

North Dakota Geological Survey

WILSON M. LAIRD, *State Geologist*

BULLETIN 43

**North Dakota State
Water Conservation Commission**

MILO W. HOISVEEN, *State Engineer*

COUNTY GROUND WATER STUDIES 4

**GEOLOGY AND
GROUND WATER RESOURCES**

Barnes County, North Dakota

**PART II
GROUND-WATER BASIC DATA**

By

T. E. KELLY
Geological Survey
United States Department of the Interior



Prepared by the United States Geological Survey in cooperation
with the North Dakota State Water Conservation Commission,
and the North Dakota Geological Survey

GRAND FORKS, NORTH DAKOTA

— 1964 —

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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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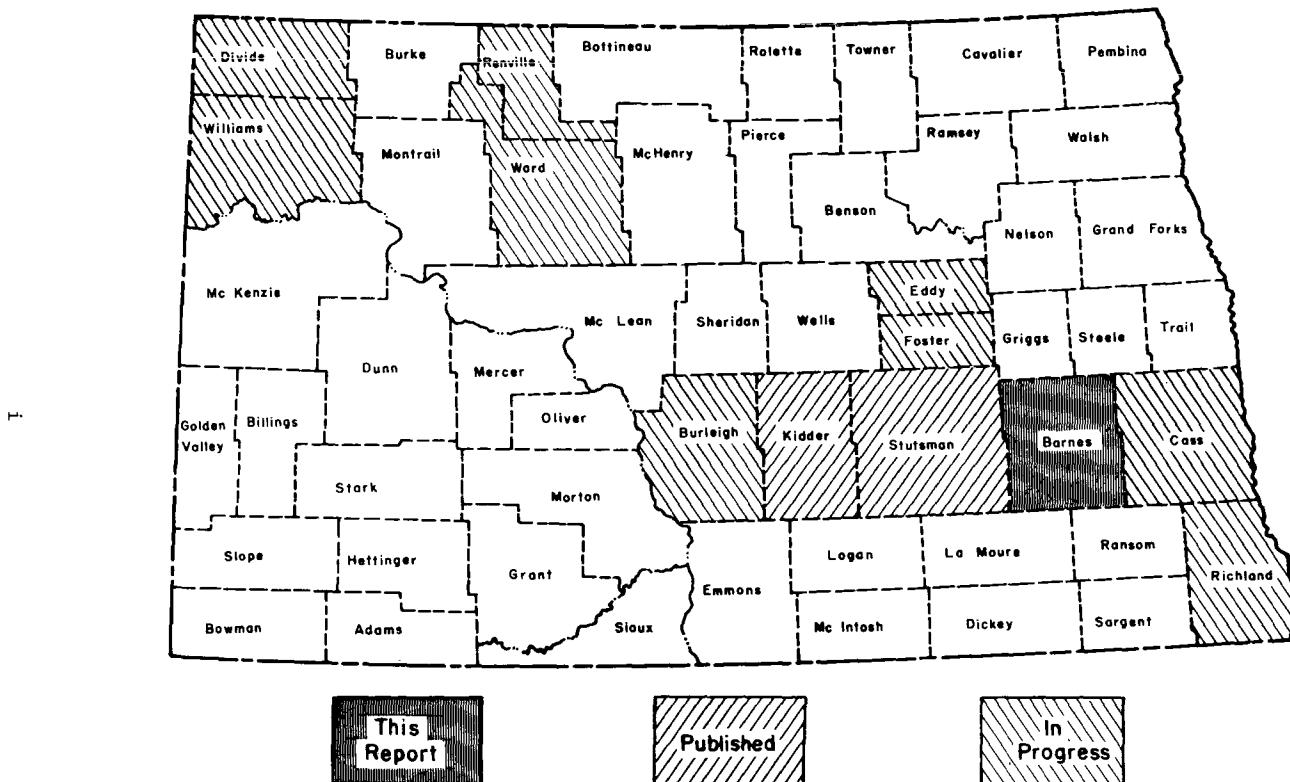


Figure 1-- Map of North Dakota showing location of county ground-water studies.

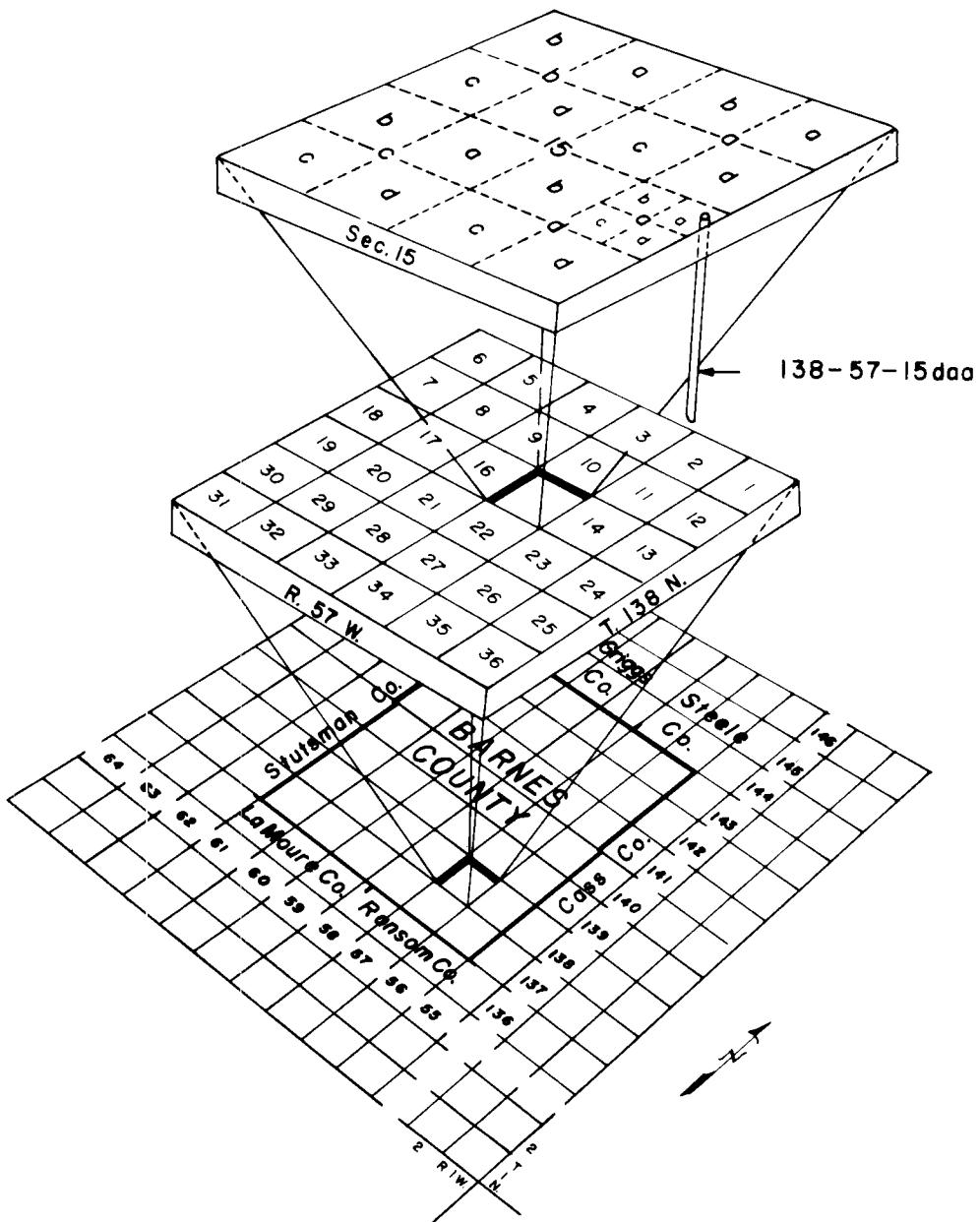


FIGURE 2--SYSTEM OF NUMBERING SPRINGS, WELLS, AND TEST HOLES.

INTRODUCTION

This report is intended to serve two purposes: (1) to promptly make available to the public the basic ground-water data needed to facilitate water-supply developments, and (2) to supplement the geology and ground-water resources reports that will be published later.

Most of the records were collected during 1962 and 1963 as a part of the investigation of the geology and ground-water resources of Barnes County, North Dakota; this study was made through the cooperation of the U.S. Geological Survey, North Dakota State Water Conservation Commission, the North Dakota Geological Survey, and Barnes County Board of Commissioners (fig. 1). Data obtained during three earlier ground-water studies within the county are incorporated within this report; these studies were made in the areas of Wimbledon (Dennis, 1948), Litchville (Akin, 1952), and Sanborn (Huxel, 1961).

Sample logs included in this report are based on well-site analyses made by L. L. Froelich, geologist, N. Dak. State Water Conservation Commission.

Wells, test holes, and springs listed in the tables are numbered according to the system of the U.S. Bureau of Land Management (fig. 2). The first numeral indicates the township, the second the range, and the third the section in which the well or test hole is located. The letters following the section number locate the well within the section and are assigned in a counterclockwise direction, beginning with (a) in the northeast quarter. The first letter denotes the quarter section, the second the quarter-quarter section, and the third letter the quarter-quarter-quarter section (10-acre tract). For example, well 138-57-15daa is located in the NE₄¹NE₄¹SE₄¹ of sec. 15, T. 138 N., R. 57 W. Consecutive numbers are added to the letters if more than one well is recorded within a 10-acre tract.

The data herein compiled are useful for predicting subsurface conditions in Barnes County. For example, a person considering installation of a new well can locate the proposed site on figures 3 and 4. The characteristics of nearby wells may be determined from table 1 and the water-level fluctuations in the area may be determined from table 2. The type of materials likely to be encountered in drilling the new well may be determined from table 3, and the chemical quality of the water likely to be obtained may be determined from table 4. The general usefulness of these data will be enhanced considerably upon release of the interpretive reports on the ground-water resources and geology of Barnes County.

TABLE 1.--Records of wells, springs, and test holes

Owner or tenant: BR, drilled by Bureau of Reclamation. L, Litchville ground-water study (1952); S, Sanborn ground-water study (1961); SP, special project (1963); W, Wimbleton ground-water study (1940); drilled by the N. Dak. State Water Conservation Commission.

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

Type of well: Br, bored; Dr, drilled; Du, dug, Dv, driven; Sp, spring.

Depth to water below land surface: Measured depths are given in feet and (or) hundredths; reported depths are in feet.

Use of water or well: D, domestic; I, industrial; Irr, irrigation; O, observation of water level; PS, public supply; S, stock; T, test hole; U, unused.

Geologic source: Kd, Dakota Sandstone; Kp, Pierre Shale; Qa, alluvium; Qg, all glacial deposits excluding outwash deposits; Qo, outwash deposits.

Remarks: C, chemical analysis; L, log.

Location (1)	Owner or tenant (2)	Depth of well (feet) (3)	Diameter or size (inches) (4)	Type (5)	Date completed (6)	Depth to water below land surface (feet) (7)	Date of measurement (8)	Use of water or well (9)	Geologic source (10)	Depth to shale (feet) (11)	Specific conductance (micromhos at 25°C.) (12)	Altitude of land surface (feet) (13)	Remarks (14)
137-56													
2cbd	Test hole 2128	189	5	Dr	1963	.....	.....	T	Qg	178	.....	1,209	L.
2ddd	R. C. Lindemann	40	30	..	....	15	....	S	Qg	...	.....	.....
3ada	Albert Schagel	35.2	24	..	1935	9.10	7-12-62	S	Qg	...	.....	.....
3cd	H. Godfredsen	808	4	Dr	1948	Flow	7-12-62	D,S	Kd	...	5,100	.....	C.
6bcb	Melvin Wolsky	31.4	24	Du	....	25.90	7-12-62	S	Qg	...	.....	.....
6dbc	Wesley Wolsky	34.5	30	Du	....	26.96	7-12-62	S	Qg	...	.....	.....
7ccc	Jerome Wadeson	74.9	24	..	....	49.59	7-12-62	D,S	Qg	...	.....	.....
8aba	Werner Janz	36	36	Br	1960	28	....	D,S	Qg	...	4,770	.....	C.
8cdc	LeVerne Sabby	900	2	Dr	....	Flow	7-12-62	D,S	Kd	...	5,000	.....	Meas. flow 1 gpm.
10aaa	R. S. Johnson	23.1	48	..	1966	8.91	7-12-62	D,S	Qg	...	.....	.....
10cdc	Louise Kruntz	20.1	24	Br	1954	4.99	7-12-62	D	Qg	...	.....	.....
11bba	Ray Schagel	37	30	Du	1937	20	....	S	Qg	...	3,410	.....
12bcc	Jack Lindemann	46	24	Br	1961	6	....	D,S	Qg	...	8,120	.....
13cdc	Howard Anderson	50	20	Br	....	25.65	7-13-62	D,S	Qg	...	.....	.....
14bac	Leroy Bettke	825	2	Dr	1937	Flow	7-12-62	D,S	Kd	...	.....	.....	Meas. flow 4 gpm.
14ccb	Paul Finger	840	2	Dr	1940	Flow	7-13-62	D,S	Kd	...	.....	.....	Do....
14dab	Simon Bjerke	600	2	Dr	1960	Flow	7-12-62	D,S	Kd	...	.....	.....	Meas. flow 6 gpm.
16aaa	.....	21.7	36	..	....	13.12	7-12-62	O	Qg	...	.....	1,239	
17add	Howard Sabby	58.8	30	..	....	5.10	7-12-62	S	Qg	...	.....	.....
17dcc	Louie Christensen	54	36	Br	1955	19	....	D	Qg	...	.....	.....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>137-56</u> (Cont.)													
18aaa	Archie Aarseth	51.7	36	..	.....	26.71	7-12-62	S	Qg	...	....	....
18ccb	Gennie Smestad	100	18	..	1956	80	.....	U	Qg	...	....	....
20bab	.....	34.45	24	..	.....	33.19	5-22-62	O	Qg	...	....	1,272	
20cbd	M. Nyberg	880	10	Dr	1909	Flow	7-13-62	D,S	Kd	...	5,340	....
20ddd	Noel Lucht	41	36	Du	.....	6	7-13-62	S	Qg	...	....	....
21bbb	Oscar Skramstad	60	36	Br	1948	3	.....	D	Qg	...	....	....
21daal	Harry Sabby	27	24	Br	1952	12	.....	D	Qg	...	....	....
21daa2	..do....	844	..	Dr	.....	Flow	7-16-62	S	Kd	...	....	....
22bba	Robert Johnson	22	24	Br	1923	5	.....	D,S	Qg	...	2,860	....
22cdc	Orval Miller	74	30	..	.....	6	.....	D,S	Qg	...	....	....
22ddd	Carlyle Skramstad	21.8	36	..	.....	8.54	7-13-62	U	Qg	...	....	....
26aaal	W. W. Bantel	771	..	..	.....	Flow	7-13-62	D,S	Kd	...	....	1,200	Meas. flow 6 gpm, C.
26aaa2	Test hole 2140	200	5	Dr	1963	.....	.....	T	Qg	187	....	1,200	C; L.
26bab	A. G. Froemke	38.8	18	..	.....	23.55	7-13-62	U	Qg	...	....	....
26ccb	Maurice Gillund	20	30	Br	.....	10	.....	D,S	Qg	...	....	....
27aad1	Bernice Anderson	30	..	Du	1918	.....	.....	D	Qg	...	....	....
27aad2	..do....	600	..	Dr	.....	Flow	7-13-62	...	Kd	...	....	....
28aaa	Marvin Johnson	48.6	48	..	.....	10.4	7-16-62	D,S	Qg	...	....	....
28cdc	.....	31.4	36	..	.....	3.55	7-13-62	S	Qg	...	....	....
28ddc	Lovern Howe	32.6	36	..	.....	3.60	7-13-62	U	Qg	...	....	....
30bab	Henry Skramstad	72	36	Br	.....	69	.....	S	Qg	...	....	....
30ddd	Art Stensgard	80	..	..	1950	.....	.....	D,S	Qg	...	....	....
32dcb	Roy Dagmar	34	36	..	.....	24	.....	D,S	Qg	...	....	....
32bdd	Barney Berg	40	36	Br	1936	25	.....	D,S	Qg	...	....	....
33aad	.....	27.3	24	..	.....	.....	.....	U	Qg	...	....	....
34aba	Les Skramstad	840	..	Dr	.....	Flow	7-13-62	D,S	Kd	...	3,800	....	Meas. flow 7.5 gpm.
34cdc	Martha Menge	850	..	Dr	1948	Flow	7-13-62	D,S	Kd	...	4,340	....
35cdd	Vernon Menge	24.0	36	..	.....	8.13	7-13-62	S	Qg	...	....	....
<u>137-57</u>													
2aa2	Leonard Long	80	3	Br	.....	40	.....	D,S	Qg	...	....	....
2cdc	Sigvald Houde	140	24	Br	1947	40	.....	S	Qg	...	....	....
3ccc	Donald Thoreson	50	6	..	1930	.....	.....	D,S	Qg	...	....	....
5aaa	Test hole 2127	116	5	Dr	1963	.....	.....	T	Qg	106	....	1,397	L.
6bbb	Test hole 2124	326	5	Dr	1963	.....	.....	T	Qg	313	....	1,407	L.
6bca	Alvin Thoreson	1,000	2	Dr	1913	60	.....	D,S	Kd	...	....	....
6cad	Elmer Clauson	187	6	Dr	1920	137	.....	D,S	Qg	...	....	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
137-57 (Cont.)													
8bbd	E. J. Fjeld	135	4	Dr	.....	28.15	7-18-62	D,S	Qg	...	....	....	....
9bbc	Donald Gilbertson	69.5	..	..	1953	.....	.....	D	Qg	...	....	....	....
9cdb	Ernest Lindvold	80	24	..	1953	.....	.....	D	Qg	...	....	....	....
9ddc	.....	44.1	24	..	.....	19.82	7-18-62	U	Qg	...	....	....	....
10bbc	Art Barstad	35	24	..	.....	30	.....	D,S	Qg	...	....	....	....
10ddc	.....	63.5	48	..	.....	36.49	5-23-62	O	Qg	...	....	....	1,232
11cdc	Emil Wigen	30	24	Br	1960	18	.....	S	Qg	...	....	....	....
12bab	Arthur Herk	90	36	Br	1953	70	.....	D,S	Qg	...	....	....	....
12cbc	.....	30.8	30	..	.....	11.28	7-18-62	U	Qg	...	....	....	....
13ccc	Richard Ussatis	102	5	..	.....	64	.....	D,S	Qg	...	....	....	....
14aba	Emil Maasjo	99	7	Dr	.....	59	.....	D,S	Qg	...	....	....	....
14cbc	Baakon Lund	72	28	Br	1906	22	.....	D,S	Qg	...	3,050	....	....
15acd	Hjalmar Wilberg	70	24	..	.....	30	.....	D,S	Qg	...	....	....	....
16cdb	.....	75.7	30	..	.....	46.82	7-18-62	U	Qg	...	....	....	....
17ecc	Test hole 2141	168	5	Dr	1963	....	.....	T	Qg	153	....	....	1,408
17ddc	Martin Gilbertson	32	48	Du	1889	17	.....	S	Qg	...	....	....	....
18bab	Ben Kuenge	48.1	30	..	.....	23.86	7-18-62	D,S	Qg	...	1,900	....	....
19ccc	Turine Mikkelsen	30	36	Br	1946	18	7-17-62	D	Qa1	....	....	....	....
19eda	.....	21.1	48	..	.....	1.74	7-17-62	U	Qg	...	....	....	....
20aca	Alfred Gilbertson	175	6	Dr	1934	75	.....	S	Qg	...	1,440	....	....
20dcc	Vincent Zacharias	120	4	Dr	.....	.....	.....	D,S	Qg	...	....	....	....
21cca	Gerald Gilbertson	115	3	Dr	1925	60	.....	S	Qg	...	....	....	....
22bab	.....	64.3	24	..	1890	29.94	7-18-62	S	Qg	...	....	....	....
22cdd	Willard Lee	92	6	..	.....	42	.....	D,S	Qg	...	....	....	....
23add	August Ussatis	31.5	36	..	1925	18.23	7-18-62	D,S	Qg	...	....	....	....
23cca	K. A. Ussatis	63.3	24	..	.....	35.06	7-17-62	S	Qg	...	....	....	....
24aaa	A. G. Lahlum	112	6	Dr	1938	87	.....	D,S	Qg	...	....	....	....
24cdc	Melvin Smaestad	44	24	Br	1920	24	.....	S	Qg	...	....	....	....
24dab	Ernest Strand	60	32	Du	1890	48	.....	S	Qg	...	....	....	....
25add	Leo Tommeraus	50	24	..	1930	40	.....	D,S	Qg	...	....	....	....
25cda	Sigward Olson	45	18	..	1923	25	.....	D,S	Qg	...	....	....	....
26bbc	.....	57.7	48 x 48	Du	.....	20.44	5-23-62	O	Qg	...	....	....	1,326
26ddd	Arthur Johnson	80	36	..	.....	60	.....	S	Qg	...	....	....	....
27dbc	.....	94.0	18	..	1914	51.33	7-17-62	U	Qg	...	....	....	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
137-57 (Cont.)													
28eba	H. L. Nelson	.90	4	..	....	.....	D	Qg	...	1,547	....	
28ccd	Selmer Hoff	150	24	..	....	.....	D,S	Qg	...	....	....
29abb	L. C. Anderson	125	4	Dr	1946	65	....	S	Qg	...	....	....
30abc	Oscar Eidsvig	5	48 x 48	Du	1948	Flow	7-17-62	D,S	Qg	...	1,140	....	C.
30cdb	Adolph Johnson	735	1 $\frac{1}{2}$	Dr	1904	Flow	7-17-62	S	Kd	...	5,290	....	Meas. flow 1 gpm.
31ddc	Donald Miller	110	2	Dr	1959	25	....	D,S	Kd	...	2,260	....
32aca	S. Tinguley	900 +	1 $\frac{1}{2}$	Dr	1910	Flow	7-17-62	D,S	Kd	...	....	....	Meas. flow 1 gpm.
32ccd	Lee Anderson	90	36	Br	1930	70	....	S	Qg	...	....	....
33bac	A. P. Storhoff	102	24	..	1913	88	....	D,S	Qg	...	3,160	....
34aad	Melvin Husby	80	24	..	....	70	....	U	Qg	...	....	....
34bcd	Iver Lokken	87	18	Br	1927	37	....	S	Qg	...	....	....
35cdc	.....	51.0	24	..	....	38.30	7-16-62	S	Qg	...	....	....
35baa	C. O. Lee	72	24	Br	1900	57	....	U	Qg	...	....	....
35ccc	Eugene Baarstad	132	4	Dr	....	....	....	D,S	Qg	...	....	....	L.
36baa	Hilmar Johnson	60	36	Br	1920	....	....	D,S	Qg	...	....	....
36dad	P. S. Osloie	63.1	18	..	....	57.60	7-16-62	U	Qg	...	....	....
137-58													
2bdb	Ernest Olstad	790	..	Dr	1961	Flow	8- 9-62	D,S	Kd	...	6,110	....
2ccc	Acriett Jones	39.1	24	Br	....	15.29	8- 9-62	D,S	Qal	...	....	....
3aaa	Test hole 2125	21	5	Dr	1963	....	....	T	Kp	Sur.	....	1,206	L.
3dbc	C. Hellickson	30	24	Br	1912	....	....	D,S	Qal	...	....	....
5aaa	R. A. Conover	1,200	4	Dr	1960	Flow	8- 8-62	D,S	Kd	...	3,510	....
5aad	Test hole 2123	46	5	Dr	1963	....	....	T	Qg	9	....	1,358	L
6bcb	.....	26.4	30	Br	....	10.35	8- 8-62	U	Qg	...	....	....
7aba	.....	17.3	48 x 48	Du	....	5.14	8- 8-62	D,S	Qg	...	....	....
8bbd	Morris Thoreson	62.8	24	Br	....	43.58	8- 8-62	S	Qg	...	....	....
8dda	Walter Nelson	1 $\frac{1}{4}$	36	Br	1935	6	....	S	Qg	...	....	....
9caa	Marvin Nelson	31.1	30	Br	....	14.89	8- 8-62	S	Qal	...	....	....
10aca	Amund Larson	1 $\frac{1}{2}$	36	Du	....	30	....	S	Qal	...	....	....
10bbd	.....	18.1	30	Br	....	4.08	8- 9-62	U	Qg	...	....	....
10ccc	Les Jorgeson	17	24	Br	1953	9	....	S	Kp	...	....	....
12cdc	M. L. Larson	950	4	Dr	1961	Flow	8- 9-62	S	Kd	...	....	....
13bbc	T. G. Hovde	20	48 x 48	Da	1927	16	....	D,S	Qal	...	....	....
14aba	G. Johnson	20	30	Br	1961	12	....	S	Qal	...	6,380	....
14caa	City of Kathryn	...	..	Sp	....	....	....	PS	Qg	Sur.	....	....	C.
18bbc	R. Kluksdahl	15	..	Du	....	....	....	S	Qo	...	....	....	C.
19aba	Denver Helland	38	48 x 48	Du	1912	32	....	D,S	Qg	...	770	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>137-58 (Cont.)</u>													
19bbb	Torger Syvertson	35	2 ¹	Du	1938	29	.....	D,S	Qg	...	.....	.....	.....
20bbd	Roy Bonde	50	36	Du	...	17	.....	D,S	Qg	...	.....	.....	.....
20add	Carl Salthammer	32	4	..	1959	29	.....	D	Qo	...	.....	.....	.....
22aca	M. Davidson	20	48 x 48	Du	....	3	.....	S	Qg	...	3,400	.....	.....
23abd	Edwin Lindvold	...	1	Sp	....	Flow	8- 8-62	D,S	Qg	...	1,370	.....	Meas. flow 1 gpm.
24bcd	.....	7.1	2 ¹	Du	....	2.74	5-24-62	U	Qg	...	.....	.....	.....
24ccc	Nells Tangen	...	1	Sp	....	Flow	8- 9-62	D,S	Qg	...	927	.....	Meas. flow 2 gpm.
25edb	Kenneth Larson	30	30	Br	1949	20	.....	D,S	Qo	...	.....	.....	.....
27bad	.....	42.0	12	Br	....	35.34	7- 3-62	O	Qg	...	.....	1,424	.....
28bad	.....	32.7	2 ¹	Br	....	31.69	8- 7-62	S	Qg	...	.....	.....	.....
28dda	Olaf Knutson	60	36 x 36	Du	1912	.....	.....	U	Qo	...	.....	.....	.....
29dda	G. Rufsholm	18	4	Dv	1907	.....	.....	D	Qo	...	637	.....	C.
30bba	Alex Flach	12	9	Du	1943	9	.....	D,S	Qo	...	901	.....	.....
31dda	N. S. Nelson	8	18	Du	....	5	.....	S	Qo	...	.....	.....	.....
32ddd	Melvin Graalum	14	3	Dv	1956	.....	.....	S	Qo	...	.....	.....	.....
34bbc	Wesley Horsager	21.6	36	Br	....	16.59	8- 8-62	S	Qo	...	.....	.....	.....
34ccc	Test hole 2110	32	5	Dr	1963	10.08	4-26-63	T,O	Qo	26	.....	1,412	C; L.
34dda	M. Baarstad	30	48 x 48	Du	....	.....	.....	S	Qo	...	709	.....	C.
36ccc	Barnes County	...	..	Sp	....	.....	.....	PS	Qo	0	.....	.....	Meas. flow 3.8 gpm; C.
<u>137-59</u>													
1cbd	H. O. Dahl	48	..	Du	....	.....	.....	D,S	Qg	...	.....	.....	.....
2adc	Roy Sorenson	24	..	Du	....	.....	.....	D,S	Qg	...	.....	.....	.....
2ccca	H. T. Verduin	30	..	Br	....	.....	.....	D,S	Qg	...	.....	.....	.....
4bba	Clarence Olson	33	..	Du	....	.....	.....	D,S	Qg	...	.....	.....	.....
4ccc	.....	79.9	..	..	..	26.93	5-25-62	O	Qg	...	.....	1,459	.....
4dasa	Test hole 15 L	20	5	Dr	1948	.....	.....	T	Qo	16	.....	1,428	L.
4dad	Test hole 14 L	25	5	Dr	1948	.....	.....	T	Qo	19	.....	1,426	L.
5aaa	.....	12.2	18	..	1962	0.63	12-4-62	O	Qo	...	.....	1,436	C; L.
5bab	Test hole 3 ¹ L	10	5	Dr	1948	.....	.....	T	Qo	7	.....	1,440	L.
8bbb	Glen Peterson	85	..	Br	....	35	9-17-47	S	Qg	...	.....	.....	.....
8dcc	Wilford Jefferson	80	..	..	....	.....	.....	S	Qg	...	.....	.....	.....
9aaa	Test hole 13 L	15	5	Dr	1948	.....	.....	T	Qo	9	.....	1,426	L.
9aad	Wm. Carlson	20	30	Du	1925	8.92	9-21-48	S	Qo	...	.....	.....	.....
10aad	C. J. Johnson	21. ¹	..	Du	1919	13.55	9-16-47	D,S	Qo	...	.....	.....	.....
10bbcl	Test hole 17 L	30	5	Dr	1948	.....	.....	T	Qo	...	.....	.....	L.
10bbc2	Test hole 16 L	53	5	Dr	1948	.....	.....	T	Qo	48	.....	1,427	L.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>137-59 (Cont.)</u>													
10ccb	Wm. Carlson	11	48 x 48	Du	1915	6.70	9-21-48	S	Qg	...	....	....	....
10bcc	..do....	31	24	Br	1948	18.80	9-21-48	...	Qg	...	....	....	....
10dab	Anne Stoneberg	14	..	Du	....	....	....	D	Qo	...	....	....	....
12aad	Andrew Aggen	55	..	Br	....	....	....	D,S	Qg	...	....	....	....
12ccb	.....	12	18	Br	....	....	....	PS	Qo	...	....	....	C.
12ecc	Adolph Sturm	40	..	Du	....	....	....	S	Qg	...	....	....	....
14badb	Spring Creek Township	37	24	Br	1908	10	4-15-48	PS	Qg	...	....	....	....
14bdc1	.....	39.0	..	Du	1935	11.11	9- 2-48	PS	Qg	...	....	....	....
14bdc2	Sophia Elm	35	48 x 60	Du	1923	....	....	S	Qg	...	....	....	....
14cab	Bob Olafson	45	30	Br	1917	10	....	D	Qg	...	....	....	....
14cdcl	Hastings	39	..	Du	....	....	....	U	Qg	...	....	....	....
14dcdd2	Elleas Johnson	40	..	Br	....	....	....	D,S	Qg	...	....	....	....
16bba	Test hole 18 L	50	..	Dr	1948	....	....	T	Qg	38	....	1,444	L.
16dcc	Ernest Johnson	60	..	Br	....	....	....	D,S	Qg	...	....	....	....
17ddd	Frank Lorenson	30	..	Br	....	....	....	D,S	Qg	...	....	....	....
18add	L. A. Larson	40	..	Du	1897	30	....	D,S	Qg	...	....	....	....
18ecc	John Fewell	1,180	..	Dr	1907	15	....	S	Kd	...	....	....	....
19bcb	P. E. Berg	57	..	Br	....	....	....	S	Qg	...	....	....	....
19cdc	Test hole 8 L	107	5	Dr	1948	....	....	T	Qg	104	....	1,437	L.
19dc	Ralph Kluvers	80	..	Br	....	....	....	D,S	Qg	...	....	....	....
20aac	Russel Fewell	200	4.5	Dr	....	....	....	S	Kp	112	....	1,471	....
20cdd	Test hole 12 L	98	5	Dr	1948	....	....	T	Qg	93	....	1,455	L.
22cdd	A. Larson	65	..	Br	....	....	....	S	Qg	...	....	....	....
22dec	B. O. Kjelland	35.6	..	Du	....	14.01	9-16-47	D,S	Qg	...	....	....	....
23aaa	Test hole 2119	84	5	Dr	1963	....	....	T	Qg	68	....	1,448	L.
24bbc	Ellers Johnson	40	..	Br	....	14.36	9-16-47	S	Qg	...	....	....	....
24cbc	.....	36.3	36 x 36	Du	....	18.26	5-25-62	O	Qg	...	....	1,447	....
26aba	Claudine Olson	28.0	..	Du	....	20.69	9-16-47	D,S	Qg	...	....	....	....
26ccd	Andrew Bergan	25	..	Du	....	13	....	D,S	Qg	...	....	....	....
26dcc	Handry Rosvig	50	..	Du	....	....	....	S	Qg	...	....	....	....
29bbb	Test hole 11 L	97	5	Dr	1948	....	....	T	Qg	91	....	1,460	L.
29cdc	Emil Peterson	53	..	Br	....	....	....	D	Qg	...	....	....	....
30aaa	Test hole 10 L	115	5	Dr	1948	....	....	T	Qg	110	....	1,464	L.
30aab	Test hole 9 L	85	5	Dr	1948	....	....	T	Qg	82	....	1,461	L.
30bac	Hans Justeson	30	..	Br	....	....	....	D,S	Qg	...	....	....	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>137-59 (Cont.)</u>													
30bbc	G. Regelman	35	..	Du	....	.....	.....	S	Qg	...	....	....
30ccc	Leo N. Schall	75	..	Br	....	....	....	D,S	Qg	..	....	1,450	L.
30dad	Test hole 2 L	110	5	Dr	1948	....	....	T	Qg	94	....	....
30dbd	S. E. Kluvers	55	..	Br	1909	....	....	D,S	Qg	...	....	....
31abb	Sophie Elts	75	..	Br	1917	....	....	D,S	Qg	...	....	....
31bbb	Robert Froemke	90	..	Br	1939	....	....	D	Kp	90	....	1,461	
32bab	Albert Sonstagen	60	..	Br	1890	....	....	D,S	Qg	...	....	....
34aab	P. Tweit	22	..	Du	1943	....	....	D,S	Qg	...	....	....
34cad	Fred Rodin	27	..	..	....	....	....	S	Qg	...	....	....
34cdc	Oscar Salberg	82	..	Br	....	....	....	S	Qg	...	....	....
34cdd	..do....	30	..	Du	....	15	....	D	Qg	...	....	....
36ccc	Test hole 2120	42	5	Dr	1963	....	....	T	Qg	32	....	1,422	L.
<u>137-60</u>													
1adac	G. H. Van Bruggen	75	..	Br	....	55	....	S	Qg	...	....	....
3acal	A. G. Pawluk	1,200		Dr	1942	6		...	Kd	...	....	....
3aca2	..do....	40	30	..	....	7.5	9- 3-48	...	Qg	...	....	....
haba	John Dykstra	131	4	Dr	1961	20	....	S	Qg	...	....	1,469	
4bab	..do....	160	..	Dr	....	....	....	...	Qg	...	....	....
4ddc	Lena Person	59	24	Br	1935	35.42	9- 3-48	...	Qg	...	....	....
5dca	Torvel Knutson	64	24	Br	1910	19.07	9- 6-62	...	Qg	...	....	....
6dad	Spencer Brandt	1,130	..	Dr	1936	Flow	9- 2-48	D,S	Kd	...	....	....
6baa	.....	60	36	..	....	11.4	9- 2-48	...	Qg	...	....	....
6bcc	Lore Billings	1,118	..	Dv	1946	Flow	9- 2-48	S	Kd	...	....	....
8dbal	John Nordahl	64	..	Du	1938	28.14	9- 2-48	...	Qg	...	....	....
8dba2	..do....	30	..	..	1898	20.77	9- 2-48	...	Qg	...	....	....
9cbb	Clarence Hanson	29.0	36	Br	....	16.0	7-14-61	S	Qg	...	....	1,464	
10add	.....	48.5	5	..	1939	16.08	5-28-62	0	Qg	...	....	1,473	
10bec	R. B. Manson	32	24	Dr	1902	15	....	D,S	Qg	...	....	....
10cbb1	John Formo	40	..	Dr	....	23.37	9- 2-48	...	Qg	...	....	....
10cbb2	..do....	35	..	Dr	....	23.24	9- 2-48	...	Qg	...	....	....
11dda	George Miller	58	..	Br	....	....	....	S	Qg	...	....	....
12cca	..do....	41	..	Br	....	....	....	D,S	Qg	...	....	....
12daa	Leonard Boom	35 +	..	Du	....	....	....	S	Qg	...	....	....
13cdd	Oscar Sather	46	..	Br	....	26.0	9-18-47	D,S	Qg	...	....	....
14baa	Harvey Faber	65	..	Br	....	....	....	D,S	Qg	...	....	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>137-50 (Cont.)</u>													
14dad1	H. Valders, Jr.	30	24	Du	....	14.75	9- 2-48	...	Qg	...	....	....	....
14dad2	..do....	130	72	..	1929	15.15	9- 2-48	S	Qg	80	....	....	1,496
15bcd	L. L. McCarthy	53	..	Br	....	26	.....	...	Qg	...	....	....	....
15ddal	A. G. Anderson	90	..	..	....	....	....	S	Kp	60 ?	....	....	1,489
15ddal2	..do....	48	..	Br	....	....	....	D	Qg	...	....	....	....
17dac	Knute Haaland	36	24	..	....	18	7-14-61	D,S	Qg	...	....	....	1,490
18cbb1	R. E. Hurley	65	30	Br	1936	18.2	9- 2-48	D	Qg	...	....	....	....
18cbb2	..do....	35	30	Br	1908	14.1	9- 2-48	...	Qg	...	....	....	....
19cdc	Jim Hurley	30.0	18	..	....	17.36	9- 1-48	S	Qo	...	....	....	....
19ddd	George Oudmestad	42.0	24	Br	1923	24.97	9- 1-48	D,S	Qg	...	....	....	....
20add	E. Morum	18	..	Du	....	....	....	D,S	Qg	...	....	....	....
20bbb	Alfred Sandness	27.0	..	Du	1947	13.50	9- 2-48	D,S	Qg	...	....	....	....
20ccc	Jacob Reinertar	37	..	Dr	....	23	8- 3-61	D,S	Qg	...	....	....	....
21add	.....	...	..	Du	....	18	9- 2-48	U	Qg	...	....	....	....
21dda	F. W. Satterlee	33	..	Br	1917	....	....	D,S	Qg	...	....	....	....
23cccl	E. Vietzke	63	..	Br	....	....	....	S	Qg	...	....	....	....
23ccc2	..do....	58	..	Br	....	....	....	D	Qg	...	....	....	....
25aac1	J. Reiher	100 +	..	Br	....	31.65	9-16-47	D,S	Qg	...	....	....	....
25aac2	..do....	77	..	Br	....	....	....	D,S	Qg	...	....	....	....
25aad1	T. I. Strinden	87	..	Br	1927	....	....	D	Qg	...	....	....	....
25aad2	Test hole 1 L	135	5	Dr	1947	....	....	T	Qg	128	....	....	1,472
25acal	Henry Tempas	90	..	Br	....	....	....	S	Qg	...	....	....	....
25aca2	A. Nygaard	76 +	..	Br	....	....	....	D	Qg	...	....	....	....
25acb	Test hole 3 L	133	5	Dr	1947	....	....	T	Qg	122	....	....	1,470
25acd	Test hole 7 L	134	5	Dr	1947	....	....	T	Qg	125	....	....	1,471
25adal	E. Bjerke	70	..	Br	....	....	....	D	Qg	...	....	....	....
25ada2	Litchville School	160	..	Dr	....	....	....	U	Qg	...	....	....	....
25adb	Ordean Dahl	90	24	Br	1948	20	....	D	Qg	...	....	....	....
25bdc	Test hole 30 L	125	5	Dr	1948	....	....	T	Qg	117	....	....	1,472
25ebb	Test hole 29 L	130	5	Dr	1948	....	....	T	Qg	125	....	....	1,465
25dab	Mary Eggen	43 +	20	Br	1915	6.73	9- 1-48	U	Qg	...	....	....	....
25ddd	Test hole 25 L	125	5	Dr	1948	....	....	T	Qg	118	....	....	1,458
26aaa	Test hole 21 L	127	5	Dr	1948	....	....	T	Qg	121	....	....	1,465
26bab	Axel Formo	66	..	Br	....	....	....	S	Qg	...	....	....	....
26bbb	Test hole 4 L	149	5	Dr	1947	....	....	T	Qg	141	....	....	1,474
26bbc	Axel Formo	75	..	Br	....	....	....	U	Qg	...	....	....	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>137-60 (Cont.)</u>													
27aaa	Peter Verduim	50	..	Br	1922	.....	.....	D,S	Qg	...	.....	.....
27cdc	Clarence Hanson	75	60	Br	...	.....	.....	D,S	Qg	...	.....	.....
28bbb	Test hole 5 L	155	5	Dr	1947	.....	.....	T	Qg	139	.....	1,467	L.
30acc	H. Uprud	55.0	48 x 48	Du	...	37.68	9- 1-48	D,S	Qg	...	.....	.....
30baal	Test hole 22 L	44	5	Dr	1948	.....	.....	T	Qo	...	.....	.....	L.
30baa2	Test hole 6 L	117	5	Dr	1947	.....	.....	T	Qo	112	.....	1,442	L.
30bab1	Test hole 23 L	50	5	Dr	1947	.....	.....	T	Qo	...	.....	.....	L.
30bab2	Test hole 24 L	60	5	Dr	1948	.....	.....	T	Qo	...	.....	.....	L.
30ddm	P. F. Satterlee	55	..	Br	...	.....	.....	D,S	Qg	...	.....	1,491	
31cced	A. Sandness	32.0	..	Br	...	22.0	8- 3-61	D,S	Qo	...	.....	1,478	
31dda	C. F. Anderson	30	..	Du	...	.....	.....	D,S	Qg	...	.....	.....
32bcc	C. P. Sandness	40	..	Du	1907	.....	.....	D,S	Qg	...	.....	.....
32cced	S. F. Anderson	...	..	Du	1956	13	.....	D,S	Qg	...	.....	1,461	
33aab	Peter Van Bruggen	40	..	Br	...	.....	.....	D,S	Qg	...	.....	.....
33baa	Albert Koppa	40	..	Br	...	.....	.....	D,S	Qg	...	.....	.....
34cdd	B. Lenssen	35	..	Br	...	.....	.....	S	Qg	...	.....	.....
34ddd	R. Lenssen	65	..	Br	...	.....	.....	...	Qg	...	.....	.....
35bab	E. Murphy	65	..	Br	1947	.....	.....	D,S	Qg	...	.....	.....
36abb	Test hole 26 L	127	5	Dr	1948	.....	.....	T	Qg	121	.....	1,455	L.
36cdd	Test hole 28 L	135	5	Dr	1948	.....	.....	T	Qg	...	.....	.....	L.
36dbb	Test hole 27 L	130	5	Dr	1948	.....	.....	T	Qg	126	.....	1,459	L.
<u>137-61</u>													
1dcdd	Lydia Middelstade	50	..	..	...	40	.....	S	Qg	...	.....	.....
2cdd	Sperger Bros.	25	28	Br	1904	20	.....	D,S	Qg	...	.....	1,460	
2ddd	Harold Boom	30.0	24	Br	1962	21.3	5-18-62	D	Qg	...	.....	.....
4cdd	.....	56.0	..	..	...	28.0	8- 3-62	U	Qg	...	.....	1,471	
5cccl	Maynard Neeval	55.0	24	Br	1958	38.0	7-12-62	D	Qg	...	.....	1,450	
5cce2	..do....	42.8	24	Br	...	38.0	7-12-62	D,S	Qg	...	.....	1,450	
7aaa	Edwin Schulz	49.3	..	Br	1917	35.0	7-12-62	D,S	Qg	...	.....	1,450	
9dcdd	Leonard Neeval	62	18	Br	1950	18	.....	D	Qg	...	.....	.....
10baa	J. Van Bruggen	29.8	24	Br	1953	19.0	7-12-62	D,S	Qg	...	.....	1,463	

