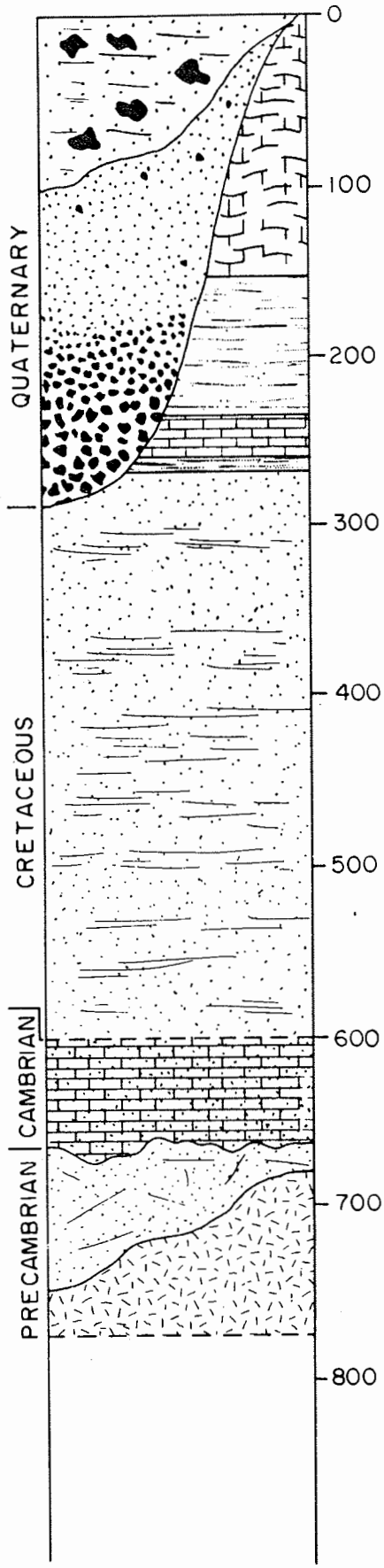

GEOLOGY AND WATER RESOURCES OF CLAY COUNTY SOUTH DAKOTA

Part III – Basic Data

by
Cleo M. Christensen,
South Dakota Geological Survey
and
Jerry C. Stephens,
United States Geological Survey

Bulletin 19

South Dakota Geological Survey

1970

STATE OF SOUTH DAKOTA
Frank Farrar, Governor

SOUTH DAKOTA GEOLOGICAL SURVEY
Duncan J. McGregor, State Geologist

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Prepared in cooperation with the United States Geological Survey
and Clay County

Science Center
University of South Dakota
Vermillion, South Dakota
1970

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INTRODUCTION

This report (Bulletin 19, Part III) is a compilation of basic data gathered during a geological and hydrological investigation of Clay County (fig. 1) in 1963 and 1964.

Purpose of the report is twofold; (1) to make basic geologic and hydrologic data available for future planning and study, and (2) as a supplement to reports already published. It is suggested that data in this report be used in conjunction with the following publications:

Christensen, C. M., and Stephens, J. C., 1967, Geology and hydrology of Clay County, South Dakota: S. Dak. Geol. Survey, Bull. 19, Part I, Geology; Part II, Water Resources.

Christensen, C. M., and Stephens, J. C., 1965, A high-yield glacial aquifer in Clay County, South Dakota: S. Dak. Geol. Survey, Water Inf. Circ. 1.

Data Point Numbering System

A location number is given for each data point in this report. The location number is based on the United States Bureau of Land Management's system of land subdivision (township, range, and section). Figure 2 illustrates the system of numbering.

The first numeral of a location number indicates the township, the second the range, and the third the section in which the point is located. Lowercase letters after the section number indicate the location within the section. The first letter corresponds to the 160-acre tract, the second the 40-acre tract, the third the 10-acre tract, and the fourth the 2½-acre tract. Subscripts after lowercase letters identify wells at the same location. The letters a, b, c, and d are assigned in a counterclockwise direction beginning in the northeast corner of each tract. For example a data point having the location number 92-52-13 daca is located in NE¼SW¼NE¼SE¼ sec. 13, T. 92 N., R. 52 W. (fig. 2).

In addition to the location number, a reference number is also assigned to each log listed in table 3. Each reference number is located on figure 3. In this way logs may be selected from table 3 without the necessity of first finding the township, range, and section number of the desired log.

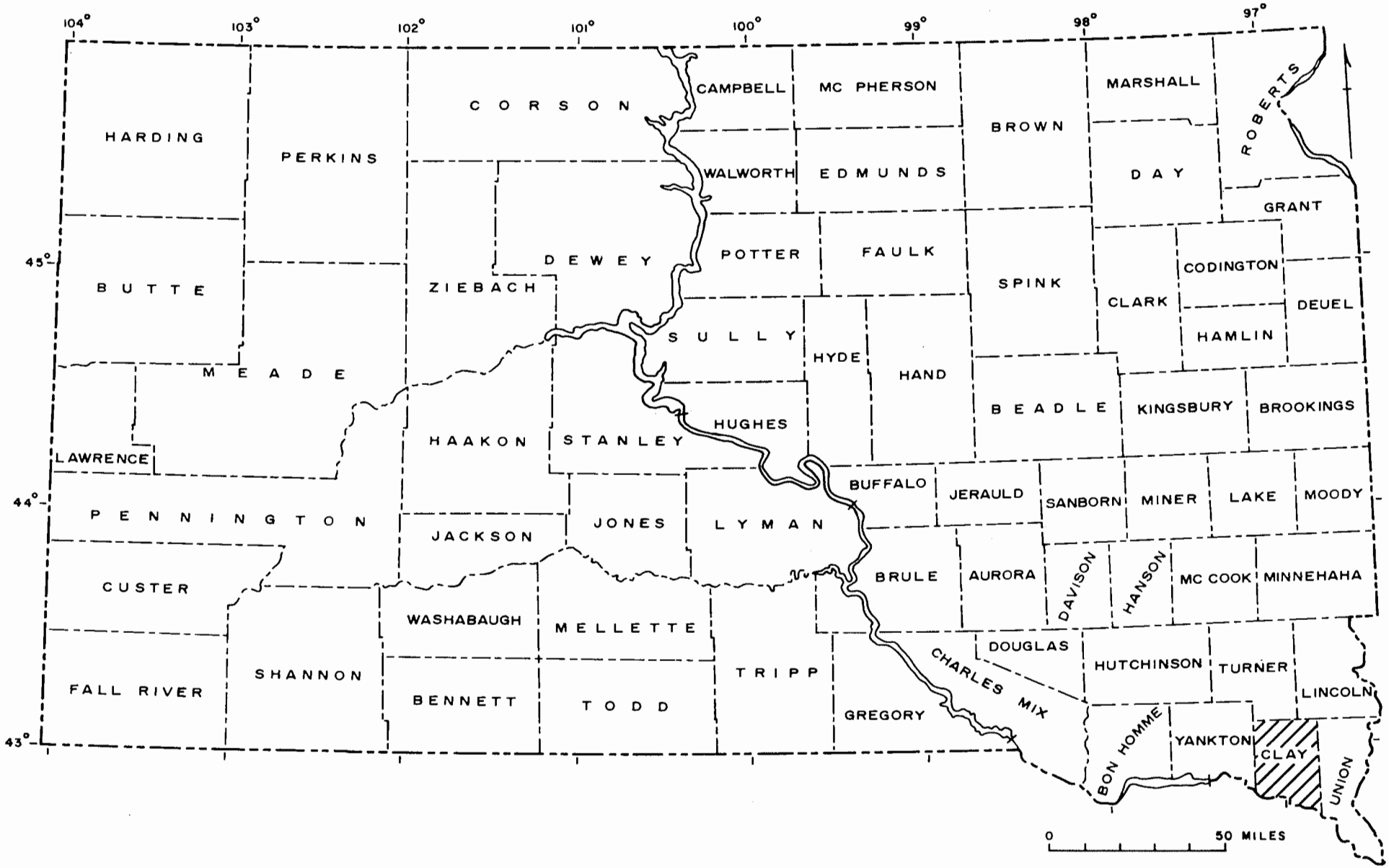

Figure 1. Map of South Dakota showing the location of Clay County.

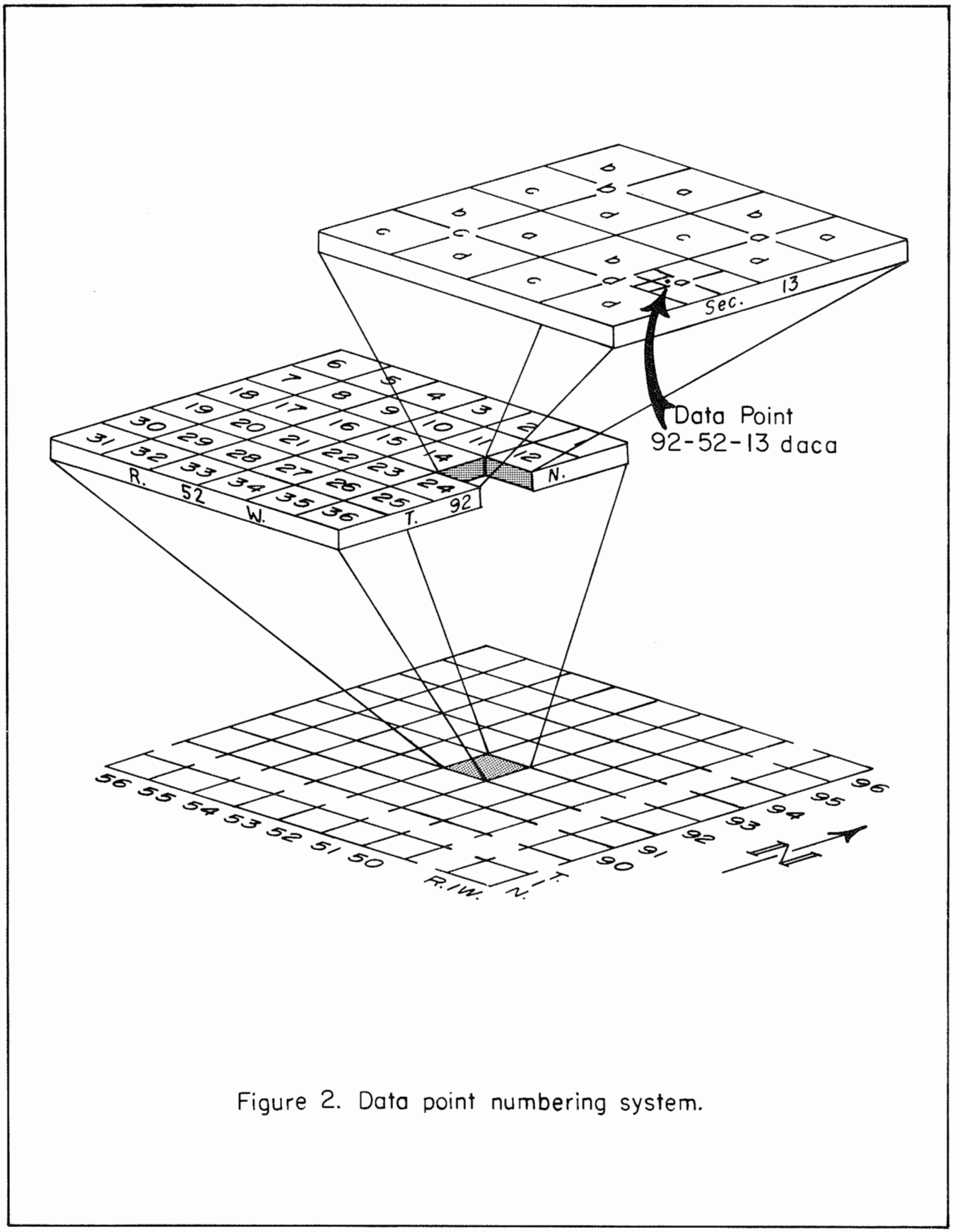

Figure 2. Data point numbering system.

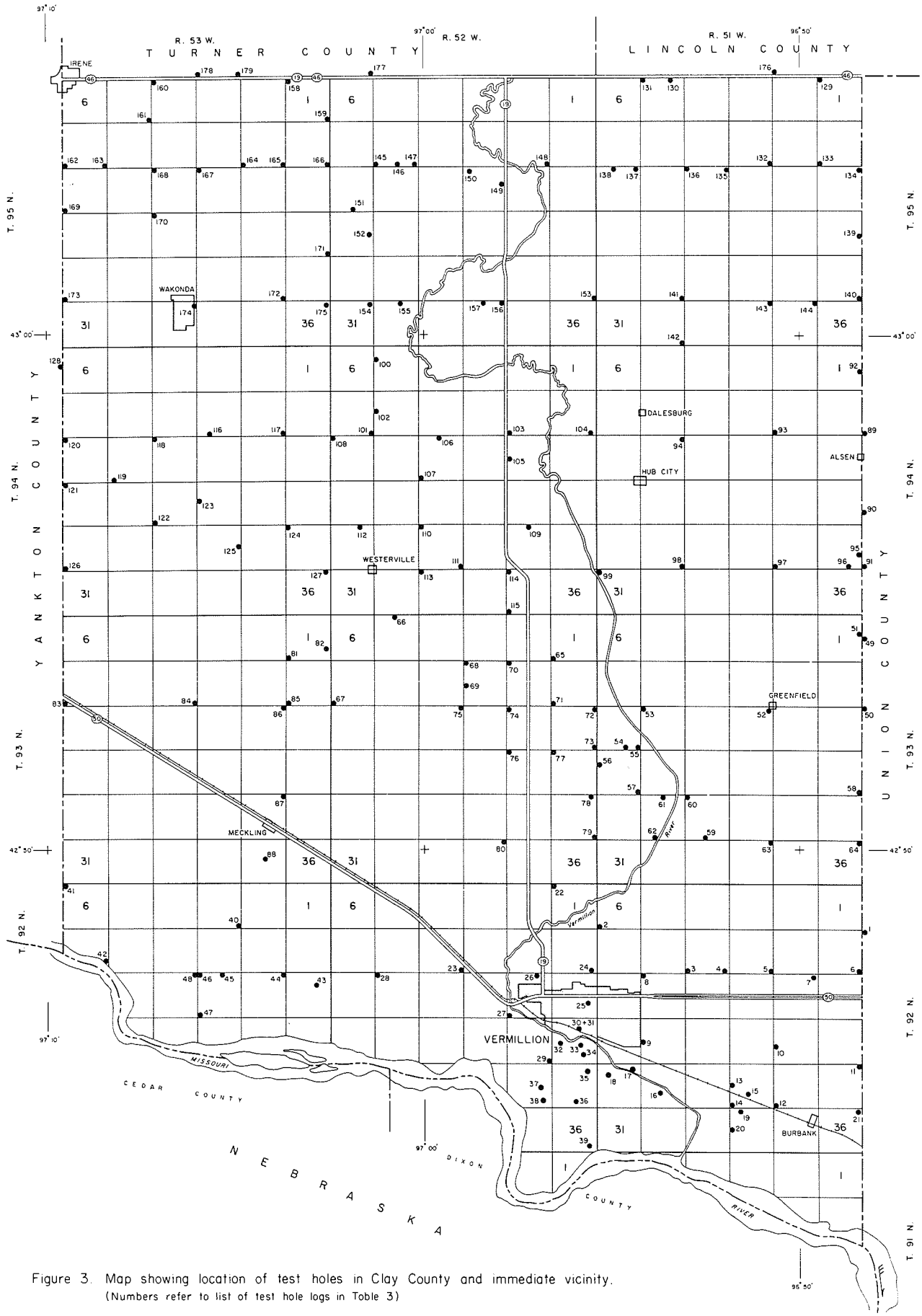

Figure 3. Map showing location of test holes in Clay County and immediate vicinity.
(Numbers refer to list of test hole logs in Table 3)

Table 1. Record of selected wells, springs, and test holes in Clay County, South Dakota

Explanation of symbols used in table of wells

Column 1: See text for explanation of well-numbering system.

Column 2: SDGS, South Dakota Geological Survey; SDWRC, South Dakota Water Resources Commission; USBR, U. S. Bureau of Reclamation; USGS, U. S. Geological Survey.

Column 3: a, about; b, before.

Column 4: a, approximate depth; +, depth greater than shown; S, spring.

Column 5: Two or more numbers indicate change in casing diameter from top to bottom.

Column 6: a, altimeter; e, estimated; i, instrument; t, topographic map.

Column 7: Qom, minor outwash lenses; LV-M, Lower Vermillion-Missouri; W, Wakonda; Kn, Niobrara Marl; Kcc, Codell Sandstone Member of Carlile Shale; Kd, Dakota Group.

Column 8: C, centrifugal; Cy, cylinder; F, flowing well; J, jet; P, piston; T, turbine.

Column 9: D, domestic; Irr, irrigation; O, observation well; PS, public supply; S, stock; T, test hole.

Column 10: m, measured; r, reported.

Column 14: A, chemical analysis in table 2; Fe, estimated flow (gpm); Fm, measured flow (gpm); Fu, flow not measured; Fx, formerly flowed; L, well log in table 3; T, temperature of water (°F); <, less than.

Location	Owner or user	Year completed	Depth of well (feet)	Casing diameter (inches)	Land-surface altitude (feet)	Principal aquifer	Type of pump	Use	Water level above (+) or below land surface (feet)	Date of measurement or visit	Specific conductance of water (micromhos/cm at 25°C)	Hardness as $CaCO_3$	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
91-51													
-1daaa	SDGS	1965	100	.....	1,135t	...	..	T	....	.....	.....	...	....
-3aa	SDGS	....	112	.....	1,131i	...	..	T	....	.....	.....	...	....
-4acbb	A. Gunderson	....	21	1¼	.....	LV-M	Cy	S	....	9-10-63	.....	...	....
-4badc	A. Gunderson	....	20	2	.....	LV-M	Cy	S	....	9-10-63	.....	...	....
92-51													
-2addc	H. Solomon	....	100	4,1¼	.....	LV-M	Cy	S	....	8-7-64	1,760	753	....
-2ccda	G. Solomon	a1930	140	2½	.....	LV-M	Cy	S	....	8-7-64	1,960	822	....
-2dccd	A. Kaiser	....	...	2	.....	LV-M	Cy	S	....	8-7-64	1,760	770	....
-3addb	H. Lee	....	300+	2	.....	Kd	Cy	S	....	6-11-65	1,500	720	A,T55
-3ccbb	J. Blair	1961	132	2	.....	LV-M	J	S	40r	8-7-64	1,170	479	....
-3dddd	T. Dowd	1962	148	2½	.....	LV-M	Cy	S	70r	8-7-64	1,960	942	....
-5ccda	G. Brooks	....	135	4	.....	LV-M	Cy	D,S	....	8-7-64	1,220	651	....
-5ddcb	P. Anderson	....	...	.....	.....	LV-M	Cy	S	....	8-7-64	1,270	616	....
-6cccb	H. Johnson	a1958	118	2	1,205t	LV-M	Cy	S	100r	8-7-64	.....	...	L
-6cddc	H. Johnson	1949	140	3	.....	LV-M	Cy	S	100r	8-7-64	1,320	633	....
-6ddbc$_1$	R. Heikes	1929	130	4,1½	.....	LV-M	Cy	S	28r	8-7-64	1,220	599	....
-6ddbc$_2$	R. Heikes	1948	122	3½,1¼	.....	LV-M	Cy	S	....	8-7-64	1,270	531	....
-7accb	V. Heikes	....	...	1¼	.....	LV-M	Cy	S	....	8-10-64	1,260	565	....
-7bccb	L. Maude	1958	150	3	.....	LV-M	Cy	D,S	....	8-10-64	1,570	736	....
-7cccc	J. Simons	1952	130	4	.....	LV-M	J	D,S	35r	10-7-63	1,710	...	A

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
92-51 (continued)													
-7dddc	R. Heikes	....	...	.....	.....	LV-M	Cy	D,S	....	8-10-64	1,320	548	....
-9cccc	USBR	1963	260	.....	1,243a	LV-M	..	T	....	.....	.....	...	L
-9dddd	USBR	1963	265	.....	1,251a	LV-M	..	T	....	.....	.....	...	L
-10bccb	A. White	1954	150	2,1¼	.....	LV-M	J	D	....	8-10-64	1,170	565	....
-10caaa	H. Maxwell	....	150	4	.....	LV-M	Cy	S	....	8-10-64	1,470	599	....
-10cccd	G. Bruyer	....	150	4,2	.....	LV-M	Cy	D,S	130r	8-10-64	1,320	633	....
-10cddd	E. Bruyer	1939	140	2,1¼	.....	LV-M	Cy	S	....	8-10-64	1,220	599	....
-10dddd	USBR	1963	265	.....	1,251a	LV-M	..	T	....	.....	.....	...	L
-11acdd	H. Ballard	1948	125	2	.....	LV-M	Cy	S	....	8-11-64	1,760	753	....
-12cdcc	A. Mackler	1910	144	2	.....	LV-M	Cy	S	....	8-11-64	1,615	804	....
-12dabb	L. Mackler	1942	147	2	.....	LV-M	J	S	135r	8-11-64	1,760	753	....
-12dddd	USBR	1963	260	.....	1,235a	LV-M	..	T	....	.....	.....	...	L
-13acda	L. Hinchliff	a1945	127	2	.....	LV-M	Cy	D,S	40r	8-11-64	1,570	788	....
-14aaaa	USBR	1963	265	.....	1,242a	LV-M	..	T	....	.....	.....	...	L
-14bdcd	R. Bruyer	1952	120	2	.....	LV-M	J	D,S	....	8-11-64	1,420	651	....
-14dcdd	D. Lynch	1962	141	4,2	.....	LV-M	J	D,S	80r	10-7-63	1,690	...	A
-15ccdd	J. Millette	....	130	1½	.....	LV-M	Cy	S	....	8-11-64	1,470	685	....
-17bbbb	USBR	1963	265	.....	1,229a	LV-M	..	T	....	.....	.....	...	L
-17bdcc	T. Nelson	....	138	2	.....	LV-M	Cy	D,S	20r	8-11-64	1,550	736	....
-19aa		....	161	.....	1,238t	LV-M	..	D	....	.....	.....	...	L
-20bccc	USBR	1963	230	.....	1,229a	LV-M	..	T	....	.....	.....	...	L
-20cbdc	B. Chaussee	1941	65	2	.....	LV-M	Cy	S	....	8-11-64	1,470	685	....
-20dda	A. Cotton	....	112	18	1,141t	LV-M	T	Irr	14.0m	10-6-64	.....	...	....
-20ddb	USGS	1964	97	.....	1,141t	LV-M	..	T	14.1m	8-25-64	.....	...	L
-21cacc	G. Olson	1948	65	1½	.....	LV-M	J	D	....	8-11-64	1,640	753	....
-21ccc	A. Cotton	....	110	18	.....	LV-M	T	Irr	....	.....	.....	...	....
-22ba	J. Mellette	a1960	23	1	.....	LV-M	Cy	S	....	8-11-64	.....	....	....
-22bbbc	H. Cusick	1950	...	.....	.....	LV-M	J	D,S	....	8-11-64	1,570	719	....
-23cb	SDGS	....	120	.....	1,137i	LV-M	..	T	....	.....	.....	...	L
-23cccd	G. Faber	....	30	1¼	.....	LV-M	Cy	D,S	....	8-11-64	2,150	1,027	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
92-51 (continued)													
-24ddaa	A. Malloy	....	...	1½	.....	LV-M	Cy	S	....	8-11-64	1,570	719	....
-25aaaa	SDGS	1965	95	.....	1,130t	LV-M	..	T	....	.....	.....	...	L
-25addd	J. Clifford	....	30	2	.....	LV-M	Cy	S	15r	8-11-64	1,570	719	....
-26cc	SDGS	....	109	.....	1,138t	LV-M	..	T	....	.....	.....	...	L
-26dadb	G. Faber	a1954	25	2	.....	LV-M	P	D	20r	8-11-64	1,570	719	....
-27baaa	H. Smith	....	40	.....	.....	LV-M	J	S	....	8-11-64	2,055	1,079	....
-27bcbc	R. Garvis	1963	109	18	1,137t	LV-M	T	Irr	12r	3-9-63	1,600	...	A,L
-27cada	R. Garvis	1963	107	18	1,134t	LV-M	T	Irr	4.7m	1-21-65	1,300	...	A,L
-27cc	SDWRC	1957	70	1¼	1,138i	LV-M	..	O	9.5m	7-__-65	.....	...	L
-28abab	B. Olson	a1961	85	2	.....	LV-M	J	D	....	8-11-64	1,960	959	....
-28dac	C. Fuller	1962	97	18	.....	LV-M	T	Irr	13.8m	1-21-65	1,680	...	A
-29cada	SDGS	1963	104	.....	1,133t	LV-M	..	T	12r	1963	.....	...	L
-30aadb	SDGS	1963	104	.....	1,135t	LV-M	..	T	15r	1963	.....	...	L
-30bacc	SDGS	1963	79	.....	1,140t	LV-M	..	T	13r	1963	.....	...	L
-33acad	C. Fuller	1964	25	1½	.....	LV-M	J	D,S	....	8-11-64	2,150	1,113	....
-33ccdd$_1$	W. Heckenlively	1960	30a	1¼	.....	LV-M	J	D	....	9-10-63	1,250	582	....
-33ccdd$_2$	W. Heckenlively	1960	42	1¼	.....	LV-M	Cy	S	....	9-10-63	1,200	651	....
-34babb	R. Garvis	1963	104	18	1,139t	LV-M	T	Irr	4.9m	1-20-65	1,600	...	A,L
-34cb	SDGS	...	116	.....	1,133i	LV-M	..	T	....	.....	.....	...	L
-34dbdc	Valley Farms	1963	118	3	.....	LV-M	P	D,S	18r	8-11-64	1,170	342	....
-36aaaa	SDGS	1965	155	.....	1,133t	LV-M	..	T	....	.....	.....	...	L
-36bccc	L. Cusick	....	...	.....	.....	LV-M	P	D	....	.....	1,760	770	....
92-52													
-1bc	SDWRC	1957	70	1¼	1,146i	LV-M	..	O	11.3m	7-13-65	.....	...	L
-2dbda	E. Heickes	....	100+	2,1¼	.....	LV-M	Cy	S	....	8-13-64	1,520	668	....
-3addd	J. Peterson	1918	110	2	.....	LV-M	Cy	D,S	85r	8-13-64	1,420	599	....
-7cbc	C. Rye	1959	500	3,2	1,151i	Kd	F	S	+14.4m	4-28-65	1,560	811	L,A, Fm 12
-9dddd	SDGS	1964	124	.....	1,147t	LV-M	..	T	....	.....	.....	...	L

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
92-52 (continued)													
-10ccc$_1$	K. Samsel	....	200+	3	.....	Kd	F	D	....	1-23-65	1,550	760	A,Fm 2.5
-11abd	L. Albers	a1960	435	.....	1,142t	Kd	F	S	....	6-10-65	1,600	830	A,Fm 6.0
-11ddcc	G. Collar	a1940	140	3,1½	.....	LV-M	Cy	S	....	8-13-64	1,370	496	....
-12dcdd	B. Seiler	1944	158	2	.....	LV-M	Cy	D,S	135r	8-13-64	1,370	496	....
-12ddab	Vermillion Golf Course	1963	205	3	1,215t	LV-M	J	Irr	85	9---64	.....	...	L,A
-13da	Univ. of S.Dak.	1925	440	.....	1,235t	Kd	..	...	....	.....	.....	...	A
-13daca$_1$	Univ. of S.Dak.	1962	270	.....	1,237t	...	..	T	....	.....	.....	...	L
-13daca$_2$	Univ. of S.Dak.	1963	200	12	1,237t	LV-M	T	Irr	104r	8-22-63	.....	821	A,L
-14abaa	USBR	1963	249	.....	1,219a	LV-M	..	T	....	.....	.....	...	L
-14cda	SDWRC	1957	112	1¼	1,140t	LV-M	..	0	13.3m	7---65	.....	...	L
-15bbad	P. Anderson	....	320	4	.....	Kd	F	S	....	8-13-64	1,570	719	Fm 1
-17bbbb	SDGS	1964	106	.....	1,150t	LV-M	..	T	....	.....	.....	...	L
-24bad	City of Vermillion #1	1956	100	12	.....	LV-M	T	PS	24r	6-30-65	.....	...	L
-24bdac	City of Vermillion #1	1934	88	18,12½	.....	LV-M	T	PS	25r	6-30-65	.....	...	L
-24bdad	City of Vermillion #2	1947	100	12	.....	LV-M	T	PS	24r	6-30-65	.....	...	....
-24cbaa	SDGS	1963	104	.....	1,140t	LV-M	..	T	19r	1963	.....	...	L
-24dbab	SDGS	1963	104	.....	1,140t	LV-M	..	T	10r	1963	.....	...	L
-24dcad	SDGS	1963	104	.....	1,143t	LV-M	..	T	9r	1963	.....	...	L
-25aaca	SDGS	1963	104	.....	1,138t	LV-M	..	T	....	.....	.....	...	L
-25da	F. Powell	1940	21	1¼	1,143t	LV-M	..	0	15.9m	4-25-60	.....	...	....
-25dcdb	SDGS	1963	104	.....	1,145t	LV-M	..	T	....	.....	.....	...	L
-26ddbc	SDGS	1963	104	.....	1,142t	LV-M	..	T	....	.....	.....	...	L
-36dddb	SDGS	1963	92	.....	1,133t	LV-M	..	T	11r	1963	.....	...	L
92-53													
-2dcdc$_1$	H. Zack	a1900	400+	4,2	.....	Kd	F	S	....	8-12-64	1,470	736	Fm 15
-2dcdc$_2$	H. Zack	1957	30	1¼	.....	LV-M	J	D	11r	8-12-64	3,820	1,352	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
92-53 (continued)													
-3ddd	SDGS	....	106	.....	1,153i	LV-M	..	T	....	....	.....	...	L
-4adaa	H. Mikkelson	....	30	1¼	.....	LV-M	P	D	....	8-12-64	1,670	668	....
-5dcca	A. Smith	....	...	4,2	.....	Kd	F	D,S	....	8-12-64	1,470	736	Fm 1.5
-6abbd$_1$	N. Jensen	a1950	30	1½	.....	LV-M	..	D	....	8-12-64	1,700	753	....
-6abbd$_2$	N. Jensen	1936	485	2	.....	Kd	F	D,S	....	8-12-64	1,470	736	Fm 3
-6bbbb	SDGS	1964	120	.....	1,160t	LV-M	..	T	....	....	.....	...	L
-7ddaa	SDGS	1964	125	.....	1,150t	LV-M	..	T	....	....	.....	...	L
-8dcdd	M. Sorenson	1964	30	1	.....	LV-M	Cy	D	....	8-12-64	1,470	736	....
-9cdcc	J. Jepsen	1946	280	2,1¼	.....	Kd	F	D,S	....	8-12-64	1,470	736	Fm 6
-10abcb	M. Iverson	....	...	2	.....	LV-M	Cy	S	....	8-12-64	1,960	1,027	....
-11adbc$_1$	V. Jasperson	....	346	2,1¼	.....	Kd	F	S	....	8-12-64	1,370	668	Fm 1
-11adbc$_2$	V. Jasperson	1962	17	1¼	.....	LV-M	P	D	....	8-12-64	2,280	...	....
-12ddda$_1$	V. Jasperson	1942	480	2	.....	Kd	F	S	....	8-12-64	1,570	788	Fm 4
-12ddda$_2$	V. Jasperson	1960	22	1½	.....	LV-M	Cy	S	12r	8-12-64	.....	...	....
-13accc$_1$	N. Knutson	a1950	32	1¼	.....	LV-M	P	D	....	8-12-64	1,960	907	....
-13accc$_2$	N. Knutson	1925	300+	2	.....	Kd	F	S	....	8-12-64	1,520	770	Fe 2
-13acaa$_1$	N. Knutson	1957	106	18	1,152t	LV-M	T	Irr	14.4m	11-9-64	1,500	...	A
-13acaa$_2$	USGS	1964	112	.....	1,152t	LV-M	..	0	13.9m	11-9-64	.....	...	....
-14aaaa	SDGS	1964	113	.....	1,154t	LV-M	..	T	....	....	.....	...	L
-14bcab	A. Iverson	a1954	430	3,2	.....	Kd	F	D,S	....	8-12-64	1,520	770	Fm 15
-15abbb	D. Myron	1957	116	18	1,156i	LV-M	..	...	13r	1957	.....	...	L,A
-15abcd$_1$	D. Myron	b1900	280	2,1¼	.....	Kd	F	D,S	....	8-12-64	1,420	685	L,Fm<0.5
-15abcd$_2$	D. Myron	1963	24	2	.....	LV-M	J	S	....	8-12-64	1,810	976	....
-15bbbb	SDWRC	1957	39	1¼	1,155i	LV-M	..	0	11.6m	9-15-65	2,100	923	L,A
-15cc	SDGS	....	112	.....	1,154i	LV-M	..	T	....	....	.....	...	L
-16aaaa	SDGS	1964	115	.....	1,155t	LV-M	..	T	....	....	.....	...	L
-16cbbb	C. Harris	1959	31	1½	.....	LV-M	Cy	D,S	11r	8-12-64	1,170	411	....
-16ccaa	O. Hansen	a1920	265	2	.....	Kd	F	D,S	....	6-11-65	1,400	750	A,Fm 1.5
-21bbcc	M. Hansen	....	...	1½	.....	Kd	F	D,S	....	8-12-64	1,470	736	Fm 10
-23dcad	C. Armstrong	....	300+	1½	.....	Kd	F	D,S	....	8-12-64	1,370	651	Fm 1

