	.....	See log.
12dd	Unknown	8	...	Du	....	Flow	.....	D,S	Sand	1,840	Supply reported adequate.
13bbc	E. Howes	50	3	Dr	....	45	.....	D,S	Gravel	1,910	Do.
14bda	John Newbury	96	2	Dr	1935	80	.....	D,S	.....	1,885	Supply reported adequate; see chemical analysis.
18ad	R. Roemmich	140	2	Dr	....	45	.....	D,S	Sand	.....	Supply reported adequate.
20ccc	E. Roemmich	70	...	Dr	....	30	.....	D,S	Gravel	1,915	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>139-70</u>	(Cont.)										
22aa1	R. Dannel	90+	...	Dr	1955	87	.....	D,S	..do..	1,945	Supply reported adequate.
22aa2	R. Kranlich	30	...	Du	....	9	.....	D,S	.....	1,885	Do.
22bc	Fred Martin	70	...	Dr	....	40	.....	D,S	Sandstone	1,960	Do.
24daa	Art Giesler	180	...	Dr	1910	45	.....	D,S	.....	1,910	Supply reported adequate.
30bd	O. Woodwick	127	...	Dr	....	90	.....	D,S	Sand	1,950	Do.
30dd	E. Squires	49	...	..	....	20	.....	D,S	.....	2,010	Do.
31dc	P. Vareberg	110	...	Dr	....	.....	.....	D,S	Sand	2,010	Do.
32acd	..do..	126	...	Dr	....	27	.....	D,S	..do..	2,050	Do.
34cd	R. Middleider	125	...	Dr	....	75	.....	D,S	..do..	2,050	Supply reported inadequate.
34dd	Henry Junker	76	...	Dr	....	16	.....	D,S	..do..	2,055	Supply reported adequate.
<u>139-71</u>											
1aaa	Test hole 986	130	5	Dr	9-30-54	.....	.....	T	.....	.....	See log.
2ca	Ray Steichen	20	...	..	....	5	.....	D,S	Sand	1,780	Supply reported adequate.
3cc	Christ Werre	18.50	1 1/4	Dv	1926	15.98	7-25-40	D	..do..	.....	Do.
4ad	H. B. Kilgore	18	...	Dv	....	12	.....	D,S	..do..	1,765	Do.
4cdd1	Edwin Bewitz	18	4	Dr	....	5.74	6-9-55	D	Gravel	1,768	Do.
4cdd2	..do..	18	4	Dr	....	13.82	6-9-55	S	..do..	1,768	Do.
5cb	Kelly	9.5	...	Dr	....	9.0	8-4-55	D,S	..do..	1,745	
6bd	A. Schatz	40	...	Dr	....	35	.....	D,S	Sand	1,755	See chemical analysis.
6ddd	Test hole 980	315	5	Dr	9-21-54	.....	.....	T	.....	.....	See log.
8ddd	Test hole 979	280	5	Dr	9-20-54	.....	.....	T	.....	.....	Do.
9dd	C. Werre	33	...	Dr	....	15	.....	D,S	Sand	1,780	Supply reported adequate.

1	2	3	4	5	6	7	8	9	10	11	12
<u>139-71</u> (Cont.)											
10bbb	City of Tappen	16	18	Du	....	8.43	6-8-55	FS	Sand	1,768	
10bdc	Test hole 1051	200	5	..	8-22-55	.....	.....	T	.....	.....	See log.
12cc	Hagen	43	...	..	....	.....	.....	D,S	Gravel	1,812	Supply reported adequate.
18ab	G. Lang	10	...	Du	....	5	.....	S	Sand	1,740	
20ac	W. Peterson	60	...	Dr	....	10	.....	S	..do..	1,775	
22aa	E. Pfaff	36	...	..	....	20	.....	D,S	..do..	1,800	
22bbb	Test hole 978	145	5	Dr	9-17-54	.....	.....	T	.....	.....	See log.
22bd	J. Rieker	40	...	..	....	.....	.....	D,S	Sand	1,800	Supply reported inadequate; see chemical analysis.
22cc	S. Pfaff, Jr.	48	...	..	....	.....	.....	D,S	Gravel	1,810	Supply reported adequate.
22ddd	Test hole 977	130	5	Dr	9-17-54	.....	.....	T	.....	.....	See log.
24cc	S. Staley	40	...	..	....	35	.....	D,S	Sand	1,880	Supply reported adequate.
25bb	F. Mitteleider	8	...	Du	....	6	.....	D,S	..do..	1,880	Supply reported inadequate.
27ca	Phillip Mitteleider	10	36 x 36	Du	1935	6.91	7-25-40	D,S	..do..	.....	Supply reported adequate.
27dc	M. Thel	130	...	Dr	....	30	.....	D,S	Sand and gravel	1,845	Do.
29ca	Pete Stroh	10	...	Du	....	6	.....	D,S	Sand	1,770	Do.
30cd	A. Stroh	40	...	Dr	....	.....	.....	D,S	..do..	1,773	Do.
31dd	A. Kemmet	26	...	..	....	20	.....	D,S	..do..	1,790	Supply reported inadequate.
32da	J. Stroh	34	...	Du	....	30	.....	D,S	Gravel	1,790	Supply reported adequate.

1	2	3	4	5	6	7	8	9	10	11	12
<u>139-71</u> (Cont.)											
33ca	A. Stroh, Jr.	100+	...	Dr	....	.....	.....	D,S	Gravel	1,820	Supply reported adequate.
34dd	Phillip Mitteleider	155	...	Dr	....	20	.....	D,S	.....	1,860	
<u>139-72</u>											
1bbb	B. Kineo	52	2	Dr	....	12	.....	D,S	Sand	1,755 .	
2db	J. Barnick	55	2 1/2	Dr	....	20	.....	D,S	..do..	1,753	
6bdc1	Bill Hagan	90	...	Dr	....	.....	.....	S	.....	1,790	Supply reported inadequate.
6bdc2	..do..	30	...	..	....	20	.....	S	Sand	1,790	
8bbb	Test hole 1023	190	5	Dr	6-20-55	.....	.....	T	.....	1,790	See log.
8dad	Test hole 1024	145	5	Dr	6-21-55	.....	.....	T	.....	1,750	Do.
8db	J. Strang	60	2 1/2	Dr	1916	20	.....	D,S	Sand	1,758	Supply reported adequate; see chemical analysis.
10ca	Charles Woessner	24.50	6	Dr	1933	18.90	7-25-40	D	..do..	.....	Supply reported adequate.
10dbd	Northern Pacific Railway	260	10	Dr	1910	.....	.....	RR	..do..	1,750	Supply reported adequate; 165 g.p.m.
10dc	A. Kilbertson	15	...	..	....	6	.....	D,S	..do..	1,750	Supply reported adequate.
10dd	F. Wallschlaeger	61	...	Dr	....	.....	.....	...	..do..	1,750	Do.
11aa	A. Barnich	40	...	Du	....	20	.....	D,S	Sand and gravel	1,760	Do.
15ccd	Otto Himrich	12	...	Du	....	10	.....	D,S	Sand	1,755	Do.
15dcd	Test hole 1037	240	5	Dr	7-18-55	.....	.....	T	.....	1,764	See log.
19aaa	Stauffacher & Whitney	160	...	Dr	....	16	.....	D,S	Gravel	1,767	Supply reported adequate.
22dcd	Test hole 1038	340	5	Dr	7-19-55	.....	.....	T	.....	1,751	See log.
25acc1	Test hole 1116	150	5	Dr	6-2-56	.....	.....	T	.....	.....	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>139-72</u>	(Cont.)										
25acc2	Test hole 1117	400	5	Dr	6-4-56	.....	.....	T	.....	.....	See log.
27cb	Robert Schmidt	130	...	Dr	1948	8	.....	D,S	Gravel	1,750	See chemical analysis.
27ccc	Test hole 1039	295	5	Dr	7-21-55	.....	.....	T	.....	1,742	See log.
29ac	E. Bobb	70	3	Dr	....	40	.....	D,S	Gravel	1,762	Supply reported adequate.
30abb	H. Schwartz	140	...	Dr	....	40	.....	...	Gravel	1,752	Supply reported adequate.
34cda	Test hole 1044	315	5	Dr	8-9-55	.....	.....	T	.....	1,730	See log.
35dd	John Berreth	12	...	Du	....	5	.....	D,S	Sand	.....	Supply reported adequate.
<u>139-73</u>											
1aaa	Test hole 1022	90	5	Dr	6-20-55	.....	.....	T	.....	1,775	See log.
1dc	Albert Tewitz	22	...	..	....	14	.....	S	Gravel	1,790	Supply reported adequate.
5bbb	Unknown	60+	3	Dr	....	53.30	7-13-55	U	.....	1,858	
6aad	Cornelius DeKrey	160	...	Dr	....	.....	.....	D,S	Sand	.....	Supply reported adequate.
7cdb	Donald Aurit	80	3	Dr	....	.....	.....	S	.....	1,810	Do.
8ada	Frank Fettig	90	3	Dr	....	.....	.....	D	.....	1,870	Do.
8add	..do..	90	3	Dr	1915	.....	6-6-55	S	.....	1,870	Supply reported adequate; measured 3 g.p.m.
8caa	Alfred Potts	90±	3	Dr	....	.....	6-7-55	S	.....	.....	Supply reported adequate; measured 2 g.p.m.
8ddd	..do..	90	3	Dr	1915	.....	6-7-55	D,S	Sandstone	.....	Supply reported adequate; measured 1 g.p.m.
10cbb	George Hughes	145	3	Dr	1910	.....	6-7-55	D,S	.....	1,870	Supply reported adequate; measured 2 g.p.m.

1	2	3	4	5	6	7	8	9	10	11	12
<u>139-73</u> (Cont.)											
10dcd	Allen Thorsness	85	3	Dr	....	.....	6-6-55	D,S	.....	1,868	Supply reported adequate; measured 3 g.p.m.
12ccd	George Aurit	80	3	Dr	....	41.53	6-9-55	D,S	.....	.....	Supply reported adequate; measured 3 g.p.m.
12dcc1	Donald Aurit	80	3	Dr	1953	.....	.....	D	.....	1,845	Supply reported adequate.
12dcc2	..do..	80	3	Dr	....	.....	6-9-55	S	.....	1,845	Supply reported adequate; measured 4 g.p.m.
14ddc	Anton Benstock	100	...	Dr	....	50	.....	D,S	.....	1,860	
17acb	H. B. Hanson	130	2 1/2	Dr	1954	.....	.....	D	Gravel	1,861	Supply reported adequate.
17cad1	..do..	116	...	Dr	....	48	.....	D	..do..	1,860	See chemical analysis.
17cad2	..do..	120	2	Dr	....	.....	.....	D	Sand	.....	Supply reported adequate; see chemical analysis.
17cda	City of Steele	160	...	Dr	1936	.....	.....	FS	Sandstone	1,852	See chemical analysis.
17cda2	..do..	160	...	Dr	1936	.....	.....	FS	Sandstone	1,852	
17cda3	..do..	135	12	Dr	1956	120	.....	FS	..do..	1,854	See chemical analysis.
17daa	Test hole 1036	130	5	Dr	7-15-55	.....	.....	T	.....	1,861	See log.
18dac1	E. A. Wentz	100	3	Dr	1948	.....	.....	D	.....	1,860	
18dac2	..do..	100	3	Dr	1940	.....	.....	S	.....	1,860	
18dac3	..do..	100	3	Dr	....	.....	.....	D,S	.....	1,860	
18dac4	Floyd McCabe	90	3	Dr	....	.....	.....	D,S	.....	1,860	Supply reported adequate.
20baa	John Kelch	80	3	Dr	....	.....	.....	S	.....	1,848	Supply reported adequate.
20ddd	Test hole 1035	160	5	Dr	7-13-55	.....	.....	T	.....	1,882	See log.

1	2	3	4	5	6	7	8	9	10	11	12
<u>139-73</u> (Cont.)											
21cbb	Sunshine Ranch	80	3	Dr	1952	.....	.....	S	.....	1,865	Supply reported adequate.
23bb	Albert Peterson	100	...	Dr	....	50	.....	D,S	.....	1,875	
24bba	Jacob Albricht	90	...	Dr	....	.....	.....	D,S	Gravel	1,845	Do.
26aba	Robert Argent	180	...	Dr	....	25	.....	D,S	..do..	1,840	
28bdd	N. Peterson	150	3	Dr	....	.....	.....	S	.....	1,865	Do.
28ccc	Test hole 1034	136	5	Dr	7-12-55	.....	.....	T	.....	1,836	See log.
30bbb	Sunshine Ranch	...	3	Dr	....	29.45	6-7-55	U	.....	.....
33aaa	Henning Peterson	100	3	Dr	....	.....	.....	D,S	.....	1,852	Supply reported adequate; see chemical analysis.
33bbb	L. Collins	90	3	Dr	1925	17	.....	D,S	..do..	1,805	Supply reported adequate.
33cdd	Henning Peterson	60	3	Dr	1949	.....	.....	S	.....	1,800	Do.
34abb	Gordon Ritchie	...	36	Du	1903	5.60	6-15-55	D,S	.....	.....	Do.
<u>139-74</u>											
2cdc	Ova P. Whitney	120+	3	Dr	1900	.....	.....	D,S	.....	.....	Supply reported adequate
3add	Holtz & Dougherty	160	2	Dr	1930	.....	.....	D,S	Sandstone	.....	Do.
6cbc	Ben Hanson	80+	...	Dr	....	.....	.....	D,S	.....	.....	Do.
8ddd	Glen Matthews	124	...	Dr	....	.....	.....	D,S	Sand	.....	Do.
9cdc	Holtz & Dougherty	127	...	Dr	1934	.....	.....	D,S	..do..	.....	Do.
12ddd	Fred Bickel	100+	3	Dr	1916	.....	.....	D,S	..do..	1,882	Do.
15acal	Eugene Bickel	180	2	Dr	1947	.....	.....	S	.....	1,840	Do.
15aca2	..do..	140	4	Dr	1953	.....	.....	D	.....	.....	Do.
17add	Glen Matthews	60	2 1/2	Dr	....	.....	.....	S	Sand	.....	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>139-74</u> (Cont.)											
18bdd	Ben Orne	130	...	Dr	1900	.....	.....	S	.....	1,843	Supply reported adequate.
18ddd	Harry Schumaker	94	3	Dr	1945	.....	.....	S	.....	.....
19bcc1	Ben Orne	130	2 1/2	Dr	....	.....	.....	D,S	.....	1,852	Do.
19bcc2	..do..	136	2	Dr	1952	45	.....	S	Sand	1,852	Supply reported inadequate.
20bbb	Harry Schumaker	94	3	Dr	....	.....	.....	D,S	Sand and gravel	1,848	Supply reported adequate.
20dcd	W. R. Fisher	150	2	Dr	1945	.....	.....	D,S	Sand	1,838	Do.
21ccb	Peter P. Roemmich	250	...	Dr	1953	.....	.....	S	..do..	1,804	Do.
31cdd	Alex Mardikian	100+	3	Dr	....	.....	.....	D,S	.....	1,858	Do.
32aaa	William G. Fisher	160	3	Dr	....	.....	.....	D,S	.....	1,860	Do.
32cbb	C. Olson	75	3	Dr	1920	.....	.....	D,S	.....	1,840	Do.
34add1	Frank Forderer	11	24	Du	....	10.85	6-15-55	U	.....	1,810	Unused because of high concentration of nitrate.
34add2	..do..	15	24 x 24	Du	....	8.98	6-15-55	S	.....	1,812	Supply reported adequate.
34add3	Frank Forderer	26	...	Du	....	.....	.....	S	.....	1,820	Supply reported adequate.
35cbb	W. L. Truax	120	3	Dr	....	.....	.....	S	.....	1,798	Do.
36cbb1	..do..	120	2	Dr	1918	.....	.....	D,S	.....	1,802	Do.
36cbb2	..do..	120	3	Dr	1945	.....	.....	S	Sand	1,802	Do.
<u>140-70</u>											
6bb1	Carmer	26	2	Dr	....	.....	.....	S	Sand and gravel	1,880	Do.
6bb2	..do..	32	2	Dr	....	.....	.....	D	..do..	1,880	Supply reported inadequate.

1	2	3	4	5	6	7	8	9	10	11	12
<u>140-70</u> 8acc	(Cont.) John J. Silbernagel	28	...	..	....	.....	.....	...	Sand	1,760	Supply reported adequate.
10cdd	Sid Thorsness	50	...	..	....	.....	.....	D,S	..do..	1,700	Do.
14bdc	Lloyd Erickson	40	...	Dr	....	20	.....	...	Gravel	1,780	Do.
14da	Fred Buck	65	...	Dr	....	50	.....	D,S	Sand	.....	Supply reported inadequate.
18dd	Geo. Fanta	60	...	Dr	....	.....	.....	S	..do..	1,800	Supply reported adequate.
22cb	F. Hopkins	65	...	Dr	....	.....	.....	...	..do..	1,800	Do.
24abc	Frank Zimon	30	...	..	....	13	.....	D,S	..do..	1,865	
24bac	Axel Peterson	72	...	Dr	....	50	.....	D,S	Clay	1,860	
26daa1	Herman Hansen	20	...	..	....	.....	.....	...	Sand	1,855	Do.
26daa2	..do..	100	...	..	....	98	.....	...	..do..	1,855	Do.
26dc	Unknown	12	...	..	....	.....	.....	D,S	Gravel	1,810	Do.
30bcb	August George	47	...	..	....	33	.....	D,S	Sand	1,805	Do.
<u>140-71</u> 2aaa	Test hole 1015	220	5	Dr	6-13-55	.....	.....	T	.....	1,892	See log.
2bc	B. Fettig	16	...	Du	....	8	.....	D,S	Gravel	2,010	Supply reported adequate.
5bab	Test hole 1118	340	5	Dr	6-8-56	.....	.....	T	.....	.....	See log.
5daa	V. Heiden	80	2	Dr	....	15	.....	D,S	Sand	1,750	Supply reported adequate; see chemical analysis.
7add	Test hole 992	355	5	Dr	10-21-54	.....	.....	T	.....	.....	See log.
8ddd	Test hole 991	300	5	Dr	10-19-54	.....	.....	T	.....	.....	Do.
9ccd	B. Heiden	30	2	Dr	....	24	.....	D,S	Sand	1,760	Supply reported adequate; see chemical analysis.