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>137-61</u> (Cont.)													
11ddd	J. Trzpuc	23	24	Br	1917	19	.....	D,S	Qg	...	970	....
12bae	Henry Van Dyke	100	24	Br	1932	80	.....	S	Qg	...	.....	1,490	
14adc1	Charles Matzke	30	..	Du	1920	25	.....	S	Qg	...	.....	1,470	
14adc2	..do....	29	..	Br	....	23	.....	D	Qg	...	.....	1,471	
14bbc	Arthur Liebing	18	8	Du	1952	11	.....	D	Qg	...	.....	1,480	
14ccd	.....	32.2	..	Br	....	21.5	7-15-61	S	Qg	...	.....	1,480	
15ddd	Melvin Holand	47	36	Br	1910	.....	.....	D,S	Qg	...	.....	1,479	
15dda	.....	30	..	..	....	25	.....	S	Qg	...	.....	1,479	
17dda	Theodore Moot	75	24	Br	....	66	8- 3-61	D,S	Qg	...	.....	1,492	
19cdd	.....	50.1	36	Br	....	47.03	8- 8-61	0	Qg	...	.....	1,468	
20aad	.....	81.2	24	Br	....	72.44	12-5-62	0	Qg	...	.....	1,498	
20bbb	Alvin Van Enk	90	24	Br	1947	81	.....	D,S	Qg	...	1,360	....	C.
23add	Andrew Miedema	25	..	Dr	....	18.0	.....	..	Qg	...	.....	1,475	
23ddb	Roy Hoekstra	43.2	24	Br	....	24.5	7-14-61	D,S	Qg	...	.....	1,480	
24dab	A. H. Berg	32	24	Br	1958	.....	.....	D	Qg	...	.....	1,481	
25cccd	Norman Hoekstra	47.0	..	Br	....	41.0	8- 3-61	D,S	Qg	...	.....	1,481	
28bdb	.....	29.6	24	Br	....	19.95	5-17-62	S	Qg	...	.....	1,448	
28ecd	R. Sarbaum	35.0	48	Du	....	20.0	8- 1-61	S	Qg	...	.....	1,448	
29ecd	.....	49.9	36	Du	....	38.65	12-5-62	0	Qg	...	.....	1,567	
31ddd	J. H. Anderson	30	18	Br	....	.....	.....	D	Qg	...	.....	.....
32add	William Kosse	50	60 x 60	Du	....	.....	.....	S	Qg	...	.....	.....
32ccc	J. H. Anderson	10.3	12	Br	1961	7.46	5-17-62	U	Qg	...	.....	.....
34bcc	Myrtle Smith	30	24	Br	1960	21	.....	S	Qg	...	.....	.....
36bcc	E. J. Baeth	20	..	Du	1947	.....	.....	S	Qg	...	.....	.....
36ded	Milo Trapp	23.9	24	Br	....	18.46	5-18-62	S	Qg	...	.....	.....
<u>138-56</u>													
1bbb	Henry Steidl	740	2	Dr	1945	Flow	7-11-62	D,S	Kd	...	5,820	....	Meas. flow $\frac{1}{4}$ gpm.
1dce	M. J. Huber, Jr.	1,000	4	Dr	....	Flow	7-11-62	S	Kd	...	.....	.....	Meas. flow $\frac{1}{2}$ gpm.
2ccc	Elbert Puhr	35.5	30	Br	....	5.74	7-11-62	S	Qg	...	.....	.....
2dcf	.....	22.5	24	Br	....	7.31	7-11-62	U	Qg	...	.....	.....
3bcc	.....	27.6	36	Br	....	13.08	7-11-62	U	Qg	...	.....	.....
4aad	John Pratschner	27	48 x 48	Du	1934	5	.....	S	Qg	...	4,370	....
4bba	Herman Behm	40	36	Br	....	14	.....	D,S	Qg	...	.....	.....
4ddd	.....	32.4	36	Du	....	16.07	7-11-62	U	Qg	...	.....	.....
5cdc	Louise Schuster	31	15	Du	1937	10	.....	D,S	Qg	...	.....	.....
6cdc	Dale Mahlum	24.4	24	Br	1950	16.39	7-11-62	D,S	Qg	...	.....	.....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>138-56 (Cont.)</u>													
6dac	.....	27.3	30	Br	....	17.98	7-11-62	U	Qg	...	.....	.....	.....
8aaa	.....	26.4	48 x 48	Du	....	3.96	7-11-62	U	Qg	...	.....	.....	.....
8cda	Edward Pfeifer	32	42	Du	1922	27	.....	D,S	Qg	...	.....	.....	.....
8ddd	Clinton Green	23	72 x 72	Du	....	3	.....	D,S	Qg	...	3,330	.....	.....
9bcc	.....	24.4	24	Br	....	10.70	12-4-62	O	Qg	...	.....	1,259	.....
10aba	Joe Schlegel	20	36	Du	1947	13	.....	S	Qg	...	7,060	.....	.....
10bbb	.....	28.4	36	Du	....	14.25	7-11-62	U	Qg	...	.....	.....	.....
10ccc	Joseph Steidl	24.4	10	..	....	8.00	7-12-62	S	Qg	...	.....	.....	.....
11add	.....	26.4	30	Br	....	5.85	7-11-62	U	Qg	...	.....	.....	.....
11ccc	.....	22.0	30	Br	....	8.46	7-11-62	U	Qg	...	.....	.....	.....
12dec	J. C. Puhr	540	4	Dr	....	Flow	7-11-62	D,S	Kd	...	.....	.....	Meas. flow 1 gpm.
13dda	A. J. Kapaun	30	..	Du	....	20	.....	S	Qg	...	.....	.....	.....
14aaa	Martin Boyle	33.4	36	..	....	3.94	7-11-62	D,S	Qg	...	5,090	.....	.....
14dad	Aloys Huber	25	48	Du	1945	22	.....	S	Qg	...	.....	.....	.....
15ada	John Kappel	18.5	36	Du	....	11.50	5-22-62	O	Qg	...	1,211	.....	.....
15ccc	A. N. Steidl	35	30	Br	1960	15	.....	S	Qg	...	3,420	.....	.....
15daa	John Steidl	29.9	24	Br	....	8.21	7-12-62	S	Qg	...	1,890	.....	.....
16bbc	A. Torgerson	43.3	24	Br	....	2.92	7-11-62	S	Qg	...	.....	.....	.....
17bcc	Joe Bosch	36	36	Br	1922	21	.....	D,S	Qg	...	4,060	.....	.....
20aab	Mike Koller	29.5	36	Br	....	10.58	7-12-62	S	Qg	...	.....	.....	.....
20bab	George Sherman	31	36	Du	....	28	.....	S	Qg	...	.....	.....	.....
21bba	J. C. Grusman	27	22	Br	1961	21	.....	S	Qg	...	.....	.....	.....
22addl	Irvin Koslefsky	22.9	60 x 60	Du	....	5.28	7-12-62	S	Qg	...	.....	.....	.....
22add2	..do....	20	..	..	....	5	.....	..	Qg	...	.....	.....	.....
22ccb	Edward Christl	40	30	Br	1932	15	.....	S	Qg	...	.....	.....	.....
23abc	Price Bros.	33.8	48 x 48	Du	....	6.58	7-12-62	D,S	Qg	...	.....	.....	.....
23cdc	W. M. Olson	812	4	Dr	1947	Flow	7-12-62	D,S	Kd	...	.....	2,400	Rept. flow 4 gpm.
24bab	Rocella Huber	27	48	Du	....	15	.....	S	Qg	...	4,160	.....	Rept. flow 2 gpm.
24deel	E. F. Sprockhoff	730	4	Dr	1913	Flow	7-12-62	D,S	Kd	...	.....	.....	.....
24dcc2	..do....	40	..	Br	....	.....	.....	U	Qg	...	.....	.....	.....
26cbc	Frand Domsle	33	24	Br	1960	20	.....	D	Qg	...	.....	.....	.....
26dddl	Leonard Stangler	600	4	Dr	1912	Flow	7-13-62	D	Kd	...	.....	.....	.....
26dd2	..do....	35	..	Br	....	.....	.....	..	Qg	...	.....	.....	.....
28daa	Clara Utke	40	30	Br	1942	.....	.....	D	Qg	...	.....	.....	.....
29bbc	.....	40.5	24	Br	....	24.29	7-12-62	U	Qg	...	.....	.....	.....
29cdc	Albert Janz	24	28	Br	1912	20	.....	U	Qg	...	.....	.....	.....
30add	Milton Maasjo	32	36	Du	....	29	.....	D,S	Qo	...	.....	.....	.....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>138-56 (Cont.)</u>													
31bba	J. O. Fossen	133	4	Dr	1912	93	.....	U	Qg	...	....	....	....
32aab	Henry Koslofsky	18.0	24	Br	....	7.83	7-12-62	U	Qg	...	....	....	....
32dcc	Fred Buckholz	35	48 x 48	Du	1922	20	.....	S	Qg	...	....	....	....
33abb	J. C. Johnson	23	3	Br	1950	15	.....	S	Qg	...	....	....	....
34aaa	R. E. Stangler	18	36 x 36	Du	1890	15	.....	S	Qg	...	....	....	....
34caa	.....	23.0	18	Br	....	9.78	7-13-62	U	Qg	...	....	....	....
35cdc	Joseph Rossler	36	30	Br	1936	3	.....	D,S	Qg	...	....	....	....
36aab	Christl Bros.	720	4	Dr	1953	Flow	7-13-62	D,S	Kd	...	....	....	....
36ccc	Fredrick Johnson	30	24	Br	1932	15	.....	S	Qg	...	....	....	Rept. flow 3 gpm.
<u>138-57</u>													
24ddd	Lina Hones	40.5	36	Br	1932	25.75	7-17-62	U	Qg	...	....	....	....
3dac	Martha Anderson	42	36	Br	1950	26	.....	D,S	Qg	...	....	....	....
4aca	Henry Holm	60	48	Br	1922	40	.....	D,S	Qg	...	....	....	....
5bcc	.....	66.0	36	Br	....	12.76	7-16-62	U	Qg	...	....	....	....
5cba	H. H. Wilkins	51.0	24	Br	1928	42.19	10-5-39	...	Qg	...	....	....	....
5cbb	Victoria Holm	160	4	Dr	1957	95	.....	D,S	Qg	...	2,820	....	....
6aaa	Test hole 2131	189	5	Dr	1963	.....	.....	T	Qg	165	....	1,484	L.
6adc	Victoria Holm	165	5	Dv	1942	125	.....	D,S	Qg	...	....	....	....
6cac	..do....	120	4	Dr	1927	85	.....	U	Qg	...	....	....	....
8aca	Arthur Lahlum	126	4	Dr	1939	46	.....	D,S	Qg	...	2,030	....	....
8cbc	Lawrence Lee	175	4	Dr	1940	.....	.....	D,S	Qg	...	....	....	....
9bbb	Lawrence Holm	100	4	Dr	1925	.....	.....	D,S	Qg	...	....	....	....
10bcc	George Holm	90	4	Dr	1959	9	.....	D	Qg	...	....	....	....
11bca	M. A. Monson	39	24	Br	1929	13	.....	S	Qg	...	....	....	....
13add	.....	41.0	24	Br	....	Flow	7-18-62	S	Qg	...	1,860	....	Meas. flow 4 gpm.
13bcc	J. W. Kiser	73	24	Br	....	23	.....	S	Qg	...	....	....	....
13dcf	Anne Morth	23.4	24	Br	....	3.73	7-16-62	S	Qg	...	....	....	....
14bac	Alfred Gruman	40	36	Br	....	27	.....	D,S	Qg	...	....	....	....
14cdc	Fred Kennedy	50.9	30	Br	....	25.48	7-18-62	D	Qg	...	....	....	....
16cbc	R. Maasjo	90	5	Dr	1937	65	.....	D,S	Qg	...	....	....	....
18aab	O'Neal Maasjo	160	5	Dr	1934	100	.....	D,S	Qg	...	....	....	....
18cbb	Carl Lehfeldt	160	5	Dr	1944	80	.....	S	Qg	...	....	....	....
18dcc	.....	106.0	4	Dr	....	70.0	7-17-62	U	Qg	...	....	....	....
19dba	C. J. Sebby	183	3	Dr	....	93	.....	D,S	Qg	...	....	....	....
20dac	Peter Langemo	90	24	Dr	1919	77	.....	S	Qg	...	2,400	....	c.
21cbb	C. Langemo	120	3	Dr	1900	105	.....	D,S	Qg	...	1,670	....	....
21dbc	.....	40.8	24	Br	....	26.26	5-23-62	U	Qg	...	....	....	....
22bba	Andrew Evenstad	40	48	Du	1880	20	.....	S	Qg	...	1,950	....	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>138-57 (Cont.)</u>													
22cbc	Oscar Langemo	51	24	Br	1932	34	.....	D,S	Qg	...	....	....	....
22dbb	Marvin Buckholz	40	36	Br	1949	29	.....	D,S	Qg	...	....	....	....
24dca	.....	30.3	30	Br	....	12.25	7-18-62	U	Qg	...	....	....	....
26bbc	.....	56.2	18	Br	....	36.90	5-23-62	O	Qg	...	....	1,352	....
26dcc	Paul Peterson	65	24	Br	....	....	....	D,S	Qg	...	....	....	....
28dbb	Herbert Nelson	58	24	Br	1910	33	.....	D,S	Qg	...	....	....	....
29bac1	E. M. Langemo	167	3	Dr	1960	90	.....	S	Qg	...	1,750	....	....
29bac2	.do....	158	3	Dr	1951	98	.....	D	Qg	...	....	....	....
30baa	Orvis Maasjo	190	4	Dr	....	160	.....	S	Qg	...	....	....	....
30cdd	.....	17.7	18	Br	....	1.86	7-18-62	U	Qg	...	....	....	....
31add	.....	33.9	24	Br	....	11.04	7-17-62	U	Qg	...	....	....	....
32baa	.....	24.3	24	Br	....	18.5	7-17-62	U	Qg	...	....	....	....
33bal	Theo. Solheim	74	42 x 42	Du	....	60	.....	S	Qg	...	....	....	....
33ba2	.do....	11.7	..	Dr	....	....	....	D	Qg	...	....	....	....
33cba	John Maasjo	85	4	Dr	1940	55	.....	D,S	Qg	...	1,610	....	....
34bab	G. Peterson	50	24	Br	1957	15	.....	D,S	Qg	...	....	....	....
34dac	.....	79.0	24	Br	....	33.70	7-18-62	U	Qg	...	....	....	....
35bdd	Paul Langemo	92	3	Dr	1951	26	.....	D,S	Qg	...	....	....	....
36ddd	Test hole 2126	147	5	Dr	1963	....	.....	T	Qg	120	....	1,320	L.
<u>138-58</u>													
2baa	Test hole 41 BR	24.84	..	Dr	11-59	11.6	11-9-59	U	Qg	18	....	1,270	L.
3aad	Test hole 13 BR	25.0	..	Dr	8-59	dry	.....	...	Qg	5	....	1,341	L.
3aca	Test hole 40 BR	24.67	..	Dr	11-59	dry	.....	...	Kp	0	....	1,240	L.
3bdd	Test hole 39 BR	35.0	..	Dr	11-59	16.2	11-11-59	U	Qal	...	....	1,199	L.
3cba	Test hole 38 BR	40.0	..	Dr	11-59	7.4	11-11-59	U	Qal	...	....	1,208	L.
3cdd	Edwin Skorpen	26	32	Du	1938	14	.....	D	Qal	...	....	....	....
4ccc	Halver Skorpen	22	30	Br	1948	11	.....	S	Qg	...	....	....	....
4dac	Test hole 12 BR	24.62	..	Dr	11-59	dry	.....	...	Qg	3	....	1,392	L.
4dad	Test hole 37 BR	25.0	..	Dr	11-59	5.1	11-6-59	U	Qal	18	....	1,241	L.
5ccc	C. V. Olson	1,107	2	Dr	1957	20	.....	D,S	Kd	...	....	....	....
5dbb	Test hole 11 BR	25.0	..	Dr	8-59	9.9	9-10-59	U	Kp	5	....	1,391	L.
6adb	Test hole 36 BR	25.0	..	DP	11-59	dry	.....	...	Qg	...	....	1,387	L.
7bab	Russel Moe	1,100	6	Dr	1957	50	.....	D,S	Kd	...	....	....	....
9cbal	P. L. Foss	1,220	4	Dr	1954	18	.....	S	Kd	...	....	....	....
9cba2	.do....	42	..	Br	....	....	....	D	Qg	...	....	....	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>138-58 (Cont.)</u>													
10eda	Melvin Stevens	22	24	Br	1946	10	.....	D	Qg	...	2,020	....
12aba	Jens Aas	70	24	Br	....	35	.....	D	Qg	...	....	....
12caa	Alfred Monson	28	30	Br	1947	13	.....	D,S	Qg	...	1,800	....
15aca	James Fairfield	29.8	24	Br	1961	11.36	8-13-62	S	Qal	...	....	....
15baa	.....	15.9	8	..	....	8.87	5-23-62	O	Qal	...	....	1,181	
18aaa	Franz Pedersen	38	42	Br	1927	35	.....	D,S	Qg	...	....	....
18bbd	Harold Pedersen	28	24	Br	1953	19	.....	S	Qg	...	4,860	....
18dac	Oscar Billet	40	12	Br	....	36	.....	D,S	Qg	...	....	....
22cad	Clarence Monson	12	30	Br	....	6	.....	D	Qal	...	....	....
23bba	Test hole 2142	95	5	Dr	1962	....	.....	T	Qg	80	....	1,372	L.
24dcd	Martin Sebby	105	4	Dr	1949	48	.....	D,S	Qg	...	1,690	....
25cdd	R. Hanson	120	4	Dr	....	....	.....	S	Qg	...	....	....
26ccb1	N. Saugstad	1,078	2	Dr	1909	Flow	8- 9-62	D,S	Kd	...	....	....
26ccb2	...do....	800	..	Dr	....	Flow	8- 9-62	S	Kd	...	....	....
27abd1	Nelson Bros.	35	24	Br	....	30	.....	D	Qg	...	....	....
27abd2	...do....	740	4	Dr	....	Flow	.....	S	Kd	...	....	....
27cdc	Saugstad Bros.	800 +	4	Dr	1961	Flow	8- 9-62	D,S	Kd	...	6,290	....
28dcc	Donald Sorenson	1,000	6	Dr	....	Flow	8-10-62	D,S	Kd	...	....	....
29ccb	Oscar Odegaard	23	30	Br	1957	20	.....	D,S	Qg	...	2,210	....
30dbd	Augusta Billet	27.1	30	Du	....	14.80	8-10-62	S	Qg	...	1,610	....
31cca	John Twidt	33.1	24	Br	....	25.29	8-10-62	D,S	Qg	...	....	....
32aca	Ed Hustoff	21.5	48 x 48	Du	1942	11.28	8-10-62	D,S	Qg	...	....	....
33ddd	.....	19.8	36 x 36	Du	....	12.32	5-24-62	O	Kp	...	....	1,196	
34cb	Erlroy Brown	25	12	Br	1958	17	.....	S	Qal	...	....	....
35ccc	Inga Hoiberg	19.2	24	Br	1952	6.71	8- 9-62	D,S	Qg	...	....	....
<u>138-59</u>													
1acal	Melville Skonnard	30	..	Br	....	....	.....	D	Qg	...	3,860	....
1aca2	...do....	1,060	..	Dr	....	Flow	8-30-62	S	Kd	...	....	....
1bcb	A. L. Skonnard	32	24	Br	1959	18	.....	D	Qg	...	1,400	....
2ccbl	Cliff Manstrom	19.4	20	Br	....	4.96	8-30-62	U	Qg	...	....	....
2ccb2	...do....	30	20	Br	....	26	.....	D	Qg	...	....	....
5dac	Wa. Rieth	56	30	Br	....	26	.....	D,S	Qg	...	....	....
7cda	Denzil Olson	17	..	Dv	....	13	.....	D	Qg	...	1,050	....
8bbb	Riedmen Bros.	18	24	Br	....	10	.....	D	Qg	...	....	....
9baal	Andrew Sather	18	..	Br	....	8	.....	D	Qg	...	869	....
9baa2	...do....	21	..	Br	....	11	.....	S	Qg	...	....	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>138-59</u>	(Cont.)												
10bbb	Erwin Severson	14.1	36 x 36	Du	....	9.23	8-31-62	D,S	Qg	...	....	....	....
13mab	.....	31.9	18	Du	....	9.16	8-31-62	U	Qg	...	....	....	....
13db	.....	30.7	20	Br	....	11.12	8-31-62	S	Qg	...	....	....	....
14dha	Eldon Johnson	35	24	Br	....	29	.....	D,S	Kp	35 ?	2,190	1,418	
15adc	Gordon Peterson	23	..	Du	....	8	.....	D,S	Qg	...	2,280	....
20bcb	Emily Riedman	28	..	Dv	....	19	.....	D	Qg	...	....	....
21bcd	Adolph Salthermer	25	25	Du	....	13	.....	S	Qg	...	927	....
22bdc	.....	38.2	18	Br	....	7.28	8-31-62	S	Qg	...	....	....
23aaa	Fredrick Johnson	1,350	1	Dr	....	Flow	8-31-62	S	Kd	...	3,450	....
24bbb	Test hole 2117	31	5	Dr	1963	.....	.....	T	Qg	18	....	1,418	L.
													Meas. flow 1.5 gpm.
24dad	Melvin Hellickson	30	24	Du	....	.....	.....	S	Kp	...	12,900	....	C.
25adb	Paul Pederson	...	2	Dr	....	Flow	8-31-62	S	Kd	...	3,610	....	Meas. flow 1.6 gpm.
27ead	.....	33.9	5	Dr	....	18.39	5-25-62	O	Qg	...	....	1,443	
27add	.....	49.0	24	..	....	18.82	8-31-62	U	Qg	...	....	....
28aaa	.....	24.9	..	Du	....	7.72	8-31-62	U	Qg	...	....	....
28bcb	J. O. Gusaas	31	24	Br	1961	21	.....	D,S	Qg	...	....	....
29ccb	Alan Latt	27	..	Du	....	2	.....	D	Qg	...	....	....	C.
32ccb	Anton Roberg	1,400	4	Dr	1920	.....	.....	D,S	Kd	...	....	....
32dcc1	Test hole 31 L	10	5	Dr	1948	.....	.....	T	Qo	7	....	1,438	L.
32dcc2	Test hole 33 L	20	5	Dr	1948	.....	.....	T	Qo	10	....	1,438	L.
32ddc	Test hole 20 L	11	5	Dr	1948	.....	.....	T	Qo	8	....	1,440	L.
32ddd	Test hole 32 L	20	5	Dr	1948	.....	.....	T	Qo	11	....	1,442	L.
33cbd	Test hole 19 L	20	5	Dr	1948	.....	.....	T	Qg	15	....	....	L.
34cdc	.....	19.7	30 x 30	Du	....	12.14	8-31-62	U	Qg	...	....	....
35bcb	.....	48.0	24	Du	....	25.45	8-31-62	S	Qg	...	....	....
35ddd	Test hole 2118	84	5	Dr	1963	.....	.....	T	Qg	71	....	1,441	L.
36ead	Wm. Velure	60	..	Br	....	.....	.....	S	Qg	...	883	....
36bcc	Oliver Mikkelson	50	24	Br	....	42	.....	D,S	Qg	...	....	....
<u>138-60</u>													
2bcd	Albert Carlson	18	..	Du	....	10	.....	S	Qo	...	3,540	....
3adc	Sidney Thompson	25.8	36 x 48	Du	....	13.35	6-22-62	S	Qo	...	....	....
5ebal	Joe Shape	28	26	Br	1950	16	6-21-62	D,S	Qg	...	5,840	....
5eba2	..do....	400	..	..	....	150	.....	U	Kp	...	....	....
6edc	.....	44.5	18	Br	....	16.62	6-21-62	U	Qg	...	....	....
7add	Art Sortland	170	4	Dr	1960	.....	.....	S	Qg	...	9,000	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>138-60</u> (Cont.)													
7dcdd	Olaf Hanson	300	1	Dr	1950	25	.....	D,S	Qg	...	4,050	....
8cdel	Sam Sortland	1,150	1	Dr	1955	Flow	6-22-62	D,S	Kd	...	....	....	Rept. flow very slow.
8cdd2	..do....	10	..	Br	....	....	....	S	Qg	...	....	....
9ba	.....	29.6	30	Du	....	1 ^h .55	5-18-62	O	Qg	...	....	1,496	
10adc	.....	8.6	36 x 36	Du	....	3.80	5-18-62	O	Qo	...	....	1,460	
11lcbd	Benson	12	..	Br	....	....	....	D,S	Qo	...	....	....	c.
14bbb	Alf Benson	..	..	..	..	6	.....	D	Qg	...	....	1,501	
14dbb	Chester Kjelland	88	6	Du	....	10	.....	D,S	Qg	...	....	1,501	
17ada	E. J. Berge	10.0	..	Br	1952	18.0	7-13-62	D,S	Qg	...	....	1,516	
18dab	Bernard Benson	15.0	21	Br	1952	23.0	7-13-62	D,S	Qg	...	....	1,509	
20baa	.....	207	5	Dr	1926	.....	....	S	Qg	...	....	1,509	
21aab	Helen Brandt	1,300	..	Dr	....	Flow	7-13-62	S	Kd	...	....	1,484	
21baa	Larson	120	..	Dr	....	15	.....	...	Qg	...	....	1,484	
22baa	C. R. Anderson	37	..	..	..	13	7-13-62	...	Qg	...	....	1,485	
22bab	..do....	67	..	Dr	1930	56	.....	D,S	Qg	...	....	1,485	
23ddd	C. W. Piatz	1,156	..	Dr	1960	50	7-14-62	D,S	Kd	...	....	1,509	Rept. flow 12 gpm.
24aac	Carl Nordquist	17	2	Dv	....	....	....	S	Qg	...	559	....	c.
24ddb	Norris Nelson	64	..	..	..	8	7-14-62	...	Qg	...	....	....
24ddd	.....	12.7	..	..	..	6.1	7-14-62	...	Qg	...	....	....
25dcdd	James Justesen	1,300	4	Dr	1942	.....	....	D,S	Kd	...	7,240	....
26bea	Richard Hanson	66	28	..	....	9	7-14-62	S	Qg	...	....	1,480	
26dbb	Norris Nelson	52.0	..	Dr	....	37.0	7-14-62	D	Qg	...	....	1,490	
27dbo	Lester Jackson	60	..	Dr	....	.....	....	D,S	Qg	...	2,560	....
28ccc	Test hole 17 ¹ /2	126	5	Dr	1961	.....	....	T	Qg	117	....	1,463	L.
29daa	H. Monson	130	..	Dr	1920	16	.....	S	Qg	...	....	....
29dda	Sidney Peterson	32.6	21	Br	....	23.0	7-13-62	D,S	Qg	...	....	1,481	
32daa	Donald Knutson	50	..	..	..	21	.....	D,S	Qg	...	....	1,480	
33aid	.....	45	..	Br	1956	22	.....	S	Qg	...	....	1,479	
34bbb	Adrian Anderson	39.8	..	Br	1945	17.0	7-13-62	D,S	Qg	...	....	1,479	
35cbc	Wilford Jefferson	50	6	Dr	....	.....	....	D,S	Qg	...	2,770	....
36abb	Test hole 2122	62	5	Dr	1963	.....	....	T	Qg	46	....	1,465	L.
<u>138-61</u>													
2ddd	Donald Boom	28	24	Br	1920	21	.....	D,S	Qg	...	....	1,471	
3aaa	Test hole 2135	105	5	Dr	1963	.....	....	T	Qg	93	....	1,463	L.
3aba	Richard Brown	31.2	2	Du	1955	21.8	6-23-62	D	Qg	...	....	1,464	
4aaa	Floyd Rodin	50	19	Br	....	20	.....	D,S	Qo	...	....	1,471	
5ccb	C. W. McLean	50	..	..	1916	31	.....	D,S	Qg	...	....	1,460	
6aaa	Test hole 2136	210	5	Dr	1963	11.23	5-30-63	T,O	Qg	196	....	1,457	C; L.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
130-61 (Cont.)													
7ecd	J. D. Roorda	35	24	Du	....	30	.....	D,S	Qg	...	....	....
9bab	Enger Bros.	35	30	Br	1957	....	.....	D,S	Qg	...	....	....
9ecc	J. F. Roorda	35	24	Br	1910	15	.....	D,S	Qg	...	870	....
11aac	Harry Van Hall	43.8	24	Du	....	20.0	7-11-61	D,S	Qg	...	....	1,475	
13aaa	.....	...	..	Br	....	10.68	7-27-61	O	Qg	...	....	1,480	
14adc	Edwin Mikkelson	1,398	3	Dr	1958	Flow	7-11-61	S	Kd	...	....	....	Rept. flow 30 gpm.
14dda	.....	25	..	..	....	20	.....	U	Qg	...	....	1,480	
15cbc	Pete DeVries	32	24	Br	1956	15	.....	D,S	Qg	...	....	....
17aab	Ernest Miedema	172	6	Dr	1915	12-15	.....	D,S	Qg	...	....	....	G.
17bcc	Joe Miedema	72	6	Dr	1915	30	.....	D,S	Qg	...	740	....
18aba	Roy Rodtke	30.1	28	Du	....	23.0	7-11-61	S	Qo	...	....	1,448	
18baa	..do....	48.1	20	Du	1957	29.8	7-11-61	D,S	Qg	...	....	1,448	
18ccb	Floyd Rodtke	32.3	28	Dr	....	16.0	7-11-61	D,S	Qg	...	....	1,434	
19cba	..do....	47.8	5	Dr	....	24.8	7-11-61	D,S	Qg	...	....	1,443	
20bac	T. Van Dyke	38.0	..	Br	1961	31.0	8-3-61	D,S	Qg	...	....	1,458	
20cdc	.....	38.2	18	Br	....	28.91	5-17-62	U	Qg	...	....	....
21cccd	Rodney Monson	28	..	..	....	20	.....	S	Qg	...	....	1,480	
22bbc	Alf Broughton	1,410	1	Dr	1954	Flow	5-17-62	S	Qg	...	2,890	....	Meas. flow 7.5 gpm.
23eac	Maynard Tuedt	24.0	..	Du	1947	17.0	.....	S	Qg	...	....	1,469	
24aaa	.....	38.3	30	Br	....	12.95	7-27-61	O	Qg	...	....	1,480	
26aaa	A. E. Tabbert	29.1	36	Du	....	13.59	5-17-62	U	Qg	...	....	....
26abb	Henry Blaksyl	1,400	6	Dr	....	6	.....	D,S	Qg	...	....	1,484	
26ddc	Bert Johnson	20	24	..	1960	13	.....	D	Qg	...	....	1,485	
26dd1	..do....	25	..	..	....	16	.....	S	Qg	...	....	....
26dd2	..do....	90	..	..	....	....	....	S	Qg	...	....	....
27bbb	.....	27.1	..	Br	....	20.15	5-17-62	U	Qg	...	....	....
28ccc	Test hole 1739	136	5	Dr	1961	....	....	T	Qg	125	....	1,450	L.
30bcd	Ivan Wieck	36.4	6	Dr	....	24.0	7-11-61	D,S	Qg	...	....	1,470	
30das	Dick Plaggemeyer	50	12	Br	....	40	7-11-61	D,S	Qg	...	....	1,450	
31bbb	Test hole 2121	168	5	Dr	1963	....	....	T	Qg	153	....	1,455	L.
31bbc	Thomas Anderson	42	..	Br	1920	....	....	S	Qg	...	....	....
31dab	.....	47.8	24	..	....	35.39	5-17-62	U	Qg	...	....	....
32bab	Harry Gusaas	50	18	Br	1955	....	....	D	Qg	...	1,420	....
32cbc	.....	...	2	Dr	....	6.62	7-27-61	U	Qg	...	....	....
32dda	Orvin Elton	50.0	..	Br	1960	24.0	7-13-61	D	Qg	...	....	1,480	
34ddd	.....	59.4	18	Br	....	24.07	5-17-62	U	Qg	...	....	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>130-61 (Cont.)</u>													
35bbb	Test hole 1740	147	5	Dr	1961	.....	.....	T	Qg	135	....	1,464	L.
35ccc	.....	37.9	..	Br	1930	13.6	7-28-61	U	Qg	...	....	....
35ddd	Ben Van Bruggen	32.6	24	Br	1961	.....	7-11-61	S	Qg	...	....	1,481	
36aaa	Test hole 1741	357	5	Dr	1961	.....	.....	T	Qg	177	....	1,422	L.
36ccb	P. J. Gaasland	67	36	Br	1948	61	.....	S	Qg	...	....	....
36ddd	.....	36.4	..	Br	....	9.6	.....	D,S	Qg	...	....	....
<u>139-56</u>													
1cbb	Henry Kosir	21.4	48	Du	1937	12.07	7- 9-62	D,S	Qg	...	....	....
5ccb	Oscar Triebold	28	24	Br	1952	10	.....	S	Qo	...	....	....
5cbb	Charles Thilmony	32	28	Br	1958	17	.....	S	Qg	...	....	....
6ada	O. H. Triebold	26	36	Br	1930	10	.....	S	Qg	...	....	....
6daa	Charles Thilmony	32	48	Br	1950	28	.....	S	Qg	...	....	....
7daa	Earl Triebold	28.8	48	Br	....	14.74	7-10-62	S	Qg	...	....	....
9abb1	Pauline Klinger	40	24	Br	1960	21	.....	D	Qg	...	....	....
9abb2	do....	890	..	Dr	....	.....	.....	U	Kd	...	....	....
10dab	Joe Kohler	800	2	Dr	1940	Flow	7-12-62	D,S	Kd	...	....	....	C.
10ddd	.....	31.3	4	Dr	....	7.73	5-22-62	O	Qg	...	....	1,188	
11aad	Cecil Sabe	18	48	Du	....	11	.....	D,S	Qg	...	....	....
12ccc	.....	14.6	..	Br	....	7.97	7- 9-62	S	Qg	...	....	....
12ddd	Norbert Kosir	29.1	24	Br	....	12.78	7- 9-62	S	Qg	...	....	....
13cbc	Joe Leitner	16	48	Du	1944	13	.....	D,S	Qg	...	....	....
14daa	do....	16	..	Dv	1962	14.5	.....	D	Qg	...	....	1,010	
15bea	Kenneth Kohler	25.5	48	Du	....	6.40	7- 9-62	D,S	Qg	...	....	....
16cbd	J. C. Weber	44	24	Br	1955	13.18	7-10-62	D,S	Qg	...	....	....
17abb	.....	27.2	24	Br	....	16.52	5-22-62	U	Qg	...	....	....
18aad	.....	36.5	30	..	....	24.81	7-10-62	U	Qg	...	3,590	....
18dab	Morris Kuhry	60	40	Br	....	30	.....	D,S	Qg	...	....	....
19cbc	Peter Heinze	25	36	Du	1920	13	.....	D,S	Qg	...	....	....
20abb	Greg Dimmer	40	24	Br	1945	15	.....	S	Qg	...	....	....
21aaa	John Schoegel	32	48	Du	1934	18	.....	D,S	Qo	...	....	....
21dda	Olie Sherman	28.6	36	Br	1910	12.87	7-10-62	D,S	Qo	...	....	....
22aaa	J. J. Ertelt	23.6	36	Du	1946	7.84	7-10-62	D,S	Qg	...	....	....
23ead1	Andrew Wurzer	23.5	18	Dr	1953	11.87	7-11-62	D	Qg	...	2,390	....
23aad2	do....	685	..	Dr	....	Flow	7-11-62	S	Kd	...	....	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>139-56</u>	(Cont.)												
23ccc	.....	35.4	36	..	....	2.90	7-11-62	U	Qg	...	....	....
24dad	D. J. Grosinger	980	2	Dr	1948	Flow	7-11-62	D	Kd	...	6,330	....	Rept. flow 3 gpm.
26cbc	.....	33.1	24	..	....	4.45	7-10-62	U	Qg	...	....	....
26daal	E. H. Rathje	850	1.5	Dr	1950	Flow	7-10-62	S	Kd	...	....	....	Rept. flow 6 gpm.
26daa2	..do....	22	..	Du	....	....	....	D	Qg	...	....	....
27daa	.....	32.1	36	..	....	4.24	7-11-62	U	Qg	...	....	....
28ccc	F. J. Weber	41	24	Br	1919	20	7-11-62	S	Qg	...	3,240	....
28dda	Adolf Bahn	34.1	36	Du	1940	22.12	7-10-62	D,S	Qg	...	....	....
29ada	A. J. Weber	40.0	32	Br	1923	5.07	7-11-62	S	Qg	...	....	....
30aac	R. Lehfeldt	25	18	Du	1900	10	....	D,S	Qg	...	1,900	....
30bab	Olaf Olauson	25	30	Du	1930	18	....	S	Qg	...	....	....
30dad	Eleanore Keeler	40	36	..	....	....	....	S	Qg	...	....	....
31acd	Test hole 17 BR	25.0	..	Dr	8-59	dry	....	...	Qg	...	....	1,305	L.
31cab	Test hole 45 Br	29.88	..	Dr	1-60	5.8	2- 2-60	U	Qg	...	....	1,275	L.
31dad	E. J. Schlegel	40.3	24	Br	1934	6.99	7-11-62	D,S	Qg	...	....	....
31ddb	Test hole 46 Br	24.52	..	Dr	10-59	11.1	11-2-59	U	Qg	...	....	1,277	L.
31ddd	Test hole 2129	116	5	Dr	1963	....	....	T	Qg	100	....	1,268	L.
32bcd	Test hole 47 BR	24.96	..	Dr	1-60	dry	....	...	Qg	...	....	1,273	L.
32ccb	.....	40	24	..	....	20	....	D,S	Qg	...	....	....
32dad	Lester Bailey	36.0	36	Du	1934	5.67	7-11-62	D,S	Qg	...	6,570	....
33aac	Gerhard Sherman	60	24	Br	....	30	....	S	Qg	...	....	....
33bbb	B. P. Stedel	85	4	Dv	....	25	....	D	Qg	...	....	....
34aaa	Glenn Gustafson	40.9	36	Br	....	11.68	7-10-62	D,S	Qg	...	....	....
34ccb	J. C. Weber	36.2	36	..	....	16.35	7-11-62	D,S	Qg	...	....	....
34ccd	Gerhard Pratschner	22.5	36	..	1917	6.85	7-11-62	D,S	Qg	...	7,200	....
35ccc	Test hole 2139	126	5	Dr	1963	....	....	T	Qg	108	....	1,198	L.
35ddd	Alfred Steidl	743	1.5	Dr	1947	Flow	7-10-62	D,S	Kd	...	6,440	....	Rept. flow 10 gpm.
<u>139-57</u>													
2ddd	Martin Huber	32	24	..	....	10	....	D	Qg	...	....	....
3ddd	Harry Hannig	33.5	24	..	....	19.16	7-20-62	D,S	Qg	...	2,080	....
4bbb	Ray Krug	120	5	Dr	1926	100	....	D,S	Qg	...	....	....
5add	Gus Dahl	120	36	..	....	100	....	D,S	Qg	...	....	....
6ccb	Mike Winkels	40	48	Du	1944	33	....	S	Qg	...	....	....
6ddd	Test hole 2143	147	5	Dr	1963	....	....	T	Qg	123	....	1,438	L.
7abb	Herman Erickson	40	48	Du	1900	30	....	D,S	Qg	...	....	....
7bcc	.....	44.2	24	Br	....	37.71	7-20-62	U	Qg	...	....	....
7dad	Edwin Ratzlaff	50	30	..	....	35	....	D,S	Qg	...	....	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
139-57													
8bbb	Mrs. A. Thilmoney	80	24	..	....	40	.....	D,S	Qg	...	....	....
8dcc	Harvey Niceli	180	3	..	1935	100	.....	D,S	Qg	...	....	....
10aaa	Arnold Kunze	35	24	..	....	17	.....	D,S	Qg	...	....	....
10cba	..do....	35	48	..	....	6	.....	S	Qg	...	....	....
10daa	.....	32.2	24	..	....	2.35	7-20-62	U	Qg	...	....	....
12aaa	George Carpenter	26	24	..	....	18	.....	S	Qg	...	....	....
13aaa	Douglas Richman	17.4	48	Du	....	3.18	7-20-62	U	Qg	...	....	....
14ccd	Joe Gruman	61	48	Du	1885	43	.....	...	Qg	...	....	....
14ddd	.....	35.2	36 x 36	Du	....	6.66	12-4-62	O	Qg	...	....	1,324	
15aab	George Opatz	48	24	..	1956	18	.....	S	Qg	...	2,160	....	C.
18baa	Edwin Ratzlaff	33	24	..	....	18	.....	S	Qg	...	....	....
22bbb	Danielson Bros.	63	48	..	1934	39	.....	D,S	Qg	...	....	....
22cca	Herman Yanish	43	18	Br	1930	21	.....	D,S	Qg	...	....	....
22dcc	Ralph McCready	90	15	Br	1915	60	.....	D	Qg	...	....	....
23aab	John Gruman	52	36	Br	1930	32	.....	D,S	Qg	...	....	....
25ddd	.....	31.6	24	..	....	7.38	7-19-62	U	Qg	...	....	....
26abb	.....	35.4	24	..	....	28.49	7-19-62	D,S	Qg	...	....	....
26ebd	Nelson Bros.	48	30	Br	1914	41	.....	S	Qg	...	....	....
27aba	V. E. Grant	32	18	..	....	15	.....	S	Qg	...	....	....
27dcc	Leonard Fonder	42	30	Br	....	Flow	7-19-62	S	Qg	...	....	....
28bba	.....	91.2	24	..	....	45.11	7-19-62	S	Qg	...	....	....
30abb	Nora Adcock	48.7	24	..	....	2.08	7-19-62	D	Qg	...	....	....
32cca	Chas. Kreidelkamp	92	3	Br	....	60	.....	D	Qg	...	2,090	....
32ccb	Test hole 15 BR	25.0	..	Dr	8-59	dry	.....	...	Qg	...	....	1,481	L.
33aad	.....	43.8	24	Br	....	25.57	7-19-62	S	Qg	...	....	....
33daa	Ed Kreidelkamp	73	3	Dr	1961	15	.....	D	Qg	...	....	....
34bca	Fred Holm	97	4	..	1940	20	.....	S	Qg	...	....	....
34dcb	Test hole 43 BR	50.0	..	Dr	11-59	2.4	11-24-59	U	Qg	...	....	1,342	L.
34dcd	Test hole 2130	116	5	Dr	1963	....	.....	T	Qg	100	....	1,470	L.
35aaa	.....	37.4	24	Br	....	23.05	.....	U	Qg	...	....	....
35cca	Test hole 16 BR	25.0	..	Dr	8-59	dry	.....	...	Qg	...	....	1,359	L.
35cda	Test hole 44 BR	25.0	..	Dr	1-60	dry	.....	...	Qg	...	....	1,340	L.
35dad	Test hole 64 BR	25.0	..	Dr	1-60	....	.....	...	Qg	...	....	1,321	L.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
139-58													
1bcc1	Vic Lee	30	24	Du	....	22	.....	D	Qg	...	....	....
1bcc2	..do....	900	..	Dr	....	Flow	8-13-62	S	Kd	...	....	....
2abb	Barbara Gasman	120	18	..	....	....	.....	D,S	Qg	...	1,160	....
3cba	A. J. Peterson	31	30	Br	....	20	.....	S	Qal	...	1,300	....
4aab1	W. J. Miller	800	2	Dr	1940	Flow	8-16-62	S	Kd	...	....	....
4aab2	..do....	16	..	..	....	....	.....	D,S	Qal	...	....	....
6bcb	Geo. Hoffman	29.4	30	Br	....	6.53	8-15-62	S	Qg	...	....	....
6ccc	Delmar Sather	22.2	36	Br	....	14.09	8-15-62	S	Qg	...	....	....
7dbb	Elmer Olson	30	33	Du	....	24	.....	D,S	Qg	...	....	....
8dcc	Frank Zaun	50	36	Br	1952	35	.....	D,S	Qg	...	4,600	....
9acc1	D. D. Pederson	55	32	Br	1955	25	.....	D	Qg	...	....	....
9acc2	..do....	1,200	..	Dr	....	Flow	.....	S	Kd	...	....	....
9ddc	Russel Pederson	40	40 x 40	Du	1930	37	.....	D,S	Qal	...	607	....
10bdb	Warren Johnson	27.3	36	Br	....	15.58	8-15-62	U	Qal	...	....	....
10cda	Andrew Benson	20	18	Du	1958	15	.....	D	Kp	...	....	....
12bbc	Emile Schmidt	30.1	36	Br	1900	15.41	8-15-62	D,S	Qg	...	....	....
13bca	L. M. Anderson	30.3	36	Br	....	16.26	8-15-62	S	Qg	...	....	....
14edb	Vernon Kratz	1,008	4	Dr	1951	50	.....	D,S	Kd	...	6,500	....
16eab	Marie Olstad	50	30	Br	1947	40	.....	D	Qal	...	....	....
17bab	Frank Zaun	12	48 x 48	Du	1931	7.5	.....	D,S	Qg	...	1,750	....
18bcb	Joe O'Brien, Sr.	40	18	Br	....	27	.....	D	Qg	...	....	....
19add	H. H. Hanson	880	2	Dr	....	Flow	8-15-62	D,S	Kd	...	....	....
20aac	Ted Zaun	26	36	Br	....	16	.....	D,S	Qal	...	....	....
21aac	Phil Jarvis	50	36	Br	1947	.....	.....	D,S	Qal	...	5,260	....
22aba	Frank Svoboda	1,500	4	Br	1932	Flow	8-15-62	D,S	Kd	...	....	....
22cbc	Milo Olstad	35	28	Br	1950	32	.....	D,S	Kp	...	....	....
23acb	Selmer Borg	34	30	Br	1958	26	8-14-62	D,S	Qg	...	2,300	....
24bbb	..do....	29.9	48 x 48	Du	1958	9.74	5-24-62	S,O	Qg	...	....	1,391	
24cdd	Lester Borg	90	6	Dr	....	45	.....	D,S	Qg	...	....	....
26baa	Oscar Olson	40	36	Br	....	....	.....	S	Qg	...	....	....
26bdb	.....	35.0	12	Br	....	21.21	8-15-62	U	Qg	...	....	....
27ebb	Milton Sauer	27	36	..	....	22	.....	D,S	Qal	...	....	....
28abb	Goodwin Gartland	30	30	Du	....	22	.....	D,S	Qal	...	....	....

