HYDROGEOLOGY OF THE MINOT AQUIFER, WARD COUNTY, NORTH DAKOTA: WATER RESOURCES DATA

by

Steve W. Pusc

North Dakota Ground-Water Studies
Number 102 - Part I
North Dakota State Water Commission
David Sprynczynatyk, State Engineer

Prepared by the
North Dakota State Water Commission
In cooperation with the
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INTRODUCTION

The investigation of the hydrogeology of the Minot aquifer was conducted cooperatively by the North Dakota State Water Commission (NDSWC) and the city of Minot, North Dakota. Results of the investigation are presented in two parts. Part I is a compilation of the ground-water data and part II is an interpretive report describing the hydrogeology of the Minot aquifer. Part I, (this report) makes available hydrologic and geologic data collected during the investigation and functions as a reference for Part II.

Purpose and objectives

The purpose of this investigation is to increase the understanding of the occurrence, movement, and quality of ground water in the Minot aquifer. Specific objectives of the Minot aquifer study were to:

1. Compile, review and analyze all existing data and literature concerning the Minot aquifer in Minot.
2. Collect additional stratigraphic and water level data to refine previous interpretations of the configuration and hydrology of the Minot aquifer.
3. Collect and analyze water samples from new and existing wells and from the Souris River.
4. Assess the relationship between the Souris River and the Minot aquifer.
5. Revise existing conceptual model of ground-water flow.
6. Determine the feasibility and need for developing a computer model of the Minot aquifer.
7. Prepare a report consisting of a compilation of the data collected and an interpretative report discussing the Minot aquifer in Minot.

Location of study area

The Minot aquifer study area is located in the southwestern corner of the Souris River Basin in North Dakota(fig. 1). Specifically, the area investigated underlies the City of Minot and the region immediately surrounding the City as designated on Plate 1. (Township 155 North, Ranges 82 and 83 West, Ward County).

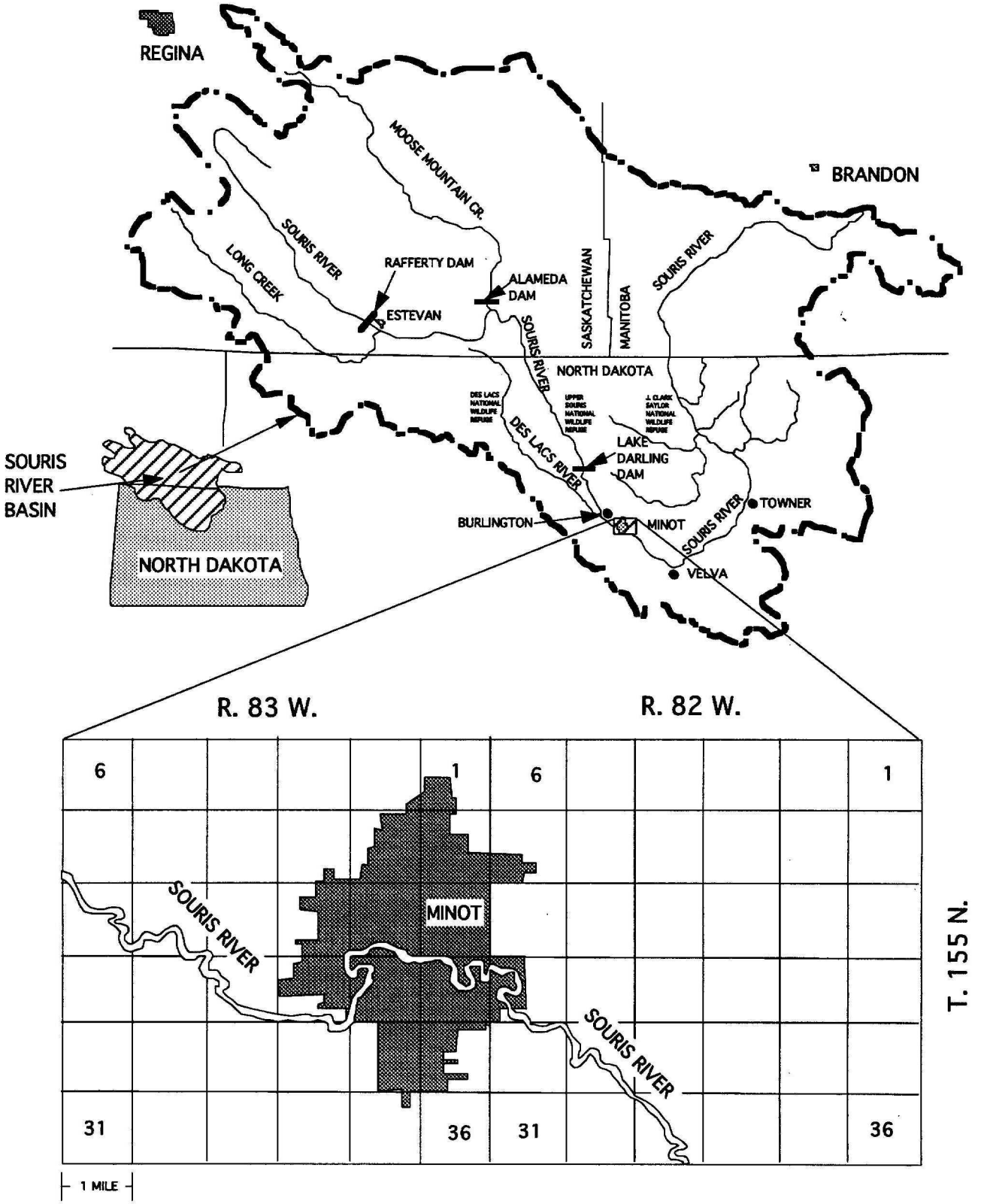

Figure 1. Location of the Souris River Basin, North Dakota and Canada and the Minot aquifer study area, Ward County, North Dakota

Location-numbering system

Wells and test holes presented on plate 1 are numbered according to a system based on the location in the public land classification of the United States Bureau of Land Management (fig. 2). The first numeral denotes the township north of a base line, the second numeral denotes the range west of the fifth principal meridian, and the third numeral denotes the section in which the well is located. Letters A, B, C, and D designate, respectively, the northeast, northwest, southwest, and southeast quarter section, quarter-quarter section, and quarter-quarter-quarter section (10 acre tract). For example, well 155-83-04ADD is in the SE1/4 SE1/4 NE1/4 Section 4, Township 155 North, Range 83 West (fig. 2). Consecutive terminal numerals are added if more than one well is located in a 10-acre tract.

Acknowledgments

The collection of data for this report was made possible by the cooperation of residents and officials of the city of Minot, North Dakota who furnished essential information on wells, allowed the drilling of test holes on their property and permitted water level measurements and the collection of water samples. Mr. Robert Schempp, City Manager of Minot; Alan Walter, Director of Public Works; Mike Korman, Assistant Director of Public Works; Byron Thronson, Supervisor of Minot's Water Treatment Plant; Mike Nielsen, City Park Director and Mike Brunner, Assistant City Park Director deserve special mention for their cooperation. Particular recognition is due the following personnel of the North Dakota State Water Commission: G. J. Calheim and A. L. Lachenmeier for drilling and logging test holes and constructing monitoring wells in some of the most difficult drilling conditions in North Dakota; G. O. Muri and M. E. Osborn for chemical analyses of water samples and to M. H. Hove, K. K. Kunz, M. Skaley and M. E. Osborn for compiling the water level and quality files. Special thanks to C. D. Bader for developing the data base programs used for this report. Appreciation is also expressed to M. O. Lindvig of the NDSWC for his critical review of the report. Special thanks to the private drilling companies that furnished well logs and other information used in this report. And, to my wife Collette for her support and encouragement throughout the duration of this project.

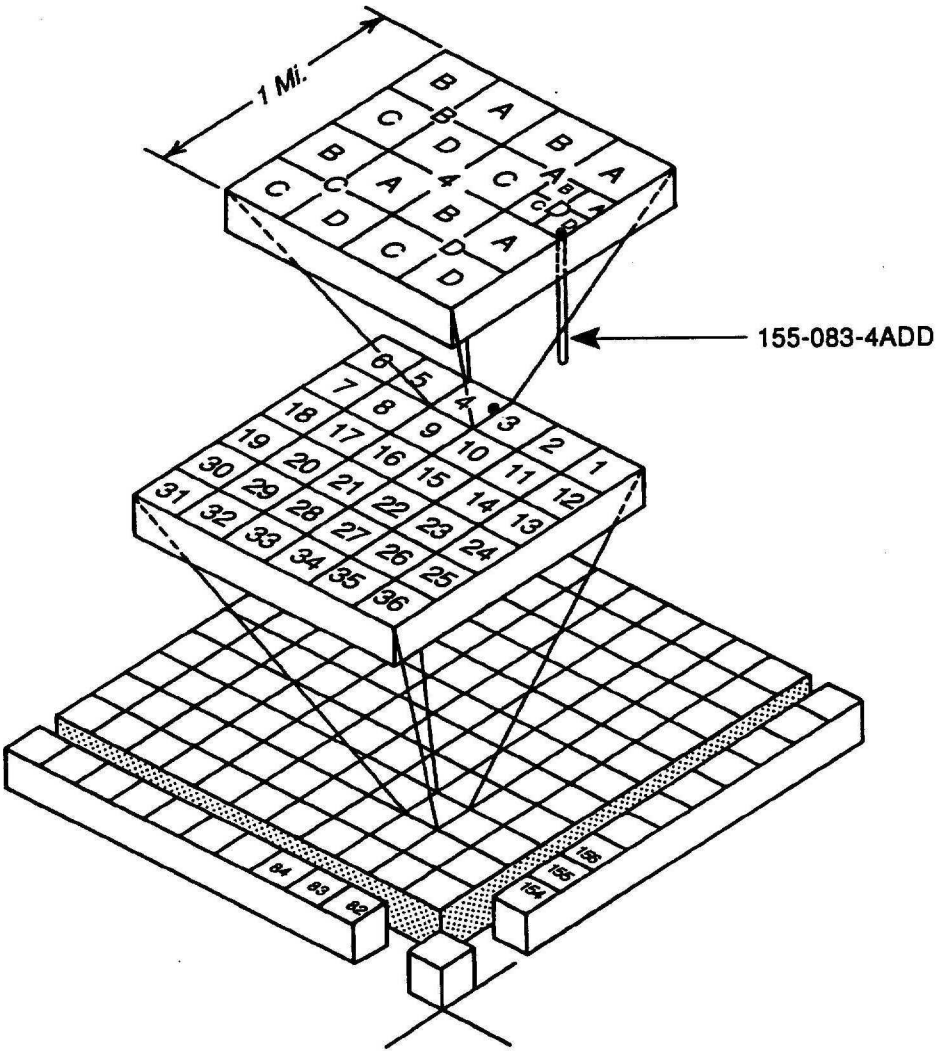

Figure 2 - Location-numbering system.

EXPLANATION OF DATA TABLES AND METHODS OF DATA COLLECTION

Records of test holes and wells

Prior to this investigation, numerous test holes were drilled in the Minot area. Most of these data have been published in a number of reports. Some of these earlier reports are, however, out of print and thus all of these data are included in tables 1 through 8.

Hydrogeologic investigation of the Minot aquifer study area was accomplished by test drilling at 25 sites, installing 35 monitoring wells and measuring and recording depth to water in the 35 new monitoring wells and in 3 existing monitoring wells. Additional data collected included: (1) measuring the level of the Souris River at selected sites, and (2) collecting surface water and ground-water samples for chemical analyses.

Test holes were drilled with a Failing model 1250 forward hydraulic mud rotary drill rig owned by the NDSWC. Monitoring wells were constructed using either $1\frac{1}{4}$ inch or 2 inch diameter polyvinyl chloride (PVC) casing with 5 or 10 foot long PVC screens. One monitoring well on north hill was constructed with 2 inch diameter steel casing.

Nests of monitoring wells were constructed specifically for this investigation to determine the vertical distribution of water levels and water quality in the area. Construction of the monitoring well nests involved the drilling of an initial deep test hole to determine the stratigraphy at a particular site. Once the stratigraphy at a site was known, the number and type of monitoring wells could be determined and constructed. The initial deep test hole also served as a hole for the deep monitoring well. After drilling was completed, the desired length of casing and screen were inserted into the test hole. Silica sand was then placed around the screen using a tremie pipe. After sand packing, the tremie pipe was lifted so that the bottom of the tremie pipe was above the top of the sand pack. High solids bentonite grout was then injected down the tremie pipe and upward in the annular space. This process continued until the grout overflowed around the casing at land surface. After the grout settled, additional grout was poured down the hole until the annular space was filled to land surface. The grout

was allowed to "set" and then the monitoring wells were slugged with a small quantity of fresh water and pumped with compressed air for development. Subsequent monitoring wells were completed at each nest site by moving the drilling rig ahead 15 to 20 feet and drilling the next hole.

Information pertaining to test holes and wells in the Minot aquifer study area are presented in Table 1. These data include, location, owner or well number, aquifer, land surface elevation, date drilled, total depth, top of screen, bottom of screen, casing type, diameter of well, height of measuring point and remarks.

The mean sea level elevation was established for all monitoring wells, city production wells and river stage sites in the study area. The differential leveling surveying work was conducted by the Public Works Department of the City of Minot. Land surface elevations for test holes (no well) were estimated using 7 $^{1}/_{2}$ minute quadrangle maps published by the U.S. Geological Survey.

Lithologic logs of test holes and wells

Pertinent lithologic logs obtained from earlier reports, from water well drillers, and logs of test holes drilled as part of this study are included in Table 2. Minor changes in word order have been made on some of the commercial logs. However, geologic interpretations shown on commercial logs are those of the drillers.

Samples of drill cuttings were collected and visually analyzed every five feet or whenever the lithology changed. Grain size determination for the United States Geological Survey (USGS) and NDSWC test holes refer to the Wentworth (1922) size scale. Color descriptions were determined by comparing fresh samples with the Geological Society of America's rock color chart (1963).

Resistivity and spontaneous potential logs were run in most of the deeper NDSWC test holes. Copies of the geophysical logs are available for inspection in the office of the NDSWC. Locations of all test holes and monitoring wells are presented on plate 1.

Water levels in selected wells

Listed in Table 3 are water levels in selected wells, in feet below or above land surface. Water measurements were recorded on a monthly basis in the 38 monitoring wells and the 5 river stage sites throughout the study area. Water levels were measured with chalked steel tapes, electronic well sounders, and one continuous recorder. The continuous float type water level recorder is installed in city production well #8 of the Minot well field (Plate 1).

Records of surface water data collection sites

Information pertaining to the surface water data collection sites are presented in table 4. These data include location of the data collection site, water body from which sample was collected or measurement made, elevation of measurement point and remarks.

Stage height of the Souris River

Stage levels of the Souris River through the Minot area are included in table 5. Stage levels measurements were obtained at 5 locations along the Souris River in the vicinity of Minot (Plate 1). Measurements were generally made from the center of bridge structures. Stage levels were measured with a weighted cloth tape. In addition, the USGS monitors the level and flow of the Souris River above Minot at 155-083-17DBB (Plate 1).

Water quality

Water quality data from the Minot aquifer study area are listed in Tables 6 (ground water) and 7 (surface water). Pertinent water quality data from previous publications are also included.

Chemical analyses were conducted on water samples collected from a majority of monitoring wells, the city of Minot production wells and from the Souris River. All of the samples were analyzed by the NDSWC Laboratory. Methods of analyses were generally those described by Brown and others, 1970. The results are expressed in milligrams per liter (mg/l).

The water sampling procedure involved the collection of 500 milliliters (ml) of raw water, 500 ml of filtered water and 500 ml of filtered and acidified (nitric acid) water. Selected wells were also sampled for trace metals. Field measurements of specific conductance and water temperature were also made. Water temperature was, however, measured at land surface and does not represent an in situ temperature. The pH was measured in the lab.

State Water Commission monitoring wells were sampled using two methods: pumping with a gas squeeze bladder pump or by bailing with a PVC point source bailer. Water samples were obtained from the city supply wells by using the existing pumps.

Sampling with a bailer or gas squeeze pump involved the removal of at least three casing volumes of water to introduce formation water into the well. After evacuating at least three casing volumes of water, either the well was pumped further with the gas squeeze pump or a variable capacity PVC point source bailer was lowered to just above the bottom of the well screen. Bailing and/or pumping continued until enough water was secured for the sample.

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TABLE 1. RECORDS OF TEST HOLES AND WELLS SITES

EXPLANATION: LS Elev = land surface elevation(feet), TD = Total depth(feet), TS = Top of screen(feet), BS = Bottom of screen(feet), D = Well diameter(inches), MP = measureing point(feet), PVC = Poly vinyl chloride, ABS = Acrylonitrile butadiene styrene

Location	Owner/#	Aquifer	LS Elev	Date Drilled	TD	TS	BS	Casing	D	MP	Remarks/Source of log
15508207AAA	5408	No Well	1615	7/19/69	80			None			PUSC, 1987
15508207BAA	5407	No Well	1629	7/19/69	100			None			PUSC, 1987
15508207DDD	5406	No Well	1627	7/19/69	100			None			PUSC, 1987
15508208ABB	5409	No Well	1657	7/19/69	140			None			PUSC, 1987
15508209CCC	5410	No Well	1678	7/19/69	140			None			PUSC, 1987
15508210DCD	17-992	No Well	1590	4/19/63	63			None			PUSC, 1987
15508212AAA	8-992	No Well	1575	4/15/63	47			None			PUSC, 1987
15508213CBC	16-992	No Well	1603	4/18/63	84			None			PUSC, 1987
15508215BBB	1394	No Well	1641	9/17/58	94.5			None			PETTYJOHN, 1968 & PUSC, 1987
15508219AAA	USGS 1	No Well	1636	9/2/47	100			None			PETTYJOHN, 1968 & PUSC, 1987, from LAROCQUE, 1963
15508219ADB	Harr. B	Fort Union	1570	2/28/52	256		256	Steel	6		HARRINGTON BROS. STOCKYARD, PETTYJOHN, 1965
15508219BB	GNRR	No Well	1555		180			None			GREAT NORTHERN RAILROAD, PETTYJOHN, 1968
15508219DBD	2216	Minot	1543.42	11/15/63	126	98	108	PVC	4.5	1.8	PETTYJOHN, 1965, FAIR GROUNDS, IN GAL. SHEL.
15508219DDA	R. Fors	Sand Sediments	1548		96		96	Unknown			PETTYJOHN, 1965
15508219DDA2	5180	No Well	1547	9/9/68	40			None			PUSC, 1987, 19DDA
15508220CC1	Minot	No Well	1558	1/1/52	128			None			PETTYJOHN, 1968 & PUSC, 1987
15508220CC2	Minot	No Well	1560	1/1/52	220			None			PETTYJOHN, 1968 & PUSC, 1987
15508220CC3	Minot	No Well	1549	1/1/52	142			None			PETTYJOHN, 1968 & PUSC, 1987
15508220DCC	Siesta	Undifferentiated					65	Unknown			SIESTA MOTEL, QW, SWC FILES
15508222CCB	1393	No Well	1628	9/17/58	105			None			PETTYJOHN, 1968 & PUSC, 1987
15508222DDD	18-992	No Well	1629	4/19/63	84			None			PETTYJOHN, 1968 & PUSC, 1987
15508223AAB	GNRR	Fort Union	1630	1955	410			Unknown	12		PETTYJOHN, 1965
15508228CCC	GNRRA	No Well	1540		135			None			GREAT NORTHERN RAILROAD, PETTYJOHN, 1965
15508229BBB	5182	Souris Valley	1544.3	9/10/68	100	90	93	ABS	1.25		PUSC, 1987
15508229BBC1	2215	Souris Valley	1543.3	11/15/63	126	80	100	ABS	1.25		PETTYJOHN, 1965 & PUSC, 1987, PLUGGED WAS 29 BCB
15508229BBC2	5183	No Well	1545	9/10/68	120			None			PUSC, 1987
15508229BCB	5181	Souris Valley	1544.9	9/9/68	120	100	103	ABS	1.25	2.4	PUSC, 1987
15508229CBC	5179	Souris Valley	1558.2	9/9/68	80	48	53	ABS	1.25		PUSC, 1987
15508230CCD	11350	South Hill	1716	9/29/83	400	294	303	Steel	2	2.44	PUSC, 1987, Sampled with drill rig.
15508230DCC	St. HWY	South Hill	1715	1961	257		257	Steel	4		STATE HWY. WEIGH STATION, PETTYJOHN, 1965