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
92-53 (continued)													
-24aaad	C. Iverson	....	22	1¼	.....	LV-M	P	D,S	....	8-12-64	1,760	804	....
93-51													
-1abcc	A. Wigdahl	1918	400	4,2	.....	Kd	Cy	S	100r	6-11-65	1,600	800	A
-1adda	SDGS	1965	230	.....	1,318a	...	..	T	....	.....	.....	...	L
-1dada	I. Ellison	1930	336	2	.....	Kd	Cy	...	....	7-8-64	1,270	548	....
-2aaaa	A. Millette	1963	169	3	.....	LV-M	Cy	S	60r	7-8-64	1,460	770	....
-2cbda	H. Emerson	....	115	4	.....	LV-M	Cy	D,S	....	10-7-63	2,310	...	A
-3aabd	M. Nelson	....	120a	1	.....	LV-M	Cy	S	....	7-8-64	2,130	1,198	....
-3bdcd	J. Heblin	1924	107	4,1½	.....	LV-M	Cy	S	....	7-8-64	2,030	1,096	....
-4babd	J. Danielson	1912	100	4,1¼	.....	LV-M	Cy	S	....	7-8-64	2,130	1,096	....
-4dadc	A. Erickson	1920	100	2	.....	LV-M	Cy	S	....	7-8-64	2,110	1,113	....
-5aabd	G. Christiansen	1900	85	2	.....	LV-M	Cy	S	20r	7-8-64	.....	...	....
-5cbca	J. Ostlund	1910	96	2	.....	LV-M	Cy	S	....	7-8-64	.....	...	....
-7ddda	T. Anderson	....	...	.....	.....	LV-M	Cy	S	....	7-8-64	1,940	890	....
-8daab	E. Olson	a1900	115	4,2	.....	LV-M	Cy	S	50r	1-20-65	1,888	...	A
-9adca	A. Leer	....	90	1½	.....	LV-M	Cy	S	....	7-9-64	2,230	1,096	....
-9bcca	E. Olson	....	...	1	.....	LV-M	Cy	S	....	7-8-64	1,540	668	....
-10aadd	E. Erickson	....	100	4,2	.....	LV-M	J	D,S	....	7-9-64	2,130	1,061	....
-10bccd	L. Peterson	1930	90	4	.....	LV-M	J	S	80r	7-9-64	2,080	1,027	....
-10dddd	J. Hansen	....	...	2	.....	LV-M	Cy	S	....	7-9-64	2,140	1,096	....
-11aada	C. Wetmore	....	135	2	.....	LV-M	Cy	D,S	95r	7-9-64	2,330	1,198	....
-11bccd	W. Johnson	....	...	1	.....	LV-M	Cy	D,S	....	7-9-64	2,130	1,027	....
-12aadb	L. Swenson	a1923	145	4,1¼	.....	LV-M	Cy	S	....	7-9-64	1,840	719	....
-12bcca	E. Ellison	....	138	2	.....	LV-M	Cy	S	....	7-9-64	2,300	1,198	....
-12dccc	J. O'Conner	1918	140	2	.....	LV-M	Cy	S	....	7-9-64	2,320	1,301	....
-12dcdb	M. O'Conner	1958	27	3	.....	Qom	Cy	S	8r	7-9-64	3,290	2,157	....
-13aadc	I. Oakland	....	175	2,1½	.....	LV-M	Cy	S	....	7-9-64	2,180	1,164	....
-13cacc	L. Donahoe	1910	120	1	.....	LV-M	Cy	S	....	7-9-64	2,230	1,147	....
-14cdcc	R. Olson	1948	118	2	.....	LV-M	Cy	S	....	7-9-64	2,130	1,096	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
93-51 (continued)													
-15aaaa$_2$	USBR	1963	260	.....	1,230a	LV-M	..	T	....	.....	.....	...	L
-15cccc	J. Hybertson	a1920	140	2	.....	LV-M	Cy	D,S	70r	7-9-64	1,940	1,044	....
-15ddcc	M. Olson	a1928	120	4,1¼	.....	LV-M	Cy	S	....	7-9-64	2,130	1,216	....
-16acdc	J. Hansen	1924	240	3	.....	Kd	Cy	D,S	90r	7-9-64	1,470	736	....
-17bbbb	USBR	1963	150	.....	1,185a	LV-M	..	T	....	.....	.....	...	L
-18dcdd	USGS	1964	65	.....	1,140a	LV-M	..	T	....	.....	.....	...	L
-18dddd	USGS	1964	76	.....	1,144a	LV-M	..	T	....	.....	.....	...	L
-19bbcc	USGS	1964	82	.....	1,202a	Qom	..	T	....	.....	.....	...	L
-19ccca	R. Ashmore	....	100	2	.....	LV-M	Cy	S	....	7-9-64	1,770	1,027	....
-19dddd	USGS	1964	82	.....	1,178a	LV-M	..	T	....	.....	.....	...	L
-20adac	S. Oden	....	80	2½	.....	LV-M	Cy	S	....	7-10-64	1,940	993	....
-21adaa	R. Leer	....	120	4,2	.....	LV-M	Cy	D,S	90r	4-16-64	1,800	...	A
-21bdac	S. Lohre	1961	141	2½	.....	LV-M	Cy	S	61r	7-10-64	1,790	531	....
-21ddad	J. Haugum	....	190	2	.....	LV-M	Cy	S	....	7-10-64	1,560	462	....
-22bdda	J. Salberg	....	120	2	.....	LV-M	Cy	S	....	7-10-64	1,920	976	....
-22dcdd	O. Jackson	1960	136	2	.....	LV-M	Cy	S	....	10-7-63	2,090	...	A
-23ddbd	L. Upland	....	...	4	.....	LV-M	Cy	S	....	7-10-64	2,130	1,010	....
-24dcad	L. O'Connor	....	100+	2	.....	LV-M	Cy	S	....	7-21-64	2,130	1,130	....
-24dddd	SDGS	1964	240	.....	1,247a	LV-M	..	T	....	.....	.....	...	L
-25adab	J. Julian	....	135	2	.....	LV-M	Cy	D,S	80r	7-21-64	2,210	1,044	....
-25ddcc	I. Manning	1963	...	1	.....	LV-M	Cy	S	....	7-21-64	2,230	1,044	....
-26abda	G. Olson	....	130	1	.....	LV-M	Cy	S	....	7-21-64	2,130	976	....
-26bbcc	J. O'Connor	a1920	137	2	.....	LV-M	Cy	D,S	....	7-21-64	1,940	924	....
-27abdd	A. Stensaas	1964	125	3	.....	LV-M	Cy	S	....	7-21-64	1,940	411	....
-27bccd	J. Gale	a1900	100+	4	.....	LV-M	Cy	S	....	7-21-64	2,420	1,198	....
-27ccdc	R. Eisenmonger	....	...	2	.....	LV-M	Cy	S	....	7-21-64	1,450	753	....
-27dcbb	T. Poe	....	100	2,1½	.....	LV-M	Cy	D,S	....	7-21-64	2,230	822	....
-28abbb	F. Hanson	a1900	100+	2	.....	LV-M	Cy	S	....	7-21-64	1,700	822	....
-28bbbb	USGS	1964	65	.....	1,143a	LV-M	..	T	....	.....	.....	...	L
-28cddd	USBR	1963	250	.....	1,216a	LV-M	..	T	....	.....	.....	...	L

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
93-51 (continued)													
-29baaa	USGS	1964	37	.....	1,161a	...	..	T	....	.....	.....	...	L
-29cabb	C. Fullenkamp	....	...	2	.....	LV-M	Cy	S	....	7-21-64	1,940	907	....
-29cddc	USGS	1964	97	.....	1,147a	LV-M	..	T	....	.....	.....	...	L
-30aaaa	C. Peterson	1949	90	2½	.....	LV-M	Cy	S	....	7-21-64	2,130	1,147	....
-30bbcc	F. Osmanson	a1910	122	1½	.....	LV-M	P	S	....	7-21-64	1,810	993	....
-30ccdd	S. Beede	1961	105	3	.....	LV-M	Cy	S	90r	7-21-64	1,650	856	....
-31cdd	E. Miller	1963	120	2	.....	LV-M	Cy	S	....	10-7-63	1,490	...	A
-33bddb	Thompson Lumber Co.	....	...	.....	.....	LV-M	Cy	S	....	7-21-64	1,090	479	....
-34aaaa	USBR	1963	300	.....	1,236a	LV-M	..	T	....	.....	.....	...	L
-34ccdd	G. Ballard	1956	128	3	.....	LV-M	Cy	S	100r	7-21-64	1,730	...	A
-35bcbc	L. Ballard	1952	115	2	.....	LV-M	Cy	S	....	7-21-64	1,590	770	A
-35cbbb	E. Nelson	....	127	2	.....	LV-M	Cy	S	....	7-21-64	1,900	890	....
-36aaaa	USBR	1963	270	.....	1,253a	LV-M	..	T	....	.....	.....	...	L
93-52													
-1adcc	B. Nissen	1942	90	2	.....	LV-M	Cy	S	40r	2-?-64	2,110	1,164	....
-1bccb	L. Cleland	1945	90	6	.....	LV-M	J	S	56r	.....	.....	...	....
-1cccc	USGS	1964	97	.....	1,205a	LV-M	..	T	....	.....	.....	...	L
-1dbcb	C. Nelson	....	...	2	.....	LV-M	Cy	S	....	7-22-64	2,290	1,284	....
-2abab	W. Christiansen	....	100	2	.....	LV-M	Cy	S	60r	7-22-64	2,020	1,113	....
-2cdad	C. Gilbertson	1962	130+	4,2	.....	LV-M	P	D,S	40r	10-7-63	2,620	...	A
-3dddc	H. Witt	....	500a	2,1¼	.....	Kd	Cy	S	....	7-22-64	1,780	856	....
-4bbbb	S. Peterson	1906	50	4,2	.....	W	Cy	S	30r	7-22-64	2,690	1,746	....
-4cbcd	O. Christiansen	....	160	3	.....	W	Cy	S	....	7-22-64	2,210	1,438	....
-4ddaa	E. Johnson	a1942	360	2	.....	Kd	Cy	S	....	7-22-64	1,660	890	....
-5abaa	C. Emme	1954	100	2	.....	W	Cy	S	30r	7-22-64	2,590	1,592	....
-5baaa	USGS	1964	82	.....	1,355a	...	..	T	....	.....	.....	...	L
-5ca	J. Rice	....	S	.....	.....	W	..	S	....	1-23-65	2,400	1,300	A
-5cbcb	J. Jensen	....	300+	2	.....	Kd	Cy	S	....	7-22-64	1,920	993	....
-5ccdd	D. Chaney	....	...	.....	.....	Kcc	Cy	D,S	....	7-22-64	1,540	753	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
93-52 (continued)													
-5cdda	J. Rice	a1946	280	3	.....	Kcc	Cy	S	20r	7-22-64	1,510	804	....
-6ba	V. Larson	....	S	.....	.....	W	..	S	....	1-22-65	1,550	860	A
-6ccad	H. Mount	....	...	3	.....	LV-M	Cy	S	....	7-22-64	1,440	822	....
-6cdbd	R. Orr	1960	70	4	.....	LV-M	J	D,S	....	7-22-64	1,440	873	....
-7cccc	SDWRC	1957	54	1¼	1,150t	LV-M	..	0	2.7m	9-15-65	.....	...	L
-8abdd	L. Frugis	....	S	.....	.....	W	..	S	....	1-23-65	2,200	1,500	A
-9bccd	L. Lewison	1950	265	4,3	.....	Kcc	P	D,S	65r	7-22-64	1,730	924	....
-9cdca	L. Ferris	1962	105	4	.....	LV-M	J	D,S	....	7-22-64	2,400	1,507	....
-10bbbb	USGS	1964	37	.....	1,259a	....	..	T	....	.....	.....	...	L
-10bcbd	P. Johnson	....	400a	2	.....	Kd	Cy	S	....	7-22-64	1,960	993	....
-10cbbb	USGS	1964	57	.....	1,269a	Qom	..	T	....	.....	.....	...	L
-10cddc	J. Hood	a1910	475	4,2	.....	Kd	Cy	D,S	....	7-22-64	1,730	856	....
-10dcdc	B. McGurik	....	...	4	.....	Kd	P	D,S	....	7-22-64	1,920	1,044	....
-11bbbb	SDGS	1964	75	.....	1,216a	W	..	T	10.3m	5-15-64	.....	...	L
-11cdda	L. Berntson	a1910	400+	3	.....	Kd	Cy	S	120r	7-22-64	2,040	1,027	....
-12cbca	J. Johnson	....	90	3	.....	LV-M	Cy	S	....	7-22-64	2,630	1,489	....
-12cccc	USBR	1963	70	.....	1,214a	....	..	T	....	.....	.....	...	L
-13aaaa	USGS	1964	79	.....	1,145a	LV-M	..	T	....	.....	.....	...	L
-13ddcc	E. Erickson	1964	400+	4	.....	Kd	Cy	S	....	7-22-64	1,960	942	....
-13dddd	SDGS	1964	60	.....	1,203a	LV-M	..	T	....	.....	.....	...	L
-14bbbb	USGS	1964	34	.....	1,219a	Qom	..	T	....	.....	.....	...	L
-14dcca	C. Brunick	1962	110	2	.....	LV-M	P	S	....	7-22-64	1,600	980	A
-15aadc	E. Cleland	1953	409	4	.....	Kd	J	D,S	42r	7-22-64	1,870	976	....
-15ccca$_1$	C. Johnson	....	98	2	.....	LV-M	J	D,S	....	7-23-64	690	240	....
-15ccca$_2$	C. Johnson	1960	100	2	.....	LV-M	Cy	S	....	7-23-64	1,940	1,027	....
-15dccd	A. Christensen	....	130	2	.....	LV-M	Cy	S	....	7-23-64	1,510	736	....
-15ddaa	H. Gunderson	1946	102	4	.....	LV-M	Cy	S	....	7-23-64	1,510	804	....
-16aaaa	USBR	1963	190	.....	1,241a	LV-M	..	T	....	.....	.....	...	L
-16aadc	G. Myron	....	...	2	.....	LV-M	Cy	S	....	7-22-64	1,630	993	....
-17bccc	M. Chaney	....	...	4	.....	Kd	F	S	....	7-24-64	2,050	976	Fm 1.0

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
93-52 (continued)													
-18aaaa	SDGS	1964	114	.....	1,149t	...	..	T	....	.....	.....	...	L
-19cccc$_1$	Steele Bros.	....	400	3,2	.....	Kd	F	S	....	7-24-64	1,630	856	Fm 6
-19cccc$_2$	Steele Bros.	1945	35	1¼	.....	LV-M	J	D	18r	7-24-64	1,870	907	....
-19cddd	Steele Bros.	1952	35	1¼	.....	LV-M	Cy	D,S	18r	7-24-64	1,630	856	....
-20daaa	F. Rayman	....	...	2½	.....	Kd	F	...	....	7-24-64	1,870	907	Fe 2
-20dddd$_1$	F. Rayman	....	...	1½	.....	LV-M	J	D	....	7-24-64	1,420	616	....
-20dddd$_2$	F. Rayman	a1940	170	3½	.....	Kd	F	S	....	7-24-64	1,690	753	Fm 1.4
-21dcad	F. Rayman	1958	76	18	.....	LV-M	T	Irr	12r	7-24-64	1,300	565	A
-21dddd$_1$	F. Rayman	1958	60	4	.....	LV-M	Cy	S	....	7-24-64	1,380	616	....
-21dddd$_2$	F. Rayman	1950	57	1½	.....	LV-M	J	D,S	....	7-24-64	1,470	633	....
-22aaab	B. McGurick	....	...	.....	.....	LV-M	J	D,S	....	7-23-64	1,380	702	....
-22bbcc	B. McGurick	1961	42	3	.....	LV-M	..	D,S	....	7-23-64	1,600	804	....
-22bcac	R. Bremmer	....	...	2	.....	LV-M	Cy	D	....	7-23-64	1,250	565	....
-22cddd	R. Trudeau	a1961	136	3	.....	LV-M	Cy	S	....	10-7-63	1,450	...	A
-23abbb	W. Eilers	....	...	2	.....	LV-M	Cy	S	....	7-23-64	1,690	924	....
-23acba	L. Trudeau	1955	120	3	.....	LV-M	J	D,S	....	7-23-64	1,710	907	....
-23bbbb	USGS	1964	97	.....	1,212a	...	..	T	....	.....	.....	...	L
-23dcbb	L. Trudeau	....	...	2	.....	LV-M	Cy	S	....	7-23-64	1,740	959	....
-24bbbb	USGS	1964	97	.....	1,195a	...	..	T	....	.....	.....	...	L
-24bbdd	H. Witt	....	...	2	.....	LV-M	Cy	S	....	7-23-64	1,850	1,027	....
-24ccdc	P. Howey	1918	100	4	.....	LV-M	Cy	S	....	7-23-64	1,980	1,096	....
-24daad	D. Macy	....	140	2	.....	LV-M	Cy	S	40r	10-7-63	1,850	...	A
-25aaaa	USGS	1964	97	.....	1,198a	LV-M	..	T	....	.....	.....	...	L
-25bcda	B. Macy	....	85	3	.....	LV-M	Cy	S	50r	7-23-64	1,780	873	....
-25cbac	L. Scholten	....	110	4	.....	LV-M	Cy	S	....	7-23-64	1,630	839	....
-25dddd	USBR	1963	155	.....	1,195a	LV-M	..	T	....	.....	.....	...	L
-26addb	J. LaFerriere	....	125	4	.....	LV-M	Cy	S	....	7-23-64	1,600	804	....
-26cdaa	M. Cleland	1950	103	4	.....	LV-M	J	D,S	....	7-22-64	1,340	599	....
-26dccc	O. Severson	....	150	2	.....	LV-M	Cy	S	....	7-23-64	1,340	565	....
-27daaa	A. Stalheim	....	128	2	.....	LV-M	Cy	S	80r	7-23-64	1,420	616	....
-28aad	E. Lewison	1958	320	1¼	1,151i	Kd	F	S	6.0m	4-28-65	1,590	813	A,Fm 6.6

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
93-52 (continued)													
-28dadd	M. Lounsberg	....	...	1¼,1	.....	Kd	F	D,S	....	7-23-64	1,600	736	Fm 2.5
-29bbbc$_1$	C. Olson	1957	440	2,1¼	.....	Kd	F	S	....	7-27-64	1,680	907	Fm 12
-29bbbc$_2$	C. Olson	1964	45	1¼	.....	LV-M	J	D	6r	7-27-64	1,630	822	....
-30bbbc$_1$	Steele Bros.	1941	400	3,2	.....	Kd	F	S	....	7-24-64	1,630	856	Fm 7.5
-30bbbc$_2$	Steele Bros.	1956	35	1¼	.....	LV-M	J	D	18r	7-24-64	1,920	976	....
-30bccc$_1$	Steele Bros.	1931	35	1¼	.....	LV-M	Cy	S	18r	7-24-64	1,060	462	....
-31cbcd$_1$	H. Bye	....	377	2,1¼	.....	Kd	F	D,S	....	7-27-64	1,540	753	Fm 2
-31ddad	M. Hughes	....	...	2	.....	Kd	F	D,S	....	7-27-64	1,540	736	Fm 1.7
-33cdcc	J. Haverman	....	...	2	.....	Kd	F	D,S	....	7-27-64	1,540	736	Fe 3
-34aaaa	USBR	1963	230	.....	1,225a	LV-M	..	T	....	.....	.....	...	L
-34bdca	C. Severson	....	150	2	.....	LV-M	Cy	D,S	....	7-23-64	1,510	651	....
-34caba	C. Severson	....	...	.....	.....	LV-M	Cy	D,S	....	7-23-64	1,420	616	....
93-53													
-1aadd	E. Anderson	....	480	2½	.....	Kd	Cy	D,S	60r	7-28-64	2,050	1,027	....
-1cc	SDGS	....	49	.....	1,153i	LV-M	..	T	....	.....	.....	...	L
-1ddaa	SDGS	1964	170	.....	1,159a	LV-M	..	T	....	.....	.....	...	L
-1dddc	E. Anderson	1963	65	5	.....	LV-M	J	D,S	32r	7-28-64	1,420	668	....
-2dadd	E. Ward	1960	30	1½	.....	LV-M	J	S	6r	7-28-64	1,420	719	....
-5bbbc	J. Marks	....	...	4	.....	LV-M	J	D,S	....	7-28-64	1,780	651	....
-6dccc	A. Olson	....	...	2	.....	Kd	F	...	....	7-28-64	2,225	1,061	Fm 1
-7cbac$_1$	F. Sealey	1958	320	3,2	.....	Kd	F	S	....	7-28-64	1,960	907	Fm 0.5
-7cbac$_2$	F. Sealey	1959	91	2	.....	LV-M	J	D	20r	7-28-64	.....	...	....
-7cccc	SDGS	1964	135	.....	1,162t	LV-M	..	T	....	.....	.....	...	L
-9dddd	SDGS	1964	131	.....	1,153t	LV-M	..	T	....	.....	.....	...	L
-10dccc$_1$	A. Roscoe	....	300	4	.....	Kd	F	S	....	7-28-64	2,140	976	Fm 5
-10dccc$_2$	A. Roscoe	....	90	4,1¼	.....	LV-M	P	D	15r	7-28-64	1,510	685	....
-12cccc	SDGS	1964	126	.....	1,151t	LV-M	..	T	....	.....	.....	...	L
-14aa	SDGS	....	69	.....	1,150i	LV-M	..	T	....	.....	.....	...	L
-14bccd$_1$	F. Orr	....	...	4	.....	LV-M	Cy	D,S	....	7-28-64	1,420	616	....
-14bccd$_2$	F. Orr	....	...	6	.....	Kd	F	S	....	7-28-64	1,700	822	Fe 1

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
93-53 (continued)													
-14cccc$_1$	P. Johnson	....	...	6	.....	Kd	F	S	....	7-28-64	1,750	822	Fm 6
-14cccc$_2$	P. Johnson	1963	35	4	.....	LV-M	J	D	....	7-28-64	1,420	548	....
-16cccc	C. Drum	....	...	6	.....	Kd	F	S	....	7-28-64	1,870	873	Fe 4
-18abcc	N. Marks	....	...	1½	.....	Kd	F	D,S	....	7-28-64	1,870	822	Fm 1.2
-18cbbc	L. Larson	a1900	400	8	.....	Kd	F	D,S	....	7-28-64	1,780	839	Fe 4
-18ddcc	L. Linde	1930	300	2	.....	Kd	F	D	....	7-28-64	1,690	788	Fm 1.5
-19cbba$_1$	H. Vitek	1955	445	1	.....	Kd	F	D,S	....	7-29-64	1,650	719	Fe 8
-19cbba$_2$	H. Vitek	....	...	6	.....	Kd	F	S	....	7-29-64	.....	...	Fe 2
-19dccd$_1$	W. Farley	1943	500	2	.....	Kd	F	D,S	....	7-29-64	1,540	651	Fm 0.8
-19dccd$_2$	W. Farley	1963	86	3	.....	LV-M	J	D,S	....	7-29-64	1,400	462	....
-20abba$_1$	W. Larson	1962	90	2	.....	LV-M	J	D,S	....	7-29-64	1,335	171	....
-20abba$_2$	W. Larson	1957	90	2	.....	LV-M	J	D,S	....	7-29-64	1,335	514	....
-20abba$_3$	W. Larson	a1890	300+	2	.....	Kd	F	S	....	7-29-64	1,560	651	Fe 2.5
-20bbbc	C. Fairley	1942	329	4,2	.....	Kd	F	D,S	....	7-29-64	1,690	736	Fm 1
-20cccc$_1$	H. Walraven	1964	97	2	.....	LV-M	J	D	....	7-29-64	1,510	462	....
-20cccc$_2$	H. Walraven	....	...	4,1	.....	Kd	F	S	....	7-29-64	1,600	770	Fm<0.5
-22adaa	C. Morse	....	...	4,2	.....	Kd	F	...	....	7-29-64	.....	...	Fe 1
-22ddad$_1$	C. Olson	a1900	240	4	.....	Kd	F	...	....	7-29-64	1,870	822	Fm 4
-22ddad$_2$	C. Olson	....	240+	4	.....	Kd	F	S	....	7-29-64	1,840	788	Fe 7
-22ddad$_3$	C. Olson	1961	32	2	.....	LV-M	J	D	....	7-29-64	2,120	959	....
-23aaad	L. Wiken	1954	37	1½	.....	LV-M	J	D	....	7-29-64	1,470	668	....
-23addd$_1$	D. Yusten	1962	42	1½	.....	LV-M	J	S	12r	7-29-64	1,860	959	....
-23addd$_2$	D. Yusten	....	450	1	.....	Kd	F	D,S	....	7-29-64	1,830	907	Fe 1
-23ddda$_1$	R. Bedell	....	36	1¼	.....	LV-M	J	D	15r	7-29-64	1,600	599	....
-23ddda$_2$	R. Bedell	....	...	6	.....	Kd	F	S	....	7-29-64	1,910	890	Fm 6
-24bccb	L.Hollingsworth	....	...	.....	.....	LV-M	J	D	....	7-29-64	1,860	924	....
-24cccc	C. Orr	1964	37	1½	.....	LV-M	J	D,S	14r	7-29-64	1,960	976	....
-24dabb	W. Tiahrt	1957	88	18	.....	LV-M	T	Irr	12r	7-24-64	2,000	...	A
-25babc$_1$	J. Armstrong	1963	30	1¼	.....	LV-M	J	D,S	....	7-29-64	1,860	924	....
-25babc$_2$	J. Armstrong	....	...	8	.....	Kd	F	S	....	7-29-64	1,660	822	Fe 4

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
93-53 (continued)													
-25bbbb$_1$	E. Leffers	....	35	1¼	.....	LV-M	P	D,S	....	7-29-64	780	325	....
-25bbbb$_2$	E. Leffers	....	390	1½	.....	Kd	F	S	....	7-29-64	1,660	822	Fm 2.7
-25cccc	F. Kaiser	1950	54	1¼	.....	LV-M	J	D	....	7-29-64	1,220	496	....
-25cdcc	H. Peterson	1962	35	1¼	.....	LV-M	P	D	10r	7-29-64	1,270	514	....
-25dccc$_1$	J. Dutcher	....	...	4	.....	Kd	F	S	....	7-29-64	1,570	753	Fe 2
-25dccc$_2$	J. Dutcher	....	...	.....	.....	LV-M	J	D,S	50r	7-29-64	1,240	531	....
-26aa	SDGS	....	136	.....	1,150i	LV-M	..	T	....	.....	.....	...	L
-27bccc	B. Buel	1946	387	2	1,161t	Kd	F	S	+24.2m	7-19-57	1,560	...	Fm 6.7
-27cabb$_1$	A. Paulson	1963	110	4	.....	LV-M	J	D	....	8-5-64	1,170	496	....
-27cabb$_2$	A. Paulson	....	...	10,4	.....	Kd	F	S	....	8-5-64	1,520	685	Fm 2.4
-28bccb$_2$	A. Johnson	....	200+	1¼	.....	Kd	F	D,S	....	8-5-64	1,470	668	Fe<0.5
-29cbca	W. Klatt	1945	464	1	.....	Kd	F	D,S	....	8-5-64	1,570	788	Fm 0.7
-30abbd	C. Larsen	a1930	500	3,1	.....	Kd	F	D,S	....	8-5-64	1,570	770	Fm<0.5
-30baaa	V. Fairley	1964	305	3,1½	.....	Kd	F	D,S	....	7-29-64	1,510	685	Fm 2
-31bcbd	H. Miller	1934	410	2	.....	Kd	F	D,S	....	8-5-64	1,470	719	Fm 2.4
-31ccaa	M. Fargo	1963	104	18	1,160t	LV-M	T	Irr	12r	1963	.....	...	L
-32aadc$_1$	I. Hanson	1951	35	1¼	.....	LV-M	J	D	....	8-5-64	1,470	719	....
-32aadc$_2$	I. Hanson	1944	387	2,1	.....	Kd	F	S	+16.8m	11-19-64	1,560	809	A,Fm 6.0
-32aadc$_3$	I. Hanson	a1890	...	2	.....	Kd	F	S	....	8-5-64	.....	...	Fe 2
-33bccc	A. Kaeberle	....	...	2	.....	Kd	F	D,S	....	8-5-64	1,370	616	Fm 2.4
-34caad$_1$	A. Kaeberle	1933	375	4,2	.....	Kd	F	S	....	8-12-64	1,470	702	Fm 1.5
-34caad$_2$	A. Kaeberle	1918	365	2,1	.....	Kd	F	S	....	8-12-64	1,520	736	Fe 2
-34caad$_3$	A. Kaeberle	1962	56	1¼	.....	LV-M	P	D	16r	8-12-64	1,570	616	....
-35ac	SDGS	....	99	.....	1,153i	LV-M	..	T	....	.....	.....	...	L
-35cbcb$_1$	H. Larson	a1930	480	4	.....	Kd	F	S	....	8-12-64	1,550	514	Fm 15
-35cbcb$_2$	H. Larson	1949	94	2	.....	LV-M	P	D	25r	8-12-64	1,600	599	....
-36bccc$_1$	G. Larson	1955	34	1½	.....	LV-M	J	D	12r	8-12-64	1,670	651	....
-36bccc$_2$	G. Larson	a1910	410+	2	.....	Kd	F	D,S	....	8-12-64	1,520	719	Fm 8.6