Rept. flow 5 gpm.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>139-58 (Cont.)</u>													
28ddaa	E. Schermer	700 +	4	Dr	1900	Flow	8-16-62	S	Kd	...	....	....	Rept. flow 2 gpm.
31add	Daryle Pedersen	1,020	1.5	Dr	...	Flow	8-15-62	S	Kd	...	....	....	Rept. flow 8 gpm.
32daal	Herbert Peterson	1,200	3	Dr	1954	Flow	8-13-62	S	Kd	...	6,050	....	Rept. flow 5 gpm.
32daa2	...do....	55	..	Br	....	....	....	D	Qg	...	....	....
35ddc	Test hole 42 BR	29.8	..	Dr	11-59	9.0	11-24-59	U	Qg	22	....	1,295	L.
35ddb	Test hole 14 BR	25.0	..	Dr	8-59	15.8	9-10-59	U	Qg	17	....	1,357	L.
<u>139-59</u>													
2aca	Ole Lovass	30	48 x 48	Du	....	....	....	D,S	Qg	...	....	....
4abb	Vernon Loendorf	52.8	24	Br	....	34.33	8- 8-62	S	Qg	...	....	....
4bca	Kenneth Welken	55	24	Br	....	....	....	D,S	Qg	...	....	....
4cca	.....	36.3	18	Br	....	19.86	5-25-62	D,S	Qg	...	....	....
6dbal	B. H. Kjelland	14	36 x 36	Du	....	....	....	D,S	Qg	...	1,080	....
6dba2	...do....	20	..	..	....	14	....	S	Qg	...	....	....
7aba	J. W. Komrosky	35	..	..	....	....	....	S	Qg	...	....	....
8dcda	Donald Welken	66.3	48 x 48	Du	....	16.48	8- 8-62	S	Qg	...	....	....
9abb	J. J. Jacobson	41	48 x 48	Du	1906	23	....	D,S	Qg	...	....	....
9cac	Carson Kjelland	40	18	Br	....	25	....	D,S	Qg	...	....	....
10aad	.....	29.0	48	Du	....	25.04	8-30-62	D	Qg	...	....	....
11aba	Pederson Bros.	30	48	Du	1958	20	....	S	Qg	...	1,360	....
12acal	H. M. Mortenson	41	..	Du	....	29	....	S	Qg	...	....	....
12aca2	...do....	40	..	Du	....	28	....	S	Qg	...	....	....
13ccc	Test hole 2115	84	5	Dr	1963	....	....	T	Qg	68	....	1,444	L.
14aaa	Paul Peterson	14	24	..	....	8	....	D,S	Qg	...	....	....
14dddl	O. A. Kiser	18	..	Du	....	15	....	S	Qg	...	....	....
14ddd2	...do....	14	..	Du	....	9	....	D	Qg	...	....	....
15acb	Robert Kjelland	18	36	Du	....	8	....	D,S	Qg	...	....	....
16bbb	Carson Kjelland	48	18	Br	1961	33	....	U	Qg	...	....	....
18abb	Emal Axelson	35	..	Du	....	....	....	D	Qg	...	....	....
19abb	.....	28.9	36	Du	....	27.97	8- 8-62	...	Qg	...	....	....
20bed	Julius Axelson	50	24	Br	....	....	....	D,S	Qg	...	415	....
21bbc1	Arnie Kjelland	80	24	Br	....	....	....	D,S	Qg	...	979	....
21bbc2	...do....	47.4	24	Br	....	39.97	1- 1-63	0	Qg	...	....	1,492	

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>139-59 (Cont.)</u>													
22cca	.....	34.1	20	Br	....	24.26	8-30-62	U	Qg	...	....	....	....
23ddc	Harold Kieffert	68	24	Br	1957	60	.....	D,S	Qg	...	1,360	....	....
24eaa	Robert Miller	20.8	36 x 36	Du	....	6.20	8-30-62	U	Qg	...	....	....	....
25ccc	.....	6.3	36 x 36	Du	....	3.32	8-30-62	D,S	Qg	...	....	....	....
26bab	George Pfaff	31	24	Br	....	.....	.....	D,S	Qg	31	.....	1,477	....
30aab	John Rieth, Sr.	60	36	Du	....	58	.....	D,S	Qg	...	508	....	....
30bda	.....	28.1	18	..	....	20.24	8- 8-62	U	Qg	...	....	....	....
32dab	Martin Brentson	37	36 x 36	Du	....	25	.....	D,S	Qg	...	681	....	....
32ddb	Test hole 62 BR	25.0	..	Dr	1-60	5.0	2- 2-62	U	Qg	...	....	1,451	L.
34cbc1	Alfred Brentson	28	..	Du	....	23	.....	D,S	Qg	...	....	....	....
34cbc2	Test hole 2132	63	5	Dr	1963	....	.....	T	Qg	40	....	1,444	L.
34dda	.....	19.4	30 x 30	Du	....	9.01	1- 1-63	O	Qg	...	....	1,420	;
35bdb1	Earling Bjornson	30.3	24	Du	....	16.17	8-30-62	S	Qg	...	....	....	....
35bdb2	.do...	1,800	4	Dr	....	Flow	8-30-62	U	Kd	...	....	....	....
35cca	Test hole 63 BR	25.0	..	Dr	1-60	dry	.....	...	Qg	...	....	1,414	L.
35ddd	Test hole 2116	31	5	Dr	1963	....	.....	T	Qg	9	....	1,395	L.
36dcd	Test hole 10 BR	25.0	..	Dr	8-59	dry	.....	...	Qg	12	....	1,384	L.
<u>139-60</u>													
1cda	A. J. Kjelland	33.2	..	Br	....	13.70	6-20-62	D,S	Qg	...	....	....	....
2acd	Emma Kirbillier	34	..	Du	....	.....	.....	D,S	Qg	...	....	....	....
4bbb	John Wendel	18	24	Du	....	.....	.....	D,S	Qg	...	748	....	....
4ddd	Claire Lettenmaier	57.1	36	Du	....	35.58	6-20-62	S	Qg	...	1,360	....	....
6cbd	Ed Campbell	55	18	Du	1900	35	.....	D,S	Qg	...	1,680	....	....
8aba	Lyle Boughton	65	18	Br	....	45	.....	D	Qg	...	1,140	....	....
9cbc	.....	25.5	48 x 48	Du	....	8.63	12-5-62	O	Qg	...	....	1,468	....
10ccd	Lyle Franklin	55	..	Du	....	.....	.....	D,S	Qg	...	3,610	....	....
11abb	George Pabst	40	..	Br	1955	....	.....	D	Qg	...	2,820	....	....
11cad	Calvin Lettenmaier	50	21	Br	1960	20	.....	D,S	Qg	...	4,080	....	....
14bac	John Wendel	1,365	2	Dr	....	Flow	6-21-62	S	Qg	...	3,350	....	Original flow 60 gpm; C.
15dba	DuWayne Sauer	39	24	Br	1961	29	.....	D	Kp	39	3,710	1,486	C.
16bcc	.....	29.8	24 x 24	Du	....	11.96	6-20-62	U	Qg	...	....	....	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>139-60 (Cont.)</u>													
16bbb	Herbert Brohman	60	24	Br	....	48	.....	D	Qg	...	1,580	....
19ccb	W. D. Campbell	60	22	Br	1960	....	.....	D,S	Qg	...	....	....
20ddb	Sidney Peterson	32	18	Br	1949	15	.....	D,S	Qg	...	....	....
21bbb	Wm. Dassanko	30	48 x 60	Du	....	....	.....	D,S	Qg	...	1,320	....
22aaal	Philip Sauer	52	24	Br	....	....	.....	D	Qg	...	801	....
22aaa2	..do....	1,471	1.2	Dr	1950	Flow	6-21-62	S	Kd	...	3,400	....	Rept. flow 12 to 15 gpm. L.
24bab	Test hole 2138	63	5	Dr	1963	....	.....	T	Qg	51	....	1,475	
26aab	Bernard Berntson	...	18	..	1948	12.54	6-21-62	S	Qg	...	....	....
26bbb	Harland Berntson	18-20	24	Br	....	8-10	.....	D,S	Qg	...	841	....
29dcc	Howard Shape	18-20	..	Du	....	....	.....	D,S	Qo	...	876	....
32ccb	Test hole 2134	63	5	Dr	1963	....	.....	T	Qg	42	....	1,483	L.
32ccb	Orval Shape	...	4	Dr	....	Flow	6-20-62	U	Qg	...	3,550	....
32daa	Test hole 9 BR	25.0	..	Dr	8-59	dry	.....	...	Qg	...	....	1,465	L.
32ddd	.....	18.6	24	..	....	16.86	6-20-62	U	Qo	...	....	....
33aad	F. Brix	...	18	Br	....	24.63	6-21-62	U	Qg	...	....	....
33aba	.....	47.0	30	Du	....	34.37	1-1-63	O	Qg	...	....	1,513	
34cab	Test hole 32 BR	30.0	..	Dr	10-59	12.2	10-30-59	U	Qg	...	....	1,470	L.
34dda	Test hole 2133	53	5	Dr	1963	....	.....	T	Qg	37	....	1,480	L.
34cba	Test hole 31 BR	30.0	..	Dr	10-59	11.1	11-2-59	U	Qg	...	....	1,469	L.
35bbc	Richard Gunn	22	48 x 48	Du	1940	17	.....	U	Qg	...	....	....
35cab	Test hole 33 BR	29.98	..	Dr	11-59	6.9	11-13-59	U	Qg	...	....	1,468	L.
35daa	Test hole 34 BR	34.55	..	Dr	11-59	6.5	11-4-59	U	Qg	34	....	1,462	L.
36dab	Test hole 35 BR	34.2	..	Dr	11-59	6.7	11-24-59	U	Qg	33	....	1,461	L.
<u>139-61</u>													
2aaa	Clayton Diemert	60 - 65	24	Du	....	55-60	.....	D,S	Qg	...	....	....
2cba	Simon Hirschberger	60	36 x 36	Du	....	....	.....	D,S	Qg	...	....	....
4abb	Roger Schaffer	60	36	Du	....	40	.....	D,S	Qg	...	1,340	....
7aaa	Test hole 1597	168	5	Dr	1960	....	.....	T	Qg	159	....	1,472	L.
8bbb	Lester Holden	46.0	28	Br	1950	33.0	7-11-61	D,S	Qg	...	....	1,462	
10bcal	Ed Altringer	195	4	Dr	1961	43	.....	S	Kp	147	5,760	1,490	L.
10bca2	Ed Altringer	40	..	Du	....	....	.....	D	Qg	...	2,930	....
10cac	Jerome Franklin	55	24	Br	....	48.9	7-15-62	D,S	Qg	...	....	1,490	

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>139-61 (Cont.)</u>													
11bbb	Simon Hirschberger	30.0	30	Br	1958	5.66	12-2-62	O	Qg	...	.....	1,464	
12bbb	Nathalie Jones	34.2	36	Br	....	20.8	7- 8-61	D,S	Qg	...	.....	1,460	
12cbd	Clayton Diemert	31.6	48	Du	1957	18.92	5-16-62	S	Qg	...	.....
12ddc	.....	36.2	..	Du	....	31.08	5-16-62	U	Qg	...	.....
15bba	L. Hoffart	42.0	24	Br	....	31.6	7-15-61	D,S	Qg	...	.....	1,486	
18dbc	.....	33.3	24	Du	....	20.92	5-16-62	U	Qg	...	.....
19ccd	.....	29.7	24	Br	....	6.75	5-16-62	U	Qg	...	.....
20aaa	John Clark	48.0	24	Br	1956	26.92	5-16-62	D,S	Qg	...	.....
21ccb	Rubin Harshman	19	26	Du	....	9	.....	D,S	Qg	...	.....	1,496	
22add	Frank Hiames	33	30	Du	1920	23	.....	S	Qg	...	.....	1,450	
22ccd	.....	33.9	30	Br	....	15.37	12-5-62	O	Qg	...	.....	1,488	
23aaa	E. A. Hirschberger	33.3	36	Du	1930	16.4	7- 8-61	D,S	Qg	...	.....	1,471	
23daa	Frank Hiames	27	36	Du	1953	22	.....	D	Qg	...	.....	1,470	
25adal	Don Campbell	45	28	Br	1956	28	.....	D,S	Qg	...	.....	1,471	
25adcl2	..do....	40	36	Du	1937	16	.....	D,S	Qg	...	.....	1,471	
26aba	D. C. Campbell	30	..	..	1950	23	.....	...	Qg	...	.....	1,480	
27ddb	.....	140	3	Dr	....	16	.....	D,S	Qg	...	.....	1,454	
30abb	T. Campbell	50	..	..	....	40	.....	...	Qg	...	.....	1,479	
30dbd	Henry Tabbert	90	6	Br	....	50	.....	D,S	Qg	...	580	.....
31dad	.... Larson	...	..	Du	1922	20	.....	D,S	Qg	...	.....	1,449	
32bab	.....	36.3	18	Br	....	20.37	5-16-62	S	Qg	...	.....
32ccd	Glen Peterson	44.6	24	Br	1917	25.0	7- 6-61	D,S	Qg	...	.....	1,457	
33bab	.....	30.4	36 x 36	Du	....	20.45	5-16-62	U	Qg	...	.....
33daa	Test hole 7 BR	30.0	..	Dr	8-59	.....	.....	U	Qg	...	.....	1,462	L.
34bbb	Darrell Hansen	60.0	36	Du	....	47.0	7-15-61	D,S	Qg	...	.....	1,450	
34daa	Test hole 30 BR	25.0	..	Dr	10-59	6.7	11-3-59	U	Qg	...	.....	1,450	L.
34dcbl	E. A. Tabbert	14.4	4	Dr	....	.....	.....	U	Qg	...	.....
34dcb2	..do....	50	..	..	....	30	.....	D	Qg	...	.....	1,452	
34dcb3	..do....	117.2	5	Dr	....	21.58	6-23-61	U	Qg	...	.....	1,452	
35ead	Clayton Diemert	48.3	..	..	....	41.9	7- 8-61	S	Qg	...	.....
36ebb	Test hole 8 BR	30.0	..	Dr	8-59	10.2	8-26-59	U	Qg	...	.....	1,471	L.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>140-56</u>													
1ddd	Harold Carlson	20.2	48	Du	1940	7.1	7- 5-62	S	Qg	...	...	...	...
2bab	Mari Collins	365	48	Dr	1956	9	.....	S	Kp	...	...	...	...
2dcc	Jerald Smith	40	36	Br	....	25	.....	D,S	Qg	...	...	...	...
4ccc	.....	26.8	..	..	....	25.00	7- 5-62	U	Qg	...	...	...	...
7eba	Louis Yanish	41.8	48	Du	1938	18.50	7- 5-62	S	Qg	...	...	...	...
7ddc	Ed Temke	21.3	48	Du	....	10.30	7- 5-62	U	Qg	...	...	...	...
8cba	.....	28.9	24	Br	....	9.04	7- 5-62	U	Qg	...	1,320	...	...
8dccl	Herb Utke	24	48	Du	1933	14	7- 6-62	D	Qg	...	...	...	...
8dcc2	..do....	1,030	..	Dr	....	Flow	7- 6-62	...	Kd	...	...	...	...
8dcc3	Herb Utke	110	..	Dr	....	.....	.....	...	Qg	107	....	1,249	L.
9bbc	Edwin Carl	38.6	48	Du	....	12.27	7- 5-62	S	Qg	...	...	...	...
10aab	Ed Lang	..	..	Dr	1954	Flow	7- 5-62	S	Qg	...	...	...	...
10ddd	Roy Swanke	880	4	Dr	1938	8	.....	D,S	Qg	...	...	...	...
11dda	Dave Smith	20	36	Br	....	13	.....	D,S	Qg	...	3,810	...	...
13ddc	Harold DePue	18	18	Br	....	10	.....	D	Qg	...	...	...	...
14cdc	A. C. Stringer	1,080	4	Dr	1959	Flow	7- 5-62	D,S	Qg	...	...	...	Rept. flow 10 gpm
15eccd	.....	35.2	42 x 42	Du	....	7.13	12-4-62	O	Qg	...	...	...	1,197
16ccc	Frank Hoffmeyer	28.0	24	Br	1958	9.93	7- 6-62	S	Qg	...	...	...	...
17ccc	Test hole 2153	105	5	Dr	1963	....	.....	T	Qg	93	....	1,254	L.
17dac	Glen Houser	32	22	Br	....	18	.....	S	Qg	...	...	...	...
18aad	Clifford Trader	27.0	48	Du	1932	11.20	7- 5-62	U	Qg	...	...	...	...
18cad	Carl Trader	24	36	Br	1951	12	.....	D,S	Qg	...	...	...	...
19ccb	.....	20.3	48	Du	....	8.20	7- 6-62	S	Qg	...	7,320	...	...
19cdd	Frank Heinze	12.5	48	Du	1958	8.34	7- 5-62	S	Qg	...	...	...	...
20dbb	Frank Peleman	20	48	Du	1938	10	.....	D,S	Qg	...	...	...	...
22ddc	.....	47.9	48	Du	....	4.46	7- 5-62	U	Qg	...	...	...	...
24add	G. L. Cowen	21.7	24	Br	1958	4.41	7- 5-62	S	Qg	...	...	...	...
25daa	Louis Blaine	40	24	Br	1917	20	.....	S	Qg	...	...	...	...
26aac	O. L. Otterness	17.3	48	Du	....	7.46	7- 9-62	S	Qg	...	...	...	...
26bad	Durward Otterness	50	24	Br	....	.....	.....	D,S	Qg	...	...	...	...
27abcl	Charles Measer	26.6	18	Br	....	4.90	7- 9-62	D	Qg	...	...	...	...
27abc2	..do....	800	..	Dr	....	Flow	7- 9-62	S	Kd	...	...	...	...

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>140-56 (Cont.)</u>													
28cab	Arthur Storbeck	37.7	36	Br	....	22.69	7- 6-62	S	Qg	...	2,610	.....
29cbc	Max Hammer	23.2	48	Du	....	12.60	7- 6-62	S	Qg	...	.....	.....
30cbc	Martin Yanish	29	28	Br	1948	14	.....	D,S	Qg	...	.....	.....
30ddaa	Olaf Olson	27	48	Du	....	15	.....	S	Qg	...	3,330	.....
32ddd	Joe Baumgartner	20.9	24	Br	1955	7.60	7- 6-62	D,S	Qg	...	.....	.....
35ddd	Elmer Richman	1,100	4	Dr	1959	Flow	7- 9-62	D,S	Kd	...	.....	.....	Rept. flow 4 gpm.
<u>140-57</u>													
1cd2	John Lonski	24	48 x 48	Du	....	10	.....	S	Qg	...	.....	.....
1daa	Oscar Loken	20.4	18	Br	....	10.85	7-17-62	S	Qg	...	.....	.....
2dc2	Louis Rohde	20.6	48 x 48	Du	....	5.81	7-20-62	S	Qg	...	.....	.....
4ada	Lena Marshall	150	4	Dr	....	45	.....	S	Qg	...	.....	.....
4bbd	.....	130.5	4	Dr	....	98.8	7-20-62	U	Qg	...	.....	.....
5baal	Alice Noeske	72	24	Br	....	37	.....	S	Qg	...	874	.....
5baa2	do....	135	..	Dr	....	.....	.....	D	Qg	...	.....	.....
7aaa	H. S. Triebold	80	4	Dr	....	23	.....	D,S	Qg	...	1,350	.....
7ccc	Wm. Schulz	60	4	Dr	1924	52	.....	D	Qg	...	.....	.....
8ccb	H. S. Triebold	70	3	Dr	1925	22	.....	D,S	Qg	...	.....	.....
8cdc	Harry Holm	100	4	Dr	1957	90	.....	D,S	Qg	...	.....	.....
10dad	.....	50.6	24	Br	....	5.59	12-4-62	O	Qg	...	.....	1,351	
12ccc	Theo. Trautman	36	24	Br	1947	.5	7-20-62	S	Qg	...	.....	.....
14bbb	P. A. Noeske	55	32	Br	....	20	.....	D,S	Qg	...	.....	.....
14bdc	Robert Messner	89	24	Br	1929	14	.....	D,S	Qg	...	1,930	.....
16cca	Walter Hone	24.2	48 x 48	Du	....	10.24	7-19-62	D,S	Qg	...	.....	.....
16dca	.....	27.2	48 x 48	Du	....	18.16	5-23-62	U	Qg	...	.....	.....
17ddc	H. T. Triebold	120	3	Dr	1925	.....	.....	D,S	Qg	...	.....	.....
18bcc	Emil Lorenz	24	32	Du	1950	8	.....	S	Qg	...	.....	.....
18dcc1	E. L. Speicher	72	4	Dr	1961	37	.....	D,S	Qg	72	.....	1,393	
18dcc2	do....	28.0	30	Br	1950	9.54	7-20-62	U	Qg	...	.....	.....
20aaa	Test hole 2154	168	5	Dr	1963	....	.....	T	Qg	150	.....	1,430	L.
20baa	Bernice Melme	48	18	Dr	1955	31	.....	D	Qg	...	.....	.....
22cbc	Vernon Triebold	115	4	Dr	1959	52	.....	D,S	Qg	...	.....	.....
22cdb	do....	80	..	Br	....	.....	.....	S	Qg	...	.....	.....
22dca	Lura Ertelt	85	36	Br	1932	55	.....	D,S	Qg	...	.....	.....
25bba	Harvey Ertelt	22	8	Br	1954	9	.....	D	Qg	...	.....	.....
26daa	Joe Schneider	28	36	Br	1957	18	.....	U	Qg	...	.....	.....
27aac	J. J. Ertelt	81	24	Br	1954	35	.....	S	Qg	...	.....	.....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>140-57 (Cont.)</u>													
28abc	Ida Helfeld	157	3	Dr	1957	78	.....	D,S	Qg	...	1,270	....
28cbc	Burle Lee	195	4	Dr	1949	115	.....	D,S	Qg	...	....	....
28dae	Paul Hammig	90	..	Dr	1956	38	.....	D,S	Qg	...	....	....
29bbb	Albert Lewellyn	56.3	24	Br	1958	27.73	7-19-62	U	Qg	...	....	....
30abb	Ed Erteld	24	30	Br	1902	16	.....	S	Qg	...	....	....
30ccc	Bertran Bros.	27	48 x 48	Du	1922	22	.....	D,S	Qg	...	....	....
32ddd	C. J. Ertelt	120	30	Br	1918	113	.....	D,S	Qg	...	....	....
33baa	James Kunze	100	24	Dr	1906	88	.....	D,S	Qg	...	....	....
35aaa	Walter Winkler	92	48 x 48	..	1896	20	.....	D,S	Qg	...	....	....
35ccc	Wm. Winkler Estate	100	30	Br	1912	83	.....	D,S	Qg	...	3,270	....
<u>140-58</u>													
1cbb	Melvin Zaun	28	48 x 48	Du	....	14	.....	D	Qg	...	....	....
2aad	Anley Gray	18.0	48 x 48	Du	....	6.39	8-17-62	S	Qg	...	....	....
2ccd	Sherril Stanford	31.5	42 x 42	Du	....	10.27	8-17-62	U	Qg	...	....	....
3add	Earl Stanford	28	42 x 42	Du	1947	21	.....	D,S	Qg	...	....	....
3cdc	Conrad Weber	30	48	Br	1950	22	.....	D,S	Qg	...	1,610	....
4baa	Harold Staub	12	48 x 48	Du	....	.....	.....	D,S	Qg	...	1,484	....
4ccc	John Morgan	28	42	Du	1939	10	.....	D,S	Qg	...	....	....
5cac	Carlson Bros.	14	36	Du	1952	6	.....	D,S	Qg	...	1,400	....
5cca	Roy Kernkamp	12	8	Br	1942	8	.....	D,S	Qal	...	....	....
6acd	Phillip Morgan	12	48 x 48	Du	....	7	.....	D,S	Qg	...	....	....
6cdb	A. E. Arndt	18	24	Br	1950	6	.....	D,S	Qal	...	1,650	....	C.
8daa	Convent No. 2	57	5	Dr	1963	.....	.....	T	Qg	45	....	1,360	L.
8dac	Convent No. 3	62	5	Dr	1963	.....	.....	T	Qg	53	....	1,264	L.
8dad	Test hole 2099	63	5	Dr	1962	.....	.....	T	Qg	26	....	1,246	L.
8dcb	Convent No. 1	87	5	Dr	1963	.....	.....	T	Qg	82	....	1,228	L.
9cbb	Ralph Pomeroy	18	2	Dr	1942	.....	.....	D,S	Qal	...	....	....
11cab1	Stewart Herzberg	950	4	Dr	1961	100	.....	D,S	Qg	...	....	....
11cab2	...do....	1,240	..	Dr	....	Flow	8-17-62	S	Qg	...	....	....
12bbb	F. J. Clancy	46.6	42	Br	....	23.92	8-17-62	D	Qg	...	....	....
12ccc	W. R. Schroeder	28	30	Du	1942	21	.....	S	Qg	...	4,510	....
12dba	Wilbur McGuire	15	36	Br	....	.....	.....	S	Qg	...	....	....
18acb	Pauline Reid	25	36	Br	1942	....	.....	D,S	Qg	...	....	....
18ccd	John Heimes	23.2	24	Br	....	13.89	8-16-62	D	Qg	...	....	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
140-58 (Cont.)														
20bab	Jeanette Manstrom	47	..	..	1935	32	.....	D,S	Qg	..	642	....	
21aab	Test hole 2155	32	5	Dr	1963	.....	T	Qo	18	....	1,282	L.	
21aad	Test hole 2156	63	5	Dr	1963	.....	T	Qo	51	....	1,237	L.	
21bbd	.....	48.4	..	..	20.6	12-4-62	O	Qg	..	....	1,365		
21dad	Test hole 2 SP	63	5	Dr	1963	16.01	6-20-63	T	Qal	60	1,218	C; L.	
21dda	Test hole 3 SP	74	5	Dr	1963	.....	T	Qal	68	....	1,217	L.	
21ddd	Test hole 1 SP	84	5	Dr	1963	.....	T	Qal	72	....	1,222	L.	
22bcc	City of Valley City	42	36	Dr	.....	.....	PS	Qal	..	....	1,224	L.	
22bdd	Test hole 2157	84	5	Dr	1963	.....	T	Qal	70	....	1,223	L.	
22bbc	Test hole 4 SP	74	5	Dr	1963	.....	T	Qal	70	....	1,221	L.	
22cbd	Test hole 5 SP	74	5	Dr	1963	.....	T	Qal	65	....	1,221	L.	
24bbb	Byron Metcalf	30	36	Du	1939	.....	S	Qg	..	....	....
24ddb	Joe Scully	30	36	Br	1959	.....	D,S	Qg	..	....	6,620		
26dba	Ed Gasman	26	48	Br	1942	16	.....	S	Qg	..	707		
28ced	Richard Chill	20	36	Br	.....	.....	D,S	Qal	..	....	3,680		
29bba	Harold Thompson	60	36	Br	1937	.....	D,S	Qg	..	....	3,750		
29cbb	Bel Air Motel	60	6	Dr	.....	.....	PS	Qg	..	....	....	C.	
30caa	Gordon Walker	45	36	Br	1952	42	.....	D	Kp	..	....	
31bda	Ralph Tate	800 +	2	Dr	.....	Flow	8-16-62	S	Kd	..	....	
33bca	Chauncey Nelson	17	30	Du	1960	15	.....	D	Qal	..	....	
34add	Dr. Van Houten	12.6	36	Br	.....	4.84	8-15-62	U	Qg	..	....	
34ccb	P. Charnetzki	840	2	Dr	1940	Flow	8-16-62	D,S	Kd	..	6,040			
35bbc	Nickolas Pollack	23.3	30	Br	.....	10.94	8-17-62	S	Qg	..	....	
140-59														
2bab	Sophie Faust	27	24	Br	....	24.5	.....	D,S	Qg	..	1,660	....	
2ddb	.....	26.2	48 x 48	Du	....	11.50	8- 3-62	S	Qg	..	....	....
4bdd	Franklin Schug	1,200	4	Dr	1932	Flow	8- 2-62	S	Kd	..	4,020	....	Meas. flow 1.5 gpm.
4ddb	..do....	34	36	Du	....	16	.....	D	Qg	..	4,240	....	
8acc	Marcus Faust	1,200	4	Dr	....	Flow	8- 3-62	S	Kd	..	2,840	....	
9bcd	..do....	25	24	Du	....	18	.....	D	Qg	..	2,210	....	
10abb	Lyren Davies	18	24	Br	....	10	.....	D	Qg	..	....	
10cac	Minnie Anderson	34.9	30	Du	....	7.98	8- 3-62	U	Qg	..	....	
11dad	Quinn Wall	32.7	36 x 36	Du	....	12.83	8- 7-62	U	Qg	..	....	
12ddd	A. J. Clancy	20	48 x 48	Du	....	.....	.....	S	Qg	..	....	
13bbb	.....	31.7	24 x 24	Du	....	4.74	8- 7-62	U	Qg	..	....	

(1) <u>140-59</u>	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>(Cont.)</u>													
1bddd	Nick Gesselchin	16	30	Du	....	4	.....	D,S	Qg	...	1,070	....
15bdb	Ben Lockwood	90	4	Dr	....	....	.....	U	Qg	...	2,330	....
16dbc	Glen Schlotman	26	24	..	....	20	.....	S	Qg	...	1,940	....
17dca	Leonard Peterson	42	30	Du	....	25	.....	S	Qg	...	....	....
18add	Don Gulman	22.5	30	Br	1950	6.00	8- 2-62	S	Kp	22	10,300	1,431	
20cbb	Melvin Skogen	22	24	Br	....	12	.....	D,S	Qg	...	2,920	....
22abd	Lawrence Munson	27.7	48 x 48	Du	....	20.94	8- 7-62	S	Qg	...	....	....
23aab	Nick Gesselchin	35	..	Du	....	....	.....	S	Qg	...	....	....
23bab	Grean Northern Railroad	18.8	60 x 60	Du	....	6.40	12-4-62	O	Qg	...	....	1,422	
24aaa	Frank Cook	45	36	Du	....	30	.....	D	Qg	...	562	....	C.
24bbb	Test hole 2113	273	5	Dr	1963	....	....	T	Qg	265	....	1,428	L.
26baa	Donald Foss	1,200 +	3	Dr	....	Flow	8- 7-62	D	Kd	...	3,900	....
27dbal	Sam Hill	14	24 x 24	Du	....	10	.....	D	Qg	...	1,260	....
27dbas2	...do....	20	..	..	....	....	.....	S	Qg	...	2,060	....
30baa	Martin Brock	63	..	Br	1952	8	.....	S	Kp	30	9,030	1,435	
30dad	Fred Zaun	18	24	Br	1961	8	.....	D	Qg	...	1,350	....
32bbb	Ed Komrosky	75	..	Br	....	....	.....	D,S	Qg	...	2,510	....	C.
33aaa	Stuart Hazlett	40	36	Du	....	....	.....	D,S	Qg	...	....	....
34abc	Elmo Kvistlen	28	24	Br	1961	3	.....	U	Qg	...	....	....
35bed	Lloyd Anderson	1,335	4	Dr	1962	Flow	8- 8-62	S	Kd	...	3,590	....	Rept. flow 65 gpm.
35bdc	...do....	120	..	..	1962	115	.....	D	Kd	...	....	....
35ddc	Test hole 2114	168	5	Dr	1963	15.02	4-30-63	T,O	Qg	150	....	1,450	C; L.
36aaal	Gus Hoffman	11	32	Du	....	7	.....	D	Qg	...	2,020	....	C.
36aae2	...do....	..	..	Sp	....	Flow	8- 8-62	S	Qg	...	1,260	....	C.
36bbb	Joe O'Brien	26	24	Br	....	9	.....	D,S	Qg	...	....	....
<u>140-60</u>													
1ccc	Test hole 1712 S	42	5	Dr	1960	....	.....	T	Qg	32	....	1,434	L.
1cdd	P. D. Wright	30	1.5	Du	....	20	.....	D,S	Qg	...	....	....
2bcc	Clark Scoular	22.9	1.5	Du	....	15.1	7-22-60	U	Qg	...	....	....
2dcc1	P. A. Hansen	32	..	Br	1954	18	.....	D	Kp	32	....	1,442	
2dcc2	...do....	28	..	Du	....	20	.....	D,S	Qg	...	....	....
3adal	Clark Scoular	39	1.5	Br	1957	22	.....	D,S	Qg	...	....	....
3ade2	...do....	24	1.5	..	....	20	.....	S	Qg	...	....	....
3dad	Emil Koebernick	28	1.5	Du	1960	20	.....	D,S	Qg	...	....	....
4add	Jacob Hanenberg	30	..	Du	....	23.0	7-22-60	D,S	Qg	...	....	....
4ccd	Bernard Hanenberg	32	1.5	Du	....	20	.....	D,S	Qg	...	....	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>140-60 (Cont.)</u>													
6bed	.....	41.5	18	Br	....	15.49	6-11-62	U	Qg	...	....	....	....
9cdc	.....	30.4	24	Br	....	25.46	5-31-62	O	Qg	...	....	1,458	L.
9das	Test hole 1717 S	63	5	Dr	1960	....	....	T	Qg	42	....	1,446	
10cab	Herbert Karger	27	18	Du	....	12	....	S	Qg	...	....	....
10cba	..do....	26	1.5	Du	1902	22	....	S	Qg	...	....	....
10ddc	James Kromebusch	24	1.5	Du	....	14	....	D,S	Qg	...	....	....
11ccb	Test hole 1716 S	42	5	Dr	1960	....	....	T	Qg	20	....	1,440	L.
11ccci	Math Kromebusch	28	1.5	Du	1940	20	....	S	Qg	...	....	....
11ccc2	..do....	22	..	Du	1956	17	....	D	Qg	...	....	....
11cccd	Test hole 1715 S	52	5	Dr	1960	....	....	T	Qg	41	....	1,437	L.
11dad	Test hole 1710 S	126	5	Dr	1960	....	....	T	Qg	116	....	1,425	L.
12ddd	Marie Gill	32	1.5	Du	....	24	....	D,S	Qg	...	....	....
13baa	Test hole 1711 S	42	5	Dr	1960	....	....	T	Qg	26	....	1,435	L.
13bcc	Neils Myhre	35	1.5	Du	....	26.3	7-23-60	D,S	Qg	...	....	....
13dcc	Test hole 1713 S	31	5	Dr	1960	....	....	T	Qg	20	....	1,433	L.
14ada	Test hole 1709 S	42	5	Dr	1960	....	....	T	Qg	34	....	1,429	L.
14bad	R. Behrendt	37	1.5	Du	....	6	....	D,S	Qg	...	....	....
14bcc	L. W. Anderson	25	..	..	....	....	....	...	Qg	...	....	....
14cbal	City of Sanborn	24	120	Du	....	15	....	PS	Qg	...	....	....
14cba2	Test hole 1704 S	63	5	Dr	1960	....	....	T	Qg	57	....	1,447	L.
14dcc	Test hole 1714 S	126	5	Dr	1960	....	....	T	Qg	118	....	1,435	L.
15aad	Ray Schoessling	36	..	Br	....	20	....	D,S	Qg	...	....	....
15aca	Test hole 1723 S	52	5	Dr	1960	....	....	T	Qg	39	....	1,456	L.
15adc	Ray Schmitt	32	..	..	....	....	....	...	Qg	...	....	....
15bbb	Test hole 1722 S	52	5	Dr	1960	....	....	T	Qg	34	....	1,450	L.
15bdd	Test hole 1705 S	52	5	Dr	1960	....	....	T	Qg	43	....	1,457	L.
16edd	Test hole 1719 S	42	5	Dr	1960	....	....	T	Qg	36	....	1,442	L.
16dab	Russel Cramer	44	1.5	Br	1960	24	....	D,S	Qg	...	....	....
17dda	R. M. Swenson	20	24	Br	1952	....	....	D	Qg	...	....	....
18bdd	Alfred Holden	50	24	Br	....	13	....	S	Qg	...	1,460	....
18dda	Test hole 1720	105	5	Dr	1960	....	....	T	Qg	95	....	1,400	L.
20acc	.....	36	36 x 36	Du	....	21.28	5-31-62	S	Qg	...	....	....
20cccd	Harold Noecker	63	24	Br	1952	....	....	D	Qg	...	1,240	....
20ddb	Wilford Wendel	...	18	Br	1952	20	....	D	Qg	...	2,320	....
21ddda	Dora Hansen	35	1.5	Du	1920	9	....	D,S	Qg	...	....	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>140-60 (Cont.)</u>													
21ddd	Test hole 1718 S	63	5	Dr	1960	.....	.....	T	Qg	56	.....	1,458	L.
22aaa	E. J. Wagner	22	36	Du	1952	19	.....	D	Qg	...	.....	.....
22aad1	..do....	21	36 x 36	Du	1960	18	.....	S	Qg	...	.....	.....
22aad2	..do....	20	24	Du	1946	15	.....	D	Qg	...	.....	.....
22adal	Alice D. Wagner	24	1.5	Du	1947	20	.....	D,S	Qg	...	.....	.....
22ada2	..do....	18.7	1.5	Du	....	14.1	7-22-60	S	Qg	...	.....	.....
22baa	Test hole 1706 S	52	5	Dr	1960	.....	.....	T	Qg	30	.....	1,456	L.
22daal	E. J. Wagner	15	1.5	Du	1946	12	.....	D,S	Qg	...	.....	.....
22daa2	..do....	20	1.5	Du	....	17	.....	S	Qg	...	.....	.....
23add	Test hole 1708 S	63	5	Dr	1960	.....	.....	T	Qg	51	.....	1,418	L.
23bab	Roy Noecker	22	1.5	Du	1915	19	.....	D,S	Qg	...	.....	.....
23ccb	Test hole 1707 S	52	5	Dr	1960	....	.....	T	Qg	32	.....	1,437	L.
21cbd	Clarence Olson	40	1.5	Du	....	30	.....	D,S	Qg	...	.....	.....
25caa	V. E. Dahl	47	1.5	Du	....	32	.....	D,S	Qg	...	.....	.....
26bab1	Earl Noecker	29	36	Du	1942	23	.....	D,S	Qg	...	.....	.....
26bab2	..do....	32.0	24	Du	....	19.4	7-22-60	S	Qg	...	.....	.....
27aaa	Edna Miller	26	1.5	Br	....	16	.....	D,S	Qg	...	.....	.....
27daa	Simon Stroh	12	..	Du	1934	6	.....	U	Qg	...	.....	.....
28aac	Pete Schwehr	25	1.5	Du	1956	22	.....	D,S	Qg	...	.....	.....
32ccb	Mike Harstad	60	24	Br	1961	18	.....	D,S	Kp	60	1,930	1,463	
35cbc	Roy Artis	30	..	Br	1960	18	.....	D	Qg	...	2,120	.....
<u>140-61</u>													
2adcc	Vernon Klein	23.2	..	Du	1950	16.0	7-19-61	D,S	Qg	...	.....	1,450	
2ddcc	Frank Conlin	48	..	Br	1910	27.0	7-19-61	D,S	Qg	...	.....	1,452	
6acd	Edna Davis	32	36	Du	1936	26.0	7-20-61	D,S	Qg	...	.....	1,485	
6abb	Harvey Harrison	48	48	Du	1946	38	.....	D,S	Qg	...	.....	1,516	
8ecd	.....	42.6	..	Du	....	25.68	5-15-62	U	Qg	...	.....	.....
9cccd	Charles Flynn	39.0	48	Du	1918	25.0	7-20-61	D,S	Qg	...	.....	1,495	
11ddd	Harry Didier	90	24	..	1930	39	.....	D,S	Qg	...	.....	1,463	
14cccd	James Klein	56.0	36	Du	....	45.0	7-20-61	U	Qg	...	.....	1,454	
16ccc	Test hole 1596	147	5	Dr	1960	....	.....	T	Qg	140	.....	1,461	L.
16dcc	.....	51.1	12	Br	....	38.46	5-15-62	U	Qg	...	.....	.....
17ced	M. B. Conley	18.0	..	Br	....	10.0	8- 4-61	...	Qg	...	.....	1,377	
18ada	Test hole 1595	252	5	Dr	1960	....	.....	T	Qg	245	.....	1,463	L.
19baa	.....	26.6	16	Br	....	16.02	12-6-62	O	Qg	...	.....	1,464	