TABLE 1. CONTINUED

Location	Owner/#	Aquifer	LS Elev	Date Drilled	TD	TS	BS	Casing	D	MP	Remarks/Source of log
15508230DCC2	11353	No Well	1710	10/4/83	340			None			PUSC, 1987
15508231AAA	5184	Sand Sediments	1616	9/10/68	70	37	40	ABS	1.25		PUSC, 1987, WOULD NOT PUMP, DESTROYED
15508231AAD	5185	No Well	1635	9/10/68	140			None			PUSC, 1987
15508231ADD	11355	No Well	1700	10/10/83	240			None			PUSC, 1987
15508231CAD	11497	Sundre	1713.2	10/3/84	320	273	282	Steel	2	0.45	PUSC, 1987 Sampled with drill rig.
15508231CDC	11358	No Well	1715	10/12/83	500			None			PUSC, 1987
15508231DCA	11357	Sundre	1711	10/11/83	420	315	321	Steel	2	2.49	Pusc, 1987
15508231DDA	11356	Sand Sediments	1583.7	10/11/83	80	43	48	PVC	1.25	1.98	PUSC, 1987
15508231DDB	Nessen	Sand Sediments					24	Unknown			QW, SWC FILES
15508232ABA	5521	No Well	1544	10/1/69	140			None			PUSC, 1987
15508233BCB	5520	No Well	1545	10/1/69	140			None			PUSC, 1987
15508233CCD	5187	Souris Valley	1550.6	9/10/68	120	46	49	ABS	1.25	2.3	PUSC, 1987
15508233CDA	Newan	Souris Valley					20	Unknown			QW, SWC FILES
15508233CDD	5188	Souris Valley	1547.3	9/11/68	140	47	52	ABS	1.25		PUSC, 1987
15508233DBC	NELSON	Souris Valley					36	Unknown			QW, SWC FILES
15508233DBC2	5522	No Well	1547	10/1/69	100			None			PUSC, 1987, was 33DBC
15508233DCC	5189	Souris Valley-Sundre	1544.6	9/11/68	160	117	120	ABS	1.25		PUSC, 1987
15508233DDD	5191	Souris Valley	1592.9	9/12/68	160	57	60	ABS	1.25		PUSC, 1987, WOULD NOT PUMP, WELL DESTROYED
15508234CDC	5199	Gravel Sediments	1611.4	9/18/68	120	86	89	ABS	1.25	2.5	PUSC, 1987
15508234CDD	5197	Gravel Sediments	1592.1	9/17/68	140	70	73	ABS	1.25		PUSC, 1987, WELL DESTROYED
15508301ACB	15	No Well	1695	2/23/61	157			None			PUSC, 1987, DRILLERS LOG
15508301ACC	14	No Well	1700	2/23/61	126			None			PUSC, 1987, DRILLERS LOG
15508301CCC	3237	North Hill	1716	7/26/65	180		30	ABS	1.25		PETTYJOHN, 1968
15508301CCD	3238	No Well	1703	7/27/65	160			None			PETTYJOHN, 1968
15508302ABD	25	No Well	1730	3/7/61	84			None			PUSC, 1987, DRILLERS LOG
15508303DDA	3236A	No Well	1747	7/23/65	300			None			PETTYJOHN, 1968
15508303DDD	3236	No Well	1733	7/23/63	40			None			PETTYJOHN, 1968, LOST CIRCULATION AT 40 FT.
15508304AAA	3327	Northwest Buried-Channel	1749.8	6/1/66	465	400	420	ABS	1.25	1.6	PETTYJOHN, 1968, NORTH OF MINOT
15508307BCB	1	No Well	1580	2/27/61	42			None			PETTYJOHN, 1965
15508309AAA1	2367A	North Hill	1795	7/16/65	460	48	51	ABS	1.25		PETTYJOHN, 1968
15508309AAA2	2367B	Northwest Buried-Channel	1791.09	7/16/65	460	258	261	ABS	1.25		PETTYJOHN, 1968, NORTH OF MINOT
15508311ABB	3239	North Hill	1739	7/27/65	320		73	ABS	1.25		PETTYJOHN, 1968

TABLE 1. CONTINUED

Location	Owner/#	Aquifer	L S Elev	Date Drilled	T D	T S	B S	Casing	D	M P	Remarks/Source of log
15508311BCD	13015	Northwest Buried-Channel	1738.39	7/27/92	468	294	306	Steel	2	2.5	NW CORNER OF SOCCER FIELDS
15508312CCC	2218	Northwest Buried-Channel	1725	12/3/63	399		326	ABS	1.25		PETTYJOHN, 1965, WELL DESTROYED
15508312CDC	2236	No Well	1715	5/18/64	252			None			PETTYJOHN, 1965
15508312DAA	17	No Well	1672	2/17/61	94			None			PUSC, 1987, DRILLERS LOG
15508312DCD	2219	Gravel Sediments	1690	12/5/63	231		203	ABS	1.25		PETTYJOHN, 1965
15508312DDD	19	No Well	1674	2/28/61	126			None			PUSC, 1987, DRILLERS LOG
15508313BDB	13121	No Well	1650	10/26/92	330			None			NW corner of lot, old land fill site
15508313BDDC1	13122A	Minot	1587.06	10/27/92	230	178	183	PVC	2	2.1	West well, corner of 3 rd st. and 11 th ave.
15508313BDDC2	13122B	Minot	1587.42	10/28/92	140	118	123	PVC	2	1.6	East Well
15508313CBDC	13117	Minot	1549.44	10/21/92	274	238	241	PVC	2	1.86	South well, West end of Hammond Park, 160 feet of 1.25 inch pvc casing on top and 100 feet of 2 inch casing on top
15508313CBDC2	13169A	Minot	1549.74	5/23/93	200	178	183	PVC	2	2.15	Middle well of nest, West end of Hammond Park
15508313CBDC3	13169B	Minot	1550.07	5/25/93	120	115	120	PVC	2	2.37	North well of nest, West end of Hammond Park
15508313CDB	13017	Minot	1551.35	7/30/92	307	258	263	PVC	2	1.65	HAMMOND PARK, WEST OF TENNIS COURTS, 160 FEET of 1.25 inch pvc casing on bottom, 100 feet of 2 inch pvc casing on top
15508313CDCA	13124	Minot	1551.46	10/29/92	145	118	123	PVC	2	1.65	In Porter Bros. lot 5th & 3rd
15508313DCA	13119	Minot	1547.32	10/22/92	240	118	123	PVC	2	1.87	SE of Hocky rink
15508313DCB1	13118A	Minot	1548.12	10/22/92	240	198	201	PVC	2	1.52	East well, casing broke at 100 ft.
15508313DCB2	13118B	Minot	1548.42	10/22/92	197	182	193	PVC	2	2.18	West well
15508313DCDA	13123	Minot	1550.65	10/28/92	200	138	143	PVC	2	1.85	lot at corner of RR ave. & 8 th st.
15508313DDD	13120	Minot	1549.92	10/23/92	180	107	112	PVC	2	2	lot, 12 th st. & RR ave.
15508314AAD	13165	Northwest Buried-Channel	1653.08	5/21/93	280	238	243	PVC	1.25	2	North of Minot State College Dome, North of Minot Ryan Football field, east of Dome Parking lot
15508314ADD	ERICKSO	Undifferentiated	1675					None			D, D. ERICKSON, SPRING, QW SWC FILES
15508314CAB	13008	No Well	1570	6/30/92	240			None			11th and 11th Park
15508314CAB1	HEBREW	Minot	1560	1945	118		118				PETTYJOHN, 1965
15508314CBB	13164	Minot	1575.19	5/20/93	170	128	133	PVC	2	2.25	On old John Moses Hospital property, East of Barracks
15508314CCB	USGS A2	Minot	1560	1945	127			Steel	4		AKIN, 1947 AND PUSC, 1987, WELL DESTROYED
15508314CDA	MIN. 10	Minot	1550	10/29/60	139		139	Steel	12		PETTYJOHN, 1965, WELL DESTROYED
15508314CDA2	13007	Minot	1556.24	6/29/92	200	138	143	PVC	2	1.59	South well of nest, IN NUBBIN PARK, NORTH OF LIFT STATION
15508314CDA3	13168	Souris Valley	1556.42	5/25/93	40	22	27	PVC	2	2	North well of nest, Nubbin Park
15508314CDD1	MIN. 3	Minot	1548	1931	164	138	158	Steel	12		AKIN, 1947 & PUSC, 1987, WELL DESTROYED
15508314CDD2	CT 3	No Well	1553	1938	161			None			AKIN, 1947 & PUSC, 1987

TABLE 1. CONTINUED

Location	Owner/#	Aquifer	L.S.Elev	Date Drilled	T.D	T.S	B.S	Casing	D	M.P	Remarks/Source of log
15508314CDD3	BW2	No Well	1550	9/30/64	127			None			PETTYJOHN, 1965
15508314CDD4	BOR. 2	No Well	1550	10/30/64	91			None			PETTYJOHN, 1965
15508314DBA1	2233	Minot	1568	5/14/64	293		170	PVC	1.25		PETTYJOHN, 1965
15508314DBA2	M STATE	Minot	1562	1956	212		141	Steel	8		PETTYJOHN, 1965
15508314DBA3	13166	Minot	1558.45	5/24/93	200	138	143	PVC	2	1.87	On campus of Minot State, west of Crane Hall, South of Physical Plant, on east lawn of of old Campus school
15508314DBB	2234	No Well	1569	5/14/64	200			None			PETTYJOHN, 1965
15508314DCA	MIN. 9	Minot	1560	10/5/60	162		148	Steel	12		PETTYJOHN, 1965, WELL DESTROYED
15508314DCB	CITY OB	Minot	1555	7/17/60	141		132	Unknown	3		PETTYJOHN, 1965
15508314DCC	MIN 4	Minot	1548	1939	160	125	155	Steel	15		AKIN, 1947, PUSC 1987, WELL DESTROYED
15508314DDD1	USGS T1	Minot	1555	1945	288		134	Steel	2		AKIN, 1947 & PUSC, 1987
15508314DDD2	MIN. 5	Minot	1554	9/9/46	147		147	Steel	12		PETTYJOHN, 1965, 750 GPM
15508314DDD3	MIN. 6	Minot	1550	12/14/47	139		139	Steel	16		PETTYJOHN, 1965, 750 GPM
15508314DDD4	5412	No Well	1556	7/19/69	200			None			PUSC, 1987
15508314DDD5	13006	Minot	1553.3	6/22/92	300	128	133	PVC	2	1.97	East well of nest, Via View Park, North of Church, South of city wells 5 & 6
15508314DDD6	13167A	Souris Valley	1553.56	5/25/93	90	75	85	PVC	2	2.13	Middle well of nest, via view Park
15508314DDD7	13167B	Souris Valley	1553.65	5/25/93	40	29	34	PVC	2	1.48	West well of nest, Via View Park
15508316CCD	12	No Well	1555	3/6/61	84			None			PETTYJOHN, 1965
15508316CDB1	10	No Well	1550	3/14/61	84			None			PETTYJOHN, 1965
15508316CDB2	11	No Well	1550	3/15/61	52			None			PETTYJOHN, 1965
15508317BDA	2	No Well	1550	3/6/61	105			None			PETTYJOHN, 1965
15508317DAD	9	No Well	1550	1961	126			None			PETTYJOHN, 1965
15508317DBBB	3	No Well	1560	2/7/61	126			None			PETTYJOHN, 1965
15508317DCC	4	No Well	1550	2/9/61	126			None			PETTYJOHN, 1965
15508318AB	USGS	No Well	1570	1947	500			None			PETTYJOHN, 1968
15508320ABB	5	No Well	1550	2/6/61	105			None			PETTYJOHN, 1965
15508320ABC	6	No Well	1560	2/9/61	105			None			PETTYJOHN, 1965
15508320ACC	7	No Well	1560	2/11/61	94			None			PETTYJOHN, 1965
15508320C	WILLIS	Minot	1580	5/30/66			60	Unknown	3		D, T. WILLIS, QW SWC FILES
15508320D	FARM. U	Minot	1575				45	Unknown	4		FARMERS UNION, QW SWC FILES
15508320DBB	8	No Well	1560	2/11/61	115			None			PETTYJOHN, 1965
15508321ADD1	17	No Well	1560	2/21/61	10			None			PETTYJOHN, 1965, ABANDONED HOLE AT 10 FT.
15508321ADD2	18	No Well	1565	2/17/61	34			None			PETTYJOHN, 1965, ABANDONED HOLE AT 34 FT.

TABLE 1. CONTINUED

Location	Owner/#	Aquifer	LS Elev	Date Drilled	TD	TS	BS	Casing	D	MP	Remarks/Source of log
15508321CDA	13	No Well	1555	2/5/61	128			None			PETTYJOHN, 1965, ABANDONED HOLE AT 128 FT.
15508321DAA1	19	No Well	1555	2/14/61	54			None			PETTYJOHN, 1965, ABANDONED HOLE AT 54 FT.
15508321DAA2	MIN. 18	Minot	1561	1961	114		99	Steel	12		PETTYJOHN, 1965, WELL DESTROYED ?
15508321DAB1	GP1	No Well	1539	8/27/64	12.5			None			PETTYJOHN, 1965, ABANDONED HOLE AT 12.5 FT.
15508321DAB2	GP2	No Well	1539	9/3/64	65			None			PETTYJOHN, 1965
15508321DAB3	GP3	No Well	1560	9/4/64	58			None			PETTYJOHN, 1965
15508321DAD	CT 12-T	No Well	1550	1961	114			None			PETTYJOHN, 1965
15508322AAA1	USGS A1	Minot	1555	1945	178		112	Steel	4		AKIN, 1947 & PUSC, 1987, WELL DESTROYED
15508322AAA2	P1	Minot	1549.2	9/30/64	100			ABS	4		PETTYJOHN, 1965
15508322AAA3	P2	Souris Valley	1546.1	9/30/64	40			ABS	4		PETTYJOHN, 1965
15508322AAA4	BW 1	Souris Valley	1550	10/30/64	36				18		PETTYJOHN, 1965, RECHARGE WELL
15508322ABA	USGS B1	Minot	1560	1945	353		93	Steel	2		AKIN, 1947 & PUSC, 1987, WELL DESTROYED
15508322ABC	MIN. 15	Minot	1557	1961	117		115	Steel	12		PETTYJOHN, 1965, 800 GPM, 20.7%, 22BDA is more accurate location
15508322ABD	USGS B2	Minot	1554	1945	59		50	Steel	2		AKIN, 1947, LOG NOT PUBLISHED
15508322ACC1	MIN. 14	Minot	1556	1961	106		105	Steel	16		PETTYJOHN 1965, 950 GPM
15508322ACC2	CT 12AT	No Well	1555	1961	111			None			PETTYJOHN, 1965
15508322ADA1	11-T	No Well	1557	1961	140			None			PETTYJOHN, BR-120 ?
15508322ADA2	MIN. 12	Minot	1555	1961	140		120	Steel	16		PETTYJOHN, 1965, 600 GPM
15508322ADC	MIN. 13	Minot	1557	1961	115		115	Steel	16		PETTYJOHN, 1965, 600 GPM
15508322ADD1	NSP	Minot	1560	1960	96		96	Steel	4		PETTYJOHN, 1965
15508322ADD2	USGS A3	Minot	1557	1945	128		128	Steel	3		AKIN, 1947 & PUSC, 1987
15508322BAB	13-AT	No Well	1583	1961	93			None			PETTYJOHN, 1965
15508322BAB2	13163	No Well	1580	5/20/93	140			None			North of St. John's church along 4th Ave.
15508322BAC	13170	Minot	1564.83	5/26/93	60	47	52	PVC	2		Just west of St. John's Church Parking Lot
15508322BCC1	16	No Well	1570	2/21/61	20			None			PETTYJOHN, 1965, ABANDONED HOLE AT 20 FT.
15508322BCC2	BW 3	Souris Valley	1558	11/2/64	19			Steel	30		PETTYJOHN, 1965, RECHARGE WELL, 30"
15508322BCD1	MIN. 17	Minot	1556	1961	91		87	Steel	16		PETTYJOHN, 1965, NO USE REPORTED 1991
15508322BCD2	R9	Minot	1558.1	10/15/64	78		78	ABS	4		PETTYJOHN, 1965
15508322BDB	CT 13-T	No Well	1557	1961	121			None			PETTYJOHN, 1965
15508322BDC	MIN. 16	Minot	1556	1961	121		111	Steel	16		PETTYJOHN, 1965, 650 GPM, NO USE REPORTED, 1991
15508322CAA	R5	No Well	1559.1	1964	30			None			PETTYJOHN, 1965
15508322CAB1	R4	No Well	1558.7	1964	30			None			PETTYJOHN, 1965

TABLE 1. CONTINUED

Location	Owner/#	Aquifer	L S Elev	Date Drilled	T D	T S	B S	Casing	D	M P	Remarks/Source of log
15508322CAB2	BW 5	Minot	1559.3	12/23/64	35		35	Steel	36		PETTYJOHN, 1965, RECHARGE WELL
15508322CBA1	R2	No Well	1559.2		64			None			PETTYJOHN, 1965
15508322CBA2	R3	No Well	1559	1964	30			None			PETTYJOHN, 1965
15508322CBA3	BW 4	No Well	1559.1	12/22/64	36			None			PETTYJOHN, 1965, RECHARGE WELL
15508322CBB1	R1	No Well	1556.9	1964	30			None			PETTYJOHN, 1965
15508322CBB2	R6	No Well	1559.9	1964	27			None			PETTYJOHN, 1965
15508322CBB3	R8	Minot	1558.35	10/1/64	68		68	ABS	4	1	PETTYJOHN, 1965, 300 FT S. OF YELLOW HOUSE
15508322CDD	13013	Souris Valley	1552.96	7/22/92	100	50	55	PVC	2	1.58	EAST OF GULF COURSE PUMP HOUSE
15508322DAB1	13162A	Minot	1555.8	5/18/93	117	98	103	PVC	2	1.9	West well, North of Perkett School
15508322DAB2	13162B	Souris Valley	1555.84	5/20/93	40	28	33	PVC	2	1.95	East well, north of Perkett School
15508322DB	USGS B3	Minot	1550	1945	90			Steel	2		AKIN, 1947 & PUSC, 1987
15508322DDB	13012	Minot	1558.14	7/21/92	140	110	115	PVC	2	1.74	EAST OF RIVER LIFT STATION
15508323AAD	13005	Minot	1552.17	6/23/92	291	118	123	PVC	2	1.68	SOUTH END OF VIA VIEW PARK
15508323BA1	CT 8	No Well	1550	1915	135			None			AKIN, 1947 & PUSC, 1987
15508323BA2	CT 1	No Well	1550	1938	154			None			AKIN, 1947 & PUSC, 1987
15508323BA3	CT 2	No Well	1550	1938	155			None			AKIN, 1947 & PUSC, 1987
15508323BAA1	MIN. 1	Minot	1550	1916	138	92	132	Steel	10		AKIN, 1947 & PUSC, 1987, 890 GPM, WELL DESTROYED
15508323BAA2	MIN. 2	Minot	1550	1918	132	92	132	Steel	12		AKIN, 1947 & PUSC, 1987, WELL DESTROYED
15508323BAA3	MIN. 7	Minot	1550	2/10/48	125		125	Steel	16		PETTYJOHN, 1965, WELL DESTROYED
15508323BAB1	MIN. 8	Minot	1555	6/10/48	133.5		132.5	Steel	16		PETTYJOHN, 1965, NOW USED AS RECORDER WELL
15508323BAB2	2227	Minot	1550	5/11/64	120		118	ABS	1.25		PETTYJOHN, 1965
15508323BAB3	2227A	Souris Valley	1550	5/11/64	21		21	ABS	1.25		PETTYJOHN, 1965, WL= 11.27 FT, 6/1/64
15508323BAC1	13009A	Minot	1554.81	7/20/92	150	118	123	PVC	2	1.44	EAST WELL, IN OAK PARK SOUTH OF CITY WELL 8
15508323BAC2	13009B	Souris Valley	1555.02	7/21/92	40	33	38	PVC	2	2.08	WEST WELL, IN OAK PARK SOUTH OF CITY WELL 8
15508323BB	CT 10	Minot	1550	1915	126		126	Unknown	5		AKIN, 1947 & PUSC, 1987
15508323BBA1	2222	Minot	1550	5/26/64	100		100	ABS	4		PETTYJOHN, 1965
15508323BBA2	2223	Minot	1550	5/4/64	116		116	ABS	4		PETTYJOHN, 1965
15508323BBA3	2225	Minot	1550	5/5/64	104		104	ABS	4		PETTYJOHN, 1965
15508323BBA4	2225A	Minot	1550	5/5/64	21			ABS	1.25		PETTYJOHN, 1965
15508323BBA5	2226	Minot	1550	5/7/64	117	114	117	ABS	1.25		PETTYJOHN, 1965
15508323BBA6	2226A	Souris Valley	1550	5/7/64	21		21	ABS	1.25		PETTYJOHN, 1965 WL=10.02, 6/1/64
15508323BBA7	2241	Minot	1550	5/22/64	102		102	ABS	1.25		PETTYJOHN, 1965