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
94-51													
-1aabb	C. Peterson	....	...	3	.....	Kcc	Cy	S	....	6-25-64	1,740	839	....
-1daac	M. Siver	1913	98	1¼	.....	Qom	Cy	D	....	6-25-64	2,250	1,301	....
-1dada	SDGS	1964	125	.....	1,383a	...	..	T	....	.....	.....	...	L
-1ddaa	A. Jensen	1921	70	6	.....	Qom	Cy	S	40r	6-25-64	2,070	1,318	....
-2adab	A. Johansen	....	150	3,1½	.....	LV-M	Cy	S	75r	6-25-64	2,010	1,181	....
-2cbcb	C. Clark	a1920	50	3	.....	Qom	Cy	S	30r	6-25-64	2,060	1,370	....
-3addb	M. Bylander	1945	60	3	.....	...	P	D,S	....	6-25-64	2,400	1,320	....
-3daab	M. Bylander	1958	60	3	.....	...	Cy	S	....	6-25-64	2,500	1,320	....
-4abac	E. Sampson Est.	....	...	2	.....	Kd	Cy	S	....	6-25-64	1,760	873	....
-5acbb	C. Christensen	a1930	312	2	.....	Kd	Cy	S	....	6-25-64	1,570	770	....
-5dca	O. Austin	1940	300	2	1,230t	Kd	Cy	S	75r	1-23-65	2,100	1,060	A
-6cbba	H. Gylfe	....	80	1½	.....	LV-M	Cy	S	....	6-26-64	2,010	1,181	....
-6ddab	E. Johnson	....	90	4	.....	LV-M	Cy	S	80r	6-26-64	1,860	1,027	....
-7abba	O. Westburg	1944	100	2	.....	LV-M	J	D,S	....	6-26-64	1,860	1,130	....
-8cbbb	A. Berg	a1919	...	1½	.....	LV-M	Cy	D,S	....	6-26-64	1,840	1,027	....
-9cccb	M. Dahlberg	1958	83	3	.....	LV-M	Cy	S	50r	10-7-63	2,550	1,470	A
-10babc	A. Lundquist	1951	20	10	.....	Qom	Cy	S	....	6-26-64	2,050	1,284	....
-11accb$_1$	M. Evans	....	12	1	.....	Qom	Cy	S	....	6-26-64	2,640	1,592	....
-11accb$_2$	M. Evans	....	600	3	.....	Kd	Cy	S	....	6-26-64	1,850	873	....
-11adda	E. Austin	....	...	3	.....	LV-M	Cy	S	....	6-26-64	1,960	1,096	....
-11cccc	SDGS	1964	155	.....	1,296a	LV-M	..	T	....	.....	.....	...	L
-11da	S. Frick	1961	20	3	.....	Qom	Cy	S	12r	6-26-64	2,340	1,626	....
-12aaac	A. Kirkebak	a1900	...	4	.....	Kd	Cy	S	....	6-26-64	1,660	822	....
-12bdcb$_1$	L. Hedeen	1963	80	4,1½	.....	LV-M	Cy	S	60r	6-26-64	2,940	2,054	....
-12bdcb$_2$	L. Hedeen	a1940	80	4	.....	LV-M	Cy	S	....	6-26-64	2,770	1,917	....
-12cdbb	S. Frick	1938	115	3	.....	LV-M	Cy	S	....	6-26-64	2,450	1,438	....
-12daaa	L. McMillan	....	300	3	.....	Kd	Cy	D,S	190r	6-26-64	1,570	702	....
-13bbcb	W. Jensen	....	300a	3	.....	Kd	Cy	S	150r	6-31-64	.....	...	....
-13bdca	O. Jensen	1934	212	4	.....	Kcc	Cy	S	30r	6-11-65	1,300	790	A
-13dacc$_1$	O. Jensen	1934	30	30	.....	Qom	J	D	20r	6-31-64	3,130	1,815	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
94-51 (continued)													
-13dacc$_2$	O. Jensen	1956	54	30	.....	Qom	P	S	30r	6-31-64	.....	...	....
-15cbca	M. Johnson	1943	364	3,1¼	.....	Kd	Cy	D,S	....	6-31-64	1,710	856	....
-15daca	W. Frieberg	....	300	2	.....	Kd	Cy	S	....	6-31-64	1,570	736	....
-16adaa	C. Carlson	1940	297	3,1¼	.....	Kd	Cy	...	169r	7-1-64	.....	...	....
-16cbbd	A. Lundquist	1915	85	4	.....	LV-M	Cy	S	....	7-1-64	2,050	1,147	....
-16cdda	C. Salberg	....	120	3,2	.....	LV-M	Cy	S	....	7-1-64	2,150	1,198	....
-16dcca	F. Peterson	....	110	6	.....	LV-M	P	S	....	7-1-64	2,250	1,404	....
-17aaaa	USBR	1963	200	.....	1,231a	LV-M	..	T	....	.....	.....	...	L
-18adad	C. Anderson	....	...	.....	.....	LV-M	Cy	S	....	7-2-64	1,730	1,044	....
-18cdcb	M. Lind	1900	90	4	.....	LV-M	Cy	D,S	....	7-2-64	1,660	822	....
-19aaab	Church	....	100	4	.....	LV-M	J	D,S	....	7-2-64	1,660	873	....
-19badc	R. Lindstrom	1920	90	4,2	.....	LV-M	Cy	S	60r	10-7-63	1,990	...	A
-20addb	C. Faulks	....	80	6	.....	LV-M	Cy	S	....	7-2-64	1,860	1,061	....
-20cdbb	E. Lindberg	1916	80	3,1¼	.....	LV-M	Cy	S	....	7-2-64	3,130	1,903	....
-20dcca	A. Nelson	....	90	3	.....	LV-M	Cy	S	....	7-2-64	2,050	1,130	....
-21adbb	H. Silkenson	1925	100	4,2	.....	LV-M	Cy	S	....	7-2-64	2,000	1,044	....
-22abbd	E. Frick	1915	375	3,2	.....	Kd	Cy	S	....	7-2-64	1,550	856	....
-22bdad$_1$	O. Peterson	....	...	.....	.....	Kd	J	S	....	7-2-64	1,470	616	....
-22bdad$_2$	O. Peterson	....	...	.....	.....	Kd	Cy	S	....	7-2-64	1,090	428	....
-22cada	A. Boline	1932	26	48	.....	Qom	Cy	S	20r	7-2-64	3,490	1,883	....
-22ddcc	J. Jensen	1935	110	2,1	.....	LV-M	Cy	S	....	7-2-64	2,710	1,832	....
-23bdcc	M. Peterson	....	...	2	.....	LV-M	Cy	S	....	7-6-64	3,100	1,969	....
-23cdcb	E. Swee	1950	165	2	.....	LV-M	Cy	S	....	7-6-64	3,290	2,140	....
-23daca	E. Jensen	....	...	3	.....	Kd	Cy	S	....	7-6-64	1,740	753	....
-24cccc	N. Jensen	1924	180	3	.....	LV-M	Cy	D,S	....	7-6-64	1,940	993	....
-25dadd	SDGS	1964	90	.....	1,320a	...	..	T	....	.....	.....	...	L
-25dbdd	S. Grassel	....	...	.....	.....	LV-M	Cy	S	....	7-7-64	2,420	1,558	....
-25ddcc	SDGS	1964	54	.....	1,341a	...	..	T	....	.....	.....	...	L
-26badb	A. Messler	1940	120	2	.....	LV-M	Cy	S	....	7-7-64	1,900	940	A
-26cadc	A. Lawrensen	1920	134	2	.....	LV-M	Cy	S	....	7-7-64	1,840	1,027	....
-26cccc	USBR	1963	200	.....	1,249a	LV-M	..	T	....	.....	.....	...	L

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
94-51 (continued)													
-26dacd	K. Nelson	1958	377	3	.....	Kd	Cy	S	140r	7-7-64	1,840	890	....
-27bcda	P. Christian	1952	98	2	.....	LV-M	Cy	S	....	7-7-64	2,420	1,370	....
-27cbcd	M. Erickson	1900	92	4	.....	LV-M	Cy	D,S	....	7-7-64	2,280	1,318	....
-27ddbd	D. Olson	1964	121	2	.....	LV-M	Cy	S	....	7-7-64	2,420	1,438	....
-28bbdd$_1$	R. Nelson	1956	91	4	.....	LV-M	J	S	11r	7-7-64	2,030	1,096	....
-28bdcc	M. Danielson	1910	96	2	.....	LV-M	Cy	S	....	7-7-64	2,030	1,113	....
-28dddc	S. Erickson	....	90	4	.....	LV-M	Cy	S	....	7-7-64	2,130	1,198	....
-29bbcd	H. Newman	....	90	2	.....	LV-M	Cy	S	....	7-7-64	2,030	1,113	....
-29dbcd	W. Hard	....	120	4	.....	LV-M	Cy	D,S	....	7-7-64	1,940	942	....
-29ddcc	E. Lind	1926	90	2	.....	LV-M	Cy	S	....	7-7-64	2,180	1,113	....
-29dddd	USBR	1963	250	.....	1,230a	LV-M	..	T	....	.....	.....	...	L
-30abbb$_2$	I. Olson	1948	90	2	.....	LV-M	J	S	80r	7-7-64	2,030	1,027	....
-30cadb	J. Hansen	....	90	2	.....	LV-M	Cy	S	....	7-7-64	1,810	924	....
-30dbbc	E. Lind	....	84	2	.....	LV-M	Cy	S	....	7-7-64	2,130	1,147	....
-31bbbb	SDGS	1964	110	.....	1,146a	LV-M	..	T	....	.....	.....	...	L
-32acad$_1$	L. Lind	1948	92	2	.....	LV-M	J	S	....	7-7-64	2,180	1,096	....
-32acad$_2$	R. Lind	1929	90	4	.....	LV-M	Cy	D,S	....	7-7-64	2,180	1,096	....
-32dcbb	O. Lagerquist	1914	103	6	.....	LV-M	Cy	S	....	7-7-64	1,900	1,079	....
-33adbb	E. Johnson	....	...	6	.....	LV-M	Cy	S	....	7-7-64	1,990	1,113	....
-33bdba	A. Hansen	....	...	.....	.....	LV-M	Cy	D,S	....	7-7-64	1,940	1,044	....
-33cbdb	E. Reelfs	1915	...	3	.....	LV-M	Cy	S	....	7-7-64	2,180	1,198	....
-33daab	D. Larson	....	...	3	.....	LV-M	Cy	S	....	7-7-64	2,030	1,164	....
-34ccbb	E. Hansen	....	...	3	.....	LV-M	Cy	S	....	7-8-64	2,030	1,113	....
-34ddab	A. Lawrensen	1930	112	4	.....	LV-M	Cy	D,S	85r	7-8-64	2,320	1,267	....
-35bacd	D. Jensen	....	110	4,1¼	.....	LV-M	Cy	S	....	7-8-64	2,230	1,352	....
-36addc	R. Huebner	....	...	1	.....	LV-M	Cy	S	....	7-8-64	1,840	1,010	....
-36bcca	W. Lawrensen	1938	90	2	.....	LV-M	Cy	S	60r	7-8-64	1,810	1,010	....
-36cbca	H. Jorgenson	1920	640	3	.....	Kd	Cy	S	....	7-8-64	.....	...	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
94-52													
-1acac	H. Anderson	....	90	2	.....	LV-M	J	S	75r	8-1-63	2,070	1,096	....
-1dabb	H. Soderman	....	85	2	.....	LV-M	Cy	S	65r	8-1-63	1,730	856	....
-3cccc	J. Nelson	....	60	1½	.....	LV-M	Cy	S	....	8-1-63	1,250	753	....
-4aaba$_1$	L. Heller	a1920	15a	1¼	.....	LV-M	Cy	S	8r	9-10-63	850	410	A
-4aaba$_2$	L. Heller	....	15a	1¼	.....	LV-M	Cy	D	8r	9-10-63	770	428	....
-4cdbc	E. Schamber	....	55a	2	.....	LV-M	Cy	D,S	....	9-10-63	800	445	....
-4dccd	R. Patterson	....	55a	2	.....	LV-M	Cy	D,S	....	9-10-63	1,200	719	....
-4ddcd	V. White	1953	65	4	.....	LV-M	J	D,S	40r	8-2-63	1,300	685	....
-5accb$_1$	K. Knutson	....	90	2	.....	LV-M	P	S	....	8-2-63	1,920	1,113	....
-5bbcc	USGS	1964	97	.....	1,221a	LV-M	..	T	....	.....	.....	...	L
-5bcca	S. Amundson	a1955	...	3	.....	LV-M	Cy	S	....	9-11-63	1,600	1,010	....
-6adbc	P. Knudson	1952	96	3	.....	LV-M	Cy	D,S	30r	9-11-63	2,150	1,284	....
-7adab	W. Dwyer	....	300	3	.....	Kd	Cy	S	....	9-11-63	1,600	1,010	....
-7bbaa	R. Halvorson	....	...	3	.....	Kd	Cy	S	....	9-11-63	1,500	873	....
-7daa	J. Morrison	1955	342	3	.....	Kd	Cy	S	120r	9-11-63	.....	...	....
-7ddda	T. Larson	1953	335	3	.....	Kd	Cy	S	....	9-11-63	1,500	873	....
-7dddd	USGS	1964	97	.....	1,233a	LV-M	..	T	3.6m	7-[illegible]-64	.....	...	L
-8aaaa	N. Westre	a1903	24	2	.....	LV-M	Cy	S	....	9-10-63	.....	...	....
-8bccb$_1$	F. Meyer	1952	318	3	1,230a	Kd	J	D	....	1-23-65	1,625	800	L,A
-8bccb$_2$	F. Meyer	....	300	.....	1,230a	Kd	Cy	S	....	9-11-63	1,650	890	....
-9ddcc	R. Gregoire	a1903	45	4	.....	LV-M	P	S	30r	9-11-63	1,100	770	....
-10bccc$_2$	G. Lovejoy	....	40a	4	.....	LV-M	J	D,S	5r	9-12-63	1,300	839	....
-10bdad	M. Lovejoy	a1928	57	6	.....	LV-M	J	S	4r	9-12-63	2,000	1,404	....
-10bdda$_1$	S. Lovejoy	....	41	3	.....	LV-M	J	D,S	....	9-12-63	1,200	770	....
-10bdda$_2$	S. Lovejoy	....	30	1½	.....	LV-M	Cy	S	....	9-12-63	1,800	1,061	....
-10bddb	S. Lovejoy	a1900	55	2	.....	LV-M	Cy	S	....	9-12-63	1,150	668	....
-10dacb	V. Blaschke	1893	...	3	.....	LV-M	Cy	D,S	....	9-12-63	1,350	770	....
-11bbca	E. Grangaard	1898	...	.....	.....	LV-M	Cy	D,S	....	9-12-63	900	548	....
-11cba	M. Lovejoy	1963	50	.....	.....	LV-M	..	T	4r	5-[illegible]-63	.....	...	L
-11cccc	USBR	1963	160	.....	1,156a	LV-M	..	T	....	.....	.....	...	L

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
94-52 (continued)													
-12aadc	H. Austin	....	90	2	.....	LV-M	Cy	S	60r	9-12-63	1,550	770	....
-12caab	C. Swedean	b1900	...	3	.....	LV-M	Cy	S	....	9-12-63	1,300	668	....
-12dadd	A. Lindstrom	....	90	4	.....	LV-M	Cy	S	20r	9-12-63	1,300	668	....
-12dddd	SDGS	1964	180	.....	1,220a	LV-M	..	T	....	.....	.....	...	L
-13bad	A. Lyckholm	a1924	30	2	.....	LV-M	Cy	S	....	9-12-63	1,100	565	....
-13bda	A. Bystrom	a1900	...	6	.....	LV-M	Cy	S	....	9-12-63	1,000	514	....
-14cbbb	SDWRC	1958	29	1¼	1,152a	LV-M	..	O	4.1m	9-15-65	1,150	621	A,L
-14cccc	E. Huey	....	...	1½	.....	LV-M	Cy	D,S	....	6-24-64	880	532	A
-15abcc	R. Gregoire	a1910	22	36	.....	LV-M	J	D,S	13.3m	9-11-63	800	462	....
-15dccb	E. Huey	....	...	3	.....	LV-M	Cy	S	....	9-11-63	1,100	582	....
-16baaa	SDGS	1964	135	.....	1,223a	LV-M	..	T	....	.....	.....	...	L
-16bba	S. Abild	....	90	.....	.....	LV-M	Cy	D,S	40r	10-7-63	1,780	...	A
-16cccc	USGS	1964	97	.....	1,225a	...	..	T	....	.....	.....	...	L
-17cdcb	K. Lass	a1933	300	2	.....	Kd	Cy	S	90r	9-11-63	1,500	839	....
-17ddac	E. Lindblom	a1940	90	3	.....	LV-M	P	S	60r	9-11-63	2,050	1,096	....
-18bacc	H. Lyso	....	50	3	.....	W	Cy	S	....	9-11-63	2,250	1,729	....
-18bbbb	USGS	1964	42	.....	1,264a	W	..	T	16.7m	7---64	.....	...	L
-18dccb	C. Swinson	1951	407	3,2½	.....	Kd	Cy	D,S	120r	9-11-63	1,800	976	....
-19abb	W. Dillon	b1900	30	3	.....	W	Cy	D,S	....	9-12-63	2,400	1,455	....
-19bbbc	C. Jensen	a1955	...	3	.....	W	Cy	S	....	9-12-63	2,800	1,890	....
-19cddd	J. Larson	....	50	24	.....	W	..	...	9.2m	9-12-63	.....	...	....
-19dcdd	L. Larson	a1940	90	4,2	.....	W	Cy	S	....	10-7-63	2,920	...	A
-20aadc	A. Larson	....	...	3	.....	Kd	Cy	...	....	9-11-63	1,650	788	....
-20bcac	L. Weinandt	a1948	300	3	.....	Kd	J	S	....	9-11-63	1,500	788	....
-20cccc	R. Ward	a1920	450a	4	.....	Kd	Cy	S	....	9-11-63	2,000	1,061	....
-22aaab	B. McGurit	1946	25	1½	.....	LV-M	Cy	S	22r	6---63	610	325	....
-22bdcb	Wibben	a1955	90	4	.....	LV-M	J	D,S	....	9-11-63	1,500	873	....
-22cdab	H. Gamage	a1930	120	2	.....	LV-M	P	D,S	....	9-11-63	1,600	976	....
-22dcba	C. Leikvold	1962	91	3	.....	LV-M	P	D,S	....	6-24-64	1,470	873	....
-23bccd$_1$	B. McGurit	1948	93	3	.....	LV-M	J	D,S	....	6-24-64	1,100	599	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
94-52 (continued)													
-23bccd$_2$	B. McGurit	1948	95	2	.....	LV-M	Cy	S	....	6-24-64	980	514	....
-23dbb	B. McGurit	1948	25	1½	.....	LV-M	Cy	S	22r	6-24-64	.....	...	....
-26abba	I. Hesla	a1920	71	4	.....	LV-M	Cy	S	35r	9-11-63	1,500	907	....
-26baaa	SDGS	1964	185	.....	1,213a	LV-M	..	T	....	.....	.....	...	L
-26cddd	A. Burnick	a1933	...	2	.....	LV-M	J	S	....	9-13-63	1,700	976	....
-27aabb	P. Hesla	1950	100	4	.....	LV-M	Cy	S	15r	9-11-63	.....	...	....
-27baab	G. Hartwick	....	102	2	.....	LV-M	Cy	D	60r	6-24-64	.....	...	....
-28bbbb$_1$	F. Young	1960	400	3	.....	Kd	Cy	S	....	6-24-64	1,780	1,010	....
-28bbbb$_2$	USGS	1964	67	.....	1,231a	Qom	..	T	....	.....	.....	...	L
-28cdcc	T. Johnson	....	400a	.....	.....	Kd	J	S	....	9-13-63	2,000	1,113	....
-28dddd	USGS	1964	97	.....	1,227a	...	..	T	....	.....	.....	...	L
-29cdcd	E. Ellison	a1920	400	2	.....	Kd	Cy	S	....	9-13-63	2,000	1,404	....
-29dddd	A. Knudson	1900	240	4	.....	W	Cy	S	20r	9-13-63	3,600	2,328	....
-30abaa	SDGS	1964	65	.....	1,321a	...	..	T	....	.....	.....	...	L
-30baba	H. Smith	a1920	115	3	.....	W	Cy	S	12r	9-12-63	3,050	2,294	....
-30bcc	J. Johnson	a1940	108	3	.....	W	Cy	S	45r	7-31-63	.....	...	....
-30cbcc	E. Friese	1948	...	.....	.....	Kd	Cy	S	....	9-12-63	1,400	668	....
-31addd	A. Johnson	a1890	460	3	.....	Kd	Cy	D,S	150r	9-13-63	1,850	993	....
-31cbcd	P. Leikvold	....	...	2	.....	W	Cy	S	....	9-12-63	1,600	1,198	....
-32acc	H. Witt	1920	420	3,1¼	.....	Kd	Cy	S	100r	9-13-63	.....	...	....
-32bbcb	H. Johnson	....	108	6	.....	W	Cy	...	92.3m	9-13-63	.....	...	....
-32bcbb	H. Witt	1919	420	3,1¼	.....	Kd	Cy	S	100r	9-13-63	1,950	1,198	....
-33adac	A. Ellison	1921	352	3,1¼	.....	Kd	Cy	S	80r	6-11-65	1,650	750	A
-33bbbb	USBR	1963	160	.....	1,235a	...	..	T	....	.....	.....	...	L
-33bbcb	R. Norton	1933	14	24	.....	Qom	Cy	...	5.8m	9-13-63	.....	...	....
-33ccbc	H. Peterson	a1900	...	3	.....	Kd	Cy	S	....	9-12-63	1,550	890	....
-33dada	E. Beatrice	....	600a	3,1¼	.....	Kd	Cy	D,S	115r	9-12-63	1,900	1,198	....
-34aadd	L. Johnson	....	100	2	.....	LV-M	Cy	S	....	9-13-63	2,100	1,198	....
-35badd$_1$	H. Yusten	....	...	.....	1,212t	LV-M	J	S	....	9-13-63	1,800	1,147	....
-35badd$_2$	H. Yusten	....	15	48	1,210t	Qom	..	...	1.8m	9-13-65	.....	...	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
94-52 (continued)													
-35bbbb	USBR	1963	220	.....	1,215a	LV-M	...	T	....	.....	.....	...	L
-35ca	E. Ellison	1918	115	4,2½	.....	LV-M	Cy	S	82r	9-13-63	.....	...	....
-35cccc	USGS	1964	97	.....	1,208a	LV-M	..	T	5.3m	8-6-64	.....	...	L
94-53													
-1ddcc	C. Christensen	....	...	2	.....	W	F	S	....	7-25-63	2,930	1,815	Fe<1
-2bbcb	C. Schaefer	....	50	.....	.....	W	J	D,S	....	7-25-63	2,500	1,489	....
-3addd	C. Schaefer	....	...	3	.....	W	Cy	S	....	7-25-63	2,500	1,455	....
-3bbcb$_1$	H. Peterson	1959	150	2	.....	W	Cy	S	70r	7-26-53	2,060	1,010	....
-3bbcb$_2$	H. Peterson	1881	25	18	.....	W	C	S	10r	7-26-63	2,490	1,489	....
-3dddd	W. Schneider	1950	130	3	.....	W	P	D,S	....	10-24-63	2,450	1,370	A
-4cbcc	W. Collins	1935	180	.....	.....	W	Cy	S	50r	7-26-63	3,020	2,072	....
-4daaa	W. Rederick	....	108	4	.....	W	Cy	S	....	7-26-63	2,210	1,096	....
-6abab	J. Davis	....	...	3	.....	W	Cy	S	....	7-26-63	2,020	1,147	....
-7abbb	E. Gronlund	1933	50	5	.....	W	Cy	D,S	18r	7-29-63	2,500	1,592	....
-7dcdd$_2$	Jacobson Bros.	1956	100	4	1,280t	W	J	S	40r	6-11-65	2,400	1,520	A
-7ddcc	F. Jacobson	a1930	80	2	1,290t	W	Cy	S	....	7-29-63	2,110	1,181	....
-8adda	C. Collins	1925	40	6	.....	W	..	...	Dry	7-30-63	.....	...	....
-8ccdd	A. Jacobson	1962	100	4	1,305t	W	Cy	S	25r	7-29-63	2,400	1,507	....
-8dddd	Jacobson Bros.	1962	38	6	.....	W	Cy	S	10r	7-29-63	2,450	1,575	....
-9bccb	C. Collins	1946	80	3	.....	W	Cy	D,S	30r	7-30-63	2,930	1,986	....
-9cbcb	M. Jacobson	....	80	3	.....	W	Cy	S	20r	7-29-63	2,780	1,798	....
-9dcda	F. Orr	....	70	3,1¼	.....	W	Cy	D,S	....	7-30-63	2,590	1,712	....
-10cdcc	SDGS	1964	90	.....	1,393a	W	..	T	44.5m	7---64	.....	...	L
-10dddd	R. Montgomery	....	...	3	.....	W	Cy	S	....	7-30-63	2,110	1,318	....
-11cdcd	J. Walsh	1928	120	3	.....	W	Cy	S	....	7-30-63	2,110	1,338	....
-11dccc	C. Kelly	1920	60	3,2	.....	W	Cy	S	40r	8-16-63	.....	...	....
-11dddd	USBR	1963	62	.....	1,339a	W	..	T	6.6m	7---64	.....	...	L
-12aaba$_2$	J. Morrison	1955	52	3	.....	W	F	S	....	1-23-65	2,900	1,700	A,Fm 3.7
-12ccdd	J. Collins	....	...	3	.....	W	Cy	S	....	7-30-63	3,170	2,072	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
94-53 (continued)													
-13aadc	J. McCarty	1952	90	3	.....	W	Cy	S	....	7-30-63	3,550	2,345	....
-13bccd	W. Anderson	1951	320	3	.....	Kd	Cy	D,S	....	7-30-63	1,630	719	....
-13cdcc	A. Parsons	....	...	2	.....	W	Cy	...	....	7-30-63	3,070	2,020	....
-14bbaa	C. Kelley	1930	50	4,2	.....	W	Cy	S	30r	8-16-63	2,060	1,198	....
-14daaa	J. Oursland	....	...	3	.....	W	Cy	S	....	7-30-63	2,400	1,489	....
-14dbda	J. Oursland	a1920	150	3	.....	W	Cy	D,S	....	7-30-63	3,020	2,054	....
-15adab$_1$	E. Montgomery	1953	...	4	.....	W	Cy	S	....	7-30-63	2,400	1,489	....
-15adab$_2$	E. Montgomery	....	...	3	.....	W	Cy	S	....	7-30-63	2,300	1,352	....
-15baaa	P. Devine	....	80	3,1¼	.....	W	Cy	S	....	7-30-63	1,970	1,147	....
-15dcdd	W. Jarmuth	1960	80	3	.....	W	Cy	S	20r	7-30-63	2,680	1,798	....
-16bbbb	SDGS	1964	45	.....	1,320a	...	..	T	....	.....	.....	...	L
-16bccc	E. Nelson	1917	90	3,1¼	.....	W	Cy	D,S	6r	7-30-63	2,450	1,541	....
-16cdcb	E. Nelson	1962	80	1¼	.....	LV-M	J	D,S	....	7-30-63	1,490	736	....
-17ccdc	USGS	1964	72	.....	1,278t	W	..	T	17.6m	7---64	.....	...	L
-17cdcc	A. Jacobson	1954	75	4	1,275t	LV-M	Cy	S	....	7-29-63	1,540	839	....
-17cddb	M. Buckley	....	425	3	1,255t	Kd	Cy	S	....	7-30-63	1,680	839	....
-17daab	E. Thomse	....	40	3	.....	W	Cy	S	30r	7-29-63	3,310	2,311	....
-18bbbb	USBR	1963	42	.....	1,256a	Kn	..	T	....	.....	.....	...	L
-18bb	M. Christenson	....	488	.....	1,280t	Kd	..	...	....	.....	.....	...	L
-19bbbb	USGS	1964	97	.....	1,259a	LV-M	..	T	11.0m	7---64	.....	...	L
-19cabb$_1$	C. Alder	1949	60	6	1,180t	LV-M	Cy	D	22r	7-30-63	1,330	685	....
-19cabb$_2$	C. Alder	1933	400	2	1,180t	Kd	F	S	....	7-30-63	2,020	1,079	Fe 4
-19cbaa$_1$	J. Alder	1953	75	4	1,180t	LV-M	Cy	D	20r	7-30-63	1,810	1,079	....
-19cbaa$_2$	J. Alder	a1920	...	2	1,180t	Kd	F	S	....	7-30-63	1,730	907	Fe 1
-20ccca	C. Wright	1951	470	2½,1¼	1,190t	Kd	F	S	+6.4m	11-19-64	2,220	1,180	A,Fm 5
-21cccc	SDGS	1964	119	.....	1,193a	LV-M	..	T	....	.....	.....	...	L
-21cdcc	J. Terrell	1962	90	3	1,230t	LV-M	Cy	S	....	7-31-63	1,540	873	....
-22addc	W. Beatty	a1910	65	3,1¼	1,350t	W	Cy	S	35r	7-31-63	2,880	1,866	....
-22bccb	USGS	1964	77	.....	1,288a	W	..	T	8.4m	8-6-64	.....	...	L
-22cddc	H. Kreiger	....	...	3	1,300t	W	Cy	S	....	7-31-63	2,690	1,763	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
94-53 (continued)													
-22dcdd	A. Cotton	....	84	4	1,300t	W	J	S	37r	7-31-63	2,690	1,746	....
-23aabc	V. Larson	1959	90	3	.....	W	Cy	S	20r	7-31-63	2,690	1,678	....
-23bbad	R. Anderson	1955	160	3	.....	W	Cy	D,S	65r	7-31-63	2,750	1,678	A
-23ccca	H. Nelson Est.	....	90	3	1,325t	W	Cy	S	....	7-31-63	2,690	1,763	....
-24bbcc	B. Jacobson	....	108	3,1¼	.....	W	Cy	S	....	7-31-63	2,690	1,712	....
-24dcab	J. Reichardt	1926	110	3,2	.....	LV-M	Cy	S	60r	7-31-63	1,820	924	....
-25aadd	E. Friese	1938	138	3,1¼	.....	LV-M	Cy	S	60r	7-31-63	1,820	924	
-25bbbb	USGS	1964	97	.....	1,385a	...	..	T	....	.....	.....	...	L
-25cbaa	M. Nelson	....	...	3,1¼	1,350t	W	Cy	S	....	7-31-63	2,230	1,404	....
-26ccbb	G. Johnson	....	...	3	1,275t	W	Cy	S	....	7-31-63	2,260	1,338	....
-27aaaa	L. Henderson	....	30	3	1,300t	W	Cy	S	....	7-31-63	2,400	1,472	....
-27addd	USBR	1963	200	.....	1,277a	LV-M	..	T	....	.....	.....	...	L
-27baaa	N. Dowd	....	...	3	1,295t	W	Cy	D,S	....	7-31-63	2,500	1,541	....
-28cacc$_1$	M. Johnson	1929	540	4	1,175t	Kd	F	S	....	7-31-63	2,210	1,096	Fm 8.6
-28cacc$_2$	M. Johnson	1957	65	2	1,175t	LV-M	J	D	16r	7-31-63	1,920	1,113	....
-29baac	T. Christenson	a1915	400	2½	1,200t	Kd	F,Cy	S	....	7-31-63	.....	...	Fx
-30cccc	SDGS	1964	105	.....	1,161t	LV-M	..	T	....	9-9-64	.....	...	L
-31bcca$_1$	R. Buckman	a1910	400	2½	1,158t	Kd	F	D,S	....	8-1-63	2,020	856	Fm 2.5
-31bcca$_2$	R. Buckman	1953	52	1½	1,158t	LV-M	J	D	20r	8-1-63	.....	...	....
-31cbcc	A. Buckman	1916	...	2	1,158t	Kd	F	D,S	....	8-1-63	2,110	1,079	Fm 3.7
-31cdba	R. Buckman	b1900	...	2,1¼	1,158t	Kd	F	S	....	8-1-63	2,160	1,164	Fe 4
-31dcca	E. Burkeland	....	...	2	1,157t	Kd	F	...	....	8-1-63	2,110	1,079	Fe 2
-33daca$_1$	A. Backlund	....	540	4,2	1,152t	Kd	F	S	....	8-1-63	2,210	1,164	Fm 15
-33daca$_2$	A. Backlund	....	57	3,1¼	1,152t	LV-M	J	D,S	....	6-11-65	1,500	910	A
-35bccd	A. Backlund	....	130	3,1¼	1,260t	LV-M	Cy	S	....	8-1-63	1,340	753	....
-35dacc	F. Harden	1936	140	4,1½	1,225t	LV-M	Cy	S	100r	8-1-63	1,340	753	....
-36aaaa$_2$	USBR	1963	140	.....	1,331a	LV-M	..	T	....	.....	.....	...	L
95-51													
-1ad	SDGS	1962	57	.....	.....	...	..	T	....	.....	.....	...	L
-1bbbb	USGS	1964	92	.....	1,346a	Qom	..	T	....	.....	.....	...	L