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>110-61</u> (Cont.)													
19bbb	Test hole 2137	483	5	Dr	1963	.....	.....	T	Qg	142	.....	1,466	L.
19daa	Wes Conley	55	36	Du	1950	33.14	5-15-62	D,S	Qg	...	980	....
20cba	E. Knutson	36	..	..	....	28.0	8- 4-60	...	Qg	...	....	1,379	
21ccb	.....	36 x 48	5	Du	....	21.69	5-15-62	...	Qg	...	....	....
22aab	Test hole 1721	105	24 x 24	Dr	1960	.....	.....	T	Qg	89	.....	1,431	L.
22bbc	.....	51.6	24 x 24	Du	....	43.13	12-6-62	0	Qg	...	....	1,482	
24dcb	.....	59.9	24	Br	....	46.59	5-15-62	U	Qg	...	....	....
26aaa	Alvin Berg	93	30	Br	1956	63	.....	D,S	Qg	...	....	....
26ccc	.....	33.7	36	Du	....	23.09	5-15-62	U	Qg	...	....	....
26dad	..do....	65	36	Du	1910	40	.....	D,S	Qg	...	1,660	....
31aab	.....	41.1	..	Du	....	25.58	5-15-62	U	Qg	...	2,000	....
31adb	E. Klein No. 2	350	5	Dr	1962	.....	.....	T	Qg	330	....	1,460	L.
31bcd	E. Klein No. 1	265	5	Dr	1962	.....	.....	T	Qg	262	....	1,450	L.
31cda	E. Klein No. 4	310	5	Dr	1963	28.86	9-26-63	T	Qg	305	....	C; L.	
31cdb	E. Klein No. 3	375	5	Dr	1963	28.18	9-24-63	T	Qg	370	....	L.	
31dcal	E. Klein No. 5	205	5	Dr	1963	21.84	9-25-63	T	Qg	...	....	C; L.	
31dca2	E. Klein No. 7	200	5	Dr	1963	.....	.....	T	Qg	...	....	L.	
31dca3	E. Klein No. 8	195	16	Dr	1963	26.31	9-27-63	Irr	Qg	...	....	C.	
31dada	E. Klein No. 6	210	5	Dr	1963	20.74	9-26-63	T	Qg	...	....	C; L.	
32dcb	Maurice Gullickson	30.6	18	Br	1950	24.49	5-15-62	D	Qg	...	....	....
34ebb	H. J. Didier	...	48 x 48	Du	....	45.19	5-15-62	U	Qg	...	....	....
35ddd	Gavis Hesch	65.0	..	Du	1917	34.0	7-20-61	D,S	Qg	...	....	1,472	
<u>111-56</u>													
1dad	Perry Stowman	14.8	36	Du	1945	4.55	7- 5-62	S	Qg	...	....	....
3bba	.....	31.4	36	Du	....	7.57	7- 5-62	S	Qg	...	....	....
3ddc	Victor Swanson	15	48 x 48	Du	....	1.28	7-10-62	U	Qg	...	....	....
4aaa	Fred Gage	13.5	33	Br	1961	1.27	7- 5-62	...	Qg	...	....	....
4bbb	John Kappel	36	48 x 48	Du	....	21	.....	S	Qg	...	571	....	C.
8aba	Harry Lentz	30.3	48 x 48	Du	....	14.52	7- 5-62	S	Qg	...	....	....
9aaa	Art Fochiem	59.7	24	Br	....	12.23	7- 6-62	D	Qg	...	....	....
9cbb	Roy Griffiths	56	..	Du	1930	15	.....	S	Qg	...	....	....
11bab	Melvin Loken	34	24	Br	1938	15	.....	D,S	Qg	...	....	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
141-56 (Cont.)													
12add	.....	28. <u>h</u>	48 x <u>h</u> 8	Du	....	10.85	7-10-62	U	Qg	...	....	670	....
12bbal	Victor Swanson	875	<u>h</u>	Dr	1957	35	.....	S	Kd	...	....
12bba2	..do....	20	..	Br	....	10	.....	U	Qg	...	....
13baa	Dwane Yokom	31	<u>h</u> 8 x <u>h</u> 8	Du	....	25	.....	D,S	Qg	...	....
14abb	.....	21.5	36	Br	....	7.09	7- 9-62	S	Qg	...	....
16bbb	Test hole 2151	126	5	Dr	1963	.....	.....	T	Qg	110	.....	1,272	L.
17dad1	Walter Kraus	30	<u>h</u> 8	Du	1912	12	.....	S	Qg	...	....
17dad2	..do....	75	..	Br	....	.....	.....	U	Qg	...	....
18aaa	.....	2 <u>h</u> .2	30	Br	....	10. <u>h</u> 0	7- 6-62	S	Qg	...	....
18ccb	.....	15. <u>h</u>	<u>h</u> 2	Br	....	3.50	7- 9-62	U	Qg	...	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>141-56 (Cont.)</u>													
19dcc	.....	23.4	48 x 48	Du	....	0	7-10-62	U	Qg	...	....	....	....
20ddd	John Gill	18.0	36	Br	....	5.98	7- 9-62	S	Qg	...	....	....	....
22bcb	E. G. Larson	30	30	Br	1947	25	.....	S	Qg	...	....	....	....
22cdcl	.....	24.1	48	Du	....	11.13	12-4-62	O	Qg	...	....	1,244	....
22cdc2	.....	44.1	48	Du	....	12.02	7- 9-62	U	Qg	...	....	....	....
23ads	Glenn McClafflin	65	48 x 48	Du	....	20	.....	D,S	Qg	...	....	....	....
23bbc1	M. S. Henderson	984	6	Dr	1950	50	.....	S	Kd	...	....	....	....
23bbc2	..do....	15	42	Du	1956	8	.....	D	Qg	...	....	....	....
24cdd	Lloyd Pederson	31	36	Du	....	21	.....	D,S	Qg	...	....	....	....
25cdd	.....	32.5	36	Br	....	9.18	7- 6-62	U	Qg	...	....	....	....
28daa	Grace Bowen	21.1	48 x 48	Du	....	9.86	7- 9-62	D,S	Qg	...	....	....	....
29daa	.....	55.4	48 x 48	Du	....	8.13	7- 9-62	U	Qg	...	....	....	....
31add	Chas. Trader	32	44	Du	1934	22	.....	S	Qg	...	....	....	....
32dcc	.....	32.0	24	Br	....	15.36	7-10-62	U	Qg	...	....	....	....
32ddc	Clifford Hansen	28.1	42	Du	....	12.57	7- 6-62	S	Qg	...	....	....	....
34cda	Fred Lang	996	4	Dr	1954	20	.....	S	Kd	...	....	....	....
35cdc	Myrtle Fairfield	15	36	Br	1952	9	.....	D,S	Qg	...	....	....	....
35daa	.....	21.3	..	Br	....	5.88	7-10-62	S	Qg	...	....	....	....
36bbc	Ed Lang	6	..	Du	....	1	.....	D,S	Qg	...	....	....	....
<u>141-57</u>													
1ccc	James Coop	74	4	Dr	....	54	.....	D,S	Qg	...	....	....	....
2cccd	Edward Newman	62	30	Br	1947	40	.....	D,S	Qg	...	1,450	....	....
3cbc	Grace Bowen	60	30	Du	....	20	.....	U	Qg	...	....	....	....
4aab	Harold Neilson	75	40 x 40	Du	....	37	.....	D	Qg	...	....	....	....
4bab	Jake Byberg	57.0	24	Br	....	9.98	7-31-62	S	Qg	...	....	....	....
4cdc	Cliff Grotberg	70	36	Du	1902	50	.....	S	Qg	...	....	....	....
5ddb	.....	14.5	48 x 48	Du	....	4.70	7-31-62	U	Qg	...	....	....	....
6ccb	Vernon Swenningson	20	30	Du	....	8	.....	D,S	Qg	...	3,800	....	....
6dcc	Herman Breske	18	42	..	1939	13	.....	D,S	Qg	...	1,610	....	....
7ddc	Roy Collins	35	36	Br	....	32	.....	D,S	Qg	...	....	....	....
8bac	Sylvia Larson	18	24	Br	1945	10	.....	D	Qg	...	....	....	....
8cdd	Clifford Anderson	30	36	Du	....	25	.....	D	Qg	...	....	....	....
10dcc	Thiel Raveling	180	4	Dr	....	176	.....	D,S	Qg	...	1,220	....	....
11aaa	.....	19.0	18	Du	....	3.66	12-3-62	O	Qg	...	....	1,396	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>141-57</u>	(Cont.)												
11cba	W. H. Hansen	15	36	Du	....	3	.....	D,S	Qg	...	.....	.....
12add	Virgil Etzell	20	42	Du	....	10	.....	D,S	Qg	...	.....	.....
15bbb	Test hole 2152	200	5	Dr	1963	....	.....	T	Qg	190	....	1,488	L.
15ccb	L. C. Olson	190	4	Dr	....	.....	.....	D,S	Qg	...	1,280	....	C.
16bcc	.....	20.2	48 x 48	Du	....	19.25	5-23-62	U	Qg	...	.....	.....
17bdd	Paul Preibe	22.7	30	Br	....	17.60	7-30-62	U	Qg	...	.....	.....
18bba	May Codding	34.5	36 x 36	Du	....	11.67	7-30-62	D,S	Qg	...	.....	.....
19abb	Allen Olson	18	3	Br	....	16	.....	D,S	Qg	...	966	....
20cca	Robert Wittenberg	28	18	Br	1962	14	.....	S	Qg	...	.....	.....
21aaa	Gust Lutz	80	40 x 40	Du	1924	60	.....	S	Qg	...	.....	.....
21dcc	Louis Lutz	40	48 x 48	Du	1914	32	.....	D,S	Qg	...	.....	.....
22bab	George Noeske	200	4	Dr	....	.....	.....	D,S	Qg	...	.....	.....
22ddc	H. J. Raveling	210	3	Dr	1951	33	.....	D,S	Qg	...	.....	.....
24cbc	Conrad Hoff	60	36	Br	....	45	.....	D,S	Qg	...	2,120	....
25bdc	G. H. Raveling	100	2.5	Dr	1913	36	.....	D,S	Qg	...	.....	.....
25dad	Quentin Blank	58	48 x 48	Du	1934	20	.....	D,S	Qg	...	.....	.....
26abb	John Bruns	55	24	Br	1902	35	.....	D,S	Qg	...	.....	.....
27dec	Ray Lindquist	83	24	Br	1928	43	.....	D	Qg	...	.....	.....
28acb	Ralph Wittenberg	31	22	Br	1961	11	.....	S	Qg	...	.....	.....
28bcc	John Henderson	30	36	Du	1900	18	.....	D,S	Qg	...	.....	.....
28ccc	Al Wittenberg	27	30	Br	1952	12	.....	D	Qg	...	1,220	....
28dda	J. J. Ertelt	81	48 x 48	Du	1900	73	.....	D,S	Qg	...	.....	.....
29bab	Art Schulz	18.5	48 x 48	Du	1913	11.34	7-30-62	S	Qg	...	.....	.....
31bdd	.....	15.4	36 x 36	Du	....	5.65	7-30-62	U	Qg	...	.....	.....
32dda	H. R. Kranz	20	40 x 40	Du	1935	16	.....	S	Qg	...	.....	.....
33bbb	Al Wittenberg	30	24	Br	1925	16.5	.....	D,S	Qg	...	.....	.....
34acd	Harold Bruns	148	4	Dr	1920	60	.....	D,S	Qg	...	.....	.....
34ccb	Albert Noeske	138	4	Dr	1960	....	.....	S	Qg	...	1,260	....
35aaa	Henry Bruns	53	30	Br	1918	20	.....	S	Qg	...	3,960	....
35bca	Douglas Bruns	100	6	Dr	1962	50	.....	D,S	Qg	...	1,860	....
36ccd	John Marshall	43	36 x 36	Du	1910	12	.....	S	Qg	...	3,580	....
<u>141-58</u>													
3add	W. R. White	27	30	Br	1935	25	.....	D	Qg	...	1,550	....
4cbc	Ted Pleines	43.0	24	Br	....	17.16	8-22-62	U	Qg	...	.....	.....
4ddd	Fred Meidinger	40	18	Br	....	30	.....	D	Qg	...	.....	.....
5aac	Test hole 902	20	5	Dr	1954	....	.....	T	Qg	17	....	1,280	L.
5aad	Test hole 901	150	5	Dr	1954	....	.....	T	Qg	52	....	1,387	L.
7ccc	Test hole 2109	116	5	Dr	1962	....	.....	T	Qg	104	....	1,412	L.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>141-58 (Cont.)</u>													
8ddd	Howard Lee	40	32	Br	1959	25	.....	S	Qg	...	1,310	....
9add	Leslie Powers	100	4	Dr	1961	.....	.....	D	Kp	89	....	1,386	L.
9bbb	Ted Pleines	50	6	Dr	1959	5	.....	D,S	Qg	...	....	....
10add	John Miller	28	24	Br	1957	.....	.....	S	Qg	...	....	....
11add	Jesse Geisler	18.8	36	Br	.....	10.57	8-22-62	S	Qg	...	....	....
12acd	Charles Winter	42	24	Br	1962	36	.....	S	Qg	...	....	....
13cac	W. H. Hill	19.3	30	Br	.....	13.43	8-22-62	D,S	Qg	...	....	....
14dbc	Sam Hill	36	36	Du	.....	24	.....	D,S	Qg	...	2,720	....
16baa	Otto Brochert	26.5	24	Du	.....	12.24	12-4-62	S	Qg	...	....	1,419	
18acb	Test hole 905	80	5	Dr	1954	.....	.....	T	Qg	71	....	1,293	L.
19aaa	Clarence Young	75	30	Br	1959	60	.....	D,S	Qg	...	....	....
19ccc	Charles Frolich	1,224	4	Dr	1936	100	.....	D,S	Kd	...	....	....
20aca	Henry Young	26	36	Du	....	24	.....	D,S	Qg	...	1,210	....
21baa	.....	41.4	..	.....	14.83	8-21-62	U	Qg	...	....	....
21ccc	Emile Heckman	18	40 x 40	Du	.....	12	.....	S	Qg	...	....	....
22aca	.....	34.4	24	Br	.....	25.96	8-21-62	U	Qg	...	....	....
22bda	.....	30.0	30	Du	.....	26.11	5-24-62	U	Qg	...	....	....
23cbc	Jim Persons	34	24	Br	1957	26	.....	D,S	Qg	...	....	....
25cdd	Nervin Houda	30	48 x 48	Du	.....	6	.....	S	Qg	...	....	....
27caa	Richard Ranum	51	30	Br	1937	31	.....	S	Qg	...	....	....
28ddc	G. T. Raveling	51.1	30	Br	.....	41.33	8-21-62	D,S	Qg	...	....	....
29aba	.....	42.5	30	..	.....	30.79	8-21-62	S	Qg	...	....	....
30bdc	C. L. Zaun	78	48 x 48	Du	....	77	.....	D,S	Qg	...	1,030	....
31bdd	Paulson Bros.	10	48	Du	....	1	.....	D,S	Qg	...	699	....
31cbb	Test hole 2112	63	5	Dr	1963	.....	.....	T	Qal	50	....	1,233	L.
32ddd	William Rietze	17	24	Br	1950	.....	.....	D	Qg	...	....	....
33cab	Ernest Staub	33.9	48 x 48	Br	1922	14.34	8-20-62	S	Qg	...	....	....
34aad	J. N. Cook	27.5	30	Br	....	20.62	8-22-62	D,S	Qg	...	859	....
<u>141-59</u>													
1bcc	C. J. Lynch	28	24	Br	....	.....	.....	D	Qg	...	....	....
1cdd	.....	26.4	48 x 72	Du	....	11.73	7-25-62	U	Qg	...	....	....
2ddd	.....	32.9	4	Dr	....	3.93	5-27-62	D	Qg	...	....	....
4bbb	Roy Sterns	85	24	Br	....	.....	.....	S	Qg	...	3,810	....
5aaa	Test hole 2104	74	5	Dr	1962	.....	.....	T	Qg	63	....	1,410	L.
6abd	Kermit Karstad	22	24	Br	....	20	.....	D,S	Qg	...	....	....
6add	.....	...	24	Du	....	14.23	7-17-62	U	Qg	...	....	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>141-59 (Cont.)</u>													
8bab	Christ Ludwig	14	36	Du	....	8	.....	D	Qg	...	1,410	....
9bbb	Parker Hamsted	24.8	36	Du	....	8.52	7-25-62	S	Qg	...	....	....
10daa	Ardell Potterhoff	8	24	Du	1956	5	.....	D,S	Qo	...	628	....	C.
12ccc	George Schaffter	50	48 x 48	Du	1942	46	.....	D,S	Qg	...	....	....
13adb	Roger Lee	8	..	Du	....	3	.....	D,S	Qg	...	....	....
14cad	J. J. Vandervick	8	..	Du	....	3	.....	S	Qg	...	....	....
14cdd	..do....	42	24	Du	1900	12	.....	D,S	Qg	...	3,600	....
14dad	George Paulson	50	24	Br	....	4	.....	D	Qg	...	752	....
14dda	..do....	1,100	4	Dr	1937	Flow	7-27-62	S	Kd	...	4,180	....	Meas. flow 3 gpm.
16cdd	George Vandervick	52	32	..	....	48	.....	S	Qg	...	2,570	....
17bbal	Ernest Hilldebrant	1,280	4	Dr	1956	Flow	7-25-62	S	Kd	...	6,770	....	Rept. flow 2 gpm.
17bbe2	..do....	66	6	Br	....	54	.....	D	Kp	40	4,400	1,426	
18ddd	Fred Hunter	28	..	Du	....	16	.....	D	Qg	...	....	....
21aaa	.....	50.0	24	Br	....	9.60	5-25-62	U	Qg	...	....	....
21cdd	.....	27.5	24	Br	....	2.88	12-4-62	O	Qg	...	....	1,427	
22abd	.....	33.9	30 x 30	Du	....	16.25	7-27-62	U	Qg	...	....	....
22ddc	Norman Potter	45	..	Du	....	20	.....	D,S	Qg	...	1,730	....
23cbc	Leonard Potter	37	24	Du	1961	25	.....	D	Qg	...	1,820	....
24bad	Gaylyn Maresh	18.5	36	Du	....	10.85	7-27-62	D,S	Qg	...	1,620	....	C.
24cdb	Conrad Vogel	24	24	Du	....	18	.....	D	Qg	...	1,140	....
26bbc	Joseph Starks	30	48 x 48	Du	....	20	.....	D	Qg	...	6,890	....
26dbd	Ralph Zeun	15	48 x 48	Du	....	9	.....	D,S	Qg	...	....	....
30aad	Vernon Brobst	32	..	Du	....	12	.....	D,S	Qg	...	....	....
31add	.....	27.8	48 x 48	Du	....	23.19	7-26-62	D,S	Qg	...	....	....
33cbd	William Dotting	20	24	Du	1961	9	.....	D	Qg	...	....	....
34bda	Jake Rohde	23	..	Du	....	....	.....	S	Qg	...	....	....
35ada	A. A. Offner	46	40	Du	....	32.5	.....	D	Qg	...	1,860	....
36ada	E. M. Lee	26	3	Br	1952	12	.....	D	Qal	...	....	....
<u>141-60</u>													
2aba	Richard Vogel	85	2	Dr	1962	13	.....	D,S	Qg	...	2,720	....
4bcb	C. J. Kirkeby	31	..	Du	....	23	.....	D	Qg	...	....	....
4cdd	.....	19.8	36	Du	....	9.13	12-5-62	O	Qg	...	....	1,435	
4ddd	Test hole 2071	272	5	Dr	1962	....	.....	T	Qg	263	....	1,435	L.
5dcdd	George Law	34	36	Du	....	18	.....	D	Qg	...	985	....
6aaa	W. B. Durfee	160	..	Dr	1952	60	.....	D	Qg	...	1,900	....
7aaa	Harold Martinson	71	18	Br	1956	36	.....	D,S	Qg	...	....	1,467	
8bbb	Test hole 2070	168	5	Dr	1962	....	.....	T	Qg	160	....	1,435	L.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>141-60 (Cont.)</u>													
10aab	A. G. Elliott	21	30	Du	....	18	.....	S	Qg	...	1,260	.....
10bab	.....	30.3	36 x 36	Du	....	12.90	6- 7-62	U	Qg	...	.....	.....
11bbb	Test hole 2072	252	5	Dr	1962	.....	.....	T	Qg	220	.....	1,435	L.
12aaa	Test hole 2073	147	5	Dr	1962	.....	.....	T	Qg	140	.....	1,436	L.
12bab	F. B. Van Drovee	26	48 x 48	Du	1942	14	.....	D,S	Qg	...	1,230	.....
12ccc	Thelma Benzinger	1,300	1	Dr	1913	Flow	6- 7-62	U	Qg	...	4,170	.....
13ccc	Test hole 2105	95	5	Dr	1962	.....	.....	T	Qg	81	.....	1,427	Meas. flow 1.3 gpm. L.
13ddc	Theo. Messner	35	24	Du	1958	.....	.....	S	Qg	...	.....	.....
14dbc	.....	36.6	24 x 24	Du	....	31.20	6-12-62	U	Qg	...	.....	.....
16dda	Andrew Aune	23.6	36 x 36	Du	....	15.12	6-11-62	S	Qg	...	.....	.....
17aaa	Kenneth Thompson	27	36 x 36	Du	....	.....	.....	D,S	Qg	...	1,250	.....
17bbd	.....	50	...	Br	....	23	.....	U	Qg	...	.....	.....
18ccb	.....	41.8	18	Br	....	16.15	6-11-62	U	Qg	...	.....	.....
20bcd1	Frank Wolvert	61.0	3	Dr	1959	23.0	7-19-61	...	Qg	...	.....	1,446	
20bcd2	..do....	22	..	Br	....	16	.....	D,S	Qg	...	.....	1,446	
20daa	.....	38.5	36	Br	....	21.93	6-11-62	U	Qg	...	.....	.....
22bcc	Felix Grentholz	25	24	Br	1959	.....	.....	D	Qg	...	1,000	.....
24cbc	Melvin Farnquist	52.2	48 x 48	Du	....	37.51	6-12-62	S	Qg	...	4,550	.....
24daa	Helen Olson	35	..	Du	....	.....	.....	S	Qg	...	1,400	.....
25add	Joe Haas	19.4	24	Br	....	14.88	6-12-62	S	Qg	...	4,720	.....
25cdc	J. P. Anderson	28.3	18	Du	....	16.26	6-12-62	S	Qg	...	.....	.....
26ebb	Elmer Stephan	28	22	Du	....	14	.....	D,S	Qg	...	1,320	.....
27ccc	Test hole 2063	315	5	Dr	1962	14.66	12-5-62	T,O	Qg	238	.....	1,447	L.
27ddd	Robert Schewhr	40	24	Br	....	.....	.....	D	Qg	...	2,130	.....
27ddd	Test hole 2062	105	5	Dr	1962	.....	.....	T	Qg	72	.....	1,440	L.
28ccc	Test hole 2061	540	5	Dr	1962	.....	.....	T	Qg	250	.....	1,440	L.
28dab	.....	31.8	24	Br	....	27.27	6-12-62	...	Qg	...	.....	.....
30baa	.....	31.3	5	Br	....	21.12	6-11-62	U	Qg	...	.....	.....
30ccb	Clarence Duffy	90	6	Dr	....	.....	.....	D,S	Qg	...	.....	.....
32bbb	Test hole 1735	283	5	Dr	1962	.....	.....	T	Qg	276	.....	1,440	L.
32bdc	.....	23.9	24 x 36	Du	....	13.02	6-11-62	U	Qg	...	.....	.....
33cd ^d	.....	31.1	24 x 24	Du	....	25.95	6-11-62	U	Qg	...	.....	.....
34adb	Clark Scoular	40	24	Du	....	.....	.....	D	Qg	...	.....	.....
<u>141-61</u>													
2ccc	Test hole 2068	284	5	Dr	1962	15.99	12-6-62	T,O	Qg	264	.....	1,465	L.
2cdd	.....	31.7	36	Du	....	7.88	5-11-62	U	Qg	...	.....	.....
2ddc	Test hole 2069	378	5	Dr	1962	.....	.....	T	Qg	235	.....	1,440	L.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
141-61 (Cont.)													
4add	Dan Williams	70	..	Du	1910	.....	.....	D,S	Qg	...	.....	.....
5aab	.....	55.0	..	Br	.....	46.0	8- 4-61	D,S	Qg	..	.....	.....
5ddd	Test hole 2065	263	5	Dr	1962	.....	.....	T	Qg	256	.....	1,495	L.
6ccc	Test hole 2064	147	5	Dr	1962	.....	.....	T	Qg	122	.....	1,504	L.
6ddd	Test hole 1726	241	5	Dr	1960	.....	.....	T	Qg	230	.....	1,504	L.
7baal	Joe Pesek	50.4	36 x 36	Du	.....	17.28	5-11-62	U	Qg	...	.....	.....
7baa2	..do....	28.0	20	Br	.....	20.51	5-11-62	U	Qg	...	.....	.....
10bbb	Test hole 2066	244	5	Dr	1962	.....	.....	T	Qg	...	.....	1,450	L.
10bcc	Percy Willson	56.0	..	..	.....	32.0	8- 3-62	D,S	Qg	...	.....	1,523	
11aab	William Elston	150	6	Dr	1940	23.0	8- 5-62	D,S	Qg	...	.....	.....
11bbb	Test hole 2067	115	5	Dr	1962	.....	.....	T	Qg	...	.....	.....
13dcbl	Paul Elston	180	4	Dr	1960	.....	.....	S	Kp	158	6,150	1,445	L.
13dcb2	..do....	54.6	18	Br	.....	20.1	5-14-62	D	Qg	...	.....	.....	C.
14dcc	Joe Legge	80	36	..	1935	.....	.....	D,S	Qg	...	1,130	.....
15aba	.....	18.4	..	Du	.....	13.7	5-15-62	U	Qg	...	.....	.....
16bba	Harold Solem	120	5	Dr	.....	50	.....	D,S	Qg	...	.....	1,517	
16dcc	Joe Legge	80	..	Dr	1956	Flow	5-14-62	S	Qg	...	.....	.....
17bba	Russel Shape	38.0	..	Br	.....	32.0	7-20-61	D,S	Qg	...	.....	1,465	Rept. flow 1 gpm.
18abb	Martin Jarsla	33	24	Br	.....	19	.....	..	Qg	...	.....	1,502	
19aaa	Test hole 1727	262	5	Dr	1960	.....	.....	T	Qg	250	.....	1,494	L.
19bdd	Charles Herman	160	32	Br	1935	27	.....	D,S	Qg	...	.....	1,494	
20ccb	.....	45.5	..	..	.....	33.45	12-6-62	O	Qg	...	.....	1,517	
21dcc	R. R. Kane	180	4	Dr	1952	.....	.....	D	Qg	...	5,500	.....
22bdd	R. Deuffy	27.0	..	Br	.....	17.0	7-24-61	D,S	Qg	...	.....	1,458	
22dcb	R. R. Kane	27.8	20	Du	.....	8.54	5-15-62	S	Qg	...	.....	.....
23edd	David Brian	56.0	..	Du	1951	20.0	7-24-61	D,S	Qg	...	.....	1,468	
24cdc	R. Weber	57.0	..	Br	.....	23.0	7-24-61	D,S	Qg	...	.....	1,468	
24dcc	L. MacLean	125	..	Dr	.....	72	7-24-61	D,S	Qg	...	.....	.....
25edd	R. Klein	52.0	..	Br	.....	25.0	7-24-61	D,S	Qg	...	.....	1,464	
25ddd	Test hole 1736	157	5	Dr	1960	.....	.....	T	Qg	137	.....	1,444	L.
28ccb	Gregory Legge	165	6	Dr	1923	22	.....	D,S	Qg	...	.....	1,482	
30add	G. M. Schwehr	170	5	Dr	.....	65	.....	D,S	Qg	..	.....	1,493	
31aaa	Test hole 1731	178	5	Dr	1960	.....	.....	T	Qg	163	.....	1,489	L.
32abb	Ed Johnson	160	..	Dr	.....	60	.....	D,S	Qg	..	.....	1,489	
33bbb	Test hole 1738	337	5	Dr	1960	.....	.....	T	Qg	326	.....	1,479	L.
34aaa	Test hole 1737	231	5	Dr	1960	.....	.....	T	Qg	222	.....	1,469	L.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>141-61 (Cont.)</u>													
34bbb	Test hole 1733	262	5	Dr	1960	.....	.....	T	Qg	255	.....	1,452	L.
35ada	Test hole 1734	73	5	Dr	1960	.....	.....	T	Qg	...	.....	1,439	L.
36aab	Lewis Klein	59.0	6	Dr	1960	19.0	7-19-61	D,S	Qg	...	.....	1,440	
36dcc	R. Foster	65	..	Du	....	23	.....	D,S	Qg	...	.....	1,439	
<u>142-56</u>													
2bbb	Floyd Brudevold	40	36	Du	....	18	.....	S	Qg	...	1,620	.....
2ccb	B. R. Abraham	20	36	Br	....	.....	.....	D,S	Qg	...	3,510	.....
2ddd	E. Dagile	20	36	Du	1961	15	.....	D,S	Qg	...	4,020	.....
4bbbl	Kenneth Burchill	818	4	Dr	1959	50	.....	S	Kd	...	6,440	.....
4bbb2	..do....	30	..	..	....	....	....	D	Qg	...	.....	.....
5bbc	Hans Simenson	13	36	Du	....	7	.....	D	Qo	...	606	.....
5cdc	Harold Eberly	29.5	36	..	....	8.10	6-29-62	U	Qg	...	3,080	.....
6abb	W. F. Kapaun	24	36	Br	1956	20	.....	D	Qg	...	3,170	.....
6dccl	Floyd Olson	25.9	24	Du	....	18.87	6-29-62	S	Qg	...	.....	.....
6ddc	..do....	35	24	Br	1948	17.5	6-29-62	S	Qg	...	.....	.....
9ccb	E. H. Abraham	12.5	48	Du	....	4	.....	D,S	Qg	...	846	.....
10add	.....	24.4	24	Br	....	16.57	6-29-62	U	Qg	...	.....	.....
10bea	.....	34.3	36	Br	....	11.05	7- 4-62	U	Qg	...	.....	.....
11ccb	Alfred Thum	36	36	Du	1938	30	.....	D,S	Qg	...	2,100	.....
12cccl	Test hole 2150	284	5	Dr	1963	.....	.....	T	Qg	274	.....	1,187	L.
12ccc2	Charles Gage	22.8	36	..	....	7.43	7- 4-62	S	Qg	...	.....	.....
14aaa	E. F. Gage	800	4	Dr	1940	.....	.....	D,S	Qg	...	6,030	.....
14acd	A. Sundstrom	48	48	Br	1926	28	.....	D,S	Qg	...	.....	.....
15ccc	Archie Olson	30.4	36	Du	1935	18.53	7- 5-62	D,S	Qg	...	2,240	.....
16bbb	Test hole 2149	126	5	Dr	1963	.....	.....	T	Qg	110	.....	1,248	L.
17dac	Frank Sundstrom	29.7	24	Br	1942	22.00	7- 4-62	U	Qg	...	.....	.....
19bcd	Otto Nathan	45	24	Br	1958	32	.....	S	Qg	...	.....	.....
20bbb	.....	47.8	24	Br	....	18.49	7- 4-62	S	Qg	...	.....	.....
20daa	William Maxwell	15	36	Du	....	7	.....	S	Qg	...	.....	.....
21adb	Peder Rock	18	24	Br	1957	12	.....	D,S	Qg	...	1,110	.....
21cbc	William Maxwell	90	36	Br	1958	30	.....	S	Qg	...	7,390	.....
21ddd	Ben Sundstrom	26.0	..	Br	1954	16.05	7- 5-62	D,S	Qg	...	.....	.....
25ccc	Josephine Smith	30	24	Br	1955	25	.....	S	Qg	...	.....	.....
26ccc	Mrs. Art Smith	30.8	36	..	....	23.69	7- 4-62	D	Qg	...	.....	.....
27add	Bill Wess	18.4	24	..	....	3.69	7- 4-62	S	Qg	...	.....	.....
27bad	Henderson Bros.	34.5	30	Br	1945	20.06	7- 4-62	U	Qg	...	.....	.....
28aad	.....	28.7	5	Dr	....	13.68	12-4-62	O	Qg	...	.....	1,207	