TABLE 1. CONTINUED

Location	Owner/#	Aquifer	L.S.Elev	Date Drilled	T.D.	T.S.	B.S.	Casing	D	M.P.	Remarks/Source of log
15508323BBA8	2241A	Souris Valley	1550	5/21/64	18		18	ABS	1.25		PETTYJOHN, 1965, WL=11.06, 6/1/64
15508323BBA9	CORE3	No Well	1550	5/21/64	46.2			None			PETTYJOHN, 1965
15508323BBA10	TC 4	Souris Valley	1554.2	6/5/64	18		18	Unknown	4		PETTYJOHN, 1965
15508323BBB1	2220	Souris Valley	1550	4/28/64	114		56	ABS	4		PETTYJOHN, 1965, WL= 13.84, 4/28/64
15508323BBB2	2221	Minot	1550	4/30/64	102.5		92	ABS	4		PETTYJOHN, 1965
15508323BBB3	2224	Minot	1555.57	5/5/64	110		101	ABS	4	0.15	PETTYJOHN, 1965, OAK P.,IN GAL. SHEL.
15508323BBB4	2228	Minot	1550	5/12/64	110		110	ABS	1.25		PETTYJOHN, 1965, LOST CIRCULATION
15508323BBB5	2228A	Souris Valley	1550	5/12/64	21		21	ABS	1.25		PETTYJOHN, 1965, WL= 10.74, 6/1/64
15508323BBB6	2231	Souris Valley	1550	5/14/64	21		21	ABS	1.25		PETTYJOHN, 1965, WL= 13.86, 6/1/64
15508323BBB7	2232	Souris Valley	1550	5/14/64	21		21	ABS	1.25		PETTYJOHN, 1965, WL= 17.31, 6/1/64
15508323BBB8	P3	No Well	1551	9/30/64	60			None			PETTYJOHN, 1965
15508323BBB9	P4	No Well	1550	10/1/64	40			None			PETTYJOHN, 1965
15508323BBB10	P7	No Well	1553	10/1/64	40			None			PETTYJOHN, 1965
15508323BBB11	P8	No Well	1554.2	10/2/64	60			None			PETTYJOHN, 1964
15508323BBC1	2229	Minot	1550	5/13/64	102		100	ABS	1.25		PETTYJOHN, 1965
15508323BBC2	2229A	Souris Valley	1550	5/13/64	21		21	ABS	1.25		PETTYJOHN, 1965, WL= 8.86, 6/1/64
15508323BBC3	2230	Minot	1550	5/13/64	96		83	ABS	1.25		PETTYJOHN, 1965
15508323BBC4	2230A	Souris Valley	1550	5/13/64	21		21	ABS	1.25		PETTYJOHN, 1965, WL= 4.92, 6/1/64
15508323BBC5	2235	Minot	1550	5/15/64	100		100	ABS	1.25		PETTYJOHN, 1965
15508323BBC6	P5	No Well	1553.8	10/1/64	60			None			PETTYJOHN, 1965
15508323BBC7	P6	No Well	1549	10/1/64	60			None			PETTYJOHN, 1965
15508323BBC8	P9	No Well	1552.7	10/2/64	60			None			PETTYJOHN, 1965
15508323BBD	MIN. 11	Minot	1554	1961	130		130	Steel	16		PETTYJOHN, 1965, 600 GPM
15508323BC1	CT 3	No Well	1550	1915	75			None			AKIN, 1947 & PUSC, 1987
15508323BC2	CT 4	No Well	1550	1915	43			None			AKIN, 1947 & PUSC, 1987
15508323BC3	CT 6	No Well	1550	1915	126			None			AKIN, 1947 & PUSC, 1987
15508323BCA	13011	Minot	1555.92	7/21/92	127	118	123	PVC	2	1.62	OAK PARK 1/4 MILE WEST OF 23BAC, ALONG RIVER
15508323BCB	2237	Minot	1550	5/16/64	96		96	ABS	1.25		PETTYJOHN, 1965
15508323BD	CT 11	No Well	1550	1915	148			None			AKIN, 1947 AND PUSC, 1987
15508323BDA1	CT 12	No Well	1550	1915	137			None			AKIN, 1947 & PUSC, 1987
15508323BDA2	CT 7	No Well	1550	1915	133			None			AKIN, 1947 & PUSC, 1987
15508323BDD	CT 11BT	No Well	1552	1961	122			None			PETTYJOHN, 1965
15508323BDD2	13161A	Minot	1555.29	5/18/93	140	108	113	PVC	2	1.6	In NE corner of Moose Park, south of Railroad Tracks

TABLE 1. CONTINUED

Location	Owner/#	Aquifer	LS Elev	Date Drilled	TD	TS	BS	Casing	D	MP	Remarks/Source of log
15508323BDD3	13161B	Souris Valley	1555.37	5/18/93	40	28	33	PVC	2	1.6	East Well
15508323CBB	CT 11A	No Well	1555	1961	100			None			PETTYJOHN, 1965
15508323CBC	USGS A4	Souris Valley	1554	1945	266		30	Unknown	4		AKIN, 1947 & PUSC, 1987, WL= 16, 3/8/46
15508324AAA1	2217	Minot	1560	11/19/63	128		110	ABS	1.25		PETTYJOHN, 1965, WL= 52.97, 5/5/64
15508324AAA2	2217A	Souris Valley	1560	11/19/63	40		40	ABS	4		PETTYJOHN, 1965, WL= 13.94, 5/5/64
15508324ADDA1	13014A	Minot	1548.14	7/22/92	180	118	123	PVC	2	1.48	WEST WELL, WEST OF CHILDRENS ZOO
15508324ADDA2	13014B	Souris Valley	1548.28	7/24/92	40	20	25	PVC	2	1.2	EAST WELL, WEST OF CHILDRENS ZOO
15508324BAAC	13016	Minot	1550.98	7/29/92	280	98	103	PVC	2	1.37	BEHIND CITY SIGN SHOP
15508324BAB3	NSP 1	Minot	1555	1930	102		100	Unknown			AKIN, 1947 & PUSC, 1987
15508324BAB4	NSP 2	Minot	1555	1932	111		109	Unknown			AKIN, 1947 & PUSC, 1987
15508324BAC2	WHITES	No Well	1550	10/3/63	194			None			PETTYJOHN, 1965, WHITES CREAMERY
15508325AAB1	11364A	No Well	1730	10/20/83	380			None			PUSC, 1987
15508325AAB2	113648	South Hill	1719.9	11/3/83	400	336	345	Steel	2	2.59	PUSC, 1987 , well destroyed in 1989
15508325BBB	TOADS	No Well	1725	10/1/91	440			None			Toads Wash & Shine
15508325BDD1	5226	No Well	1730	10/23/68	500			None			PUSC, 1987
15508325BDD2	5405	No Well	1730	7/18/69	267			ABS	2		PUSC, 1987, 2 INCH WELL SCREEN PLUGGED, PULLED WELL
15508325CBB	N. BOTT	South Hill	1748		215		215	Unknown			NORTHERN BOTTLE WORKS, PETTYJOHN, 1965
15508325DDD	2240	No Well	1710	5/22/64	483			None			PETTYJOHN, 1965
15508326BBB3	ATLAS	Tongue River	1575		320			Steel	6		ATLAS SAND AND GRAVEL, PETTYJOHN, 1965
15508326CCD	2238	No Well	1747	5/18/64	168			None			PETTYJOHN, 1965
15508327BBD	LEHOLM	Tongue River	1572	1957	94		94	Unknown			JOE LEHOLM, PETTYJOHN, 1965
15508328ADA	HOHUMM	Tongue River	1687		310		310	Unknown	4		HOHUM MOTEL, PETTYJOHN, 1965
15508328BAA	14	No Well	1570	2/3/61	126			None			PETTYJOHN, 1965
15508328BAD	15	No Well	1560	2/2/61	84			None			PETTYJOHN, 1965
15508335AAA1	2239	No Well	1732	5/19/64	473			None			PETTYJOHN, 1965
15508335AAA4	PURITY	Gravel Sediments	1728	1959	280		280	Unknown			PURITY DAIRY, PETTYJOHN, 1965
15508335AAD	JORDAHL	Gravel Sediments	1723	1959	215		215	Unknown	4		JORDAHL ANIMAL HOSPITAL, PETTYJOHN, 1965
15508336AAB	11349	South Hill	1712.8	9/28/83	391	315	327	Steel	2	2.92	PUSC, 1987, SWC #11349 Sampled with drill rig.
15508336ABB	11348	South Hill	1714.2	9/27/83	372	315	324	Steel	2	0.55	PUSC, 1987, SWC #11348 Sampled with drill rig.
15508336ADD	11352	South Hill	1728.1	10/5/83	380	315	327	Steel	2	2.5	PUSC, 1987, SWC #11352 Sampled with drill rig.
15508336BAC	11347	No Well	1690	9/26/83	360			None			PUSC, 1987
15508336DCB	11351	South Hill	1741.1	10/4/83	340	245	265	PVC	2	2.06	PUSC, 1987, WOULD NOT PUMP
15508336DDD	5217	South Hill	1732	10/15/68	440	197	203	ABS	1.25		PUSC, 1987, WELL DESTROYED

TABLE 2. LITHOLOGIC LOGS OF TEST HOLES AND WELLS

155-082-07AAA
NDSWC 5408

Date Completed:	7/19/69	Well Type:	None
Depth Drilled (ft):	80	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1615

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	black	0-1
CLAY	silty, moderately plastic and cohesive, moderately calcareous, moderate yellowish brown, numerous sand grains and pebbles of carbonates and igneous rocks (TILL)	1-5
GRAVEL	fine to coarse, mostly medium to coarse, moderately well sorted sub angular, about 50-60% carbonates, remainder igneous rocks, shale; oxidized, iron stained	5-15
CLAY	silty, olive gray to dark greenish gray, moderately plastic and cohesive, sand grains and pebbles of limestone and dolostone, shale and igneous rocks, also some lignite (glacial till)	15-65
SANDSTONE	fine, silty, moderately hard, light bluish gray, very slightly calcareous, mostly quartz, a few lignite grains; interbedded with claystone and siltstone; brownish gray, (bedrock, Fort Union)	65-80

155-082-07BAA
NDSWC 5407

Date Completed:	7/19/69	Well Type:	None
Depth Drilled (ft):	100	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1629

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	black	0-1
CLAY	silty, moderately plastic and cohesive, moderately to highly calcareous, numerous sand grains and pebbles of limestone, dolostone and igneous rocks, drills easy, (TILL)	1-27
CLAY	very silty, very slightly plastic and cohesive, quite hard, olive gray to dark greenish gray, slightly calcareous, numerous sand grains, pebbles of limestone, dolostone, and igneous rocks; layer of medium to coarse sand 75-77 ft, some lignite, (TILL)	27-77
SANDSTONE	very fine to fine, clayey and silty, noncalcareous, light bluish gray, interbedded with claystone and siltstone; lignite 88-92 ft, (bedrock Fort Union)	77-100

155-082-07DDD

NDSWC 5406

Date Completed:	7/19/69	Well Type:	None
Depth Drilled (ft):	100	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1627

Lithologic Log

Unit	Description	Depth (ft)
CLAY	silty, numerous sand grains and pebbles, pale yellowish brown to moderate yellowish brown, moderately plastic and cohesive, highly calcareous, sand and pebbles, mostly carbonates and granite; drills easy, (TILL)	0-19
SAND	medium to coarse, some fine, moderately well sorted, subangular to subrounded, mostly carbonates with shale and igneous rocks	19-22
CLAY	silty with numerous sand grains and pebbles of limestone and dolostone, shale and igneous rocks, olive gray, moderately cohesive and plastic, highly calcareous, drills easy, (TILL)	22-68
MUDSTONE & CLAYSTONE	greenish gray; to dark greenish gray, hard, slightly plastic, moderately cohesive, interbedded with very fine to fine sand, clayey, bluish gray; all cuttings very slightly calcareous, (bedrock, Fort Union)	68-100

155-082-08ABB

NDSWC 5409

Date Completed:	7/19/69	Well Type:	None
Depth Drilled (ft):	140	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1657

Lithologic Log

Unit	Description	Depth (ft)
CLAY	silty, some fine sand, grayish orange, moderately plastic and cohesive, slightly to moderately calcareous, numerous pebbles and cobbles of carbonates, igneous rocks, (TILL)	0-19
CLAY	silty, olive gray, slightly plastic and cohesive, moderately calcareous, numerous pebbles or carbonates and igneous rocks, fairly hard; interbedded with sand layer up to 3 ft thick, medium to coarse	19-38
SAND	coarse, some medium sand and fine gravel, moderately well sorted, subangular to subrounded; 60-70% carbonates and quartz, remainder shale and black igneous rocks; interbedded clay layers 3-4 ft thick	38-56
CLAY	very silty and sandy, olive gray, slightly plastic and moderately plastic, slightly calcareous sand grains and pebbles or carbonates and shale, (TILL)	56-61
SAND	coarse to very coarse some fine to coarse gravel, moderately well sorted, composition as sand above	61-77
CLAY	very silty and sandy, (TILL)	77-112
SANDSTONE	fine, silty, light bluish gray, noncalcareous, interbedded with layers of dark gray siltstone and claystone, (bedrock, Fort Union)	112-140

155-082-09CCC

NDSWC 5410

Date Completed:	7/19/69	Well Type:	None
Depth Drilled (ft):	140	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1678

Lithologic Log

Unit	Description	Depth (ft)
CLAY	silty to sandy, dusky yellow, moderately plastic and cohesive, highly calcareous, numerous sand grains and pebbles of carbonates and igneous rocks, (TILL)	0-26
CLAY	silty and sandy, olive gray, moderately plastic and cohesive, moderately calcareous, sand grains and pebbles of carbonates and igneous rocks interbedded with sand layers up to 4 ft thick; intervals on driller's log., coarse to very coarse, angular to subangular, 50-60% carbonates	26-112

155-082-09CCC, cont.

LIGNITE		112-114
SANDSTONE	light bluish gray, very fine to fine, interbedded with brownish gray claystone and siltstone, noncalcareous, (bedrock, Fort Union)	114-140

155-082-10DCD

NDSWC 17-992

Date Completed:	4/19/63	Well Type:	None
Depth Drilled (ft):	63	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1590

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	silty, deep brown	0-1
CLAY	silty to sandy with pebbles, dusky yellow to moderate olive brown, soft, loosely consolidated, fairly sticky, oxidized, (TILL)	1-12
SAND	fine to coarse, gray, moderately sorted, subangular to subrounded; mainly quartz with many 'orange specks' may be partially oxidized	12-14
CLAY	silty with sand pebbles and cobbles, olive gray, cohesive, moderately soft, unoxidized, (TILL)	14-20
TILL	clayey, as above with numerous sandy to gravelly layers	20-38
CLAY	silty, light gray to dusky brown, smooth except for sandy areas which are gritty, moderately soft, cohesive, plastic, noncalcareous, (bedrock, Fort Union)	38-44
LIGNITE	black, fissile	41-44
SAND	medium, clayey, grayish brown with a tint of red, moderately consolidated, well sorted, noncalcareous	44-53
SAND	as above, but light greenish gray	53-63

155-082-12AAA

NDSWC 8-992

Date Completed:	4/15/63	Well Type:	None
Depth Drilled (ft):	47	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1575

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	sandy loam, dark brown	0-1
CLAY	silty and sandy, poorly consolidated, soft, oxidized, leached, contains small lenses of gravel, (TILL)	1-18
CLAY	silty, moderately olive brown to light olive gray, tightly consolidated, cohesive, calcareous, partially oxidized, (TILL)	18-23
CLAY	silty to sandy with pebbles, olive gray, moderately soft, tight, plastic, cohesive, calcareous, unoxidized, (TILL)	23-37
SAND	fine to medium, greenish gray, moderately consolidated, well sorted, subangular to subrounded, noncalcareous (bedrock, Fort Union)	37-42
CORE		42-47

155-082-13CBC

NDSWC 16-992

Date Completed:	4/18/63	Well Type:	None
Depth Drilled (ft):	84	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1603

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	silty loam, black; underlain by a couple inches of coarse sand	0-1
CLAY	sandy, moderately olive brown, moderately soft, cohesive, plastic, tight; calcareous, partially oxidized, (TILL)	1-9
TILL	as above, olive gray, unoxidized, contains pebbles and lignite fragments, also sandy and gravelly zones	9-38
SAND	medium, olive gray, well sorted, subrounded, saturated; mainly quart, but contains lignite, feldspar, limestone, scoria, and heavy minerals	38-40
CLAY	silty to sandy, olive gray, moderately soft, cohesive, plastic, tight; contains numerous pebbles and cobbles and several thin sand and gravel deposits	40-61

155-082-13CBC, cont.

SAND	fine to medium, greenish gray, moderately consolidated, well sorted, noncalcareous (bedrock, Fort Union)	61-84

155-082-15B

NDSWC 1394

Date Completed:	9/17/58	Well Type:	None
Depth Drilled (ft):	94.5	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1641

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-3
CLAY	yellow to light brown, fine gravel and some large pebbles, slightly oxidized (weathered TILL)	3-22
TILL	clay, dark gray, abundant angular fine gravel, and coarse sand grains with lignite and shale fragments	22-32
TILL	clay, gray, fine gravel becoming more abundant at greater depth, shale pebbles, and lignite fragments	32-85
CLAY	sandy, gray (Fort Union)	85-94.5

155-082-19AAA

USGS 1

Date Completed:	9/2/47	Well Type:	None
Depth Drilled (ft):	100	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1636

Lithologic Log

Unit	Description	Depth (ft)
SOIL	and clay, sandy, yellow, with some gravel and fine sand	0-14
CLAY	sandy, brown, with some gravel	14-17
CLAY	sandy, yellow, with some gravel	17-33
CLAY	sandy, brown	33-37
CLAY	sandy, gray, with some gravel	37-41
CLAY	sandy, gray, with thin strips of gravel	41-43
SAND	fine, and gravel with thin strips of lignite fragments and gray sandy clay	43-54

155-082-19AAA, cont.

CLAY	sandy, gray, with thin strips of fine sand and lignite fragments	54-59
SAND	fine	59-60
CLAY	sandy, gray, with thin strips of lignite fragments	60-62
SAND	fine	62-63
CLAY	sandy, gray, with thin strips of lignite fragments	63-74
CLAY	sandy, gray, with strips of lignite	74-77
SAND	gray, compact	77-92
LIGNITE		92-95
SAND	compact, gray, with strips of lignite	95-100

155-082-19ADB

Harrington Brothers Livestock

Date Completed:	2/28/52	Well Type:	livestock
Depth Drilled (ft):	256	Principal Aquifer :	Fort Union
Screened Interval (ft):	?-256	L.S. Elevation (ft)	1570

Lithologic Log

Unit	Description	Depth (ft)
CLAY		0-10
SHALE	dark (small amount of water)	10-12
CLAY	blue	12-34
SHALE	dark (small amount of water)	34-36
CLAY	blue	36-87
CLAY	gray	87-249
HARD MATERIAL		249-251
SHALE	(water)	251-254

155-082-19ADB, cont.

CLAY	blue	254-256

155-082-19BB
Great Northern Railroad

Date Completed:		Well Type:	None
Depth Drilled (ft):	180	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1555

Lithologic Log

Unit	Description	Depth (ft)
CLAY	with sand and rocks	0-35
CLAY	sand, and gravel	35-60
GRAVEL	sand, small amount of clay	60-67
CLAY	sandy	67-80
CLAY		80-83
QUICKSAND		83-115
CLAY	with streaks of sand and rocks	115-122
CLAY	and rocks with a little sand; very hard	122-125
CLAY	with sand and rocks	125-140
CLAY & SAND		140-145
CLAY	with some rocks	145-155
CLAY		155-180

155-082-19DBD

NDSWC 2216

Date Completed:	11/15/63	Well Type:	monitoring
Depth Drilled (ft):	126	Principal Aquifer :	Minot
Screened Interval (ft):	98-108	L.S. Elevation (ft)	1543.42

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-1
CLAY	silty to sandy, yellow to olive brown	1-10
SAND	medium to coarse; gravel, fine, clayey	10-32
CLAY	sandy, dark greenish gray	32-39
CLAY	dark greenish gray; alternating with sand, very fine to fine	39-72
GRAVEL	fine to medium; sand, coarse,; gastropod and pelecypod fragments	72-107
SAND	very fine, light greenish gray, clayey (bedrock, Fort Union)	107-126

155-082-19DDA

Rueben. Forsburg

Date Completed:		Well Type:	domestic
Depth Drilled (ft):	96	Principal Aquifer :	Sand Sediments
Screened Interval (ft):	?-96	L.S. Elevation (ft)	1548

Lithologic Log

Unit	Description	Depth (ft)
CLAY	brown	0-26
QUICKSAND		26-28
CLAY	sandy	28-34
CLAY	blue	34-53
SOFT BLUE CLAY		53-64
SANDY BLUE CLAY		64-65
BLUE CLAY		65-80

155-082-19DDA, cont.

SANDY CLAY	80-84
SAND & CLAY	84-85
QUICKSAND	85-91
SAND & WATER	91-96

155-082-19DDA2

NDSWC 5180

Date Completed:	9/9/68	Well Type:	None
Depth Drilled (ft):	40	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1547

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	silty, clayey, slightly sandy, brownish black	0-1
CLAY	silty, moderately sandy, pebbly, dusky yellow to moderate yellowish brown, moderately cohesive, moderately plastic, oxidized (TILL)	1-4
CLAY	same as above only gravelly, moderate yellowish brown to dark yellowish brown (TILL)	4-10
CLAY	very silty, slightly sandy, dark yellowish brown to brownish black, laminated, slightly to moderately cohesive, calcareous (fluvial sediment)	10-15
SILTSTONE	moderately clayey, light olive gray, moderately indurated, noncalcareous, a few thin lignite layers (bedrock, Fort Union)	15-20
SANDSTONE	slightly clayey, moderately silty, dark greenish gray to medium bluish gray (oxidized to moderate yellowish brown upper 5-8 ft of section), consolidated, not cemented, noncalcareous	20-40

155-082-20CC1

Minot

Date Completed:	1/1/52	Well Type:	None
Depth Drilled (ft):	128	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1558

Lithologic Log

Unit	Description	Depth (ft)
ROCK	with yellow clay	0-8
CLAY	yellow	8-15
CLAY	blue (bedrock, Fort Union)	15-34
CLAY	sandy, blue	34-109
CLAY	blue	109-127
SHALE		127-128

155-082-20CC2

Minot

Date Completed:	1/1/52	Well Type:	None
Depth Drilled (ft):	220	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1560

Lithologic Log

Unit	Description	Depth (ft)
CLAY	yellow, with rock	0-8
COAL	(bedrock, Fort Union)	8-10
CLAY	blue	10-41
CLAY	sandy, blue	41-114
CLAY	blue	114-146
SHALE		146-220

155-082-20CC3

Minot

Date Completed:	1/1/52	Well Type:	None
Depth Drilled (ft):	142	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1549

Lithologic Log

Unit	Description	Depth (ft)
SAND & GRAVEL	with black loam	0-5
CLAY	blue (bedrock, Fort Union)	5-7
COAL		7-9
CLAY	blue	9-38
CLAY	sandy, blue	38-97
CLAY	heavy, blue	97-139
SHALE		139-142

155-082-20DCC

Siesta Motel

Date Completed:		Well Type:	domestic
Depth Drilled (ft):		Principal Aquifer :	undifferentiated
Screened Interval (ft):	?-65	L.S. Elevation (ft)	?

Lithologic Log

Unit	Description	Depth (ft)
no log	see water quality table	

155-082-22CCB

NDSWC 1393

Date Completed:	9/17/58	Well Type:	None
Depth Drilled (ft):	105	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1628

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-4
CLAY	yellowish brown, coarse sand grains, and fine gravel (weathered TILL)	4-15
TILL	clay, gray, fine to medium gravel, becomes sandier with depth, shale pebbles, and lignite fragments	15-64
SAND	fine, silty, gray	64-73

155-082-22CCB, cont.