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
95-51 (continued)													
-1bdbb	D. Westburg	a1952	36	3	.....	Kn	Cy	S	....	7-17-63	3,210	2,174	....
-1cbaa	F. Lass	1962	100	2	.....	Qom	Cy	S	....	7-18-63	2,030	1,284	....
-1ddda	G. Stewart	1945	120	2	.....	Kn	Cy	S	....	7-18-63	3,160	1,969	....
-2bdad	Norling Bros.	1962	100	3	.....	Kn	Cy	S	....	7-17-63	2,880	1,349	....
-2ca	C. Johnson	1960	48	2	.....	Kn	F	S	....	6-9-65	2,800	1,349	Fe 3
-2ccaa	C. Johnson	....	35	3	.....	Kn	Cy	S	....	7-17-63	3,160	2,208	....
-2dcaa$_1$	J. Skotvald	1910	...	18	.....	Qom	Cy	S	20r	7-17-63	2,430	1,746	....
-2dcaa$_2$	J. Skotvald	1959	56	4,2	.....	Qom	Cy	D,S	20r	7-17-63	1,790	1,164	....
-3aaaa	A. Sundstrom	....	110	2	.....	Kn	Cy	S	....	7-17-63	2,450	1,455	....
-3bbab	A. Norling	1948	52	8	.....	Qom	J	D,S	15r	7-17-63	.....	...	....
-3cbba	E. Landeen	1907	100	2	.....	Kn	F	S	....	6-11-65	2,800	1,490	A,Fe 2
-3dadd	O & E. Lundberg	....	...	.....	.....	Kn	J	S	....	7-17-63	3,020	2,106	....
-4bcba	J. Johnson	1926	357	4	.....	Kd	Cy	D,S	100r	7-17-63	1,750	736	....
-4daaa	J. Norling	a1900	100	24	.....	Kn	F	S	....	7-17-63	2,610	1,540	Fm 2.2
-5abaa	USGS	1964	54	.....	1,281a	...	..	T	....	.....	.....	...	L
-5acaa	A. Heidebrecht	a1890	400	½	.....	Kd	Cy	S	....	7-17-63	1,680	702	....
-5bbbb	SDGS	1963	80	.....	1,262a	LV-M	..	T	....	.....	.....	...	L
-5dcca	E. Peterson	....	...	3	.....	Kd	Cy	D,S	....	7-17-63	1,650	753	....
-6aadd$_1$	I. Peterson	1962	380	2,1	.....	Kd	Cy	S	....	7-17-63	1,650	753	....
-7abba	L. & A. Hault	....	...	3	.....	Kd	Cy	S	....	7-17-63	1,600	788	....
-7adaa$_2$	E. Peterson	1955	435	3,2	1,259i	Kd	..	...	94.3m	4-28-65	.....	...	....
-8acaa$_1$	N. Lewis	1961	167	3	.....	Kcc	Cy	S	80r	3-13-61	1,250	280	A
-8bcba	S. Peterson	1940	435	3,2	1,250e	Kd	Cy	S	94r	7-17-63	1,900	812	A
-9acda	G. Gylfe	....	25	3	.....	Kn	J	S	12r	7-18-63	3,400	2,534	....
-9babd	S. Olson Est.	1900	30	2	.....	Kn	J,F	S	3r	7-18-63	3,300	2,516	Fx
-9dcba	A. Wilbert	a1900	125	4	.....	Kn	Cy	S	....	7-18-63	3,960	2,773	....
-10bbbb	O. Hult	1880	30	4	.....	Kn	Cy	S	....	7-18-63	5,090	3,458	....
-10bbdd	O. Hult	....	S	3	.....	Kn	F	S	....	7-18-63	3,160	2,191	Fu
-10cddd	M. Larson	....	30	4	.....	Kn	Cy	S	15r	7-18-63	3,210	2,277	....
-10daaa	W. Sundstrom	....	40	3	.....	Kn	Cy	S	....	7-18-63	2,830	2,054	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
95-51 (continued)													
-10dddd	USGS	1964	42	.....	1,371a	...	..	T	....	.....	.....	...	L
-11bbaa$_1$	P. Sundstrom	1962	34	2	.....	Kn	Cy	S	6r	7-18-63	2,740	2,054	....
-11bbaa$_2$	P. Sundstrom	1959	36	2	.....	Kn	Cy	S	8r	7-18-63	2,920	2,226	....
-11bbaa$_3$	P. Sundstrom	a1900	28	2	.....	Kn	Cy	S	4r	7-18-63	2,830	2,037	....
-11bbaa$_4$	P. Sundstrom	1953	36	2	.....	Kn	Cy	S	6r	7-18-63	3,020	2,208	....
-11caba	C. Sundstrom	....	100	3,1½	.....	Kn	Cy	S	....	7-18-63	2,920	1,832	....
-11cabb	C. Sundstrom	1890	40	3	.....	Kn	Cy	S	20r	7-18-63	3,110	2,243	....
-11ddcc	C. Johnson	1957	140	2	.....	Kn	Cy	S	....	6-11-65	2,200	1,450	A
-12aaaa	SDGS	1962	160	.....	1,433a	...	..	T	....	.....	.....	...	L
-12abaa	M. Milliken	1910	90	3	.....	Kn	Cy	S	....	7-18-63	3,230	1,969	....
-12cccc	SDGS	1965	115	.....	1,432a	...	..	T	....	.....	.....	...	L
-12dd	SDGS	1962	140	.....	1,468i	...	..	T	....	.....	.....	...	L
-13aaaa	SDGS	1963	160	.....	1,460a	...	..	T	....	.....	.....	...	L
-13bbbb	USGS	1964	97	.....	1,432a	...	..	T	....	.....	.....	...	L
-13ccab	H. Burgess	....	...	.....	.....	Kn	Cy	S	....	7-18-63	3,110	2,208	....
-13ddcc	J. Rasmussen	1923	124	2	.....	Kn	Cy	S	90r	7-18-63	2,840	1,866	....
-14abaa	J. Nielsen	1962	72	3	.....	Kn	Cy	S	....	7-18-63	2,990	1,883	....
-14bbdd	E. Larson	a1890	100	3	.....	Kn	Cy	S	18r	7-18-63	2,250	1,370	....
-14cacd	E. Larson	1922	90	3,1¼	.....	Kn	Cy	S	40r	7-18-63	2,750	1,730	....
-15cbdd	C. Larson	....	90	4	.....	Kn	Cy	S	18r	7-22-63	3,220	2,226	....
-16aaaa	SDGS	1964	135	.....	1,315a	LV-M	..	T	....	.....	.....	...	L
-16aadc$_1$	D. Thissell	....	85	1	.....	Kn	Cy	S	....	7-22-63	3,220	2,226	....
-16aadc$_2$	D. Thissell	1962	85	4	.....	Kn	J	D,S	....	7-22-63	2,940	2,037	....
-16bbbb	SDGS	1963	50	.....	1,301a	...	..	T	....	.....	.....	...	L
-16bccd	C. Hult	1959	50	3	.....	Qom	Cy	D,S	37r	7-22-63	1,470	753	....
-16cddd	E. Peterson	....	30	3	.....	Kn	Cy	S	....	7-22-63	3,330	1,935	....
-17aacd	S. Johnson	1910	40	2	.....	Qom	Cy	D,S	....	7-22-63	2,080	1,130	....
-17ccbb	Ag. Exp. Farm	....	30	6	.....	Kn	J	D,S	11r	1-15-64	3,500	2,003	A
-18aaaa	USGS	1964	97	.....	1,259a	Qom	..	T	....	.....	.....	...	L
-18aadc	R. Helm	1921	420	3,2	.....	Kd	Cy	D,S	100r	7-23-63	1,690	685	....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
95-51 (continued)													
-18baaa	SDGS	1964	125		1,248a	LV-M		T					
-18cccb	D. Payson	1963	360	3,2		Kd	Cy	S		7-23-63	1,660	719	
-18dddd	Church		37	3		LV-M	Cy	D		7-23-63	1,660	1,113	
-19aaaa	M. Seiler	1920	40	3		LV-M	Cy	D,S	20r	7-23-63	1,710	1,027	
-19bcbb$_1$	R. Lounsbery	1962	423	3,2		Kd	Cy	S		7-23-63	1,860	873	
-19ccda	H. Engstrom	1961	375	3		Kd	Cy	D,S		7-23-63	1,660	770	
-20ccda$_1$	J. Erickson	1953	325	3		Kd	Cy	D,S	80r	7-23-63	1,660	788	
-20ccda$_2$	J. Erickson	1941	400	3		Kd	Cy	D,S	80r	7-23-63	1,570	599	
-21baba	M. Hult	1949	50	3		Kn	Cy	S	35r	7-23-63	2,810	1,935	
-21daad	E. Carlson	1940	50	2		Kn	Cy	S	25r	7-23-63	2,940	2,037	
-22adcc	R. Christenson		40	3		Kn	Cy	S	20r	7-23-63	2,840	1,969	
-22bbca	Johnson Estate	1923	64	3		Kn	Cy	D,S	30r	7-23-63			
-22ccdc	Hoyer Bros.			3		Kn	Cy	S		7-23-63	2,840	1,969	
-23babc	D. Carlson		70	3		Kn	Cy	S		7-23-63	3,040	2,106	
-23ddbc	D. Ende	1959	105	3		Kn	Cy	S		7-23-63	3,330	2,140	
-24dddd	M. Birgen		82	2		Kn	Cy	S	76r	7-23-63	2,940	1,798	
-24daaa	SDGS	1964	140		1,435a	Qom		T					L
-25daaa	SDGS		120	2,1¼		LV-M	Cy	S	60r	6-11-65	2,000	1,150	A
-25dddd	SDGS	1963	95		1,413a	Qom		T					L
-26abbb	B.&D. Anderson		85	3		Kn	Cy	S	20r	7-23-63			
-26bcdc	L. Kelley			3		Kn	J	D,S		7-23-63	2,790	1,661	
-26dcdd	G. Martinsen	1963	119	4		Kn	Cy	S	45r	7-23-63	2,990	1,866	
-28aaab	Hoyer Bros.	1958	45	4		Kn	Cy	S		7-25-63	2,840	1,833	
-28cdaa	C. Hoffman			3		LV-M	Cy			7-25-63	2,450	1,540	
-29bdbd	E. Johnson			2		Kd	Cy	D,S		7-25-63	1,760	856	
-29dddd	SDGS	1963	60		1,282a			T					L
-30aabb	D. Payson	1880	48	3		Kn	Cy	S		7-25-63	2,940	1,746	
-30bbdd	A. Bixler	1951	348	3,2		Kd	Cy	S		7-25-63	1,470	531	
-30dada$_2$	H. Jessen	1953	68	2		Kn	Cy	S		6-11-65	2,800	1,810	A
-31dcdd$_1$	S. Norin	1962	440	4,2½		Kd	J	D,S	70r	7-25-63	2,110	1,113	
-32abad	Landon Estate	1939	420	2		Kd	Cy	D,S	240r	7-25-63	1,910	949	

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
95-51 (continued)													
-32bbdc	E. Shogren	....	...	2	.....	Kd	Cy	S	....	7-25-63	1,760	856	....
-32ddda	C. Austin	1950	300	3	.....	Kd	..	S	....	7-25-63	1,660	736	....
-32dddd	SDGS	1964	200	.....	1,256a	LV-M	..	T	....	.....	.....	...	L
-33addd	R. Johnson	1947	405	2	.....	Kd	Cy	S	200r	7-25-63	1,810	839	....
-33ccaa	L. Lundquist	....	...	3	.....	Kn	Cy	S	....	7-25-63	2,810	1,661	....
-33ddbc$_2$	C. Lundquist	a1930	95	2½	.....	Kn	F	S	....	7-25-63	.....	...	Fe 1
-34aaaa	SDGS	1964	135	.....	1,325a	LV-M	..	T	....	.....	.....	...	L
-34addd	A. Danielson	....	...	.....	.....	Kn	F	S	....	7-25-63	2,590	1,592	Fe 3
-34bcdc	E. Anderson	....	38	3½	.....	Kn	Cy	S	8r	7-25-63	3,010	1,969	....
-35aaaa	USGS	1964	97	.....	1,369a	...	..	T	....	.....	.....	...	L
-35bccc	E. Abraham	....	...	2	.....	LV-M	Cy	S	....	7-25-63	2,010	1,079	....
-35ccaa	P. Odeen	....	80	4	.....	LV-M	Cy	S	....	7-25-63	2,350	1,267	....
-35dcaa	I. Birkeland	....	60	3,1¼	.....	LV-M	Cy	S	30r	7-25-63	.....	...	....
-36daaa	D. Westburg	....	...	3	.....	LV-M	Cy	S	....	7-25-63	2,150	1,250	....
95-52													
-1aaba$_1$	D. Hall	1942	135	3	1,255t	LV-M	Cy	D,S	30r	6-11-65	1,800	970	A
-1aaba$_2$	D. Hall	....	330	3	1,255t	Kd	Cy	...	30r	7-15-63	.....	...	....
-1bbcc	J. Brue	a1905	100	2,1¼	.....	LV-M	Cy	S	60r	7-15-63	1,130	531	....
-1cccc	School Dist.37	....	...	.....	.....	LV-M	Cy	PS	....	7-15-63	1,080	308	....
-1dddb$_1$	L. Amundson	1961	100	2	.....	LV-M	Cy	S	30r	7-15-63	2,360	1,438	....
-2aadd	R. Suprenant	....	...	.....	.....	LV-M	J	D,S	....	7-15-63	1,320	719	....
-2dadb	C. Peterson	a1900	40	2	.....	LV-M	P	D,S	20r	7-15-63	1,080	616	....
-3adac	D. Johnson	....	...	3	.....	LV-M	Cy	S	....	6-26-63	1,200	702	....
-3bbac$_2$	G. Knutson	1963	55	16	1,186t	LV-M	T	Irr	8r	6-26-63	820	...	A
-3dadb	W. J. Hanson	1957	50	18	1,185t	LV-M	T	Irr	14r	9-3-63	780	...	A
-4aaba	D. Johnson	....	30	3	.....	LV-M	Cy	D,S	....	6-26-63	922	514	....
-5aabc$_1$	G. Knutson	1950	70	3	.....	LV-M	Cy	S	....	6-26-63	2,500	1,712	....
-5aabc$_2$	G. Knutson	....	90	3	.....	LV-M	Cy	D,S	....	6-26-63	1,870	1,027	....
-5aadc	G. Knutson	1958	50	20	1,195t	LV-M	T	Irr	14r	8-13-63	610	...	A
-5aadd	G. Knutson	1956	50	20	1,195t	LV-M	T	Irr	12r	8-13-63	940	...	A

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
95-52 (continued)													
-5daaa$_1$	C. Lowmen	1950	40	3		LV-M	P	D		6-26-63	840	411	
-5daaa$_2$	C. Lowmen			3		LV-M	Cy	S		6-26-63	750	394	
-6adad	G. Varnum	1957	60	2		LV-M	P	S		6-26-63	1,490	942	
-6bbba	C. Ostrem	1961	100	3		LV-M	P	S		6-26-63	2,020	1,387	
-6cddc	C. Knutson	a1955	74	3		LV-M	P	S	30r	6-26-63	2,160	1,370	
-6ddaa	P. Knutson			3		LV-M	Cy	S		6-26-63	1,680	1,096	
-7bccc	E. Heller		50	1¼		LV-M	Cy	S		6-26-63	2,290	1,387	
-7dddd	G. Knutson		80	3		LV-M	Cy	S		6-26-63	1,730	1,233	
-8adda	O. Paddock	1960	90	2½		LV-M	J	D,S		6-26-63	850	411	
-8cccc$_1$	School					LV-M	Cy	PS		6-26-63	1,610	1,113	
-8cccc$_2$	USGS	1964	97		1,197a	LV-M		T					L
-8dccc	SDGS	1964	155		1,233a	LV-M		T					L
-8dddd	SDGS	1963	155		1,229a	LV-M		T					L
-9accd	S. Erickson	1956	35	3		LV-M	Cy	S		6-26-63	740	325	
-9daad$_1$	SDGS		70	3		LV-M	Cy	S	30r	6-26-63			
-9daad$_2$	SDGS	1930	70	3		LV-M	P	D,S		6-26-63	700	360	
-10abad$_1$	L. White		22	1¼		LV-M	Cy	S		6-26-63	770	411	
-10abad$_2$	L. White	a1910	12	1¼		LV-M	Cy	D		6-26-63	720	394	
-11dddd	SDGS	1964	145		1,187a	LV-M		T					L
-12aadc	E. Percell		80	2		LV-M			30r	7-15-63			
-12ccca	H. Nelson		30	3		LV-M	J	D,S	21r	7-16-63	1,060	804	
-13aadc	E. Sandwick	1930	180	3		LV-M	Cy	S	80r	7-16-63			
-13cbcc	Bixler Bros.	b1927	72	4,2		LV-M	Cy	S		7-16-63	1,980	1,096	
-13cccd	H. Nelson	a1920	100	6		LV-M	Cy	S		7-16-63	2,030	1,147	
-14bbba	J. Litzelman		67	3		LV-M	J	D,S		7-16-63	1,040	599	
-14bdbc	B. Litzelman	1956	60	20		LV-M	T		10r	7-16-63	1,370	736	A
-14bdbd	B. Litzelman	1961	54	18		LV-M	T	Irr	12r	7-16-63			
-14cacd	B. Litzelman	1956	46	20		LV-M	T	Irr	12r	8-13-63	1,310	479	A
-14ccba$_1$	B. Litzelman		90	3		LV-M	Cy	D,S		7-16-63	1,070	496	
-14ccba$_2$	B. Litzelman		90	3		LV-M	J	D,S		7-16-63			
-14ccba$_3$	B. Litzelman		90	3		LV-M	J	D,S		7-16-63			

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
95-52 (continued)													
-15adad	SDGS	1963	110		1,228a	LV-M		T					L
-15bbaa	SDGS	1964	110		1,231a	LV-M		T					L
-15bbbb	School					LV-M	Cy	PS		6-26-63	690	325	
-15ccbb	D. Hunter	1960	100	3		LV-M	P	D,S		6-26-63	810	394	
-17cdcd$_1$	D. McMurchie			4		LV-M	Cy	S		6-26-63	1,540	942	
-17cdcd$_2$	D. McMurchie			4		LV-M	Cy	S		6-26-63	1,560	993	
-17ddaa	L. Wrigg	1950	83	3		LV-M	J	D,S		6-26-63	1,010	496	
-18aaac$_2$	H. Bjordal	1962	89	3		LV-M	Cy	S		6-26-63	1,730	1,010	
-18dccc	USGS	1964	82		1,236a			T					L
-18dcdd	A. Frier	1947	87	3		LV-M	Cy	D,S		6-26-63	1,920	1,164	
-19adda$_1$	C. Olson		80	3		LV-M	Cy	S		6-27-63	1,630	1,027	
-19adda$_2$	C. Olson	1945	80	3		LV-M	Cy	S		6-27-63	1,540	942	
-19addd	USGS	1964	97		1,213a	LV-M		T					L
-19bbcd	M. Hall			1¼		LV-M	Cy	D,S		6-27-63	1,540	856	
-19daab	A. Hall	a1953	80	3		LV-M	Cy	S		6-27-63	1,630	1,027	
-20adaa$_2$	D. Neiles			4		LV-M	Cy	S		6-27-63	1,340	753	
-20bbbc	E. Ward			3		LV-M	Cy	S		6-27-63	1,630	1,079	
-21adaa$_1$	J. Knutson	1961	70	3		LV-M	J	D,S	35r	6-27-63	960	531	
-21daaa	B. Litzelman	1939	50	3		LV-M	Cy	D,S		6-27-63	940	462	
-22aabb$_1$	H. Bjordal			1¼	1,180t	LV-M	Cy	D,S		6-26-63	960	599	
-22aabb$_2$	H. Bjordal			1¼	1,180t	LV-M	Cy	D,S		6-26-63	1,060	599	
-22baab	B. Litzelman	1962	80	3,1½		LV-M	Cy	D,S		6-27-63	960	531	
-22cabb	B. Litzelman	1962	40	18		LV-M	T	Irr	9r	8-13-63	1,100		A
-22cdbc	B. Litzelman	1962	40	18		LV-M	T	Irr	9r	6-27-63			
-23cbbb	USGS	1940	12	1¼	1,148t				7.2m	10-9-57			
-23cdcc$_1$	A. Peterson		100	4,2		LV-M	Cy	S		7-16-63	940	496	
-23cdcc$_2$	A. Peterson	1954	100	4,2		LV-M	J	D		7-16-63	610	342	
-23dccb	E. Johnson		100	3,1½		LV-M	Cy	S		7-16-63	830	394	
-24cccc$_1$	R. Dahlin	a1958	90	2		LV-M	J	D,S		7-16-63	1,980	1,061	
-25dccd	M. Carlson		100	3		LV-M	Cy	S		7-16-63	2,360	1,489	

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
95-52 (continued)													
-25dddd	SDGS	1964	125		1,223a	LV-M		T					L
-26cccc	L. White	1959	100	2		LV-M	Cy	D,S		7-16-63	890	514	
-26dbbc	J. DuBois		100	2		LV-M	Cy	D,S		7-16-63	1,230	616	
-27acda	M. Alexander	1935	80	2½		LV-M	Cy	D,S	70r	1-15-64	650	279	A
-27bcdd				3		LV-M	Cy	S		7-16-63	910	514	
-27bdca	D. Bystrom	1957	93	2		LV-M	Cy	D,S		6-27-63	880	462	
-27dacc	H. Westling			1¼		LV-M	Cy			6-27-63	720	377	
-28dabc	R. Walpole		75	3		LV-M	Cy	S		6-27-63	800	428	
-29bddb	A. Mickkleson		25	2		LV-M	Cy	S		6-27-63	2,030	1,338	
-29cdaa$_1$	P. Jacobson		25	2		LV-M	P	D	8r	6-27-63	1,870	1,233	
-29cdaa$_2$	P. Jacobson		25	2		LV-M	Cy	S	8r	6-27-63	570	205	
-30babb	C. Hovland	1955	56	2		W	F	S		6-11-65	2,600	1,690	A,Fm 8
-30ccba	E. Dose	1953	57	3,2		W	J	S		6-27-63	2,490	1,541	
-31aaaa	USGS	1964	72		1,224a			T					L
-31bbcc	M. Skonhoud			3		W	Cy	S		6-28-63	2,390	1,644	
-31daad	O. Olson			3		LV-M	P	S		6-28-63	1,740	1,027	
-32abbb	SDGS	1964	173		1,170a	LV-M		T					L
-33cddc$_2$	A. Heller		18	1¼		LV-M	Cy	S		6-27-63	1,340	685	
-34aaaa	SDGS	1963	90		1,236a	LV-M		T					L
-34aacc$_1$	R. Jensen	1962	65	4		LV-M	J	D,S	22r	6-25-63	960	514	
-34baaa	SDGS	1964	210		1,227a	LV-M		T					L
-34bbbc$_1$	B. Peterson	1954	90	3		LV-M	P	D		6-27-63	820	428	
-34bbbc$_2$	B. Peterson		40	3		LV-M	Cy	S		6-27-63	960	548	
-35addc	V. Johnson	a1900	120a	2		LV-M	Cy	D,S		7-16-63	1,040	582	
-35bcdc	N. Gray		90	2		LV-M	Cy	S	70r	7-16-63	920	531	
-35bddc	V. Anderson		90	2		LV-M	Cy	D,S	40r	7-16-63	880	479	
-35dbba	L. Adamson		100	3		LV-M	Cy	D,S		7-16-63	1,030	599	
-36abaa	R. Dahlin			2		LV-M				7-16-63	2,440	1,541	
-36bcbb	C. Austin			4		LV-M	Cy	S		7-16-63	1,790	1,027	
-36cbbd	R. Dahlin	1941		2		LV-M	Cy	S		7-16-63	1,560	942	

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
95-52 (continued)													
-36dadb	W. Samuelson	a1910	75	3,1¼	.....	LV-M	Cy	D,S	....	6-11-65	2,300	1,350	A
-36dbdc	O. Samuelson	a1910	80	4,1¼	.....	LV-M	Cy	D,S	....	7-16-63	2,120	1,284	....
95-53													
-1bbbb	USGS	1964	77	.....	1,267a	Qom	..	T	....	.....	.....	...	L
-1dddd	USGS	1964	92	.....	1,251a	...	..	T	....	.....	.....	...	L
-2aabb$_1$	J. Collins	a1905	110	3	.....	LV-M	P	D,S	20r	6-19-63	1,430	804	....
-2aabb$_2$	J. Collins	1962	110	4	1,297a	LV-M	..	...	38.2m	9-15-65	.....	...	....
-2bcbd$_1$	A. Young	a1952	101	3,1¼	.....	W	Cy	S	30r	6-19-63	1,910	1,216	....
-2bcbd$_2$	A. Young	1961	70	3,1¼	.....	W	J	D,S	30r	6-19-63	1,920	1,301	....
-2cbcc	A. Young	a1900	70	1¼	.....	W	F	S	....	6-19-63	.....	...	Fu
-3aada	H. Peterson	a1910	385	3	.....	Kd	Cy	D,S	150r	6-19-63	1,730	873	....
-3abad	H. Peterson	....	S	.....	.....	W	F	S	....	6-11-65	1,900	1,160	A,Fe 5
-3bbbb	A. Westergaard	1930	100	2	.....	W	Cy	S	40r	6-19-63	2,020	1,421	....
-3cbcd$_1$	G. Jensen	....	35	30	.....	W	Cy	D,S	....	6-19-63	1,490	942	....
-3cbcd$_2$	G. Jensen	....	10	20	.....	Qom	C	S	....	6-19-63	3,940	2,825	....
-3daab	J. Young	1961	60	3	.....	W	J	S	20r	6-19-63	1,900	1,284	....
-3dddd	School	....	...	24	.....	Qom	Cy	PS	....	6-19-63	860	188	....
-4bbbb	SDGS	1964	50	.....	1,387a	...	..	T	....	.....	.....	...	L
-4bcbb$_1$	K. Mellem	1960	102	3	.....	W	Cy	D,S	42r	6-11-65	2,400	1,560	A
-4daaa	R. Hood	1954	S	6	.....	W	J,F	D	....	6-19-63	2,110	1,387	Fu
-5a		b1900	220	.....	1,420e	...	..	...	....	.....	.....	...	L
-5dadc	R. Hood	1963	120	3	.....	W	Cy	S	80r	6-19-63	.....	...	....
-5dddd	SDGS	1964	95	.....	1,432a	W	..	T	93.7m	5-15-64	.....	...	L
-6aadd	R. Lynn	a1920	120	3	.....	W	Cy	S	90r	6-19-63	1,920	1,198	....
-6abbb	L. Jorgenson	....	...	3	.....	W	Cy	S	....	6-19-63	1,920	1,216	....
-6cbcc$_1$	N. Arenson	....	90	3	.....	W	Cy	S	60r	6-19-63	1,230	702	....
-6ccbb	M. Hansen	a1920	36	3	.....	W	Cy	D,S	....	6-19-63	1,730	1,198	....
-7cbcd$_1$	H. Hensen	1963	44	4	.....	W	..	...	24r	6-19-63	.....	...	....
-7cbcd$_2$	H. Jensen	....	...	3	.....	W	Cy	S	12r	6-19-63	1,250	822	....
-7cccc	SDGS	1963	35	.....	1,415a	Qom	..	T	....	.....	.....	...	L

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
95-53 (continued)													
-7dddd	SDGS	1964	135		1,446a	LV-M		T					L
-8cccc	A. Lokken	1960	260	3,1½		Kcc	Cy	S		6-11-65	2,000	1,330	A
-8dddc	D. McCluskey	a1911	150	3		W	Cy	S	120r	6-19-63	2,780	2,157	
-9aaad	M. Hood	1903		3		W	Cy,F	S		6-19-63			Fx
-9cbbc	L. Madsen	1919	142	3		W	Cy	D,S	125r	6-19-63	3,020	2,140	
-9dccc	H. Babb			3		W	Cy	S		6-19-63	2,830	2,089	
-10dccc	J. Young	1960	90	3		W	Cy	S		6-19-63	2,570	1,815	
-11abac	R. Andre		25	18		W	Cy	S		6-20-63	2,590	1,541	
-11bccd	E. Young	1951	90	3		W	P	D,S		6-20-63	2,300	1,678	
-11cbbb	E. Nelson					W	Cy	S		6-19-63	1,730	1,027	
-11cccc	SDGS	1964	60		1,296a			T					L
-11dddd	USGS	1964	35		1,266a			T					L
-12addc$_1$	E. Arenson	a1910	35	2		W	F	S		6-20-63	2,450	1,541	A,Fm 2
-12addc$_2$	E. Arenson	1940	55	2		W	P	S	20r	6-20-63			A
-12bcba	T. Knutson	a1905	36	24		W	J	D,S		6-20-63	2,700	1,609	
-12cdda	T. Knutson	1940	60	2		W	Cy	S	18r	6-20-63	2,500	1,541	
-12dddd	USGS	1964	52		1,261a			T					L
-13bccb$_1$	O. Hall		18	36	1,280t	W		S	3.0m	6-20-63			
-13bccb$_2$	O. Hall	1942	60	6,1¼		W	Cy	S		6-20-63	1,920	1,421	
-13ccdc	D. Nelson	a1910	40	4,1½		W	Cy	S	10r	6-20-63	1,340	788	
-13dcdc	W. VanAnda	1950	80	3		W	Cy	S	20r	6-20-63	1,820	1,096	
-14baba	E. Nelsen		65	3		W	P	D,S	15r	6-20-63	2,030	1,455	
-14ccca$_1$	G. Davis		90	4		W	Cy	S		6-20-63	2,690	2,157	
-14ccca$_2$	G. Davis		90	4		W	P	D,S	65r	6-20-63	2,740	2,157	
-14ddad$_1$	R. Peterson		30	24		W	Cy	S	30r	6-20-63	1,920	1,284	
-14ddad$_2$	R. Peterson	1942	40	3,1¼		W	Cy	S	10r	6-20-63	2,140	1,558	
-15bbbb	SDGS	1964	95		1,373a	W		T					L
-15bcba	R. Sokolowski			3		W	Cy	S		6-20-63	2,450	1,695	
-15cccd$_1$	C. Huth	a1930	200	2½,1		Kcc	Cy	S	100r	6-20-63			
-15cccd$_2$	C. Huth	1959	100	4		W	Cy	D,S	80r	6-20-63	2,880	2,226	