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>142-56 (Cont.)</u>													
28ccc	Palmer Holden	40	24	Br	1957	.....	.....	S	Qg	...	.....	.....	.....
29ada	Earl Slater	58.6	..	..	10.90	7- 5-62	S	Qg	...	.....	.....	.....	.....
30dad	Chris Sather	52	24	..	1935	.....	.....	D,S	Qg	...	2,030	.....	.....
31bcc	R. C. Taylor	37.5	24	Br	1942	13.70	7- 4-62	U	Qg	...	.....	.....	.....
32ddd	P. Januscheitis	45	20	Br	....	28	.....	S	Qg	...	4,260	.....	.....
33aaa	Howard Winings	60	30	Br	....	25	.....	S	Qg	...	4,120	.....	.....
34bbc	Paul Gage	30	30	Du	1927	20	.....	S	Qg	...	1,060	.....	.....
<u>142-57</u>													
3bbb	J. S. Burchill	105	24	Br	1946	85	.....	U	Qg	...	.....	.....	.....
4bbb	H. D. Ledbetter	125	6	Dr	1954	85	.....	D,S	Qg	...	1,848	.....	.....
6aaa	Ted Koch	85	30	Br	....	81	.....	D,S	Qg	...	.....	.....	.....
6cdd	Svend Svenningsen	30	40 x 48	Du	1944	14	.....	S	Qg	...	.....	.....	.....
8cdd	J. G. Burchill	180	4	Dr	....	100	.....	D,S	Qg	...	.....	.....	.....
10bdc	E. J. Holcomb	50	40 x 40	Du	1912	46	.....	D	Qg	...	.....	.....	.....
13bba	.....	33.2	24	Br	....	16.51	8- 3-62	D,S	Qg	...	.....	.....	.....
13bbb	Test hole 2148	189	5	Dr	1963	.....	.....	T	Qg	166	.....	1,356	L.
14bba	Earl Oderman	85	4	Dr	1922	20	.....	S	Qg	...	.....	.....	.....
15bbc	J. H. Burchill	100	24	Br	....	40	.....	S	Qg	...	.....	.....	.....
16aaa	..do....	160	4	Dr	1918	60	.....	U	Qg	...	.....	.....	.....
17baa	Test hole 2147	241	5	Dr	1963	.....	.....	T	Qg	226	.....	1,499	L.
17ccc	Ruby Northridge	26.7	30	Br	1947	3.9	8- 3-62	S	Qg	...	.....	.....	.....
17ddd	..do....	190	2	Dr	....	115	.....	D,S	Qg	...	.....	.....	.....
18cdc	H. E. Molstad	50	36	Br	....	.....	.....	D,S	Qg	...	.....	.....	.....
21aaa	Jake Byberg	80	24	Br	1916	60	.....	D,S	Qg	...	3,090	.....	.....
22adc	Ward Bros.	42	24	Br	1935	24	.....	D,S	Qg	...	.....	.....	.....
22cac	W. McKay	70	36	Du	....	50	.....	D,S	Qg	...	1,590	.....	.....
24aaa	.....	53.0	30	Br	....	49.80	8- 2-62	U	Qg	...	.....	.....	.....
25bbb	Leonard Sannes	161	4	Dr	1961	20	8- 2-62	D,S	Qg	144	3,100	1,373	L.
25ddd	Ben Sather	35	24	Br	....	20	.....	D,S	Qg	...	2,610	.....	.....
26cdc	Burt Ludwig	80	24	Br	1925	20	.....	U	Qg	...	.....	.....	.....
28add	Haga Bros.	110	4	Dr	....	90	.....	D,S	Qg	...	.....	.....	.....
29adc	Sollie Burchill	157	4	Dr	....	.....	.....	D,S	Qg	...	.....	.....	.....
30cdc	Garnet Melville	35	30	Br	1956	20	.....	S	Qg	...	1,360	.....	.....
31bcc	Ernest Holcomb	31	48	Du	1912	11	.....	D,S	Qg	...	1,700	.....	.....
32ddd	A. L. Weber	60	4	Dr	1953	20	.....	D	Qg	...	.....	.....	.....
34bcc	Roy Amundson	150	3.5	Dr	1954	50	.....	S	Qg	...	.....	.....	.....
34cbc	Jake Byberg	90	4	Dr	1930	60	.....	D,S	Qg	...	.....	.....	.....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>142-57</u> (Cont.)													
35cdc	.....	47.9	18	Br	....	10.63	12-4-62	O	Qg	...	....	1,405	
35dad	Kenneth Powers	84	4	Dr	1953	6	.....	D,S	Qg	...	....	....
<u>142-58</u>													
1cbb	William Larson	56	36 x 36	Du	....	.....	.....	U	Qg	...	....	....
2acd	William Curtis	20	30	Du	....	5	.....	D,S	Qo	...	....	....
2adc	.....	32.1	18	Du	....	10.64	9- 5-62	U	Qg	...	....	....
5bea	Hugo Wieland	48	20	Du	....	43	.....	D,S	Qg	...	....	....
6bba	.....	20.9	..	Du	....	7.67	9- 5-62	U	Qg	...	....	....
7ccc	Test hole 2087	42	5	Dr	1962	15.7	10-29-62	T	Qg	30	....	1,412	L.
7dbc1	Kuder Bros.	24	24	Br	....	16	.....	D	Kp	24	5,600	1,415	
7dbc2	..do....	1,240	4	Dr	....	Flow	9- 5-62	S	Kd	...	4,850	....
9bcd	Test hole 7 SP	84	5	Dr	1963	....	.....	T	Qo	75	....	1,350	L.
9bdc	Test hole 6 SP	42	5	Dr	1963	....	.....	T	Qo	22	....	1,300	L.
10add	Test hole 2146	42	5	Dr	1963	....	.....	T	Qg	30	....	1,371	L.
10daa	.....	17.0	30	Br	....	11.02	12-4-62	O	Qg	...	....	1,371	
11bbd	Emal Dahl	22	36 x 36	Du	....	20	.....	D	Qg	...	1,050	....
15eac	Robert Eggert	20	..	Du	....	17	.....	D,S	Qo	...	832	....
17daa	Edward Sadek	12	36	Du	....	8	.....	D,S	Qg	...	....	....
18dda	.....	60	24 x 24	Du	....	8.54	9- 5-62	U	Qg	...	....	....
20acc	.....	32.4	36 x 36	Du	....	6.91	9- 4-62	U	Qg	...	....	....
22add	.....	31.9	26	Du	....	28.89	12-4-62	O	Qo	...	....	1,350	
22bdb	Mac Jewett	20	36	Du	....	8	.....	D,S	Qo	...	....	....
24bbb	Lloyd Koch	46	24	Du	....	41	.....	D,S	Qo	...	1,300	....
25eac	W. A. Hass, Jr.	29.1	48 x 48	Du	....	12.93	9- 5-62	S	Qg	...	719	....
26bca	E. R. Hass	35	..	Br	....	27	.....	D,S	Qg	...	....	....
30bda	A. Grindler	56	5	Dr	....	.....	.....	...	Kp	50	....	1,416	L.
30cad	..do....	12	48	Du	1962	3	.....	D	Qo	...	....	....
30ddd	C. L. Cruff	15	24	Dv	....	3	.....	D,S	Qo	...	2,850	....	C.
32ccb	Howard Martin	15	36	Du	....	5	.....	D	Qo	...	....	....
34acc	Les Dittmer	50	24	Du	....	30	.....	D,S	Qg	...	1,550	....
34ccd	.....	24.1	24	Du	....	17.73	9- 5-62	U	Qg	...	....	....
35dea	.....	21.0	36	Du	....	12.17	9- 5-62	U	Qg	...	....	....
<u>142-59</u>													
1aaa	Test hole 2107	53	5	Dr	1962	....	.....	T	Qg	39	....	1,416	L.
2cbb	.....	18.9	18	Du	....	12.28	6-29-62	U	Qg	...	....	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
142-59 (Cont.)													
3bcb	Norris Trelstad	24	..	Du	1958	19	.....	D	Qg	...	817	.....
4caa	Anton Rausch	207	4	Dr	1954	.....	.....	S	Qg	...	2,660	.....	C.
6cbc	Anna Jacobson	32	24	Du	.....	.....	.....	D	Qg	...	.....	.....
6ddb	.....	14.7	24	Du	....	11.31	6-28-62	U	Qg	...	.....	.....
8adb	Joe Weishaupt	35	24	Br	.....	.....	.....	D,S	Qg	...	.....	.....
9aab	James Marler	50	6	Dr	1958	10	.....	D,S	Qg	...	2,290	.....
10bbb	.....	31.8	42 x 42	Du	....	8.26	12-4-62	O	Qg	...	.....	1,422	
11ccc1	.....	16.5	36	Du	....	8.09	6-29-62	S	Qg	...	.....	.....
11ccc2	Test hole 2086	53	5	Dr	1962	10.9	10-29-62	T	Qg	40	.....	1,420	L.
12acd	Donald Etzell	32	36 x 36	Du	....	29	.....	S	Qg	...	1,440	.....
13ada	L. Ronzheimer	37.1	36 x 36	Du	1925	16.82	6-29-62	D,S	Qg	...	1,460	.....
14aaa	T. Undem	14	..	Du	....	10	.....	S	Qg	...	.....	.....
14dddl	F. Undem	77	18	Br	....	47	.....	D	Qg	...	1,200	.....
14ddd2	Test hole 2102	42	5	Dr	1962	.....	.....	T	Qg	...	.....	1,423	L.
15dad	Jake Himmerich	36	..	Du	1952	14	.....	D	Qg	...	.....	.....
16adc	.....	15.6	24	Du	....	9.22	6-28-62	U	Qg	...	.....	.....
16bbb	Test hole 2085	210	5	Dr	1962	.....	.....	T	Qg	164	.....	1,424	L.
17bbb	Test hole 2088	210	5	Dr	1962	.....	.....	T	Qg	199	.....	1,416	L.
18adc	School Dist. No. 65	110	4	Dr	1962	.....	6-21-62	PS	Qg	...	.....	.....	L.
18bbb	Test hole 2084	252	5	Dr	1962	21.92	12-4-62	T,O	Qg	219	.....	1,442	C; L.
20add	Wilmer Ludwig	37.3	36	Br	....	8.72	7-16-62	S	Qg	...	817	.....
20bdd	..do....	35	36	Du	....	.....	.....	D	Qg	...	4,550	.....
21cdb	..do....	25.3	48 x 48	Du	....	8.37	7-16-62	U	Qg	...	.....	.....
23bab	Harold Undem	30	24	Br	....	10	.....	D,S	Qg	...	538	.....
24bbc	Test hole 2102 A	105	5	Dr	1962	.....	.....	T	Qg	82	.....	1,417	L.
24cdc	Theo. Undem	36	24	Br	....	27	.....	U	Qg	...	.....	.....
26bbb1	.....	17.6	30	Du	....	6.83	5-25-62	D	Qg	...	.....	.....
26bbb2	Test hole 2101	189	5	Dr	1962	.....	.....	T	Qg	174	.....	1,417	L.
26ccb	Lawrence Lynch	45.7	24	Br	....	9.37	7-16-62	S	Qg	...	.....	.....
28bcc	C. Everding	46	24	Br	1957	.....	.....	D	Qg	...	1,990	.....
30add	James Winters	225	..	Dr	1961	.....	.....	U	Qg	...	.....	.....
33bcc	Henry Koebnick	85	36	Br	1952	65	7-16-62	D,S	Qg	...	3,910	.....
34bbb	Test hole 2103	179	5	Dr	1962	7.5	11-29-62	T	Qg	164	.....	1,411	L.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>142-59</u> (Cont.)													
34ddd	.....	27.6	....	Du	....	20.52	7-16-62	U	Qg	...	....	....
35ddd	Lee James	28	24	Du	....	24	.....	D	Qg	...	....	....
36aaa	Test hole 2108	53	5	Dr	1962	....	.....	T	Qg	39	....	1,410	L.
36cca	Bertha Young	35	24	Du	....	29	.....	S	Qg	...	7,000	....
<u>142-60</u>													
1aaa	A. Svenningson	20.2	36	Du	....	15.16	6- 6-62	S	Qg	...	....	....
2aab	K. Burthart, Jr.	26	..	Du	1916	....	.....	S	Qg	...	1,360	....
3cad	Test hole 2100	35	5	Dr	1962	....	.....	T	Qo	...	....	1,460	C; L.
3dab	Julius Berg	45	36	Du	1900	41	.....	D,S	Qo	...	1,110	....
4add	.....	20.5	36	Du	....	15.03	6- 6-62	S	Qo	...	....	....
4ddd	Test hole 2111	84	5	Dr	1963	....	.....	T	Qg	...	....	....	C; L.
5cdl	.....	...	36	Du	1957	11.43	6- 5-62	S	Qo	...	....	....
5cdl2	.....	21.2	24	Du	....	14.62	6- 5-62	D	Qo	...	....	....
6aaa	Elmer Ernie	25	36	Du	....	21	.....	D	Qg	...	2,960	....
7ddd	George McCann	20	24	Du	....	8	.....	D,S	Qg	...	....	....
8ccc	Test hole 2079	242	5	Dr	1962	6.0	10-8-62	T	Qg	224	....	1,440	L.
8ddc	A. M. Abrahamson	13	36	Br	1957	....	.....	D	Qg	...	....	....
9aaa	Mell Bros.	14	36	Br	1957	11	.....	D,S	Qo	...	1,260	....
10ccc	Test hole 2081	168	5	Dr	1962	....	.....	T	Qg	156	....	1,448	L.
10dcc	A. P. Tolstad	22.0	36	Du	....	17.7	6- 6-62	S	Qg	...	938	....
11dcc	August Becker	20	36	Du	1932	....	.....	D	Qg	...	....	....
11ddd	Test hole 2083	242	5	Dr	1962	....	.....	T	Qg	228	....	1,452	L.
12ccc	.....	47.1	36	Br	....	23.77	6- 6-62	U	Qg	...	....	....
12daa	Mrs. A. Christ	23.4	24	Du	....	15.92	6- 7-62	D	Qg	...	2,580	....
13add	M. R. Bontrager	30	36	Du	....	5	.....	D,S	Qg	...	683	....
14bbb1	.....	13.2	36	Du	....	9.62	12-4-62	O	Qg	...	....	1,440	
14bbb2	Test hole 2082	137	5	Dr	1962	9.4	10-23-62	T	Qg	130	....	1,440	L.
14ddc	Henry Oner	37	48 x 48	Du	1920	27	.....	S	Qg	...	....	....
16bbb	Test hole 2080	210	5	Dr	1962	....	.....	T	Qg	198	....	1,450	L.
16ddd	Glen Myers	27	24	Br	1947	....	.....	D	Qg	...	....	....
18cbd	.....	23.5	24	Du	....	17.86	6- 5-62	S	Qg	...	....	....
19dad	.....	50.5	24	Du	....	20.29	6- 5-62	U	Qg	...	....	....
20abb	Arthur Barnett	28	42	Du	1902	....	.....	D,S	Qg	...	1,260	....
22add	.....	90.4	4	Dr	....	16.05	6- 7-62	D,S	Qg	...	....	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>142-60 (Cont.)</u>													
23ddd	R. B. Saar	42	6	Dr	1951	12	.....	D	Qg	...	....	....	....
24baa	.....	13.8	18	Br	....	10.03	6- 7-62	U	Qg	...	....	....	....
24daa	W. Hollinhead	...	48	Du	....	16.32	6- 7-62	S	Qg	...	2,750	....
26baa	Lester Aygarm	48	..	Br	1952	24	.....	D	Qg	...	1,270	....
27bb	Guy Jewett	85	5	Dr	1938	17	.....	D,S	Qg	...	2,630	....	C.
28abb	.....	12.5	36	Du	....	8.65	12-4-62	O	Qg	...	....	1,443	
29bbc	.....	15.1	48 x 48	Du	....	12.12	6- 6-62	U	Qg	...	....	....
30caa	.....	30.2	36	Br	....	25.61	6- 5-62	U	Qg	...	....	....
31bba	Ben Sondreal	20	48 x 48	Du	....	16	.....	D,S	Qg	...	2,430	....
32bab	Hilton Christ	26	24	Br	1958	.....	.....	D,S	Qg	...	1,710	....
33dda	.....	30.3	18	Br	....	13.15	6- 7-62	S	Qg	...	....	....
35dda	.....	21.2	..	Du	....	13.49	6- 7-62	D	Qg	...	1,240	....
36add	Mrs. E. Lonsky	28	24	Br	1958	12	.....	D	Qg	...	1,870	....
<u>142-61</u>													
1bbc	E. Anderson	21.3	48 x 48	Du	....	13.25	5- 8-62	D,S	Qg	...	1,200	....
1dda	A. W. Henkel	17	18	Du	1960	13	.....	D	Qg	...	....	....
2abb	M. Darkenweld	216	4	Dr	1960	40	.....	D,S	Qg	...	1,410	....	C.
3bba	Alfred Ernie	18	46	Du	1905	11.85	5-14-47	U	Qg	...	....	....
4bcb	Warren Ernie	32	24	Du	....	.....	.....	D,S	Qg	...	....	....
5aac	Alfred Ernie	28	3	Dr	1933	16	.....	D,S	Qg	...	....	....
5aad1	..do....	11.4	60	Du	....	8.00	8-28-46	PS	Qg	...	....	....
5aad2	Test hole W7	80	5	Dr	1947	.....	.....	T	Qg	56	....	1,473	L.
5ada	Test hole W8	53	5	Dr	1947	.....	.....	T	Qg	40	....	1,474	L.
5add	Test hole W9	60	5	Dr	1947	.....	.....	T	Qg	40	....	1,475	L.
6aaa	Tony Falk	35	5	Dr	1908	.....	.....	D,S	Qg	...	....	....
6baa	Old Holt well	...	2	Dr	1904	18.96	8-29-46	...	Qg	...	....	....
6cad	Carl Paasch	60	2.5	Dr	....	.....	.....	D,S	Qg	...	....	....
6dda	Russell Rudolph	59	4	Dr	1951	47	.....	D,S	Qg	...	....	....
7dda	L. A. Kuhlman	37.3	36	Br	....	30.82	5- 8-62	S	Qg	...	....	....
8dad	.....	22.8	..	Br	....	21.00	5- 8-62	U	Qg	...	....	....
8ddd	Test hole 2076	95	5	Dr	1962	.....	.....	T	Qg	90	....	1,475	L.
9ccd	H. McMillan	70	..	..	....	30	.....	...	Qg	...	....	....
9ddd	Test hole 2074	231	5	Dr	1962	18.37	12-6-62	T,O	Qg	226	....	1,467	C; L.
10ccb	F. B. Oglesby	165	4	Dr	....	.....	.....	D	Qg	...	1,620	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>1&2-51</u> (Cont.)													
12abb	.....	18.9	..	Du	....	6.97	5- 8-62	S	Qg	...	....	....	....
12cccl	.....	16.4	5 ¹ x 36	Du	....	12.32	5- 9-62	S	Qg	...	....	....	....
12ccc2	.....	...	..	Du	....	8.53	5- 9-62	D	Qg	...	....	....	....
12ddb	Jesse Jones	50	36	Du	1917	.....	.....	D,S	Qg	...	890	....	....
12ddd	Test hole 2078	231	5	Dr	1962	.....	.....	T	Qg	219	....	1,458	L.
13bbb	Test hole 2075	315	5	Dr	1962	.....	.....	T	Qg	260	....	1,460	L.
1 ^b bbb	Test hole 2077	252	5	Dr	1962	.....	.....	T	Qg	216	....	1,460	L.
1 ^a dbbl	M. Willson	160	4	Dr	1950	40	.....	D,S	Qg	...	1,230	....	....
1 ^a dbb2	..do....	11.1	36	Br	....	6.95	5- 8-62	U	Qg	...	....	....	....
15abb	C. Severson	43	28	Du	....	18	.....	D,S	Qg	...	....	....	....
16aac	Frank McMillan	115	5	Dr	....	3 ¹	.....	D,S	Qg	...	....	1,497	....
18aad	F. Kuhlman	150	..	Dr	1958	80	.....	D,S	Qg	...	....	1,553	....
19daa	F. Arvidson	60	..	Br	1957	27	.....	D	Qg	...	....	1,535	....
20bbb	P & D No. 1 Gussette	2,572	..	Dr	1953	.....	.....	U	Qg	164	....	1,520	Oil test -- L. (N. Dak. Geol. Survey Circular No. 198)
20dcc	Al Rebahn	160	4	Dr	1947	20	.....	D,S	Qg	...	1,120	....	C.
21cccd	Lyle Gussette	180 +	5	Dr	1948	30	.....	D,S	Qg	...	....	....	....
21ddd	J. Christ	120	36	Br	....	30	.....	D,S	Qg	...	....	1,507	....
22bbb	.....	52. ¹	..	..	....	17.68	12-6-62	0	Qg	...	....	1,471	....
2 ^b bccl	Robert Christ, Jr. No. 4	260	6	Dr	1963	47.93	11-13-63	Irr,S	Qg	...	....	1,481	C; L.
2 ^b bcc2	..do.... No. 1	290	1.5	Dr	1963	47.03	11-13-63	0	Qg	287	....	1,482	C; L.
2 ^b bcd	..do.... No. 2	270	1.5	Dr	1963	45.71	11-13-63	0	Qg	262	....	1,481	C; L.
2 ^b bdc	..do.... No. 3	271	1.5	Dr	1963	33.05	11-13-63	0	Qg	261	....	1,467	C; L.
25ddb	Elvin Lee	22	3	Br	1905	18.80	5- 9-62	U	Qg	...	....	....	....
27dda	J. F. Kuhlman	154	6	Dr	1927	80	.....	D,S	Qg	...	1,170	....	....
30cbd	Francis Karn	60	6	Br	....	.....	.....	D,S	Qg	...	770	....	....
31bcc	Henry Mutschler	185	6	Dr	1961	40	.....	D,S	Qg	166	2,120	1,527	....
32bad1	Ed Rumer	20. ¹	36	Br	....	11.56	5-11-62	S	Qg	...	....	....	....
32bad2	..do....	140	6	Dr	1906	100	.....	D,S	Qg	...	910	....	....
32edd	V. Murray	220	..	Dr	1954	60	.....	D,S	Qg	...	....	....	....
3 ^b bbb	E. Christ	50	4	Dr	1952	.....	.....	D	Qg	...	....	....	....
3 ^b cbb	Harold Brotberg	49.6	20	Br	....	26.33	5- 9-62	D,S	Qg	...	1,460	....	....
<u>1^b3-56</u>													
2 ^a ba	Elma Hanson	16.6	48 x 48	Du	....	9.88	6-27-62	S	Qg	...	598	....	....
2 ^c cd	.....	23.0	30	Br	....	11.82	12-31-62	0	Qg	...	....	1,238	....
3 ^c dc	Ernest Anderson	48.5	36	Br	1952	29.60	6-27-62	S	Qg	...	....	....	....
5 ^d ab	Mrs. W. J. Miller	35	24	Br	1958	27	.....	S	Qg	...	....	....	....
6 ^a cd	Boyd Callahan	20	36	Du	....	10	.....	S	Qg	...	....	....	....
7 ^b bc	Leon Jenson	70	24	Br	....	.....	.....	S	Qg	...	....	....	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>1^b3-56 (Cont.)</u>													
7ada	.....	13.5	24	Br	....	20.58	6-27-62	U	Qg	...	....	....	....
8bbc	Paul Gunderson	9.3	24	Du	...	4.60	6-27-62	D,S	Qo	...	627	....	....
9dac	Harry Burchill	40	24	Br	1960	15	.....	S	Qg	...	1,720	....	....
10aca	Dan Gately	24	36	Br	....	19	.....	D,S	Qg	...	2,720	....	....
11baa	.....	21.1	36	Du	....	8.43	6-27-62	U	Qg	...	....	....	....
12aad	S. Bayliss	10	36	Br	1961	30	.....	D,S	Qo	...	....	....	....
13oad	Robert Dorothy	40	30	Du	1910	37	.....	D	Qg	...	2,460	....	....
14cdc	.....	20.4	28	Du	....	12.74	12-31-62	O	Qg	...	1,215	....	....
15abb	E. A. Graven	30	24	Br	1942	25	.....	D,S	Qg	...	....	....	....
16abb	Lyle McKay	10	18 x 18	Br	....	30	.....	D,S	Qg	...	1,500	....	....
16ccb	Test hole 21 ^b 4	158	5	Dr	1963	.....	.....	T	Qg	145	....	1,284	L.
17adb	Great Northern Railroad	119	6	Dr	1951	25	8-51	I	Qg	...	....	....	L.
17dac	J. G. Burchill	26.9	24	Br	1942	13.27	6-28-62	D	Qg	...	3,950	....	....
18cdd	Ed Berger	108.0	24	Br	....	13.06	6-28-62	S	Qg	...	....	....	....
20aaa	M. Kingston	31	36	Br	1961	.....	.....	D,S	Qg	...	2,740	....	....
20cccd	.....	21.1	20	Du	....	8.54	12-31-62	O	Qg	...	....	1,302	....
21add1	E. C. Levin	12	36	Br	1918	32	.....	D,S	Qg	...	2,610	....	C.
21add2	..do....	12	36	Br	....	.....	.....	S	Qg	...	....	....	C.
22aab	L. C. Smith	28	36	Br	1960	12	.....	D	Qg	...	1,060	....	....
22caa	Hemline University	33.9	36	Br	1950	22.20	6-28-62	D	Qg	...	....	....	....
25cccd	Ben Gray	32.4	24	Br	....	9.82	6-28-62	U	Qg	...	....	....	....
27acc	.....	13.8	24	Br	....	24.2	6-28-62	U	Qg	...	....	....	....
28bda	Iver Wisted	40	24	Br	1935	25	.....	S	Qg	...	4,180	....	....
30cdd	M. C. Barr	55.0	24	Br	1957	5.14	6-28-62	U	Qg	...	4,180	....	....
31baa	..do....	77.6	24	..	....	24.13	6-28-62	S	Qg	...	....	....	....
33aaa	John Abraham	40	40	Du	1938	33	.....	S	Qg	...	3,750	....	....
34cccd	.....	32.6	36	Br	....	17.26	6-28-62	S	Qg	...	....	....	....
34dcc	Floyd Brudevold	43.5	24	Br	....	10.18	6-28-62	D,S	Qg	...	2,790	....	....
35cccd	.....	29.4	36	Br	....	14.98	6-28-62	U	Qg	...	....	....	....
<u>1^b3-57</u>													
1ada	Raymond Bauer	10	36	Br	1955	15	.....	D	Qg	...	2,040	....	....
1cad	T. Jacobson	20	30	..	...	14	.....	D,S	Qg	...	....	....	....
1dad	..do....	100	30	Br	1942	80	.....	D,S	Qg	...	2,000	....	C.
6aba	H. Rasmussen	113. ^b	24	Br	1922	11.30	8- 7-62	U	Qg	...	....	....	....
6cca	Richard Wright	26. ^b	24	Br	....	11.15	8- 3-62	S	Qg	...	....	....	....
6add1	Walter Young	115	30	Br	1943	96	.....	D,S	Qg	...	....	....	....
6ddd2	..do....	921	6	Dr	....	.....	.....	U	Kd	...	....	....	....
8ada	C. Steffen	95	24	Br	....	.....	.....	S	Qg	...	....	....	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>1b3-57 (Cont.)</u>													
5baa	Dorothy Anderson	42	24	Br	....	28	.....	S	Qg	...	.....	.....
10aad	Allen Neilson	50	36	Br	1900	20	.....	D,S	Qg	...	1,710	.....
10cda	Grace Bowen	158	4	Dr	1956	108	.....	S	Qg	...	.....	.....
10dcc	Test hole 2145	252	5	Dr	1963	....	.....	T	Qg	235	....	1,434	L.
13bce	Leland Smith	37	30	Br	1935	17	.....	D,S	Qg	...	.....	.....
13dcg	Gordon Myer	38	36	Br	1950	33	.....	D	Qg	...	1,560	.....
14caa	.....	26.8	24	Br	....	12.95	8- 6-62	U	Qg	...	.....	.....
15cad	W. M. Flatt	65	36	Br	1945	53	.....	D,S	Qg	...	.....	.....
16dcg	Charles Webber	100	24	..	....	....	.....	D,S	Qg	...	.....	.....
17bbb	Gordon Svenningson	18	36	Du	1958	6	.....	S	Qg	...	.....	.....
19acc1	Richard Kunze	22	30	Du	....	14	.....	D,S	Qo	...	.....	.....
19acc2	..do....	16	..	..	....	....	....	S	Qo	...	.....	.....
20bbb	Howard Lee	90	4	Dr	1952	70	.....	D,S	Qg	...	1,410	.....
20dcg	Dorothy Ackley	58.4	30	Br	1918	45.39	8- 3-62	D	Qg	...	.....	.....
21cca	William Nelson	60	30	Br	1915	....	....	D,S	Qg	...	.....	.....
22aaa	John Ihry	43.1	30	Br	1942	33.92	8- 6-62	D,S	Qg	...	2,930	.....
22bbb	.....	89.3	18	Br	....	59.10	12-31-62	O	Qg	...	.....	1,477	
24add	.....	35.4	24	Br	....	19.46	8- 6-62	U	Qg	...	.....	.....
24bbc	Roy Smith	40	36	Br	1952	....	....	D,S	Qg	...	.....	.....
25cad	Earl Oderman	38	24	Br	1962	15	.....	D,S	Qg	...	.....	.....
26acc	Joe Grotberg	39.4	24	Br	....	14.28	8- 3-62	U	Qg	...	.....	.....
27cdd	W. R. Burchill	125	24	Br	....	85	.....	D	Qg	...	.....	.....
28dad	Howard Fross	114	24	Br	1906	100	.....	D,S	Qg	...	.....	.....
32ccc	J. G. Burchill	80	24	Br	....	70	.....	U	Qg	...	.....	.....
34ccc	J. S. Burchill	105	24	Br	1947	100	.....	D	Qg	...	.....	.....
35ccc	Walter Downs	70	6	Dr	1920	21	.....	D	Qg	...	1,670	.....
36cdc	Ronald Burchill	23	36	Br	1957	12	.....	D	Qg	...	.....	.....
<u>1b3-58</u>													
2ccc	Joseph Kunze	40	24	Br	....	25	.....	U	Qg	...	.....	.....
4bab	Ray Eberle	40	36	Du	....	15	.....	S	Qg	...	1,100	.....
4cab	J. B. Kunze	30	36	Du	....	20	.....	D,S	Qg	...	.....	.....
4cdb	..do....	30	18	Du	....	25	.....	S	Qg	...	.....	.....
6aaa	E. N. Johnson	20	36	Br	....	14	.....	D	Qg	...	925	.....
6ccc	H. T. Mosher	32	30	Du	....	24	.....	D	Qg	...	.....	.....
7abb	Ernest Ladbury	24	36	Du	....	21	.....	D	Qg	...	.....	.....
7ddd	A. Riedman	24	24	Du	....	14	.....	S	Qg	...	.....	.....
8dbc	Richard Wieland	35	36	Du	....	30	.....	S	Qg	...	.....	.....
10abc	George Kunze	44.5	24	Br	....	5.89	9-6-62	U	Qo	...	.....	.....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>143-58 (Cont.)</u>													
12dbd	City of Sibley	12	48	Du	....	8	.....	PS	Qg	...	....	....	C.
13bab	Edward Heinze	7	48	Du	....	Flow	9- 6-62	D,S	Qo	...	641	....
14dac	Alfons Eberle	18	36	Du	....	12	.....	S	Qo	...	....	....
15aba	E. J. Heinze	24	36	Du	....	16	.....	S	Qg	...	....	....
16bea	H. C. Amann	25.8	36	Du	....	8.97	9- 6-62	S	Qg	...	4,140	....
16dad	Oscar Kunze	21.7	36	Du	....	4.68	9- 6-62	S	Qg	...	....	....
18daa	Alphons Riedman	30	24	..	...	20	.....	S	Qg	...	....	....
18dda	Test hole 2097	63	5	Dr	1962	.....	.....	T	Qg	25	....	1,450	L.
19bca	Joe Berger	...	..	Sp	....	Flow	9- 5-62	D,S	Qg	...	1,270	....	C.
20adc	Fred Oettle	30	36	Du	....	26	.....	D	Qg	...	....	....
20cbd	Joe Edman	28.1	36	Du	....	17.20	9- 5-62	S	Qg	...	....	....
21aaa1	.....	27.5	48 x 48	Du	....	3.48	12-31-62	O	Qg	...	....	1,392	
21aaa2	Test hole 2098	31	5	Dr	1962	....	.....	T	Qg	15	....	1,394	L.
22aac	Karl Burkhardt	7.2	..	Du	....	2.30	9- 6-62	D	Qg	...	....	....
22cdd	Alphons Riedman	25	30	Du	....	15	.....	D,S	Qg	...	....	....
23dbb	Karl Burkhardt	6	..	Du	....	2	.....	D	Qo	...	....	....
28abc	Henry Kunze	34.2	36	Du	....	22.57	9- 6-62	S	Qg	...	....	....
30aac	Mrs. Wm. Wieland	8	72	Du	....	1	.....	D,S	Qo	...	....	....
30bbb	James Algeo	19.1	24	Du	....	9.53	9- 5-62	U	Qg	...	....	....
32aacd	.....	41.9	24 x 24	Du	....	25.47	9- 5-62	S	Qg	...	....	....
34dad1	Test hole 903	20	5	Dr	1954	....	.....	T	Qg	14	....	1,290	L.
34dad2	Test hole 904	30	5	Dr	1954	....	.....	T	Qg	21	....	1,300	L.
<u>143-59</u>													
1aaa	Test hole 2106	158	5	Dr	1962	....	.....	T	Qg	154	....	1,414	L.
1bba	C. Johnson Estate	165	..	Dr	1960	75	.....	D,S	Qg	...	1,990	....	C.
2bab	Jerald Fogderud	19.0	36	Du	1961	15.82	6-26-62	S	Qg	...	....	....
2cad	.....	8.4	24	Du	....	4.05	6-26-62	U	Qg	...	....	....
2ddb	.....	28.9	48 x 48	Du	....	21.2	6-26-62	S	Qg	...	....	....
3bdd1	Arthur Glesner	21.7	36	Du	....	14.06	6-26-62	S	Qg	...	....	....
3bdd2	..do....	110	6	Dr	1954	65	.....	D	Qg	...	1,580	....
4cccd	Agnes Stee	26.9	24	Du	....	16.06	6-26-62	S	Qg	...	2,280	....
6bad	A. Skjeret	18	36 x 36	Du	....	10	.....	D,S	Qg	...	1,550	....
8bcd	A. Anderson	124	4	Dr	1952	....	.....	D	Qg	...	1,450	....
9abb	.....	17.3	36	Du	....	13.4	6-26-62	U	Qg	...	....	....
9daa	H. M. Hanson	18	48 x 48	Du	....	15	.....	D	Qg	...	814	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>143-59 (Cont.)</u>													
14cdd	Test hole 2096	189	5	Dr	1962	....	....	T	Qg	175	....	1,402	L.
15bbc	.....	11.4	18	Du	....	7.52	6-27-62	D	Qg	...	758	....
15cbc	Harold Glesner	23.9	36	Du	....	8.55	6-27-62	S	Qg	...	....	....
15ccc	Test hole 2095	210	5	Dr	1962	....	....	T	Qg	194	....	1,425	L.
17cbc	Roy Jacobson	32.8	24	Br	....	15.5	6-26-62	D,S	Qg	...	2,630	....
18abb	Oliver Bennet	29.3	..	Du	....	9.05	6-26-62	U	Qg	...	....	....
18ccd	Lura Stowman	67	6	..	1942	....	....	D	Qg	...	1,210	....
18ddd	Test hole 2094	210	5	Dr	1962	....	....	T	Qg	195	....	1,435	L.
19acb	R. Oppegard	191	4	Dr	1962	188	....	D	Qg	184	....	1,435	L.
19dbb	City of Dazey	60	4	Dr	....	....	....	PS	Qg	...	1,410	....
20bca	John Oppegard	28	..	Du	....	14	....	U	Qg	...	....	....
20cdd	.....	18.2	30	Du	....	7.13	12-4-62	O	Qg	...	....	1,428	
22ccb	Peter Bryn	153	6	Dr	1955	....	....	D	Qg	...	1,450	....
23bba	.....	38.4	18	Br	....	16.10	12-4-62	O	Qg	...	....	1,405	
23cdc	J. G. Mueller	30	36	Br	1961	12	....	D,S	Qg	...	....	....
24cba	.....	11.5	48 x 48	Du	....	9.85	5-25-62	...	Qg	...	....	....
25abb	Eugene Weller	20	36	Br	1942	10	....	D,S	Qg	...	....	....
27bba	Hugo Wieland	30	24	Du	....	17	....	S	Qg	...	1,270	....
28bba	John Madsven	24.1	36	Du	....	7.37	6-27-62	S	Qg	...	....	....
28ccb	.....	14.1	48 x 48	Du	....	10.68	6-27-62	S	Qg	...	....	....
29ccb	Helmer Christenson	27	36	Du	....	16	....	D,S	Qg	...	1,330	....
30bda	Cemetery	30.6	4	Dr	....	11.86	6- 4-62	D	Qg	...	....	....
31bba	Agnes Moore	22.1	24	Du	....	10.38	6-27-62	D	Qg	...	836	....
32bdd	.....	16.8	36	Du	....	13.32	6-27-62	U	Qg	...	....	....
33bba	Keith Muney	22	36	Du	1938	19	....	D,S	Qg	...	637	....
34cbc	Dean Calkins	21.2	36	Br	....	12.64	6-27-62	D	Qg	...	....	....
35aba	.....	11.2	24	Du	....	6.38	6-27-62	U	Qg	...	....	....
35bba	A. Blaster	115	6	Dr	1957	....	....	D,S	Kf	115	8,690	1,425	c.
<u>143-60</u>													
2ddc	Lawrence Hagglund	100	8	Dr	....	....	....	D,S	Qg	...	1,300	....
5ada	.....	42.5	24	Br	....	18.37	5-29-62	U	Qg	...	....	....
7baa	W. Steckler	170	..	Dr	1952	....	....	D,S	Qg	...	1,210	....	c.
8ccc	.....	20.2	24	Du	....	14.60	5-29-62	S	Qg	...	....	....
9bcc	Carl Peterson	26	36	Du	1942	18	....	D,S	Qg	...	1,780	....
10bcb	.....	24.7	36	Du	....	17.27	5-29-62	U	Qg	...	....	....
10cdd	.....	12.9	42	Du	....	8.92	12-4-62	O	Qg	...	....	1,435	

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>143-60 (Cont.)</u>													
10dcc	Arthur Swanson	60	..	Dr	1930	30	.....	S	Qg	...	1,080	....
12add	Leon Anderson	30	36	Du	1920	.....	.....	D	Qg	...	1,130	....
13ccc	Test hole 2093	231	5	Dr	1962	.....	.....	T	Qg	208	....	1,432	L.
13ccdl	N. T. Anderson	19.5	36	Du	....	5.24	5-29-62	S	Qg	...	....	....
13ccd2	..do....	93	4	Dr	1952	15	.....	D	Qg	...	1,360	....
15aba	Roy Ohnstad	76	4	Dr	1952	20	.....	D	Qg	...	....	....
15ccc	Test hole 2092	195	5	Dr	1962	21.90	12-4-62	T,O	Qg	...	....	1,455	C; L.
17acc	Leo Steckler	30	..	Du	....	....	....	D,S	Qg	...	2,620	....
18ddd	Gene Frahm	22	30	Du	1930	16	.....	D,S	Qg	...	1,960	....
19aaa	Test hole 2091	245	5	Dr	1962	9.3	10-31-62	T	Qg	233	....	1,455	L.
19add	Ervin Frahm	45	24	Br	1950	25	.....	D	Qg	...	....	....
20cad	O. L Thorud	27.3	24	Du	....	15.17	6- 5-62	S	Qg	...	....	....
21aad	Rudolph Knutson	20	36	Du	1933	10	.....	S	Qg	...	....	....
21baa	.....	40.0	24	Br	....	34.84	5-29-62	...	Qg	...	....	....
22aaa	.....	41.4	36	Du	....	17.68	5-29-62	O	Qg	...	....	1,450	
22ccd	.....	29.5	24	Br	1961	19.40	6- 4-62	U	Qg	...	....	....
24ccd	.....	13.5	36	Du	....	3.56	6- 4-62	S	Qg	...	....	....
25add	W. F. Dwyer	60	4	Dr	1950	10	.....	D,S	Qg	...	1,420	....
26adc	Melvin Quick	52	5	Dr	1917	....	....	S	Qg	...	1,040	....
27dad	Olaf Broten	11	36	Du	1941	7	.....	D,S	Qg	...	920	....
30add	R. W. Ames	37	48 x 48	Du	....	....	....	D,S	Qg	...	....	....
31aad	C. Anderson	26.8	24	Du	1920	23.63	5-29-62	D,S	Qg	...	....	....
32acc	A. Anderson	27	26	Du	....	22	.....	D,S	Qg	...	714	....
35bda	Carl Oglesby	65	6	Dr	1956	15	.....	S	Qg	...	....	....
<u>143-61</u>													
2aaa	Test hole 2158	147	5	Dr	1963	....	....	T	Qg	125	....	1,430	L.
2add	Robert Smith	...	36 x 36	Du	....	13.18	5- 7-62	D	Qg	...	1,810	....
4cdd	Chester Menz	18	36	Du	1962	14	.....	D,S	Qg	...	1,380	....
6add1	A. H. Fair	24	72 x 72	Du	1912	21.8	5- 3-62	S	Qg	...	1,360	....
6add2	..do....	140	5	Dr	1935	....	....	U	Qg	80	....	1,502	
6daa	.....	25.4	36	Du	....	19.66	5- 3-62	U	Qg	...	....	....
7daa	Cliff Jarvis	27.1	44	Du	1940	20.37	5- 3-62	D,S	Qg	...	....	....
8bbb	W. D. Koll	20	36	Du	1959	....	....	D	Qg	...	....	....
8cdd	C. Tweed	23.3	30	Du	....	14.75	5- 3-62	U	Qg	...	....	....
10bbb	Herman Rose	22	..	Br	....	....	....	D	Qg	...	1,010	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>143-61 (Cont.)</u>													
10cbb	.....	11.8	36	Br	....	6.71	5- 4-62	U	Qg	...	....	....
13ecc	.....	12.8	36	Br	....	11.28	5- 7-62	D	Qg	...	1,020	....
14dad	Roy Becker	50	4	Dr	1920	....	....	D,S	Qg	...	600	....	C.
16abb	John Rose	100 +	8	Dr	....	....	....	D	Qg	...	....	....
17add	Gordon Shockley	26	48 x 48	Du	1938	10	....	S	Qg	...	....	....
17ccb	Rich Hahlke	30	36 x 36	Du	....	13.03	5- 3-62	S	Qg	...	....	....
18dcc	.....	20.0	36 x 36	Du	....	17.52	5- 3-62	...	Qg	...	....	....
18ddd	Phil Runck	21.7	12	Br	....	17.66	5- 3-62	D,S	Qg	21	4,890	1,493	
20bcc	Ralph Venhuizen	73	5	Dr	....	20	....	D,S	Qg	...	1,620	....
21aaa	Test hole 2090	63	5	Dr	1962	8.3	10-31-62	T	Qg	47	....	1,473	L.
21aba	Harry Braasch	30.2	36 x 36	Du	1935	25.75	5- 3-62	D,S	Qg	...	....	....
21cca	Art Flohr	30	5	Dr	1920	10	....	D,S	Qg	...	....	....
22add	.....	23.4	36	Br	....	16.08	12-6-62	S	Qg	...	....	....
23edd	P. & D. No. 1 Gregory	1,690	..	Dr	1953	....	....	U	Qg	80	....	1,473	Oil test--L. (N. Dak. Geol. Survey Circular No. 94)
24bbb	Test hole 2089	105	5	Dr	1962	5.30	10-30-62	T	Qg	80	....	1,461	L.
24bcc	Roy Becker	19.2	36 x 36	Du	....	18.14	5- 7-62	S	Qg	...	....	....
25ccb	Paul Mueller	...	36	Du	1958	21.35	5- 8-62	D,S	Qg	...	690	....
26baa	William Etter	27	..	Du	1910	....	....	D,S	Qg	...	....	....
26ddc	Lynn Law	30	..	Du	1961	....	....	D	Qg	...	....	....	C.
27ccd	R. Bultema	186	6	Dr	1950	20	....	D	Qg	...	....	....
27cd	Test hole 10 W	160	5	Dr	1947	....	....	T	Qg	80	....	1,464	L.
28aab	Milford Nelson	10.4	40	Du	....	7.85	5- 3-62	U	Qg	...	....	....
28bbb	Carl Luther Estate	92	6	Dr	....	....	....	D,S	Qg	...	....	....
28dbb	R. Bultema	50	6	Dr	....	36	....	D,S	Qg	...	1,370	....
29cbb	John Bennett	28	48	Du	1939	20	....	D,S	Qg	...	....	....
29cdc	Test hole 11 W	70	5	Dr	1947	19.5	8-17-47	T	Qg	66	....	1,484	L.
30cac1	School	158	6	Dr	1930	35	....	PS	Qg	...	....	....
30cac2	Mrs. Murdock	250	6	Dr	....	....	....	D	Qg	...	....	....
30cbd	Henry Etter	35	..	Du	....	....	....	D	Qg	...	....	....
30ccb	John Hartman	10	24	Du	1946	6	....	D,S	Qg	...	....	....
30ccd	Soo Line Railroad	1,557	8	Dr	1889	Flow	8-15-47	PS	Kd	...	....	....	Orig. flow 400 gpm @ 65 psi.
30cda	Wimbledon No. 4	51.0	48	Du	1939	9.32	8-28-47	U	Qg	...	....	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>143-61 (Cont.)</u>													
30cdbl	Livery stable	67	4	Dr	1915	15.19	8-29-47	D	Qg	...	....	....
30cdb2	Wimbledon No. 3	77	8	Dr	1938	38.12	8-28-47	D,PS	Qg	...	....	....
30cdc	Wimbledon No. 2	28.5	48	Du	1939	16.89	8-28-47	PS	Qg	...	....	....
30dbb	Wimbledon No. 5	38	10	Dr	1939	16.54	8-28-47	PS	Qg	...	....	....
31bab	Wimbledon No. 1	37.5	48	Du	1939	18.89	8-28-47	PS	Qg	...	....	....
31bba	Emil Borth	40	36	Du	....	30	.....	D	Qg	...	....	....
31ccc	Test hole 5 W	80	5	Dr	1947	....	.....	T	Qg	60	....	1,503	L.
32bbd	Fred Buck	90	6	Dr	1927	40	.....	S	Qg	...	....	....
32bcc	Test hole 13 W	70	5	Dr	1947	....	.....	T	Qg	...	....	1,480	L.
32cca	Elgan McKee	46	3	Dr	1912	15.57	8-29-47	D,S	Qg	...	....	....
32daa	R. J. Joos	185	6	Dr	1914	35	.....	D,S	Qg	...	....	....
32dcb	Test hole 12 W	70	5	Dr	1947	....	.....	T	Qg	61	....	1,474	L.
32dcd	Test hole 6 W	90	6	Dr	1947	....	.....	T	Qg	67	....	1,473	L.
33bbb	.....	51.0	8	Dr	....	17.00	5- 3-62	S	Qg	...	....	....