1	2	3	4	5	6	7	8	9	10	11	12
<u>140-71</u>	(Cont.)										
10aad	LeRoy Yule	20	48 x 48	Du	....	12	.....	D,S	Gravel	1,885	Supply reported adequate.
12dbc	James Farrel	300	...	Dr	....	.....	.....	...	.....	1,850	Do.
14abb	Mary Henley	28	...	Du	....	.....	.....	D,S	Sand	1,770	Do.
14bbb	Dick Gallagher	60	...	Dr	....	40	.....	U	Gravel	1,780	
20dd	J. Hoffer	25	...	Dr	....	8	.....	...	Sand	1,745	
21ada	C. Maw	18	...	Dr	....	10	.....	D,S	..do..	1,752	
22bcc	Test hole 990	250	5	Dr	10-14-54	.....	.....	T	.....	.....	See log.
22cb	Ira Maw	28	...	Dr	....	10	.....	D,S	Sand	.....
23cbb	Test hole 988	240	5	Dr	10-8-54	.....	.....	O	Gravel	.....	Do.
23ccb	K. Maw	240	8	Dr	....	41.85	5-11-60	O	Sand and gravel	.....
24bab	Adam Schmaltz	50	...	Dr	....	25	.....	D,S	Sand	1,810	
28baa	Test hole 1040	282	5	Dr	7-23-55	.....	.....	T	.....	1,766	Do.
28bbal	Test hole 1041	320	5	Dr	7-26-55	.....	.....	T	.....	1,760	Do.
28bba2	Test hole 1042	82	5	Dr	7-28-55	.....	.....	T,O	.....	1,760	Do. See chemical analysis.
28bba3	Test hole 1043	90	5	Dr	7-30-55	.....	.....	T	.....	1,760	See log.
29ddd	Test hole 989	320	5	Dr	10-6-54	.....	.....	T	.....	.....	Do.
32caa	M. B. Scherr	33	...	....	.....	12	.....	...	Sand	1,756	
32daa	P. Hasse	17	...	Dr	....	6	.....	...	Sand	1,743	
33acd	T. Wallner	30	...	Dr	....	.....	.....	...	..do..	1,760	
35aaa	Test hole 987	140	5	Dr	10-1-54	.....	.....	T	.....	.....	See log.

1	2	3	4	5	6	7	8	9	10	11	12
<u>140-72</u>											
4dda	F. W. Robinson	63	...	Dr	....	30	.....	D,S	Sand	.....
7bbb	Test hole 984	80	5	Dr	9-29-54	.....	.....	T	.....	.....	See log.
7bcd	Lodge Brussel	80	...	Dr	....	20	.....	D,S	.....	1,780	
10bc	Ed Rudolph	60	...	Dr	....	30	.....	D,S	Sand	1,745	
18cbb	Andrew Inglehart	80	...	Dr	....	40	.....	D,S	..do..	1,880	
22ca	D. Zimmerman	150	...	Dr	....	.....	.....	D,S	.....	1,750	See chemical analysis.
25ccc	G. Briese	50	...	Dr	....	25	.....	...	Gravel	1,750	Do.
26cdd	W. F. Ebere	76	...	Dr	....	15	.....	...	Sand	1,746	
27bbb	Test hole 983	200	5	Dr	9-28-54	.....	.....	T	.....	.....	See log.
27ddc	C. Y. Matl	60	2	Dr	...	10	.....	D,S	Sand	1,740	
29add	Jean Robinson	60	...	Dr	...	25	.....	D,S	..do..	1,770	
30ad	E. Jensen	...	...	..	....	30	.....	D,S	..do..	1,790	
30dd	R. Polasky	72	...	Dr	....	.....	.....	...	..do..	1,770	
31dad	Joe Birriwhatt	60	...	..	....	30	.....	D,S	..do..	1,790	
32add	Steward Stang	60	...	Dr	....	10	.....	D,S	..do..	1,780	
33ddd	William Makedonasky	40	...	Dr	....	10	.....	D,S	Gravel	.....
36bbb	Test hole 982	290	5	Dr	9-25-54	.....	.....	T	.....	.....	See log.
36dda	Test hole 981	300	5	Dr	9-24-54	.....	.....	T	.....	.....	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>140-73</u>											
2cc	Clem Roehrich	110	...	Dr	....	20	.....	D,S	.....	1,830	
3dd	Val Roehrich	142	2	Dr	....	.....	.....	S	.....	1,835	
6cdb	Walter Riedinger	80	3	Dr	....	41.50	7-14-55	D,S	Lignite	1,850	Supply reported adequate.
8bcd1	Gottfried Horn	70	...	Dr	....	.....	.....	D,S	.....	.....	Do.
8bcd2	..do..	73	...	Dr	1953	35.30	7-14-55	U	Sand	.....	See chemical analysis.
8ddd	Test hole 1018	290	5	Dr	6-6-55	.....,	.....	T	.....	1,853	See log.
10dd	Harvey Young	50	2	Dr	....	30	.....	D	Sand	1,800	Supply reported adequate.
12ad	Fay Salder	60	...	Dr	....	25	.....	...	.....	1,790	
13bc	G. Makedonasky	45	...	..	....	18	.....	D,S	.....	1,785	
13da	Val Roehrich	80	...	Dr	....	.....	.....	D,S	.....	1,770	Do.
14ad	Fay Salder	6 1/2	...	Du	....	2.0	8-3-55	D,S	Gravel	1,770	Do.
14cc	Sig Gryttenholm	60	...	Dr	....	.....	.....	D,S	Sand	1,800	
15ccc	Test hole 1019	120	5	Dr	6-17-55	.....	.....	T	.....	1,852	See log.
16caa	Otto Johnson	180	3	Dr	1947	.....	.....	S	.....	.....	Supply reported adequate.
17ddd	..do..	180	3	Dr	1917	.....	.....	D,S	.....	1,843	Supply reported adequate; see chemical analysis.
18dcd	Mary Keim	100+	3	Dr	....	.....	.....	...	.....	1,850	Supply reported adequate.
20ddd	Leon Nelson	80	...	Dr	....	.....	.....	D,S	.....	1,842	Do.
23aa	John Salder	140	...	Dr	....	.....	.....	D,S	Sand	1,810	
24dd	S. Makedonasky	70	...	Dr	....	20	.....	D,S	.....	1,780	

1	2	3	4	5	6	7	8	9	10	11	12
<u>140-73</u> (Cont.)											
25dd1	George Jansen	75	...	..	....	45	.....	S	Sand	1,780	See chemical analysis.
25dd2	..do..	64	...	..	....	36	.....	...	..do..	1,780	
27aaa	Test hole 1020	80	5	Dr	6-17-55	.....	.....	T	.....	1,838	See log.
29cdd	Dan Giese	40	2	Dr	....	.....	.....	D,S	Sand	.....	Supply reported adequate.
30ccd1	Van Stockert	30	3	Dr	....	.....	.....	S	.....	.....	Do.
30ccd2	..do..	80	3	Dr	....	.....	.....	D,S	.....	.....	Do.
35bb	Fred Grekoff	85	...	Dr	....	58	.....	D,S	.....	1,840	Do.
36bbb	Test hole 1021	140	5	Dr	6-18-55	.....	.....	T	.....	1,813	See log.
<u>140-74</u>											
2cbb	Oscar Thorp	175	3	Dr	....	100±	.....	D,S	.....	1,975	Supply reported inadequate.
4dcc	Pius Roehrich	40	3	Dr	....	.....	.....	D,S	.....	.....	Supply reported adequate.
5cdd	Stephen Makedonasky	100±	3	Dr	....	.....	.....	S	.....	.....
6dcc	..do..	100	3	Dr	....	.....	.....	D,S	Sand	.....	Do.
7cb	Pete Korang	120	3	Dr	....	.....	.....	D,S	.....	.....	Do.
8add	Walter Hagel	40	...	Dr	....	.....	.....	D,S	Sand	1,865	Do.
9bac	Erling Olavson	130	...	Dr	1945	40	.....	D,S	..do..	.....	Do.
14add1	H. B. Carlson	120	3	Dr	1930	.....	.....	D,S	..do..	.....	Do.
14add2	..do..	90	3	Dr	1953	.....	.....	S	..do..	.....	Do.
15bcd	Harlan Fuller	100	3	Dr	1952	.....	.....	D,S	.....	.....	Do.
18ccc	Walter Kroll	100±	3	Dr	....	.....	.....	D,S	.....	.....	Do.
20bdal	Will Brousseau	16	18	Du	....	11.23	7-7-55	D,S	Sand and gravel	1,850	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>140-74</u> (Cont.)											
20bda2	Will Brousseau	9	36	Du	....	6.60	7-7-55	D,S	Sand and gravel	1,850	Supply reported inadequate.
20bda3	..do..	8	...	Dr	....	.....	.....	D	Sand	1,850	Supply reported
21add	Earl Fairchild	26	40 x 40	Du	1954	24	.....	S	..do..	.....	Do.
22bcc	..do..	26	40 x 40	Du	....	23.50	7-12-55	D,S	..do..	.....	Do.
23ddd	J. R. Argent	100	3	Dr	....	.....	.....	S	.....	.....
24bcd	R. B. Argent	100	3	Dr	1939	.....	.....	D,S	.....	.....	Supply reported adequate.
24cdd	..do..	100	3	Dr	....	.....	.....	U	Sandstone	.....
26ada	Paul Smokov	160	3	Dr	....	.....	.....	D,S	Gravel	1,875	Do.
28acb	David Martin	120	...	Dr	1952	.....	.....	S	Sand	.....
29bcc	Ed Remick	100+	3	Dr	....	.....	.....	S	.....	.....	Do.
30ddd	..do..	100	3	Dr	....	.....	.....	D,S	.....	.....	Do.
31aaa	..do..	100	3	Dr	....	.....	.....	D,S	.....	.....	Do.
34ccc1	David Martin	147	...	Dr	1954	54.80	7-6-55	D,S	Sand	.....	Do.
34ccc2	..do..	140	...	Dr	....	.....	.....	S	..do..	.....	Do.
35dcc	O. P. Whitney	...	3	Dr	1947	6	.....	S	.....	.....	Do.
36beb	Unknown	90	3	Dr	1947	.....	.....	S	Gravel	1,865	See chemical analysis.
36ccc	Van Stockert	110	3	Dr	....	.....	.....	S	.....	1,862	Supply reported adequate.
<u>141-70</u>											
2bcc	Art DeKreg	16.5	36	Du	1949	13.0	8-24-55	D,S	Sand	1,948	Supply reported adequate.

1	2	3	4	5	6	7	8	9	10	11	12
<u>141-70</u> 4bbb	(Cont.) Test hole 1144	180	5	Dr	8-11-56	.....	.....	T	.....	.....	See log.
8ada1	Herman DeKrey	176	2.5	Dr	1919	40	.....	S	.....	1,998	Supply reported adequate.
8ada2	..do..	15	7	Dr	1942	5	.....	D	Sand	1,998	Do.
8dcd	Marvin Vogel	14	...	Du	....	6	.....	S	Gravel	2,022	Supply reported inadequate; unfit for drinking.
9ccc	William DeKrey	285	2	Dr	....	.....	.....	S	Sand	2,010	Unfit for drinking.
10cc	..do..	28	...	Dr	....	.....	.....	D,S	..do..	2,000	Supply reported adequate.
14aca	G. E. Steinhouse	20	36	Dr	....	18	.....	D,S	..do..	1,945	Do.
14cc1	Vernon Jenkin	16	2	Dr	1954	.....	.....	D,S	..do..	1,955	Do.
14cc2	..do..	40	24	Dr	1946	.....	.....	D,S	..do..	1,955	Do.
15dda1	Jake Stoller	76	24	Dr	1945	.....	.....	D	Gravel	1,951	Do.
15dda2	..do..	50	24	Dr	1939	.....	.....	S	..do..	1,951	Do.
18ccc	Lenord Kleiter	198	2	Dr	....	.....	.....	D,S	Sand	2,020	Do.
20add1	John DeKrey	12	48	Du	1951	9	.....	N	..do..	1,965	Supply reported inadequate; unfit for drinking.
20add2	..do..	20	20	Dr	1953	10	.....	S	..do..	1,965	Do.
21aba	L. Stenstadvold	30	24	Du	....	28	.....	D,S	..do..	1,990	Supply reported adequate.
26aab	Joe DeKrey	46	18	Dr	....	30	.....	D	..do..	1,940	Do.
26aba	..do..	22	18	Dr	....	14	.....	S	..do..	1,940	Do.
26bcb	Paul DeKrey	56	24	Dr	1954	30	.....	S	..do..	2,005	Do.
28abb	Lewis Saur	165	2	Dr	1954	30	.....	D,S	..do..	1,991	Do.
30ad	A. Seibel	17	36	Du	....	16	.....	D,S	..do..	1,975	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>141-70 (Cont.)</u>											
32dda1	Frank Plier	72	24	Dr	1918	45	.....	D,S	Sand	2,010	Supply reported adequate.
32dda2	..do..	159	2 1/2	Dr	1914	.....	.....	N	..do..	2,010	Do.
34abb	L. Wyngardener	180	2 1/2	Dr	1953	35	.....	D,S	..do..	1,970	Do.
34bbc	Dick Vellenga	136	2 1/2	Dr	1953	35	.....	D,S	..do..	1,955	Do.
34cca	Harry Fisher	42	36 x 36	Du	....	30	.....	D,S	Sand and gravel	1,980	Do.
<u>141-71</u>											
2cdc	H. B. Bowerman	20	48 x 48	Du	1906	12	.....	D,S	..do..	1,800	Do.
3cdc	Charles Bowerman	60	2	Dr	1950	45	.....	D	Sand	1,803	Do.
4dad	Goodman	25	2 1/2	Dr	....	.....	.....	D,S	Sand and gravel	1,790	Do.
6bbd	E. Lindekugel	20	6	Dr	1944	18	.....	D,S	Sand	1,845	Do.
7bab	Luke Schultz	187	3	Dr	1945	40	.....	D,S	..do..	1,865	Do.
15bbb	Test hole 1120	240	5	Dr	6-13-56	.....	.....	T	.....	.....	See log.
17aa	Kemmit	60	...	Dr	1910	30	.....	D,S	Sand	.....	Supply reported adequate.
18ad	Willis Johnson	60	3	Dr	1941	30	.....	D,S	..do..	1,820	Do.
18bba	..do..	21	6	Dr	1925	19	.....	D,S	.....	1,825	Do.
21ddc1	E. W. McGee	55	3 1/2	Dr	1915	33	.....	S	Sand and gravel	1,860	Supply reported adequate; see chemical analysis.
21ddc2	..do..	50	3 1/2	Dr	1908	33	.....	D	..do..	1,860	Supply reported adequate.
22bcd	Lester White	55	2 1/2	Dr	1948	.....	.....	D	Sand	2,005	Do.
24aca	Gordon Myran	40	3	Dr	1953	.....	.....	D,S	..do..	2,045	Do.
24cdb1	Jessie Bodvig	200	2 1/2	Dr	1954	.....	.....	D,S	..do..	1,935	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>141-71 (Cont.)</u>											
24cdb2	Jessie Bodvig	18	2 1/2	Dr	....	15	.....	D,S	Gravel	1,925	Supply reported adequate.
26db	Ben Hills	15	...	Du	1908	10	.....	D,S	..do..	1,900	Do.
27bbb	Test hole 1119	240	5	Dr	6-12-56	.....	.....	T	.....	.....	See log.
28ddd1	T. Bodvig	80	1 1/2	Dr	1953	65	.....	D	Sand	1,970	Supply reported adequate.
28ddd2	..do..	12	...	Du	1945	7	.....	S	..do..	1,855	Do.
30cbc	Ralph Robinson	25	2	Dr	.....	23	.....	D,S	..do..	1,842	Do.
31bbb	Test hole 1016	140	5	Dr	6-14-55	.....	.....	T	.....	1,743	See log.
33ccc	Test hole 1014	230	5	Dr	6-11-55	.....	.....	T	.....	1,742	Do.
35bbb	Roy Hackman	25	24	Dr	1947	17	.....	D,S	Gravel	1,965	Supply reported adequate.
<u>141-72</u>											
5dbb	John Wolf	13	...	Du	1943	.....	.....	D,S	Sand	1,930	Do.
8aaa1	Wm. H. Morton	38	2 1/2	Dr	1953	10	.....	D	Sand and gravel	1,895	Do.
8aaa2	..do..	25	2	Dr	1910	20	.....	S	Sand	1,895	Do.
12dad	Ed Schmidkunz	14	6	Dr	1941	12	.....	D,S	..do..	1,850	Do.
16bbb	Test hole 1146	180	5	Dr	8-14-56	.....	.....	T	.....	.....	See log.
18bba	C. Severson	80	2	Dr	1935	30	.....	D,S	Sand	1,900	Supply reported adequate.
19dda	Raymond Schultz	17	...	Du	1952	10	.....	S	..do..	1,925	Do.
24ccc	Test hole 1017	190	5	Dr	6-14-55	.....	.....	T	.....	.....	See log.
30dd1	R. L. Phelps	144	2	Dr	1953	12	.....	D,S	Sand	1,935	Supply reported adequate.
30dd2	Merill Laid	80	...	...	....	50	.....	...	..do..	1,815	

1	2	3	4	5	6	7	8	9	10	11	12
<u>141-72</u> (Cont.)											
32bca	Simon Brackenbury	165	2 1/2	Dr	1949	20	.....	D,S	Sand	1,845	Supply reported adequate.
34ba	Walter Gunther	26	...	Dr	....	24	.....	D,S	Gravel	1,748	Do.
35ddb1	Ted Haibeck	25	2	Dr	1945	10	.....	S	..do..	1,835	Do.
35ddb2	..do..	100	1 1/2	Dr	1952	25	.....	D	Sand	1,845	Supply reported adequate; see chemical analysis.
<u>141-73</u>											
4bc	Miles Lewis	106	2	Dr	1953	Flow	.....	D,S	.....	1,830	Supply reported adequate.
4cbc1	Whitmore	14	1 1/4	Dv	1906	6	.....	S	Gravel	1,870	Do.
4cbc2	..do..	96	4	Dr	1952	Flow	.....	S	Sand	1,870	Do.
5adc	Clyde Whitmore	95	3	Dr	....	Flow	.....	S	.....	.....	Reported flow 34 g.p.m.; supply reported adequate; see chemical analysis.
5daa	Geo. Kalienoff	95	4	Dr	....	Flow	.....	S	.....	.....	See chemical analysis.
5ddd	Geo. Kalienoff	96	4	Dr	1952	Flow	.....	S	.....	.....	Supply reported adequate.
8aaa	Test hole 1139	130	5	Dr	8-3-56	.....	.....	T	.....	.....	See log.
8ddd1	Whitmore	16	36 x 36	Du	1952	14	.....	D,S	Sand	1,890	Supply reported adequate.
8ddd2	..do..	14	36 x 36	Du	....	12	.....	D,S	Gravel	1,890	Do.
12bbc	Fred Schock	180	...	Dr	1948	.....	.....	D,S	Sand	1,908	Do.
18bcb	R. Baker	18	48 x 48	Du	1947	10	.....	D,S	Clay	1,935	Do.
20cab	Monty Lewis	190	2	Dr	1900	.....	.....	D,S	Sand	1,945	Do.
20cdd	George Kalienoff	165	2 1/2	Dr	1950	80	.....	D	Gravel	1,962	Do.
21bbb	Test hole 1140	120	5	Dr	8-6-56	.....	.....	T	.....	.....	See log.