TILL	clay, sandy, gray, fine gravel, shale pebbles, lignite, and cobbles	73-88
CLAY	sandy, gray (bedrock, Fort Union)	88-105

155-082-22DDD

NDSWC 18-992

Date Completed:	4/19/63	Well Type:	None
Depth Drilled (ft):	84	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1629

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	sandy loam, brownish black	0-1
MARL	sandy, light gray, soft, very highly calcareous	1-3
SAND	fine, light tan, well sorted, subrounded, slightly calcareous, mixed with clay	3-9
CLAY	sandy, moderately olive brown to medium gray, soft, fairly smooth, cohesive, calcareous	9-12
CLAY	silty to sandy with pebbles, olive gray, moderately soft, cohesive (till)	12-19
CLAY	sandy, olive gray, moderately soft, cohesive, plastic, tight, contains pebbles and cobbles and several sandy to gravelly layers	19-54
GRAVEL	fine to coarse with coarse sand, moderately sorted, subangular to subrounded, saturated, predominantly quartz and limestone with lesser amounts of igneous and metamorphic rocks, lignite, shale and a piece of petrified wood	54-61
CLAY	till as above the gravel	61-72
SAND	medium, dusky brown, highly organic, noncalcareous; moderately consolidated (bedrock, Fort Union)	72-78
SAND	fine to medium, greenish gray, well sorted, moderately consolidated	78-84

155-082-23AAB

Great Northern Railroad

Date Completed:		Well Type:	None
Depth Drilled (ft):	410	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1630

Lithologic Log

Unit	Description	Depth (ft)
CLAY		0-15
CLAY	mixed with sand	15-20
CLAY & GRAVEL		20-25
CLAY		25-29
CLAY & GRAVEL		29-50
CLAY		50-55
CLAY & ROCKS		55-60
CLAY	sandy	60-67
CLAY	sandy, trace of coal	67-70
CLAY	gravel, and sand	70-74
CLAY	sand, and rocks	74-81
ROCKS & CLAY		81-86
SAND	very little clay	86-105
SAND & CLAY		105-115
CLAY	sandy	115-143
HARD	may be rock	143-144
CLAY & SANDY		144-150

155-082-23AAB, cont.

CLAY		150-152
SAND & CLAY	hard to drill	152-160
SAND & CLAY	mostly clay	160-167
HARD CLAY	very little sand	167-172
CLAY		172-325
CLAY	black	325-343
CLAY	dark	343-345
CLAY	dark, with streaks of sand	345-367
CLAY	becoming lighter and more sandy	367-372
CLAY	light; with streaks of sand and a little rock	372-375
	layer of hardpan, rock and clay	375-376
CLAY	dark; with sand and rock	376-378
CLAY	hard; with streaks of sand	378-410

155-082-28CCC

Great Northern Railroad A

Date Completed:		Well Type:	None
Depth Drilled (ft):	135	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1540

Lithologic Log

Unit	Description	Depth (ft)
	black dirt and sand	0-10
SAND	very little clay	10-20
CLAY	blue; and rock	20-35
CLAY	gray	35-45
CLAY & SAND		45-70

155-082-28CCC, cont.

CLAY	mixed with sand	70-95
CLAY	very little sand	95-112
CLAY	gray	112-135

155-082-29BBB
NDSWC 5182

Date Completed:	9/10/68	Well Type:	monitoring
Depth Drilled (ft):	100	Principal Aquifer :	Souris Valley
Screened Interval (ft):	90-93	L.S. Elevation (ft)	1544.3

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	clayey, slightly sandy, dark yellowish brown	0-1
CLAY	very silty, slightly sandy, dusky yellow to moderate yellowish brown, moderately cohesive, moderately plastic, oxidized (fluvial sediment)	1-16
CLAY	very silty to moderately silty, interbedded with thin layers of very fine grained sand (to 28 bls), olive gray, a few light olive gray laminations, slightly to moderately cohesive, plastic, calcareous (fluvial sediment)	16-46
SAND	silty, interbedded with silty clay, very fine to medium grained (mostly very fine to fine), angular to rounded, 70-80% quartz, remainder carbonates and lignite, taking very little water	46-58
CLAY	very silty, slightly sandy, olive gray with occasional light olive gray laminations, slightly to moderately cohesive, plastic, calcareous (fluvial sediment)	58-86
SAND	gravelly, silty, slightly clayey, fine to very coarse grained, angular to subrounded, poorly sorted, very poor sample return, not taking water	86-90
GRAVEL	and cobbles, silty, mostly limestone, dolostone, and light colored granitics, angular to subrounded, poorly sorted, not taking water	90-93
SANDSTONE	silty, slightly clayey, medium bluish gray, very fine grained, subangular, lignitic, noncalcareous, consolidated, not cemented (Tongue River Formation)	93-100

155-082-29BBC1

NDSWC 2215

Date Completed:	11/15/63	Well Type:	monitoring
Depth Drilled (ft):	126	Principal Aquifer :	Souris Valley
Screened Interval (ft):	80-100	L.S. Elevation (ft)	1543.3

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
CLAY	silty to sandy, light olive gray	2-10
CLAY	dark greenish gray; minor amount of thin sandy layers; numerous pelecypods at 18 ft	10-68
CLAY	silty and sandy, dark greenish gray; sand, fine to medium	68-83
SAND	medium to coarse; gravel, fine to medium; boulder pavement at 99-100 ft	83-100
SAND	fine, light greenish gray, clayey; shale, olive gray (bedrock, Fort Union)	100-126

155-082-29BBC2

NDSWC 5183

Date Completed:	9/10/68	Well Type	monitoring
Depth Drilled (ft):	120	Principal Aquifer :	Souris Valley
Screened Interval (ft)		L.S. Elevation (ft)	1545

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	silty, clayey, sandy, dark brown	0-1
CLAY	very silty, moderately sandy, moderate yellowish brown to dark yellowish brown, slightly cohesive, plastic, samples washing out, oxidized (fluvial sediment)	1-13
SAND	very silty, clayey, very fine to fine grained, subangular, fair sorting, mostly quartz and carbonates, oxidized	13-18
CLAY	very silty, moderately to slightly sandy, olive gray with light olive gray laminations, slightly cohesive, plastic (fluvial sediment)	18-38

155-082-29BBC2, cont.

SAND	silty, very fine to fine grained, subangular to subrounded, fair to moderately sorted, mostly quartz (70-80%) remainder carbonates and lignite, not taking much water	38-46
SILT	clayey, olive gray with occasional light olive gray laminations, moderately to slightly cohesive, plastic, calcareous (thinly interbedded with very fine grained sand) (fluvial sediment)	46-92
SAND	interbedded with clayey silt, medium to very coarse grained, angular to subrounded, fair sorting, mostly light colored granitics, quartz and carbonates, not taking water, small amount of detrital lignite	92-105
BOULDER	dolostone, yellowish gray	105-107
SANDSTONE	silty, medium bluish gray, very fine grained, subangular, consolidated, not cemented, mostly quartz, some lignite (bedrock, Fort Union)	107-120

155-082-29BCB

NDSWC 5181

Date Completed:	9/9/68	Well Type:	monitoring
Depth Drilled (ft):	120	Principal Aquifer :	Souris Valley
Screened Interval (ft):	100-103	L.S. Elevation (ft)	1544.9

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	silty, slightly sandy, dark yellowish brown	0-1
CLAY	very silty, moderately sandy, dusky yellow to moderate yellowish brown, slightly cohesive, plastic, oxidized (fluvial sediment)	1-16
SILT	moderately clayey, slightly sandy, olive gray, slightly cohesive, plastic, very calcareous, samples washing out in drilling water (fluvial sediment)	16-54
SAND	very fine to fine grained, subangular t subrounded, well sorted, 75-85% quartz, remainder carbonates and lignite, no fluid loss	54-58
SILT	very clayey, thinly interbedded with very fine grained sand, olive gray to dark greenish gray, slightly to moderately cohesive, plastic, calcareous, occasional light olive gray laminations, a few carbonaceous plant stems	58-78

155-082-29BCB, cont.

SAND	thinly interbedded with very silty clay, very fine to very coarse, grained, angular to subrounded, fair sorting, 45-55% quartz, remainder mostly light colored granitics and carbonates, small percentage lignite, shale and sandstone grains, taking small amount of drilling water	78-100
GRAVEL	moderately sandy, fine to coarse, fair sorting, angular to subrounded, mostly light colored granitics and carbonates (limestone and dolostone) with small percentage shale, lignite and sandstone, taking small amount of water, not caving	100-103
SANDSTONE	silty, medium bluish gray, very fine to medium grained, subangular, consolidated, not cemented, non-calcareous, lignitic (bedrock, Fort Union)	103-120

155-082-29CBC

NDSWC 5179

Date Completed:	9/9/68	Well Type:	monitoring
Depth Drilled (ft):	80	Principal Aquifer :	Souris Valley
Screened Interval (ft):	48-53	L.S. Elevation (ft)	1558.2

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	sandy, silty, clayey, dark yellowish brown	0-1
CLAY	silty, slightly sandy, pebbly, dusky yellow to moderate yellowish brown, slightly to moderately cohesive, moderately plastic, oxidized (TILL)	1-13
SAND	gravelly (approximately 20-30% fine, angular to subrounded gravel), occasional thin clay layers, very fine to very coarse grained (mostly medium to coarse grained), angular to subrounded, moderately well sorted, approximately 60-70% quartz, remainder limestone, dolostone and granitics, slightly lignitic, oxidized, taking water rapidly, caving some	13-45
CLAY	silty, slightly sandy, pebbly, olive gray, moderately cohesive, plastic, calcareous (TILL)	45-50
GRAVEL	very slightly sandy, fine to coarse (mostly fine to medium), angular to subrounded, fair sorting, mostly light colored granitics and limestone and dolostone, some shale and sandstone, taking water and caving, mixed two bags drilling mud	50-53
CLAY	silty, pebbly, olive gray, moderately cohesive, moderately plastic, calcareous, numerous limestone, dolostone and shale fragments in clay matrix (TILL)	53-60

155-082-29CBC, cont.

SANDSTONE	slightly to moderately clayey, very fine to fine grained, subangular to subrounded, consolidated, noncalcareous, oxidized to moderate brown, from 'to' slightly lignitic lower 5-6' of section medium bluish gray in color (bedrock, Fort Union)	60-80

155-082-30CCD

NDSWC 11350

Date Completed:	9/29/83	Well Type:	Monitoring
Depth Drilled (ft):	400	Principal Aquifer :	Sundre
Screened Interval (ft):	294-303	L.S. Elevation (ft)	1716

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
CLAY	yellow brown, silty, sandy, pebbly, oxidized (TILL)	1-22
CLAY	olive gray, silty, sandy, pebbly, interbedded sand and gravel (TILL)	22-47
SAND	subrounded to rounded, interbedded gravel	47-52
CLAY	olive gray, silty, sandy, pebbly (TILL)	52-57
SAND	medium sand to pebble size gravel, subrounded to rounded, interbedded clay	57-71
CLAY	olive gray, silty, sandy, pebbly, interbedded sand and detrital lignite	71-188
CLAY	olive gray, silty, sandy, interbedded detrital lignite (lacustrine)	188-190
CLAY	olive gray, silty, sandy, pebbly, interbedded fine sand	190-221
SAND	fine to medium angular to rounded	221-235

155-082-30CCD, cont.

CLAY	olive gray, silty, sandy, pebbly	235-241
CLAY	very silty, sandy, interbedded detrital lignite	241-256
SAND	very fine to medium, subrounded to rounded	256-300
GRAVEL	medium sand to pebble size gravel, subrounded to rounded	300-307
CLAY	olive gray, silty, interbedded sandy clay, carbonaceous (Fort Union)	307-400

155-082-30DCC

State Hwy. weigh station

Date Completed:	1961	Well Type:	Domestic
Depth Drilled (ft):	257	Principal Aquifer :	Sundre
Screened Interval (ft):	?-257	L.S. Elevation (ft)	1715

Lithologic Log

Unit	Description	Depth (ft)
CLAY	brown	0-25
CLAY	sandy	25-33
GRAVEL	with clay	33-47
GRAVEL	with blue clay	47-50
CLAY	sandy, with quicksand	50-58
CLAY	blue; mixed with gravel	58-85
COAL	gravel, hard clay, sand, water	85-88
SAND	hard	88-94
GRAVEL	with water	94-96
CLAY	blue; with gravel	96-106
SAND	with water	106-109
CLAY	sandy, blue	109-112

155-082-30DCC, cont.

GRAVEL	with clay	112-120
SAND	with gravel and water	120-123
GRAVEL	with clay	123-132
CLAY	sandy, blue	132-165
GRAVEL	gravel is hard, mixed with blue clay	165-180
CLAY	sandy, blue	180-195
CLAY	sandy, brown	195-218
CLAY	sandy, blue	218-220
GRAVEL	with clay	220-222
CLAY	sand, brown	222-224
QUICKSAND		224-227
CLAY	soft, blue	227-230
CLAY	blue	230-244
SAND	sand is fine; mixed with water	244-257

155-082-30DCC2

NDSWC 11353

Date Completed:	10/4/83	Well Type:	None
Depth Drilled (ft):	340	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1710

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-2
CLAY	yellow brown, silty, sandy, fill mixed with till	2-22
SAND	very fine to fine, silty, oxidized	22-25
CLAY	olive gray, silty, sandy, pebbly, interbedded sand	25-139
SAND	very fine to fine, subrounded to rounded	139-149
GRAVEL		149-151
CLAY	olive gray, silty, sandy, cohesive, plastic (fluvial)	151-157
CLAY	olive clay (lacustrine)	157-204
CLAY	olive gray, silty, sandy, plastic, interbedded detrital lignite	204-272
SAND	medium sand to fine gravel	272-274
CLAY	brownish, interbedded detrital lignite	274-284
CLAY	grayish, brownish	284-289
CLAY	whitish gray, silty, slightly sandy, interbedded siltstone (Fort Union)	289-340

155-082-31AAA

NDSWC 5184

Date Completed:	9/10/68	Well Type:	monitoring
Depth Drilled (ft):	70	Principal Aquifer :	Sand Sediments
Screened Interval (ft):	37-40	L.S. Elevation (ft)	1616

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	silty, slightly sandy, clayey, brownish black	0-1
CLAY	very silty, sandy, pebbly, dusky yellow to moderate yellowish brown, moderately cohesive, moderately plastic, oxidized (TILL)	1-2
GRAVEL	sandy, fine to coarse, angular to subrounded, fair sorting, mostly light colored granitics and carbonates, oxidized to light brown not taking much water	2-5
CLAY	silty, sandy, pebbly, moderate yellowish brown, slightly to moderately cohesive, moderately plastic, oxidized (TILL)	5-14
SAND	gravelly (approximately 25-35% fine to coarse, angular to subrounded gravel), fine to very coarse grained, angular to subrounded, moderately well sorted, predominantly quartz and carbonates (60-70% approximately), remainder mostly light colored granitics, shale and sandstone, very small percentage detrital lignite, rapidly taking water, caving, oxidized throughout, lower 6' cobbles and gravel; mixed two mud	14-46
SANDSTONE	(occasional thin lignite bedding), silty, very slightly clayey, medium bluish gray, very fine to fine grained, subangular, consolidated, not cemented, noncalcareous (bedrock, Fort Union)	46-70

155-082-31AAD

NDSWC 5185

Date Completed:	9/10/68	Well Type:	None
Depth Drilled (ft):	140	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1635

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	silty, slightly sandy, clayey, brownish black	0-1
CLAY	moderately sandy, silty, gravelly upper 10' of section, moderate yellowish brown, cohesive, slightly to moderately clastic, oxidized (TILL)	1-28
CLAY	silty, pebbly, olive gray, cohesive to moderately cohesive, moderately plastic, numerous pebbles (TILL)	28-36

155-082-31AAD, cont.

SAND	fine to medium grained, angular, subrounded, fair sorting (poor samples)	36-37
CLAY	silty, pebbly, olive gray, moderately cohesive, moderately plastic, calcareous (TILL)	37-42
SAND	fine to very coarse grained (mostly medium to coarse), moderately well sorted, subangular to rounded, 60-70% quartz, remainder light colored granitics, less than 2-5% lignite; taking some water, not caving	42-44
CLAY	same as above, olive gray (TILL)	44-46
SAND	medium to coarse grained, angular to subrounded, moderately well sorted, mostly quartz and granitics, taking some water, not caving	46-47
CLAY	sandy, silty, pebbly, olive gray, slightly to moderately cohesive, slightly plastic (TILL)	47-53
SAND	slightly gravelly, medium to very coarse grained, subangular to rounded, well sorted, mostly quartz and light colored (greenish white to pinkish white), granitics, some shale and carbonates, taking small amount of water not caving	53-59
CLAY	silty, pebbly, occasional sand layers (fine to medium), olive gray, cohesive to moderately cohesive, moderately plastic, calcareous, limestone, dolostone, and granitic fragments in clay matrix (TILL)	59-80
CLAY	silty, slightly sandy, pebbly, occasional cobbles, olive gray, moderately cohesive, to cohesive, moderately plastic, calcareous, numerous limestone, dolostone, and shale fragments in clay matrix (TILL)	80-111
SILTSTONE	brownish gray to medium dark gray, slightly siliceous, noncalcareous, indurated, interbedded with medium bluish gray to dark greenish gray fine grained sandstone, occasional thin limestone laminae (bedrock, Fort Union)	111-140

155-082-31ADD

NDSWC 11355

Date Completed:	10/10/83	Well Type:	None
Depth Drilled (ft):	240	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1700

Lithologic Log

Unit	Description	Depth (ft)
SAND	very fine to coarse, silty, rounded, interbedded clay, oxidized	0-12
CLAY	yellowish brown, silty, sandy, pebbly, interbedded gravel, oxidized (TILL)	12-46
CLAY	olive gray, silty, sandy, pebbly (TILL)	46-67
SAND	fine to coarse, subrounded to rounded	67-76
CLAY	olive gray, silty, sandy, pebbly, interbedded sand and gravel	76-83
CLAY	olive gray, silty, sandy, pebbly, cohesive, plastic	83-169
CLAY	olive gray, plastic (fluvial)	169-174
CLAY	gray to black, carbonaceous, bentonite	174-190
SANDSTONE	very fine, interbedded siltstone (Fort Union)	190-240

155-082-31CAD

NDSWC 11497

Date Completed:	10/3/84	Well Type:	monitoring
Depth Drilled (ft):	320	Principal Aquifer :	Sundre
Screened Interval (ft):	273-282	L.S. Elevation (ft)	1713.2

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
CLAY	yellowish brown, iron stained, oxidized silty sandy with pebbles (TILL)	1-44
CLAY	olive gray, silty, sandy with pebbles (TILL) sand and gravel layers, 72-73, 96-100, 204-212, 216, 218, 235-236	44-238
SAND	gravelly, 40% igneous and quartz, 10% lignites, 25% carbonates, 25% shale, well rounded to subrounded	238-246

155-082-31CAD, cont.

TILL	olive gray, as above	246-249
SAND	gravelly, 50% igneous and quartz, 10% lignites, 25% carbonates, 15% shale, taking water, not caving, 60% medium to coarse sand, 40% fine gravel	249-286
TILL	as above	286-291
CLAY	brownish to gray, greasy, some bentonite, white to light gray when dried, bedrock	291-320

155-082-31CDC

NDSWC 11358

Date Completed:	10/12/83	Well Type:	None
Depth Drilled (ft):	500	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1715

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
CLAY	yellow brown, silty, brittle, friable, interbedded sand and gravel, oxidized (TILL)	1-31
SAND	fine to coarse, predominantly fine, subrounded, oxidized	31-36
CLAY	yellow brown, silty, brittle, friable, oxidized (TILL)	36-38
CLAY	olive gray, very silty, slightly plastic, interbedded sand (TILL)	38-88
SAND	very coarse sand to fine gravel, predominantly very coarse sand, subangular	88-91
CLAY	olive gray, silty, sandy, pebbly, slightly cohesive and plastic (TILL)	91-154
CLAY	brownish gray, slightly silty and sandy, very tight and plastic (lacustrine)	154-178
SILT	brownish gray, slightly clayey, interbedded detrital lignite and clay	178-275
GRAVEL	fine, angular, carbonates and detrital lignite	275-288
SILT	brownish gray, slightly clayey	288-293

155-082-31CDC, cont.

GRAVEL	fine to coarse, angular to rounded, interbedded detrital lignite, silt, and clay	293-313
CLAY	brownish gray, silty, interbedded silt	313-380
SILT	brownish gray, slightly clayey, becomes coarser with depth to very fine sand	380-470
SANDSTONE	very fine to fine (Fort Union)	470-498
LIGNITE		498-500

155-082-31DCA

NDSWC 11357

Date Completed:	10/11/83	Well Type:	monitoring
Depth Drilled (ft):	420	Principal Aquifer :	Sundre
Screened Interval (ft):	315-321	L.S. Elevation (ft)	1711

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
CLAY	yellowish green brown, very silty, sandy, friable, interbedded sand and gravel, oxidized (TILL)	1-47
CLAY	olive gray, very silty, plastic, interbedded sand (TILL)	47-62
SAND	very fine, rounded	62-68
CLAY	olive gray, very silty, plastic, interbedded sand (TILL)	68-164
SILT	carbonaceous, interbedded clay, detrital lignite and gravel	164-171
CLAY	greenish gray, slightly sandy	171-184
CLAY	olive gray, silty, pebbly, interbedded fluvial silty clay (TILL)	184-205
CLAY	olive gray to brown, silty, some interbedded carbonaceous material and very fine sand	205-221
SAND	fine, very clayey, becomes coarse with depth to medium sand	221-290
SAND	coarse to very coarse, subangular to rounded, becomes coarser with depth to coarse gravel	290-335

155-082-31DCA, cont.