TABLE 2.--Water-level records of selected observation wells

Depth to water in feet below land surface

137-56-16aaa					
Date	Water level	Date	Water level	Date	Water level
22, 1962....	13.12	Dec. 4, 1962....	8.57	June 26, 1963....	9.07
y 2.....	11.54	Dec. 31.....	9.26	July 30.....	10.52
y 31.....	7.88	Jan. 30, 1963....	*	Sept. 5.....	11.76
. 28.....	8.01	Mar. 26.....	11.99	Oct. 2.....	12.42
. 2.....	8.46	Apr. 23.....	10.97	Nov. 13.....	13.54
. 1.....	8.81	May 28.....	8.78	Dec. 3.....	13.65
rozen					
137-56-20bab					
22, 1962....	33.19	Dec. 4, 1962....	12.24	May 28, 1963....	15.74
y 2.....	28.21	Dec. 31.....	13.65	June 26.....	13.74
y 31.....	21.17	Jan. 30, 1963....	15.80	July 30.....	14.21
. 28.....	15.61	Feb. 25.....	18.57	Sept. 5.....	15.14
. 2.....	13.03	Mar. 26.....	20.10	Oct. 2.....	15.99
. 1.....	12.69	Apr. 23.....	20.73	Dec. 3.....	19.17
137-57-10ddc					
23, 1962....	36.49	Dec. 4, 1962....	28.17	June 26, 1963....	27.28
y 3.....	34.60	Dec. 31.....	27.80	July 30.....	27.54
y 31.....	32.07	Jan. 30, 1963....	27.62	Sept. 5.....	28.00
. 28.....	31.39	Mar. 26.....	28.53	Oct. 2.....	28.45
. 2.....	29.86	Apr. 23.....	28.40	Nov. 13.....	29.90
. 1.....	28.90	May 28.....	28.33	Dec. 3.....	29.09
137-57-26bbc					
23, 1962....	20.44	Dec. 4, 1962....	7.65	May 28, 1963....	6.64
y 3.....	18.48	Dec. 31.....	7.89	June 26.....	5.63
y 31.....	9.29	Jan. 30, 1963....	8.63	July 30.....	7.63
. 28.....	7.51	Feb. 25.....	9.55	Sept. 5.....	9.28
. 2.....	7.65	Mar. 25.....	10.20	Oct. 2.....	9.90
. 1.....	7.98	Apr. 23.....	9.74	Dec. 3.....	11.18

Depth to water in feet below land surface

137-58-27bad					
Date	Water level	Date	Water level	Date	Wa le
July 3, 1962.....	35.34	Jan. 31, 1963.....	34.48	July 30, 1963.....	34
July 31.....	35.36	Feb. 25.....	34.72	Sept. 5.....	34
Aug. 28.....	35.16	Mar. 26.....	34.49	Oct. 2.....	34
Oct. 2.....	34.05	Apr. 24.....	34.40	Nov. 13.....	34
Dec. 4.....	34.84	May 30.....	34.31	Dec. 2.....	34
Jan. 1, 1963.....	34.74	June 27.....	34.23		

137-58-34ccc					
Date	Water level	Date	Water level	Date	Wa le
Apr. 26, 1963.....	10.08	June 27, 1963.....	10.18	Oct. 2, 1963.....	10
May 17.....	10.12	July 30.....	10.19	Nov. 13.....	10
May 30.....	10.15	Sept. 5.....	10.21	Dec. 2.....	10

137-59-4ccc					
Date	Water level	Date	Water level	Date	Wa le
May 25, 1962.....	27.03	Dec. 1, 1962.....	25.00	May 30, 1963.....	26
July 4.....	26.48	Jan. 1, 1963.....	26.26	June 27.....	26
Aug. 1.....	18.98	Jan. 31.....	26.70	July 30.....	26
Aug. 28.....	24.88	Feb. 25.....	27.00	Sept. 5.....	26
Oct. 2.....	25.18	Mar. 26.....	27.45	Oct. 2.....	27
Oct. 31.....	25.34	Apr. 24.....	25.80	Dec. 3.....	27

137-59-5aaa					
Date	Water level	Date	Water level	Date	Wa le
Dec. 4, 1962.....	0.63	Mar. 26, 1963.....	*	July 30, 1963.....	2
Jan. 1, 1963.....	*	Apr. 24.....	*	Sept. 5.....	1
Jan. 31.....	*	May 30.....	1.40	Oct. 2.....	2
Feb. 25.....	*	June 27.....	1.76	Dec. 3.....	3
# frozen					

137-59-24cbc					
Date	Water level	Date	Water level	Date	Wa le
May 25, 1962.....	18.26	Dec. 4, 1962.....	14.95	May 30, 1963.....	14
July 4.....	15.27	Jan. 1, 1963.....	14.08	June 27.....	14
Aug. 1.....	13.49	Jan. 31.....	15.34	July 30.....	14
Aug. 28.....	13.15	Feb. 25.....	16.47	Sept. 5.....	15
Oct. 2.....	13.00	Mar. 27.....	17.17	Oct. 2.....	16
Oct. 31.....	13.27	Apr. 24.....	16.78	Dec. 2.....	17

Depth to water in feet below land surface

137-60-10add

Date	Water level	Date	Water level	Date	Water level
May 28, 1962.....	16.08	Dec. 5, 1962.....	9.28	May 30, 1963.....	9.40
July 5.....	12.02	Jan. 1, 1963.....	9.55	June 27.....	10.35
Aug. 1.....	6.54	Jan. 31.....	10.45	July 31.....	11.69
Aug. 29.....	7.26	Feb. 25.....	11.73	Sept. 6.....	12.54
Oct. 3.....	8.42	Mar. 27.....	12.54	Oct. 1.....	13.01
Oct. 31.....	9.15	Apr. 25.....	11.86	Dec. 4.....	13.80

137-61-19cdd

May 17, 1962.....	46.95	Dec. 5, 1962.....	45.64	May 30, 1963.....	45.46
July 5.....	46.72	Jan. 1, 1963.....	45.46	June 27.....	45.63
Aug. 2.....	45.77	Jan. 31.....	45.20	July 31.....	45.62
Aug. 29.....	45.58	Feb. 25.....	45.40	Sept. 6.....	45.40
Oct. 3.....	45.43	Mar. 27.....	45.38	Oct. 1.....	45.34
Oct. 31.....	45.45	Apr. 25.....	45.53	Dec. 4.....	45.36

138-56-9bcc

July 2, 1962.....	15.83	Dec. 31, 1962.....	12.74	June 26, 1963.....	13.12
July 31.....	9.50	Jan. 30, 1963.....	14.74	July 30.....	15.09
Aug. 28.....	9.64	Feb. 25.....	17.00	Sept. 5.....	16.77
Oct. 2.....	9.95	Mar. 26.....	17.62	Oct. 2.....	17.63
Nov. 1.....	11.14	Apr. 23.....	17.44	Nov. 13.....	18.55
Dec. 4.....	12.00	May 28.....	13.67	Dec. 3.....	18.60

138-57-26bbc

May 23, 1962.....	36.90	Dec. 4, 1962.....	27.27	May 28, 1963.....	28.18
July 3.....	35.69	Dec. 31.....	27.30	June 26.....	27.62
July 31.....	32.57	Jan. 30, 1963.....	27.54	July 30.....	27.60
Aug. 28.....	30.36	Feb. 25.....	28.24	Sept. 5.....	27.87
Oct. 2.....	29.13	Mar. 26.....	28.41	Oct. 2.....	28.10
Nov. 1.....	28.19	Apr. 23.....	28.73	Dec. 3.....	28.55

138-58-15baa

May 24, 1962.....	8.87	Dec. 4, 1962.....	12.44	May 30, 1963.....	13.14
July 4.....	5.62	Jan. 1, 1963.....	12.05	June 26.....	13.17
July 31.....	11.02	Jan. 31.....	11.41	July 30.....	13.45
Aug. 28.....	10.82	Feb. 25.....	11.90	Sept. 5.....	13.47
Oct. 3.....	12.26	Mar. 26.....	12.07	Oct. 2.....	13.65
Nov. 1.....	12.30	Apr. 24.....	13.10		

Depth to water in feet below land surface

138-58-33add

Date	Water level	Date	Water level	Date	Water level
May 24, 1962.....	12.32	Dec. 4, 1962.....	13.10	June 27, 1963.....	13.6
July 3.....	12.24	Jan. 1, 1963.....	13.25	July 30.....	13.9
July 31.....	11.98	Jan. 31.....	13.30	Sept. 5.....	13.7
Aug. 28.....	13.04	Mar. 26.....	12.95	Oct. 2.....	14.3
Oct. 3.....	13.05	Apr. 24.....	12.78	Nov. 13.....	14.0
Nov. 1.....	13.08	May 3.....	13.23	Dec. 2.....	14.0

138-59-27aad

May 25, 1962.....	18.39	Dec. 4, 1962.....	13.27	May 3, 1963.....	13.8
July 4.....	16.68	Jan. 1, 1963.....	13.82	June 27.....	14.0
Aug. 1.....	13.49	Jan. 31.....	14.52	July 30.....	14.6
Aug. 28.....	13.37	Feb. 25.....	15.57	Sept. 5.....	15.4
Oct. 2.....	13.19	Mar. 26.....	14.88	Oct. 2.....	16.0
Oct. 31.....	13.33	Apr. 24.....	15.43	Dec. 3.....	17.0

138-60-9bba

May 18, 1962.....	22.64	Dec. 5, 1962.....	14.14	May 30, 1963.....	15.8
July 25.....	19.31	Jan. 1, 1963.....	14.55	June 27.....	15.3
Aug. 1.....	10.92	Jan. 31.....	15.02	July 31.....	16.1
Aug. 29.....	11.10	Feb. 25.....	16.10	Sept. 6.....	17.0
Oct. 3.....	12.53	Mar. 27.....	16.73	Oct. 1.....	17.6
Oct. 31.....	13.46	Apr. 25.....	17.07	Dec. 4.....	19.4

138-60-10adc

May 18, 1962.....	4.62	Dec. 5, 1962.....	3.80	June 27, 1963.....	4.39
July 5.....	2.59	Jan. 1, 1963.....	*	July 31.....	4.66
Aug. 1.....	1.89	Feb. 25.....	*	Sept. 6.....	4.84
Aug. 29.....	2.91	Mar. 27.....	*	Oct. 1.....	5.11
Oct. 3.....	3.27	Apr. 25.....	*	Dec. 4.....	5.92
Oct. 31.....	3.75	May 30.....	3.67		

* frozen

138-61-6aaa

May 30, 1963.....	11.23	July 31, 1963.....	11.28	Oct. 1, 1963.....	11.71
June 27.....	11.19	Sept. 6.....	11.50	Dec. 4.....	12.29

Depth to water in feet below land surface

138-61-24aaa

Date	Water level	Date	Water level	Date	Water level
r 17, 1962.....	15.32	Dec. 5, 1962.....	9.50	May 30, 1963.....	10.45
ly 6.....	12.57	Jan. 1, 1963.....	9.77	June 27.....	10.93
z. 2.....	5.00	Jan. 31.....	10.25	July 31.....	11.73
z. 29.....	6.15	Feb. 25.....	11.12	Sept. 6.....	12.32
.. 4.....	7.68	Mar. 27.....	11.14	Oct. 1.....	12.82
.. 31.....	8.82	Apr. 25.....	11.47	Dec. 4.....	14.09

139-56-10ddd

r 22, 1962.....	7.73	Dec. 4, 1962.....	5.08	May 29, 1963.....	4.81
ly 2.....	5.58	Dec. 31.....	5.38	June 26.....	4.90
z. 1.....	4.60	Jan. 30, 1963.....	5.96	July 30.....	5.49
z. 28.....	4.87	Feb. 25.....	6.65	Sept. 9.....	5.99
.. 2.....	4.93	Mar. 25.....	7.08	Oct. 2.....	6.28
r. 1.....	5.70	Apr. 23.....	6.32	Dec. 3.....	6.95

139-57-14ddd

r 23, 1962.....	13.67	Dec. 4, 1962.....	8.66	May 28, 1963.....	8.63
ly 3.....	10.20	Dec. 31.....	9.10	June 26.....	8.20
z. 1.....	5.34	Jan. 30, 1963.....	9.50	July 30.....	9.02
z. 28.....	5.92	Feb. 25.....	10.22	Sept. 5.....	10.34
.. 2.....	7.25	Mar. 26.....	10.89	Oct. 2.....	10.90
r. 1.....	7.96	Apr. 23.....	10.64	Dec. 3.....	12.31

139-58-24bbb

r 24, 1962.....	8.44	Dec. 4, 1962.....	5.89	June 26, 1963.....	6.63
ly 4.....	6.95	Jan. 1, 1963.....	6.62	July 30.....	9.91
ly 31.....	5.30	Jan. 31.....	7.53	Sept. 5.....	9.50
z. 28.....	5.51	Mar. 26.....	8.34	Oct. 2.....	8.99
.. 2.....	5.60	Apr. 24.....	7.70	Dec. 2.....	9.34
r. 1.....	5.98	May 28.....	6.42		

139-59-21bbc2

ly 4, 1962.....	40.68	Jan. 1, 1963.....	39.97	June 27, 1963.....	39.69
z. 1.....	40.47	Jan. 31.....	39.80	July 30.....	39.62
z. 28.....	40.32	Feb. 25.....	40.03	Sept. 5.....	39.44
.. 2.....	40.13	Mar. 26.....	39.57	Oct. 2.....	39.58
.. 31.....	39.95	Apr. 24.....	39.48	Dec. 3.....	39.62
.. 4.....	40.15	May 30.....	39.66		

Depth to water in feet below land surface

139-59-34dda

Date	Water level	Date	Water level	Date	Water level
May 22, 1962.....	10.06	Dec. 4, 1962.....	8.83	June 24, 1963.....	9.29
July 4.....	8.43	Jan. 1, 1963.....	9.01	July 30.....	9.76
Aug. 1.....	5.62	Jan. 31.....	9.50	Sept. 5.....	10.30
Aug. 28.....	6.78	Mar. 26.....	10.62	Oct. 2.....	10.64
Oct. 3.....	7.90	Apr. 24.....	10.28	Dec. 3.....	11.43
Oct. 31.....	8.52	May 30.....	9.19		

139-60-9cbe

May 31, 1962.....	12.89	Dec. 5, 1962.....	8.63	May 30, 1963.....	9.74
July 5.....	11.67	Jan. 1, 1963.....	9.33	June 27.....	10.02
Aug. 1.....	8.85	Jan. 31.....	10.28	July 31.....	10.68
Aug. 29.....	8.31	Feb. 25.....	11.09	Sept. 6	11.28
Oct. 3.....	8.29	Mar. 27.....	11.38	Oct. 1.....	11.63
Oct. 31.....	8.59	Apr. 25.....	10.82	Dec. 4.....	12.43

139-61-22edd

May 2, 1962.....	25.69	Dec. 5, 1962.....	15.37	June 27, 1963.....	18.90
July 6.....	22.50	Jan. 1, 1963.....	16.98	July 31.....	18.63
Aug. 2.....	16.97	Jan. 31.....	17.08	Sept. 6	20.01
Aug. 29.....	14.38	Feb. 25.....	18.69	Oct. 1.....	20.61
Oct. 4.....	14.28	Mar. 27.....	19.69	Dec. 4.....	22.14
Oct. 31.....	14.94	Apr. 25.....	20.10		

140-57-10dad

May 23, 1962.....	6.24	Dec. 4, 1962.....	5.59	May 28, 1963.....	5.22
July 3.....	3.79	Dec. 31.....	5.85	June 26.....	5.58
July 30.....	3.92	Jan. 30, 1963.....	6.92	July 30.....	6.59
Aug. 28.....	5.11	Feb. 25.....	7.73	Sept. 5.....	7.43
Oct. 2.....	5.18	Mar. 26.....	8.15	Oct. 2.....	7.77
Nov. 1.....	5.74	Apr. 23.....	7.00	Dec. 3.....	8.02

140-58-21bbd

May 24, 1962.....	21.52	Dec. 4, 1962.....	20.64	May 31, 1963.....	20.40
July 4.....	21.16	Dec. 31.....	20.69	June 26.....	20.33
July 31.....	21.00	Jan. 30, 1963.....	20.66	July 30.....	20.51
Aug. 28.....	20.85	Feb. 25.....	20.63	Sept. 5.....	20.70
Oct. 2.....	20.82	Mar. 26.....	20.64	Oct. 2.....	20.87
Nov. 1.....	20.72	Apr. 24.....	20.51	Dec. 3.....	21.09

Depth to water in feet below land surface

140-59-35ddc

Date	Water level	Date	Water level	Date	Water level
Apr. 30, 1963.....	15.02	June 27, 1963.....	14.59	Oct. 2, 1963.....	16.62
May 17.....	13.96	July 30.....	15.14	Dec. 3.....	17.12
May 30.....	13.88	Sept. 5.....	16.11		

140-60-9cdc

May 31, 1962.....	25.46	Dec. 5, 1962.....	21.97	May 30, 1963.....	21.86
July 5.....	25.09	Jan. 1, 1963.....	21.53	June 28.....	21.46
Aug. 1.....	24.30	Jan. 31.....	21.27	July 31.....	21.35
Aug. 29.....	23.66	Feb. 25.....	21.01	Sept. 6.....	21.24
Oct. 2.....	22.87	Mar. 27.....	21.72	Oct. 1.....	21.21
Oct. 31.....	22.37	Apr. 25.....	22.03	Dec. 4.....	21.88

140-61-19baa

May 15, 1962.....	18.46	Dec. 6, 1962.....	14.48	May 31, 1963.....	15.42
July 6.....	16.63	Jan. 2, 1963.....	16.02	June 28.....	16.25
Aug. 2.....	14.19	Feb. 1.....	16.82	July 31.....	16.92
Aug. 29.....	14.58	Feb. 25.....	17.63	Sept. 6.....	17.25
Oct. 4.....	14.65	Mar. 27.....	17.46	Oct. 1.....	17.89
Oct. 30.....	15.01	Apr. 25.....	16.26	Dec. 4.....	18.35

140-61-22bbc

May 15, 1962.....	44.94	Dec. 6, 1962.....	43.29	June 28, 1963.....	43.02
July 6.....	44.25	Jan. 2, 1963.....	43.13	July 31.....	42.93
Aug. 2.....	44.12	Feb. 1.....	42.91	Sept. 6.....	42.97
Aug. 29.....	43.81	Mar. 27.....	43.69	Oct. 1.....	42.98
Oct. 4.....	43.51	Apr. 25.....	43.07	Dec. 4.....	43.12
Oct. 30.....	43.49	May 31.....	42.89		

141-56-22cdcl

May 22, 1962.....	15.14	Dec. 4, 1962.....	11.13	May 28, 1963.....	10.80
July 2.....	12.80	Dec. 31.....	10.45	June 26.....	10.53
July 30.....	10.44	Jan. 30, 1963.....	*	July 30.....	11.22
Aug. 28.....	10.16	Feb. 25.....	*	Sept. 4.....	12.30
Oct. 1.....	10.22	Mar. 26.....	12.03	Oct. 2.....	12.73
Nov. 1.....	10.25	Apr. 23.....	12.04	Dec. 2.....	13.56

* frozen

Depth to water in feet below land surface

141-60-4cdd

Date	Water level	Date	Water level	Date	Water level
May 31, 1962.....	9.48	Dec. 5, 1962.....	9.13	May 30, 1963.....	9.57
July 5.....	7.94	Jan. 1, 1963.....	9.18	June 28.....	9.31
Aug. 1.....	7.07	Jan. 31.....	9.28	July 31.....	9.50
Aug. 29.....	7.92	Feb. 25.....	10.10	Sept. 6.....	9.85
Oct. 3.....	8.21	Mar. 27.....	10.29	Oct. 1.....	10.13
Oct. 31.....	9.60	Apr. 25.....	10.28	Dec. 4.....	10.74

141-60-27ccc

Oct. 4, 1962.....	14.82	Feb. 25, 1963.....	15.43	July 31, 1963.....	15.63
Oct. 31.....	14.78	Mar. 27.....	15.78	Sept. 6.....	15.68
Dec. 5.....	14.66	Apr. 25.....	16.08	Oct. 1.....	15.83
Jan. 1, 1963.....	14.72	May 30.....	15.88	Dec. 4.....	16.17
Jan. 31.....	14.97	June 28.....	15.61		

141-61-2ccc

Oct. 4, 1962.....	16.57	Feb. 25, 1963.....	15.89	July 31, 1963.....	15.89
Oct. 30.....	16.53	Mar. 27.....	15.86	Sept. 6.....	15.82
Dec. 6.....	16.14	Apr. 25.....	15.82	Oct. 1.....	15.88
Jan. 2, 1963.....	15.99	May 31.....	15.80	Dec. 4.....	15.96
Jan. 31.....	15.83	June 28.....	15.18		

141-61-20beb

July 6, 1962.....	37.14	Jan. 2, 1963.....	33.58	July 31, 1963.....	34.56
Aug. 2.....	35.39	Feb. 1.....	33.83	Sept. 6.....	34.70
Aug. 28.....	34.34	Mar. 27.....	35.02	Oct. 1.....	34.76
Oct. 4.....	33.78	Apr. 25.....	35.39	Dec. 4.....	35.29
Oct. 30.....	33.73	May 31.....	34.89		
Dec. 6.....	33.45	June 28.....	34.50		

142-56-28aad

May 26, 1962.....	21.83	Dec. 4, 1962.....	13.68	May 28, 1963.....	16.20
July 2.....	20.67	Dec. 31.....	14.36	June 26.....	15.34
July 30.....	17.56	Jan. 30, 1963.....	15.08	July 30.....	15.89
Aug. 28.....	14.89	Feb. 25.....	16.03	Sept. 4.....	16.80
Oct. 1.....	13.86	Mar. 25.....	16.51	Oct. 2.....	16.95
Nov. 1.....	13.73	Apr. 23.....	16.77	Dec. 2.....	17.70

Depth to water in feet below land surface

142-57-35cdc

Date	Water level	Date	Water level	Date	Water level
May 23, 1962.....	14.33	Dec. 4, 1962.....	10.63	May 28, 1963.....	12.07
July 3.....	12.92	Dec. 31.....	10.65	June 26.....	11.98
July 31.....	10.62	Jan. 30, 1963.....	10.93	July 30.....	12.08
Aug. 28.....	11.29	Feb. 25.....	11.39	Sept. 5.....	12.24
Oct. 2.....	10.95	Mar. 26.....	11.95	Oct. 2.....	12.43
Nov. 1.....	10.83	Apr. 23.....	12.23	Dec. 3.....	14.18

142-58-10daa

May 24, 1962.....	11.13	Dec. 4, 1962.....	11.02	May 29, 1963.....	11.09
July 3.....	11.62	Dec. 31.....	11.27	June 27.....	11.40
July 31.....	11.15	Jan. 30, 1963.....	11.57	July 30.....	11.77
Aug. 28.....	11.40	Feb. 25.....	11.67	Sept. 5.....	11.97
Oct. 2.....	11.06	Mar. 26.....	11.59	Oct. 2.....	12.11
Nov. 1.....	11.13	Apr. 24.....	11.41	Dec. 3.....	12.18

142-59-10bbb

May 25, 1962.....	10.00	Dec. 4, 1962.....	8.26	May 30, 1963.....	8.65
July 4.....	7.22	Jan. 1, 1963.....	8.50	June 27.....	8.50
Aug. 1.....	6.83	Jan. 31.....	8.98	July 31.....	9.27
Aug. 27.....	7.29	Feb. 25.....	9.78	Sept. 6.....	10.05
Oct. 2.....	7.67	Mar. 27.....	10.23	Oct. 1.....	10.44
Oct. 31.....	8.09	Apr. 30.....	10.05	Dec. 3.....	11.27

142-59-18bbb

Oct. 31, 1962.....	23.98	Mar. 27, 1963.....	22.63	Sept. 6, 1963.....	22.69
Dec. 4.....	21.92	Apr. 24.....	22.65	Oct. 1.....	23.10
Jan. 1, 1963.....	21.74	May 30.....	22.57	Dec. 3.....	23.18
Jan. 31.....	22.05	June 27.....	22.49		
Feb. 25.....	22.41	July 31.....	22.55		

142-60-28abb

June 5, 1962.....	8.44	Dec. 4, 1962.....	8.65	June 28, 1963.....	7.41
July 5.....	7.28	Jan. 1, 1963.....	7.78	July 31.....	7.97
Aug. 1.....	6.18	Jan. 31.....	8.13	Sept. 6.....	8.51
Aug. 29.....	7.10	Mar. 27.....	8.83	Oct. 1.....	8.69
Oct. 2.....	7.50	Apr. 25.....	8.66	Dec. 3.....	9.17
Oct. 31.....	7.64	May 30.....	7.47		

Depth to water in feet below land surface

142-61-9ddd

Date	Water level	Date	Water level	Date	Water level
Oct. 4, 1962.....	18.90	Mar. 27, 1963.....	18.05	Sept. 6, 1963.....	18.07
Oct. 31.....	18.64	Apr. 25.....	18.09	Oct. 1.....	18.09
Dec. 6.....	18.37	May 31.....	18.02	Dec. 4.....	19.11
Jan. 2, 1963.....	18.18	June 28.....	18.15		
Feb. 25.....	18.07	July 31.....	18.17		

142-61-22bbb

May 8, 1962.....	21.58	Dec. 6, 1962.....	17.68	May 31, 1963.....	19.34
July 6.....	14.77	Jan. 2, 1963.....	18.42	June 28.....	18.47
Aug. 2.....	9.94	Jan. 31.....	18.76	July 31.....	19.22
Aug. 29.....	12.49	Feb. 25.....	19.17	Sept. 6.....	19.53
Oct. 3.....	15.30	Mar. 27.....	19.50	Oct. 1.....	19.70
Oct. 30.....	16.34	Apr. 25.....	19.70	Dec. 4.....	19.98

143-56-20cdd

May 22, 1962.....	12.78	Dec. 4, 1962.....	7.87	May 28, 1963.....	10.09
July 2.....	9.84	Dec. 31.....	8.54	June 26.....	9.65
July 30.....	7.66	Jan. 30, 1963.....	9.75	July 30.....	10.61
Aug. 28.....	7.44	Feb. 25.....	10.88	Sept. 4.....	11.75
Oct. 1.....	7.12	Mar. 26.....	11.60	Oct. 2.....	12.19
Nov. 1.....	7.73	Apr. 23.....	11.74	Dec. 2.....	12.43

143-57-22bbb

May 23, 1962.....	63.01	Dec. 4, 1962.....	59.23	May 28, 1963.....	59.67
July 3.....	62.22	Dec. 31.....	59.10	June 26.....	59.63
July 30.....	61.41	Jan. 30, 1963.....	59.08	July 30.....	59.62
Aug. 28.....	60.99	Feb. 25.....	59.19	Sept. 5.....	59.87
Oct. 2.....	60.21	Mar. 26.....	59.38	Oct. 2.....	60.09
Nov. 1.....	59.67	Apr. 23.....	59.52	Dec. 3.....	60.75

143-58-21aaa1

May 24, 1962.....	0.09	Dec. 4, 1962.....	0.90	May 28, 1963.....	2.52
July 4.....	0.49	Dec. 31.....	3.48	June 26.....	3.12
July 31.....	1.13	Jan. 30, 1963.....	4.98	July 30.....	4.78
Aug. 28.....	2.13	Feb. 25.....	5.85	Sept. 5.....	5.65
Oct. 2.....	0.83	Mar. 26.....	6.12	Oct. 2.....	6.07
Nov. 1.....	0.82	Apr. 24.....	3.86	Dec. 3.....	7.66

Depth to water in feet below land surface

143-59-20cdd

Date	Water level	Date	Water level	Date	Water level
May 25, 1962.....	5.80	Dec. 4, 1962.....	7.13	May 30, 1963.....	8.77
July 4.....	5.84	Jan. 1, 1963.....	7.74	June 27.....	8.40
Aug. 1.....	6.00	Jan. 31.....	9.24	July 31.....	9.37
Aug. 29.....	7.23	Feb. 25.....	9.82	Sept. 6.....	9.68
Sept. 2.....	7.27	Mar. 27.....	9.96	Oct. 1.....	9.77
Sept. 31.....	7.68	Apr. 24.....	9.76	Dec. 3.....	10.10

143-59-23baa

June 27, 1962.....	18.48	Jan. 1, 1963.....	17.20	June 27, 1963.....	16.97
July 1.....	17.09	Jan. 31.....	16.22	July 31.....	16.65
Aug. 29.....	16.49	Feb. 25.....	17.54	Sept. 6.....	16.52
Sept. 2.....	16.16	Mar. 27.....	16.68	Oct. 1.....	16.52
Sept. 31.....	16.15	Apr. 24.....	17.05	Dec. 3.....	16.83
Oct. 4.....	16.10	May 30.....	17.22		

143-60-10cdd

July 29, 1962.....	8.15	Dec. 4, 1962.....	8.92	June 28, 1963.....	8.69
July 5.....	7.82	Jan. 1, 1963.....	9.10	July 31.....	9.34
Aug. 1.....	7.53	Jan. 31.....	9.44	Sept. 6.....	9.89
Aug. 26.....	8.36	Mar. 27.....	9.93	Oct. 1.....	10.10
Sept. 2.....	8.68	Apr. 24.....	9.64	Dec. 3.....	10.37
Sept. 31.....	8.92	May 30.....	8.72		

143-60-15ccc

July 30, 1963.....	21.90	July 31, 1963.....	21.89	Oct. 1, 1963.....	22.12
Aug. 28.....	20.99	Sept. 6.....	21.99	Dec. 3.....	23.25

TABLE 3.--Logs of test holes and selected wells*

137-56-2cbd
Test hole 2128

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, yellow-gray, oxidized-----	15	15
	Till, gray, unoxidized-----	7	22
	Gravel, fine to coarse, poorly sorted-	4	26
	Till, gray, lignitic-----	4	30
	Till, gray, bouldery-----	44	74
	Till, gray-----	104	178
Niobrara Formation:			
	Shale, gray to dark-gray, slightly to moderately calcareous-----	11	189

137-56-26aaa2
Test hole 2140

Glacial drift:			
	Till, buff, oxidized-----	23	23
	Till, gray, unoxidized-----	40	63
	Gravel, fine to coarse-----	35	98
	Sand, gray to black, fine, well-sorted, lignitic, clayey-----	53	151
	Till, gray-----	36	187
Carlile (?) Shale:			
	Clay, black, calcareous-----	13	200

137-57-5aaa
Test hole 2127

Glacial drift:			
	Till, yellow, oxidized-----	43	43
	Till, gray, unoxidized-----	39	82
	Till, gray, sandy-----	24	106
Niobrara Formation:			
	Shale, dark-gray, slightly calcareous; light-gray, highly calcareous laminae-----	10	116

* Note: The term "till" used in many of these logs refers to a heterogeneous mixture of clay, silt, sand, gravel, and boulders. Generally clay and silt are the predominant constituents.

137-57-6bbb
Test hole 2124

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, yellowish-gray, oxidized-----	33	33
	Till, light-gray to gray, unoxidized-----	5	38
	Gravel, fine to coarse-----	2	40
	Till, gray; abundant shale pebbles, gravelly-----	35	75
	Till, gray, interbedded gravel-----	8	83
	Till, gray-----	24	107
	Till, gray, interbedded gravel-----	81	188
	Gravel, fine to coarse-----	22	210
	Clay, gray, silty to sandy-----	18	228
	Clay, gray, silty; sand, gray, very fine-----	51	279
	Till, gray-----	28	307
	Gravel, fine to coarse-----	6	313
Niobrara Formation:			
	Shale, light-gray, very calcareous---	13	326

137-57-17ccc
Test hole 2141

Glacial drift:			
	Till, buff to brown, oxidized-----	27	27
	Till, gray, unoxidized-----	43	70
	Till, gray, gravelly-----	56	126
	Till, gray-----	27	153
Niobrara Formation:			
	Shale, black, very calcareous, pyritiferous-----	15	168

137-57-35ccc
Eugene Baarstad

(Log furnished by Frederickson's, Inc., West Fargo, North Dakota)

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Soil, black-----	3	3
	Clay sand, yellow (till*)-----	22	25
	Clay sand, blue (till)-----	21	46
	Sand, dirty, blue-----	4	50
	Clay, blue-----	30	80
	Clay, soft and sandy, blue-----	33	113
	Sand, dirty, blue (till)-----	2	115
	Clay, sandy, blue (till)-----	2	117
	Sand, gray-----	15	132

* Author's interpretation

137-58-3aaa
Test hole 2125

Pierre Shale:			
	Shale, gray, bentonitic, oxidized near top-----	10	10
	Shale, black, noncalcareous-----	11	21

137-58-5aad
Test hole 2123

Glacial drift:	Till, yellow, sandy, oxidized-----	9	9
Pierre Shale:	Shale, light-gray, noncalcareous-----	13	22
	Shale, black, noncalcareous, benton- itic-----	8	30
	Shale, light-gray, calcareous *-----	16	46

* Cored 42 to 46 feet. Shale, light-gray, calcareous, thin bedded,
hard, soapy, sparingly fossiliferous.

137-58-34ccc
Test hole 2110

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
lacial drift:	Sand, grayish-brown, fine to very coarse, granular, subrounded, medium to well sorted-----	26	26
erre Shale:	Shale, olive-black, noncalcareous-----	6	32

137-59-4daa
Test hole 15L

lacial drift:	Sand, buff, very fine to medium, clayey; gravel, coarse-----	3	3
	Sand, buff, very coarse, gravelly-----	7	10
	Sand, light-gray, medium to coarse; gravel, fine-----	6	16
erre Shale:	Shale, gray-----	4	20

137-59-4dad
Test hole 14L

lacial drift:	Sand, light-brown, fine to medium, clayey, gravelly-----	17	17
	Till, gray-----	2	19
erre Shale:	Shale, gray-----	6	25

137-59-5bab
Test hole 34L

lacial drift:	Gravel, fine; sand, coarse, clayey-----	4	4
	Till, tan, oxidized-----	3	7
erre Shale:	Shale, gray-----	3	10

137-59-9aaa
Test hole 13L

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, light-gray, gravelly-----	2	2
	Sand, tan, medium to coarse-----	3	5
	Till, gray-----	4	9
Pierre Shale:	Shale, gray-----	6	15

137-59-10bbcl
Test hole 17L

Glacial drift:			
	Clay, gray, sandy-----	3	3
	Clay, brown, sandy-----	2	5
	Gravel, fine to medium, clayey-----	2	7
	Sand, gray, fine to coarse, gravelly-	23	30

137-59-10bbc2
Test hole 16L

Glacial drift:			
	Clay, gray, sandy-----	3	3
	Clay, light-brown, sandy-----	3	6
	Till, gray-----	2	8
	Sand, gray, fine to very coarse, gravelly-----	27	35
	Sand, gray, coarse; gravel, poorly sorted-----	13	48
Pierre Shale:	Shale, gray-----	5	53

137-59-16bba
Test hole 18L

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
lacial drift:			
	Till, light-tan, oxidized-----	5	5
	Sand, light-tan, medium to coarse, gravelly-----	2	7
	Till, gray, unoxidized-----	9	16
	Sand, gray, medium to coarse, gravelly-----	3	19
	Till, gray-----	19	38
erre Shale:	Shale, gray-----	12	50

137-59-19cdc
Test hole 8L

lacial drift:			
	Till, yellow-brown, oxidized-----	2	2
	Sand, yellow-brown, medium to coarse-	2	4
	Till, yellow-brown, oxidized-----	12	16
	Sand, yellow-brown, coarse; gravel, fine to medium-----	2	18
	Till, gray, unoxidized-----	40	58
	Gravel, gray, fine-----	1	59
	Till, gray-----	45	104
erre Shale:	Shale, gray-----	3	107

137-59-20cdd
Test hole 12L

lacial drift:			
	Till, light-tan, oxidized-----	18	18
	Gravel, fine to medium, clayey-----	3	21
	Till, gray, unoxidized-----	17	38
	Gravel, fine to medium-----	1	39
	Till, gray-----	54	93
erre Shale:	Shale, gray-----	5	98

137-59-23aaa
Test hole 2119

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Dept</u> (fee)
Glacial drift:			
	Till, yellow, oxidized-----	17	17
	Till, gray, unoxidized-----	51	68
Pierre Shale:	Shale, light-gray to black, slightly calcareous to noncalcareous; weathered zone at top-----	16	84

137-59-29bbb
Test hole 11L

Glacial drift:			
	Till, light-tan, oxidized-----	18	18
	Gravel, fine to medium-----	2	20
	Till, light-tan, oxidized-----	4	24
	Till, gray, unoxidized-----	3	27
	Sand, gray, medium to coarse, very clayey, gravelly-----	8	35
	Gravel, gray, fine to medium, clayey to sandy-----	10	45
	Till, gray-----	46	91
Pierre Shale:	Shale, gray-----	6	97

137-59-30aaa
Test hole 10L

Glacial drift:			
	Till, gray, oxidized-----	3	3
	Till, tan, unoxidized-----	15	18
	Gravel, gray, fine to medium-----	2	20
	Till, gray-----	39	59
	Sand, gray, fine to coarse, gravelly--	7	66
	Till, gray-----	23	89
	Gravel, gray, fine-----	1	90
	Till, gray-----	20	110
Pierre Shale:	Shale, gray-----	5	115

137-59-30aab
Test hole 9L

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, light-gray-----	2	2
	Sand, yellow-tan, fine to medium; gravel, fine to coarse-----	2	4
	Till, yellow-tan, oxidized-----	4	8
	Till, gray, unoxidized-----	33	41
	Sand, gray, coarse; gravel, fine to medium-----	3	44
	Till, gray-----	38	82
Pierre Shale:	Shale, gray-----	3	85

137-59-30dad
Test hole 2L

Glacial drift:			
	Till, yellow, oxidized-----	8	8
	Till, gray, unoxidized-----	20	28
	Gravel, gray, fine to medium; sand, gray, medium to coarse-----	5	33
	Till, gray-----	61	94
Pierre Shale:	Shale, gray-----	16	110

137-59-36ccc
Test hole 2120

Glacial drift:			
	Till, yellow to brown, oxidized-----	17	17
	Till, gray, unoxidized-----	15	32
Pierre Shale:			
	Shale, black, noncalcareous, benton- itic-----	10	42

137-60-25aad2
Test hole 1L

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, yellow, oxidized-----	29	29
	Till, gray, unoxidized-----	51	80
	Till, blue-gray*-----	48	128
Pierre Shale:			
	Shale, gray-----	7	135

* Cored 105 to 107 feet. Till is well indurated and difficult to break with a hammer. It is highly calcareous and may be partly cemented as well as compacted.

137-60-25acb
Test hole 3L

Glacial drift:			
	Till, yellow, oxidized-----	19	19
	Till, gray, unoxidized-----	7	26
	Sand, gray, medium to coarse; gravel, fine-----	2	28
	Till, gray-----	94	122
Pierre Shale:			
	Shale, gray-----	11	133

137-60-25acd
Test hole 7L

Glacial drift:			
	Till, yellow, oxidized-----	20	20
	Till, gray, unoxidized-----	7	27
	Gravel, gray, clayey to sandy-----	1	28
	Till, gray**-----	97	125
Pierre Shale:			
	Shale, gray** -----	9	134

* Cored 70 to 80 feet. Very hard "shaly" till which contained pebbles of dark-colored limestone and shale.

** Cored 130 to 134 feet. Very hard shale.

137-60-25bdc
Test hole 30L

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, tan, oxidized-----	26	26
	Till, gray, unoxidized-----	14	40
	Gravel, gray, fine-----	1	41
	Till, gray-----	76	117
Pierre Shale:			
	Shale, gray-----	8	125

137-60-25cbb
Test hole 29L

Glacial drift:			
	Till, light-gray, oxidized-----	3	3
	Till, tan, oxidized-----	14	17
	Till, gray, unoxidized-----	65	82
	Gravel, gray, fine-----	2	84
	Till, gray-----	41	125
Pierre Shale:			
	Shale, gray-----	5	130

137-60-25ddd
Test hole 25L

Glacial drift:			
	Till, gray, oxidized-----	4	4
	Till, yellow-brown, oxidized-----	9	13
	Till, gray, unoxidized-----	39	52
	Sand, gray, coarse; gravel, fine to medium-----	4	56
	Till, gray-----	62	118
Pierre Shale:			
	Shale, gray-----	7	125

137-60-26aaa
Test hole 21L

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, tan, oxidized-----	20	20
	Gravel, tan, fine, sandy-----	1	21
	Till, gray, unoxidized-----	15	36
	Gravel, gray, fine to medium-----	1	37
	Till, gray-----	47	84
	Gravel, gray, medium to coarse; sand, very coarse-----	6	90
	Till, gray-----	28	118
	Sand, gray, very coarse; gravel, fine to coarse-----	3	121
Pierre Shale:			
	Shale, gray-----	6	127

137-60-26bbb
Test hole 4L

Glacial drift:			
	Till, yellow, oxidized-----	21	21
	Till, gray, unoxidized-----	49	70
	Till, blue-gray-----	71	141
Pierre Shale:			
	Shale, gray*-----	8	149

* Cored 147 to 149 feet. Shale was hard and had poor fissility.
Contained one pelecypod, some foraminifera, and possibly plant
fragments.

137-60-28bbb
Test hole 5L

Glacial drift:			
	Till, buff, oxidized-----	20	20
	Till, gray, unoxidized-----	14	34
	Gravel, gray, fine, clayey-----	6	40
	Gravel, gray, fine to medium-----	11	51
	Till, gray, gravelly-----	42	93
	Gravel, gray, fine to medium, very clayey-----	10	103
	Till, gray-----	36	139
Pierre Shale:			
	Shale, gray*-----	16	155

* Cored 150 to 155 feet. Shale, noncalcareous; contained veinlets of
secondary calcite or aragonite.