1	2	3	4	5	6	7	8	9	10	11	12
<u>141-73 (Cont.)</u>											
22cdd	John Trieber	183	2	Dr	....	180	.....	D,S	.....	1,962	Supply reported adequate.
24cdd	Ed Knodel	50	2	Dr	1944	7	.....	D,S	Sand	1,945	Do.
25abc	Otto Miller	16	48 x 48	Du	1944	2.5	8-12-55	D,S	Gravel	1,953	Do.
30dbc	Will Baker	130	3	Dr	....	.....	.....	D,S	..do..	1,960	Do.
32aaa	Test hole 1141	140	5	Dr	8-7-56	.....	.....	T	.....	.....	See log.
<u>141-74</u>											
1aaa	Christ Schuler	14	1 1/4	Dv	....	10	.....	D,S	Gravel	1,922	Supply reported adequate.
2ddc	Adam Binder	120	...	Dr	1890	30	.....	D,S	Sand	1,915	Do.
4dcd	C. Danielson	176	2	Dr	1928	20	.....	D,S	.....	1,930	Do.
5bac	Adam Leno	16	48 x 48	Du	1949	10	.....	D,S	Sand	1,925	Do.
6dba	Leonard Landenberger	180	2	Dr	1952	11	.....	D,S	..do..	1,935	Do.
6dcc	D. Krein	150	2	Dr	....	20	.....	D,S	..do..	1,940	Do.
8bad	Gust Krein	16	36 x 36	Du	....	6	.....	D,S	..do..	1,935	Do.
8bbb	John Krein	180	2	Dr	1932	.....	.....	D,S	.....	1,935	Do.
8dca	Walter Landenberger	200	2 1/2	Dr	1941	10	.....	D,S	Sand	1,938	Do.
10ddc	J. Leno	155	2	Dr	1952	18	.....	D,S	Gravel	1,940	Do.
11aa	Adam Binden	120	2	Dr	1947	30	.....	S	Sand	1,915	Do.
11bbc	Shelby Carney	40	3	Dr	1916	10	.....	D,S	Gravel	1,900	Do.
12cbc	Unknown	105	4	Dr	1885	25	.....	D,S	..do..	1,850	Do.
14baa	Ed Leno	280	3	Dr	....	20	.....	D,S	Sand	1,942	Do.
18cba	Stanley Danielson	170	3	Dr	1953	Flow	.....	D,S	.....	2,000	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>141-74</u> (Cont.)											
20acc	F. C. Landenberger	160	2	Dr	1944	60	.....	D,S	Sand	2,020	Supply reported adequate.
26aac	Al Langedahl	145	4	Dr	1915	25	.....	S	Gravel	1,920	Do.
26cca	Erling Botnen	180	...	Dr	....	.....	.....	D,S	Sand	.....	Do.
26cda	..do..	180	2	Dr	1920	120	.....	D,S	..do..	2,020	Do.
28cdc	Otto D. Thompson	180	3	Dr	....	.....	.....	D,S	Lignite	.....	Do.
28dcl	Emmett Young	189	...	Dr	1942	.....	.....	D,S	Sand	.....	Do.
28dec2	..do..	160	...	Dr	1920	128.2	7-12-55	U	Sand	.....	Do.
30bca	Willie Olson	130	2	Dr	1908	100	.....	D,S	.....	2,140	Do.
32cda	Donald Simpson	166	3	Dr	....	.....	.....	D,S	.....	.....	Do.
<u>142-70</u>											
lcd	Unknown	65	2 1/2	Dr	1935	.....	.....	D,S	Sand	1,945	Do.
2aaa	G. Morlock	42	12	Dr	1940	.....	.....	D,S	..do..	1,968	Do.
2dda	Howard Abraham	72	3	Dr	1922	.....	.....	D,S	..do..	1,938	Do.
4aa	Albert Herman	58	2 1/2	Dr	1929	.....	.....	D,S	..do..	1,990	Do.
4cc	Patterson Land Co.	45	2 1/2	Dr	....	.....	.....	D,S	.....	1,953	Do.
4ccc	Test hole 1125	360	5	Dr	6-30-56	.....	.....	T	.....	.....	See log.
7add	A. Morlock	72	12	Dr	1916	.....	.....	D,S	Sand	1,945	Supply reported adequate.
7bbb	Test hole 1126	250	5	Dr	7-2-56	.....	.....	T	.....	.....	See log.
7cd	Adolph Morlock	72	2 1/2	Dr	1940	60	.....	S	Sand	1,955	Supply reported adequate.
8dda	Mrs. Hazel Marquedt	72	12	Dr	1916	.....	.....	D,S	Sand and gravel	2,000	Supply reported adequate; see chemical analysis.

1	2	3	4	5	6	7	8	9	10	11	12
142-70 10aaa	(Cont.) Test hole 1124	270	5	Dr	6-27-56	.....	.....	T	.....	.....	See log.
10add	John Johnson	25	22	Dr	1935	10	.....	D,S	Sand	1,945	Supply reported adequate.
10bdb	John Morlock	72	2 1/2	Dr	....	62	.....	D,S	..do..	1,975	Do.
11dcc	George Mack, Jr.	60	22	Dr	....	45	.....	D,S	..do..	2,000	Do.
12dda1	Lawrance Rhode	85	4	Dr	1916	.....	.....	D,S	..do..	1,925	Do.
12dda2	..do..	85	2	Dr	1952	.....	.....	D,S	..do..	1,925	Do.
13bdd	Morris Rhode	60	24	Dr	1907	54	.....	D,S	..do..	1,995	Do.
14bcc	Ramon Grimm	47	5	Dr	1930	41.55	7-26-40	D	..do..	.....	Do.
16ada	Patterson Land Co.	65	4 1/4	Dr	1954	55	.....	D,S	Sand	1,965	Do.
17da	C. Chapman	25	6	Dr	....	.....	.....	D,S	..do..	1,940	Do.
18abb	Adolph Morlock	67	12	Dr	1916	57	.....	D,S	..do..	1,955	Do.
22aba	Ed Welch	118	4	Dr	1948	16	.....	D,S	..do..	1,995	Do.
23aab	Fred Rhode	63	2	Dr	1953	53	.....	D,S	..do..	1,975	Do.
23ab	Mrs. Fagerang	22.60	18	Dr	1920	18.63	4-22-55	D,S	..do..	.....	Do.
24ccb1	Henry Flanders	78	36 x 36	Du	1919	.....	.....	D,S	Gravel	2,005	Do.
24ccb2	..do..	85	3	Dr	1949	.....	.....	D	Sand	2,005	Do.
25cbb	R. Walz	65	2 1/2	Dr	1928	40	.....	D,S	..do..	1,995	Do.
29daa1	Leo Paulson	35	2	Dr	1954	28	.....	D,S	..do..	1,985	Do.
29daa2	..do..	90	2	Dr	1955	30	.....	...	..do..	1,985	Do.
32ddd	H. Nieswaat	16	6	Dr	....	10	.....	D,S	..do..	1,970	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>142-71</u> 2cac	Albert Walters	16	22	Du	1953	12	.....	D,S	Sand	1,905	Supply reported adequate.
2ccb	Test hole 1127	220	5	Dr	7-10-56	.....	.....	T	.....	.....	See log.
3cc	H. L. Reuschlein	70	3	Dr	1947	20	.....	D,S	Sand	1,900	Supply reported adequate.
4bdb	Laerd Eichele	20	1 1/2	Dr	....	.....	.....	D,S	..do..	1,955	Do.
6cdc	Herman Neustel	280	2 1/2	Dr	....	20	.....	D,S	..do..	1,845	Supply reported adequate; see chemical analysis.
7ccd	Ward Whitman	275	2 1/2	Dr	1915	273	.....	D,S	..do..	1,905	Supply reported adequate.
8aab	Test hole 1128	250	5	Dr	7-10-56	.....	.....	T	.....	.....	See log.
8baa	M. Madson	65	2	Dr	....	.....	.....	D,S	Sand	1,955	Supply reported adequate.
9cba	Philip Wahl	150	2 1/2	Dr	....	40	.....	D,S	..do..	1,970	Do.
12acc	Northern Pacific Railway Company	44.7	5	Dr	1926	38.18	6-19-40	U	.....	.....	Do.
13aab	R. Guthmiller	108	2 1/2	Dr	1934	35	.....	D,S	Sand	1,940	Supply reported adequate.
16aaa	Test hole 1123	280	5	Dr	6-20-56	.....	.....	T	.....	.....	See log.
19bb	F. R. Whitman	53	3	Dr	1952	20	.....	D,S	.....	1,845	Supply reported adequate.
21ddd	Test hole 1122	210	5	Dr	5-16-56	.....	.....	T	.....	.....	See log.
22cbb1	E. Brady	40	2	Dr	1953	35	.....	D	Sand	1,815	Supply reported adequate.
22cbb2	..do..	80	2	Dr	1910	.....	.....	S	..do..	1,815	Do.
27cbb	Lester Dobbert	200	3	Dr	1947	40	.....	S	..do..	1,892	Do.
28add	..do..	19	2	Dv	1940	16	.....	...	..do..	1,892	Do.
28ccd1	D. Goodman	159	2 1/2	Dr	1953	35	.....	S	Clay	1,872	Do.
28ccd2	..do..	157	2	Dr	1951	150	.....	...	Sand	1,872	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>142-71 (Cont.)</u>											
28dd	School	165	2	Dr	....	75	.....	D	Sand	1,880	Supply reported adequate.
32aab	Lester Wick	14	2	Dv	....	4	.....	D,S	..do..	1,880	Do.
33cda	Harry Q. Nelson	54	2 1/2	Dr	1952	34	.....	...	Clay	1,845	Supply reported inadequate; see chemical analysis.
34ccc	Test hole 1121	220	5	Dr	6-15-56	.....	.....	T	.....	.....	See log.
<u>142-72</u>											
1bda	Gilbert Wick, Jr.	240	2 1/2	Dr	....	10	.....	D,S	.....	1,865	Supply reported adequate.
1cc	H. E. Whitman	180	2	Dr	1954	.....	.....	D,S	Sand	1,845	Do.
1ddd	Test hole 1129	280	5	Dr	7-17-56	.....	.....	T	.....	.....	See log.
4add	Mrs. J. Seele	60	2	Dr	1925	55	.....	D,S	Sand	1,865	Supply reported adequate.
6adb	C. Giese	40	...	Dr	....	36	.....	D,S	..do..	1,905	Do.
8bbb	Test hole 1131	270	5	Dr	7-23-56	.....	.....	T	.....	.....	See log.
10aaa	Test hole 1130	270	5	Dr	7-20-56	.....	.....	T	.....	.....	Do.
10add	Hjelmer Hagseth	60	2	Dr	1923	.....	.....	D,S	Sand	1,865	Supply reported adequate.
10bba	Mrs. Jenny Seele	40	2	Dr	....	.....	.....	D,S	Gravel	1,970	Supply reported adequate.
10ccb	Nathan Hogen	20	48 x 48	Du	1952	10	.....	D,S	Sand	1,855	Do.
11abc	H. Leeland	60	24	Dr	....	50	.....	D,S	..do..	1,850	Do.
11bbd	B. Morrison	55	2	Dr	1948	42	.....	D	..do..	1,860	Do.
11bcb	Carol Hagseth	203	2	Dr	1953	40	.....	D,S	..do..	1,850	Do.
12bac	Martin Berg	18	1 1/2	Dv	1920	14	.....	D,S	Sand and gravel	1,820	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>142-72</u> 12bbd	(Cont.) Glen Whitman	150	2	Dr	1949	Flow	.....	D,S	.....	1,835	Supply reported adequate; see chemical analysis.
12daa	Orville Shirley	37	6	Dr	1952	11	.....	D	Sand	1,892	Supply reported adequate.
13ad	F. R. Whitman	121	2	Dr	1953	30	.....	S	.....	1,842	Do.
14cdb1	Harry Nelson	74	2	Dr	1927	5	.....	D,S	Sand	1,829	Do.
14cdb2	..do..	64	2 1/2	Dr	1912	20	.....	D,S	..do..	1,822	Do.
17baa	Theodore Wetzel	15	...	Du	1951	10	.....	D,S	..do..	1,945	Do.
18bcc	William Ellwein	17	24	Du	....	16	.....	D,S	.....	.....	Do.
20aab1	Wm. Trautman	60	3	Dr	1947	44	.....	D	Sand	1,920	Do.
20aab2	..do..	12	...	Du	1955	10	.....	S	..do..	1,920	Do.
20ddd1	Bruce Erice	27	...	Du	1948	22	.....	D	..do..	1,910	Do.
20ddd2	..do..	15	...	Du	1920	12	.....	S	..do..	1,910	Do.
22bcd	Peter C. Hanson	13	36 x 36	Du	1948	8	.....	D,S	..do..	1,820	Do.
22cdb	Al. Schlager	16	...	Du	....	11	.....	D	..do..	1,800	Do.
24cca1	Gilbert Wick, Jr.	68	3	Dr	1945	10	.....	D	..do..	1,885	Do.
24cca2	..do..	65	2 1/2	Dr	1915	10	.....	S	..do..	1,885	Do.
29aaa	Test hole 1145	260	5	Dr	8-13-56	.....	.....	T	.....	.....	See log.
32cbb	Bon Farms	18	1 1/4	Dr	1945	15	.....	D,S	Sand	1,915	Supply reported adequate.
<u>142-73</u> 3ddd	Test hole 1132	190	5	Dr	7-24-56	.....	.....	T	.....	.....	See log.
4dcd	Wm. Steinke	121	3	Dr	1948	8	.....	D,S	Sand	1,960	Supply reported adequate.

1	2	3	4	5	6	7	8	9	10	11	12
<u>142-73</u> (Cont.)											
7dda	Calvin Knutson	14	...	Du	1941	12	.....	D,S	Sand	1,950	Supply reported adequate.
8aaa	Test hole 1133	250	5	Dr	7-27-56	.....	.....	T	.....	.....	See log.
8cdc	Rueben Biech	20	2 1/2	Dv	1947	6	.....	D,S	Sand	1,920	Supply reported adequate.
10bdb	Theodore S. Knutson	22	2	Dv	....	17	.....	D,S	..do..	1,925	Do.
10cdd1	John J. Rath, Jr.	140	1 1/2	Dr	1950	10	.....	D	..do..	1,945	Do.
10cdd2	..do..	160	2	Dr	....	.....	.....	S	..do..	1,945	Do.
12cbb1	William Jensen	110	2	Dr	1915	15	.....	D,S	Shale	1,950	Do.
12cbb2	..do..	23	1	Dv	1953	20	.....	I	Sand	1,950	Do.
12daa	John Olson	18	30	Du	....	17	.....	D,S	..do..	1,920	Do.
13aaa	Test hole 1151	60	5	Dr	8-22-56	.....	.....	T	.....	.....	See log.
14bcc	Mrs. C. A. Kephort	20	4	Dr	1945	18	.....	D	Sand	1,953	Supply reported inadequate.
15abb	John Rath, Jr.	20	24	Dr	1955	7	.....	S	..do..	1,945	Supply reported adequate.
15cbb	H. Gartner	18	36	Du	....	14	.....	D,S	..do..	1,930	Do.
18aaa	Hans Hegdahl	20	8	Dr	1940	6	.....	D	..do..	1,932	Do.
18cdd	Alphonse Fitterer	86	2 1/2	Dr	....	.....	.....	D,S	..do..	1,920	Do.
20aaa	Test hole 1137	120	5	Dr	8-1-56	.....	.....	T	.....	.....	See log.
20bc	Clarence Solheim	22	36 x 36	Du	1918	17	.....	D,S	Gravel	1,930	Supply reported adequate.
20ccb	John Seaberg	30	36 x 36	Du	1915	22	.....	D,S	..do..	1,920	Do.
20ddb	Matt Solheim	21	2	Dv	....	8	.....	D,S	Sand	1,940	Supply reported adequate; see chemical analysis.