CLAY	poor sample return, cobbly	335-377
SHALE	dark gray to greenish gray, indurated (Fort Union)	377-391
SANDSTONE	very fine, clayey	391-420

155-082-31DDA

NDSWC 11356

Date Completed:	10/11/83	Well Type:	monitoring
Depth Drilled (ft):	80	Principal Aquifer :	Sand Sediments
Screened Interval (ft):	43-48	L.S. Elevation (ft)	1583.7

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
SILT	greenish gray, clayey	1-6
GRAVEL	very coarse sand to pebble size gravel, predominantly gravel, angular to rounded, predominantly subangular	6-9
CLAY	olive gray, slightly silty, pebbly, slightly plastic, siltier with depth	9-21
SAND	fine, subrounded	21-55
SILTSTONE	brown to greenish gray, very clayey, carbonaceous, interbedded shale	55-80

155-082-31DDB

Nessen

Date Completed:		Well Type:	domestic
Depth Drilled (ft):		Principal Aquifer :	Sand Sediments
Screened Interval (ft):	?-24	L.S. Elevation (ft)	

Lithologic Log

Unit	Description	Depth (ft)
no log	see water quality table	

155-082-32ABA

NDSWC 5521

Date Completed:	10/1/69	Well Type:	None
Depth Drilled (ft):	140	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1544

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	silty, clayey, sandy, grayish black	0-1
CLAY	(a few thin fine grained sand lenses) very silty, dark yellowish brown, moderately cohesive, very plastic, oxidized, stratified (alluvium)	1-18
CLAY	(a few thin fine grained sand lenses and layers), very silty, olive gray to dark greenish gray, moderately to slightly cohesive, very plastic, very calcareous, stratified (alluvium)	18-83
SAND	very silty, slightly gravelly, interbedded throughout with lenses and layers of silty clay, fine to coarse grained, poor to fair sorted, subangular to rounded, approximately 50-70% quartz, 10-20% carbonates, granitics and shale, less than 10% lignite, taking small amount of water, not caving in	83-120
BOULDER	sandstone, hard	120-122
SILTSTONE	clayey, sandy, brownish gray to medium bluish gray to light gray, bedded, noncalcareous, slightly to moderately indurated (bedrock, Fort Union)	122-140

155-082-33BCB

NDSWC 5520

Date Completed:	10/1/69	Well Type:	None
Depth Drilled (ft):	140	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1545

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	silty, clayey, sandy, grayish black	0-1
CLAY	very silty, interbedded with thin sand (very fine grained) lenses and layers, light brownish gray to pale yellowish brown slightly cohesive, plastic, stratified, oxidized (alluvium)	1-6
CLAY	same as above, only dark greenish gray, stratified (alluvium)	6-20

155-082-33BCB, cont.

CLAY	very silty, interbedded with thin lenses and layers of fine gravel (sandy) from 20-27' bls, medium gray to olive gray, slightly cohesive, very plastic, stratified, calcareous, lignitic (alluvium)	20-85
SAND	slightly gravelly (fine gravel), very silty, interbedded with silty clay, very fine to very coarse grained, subangular to rounded, fair sorting, approximately 50-60% quartz, remainder mostly carbonates and granitics, less than 15% lignite, not water loss	85-114
GRAVEL	clayey, sandy, fine to coarse (some cobble sized material), angular to rounded, poorly sorted, mostly granitics and carbonates, no water loss	114-116
SILTSTONE	clayey, sandy, medium bluish gray to brownish gray, bedded, moderately indurated, noncalcareous (bedrock, Fort Union)	116-140

155-082-33CCD

NDSWC 5187

Date Completed:	9/10/68	Well Type:	monitoring
Depth Drilled (ft):	120	Principal Aquifer :	Souris Valley
Screened Interval (ft):	46-49	L.S. Elevation (ft)	1550.6

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	silty, slightly sandy, clayey, dark brown	0-1
CLAY	silty, moderately sandy, pebbly, dusky yellow to moderate yellowish brown, moderately cohesive, moderately plastic, oxidized (TILL)	1-20
SAND	slightly gravelly (approximately 25-35% fine, subangular gravel), fine to very coarse grained, angular to subrounded, moderately well sorted, approximately 50-60% quartz, remainder mostly carbonates, small amount of shale and lignite present, taking some water, slightly oxidized, not caving	20-32
SILT	slightly clayey, medium dark gray, slightly cohesive, plastic, calcareous, samples washing out (fluvial sediment)	32-42
SAND	interbedded with very silty clay (olive gray), very fine to coarse grained (mostly very fine to medium), angular to subrounded, fair sorting, mostly carbonates with small amount of shale, not taking much water or caving	42-56
CLAY	very silty, interbedded with fine to coarse grained sand, olive gray, slightly to moderately cohesive, plastic, calcareous	56-70

155-082-33CCD, cont.

COBBLES & GRAVEL	silty, clayey, no water loss, mostly partially oxidized limestone and dolostone, some granitics, sandstone, and shale	70-72
SANDSTONE	slightly silty, moderate yellowish brown to medium bluish gray, fine grained, consolidated, noncalcareous (bedrock, Fort Union)	72-120

155-082-33CDA

Newan

Date Completed:		Well Type:	domestic
Depth Drilled (ft):		Principal Aquifer :	Souris Valley
Screened Interval (ft):	?-20	L.S. Elevation (ft)	

Lithologic Log

Unit	Description	Depth (ft)
no log	see water quality table	

155-082-33CDD

5188

Date Completed:	9/11/68	Well Type:	monitoring
Depth Drilled (ft):	140	Principal Aquifer :	Souris Valley
Screened Interval (ft):	47-52	L.S. Elevation (ft)	1547.3

Lithologic Log

Unit	Description	Depth (ft)
ROAD FILL	silty, clayey, pebbly, moderate yellowish brown	0-3
CLAY	very silty, interbedded with very fine grained sand, dusky yellow to moderate yellowish brown, slightly cohesive, plastic, oxidized (fluvial sediment)	3-20
CLAY	very silty, interbedded with very fine grained sand, olive gray with occasional light olive gray laminations, slightly cohesive, plastic, silt washing out (fluvial sediment)	20-42
SAND	interbedded with clayey silt, fine to coarse grained, angular to subrounded, fair sorting, mostly quartz, lignitic, not taking water	42-50
GRAVEL	slightly to moderately sandy, silty, fine to medium, angular to subrounded, moderately well sorted, mostly light colored granitics and carbonates (limestone and dolostone) with some shale, lignite and sandstone, not taking water, not caving	50-57
CLAY	very silty, olive gray with occasional light olive gray laminations, slightly cohesive, plastic, calcareous, interbedded with thin lenses of very fine to fine grained sand (fluvial sediment)	57-96

155-082-33CDD, cont.

GRAVEL	and cobbles, clayey, silty, mostly limestone, dolostone, and light colored (pinkish reddish) granite, not taking much water, caving some	96-99
CLAY	very silty, a few thin sand lenses, some detrital lignite chips, olive gray, slightly to moderately cohesive, plastic, very calcareous (fluvial sediment)	99-118
SAND	silty, clayey, fine to coarse grained, angular to subangular, poorly sorted, mostly quartz with moderately cohesive, plastic, very calcareous (fluvial sediment)	118-124
SILTSTONE	moderately clayey, medium gray to grayish brown, interbedded, noncalcareous, moderately indurated, occasional thin lignite layers (Fort Union Group)	124-140

155-082-33DBC

NELSON

Date Completed:		Well Type:	domestic
Depth Drilled (ft):		Principal Aquifer :	Souris Valley
Screened Interval (ft):	?-36	L.S. Elevation (ft)	

Lithologic Log

Unit	Description	Depth (ft)
no log	see water quality table	

155-082-33DBC2

NDSWC 5522

Date Completed:	10/1/69	Well Type:	None
Depth Drilled (ft):	100	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1547

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	silty, sandy, clayey, grayish black	0-1
CLAY	very silty, dark yellowish brown, moderately cohesive, very plastic, oxidized (alluvium)	1-16
CLAY	very silty, dark greenish gray to olive gray, moderately cohesive, moderately plastic, laminated (alluvium)	16-24
SAND	silty, a few thin silty clay lenses, very fine to coarse grained (mostly fine to medium grained), subangular to rounded, moderately well sorted, approximately 60-70% quartz, remainder carbonated, granitics, shale and lignite	24-34
CLAY	very silty, occasional thin sand lenses, olive gray to medium dark gray, moderately cohesive, moderately plastic, stratified (alluvium)	34-68

155-082-33DBC2, cont.

SAND	slightly gravelly, silty, very fine to very coarse grained (mostly fine to medium grained), subangular to rounded, moderately well sorted, approximately 50-60% quartz, 10-20% carbonates and granitics, remainder shale and lignite, no water loss	68-75
CLAY	silty, moderately sandy, olive gray to medium dark gray, cohesive, very plastic, moderately calcareous, laminated (alluvium)	75-80
COBBLES	with boulders and gravel, granitics, sandstone, shale, limestone and dolostone, taking a little water, caving, very rough drilling	80-94
SILTSTONE	clayey, slightly sandy, brownish gray to medium gray, moderately indurated, noncalcareous, bedded (bedrock, Fort Union)	94-100

155-082-33DCC

NDSWC 5189

Date Completed:	9/11/68	Well Type:	monitoring
Depth Drilled (ft):	160	Principal Aquifer :	Souris Valley/Sundre
Screened Interval (ft):	117-120	L.S. Elevation (ft)	1544.6

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	sandy, silty, clayey, dark yellowish brown	0-1
GRAVEL	slightly sandy, silty, clayey, fine to medium, angular to subangular, poorly sorted, oxidized	1-5
CLAY	silty, slightly to moderately sandy, pebbly, moderate yellowish brown, moderately cohesive, moderately plastic, oxidized (TILL)	5-18
SAND	fine to coarse grained, subangular to subrounded, fair sorting, mostly quartz and carbonates, some lignite, not taking water	18-30
CLAY	very silty, olive gray with occasional light olive gray laminations, slightly to moderately cohesive, plastic, interbedded with thin sand lenses (very fine to fine grained), very calcareous (fluvial sediment)	30-50
GRAVEL	sandy (approximately 25-35% medium to very coarse grained, angular to subrounded sand), fine to medium, angular to subangular, fair sorting, mostly light colored granitics and carbonates, some shale, not taking water	50-56

155-082-33DCC, cont.

CLAY	very silty, very calcareous, interbedded with thin sand (very fine to fine grained) sand lenses, olive gray to medium dark gray, slightly cohesive, plastic, silt washing out in drilling mud (fluvial sediment)	56-94
SAND	very slightly gravelly, fine to very coarse grained, subangular to subrounded, well sorted, mostly quartz and carbonates, taking small amount of drilling water, not caving	94-100
GRAVEL	sandy, (approximately 30-40% medium to very coarse grained angular to subrounded sand), fine to coarse (becomes more coarse with depth), angular to rounded, slightly to moderately oxidized, mostly subangular to subrounded, moderately well sorted, approximately 40-50% limestone and dolostone (yellowish gray to grayish orange), remainder mostly shale (grayish black to medium dark gray), and light colored granite, less than 5% sandstone, lignite and other siliceous rocks, taking water rapidly, mixed two bags of bentonite, caving	100-123
SAND	slightly silty, clayey, very fine to medium grained, subangular to rounded (mostly subrounded), well sorted, 70-80% quartz, remainder carbonates and lignite, not taking much water	123-133
GRAVEL	sandy (approximately 20-30% medium to very coarse grained, angular to subrounded sand), fine to coarse (becomes more coarse with depth), subangular to subrounded, mostly carbonates, remainder mostly light colored granitics and shale, taking water, caving in	133-136
SANDSTONE	interbedded with clayey sandstone, slightly silty, clayey, medium bluish gray, very fine to fine grained, subangular, consolidated, noncalcareous (Tongue River Formation)	136-160

155-082-33DDD

NDSWC 5191

Date Completed:	9/12/68	Well Type:	monitoring
Depth Drilled (ft):	160	Principal Aquifer :	Souris Valley
Screened Interval (ft):	57-60	L.S. Elevation (ft)	1592.9

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	sandy, pebbly, moderate yellowish brown	0-1
GRAVEL	sandy, (approximately 35-45% medium to very coarse grained, angular to subrounded sand), fine to coarse (mostly fine to medium), angular to subrounded, fair sorting, oxidized to light brown, mostly carbonates with some shale, light colored granite and lignite, taking water rapidly, caving slightly	1-20
CLAY	silty, moderately sandy, gravelly, olive gray, moderately cohesive, moderately plastic, calcareous, numerous limestone, dolostone, granitic, and shale fragments in clay matrix (TILL)	20-49
GRAVEL	interbedded with clayey silt, sandy (approximately 30-40% medium to very coarse grained, angular to subrounded sand), fine to coarse (mostly fine to medium), angular to rounded, mostly subangular to subrounded, moderately well sorted, approximately 20-30% carbonates, 30-40% light colored granitics and other siliceous rocks, remainder sandstone, siltstone, 1-5% detrital lignite, very small percentage free clear to milky quartz, taking water rapidly, caving	49-80
CLAY	very silty, interbedded with thin lenses of very fine to coarse lignitic sand, olive gray to medium dark gray, slightly to moderately cohesive, plastic, calcareous (fluvial sediment)	80-126
BOULDER	limestone	126-128
SANDSTONE	very fine grained, silty, interbedded with siltstone, medium bluish gray to brownish gray, moderately indurated, noncalcareous (bedrock, Fort Union)	128-160

155-082-34CDC

NDSWC 5199

Date Completed:	9/18/68	Well Type:	monitoring
Depth Drilled (ft):	120	Principal Aquifer :	Gravel Sediments
Screened Interval (ft):	86-89	L.S. Elevation (ft)	1611.4

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	sandy, gravelly, dark yellowish brown	.5
SAND	slightly silty, very fine to medium grained, angular to subrounded, well sorted, oxidized to light brown, mostly quartz and carbonates	0.5-7
CLAY	silty, very sandy (interbedded with lenses of very fine to medium grained sand), dusky yellow to moderate yellowish brown, slightly cohesive, plastic, silt washing out in mud	7-25
GRAVEL	sandy, silty, fine to medium, angular to subrounded, poorly sorted, mostly limestone, dolostone and shale with a few light colored granitics, oxidized, taking some water, caving slightly	25-32
CLAY	silty, very slightly sandy, pebbly, olive gray, moderately cohesive, moderately plastic, calcareous, limestone dolostone and shale fragments in clay matrix (TILL)	32-46
SILTSTONE	slightly siliceous, medium bluish gray, noncalcareous, moderately indurated	46-74
GRAVEL	silty, clayey, fine to coarse, angular to subrounded, poorly sorted, mostly oxidized carbonates and shale, not taking water, caving slightly	74-76
BOULDER	shale, moderate brown, indurated, noncalcareous	76-78
GRAVEL	clayey, silty, fine to coarse, unsorted, angular to subangular, mostly detrital lignite and carbonates	78-82
CLAY	silty, slightly sandy, pebbly, dark yellowish brown, cohesive, slightly plastic, calcareous, partially oxidized (TILL)	82-85
GRAVEL	not taking water, caving slightly, slightly sandy, silty, clayey, fine to coarse, angular to subangular, poorly sorted, mostly lignite, shale and light colored granitics	85-94
SILTSTONE	moderately clayey, very slightly siliceous, medium gray to medium bluish gray, indurated, noncalcareous, slightly interbedded with fine grained sandstone (bedrock, Fort Union)	94-120

155-082-34CDD

NDSWC 5197

Date Completed:	9/17/68	Well Type:	monitoring
Depth Drilled (ft):	140	Principal Aquifer :	Gravel Sediments
Screened Interval (ft):	70-73	L.S. Elevation (ft)	1592.1

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	sandy, pebbly, gravelly, dark yellowish brown	0-1
CLAY	very sandy, silty, pebbly, moderate yellowish brown, moderately cohesive, moderately plastic, oxidized (TILL)	1-6
SAND	very fine to medium grained, subangular to rounded, well sorted, mostly quartz, oxidized light brown, taking some water	6-15
CLAY	dark yellowish brown to olive gray, very silty, sandy, occasional pebbles, moderately cohesive, moderately plastic, oxidized (TILL)	15-24
SAND	slightly gravelly, very fine to very coarse grained (mostly medium to very coarse grained), subangular to subrounded, fair sorting, taking small amount of water	24-30
SILTSTONE	a few thin lignite laminae, medium gray, interbedded with sandstone, medium bluish gray, very fine to fine grained, not cemented, consolidated, noncalcareous (Tongue River Formation), bedrock, black	30-58
SAND	gravelly (slightly to moderately gravelly; becomes more gravelly with depth, fine to medium, angular to subrounded gravel), very fine to very coarse (mostly medium to coarse) grained, angular to rounded, fair to well sorted, taking water rapidly lower 15 ft of section, mixed 1 bag bran, mostly quartz, carbonates, chalcedony, some light colored granitics and lignite	58-76
SILT	very sandy and interbedded occasionally with very fine grained sand lenses, olive gray, slightly cohesive, plastic, very calcareous, washing out in drilling mud	76-78
GRAVEL	slightly sandy, silty, fine to coarse, angular to subrounded, fair to poorly sorted, mostly carbonates, light colored granitics and shale	78-80
CLAY	silty, pebbly, a few cobbles, dark yellowish brown to dark greenish gray, cohesive, slightly to moderately plastic, calcareous, partially oxidized (TILL)	80-100

155-082-34CDD, cont.

SANDSTONE	medium bluish gray, very fine to fine grained, cemented, indurated, slightly calcareous (bedrock, Fort Union)	100-103
SILTSTONE	slightly siliceous, medium bluish gray, noncalcareous, moderately indurated, a few thin laminae and lignite	103-140

155-083-01ACB

NDSWC 15

Date Completed:	2/23/61	Well Type:	None
Depth Drilled (ft):	157	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1695

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	black	0-1
CLAY	brownish, yellow, silty	1-14
GRAVEL	medium to coarse, sand layers	14-21
CLAY	greenish gray, sandy, with coal fragments	21-32
CLAY	greenish sandy clay with sand layers	32-84
GRAVEL	coarse with some coal, not taking much water	84-96
CLAY	gray, sandy, with coal layers (bedrock, Fort Union)	96-131
CLAY	gray, sandy with coal	131-147
CLAY	grayish blue, sand (bedrock)	147-157

155-083-01ACC

NDSWC 14

Date Completed:	2/23/61	Well Type:	None
Depth Drilled (ft):	126	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1700

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	black	0-1
CLAY	brown, silty	1-15
GRAVEL	medium coarse, with sand layers, dirty gravel	15-21
CLAY	greenish gray, sandy	21-32
CLAY	greenish gray, sandy with sandy layers	32-48
GRAVEL	medium coarse with sand layers	48-54
CLAY	yellowish gray, sandy with coal	54-84
GRAVEL	medium coarse with coal	84-104
CLAY	gray sandy with coal	104-110
GRAVEL	with sand layers	110-114
COAL		114-116
CLAY	gray blue, sandy, shale (bedrock, Fort Union)	116-126

155-083-01CCC

NDSWC 3237

Date Completed:	7/26/65	Well Type:	monitoring
Depth Drilled (ft):	180	Principal Aquifer :	North Hill
Screened Interval (ft):	?-30	L.S. Elevation (ft)	1716

Lithologic Log

Unit	Description	Depth (ft)
TILL	silty and sandy, yellow brown	0-25
GRAVEL	fine to coarse, rusty	25-30
TILL	silty and sandy, olive gray	30-75
TILL	silty and sandy, olive gray; many thin layers of sand and gravel	75-140
SAND	interbedded; fine, light gray to brownish black shale, and black lignite	140-180

155-083-01CCD

NDSWC 3238

Date Completed:	7/27/65	Well Type:	None
Depth Drilled (ft):	160	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1703

Lithologic Log

Unit	Description	Depth (ft)
TILL	silty and sandy, yellow brown; sand and gravel at 26-28 ft	0-45
TILL	silty and sandy, olive gray; many thin layers of sand and gravel	45-135
SAND	interbedded; fine, light gray shale, and black lignite	135-160

155-083-02ABD

NDSWC 25

Date Completed:	3/7/61	Well Type:	None
Depth Drilled (ft):	84	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1730

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	black	0-2
CLAY	brown, silty	2-15
GRAVEL	fine to medium	15-21
CLAY	greenish brown, silty with coal fragments	21-41
SAND	fine to medium with coal rough drilling	41-44
GRAVEL	medium to coarse with a little coal	44-49
CLAY	gray, silty, hard drilling	49-59
ROCK		59-62
CLAY	gray, silty with coal	62-74
CLAY	light bluish gray sandy, hard drilling (bedrock, Fort Union)	74-84

155-083-03DDA

NDSWC 3236A

Date Completed:	7/23/65	Well Type:	None
Depth Drilled (ft):	300	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1747

Lithologic Log

Unit	Description	Depth (ft)
GRAVEL	fine to medium, rusty	0-11
TILL	silty and sandy, yellow brown; few pebbles	11-37
TILL	silty and sandy, olive gray; few pebbles and boulders	37-56
GRAVEL	coarse	56-61
TILL	silty and sandy, olive gray; few boulders	61-140

155-083-03DDA, cont.

TILL	silty and very sandy; olive gray	140-184
GRAVEL	interbedded; coarse and sandy olive gray till	184-252
CLAY	sandy, greenish gray	252-276
LIGNITE	black	276-300

155-083-03DDD
NDSWC 3236

Date Completed:	7/23/63	Well Type:	None
Depth Drilled (ft):	40	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1733

Lithologic Log

Unit	Description	Depth (ft)
SAND	fine, silty, yellow brown	0-5
SILT	clayey and sandy, yellow brown; few thin layers of gravel	5-30
CLAY	silty and sandy, olive brown; (lost circulation, hole abandoned at 40 ft)	30-40

155-083-04AAA
NDSWC 3327

Date Completed:	6/1/66	Well Type:	monitoring
Depth Drilled (ft):	465	Principal Aquifer :	Northwest Buried-Channel
Screened Interval (ft):	400-420	L.S. Elevation (ft)	1749.8

Lithologic Log

Unit	Description	Depth (ft)
SILT	clayey and sandy, yellow brown; some pebbles	0-14
TILL	silty and sandy, olive gray; many thin layers of sand and gravel between 78-126 ft, some boulders	14-199
SAND	very fine to fine	199-238
CLAY	light olive gray	238-263
CLAY	interbedded; silt and sand, light olive gray	263-347
TILL	silty, light olive gray to olive gray	347-393
BOULDERS		393-396

155-083-04AAA, cont.