137-60-30baal
Test hole 22L

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, gray; sand, gray, fine to medium; gravel, medium-----	4	4
	Till, tan, oxidized-----	5	9
	Sand, tan, medium to coarse; gravel, fine to medium-----	1	10
	Till, gray, unoxidized-----	34	44

137-60-30baa2
Test hole 6L

Glacial drift:			
	Clay, yellow-brown, sandy-----	5	5
	Sand, gray, coarse, gravelly-----	10	15
	Gravel, fine to medium, sandy-----	9	24
	Till, gray-----	88	112
Pierre Shale:	Shale, gray-----	5	117

137-60-30bab1
Test hole 23L

Glacial drift:			
	Clay, gray, sandy to gravelly-----	4	4
	Till, tan, oxidized-----	6	10
	Till, gray, unoxidized-----	11	21
	Sand, gray, medium to coarse, gravelly-----	8	29
	Till, gray-----	21	50

137-60-30bab2
Test hole 24L

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, gray, sandy to gravelly-----	4	4
	Gravel, brown, fine to medium, sandy-	1	5
	Till, gray-----	38	43
	Sand, gray, very coarse; gravel, medium-----	3	46
	Till, gray-----	14	60

137-60-36abb
Test hole 26L

Glacial drift:			
	Till, yellow-brown, oxidized-----	16	16
	Till, gray, unoxidized-----	29	45
	Sand, gray, medium to coarse; gravel, medium-----	3	48
	Till, gray-----	56	104
	Sand, gray, coarse, gravelly-----	1	105
	Till, gray-----	16	121
Pierre Shale:	Shale, gray-----	6	127

137-60-36cdd
Test hole 28L

Glacial drift:			
	Sand, light-brown, fine to medium, clayey-----	12	12
	Till, gray-----	87	99
	Sand, gray, medium, clayey to silty--	3	102
	Till, gray-----	33	135

137-60-36dbb
Test hole 27L

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, light-brown, very fine to medium, clayey-----	3	3
	Sand, light-brown, medium to coarse--	3	6
	Clay, light-brown, silty; sand, light-brown, very fine to medium---	5	11
	Sand, gray, fine to very coarse-----	4	15
	Till, gray-----	88	103
	Sand, gray, medium-----	2	105
	Till, gray-----	21	126
Pierre Shale:			
	Shale, gray-----	4	130

138-57-6aaa
Test hole 2131

Glacial drift:			
	Till, yellow, oxidized-----	28	28
	Till, gray, unoxidized; sand increases with depth-----	72	100
	Silt, gray, clayey-----	16	116
	Till, gray, sandy-----	4	120
	Till, gray-----	28	148
	Gravel, fine to coarse-----	5	153
	Till, gray-----	12	165
Niobrara Formation:			
	Shale, gray, silty, calcareous-----	24	189

138-57-36ddd
Test hole 2126

Glacial drift:			
	Till, yellowish-gray, oxidized-----	20	20
	Till, gray, unoxidized, gravelly-----	30	50
	Gravel, fine to medium, well sorted--	22	72
	Till, gray, gravelly-----	48	120
Niobrara Formation:			
	Shale, light-gray, calcareous-----	27	147

138-58-2baa
Test hole 41 BR

(Log furnished by Bureau of Reclamation)

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, black, organic, clayey, wet-	0.8	0.8
	Clay, brown, wet, plastic, stiff-----	5.4	6.2
	Sandy clay, brown, wet, soft-----	5.6	11.8
	Sand and gravel, brown, medium sand with gravel, clayey, wet-----	5.8	17.6
Pierre Shale:	Shale, gray, moist, hard-----	7.24	24.84

138-58-3aad
Test hole 13 BR

(Log furnished by Bureau of Reclamation)

Alluvium:			
	Topsoil, black, silty, sandy, organic	1.0	1.0
	Silty sand, brown-----	3.8	4.8
Pierre Shale:			
	Shale, light-gray to tan, medium hard to hard-----	20.2	25.0

138-58-3aca
Test hole 40 BR

(Log furnished by Bureau of Reclamation)

Pierre Shale:			
	Topsoil, black, organic, clayey-----	0.8	0.8
	Clay, gray, moist, plastic-----	2.0	2.8
	Shale, brown and gray to 17.2 feet becoming gray 17.2 to 24.67 feet, moist, weathered to 17.2 becoming hard 17.2 to 24.67 feet-----	21.87	24.67

138-58-3bdd
Test hole 39 BR

(Log furnished by Bureau of Reclamation)

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Alluvium:			
	Topsoil, black, organic, clayey-----	1.2	1.2
	Sandy clay, brown, wet, stiff, with fine sand seams-----	11.2	12.4
	Sand, brown, fine, clayey, wet, soft to stiff-----	5.8	18.2
	Silty clay, light-gray, wet, stiff---	16.8	35.0

138-58-3cba
Test hole 38 BR

(Log furnished by Bureau of Reclamation)

Alluvium:	Topsoil, black, organic, silty, clay, wet-----	0.8	0.8
	Silty clay, gray, wet, soft-----	18.0	18.8
	Silty clay, light-gray, wet, soft in upper portion becoming stiff at approximately 27 feet, zones of organic material-----	18.4	37.2
	Clay, gray, moist, stiff, with light- brown silt seams-----	2.8	40.0

138-58-4dac
Test hole 12 BR

(Log furnished by Bureau of Reclamation)

Alluvium:	Topsoil, black, organic, clayey, wet-	0.8	0.8
	Clay (till), brown, moist, plastic, fine gravels throughout, occasional cobbles and boulders----	2.4	3.2
Pierre Shale:	Shale, gray, hard, dry-----	21.42	24.62

138-58-4dad
Test hole 37 BR

(Log furnished by Bureau of Reclamation)

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Alluvium:			
	Topsoil, black, organic, clayey, wet-	0.6	0.6
	Clay, brown and gray, wet, plastic, with fine gravel (colluvium)-----	17.2	17.8
Pierre Shale:	Shale, brown and gray, wet, weathered	7.2	25.0

138-58-5dbb
Test hole 11 BR

(Log furnished by Bureau of Reclamation)

Glacial drift:			
	Topsoil, black, sandy, clayey, organic-	0.5	0.5
Pierre Shale:			
	Clay (till), brown, medium plasticity, gravels throughout with few cobbles and boulders-----	4.3	4.8
	Shale, gray, moderately hard-----	19.0	23.8
	Bentonite-----	0.6	24.4
	Shale, gray, moderately hard-----	0.6	25.0

138-58-6adb
Test hole 36 BR

(Log furnished by Bureau of Reclamation)

Glacial drift:			
	Topsoil, black, organic, clayey-----	0.8	0.8
	Clay (till), brown becoming gray at 7.6 feet, moist, stiff, silty, sandy, gravels throughout, occasional cobbles and boulders, moderately plastic when saturated-----	16.0	16.8
	Clayey gravel, gray, clayey, coarse gravel with boulders and shale fragments, moist-----	8.2	25.0

138-58-23bba
Test hole 2142

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, buff to brown, oxidized-----	37	37
	Till, gray, unoxidized-----	43	80
Pierre Shale:			
	Clay, light-gray, very calcareous----	15	95

138-59-24bbb
Test hole 2117

Glacial drift:			
	Till, yellow to brown, oxidized-----	15	15
	Till, gray, unoxidized-----	3	18
Pierre Shale:			
	Clay, light-gray, oxidized, calcareous-----	6	24
	Shale, gray to black, calcareous to noncalcareous; iron-stained laminae	7	31

138-59-32dccl
Test hole 31L

Glacial drift:			
	Sand, gray, very clayey-----	3	3
	Till, yellow-brown, oxidized-----	4	7
Pierre Shale:			
	Shale, gray-----	3	10

138-59-32dcc2
Test hole 33L

Glacial drift:			
	Clay, yellow-brown, silty to sandy---	4	4
	Sand, yellow-brown, oxidized-----	6	10
Pierre Shale:			
	Shale, gray-----	10	20

138-59-32dcd
Test hole 20L

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, gray, sandy, calcareous-----	2	2
	Clay, tan, sandy-----	1	3
	Sand, tan, medium to coarse, gravelly-----	2	5
	Till, tan, oxidized-----	3	8
Pierre Shale:			
	Shale, gray-----	3	11

138-59-32ddd
Test hole 32L

Glacial drift:			
	Sand, gray, clayey-----	3	3
	Sand, gray-brown, medium to coarse, gravelly-----	8	11
Pierre Shale:			
	Shale, gray-----	9	20

138-59-33cbd
Test hole 19L

Glacial drift:			
	Clay, gray, sandy, very calcareous---	3	3
	Clay, tan, sandy-----	5	8
	Till, gray, unoxidized-----	5	13
	Sand, gray, medium to coarse; gravel, fine to medium-----	2	15
Pierre Shale:			
	Shale, gray-----	5	20

138-59-35ddd
Test hole 2118

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Gravel, fine, poorly sorted; sand, coarse to very coarse-----	8	8
	Till, brown, oxidized-----	7	15
	Till, gray, unoxidized-----	5	20
	Sand, gray, medium to very coarse, well sorted; gravel, fine, moder- ately well sorted-----	12	32
	Till, gray-----	4	36
	Sand, gray, medium-----	6	42
	Till, gray-----	22	64
	Gravel, medium, moderately well sorted-----	7	71
Pierre Shale:	Shale, black, noncalcareous-----	13	84

138-60-28ccc
Test hole 1742

Glacial drift:			
	Till, yellow, oxidized-----	20	20
	Till, gray, unoxidized-----	97	117
Pierre Shale:			
	Shale, gray-----	9	126

138-60-36abb
Test hole 2122

Glacial drift:			
	Till, yellowish-gray, oxidized-----	24	24
	Till, brown to light-gray, unoxidized	22	46
Pierre Shale:			
	Shale, black, bentonitic-----	16	62

138-61-3aaa
Test hole 2135

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, buff, oxidized-----	11	11
	Till, gray, unoxidized-----	54	65
	Till, brown; less sandy than over- lying till-----	4	69
	Till, gray, unoxidized-----	24	93
Pierre Shale:			
	Shale, black, noncalcareous; shale, light to dark-gray, noncalcareous--	12	105

138-61-6aaa
Test hole 2136

Glacial drift:			
	Till, yellow to brown, oxidized-----	15	15
	Till, gray, unoxidized-----	3	18
	Sand, coarse, moderately sorted, iron stained-----	3	21
	Till, gray, sandy-----	40	61
	Sand, fine to medium, well sorted; becomes coarse with depth-----	10	71
	Gravel, poor samples-----	3	74
	Till, gray, sandy-----	50	124
	Sand, coarse to very coarse, moderately sorted; gravel, fine to medium-----	72	196
Pierre Shale:			
	Clay, light-gray to gray, calcareous; abundant shale fragments-----	4	200
	Shale, black, noncalcareous-----	10	210

138-61-28ccc
Test hole 1739

Glacial drift:			
	Till, yellow, oxidized-----	16	16
	Gravel, fine to medium-----	8	24
	Till, gray, unoxidized-----	6	30
	Sand, fine, clayey-----	12	42
	Sand, coarse; gravel, fine-----	5	47
	Till, gray-----	78	125
Pierre Shale:			
	Shale, gray-----	11	136

138-61-31bbb
Test hole 2121

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, yellow to brown, oxidized-----	25	25
	Till, gray, unoxidized-----	7	32
	Till, gray; sand, fine to medium-----	8	40
	Sand, gray, very fine to medium, moderately sorted, calcareous, gravelly-----	12	52
	Gravel, fine to medium; sand, medium to coarse-----	5	57
	Till, gray-----	96	153
Pierre Shale:			
	Clay, gray, calcareous-----	4	157
	Shale, black, noncalcareous, bentonitic-----	11	168

138-61-35bbb
Test hole 1740

Glacial drift:			
	Till, yellow, oxidized-----	21	21
	Till, gray, unoxidized-----	26	47
	Sand, medium to coarse, gravelly-----	9	56
	Till, gray-----	79	135
Pierre Shale:			
	Shale, gray-----	12	147

138-61-36aaa
Test hole 1741

Glacial drift:			
	Till, yellow, oxidized-----	17	17
	Till, gray, unoxidized-----	160	177
Pierre Shale:			
	Clay, light-gray, calcareous, pyritiferous-----	23	200
	Clay, light-gray to gray, calcareous-----	20	220
	Clay, gray to greenish-gray, slightly calcareous-----	105	325
	Clay, gray to brownish-gray, mottled white, very calcareous-----	32	357

139-56-3lacd
Test hole 17 BR

(Log furnished by Bureau of Reclamation)

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, black, sandy, silty, organic	0.5	0.5
	Sand, brown, medium with numerous gravel, dry-----	7.1	7.6
	Clay, (shale), gray and brown, glacial worked, gravel throughout, moist-----	17.4	25.0

139-56-3lcab
Test hole 45 BR

(Log furnished by Bureau of Relamation)

Glacial drift:			
	Topsoil, black, organic, sandy, dry--	1.8	1.8
	Silt, brown, with medium sand seams, dry-----	2.9	4.7
	Sand and gravel, brown, medium sand and gravel, dry-----	3.7	8.4
	Silty sand, brown, wet, soft-----	4.2	12.6
	Sand and gravel, gray, wet, with shale fragments-----	1.6	14.2
	Silty sand, gray, wet, soft-----	7.8	22.0
	Clay (till), gray, moist, hard, silty, sandy, gravel throughout, occasional cobbles and boulders, moderately plastic-----	7.88	29.88

139-56-31dbb
Test hole 46 BR

(Log furnished by Bureau of Reclamation)

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, black, organic, sandy-----	1.0	1.0
	Silty clay, brown, moist, stiff-----	2.8	3.8
	Sand, brown, medium, with shale fragments-----	5.6	9.4
	Clay (till), brown, hard, wet, silty, sandy, gravels throughout, occasional cobbles and boulders, moderately plastic-----	4.4	13.8
	Silty sand, gray, fine, silty sand, wet, dense-----	1.8	15.6
	Clay (till), gray, hard, same as brown till above, occasional medium gravel seams-----	8.92	24.52

139-56-31ddd
Test hole 2129

Glacial drift:			
	Till, yellowish-gray, oxidized-----	9	9
	Gravel, brown, fine to coarse-----	2	11
	Till, gray, unoxidized-----	21	32
	Sand, fine to medium, well sorted---	7	39
	Gravel, fine, sandy-----	10	49
	Till, gray-----	51	100
Niobrara Formation:			
	Shale, light-gray to gray, very calcareous-----	16	116

139-56-32bcd
Test hole 47 BR

(Log furnished by Bureau of Reclamation)

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, black, organic, sandy-----	1.0	1.0
	Silt, brown, moist, stiff with lenses or fingers of glacial till--	5.2	6.2
	Clay (till), brown, moist, stiff, silty, sandy gravels throughout, occasional cobbles and boulders, moderately plastic-----	6.4	12.6
	Clayey sand and gravel, brown, moist, hard-----	5.2	17.8
	Silt, gray, moist, hard, with glacial till fingers-----	7.16	24.96

139-56-35ccc
Test hole 2139

Glacial drift:			
	Till, buff to brown, oxidized-----	13	13
	Till, gray, unoxidized; interbedded sand, coarse and gravel, fine-----	45	58
	Sand, fine to medium-----	2	60
	Till, gray-----	7	67
	Gravel, fine to medium-----	2	69
	Till, gray-----	39	108
Carlile (?) Shale:			
	Clay, black, noncalcareous-----	18	126

139-57-6ddd
Test hole 2143

Glacial drift:			
	Sand, dark-brown, fine to medium-----	10	10
	Till, buff to brown, sandy, oxidized-----	22	32
	Till, gray, sandy, unoxidized-----	39	71
	Gravel, fine to coarse, clayey to sandy-----	11	82
	Till, gray, gravelly-----	27	109
	Till, gray-----	14	123
Niobrara Formation:			
	Clay, light-gray, very calcareous-----	24	147

139-57-32ccb
Test hole 15 BR

(Log furnished by Bureau of Reclamation)

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, sandy, black, organic, silty	1.5	1.5
	Silty sand, brown, moist-----	4.7	6.2
	Clay (till), brown and gray, medium plasticity, moderately sandy and silty, gravels throughout with several small gravel seams -- occasional cobbles and boulders-----	18.8	25.0

139-57-34dcb
Test hole 43 BR

(Log furnished by Bureau of Reclamation)

Glacial drift:			
	Topsoil, black, organic, clay, medium to high plasticity, wet-----	3.8	3.8
	Silt, brown and gray, wet, soft-----	10.8	14.6
	Silt, gray, wet, soft-----	9.0	23.6
	Clay (till), gray, wet, stiff, sandy, with silt seams, gravels throughout, occasional cobbles and boulders, moderately plastic-----	13.9	37.5
	Silt, gray, wet, fine sandy silt-----	12.5	50.0

139-57-34dcd
Test hole 2130

Glacial drift:			
	Sand, yellowish-gray, fine to coarse, oxidized-----	13	13
	Clay, brown to gray, silty, very calcareous-----	6	19
	Till, gray-----	53	72
	Gravel, fine to coarse, moderately sorted-----	6	78
	Till, gray-----	3	81
	Gravel, fine to coarse, moderately sorted-----	7	88
	Till, gray-----	12	100
Niobrara Formation:			
	Shale, gray to black, very calcareous	16	116

139-57-35cca
Test hole 16 BR

(Log furnished by Bureau of Reclamation)

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
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Glacial drift:

Topsoil, black, silty, clayey, organic-----	1.0	1.0
Silty clay, brown, low plasticity, dry-----	2.0	3.0
Sand, brown, fine and medium with fine gravel, dry, clean-----	12.4	15.4
Silty sand, brown, dirty, fine to medium, few gravel seams-----	9.6	25.0

139-57-35cda
Test hole 44 BR

(Log furnished by Bureau of Reclamation)

Glacial drift:

Topsoil, black, organic, sandy-----	1.0	1.0
Clay (till), brown becoming gray at 16.8 feet, moist, stiff, silty, sandy, gravels throughout, occasion- al cobbles and boulders, moderately plastic when saturated-----	24.0	25.0

139-57-35dad
Test hole 64 BR

(Log furnished by Bureau of Reclamation)

Glacial drift:

Topsoil, black, organic, silty, sandy-----	1.5	1.5
Clay (till), brown becoming gray at 16.9 feet, moist, stiff, silty, sandy, gravels throughout, occas- ional cobbles and boulders, moder- ately plastic-----	23.5	25.0

139-58-35dcd
Test hole 42 BR

(Log furnished by Bureau of Reclamation)

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, black, organic, clayey, wet-	1.0	1.0
	Clay (Colluvium), brown, wet, plastic, with fine gravel-----	15.2	16.2
	Sand and gravel, brown, medium sand with gravels and shale fragments, clayey, wet -----	5.8	22.0
Pierre Shale:	Shale, gray, moist, hard-----	7.85	29.85

139-58-35ddb
Test hole 14 BR

(Log furnished by Bureau of Reclamation)

Glacial drift:			
	Topsoil, black, silty, sandy, organic, wet-----	1.0	1.0
	Silty sand, brown, wet-----	11.0	12.0
	Silty clay, gray, wet-----	2.9	14.9
	Clay (till), brown, very sandy, low plasticity, wet-----	2.1	17.0
Pierre Shale:	Shale, gray, hard-----	8.0	25.0

139-59-13ccc
Test hole 2115

Glacial drift:			
	Till, yellow to medium-brown, oxidized	9	9
	Sand, gray, fine to coarse, moderately well sorted-----	17	26
	Till, gray, unoxidized-----	42	68
Pierre Shale:	Shale, light-gray, calcareous-----	2	70
	Shale, light-gray to black, non- calcareous, bentonitic; siltstone, tan, calcareous-----	14	84

139-59-32ddb
Test hole 62 BR

(Log furnished by Bureau of Reclamation)

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, black, organic, silty, clayey-----	1.6	1.6
	Sandy clay (till), brown to 7.8 feet becoming gray 7.8 feet to 16.9 feet, wet, soft to stiff, silty, gravels throughout, occasional cobbles and boulders, slight to medium plasticity-----	15.3	16.9
	Sand, gray, medium, clean, saturated, dense-----	8.1	25.0

139-59-34cbc
Test hole 2132

Glacial drift:

Till, brown, oxidized-----	12	12
Till, gray, unoxidized, sandy-----	7	19
Gravel, fine to coarse, moderately sorted-----	6	25
Till, gray, sandy-----	15	40
Pierre Shale:		
Shale, light-gray to black, slightly calcareous-----	23	63

139-59-35cca
Test hole 63 BR

(Log furnished by Bureau of Reclamation)

Glacial drift:

Topsoil, black, organic, silty, clay-	1.0	1.0
Silty clay, brown and gray, moist, stiff-----	5.2	6.2
Clay (till), brown, becoming gray at 12.8 feet, moist, stiff to hard, silty, sandy, gravels throughout, occasional cobbles and boulders, moderately plastic-----	18.8	25.0

139-59-35ddd
Test hole 2116

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
Pierre Shale:	Till, yellowish-brown, oxidized-----	9	9
	Shale, light-gray to gray, silty, calcareous, oxidized near top-----	22	31

139-59-36dcd
Test hole 10 BR

(Log furnished by Bureau of Reclamation)

Glacial drift:			
	Topsoil, black, clayey, organic-----	1.0	1.0
	Clay (till), brown, medium plasticity, silty, sandy, gravels throughout, occasional cobbles and boulders, moist-----	11.0	12.0
Pierre Shale:	Shale, gray, hard-----	10.0	22.0
	Bentonite-----	1.0	23.0
	Shale, gray, hard-----	2.0	25.0

139-60-24bab
Test hole 2138

Glacial drift:			
	Gravel, poorly sorted, clayey to sandy, oxidized-----	10	10
	Till, buff, sandy, oxidized-----	4	14
	Till, gray, sandy, unoxidized-----	5	19
	Gravel, fine to coarse, poorly to moderately sorted, sandy-----	10	29
	Silt, gray-----	16	45
	Till, gray-----	6	51
Pierre Shale:	Shale, black, fissile, noncalcareous-	12	63

139-60-32ccb
Test hole 2134

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, buff to brown, oxidized-----	16	16
	Till, gray, unoxidized-----	26	42
Pierre Shale:			
	Clay, greenish-gray, calcareous, oxidized; abundant shale fragments-	9	51
	Shale, black, noncalcareous-----	12	63

139-60-32daa
Test hole 9 BR

(Log furnished by Bureau of Reclamation)

Glacial drift:			
	Topsoil, black, sandy, organic-----	0.5	0.5
	Sand, brown, coarse with considerable gravel, numerous shale particles and cobbles-----	8.5	9.0
	Clay (till), brown and gray, medium plasticity, sandy, silty with gravels throughout and occasional cobbles and boulders, wet to moist-	16.0	25.0

139-60-34cab
Test hole 32 BR

(Log furnished by Bureau of Reclamation)

Glacial drift:			
	Topsoil, black, organic, clayey, wet-	1.2	1.2
	Sandy clay (till), brown, silty, gravels throughout, occasional cobbles and boulders, wet, stiff, moderately plastic-----	12.4	13.6
	Sand and gravel, brown, medium, wet--	5.4	19.0
	Silt, gray, wet-----	4.0	23.0
	Clay (till), gray, silty, sandy, gravels throughout, occasional cobbles and boulders, moist, hard, moderately plastic when saturated--	7.0	30.0

139-60-34cba
Test hole 31 BR

(Log furnished by Bureau of Reclamation)

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, black, organic, clayey-----	1.0	1.0
	Sandy clay (till), brown and gray, silty, gravels throughout, occasional cobbles and boulders, wet, stiff, moderately plastic-----	10.5	11.5
	Sand and gravel, brown, fine to medium, wet-----	7.5	19.0
	Clay (till), gray, silty, sandy, gravels throughout, occasional cobbles and boulders, soft in upper portion becoming stiff and tough at approximately 22 feet, wet-----	11.0	30.0

139-60-34dda
Test hole 2133

Glacial drift:			
	Sand, dark-brown, medium to coarse, clayey, oxidized-----	10	10
	Sand, dark-brown, medium to coarse, gravelly, well sorted-----	8	18
	Sand, gray, clayey to silty, un- oxidized-----	7	25
Till, gray-----		12	37
Pierre Shale:			
	Shale, black, noncalcareous-----	16	53

139-60-35cab
Test hole 33 BR

(Log furnished by Bureau of Reclamation)

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, black, organic, sandy clay--	1.0	1.0
	Sandy clay, brown, moist, soft-----	2.8	3.8
	Sand, brown, fine, with small gravel, wet-----	4.8	8.6
	Clay (till), gray, silty, with sand seams, gravel throughout, occa- sional cobbles and boulders, wet, soft to approximately 17 feet be- coming stiff 17 to 22 feet, mod- erately plastic-----	13.4	22.0
	Clay (till), gray, hard, moist, sandy, gravels throughout, occasionally cobbles and boulders, moderately plastic when saturated-----	7.98	29.98

139-60-35daa
Test hole 34 BR

(Log furnished by Bureau of Reclamation)

Glacial drift:			
	Topsoil, black, organic, sandy, clay, moist-----	1.2	1.2
	Clay, brown, silty, sandy, moist----	1.9	3.1
	Sand, brown, fine, wet-----	5.1	8.2
	Sand and gravel, gray, medium sand, fine to medium gravel with shale fragments, wet-----	19.8	28.0
	Clay (till), gray, hard, dry, silty, sandy, gravels throughout, occa- sional cobbles and boulders, moderately plastic when wet-----	5.5	33.5
Pierre Shale:			
	Shale, gray, hard, dry-----	1.05	34.55

139-60-36dab
Test hole 35 BR

(Log furnished by Bureau of Reclamation)

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, black, organic, sandy, moist	1.0	1.0
	Clayey gravel, brown, becoming gray at 11.5 feet, fine to medium gravel with abundant shale fragments, moist becoming wet at 11.5 feet----	16.6	17.6
	Clay (till), gray, silty, sandy, gravels throughout, occasional cobbles and boulders, wet, soft to stiff in upper portions, becoming hard at approximately 27 feet, moderately plastic-----	15.4	33.0
Pierre Shale:	Shale, gray, hard, dry-----	1.2	34.2

139-61-7aaa
Test hole 1597

Glacial drift:			
	Till, buff, oxidized-----	15	15
	Till, gray, unoxidized-----	5	20
	Sand, fine to medium, clayey, silty--	13	33
	Till, gray-----	61	94
	Sand, medium to coarse, lignitic-----	65	159
Pierre Shale:	Shale, dark-gray-----	9	168

139-61-10bcal
Ed Altringer

(Log furnished by Frederickson's, Inc., West Fargo)

Glacial drift:			
	Soil, black-----	2	2
	Very sandy clay, brown (till)-----	8	10
	Sandy clay, brown (till)-----	16	26
	Hard sandy clay with limestone boul- der, blue (till)-----	60	86
	Hard sandy clay, blue (till)-----	19	105
	Hard sticky clay, blue (till)-----	25	130
	Hard sandy clay, blue (till)-----	17	147
Pierre Shale:	Hard slate, black-----	48	195

139-61-33daa
Test hole 7 BR

(Log furnished by Bureau of Reclamation)

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, black, silty, sandy, organic	1.0	1.0
	Silty sand, brown, with fine gravel--	3.6	4.6
	Clay (till), brown, medium plasticity, sandy, silty with gravels, occasion- al cobbles and boulders, wet-----	17.4	22.0
	Clay (till), gray, same as above, damp-----	8.0	30.0

139-61-34daa
Test hole 30 BR

(Log furnished by Bureau of Reclamation)

Glacial drift:			
	Topsoil, black, organic, clayey-----	1.0	1.0
	Sandy clay, brown, wet, alkaline-----	2.8	3.8
	Sand, brown, medium, clayey with shale fragments, wet-----	3.4	7.2
	Sand and gravel, gray, medium, with shale fragments, wet-----	6.8	14.0
	Clay (till), gray, wet, soft, silty, sandy, gravels throughout, occa- sional cobbles and boulders, moderately plastic-----	3.0	17.0
	Sand, tan, fine, wet-----	8.0	25.0

139-61-36ccb
Test hole 8 BR

(Log furnished by Bureau of Reclamation)

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Topsoil, black, sandy, organic-----	2.0	2.0
	Clay (till), brown, very silty, gravels throughout with few gravels and boulders, wet-----	10.0	12.0
	Clay, brown and gray, high plasticity	2.0	14.0
	Clay (till), gray, medium plasticity, gravels throughout, with few cobbles and boulders, wet-----	9.0	23.0
	Sand, gray, medium to coarse with fine gravels, wet-----	1.0	24.0
	Clay (till), gray, sand, gravels with few boulders, wet-----	6.0	30.0

140-56-8dcc3
Herb Utke

(Log furnished by Frederickson's Inc., West Fargo)

Glacial drift:			
	Soil, black-----	2	2
	Clay, brown, sandy, hard (till)-----	20	22
	Sand, blue, fine-----	3	25
	Clay, blue, sandy, hard; limestone pebbles (till)-----	24	49
	Boulder, red, granite-----	1	50
	Clay, blue, sandy, hard (till)-----	41	91
	Sand, blue-----	1	92
	Clay, blue, sandy, hard (till)-----	15	107
Niobrara Formation:			
	Shale, blue-----	3	110

140-56-17ccc
Test hole 2153

Glacial drift:			
	Till, buff, oxidized-----	16	16
	Till, gray, unoxidized-----	48	64
	Gravel, fine to coarse, poorly sorted	8	72
	Till, gray-----	21	93
Niobrara Formation:			
	Shale, gray, silty-----	12	105

140-57-20aaa
Test hole 2154

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, fine, well sorted-----	4	4
	Till, buff to brown, oxidized-----	13	17
	Till, gray, unoxidized-----	18	35
	Gravel, fine to medium, moderately sorted, silty to sandy-----	13	48
	Gravel, fine to medium; interbedded silt-----	4	52
	Till, gray, sandy to gravelly-----	98	150
Niobrara Formation:			
	Shale, gray, silty, calcareous-----	18	168

140-58-8daa
Convent No. 2

(Log furnished by Frederickson's, Inc., West Fargo)

Glacial drift:			
	Soil, black-----	3	3
	Till, gray-----	14	17
	Till, brown-----	5	22
	Till, blue-----	21	43
	Boulders-----	1	44
	Sand, brown-----	1	45
Pierre Shale:			
	Shale, blue-----	12	57

140-58-8dac
Convent No. 3

(Log furnished by Frederickson's, Inc., West Fargo)

Glacial drift:			
	Soil, black-----	1	1
	Clay, sand, gravel with clay, brown (till)-----	3	4
	Sand, gravel, brown-----	19	23
	Clay-----	14	37
	Clay with pebbles (till)-----	7	44
	Clay-----	9	53
Pierre Shale:			
	Shale, blue-----	9	62

140-58-8dad
Test hole 2099

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, brown, very fine to medium, silty; high iron oxide content-----	15	15
	Clay, yellowish-gray, slightly calcareous-----	4	19
	Sand, brownish-red, medium to very coarse, gravelly; high iron oxide content-----	10	29
Pierre Shale:			
	Clay, gray, silty, slightly calcareous	4	33
	Shale, dark-gray, pyritiferous, noncalcareous-----	30	63

140-58-8dcb
Convent No. 1

(Log furnished by Frederickson's, Inc., West Fargo)

Glacial drift:			
	Soil, brown-----	6	6
	Till, blue-----	44	50
	Boulders-----	2	52
	Till, blue-----	12	64
	Boulders-----	2	66
	Till, blue-----	16	82
Pierre Shale:			
	Shale, blue-----	5	87

140-58-2laab
Test hole 2155

Glacial drift:			
	Gravel, fine to coarse, moderately sorted, sandy, oxidized-----	10	10
	Gravel, very coarse, bouldery, oxidized-----	8	18
Pierre Shale:			
	Shale, light-gray, silty, highly calcareous-----	14	32

140-58-21aad
Test hole 2156

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Gravel, fine to coarse, poorly sorted-----	5	5
	Clay, light-gray to black-----	6	11
	Sand, fine to medium, moderately sorted, oxidized-----	10	21
	Sand, fine to medium, well sorted, oxidized-----	9	30
	Sand, fine to medium, unoxidized-----	21	51
Pierre Shale:	Shale, black, calcareous-----	12	63

140-58-21dad
Test hole 2 SP

Surface fill:			
Alluvium:	Gravel, unsorted; rocks-----	2	2
	Clay, yellowish-gray, oxidized-----	7	9
	Clay, green to greenish-gray, calcareous-----	21	30
	Sand, coarse, moderately sorted, gravelly; interbedded clay, greenish-gray, calcareous-----	9	39
	Clay, gray, silty-----	3	42
	Gravel, fine to medium, well sorted; sand, coarse; oily contamination near base-----	18	60
Pierre Shale:	Shale, black, noncalcareous-----	3	63

140-58-21dda
Test hole 3 SP

Alluvium:			
	Clay, brown, sandy, oxidized-----	9	9
	Clay, light-gray, sandy-----	8	17
	Sand, fine to medium-----	2	19
	Clay, light-greenish-gray to gray, moderately calcareous-----	38	57
	Gravel, fine to coarse, poorly sorted, sandy-----	11	68
Pierre Shale:	Shale, black, noncalcareous, pyritiferous-----	6	74

140-58-21ddd
Test hole 1 SP

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Alluvium:			
	Clay, yellowish-brown, sandy, oxidized-----	19	19
	Clay, light-gray to greenish-gray, calcareous, sandy, unoxidized-----	10	29
	Gravel, fine, moderately sorted-----	3	32
	Clay, greenish-gray, calcareous, silty-----	35	67
	Gravel, fine to medium, moderately sorted-----	5	72
Pierre Shale:	Shale, black, noncalcareous-----	12	84

140-58-22bdd
Test hole 2157

Alluvium:			
	Clay, brown, silty, oxidized-----	16	16
	Clay, gray, unoxidized-----	10	26
	Clay, gray; sand, fine to medium-----	11	37
	Clay, gray to brown, silty to sandy, calcareous-----	33	70
Pierre Shale:	Shale, black, highly calcareous-----	14	84

140-58-22cbc
Test hole 4 SP

Alluvium:			
	Clay, brown, oxidized-----	15	15
	Sand, fine to coarse, iron-stained, oxidized, very fossiliferous-----	7	22
	Clay, greenish-gray to gray, unoxidized, lignite, slightly fossiliferous---	27	49
	Gravel, fine to medium, sandy, slightly iron-stained-----	10	59
	Gravel, fine to coarse-----	11	70
Pierre Shale:	Siltstone, gray, highly calcareous; clay, light-gray, calcareous-----	4	74

140-58-22cbd
Test hole 5 SP

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Alluvium:			
	Clay, dark-brown to gray, fine to coarse-----	17	17
	Clay, gray; sand, gray, fine to coarse-----	10	27
	Gravel, fine to medium, sandy, moderately sorted-----	10	37
	Clay, greenish-gray, calcareous-----	10	47
	Clay, brown to gray-----	14	61
	Gravel, fine to medium-----	4	65
Pierre Shale:	Shale, black, noncalcareous-----	9	74

140-59-24bbb
Test hole 2113

Glacial drift:			
	No sample-----	4	4
	Gravel, fine to medium, clayey, oxidized-----	5	9
	Silt, medium-brown to gray, calcareous-----	6	15
	Till, gray, unoxidized, bouldery-----	31	46
	Till, gray-----	56	102
	Till, gray, silty; interbedded very fine sand-----	19	121
	Till, gray, silty-----	144	265
Pierre Shale:	Shale, black, noncalcareous-----	8	273

140-59-35ddc
Test hole 2114

Glacial drift:			
	Till, yellow to brown, oxidized-----	18	18
	Till, gray, unoxidized, sandy-----	34	52
	Gravel, fine to coarse, well sorted--	10	62
	Sand, fine to medium, very clayey----	15	77
	Gravel, fine to medium, well sorted--	12	89
	Till, gray-----	61	150
Pierre Shale:	Shale, light-gray to black, noncal- careous to calcareous-----	18	168

140-60-1ccc
Test hole 1712 S

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, light-gray-----	5	5
	Sand, coarse; gravel, fine-----	5	10
	Till, gray-----	22	32
Pierre Shale:			
	Shale, gray-----	10	42

140-60-9daa
Test hole 1717 S

Glacial drift:	Clay, light-gray-----	5	5
	Till, brown, oxidized-----	16	21
	Gravel, fine, gravelly-----	12	33
	Sand, fine to medium-----	9	42
Pierre Shale:			
	Shale, gray-----	21	63

140-60-11cbb
Test hole 1716 S

Glacial drift:	Clay, light-gray-----	6	6
	Till, brown, oxidized-----	6	12
	Gravel, fine; sand, coarse-----	8	20
Pierre Shale:			
	Shale, gray-----	22	42

140-60-11cccd
Test hole 1715 S

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, brown, oxidized-----	15	15
	Till, gray, unoxidized-----	26	41
Pierre Shale:	Shale, gray-----	11	52

140-60-11dad
Test hole 1710 S

Glacial drift:			
	Clay, light-gray-----	5	5
	Till, brown, oxidized-----	11	16
	Till, gray, unoxidized-----	100	116
Pierre Shale:	Shale, gray-----	10	126

140-60-13baa
Test hole 1711 S

Glacial drift:			
	Clay, light-gray-----	5	5
	Till, brown, oxidized-----	21	26
Pierre Shale:	Shale, gray-----	16	42

140-60-13dcc
Test hole 1713 S

Glacial drift:			
	Till, brown, oxidized-----	20	20
Pierre Shale:	Shale, gray-----	11	31

140-60-14ada
Test hole 1709 S

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, yellow, silty-----	6	6
	Gravel, fine to medium-----	6	12
	Till, gray-----	22	34
Pierre Shale:			
	Shale, gray-----	8	42

140-60-14cba2
Test hole 1704 S

Glacial drift:			
	Till, brown, oxidized-----	18	18
	Sand, fine-----	2	20
	Gravel, fine-----	5	25
	Till, gray-----	32	57
Pierre Shale:			
	Shale, gray-----	6	63

140-60-14dec
Test hole 1714 S

Glacial drift:			
	Clay, light-gray-----	5	5
	Gravel, fine-----	10	15
	Till, gray-----	103	118
Pierre Shale:			
	Shale, gray-----	8	126

140-60-15aca
Test hole 1723 S

Glacial drift:			
	Till, brown, oxidized-----	20	20
	Till, gray, unoxidized; gravel, fine-----	5	25
	Sand, fine to medium-----	6	31
	Sand, fine to coarse-----	8	39
Pierre Shale:			
	Shale, gray-----	13	52

140-60-15bbb
Test hole 1722 S

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, light-gray-----	5	5
	Till, brown, oxidized-----	9	14
	Clay, gray, sand-----	11	25
	Sand, fine-----	9	34
Pierre Shale:			
	Shale, gray-----	18	52

140-60-15bdd
Test hole 1705 S

Glacial drift:			
	Till, brown, oxidized-----	17	17
	Gravel, fine to medium, cobbly-----	5	22
	Clay, yellow, gravelly-----	4	26
	Clay, gray, silty-----	5	31
	Sand, fine to coarse-----	12	43
Pierre Shale:			
	Shale, gray-----	9	52

140-60-16cdd
Test hole 1719 S

Glacial drift:			
	Till, brown, oxidized-----	12	12
	Till, gray, unoxidized-----	9	21
	Sand, fine-----	15	36
Pierre Shale:			
	Shale, gray-----	6	42

140-60-18dda
Test hole 1720

Glacial drift:			
	Sand, fine to medium-----	5	5
	Clay, buff, silty-----	38	43
	Sand, fine to coarse-----	22	65
	Till, gray-----	19	84
Pierre Shale:			
	Clay, gray-----	11	95
	Shale, gray-----	10	105

140-60-21ddd
Test hole 1718 S

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, light-gray-----	5	5
	Till, brown, oxidized-----	9	14
	Till, gray, unoxidized-----	7	21
	Sand, fine-----	6	27
	Till, gray-----	6	33
	Sand, fine to medium-----	4	37
	Till, gray-----	19	56
Pierre Shale:			
	Shale, gray-----	7	63

140-60-22bas
Test hole 1706 S

Glacial drift:			
	Till, brown, oxidized-----	16	16
	Sand, fine-----	14	30
Pierre Shale:			
	Shale, gray-----	22	52

140-60-23add
Test hole 1708 S

Glacial drift:			
	Clay, light-gray-----	4	4
	Till, brown, oxidized-----	12	16
	Till, gray-----	35	51
Pierre Shale:			
	Shale, gray-----	12	63

140-60-23cbb
Test hole 1707 S

Glacial drift:			
	Till, brown, oxidized-----	5	5
	Gravel, fine to medium-----	7	12
	Till, gray, unoxidized-----	20	32
Pierre Shale:			
	Shale, gray-----	20	52

140-61-16ccc
Test hole 1596

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, grayish-white, oxidized-----	12	12
	Till, gray, unoxidized-----	21	33
	Gravel, fine; sand, coarse; lignitic-	8	41
	Till, gray-----	74	115
	Sand, coarse, lignitic-----	9	124
	Till, gray-----	16	140
Pierre Shale:			
	Shale, light-gray-----	7	147

140-61-18dda
Test hole 1595

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, buff, oxidized-----	20	20
	Till, gray, unoxidized-----	77	97
	Gravel, fine to medium, sandy-----	3	100
	Till, gray-----	92	192
	Gravel, fine to medium-----	53	245
Pierre Shale:			
	Shale, gray, brittle-----	7	252

140-61-19bbb
Test hole 2137

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, buff, calcareous, sandy, oxidized-----	20	20
	Till, gray, unoxidized-----	9	29
	Sand, medium to coarse, well sorted, gravelly-----	11	40
	Gravel, fine to medium-----	6	46
	Till, gray, sandy-----	57	103
	Gravel, fine to coarse-----	2	105
	Till, gray-----	37	142
Pierre Shale*:			
	Silt, gray, clayey, calcareous, lignite; minor amounts light-gray clay laminae-----	244	386
Niobrara Formation:			
	Silt, gray to black, clayey to silty, lignite, moderate sorting-----	49	435
	Clay, light-gray, highly calcareous, pyritiferous-----	2	437
	Sand, gray, clayey, lignitic-----	46	483

* Poor samples below 320 feet.

140-61-22aab
Test hole 1721

Glacial drift:			
	Sand, coarse-----	5	5
	Till, yellow, oxidized-----	6	11
	Sand, fine to medium, clayey, silty--	30	41
	Sand, coarse-----	12	53
	Till, gray-----	36	89
Pierre Shale:	Shale, gray-----	16	105

140-61-31adb
Test hole E. Klein No. 2

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, orange, oxidized-----	24	24
	Till, gray, unoxidized-----	19	43
	Sand, very fine to coarse, lignitic---	29	72
	Gravel, coarse, clayey-----	9	81
	Gravel, fine to medium, sandy, unsorted; sand, medium to very coarse-----	5	86
	Till, gray-----	10	96
	Gravel, medium to coarse, clayey; interbedded till, gray-----	38	134
	Till, gray-----	19	153
	Gravel, medium-----	3	156
	Till, gray-----	16	172
	Gravel, medium-----	20	192
	Till, gray-----	68	260
	Sand, medium to very coarse, moder- ately sorted-----	70	330
Pierre Shale:	Shale, no samples-----	20	350

140-61-31bcd
Test hole E. Klein No. 1

Glacial drift:			
	Till, orange, oxidized-----	12	12
	Till, gray, unoxidized-----	7	19
	Sand, fine to very coarse; silt, orange, clayey-----	7	26
	Silt, gray, sandy, lignitic-----	5	31
	Sand, fine to medium-----	2	33
	Till, gray-----	8	41
	Sand, very fine to medium, clayey---	17	58
	Till, gray-----	5	63
	Gravel, poorly sorted, sandy, lignitic-----	1	64
	Till, gray; interbedded gravel-----	36	100
	Gravel, fine to medium, poorly sorted, sandy-----	15	115
	Sand, medium to very coarse, poorly sorted; interbedded gravel-----	37	152
	Gravel, fine to coarse, sandy-----	110	262
Pierre Shale:	Shale-----	3	265

140-61-3lcda
Test hole E. Klein No. 4

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
Till, buff, oxidized-----	18	18	
Till, gray, unoxidized-----	33	51	
Sand, gray, very fine to fine, silty-----	1	52	
Till, gray, sandy-----	3	55	
Silt, gray, clayey-----	23	78	
Sand, gray, fine to coarse, clayey to silty-----	2	80	
Gravel, fine, angular-----	1	81	
Till, gray-----	17	98	
Sand, fine to coarse, clayey to silty-----	2	100	
Till, gray-----	105	205	
Gravel, fine to medium; sand, coarse; silt laminae, gray-----	15	220	
Gravel, fine, sandy, poorly sorted; silt laminae, gray-----	15	235	
Till, gray-----	21	256	
Sand, gray, very coarse, subangular, lignite-----	42	298	
Till, gray-----	5	303	
Sand, gray, very fine, clayey-----	2	305	
Pierre Shale:			
Shale, gray (poor samples, hard drilling)-----	5	310	

140-61-3lcdb
Test hole E. Klein No. 3

Glacial drift:			
Till, buff, oxidized-----	23	23	
Till, gray, unoxidized-----	17	40	
Till, gray, sandy-----	15	55	
Till, gray, clayey to silty-----	127	182	
Gravel, fine to medium; sand, coarse-----	3	185	
Gravel, fine, sandy-----	22	207	
Till, gray-----	45	252	
Silt, gray-----	21	273	
Till, gray-----	29	302	
Pierre Shale:			
Silt, gray; clay, light-gray-----	73	375	

140-61-31dcal
Test hole E. Klein No. 5

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, buff, oxidized-----	15	15
	Till, gray, unoxidized-----	52	67
	Sand, very coarse, clean-----	3	70
	Till, gray-----	10	80
	Till, gray; sand, coarse, lenticular-----	14	94
	Till, gray-----	53	147
	Sand, very coarse to gravel, fine, angular, well sorted-----	3	150
	Gravel, fine, very sandy-----	5	155
	Sand, coarse to very coarse, gravelly, clean-----	5	160
	Gravel, fine, very sandy-----	5	165
	Gravel, medium, clean to slightly sandy-----	10	175
	Sand, coarse, clean; gravel, fine-----	3	178
	Till, gray-----	2	180
	Gravel, fine to very coarse-----	5	185
	Gravel, fine, subrounded-----	15	200
	Sand, medium to coarse, clean; clay laminæ, gray-----	5	205

Hole abandoned at 205 feet owing to coarse gravel and boulders.