1	2	3	4	5	6	7	8	9	10	11	12
<u>142-73</u> (Cont.)											
21cca	Harry Hanson	17	...	Dv	1952	.....	.....	D,S	Gravel	1,945	Supply reported adequate.
22bbb	Ed Bickel	30	28	Du	....	15	.....	D,S	..do..	1,930	Do.
24ccc1	Henry Wilke	200	2 1/2	Dr	....	80	.....	D	Sand	1,965	Do.
24ccc2	..do..	22	30 x 30	Du	....	14	.....	D,S	Gravel	1,965	Do.
27ddd	Test hole 1152	170	5	Dr	8-23-56	.....	.....	T	.....	.....	See log.
28dcb	Spangler	15	1 1/2	Dv	....	6	.....	D,S	Sand	1,935	Supply reported adequate.
29ddd	Test hole 1138	160	5	Dr	8-2-56	.....	.....	T	.....	.....	See log.
30aa	A. Hansen	15	36 x 36	Du	....	12	.....	D	Gravel	1,905	Supply reported adequate.
30cdo	R. Gold	10	...	Du	....	6	.....	D	Sand	1,895	Do.
34bbd	Fred Christensen	12	...	Du	1936	10	.....	D,S	Gravel	1,925	Do.
34cc	R. Magstadt	23	36 x 36	Du	1935	16	.....	D,S	Sand	1,935	Do.
34da	Joe Schneider	19	2	Dv	....	16	.....	D,S	..do..	1,935	Do.
35ba	Unknown	10	36 x 36	Du	....	8	.....	D,S	..do..	1,950	Do.
<u>142-74</u>											
1dca	Village of Tuttle	155	2 1/2	Dr	1930	.....	.....	PS	.....	.....	See chemical analysis.
2ccc	Test hole 1134	230	5	Dr	7-30-56	.....	.....	T	.....	.....	See log.
4add1	Harold Wahl	150	2 1/2	Dr	1955	15	.....	S	Sand	1,940	Supply reported adequate.
4add2	..do..	100	2 1/2	Dr	1943	10	.....	D,S	..do..	1,935	Do.
5ddd	Test hole 1135	190	5	Dr	7-30-56	.....	.....	T	.....	.....	See log.
6ccc	Test hole 1136	100	5	Dr	7-31-56	.....	.....	T	.....	.....	Do.
6dad	Gust Rosenau	120	2	Dr	1912	20	.....	D,S	Sandstone	1,975	Supply reported adequate.

1	2	3	4	5	6	7	8	9	10	11	12
<u>142-74</u> (Cont.)											
8adb	W. P. Bayer	210	2	Dr	1950	25	.....	D	Sand	1,960	Supply reported adequate.
8baa	..do..	24	36 x 36	Du	1935	20	.....	S	Sand	1,955	Do.
10aa	Carl Arthur	134	2 1/2	Dr	1954	60	.....	D,S	Sand and gravel	1,950	Do.
12daa	G. W. Galbreath	141	2	Dr	1946	40	.....	D,S	Sand	1,925	Do.
12ddd	..do..	9	30 x 30	Du	....	.....	.....	S	Gravel	1,940	Do.
14ccc	G. Steffen	155	3	Dr	1950	25	.....	D,S	Clay	1,935	Do.
14dbd	Rose Wetzel	28	...	Du	....	22	.....	D,S	Gravel	1,920	Do.
17daa	Burt Miller	240	4	Dr	1948	60	.....	D,S	Sand	1,940	Do.
18cc1	Harold Scherbenski	186	2	Dr	1916	130	.....	D	Gravel	1,870	Do.
18cc2	..do..	175	2	Dr	1947	130	.....	S	..do..	1,870	Do.
20cd	Albert Leno	10	...	Du	1925	7	.....	D,S	Sand	1,895	Do.
22ccc	H. Buckholz	20	48 x 48	Du	1935	18	.....	D,S	Gravel	1,935	Do.
22ddd	Henry Schock	160	2	Dr	1947	30	.....	D,S	Sand	1,926	Do.
25aaa	Test hole 1147	91	5	Dr	8-16-56	.....	.....	T	.....	.....	See log.
28ada	Joe and Roman Bernhart	10	36 x 36	Du	....	8	.....	D,S	Sand	1,895	Supply reported adequate.
28cba	J. H. Mehlhoff	188	2	Dr	....	7	.....	D	..do..	1,890	Do.
28dda	Wilbert Rohrer	7	36 x 36	Du	....	4	.....	D,S	..do..	1,900	Do.
29da	J. F. Melhoff	207	...	Dr	....	6	.....	S	..do..	1,910	Do.
32dad	Wm. Leno	12	36 x 36	Du	1925	8	.....	S	Gravel	1,905	Do.
33cbd	..do..	8	...	Du	1945	5	.....	S	..do..	1,895	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>142-74</u> (Cont.)											
34aad	Jacob Landenberger	140	2	Dr	1944	10	.....	D,S	Sand	1,900	Supply reported adequate.
<u>143-70</u>											
2bcc1	W. L. Henger	20	36 x 36	Dr	1948	18	.....	D,S	Sand	2,140	Do.
2bcc2	..do..	425	4	Dr	1925	300	.....	U	.....	2,146	Do.
2dd	Horning	200	3	Dr	1920	100	.....	D,S	Sand	2,150	Do.
3acb	H. C. Mack	228	2	Dr	1930	180	.....	D,S	..do..	2,170	Do.
5aba	Jake Schick	14	48 x 48	Du	....	4	.....	D,S	..do..	2,070	Do.
6ddd	Henry Mack	270	2	Dr	1935	200	.....	D,S	Gravel	2,062	Supply reported adequate; springs in area.
7dc	G. Martin	14	30 x 30	Du	1934	7	.....	D,S	..do..	2,011	Supply reported adequate.
8bab	Paul Martin	28	36 x 36	Du	....	5	.....	D,S	Sand	2,060	Do.
8cdc	Gus Schick	220	3	Dr	1909	20	.....	D,S	..do..	2,085	Do.
10abc	Mrs. Aug. Hinger	435	2 1/2	Dr	1923	.....	.....	D	..do..	2,150	Do.
10bcc	Kathrine Vogel	253	2	Dr	1941	108	.....	D,S	..do..	2,092	Do.
10dba	Emma Hartel	26	48 x 48	Du	1949	13	.....	D,S	Gravel	2,146	Do.
12bcb	Charles Hartel	38	24	Dr	1927	15	.....	D,S	Sand	2,140	Do.
14acb1	Henry Vaugh	25	36 x 36	Du	1946	.....	.....	S	..do..	2,040	Unfit for drinking.
14acb2	..do..	20	36 x 36	Du	1947	.....	.....	D	..do..	2,040	Supply reported adequate.
14acb3	..do..	60	4	Dr	1953	57	.....	D	..do..	2,050	Unfit for drinking; dis- charge 70 gallons a day.
14bab1	Pete Flemmer	70	2	Dr	....	.....	.....	D,S	Gravel	2,060	Supply reported adequate.
14bab2	..do..	125	2 1/2	Dr	....	.....	.....	D,S	Sand	2,040	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>143-70</u> (Cont.)											
15bcd1	August Ziesca	90	1 1/2	Dr	1928	.....	.....	S	Sand	2,095	Supply reported adequate.
15bcd2	..do..	160	2	Dr	1951	.....	.....	D	..do..	2,095	Do.
15cdb	L. L. Guthmiller	200	3 1/2	Dr	1949	29	.....	D	..do..	2,095	Supply reported adequate; unfit for drinking.
15cdc	..do..	187	3 1/2	Dr	1946	29	.....	S	..do..	2,095	Do.
18adb	George J. Mack, Sr.	23	48 x 48	Du	1907	.....	.....	D,S	Sand	1,945	Supply reported adequate.
19aac	..do..	242	2	Dr	1954	.....	.....	D,S	..do..	2,060	Do.
20aac	William Schick	18	24	Dr	1925	5	.....	D,S	..do..	2,076	Do.
20bb	Harold Gutmiller	28	18 x 18	Du	1946	17	.....	D,S	.....	2,055	Do.
21cad	Paul Gutmiller	20	30	Du	1943	10	.....	D,S	Gravel	2,075	Do.
22aab	Jacob Gutmiller	70	2	Dr	1951	40	.....	D,S	..do..	2,080	Do.
26bbd	Carl Wetzel	40	30	Du	....	20	.....	D,S	..do..	2,055	Do.
27adc	Albert Herman	140	2	Dr	....	.....	.....	S	Sand	2,070	Do.
27bbb	Adolf Gutmiller	13	24	Du	1947	.....	.....	D,S	..do..	2,080	Do.
28cca1	L. L. Gutmiller	167	2 1/2	Dr	1943	.....	.....	S	..do..	2,005	Do.
28cca2	..do..	195	2	Dr	1951	.....	.....	D	..do..	2,005	Do.
28dcb1	August Zeisch	160	2 1/2	Dr	1950	.....	.....	...	..do..	2,005	Do.
28dcb2	..do..	90	20	Dr	....	.....	.....	D,S	..do..	2,005	Do.
31add	Theo. Morlock	55	4	Dr	1940	.....	.....	D,S	..do..	1,980	Do.
32aac1	Adam Morlock	15	12	Dr	1954	11	.....	D	..do..	1,995	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>143-70</u>	(Cont.)										
32aac2	Adam Morlock	13	36 x 36	Du	1932	6	.....	S	Gravel	1,991	Supply reported adequate.
32aac3	..do..	42	24	Dr	1926	25	.....	S	..do..	1,995	Do.
32dad	W. Kleese	20	18	Du	1945	10	.....	D,S	..do..	1,965	Do.
33cad	Patterson Land Co.	50	2 1/2	Dr	1955	35	.....	S	Sand	1,975	Do.
34bdd	Alonzo Ramsey	102	2	Dr	1921	10	.....	D,S	.....	2,005	Do.
34dca1	Jake Gutmiller	73	2	Dr	1950	.....	.....	D,S	..do..	1,995	Do.
34dca2	..do..	325	2	Dr	....	.....	.....	...	.....	1,995	
35bcd1	Patterson Land Co.	72	2 1/2	Dr	1922	.....	.....	...	.....	2,034	Supply reported adequate.
35bcd2	..do..	90	2 1/2	Dr	1928	.....	.....	D,S	Sand	2,034	Do.
<u>143-71</u>											
2dac	A. Patzner	17	36	Du	....	3	.....	D,S	..do..	1,955	Do.
3bdd	Carl Patzner	25	30	Du	1950	10	.....	D,S	..do..	1,995	Do.
4cdd	Jacob Remmick	25	30	Du	1951	7	.....	D,S	Gravel	2,018	Supply reported adequate; springs reported 1 mile northwest.
6dd	Jacob Schumacker	80	3	Dr	1951	5	.....	D,S	Sand	1,965	Supply reported adequate.
8dbb	R. Remmick	6.5	36 x 36	Du	1935	3.5	8-20-55	D,S	..do..	2,029	Do.
9ddc1	R. Schmidt	14	12	Du	1950	12	.....	D,S	..do..	1,905	Supply reported inadequate.
9ddc2	..do..	24	24	Du	1920	15	.....	D,S	..do..	1,905	Supply reported adequate.
12ca	Unknown	23	30	Du	....	16	.....	D,S	..do..	1,960	Do.
15dab	A. Wallenvien	25	32	Du	....	22	.....	D,S	..do..	1,960	Do.
17cba	Adolf Kagsman	16	24	Dr	1949	10	.....	...	..do..	1,948	Supply reported inadequate.