GRAVEL	fine to coarse, and medium to coarse sand, some boulders	396-430
SHALE	sandy, olive gray	430-456
SAND	very fine, light greenish gray	456-465

155-083-07BCB

NDSWC 1

Date Completed:	2/27/61	Well Type:	None
Depth Drilled (ft):	42	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1580

Lithologic Log

Unit	Description	Depth (ft)
CLAY	yellow	0-6
CLAY	silty; coal fragments	6-9
COAL		9-10
CLAY	silty, grayish blue	10-34
CLAY	sandy, greenish gray	34-42

155-083-09AAA1

NDSWC 2367A

Date Completed:	7/16/65	Well Type:	monitoring
Depth Drilled (ft):	460	Principal Aquifer :	North Hill
Screened Interval (ft):	48-51	L.S. Elevation (ft)	1795

Lithologic Log

Unit	Description	Depth (ft)
TILL	silty and sandy, yellow brown	0-16
TILL	silty and sandy, olive gray; few pebbles	16-32
GRAVEL	fine to medium, sandy	32-50
TILL	silty and sandy, olive gray; abundance of lignite chips, few thin layers of sand and gravel	50-235
GRAVEL	fine to coarse, abundance of boulders	235-262
TILL	silty and sandy, olive gray; few boulders and thin layers of gravel	262-360

155-083-09AAA1, cont.

TILL	silty and sandy, olive gray; few pebbles and boulders	360-422
SHALE	medium gray	422-438
CLAY	very sandy, dark greenish gray	438-460

155-083-09AAA2

NDSWC 2367B

Date Completed:	7/16/65	Well Type:	monitoring
Depth Drilled (ft):	460	Principal Aquifer :	Northwest Buried-Channel
Screened Interval (ft):	258-261	L.S. Elevation (ft)	1791.09

Lithologic Log

Unit	Description	Depth (ft)
see 9AAA 1 for log		

155-083-11ABB

NDSWC 3239

Date Completed:	7/27/65	Well Type:	monitoring
Depth Drilled (ft):	320	Principal Aquifer :	North Hill
Screened Interval (ft):	?-73	L.S. Elevation (ft)	1739

Lithologic Log

Unit	Description	Depth (ft)
SAND	fine, clayey, yellow brown	0-4
TILL	sandy, yellow brown	4-32
GRAVEL	fine to medium, rusty	32-36
TILL	sandy, olive gray	36-44
SAND	fine to coarse	44-74
TILL	silty and sandy, olive gray; few boulders	74-215
CLAY	interbedded; sandy, gray, fine sand, and black lignite	215-296
SANDSTONE	fine, light greenish gray	296-320

155-083-11BCD

NDSWC 13015

Date Completed:	7/27/92	Well Type:	monitoring
Depth Drilled (ft):	468	Principal Aquifer :	Northwest Buried-Channel
Screened Interval (ft):	294-306	L.S. Elevation (ft)	1738.39

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
CLAY	yellowish brown, silty, sandy with pebbles, oxidized till	1-24
GRAVEL	sandy, oxidized	24-29
CLAY	oxidized till	29-32
CLAY	olive grey, silty, sandy with pebbles, till, layers of sand from 42-43, 46-47, 62-63, 74-75, 78-79 and 84-85	32-243
SAND	medium to very coarse, well rounded to subrounded, mixture of carbonates, shales, granites and lignite	243-257
CLAY	olive gray, sandy	257-268
SAND	gravely, 60% coarse to very sand remainder gravel	268-282
GRAVEL	sandy, medium to very coarse sand, mostly fine gravel	282-286
GRAVEL	drills as if rocky, no return on larger materials	286-291
GRAVEL	sandy, medium to coarse sand with fine gravel, consists of carbonates, shales, granites and lignites, gravels are well rounded to subrounded, taking water mixed 1 mud	291-301
GRAVEL	very rough drilling, lots of lignites	301-323
ROCKS	very rough drilling, gravely	323-333
CLAY	sticky and greasy, olive gray, boots off	333-451
CLAY	very sandy, silty, whitish gray, some black carbonaceous fragments (bedrock)	451-467
SANDSTONE	greenish, hard (reamed 4 and 3/4 inch hole out with 6 and 1/4 inch bit to 320 feet to set 2 inch steel and sand pack)	467-468

155-083-12CCC
NDSWC 2218

Date Completed:	12/3/63	Well Type:	monitoring
Depth Drilled (ft):	399	Principal Aquifer :	Northwest Buried-Channel
Screened Interval (ft):	?-326	L.S. Elevation (ft)	1725

Lithologic Log

Unit	Description	Depth (ft)
CLAY	silty to sandy, yellowish brown	0-5
CLAY	sandy, yellowish brown to brownish gray	5-46
CLAY	silty, olive gray	46-55
GRAVEL	fine to medium; sand, coarse to very coarse	55-57
CLAY	silty, olive gray	57-60
GRAVEL	fine to medium; sand, coarse	60-81
CLAY	silty, olive gray	81-87
SAND	medium to coarse	87-90
CLAY	silty, olive gray; sandy layers at 93-95 ft and 108-118 ft; occasional boulder	90-191
SAND	fine to medium, clayey, appears to be a boulder of the Fort Union Formation	191-208
CLAY	sandy, olive gray	208-220
SAND	fine to coarse; gravel, fine to coarse; clay, sandy, olive gray; moderately rough drilling	220-304
GRAVEL	fine to coarse, clayey; rough drilling	304-325
BOULDER	granite	325-326
CLAY	sandy, dark greenish gray; thin layers of lignite	326-399

155-083-12CDC

NDSWC 2236

Date Completed:	5/18/64	Well Type:	None
Depth Drilled (ft):	252	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1715

Lithologic Log

Unit	Description	Depth (ft)
SOIL	dark brown	0-1
CLAY	silty to sandy, yellowish gray	1-5
CLAY	silty to sandy, olive brown	5-38
SAND	medium to coarse	38-42
CLAY	silty, olive brown	42-44
GRAVEL	fine to medium; sand, coarse	44-47
CLAY	silty to sandy, olive brown	47-66
SAND	fine to coarse, clayey	66-78
CLAY	silty, olive brown; minor amount of sand in thin layers	78-85
CLAY	silty to sandy, olive gray	85-131
CLAY	silty, olive gray	131-198
GRAVEL	fine to coarse	198-200
CLAY	silty, olive gray to light medium gray; abundance of lignite chips from 210-215 ft	200-215
CLAY	sandy, light greenish gray; thin layers of lignite	215-252

155-083-12DAA

NDSWC 17

Date Completed:	2/17/61	Well Type:	None
Depth Drilled (ft):	94	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1672

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	black	0-2
CLAY	yellow, sandy	2-11
CLAY	yellow, silty, with sand and coal	11-22
CLAY	gray, silty, with sand and coal	22-51
SAND	fine to medium, with clay and coal fragments	51-61
GRAVEL	fine to medium with sand layers, some clay	61-68
CLAY	silty, gray, with coal	68-89
CLAY	shale, light bluish gray (bedrock, Fort Union)	89-94

155-083-12DCD

NDSWC 2219

Date Completed:	12/5/63	Well Type:	monitoring
Depth Drilled (ft):	231	Principal Aquifer :	Gravel Sediments
Screened Interval (ft):	?-203	L.S. Elevation (ft)	1690

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-1
CLAY	sandy, yellowish brown	1-14
CLAY	silty, olive gray; minor thin sand layers	14-25
SAND	fine to coarse	25-28
CLAY	silty, olive gray; minor thin sand layers	28-31
SAND	fine to coarse; clay sandy, olive gray	31-42
CLAY	silty, olive gray; numerous thin sand layers	42-47

155-083-12DCD, cont.

ROCK	granite; lost circulation	47-48
CLAY	sandy, olive gray; abundance of lignite fragments	48-133
GRAVEL	fine to medium	133-139
CLAY	silty, olive gray; lignite fragments	139-145
GRAVEL	fine to medium; minor amount of clay	145-160
CLAY	sandy, olive gray; lignite fragments	160-173
GRAVEL	fine to medium	173-175
CLAY	sandy, olive gray; lignite fragments	175-198
GRAVEL	fine to coarse; boulders; rough drilling	198-203
CLAY	sandy, greenish gray	203-231

155-083-12DDD
NDSWC 19

Date Completed:	2/28/61	Well Type:	None
Depth Drilled (ft):	126	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1674

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	black	0-2
CLAY	yellow, silty, sandy	2-19
SAND	fine, medium with coal	19-28
CLAY	silty, greenish gray with coal	28-43
CLAY	gray, Silty with coal and rocks	43-79
CLAY	yellow silty, with coal and rocks	79-85
CLAY	gray, silty, hard drilling	85-118
CLAY	light bluish gray (bedrock, Fort Union)	118-126

155-083-13BDB

NDSWC 13121

Date Completed:	10/26/92	Well Type:	None
Depth Drilled (ft):	330	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1650

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
FILL	concrete, sand, clay and lignite	1-15
CLAY	olive gray, silty, very sandy with pebbles, rocky, till	15-29
CLAY	yellowish brown, iron stained, silty, very sandy with pebbles, oxidized till	29-42
GRAVEL	iron stained, sandy, oxidized	42-58
GRAVEL	sandy, not oxidized	58-67
CLAY	olive gray, silty, sandy, with pebbles, till, occasional layer of lignite	67-131
CLAY	very sandy, some lignites, at 142 feet picking up blackish carbonaceous clays	131-168
LIGNITE	mixed with gravel and black carbonaceous clays, not taking water	168-190
LIGNITE	and black carbonaceous clays	190-256
LIGNITE	with gravel	256-271
LIGNITE	with black clay	271-284
CLAY	brownish gray, very sandy	284-308
ROCK	granite, very hard, tripped for rock bit	308-310
CLAYSTONE	mixed with small layers of sandstone, light gray, drills slow and smooth	310-330

155-083-13BDDC1

NDSWC 13122A

Date Completed:	10/27/92	Well Type:	monitoring
Depth Drilled (ft):	230	Principal Aquifer :	Minot
Screened Interval (ft):	178-183	L.S. Elevation (ft)	1587.06

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
CLAY	yellowish brown, silty, very sandy with gravel and rocks, oxidized till	1-33
CLAY	olive gray, silty, sandy with pebbles, rocky, till	33-36
CLAY	olive gray, silty	36-43
SAND	very fine to fine, yellowish tint, may be oxidized	43-74
CLAY		74-75
SAND	very fine to fine, 10% lignite, picking up some gravel	75-83
SAND	gravely, very fine to coarse sand to fine gravel, taking water	83-129
GRAVEL	sandy, very coarse sand to fine gravel, drills fast and choppy, taking water, mixed mud at 140 feet, after circulating we picked up pea size gravel, rocky from 143 to 144	129-144
CLAY	olive gray, silty	144-159
LIGNITE	with sand and gravel	159-168
GRAVEL	sandy, rocky, mostly limestone, shales, granites and lignites	168-204
GRAVEL	pea to marble size, taking water, very rough drilling, some 1 inch gravel pebbles, well rounded to subrounded, mixed more mud, tripped for rock bit at 211, 210 to 222 very rocky	204-222
CLAY	gray, silty, with light gray sandstone, Bedrock	222-230

155-083-13BDDC2

NDSWC 13122B

Date Completed:	10/28/92	Well Type:	monitoring
Depth Drilled (ft):	140	Principal Aquifer :	Minot
Screened Interval (ft):	118-123	L.S. Elevation (ft)	1587.42

Lithologic Log

Unit	Description	Depth (ft)
SEE LOG FOR 13BDDC1		

155-083-13CBDC

NDSWC 13117

Date Completed:	10/21/92	Well Type:	monitoring
Depth Drilled (ft):	274	Principal Aquifer :	Minot
Screened Interval (ft):	238-241	L.S. Elevation (ft)	1549.44

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
FILL	gravel, clay, till, cement, oxidized	1-10
CLAY	very silty, oxidized	10-13
CLAY	silty, olive gray to black, clay has hydrogen sulfide smell, from 21-23 feet very fine sand, lignites throughout interval	13-62
CLAY	olive gray, with pebbles, rocky till	62-91
GRAVEL	rocky, interbedded with till	91-100
SAND	fine to coarse, drills fast	100-109
CLAY	very silty	109-117
SAND	fine to very coarse	117-129
SAND	with some gravel, taking water	129-144
GRAVEL	sandy, coarse, rough drilling, taking water, pea to marble size gravel, rocky, some lignites, 60% shale, remainder igneous	144-231
GRAVEL	extremely rocky, drills rough, boulders	231-252
ROCKS	interbedded with brownish till, rough drilling	252-260

155-083-13CBDC, cont.

SANDSTONE	whitish gray to whitish, drills hard and slow	260-274

155-083-13CBDC2

NDSWC 13169A

Date Completed:	5/23/93	Well Type:	monitoring
Depth Drilled (ft):	200	Principal Aquifer :	Minot
Screened Interval (ft):	178-183	L.S. Elevation (ft)	1549.74

Lithologic Log

Unit	Description	Depth (ft)
SOIL		0-1
CLAY	yellowish brown, silty	1-9
CLAY	gray, silty, sandy, layers of very fine silty sand from 22-23, 29-30, interbedded clay and sand from 64-84, 81-93 and 93-96 feet	9-101
SAND	fine to medium, abundant lignite	101-116
SAND	gravelly, coarse sand to fine gravel	116-145
GRAVEL	sandy, rocky, medium to coarse gravel with coarse sand, very rough drilling from 161 to 200, mixed 11 mud, taking lots of water	145-200

155-083-13CBDC3

NDSWC 13169B

Date Completed:	5/25/93	Well Type:	monitoring
Depth Drilled (ft):	120	Principal Aquifer :	Minot
Screened Interval (ft):	115-120	L.S. Elevation (ft)	1550.07

Lithologic Log

Unit	Description	Depth (ft)
SOIL		0-2
CLAY	silty sandy with pebbles, yellowish brown, oxidized till	2-11
CLAY	gray, very silty	11-39
SAND	very fine to fine	39-41
CLAY	silty, stringers of very fine sand	41-106
SAND	very fine to fine, with silty clay	106-111

155-083-13CBDC3, cont.

SAND	fine to medium	111-120

155-083-13CDB

NDSWC 13017

Date Completed:	7/30/92	Well Type:	monitoring
Depth Drilled (ft):	307	Principal Aquifer :	Minot
Screened Interval (ft):	258-263	L.S. Elevation (ft)	1551.35

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
CLAY	yellowish brown, silty, sandy with pebbles and rocks, till	1-16
CLAY	olive gray, silty	16-27
SAND	very fine to medium, well sorted	27-41
CLAY	very silty, olive gray, drills fast	41-55
SAND	medium to coarse, drills fast	55-62
CLAY	olive gray, silty, lenses of fine sand from 68-69 feet	62-87
SAND	very fine to medium	87-91
CLAY	olive gray, silty	91-99
GRAVEL	sandy, well rounded to subrounded, pea gravel, carbonates shales, granites, lignites form 110 to 111 feet	99-111
SAND	gravely, coarse sand to pea gravel	111-121
GRAVEL	sandy, pea gravel with very coarse sand	121-145
SAND	gravely, coarse to very coarse sand, pea gravel	145-163
GRAVEL	sandy, pea to marble size gravel, drills as if rocky, sand is coarse to very coarse, sand and gravel is composed of carbonates, shales, granites and lignites	163-302
ROCKS	granites, drills slow and very rough, tripped for rock bit, also some fragments of whitish gray sandstone and siltstone, drilled for 1 and 1/2 hour on rock from 305 to 307, abandoned test hole at 307	302-307

155-083-13CDCA

NDSWC 13124

Date Completed:	10/29/92	Well Type:	monitoring
Depth Drilled (ft):	145	Principal Aquifer :	Minot
Screened Interval (ft):	118-123	L.S. Elevation (ft)	1551.46

Lithologic Log

Unit	Description	Depth (ft)
FILL	sand, gravel, scoria, asphalt, cement	0-11
CLAY	yellowish brown, sandy, oxidized	11-21
SAND & GRAVEL	oxidized	21-24
CLAY	very silty, olive gray, interbedded with 1/2 foot stringers of very fine sand	24-85
SAND & GRAVEL	coarse to very coarse sand with fine gravel, few stringers of coal from 85 to 90	85-112
GRAVEL	pea to marble size, very coarse, rocky, taking water, mixed mud, tripped for rock bit	112-115
ROCKS	with gravel, extremely rough drilling, taking lots of water, mixed 16 bags of mud, Had to quit before rig blows up	115-145

155-083-13DCA

NDSWC 13119

Date Completed:	10/22/92	Well Type:	monitoring
Depth Drilled (ft):	240	Principal Aquifer :	Minot
Screened Interval (ft):	118-123	L.S. Elevation (ft)	1547.32

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
FILL	sand, gravel, bricks, concrete, clay glass	1-13
CLAY	yellowish brown to light gray, silty, oxidized	13-17
CLAY	olive gray, silty, greasy	17-28
SAND	very fine to fine, some gravel	28-46
CLAY	olive gray, greasy	46-51

155-083-13DCA, cont.

SAND	very fine	51-53
CLAY	olive gray, greasy	53-57
SAND	very fine to fine, well sorted	57-62
CLAY	olive gray, greasy	62-85
SAND	interbedded with clay	85-97
SAND	gravely, very fine to coarse sand, 20% lignite, sand is well rounded to subrounded, 20% fine gravel, mixture of shale limestone, granites and lignite	97-121
GRAVEL	interbedded with clay	121-127
CLAY	olive gray greasy	127-178
SANDSTONE	whitish gray, with white specks	178-180
CLAY	brownish, greasy, with black carbonaceous streaks	180-240

155-083-13DCB1

NDSWC 13118A

Date Completed:	10/22/92	Well Type:	monitoring
Depth Drilled (ft):	240	Principal Aquifer :	Minot
Screened Interval (ft):	198-201	L.S. Elevation (ft)	1548.12

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
SAND & GRAVEL	iron stained, oxidized	1-6
CLAY	olive gray, silty, lacustrine	6-16
SAND	very fine to fine, well sorted	16-21
CLAY	whitish gray to light green, silty	21-37
SAND	very fine, silty, interbedded with clay from 44-49 feet	37-49
CLAY	gray, silty	49-85

155-083-13DCB1, cont.

SAND	very fine, interbedded with silt and clay	85-93
SAND	coarse to very coarse, well rounded, drills clean, 10-20% lignite	93-100
GRAVEL	sandy, 10-20% lignite, well rounded, taking water	100-135
GRAVEL	sandy, well rounded to subrounded, taking water	135-172
GRAVEL	very coarse, rocky, mixed mud, taking water, gravel is pea to marble size with rocks	172-218
ROCKS	with gravel, extremely rough drilling	218-226
CLAY	whitish, light gray, sandy	226-235
SANDSTONE	hard, whitish gray	235-236
CLAY	brownish with white specks	236-240

155-083-13DCB2

NDSWC 13118B

Date Completed:	10/22/92	Well Type:	monitoring
Depth Drilled (ft):	197	Principal Aquifer :	Minot
Screened Interval (ft):	182-193	L.S. Elevation (ft)	1548.42

Lithologic Log

Unit	Description	Depth (ft)
SEE LOG FOR 13DCB1		

155-083-13DCDA

NDSWC 13123

Date Completed:	10/28/92	Well Type:	monitoring
Depth Drilled (ft):	200	Principal Aquifer :	Minot
Screened Interval (ft):	138-143	L.S. Elevation (ft)	1550.65

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
FILL		1-3
CLAY	yellowish brown, very silty, oxidized	3-16
CLAY	gray, silty, with very fine sand	16-22
SAND	very fine to fine, well sorted	22-23
CLAY	gray, sandy with small 1/2 foot stringers of fine sand, some clam shells	23-42
SAND	very fine to fine	42-47
CLAY	gray, sandy, drills fast, interbedded with very fine sand and silt	47-93
GRAVEL	sandy, well rounded to subrounded, gravel is composed of shales, granites, limestones and lignites	93-121
CLAY	silty, gray	121-131
GRAVEL	sandy, pea to marble size gravel, rocky, taking water, mixed mud, well rounded to subrounded, from 140 to 180 feet gravel is extremely rocky, rough drilling may be lignite stringers in gravel	131-187
SANDSTONE	light gray, clay in matrix, Bedrock, interbedded with lignite and hard light gray sandstone	187-200

155-083-13DDD

NDSWC 13120

Date Completed:	10/23/92	Well Type:	monitoring
Depth Drilled (ft):	180	Principal Aquifer :	Minot
Screened Interval (ft):	107-112	L.S. Elevation (ft)	1549.92

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
SAND & GRAVEL	iron stained, oxidized	1-4
CLAY	yellowish brown, iron stained	4-21
SAND	very fine to fine, gray	21-25
CLAY	gray, silty, lacustrine	25-38
SAND	very fine to medium, well rounded and sorted, small layers of silt and clay from 41 to 49 feet	38-62
CLAY	gray, greasy	62-76
CLAY	and silt, interbedded with fine sand	76-96
GRAVEL	sand, very coarse sand to fine gravel, well rounded to subrounded, carbonates, shales, granites and lignites	96-126
CLAY	silty, brownish gray	126-169
SANDSTONE	whitish gray, very hard	169-174
CLAY	whitish gray, sandy	174-180

155-083-14AAD

NDSWC 13165

Date Completed:	5/21/93	Well Type:	monitoring
Depth Drilled (ft):	280	Principal Aquifer :	Northwest Buried-Channel
Screened Interval (ft):	238-243	L.S. Elevation (ft)	1653.08

Lithologic Log

Unit	Description	Depth (ft)
SOIL		0-2
CLAY	yellowish brown, oxidized, fill	2-11
CLAY	gray, silty sandy with pebbles, fill?	11-17
CLAY	black, fill?	17-22
CLAY	white greasy, fill?	22-23
CLAY	black, with gravel	23-48
ROCKS		48-49
CLAY	silty, sandy, with pebbles, oxidized till	49-54
CLAY	gray till, silty sandy	54-116
GRAVEL	coarse, pea to marble size	116-120
CLAY	silty sandy with pebbles, till	120-174
GRAVEL	sandy, choppy drilling	174-182
CLAY	olive gray, silty	182-189
GRAVEL	sandy, choppy drilling (poor return)	189-196
CLAY	gray, very silty, smooth drilling	196-203
CLAY	silty, sandy, with pebbles, rocky, till	203-227
SAND AND GRAVEL	interbedded with till	227-234

155-083-14AAD, cont.