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
95-53 (continued)													
-15dddb$_2$	H. Montgomery	1954	86	3		W	P	D,S		6-20-63	2,870	2,208	
-16bbbb	SDGS	1964	55		1,456a			T					L
-17aaab	M. Chaney			3		W	Cy	S		6-20-63	2,590	1,798	
-17babc	R.&W.Peterson	1959	200	3		W	Cy	S		6-20-63	2,930	2,345	
-18cccc	USGS	1964	97		1,459a	LV-M		T					L
-18cdcc	L. Mikkelsen	1956	147	2,1½		W	Cy	S	145r	6-20-63	1,730	1,096	
-19bccd	R.&W.Peterson			3		W	Cy	D,S		6-20-63	1,710	976	
-20aabb	N. Peterson	a1930	160	3,1¼		W	Cy	S	120r	6-20-63	1,910	1,061	
-20abad	D. Peterson	1960	162	3		W	Cy	D,S	70r	6-20-63	2,260	1,575	
-20cccc	W. Carr		160	3,1¼		W	Cy	S	100r	6-20-63	2,260	1,352	
-21aadd	B. Olson	1956	120	4		W	Cy	S	80r	6-20-63	2,400	1,541	
-21bbbb	SDGS	1964	90		1,426a	W		T	5.9m	5-15-64			L
-21ddab	M. Ryan			3		W	Cy	S		6-20-63	2,790	1,027	
-22aaab	H. Haver	1961	80	4		W	Cy	S	70r	6-21-63	2,710	1,917	
-22ddad	H. Davis			1½		W	Cy	S		6-21-63	2,130	1,770	
-23babb$_2$	J. Fait		40	3		W	Cy	S		6-21-63	2,640	1,798	
-23cddc	McDonald	1959		3		W	Cy	S		6-21-63	2,450	1,524	
-24aaab	J. Dwyer		580			Kd	Cy	D,S		6-21-63	2,690	770	
-24bd	D. Nelson		S		1,270t	W	F	S		6-20-63			Fu
-24d		b1900	60		1,260t								L
-25aada	J. Donahue	1953	60	2		W	Cy	D,S		6-25-63	2,350	1,472	
-25aadd	J. Donahue	a1935	60	3		W	Cy	S	10r	6-25-63	2,500	1,695	
-25ccba	M. Erickson	a1900	60	4		W	Cy	S	16r	6-25-63	2,210	1,455	
-25cddd	P. Jensen	1945	60	3		W	Cy	S	12r	6-25-63	2,480	1,695	
-25dcbb$_1$	E. Jensen	1954	50	3		W	J	S	18r	6-25-63	2,400	1,644	
-25dcbb$_3$	E. Jensen		S			W	F	S		1-23-65	2,600	1,680	A,Fu
-26aaad	F. Myers		35	3,2		W	Cy	S		6-25-63	2,200	1,338	
-26dddd	SDGS	1963	80		1,286a			T					L
-27addc	H. Haver	1942	135	3,1¼		W	Cy	S	55r	6-25-63	2,540	1,661	
-27cbaa	N. Wadden		500	3		Kd	Cy	S		6-25-63	1,740	907	

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
95-53 (continued)													
-27dcdc	T. Lasen	1950	135	3		W	Cy	S	80r	6-25-63	2,490	1,541	
-28adda	N. Wadden			3,1¼		W	Cy	S		6-25-63	1,820	959	
-29aadc	G. Brue	1963	160	3		W	Cy	S	100r	6-25-63	1,780	993	
-29cccc$_1$	H. Peterson	1952	120	4		W	Cy	S		6-25-63	1,910	1,198	
-29cccc$_2$	H. Peterson	1940	120	4		W	Cy	S		6-25-63	2,030	1,338	
-29dccb$_1$	L. Fairess	1953		3		Kd	Cy	S		6-25-63	1,540	822	
-30cbbc	R. Sweeley	1929	210	3,1½		W	Cy	S	170r	6-25-63	2,300	1,541	
-30cccc	SDGS	1963	65		1,460a			T					L
-30dcdd	O. Highstreet			3		W	Cy	S		6-25-63	3,260	2,397	
-31addd	R. Peterson			3		W	Cy	S		6-25-63	2,210	1,352	
-31bbba	H. Peterson		120	3		W	Cy	S	50r	6-25-63	2,060	1,318	
-31cbcb	D. Jensen	1953	110	3		W	Cy	S		6-25-63	2,240	1,404	
-32aaaa	SDGS	1964	140		1,387a			T					L
-32abaa	J. Glidden	1946	245	4		Kcc	P	D,S	125r	6-11-65	1,700	830	A
-32cdab	A. Mikkelson			3		W	Cy	S		6-25-63	1,970	1,301	
-33aaad	SDGS	1964	85		1,376a	W		T					L
-33bc$_1$	Town of Wakonda	1953	208	6,3½		Kcc	T	PS	57r	7-13-65		977	A
-33bc$_2$	Town of Wakonda	1935	202	6,2½		Kcc	J	PS	57r	7-13-65		965	A
-33bc$_3$	Town of Wakonda	1925	550			Kd							A
-33cbcc	W. Kuhler	1940	150	3		W	P	D,S		6-25-63	2,210	1,301	
-33cdcc	M. Madsen					W		D,S		6-25-63	1,840	873	
-33dddd	R. Howe	1959	148	3,2		W	P	D,S	80r	6-25-63	1,920	942	
-34bccc	F. Axland			3		W	Cy			6-25-63	1,340	445	
-35aaaa	Montgomery Est.	1945	65	4		W	Cy	S	20r	6-25-63			
-35bbaa	E. Sorenson		180	2		W	Cy	S	100r	6-25-63	2,400	1,507	
-35ddac	L. Hausman			4		W	Cy	S		6-25-63	2,600	1,798	
-36aaaa	USGS	1964	78		1,259a			T					L
-36abba	A. Knutson			18		W	F	S		6-25-63	2,590	1,729	Fe<1
-36babd	H. Jensen	a1931	70	3		W	P	S		6-25-63	2,260	1,338	
-36cbca	M. Dixon			2		W	Cy	S		6-25-63	2,590	1,558	
-36dddd	D. Sherk	1946	134	2		LV-M	Cy	S	60r	6-25-63	1,730	890	

TABLE 2 . CHEMICAL ANALYSES OF WATER FROM SELECTED WELLS IN THE PRINCIPAL AQUIFERS IN CLAY COUNTY, SOUTH DAKOTA

(Laboratory: a, U.S. Geological Survey; b, Station Biochemistry, S. Dak. State University; c, S. Dak. State Chemical Laboratory; d, S. Dak. Department of Public Health; e, S. Dak. State College Soil Testing Laboratory.)

(Analytical results in parts per million except as indicated)

Location	Date of collection	Well depth (feet)	Temperature (°F)	Silica (SiO_2)	Total iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (sum)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	Laboratory
Lower Vermillion - Missouri aquifer																							
92-51-7cccc	10/24/63	130	-	-	4.6	2.3	253	40.9	62.1	13.7	183	581	64.9	-	0.5	-	1,694	-	-	17.7	0.96	1,710	e
-14dcdd	10/24/63	141	-	-	5.5	1.3	276	34.0	57.0	12.9	190	700	29.8	-	.1	-	1,296	-	-	12.3	.86	1,690	e
-27bcbc	8/13/63	109	-	-	.7	1.9	278	14	59	16	190	648	56	-	-	-	1,398	-	-	14.3	.94	1,600	e
-27cada	8/13/63	107	-	-	2.8	1.1	89	61	90	8	610	129	12	-	-	-	702	-	-	28.8	1.80	1,300	c
-28dac	8/13/63	97	-	-	2.8	1.6	244	52	65	16	239	675	54	-	-	-	1,522	-	-	14.4	.99	1,680	c
-34babb	8/13/63	104	-	-	1.3	1.4	240	35	65	14	215	648	56	-	-	-	1,436	-	-	15.7	1.04	1,600	c
92-52-12ddab	2/7/63	205	-	-	-	-	371	-	59.8	-	207	706	39	-	-	-	1,370	-	-	14	-	--	c
-13daca[2]	8/22/63	200	-	-	1.3	2.0	234	58	76	-	-	682	10	1.4	.3	-	1,466	821	-	-	-	--	c
92-53-13acaa[1]	3/20/57	108	-	-	-	-	163	74	90	-	-	411	13	-	-	-	1,165	710	-	-	1.47	--	c
-13acaa[1]	8/13/63	106	-	-	2.0	1.0	71	77	86	11	530	279	23	-	-	-	1,106	-	-	26.9	1.68	1,500	e
-15abbb[1]	4/4/57	116	-	-	-	-	263	71.5	96.1	19.10	242	828	70.9	-	-	-	--	-	-	17.64	1.36	--	e
-15abbb	8/13/63	116	-	-	-	-	307	55	106	17	366	759	46	-	-	-	--	-	-	18.5	1.40	--	e
-15bbbb	9/25/63	39	53	23	.26	2.0	181	115	175	12	662	708	17	.7	.1	0.24	1,560	923	380	29	2.50	2,100	a
93-51-2cbda	10/24/63	115	-	-	4.1	1.8	310	126	110	12.1	232	1,183	32.10	-	.9	-	2,198	-	-	15	1.34	2,310	e
-8daab	10/24/63	115	-	-	5.4	1.3	248	7.30	189	14.1	207	859	28.7	-	.9	-	1,516	-	-	38	3.24	1,888	c
-21adaa	8/13/63	120	-	-	.4	-	301	9	62	17	181	811	74	-	-	-	1,630	-	-	14.3	.96	1,800	e
-22dcdd	10/24/63	136	-	-	10.0	1.5	333	68.6	66.9	15.7	190	1,048	92.9	-	-	-	2,162	-	-	11	.87	2,090	e
-31cdd	10/24/63	120	-	-	1.5	3.1	212	51.1	45.1	11.3	264	524	30.9	-	.1	-	1,325	-	-	11	.72	1,490	e
-34ccdd	10/24/63	128	-	-	2.4	1.9	224	63.2	120	-	251	794	34.8	-	trace	-	1,360	-	-	23	1.84	1,730	e
-35bcbc	10/24/63	115	-	-	4.1	1.8	216	97.3	50.8	10.10	215	688	41.8	-	.2	-	1,352	-	-	10.5	-	1,590	e
93-52-2cdad	10/24/63	130+	-	-	-	-	425	143	65.1	22.7	227	1,474	7.8	-	.1	-	2,672	-	-	7.7	.7	2,620	e
-14dcca	6/11/65	110	56	-	2.0	2.0	280	68	19	13	350	720	5	.5	1	-	1,680	980	-	4	.27	1,600	b
-21dcad	8/13/63	76	-	-	1.2	3.1	108	63	44	10	283	382	34	-	-	-	1,042	-	-	15.0	-	1,300	e
-22cddd	10/24/63	136	-	-	2.8	3.0	253	29.2	31.10	8.6	227	567	24.8	-	.2	-	1,202	-	-	9.3	.51	1,450	e
-24daad	10/24/63	140	-	-	12.3	3.7	281	114	28.0	12.9	166	928	17.7	-	1.0	-	1,654	-	-	5.8	.36	1,850	e
93-53-24dabb	8/13/63	88	-	-	1.0	5.7	260	75	83	15	215	877	70	-	-	-	1,884	-	-	15.6	1.17	2,000	e
94-51-9cccb	2/18/63	83	-	-	4.82	-	360	139	128	13	380	1,300	45	-	0	-	--	1,470	-	-	-	2,800	b
-9cccb	10/24/63	83	-	-	9.7	1.8	349	173	103	13.7	232	1,363	19.9	-	.1	-	2,628	-	-	12	1.13	2,550	e
-19badc	10/24/63	90	-	-	7.4	1.2	277	70.5	82.1	9.8	215	970	19.9	-	.1	-	1,562	-	-	15.3	1.16	1,990	e
-26badb	6/11/65	120	53	-	2.8	.3	260	71	52	8	410	700	5	.3	0	-	1,924	940	-	10.6	.74	1,900	b
94-52-4aaba[1]	6/11/65	15	54	-	.06	2.0	100	39	13	5	280	190	10	-	0	-	880	410	-	6.4	.28	850	b
-14cbbb	12/16/58	29	-	30	4.4	-	159	55	24	11	365	396	2.4	.2	3.0	.20	--	621	322	8	.4	1,150	a
-14cccc	10/15/59	-	-	-	2.6	.6	116	59	9	-	-	309	1	-	-	-	762	532	-	-	-	--	c
-16bba	10/24/63	90	-	-	22.2	1.6	361	31.6	39.10	10.2	178	845	12.8	-	1.0	-	1,584	-	-	11.5	.58	1,780	e
94-53-33daca[2]	6/11/65	57	50	-	2.8	.1	244	73	28	7	370	650	10	.5	1	-	1,524	910	-	6.2	.41	1,500	b
95-51-25daaa	6/11/65	120	51	-	10.48	.1	325	83	72	14	480	920	5	.8	0	-	2,032	1,150	-	11.8	.92	2,000	b
95-52-1aaba	6/11/65	135	51	-	1.89	.7	256	80	90	10	430	780	5	.5	-	-	1,656	970	-	16.6	-	1,800	b
-3dadb	8/13/63	50	-	-	1.3	1.2	71	43	10	4	264	90	7	-	-	-	512	-	-	5.7	.23	780	e
-3bbac[2]	8/13/63	55	-	-	1.2	.6	71	36	15	5	205	131	7	-	-	-	496	-	-	8.9	.36	820	e
-5aadc	8/13/63	50	-	-	.8	.6	72	20	12	4	249	72	14	-	-	-	386	-	-	8.8	.32	610	e
-5aadd	8/13/63	50	-	-	.4	.7	118	26	24	7	312	171	7	-	-	-	528	-	-	11.2	.52	940	e
-14bdbc	8/13/63	60	-	-	5.7	1.0	147	67	40	7	366	391	16	-	-	-	1,216	-	-	11.8	.69	1,370	e
-14caad	8/13/63	46	-	-	4.7	.8	143	61	45	7	332	428	18	-	-	-	1,168	-	-	13.7	.80	1,310	e
-22cabb	8/13/63	40	-	-	2.4	.9	131	50	24	6	403	251	8	-	-	-	892	-	-	8.8	.45	1,100	e
-27acda	2/5/64	80	-	-	.1	-	72	24	8	4	-	100	5	2.5	0	-	--	278.8	-	-	-	650	b
-36dadb	6/11/65	75	51	-	.04	.9	3.40	122	78	11	400	1,200	0	.4	0	-	2,420	1,350	-	10.21	-	2,300	b
Wakonda aquifer																							
93-52-5ca	1/23/65	Spring	50	-	4.54	.1	441	50	50	-	510	800	5	.2	6.0	-	--	1,300	510	7.56	.60	2,400	b
-6ba	1/23/65	Spring	44	-	.74	2	280	40	18	8	420	440	5	.4	-	-	--	860	420	4.3	.27	1,550	b
-8abdd	1/23/65	Spring	44	-	3.3	.1	480	73	41	21	480	1,000	5	.6	-	-	--	1,500	480	5.5	.46	2,200	b
94-52-19dcdd	10/24/63	90	-	-	2.08	.48	533	125	65.1	18	264	1,786	19.9	-	-	-	3,258	-	-	7	.66	2,920	e
94-53-3dddd	10/24/63	130	-	-	2.17	.21	377	126	77	23.5	159	1,554	19.9	-	.3	-	--	-	-	10.1	.88	2,450	e
-7dcdd[2]	6/11/65	100	57	-	.08	.1	408	122	42	19	360	1,250	5	1.0	-	-	2,616	1,520	360	6	.47	2,400	b
-12aaba[2]	1/23/65	52	55	-	1.67	.1	500	109	110	22	390	1,450	5.0	1.2	-	-	--	1,700	390	12.0	1.66	2,900	b
-23bbad	10/24/63	160	-	-	1.58	.35	537	122	45.1	15.3	178	1,568	19.9	-	.2	-	2,824	-	-	-	.46	2,750	e
95-52-30babb	6/11/65	56	52	-	2.48	.25	476	122	53	22	430	1,260	5	1.0	-	-	2,668	1,690	430	6.30	.56	2,600	b

TABLE 2. CHEMICAL ANALYSES OF WATER FROM SELECTED WELLS IN THE PRINCIPAL AQUIFERS IN CLAY COUNTY, SOUTH DAKOTA

(Laboratory: a, U.S. Geological Survey; b, Station Biochemistry, S. Dak. State University; c, S. Dak. State Chemical Laboratory; d, S. Dak. Department of Public Health; e, S. Dak. State College Soil Testing Laboratory.)

(Analytical results in parts per million except as indicated)

Location	Date of collection	Well depth (feet)	Temperature (°F)	Silica (SiO_2)	Total Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (Na)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (No_3)	Boron (B)	Dissolved solids (sum)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	Laboratory
Wakonda aquifer - (continued)																							
95-53-3abad	6/11/65	Spring	56	-	2.58	0.4	344	73	59	12	400	970	5	0.7	1	-	2,288	1,160	400	9.9	0.74	1,900	b
-4bcbb$_1$	6/11/65	102	-	-	14.16	.1	417	126	53	16.5	440	1,220	5	.7	1	-	2,440	1,560	440	6.78	.58	2,400	b
-12addc$_1$	7/53	35	55	-	-	-	20.6	10.9	3.3	.5	6.5	29.4	.2	-	-	-	--	-	-	9.4	-	2,600	b
-12addc$_2$	7/53	55	-	-	-	-	18.6	13.9	3.6	.4	6.5	31.2	.2	-	-	-	--	-	-	9.9	-	2,700	b
-25dcbb$_3$	1/23/65	Spring	52	-	4.4	1.0	400	165	46	17	410	1,200	5	1.1	.0	-	--	1,680	410	5.7	.50	2,600	b
Niobrara Marl																							
95-51-3cbba	6/11/65	100	52	-	1.78	.4	412	112	176	22	470	1,260	5	.5	0	-	2,736	1,490	-	20	-	2,800	b
-11ddcc	6/11/64	140	54	-	22.94	.1	397	112	47	10	510	1,025	5	.5	1	-	2,316	1,450	-	6.51	-	2,200	b
-17ccbb	1/15/64	30	-	-	.02	-	414	234	70	16	-	1,450	90	1.2	27	-	--	2,003	-	7.0	-	3,500	b
-30dada$_2$	6/11/65	68	52	-	19.65	.2	441	172	96	24	430	1,620	5	1.2	-	-	3,636	1,810	430	10.3	.98	2,800	b
Codell Sandstone Member																							
94-51-13bdca	6/11/65	212	53	-	12.85	.2	236	49	42	8	490	440	5	.4	1	-	1,264	790	490	10.2	.65	1,300	b
95-51-8acaa$_1$	3/13/61	167	-	-	20.1	-	76.2	21.9	180	3.0	320	325	30	-	-	-	--	280	320	58.0	4.69	1,250	b
95-53-8ccce	6/11/65	260	53	-	4.5	.1	368	99.7	40	20	470	900	5	1.1	-	-	1,992	1,330	470	6	.48	2,000	b
-32abaa	6/11/65	245	56	-	1.07	.1	260	44	64	24	310	700	5	1.2	-	-	1,612	830	310	14	-	1,700	b
-33bc$_1$	9/54	208	-	-	6.3	.0	253	81	-	104	-	456	756	11	.8	-	-	1,590	977	374	-	1.38	--	d
-33bc$_2$	12/54	202	-	-	5	.2	253	78	-	65	-	407	760	11	.7	-	-	1,566	965	348	-	1.23	--	d
Dakota Group																							
92-51-3addb	6/11/65	300+	55	-	.6	.1	240	29	50	17	170	643	40	2.5	-	-	1,392	720	-	12.8	.8	--	b
92-52-7cbc	10/6/60	500	58	9.7	4.6	.17	257	41	50	15	168	689	52	1.7	.0	.18	1,200	811	673	12	.8	1,560	a
-10ccc$_1$	1/23/65	200+	55	-	.31	.11	261.0	26.0	40.0	15.0	160.0	600	40.0	1.7	-	-	--	760.0	-	10.0	-	1,550.0	b
-11abd	6/11/65	435	55	-	.49	.3	265	41	46	15	150	745	50	1.7	1	-	1,456	830	-	10.5	-	1,600	b
-13da	-	440	-	8.0	4.6	-	606.6	227.8	146.0	-	-	--	80.6	-	-	-	1,274.8	-	-	-	-	--	a
92-53-16ccaa	6/11/65	265	55	-	.44	.1	220	49	39	17.5	160	595	30	2.2	1	-	1,336	750	-	9.9	-	1,400	b
93-51-1abcc	6/11/65	400	53	-	.4	.15	252	41	44	26	170	650	70	2.2	0	-	1,652	800	-	-	.0	1,600	b
93-52-28aad	7/7/61	320	-	10	2.3	.19	255	43	51	16	160	685	46	2.4	.3	.17	1,190	813	682	12	.8	1,590	a
93-53-32aadc$_2$	11/19/64	387	-	10	2.6	.18	251	44	50	15	156	710	44	1.9	.3	.17	1,210	809	681	12	.8	1,560	a
94-51-5dca	1/23/65	300	52	-	3.44	.1	260.0	100.0	102.0	20.0	160.0	1,000	100.0	3.5	-	-	--	1,060.0	-	17.0	-	2,100.0	b
94-52-8bccb$_1$	1/23/65	318	-	-	2.81	-	260.0	37.0	53.0	19.0	180.0	640	40.0	.1	-	-	--	800.0	-	12.3	-	1,625.0	b
-33adac	6/11/65	352	54	-	1.04	.15	240	.15	46	20	150	671	70	2.6	0	-	1,596	750	-	-	.0	1,650	a
94-53-20ccca	11/19/64	470	61	9.8	2.6	.22	363	67	90	21	156	1,070	103	2.5	.4	.19	1,810	1,180	1,050	14	1.1	2,220	a
95-51-8bcba	9/20/61	435	52	6.7	11	.03	256	42	127	16	166	800	101	3.2	1.5	.57	1,450	812	676	25	1.9	1,900	a
95-53-33bc$_3$	-	550	-	5.8	7.6	-	899.0	345.6	163.4	-	-	--	284.2	-	-	-	1,941.0	-	-	-	-	--	a

Table 3.--Selected logs of wells and test holes in Clay County and vicinity.

(For reference number location see figure 3)

Drilled by: USBR, U. S. Bureau of Reclamation; USGS, U. S. Geological Survey; SDGS, South Dakota Geological Survey; WRC, Water Resources Commission; PD, Private Driller.

Source of data: D, driller's log; S, sample study.

Elevation: to the nearest foot; obtained by altimeter or alidade.

Geologic units: Qu, Pleistocene and Recent undifferentiated; Qal, alluvium undifferentiated; Qt, till undifferentiated; Qwlt, late Wisconsin till; Qo, outwash undifferentiated; Qwlo, late Wisconsin outwash; Ql, loess undifferentiated; Qwel, early Wisconsin loess; Qit, Illinoian till; Qks, Sappa (?) silt and clay; Qkg, Grand Island (?) sand and gravel; Qkt, Kansan till; Kn, Niobrara Marl; Kc, Carlile Shale; Kg, Greenhorn Limestone; Kgs, Graneros Shale; Kd, Dakota Formation.

Color descriptions of samples are designated in accordance with the Geological Society of America rock color chart (1951 printing).

Reference number 1
Location: 92-50-7bbbb
Drilled by: SDGS
Source of data: D,S
Elevation: 1239

Geologic Unit	Description	Depth Feet
Qu	Clay, black	0- 5
Qwlt	Till, clayey, light yellow-brown, silty, pebbly, sandy	5- 18
	Till, clayey, light-gray, silty, pebbly, sandy, (gravelly from 65 to 75 feet)	18-120
	Till, clayey, gray, sandy, gravel stringers	120-125
Qo	Sand, fine to coarse, and gravel, fine to medium, mostly quartz and feldspar; also wide variety of igneous, sedimentary, and metamorphic rocks	125-190
Qu	Clay, gray, noncalcareous; well-preserved snail; much gravel from above	190-195
	Interbedded fine gravel and light-gray, non-calcareous clay-silt	195-225
	Interbedded clay, sand and gravel	225-245
Kd	Sandstone interbedded with shale; drills rough but fairly fast	245-300

* * * *

Reference number 2
Location: 92-51-6cc
Drilled by: PD
Source of data: D
Elevation: 1205

Reference number 2 (continued)

Geologic Unit	Description	Depth Feet
Qu	Loess	0- 14
	Gravel	14- 34
	Glacial till	34- 74
	Clay, blue (shale?)	74- 98
	Sand, fine	98-118
	Depth of well, but not at bottom of sand	

* * * *

Reference number 3
Location: 92-51-9cccc
Drilled by: USBR
Source of data: S
Elevation: 1243

Geologic Unit	Description	Depth Feet
Qwlt	Glacial till, pale yellowish-brown (10YR6/2), oxidized, sandy, silty, calcareous; some reworked carbonates and chalk balls	0- 10
	Glacial till, yellowish-gray (5Y8/1), highly calcareous, sandy, silty, chalky	10- 20
	Glacial till, light brownish-gray (5YR6/1), sandy, silty, highly calcareous	20- 30
	Glacial till as above; sample is 50% medium- to coarse-grained quartz sand	30- 40
	Glacial till, light brownish-gray (5YR6/1), sandy, silty, highly calcareous, becoming very sandy in 110 to 120 foot sample	40-120
Qo	Sand, medium to very coarse; fine gravel, predominately quartz, some igneous and some siltstone pebbles, much coal	120-130
	As above, less coal	130-180
	As above, coarser grained (very coarse sand to medium gravel)	180-190
	As above, grain size smaller (fine sand to fine gravel)	190-200
	Gravel, medium- to coarse-grained, subangular to rounded, igneous; some shale pebbles	200-220
	Sand as described from 120-130 feet	220-250
Kd	Shale, medium-gray, silty, slow effervescence, banded, massive, hard. Banding caused by silty zones. Some pyrite present	250-260
	Driller has bedrock at 241 feet	

* * * *

Reference number 4
Location: 92-51-9dddd
Drilled by: USBR

Reference number 4 (continued)
Source of data: S
Elevation: 1251

Geologic Unit	Description	Depth Feet
Qwlt	Glacial till, yellowish-gray (5Y7/2), silty, sandy, highly calcareous, contains many chalk fragments	0- 10
	Glacial till, yellowish-gray (5Y8/1), silty, contains much chalk, highly calcareous	10- 20
	Glacial till, yellowish-gray (5Y7/2), silty, sandy, contains pebbles of chalk and igneous rocks, highly calcareous	20- 30
	Glacial till, medium light-gray (N6), highly calcareous, silty, sandy	30-100
Qo	Sand, medium; medium gravel, consists of limestone and shale pebbles with fraction of granite and other igneous materials. Trace of coal; subangular to subrounded grains	100-150
	Sand, medium to very coarse; fine gravel, subangular to rounded, primarily quartz with trace of igneous materials, shale, limestone pebbles and calcite	150-252
Kd	Shale, gray	252-265
	Driller has bedrock at 252 feet (gray shale)	

* * * *

Reference number 5
Location: 92-51-10dddd
Drilled by USBR
Source of data: S
Elevation: 1251

Geologic Unit	Description	Depth Feet
Qwlt	Glacial till, yellowish-gray (5Y8/1), highly calcareous, contains much chalk	0- 10
	Glacial till, yellowish-gray (5Y7/2), highly calcareous, contains much chalk	10- 30
	Glacial till, medium light-gray (N6), highly calcareous, gravelly, little chalk present, very sandy from 90 to 100 feet	30-110
Qo	Sand, coarse; fine gravel, subangular to subrounded, consists of quartz and igneous rock fragments, shale and limestone pebbles and minor amounts of coal and feldspar	110-160
	Sand, medium to very coarse, primarily quartz and igneous rock fragments, subangular to subrounded	160-170
	Sand, medium; fine gravel, primarily quartz and igneous rock fragments, subangular to rounded, some limestone and shale fragments	170-265

* * * *

Reference number 6
Location: 92-51-12dddd
Drilled by: USBR
Source of data: S
Elevation: 1235

Geologic Unit	Description	Depth Feet
Qwlt	Glacial till, yellowish-gray (5Y8/1), silty and sandy, highly calcareous	0- 10
	Glacial till, light-gray (N7), as above	10- 20
	Glacial till, medium light-gray (N6), as above; very sandy from 110 to 120 feet	20-120
Qo	Sand, coarse; fine gravel, consists of quartz, igneous rock fragments, limestone and shale pebbles and trace of coal	120-260
	Driller has bedrock at 245 feet	

* * * *

Reference number 7
Location: 92-51-14aaac
Drilled by USBR
Source of data: S
Elevation: 1242

Geologic Unit	Description	Depth Feet
Qwlt	Glacial till, yellowish-gray (5Y8/1), contains much chalk, silty, highly calcareous	0- 20
	Glacial till, light-gray (N7), silty, chalky, highly calcareous	20- 30
	As above, medium light-gray (N6); very sandy from 100 to 130 feet	30-130
Qo	Sand, medium; fine gravel, consists of quartz, igneous rock fragments, shale and limestone pebbles with minor amounts of coal and calcite, angular to subrounded; much coal from 160 to 170 feet	130-260
Kd	Silt (quartzose) loosely cemented, slightly calcareous, very light-gray (N8), partly banded	260-265
	Driller has bedrock at 228 feet	

* * * *

Reference number 8
Location: 92-51-17bbbb
Drilled by: USBR
Source of data: S
Elevation: 1229

Geologic Unit	Description	Depth Feet
	No samples (driller reported brown till)	0- 30

Reference number 8 (continued)

Qwlt	Glacial till, light-gray clay, silty, highly calcareous, trace of fine to coarse quartz sand, subangular to rounded, not frosted, trace coal and other rock fragments	30-110
	As above, more sand and rock fragments	110-120
Qo	Sand, very coarse; fine gravel (70%>2mm), quartz, feldspar, various igneous rock fragments, trace of coal, some limestone and other calcareous rocks. Quartz is subrounded to round, other fragments angular to subrounded	120-130
	Sand, as above with about 25 to 35% coal, less rock fragments; primarily coal and quartz	130-140
	Sand, as above, less coal (5 to 10%), quartz>50%; rest is rock fragments as above	140-150
	Sand, as above, trace of coal, quartz>80%, rest is rock fragments	150-160
	Sand, as above; coarse to fine gravel (½ to 3 mm), quartz>80%	160-200
	Gravel, medium; coarse sand, quartz>80%, more calcareous material; trace Kn (not cuttings)	200-260
	No bedrock in cuttings	
	Bedrock from E-log 255 feet (Dakota)	

* * * *

Reference number 9
Location: 92-51-20bccc
Drilled by: USBR
Source of data: S
Elevation: 1229

Geologic Unit	Description	Depth Feet
Ql	Silt and very fine sand, buff colored, quartzose, slightly calcareous	0- 10
Qwlt	Glacial till, yellowish-gray (5Y7/2), silty and sandy, highly calcareous	10- 20
	Glacial till, medium light-gray (N6), silty, highly calcareous	20- 90
	Sand, coarse; medium gravel, quartz and igneous rock fragments predominate; some siltstone, shale and limestone pebbles; trace of coal and calcite, grains subangular to subrounded	90-100
	Glacial till, as in sample 20 to 90 feet, above	100-120
Qo	Sand, very coarse; fine gravel, predominately quartz and igneous rock fragments; some siltstone and shale pebbles; trace of coal and carbonates, grains sub-angular to subrounded	120-220
Kd	Silt, sandy, quartzose, loosely cemented to well cemented, noncalcareous to slightly calcareous; small specks of biotite and muscovite mica	220-230
	Driller has bedrock at 206 feet	

* * * *

Reference number 10
Location: 92-51-23cb
Drilled by: SDGS
Source of Data: D
Elevation: 1137

Geologic Unit	Description	Depth Feet
Qal	Clay	0- 9
	Silt and clay	9- 19
	Sand, fine	19- 49
Qo	Sand, medium	49- 99
	Sand, coarse	99-120

Remarks: Depth to water 9.7 feet

* * * *

Reference number 11
Location: 92-51-25aaaa
Drilled by: SDGS
Source of data: D
Elevation: 1130

Geologic Unit	Description	Depth Feet
Qal	Clay, gray to gray-black	0- 19
Qo	Sand, fine, gray	19- 43
	Gravel	43- 86
Kg	Shale	86- 95