1	2	3	4	5	6	7	8	9	10	11	12
<u>143-71</u> (Cont.)											
20cc	David Aichele	60	3	Dr	....	.....	.....	D,S	Sand	1,952	Supply reported adequate.
22add	H. Wallenvien	35	36	..	....	28	.....	D,S	..do..	1,970	Do.
22cdd	John Aichele	65	36 x 36	Du	....	60	.....	D,S	..do..	1,995	Do.
27bbd	..do..	45	32	Du	1949	41	.....	S	..do..	1,995	Supply reported inadequate.
28bac	J. V. Livingston	74	3	Dr	1944	34	.....	D,S	..do..	1,975	Supply reported adequate.
29ac	Will Morrison	14	48 x 48	Du	1951	11	.....	D,S	..do..	2,010	Supply reported inadequate.
34bb	Lloyd Randall	35	36	Du	1951	30	.....	D,S	..do..	1,940	Supply reported adequate.
34ddc	Harry Schmidt	160	2 1/2	Dr	....	80	.....	D,S	..do..	1,915	Do.
<u>143-72</u>											
3ddd	L. H. Posey	170	2	Dr	1942	22	.....	D,S	Sand	2,000	Supply reported adequate.
4acb	Halgrem Sandahl	8	36 x 36	Du	....	Flow	.....	D,S	..do..	1,970	Do.
5cda	Wallace Posey	150	2 1/2	Dr	1949	4	.....	D,S	..do..	1,940	Do.
6dcc1	O. Seagren	25	30	Du	1930	20	.....	D	Gravel	1,905	Do.
6dcc2	..do..	60	3	Dr	1951	30	.....	S	Sand	1,905	Supply reported adequate; unfit for drinking.
8cbb	Gust Hetletved	22	...	Du	1948	18	.....	D,S	Gravel	1,930	Supply reported adequate.
10aaa	J. Bullis	170	2	Dr	1932	135	.....	D,S	Sand	2,020	Do.
14cca	P. Jasper	105	2	Dr	1950	35	.....	...	..do..	2,017	Do.
15bdd	F. R. Whitman	125	2	Dr	1947	85	.....	S	.....	2,025	Do.
17cc	..do..	50	18	Dr	1948	30	.....	S	.....	1,990	Do.
18ddc	Roy Hanson	50	...	Dv	1910	30	.....	D,S	Gravel	1,980	Do.
24cbd	Remmick	69	2	Dr	....	.....	.....	D,S	Sand	2,065	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>143-72 (Cont.)</u>											
26aba	Thompson	28	4	Dr	1910	12	.....	D,S	Sand	2,065	Supply reported adequate.
28add1	Joe Subart	12	24 x 24	Du	1938	4	.....	S	Gravel	2,030	Do.
28add2	..do..	18	24 x 24	Du	1939	4	.....	S	..do..	2,035	Do.
28add3	..do..	56	24	Du	1916	10	.....	D,S	..do..	2,030	Do.
30aa	Seth Stevenson	28	2 1/2	Dr	1950	24	.....	D,S	..do..	1,895	Do.
30ddd	Test hole 1150	210	5	Dr	8-21-56	.....	.....	T	.....	.....	See log.
34aca	Edgar Randall	60	24	Dr	1930	.....	.....	...	Sand	1,958	Supply reported adequate.
34cd	Gilbert Fieldman	60	24	Dr	1950	48	.....	D,S	.....	1,945	Do.
34dcc	R. Kien	108	2	Dr	1949	20	.....	D,S	.....	1,945	Do.
35cca	Herman Legler	170	3	Dr	1938	50	.....	D,S	Sand	1,955	Do.
<u>143-73</u>											
2abb	Edwin J. Johnson	200	2 1/2	Dr	1949	60	.....	D,S	Sand	2,040	Supply reported adequate.
2cc	C. Hetletved	140	2	Dr	1945	5	.....	D,S	..do..	1,945	Do.
4bdd	J. Hetletved	177	2	Dr	1952	100	.....	D,S	Gravel	2,050	Do.
4ccb	Edward Newton	185	2	Dr	1925	.....	.....	D,S	Sand	2,065	Do.
8dab	Sigard Duldol	25	..	Du	1925	12	.....	D,S	..do..	2,055	Do.
10bdd	Ed Wetzel, Jr.	170	1 1/2	Dr	1952	1 1/2	.....	D,S	Gravel	1,970	Do.
11bbd	Armin Wetzel	168	2 1/2	Dr	1948	1 1/2	.....	...	..do..	1,965	Do.
11dcc1	Ray Riskedahl	222	2	Dr	1952	20	.....	D	Sand	1,970	Do.
11dcc2	..do..	130	2	Dr	1932	10	.....	D,S	Gravel	1,970	Do.
17add	T. Christensen	160	2	Dr	1953	90	.....	D,S	..do..	2,000	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>143-73</u> (Cont.)											
20bdb	Jake Rath	180	2 1/2	Dr	....	60	.....	D,S	Sand	1,905	Supply reported adequate.
22aac1	Edwin Nordgard	230	1 1/2	Dr	1948	12	.....	D	..do..	2,000	Do.
22aac2	..do..	16	6	Du	....	15	.....	D,S	Gravel	1,985	Do.
26acb1	Cris Hetletved	285	2	Dr	1950	.....	.....	D	Clay	1,995	Do.
26acb2	..do..	240	2	Dr	1925	.....	.....	D,S	..do..	1,995	Do.
28bbc	C. R. Cleveland	160	2	Dr	1908	40	.....	D,S	Sand	1,995	Do.
30add	Ed. E. Wetzel	210	3	Dr	1950	3	.....	D,S	..do..	1,985	Do.
31dcb	..do..	210	2	Dr	1938	194	.....	D,S	..do..	1,970	Do.
34dab	Emil Aichele	16	24	Du	....	11	.....	D,S	Gravel	1,930	Do.
<u>143-74</u>											
8abb	Will Thieling	180	3	Dr	1941	85	.....	D,S	Sand	1,945	Do.
10cbb	Harold Goldsmith	200	2 1/2	Dr	1949	10	.....	D,S	..do..	1,935	Do.
11aaa	Ervin Gartner	80	2	Dr	....	.....	.....	D,S	..do..	1,960	Do.
18dad	Burt Miller	130	4	Dr	1945	.....	.....	S	Sand	1,980	Do.
22acc	Bruce Miller	16	48	Du	1947	14	.....	D,S	Gravel	1,960	Do.
25dcc	Forrest Thieling	180	1 1/2	Dr	1950	40	.....	D	Sand	1,955	Supply reported inadequate.
26bac	Vacant	167	...	Dr	1943	.....	.....	S	..do..	1,950	Supply reported adequate.
32bca	Tillman Sorenson	148	4	Dr	1913	Flow	.....	D,S	..do..	1,975	Supply reported adequate; see chemical analysis.
32dba	Henry Wagner	85	3	Dr	....	20	.....	D,S	..do..	1,985	Supply reported adequate.
34aaa	Roy Buck	10	...	Du	....	5	.....	D,S	..do..	1,940	Do.
34ddc	William M. Leno	175	2 1/2	Dr	1953	75	.....	D,S	..do..	1,936	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>144-70</u>											
5cdd1	Henry Neuman	37	24	Dr	1942	15	.....	S	Sand	2,050	Supply reported adequate.
5cdd2	..do..	60	36	Dr	1922	50	.....	D,S	Gravel	2,050	Do.
6dbb	Jake Schaubert	18	36 x 36	Du	1915	11	.....	D,S	Sand	2,065	Supply reported inadequate.
8dad1	Helge Lien	Spring	44 x 44	Du	1925	Flow	.....	S	..do..	2,032	Supply reported adequate; estimated discharge 5-6 gpm.
8dad2	..do..	29	36	Dr	1953	8	.....	D,S	..do..	2,043	Supply reported adequate.
8dcc	Earl Bertsch	31	24	Dr	1945	8	.....	D,S	Gravel	2,065	Do.
9ddd	Ben Kunz	29	36 x 36	Du	1905	12	.....	S	Clay	2,045	Do.
10baa	Mrs. Grace Schander	30	42 x 42	Du	1930	15	.....	D,S	Sand	2,055	Do.
11aac	Ed Geier	35	36	Dr	1949	25	.....	D,S	Gravel	2,045	Supply reported inadequate.
14cd1	Grace Schander	30	36 x 36	Du	1915	6	.....	D	Sand	2,070	Supply reported adequate.
14cd2	..do..	50	24	Dr	1947	48	.....	S	Clay	2,070	Supply reported inadequate.
18dd	Ray Rafferty	28	24	Dr	1947	12	.....	D,S	Sand	2,135	Supply reported adequate.
20aaa	..do..	20	24	Dr	1948	11	.....	D	..do..	2,052	Do.
20bbb1	J. R. Ehni	4	36 x 36	Du	1942	2	.....	S	Sand	2,110	Supply reported adequate; spring dug out.
20bbb2	..do..	30	24	Dr	1945	28	.....	D,S	..do..	2,130	Supply reported adequate.
22bad1	W. Daniel	510	4	Dr	1932	40	.....	U	..do..	2,060	Unused.
22bad2	..do..	25	3	Dr	1937	12	.....	D,S	..do..	2,050	Supply reported inadequate.
24dbb1	John Bauer	346	2	Dr	1954	.....	.....	S	..do..	2,050	Supply reported adequate.
24dbb2	..do..	22	...	Dr	....	.....	.....	...	..do..	2,050	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>144-70</u> (Cont.)											
27acd	Art Vogel	20	36	Dr	1950	.....	.....	S	Clay	2,060	Supply reported adequate; unfit for drinking.
27caa	Reinhart Vogel	Spring	36 x 36	Du	....	Flow	.....	S	.....	.....	Supply reported adequate; estimated discharge 10-15 g.p.m.
28bab	Boris Daniels	15	48 x 48	Du	....	9	.....	D,S	Sand	2,070	Supply reported adequate.
31adc	Sam Guthmiller	18	28	Du	1951	8	.....	D,S	..do..	2,030	Do.
32acc	John Fleines	8	36	Du	1951	5	.....	D,S	..do..	2,078	Supply reported inadequate.
<u>144-71</u>											
2acc	W. Kost	40	36	Du	....	33	.....	D,S	..do..	2,120	Do.
7bb	Clifford Rulkey	6 1/2	36 x 36	Du	....	3	8-22-55	D	Gravel	2,085	Supply reported adequate.
8cab	Art and Bob Bertsch	24	36	Du	1953	10	.....	D,S	Sand	2,060	Do.
12cbd	James Kunz	40	36 x 36	Du	....	20	.....	D,S	..do..	2,150	Supply reported inadequate.
14dda	Alfred Schrenk	27	36 x 36	Du	....	13	.....	D,S	.....	2,018	Supply reported adequate.
17dcd	Wm. Bertsch	40	30	Dr	1953	.....	.....	D,S	Sand	2,090	Do.
19aaa	Test hole 1149	280	5	Dr	8-20-56	.....	.....	T	.....	.....	See log.
22aaa	Adam Rodacker	32	38 x 38	Du	1929	28	.....	D,S	Sand	2,131	Supply reported inadequate.
22bca	Levi Patzner	10	36	Dr	1950	5	.....	S	..do..	2,078	Do.
22bdb	..do..	20	22	Dr	1952	3	.....	D,S	..do..	2,085	Do.
24abb	John Griehley	210	2	Dr	1935	50	.....	D,S	Sand	2,030	Supply reported adequate.
25cca	Henry Patzner	20	36	Du	1947	14	.....	D,S	..do..	2,025	Do.
28bba	Wm. Bertsch	17	36 x 36	Du	1941	4	.....	D,S	..do..	2,085	Do.
30bad	R. Weippert	20	2 1/2	Dr	....	.....	.....	D,S	..do..	2,010	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>144-71</u>	(Cont.)										
30ccd	John weippert	86	24	Dr	1950	40	.....	D,S	Sand	2,015	Supply reported adequate.
34cca	Lee Gulden	33	8	Du	1939	19	.....	D,S	..do..	1,973	Do.
34dda	Mrs. Fred Schields	21	6	Dr	1954	16	.....	D,S	..do..	1,995	Do.
<u>144-72</u>											
2abb	Axel West	30	30 x 30	Du	1910	22	.....	D,S	..do..	2,115	Do.
2dda	George Koenig	20	26	Du	1922	15	.....	D,S	..do..	2,110	Do.
4cc1	Whipple	20	30 x 30	Du	1935	6	.....	D	Gravel	1,910	Do.
4cc2	..do..	65	36 x 36	Du	1951	30	.....	U	..do..	1,913	Do.
6dad	Harvey Whipple	14	...	Du	1954	7	.....	D,S	..do..	2,022	Do.
10aaa	Carl Koenig	30	14	Dv	1915	26	.....	D,S	Sand	2,092	Do.
12aba	Cliff Ralkey	15	36 x 36	Du	1935	7	.....	S	..do..	2,085	Do. Unfit for drinking.
13dad1	Virgil Koenig	10	...	Dv	....	.....	.....	S	..do..	2,012	Do.
13dad2	..do..	11	6	Dv	1947	9	.....	D	..do..	2,012	Do.
14bcc	Edgar Koenig	60	3	Dr	1948	45	.....	D,S	..do..	2,010	Do.
18aad	N. O. Orner	20	48 x 48	Du	....	8	.....	S	Gravel	1,920	Do. Unfit for drinking.
18daa	A. Orner	8	...	Du	1947	.....	.....	D,S	..do..	1,890	Do.
21add	Walter Otto	35	3	Dr	1949	.....	.....	D,S	Sand	2,080	Do.
21dad	C. Otto	90	3	Dr	1916	Flow	.....	D,S	..do..	2,090	Supply reported adequate; see chemical analysis; estimated discharge 18 gpm.
22aaa	Walter Otto	80	3	Dr	1949	30	.....	D,S	Sand	2,030	Supply reported adequate; estimated discharge 5 gpm.

1	2	3	4	5	6	7	8	9	10	11	12
<u>144-72 (Cont.)</u>											
22bba	C. Otto	102	2	Dr	1920	Flow	.....	D,S	Sand	2,030	Supply reported adequate.
23ccc	Test hole 1148	210	5	Dr	8-17-56	.....	.....	T	.....	.....	See log.
29bad	Mrs. Joe Nelson	90	2	Dr	1953	Flow	.....	D,S	.....	2,025	Supply reported adequate.
32bab	Lyle Hetletved	40	...	Dr	1936	30	.....	D,S	Sand	1,925	Do.
35adc	Jasper	240	4	Dr	1943	27	.....	D,S	..do..	2,100	Do.
<u>144-73</u>											
2abb	Livingston	340	3	Dr	1951	170	.....	D,S	..do..	2,100	Do.
8bbb	Herman Meier	60	...	Dr	....	16	.....	D,S	..do..	2,020	Do.
11acc	Livingston	16	2	Dr	193?	4	.....	S	..do..	2,040	Do.
17cba	Dan Almer	624	4	Dr	1948	30	.....	D	Gravel	2,050	Do.
18daa	..do..	140	2 1/2	Dr	1925	30	.....	S	Sand	2,050	Do.
19dd	..do..	20	36 x 36	Du	1930	15	.....	S	Gravel	.....	Do.
20bcd	Ralph Seaberg	180	1 3/4	Dr	1940	40	.....	D,S	..do..	2,050	Do.
20ccc	Ed Kahler	15	...	Du	194?	.....	.....	...	..do..	2,015	Do.
26ddb	Vacant	200	2 1/2	Dr	....	.....	.....	U	Sand	2,052	Do.
30cda1	Earl Newton	80	...	Dr	1947	40	.....	D,S	..do..	2,000	Do.
30cda2	..do..	90	...	Dr	1942	45	.....	D,S	..do..	2,000	Do.
32cb	Edwin Leno	95	...	Dr	....	.....	.....	D,S	..do..	2,012	Do.
34dcc	O. Hetletved	220	2	Dr	1951	80	.....	D	..do..	2,010	Do.
<u>144-74</u>											
2cccl	B. White	165	3	Dr	1948	30	.....	D,S	Sand	2,005	Do.

1	2	3	4	5	6	7	8	9	10	11	12
<u>144-74</u> (Cont.)											
2ccc2	B. White	90	3	Dr	1942	40	.....	S	Sand	1,980	Supply reported adequate.
6dad	Art Papke	175	...	Dr	....	.....	.....	D,S	..do..	2,075	Do.
13dcc	Stark	165	4	Dr	....	.....	.....	D,S	Gravel	2,090	Do.
14abd	H. C. Sathrie	125	2	Dr	1950	100	.....	D,S	Sand	2,000	Do.
15cdc	Fred Hoff	84	2	Dr	1948	82	.....	D,S	..do..	2,065	Do.
21abb1	Dale Goldsmith	100	...	Dr	1952	20	.....	D,S	..do..	2,085	Do.
21abb2	..do..	140	...	Dr	1916	22	.....	D,S	..do..	2,080	Do.
22bbb	Test hole 1153	300	5	Dr	8-24-56	.....	.....	T	.....	.....	See log.
22ddd	Russell Kramer	100	2	Dr	1950	20	.....	D	..do..	2,035	Supply reported adequate.
24bab	Elmer Newton	135	3	Dr	1953	40	.....	D,S	..do..	2,155	Do.
26bdc	Russell Kramer	220	2	Dr	....	40	.....	S	..do..	2,050	Do.
28dda	A. Hiebe	218	3	Dr	1951	100	.....	D,S	..do..	2,050	Do.
30cab	Emil Witt	100	2	Dr	....	.....	.....	D,S	..do..	2,000	Do.
32adb	Cliff Goldsmith	15	...	Du	....	12	.....	...	..do..	1,990	Do.
32bcd	L. Goldsmith	150	2	Dr	1911	40	.....	...	..do..	2,020	Do.
34add	Willie Leno	100	...	Dr	....	25	.....	D,S	..do..	2,050	Do.

Table 4. Water-level measurements in selected wells in Kidder County, N. Dak.

Water levels are referred to land surface datum (lsd). MP means measuring point.

139-71-10bc. 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: 1940-60.

<u>Date</u>	<u>Water level</u>	<u>Date</u>	<u>Water level</u>	<u>Date</u>	<u>Water level</u>
May 3, 1957	6.60	July 30, 1958	9.28	May 11, 1960	9.57
Sept. 11	9.07	May 8, 1959	9.68	Sept. 20	10.17
Apr. 10, 1958	8.72	Sept. 10	11.85		

140-71-23ccb. K. Maw. 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 39.54 below lsd, May 3, 1957; lowest 41.85 below lsd, Oct. 24, 1961. Records available: 1955-61.

May 3, 1957	39.54	July 30, 1958	39.96	May 11, 1960	40.82
Sept. 11	39.56	May 8, 1959	40.52	Sept. 20	40.84
Apr. 10, 1958	39.75	Sept. 10	40.99	Oct. 24, 1961	41.85

Table 4. Water-level measurements in selected wells in Kidder County, N. Dak.

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 13.95 below lsd, Sept. 10, 1959. Records available: 1955-61.

Lowest water level for the day, from recorder graph

Day	<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
<u>1957</u>												
5					11.87							12.13
10									12.02	12.24		
15									11.89	12.37		
20									11.85	12.51		
25	12.24								11.97	12.63		
From									12.09	12.75		
<u>1958</u>												
5					12.48	12.68	12.77	13.02	13.25			
10				12.53	12.45	12.68	12.74	13.07	13.26			
15				12.47	12.54	12.70	12.74	13.13	13.26			
20				12.47	12.57	12.71	12.83	13.17	13.26			
25				12.53	12.60	12.73	12.89	13.21	13.25			
From				12.45	12.66	12.75	13.00	13.25	13.25			

(continued on next page)

139-71-10bc, continued

	<u>1959</u>					
5	13.21	13.12	13.08	13.05	13.68	13.93
10	13.19	13.11	13.07	^e 13.04	13.72	13.95
15	13.17	13.09	13.07		13.43	13.77
20	13.15	13.07	13.06		13.50	13.80
25	^e 13.23	13.14	13.07	13.06	13.54	13.85
Eom	^e 13.24	13.13	13.09	13.05	13.61	13.89
	<u>1960</u>					
5					13.18	13.64
10	13.50		13.22		13.60	
15					13.67	
20					13.48	
25				13.18	13.48	13.42
Eom				13.10	13.55	13.64

Eom = End of month

e = estimated

May 3, 1961 13.42

Oct. 25, 1961 13.61

Table 4. Water-level measurements in selected wells in Kidder County, N. Dak.

142-70-23ab. Mrs. Fagereng. Bored unused water-table well in glacial drift, diam. 1.5 ft., depth 23 ft., lined with concrete, MP top of concrete casing, 0.5 ft. above lsd. Highest water level 17.52 below lsd, July 30, 1958; lowest 18.96 below lsd, Sept. 20, 1960. Records available: 1955-61.