GRAVEL	sandy, drills clean and choppy, gravel is composed of carbonates, granites, shales and abundant lignite, taking water (no mud)	234-265
CLAY	gray, with gray sandstone, BEDROCK	265-280

155-083-14ADD

ERICKSON

Date Completed:
Depth Drilled (ft):
Screened Interval (ft):
Well Type: domestic
Principal Aquifer : ?
L.S. Elevation (ft) 1675

Lithologic Log

Unit	Description	Depth (ft)
no log	see water quality table	

155-083-14CAB

NDSWC 13008

Date Completed: 6/30/92
Depth Drilled (ft): 240
Screened Interval (ft):
Well Type: None
Principal Aquifer : No Well
L.S. Elevation (ft) 1570

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
GRAVEL	sandy, oxidized	1-8
CLAY	yellowish brown, silty, sandy with pebbles, oxidized till	8-22
CLAY	interbedded with silt and sand	22-31
GRAVEL	coarse, oxidized, rocky	31-42
CLAY	yellowish brown, oxidized, silty	42-56
CLAY	olive gray, silty, sandy interbedded with sand and gravel	56-76
CLAY	greenish gray with black carbonaceous fragments	76-109
TILL	interbedded with gravel, rocky 143 abundant lignite	109-142
CLAY	gray, silty, sandy, interbedded with lignite, fragments of whitish gray bentonite	142-227

155-083-14CAB, cont.

SANDSTONE	whitish gray, very fine grained, very hard, lots of bentonite	227-229
CLAYSTONE	silty, hard	229-231
SANDSTONE	very hard, whitish gray	231-232
CLAYSTONE	whitish, bentonitic	232-235
SANDSTONE	whitish gray	235-240

155-083-14CAB1

Hebrew Cemetery

Date Completed:	1945	Well Type:	irrigation
Depth Drilled (ft):	118	Principal Aquifer :	Minot
Screened Interval (ft):	?-118	L.S. Elevation (ft)	1560

Lithologic Log

Unit	Description	Depth (ft)
CLAY	yellow; sandy	0-5
SAND & CLAY	hard sand	5-8
CLAY	yellow; sandy	8-30
SAND		30-32
CLAY	yellow; sandy	32-34
SAND	hard	34-38
SAND & GRAVEL		38-41
CLAY	blue; sandy	41-52
CLAY	black; sandy	52-63
SAND	mixed with gravel and clay	63-86
SAND		86-89
SAND	coarse	89-91

155-083-14CAB1, cont.

CLAY	blue	91-96
ROCK		96-97
SAND & CLAY		97-103
CLAY	blue clay and sand	103-108
CLAY	mixed with sand and gravel	108-111
SAND & GRAVEL	with water	111-118

155-083-14CBB

NDSWC 13164

Date Completed:	5/20/93	Well Type:	monitoring
Depth Drilled (ft):	170	Principal Aquifer :	Minot
Screened Interval (ft):	128-133	L.S. Elevation (ft)	1575.19

Lithologic Log

Unit	Description	Depth (ft)
SOIL		0-2
CLAY	brownish, black, oxidized	2-6
CLAY	yellowish brown, oxidized	6-13
GRAVEL	sandy, oxidized	13-17
CLAY	yellowish brown, oxidized	17-20
GRAVEL	oxidized	20-22
CLAY	yellowish brown, oxidized, interbedded with gravel	22-32
CLAY	yellowish brown, silty, sandy with pebbles, till	32-37
GRAVEL	oxidized	37-47
CLAY	silty, sandy, interbedded with sand	47-62
SAND	very fine to medium, iron stained, appears oxidized, 10% gravel, taking water	62-130

155-083-14CBB, cont.

SAND	gravelly, unoxidized, taking water, 10% lignite	130-135
GRAVEL	rocky with cobbles, rough drilling, picking up grayish sandstone at 137 feet, extremely rough drilling from 140 to 151 feet, used 2 rock bits, taking lots of water	135-151
CLAYSTONE	gray	151-152
SANDSTONE	gray, hard, brittle	152-153
ROCKS	cobbles, boulders, with gravel, extremely rough drilling, had to drill and redrill several times because of caving conditions, taking small amount of water (mixed mud)	153-165
SANDSTONE	gray, hard	165-170

155-083-14CCB

USGS A2

Date Completed:	1945	Well Type:	monitoring
Depth Drilled (ft):	127	Principal Aquifer :	Minot
Screened Interval (ft):	?	L.S. Elevation (ft)	1560

Lithologic Log

Unit	Description	Depth (ft)
SAND	silty, and yellow leached clay	0-10
SAND	medium to coarse, brown; buff clay, limestone, limonite, and coal grains present	10-30
SAND	medium dark brown, with a few grains of coarse sand and fine gravel	30-35
SAND	fine to medium, light brown and yellow; well sorted	35-55
SAND	medium, silty, light brown	55-70
SAND	fine to medium, light brown (Fort Union Formation)	70-108
SANDSTONE	yellow gray, partly cemented with calcium carbonate	108-127

155-083-14CDA

MINOT CITY WELL #. 10

Date Completed:	10/29/60	Well Type:	public supply
Depth Drilled (ft):	139	Principal Aquifer :	Minot
Screened Interval (ft):	?-139	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SAND		0-40
CLAY	sandy; gravel	40-53
CLAY	boulders	53-55
CLAY	sandy	55-73
SAND	fine	73-90
SAND	fine; traces of lignite	90-119
SAND	fine; gravel	119-135
SAND	boulders	135-139

155-083-14CDA2

NDSWC 13007

Date Completed:	6/29/92	Well Type:	monitoring
Depth Drilled (ft):	200	Principal Aquifer :	Minot
Screened Interval (ft):	138-143	L.S. Elevation (ft)	1556.24

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
CLAY	yellowish brown, oxidized, silty, sandy with pebbles, till	1-9
CLAY	very silty with very fine sand, oxidized	9-17
SAND	very fine to fine, oxidized	17-25
SAND	as above, unoxidized	25-29
CLAY	olive gray, silty, drills smooth	29-52
CLAY	as above, interbedded with fine sand and silt	52-69

155-083-14CDA2, cont.

SAND	very fine to coarse, drills fast and smooth, layered with silt and clay	69-81
SAND	fine to coarse, drills clean, some lignites	81-131
GRAVEL	with very coarse sand, pea to marble size gravel, drills rough, taking water, well rounded to subrounded, consists of shale, carbonates, lignites and granites, rocky with cobbles	131-158
CLAY	gray, silty, drills smooth and slow	158-200

155-083-14CDA3

NDSWC 13168

Date Completed:	5/25/93	Well Type:	monitoring
Depth Drilled (ft):	40	Principal Aquifer :	Souris Valley
Screened Interval (ft):	22-27	L.S. Elevation (ft)	1556.42

Lithologic Log

Unit	Description	Depth (ft)
SOIL		0-1
CLAY	yellowish brown, oxidized, silty	1-16
SAND	oxidized, fine to coarse	16-22
SAND	as above, unoxidized	22-27
CLAY	gray, silty	27-40

155-083-14CDD1

MINOT CITY WELL #3

Date Completed:	1931	Well Type:	public supply
Depth Drilled (ft):	164	Principal Aquifer :	Minot
Screened Interval (ft):	138-158	L.S. Elevation (ft)	1548

Lithologic Log

Unit	Description	Depth (ft)
SOIL	sandy, brown	0-4
SAND	fine, silty, brown	4-16
SAND	fine, brown	16-20
CLAY	dark olive drab	20-34

155-083-14CDD1, cont.

CLAY	dark olive drab, sandy	34-46
SILT	sandy, brown, with interbedded dark olive drab clay	46-66
CLAY	sandy, dark olive drab	66-70
SILT	sandy, light greenish gray	70-82
CLAY	dark olive drab	82-86
SAND	medium, well rounded, brown	86-102
SAND	fine, well sorted, gray	102-124
SAND	fine to coarse	124-128
SAND & GRAVEL	dirty	128-130
SAND & GRAVEL		130-138
SILT	with sand, gray	138-140
SAND & GRAVEL		140-158
CLAY	brown	158-164

155-083-14CDD2

CITY TEST # 3

Date Completed: 1938
Depth Drilled (ft): 161
Screened Interval (ft):

Well Type: None
Principal Aquifer : No Well
L.S. Elevation (ft) 1553

Lithologic Log

Unit	Description	Depth (ft)
SAND & CLAY	yellow	0-24
CLAY	sandy, blue	24-58
SAND	fine, dirty	58-133
SAND & GRAVEL		133-144
CLAY & GRAVEL		144-146

155-083-14CDD2, cont.

CLAY	gray	146-161

155-083-14CDD3

BW #2

Date Completed:	9/30/64	Well Type:	None
Depth Drilled (ft):	127	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
CLAY	brownish gray	0-8
SAND	fine to coarse, brown; minor layers of clay between 14-14.5 ft, 19-19.5 ft, and 20-21 ft; scattered pelecypod valves	8-23
CLAY	silty, sand sandy, olive gray	23-25
CLAY	olive gray	25-50
CLAY	silty and sandy, olive gray	50-60
CLAY	silty and sandy, olive gray; minor layers of fine sand	60-67.5
CLAY	silty, olive gray; scattered lignite fragments	67.5-77.5
CLAY	silty, olive gray; layers of light olive gray fine sand	77.5-80
SAND	fine to medium, light olive gray; abundance of lignite; thin clay layer at 92.5 ft; limestone boulder at 102 ft	80-115
SAND	fine, olive gray	115-117.5
SAND	very fine, olive gray; boulder at 125 ft	117.5-125
SAND	medium; very uniform in size	125-127

155-083-14CDD4

BORED WELL # 2

Date Completed:	10/30/64	Well Type:	None
Depth Drilled (ft):	91	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-1
CLAY	silty and sandy, yellowish brown	1-8
SAND	fine to medium, silty, grayish brown	8-10
SAND	medium to coarse, reddish brown; shell fragments	10-15
SAND	coarse, silty, bluish gray	15-16
CLAY	silty, dark olive gray	16-20
CLAY	silty and sandy, dark olive gray; abundance of decomposed organic material	20-33
CLAY	very sandy and silty, dark olive gray, slightly cohesive; abundance of decomposed organic material	33-38
CLAY	medium gray, very cohesive; contains nodules of dark olive gray clay	38-45
CLAY	very sandy and silty, dark olive gray	45-51
SAND	silty, dark olive gray; saturated, water level rose to 40 ft below land surface	51-52
CLAY	silty, dark olive gray; minor amount of organic material; pungent odor	52-56
CLAY	silty and sandy, black	56-60
CLAY	silty, dark olive gray; interbedded with layers of sand	60-70
SAND	fine to medium, very silty, dark olive gray, slightly cohesive; interbedded with layers of medium brown sand	70-77
SAND	fine to coarse, gray and brown; abundance of lignite	77-78

155-083-14CDD4, cont.

SAND	black; gravel, black; predominantly lignite	78-83
SAND	medium, clean	83-91

155-083-14DBA1

NDSWC 2233

Date Completed:	5/14/64	Well Type:	monitoring
Depth Drilled (ft):	293	Principal Aquifer :	Minot
Screened Interval (ft):	?-170	L.S. Elevation (ft)	1568

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
SAND	very fine, clayey	2-5
CLAY	silty and sandy, yellowish brown	5-13
GRAVEL	fine to coarse; sand, medium to coarse	13-17
CLAY	silty, yellowish brown	17-31
GRAVEL	fine to medium	31-35
SAND	fine to coarse, clayey	35-39
CLAY	silty, olive gray; thin layers of sand and gravel; lignite fragments	39-72
SAND	fine to medium; minor amount of clay	72-83
GRAVEL	fine to coarse	83-86
CLAY	silty, olive gray, pebbles	86-94
GRAVEL	fine to coarse	94-96
CLAY	silty, olive gray	96-102
CLAY	sandy, olive gray; abundance of lignite fragments	102-145
GRAVEL	fine to medium; sand, coarse	145-172

155-083-14DBA1, cont.

CLAY	silty, olive gray; lignite fragments and thin layers between 240-273 ft	172-272
GRAVEL	fine to coarse, rough drilling	272-278
SAND	clayey, greenish gray	278-293

155-083-14DBA2

MINOT STATE COLLEGE

Date Completed:	1956	Well Type:	irrigation
Depth Drilled (ft):	212	Principal Aquifer :	Minot
Screened Interval (ft):	?-141	L.S. Elevation (ft)	1562

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		.5
CLAY	yellow; gravelly	0.5-6
CLAY	yellow; sandy	6-38
CLAY	yellow; very sandy, soft	38-45
CLAY	gray; sandy, some very sandy with a little water	45-92
SAND & GRAVEL	yellow; muddy	92-96
SAND	yellow; fine, muddy	96-108
SAND	yellow; fine	108-114
SAND	gray; fine, some samples a little clayey, and some a little coarser	114-132
SAND	gray; a little coarser	132-140
SAND	gray	140-142
CLAY	blue; sandy	142-212

155-083-14DBA3

NDSWC 13166

Date Completed:	5/24/93	Well Type:	monitoring
Depth Drilled (ft):	200	Principal Aquifer :	Minot
Screened Interval (ft):	138-143	L.S. Elevation (ft)	1558.45

Lithologic Log

Unit	Description	Depth (ft)
SOIL		0-2
CLAY	yellowish brown, silty sandy with pebbles and rocks, oxidized till, interbedded with 1 foot stringers of sand and gravel	2-44
CLAY	gray, unoxidized till with gravel layers, rocky	44-72
CLAY	grayish black, silty, drills smooth	72-102
SAND	fine to medium, yellowish stain to 142, gray thereafter, abundant lignite, sand is composed of carbonates granites, shales, at 128 feet returns are 40% lignite, taking water, mixed 1 mud, sand is well rounded to subrounded	102-152
CLAY	gray, silty, drills smooth	152-156
GRAVEL	sandy, drills choppy, gravel is composed of carbonates, lignites granites and shales, will rounded to subrounded	152-162
CLAY	gray, silty, drills very smooth	162-166
GRAVEL	sandy, drills choppy, but not rocky until 183, 183 to 195 very rocky	166-195
CLAYSTONE	grayish, very sandy, lignite layers, BEDROCK	195-200

155-083-14DBB

NDSWC 2234

Date Completed:	5/14/64	Well Type:	None
Depth Drilled (ft):	200	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1569

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
SAND	clayey and silty	2-10
SAND	fine to coarse, clayey	10-17

155-083-14DBB, cont.

CLAY	silty to sandy, yellowish brown; numerous pebbles	17-37
CLAY	silty, olive gray	37-40
GRAVEL	fine to medium; sand coarse; clayey	40-47
CLAY	silty, olive gray; minor gravel	47-52
SAND	fine to coarse; gravel, fine to medium, clayey	52-80
SAND	medium to coarse, taking water	80-114
BOULDER	limestone	114-117
CLAY	silty, to sandy, olive gray; abundant lignite fragments	117-142
GRAVEL	fine to coarse; sand, coarse; abundant lignite fragments; taking water, rough drilling	142-182
CLAY	silty, olive gray	182-200

155-083-14DCA

MINOT CITY WELL # 9

Date Completed:	10/5/60	Well Type:	public supply
Depth Drilled (ft):	162	Principal Aquifer :	Minot
Screened Interval (ft):	?-148	L.S. Elevation (ft)	1560

Lithologic Log

Unit	Description	Depth (ft)
CLAY	hard and soft	0-67
SAND	clean	67-148
SAND	rocky	148-155
CLAY	also sandy	155-157
CLAY	blue	157-162

155-083-14DCB

CITY OBSERVATION WELL

Date Completed:	7/17/60	Well Type:	monitoring
Depth Drilled (ft):	141	Principal Aquifer :	Minot
Screened Interval (ft):	?-132	L.S. Elevation (ft)	1555

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL & CLAY		0-10
CLAY	streak of sand	10-20
CLAY	interbedded with sand	20-30
CLAY	streak of sand	30-65
SAND	trace of clay	65-70
SAND	fine	70-134
ROCKY	trace of hard clay	134-135
CLAY	rocky, hard	135-140
SHALE		140-141

155-083-14DCC

MINOT CITY WELL #4

Date Completed:	1939	Well Type:	public supply
Depth Drilled (ft):	160	Principal Aquifer :	Minot
Screened Interval (ft):	125-155	L.S. Elevation (ft)	1548

Lithologic Log

Unit	Description	Depth (ft)
CLAY	sandy, and loam	0-10
SAND		10-22
CLAY	blue, impervious	22-92
SAND	fine	92-125
SAND	medium to coarse	125-136
GRAVEL & SAND		136-140

155-083-14DCC, cont.

SAND	with gravel, and boulders	140-155
GRAVEL	hard packed	155-158
GRAVEL & CLAY		158-160

155-083-14DDD1

USGS T1

Date Completed:	1945	Well Type:	monitoring
Depth Drilled (ft):	288	Principal Aquifer :	Minot
Screened Interval (ft):	?-134	L.S. Elevation (ft)	1555

Lithologic Log

Unit	Description	Depth (ft)
	no log	0-115
SAND	fine to medium, with some coarse gravel, light brown	115-125
SAND	medium to coarse, brown, well sorted	125-143
CLAY	silty	143-159
GRAVEL	fine to coarse, and sand; contains white indurated clay pebbles	159-163
SAND	fine to medium, gray, well sorted	163-190
CLAY	gray, with coarse sand and gravel	190-209
SAND	fine to medium, light brown	209-211
CLAY	bluish gray, gritty, contains some sand and gravel: calcareous (Fort Union Formation)	211-248
SHALE	blue gray; contains few grains of coal and medium sand; calcareous	248-258
SANDSTONE	gray, partly cemented	258-288

155-083-14DDD2

MINOT CITY WELL # 5

Date Completed:	9/9/46	Well Type:	public supply
Depth Drilled (ft):	147	Principal Aquifer :	Minot
Screened Interval (ft):	?-147	L.S. Elevation (ft)	1554

Lithologic Log

Unit	Description	Depth (ft)
FILL		0-4
CLAY	with streaks of sand	4-111
GRAVEL	coarse, and boulders	111-147

155-083-14DDD3

MINOT CITY WELL # 6

Date Completed:	12/14/47	Well Type:	public supply
Depth Drilled (ft):	139	Principal Aquifer :	Minot
Screened Interval (ft):	?-139	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
FILL		0-6
GUMBO		6-8
SAND		8-14
CLAY		14-82
	mud, sticky, and sea shells	82-87
CLAY		87-97
SAND	muddy; and clay	97-110
CLAY	with big gravel	110-113
GRAVEL	big	113-139

155-083-14DDD4

NDSWC 5412

Date Completed:	7/19/69	Well Type:	None
Depth Drilled (ft):	200	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1556

Lithologic Log

Unit	Description	Depth (ft)
CLAY	silty, some fine to medium sand, dusky yellow, moderately plastic and cohesive, numerous carbonate pebbles, some shale and lignite (TILL)	0-24
CLAY	silty, some fine to coarse sand, very plastic and cohesive, olive gray, slightly calcareous, numerous sand grains and pebbles, carbonates and shale, some lignite and granitic rocks, interbedded with thin layers of sand (TILL)	24-77
GRAVEL	fine to medium, some coarse, sandy, moderately well sorted, angular to subangular, approximately 50% limestone and shale, remainder igneous and metamorphic rocks	77-84
CLAY	very silty, olive gray, very plastic and cohesive, slightly to moderately calcareous	84-135
CLAYSTONE & SILTSTONE	grayish brown, moderately hard, noncalcareous, interbedded with fine bluish gray clayey sand (poor sample return because of caving gravel) (bedrock, Fort Union)	135-200

155-083-14DDD5

NDSWC 13006

Date Completed:	6/22/92	Well Type:	monitoring
Depth Drilled (ft):	300	Principal Aquifer :	Minot
Screened Interval (ft):	128-133	L.S. Elevation (ft)	1553.3

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
CLAY	yellowish brown, silty with sand pebbles, oxidized till	1-8
CLAY	gray, silty, sandy, with pebbles, till	8-22
SAND	gravelly, coarse sand to fine gravel, very dark, composed of shales and dark granitics, also some small clam shells	22-35
CLAY	gray, silty	35-43
SAND	very fine to fine	43-47
CLAY	olive gray, silty	47-56

155-083-14DDD5, cont.