* * * *

Reference number 12
Location: 92-51-26cc
Source of data: D
Elevation: 1138

Geologic Unit	Description	Depth Feet
Qu	Topsoil	0- 4
Qal	Clay	4- 19
	Sand and clay	19- 24
Qo	Sand, medium	24- 99
	Sand, coarse	99-109

* * * *

Reference number 13
Location: 92-51-27bcc
Drilled by: PD
Source of data: D
Elevation: 1134

Reference number 13 (continued)

Geologic Unit	Description	Depth Feet
Qal	Clay	0- 12
	Sand, fine	12- 61
Qo	Gravel (to sand?)	61- 75
	Sand, coarse	75- 95

Remarks: Static water level 12 feet
Pumped at 800 gpm with drawdown to 19 feet

* * * *

Reference number 14
Location: 92-51-27c
Drilled by: WRC
Source of data: D
Elevation: Not determined

Geologic Unit	Description	Depth Feet
Qu	Topsoil	0- 2
Qal	Clay, brown	2- 9
	Sand, fine	9- 54
Qo	Clay, gray	54- 56
	Gravel, pea-size	56- 63
	Clay, blue	63- 70

Remarks: Static water level 12.4 feet
Porosity 36.9%

* * * *

Reference number 15
Location: 92-51-27cad
Drilled by: PD
Source of data: D
Elevation: 1134

Geologic Unit	Description	Depth Feet
Qal	Clay	0- 11
	Sand, fine	11- 48
Qo	Sand, coarse	48- 55
	Clay	55- 77
	Sand, coarse, and gravel	77-105

Remarks: Static water level 14 feet
Pumped at 800 gpm with drawdown to 19 feet

* * * *

Reference number 16
Location: 92-51-29cada
Drilled by: SDGS
Source of data: D
Elevation: 1133

Geologic Unit	Description	Depth Feet
Qu	Clay, brown to gray, some sand	0- 9
	Sand, clayey	9- 24
	Sand, medium, clayey	24- 89
	Sand and pea-size gravel	89-104

* * * *

Reference number 17
Location: 92-51-30aadb
Drilled by: SDGS
Source of data: D
Elevation: 1135

Geologic Unit	Description	Depth Feet
Qu	Topsoil	0- 2½
Qal	Clay, brown	2½- 4
	Clay, sandy, moist	4- 10
Qo	Sand, medium, clean	10- 59
	Sand, gray, fine	59- 91
	Sand, coarse; gravel, pea-size	91-104

* * * *

Reference number 18
Location: 92-51-30bacc
Drilled by: SDGS
Source of data: D
Elevation: 1140

Geologic Unit	Description	Depth Feet
Qal	Sand, dark-brown; silt, blue-gray	0- 14
Qo	Sand, gray; coal	14- 54
	Sand, gray-brown; fine gravel	54- 79

* * * *

Reference number 19
Location: 92-51-34babb
Drilled by: PD
Source of data: D
Elevation: 1137

Geologic Unit	Description	Depth Feet

Reference number 19 (continued)

Geologic Unit	Description	Depth Feet
Qal	Clay	0- 12
Qo	Sand, fine	12- 49
	Sand and gravel	49-104
	Clay at 104 feet	

Remarks: Static water level 13 feet
Est. 800 to 1000 gpm capacity

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Reference number 20
Location: 92-51-34cb
Drilled by: SDGS
Source of data: D
Elevation: 1144

Geologic Unit	Description	Depth Feet
Qal	Sand, fine	0- 9
	Sand, fine, and clay	9- 19
Qo	Sand, fine	19- 39
	Sand, medium	39-104
	Sand, coarse	104-112
	Sand, coarse, and fine gravel	112-116

* * * *

Reference number 21
Location: 92-51-36aaaa
Drilled by: SDGS
Source of data: D
Elevation: 1133

Geologic Unit	Description	Depth Feet
Qal	Clay, black	0- 10
	Sand, fine	10- 25
	Clay, black, sandy	25- 50
Qo	Gravel	50-155

* * * *

Reference number 22
Location: 92-52-1b
Drilled by: WRC
Source of data: D
Elevation: Not determined

Geologic Unit	Description	Depth Feet
Qu	Topsoil	0- 13
Qal	Sand, fine; clay	13- 40

Reference number 22 (continued)

	Sand, medium; clay	40- 56
	Clay	56- 59
Qo	Sand	59- 63
	Gravel, fine	63- 70

Remarks: Static water level 14.4 feet

* * * *

Reference number 23
Location: 92-52-9dddd
Drilled by: SDGS
Source of data: D
Elevation: 1147

Geologic Unit	Description	Depth Feet
	Road fill	0- 4
Qal	Clay, brown-gray, very silty, fine	4- 14
	Clay, brown-gray, partly saturated, very fine	14- 19
Qo	Sand, fine, clayey, silty, brown-gray to light-gray; water at 20 feet	19- 70
	Sand, gray-brown to light-gray, very fine	70-122
Kg	Shale	122-124

* * * *

Reference number 24
Location: 92-52-12dddd
Drilled by: SDGS
Source of data: D
Elevation: 1215

Geologic Unit	Description	Depth Feet
Qwlt	Till	0-105
Qo	Outwash sand and gravel	105-205

* * * *

Reference number 25
Location: 92-52-13daca
Drilled by: SDGS
Source of data: D
Elevation: 1233

Geologic Unit	Description	Depth Feet
Qwlt	Till, buff, sandy; pebbly clay	0- 13
	Till, gray, sandy; pebbly clay with a few 6 inch sand and gravel streaks	13- 95
	Till, gray, very sandy; gravelly clay	95-116

Reference number 25 (continued)

	Gravel, pea size	116-117
	Till, gray, sandy, clayey	117-119
	Gravel, pea-size	119-120
	Till, gray, sandy; clay	120-130
Qo	Sand, medium- to coarse-grained, subangular to rounded, quartz and igneous derived material. Samples not showing true size of grains because pump running slow to keep the hole wall from caving. From feel of drilling it appears sand becomes coarser with depth. Probably coarse sand and pea-size gravel beginning at 220 feet	130-257
Kgs	Shale, medium gray	257-261
Kd (?)	Silt and sandstone, light gray, trace of glauconite; lost circulation	261-270

* * * *

Reference number 26
Location: 92-52-14abaa
Drilled by: USBR
Source of data: D
Elevation: 1219

Geologic Unit	Description	Depth Feet
Qwlt	Loam, black, sandy	0- 1½
	Silt, brown, sandy	1½- 13
	Till, brown	13- 19½
	Till, gray; sand lenses	19½-117½
Qo	Sand, fine to medium; fine gravel	117½-130
	Sand, medium to coarse, gray; gravel; lignite	130-165
	Sand; gray, medium; gravel; lignite	165-218
Kgs	Shale, gray	218-224
	Shale, gray, silty	224-230
	Shale, gray; lignite seam	230-237
Kd	Sand, gray, fine, silty	237-249
	Remarks: Total depth 249 feet—continuous drive pipe core available in SDGS office, Vermillion. Electric log available in SDGS office.	

* * * *

Reference number 27
Location: 92-52-14c
Drilled by: WRC
Source of data: D
Elevation: Not determined

Geologic Unit	Description	Depth Feet
Qu	Topsoil	0- 13
Qal	Sand, fine	13- 38

Reference number 27 (continued)

	Clay, gray	38- 40
	Sand, fine	40- 48
	Clay, gray	48- 50
Qo	Sand, medium	50- 70
	Sand, coarse	70- 77
	Clay, gray	77- 80
	Sand, coarse	80- 93
	Gravel, pea-size	93-112

Remarks: Static water level 14.8 feet
Porosity 30.1%

* * * *

Reference number 28
Location: 92-52-17bbbb
Drilled by: SDGS
Source of data: D
Elevation: 1150

Geologic Unit	Description	Depth Feet
Qal	Sand, yellow-brown, very fine; water at 18 feet	0- 19
Qo	Sand, brown, fine; sand, yellow-brown, coarse	19- 78
	Gravel, brown-yellow to brown-gray	78-106

* * * *

Reference number 29
Location: 92-52-23dddd
Drilled by: SDGS
Source of data: D
Elevation: 1140

Geologic Unit	Description	Depth Feet
Qu	Topsoil	0- 4
Qal	Clay, blue, sandy	4- 32
Qo	Sand, brown, medium	32- 49
	Sand, brown, coarser	49- 54

* * * *

Reference number 30
Location: 92-52-24abcd1
Drilled by: PD
Source of data: D,S
Elevation: 1145

Geologic Unit	Description	Depth Feet
Qwlt	Clay, pale yellowish-brown (10YR6/2), slightly	

Reference number 30 (continued)

	calcareous, bentonitic; 1% fine sand, carbonaceous particles	0- 10
	Clay, pale yellowish-brown (10YR6/2), bentonitic, slightly calcareous	10- 20
	Clay, medium light-gray (N6), calcareous, not bentonitic	20- 25
	Clay, moderate yellowish-brown (10YR5/4), slightly calcareous	25- 30
	Clay, light-gray (N7); trace of greenish clay	30- 35
	Clay, light-gray (N7); slightly calcareous	35- 40
	Clay, light gray (N7), dark yellowish-orange (10YR6/6), clay mottling; small snail; small clam; slightly calcareous	40- 45
	Silt, light-gray (N7), very fine, clayey; some pebbles	45- 50
	Clay, pale yellowish-brown (10YR6/2); clay, slightly bentonitic; light-gray (N7) clay	50- 55
	Silt, light-gray (N7), clayey, fine, some sand size	55- 65
	Sand, very coarse; small gravel; much clay binder	65- 75
	Gravel, small; clay binder	75- 85
Qo	Sand and small gravel	85-115
	Sand and small gravel, occasional piece of gray shale	115-120
Kd	Siltstone, light gray (N7), glauconitic; lignite coal; sand and small gravel from above	120-127

* * * *

Reference number 31
Location: 92-52-24abcd2
Drilled by: PD
Source of data: D
Elevation: 1145

Geologic Unit	Description	Depth Feet
Qal	Overbank and colluvium	0- 65
Qo	Outwash sand and gravel	65-120
?	Bedrock	120-127

* * * *

Reference number 32
Location: 92-52-24cbaa
Drilled by: SDGS
Source of data: D
Elevation: 1140

Geologic Unit	Description	Depth Feet
Qu	Topsoil	0- 4
Qo	Sand, brown, fine, clayey	4- 34
	Sand, blue-brown, fine, clayey	34- 54
	Sand, medium; some clay	54- 94
	Gravel, pea-size; sand, coarse	94-104

* * * *

Reference number 33
Location: 92-52-24dbab
Drilled by: SDGS
Source of data: D
Elevation: 1140

Geologic Unit	Description	Depth Feet
	No sample	0- 4
Qal	Silt, brown, sandy	4- 14
Qo	Sand, fine, silty	14- 19
	Sand, fine	19- 84
	Sand, medium, and gravel	84-104

* * * *

Reference number 34
Location: 92-52-24dcad
Drilled by: SDGS
Source of data: D
Elevation: 1143

Geologic Unit	Description	Depth Feet
Qal	Sand, brown, silty	0- 9
Qo	Sand, fine, clean	9-100
	Sand, gravelly; coal	100-104

* * * *

Reference number 35
Location: 92-52-25aaca
Drilled by: SDGS
Source of data: D
Elevation: 1138

Geologic Unit	Description	Depth Feet
Qal	Sand, brown, fine, silty	0- 9
Qo	Sand, gray, fine; some gravel, clean	9- 64
	Sand as above, clayey	64- 69
	Sand, gray, fine; some gravel	69- 97
	Sand and gravel	97-104

* * * *

Reference number 36
Location: 92-52-25dcdb
Drilled by: SDGS
Source of data: D
Elevation: 1145

Geologic Unit	Description	Depth Feet

Reference number 36 (continued)

Geologic Unit	Description	Depth Feet
Qal	Clay, dark-brown, silty	0- 6
Qo	Sand, light-brown, clean, medium	6- 22
	Sand, clean, medium	22- 40
	Sand, coarser	40-104

* * * *

Reference number 37
Location: 92-52-26dabb
Drilled by: SDGS
Source of data: D
Elevation: 1138

Geologic Unit	Description	Depth Feet
Qal	Clay, brown, sandy, silty	0- 5
	Sand, fine, clayey	5- 9
Qo	Sand, brown, medium	9- 79

* * * *

Reference number 38
Location: 92-52-26ddbc
Drilled by: SDGS
Source of data: D
Elevation: 1142

Geologic Unit	Description	Depth Feet
Qal	Silt, brown, sandy	0- 12
Qo	Sand, clean	12- 74
	Sand and pea-size gravel	74-104

* * * *

Reference number 39
Location: 92-52-36dddb
Drilled by: SDGS
Source of data: D
Elevation: 1133

Geologic Unit	Description	Depth Feet
Qal	Sand, brown, fine, silty	0- 19
Qo	Sand, medium, silty	19- 59
	Sand, coarse	59- 89
	Gravel	89- 92

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Reference number 40
Location: 92-53-3dd

Reference number 40 (continued)
Drilled by: SDGS
Source of data: D
Elevation: 1153

Geologic Unit	Description	Depth Feet
Qal	Clay, yellow	0- 4
	Sand, very fine	4- 9
	Clay, dark-gray	9- 10
	Sand, very fine	10- 14
Qo	Sand, fine	14- 44
	Sand, medium	44- 69
	Sand, coarse	69-104
Kg	Shale, hard, dark	104-106

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Reference number 41
Location: 92-53-6bbbb
Drilled by: SDGS
Source of data: D,S
Elevation: 1160

Geologic Unit	Description	Depth Feet
Qal	Sand, dark-brown, very fine to silty	0- 9
Qo	Sand, yellow-brown, fine	9- 39
	Gravel, with coarse sand, yellow-brown to brown-gray sand	39-118
Kg	Shale	118-120

* * * *

Reference number 42
Location: 92-53-7ddaa
Drilled by: SDGS
Source of data: D,S
Elevation: 1150

Geologic Unit	Description	Depth Feet
Qal	Very fine material, gray-white, very powdery (river silt)	0- 10
Qo	Sand, fine, brown-gray; saturated	10- 90
	Sand, coarse; gravel, same color	90-122
Kg	Shale	122-125

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Reference number 43
Location: 92-53-13acaa
Drilled by: USGS
Source of data: D,S
Elevation: 1154

Reference number 43 (continued)

Geologic Unit	Description	Depth Feet
	Soil, black, very silty clay	0- 3
Qal	Silt, medium-brown, saturated below 9 feet. May be very fine sand in part	3- 12
Qo	Sand, medium-brown, very fine, very clean	12- 17
	Sand, medium-brown, very fine, clean and streaks sandy to clean clay	17- 22
	Clay (?), sandy, and streaks very fine sand; gray below about 25 feet	22- 27
	Sand, coarse to medium, much very coarse, little fine. Clean gravel streaks 85 to 110 feet	27-111
Kg(?)	Shale, dark-gray	111-112

Remarks: Water level 13.88 feet

* * * *

Reference number 44
Location: 92-53-14aaaa
Drilled by: SDGS
Source of data: D
Elevation: 1154

Geologic Unit	Description	Depth Feet
Qal	Silt, brown, clayey, fine	0- 9
	Clay, yellow-brown to very fine sand, silty; water at 18 feet	9- 19
Qo	Sand, yellow-brown, fine, with clay, very sticky	19- 49
	Sand, fine, yellow-brown to brown	49- 85
	Gravel, yellow-brown to brown-gray	85-109
Kg	Shale	109-113

* * * *

Reference number 45
Location: 92-53-15ab
Drilled by: PD
Source of data: S
Elevation: 1155

Geologic Unit	Description	Depth Feet
Qal	Clay to medium sand, mostly very fine sand, predominantly quartz, some feldspar and a little dark igneous material	0- 12
Qo	Sand, very fine to fine, loose; mostly angular quartz grains, well sorted	12- 22
	Sand, loose, medium to coarse, mostly quartz with some feldspar, granite and greenstone, mostly angular to subround with a few well-rounded grains	22- 32

Reference number 45 (continued)

	As above with a little more rounding to the grains	32- 52
	Sand, medium; fine gravel, loose; quartz, feldspar, granite, dark igneous, and some limestone; angular to subrounded grains; clay parting	52- 65
	Sand, medium, loose, subround to round, mostly quartz	65- 85
	Sand, medium, loose, subround to round, mostly quartz; some coal fragments	85- 95
	Sand, coarse; fine gravel, angular, quartz, granite, limestone, with some greenstone, chert, and dark igneous pebbles	95- 99
	Sand, coarse; fine gravel, angular, quartz, granite, limestone, with some greenstone, chert, and dark igneous pebbles; mostly coarse sand	99-116
Kg	Shale, dark-gray	116-125

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Reference number 46
Location: 92-53-15bbbb
Drilled by: WRC
Source of data: D
Elevation: 1150

Geologic Unit	Description	Depth Feet
Qu	Topsoil	0- 15
Qo	Sand, fine	15- 85
	Sand, coarse	85- 90
	Gravel, coarse	90- 96
	Cobblestones	96-100

Remarks: Static water level 13.9 feet
Porosity 38.1%

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Reference number 47
Location: 92-53-15cc
Drilled by: SDGS
Source of data: D
Elevation: 1154

Geologic Unit	Description	Depth Feet
Qal	Clay, yellow	0- 4
	Sand, very fine	4- 9
	Clay, dark	9- 10
	Sand, very fine	10- 14
	Sand, very fine and clay	14- 19
Qo	Sand, fine	19- 79
	Sand, fine and medium	79-109
Kg	Shale, black	109-112

* * * *

Reference number 48
Location: 92-53-16aaaa
Drilled by: SDGS
Source of data: D
Elevation: 1155

Geologic Unit	Description	Depth Feet
Qal	Sand, fine, yellow-brown; water at 18 feet	0- 19
Qo	Sand, coarse, brown-gray, to fine sand; saturated	19- 64
	Sand, coarse, deep brown; saturated	64- 87
	Gravel, brown-yellow to brown-gray	87-113
Kg	Shale	113-115

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Reference number 49
Location: 93-50-6cbbb
Drilled by: SDGS
Source of data: S
Elevation: 1284

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, pale yellowish-brown (10YR6/2), silty, sandy, abundant chalk pebbles; calcareous; some iron staining	0- 20
	Till, clayey, light brownish-gray (5YR6/1), silty, sandy, chalky; some iron staining; calcareous	20- 40
	Till, clayey, pale-olive (10Y6/2), mottled with light brownish-gray (5YR6/1), calcareous, silty, sandy, chalky	40- 50
Qit	Till, clayey, dusty yellow (5Y6/4), calcareous, silty, sandy, chalky	50- 90
	Till, shaly, medium-gray (N5), calcareous, silty, mottled by oxidation	90-100
	Till, composed almost entirely of shale, medium-gray (N5), pebbly, calcareous; contains many white calcareous specks	100-150
	Till, consists entirely of shale except for a number of small pebbles, and sand grains	150-160
Kg	Shale, medium-gray (N5), calcareous, hard, banded in part; contains abundant white calcareous specks	160-200

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Reference number 50
Location: 93-50-18bbbb
Drilled by: USBR
Source of data: S
Elevation: 1254

Geologic Unit	Description	Depth Feet

Reference number 50 (continued)

Qwlt	Chalk, white (N9) to very pale orange (10YR8/2), highly calcareous	0- 10
	Till, very pale orange (10YR8/2) to light bluish-gray (5B7/1), chalky, silty, highly calcareous	10- 20
	Till, light bluish-gray (5B7/1) to light-gray (N7), silty, highly calcareous	20- 30
	Till, light bluish-gray (5B7/1), silty, highly calcareous	30- 40
	Till, very pale orange (10YR8/2) to light bluish-gray (5B7/1), chalky, silty, highly calcareous	40- 50
	Till, light bluish-gray (5B7/1), silty, highly calcareous	50- 60
	Till, light-gray (N7), silty, highly calcareous, becomes sandy at 120 to 130 feet	60-130
Qo	Sand, medium; fine gravel, consists of quartz grains, igneous and metamorphic rock fragments; some siltstone and limestone pebbles; trace of coal. Angular to rounded grains	130-240
Kd	Siltstone, light-gray (N7), very slightly calcareous, bentonitic	240-261

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Reference number 51
Location: 93-51-1adda2
Drilled by: SDGS
Source of data: S
Elevation: 1318

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, light yellow-brown, very silty from intermixed loess, pebbly	0- 20+
Qwel	Loess, silty, light yellow-brown to light-brown, some gray and green silt at bottom (core from 40 to 45 feet, early Wisconsin loess)	20+- 63
Qit	Till, light yellow-brown, pebbly, hard, dry, tenaceous (core from 65 to 70 feet, Illinoian till); some dark brown streaks from 90 to 120 feet	63-120
	Till, clayey, medium-gray, silty, pebbly, very hard and dry. Rock at 209 to 210 feet	120-210
Kg	Shale, dark-gray sticky, greasy, calcareous; very slow drilling	210-230

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Reference number 52
Location: 93-51-15aaaa
Drilled by: USBR
Source of data: S
Elevation: 1230

Reference number 52 (continued)

Geologic Unit	Description	Depth Feet
Qwlt	Till, yellowish-gray (5Y7/2), silty, sandy, highly calcareous	0- 20
	Till, light-gray (N7), silty, sandy, highly calcareous	20- 70
Qo	Sand, medium; medium gravel; much quartz and granite fragments, other igneous and metamorphic rock fragments; some carbonates and siltstone pebbles; trace of coal. Grains subangular to rounded	70-220
	Silt, very light-gray (N8), quartzose, calcareous cement; crumbles easily; bentonitic	220-230
	Sand, medium, and fine gravel; quartz, granite and other igneous and metamorphic rock fragments. Some carbonates, siltstone, and coal. Subangular to subrounded	230-240
Kd	Shale, medium dark-gray (N4), silty, noncalcareous, massive, permeable	240-250
	Siltstone, medium light-gray (N6); banded; non-calcareous	250-260

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Reference number 53
Location: 93-51-17bbbb
Drilled by: USBR
Source of data: S
Elevation: 1185

Geologic Unit	Description	Depth Feet
Qwlt	Till, yellowish-gray (5Y7/2), silty, highly calcareous, chalky	0- 30
	Till, light-gray (N7), silty, highly calcareous	30- 70
Qo	Sand, coarse; medium gravel, subangular to rounded; much quartz, granite and other igneous and meta-morphic rock fragments; siltstone, carbonate and shale pebbles	70- 90
Qit(?)	Till, light gray (N7), silty calcareous	90-100
Qo	Sand and gravel as above	100-130
Qkt(?)	Till, clayey, silty and sandy, light-gray (N7), calcareous	130-150
	Driller has bedrock at 129 feet	

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Reference number 54
Location: 93-51-18dcdd
Drilled by: USGS
Source of data: D
Elevation: 1140

Reference number 54 (continued)

Geologic Unit	Description	Depth Feet
Qal	Clay, light- to dark-gray; brown and tan streaks. Light-gray clay with snail and clam shells at 17 to 20 feet	0- 22
	Clay, dark-gray to black. Very little sand or gravel	22- 30
	Clay, black; very hard	30- 33
Qo	Sand, coarse to fine, gravelly. Streaks gravel and clay	33- 37
	Sand (?), very coarse to fine. May have streaks of clay, but mostly clean.	37- 64
Kg(?)	Silt, dark-brown, scattered sand and very fine gravel, tight, dry, dense.	64- 65

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Reference number 55
Location: 93-51-18dddd
Drilled by: USGS
Source of data: D
Elevation: 1144

Geologic Unit	Description	Depth Feet
Qal	Clay, black with very dark-brown streaks, silty	0- 12
	Clay, black, slightly silty, very sticky	12- 25
Qo	Sand, coarse to fine; saturated. Very gravelly with streaks of coarse gravel	25- 27
	Gravel, fine; very coarse to fine sand. Streaks of coarse gravel and streaks of sand	27- 74
Kg	Silt, dark-brown, tough, very dense	74- 76

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Reference number 56
Location: 93-51-19bbcc
Drilled by: USGS
Source of data: D
Elevation: 1202

Geologic Unit	Description	Depth Feet
Qwlt	Clay, dark-brown, very sandy, gravelly; very silty	0- 18
	Clay, dark-gray with little gray-brown from 18 to 20 feet. Very sandy, gravelly, silty	18- 26
	Sand, dark-brown, fine, very clayey, (about 50% sand and clay)	26- 27
	Clay, dark brown-gray, very sandy (about 60% clay). Few pebbles up to ¾ inch diameter.	27- 37
Qu	Sand, light-gray, medium to very fine, fairly well	

Reference number 56 (continued)

	sorted. Clean, much lignite; saturated.	37- 70
Kg	Shale, dark-gray, very tough; numerous white specks	70- 82

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Reference number 57
Location: 93-51-19dddd
Drilled by: USGS
Source of data: D
Elevation: 1178

Geologic Unit	Description	Depth Feet
Qwlt	Clay, medium-brown, sandy, gravelly	0- 15
	Clay, dark-gray, sandy, gravelly. Brown-gray from 15 to 17 feet	15- 61
Qo	Sand, coarse to fine, little very coarse and very fine; clean, loose	61- 74
Kg	Shale, gray-brown; greasy; white flecks	74- 82

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Reference number 58
Location: 93-51-24dddd
Drilled by: SDGS
Source of data: S
Elevation: 1247

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, light-brown (5YR6/4), sandy, some mottled oxidation and staining, pebbly, calcareous, chalky—becoming gray and unoxidized in 20 to 40 foot sample	0- 40
	Till, clayey, light olive-gray (5Y6/1), sandy, silty, calcareous, chalky	40- 70
	Till, clayey, light brownish-gray (5YR6/1), slightly sandy, calcareous, chalky	70-120
Qo	Outwash, coarse sand to medium gravel, subangular to subrounded, variety of igneous, metamorphic, and sedimentary rock fragments	120-240

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Reference number 59
Location: 93-51-28cddd
Drilled by: USBR
Source of data: S
Elevation: 1216

Geologic Unit	Description	Depth Feet

Reference number 59 (continued)

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, yellowish-gray (5Y8/1), speckled with chalk, silty and sandy, highly calcareous	0- 10
	Till, clayey, yellowish-gray (5Y7/2), silty and sandy, highly calcareous	10- 20
	Till, clayey, medium light-gray (N6), silty, highly calcareous	20- 70
Qo	Sand, medium to very coarse, subangular to subrounded, mostly quartz, with smaller amounts of igneous rock fragments, siltstone and carbonates	70-110
	Sand, very coarse; medium gravel, consists of quartz, igneous rock, siltstone and carbonates, some pyrite, trace of limonite, some coal; angular to subrounded	110-120
	Sand, very coarse; medium gravel, mostly quartz and igneous rock fragments; subangular to rounded; smaller amounts of siltstone and carbonate pebbles; some coal	120-230
Kd	Shale, very silty to siltstone, medium dark-gray (N4); alternating bands of light and dark color; noncalcareous; subfissile to massive	230-240

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Reference number 60
Location: 93-51-28bbbb
Drilled by: USGS
Source of data: D
Elevation: 1143

Geologic Unit	Description	Depth Feet
Qal	Clay, dark-brown, with dark-gray, black, and tan streaks; very few sand grains. Green and blue-gray layer 14 to 16 feet. Few gravel particles	0- 17
	Clay, blue-black, soft, plastic. Few scattered gravel particles. Thin sand and gravel streaks 25 to 27 feet	17- 28
Qo	Gravel, brown, fine, very sandy, streaks clay; saturated	28- 36
	Sand, brown, very coarse to very fine, fairly clean, tight	36- 59
Kg	Shale, black, hard, white speckled	59- 65

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Reference number 61
Location: 93-51-29baaa
Drilled by: USGS
Source of data: D
Elevation: 1161

Geologic Unit	Description	Depth Feet

Reference number 61 (continued)

Qwlt	Clay, brown, sandy, gravelly. Silty, gray-brown below about 27 feet	0- 33
Kg	Shale, dark greasy gray-brown, white speckled	33- 37

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Reference number 62
Location: 93-51-29cddc
Drilled by: USGS
Source of data: D
Elevation: 1147

Geologic Unit	Description	Depth Feet
Qal	Clay, light green-gray with tan streaks; few scattered sand grains; slightly silty	0- 7
	Clay, light-gray, rust spots; slightly silty	7- 13
Qo	Sand, red-brown, very coarse to very fine; slightly gravelly. Intermittent gravel layers below 24 feet	13- 36
	Sand, gray, very gravelly and with gravel streaks from 64 to 72 feet. Coarse gravel from 96 to 97 feet. Gravel to 1½ inch diameter on auger	36- 97

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Reference number 63
Location: 93-51-34aaaa
Drilled by: USBR
Source of data: S
Elevation: 1236

Geologic Unit	Description	Depth Feet
Qwlt	Till, yellowish-gray (5Y8/1), clayey, silty, sandy, chalky, highly calcareous	0- 10
	Till, light-gray (N7), clayey, silty, sandy, calcareous	10-110
Qo	Sand, coarse; fine gravel, mostly quartz and igneous rock fragments, some siltstone and calcareous pebbles. Grains are subangular to subrounded. Trace of coal	110-290
	Bentonite, silty, very light-gray (N8). E-log shows bentonite at 250 to 260 feet	290-300
Kgs(?)	Driller has shale at 250 feet	

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Reference number 64
Location: 93-51-36aaaa
Drilled by: USBR
Source of data: S
Elevation: 1253

Reference number 64 (continued)

Geologic Unit	Description	Depth Feet
Qwlt	Till, yellowish-gray (5Y8/1), silty and sandy, highly calcareous	0- 10
	Till, light-gray (N7), silty, calcareous	10-130
Qo	Sand, medium; fine gravel, mostly quartz and igneous and metamorphic rock fragments, some siltstone and carbonates. Subangular to sub-rounded. Some coal	130-250
Kd	Shale, medium light-gray (N6), silty, slightly calcareous, massive, slightly banded, bentonitic	250-270
	Driller has bedrock at 248 feet	

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Reference number 65
Location: 93-52-1cccc
Drilled by: USGS
Source of data: D
Elevation: 1205

Geologic Unit	Description	Depth Feet
Qwlt	Clay, red-brown, sandy, gravelly	0- 19
	Clay, dark-gray, sandy, gravelly. (Unoxidized till)	19- 66
Qo	Sand, medium, little coarse and fine. Scattered gravel to 1 inch diameter	66- 97

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Reference number 66
Location: 93-52-5baaa
Drilled by: USGS
Source of data: D
Elevation: 1355

Geologic Unit	Description	Depth Feet
Qwlt	Clay, dark-brown, silty, sandy, gravelly; very little sand and gravel particles below 45 feet. Very dry	0- 55
	Silt, dark-brown, dense, dry. Very tough drilling (Loess?)	55- 72
	Clay, yellow-brown, very sandy, gravelly; silt, dark-brown, plus some dark-brown, sandy, gravelly, clayey silt. (Mixed till and loess?)	72- 78
	Clay, very gravelly, may be gravel	78- 80
Kn	Clay (?), light-yellow, dry and powdery. (Weathered Marl)	80- 82

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Reference number 67
Location: 93-52-7cccc
Drilled by: WRC
Source of data: D
Elevation: 1150

Geologic Unit	Description	Depth Feet
Qu	Topsoil	0- 2
Qal	Clay, gray	2- 29
Qo	Gravel, coarse; gravel and cobblestones at bottom of hole	29- 80

Remarks: Static water level 8.0 feet
Porosity 40.3%

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Reference number 68
Location: 93-52-10bbbb
Drilled by: USGS
Source of data: D
Elevation: 1259

Geologic Unit	Description	Depth Feet
Qwlt	Silt and clay, dark red-brown, sandy, gravelly	0- 7
	Clay, dark yellow-brown, very silty, sandy, gravelly	7- 14
	Clay, light yellow-brown; scattered sand and gravel; very sticky (reworked, weathered marl)	14- 17
Kn	Clay, light yellow-gray; very sticky	17- 22
	Clay, bright lemon-yellow, very plastic. (Weathered marl)	22- 30
	Shale, black, hard. (Unweathered marl)	30- 37