<u>Date</u>	<u>Water level</u>	<u>Date</u>	<u>Water level</u>	<u>Date</u>	<u>Water level</u>
Apr. 22, 1955	18.63	Apr. 10, 1958	17.74	Sept. 20, 1960	18.96
Oct. 24	18.52	July 30	17.52	Oct. 25, 1961	18.91
June 26, 1956	18.57	July 15, 1959	18.48		

TABLE 5. Logs of test holes

137-73-4bbb

Test hole 1027

<u>Formation</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Sand, fine to medium; a little gray		
	clay.....	18	18
	Till: clay, gray; gravel, fine to medium	84	102
	Clay, sandy, light-green.....	12	114
Pierre Shale (Upper Cretaceous):			
	Shale, gray.....	16	130

137-73-9bbb

Test hole 1026

Glacial drift:			
	Clay, yellow; gravel, fine to medium....	18	18
	Till: clay, gray; gravel, fine to medium	96	114
	Gravel, fine to medium; shale pebbles...	3	117
	Till: clay, gray; gravel, fine to medium	145	162
Pierre Shale:			
	Shale, gray.....	18	180

137-73-9ccc

Test hole 1025

<u>Formation</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Clay, yellowish-brown; gravel, fine to medium.....	16	16
	Till: clay, gray; gravel, fine to medium	67	83
	Clay, sandy, gray. (lost 1,100 gallons of water and used 2 1/2 bags of bentonite between 100 and 170 feet).....	87	170

137-73-32aaa

Test hole 1028

Glacial drift:			
	Sand, fine, brown.....	4	4
	Clay, smooth, yellowish-tan.....	14	18
	Clay, smooth, light-gray.....	5	23
	Sand, fine to coarse; fairly clean.....	21	44
	Till: clay, gray; gravel, fine to medium	30	74
	Clay, sandy in places, light-green.....	19	93
Pierre Shale:			
	Shale, gray.....	27	120

138-70-35bbb

Test hole 1143

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, fine to coarse; gravel, fine to medium.....	5	5
	Sand, medium to coarse; gravel, fine to coarse; cobblestones.....	5	10
	Gravel, fine to coarse; shale pebbles...	26	36
	Clay, sandy, gray-brown.....	7	43
	Sand, fine to coarse; gravel, medium....	18	61
	Clay, sandy, gray.....	12	73
	Clay, smooth, dark-gray.....	19	92
	Gravel, fine to coarse; shale pebbles; cobblestones.....	10	102
	Till: clay, sandy and gravelly, gray....	213	315
Fox Hills Sandstone (Upper Cretaceous):			
	Clay, sandy, yellow.....	3	318
	Clay, sandy, gray.....	8	326
	Clay, smooth, sandy, yellow.....	4	330

138-71-9daa

Test hole 1050

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, fine to coarse; gravel, fine.....	26	26
	Clay, smooth, gray.....	25	51
	Gravel, fine to medium.....	17	68
	Till: clay, gray; sandy, little gravel, (lost circulation).....	64	132
	Clay, sandy, dark-gray, (lost circulation)	43	175
Pierre Shale:			
	Shale, gray.....	15	190

138-71-10ccc

Test hole 1049

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, fine, silty.....	3	3
	Clay, sandy, black.....	1	4
	Sand, fine to medium.....	6	10
	Sand, medium to coarse; little gravel, fine.....	16	26
	Clay, smooth, gray.....	27	53
	Sand, medium to coarse; gravel, fine...	7	60
	Gravel, fine to medium, fairly clean...	28	88
	Clay, soft, gray.....	28	116
	Sand, medium to coarse; gravel, fine...	4	120
	Gravel, medium; sand, coarse.....	10	130
	Gravel, fine; sand, coarse.....	10	140
	Gravel, medium, clean (hard drilling)..	8	148
	Till: clay, gray; gravel, fine to medium	143	291
	Gravel, fine.....	3	294
	Till: clay; gravel, fine to medium.....	72	366
Pierre Shale:			
	Shale, gray.....	4	370

138-71-16add

Test hole 1048

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, fine to coarse.....	15	15
	Gravel, fine to medium.....	22	37
	Clay, smooth, gray.....	25	62
	Gravel, fine to medium.....	9	71
	Till: clay, gray; gravel, fine to medium	42	112
	Gravel, fine to medium.....	15	127
	Till: clay, gray; gravel, fine to medium	73	200
	Clay, gravelly and sandy, gray.....	55	255
	Gravel, fine to medium.....	18	273
	Clay, gravelly.....	18	291
	Gravel, fine.....	12	303
	Till: clay, gray; gravel, fine to medium	29	332
Pierre Shale:			
	Shale, gray.....	8	340

138-71-25caa

Test hole 1142

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, black.....	1	1
	Sand, fine to medium.....	4	5
	Clay, sandy, brown, wood fragments.....	2	7
	Clay, sandy, black.....	2	9
	Sand, fine to medium; many small shells	9	18
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	4	22
	Clay, smooth, light-gray.....	12	34
	Till.....	6	40
	Sand, and gravel, fine to medium.....	14	54
	Till: clay, gray; gravel, fine to medium.....	3	57
Fox Hills Sandstone:			
	Clay, sandy, greenish-gray.....	6	63
	Clay, smooth, light-brown.....	7	70

138-72-10bbb

Test hole 1045

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, fine clayey.....	4	4
	Clay, smooth, yellow.....	19	23
	Clay, smooth, gray.....	5	28
	Sand, fine to medium.....	14	42
	Sand, coarse; gravel, fine.....	25	67
	Clay, sandy, gray.....	26	93
	Till: clay, gray; gravel, fine to medium	21	114
	Sand, fine, silty.....	3	117
	Clay, sandy, gray.....	43	160
	Clay, smooth, gray, (lost circulation 210 to 230 feet, probably gravel - no recovery).....	80	240
Pierre Shale:			
	Shale, gray.....	10	250

138-72-16ddd

Test hole 1046

<u>Formation</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Sand, fine to medium, silty.....	5	5
	Clay, light-gray.....	3	8
	Sand, coarse; gravel, fine.....	16	24
	Clay, smooth, gray.....	8	32
	Sand, medium to coarse.....	19	51
	Till: clay, gray; gravel, fine to medium	110	161
Pierre Shale:			
	Shale, light-gray.....	9	170

138-72-27ccc

Test hole 1047

Glacial drift:			
	Sand, fine to medium.....	25	25
	Gravel, fine to medium, sandy.....	39	64
	Till: clay, gray; gravel, fine to medium	14	78
	Sand, fine to coarse.....	4	82
	Till: clay, gray, gravel, fine to medium; (lost circulation from 260 to 280 feet)	280	362
Pierre Shale:			
	Shale, gray.....	8	370

138-73-5aaal

Test hole 1033

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, smooth, yellow.....	7	7
	Clay, smooth, dark-gray.....	3	10
	Clay, smooth, gray.....	17	27
	Sand, coarse; gravel, fine, silty.....	11	38
	Till: clay, gray; gravel, fine to medium	43	81
	Gravel, fine; sand, medium to coarse...	4	85
	Till: clay, gray; gravel, fine.....	90	175
	Gravel, fine; sand, medium to coarse, silty.....	8	183
	Till: clay, gray; gravel, fine to medium	13	196
Pierre Shale:			
	Shale, gray.....	4	200

138-73-5ddd

Test hole 1032

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, smooth, yellow.....	15	15
	Clay, smooth, gray.....	6	21
	Clay, sandy, gray.....	7	28
	Sand, medium to coarse, silty.....	1	29
	Till: clay, gray; gravel, fine to medium	52	81
Fox Hills Sandstone:			
	Clay, gravelly and sandy.....	9	90
	Clay, sandy, dark-gray, (lost circu- lation 105 to 110 feet).....	20	110
Pierre Shale:			
	Shale, gray.....	10	120

138-73-16bbb

Test hole 1031

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> <u>(feet)</u>	<u>Depth</u> <u>(feet)</u>
Glacial drift:			
	Sand, fine to coarse.....	9	9
	Clay, smooth, yellowish-gray.....	5	14
	Clay, smooth, light-gray.....	9	23
	Sand, fine, silty.....	62	85
	Sand, fine to coarse; gravel, fine, silty.....	13	98
	Clay, smooth, gray.....	14	112
	Clay, sandy, gray.....	6	118
	Gravel, fine to medium; sand, coarse...	22	140
	Gravel, fine; sand, coarse, silty; lignite fragments.....	33	173
	Till: clay, gray; gravel, fine to medium	6	179
	Clay, smooth, gray.....	13	192
	Till: clay, gray; gravel, fine.....	87	279
Pierre Shale:			
	Shale, gray.....	11	290

138-73-16ccc

Test hole 1030

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, fine to coarse; gravel, fine.....	11	11
	Clay, smooth, gray.....	73	84
	Sand, fine to medium; lignite fragments	9	93
	Sand, medium to coarse; gravel, fine...	5	98
	Clay, smooth, gray.....	13	111
	Till: clay, gray; gravel, fine.....	194	305
Pierre Shale:			
	Shale, gray.....	5	310

138-73-28bbb

Test hole 1029

Glacial drift:			
	Sand, fine to medium.....	3	3
	Clay, smooth, gray.....	2	5
	Sand, medium to coarse; lignite fragments	8	13
	Till: clay, gray; gravel, fine.....	12	25
	Sand, fine to medium, silty.....	7	32
	Till: clay, gray; gravel, fine.....	20	52
	Sand, fine to medium, silty.....	10	62
	Clay, sandy in spots, gray; little gravel	85	147
Pierre Shale:			
	Shale, gray.....	13	160

139-70-7bbb

Test hole 985

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, medium to coarse; gravel, medium; shale pebbles.....	7	7
	Gravel, coarse; sand, very coarse.....	13	20
	Gravel, medium; sand, fine to medium, clean; shale pebbles.....	60	80
	Clay, gray; sand, medium.....	12	92
	Clay, sandy, gray; gravel, fine; shale pebbles.....	35	127
	Sand, medium to coarse; clay; gravel, fine.....	28	155

Pierre Shale:

Shale, gray.....	5	160
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139-71-laaa

Test hole 986

Glacial drift:

Topsoil, sandy, brown.....	2	2
Sand, fine to coarse; gravel, fine; shale pebbles, silty.....	9	11
Sand, fine to coarse; gravel, fine, shale pebbles; clay, oxidized, yellow	4	15
Clay, gray; gravel, fine to medium.....	110	125

Pierre Shale:

Shale, gray.....	5	130
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139-71-6ddd

Test hole 980

<u>Formation</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Clay, sandy, brown.....	3	3
	Sand, fine to coarse, silty.....	12	15
	Gravel, coarse; sand.....	5	20
	Gravel, fine to medium, silty; shale pebbles.....	20	40
	Sand, fine to medium, silty; gravel, fine; shale pebbles.....	33	73
	Till: clay, gray; gravel, fine; shale pebbles.....	68	141
	Till: clay, gray; sand, fine to medium; gravel, fine; shale pebbles.....	54	195
	Sand, very fine to medium, silty.....	15	210
	Till: clay, gray; sand, fine to coarse; gravel, fine; shale pebbles.....	100	310
Pierre Shale:			
	Shale, gray.....	5	315

139-71-8ddd

Test hole 979

<u>Formation</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, black.....	1	1
	Clay, sandy, light-gray.....	3	4
	Sand, medium to coarse, silty, brownish- gray.....	26	30
	Till: clay, gray; gravel, fine to medium	25	55
	Till: clay, gray; sand, coarse, brown; gravel, medium to fine; shale pebbles	219	274
Pierre Shale:			
	Shale, dark-gray.....	6	280

139-71-10bdc

Test hole 1051

Glacial drift:			
	Sand, fine to medium.....	8	8
	Sand, medium to coarse; gravel, fine...	16	24
	Till: clay, gray; gravel, fine to medium.....	172	196
Pierre Shale:			
	Shale, gray.....	4	200

139-71-22bbb

Test hole 978

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, medium to coarse, brown; gravel, medium to fine, silty.....	10	10
	Sand, coarse to very coarse, brown; gravel, medium to fine.....	10	20
	Sand, medium to very coarse, brown; gravel, medium to fine, silty and clayey.....	20	40
	Clay, sandy, gray; gravel, medium	30	70
	Sand, fine to medium, gray; clay, gray.	10	80
	Till: clay, gray; sand, medium to coarse; gravel, fine.....	65	145

139-71-22ddd

Test hole 977

Glacial drift:			
	Sand, medium to coarse, silty, brown...	2	2
	Clay, yellow.....	8	10
	Till: clay, gray; gravel, fine; shale pebbles.....	93	103
	Till: clay, sandy, gray.....	26	129
Pierre Shale:			
	Shale, gray.....	1	130

139-72-8bbb

Test hole 1023

<u>Formation</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Sand, medium to coarse; gravel, fine...	9	9
	Clay, sandy, yellow to yellowish-orange; gravel, fine to medium.....	17	26
	Basalt boulder.....	2	28
	Clay, yellowish-orange; gravel, fine to medium, sandy.....	21	49
	Till: clay, gray; gravel, fine to medium.....	91	140
	Till or shale (?) (poor sample recovery)	50	190

139-72-8dad

Test hole 1024

Glacial drift:			
	Clay, smooth, light-gray, small amounts of fine gravel.....	24	24
	Sand, fine to medium; lignite fragments	21	45
	Sand, medium to coarse; gravel, fine, silty, (lost circulation at 47 feet)	17	62
	Till: clay, gray; gravel, fine to medium	20	82
	Sand, medium to coarse; gravel, fine...	17	99
	Clay, smooth, gray.....	14	113
Pierre Shale:			
	Shale, gray.....	32	145

139-72-15dcd

Test hole 1037

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, medium to coarse, gravel, fine...	21	21
	Clay, smooth, gray.....	63	84
	Clay, sandy, gray.....	18	102
	Clay, smooth, gray.....	25	127
	Till: clay, gray; gravel, fine.....	16	143
	Gravel, fine to medium, clayey.....	7	150
	Gravel, fine to medium, cemented, (difficult drilling).....	13	163
	Clay, sandy, gray.....	29	192
	Till: clay, gray; gravel, fine.....	44	236
Pierre Shale:			
	Shale, gray.....	4	240

139-72-22dcd

Test hole 1038

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, fine to medium; gravel, fine.....	11	11
	Clay, smooth, yellow.....	3	14
	Clay, smooth, gray.....	32	46
	Sand, fine to medium, silty.....	21	67
	Clay, smooth, gray.....	10	77
	Sand, fine, silty.....	23	103
	Till: clay, gray; gravel, fine.....	21	134
	Sand, fine to coarse; gravel, fine, fairly clean.....	36	160
	Sand, fine to coarse; gravel, fine, slight amount of clay.....	54	214
	Till: clay, gray; gravel, fine to medium	118	332
Pierre Shale:			
	Shale, gray.....	8	340

139-72-25accl

Test hole 1116

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, sand, fine to coarse.....	1	1
	Sand, fine to medium.....	4	5
	Sand, fine to coarse; gravel, fine to medium; shale pebbles.....	10	15
	Clay, smooth, yellow.....	4	19
	Clay, sandy, yellow.....	5	24
	Clay, sandy, gray.....	11	35
	Clay, smooth, gray.....	17	52
	Clay, sandy, gray.....	83	135
	Gravel, fine to medium; shale pebbles..	11	146
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	4	150

139-72-25acc2

Test hole 1117

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, sandy, brown.....	1	1
	Clay, sandy, yellow; gravel, fine to coarse.....	2	3
	Sand, fine to coarse; gravel, fine to medium; shale pebbles.....	2	5
	Gravel, fine to medium; shale pebbles..	5	10
	Clay, sandy, yellow.....	19	29
	Sand, fine; clay, yellow.....	6	35
	Sand, fine; shale and lignite pebbles..	51	86
	Clay, sandy, gray.....	47	133
	Gravel, fine to medium; sand, coarse; shale pebbles.....	20	153
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	197	350
	Till: gravel, fine to medium; clay, gray; shale pebbles.....	38	388
Pierre Shale:			
	Shale, gray.....	12	400

139-72-27ccc

Test hole 1039

<u>Formation</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Sand, fine to coarse, clean.....	8	8
	Clay, yellow; gravel, fine.....	5	13
	Clay, smooth, gray.....	24	37
	Sand, fine to medium.....	33	70
	Sand, fine, silty.....	23	93
	Sand, medium to coarse; gravel, fine...	4	97
	Till: clay, gray; gravel, fine to medium	11	108
	Sand, fine to medium.....	2	110
	Gravel, fine to medium; sand, coarse...	15	125
	Gravel, fine to medium.....	23	148
	Sand, coarse; gravel, fine, silty.....	39	187
	Till: clay, gray; gravel, fine to medium	66	253
	Sand, fine to medium, silty (lost over 800 gallons of water and 150 pounds of bentonite).....	25	278
	Gravel, medium to coarse, (lost circu- lation and 400 pounds of bentonite).	17	295

139-72-34cda

Test hole 1044

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, fine to coarse, fairly clean.....	12	12
	Clay, smooth, gray.....	2	14
	Clay, smooth, yellowish-brown.....	8	22
	Clay, smooth, gray.....	7	29
	Sand, fine to medium, silty.....	43	72
	Sand, medium to coarse; gravel, fine, mostly rounded shale pebbles.....	48	120
	Gravel, fine to medium, sandy.....	28	148
	Sand, fine to coarse; gravel, fine, fairly clean.....	106	254
	Till: clay, gray; gravel, fine to medium	61	315

139-73-1aaa

Test hole 1022

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, yellow; gravel, fine to medium...	5	5
	Clay, smooth, yellowish-tan.....	9	14
	Sand, medium to coarse; gravel, fine, silty.....	4	18
	Till: clay, gray; gravel, fine to medium.....	28	46
	Clay, sandy, yellow (lost circulation 46 to 51 feet).....	15	61
	Clay, sandy, gray.....	16	77
Pierre Shale:			
	Shale, gray.....	13	90

139-73-17daa

Test hole 1036

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, sandy, brown.....	2	2
	Clay, smooth, yellow.....	9	11
	Clay, sandy, yellow.....	5	16
	Sand, medium to coarse; gravel, fine; shale pebbles.....	2	18
	Clay, yellow; gravel, fine to medium; shale pebbles.....	39	57
	Till: clay, blue-gray; gravel, fine to medium; shale pebbles.....	16	73
	Clay, sandy, yellow; gravel, fine; shale pebbles.....	47	120
Fox Hills Sandstone:			
	Clay, hard, gray.....	6	126
	Clay, sandy, gray.....	4	130

139-73-20ddd

Test hole 1035

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, sandy, yellow.....	7	7
	Clay, yellow; gravel, fine to medium...	15	22
	Gravel, fine, sandy.....	16	38
	Till: clay, gray; gravel, fine to medium	49	87
	Clay, sandy, yellow.....	15	102
	Till: clay, gray; gravel, fine to medium	30	132
	Clay, sandy, yellow.....	25	157
Fox Hills Sandstone (?):			
	Clay, sandy, gray.....	3	160

139-73-28ccc

Test hole 1034

Glacial drift:			
	Clay, smooth, gray.....	4	4
	Till: clay, yellow; gravel, fine to medium.....	44	48
	Till: clay, gray; gravel, fine to medium	48	96
	Clay, sandy, yellow (lost circulation 105 to 110 feet).....	18	114
Fox Hills Sandstone:			
	Clay, sandy, gray (lost circulation)...	22	136