140-61-3ldca2
Test hole E. Klein No. 7

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
Till, buff, oxidized-----	18	18	
Till, gray, unoxidized-----	22	40	
Sand, buff, medium to coarse-----	2	42	
Till, gray-----	43	85	
Sand, bluish-gray, coarse to very coarse-----	6	91	
Till, gray (poor samples)-----	58	149	
Sand, medium to coarse, angular to subrounded-----	4	153	
Gravel, fine to medium, predominantly shale fragments-----	7	160	
Sand, coarse, subangular to sub- rounded; gravel, fine, subrounded--	15	175	
Sand, coarse, subangular to subrounded-----	5	180	
Sand, coarse to very coarse, sub- rounded; gravel, fine, subrounded--	10	190	
Gravel, fine to medium, rounded to subrounded; sand, medium to very coarse-----	3	193	
Till, gray-----	7	200	

140-61-3ldda
Test hole E. Klein No. 6

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
Till, buff, oxidized-----	17	17	
Till, gray, unoxidized-----	3	20	
Sand, buff, fine to coarse, clayey---	5	25	
Till, gray-----	10	35	
Sand, gray, very fine to fine, silty-	3	38	
Till, gray-----	3	41	
Sand, gray, fine to very coarse, clayey-----	12	53	
Till, gray-----	84	137	
Sand, gray, medium to very coarse; gravel, fine, subrounded to rounded	8	145	
Sand, gray, medium to very coarse, poorly sorted-----	10	155	
Sand, gray, medium to coarse, clayey to silty-----	5	160	
Silt, gray, clayey-----	20	180	
Clay, gray, slightly silty-----	10	190	
Till, gray-----	25	215	
Silt, gray-----	25	240	

141-56-16bbb
Test hole 2151

Glacial drift:			
Till, buff to brown, oxidized-----	12	12	
Till, gray, unoxidized-----	4	16	
Gravel, fine to medium, well sorted--	5	21	
Till, gray, sandy to gravelly-----	64	85	
Gravel, fine to coarse-----	2	87	
Till, gray-----	23	110	
Niobrara Formation:			
Clay, light-gray, very calcareous----	16	126	

141-57-15bbb
Test hole 2152

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, yellowish-gray, oxidized-----	37	37
	Till, gray, sandy to gravelly, un- oxidized-----	59	96
	Gravel, fine to coarse, poorly sorted-----	7	103
	Till, gray-----	66	169
	Silt, clayey-----	6	175
	Till, gray-----	15	190
Niobrara Formation:			
	Silt, dark-gray, clayey, slightly calcareous-----	10	200

141-58-5aac
Test hole 902

Glacial drift:			
	Clay, light-gray-----	3	3
	Till, yellow, oxidized-----	14	17
Pierre Shale:			
	Shale, gray-----	3	20

141-58-5aad
Test hole 901

Glacial drift:			
	Till, yellow, oxidized-----	52	52
Pierre Shale:			
	Shale, gray-----	98	150

141-58-7ccc
Test hole 2109

Glacial drift:			
	Till, brown, oxidized-----	20	20
	Till, gray, unoxidized-----	82	102
Pierre Shale:			
	Shale, gray to black, mottled-----	14	116

141-58-9add
Leslie Powers

(Log furnished by Frederickson's, Inc., West Fargo)

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Soil, black-----	2	2
	Soft sandy clay, yellow (till)-----	4	6
	Coarse sand, brown (till)-----	1½	7½
	Soft sandy clay, brown (till)-----	16½	24
	Coarse sand, blue-----	2½	26½
	Soft sandy clay, blue (till)-----	7½	34
	Fine sand, blue-----	1	35
	Sandy clay with boulders (till)-----	6	41
	Clay, blue (till?)-----	17	58
	Hard clay, blue (till?)-----	31	89
Pierre Shale:	Shale, blue-gray-----	12	101

141-58-18acb
Test hole 905

Glacial drift:			
	Sand, fine to coarse, clayey; gravel, fine-----	4	4
	Sand, medium to coarse; gravel, fine-----	7	11
	Till, gray-----	60	71
Pierre Shale:	Shale, gray-----	9	80

141-58-31cbb
Test hole 2112

Alluvium:			
	Clay, yellowish-brown, silty-----	10	10
	Clay, light to olive-gray, silty-----	10	20
	Clay, gray, silty to sandy, calcareous-----	9	29
	Sand, gray, fine-----	6	35
	Clay, gray, calcareous-----	5	40
	Gravel, fine to coarse, sandy, moderate sorting; clay laminae, gray-----	10	50
Pierre Shale:	Clay, gray, pyritiferous, calcareous-	13	63

141-59-5aaa
Test hole 2104

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Clay, yellowish-gray, sandy-----	5	5
	Gravel, fine to coarse, sandy-----	10	15
	Till, gray; poor samples-----	39	54
Pierre Shale:			
	Shale, black, pyritiferous; inter-bedded clay, gray, calcareous-----	20	74

141-60-4ddd
Test hole 2071

Glacial drift:			
	Till, brown, oxidized-----	10	10
	Till, gray, unoxidized-----	72	82
	Gravel, fine to medium, clayey-----	6	88
	Till, gray, very silty-----	55	143
	Sand, gray, silty-----	4	147
	Till, gray, very silty-----	103	250
	Till, gray; numerous thin gravel beds	13	263
Pierre Shale:			
	Shale, gray to black, silty, fossiliferous-----	10	273

141-60-8bbb
Test hole 2070

Glacial drift:			
	Till, buff, oxidized near top-----	16	16
	Till, gray-----	45	61
	Gravel, fine to medium, sandy-----	5	66
	Till, gray-----	94	160
Pierre Shale:			
	Shale, dark-gray, silty-----	8	168

141-60-11bbb
Test hole 2072

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, brown to gray, oxidized-----	20	20
	Till, gray, unoxidized; poor samples-	30	50
	Till, gray-----	30	80
	Till, gray, very bouldery-----	10	90
	Till, gray-----	79	169
	Till, gray, very clayey-----	53	222
Pierre Shale:			
	Clay, light-gray, very calcareous; few thin limey zones-----	30	252

141-60-12aaa
Test hole 2073

Glacial drift:			
	Till, brown, oxidized-----	10	10
	Till, gray, unoxidized-----	82	92
	Gravel, coarse, poorly sorted-----	8	100
	Till, gray, very sandy-----	36	136
Pierre Shale:			
	Shale, gray to black-----	11	147

141-60-13ccc
Test hole 2105

Glacial drift:			
	Till, yellow to brown, oxidized-----	14	14
	Till, gray, unoxidized-----	6	20
	Sand, gray, medium to very coarse; gravel, very fine-----	28	48
	Till, gray, clayey; poor samples-----	32	80
Pierre Shale:			
	Shale, black, bentonitic-----	15	95

141-60-27ccc
Test hole 2063

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, brown, oxidized-----	18	18
	Till, gray; numerous thin gravel beds	80	98
	Gravel, fine to medium, clayey-----	21	119
	Clay, light-gray, silty, calcareous--	8	127
	Till, gray-----	14	141
	Gravel, fine to coarse-----	7	148
	Till, gray-----	41	189
	Gravel, fine to medium, sandy-----	29	218
	Sand, gray, fine; interbedded with clay to gravel-----	20	238
Pierre Shale:			
	Clay, light-gray to black, silty, calcareous near top-----	77	315

141-60-27ddd
Test hole 2062

Glacial drift:			
	Till, yellowish-gray, oxidized-----	4	4
	Sand, yellow, fine, clayey and silty; gravel, fine to medium-----	11	15
	Till, gray, abundant cobbles and boulders-----	37	52
	Till, gray-----	20	72
Pierre Shale:			
	Shale, black-----	12	84
	Shale, light-gray, bentonitic-----	11	95
	Shale, black-----	10	105

141-60-28ccc
Test hole 2061

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, brown, fine, clayey to silty, oxidized-----	7	7
	Gravel, medium to coarse, sandy, oxidized at top-----	11	18
	Till, gray-----	11	29
	Gravel, fine, sandy-----	21	50
	Till, gray-----	44	94
	Gravel, fine to coarse, sandy, shale pebbles predominate-----	22	116
	Silt, gray, clayey-----	24	140
	Sand, gray, silty, lignitic, poor samples-----	70	210
	Till, gray-----	40	250
Pierre Shale:			
	Clay, gray, silty-----	9	259
	Silt, light-gray, clayey, calcareous-----	11	270
	Clay, bluish-white to black, silty, noncalcareous-----	94	364
Niobrara Formation:			
	Clay, dark-gray to black, very silty, calcareous-----	140	504
	Shale, black, silty-----	36	540

141-60-32bbb
Test hole 1735

Glacial drift:			
	Till, yellow, oxidized-----	15	15
	Till, gray, unoxidized-----	25	40
	Sand, medium-----	11	51
	Till, gray-----	16	67
	Gravel, fine; sand, coarse-----	6	73
	Till, gray-----	203	276
Pierre Shale:			
	Shale, gray-----	7	283

141-61-2ccc
Test hole 2068

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, brown to gray-----	110	110
	Sand, gray, fine to coarse-----	8	118
	Silt, greenish-gray, slightly calcareous-----	43	161
	Sand, gray, fine to coarse, very clayey-----	26	187
	Sand, gray, medium to coarse, gravelly-----	39	226
	Silt, gray, sandy, calcareous-----	5	231
	Sand, gray, fine to coarse-----	12	243
	Silt, dark-gray, sandy, calcareous---	5	248
	Gravel, fine to coarse-----	16	264
Pierre Shale:			
	Shale, dark-gray-----	8	272
	Shale, dark-gray, bentonitic-----	12	284

141-61-2ddc
Test hole 2069

Glacial drift:			
	Till, buff to gray, oxidized near top	124	124
	Silt, gray, very clayey, calcareous--	55	179
	Gravel, fine to coarse-----	56	235
Pierre Shale:			
	Silt, black, very clayey, noncal- careous-----	135	370
	Shale, black-----	8	378

141-61-5ddd
Test hole 2065

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, yellowish-gray, oxidized-----	15	15
	Sand, brown, medium to very coarse; some fine gravel-----	11	26
	Till, gray-----	90	116
	Sand, gray, medium to coarse, lignitic	25	141
	Till, gray-----	13	154
	Till, gray, very sandy-----	6	160
	Till, gray-----	38	198
	Till, gray, sandy-----	8	206
	Sand, gray, medium to coarse-----	13	219
	Gravel, fine to coarse-----	37	256
Pierre Shale:			
	Shale, dark-gray-----	7	263

141-61-6ccc
Test hole 2064

Glacial drift:			
	Till, brown, oxidized near top-----	26	26
	Sand, gray, very fine, clayey to silty-----	8	34
	Gravel, fine to very coarse, sandy---	25	59
	Till, gray-----	13	72
	Sand, gray, fine-----	6	78
	Till, gray-----	45	123
Pierre Shale:			
	Shale, dark-gray-----	24	147

141-61-6ddd
Test hole 1726

Glacial drift:			
	Till, yellow, oxidized-----	16	16
	Sand, fine to coarse-----	6	22
	Till, gray, unoxidized-----	39	61
	Sand, fine to medium-----	7	68
	Till, gray-----	162	230
Pierre Shale:			
	Shale, gray-----	11	241

141-61-10bbb
Test hole 2066

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
Till, brown, oxidized-----	12	12	
Gravel, fine to medium, oxidized-----	4	16	
Till, light-gray-----	33	49	
Sand, gray, very clayey to silty-----	5	54	
Till, gray-----	12	66	
Gravel, fine to medium-----	2	68	
Till, gray; sandy at base-----	38	106	
Sand, gray, medium, poorly sorted, lignite-----	36	142	
Till, gray-----	19	161	
Gravel, fine to very coarse; shale pebbles predominate-----	25	186	
Gravel, fine to very coarse, poorly sorted, clayey to sandy-----	58	244	

141-61-11bbb
Test hole 2067

Glacial drift:			
Till, yellowish-gray, oxidized-----	8	8	
Gravel, fine, sandy, oxidized-----	1	9	
Till, brown to gray-----	30	39	
Gravel, poorly sorted; poor samples--	8	47	
Till; poor samples-----	63	110	
Sand, fine to medium; no samples-----	5	115	

141-61-19aaa
Test hole 1727

Glacial drift:			
Till, yellow, oxidized-----	19	19	
Till, gray, unoxidized-----	24	43	
Gravel, fine-----	7	50	
Sand, fine to medium, clayey-----	39	89	
Till, gray-----	131	220	
Sand, lignitic, clayey-----	30	250	
Pierre Shale:			
Shale, gray-----	12	262	

141-61-25ddd
Test hole 1736

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, yellow, oxidized-----	15	15
	Till, gray, unoxidized-----	37	52
	Sand, medium to coarse-----	5	57
	Till, gray-----	80	137
Pierre Shale:	Shale, gray-----	20	157

141-61-31aaa
Test hole 1731

Glacial drift:			
	Till, yellow, oxidized-----	20	20
	Till, gray, unoxidized-----	116	136
	Sand, coarse, gravelly-----	27	163
Pierre Shale:	Shale, gray-----	15	178

141-61-33bbb
Test hole 1738

Glacial drift:			
	Till, yellow, unoxidized-----	27	27
	Till, gray, oxidized-----	151	178
	Gravel, fine to medium-----	9	187
	Till, gray-----	34	221
	Clay, gray, sandy, lignitic-----	52	273
	Gravel, fine to medium, sandy-----	53	326
Pierre Shale:	Shale, gray-----	11	337

141-61-34aaa
Test hole 1737

Glacial drift:			
	Till, light-gray to yellow, oxidized-----	17	17
	Till, gray, unoxidized-----	135	152
	Gravel, fine-----	11	163
	Till, gray-----	16	179
	Clay, gray, sandy, lignitic-----	9	188
	Gravel, fine to medium, lignitic-----	34	222
Pierre Shale:	Shale, gray-----	9	231

141-61-34bbb
Test hole 1733

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, yellow, oxidized-----	19	19
	Till, gray, unoxidized-----	22	41
	Sand, fine to coarse-----	5	46
	Till, gray-----	75	121
	Gravel, fine, sandy-----	23	144
	Till, gray-----	32	176
	Clay, gray, sandy, lignitic-----	16	192
	Gravel, fine; sand, coarse-----	63	255
Pierre Shale:			
	Shale, gray-----	7	262

141-61-35ada
Test hole 1734

Glacial drift:			
	Till, yellow, oxidized-----	14	14
	Till, gray, unoxidized-----	11	25
	Sand, fine to coarse-----	6	31
	Till, gray-----	12	43
	Sand, fine to coarse-----	25	68
	Gravel, medium to coarse, cobbly-----	5	73

142-56-12cccl
Test hole 2150

Glacial drift:			
	Gravel, fine to coarse, sandy-----	7	7
	Till, buff to brown, oxidized-----	7	14
	Sand, medium to coarse, well sorted--	4	18
	Till, gray, unoxidized-----	42	60
	Till, gray, lignitic-----	10	70
	Till, gray-----	101	171
	Till, gray; fine sand laminae-----	4	175
	Till, gray, gravelly-----	12	187
	Till, gray-----	87	274
Carlile (?) Shale:			
	Clay, black, noncalcareous-----	10	284

142-56-16bbb
Test hole 2149

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, yellow, oxidized-----	11	11
	Till, gray, gravelly, unoxidized-----	61	72
	Till, gray-----	38	110
Niobrara Formation:			
	Clay, light-gray to gray, silty, very calcareous-----	16	126

142-57-13bbb
Test hole 2148

Glacial drift:			
	Till, buff, oxidized-----	18	18
	Till, gray, silty to sandy, unoxidized-----	23	41
	Till, gray, gravelly-----	4	45
	Till, gray-----	5	50
	Gravel, fine to coarse-----	3	53
	Till, gray-----	47	100
	Sand, clayey, poor samples-----	30	130
	Till, gray-----	36	166
Niobrara Formation:			
	Clay, light-gray, silty, calcareous, poor samples-----	8	174
	Shale, black, silty, noncalcareous---	15	189

142-57-17baa
Test hole 2147

Glacial drift:			
	Till, yellow, oxidized-----	15	15
	Gravel, fine to medium; sand, coarse to very coarse, clayey to silty-----	10	25
	Till, brown, oxidized-----	7	32
	Till, gray-----	36	68
	Gravel, fine to medium, well sorted--	3	71
	Till, gray, silty-----	49	120
	Till, gray-----	70	190
	Till, gray, gravelly-----	36	226
Niobrara Formation:			
	Clay, light-gray to gray, silty, very calcareous, white specks-----	15	241

142-57-25bbb

Leonard Sannes

(Log furnished by Frederickson's, Inc., West Fargo)

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
Soil, black-----	1	1	
Clay, tan (till?)-----	3	4	
Sand, brown-----	3	7	
Sandy clay, yellow (till)-----	15	22	
Sandy clay, blue (till)-----	12	34	
Boulder, white-----	2	36	
Sandy silt clay, blue (till)-----	14	50	
Hard sandy clay, blue (till)-----	5	55	
Very hard sandy clay, blue (till)-----	3	58	
Hard sandy clay and boulders (till)-----	22	80	
Sand-----	4	84	
Hard sandy clay, blue (till)-----	14½	98½	
Sand, colored-----	2½	101	
Hard sandy clay, blue (till)-----	9	110	
Sand, gray-----	1	111	
Hard sandy clay, blue (till)-----	33	144	
Niobrara Formation:			
Soft shale, blue-----	17	161	

142-58-7ccc
Test hole 2087

Glacial drift:			
Till, brown, oxidized-----	15	15	
Till, gray, unoxidized-----	15	30	
Pierre Shale:			
Shale, black, pyritiferous-----	12	42	

142-58-9bcd
Test hole 7 SP

Glacial drift:			
Gravel, fine and medium, sandy, oxidized-----	5	5	
Sand, fine to medium, well sorted, oxidized-----	17	22	
Sand, medium, well sorted-----	38	60	
Sand, coarse to very coarse-----	12	72	
Gravel, fine to coarse-----	3	75	
Pierre Shale:			
Shale, light-gray, highly calcareous-----	9	84	

142-58-9bdc
Test hole 6 SP

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, grayish-buff, fine, well sorted	5	5
	Clay, yellowish-buff, oxidized-----	5	10
	Sand, grayish-buff, fine to medium, well sorted; boulder, pavement below-----	12	22
Pierre Shale:			
	Shale, bluish-black, noncalcareous---	13	35
	Clay, light-gray, highly calcareous--	7	42

142-58-10add
Test hole 2146

Glacial drift:			
	Sand, gray, very coarse; gravel, fine	20	20
	Sand, buff, very fine, clayey-----	10	30
Pierre Shale:			
	Clay, gray, calcareous-----	12	42

142-58-30bda
Albert Grindler

(Log furnished by Frederickson's, Inc., West Fargo)			
Glacial drift:			
	Soil, black-----	2	2
	Hard sandy clay, brown (till)-----	14	16
	Hard sandy clay, blue (till)-----	7	23
	Granite boulder, white-----	2	25
	Hard sandy clay, blue (till)-----	25	50
Pierre Shale:			
	Shale-----	6	56

142-59-1aaa
Test hole 2107

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, yellow, fine-----	8	8
	Till, gray, lignitic-----	16	24
	Sand, gray, fine to medium, clayey to silty-----	7	31
	Till, gray-----	9	40
Pierre Shale:			
	Clay, light-gray, pyritiferous, very calcareous; interbedded shale and siltstone, light to medium gray, calcareous-----	13	53

142-59-1lccc2
Test hole 2086

Glacial drift:			
	Till, brown, very clayey, oxidized---	12	12
	Sand, gray, silty, clayey-----	10	22
	Till, gray, clayey; gravel, fine to coarse, sandy-----	10	32
	Gravel, fine to coarse, sandy-----	8	40
Pierre Shale:			
	Shale, black, pyritiferous-----	13	53

142-59-14ddd2
Test hole 2102

Glacial drift:			
	Sand, brown, coarse to very coarse----	14	14
	Gravel, fine, poorly sorted-----	4	18
	Till, gray, bouldery-----	24	42

142-59-16bbb
Test hole 2085

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Gravel, medium to coarse-----	8	8
	Till, gray, sandy, unoxidized-----	4	12
	Sand, gray, very coarse, poorly sorted-----	8	20
	Till, gray, sandy-----	80	100
	Till, gray, clayey-----	62	162
Pierre Shale:			
	Shale, gray, bentonitic, pyritiferous, noncalcareous-----	14	176
	Shale, light-gray, pyritiferous, very calcareous-----	34	210

142-59-17bbb
Test hole 2088

Glacial drift:			
	Sand, yellow to brown, very fine to fine, lignitic-----	10	10
	Gravel, fine, sandy-----	4	14
	Till, gray, unoxidized, bouldery-----	20	34
	Gravel, fine to medium, sandy-----	4	38
	Till, gray, quite variable-----	161	199
Pierre Shale:			
	Shale, gray, very calcareous-----	6	205
	Shale, dark-gray, slightly calcareous	5	210

142-59-18adc
North Central School District No. 65

(Log furnished by Frederickson's, Inc., West Fargo)

Glacial drift:			
	Soil, black-----	2	2
	Clay, brown, sandy (till)-----	17	19
	Clay, blue, sandy, hard (till)-----	54	73
	Sand, gray, dirty-----	2	75
	Clay, blue, sandy, hard (till)-----	7	82
	Sand, gray-----	1	83
	Sand and clay lenses, blue-----	4	87
	Sand, gray-----	3	90
	Clay, blue, sandy (till)-----	3	93
	Sand, gray, coarse-----	1	94
	Clay, blue, sandy (till)-----	1	95
	Sand, gray-----	4	99
	Clay, blue, sandy; limestone pebbles-----	5	104
	Sand, gray-----	1	105
	Clay, blue, sandy (till)-----	5	110
		136	

142-59-18bbb
Test hole 2084

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Gravel, fine to medium, sandy-----	9	9
	Till, brown, sandy, oxidized; gravel, fine-----	9	18
	Till, gray, sandy, unoxidized-----	4	22
	Gravel, fine to medium, sandy-----	8	30
	Till, gray-----	9	39
	Gravel, fine, sandy-----	12	51
	Silt, gray, very clayey-----	5	56
	Till, gray-----	56	112
	Sand, gray, very coarse-----	24	136
	Gravel, fine, well sorted; inter- bedded sand, very coarse-----	83	219
Pierre Shale:			
	Shale, light-gray, calcareous-----	33	252

142-59-24bbc
Test hole 2102 (A)

Glacial drift:			
	Till, yellow to brown, oxidized-----	9	9
	Sand, brown, coarse to very coarse, poorly sorted, gravelly-----	5	14
	Till, gray-----	8	22
	Till, gray; interbedded gravel-----	24	46
	Till, gray-----	36	82
Pierre Shale:			
	Clay, light-gray, very calcareous----	13	95
	Shale, black, pyritiferous-----	10	105

142-59-26bbb2
Test hole 2101

Glacial drift:			
	Till, yellow, oxidized-----	14	14
	Till, gray, unoxidized-----	6	20
	Gravel, fine-----	3	23
	Till, gray; interbedded gravel, fine; sand-----	44	67
	Gravel, fine to medium-----	7	74
	Till, gray-----	98	172
Pierre Shale:			
	Clay, light-gray, very calcareous, bentonitic-----	17	189

142-59-34bbb
Test hole 2103

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, yellow to brown, oxidized-----	11	11
	Till, gray, unoxidized-----	33	44
	Sand, gray; gravel, fine-----	6	50
	Silt, gray, clayey; sand, gray, very fine-----	10	60
	Gravel, fine to coarse, sandy-----	7	67
	Till, gray-----	15	82
	Gravel, fine to coarse (boulder pavement?)-----	8	90
	Till, gray-----	72	162
Pierre Shale:			
	Clay, light-gray, pyritiferous, very calcareous-----	6	168
	Shale, gray-----	11	179

142-59-36aaa
Test hole 2108

Glacial drift:			
	Sand, brown, coarse to very coarse, gravelly-----	9	9
	Till, yellowish-brown, oxidized-----	8	17
	Till, gray, unoxidized-----	22	39
Pierre Shale:			
	Shale, gray, calcareous; interbedded clay, light-gray-----	14	53

142-60-3cdd
Test hole 2100

Glacial drift:			
	Till, yellow to brown, oxidized; interbedded gravel, fine, and sand-----	16	16
	Till, brown, oxidized-----	6	22
	Sand, brown, coarse to very coarse, gravelly; gravel, very coarse, bouldery-----	13	35

142-60-4ddd
Test hole 2111

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
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Glacial drift:

Till, grayish-yellow to light-olive-brown, oxidized-----	10	10
Till, olive-gray, unoxidized-----	10	20
Till, olive-gray; interbedded sand and gravel-----	64	84

142-60-8ccc
Test hole 2079

Glacial drift:

Till, yellowish-gray, oxidized-----	11	11
Till, gray, unoxidized-----	6	17
Sand, gray, medium to coarse-----	3	20
Till, gray-----	17	37
Gravel, fine to coarse-----	8	45
Till, gray, poor samples-----	97	142
Silt, gray to black, clayey, calcareous-----	35	177
Gravel, fine to medium, clayey to sandy-----	16	193
Till, gray, poor samples-----	15	208
Sand, gray, medium-----	16	224

Pierre Shale:

Silt, gray, clayey-----	10	234
Shale, black, silty-----	8	242

142-60-10ccc
Test hole 2081

Glacial drift:

Till, pink to brown, oxidized-----	21	21
Gravel, fine to coarse, sandy-----	6	27
Till, gray-----	7	34
Gravel, fine-----	3	37
Till, gray, bouldery-----	90	127
Sand, gray, fine to medium, clayey---	24	151
Gravel, fine to medium-----	6	157

Pierre Shale:

Shale, black, pyritiferous-----	11	168
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142-60-11ddd
Test hole 2083

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, yellow to brown, fine, very clayey, oxidized-----	10	10
	Till, brown, sandy, oxidized-----	6	16
	Gravel, fine to coarse-----	5	21
	Till, gray, bouldery, unoxidized-----	26	47
	Gravel, fine to coarse-----	7	54
	Till, gray-----	12	66
	Silt, gray, clayey-----	8	74
	Till, gray, sandy-----	17	91
	Gravel, fine to medium, poorly sorted	5	96
	Till, gray, sandy-----	23	119
	Gravel, fine to coarse; interbedded clay, gray-----	16	135
	Clay, gray-----	4	139
	Sand, medium to coarse, gravelly; interbedded clay, gray-----	89	228
Pierre Shale:	Shale, light-gray, very calcareous, pyritiferous-----	14	242

142-60-14bbb2
Test hole 2082

Glacial drift:			
	Till, brown, oxidized-----	10	10
	Gravel, fine to coarse-----	6	16
	Till, gray-----	10	26
	Gravel, fine to medium-----	6	32
	Till, gray, bouldery-----	23	55
	Silt, gray, clayey to sandy-----	48	103
	Gravel, fine to coarse-----	19	122
	Sand, gray, clayey to gravelly, lignitic-----	8	130
Pierre Shale:	Shale, black, bentonitic; soil profile-----	7	137

142-60-16bbb
Test hole 2080

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Gravel, fine to medium, sandy-----	20	20
	Sand, medium, poorly sorted-----	4	24
	Till, gray, poor samples-----	34	58
	Gravel, fine to medium, sandy-----	17	75
	Till, gray-----	79	154
	Sand, gray, fine to medium, clayey, lignite-----	24	178
	Sand, gray, medium to coarse, clayey, lignite-----	13	191
	Gravel, fine to medium, slightly sandy-----	6	197
Pierre Shale:			
	Shale, gray, very silty, bentonitic; shale, black-----	13	210

142-61-5aad
Test hole 7 W

Glacial drift:			
	Sand, fine-----	5	5
	Till, yellow, oxidized-----	3	8
	Till, gray, unoxidized-----	18	26
	Sand, fine to coarse; gravel, fine to medium-----	30	56
Pierre Shale:			
	Shale, gray-----	24	80

142-61-5ada
Test hole 8 W

Glacial drift:			
	Sand, fine to coarse; gravel, fine to coarse-----	26	26
	Sand, gravel, and boulders-----	14	40
Pierre Shale:			
	Shale, gray-----	13	53

142-61-5add
Test hole 9 W

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, yellow, oxidized-----	5	5
	Gravel, fine to medium; sand, medium to coarse-----	11	16
	Till, gray, unoxidized-----	18	34
	Sand, medium to coarse; gravel, fine to medium-----	6	40
Pierre Shale:			
	Shale, gray-----	20	60

142-61-8ddd
Test hole 2076

Glacial drift:			
	Till, brown, oxidized-----	19	19
	Till, gray, very silty, unoxidized---	65	84
	Till, gray, very bouldery (boulder pavement?)-----	5	89
Pierre Shale:			
	Shale, black-----	6	95

142-61-9ddd
Test hole 2074

Glacial drift:			
	Till, brown, oxidized-----	17	17
	Till, gray, lignitic-----	125	142
	Silt, light-gray to gray, clayey, very calcareous; interbedded fine sand-----	27	169
	Silt, gray, clayey, lignitic; inter- bedded very coarse sand and gravel-	28	197
	Gravel, poorly sorted, sandy-----	29	226
Pierre Shale:			
	Shale, gray to black; interbedded light-gray clay-----	5	231

142-61-12ddd
Test hole 2078

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, brown, fine to medium, very clayey-----	8	8
	Sand, gray, coarse; gravel, fine to medium-----	28	36
	Till, gray-----	67	103
	Gravel, medium, fine to coarse, sandy-----	19	122
	Silt, light-gray to gray, clayey, calcareous; interbedded clay, gray, calcareous-----	38	160
	Sand, gray, fine, clayey to silty, lignitic-----	26	186
	Gravel, fine to coarse, sandy-----	24	210
	Gravel, medium to very coarse-----	10	220
Pierre Shale:			
	Shale, light-gray, very silty, pyritiferous-----	11	231

142-61-13bbb
Test hole 2075

Glacial drift:			
	Till, brown, oxidized-----	11	11
	Till, gray, unoxidized-----	4	15
	Gravel, fine to coarse, sandy-----	4	19
	Till, gray, very silty-----	78	97
	Sand, fine to medium, calcareous-----	29	126
	Silt, light-gray to gray, clayey, very calcareous-----	64	190
	Gravel, fine to coarse, sandy; clay and silt stringers common-----	73	263
Pierre Shale:			
	Silt, light-gray, very calcareous, pyritiferous-----	16	279
	Shale, gray, silty, noncalcareous, pyritiferous-----	36	315

142-61-14bbb
Test hole 2077

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, brown, oxidized-----	14	14
	Till, gray, unoxidized-----	21	35
	Sand, light-brown, fine to coarse---	3	38
	Till, gray-----	2	40
	Sand, light-gray to gray, medium, poorly sorted, lignitic-----	17	57
	Till, gray; interbedded sand and gravel-----	42	99
	Sand, gray, fine to medium-----	5	104
	Gravel, medium to coarse-----	6	110
	Silt, light-gray to gray, clayey, calcareous; interbedded clay, gray to black, calcareous-----	59	169
	Sand, medium to coarse; gravel, fine-	9	178
	Gravel, fine to coarse, sandy-----	52	230
	Sand, medium to coarse, silty-----	10	240
	Gravel, very coarse (boulder pavement ?)-----	6	246
Pierre Shale:			
	Silt, light-gray, clayey, slightly calcareous-----	2	248
	Shale, black, noncalcareous, pyritiferous-----	4	252

142-61-20bbb
Pollard & Davis No. 1 D Gussette

(North Dakota Geological Survey Circular No. 198)

Glacial drift:			
	No samples-----	60	60
	Sand, fine to very coarse-----	40	100
	Sand, light-gray, fine to very coarse	10	110
	Sand, gray, fine to very coarse-----	30	140
	Sand, fine to very coarse-----	24	164
Pierre Shale:			
	Shale, light-gray, bentonitic, calcareous-----	11	175
Niobrara Formation (top at 450 ft.)			
Greenhorn Formation (top at 926 ft.)			
Newcastle Formation (top at 1,272 ft.)			
Interlake Group ? (top at 1,770 ft.)			
Stony Mountain Formation (top at 1,800 ft.)			
Red River Formation (top at 1,800 ft.)			
Winnipeg Formation (top at 2,360 ft.)			
Deadwood Formation (top at 2,555 ft.)			
Precambrian (top at 2,572 ft.)			

142-61-24bcc1
 Test hole R. Christ No. 4
 (Log furnished by Schnell, Inc., Bismarck)

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
Soil, black-----	2	2	
Till, buff, oxidized-----	26	28	
Gravel-----	2	30	
Till, gray-----	11	41	
Sand-----	4	45	
Till, gray-----	36	81	
Sand-----	2	83	
Till, gray-----	59	142	
Till, gray, with boulders-----	45	187	
Silt-----	24	211	
Sand and gravel-----	49	260	

142-61-24bcc2
 Test hole R. Christ No. 1
 (Log furnished by Schnell, Inc., Bismarck)

Glacial drift:			
Soil, black-----	2	2	
Till, buff, oxidized-----	7	9	
Sand, yellow, with boulders-----	10	19	
Till, gray, with boulders-----	83	102	
Gravel-----	2	104	
Till, gray-----	57	161	
Till, gray, sandy-----	12	173	
Till, gray, sandy, with sand layers--	24	197	
Silt-----	5	202	
Sand, fine-----	43	245	
Sand, medium, with shale pebbles-----	37	282	
Gravel, coarse-----	5	287	
Pierre Shale:			
Shale-----	3	290	

142-61-24bcd
Test hole R. Christ No. 2
(Log furnished by Schnell, Inc., Bismarck)

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Soil, black-----	2	2
	Till, buff, oxidized-----	26	28
	Gravel-----	2	30
	Till, gray-----	118	148
	Silt and clay-----	36	184
	Gravel-----	59	243
	Pebbles; sand; gravel, coarse-----	19	262
Pierre Shale:			
	Clay-----	8	270

142-61-24bdc
Test hole R. Christ No. 3
(Log furnished by Schnell, Inc., Bismarck)

Glacial drift:	Soil, black-----	2	2
	Till, buff, oxidized-----	15	17
	Till, gray, with boulders-----	6	23
	Till, gray-----	5	28
	Clay-----	5	33
	Till, gray-----	51	84
	Sand-----	2	86
	Till, gray-----	6	92
	Gravel-----	5	97
	Till, gray-----	57	154
	Silt and clay-----	28	182
	Sand, medium-----	13	195
	Gravel, coarse-----	66	261
Pierre Shale:	Clay-----	10	271

143-56-16ccb
Test hole 2144

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
Till, buff to light-gray, oxidized---	12	12	
Till, gray, unoxidized-----	7	19	
Sand, fine to medium, gravelly-----	3	22	
Till, gray-----	13	35	
Sand, fine to coarse-----	3	38	
Till, gray-----	76	114	
Till, gray, bouldery-----	31	145	
Niobrara Formation:			
Shale, light-gray, very calcareous, micaceous-----	13	158	

143-56-17adb
G.N.R.R. (Pillsbury)
(Log furnished by Great Northern Railroad)

Glacial drift:			
Clay-----	10	10	
Small rocks and clay (till)-----	5	15	
Boulders (till)-----	35	50	
Hardpan (till)-----	9	59	
Boulders and Hardpan (till)-----	7	66	
Hardpan (till)-----	32	98	
Blue clay-----	3	101	
Hardpan (till)-----	16	117	
Gravel and clay-----	2	119	

143-57-10dcc
Test hole 2145

Glacial drift:			
Till, buff to brown, oxidized-----	35	35	
Till, gray, unoxidized-----	77	112	
Gravel, fine to coarse, poorly sorted, clayey-----	5	117	
Till, gray; interbedded gravel and sand-----	58	175	
Till, gray-----	60	235	
Niobrara Formation:			
Clay, gray, very calcareous, pyritiferous-----	17	252	

143-58-18dda
Test hole 2097

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Gravel, poorly sorted, clayey to sandy-----	6	6
	Till, brown, oxidized-----	19	25
Pierre Shale:			
	Clay, greenish-gray, silty to sandy, bentonitic-----	9	34
	Shale, gray, bentonitic; interbedded shale, black-----	29	63

143-58-21aaa2
Test hole 2098

Glacial drift:			
	Till, yellow to brown, oxidized-----	15	15
Pierre Shale:			
	Clay, light-gray, noncalcareous, bentonitic-----	7	22
	Shale, black, noncalcareous-----	9	31

143-58-34dad1
Test hole 903

Glacial drift:			
	Clay, light-gray-----	4	4
	Clay, yellow-----	2	6
	Clay, light-gray-----	8	14
Pierre Shale:			
	Shale, light-gray-----	6	20

143-58-34dad2
Test hole 904

Glacial drift:			
	Clay, dark-gray-----	7	7
	Clay, light-gray-----	14	21
Pierre Shale:			
	Shale, light-gray-----	9	30

143-59-1aaa
Test hole 2106

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, brown, very sandy, oxidized----	12	12
	Till, gray-----	8	20
	Sand, mottled gray, very fine to medium, well sorted-----	4	24
	Till, gray; poor samples-----	58	82
	Sand, gray, fine to coarse, lignitic; gravel, fine-----	12	94
	Till, gray-----	50	144
Pierre Shale:			
	Clay, light-gray, very calcareous---	6	150
	Clay, gray, very calcareous-----	8	158

143-59-14cdd
Test hole 2096

Glacial drift:			
	Sand, brown, gravelly-----	4	4
	Till, brown, bouldery, oxidized-----	22	26
	Till, gray, bouldery, unoxidized-----	56	82
	Till, gray-----	92	174
Pierre Shale:			
	Shale, gray, pyritiferous, very calcareous, fossiliferous-----	15	189

143-59-15ccc
Test hole 2095

Glacial drift:			
	Sand, brown, coarse to very coarse---	16	16
	Till, gray, unoxidized-----	12	28
	Sand, gray, coarse to very coarse, gravelly-----	10	38
	Till, gray, quite variable-----	72	110
	Sand, gray, fine to medium, lignitic-	26	136
	Gravel, fine to medium, sandy-----	16	152
	Gravel, fine to medium-----	42	194
Pierre Shale:			
	Shale, gray, pyritiferous, very calcareous-----	16	210

143-59-18ddd
Test hole 209¹

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, brown, oxidized-----	7	7
	Gravel, coarse, clayey to sandy-----	3	10
	Till, gray, unoxidized-----	14	24
	Gravel, medium to coarse; sand, coarse to very coarse-----	8	32
	Till, gray, clayey-----	40	72
	Gravel, fine; sand, gray, coarse-----	12	84
	Till, gray-----	5	89
	Gravel, fine; sand, gray, coarse-----	6	95
	Till, gray-----	25	120
	Till, gray, bouldery-----	32	152
	Till, gray, sandy-----	42	194
Pierre Shale:			
	Clay, light-gray, very calcareous---	9	203
	Clay, gray, very calcareous-----	7	210

143-59-19acb
Randolph Oppegard

(Log furnished by Frederickson's, Inc., West Fargo)

Glacial drift:			
	Soil, black-----	2	2
	Clay, brown (till)-----	10	12
	Sandy clay (till)-----	8	20
	Sand, blue-----	2	22
	Sandy clay lenses, blue (till)-----	9	31
	Sand, washed, blue-----	3	34
	Hard sandy clay, blue (till)-----	80	114
	Sandy clay and shale, blue (till)-----	22	136
	Hard sandy clay, blue (till)-----	9	145
	Sand, washed, blue-----	2.5	147.5
	Hard sandy clay, blue (till)-----	4.5	152
	Granite boulder, white-----	1	153
	Hard sandy clay, blue (till)-----	31	184
Pierre Shale:			
	Shale, grayish-----	7	191

143-60-13ccc
Test hole 2093

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, yellow to brown, oxidized-----	12	12
	Gravel, medium, sandy-----	5	17
	Till, gray, unoxidized-----	8	25
	Till, gray, sandy-----	17	42
	Till, gray-----	24	66
	Gravel, medium, well sorted-----	10	76
	Till, gray-----	19	95
	Sand, gray, medium to coarse-----	9	104
	Gravel, fine; interbedded sand, very coarse-----	74	178
	Clay, light-gray, very calcareous---	9	187
	Gravel, medium to coarse-----	21	208
Pierre Shale:			
	Clay, light-gray, very calcareous---	2	210
	Shale, gray-----	21	231

143-60-15ccc
Test hole 2092

Glacial drift:			
	Sand, brown, coarse to very coarse---	24	24
	Gravel, brown, medium to coarse-----	19	43
	Sand, dark-brown, coarse, gravelly---	9	52
	Till, gray-----	4	56
	Sand, gray, coarse to very coarse---	20	76
	Gravel, fine, sandy-----	12	88
	Till, gray-----	14	102
	Sand, gray, medium to coarse-----	3	105
	Till, gray-----	11	116
	Sand, gray, medium to coarse-----	8	124
	Till, gray-----	16	140
	Sand, gray, medium, poorly sorted----	26	166
	Gravel, fine to medium-----	24	190
	Gravel, very coarse (boulder pavement ?)-----	5	195

143-60-19aaa
Test hole 2091

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, yellow to brown, oxidized-----	11	11
	Gravel, medium to coarse, sandy-----	5	16
	Till, gray-----	26	42
	Sand, medium to coarse-----	6	48
	Till, gray-----	15	63
	Sand, gray, coarse-----	4	67
	Till, gray, poor samples-----	43	110
	Till, gray-----	117	227
	Gravel, fine to coarse (boulder pavement?)-----	5	232
Pierre Shale:			
	Shale, black-----	13	245

143-61-2aaa
Test hole 2158

Glacial drift:			
	Clay, yellowish-gray, silty to sandy-----	5	5
	Till, buff, oxidized-----	11	16
	Till, gray, unoxidized-----	13	29
	Gravel, fine to coarse-----	3	32
	Till, gray, bouldery-----	40	72
	Till, gray-----	53	125
Pierre Shale:			
	Shale, black, fissile, noncalcareous-----	22	147

143-61-21aaa
Test hole 2090

Glacial drift:			
	Till, yellow to brown, oxidized-----	14	14
	Till, gray, clayey-----	21	35
	Gravel, medium, sandy-----	5	40
	Till, gray, poor samples-----	6	46
Pierre Shale:			
	Clay, gray (soil profile)-----	4	50
	Shale, black-----	13	63

143-61-23cdd
 Pollard and Davis No. 1 A. H. Gregory
 (North Dakota Geological Survey Circular No. 94)

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Sand, medium to very coarse-----	40	40
	Sand, fine to very coarse-----	40	80
Pierre Shale:			
	Shale, light-gray-----	70	150
	Shale, light-gray, slightly calcareous-----	20	170
Niobrara Formation (top at 420 ft.)			
Greenhorn Formation (top at 875 ft.)			
Newcastle Formation? (top at 1,209 ft.)			
Dakota Formation (top at 1,377 ft.)			
Interlake Group? (top at 1,618 ft.)			

143-61-24bbb
 Test hole 2089

Glacial drift:			
	Gravel, fine to coarse-----	18	18
	Till, gray, unoxidized, poor samples-	62	80
Pierre Shale:			
	Clay, gray, silty, noncalcareous (soil profile)-----	9	89
	Shale, black, pyritiferous-----	16	105

143-61-27cdd
 Test hole 10 W

Glacial drift:			
	Sand, fine-----	8	8
	Till, gray, unoxidized-----	62	70
Pierre Shale:			
	Clay, gray*-----	90	160

* Cored 150 to 160 feet. Shale is medium-gray, massive, unfossiliferous.

143-61-29cdc
Test hole 11 W

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, yellow, oxidized-----	19	19
	Sand, medium to coarse; gravel, fine-	6	25
	Sand, medium to coarse, clayey; gravel, fine-----	17	42
	Sand, fine, lignitic-----	3	45
	Sand, medium to coarse-----	21	66
Pierre Shale:			
	Clay, gray-----	4	70

143-61-31ccc
Test hole 5 W

Glacial drift:			
	Till, yellow, oxidized-----	19	19
	Till, gray, unoxidized-----	25	44
	Sand, coarse; gravel, fine to medium-----	1	45
	Till, gray-----	15	60
Pierre Shale:	Shale, dark-gray*-----	20	80

* Cored 70 to 80 feet. Shale is dark-gray, massive, unfossiliferous, noncalcareous.

143-61-32bcc
Test hole 13 W

Glacial drift:			
	Till, yellow, oxidized-----	17	17
	Till, gray, unoxidized-----	21	38
	Gravel, fine to medium-----	2	40
	Till, gray, bouldery-----	5	45
	Gravel, fine to medium-----	5	50
	Till, gray-----	12	62
Pierre Shale:	Clay, gray-----	8	70

143-61-32dcb
Test hole 12 W

<u>Formation</u>	<u>Material</u>	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
Glacial drift:			
	Till, yellow, oxidized-----	21	21
	Sand, fine to coarse; gravel, fine, lignite-----	40	61
Pierre Shale:	Clay, gray-----	9	70

143-61-32dcd
Test hole 6 W

Glacial drift:			
	Till, yellow, oxidized-----	8	8
	Till, gray, unoxidized-----	34	42
	Sand, medium to coarse; gravel, fine to medium-----	12	54
	Clay, gray, sandy-----	3	57
	Sand, fine to medium; gravel, fine to coarse-----	10	67
Pierre Shale:	Shale, blue-----	23	90

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