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Reference number 69
Location: 93-52-10cbbb
Drilled by: USGS
Source of data: D
Elevation: 1269

Geologic Unit	Description	Depth Feet
Qwlt	Clay, brown, silty, sandy, gravelly	0- 17
	Clay, dark-gray, silty, sandy, gravelly. Rock at 30 feet	17- 48
	Sand, coarse to fine, very gravelly, and medium gravel	48- 53
Kc(?)	Shale, dark-gray, hard. Little gravel and sand in top foot	53- 57

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Reference number 70
Location: 93-52-11bbbb
Drilled by: SDGS
Source of data: D
Elevation: 1216

Geologic Unit	Description	Depth Feet
Qwlt	Till, yellow-brown, clayey, silty, very few pebbles	0- 26
	Till, medium blue-gray, clayey, silty, very few pebbles, sandy; water at about 35 feet	26- 60
Kc(?)	Shale, medium-gray	60- 75

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Reference number 71
Location: 93-52-12cccc
Drilled by: USBR
Source of data: S
Elevation: 1214

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, silty, sandy, yellowish-gray (5Y7/2), highly calcareous	0- 10
	Till, clayey, light-gray (N7), silty, sandy	10- 50
Kc	Shale, medium light-gray (N6), massive, noncalcareous, non-bentonitic	50- 70

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Reference number 72
Location: 93-52-13aaaa
Drilled by: USGS
Source of data: D
Elevation: 1145

Geologic Unit	Description	Depth Feet
Qal	Clay, light- to dark-gray, brown streaks. Scattered sand grains	0- 6
Qo	Sand, very coarse to fine, very clayey from 8 to 10 feet, clean below. Scattered gravel streaks. Gravelly throughout	6- 30
	Gravel, coarse, sandy	30- 32
	Sand and gravel mixed with streaks of sand and gravel	32- 76
Kg	Silt, gray-brown, tight, dense	76- 79

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Reference number 73
Location: 93-52-13dddd

Reference number 73 (continued)
Drilled by: SDGS
Source of data: D
Elevation: 1203

Geologic Unit	Description	Depth Feet
Qwlt	Till, yellow-brown, silty, few pebbles	0- 16
	Till, dark chocolate-brown, silty, very few pebbles	16- 18
	Till, blue-gray, silty, very few pebbles; water at 30 feet	18- 30
Qo	Gravel, fine to medium, sandy; dirty gray water	30- 42
	Gravel, fine to medium, sandy, clayey; gray water	42- 48
Kg	Shale, gray, plastic, calcareous	48- 60

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Reference number 74
Location: 93-52-14bbbb
Drilled by: USGS
Source of data: D
Elevation: 1219

Geologic Unit	Description	Depth Feet
Qwlt	Clay, dark-brown, silty, sandy, gravelly	0- 10
	Clay, medium-brown to yellow-brown, very silty, sandy, gravelly	10- 15
	Clay, very sandy, to very clayey sand. Silty, soupy	15- 21
	Sand, coarse to fine, gravelly, very sandy, gravelly yellow-brown clay	21- 30
Kc	Shale, blue-black, tough	30- 34

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Reference number 75
Location: 93-52-16aaaa
Drilled by: USBR
Source of data: S
Elevation: 1241

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, yellowish-gray (5Y7/2), silty, sandy, highly calcareous; very sandy from 20 to 30 feet	0- 30
	Till, clay, light-gray (N7), silty, very sandy, highly calcareous	30-110
Qo	Sand, medium; fine gravel, composed of quartz, feldspar, igneous and metamorphic rock fragments; some siltstone and carbonate pebbles. Grains subangular to rounded. Trace of coal	110-170
Qt	Clay, medium light-gray (N6), silty, sandy, highly calcareous	170-180
Kc-Kg	Shale, medium light-gray (N6); massive; contains	

Reference number 75 (continued)

	many small white specks; non-fissile; highly calcareous. (Lower Carlile-Upper Greenhorn)	180-190
	Driller has shale at 169 feet	

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Reference number 76
Location: 93-52-23bbbb
Drilled by: USGS
Source of data: D
Elevation: 1212

Geologic Unit	Description	Depth Feet
Qwlt	Clay, dark red-brown, very silty, very sandy, gravelly	0- 20
	Clay, dark-gray, very silty, sandy, gravelly	20- 75
	Clay, dark-gray, very silty, very sandy; scattered gravel. Sticky	75- 95
Kg	Silt and very fine sand, light and dark-gray (banded?)	95- 97

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Reference number 77
Location: 93-52-24bbbb
Drilled by: USGS
Source of data: D
Elevation: 1195

Geologic Unit	Description	Depth Feet
Qwlt	Clay, dark-brown, sandy, gravelly	0- 7
	Clay, yellow-brown, very sandy, gravelly. Streaks very clayey fine gravel at 10 feet	7- 15
	Clay, red-brown, very sandy, very gravelly	15- 27
	Clay, brown-gray to gray, sandy, very gravelly	27- 32
	Clay, dark-gray, gravelly, sandy	32- 77
Qo	Sand, coarse to medium, little fine and very fine, brown-gray. Clean; saturated	77- 97

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Reference number 78
Location: 93-52-25aaaa
Drilled by: USGS
Source of data: D
Elevation: 1198

Geologic Unit	Description	Depth Feet
Qwlt	Clay, light-brown, sandy, gravelly	0- 12
	Clay, dark-brown, sandy, gravelly. Light-gray	

Reference number 78 (continued)

	from 17 to 20 feet	12- 20
	Clay, dark-gray, sandy, silty, gravelly	20- 75
Qo	Sand, coarse to fine, little very coarse and very fine. Clean, loose	75- 97

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Reference number 79
Location: 93-52-25dddd
Drilled by: USBR
Source of data: S
Elevation: 1195

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, yellowish-gray (5Y7/2), silty and sandy highly calcareous	0- 20
	Till, clayey, yellowish-gray (5Y7/2) to medium light-gray (N6), silty and sandy, highly calcareous	20- 30
	Till, clayey, medium light-gray (N6), silty and sandy, highly calcareous; very sandy from 70 to 90 feet	30- 90
Qo	Sand, medium; fine gravel, consists mostly of quartz and igneous rock fragments, minor amounts of siltstone, carbonates, and coal. Grains subangular to sub-rounded	90-149
Qt-Kg	Till, clayey, medium light-gray (N6), contains coal and quartz grains, chalky, highly calcareous	149-150
	Driller has gray shale at 148 feet	

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Reference number 80
Location: 93-52-34aaaa
Drilled by: USBR
Source of data: S
Elevation: 1225

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, yellowish-gray (5Y7/2), very silty and sandy, mottled oxidation, highly calcareous	0- 20
	Till, clayey, light-gray (N7), very silty, highly calcareous	20-110
Qo	Sand, coarse; medium gravel, predominantly quartz and igneous rock fragments, some siltstone and shale pebbles with minor amounts of coal and carbonates. Grains angular to subrounded	110-200
Qt	Clay, medium-gray (N5), silty, highly calcareous	200-220
Kd	Till as above, and siltstone, noncalcareous, banded	220-230
	Driller has chalk at 198 feet and shale at 200 feet	

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Reference number 81
Location: 93-53-1cc
Drilled by: SDGS
Source of data: D
Elevation: 1153

Geologic Unit	Description	Depth Feet
Qal	Topsoil	0- 4
	Clay	4- 14
	Clay and silt	14- 24
Qo	Sand and silt	24- 44
	Gravel, coarse	44- 49

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Reference number 82
Location: 93-53-1ddaa
Drilled by: SDGS
Source of data: S
Elevation: 1159

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, light-brown (5YR6/4), calcareous, silty, sandy, chalky; very sandy from 30 feet. Sample from 30 to 40 feet is 50% sand. Oxidation still present	0- 40
Qo	Sand, medium to very coarse; some fine gravel, oxidized to 50+ feet, subangular to subrounded, wide range of composition. Sample missing from 60 to 70 feet. About 50% medium gravel from 70 to 80 feet	40-130
Kg	Shale, medium-gray (N5), white speckled, hard, fissile, calcareous (sample is about 50% sand and gravel from above)	130-160

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Reference number 83
Location: 93-53-7cccc
Drilled by: SDGS
Source of data: D
Elevation: 1162

Geologic Unit	Description	Depth Feet
Qu	Road fill	0- 4
	Clayey material, very fine, gray-brown	4- 19
	Clayey material, dark-gray, silty with fine sand; water at 20 feet	19- 89
	Gravel mixed with clay, gray, fine	89-132
Kg	Shale	132-135

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Reference number 84
Location: 93-53-9dddd
Drilled by: SDGS
Source of data: D
Elevation: 1153

Geologic Unit	Description	Depth Feet
Qal	Sand, very fine, silty, brown-yellow-gray	0- 14
	Clayey material, very fine, sandy, gray-yellow to yellow-brown; water at 18 feet	14- 29
Qo	Sand, fine, to gravel, yellow-brown to brown-gray; highly saturated	30-130
Kg	Shale	130-131

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Reference number 85
Location: 93-53-12cccc
Drilled by: SDGS
Source of data: D
Elevation: 1151

Geologic Unit	Description	Depth Feet
Qal	Clayey material, brown-gray, very fine, silty	0- 21
	Clay, brown-gray, very fine; water at 21 feet	21- 53
Qo	Gravel mixed with clay, gray-brown; saturated	53- 69
	Sand, fine to gravel, brown-yellow; saturated	69- 90
	Gravel with fine sand, yellow-brown	90-125
Kg	Shale	125-126

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Reference number 86
Location: 93-53-14aa
Drilled by: SDGS
Source of data: D
Elevation: 1150

Geologic Unit	Description	Depth Feet
Qal	Topsoil	0- 4
	Clay, tan	4- 19
	Clay, blue	19- 29
	Clay, tan	29- 54
Qo	Sand, medium	54- 64
	Gravel, coarse	64- 69

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Reference number 87
Location: 93-53-26aa

Reference number 84 (continued)
Drilled by: SDGS
Source of data: D
Elevation: 1150

Geologic Unit	Description	Depth Feet
Qal	Topsoil	0- 2
	Clay, yellow	2- 9
	Clay, gray, and medium sand	9- 24
	Silt and clay	24- 29
	Clay, yellow, sandy	29- 34
Qo	Sand, medium to coarse and clay	34- 74
	Sand, medium to coarse	74- 79
	Sand, coarse	79- 84
	Sand, coarse and fine gravel	84- 89
	Gravel, medium	89- 99
	Gravel, fine	99-109
	Sand, coarse-medium and medium-fine gravel	109-136
	Water level 9 feet	

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Reference number 88
Location: 93-53-35ac
Drilled by: SDGS
Source of data: D
Elevation: 1153

Geologic Unit	Description	Depth Feet
Qal	Topsoil	0- 4
	Clay, yellow	4- 19
	Clay, dark-gray	19- 29
	Clay, tan	29- 39
	Clay and silt	39- 64
Qo	Silt and sand	64- 99
	Water level 12.0 feet.	

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Reference number 89
Location: 94-50-7cccc
Drilled by: USBR
Source of data: S
Elevation: 1352

Geologic Unit	Description	Depth Feet
Qwlt	Till, clay, yellowish-gray (5Y8/1), silty, sandy, highly calcareous	0- 50
Qwel	Loess, yellowish-gray (5Y7/2), sandy silt, very hard, calcareous	50- 80
	Loess, light-gray (N7), sandy silt, very hard, cal-	

Reference number 89 (continued)

	careous	80- 90
Qit	Till, yellowish-gray (5Y7/2), to light-gray (N7), clayey, silty, sandy and pebbly; highly calcareous; mostly oxidized	90-150
	Till, light-gray (N7) clayey, silty, sandy and pebbly; highly calcareous; very sandy from 180 feet	150-200
Kg	Shale, medium-gray (N5); massive; many small white calcareous specks; highly calcareous	200-220

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Reference number 90
Location: 94-50-19cbcb
Drilled by: SDGS
Source of Data: D,S
Elevation: 1294

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, light-brown (5YR6/4), sandy, silty, pebbly, calcareous	0- 10
	Till, clayey, light olive-gray (5Y6/1), sandy, silty, pebbly, calcareous	10-130
Qu	Silt, light olive-gray (5Y6/1), sandy, scattered pebbles, calcareous. Probably loess but may be old alluvium or very silty till	130-160
Kg	Shale, medium-gray, speckled, calcareous, banded	160-185

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Reference number 91
Location: 94-50-30cccc
Drilled by: USBR
Source of data: S
Elevation: 1317

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, yellowish-gray (5Y7/2), silty, sandy, highly calcareous	0- 40
	Till, clayey, light-gray (N7), silty, sandy, highly calcareous	40- 70
Qo	Sand, coarse; medium gravel, consists of igneous and metamorphic rock fragments; siltstone, sandstone and limestone pebbles; some quartz grains; subangular to rounded; some pyrite	70-110
Qit	Till, light-gray (N7), very silty and sandy, highly calcareous	110-170
Qo	Sand, medium; fine gravel, as above from 40 to 110 feet	170-190
Qt	Till as above, from 110 to 170 feet	190-220

Reference number 91 (continued)

Kg	Shale, alternating light (chalky) and dark (shaley) bands, medium light-gray; highly calcareous.	220-230

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Reference number 92
Location: 94-51-1dada
Drilled by: SDGS
Source of data: S
Elevation: 1383

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, grayish-yellow (5Y8/4), sandy and silty, calcareous	0- 10
	Till, clayey, light olive-gray (5Y6/1), sandy and silty, calcareous. Trace of grayish-yellow till from above	10- 20
	Till, clayey, greenish-gray (5G6/1), sandy, silty, calcareous	20- 40
	Till, clayey, light brownish-gray (5YR6/1), calcareous, slightly sandy, becoming very silty	40- 70
Qwel	Loess, silt, light brownish-gray (5YR6/1); trace of sand	70- 90
Kc	Shale, medium dark-gray (N4), hard fissile, non-calcareous, mottled oxidation and staining from 90 to 110 feet	90-125

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Reference number 93
Location: 94-51-11cccc
Drilled by: SDGS
Source of data: D
Elevation: 1296

Geologic Unit	Description	Depth Feet
Qu	Topsoil	0- 3
Qwlt	Clay, buff, sandy, sticky; some weathered chalk or bentonite	3- 30
	Clay, gray, sand stringers, silty	30- 80
	Clay, gray	80-110
Qo(?)	Drilled like sand, lost some water, no cuttings; layers of rocks from 130 to 135 feet	110-135
Kg	Shale	135-155

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Reference number 94
Location: 94-51-17aaaa
Drilled by: USBR
Source of data: S
Elevation: 1231

Reference number 94 (continued)

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, yellowish-gray (5Y7/2), silty, sandy, highly calcareous	0- 40
	Till, clayey, light-gray (N7), silty, pebbly, highly calcareous	40- 80
	Gravel, medium; very coarse sand, angular to subrounded, consists of igneous, metamorphic and sedimentary rock fragments	80-100
Qo	Sand, medium to very coarse, angular to rounded, igneous, metamorphic and sedimentary rock fragments; some quartz grains; some pyrite	100-180
Qt	Till, medium-gray (N5), shale and clay rich, silty, sandy, highly calcareous	180-200
	Driller has bedrock 178 feet	

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Reference number 95
Location: 94-51-25dadd
Deilled by: SDGS
Source of data: D
Elevation: 1320

Geologic Unit	Description	Depth Feet
Qwlt	Till, light yellow-brown to brown clay, pebbly and very silty; much loess; oxidized	0- 19
	Till, medium-gray clayey; pebbly, very silty; water at 20 feet; sandy; several boulders or small cobbles from 24 to 29 feet	19- 90

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Reference number 96
Location: 94-51-25dcdc
Drilled by: SDGS
Source of data: D,S
Elevation: 1341

Geologic Unit	Description	Depth Feet
Qwlt	Till, yellow-brown with some loess, silty	0- 14
	Till, yellow-brown, some loess, silty, some pebbles	14- 19
	Till, yellow-brown to gray-brown, some is silty, possibly some loess intermixed, more pebbles	19- 24
	Till, yellow-brown with many pebbles	24- 29
	Till, brown-gray to yellow-brown, pebbles	29- 34
	Till, brown-yellow to brown-gray	34- 44
	Drills hard, possibly bedrock. Sample off bit is till, brown to brown-gray	44- 54

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Reference number 97
Location: 94-51-26cccc
Drilled by: USBR
Source of data: S
Elevation: 1249

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, yellowish-gray (5Y8/1 to 5Y7/2), silty, sandy, highly calcareous	0- 10
	Till, clayey, light-gray (N7), silty, sandy, highly calcareous. Sandy and gravelly from 30 to 40 feet	10-100
Qo	Sand, medium; fine gravel, subangular to rounded, composed of quartz grains and igneous and metamorphic rock fragments. Some siltstone, shale, and limestone pebbles. Trace of coal	100-180
Kg	Shale, medium light-gray (N6), massive, highly calcareous, hard; contains many white calcareous specks	180-200

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Reference number 98
Location: 94-51-29dddd
Drilled by: USBR
Source of data: S
Elevation: 1230

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, yellowish-gray (5Y7/2), silty, sandy, pebbly, highly calcareous	0- 20
	Till, clayey, light-gray (N7), silty, sandy, highly calcareous	20- 80
Qo	Sand, medium; fine gravel, subangular to rounded, composed of quartz grains, igneous and metamorphic rock fragments, some siltstone and limestone pebbles. Medium gravel at 110-120 feet	80-190
	Till, clayey, medium light-gray (N6), silty, sandy, pebbly, highly calcareous, chalky	190-240
Kd	Siltstone, medium light-gray (N6), micaceous, quartzose, noncalcareous to slightly calcareous	240-250
	Driller has bedrock 226 feet	

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Reference number 99
Location: 94-51-31bbbb
Drilled by: SDGS
Source of data: S
Elevation: 1146

Geologic Unit	Description	Depth Feet

Reference number 99 (continued)

Geologic Unit	Description	Depth Feet
Qo	Sand, medium to very coarse, subangular to rounded, some fine gravel; sand is quartz, feldspar, carbonates, and various other igneous metamorphic and sedimentary rock fragments. Unoxidized	0- 10
	Sand, coarse; fine gravel, nearly same composition as above, grains mostly subangular to subrounded; more oxidation present than in 10 to 20 foot interval	10- 20
	Gravel, fine to medium, sandy; oxidized to 40 feet; subangular to subrounded; some angular fragments. Composed of variety of igneous, metamorphic and sedimentary rock fragments. Mostly sand, coarse to very coarse from 110 foot sample. Lost circulation in hole at 110 feet	20-110

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Reference number 100
Location: 94-52-5bbcc
Drilled by: USGS
Source of data: D
Elevation: 1221

Geologic Unit	Description	Depth Feet
Qwlt	Clay, dark-brown, gravelly, sandy, very silty	0- 25
	Clay, dark-gray, slightly gravelly, very sandy, very silty	25- 61
Qu	Sand, coarse to fine, gravelly, and with streaks of sandy gravel. Clayey	61- 82
	Clay (?), very sandy	82- 85
	Sand (?), soft, thin beds of gravel. Clean	85- 97

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Reference number 101
Location: 94-52-7dddd
Drilled by: USGS
Source of data: D
Elevation: 1233

Geologic Unit	Description	Depth Feet
Qwlt	Clay, brown, sandy	0- 17
	Clay, gray, sandy	17- 24
	Clay, dark-gray, slightly sandy, slightly gravelly	24- 85
Kc(?)	Shale, light and dark-gray streaked	85- 97

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Reference number 102
Location: 94-52-8bccb1
Drilled by: PD
Source of data: S
Elevation: 1230

Reference number 102 (continued)

Geologic Unit	Description	Depth Feet
Qu	Unsorted glacial sand	0- 40
	Unsorted glacial sand; increased amount of pyrite	40- 80
	Base of glacial drift	80-140
Kc	Shale, calcareous, Carlile?, cavings from above	140-160
	Shale, calcareous, Carlile?, cavings from above; fish remains	160-200
	Shale, calcareous, Carlile?, cavings from above; fish remains; pieces of gypsum	200-220
Kg	Greenhorn? Increased amount of *Inoceramus* prisms. Increased amount of limestone particles. *Globigerina, Gumbelina Forams*	220-240
Kgs	Graneros?. *Inoceramus* and limestone particles from above; fish scales and shale particles.	240-260
	Increased amount of pyrite	260-280
Kd	Increased amount of pyrite; fine gray sand; top of Dakota?	280-300
	Fine angular to subrounded sand grains, Dakota	300-318

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Reference number 103
Location: 94-52-11cccc
Drilled by: USBR
Source of data: S
Elevation: 1156

Geologic Unit	Description	Depth Feet
Qo	Sand, fine to very coarse, yellowish-brown (10YR6/2), subangular to rounded quartz grains, some igneous and metamorphic rock fragments. Some siltstone and carbonate pebbles. Some coal	0- 20
	Gravel, fine to medium, subangular to subrounded, composed primarily of igneous, metamorphic and sedimentary rock fragments; contains much coal	20- 60
	Sand as above from 0 to 20 feet; much coal	60- 70
	Gravel as above from 20 to 60 feet; much coal	70-140
Qt	Till, clayey, medium-gray (N5), rich in shale, silty, sandy, and pebbly, highly calcareous	140-160
	Driller has bedrock at 142 feet	

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Reference number 104
Location: 94-52-12dddd
Drilled by: SDGS
Source of data: D
Elevation: 1220

Geologic Unit	Description	Depth Feet

Reference number 104 (continued)

Geologic Unit	Description	Depth Feet
Qo	Sand, medium to coarse, subangular to rounded, consists of quartz, various rock fragments, clay balls. Dirty from 0 to 20 feet. May be windblown	0- 40
	Sand, medium; medium gravel, dirty	40- 50
	Gravel, medium; medium sand; wide variety of composition, subangular to subrounded. Driller's log goes to 180 feet, still logging gravel	50-160

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Reference number 105
Location: 94-52-14cbbb
Drilled by: WRC
Source of data: D
Elevation: 1152

Geologic Unit	Description	Depth Feet
Qu	Topsoil	0- 8
Qo	Sand, fine	8- 19
	Gravel, coarse	19- 95
Kg(?)	Clay	95-100

Remarks: Static water level 4.4 feet
Porosity 45.1%

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Reference number 106
Location: 94-52-16baaa
Drilled by: SDGS
Source of data: D
Elevation: 1223

Geologic Unit	Description	Depth Feet
Qwlt	Till, yellow-brown, very few pebbles	0- 20
	Till, brown-gray to brown-yellow, small pebbles	20- 40
	Till, brown-gray to gray	40- 65
Qo	Sand, gray, fine, moist	65- 85
	Sand, gray, fine; saturated	85-100
	Sand, coarse, grayish; saturated	100-135

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Reference number 107
Location: 94-52-16cccc
Drilled by: USGS
Source of data: D
Elevation: 1225

Geologic Unit	Description	Depth Feet

Reference number 107 (continued)

	Clay, brown, gravelly, very sandy, silty	0- 9
	Clay, dark red-brown, very gravelly, very sandy, silty	9- 18
Qwlt	Clay, dark-gray, very gravelly, very sandy, silty	18- 27
	Clay, dark-gray, gravelly, sandy, very silty	27- 32
Qwel	Silt, dark-gray, very soft	32- 42
	Silt, dark-gray, slightly gravelly, sandy, very clayey	42- 47
Qit	Clay, dark-gray, very gravelly, sandy, silty	47- 57
	Clay, dark-gray, very sandy; scattered fine gravel and very coarse sand particles	57- 84
	Clay, dark-gray, sandy, gravelly. Streaks of very coarse to fine sand	84- 97

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Reference number 108
Location: 94-52-18bbbb
Drilled by: USGS
Source of data: D
Elevation: 1264

Geologic Unit	Description	Depth Feet
Qwlt	Clay, brown, sandy	0- 20
	Clay, gray, sandy	20- 27
Kn?	Chalk (?), weathered	27- 36
Kn	Shale, black with thin light-gray streaks	36- 42

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Reference number 109
Location: 94-52-26baaa
Drilled by: SDGS
Source of data: S
Elevation: 1213

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, yellowish-gray (5Y7/2), sandy, silty, chalky, some iron staining, calcareous	0- 40
	Till, clayey, light brownish-gray (5YR6/1), sandy, silty, calcareous; very sandy and gravelly from 60 to 80 feet	40- 80
Qo	Outwash, gravel, fine to coarse and sand, medium to very coarse, subangular to subrounded; gravel composed of wide range of igneous, metamorphic and sedimentary rock fragments; sand is 70% quartz, 20% carbonates	80-170
Kg	Shale, hard, speckled medium-gray (N5), calcareous. Sample from 170 to 180 feet contains gravel and coal	170-185

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Reference number 110
Location: 94-52-28bbbb
Drilled by: USGS
Source of data: D
Elevation: 1231

Geologic Unit	Description	Depth Feet
Qwlt	Clay, dark yellow-brown to dark-brown; gravelly, very sandy, very silty	0- 8
	Clay, dark red-brown; gravelly, very sandy, very silty	8- 12
	Clay, dark gray-brown; gravelly, very sandy, very silty	12- 17
	Clay, dark-gray; gravelly, very sandy, very silty	17- 51
Qu	Sand interbedded with very coarse to very fine gravel. Very clayey 60 to 65 feet	51- 65
Kc	Shale, dark-gray, very hard	65- 67

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Reference number 111
Location: 94-52-28dddd
Drilled by: USGS
Source of data: D
Elevation: 1227

Geologic Unit	Description	Depth Feet
Qwlt	Clay, brown; gravelly, very sandy, silty	0- 17
	Clay, dark-brown to dark gray-brown; gravelly, sandy, silty	17- 22
	Clay, dark-gray; slightly gravelly, sandy, silty. Slightly moist, very tough	22- 97

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Reference number 112
Location: 94-52-30abaa
Drilled by: SDGS
Source of data: D
Elevation: 1321

Geologic Unit	Description	Depth Feet
Qwlt	Till, yellow-brown to brown clay, soft, sticky, very few pebbles, slightly silty	0- 45
	Till, blue-gray clay; wet and sticky; pebbly	45- 65
	Note: Farm across road has well in Kn at 85 feet	

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Reference number 113
Location: 94-52-33bbbb
Drilled by: USBR
Source of data: S
Elevation: 1235

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, yellowish-gray (5Y7/2), silty, sandy, highly calcareous	0- 20
	Till, clayey, light-gray (N7), silty, sandy, highly calcareous	20- 30
	Till, clayey, yellowish-gray (5Y7/2), silty, sandy, highly calcareous	30- 40
Kc	Bentonite, light-gray (N8-N7), slightly silty, slightly calcareous in spots	40- 50
	Shale, medium light-gray (N6); massive; noncalcareous	50-150
Kg	Shale, medium light-gray (N6); massive; white specks; calcareous. Some speckled light-gray limestone	150-160

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Reference number 114
Location: 94-52-35bbbb
Drilled by: USBR
Source of data: S
Elevation: 1215

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, yellowish-gray (5Y7/2), silty, sandy, highly calcareous	0- 20
	Till, clayey, light-gray (N7), silty, sandy, highly calcareous	20- 90
Qo	Sand, medium; fine gravel, subangular to rounded, consists of quartz grains, igneous and metamorphic rock fragments, siltstone and limestone pebbles; trace of coal. Medium gravel at 110 to 120 feet	90-200
Qt	Glacial till, clayey, medium-gray (N5), silty, sandy, chalky, highly calcareous	200-210
Kg	Shale, medium-gray (N5), contains many white calcareous specks; hard, massive, highly calcareous. Contains some crystalline limestone	210-220

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Reference number 115
Location: 94-52-35cccc
Drilled by: USGS
Source of data: D
Elevation: 1208

Geologic Unit	Description	Depth Feet

Reference number 115 (continued)

Geologic Unit	Description	Depth Feet
Qwlt	Clay, red-brown, very silty, very sandy, gravelly	0- 17
	Clay, dark-brown to gray-brown, silty, sandy, gravelly	17- 22
	Clay, dark-gray, silty, sandy, gravelly	22- 47
	Clay, dark-gray, silty, very sandy, gravelly. Moist and sticky	47- 88
Qo	Sand, very coarse to fine, gravelly. Clean, loose	88- 97

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Reference number 116
Location: 94-53-10cdcc
Drilled by: SDGS
Source of data: D
Elevation: 1393

Geologic Unit	Description	Depth Feet
Qwlt	Till, yellow-brown to brown clay, pebbly, silty, some rocks	0- 45
	Till, brown to gray clay, very sticky, silty, no pebbles, calcareous	45- 83
Kn	Chalk, light-gray, highly calcareous	83- 90

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Reference number 117
Location: 94-53-11dddd
Drilled by: USBR
Source of data: S
Elevation: 1339

Geologic Unit	Description	Depth Feet
Qwlt	Till, yellowish-gray (5Y8/1), clay, chalky, silty, pebbly, highly calcareous	0- 30
	Till, light-gray (N7), clay, silty, highly calcareous	30- 60
Kn	Chalk, very light-gray (N8), highly calcareous	60- 80

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Reference number 118
Location: 94-53-16bbbb
Drilled by: SDGS
Source of data: D
Elevation: 1320

Geologic Unit	Description	Depth Feet
	Road fill	0- 4
Qwlt	Till, yellow-brown; hit heavy rocks; gravel	4- 9

Reference number 118 (continued)

	Till, yellow-brown, pebbles	9- 14
	Till, olive-gray, pebbles and cobbles	14- 19
	Till, dark-gray	19- 37
Kn	Chalk	37- 45

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Reference number 119
Location: 94-53-17ccdc
Drilled by: USGS
Source of data: D
Elevation: 1278

Geologic Unit	Description	Depth Feet
Qwlt	Clay, dark yellow-brown, very sandy, very gravelly	0- 5
	Gravel, very sandy, very clayey; tight; dry	5- 6
	Clay, dark-red-brown, very sandy, very gravelly	6- 24
	Clay, dark-gray, silty, very sandy, very gravelly	24- 63
Qu	Silt, black, scattered sand grains. Swampy smell. Turned auger green	63- 68
Kn	Shale, light-gray to dark-gray, very plastic, sticky	68- 72

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Reference number 120
Location: 94-53-18bbbb
Drilled by: USBR
Source of data: S
Elevation: 1256

Geologic Unit	Description	Depth Feet
Qwlt	Till, grayish-yellow (5Y8/4), clay, silty, chalky, highly calcareous. Becomes yellowish-gray (5Y8/1), from 20 to 40 feet	0- 40
Kn	Chalk, white (N9), highly calcareous	40- 70
	Driller has chalk at 42 feet	

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Reference number 121
Location: 94-53-19bbbb
Drilled by: USGS
Source of data: D
Elevation: 1259

Geologic Unit	Description	Depth Feet
Qwlt	Clay, brown, very sandy, gravelly, silty; sticky	0- 22
	Clay, gray-brown, very sandy, gravelly, silty	22- 24
	Clay, gray, very sandy, gravelly, silty; soft,	

Reference number 121 (continued)

	sticky	24- 97

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Reference number 122
Location: 94-53-21cccc
Drilled by: SDGS
Source of data: D
Elevation: 1193

Geologic Unit	Description	Depth Feet
	Road fill	0- 4
Qc	Colluvium, brown-black	4- 9
	Black material with pebbles intermixed	9- 14
Qo	Sand, very fine, brown-gray; water at 15 feet	14- 24
	Sand, very fine, yellow-brown; saturated	24- 34
	Sand, brown-gray; very sticky; saturated	34- 39
	Clay, gray, sandy; saturated; 50% sand	39- 60
	Sand, yellow-brown to brown-gray, 75% sand	60- 80
	Sand, gray-brown, coarse; saturated	80- 90
	Sand, very coarse, yellow-brown; saturated	90-100
	Sand, yellow-brown, very coarse; saturated; some coal at 100 feet	100-115
Kg	Shale	115-119