140-71-2aaa

Test hole 1015

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, sandy, brown.....	2	2
	Sand, medium to coarse.....	2	4
	Clay, light-gray.....	1	5
	Sand, medium to coarse; gravel, fine to medium; shale pebbles.....	10	15
	Gravel, fine to medium; shale pebbles..	17	32
	Till: clay, sandy, gray; gravel, fine to medium; shale pebbles.....	11	43
	Till: clay, smooth, gray; gravel, fine to medium.....	22	65
	Gravel, fine to medium; shale pebbles..	3	68
	Till: clay, smooth, gray; gravel, fine to medium; shale pebbles.....	28	96
	Gravel, fine to medium; shale pebbles..	2	98
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	3	101
	Gravel, fine to medium; shale pebbles..	17	118
	Gravel, fine to medium; clay, gray; shale pebbles.....	12	130
	Gravel, fine to medium; clay, gray; lignite and shale pebbles.....	12	142
	Sand, fine to medium; gravel, fine; clay, gray; lignite and shale pebbles	12	154

140-71-2aaa (Continued)

Test hole 1015

<u>Formation</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Till: clay, gray; gravel, fine to medium; lignite and shale pebbles...	50	204
Pierre Shale:			
	Shale, gray.....	16	220

140-71-5bab

Test hole 1118

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, sandy, gray.....	1	1
	Clay, light-gray; gravel, fine to medium; shale pebbles.....	5	6
	Clay, yellow, gravel, fine to medium, shale pebbles.....	10	16
	Till: clay, bluish-gray; gravel, fine to medium; shale pebbles.....	35	51
	Sand, fine to medium; lignite and shale pebbles.....	14	65
	Lignite, pebbles; sand, fine to medium; shale pebbles.....	5	70
	Sand, fine to medium; lignite and shale pebbles.....	5	75
	Lignite; pebbles; sand, fine to medium; shale pebbles.....	5	80
	Sand, fine to medium; lignite and shale pebbles.....	10	90
	Sand, medium to coarse; lignite pebbles; gravel, fine; shale pebbles.....	5	95
	Lignite, pebbles; sand, medium to coarse; gravel, fine to medium, shale pebbles	15	110

140-71-5hab (Continued)

Test hole 1118

<u>Formation</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Gravel, fine; lignite and shale pebbles	10	120
	Till: gravel, fine; clay, gray; lignite and shale pebbles (contains large amount of gravel).....	20	140
	Till: clay, gray; gravel, fine to medium; lignite and shale pebbles...	152	292
	Gravel, fine to medium, lignite and shale pebbles.....	35	327
Pierre Shale:	Shale, gray.....	13	340

140-71-7add

Test hole 992

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, yellow; sand, medium to coarse, brown.....	3	3
	Clay, yellow, sand, coarse to very coarse.....	7	10
	Clay, yellow; gravel, fine to medium; sand, coarse.....	10	20
	Till: clay, gray; gravel, fine.....	200	220
	Sand, medium to very coarse; gravel, fine (composed of shale granules and rock fragments).....	125	345
Pierre Shale:			
	Shale, gray.....	10	355

140-71-8ddd

Test hole 991

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, medium to coarse, brown.....	10	10
	Sand, medium to very coarse, brown; gravel, fine.....	7	17
	Sand, very coarse, gray; gravel, fine to medium.....	13	30
	Gravel, fine to medium; sand, coarse...	10	40
	Till: clay, gray; gravel, fine to medium	20	60
	Till: clay, gray; gravel, fine; sand, coarse 260-295 feet.....	235	295
Pierre Shale:			
	Shale, gray.....	5	300

140-71-22bcc

Test hole 990

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, smooth, gray.....	5	5
	Clay, light-tan; shale pebbles; clam shells.....	4	9
	Sand, fine to coarse, silty, gray; wood fragments; lignite fragments.....	11	20
	Sand, medium to coarse; gravel, fine; lignite fragments.....	13	33
	Till: clay, gray; gravel, fine to medium (less gravel at base).....	212	245
Pierre Shale:			
	Shale, gray.....	5	250

140-71-23ccb

Test hole 988

<u>Formation</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, sandy.....	1	1
	Sand, fine to coarse, silty.....	3	4
	Sand, medium to coarse; gravel, fine to medium; shale pebbles; clean.....	6	10
	Gravel, fine to medium, cemented in places.....	23	33
	Clay, sandy, gray.....	19	52
	Gravel, fine to medium, clean,.....	18	70
	Gravel, finer than above, clean; sand, very coarse.....	8	78
	Gravel, fine; sand, coarse; silt.....	12	90
	Till: clay, gray; gravel, fine to medium.....	120	210
	Till: clay, hard, gray.....	22	232
Pierre Shale:			
	Shale, gray.....	8	240

140-71-28baa

Test hole 1040

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, fine to coarse; gravel, fine.....	23	23
	Clay, yellow; gravel, fine to medium...	6	29
	Shale, gravel; sand, fine.....	8	37
	Clay, sandy in places, gray.....	20	57
	Sand, fine to coarse; little gravel, fine	13	70
	Sand, coarse; gravel, fine.....	7	77
	Till: clay, gray; gravel, fine to medium	205	282
Pierre Shale:			
	Shale, gray.....	8	290

140-71-28bba1

Test hole 1041

Glacial drift:			
	Sand, fine to coarse, shale pebbles 20 to 38 feet.....	38	38
	Clay, smooth, gray.....	20	58
	Sand, medium to coarse, little gravel..	35	83
	Till: clay, gray; gravel, fine to medium	21	104
	Gravel, fine to medium.....	3	107
	Till: clay, gray; gravel, fine.....	201	308
Pierre Shale:			
	Shale, gray.....	12	320

140-71-28bba2

Test hole 1043

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, medium to coarse.....	18	18
	Sand, medium to coarse; gravel, fine...	22	40
	Clay, smooth, gray.....	17	57
	Sand, medium to coarse; gravel, fine...	25	82
	Till: clay, gray; gravel, fine to medium	8	90

140-71-28bba3

Test hole 1042

Glacial drift:			
	Sand, medium to coarse.....	25	25
	Sand, medium to coarse; gravel, fine...	15	40
	Clay, smooth, gray.....	18	58
	Sand, fine to coarse.....	2	60
	Sand, coarse; gravel, fine.....	22	82

140-71-29ddd

Test hole 989

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil.....	1	1
	Sand, medium to coarse.....	4	5
	Sand, medium to very coarse.....	5	10
	Sand, fine to medium, clean.....	10	20
	Sand, medium to coarse; gravel, fine...	12	32
	Clay, sandy, dark-gray; gravel, medium.	8	40
	Sand, medium to coarse, largely shale composition, fairly clean; shale pebbles.....	11	51
	Clay, gray; sand, fine; shale pebbles..	12	63
	Sand and silt; shale pebbles.....	2	65
	Sand, fine to coarse, dark; shale granules.....	5	70
	Sand, medium to very coarse; shale and limestone pebbles, slightly coarser at bottom.....	20	90
	Sand, fine to very coarse; shale pebbles	5	95
	Sand, very coarse; shale and limestone pebbles.....	5	100
	Sand, and clay, gray; shale pebbles....	16	116
	Gravel, fine; sand, coarse, clean.....	3	119
	Till: clay, gray.....	36	155

140-71-29ddd (continued)

Test hole 989

<u>Formation</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Till: Clay, gray; gravel, fine, very uniform.....	164	319

Pierre Shale:

	Shale, gray.....	1	320
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140-71-35aaa

Test hole 987

Glacial drift:

	Topsoil, sandy, brown.....	1	1
	Sand, medium to coarse, silty, brown...	4	5
	Sand, medium to coarse; gravel, fine to medium, clean.....	5	10
	Sand, medium to coarse, clean.....	12	22
	Sand, medium to coarse; gravel, fine to medium; clay, gray.....	8	30
	Gravel, fine to medium; sand, coarse; shale pebbles.....	5	35
	Till: clay, sandy, gray; gravel, fine to medium.....	7	42
	Till: clay, gray; gravel, fine to medium	68	110
	Clay, soft; sand, fine; gravel, fine...	24	134

Pierre Shale:

	Shale, gray.....	6	140
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140-72-7bbb

Test hole 984

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, sandy, brown.....	1	1
	Clay, yellow; sand, fine to coarse.....	4	5
	Sand, medium to coarse.....	5	10
	Clay, oxidized, yellow.....	9	19
	Clay, gray.....	24	43
	Clay, gray; sand, fine.....	37	80

140-72-27bbb

Test hole 983

Glacial drift:			
	Topsoil, brown.....	1	1
	Sand, fine to medium, silty; gravel, fine	4	5
	Clay, oxidized, smooth, yellow.....	12	17
	Clay, gray.....	5	22
	Sand, medium to coarse; gravel, fine;		
	shale pebbles.....	11	33
	Till: clay, gray; gravel, fine to medium	17	50
	Clay, soft, gray; gravel, fine to		
	medium; shale pebbles.....	12	62
	Till: clay, gray; gravel, fine to		
	medium; shale pebbles.....	58	120
	Clay, gray; gravel, fine; sand, coarse	5	125

140-72-7bbb(continued)

Test hole 983

<u>Formation</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Clay, gray; sand, medium.....	10	135
	Sand, medium to coarse; gravel, fine to medium; silty.....	55	190
Pierre Shale:			
	Shale, gray.....	10	200

140-72-36bbb

Test hole 982

Glacial drift:

	Topsoil, sandy, brown.....	1	1
	Sand, fine to coarse, silty.....	4	5
	Clay, oxidized, yellow; shale pebbles..	3	8
	Clay, oxidized, yellow.....	11	19
	Clay, gray.....	7	26
	Sand, fine to medium.....	4	30
	Clay, soft, gray; gravel, fine; shale pebbles.....	6	36
	Sand, medium to coarse, silty.....	29	65
	Clay, gray; gravel, fine; shale pebbles	8	73
	Sand, fine to coarse; shale pebbles....	7	80
	Sand, coarse to very coarse, silty; shale pebbles.....	30	110
	Sand, coarse; gravel, fine; shale pebbles.....	10	120

140-72-36bbb (Continued)

Test hole 982

<u>Formation</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Gravel, fine to medium.....	11	131
	Till: clay, gray; gravel, fine to medium; shale pebbles; lignite and wood fragments.....	37	168
	Gravel, fine, clean; shale pebbles.....	12	180
	Till: clay, brown; gravel, fine to medium.....	10	190
	Till: clay, gray; gravel, fine to medium.....	70	260
	Till: clay, hard, gray.....	18	278
Pierre Shale:	Shale, gray.....	12	290

140-72-36dda

Test hole 981

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, sandy, brown.....	1	1
	Clay, sandy, gray.....	2	3
	Sand, fine to very coarse, silty; gravel, fine; clay, white; shale pebbles....	9	12
	Clay, white; gravel, fine to medium; shale pebbles.....	5	17
	Clay, light-gray; shale pebbles.....	4	21
	Sand, medium to very coarse; gravel, fine.....	9	30
	Gravel, fine to medium; sand, coarse; shale pebbles.....	11	41
	Sand, fine to coarse, silty; shale pebbles.....	19	60
	Gravel, fine to medium, very silty; shale pebbles.....	10	70
	Sand, fine to very coarse; gravel, fine to medium at base.....	60	130
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	162	292
Pierre Shale:	Shale, gray.....	8	300

140-73-8ddd

Test hole 1018

<u>Formation</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Clay, light-brown; gravel, fine to medium	40	40
	Till: clay, gray; gravel, fine to medium	26	66
	Clay, sandy, gray.....	28	94
	Clay, smooth, gray.....	22	118
	Clay, sandy, gray (lost circulation 100 to 130 feet).....	12	130
	Clay, smooth, light-gray.....	15	145
	Clay, sandy, light-gray.....	15	160
	Clay, hard, smooth, gray.....	17	177
	Clay, sandy, gray.....	29	206
	Clay, gray; little gravel, fine.....	44	250
	Clay, soft, gray.....	10	260
Pierre Shale:			
	Shale, gray.....	30	290

140-73-15ccc

Test hole 1019

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, light-gray to tan; little gravel, fine.....	24	24
	Till: clay, gray to brown; gravel, fine to medium.....	55	79
	Clay, sandy, gray to brown.....	36	115
Pierre Shale:			
	Shale, gray.....	5	120

140-73-27aaa

Test hole 1020

Glacial drift:			
	Clay, light-gray to yellow; gravel, fine to medium.....	5	5
	Sand, medium to coarse; gravel, fine...	3	8
	Clay, yellow; gravel, fine to medium...	24	32
	Till: clay, gray; gravel, fine to medium.....	19	51
	Clay, sandy, gray.....	29	80

140-73-36bbb

Test hole 1021

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, sandy; yellow to tan; gravel, fine to medium.....	36	36
	Till: clay, gray; gravel, fine to medium.....	4	40
	Clay, yellow; sand, fine.....	29	69
	Clay, smooth, gray.....	4	73
	Clay, sandy, gray (lost circulation 95 to 100 feet).....	48	121
Pierre Shale:			
	Shale, gray (lost circulation at 100 to 140 feet).....	19	140

141-70-4bbb

Test hole 1144

Glacial drift:			
	Clay, sandy, light-brown.....	2	2
	Clay, yellow; gravel, fine to coarse...	2	4
	Sand, medium to coarse; gravel, fine to coarse.....	4	8
	Gravel, medium to coarse; shale pebbles	24	32
	Clay, smooth, light-gray.....	98	130
	Clay, smooth, light-brown.....	41	171
	Clay, sandy, light-gray.....	9	180

141-71-15bbb

Test hole 1120

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> <u>(feet)</u>	<u>Depth</u> <u>(feet)</u>
Glacial drift:			
	Topsoil, sandy, black.....	2	2
	Clay, sandy, brown.....	2	4
	Sand, fine to coarse; gravel, fine; shale pebbles.....	6	10
	Gravel, fine to medium; sand, coarse; shale pebbles.....	12	22
	Till: clay, gray; gravel, fine to medium; shale and lignite pebbles...	14	36
	Sand, fine to coarse; gravel, fine; shale pebbles.....	30	66
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	10	76
	Clay, smooth, gray.....	42	118
	Sand, fine to medium; lignite pebbles; gravel, fine; shale pebbles.....	17	135
	Sand, fine to coarse; gravel, fine; shale and lignite pebbles.....	41	176
	Clay, smooth, gray.....	28	204
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	24	228
Pierre Shale:			
	Shale, gray.....	12	240

141-71-27bbb

Test hole 1119

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, sandy, black.....	2	2
	Clay, sandy, yellow; gravel, fine.....	4	6
	Sand, fine to coarse; gravel, fine to medium; clay, yellow; shale pebbles.	24	30
	Sand, fine to coarse; gravel, fine; shale and lignite pebbles.....	20	50
	Sand, very fine to medium; lignite and shale pebbles.....	10	60
	Sand, very fine to medium; lignite and shale pebbles.....	15	75
	Sand, fine to coarse; shale and lignite pebbles.....	11	86
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	140	226
Pierre Shale:			
	Shale, gray.....	14	240

141-71-31bbb

Test hole 1016

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, sandy, light-brown.....	1	1
	Sand, fine to coarse; gravel, fine.....	16	17
	Till: clay, gray; gravel, fine to medium	15	32
	Sand, silty, gray; fine to medium.....	11	43
	Clay, smooth, gray.....	34	77
	Till: clay, gray; gravel, fine.....	21	98
	Sand, fine to coarse, silty; lignite fragments.....	56	154
	Till: clay, gray; gravel, fine.....	28	182
Pierre Shale:			
	Shale, gray.....	8	190

141-71-33ccc

Test hole 1014

Glacial drift:			
	Sand, medium to coarse.....	7	7
	Sand, coarse; gravel, fine.....	9	16
	Till: clay, gray; gravel, fine.....	210	226
Pierre Shale:			
	Shale, gray.....	4	230

141-72-16bbb

Test hole 1146

<u>Formation</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Clay, gravelly, light-gray.....	1	1
	Sand, fine to coarse.....	11	12
	Clay, smooth, brown.....	1	13
	Clay, smooth, gray.....	34	47
	Till: clay, gray; gravel and shale pebbles, fine to medium.....	13	60
	Sand, coarse; gravel and shale pebbles, fine to medium.....	6	66
	Till: clay, light-gray; gravel, fine to medium; shale and lignite pebbles...	47	113
	Gravel and shale pebbles.....	5	118
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	38	156
	Clay, bluish-gray.....	19	175
Fox Hills Sandstone:			
	Clay, sandy, gray-green.....	5	180

141-72-24ccc

Test hole 1017

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, sandy, brown.....	2	2
	Sand, medium to coarse, brown.....	3	5
	Till: clay, yellow; gravel, fine.....	18	23
	Clay, sandy, gray; gravel, fine.....	6	29
	Sand, fine to medium, silty and clayey; lignite fragments.....	34	63
	Till: clay, gray; gravel, fine.....	15	78
	Sand, fine to medium; gravel, fine.....	9	87
	Till: clay, sandy and gravelly, gray...	46	133
	Clay, smooth, gray.....	11	144
	Till: clay, gray; gravel, fine.....	4	148
	Gravel, fine to medium, clayey.....	3	151
	Till: clay, gray; gravel, fine to medium.....	30	181
Pierre Shale:			
	Shale, gray.....	9	190

141-73-8aaa

Test hole 1139

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, fine to coarse; gravel, fine to medium.....	3	3
	Sand, coarse, clayey; gravel, fine to medium; shale pebbles.....	9	12
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	72	84
	Clay, sandy, yellow (possibly oxidized till or Fox Hills Sandstone).....	5	89
	Clay, sandy, gray (possibly Fox Hills Sandstone).....	23	112
Pierre Shale:			
	Shale, gray.....	18	130

141-73-21bbb

Test hole 1140

<u>Formation</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, black.....	2	2
	Clay, sandy, yellow.....	12	14
	Till: clay, gray; gravel and shale pebbles, fine to medium.....	79	93
	Clay, sandy, gray (possibly Fox Hills Sandstone or other bedrock).....	13	106
	Clay, sandy, light-grayish-brown.....	14	120