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Reference number 123
Location: 94-53-22bccb
Drilled by: USGS
Source of data: D
Elevation: 1288

Geologic Unit	Description	Depth Feet
Qwlt	Clay, dark-red-brown, silty, sandy, gravelly	0- 19
	Clay, dark-gray, very silty, very sandy, gravelly; wet, sticky. Gravel streak about 60 feet?	19- 75
Kn	Clay, dark-gray, very soft, silty?	75- 77

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Reference number 124
Location: 94-53-25bbbb
Drilled by: USGS
Source of data: D
Elevation: 1385

Geologic Unit	Description	Depth Feet
Qwlt	Clay, dark-brown, very silty, sandy, slightly	

Reference number 124 (continued)

	gravelly	0- 27
	Clay, blue-black, very silty, sandy, gravelly; wet, sticky	27- 43
	Clay, black- to dark-gray, very sandy, very gravelly. Thin sand and gravel streaks 60 to 75 feet; wet	43- 75
	Silt and clay, black, sandy, few scattered gravel particles? Very tight and dense, well indurated	75- 97

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Reference number 125
Location: 94-53-27addd
Drilled by: USBR
Source of data: S
Elevation: 1277

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, yellowish-gray (5Y7/2), silty, sandy, mottled oxidation, noncalcareous	0- 10
	Till, as above only calcareous	10- 30
	Till, clayey, light-gray (N7), very silty and sandy, highly calcareous	30-120
Qo	Sand, medium; fine gravel, subangular to sub-rounded, contains igneous and metamorphic rock fragments, quartz grains, siltstone and carbonate pebbles, and coal	120-180
Kg	Shale, medium-dark-gray (N4); massive; hard; contains many small white calcareous specks, highly calcareous, becoming silty and sandy at 190 feet	180-200

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Reference number 126
Location: 94-53-30cccc
Drilled by: SDGS
Source of data: D
Elevation: 1161

Geologic Unit	Description	Depth Feet
	Road fill	0- 4
Qal	Clayey material, brown-yellow to brown-gray, and sand, very fine, silty; water at 18 feet	4- 19
Qo	Sand, very fine, brown-gray to gray; saturated	19- 63
	Gravel, gray-brown, with fine sand	63- 95
Kg	Shale	95-105

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Reference number 127
Location: 94-53-36aaaa

Reference number 127 (continued)
Drilled by: USBR
Source of data: S
Elevation: 1331

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, yellowish-gray (5Y7/2), silty, sandy, highly calcareous	0- 20
	Till, clayey, light-gray (N7), silty, sandy, highly calcareous	20- 90
Qo	Sand, medium; medium gravel, subangular to rounded, contains igneous and metamorphic rock fragments, quartz grains, limestone and siltstone pebbles	90-120
Kc	Shale, medium-light-gray (N6), massive to banded; slightly calcareous to noncalcareous	120-140

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Reference number 128
Location: 94-54-1addd
Drilled by: USGS
Source of data: D
Elevation: 1334

Geologic Unit	Description	Depth Feet
Qwlt	Clay, light-brown, very gravelly, very sandy, silty	0- 27
	Clay, light-gray-brown, very gravelly, very sandy, silty	27- 37
	Clay, gray, very gravelly, very sandy, silty	37- 67
	Clay, dark-gray-brown, scattered sand and gravel particles. Very plastic	67- 72
	Clay, dark-brown, sandy, silty, gravelly, very plastic. Lighter yellow-brown 77 to 87 feet.	72- 87
Kn	Shale, very dark-gray; very hard and dry	87- 97

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Reference number 129
Location: 95-51-1bbbb
Drilled by: USGS
Source of data: D
Elevation: 1346

Geologic Unit	Description	Depth Feet
Qwlt	Clay, medium-brown, gravelly, sandy, very silty; soft, moist	0- 17
	Clay, dark-brown, very gravelly, very sandy, silty; hard, very slightly moist	17- 30
	Clay, dark-blue-black, gravelly, slightly sandy; hard, tough	30- 34

Reference number 129 (continued)

Qu	Silt, dark-gray; soft. "Swampy" odor. Very few, if any, sand-size or coarser particles; no visible organic material	34- 55
Qo	Sand, very coarse to fine, gravelly. Coarse gravel 70 to 72 feet	55- 84
Kn	Claystone, light-gray; very soft	84- 89
	Shale, dark-gray; tough; white-speckled	89- 92

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Reference number 130
Location: 95-51-5abaa
Drilled by: USGS
Source of data: D
Elevation: 1281

Geologic Unit	Description	Depth Feet
	Road fill and soil	0- 7
Qwlt	Clay and silt, light-cream-tan; few scattered fine sand grains	7- 12
	Clay, dark-brown, slightly gravelly, very sandy, very silty	12- 32
	Clay, dark-brown, gravelly, sandy, silty. Streaks black, gray, and very dark-brown; very clayey gravel or very gravelly clay	32- 42
	Clay, gray, slightly gravelly, very sandy, very silty; soft, moist, plastic	42- 47
	Clay, dark-gray-black, very gravelly, sandy, silty; tough, plastic. Boulder at 54 feet	47- 54

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Reference number 131
Location: 95-51-5bbbb
Drilled by: SDGS
Source of data: D
Elevation: 1262

Geologic Unit	Description	Depth Feet
Qwlt	Clay, buff, sandy and pebbly	0- 15
	Clay, gray, sandy, fewer pebbles	15- 45
Qo	Gravel, drilled very rough. Circulation went backwards, got gas from hole	45- 80

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Reference number 132
Location: 95-51-10dddd
Drilled by: USGS
Source of data: D
Elevation: 1371

Reference number 132 (continued)

Geologic Unit	Description	Depth Feet
	Road fill	0- 4
Qwlt	Clay, yellow-brown to brown, very gravelly, sandy; slightly moist	4- 27
	Clay, dark-red-brown, gravelly, sandy, silty	27- 31
	Clay, brown, very gravelly, very sandy; thin streaks light-gray and tan fine sand	31- 36
Kn	Claystone, light-cream-tan at top to light-gray with thin dark-gray streaks at bottom	36- 42

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Reference number 133
Location: 95-51-12cccc
Drilled by: SDGS
Source of data: S
Elevation: 1432

Geologic Unit	Description	Depth Feet
Qwlt	Till, clay-rich, brown-yellow, sandy, calcareous, oxidized; (rocks 16-19 feet)	0- 18
Qks	Clay, olive-gray, smooth, compact; tougher drilling below 18 feet; occasional small pebble or sand grain; calcareous; interbedded with medium-dark-gray and light-green-gray (some sandy), compact, weakly calcareous clay	18- 35
	Core: dark green-gray sandy clay, wet; weakly calcareous; resembles alluvium beds in section at Newton Hills	35- 40
	Same	40- 45
Qks-Qkg	Clay, light olive-gray to tan, sandy, with stringers of "western sand" below about 46 feet; mainly sand below 60 feet; some gravelly zones	45- 75
Kn	Chalk, yellow, soft, oxidized; easy drilling; white chalk at 100 feet; rougher drilling at 108 feet	75-112
	Chalk or marl, gray; choppy drilling	112-115

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Reference number 134
Location: 95-51-13aaaa
Drilled by: SDGS
Source of data: D
Elevation: 1460

Geologic Unit	Description	Depth Feet
Qwlt	Clay, buff, pebbly, sandy	0- 35
	Clay, buff and gray mottled, sandy	35- 65

Reference number 134 (continued)

Geologic Unit	Description	Depth Feet
	Clay, gray, sandy	65- 90
	Clay, light tan-white	90- 95
	Gravel, fine, "western"	95-115
Kn	Clay, white, weathered	115-145
	Clay, gray, fresh	145-160

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Reference number 135
Location: 95-51-16aaaa
Drilled by: SDGS
Source of data: D
Elevation: 1315

Geologic Unit	Description	Depth Feet
	Road fill	0- 4
Qwlt	Till, yellow-brown, with small pebbles	4- 35
	Till, brown-gray, with few pebbles; water at 41 feet	35- 50
Qo	Sand, fine, gray, to almost clay (50% sand); saturated	50- 70
	Sand, gray (75% sand); saturated	70- 95
	Sand, very fine, gray (90% sand)	95-131
Kd	Shale	131-135

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Reference number 136
Location: 95-51-16bbbb
Drilled by: SDGS
Source of data: D
Elevation: 1301

Geologic Unit	Description	Depth Feet
Qwlt	Clay, buff; sand, carbonaceous	0- 10
Kn	Weathered	10- 20
	Unweathered	20- 50
	May be about 10 feet of Carlile	

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Reference number 137
Location: 95-51-18aaaa
Drilled by: USGS
Source of data: D
Elevation: 1259

Geologic Unit	Description	Depth Feet
Qwlt	Clay, dark-red-brown, slightly gravelly, sandy, silty	0- 7

Reference number 137 (continued)

	Clay, dark-yellow-brown, streaks light-gray, gravelly, very sandy, silty	7- 15
Qks(?)	Clay, dark-brown; light-brown, gray, black and tan streaks. Very gravelly, very sandy. Streaks of clayey sand and gravel. Much iron-staining. (Alluvium-Colluvium?)	15- 27
Qit(?)	Clay, dark-brown, very gravelly, very sandy, silty	27- 32
	Clay, dark-gray-black, gravelly, very sandy, silty	32- 97

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Reference number 138
Location: 95-51-18baaa
Drilled by: SDGS
Source of data: S
Elevation: 1248

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, light-brown (5YR6/4), sandy, silty, pebbly, calcareous	0- 20
	Till, clayey, light-olive-gray (5Y6/1), pebbly, sandy, silty, calcareous	20- 50
Qo	Outwash, medium sand to medium gravel, angular to subrounded; wide variety of rock types; clayey. 2% clay from 50 to 60 feet, 50% clay from 60 to 70 feet, 75% clay from 70 to 80 feet	50- 80
Qit(?)	Till, clayey, light-olive-gray (5Y6/1), sandy, pebbly, silty, calcareous	80-110
Kc-Kg	Shale, medium-dark-gray (N4), fissile, plastic, waxy; noncalcareous to partly calcareous. Some till caving in 110 to 120 foot sample	110-125

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Reference number 139
Location: 95-51-24daaa
Drilled by: SDGS
Source of data: S
Elevation: 1435

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, light-brown (5YR6/4), sandy, silty, calcareous; becomes unoxidized in 20 to 30 foot sample	0- 30
Qo	Outwash, gravel, fine to coarse, subangular to subrounded, extreme variation in composition; sandy, very clayey (50%) from 40 to 90 feet	30- 90
Qit(?)	Till, clayey, light-brownish-gray (5YR6/1), very sandy, calcareous	90-100
	Till, clayey, light-brownish-gray (5YR6/1), silty, sandy, pebbly, calcareous	100-130

Reference number 139 (continued)

	Till, clayey, light-brownish-gray (5YR6/1), silty, sandy, pebbly, calcareous and Niobrara Marl	130-140
	Driller has bedrock at 133 feet	

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Reference number 140
Location: 95-51-25dddd
Drilled by: SDGS
Source of data: D
Elevation: 1413

Geologic Unit	Description	Depth Feet
Qwlt	Clay, buff, sandy, many marl pebbles	0- 25
	Clay, gray, sandy, pebbly	25- 50
	Clay, gray, very silty, in part carbonaceous	50- 75
Qo	Gravel, pea-size	75- 77
Kn	Clay, white, calcareous	77- 95

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Reference number 141
Location: 95-51-29dddd
Drilled by: SDGS
Source of data: D
Elevation: 1282

Geologic Unit	Description	Depth Feet
Qwlt	Clay, buff, very chalky	0- 36
Kc	Shale, Carlile	36- 60

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Reference number 142
Location: 95-51-32dddd
Drilled by: SDGS
Source of data: S
Elevation: 1256

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, yellowish-gray (5Y7/2), very sandy, silty, calcareous	0- 20
	Till, clayey, light-olive-gray (5Y6/1), very sandy, silty, calcareous, gravelly (about 50%) from 60 to 90 feet and from 135 to 140 feet	20-140
Qo	Outwash, sand, medium; fine gravel, subangular to subrounded, sand is primarily quartz; gravel is composed of igneous, sedimentary, and metamorphic rock fragments	140-170

Reference number 142 (continued)

Qit	Till, medium-gray (N5), consists mostly of reworked shale, some sand, pebbles and chalk fragments, silty, calcareous	170-190
Qit-Kg	Till, as above and shale	190-200
Kg	Shale (bit sample), medium-gray (N5); hard, fissile, contains abundant white calcareous specks	200

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Reference number 143
Location: 95-51-34aaaa
Drilled by: SDGS
Source of data: D
Elevation: 1325

Geologic Unit	Description	Depth Feet
Qwlt	Till, yellow-brown	0- 9
	Till, brown to yellow-brown	9- 14
	Till, brown, with pebbles	14- 19
	Till, brown-gray, pebbles	19- 34
	Till, gray, pebbles	34- 39
	Till, yellow-gray to gray-yellow-brown	39- 44
	Till, yellow-gray-brown to brown, pebbles	44- 75
Qo	Sand, very fine, yellow-brown; 100% saturated	75-110
	Sand, gray-yellow to gray-brown; saturated	110-135
Kc	Shale, at about 135 feet (estimated)	

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Reference number 144
Location: 95-51-35aaaa
Drilled by: USGS
Source of data: D
Elevation: 1369

Geologic Unit	Description	Depth Feet
Qwlt	Clay, brown, gravelly, sandy, silty. Streaks light-gray and tan	0- 10
	Clay, dark-red-brown, gravelly, sandy, silty	10- 20
	Clay, dark-brown, gravelly, sandy, silty	20- 37
	Clay, dark-gray, gravelly, sandy, silty	37- 97

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Reference number 145
Location: 95-52-8cccc
Drilled by: USGS
Source of data: D
Elevation: 1197

Reference number 145 (continued)

Geologic Unit	Description	Depth Feet
Qwlt	Clay, dark-brown with light-tan carbonate nodules, sandy, gravelly	0- 8
	Clay, light-brown, gravelly, sandy; wet	8- 14
	Clay, dark-gray, slightly gravelly, very sandy	14- 30
Qo	Sand, coarse to fine, slightly gravelly, silty, slightly clayey	30- 52
	Gravel, fine, and very coarse to medium sand. Some medium gravel, streaks of very coarse gravel. Clean, loose; abundant lignite	52- 97

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Reference number 146
Location: 95-52-8dccc
Drilled by: SDGS
Source of data: S
Elevation: 1233

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, yellowish-gray (5Y7/2), sandy, silty, calcareous	0- 30
	Till, clayey, light-olive-gray (5Y6/1), very sandy; sample is 50% coarse sand and fine gravel	30- 60
Qo	Outwash, coarse sand to medium gravel, subangular to subrounded; consists of igneous, metamorphic and sedimentary rock fragments; sand fraction is mostly quartz, some pyrite present	60- 90
Kg(?)	Hole goes through gravel and into bedrock at 150 feet, samples not available below 90 feet	

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Reference number 147
Location: 95-52-8dddd
Drilled by: SDGS
Source of data: D
Elevation: 1229

Geologic Unit	Description	Depth Feet
Qwlt	Clay, buff, sandy, pebbly	0- 23
	Clay, gray, sandy, pebbly	23- 27
	Gravel, pea-size	37- 42
	Clay, gray, sandy	42- 65
Qo	Sand, coarse; fine gravel	65- 80
	Sand, coarse and granular	80-140
	Gravel, fine to coarse	140-155

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Reference number 148
Location: 95-52-11dddd
Drilled by: SDGS
Source of data: S
Elevation: 1187

Geologic Unit	Description	Depth Feet
Qo	Gravel, fine to medium, oxidized to 40 feet, sub-angular to subrounded, sandy, silty; trace of alluvium; gravel composed of variation of igneous, metamorphic and sedimentary rock fragments. Trace of coal (3%)	0- 80
	Sand, medium to very coarse, mostly subrounded, wide variety of mineral and rock fragments. Trace of fine gravel (2%); trace of coal (5%)	80-145
	Hole abandoned at 145 feet because of rocks and lost circulation	

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Reference number 149
Location: 95-52-15adad
Drilled by: SDGS
Source of data: D
Elevation: 1228

Geologic Unit	Description	Depth Feet
Qo	Losing mud, no return	0- 60
	Sand, fine	60- 65
	Gravel, nut-size	65-105
	Clay or sand	105-110

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Reference number 150
Location: 95-52-15bbaa
Drilled by: SDGS
Source of data: S
Elevation: 1231

Geologic Unit	Description	Depth Feet
Qwlt	Till, clay, pale-olive (10YR6/2), very sandy, silty, calcareous	0- 10
	Till, clay, light-brownish-gray (5YR6/1), very sandy, silty, calcareous. Gravelly from 30 to 50 feet	10- 60
Qo	Outwash, coarse sand to medium gravel, subangular to subrounded; gravel is igneous, metamorphic and sedimentary rock fragments, (much limestone, granite, shale fragments), some pyrite	60- 80

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Reference number 151
Location: 92-52-18dccc
Drilled by: USGS
Source of data: D
Elevation: 1236

Geologic Unit	Description	Depth Feet
Qwlt	Clay, dark-red-brown, gravelly, sandy, silty	0- 32
	Clay, dark-red-brown, gravelly, very sandy, silty. Thin streaks of coarse sand	32- 37
Qu	Clay, dark-brown with tan streaks; very gravelly, very sandy, light-tan carbonate nodules, thin black streaks (may be buried soil)	37- 39
Qit	Clay, dark-blue-gray to black; very gravelly, very sandy; hard	39- 42
	Clay, dark-gray, gravelly, very sandy, silty	42- 82

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Reference number 152
Location: 95-52-19addd
Drilled by: USGS
Source of data: D
Elevation: 1213

Geologic Unit	Description	Depth Feet
Qwlt	Clay, dark-brown, gravelly, sandy	0- 20
	Sand, very coarse and fine gravel; thin streaks of coarse gravel	20- 22
	Clay, brown, very sandy, and very clayey; fine to medium sand	22- 28
	Sand, medium to fine, little coarse; gravelly, interbedded with dark-gray sandy clay	28- 33
	Clay, dark-gray, gravelly, sandy, silty	33- 55
Qo	Gravel, fine, very sandy, and very gravelly sand, mixed and interbedded. Some coarse gravel and some fine sand	55- 97

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Reference number 153
Location: 95-52-25dddd
Drilled by: SDGS
Source of data: S
Elevation: 1223

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, yellowish-gray (5Y7/2), sandy, silty, calcareous, very chalky from 10 to 20 feet	0- 30
	Till, clayey, light-olive-gray (5Y6/1), sandy, very	

Reference number 153 (continued)

	silty, calcareous	30- 40
	Till, clayey, light-brownish-gray (5YR6/1), sandy, silty, calcareous, more compact than till above	40- 60
Qo	Outwash, coarse sand to medium gravel, subangular to subrounded, composed of igneous, sedimentary, and metamorphic rock fragments; sand is primarily quartz; some pyrite, some till present in sample. Coarse gravel from 70 to 80 feet	60- 90
Qt	Till, clay, light-brownish-gray (5YR6/1), silty, pebbly, calcareous; sample mixed with some fine to medium gravel. Trace of shale from 110 to 120 feet	90-120
Kg	Shale, medium-gray (N5), hard, fissile, calcareous, contains abundant white calcareous specks	120-125

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Reference number 154
Location: 95-52-31aaaa
Drilled by: USGS
Source of data: D
Elevation: 1224

Geologic Unit	Description	Depth Feet
Qwlt	Clay, dark-yellow-brown, gravelly, very sandy, silty	0- 12
	Clay, dark-brown, gravelly, very sandy, silty	12- 37
	Clay, brown, gravelly, sandy, with thin streaks of sand and gravel; little coarse gravel	37- 47
	Clay, dark-gray, very gravelly, very sandy, silty. Stopped on rock at 72 feet	47- 72

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Reference number 155
Location: 95-52-32abbb
Drilled by: SDGS
Source of data: S
Elevation: 1170

Geologic Unit	Description	Depth Feet
	Sample missing (driller has alluvium and outwash)	0- 20
Qo	Outwash, gravel fine to coarse, angular to subrounded, wide variety of rock types, sandy	20-145
Qt	Till, clayey, medium-gray (N5), sandy, pebbly, calcareous	145-162
Kg	Shale, medium-gray (N5), very limey, speckled, some crystalline limestone, calcareous	162-173

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Reference number 156
Location: 95-52-34aaaa
Drilled by: SDGS
Source of data: D
Elevation: 1236

Geologic Unit	Description	Depth Feet
Qwlt	Clay, buff, sandy and pebbly	0- 15
	Sand, coarse, and pea-size gravel, oxidized	15- 35
	Clay, gray, sandy	35- 40
Qo	Gravel, pea-size	40- 52
	Clay, dark-gray, sandy, extremely hard	52- 67
	Gravel, pea to nut-size. Caving, abandoned hole	67- 90

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Reference number 157
Location: 95-52-34baaa
Drilled by: SDGS
Source of data: S
Elevation: 1227

Geologic Unit	Description	Depth Feet
Qwlt	Till, clayey, light-brown (5YR6/4), sandy, silty, pebbly, calcareous becoming light-gray and unoxidized in 20 to 30 foot sample	0- 30
	Till, clayey, light brownish-gray (5YR6/1)	30- 60
Qo	Outwash, medium sand to medium gravel, sub-angular to subrounded, contains wide variety of igneous, metamorphic and sedimentary rock fragments. Much of sand fraction is rounded quartz grains	60-120

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Reference number 158
Location: 95-53-1bbbb
Drilled by: USGS
Source of data: D
Elevation: 1267

Geologic Unit	Description	Depth Feet
Qwlt	Clay, dark-brown, very sandy, very gravelly	0- 12
Qo	Gravel, fine; coarse to fine sand, very clayey to very gravelly; very sandy clay	12- 31
	Gravel and sand interbedded with very gravelly sandy clay	31- 43
Qt	Clay (?), dark-blue-gray, very gravelly, very sandy; tough	43- 55
Qal	Silt, black, light-gray, and dark-gray (laminated?)	

Reference number 158 (continued)

	Many flakes of organic (?) matter. Slight swamp smell	55- 77

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Reference number 159
Location: 95-53-1dddd
Drilled by: USGS
Source of data: D
Elevation: 1251

Geologic Unit	Description	Depth Feet
Qwlt	Clay, yellow-brown, gravelly, sandy, very silty	0- 17
	Clay, light-yellow-brown to light-tan; gravelly, sandy. Gradually changes to gray-brown by 27 feet	17- 27
	Clay, dark-gray, gravelly, sandy, slightly silty	27- 33
Qwel(?)	Silt, dark-gray; tight; soft	33- 37
Qit(?)	Clay, dark-gray, gravelly, sandy, very slightly silty	37- 47
	Clay, dark-gray to light-brown, very gravelly, sandy. Very tight and tough. Streaks of rust, marl pebbles, soft (decomposed).	47- 62
	Clay, dark-gray-brown, few thin light-brown streaks. Gravelly, sandy, tough	62- 67
Kc	Shale, black; waxy; very tough	67- 92

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Reference number 160
Location: 95-53-4bbbb
Drilled by: SDGS
Source of data: D
Elevation: 1387

Geologic Unit	Description	Depth Feet
	Road fill	0- 4
Qwlt	Till, yellow-brown, with small pebbles	4- 39
	Till, gray-brown, with few pebbles, to silt, gray, fine	39- 46
Kn(?)	Bedrock	46- 50

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Reference number 161
Location: 95-53-5dddd
Drilled by: SDGS
Source of data: D
Elevation: 1432

Geologic Unit	Description	Depth Feet

Reference number 161 (continued)

Geologic Unit	Description	Depth Feet
Qwlt	Till, yellow-brown to brown clay; silty, pebbly, some small rocks; dry	0- 53
Qwel	Loess, clayey silt, very fine, yellow-brown; dry (pulled auger from 60 feet)	53- 60
	Loess, brown, silt, clayey, very fine; dry	60- 80
Kn	Marl, weathered, yellow	80- 85
	Marl, unweathered	85- 95

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Reference number 162
Location: 95-53-7cccc
Drilled by: SDGS
Source of data: D
Elevation: 1415

Geologic Unit	Description	Depth Feet
Qwlt	Clay, buff, silty	0- 3
Qkg	Sand, coarse; fine gravel, quartzite and feldspar	3- 30
Kn	Marl, weathered	30- 35

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Reference number 163
Location: 95-53-7dddd
Drilled by: SDGS
Source of data: D
Elevation: 1446

Geologic Unit	Description	Depth Feet
	Road fill	0- 4
Qwlt	Till, yellow-brown, pebbles and cobbles	4- 34
	Till, brown-gray, pebbles and cobbles	34- 49
Qo	Sand, gray-brown to gray, fine, clayish material; moist, water at 59 feet	49- 59
	Sand, gray-brown to gray, very fine, wet	59-135

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Reference number 164
Location: 95-53-11cccc
Drilled by: SDGS
Source of data: D
Elevation: 1296

Geologic Unit	Description	Depth Feet
Qwlt	Clay, buff, sandy, much chalk	0- 15
	Clay, gray, sandy, much chalk	15- 25

Reference number 164 (continued)

Kn	Marl, unweathered	25- 60

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Reference number 165
Location: 95-53-11dddd
Drilled by: USGS
Source of data: D
Elevation: 1266

Geologic Unit	Description	Depth Feet
Qwlt	Clay, light-yellow-brown to tan; very gravelly, sandy	0- 7
	Clay, medium-brown; very gravelly, very sandy, plastic	7- 30
Kn	Shale, medium-gray, very tough. Abundant pyrite and some fragments of *Inoceramus*?	30- 35

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Reference number 166
Location: 95-53-12dddd
Drilled by: USGS
Source of data: D
Elevation: 1261

Geologic Unit	Description	Depth Feet
Qwlt	Clay, dark-brown, gravelly, very sandy, very silty	0- 7
	Clay, light-yellow-brown, gravelly, very sandy, silty; very sticky	7- 27
	Clay, dark-gray, very gravelly, very sandy, silty; tough	27- 48
Kn	Shale, light-gray; very sticky but soft	48- 52

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Reference number 167
Location: 95-53-15bbbb
Drilled by: SDGS
Source of data: D
Elevation: 1373

Geologic Unit	Description	Depth Feet
	Road fill	0- 4
Qwlt	Till, yellow-brown, with small pebbles	4- 44
Qo(?)	Sand, gray, fine to silty material, moist	44- 87
Kn	Marl	87- 95

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Reference number 168
Location: 95-53-16bbbb
Drilled by: SDGS
Source of data: D
Elevation: 1456

Geologic Unit	Description	Depth Feet
	Road fill	0- 4
Qwlt	Till, yellow-brown; pebbles and cobbles	4- 14
	Till, yellow-brown to brown; pebbles	14- 19
	Till, brown; moist; pebbles and cobbles	19- 53
Kn	Marl	53- 55

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Reference number 169
Location: 95-53-18cccc
Drilled by: USGS
Source of data: D
Elevation: 1459

Geologic Unit	Description	Depth Feet
Qwlt	Silt, dark-red-brown; very sandy, gravelly, clayey	0- 17
	Clay, dark-brown; very sandy, very gravelly, very silty. Streaks of sandy gravel 70 to 72 feet	17- 72
Qo	Sand, black, fine to very fine, clayey(?). Very tight and hard packed. Scattered fine gravel and coarse sand grains	72- 97

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Reference number 170
Location: 95-53-21bbbb
Drilled by: SDGS
Source of data: D
Elevation: 1426

Geologic Unit	Description	Depth Feet
Qwlt	Till, yellow-brown to brown clay; silty, sandy, pebbly, some rocks	0- 26
	Till, blue-gray clay; silty, sandy, pebbly, some rocks; water at about 28 feet	26- 82
Kn	Marl	82- 90

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Reference number 171
Location: 95-53-24d
Drilled by: PD
Source of data: D
Elevation: 1260

Reference number 171 (continued)

Geologic Unit	Description	Depth Feet
Qwlt	Till, yellow	0- 23
Kn	Marl	23- 60

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Reference number 172
Location: 95-53-26dddd
Drilled by: SDGS
Source of data: D
Elevation: 1286

Geologic Unit	Description	Depth Feet
Qwlt	Clay, buff, chalky, sandy	0- 21
	Clay, gray, sandy	21- 40
	Till, clay, buff, sandy (perhaps a second till)	40- 56
Kn	Marl, weathered	56- 60
	Marl, unweathered	60- 80

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Reference number 173
Location: 95-53-30cccc
Drilled by: SDGS
Source of data: D
Elevation: 1460

Geologic Unit	Description	Depth Feet
	Road fill	0- 5
Qwel	Loess	5- 40
Kn	Marl	40- 65

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Reference number 174
Location: 95-53-33aaad
Drilled by: USGS
Source of data: D
Elevation: 1259

Geologic Unit	Description	Depth Feet
Qwlt	Till, yellow-brown to brown clay, silty and sandy, pebbly	0- 23
	Till, blue-gray clay to dark-gray clay, silty, sandy, and pebbly; water at 23 feet	23- 36
	Drills very easily in 4th gear, no cuttings, must be sand	36- 43

Reference number 174 (continued)

	Sand and clay, about 50% each; not many cuttings; lots of water	43- 85

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Reference number 175
Location: 95-53-36aaaa
Drilled by: USGS
Source of data: D
Elevation: 1259

Geologic Unit	Description	Depth Feet
Qwlt	Clay, brown, sandy	0- 18
	Clay, gray, sandy	18- 44
	Clay, dark-gray, sandy	44- 57
	Shale, light- to medium-gray; soft	57- 77
Kc(?)	Shale, black with thin light-gray streaks	77- 78

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Reference number 176
Location: 96-51-35cccc
Drilled by: USGS
Source of data: D
Elevation: 1305

Geologic Unit	Description	Depth Feet
Qwlt	Clay, dark-brown, gravelly, very sandy, silty; moist	0- 20
	Clay, dark gray-brown, gravelly, very sandy, silty; moist	20- 22
	Clay, dark-gray, gravelly, sandy, silty; slightly moist; tough	22- 60
	Clay, medium-gray; very slightly gravelly, very slightly sandy, very silty; soft	60- 67
	Clay, dark-gray; gravelly, sandy, very silty; tough	67- 87
Qu	Silt, medium-gray, no coarser grains. Tight, moist	87- 97

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Reference number 177
Location: 96-52-31dddd
Drilled by: USBR
Source of data: D
Elevation: 1237

Geologic Unit	Description	Depth Feet
Qwlt	Silt, brown, clay, chalk	0- 11
	Till, brown	11- 18

Reference number 177 (continued)

	Till, brown and gray	18- 54
Qo	Sand and gravel, coarse, with cobblestone	54-110
	Sand and gravel, silty, gray	110-160
	Gravel, coarse, silty, and cobblestone	160-172
Kg(?)	Shale, gray	172-190

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Reference number 178
Location: 96-53-34cccc
Drilled by: USBR
Source of data: D
Elevation: 1322

Geologic Unit	Description	Depth Feet
Qwlt	Till, brown	0- 22
	Till, gray	22- 54
Kn	Marl and shale	54- 70

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Reference number 179
Location: 96-53-34dddd
Drilled by: USGS
Source of data: D
Elevation: 1289

Geologic Unit	Description	Depth Feet
Qwlt	Clay, dark-brown, silty, very sandy, gravelly	0- 15
	Clay, dark-brown, silty, sandy, slightly gravelly; very soft, plastic	15- 17
	Sand, coarse to fine, mostly fine, slightly gravelly. Coarse gravel (to 1½ inch diameter) in thin streaks	17- 38
Kn	Shale, dark-gray, light-gray streaks; very soft at top	38- 57

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