141-73-32aaa

Test hole 1141

Glacial drift:			
	Topsoil, sandy, brown.....	2	2
	Clay, sandy and gravelly, yellow.....	8	10
	Sand, medium to coarse; gravel and shale pebbles, fine.....	10	20
	Sand, medium to coarse, reddish-brown..	5	25
	Gravel, medium to coarse; sand, fine to coarse.....	5	30
	Till: sandy and gravelly, gray, high sand content.....	80	110
	Till: sandy, compact.....	14	124
	Clay, sandy, gray (possibly Fox Hills Sandstone).....	16	140

142-70-4ccc

Test hole 1125

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, sandy, brown.....	1	1
	Clay, sandy, yellow; gravel, fine to medium; shale pebbles and cobbles...	2	3
	Sand, medium to coarse; gravel, fine to medium; shale pebbles.....	4	7
	Gravel, fine to coarse; shale pebbles and cobbles.....	46	53
	Clay, sandy; fine to medium gravel; shale and lignite pebbles.....	9	62
	Till: clay, gray; fine to medium gravel; shale and lignite pebbles...	14	76
	Sand, clayey, gray; fine to medium gravel; shale and lignite pebbles...	87	163
	Till: clay, gray; fine to medium gravel; shale and lignite pebbles.....	40	203
	Sand, fine to coarse; fine gravel; shale and lignite pebbles.....	57	260
	Gravel, fine to medium, sand, fine to medium; shale and lignite pebbles...	15	275
	Till: clay, gray; fine to medium gravel; shale pebbles.....	77	352
Pierre Shale:			
	Shale, gray.....	8	360

142-70-7bbb

Test hole 1126

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, sandy, black.....	1	1
	Clay, sandy, gray; gravel, fine.....	4	5
	Sand, fine to coarse; gravel, fine; shale and lignite pebbles.....	25	30
	Gravel, fine to medium; sand, fine to medium; shale pebbles.....	15	45
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	95	140
	Sand, fine to coarse; gravel, fine; shale and lignite pebbles.....	20	160
	Sand, fine to coarse; lignite pebbles; gravel, fine; shale pebbles.....	7	167
	Clay, smooth, gray.....	33	200
	Till: clay, gray; gravel, fine to medium; shale and lignite pebbles...	32	232
Pierre Shale:			
	Shale, gray.....	18	250

142-70-10aaa

Test hole 1124

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, sandy, brown.....	1	1
	Clay, sandy, yellow; gravel, fine to medium; shale pebbles.....	3	4
	Sand, fine to coarse; gravel, medium; shale pebbles.....	6	10
	Gravel, fine to medium; sand, coarse; shale pebbles and cobbles.....	39	49
	Till: clay, gray; gravel, fine to medium; shale and lignite pebbles...	20	69
	Sand, medium to coarse; gravel, fine; shale and lignite pebbles.....	37	106
	Till: clay, gray; gravel, fine to medium; shale and lignite pebbles...	54	160
	Clay, sandy, gray.....	20	180
	Till: clay, gray; gravel, fine to medium; shale and lignite pebbles.....	86	266
Pierre Shale:			
	Shale, gray.....	4	270

142-71-2ccb

Test hole 1127

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, sandy, brown.....	1	1
	Sand, fine to coarse.....	4	5
	Gravel, fine to coarse; sand, medium to coarse; shale pebbles.....	30	35
	Gravel, fine to coarse; lignite and shale pebbles; cobbles.....	27	62
	Till: clay, gray; gravel, fine to medium; shale and lignite pebbles...	29	91
	Gravel, fine to medium; sand, medium to coarse; shale and lignite pebbles...	23	114
	Till: clay, gray; gravel, fine to medium; shale and lignite pebbles...	79	193
	Clay, smooth, gray.....	19	212
Pierre Shale:			
	Shale, gray.....	8	220

142-71-8aab

Test hole 1128

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, sandy, brown.....	2	2
	Sand, fine to medium.....	2	4
	Sand, medium to coarse; gravel, fine; shale pebbles.....	3	7
	Clay, sandy, yellow.....	8	15
	Sand, fine to medium; gravel, fine; shale pebbles.....	23	38
	Clay, sandy, yellow.....	17	55
	Clay, sandy, gray.....	30	85
	Clay, smooth, gray.....	61	146
	Till: clay, gray; gravel, fine; shale and lignite pebbles.....	31	177
Fox Hills (?) Sandstone:			
	Clay, sandy, gray.....	17	194
	Clay, smooth, gray.....	50	244
Pierre Shale:			
	Shale, gray.....	6	250

142-71-16aaa

Test hole 1123

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, sandy, brown.....	2	2
	Sand, fine to coarse; gravel, fine to medium; shale pebbles.....	13	15
	Gravel, fine to medium; sand, fine to coarse; shale pebbles.....	8	23
	Sand, fine to coarse; gravel, fine; shale pebbles.....	13	36
	Clay, sandy, yellow.....	2	38
	Clay, sandy, gray.....	8	46
	Till: clay, gray; gravel, fine to medium; shale and lignite pebbles...	13	59
	Sand, fine to coarse; gravel, fine to medium; shale pebbles.....	16	75
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	22	97
	Clay, sandy, gray.....	33	130
	Clay, smooth, gray.....	128	258
Pierre (?) Shale:			
	Shale, gray.....	22	280

142-71-21ddd

Test hole 1122

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, sandy, brown.....	1	1
	Clay, sandy, yellow; gravel, fine.....	1	2
	Clay, gray; gravel, fine.....	1	3
	Sand, medium to coarse; gravel, fine to medium; shale pebbles.....	7	10
	Gravel, fine to medium; sand, coarse; shale and lignite pebbles.....	19	29
	Till: clay, gray; gravel, fine to medium; shale and lignite pebbles...	40	69
	Sand, fine to medium.....	10	79
	Till: clay, gray; gravel, fine to medium; shale and lignite pebbles...	72	151
	Sand, medium to coarse; gravel, fine; shale and lignite pebbles.....	25	176
	Till: clay, gray; gravel, fine to medium; shale and lignite pebbles...	14	190
Pierre Shale:			
	Shale, gray.....	20	210

142-71-34ccc

Test hole 1121

<u>Formation</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, sandy, black.....	2	2
	Clay, sandy, brown.....	1	3
	Sand, medium to coarse; gravel, fine to medium; shale pebbles.....	9	12
	Gravel, fine to coarse; shale pebbles..	11	23
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	28	51
	Clay, sandy, bluish-gray.....	5	56
	Clay, smooth, gray.....	4	60
	Clay, sandy.....	50	110
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	26	136
	Sand, fine to coarse; gravel, fine; shale and light pebbles.....	36	172
	Clay, smooth, gray.....	25	197
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	16	213
Pierre Shale:			
	Shale, gray.....	7	220

142-72-1ddd

Test hole 1129

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, yellow.....	1	1
	Sand, fine to medium; gravel, fine to coarse.....	1	2
	Gravel, fine to coarse; shale pebbles..	4	6
	Clay, yellow; gravel, fine to coarse; shale pebbles.....	20	26
	Till: clay, gray; gravel, fine to medium; shale and lignite pebbles...	112	138
Fox Hills (?) Sandstone:			
	Clay, sandy, gray.....	16	154
	Clay, smooth, gray.....	118	272
Pierre Shale:			
	Shale, gray.....	8	280

142-72-8bbb

Test hole 1131

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, yellow; gravel, fine to medium; shale pebbles.....	7	7
	Clay, sandy, gray.....	2	9
	Sand, fine to coarse; gravel, fine to medium; shale pebbles.....	20	29
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	101	130
	Till: gravel, fine to medium; shale pebbles; clay, gray.....	68	198
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	34	232
Fox Hills (?) Sandstone:			
	Clay, sandy, gray.....	32	264
Pierre Shale:			
	Shale, gray.....	6	270

142-72-10aaa

Test hole 1130

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, sandy, brown.....	2	2
	Clay, yellow; gravel, fine to medium; shale pebbles.....	21	23
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	12	35
	Sand, medium to coarse; gravel, fine to medium; shale pebbles.....	4	39
	Till: clay, gray; gravel, fine to medium; shale and lignite pebbles...	169	208
Fox Hills Sandstone:			
	Clay, smooth, gray.....	55	263
Pierre Shale:			
	Shale, gray.....	7	270

142-72-29aaa

Test hole 1145

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, fine to coarse, silty; gravel, fine to medium.....	3	3
	Sand, coarse; gravel, fine to medium...	14	17
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	19	36
	Sand, coarse; gravel, fine to medium...	7	43
	Till: clay, gray; gravel, fine to medium, shale and lignite pebbles...	64	107
	Till: same as above but drilled harder.	93	200
	Till: clay, gray; gravel, fine to medium.....	10	210
	Till: clay, dark-bluish-gray (more clay than above).....	40	250
Pierre Shale:			
	Shale, gray.....	10	260

142-73-3ddd

Test hole 1132

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, sandy, brown.....	1	1
	Sand, fine to coarse; gravel, fine to medium; shale pebbles.....	16	17
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	21	38
	Sand, fine to coarse; gravel, fine; shale pebbles.....	9	47
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	19	66
	Clay, sandy, gray.....	19	85
	Till: clay, gray; gravel, fine; shale pebbles.....	48	133
	Clay, sandy, gray.....	5	138
	Clay, sandy, light-gray.....	3	141
	Clay, sandy, gray.....	36	177
	Clay, smooth, light-brown.....	5	182
Fox Hills Sandstone:			
	Clay, sandy, gray.....	8	190

142-73-8aaa

Test hole 1133

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, sandy, brown.....	1	1
	Sand, medium to coarse; gravel, fine; shale pebbles.....	25	26
	Gravel, fine to medium; sand, fine to coarse; shale pebbles.....	4	30
	Till: clay, gray; gravel, fine to medium; shale and lignite pebbles...	114	144
	Clay, sandy, gray.....	19	163
Fox Hills (?) Sandstone:			
	Clay, sandy, dark-gray.....	12	175
	Sand, fine.....	10	185
	Clay, smooth, gray.....	15	200
	Clay, sandy, light-gray.....	40	240
Pierre Shale:			
	Shale, gray.....	10	250

142-73-13aaa

Test hole 1151

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, sandy, brown.....	1	1
	Clay, sandy, brown; gravel, fine to coarse; shale pebbles.....	2	3
	Sand, medium to coarse; gravel, fine to medium; shale pebbles.....	20	23
	Clay, yellow; gravel, fine to coarse; shale pebbles.....	11	34
Fox Hills Sandstone:			
	Clay, sandy, blue-gray.....	26	60

142-73-20aaa

Test hole 1137

Glacial drift:			
	Topsoil, black.....	2	2
	Sand, fine to medium.....	1	3
	Sand, medium to coarse; gravel, fine to medium; shale pebbles.....	17	20
	Clay, sandy, yellow.....	9	29
	Clay, smooth, gray.....	12	41
	Till: clay, gray; gravel, fine to medium; shale and lignite pebbles...	50	91
	Clay, sandy, light-gray.....	15	106
	Clay, sandy, gray.....	10	116
Fox Hills Sandstone:			
	Clay, sandy, light-gray.....	4	120

142-73-27ddd

Test hole 1152

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, sandy, brown.....	1	1
	Clay, smooth, light-gray.....	2	3
	Sand, medium to coarse; gravel, fine to medium; shale pebbles.....	6	9
	Sand, fine to coarse; gravel, fine to medium; shale and lignite pebbles...	13	22
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	118	140
	Sand, medium to coarse; gravel, fine to medium; shale pebbles.....	12	152
Fox Hills (?) Sandstone:			
	Clay, sandy, gray.....	2	154
Pierre Shale:			
	Shale, hard, gray.....	11	165

142-73-29ddd

Test hole 1138

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, black.....	1	1
	Gravel, fine to medium; sand, medium to coarse; shale pebbles.....	9	10
	Sand, fine to coarse; gravel, fine to medium; shale and lignite pebbles...	17	27
	Till: clay, gray; gravel, fine to medium; shale and lignite pebbles...	72	99
	Sand, fine to medium.....	5	104
	Clay, sandy, gray.....	3	107
	Till: clay, gray; gravel, fine to medium; shale and lignite pebbles...	15	122
	Sand, medium to coarse; gravel, fine; shale and lignite pebbles.....	17	139
	Clay, sandy, gray.....	18	157
Fox Hills (?) Sandstone:			
	Clay, sandy, light-gray.....	3	160

142-74-2ccc

Test hole 1134

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> <u>(feet)</u>	<u>Depth</u> <u>(feet)</u>
Glacial drift:			
	Topsoil, black.....	1	1
	Clay, sandy, brown.....	2	3
	Sand, fine to coarse.....	3	6
	Gravel, medium to coarse; shale pebbles	6	12
	Gravel, fine to medium; shale pebbles..	8	20
	Till: clay, gray; gravel, fine to medium; shale and lignite pebbles...	41	61
	Clay, smooth, gray.....	10	71
	Clay, sandy, gray.....	10	81
	Clay, smooth, gray.....	15	96
	Clay, sandy, gray.....	25	121
	Clay, smooth, gray.....	70	191
	Clay, sandy, gray.....	13	204
	Clay, smooth, light-brown.....	5	209
Fox Hills Sandstone:			
	Clay, sandy, light-gray.....	21	230

142-74-5ddd

Test hole 1135

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, black.....	2	2
	Sand, fine to medium.....	3	5
	Sand, medium to coarse; gravel, fine; shale pebbles.....	16	21
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	49	70
	Till: gravel, fine to medium; shale pebbles; clay, gray.....	50	120
	Sand, medium to coarse; gravel, fine...	30	150
	Clay, smooth, light-brown.....	9	159
Fox Hills (?) Sandstone:			
	Clay, sandy, light-gray.....	31	190

142-74-6ccc

Test hole 1136

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, fine to medium.....	3	3
	Clay, sandy, yellow.....	4	7
	Clay, yellow; gravel, fine to medium; shale pebbles.....	12	19
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	18	37
	Clay, sandy, gray.....	9	46
	Clay, smooth, dark-gray.....	5	51
	Clay, sandy, dark-gray.....	31	82
	Clay, sandy, gray.....	4	86
	Clay, sandy, dark-gray.....	4	90
	Lignite.....	1	91
Fox Hills (?)	Sandstone:		
	Clay, sandy, light-gray.....	9	100

142-74-25aaa

Test hole 1147

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, black.....	1	1
	Clay, light-gray.....	1	2
	Clay, sandy, gray.....	1	3
	Gravel, fine to coarse; sand, fine to coarse; lignite pebbles.....	23	26
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	47	73
	Clay, sandy, gray.....	8	81
Fox Hills (?) Sandstone:			
	Clay, sandy, greenish-gray.....	4	85
	Clay, reddish-brown.....	3	88
	Clay, sandy, greenish-gray.....	3	91

143-72-30ddd

Test hole 1150

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, sandy, brown.....	1	1
	Clay, yellow; gravel, fine to medium; cobble.....	2	3
	Sand, coarse; gravel, fine to coarse...	45	48
	Clay, smooth, gray.....	28	76
	Clay, sandy, gray.....	5	81
	Till: clay, sandy, gray; gravel, fine to medium; shale pebbles.....	67	148
	Clay, smooth, yellow.....	1	149
	Till: clay, sandy, gray; gravel, fine to medium; shale pebbles.....	16	165
Fox Hills Sandstone:			
	Clay, smooth, gray.....	45	210

144-71-19aaa

Test hole 1149

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, sandy, dark-brown.....	1	1
	Clay, sandy, and gravelly, light-brown.	2	3
	Sand, fine to coarse; gravel, medium to coarse; shale pebbles.....	40	43
	Clay, sandy, yellow.....	4	47
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	5	52
	Sand, fine to coarse; gravel, fine; shale pebbles.....	9	61
	Clay, sandy, light-gray; large amount of lignite in samples from 125-130..	91	152
	Till: clay, gray; gravel; fine to medium; shale pebbles.....	114	266
	Clay, smooth, gray.....	3	269
Fox Hills Sandstone:			
	Clay, sandy, greenish-gray.....	11	280

144-72-23ccc

Test hole 1148

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, sandy, brown.....	1	1
	Clay, sandy, gravelly, yellow.....	2	3
	Sand and gravel, medium to coarse.....	55	58
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	71	129
	Gravel, fine to medium; shale pebbles..	7	136
	Till: clay, gray; gravel, fine to medium; shale pebbles.....	63	199
Fox Hills (?) Sandstone:			
	Clay, sandy, greenish-gray.....	3	202
	Clay, smooth, light-brown.....	8	210

144-74-22bbb

Test hole 1153

<u>Formation</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Clay, sandy, brown.....	1	1
	Clay, light-gray; gravel, fine to coarse	2	3
	Sand, medium to coarse; gravel, fine to medium; shale pebbles.....	2	5
	Sand, medium to coarse; gravel, fine to medium.....	11	16
	Gravel, medium to coarse; shale pebbles; cobbles.....	14	30
	Till: clay, gray; gravel, fine to medium; shale and lignite pebbles...	22	52
Fox Hills Sandstone:			
	Clay, sandy, greenish-gray.....	33	85
	Clay, sandy, dark-brown.....	67	152
	Clay, smooth, dark-brown.....	15	167
	Clay, smooth, light-brown.....	7	174
	Clay, sandy, greenish-gray.....	9	183
	Clay, smooth, brown.....	23	206
	Clay, smooth, gray.....	22	228
	Clay, hard, brown.....	9	237
	Clay, sandy, greenish-gray.....	18	255
	Clay, smooth, gray-brown.....	7	262
	Clay, sandy, greenish-gray.....	38	300