SAND	very fine to fine	56-57
CLAY	very silty, olive gray	57-73
SAND	very fine to fine, drills fast, silty	73-80
CLAY	silty, gray, interbedded with very fine sand	80-100
SAND	some gravel	100-105
SILT	clayey, layered with sand	105-112
GRAVEL	sandy, rocky, very coarse sand with pea to marble size gravel, rough drilling, taking lots of water, mixed mud, gravel is mixture of shale, carbonates, granitics and lignites	112-121
ROCKS	with gravel, extremely rough drilling, caving hole, mixed 42 bags of mud and used 3 rock bits to reach 145 feet, occasional wood fragments and blackish bivalved mollusks, mixed 10 more bags of mud to reach 149 feet, taking lots of water, hole caving and losing circulation, gravel is all marble size	121-149
CLAY	brownish and gray maybe lignites in matrix, drills smooth and slow	149-214
CLAY	black, carbonaceous, greasy, drills smooth and slow, occasional 2 to 3 inch lignite layer	214-234
SANDSTONE	soft, very fine, occasional lignite layer, also fragment of black shale	234-272
SANDSTONE	hard, greenish, drills choppy and slow, fragments of whitish gray sandstone, hole took a total of 64 bags of mud and 7 rock bits to drill!	272-300

155-083-14DDD6

NDSWC 13167A

Date Completed:	5/25/93	Well Type:	monitoring
Depth Drilled (ft):	90	Principal Aquifer :	Souris Valley
Screened Interval (ft):	75-85	L.S. Elevation (ft)	1553.56

Lithologic Log

Unit	Description	Depth (ft)
SOIL		0-1
CLAY	yellowish brown, rocky, oxidized fill	1-16
CLAY	grayish black, lignitic, silty, abundant wood and clam shell fragments	16-22
SAND	gravelly, drills fast, taking water	22-30
CLAY	grayish black, silty, with fine sand and clam shells, interbedded with very fine to fine sand	30-76
SAND	very fine to fine, silty, poor return	76-83
CLAY	grayish black, silty	83-90

155-083-14DDD7

NDSWC 13167B

Date Completed:	5/25/93	Well Type:	monitoring
Depth Drilled (ft):	40	Principal Aquifer :	Souris Valley
Screened Interval (ft):	29-34	L.S. Elevation (ft)	1553.65

Lithologic Log

Unit	Description	Depth (ft)
SOIL		0-1
CLAY	yellowish brown, oxidized fill	1-11
CLAY	gray, silty, sandy	11-22
SAND	gravelly, drills clean, fine sand to coarse gravel, abundant shale and lignite	22-34
CLAY	gray, silty	34-40

155-083-16CCD

NDSWC 12

Date Completed:	3/6/61	Well Type:	None
Depth Drilled (ft):	84	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1555

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
CLAY	silty, yellow; rock at 15 ft	2-33
CLAY	silty, gray; small amount of coal	33-74
COAL		74-77
CLAY	sandy, light greenish blue	77-84

155-083-16CDB1

NDSWC 10

Date Completed:	3/14/61	Well Type:	None
Depth Drilled (ft):	84	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-1
GRAVEL	medium to coarse; thin layers of clay	1-12
CLAY	silty, yellow; thin layers of gravel; small amount of coal	12-26
CLAY	silty, gray; thin coal layers	26-74
CLAY	sandy, light bluish gray	74-84

155-083-16CDB2

NDSWC 11

Date Completed:	3/15/61	Well Type:	None
Depth Drilled (ft):	52	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-1
CLAY	silty, yellow; thin layers of gravel	1-6
GRAVEL	medium to coarse; thin layers of clay; coal fragments	6-15
CLAY	silty, yellowish gray; coal fragments	15-22
CLAY	silty, gray	22-43
CLAY	sandy, light bluish gray	43-52

155-083-17BDA

NDSWC 2

Date Completed:	3/6/61	Well Type:	None
Depth Drilled (ft):	105	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-1
CLAY	silty, yellow	1-5
CLAY	silty, yellow; small amount of coal	5-37
CLAY	silty, grayish blue; coal fragments	37-48
GRAVEL	medium to coarse	48-50
CLAY	silty, gray; coal fragments	50-85
GRAVEL	medium to coarse	85-87
CLAY	silty, brown; coal specks	87-96
CLAY	sandy, bluish green	96-105

155-083-17DAD

NDSWC 9

Date Completed:	3/7/61	Well Type:	None
Depth Drilled (ft):	126	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
GRAVEL	medium to coarse; thin layers of sand	2-11
CLAY	silty, yellow; coal fragments	11-26
CLAY	silty, gray; thin layers of sand; coal fragments	26-43
SAND	medium to coarse	43-45
CLAY	silty, gray; thin layers of sand; coal fragments	45-84
CLAY	silty, gray; thin layers of coal; minor amount of sand	84-104
CLAY	silty, gray; sand layers; minor amount of coal	104-116
COAL		116-118
CLAY	sand, light greenish gray	118-126

155-083-17DBBB

NDSWC 3

Date Completed:	2/7/61	Well Type:	None
Depth Drilled (ft):	126	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1560

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
CLAY	sandy, yellow; coal fragments	2-12
SAND	fine; thin layers of clay; coal fragments	12-32
CLAY	silty, blue; coal fragments	32-43
GRAVEL	medium to coarse	43-48
SAND	fine; thin layers of clay	48-53
CLAY	silty, gray; coal fragments	53-68
GRAVEL	medium to coarse	68-73
CLAY	gray; coal fragments	73-115
CLAY	sandy, light bluish gray	115-126

155-083-17DCC

NDSWC 4

Date Completed:	2/9/61	Well Type:	None
Depth Drilled (ft):	126	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-1
CLAY	sandy, yellow	1-11
CLAY	silty, yellow	11-16
SAND	coarse	16-21
CLAY	silty, gray; coal fragments	21-63

155-083-17DCC, cont.

CLAY	silty, gray; small amount of sand; coal fragments	63-85
GRAVEL	medium to coarse; thin layers of sand; coal fragments	85-106
SAND	fine; thin layers of clay	106-111
GRAVEL	medium to coarse; taking large quantity of water, rough drilling	111-117
CLAY	sandy, light blue	117-126

155-083-18AB

USGS

Date Completed:	1947	Well Type:	None
Depth Drilled (ft):	500	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1570

Lithologic Log

Unit	Description	Depth (ft)
SAND & GRAVEL	water	0-108
LIGNITE	and lignitic shale	108-120
SHALE	blue	120-160
LIGNITE		160-166
SHALE	gray	166-175
LIGNITE		175-178
SHALE	gray, and sand; water	178-243
SHALE	hard, black	243-244
SHALE	sandy, black; water and gas under pressure	244-246
SHALE	gray	246-280
SANDSTONE & SHALE		280-290
SANDSTONE	water	290-316

155-083-18AB, cont.

SHALE	gray	316-385
SHALE & SANDSTONE	hard	385-397
SHALE	brown	397-410
SANDSTONE	water and gas under pressure	410-418
SHALE	hard; gas	418-500

155-083-20ABB

NDSWC 5

Date Completed:	2/6/61	Well Type:	None
Depth Drilled (ft):	105	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
CLAY	silty, yellow	2-13
CLAY	silty, blue	13-22
CLAY	silty, yellow; thin layers of sand, coal fragments	22-63
CLAY	silty, blue	63-95
GRAVEL	medium to coarse; rough drilling, abandoned hole	95-105

155-083-20ABC
NDSWC 6

Date Completed:	2/9/61	Well Type:	None
Depth Drilled (ft):	105	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1560

Lithologic Log

Unit	Description	Depth (ft)
SOIL		0-1
CLAY	yellow, sandy	1-11
CLAY	silty, gray; coal fragments	11-29
CLAY	silty, gray; thin layer of sand	29-43
GRAVEL	fine to medium; thin layers of clay	43-64
CLAY	silty, gray; thin sand layers	64-86
ROCK		86-89
GRAVEL	coarse; rough drilling	89-91
CLAY	silty, gray	91-95
CLAY	sandy, light bluish gray	95-105

155-083-20ACC
NDSWC 7

Date Completed:	2/11/61	Well Type:	None
Depth Drilled (ft):	94	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1560

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-1
CLAY	sandy, yellow	1-6
GRAVEL	medium to coarse	6-11
CLAY	silty, yellow; coal fragments	11-21
CLAY	silty, blue; coal fragments	21-32

155-083-20ACC, cont.

CLAY	silty, gray; thin layers of sand and coal	32-42
CLAY	silty, gray; coal fragments	42-90
CLAY	sandy, light blue	90-94

155-083-20C
WILLIS

Date Completed:	5/30/66	Well Type:	domestic
Depth Drilled (ft):		Principal Aquifer :	Minot
Screened Interval (ft):	?-60	L.S. Elevation (ft)	1580

Lithologic Log

Unit	Description	Depth (ft)
no log	see water quality table	

155-083-20D
FARMERS UNION

Date Completed:		Well Type:	domestic
Depth Drilled (ft):		Principal Aquifer :	Minot
Screened Interval (ft):	?-45	L.S. Elevation (ft)	1575

Lithologic Log

Unit	Description	Depth (ft)
no log	see water quality table	

155-083-20DBB
NDSWC 8

Date Completed:	2/11/61	Well Type:	None
Depth Drilled (ft):	115	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1560

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-1
CLAY	yellow	1-21
CLAY	silty, yellow; thin layers of sand	21-32
SAND	coarse; thin layers of clay; coal fragments	32-43
CLAY	silty, gray; thin layers of sand; coal fragments	43-64
CLAY	silty, yellow	64-72
CLAY	silty, gray; coal fragments	72-86

155-083-20DBB, cont.

COAL		86-88
CLAY	silty, gray	88-109
CLAY	sandy, light blue	109-115

155-083-21ADD1
NDSWC 17

Date Completed:	2/21/61	Well Type:	None
Depth Drilled (ft):	10	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1560

Lithologic Log

Unit	Description	Depth (ft)
GRAVEL	coarse; boulders; rough drilling, lost circulation, abandoned hole	0-10

155-083-21ADD2
NDSWC 18

Date Completed:	2/17/61	Well Type:	None
Depth Drilled (ft):	34	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1565

Lithologic Log

Unit	Description	Depth (ft)
GRAVEL	medium; boulders; thin layers of sand and clay	0-12
GRAVEL	coarse; layers of sand and clay; rough drilling	12-29
GRAVEL	coarse; boulders; layers of sand; rough drilling, lost circulation, abandoned hole	29-34

155-083-21CDA
NDSWC 13

Date Completed:	2/5/61	Well Type:	None
Depth Drilled (ft):	128	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1555

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
CLAY	sandy, yellow	2-12
CLAY	silty, yellow	12-19
GRAVEL	medium to coarse; thin layers of sand	19-26

155-083-21CDA, cont.

CLAY	silty, bluish gray; coal fragments	26-60
GRAVEL	medium to coarse; thin layers of sand	60-64
CLAY	silty, gray; coal fragments	64-85
SAND	medium to coarse; thin layers of coal; coal fragments	85-95
GRAVEL	medium to coarse; thin layers of clay	95-112
CLAY	sandy, gray; thin layers of sand; coal fragments	112-121
GRAVEL	medium to coarse; rough drilling, lost circulation, abandoned hole	121-128

155-083-21DAA1
NDSWC 19

Date Completed:	2/14/61	Well Type:	None
Depth Drilled (ft):	54	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1555

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-1
CLAY	sandy, yellow	1-32
GRAVEL	fine to medium; thin layers of sand; rough drilling	32-42
GRAVEL	medium to coarse	42-47
ROCK		47-49
GRAVEL	fine to medium; thin layers of sand; coal fragments; rough drilling, hole continued to cave, abandoned	49-54

155-083-21DAA2

MINOT CITY WELL #18

Date Completed:	1961	Well Type:	public supply
Depth Drilled (ft):	114	Principal Aquifer :	Minot
Screened Interval (ft):	?-99	L.S. Elevation (ft)	1561

Lithologic Log

Unit	Description	Depth (ft)
SAND	fine yellow sand and silt, some clay streaks	0-24
SAND	with gravel and clay	24-28
CLAY	with gravel	28-52
SAND	with gravel, and boulders	52-98
SAND	with gravel, and boulders, with clay traces	98-101
CLAY	with gravel	101-114

155-083-21DAB1

GP1

Date Completed:	8/27/64	Well Type:	None
Depth Drilled (ft):	12.5	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1539

Lithologic Log

Unit	Description	Depth (ft)
GRAVEL	clayey; sand, clayey; rough drilling, lost circulation, abandoned hole	0-12.5

155-083-21DAB2

GP2

Date Completed:	9/3/64	Well Type:	None
Depth Drilled (ft):	65	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1539

Lithologic Log

Unit	Description	Depth (ft)
SAND	clayey, slightly cohesive; gravel, clayey, slightly cohesive	0-3
SAND	silty; gravel, silty	3-9
SAND	clayey; gravel, clayey	9-9.5
SAND	coarse, silty; gravel, fine, silty; thin layer of silt about 25 ft	9.5-28

155-083-21DAB2, cont.

CLAY	silty, olive gray to olive black	28-32
CLAY	silty, olive gray; cuttings appear to be thin bedded	32-38
CLAY	silty, light olive gray, some olive black; numerous lignite and pink granite chips	38-44
CLAY	very silty, medium olive gray; numerous lignite and granite chips	44-48
SAND	very fine, clayey, dark greenish gray; abundant lignite chips	48-65

155-083-21DAB3

GP3

Date Completed:	9/4/64	Well Type:	None
Depth Drilled (ft):	58	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1560

Lithologic Log

Unit	Description	Depth (ft)
CLAY	silty and sandy, grayish brown; flecked with lignite	0-13
CLAY	sandy, dusky yellowish brown; boulder at 16 ft	13-16
SAND	medium to coarse; minor amount of fine gravel; flecked with lignite grains; boulder at 19 ft	16-20
GRAVEL	fine to medium; sand, medium to coarse	20-25
CLAY	silty and sandy, dark olive gray, very cohesive	25-27.5
CLAY	silty, sandy, and gravelly, olive black; scattered lignite fragments	27.5-43
CLAY	silty, olive black and dusky yellowish brown; abundance of lignite	43-50
SAND	very fine, clayey, medium dark gray; abundance of lignite	50-58

155-083-21DAD
CITY TEST # 12-T

Date Completed:	1961	Well Type:	None
Depth Drilled (ft):	114	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SAND	fine yellow sand and silt, some clay streaks	0-24
SAND	with gravel, some clay	24-28
CLAY	with gravel	28-52
SAND	with gravel	52-54
SAND	with gravel, boulders, some clay lenses last 10 ft	54-98
SAND	dirty sand, gravel	98-101
CLAY	some gravel	101-114

155-083-22AAA1
USGS A1

Date Completed:	1945	Well Type:	monitoring
Depth Drilled (ft):	178	Principal Aquifer :	Minot
Screened Interval (ft):	?-112	L.S. Elevation (ft)	1555

Lithologic Log

Unit	Description	Depth (ft)
SILT	yellowish brown	0-13
SAND	very fine, light brown, and silt	13-32
SAND	medium dark brown, with silt, gravel, and coal	32-43
SAND	medium to coarse, light to dark brown; coarse grains poorly rounded; contains coal, limestone, limonite, and shale grains	43-52
SAND	fine to medium, light brown	52-65
SAND	very fine to medium; dark colored grains give it a greenish brown cast; poorly rounded, well sorted, well washed; coal and limonite grains and flakes of mica present	65-80
SAND & GRAVEL	brown; coal pebbles up to 1 inch in diameter; many fragments of wood and lignite	80-84

155-083-22AAA1, cont.

SAND	fine to coarse, light brown; grains of shale and coal common; grains of limonite, limestone, and mica present	84-105
SAND	fine to medium, light brown; some coarse grains of shale, coal, and igneous rocks; poorly rounded	105-112
CLAY	blue gray, gritty, with coarse grains of sand (Fort Union Formation)	112-130
CLAY	blue gray, indurated, shows conchoidal fracture	130-150
CLAY	blue gray, indurated, conchoidal fracture; contains coal laminae	150-160
CLAY	blue gray, indurated, conchoidal fracture; contains shell fragments	160-178

155-083-22AAA2

P1

Date Completed:	9/30/64	Well Type:	monitoring
Depth Drilled (ft):	100	Principal Aquifer :	Minot
Screened Interval (ft):		L.S. Elevation (ft)	1549.2

Lithologic Log

Unit	Description	Depth (ft)
SAND	very fine to fine, brown	0-15
SAND	very fine to coarse; minor amount of fine gravel, pelecypod valves	15-17.5
SAND	medium to very coarse, gray; minor amount of fine gravel	17.5-25
SAND	very fine to medium	25-30
SAND	medium to coarse; minor amount of fine gravel	30-35
GRAVEL	fine; sand, fine to coarse; thin layer of clay	35-40
SAND	fine to coarse; gravel, very fine; scattered lignite grains; boulder at 85 ft; lost circulation	40-100

155-083-22AAA3

P2

Date Completed:	9/30/64	Well Type:	monitoring
Depth Drilled (ft):	40	Principal Aquifer :	Souris Valley
Screened Interval (ft):		L.S. Elevation (ft)	1546.1

Lithologic Log

Unit	Description	Depth (ft)
SAND	very fine to medium, silty, brown and gray	0-15
SAND	fine to coarse, some fine gravel, gray; pelecypod valves	15-18
CLAY	silt, sand; blue	18-20
SAND	fine to coarse, some fine gravel, gray	20-40

155-083-22AAA4

BW 1

Date Completed:	10/30/64	Well Type:	recharge well
Depth Drilled (ft):	36	Principal Aquifer :	Souris Valley
Screened Interval (ft):		L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
CLAY	very sandy, medium brown, slightly cohesive	0-6
SAND	clayey, brown	6-10
SAND	fine to medium, medium brown; minor amount of clay	10-12
SAND	medium, medium brown; saturated	12-15.5
SAND	fine to coarse, silty, bluish gray; pelecypod valves; abundance of wood	15.5-17.5
SAND	fine to medium, bluish gray	17.5-18.5
SAND	coarse, olive gray; gravel, fine, olive gray; abundance of pelecypod valves; abundance of lignite fragments	18.5-21
SAND	fine to medium, silty, blue; abundance of lignite fragments	21-24
CLAY	silty, dark olive gray, very cohesive	24-28
SAND	coarse, brown; minor amount of fine gravel	28-36

155-083-22ABA

USGS B1

Date Completed:	1945	Well Type:	monitoring
Depth Drilled (ft):	353	Principal Aquifer :	Minot
Screened Interval (ft):	?-93	L.S. Elevation (ft)	1560

Lithologic Log

Unit	Description	Depth (ft)
SILT	gray brown, some fine sand and vegetable matter	0-4
SAND	medium to coarse, clean, well sorted and rounded, gray to light brown	4-9
SAND	coarse, well rounded and sorted, light brown, some coal grains	9-23
SAND	medium to coarse, well rounded and sorted, light brown, some coal grains	23-29
SAND	coarse, poorly rounded, brown; contains coal, mica, pyrite, green and black quartzite, and limestone	29-32
SAND	medium to coarse, well rounded and sorted, medium brown; contains clear crystalline limestone, coal, and shale grains	32-49
SAND	coarse, and fine angular gravel; contains shale, black quartzite, clear crystalline limestone, and limonite grains and pebbles	49-59
SAND	medium to coarse, fairly well rounded, light brown; in part coated and cemented with limestone	59-64
SAND	coarse, light brown, angular to rounded	64-79
SAND	fine to coarse, reddish brown, well rounded	79-85
SAND	reddish brown, and gray blue clay (Fort Union Formation)	85-92
SILT & CLAY	gray blue; caving sand and gravel	92-99
SILT & CLAY	gray blue, slightly calcareous; silt grains, angular, range .1 mm to .01 mm; estimated 70% silt, 30% clay; no sand	99-109
SILT & CLAY	gray blue, slightly calcareous; some fine sand and mica flakes	109-179

155-083-22ABA, cont.

SILT & CLAY	gray blue, slightly calcareous; contains vegetable matter and mica flakes	179-189
SILT & CLAY	gray blue, slightly calcareous, some sand	189-209
SILT & CLAY	gray blue, slightly calcareous; contains a fresh water gastropod	209-219
SILT & CLAY	gray blue, slightly calcareous, some vegetable matter	219-254
SILT & CLAY	gray blue, slightly calcareous, vegetable matter, iron stained in part	254-284
SILT & CLAY	gray blue, slightly calcareous, iron stained; limestone boulder (caved from above)	284-294
SILT	clay, gray blue, slightly calcareous, some sand grains and mica flakes, iron stained	294-343
SAND	no sample; artesian water (Struck artesian water in sand between 343-353 ft but no samples of the sand were obtained)	343-353

155-083-22ABC

MINOT CITY WELL # 15

Date Completed:	1961	Well Type:	public supply
Depth Drilled (ft):	117	Principal Aquifer :	Minot
Screened Interval (ft):	?-115	L.S. Elevation (ft)	1557

Lithologic Log

Unit	Description	Depth (ft)
CLAY	sandy	0-20
SAND	dirty	20-50
SAND	clean	50-55
SAND & GRAVEL		55-60
GRAVEL	coarse	60-115
CLAY		115-117

155-083-22ABD

USGS B2

Date Completed:	1945	Well Type:	monitoring
Depth Drilled (ft):	59	Principal Aquifer :	Minot
Screened Interval (ft):	?-50	L.S. Elevation (ft)	1554

Lithologic Log

Unit	Description	Depth (ft)

155-083-22ACC1

MINOT CITY WELL # 14

Date Completed:	1961	Well Type:	public supply
Depth Drilled (ft):	106	Principal Aquifer :	Minot
Screened Interval (ft):	?-105	L.S. Elevation (ft)	1556

Lithologic Log

Unit	Description	Depth (ft)
CLAY	gray; sandy	0-10
CLAY	yellow; sandy	10-45
GRAVEL	coarse	45-90
SAND	with some gravel	90-106

155-083-22ACC2

CITY TEST # 12AT

Date Completed:	1961	Well Type:	None
Depth Drilled (ft):	111	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1555

Lithologic Log

Unit	Description	Depth (ft)
CLAY	sandy, silt	0-11
SAND	very fine, some clay and silt	11-38
CLAY	mostly clay, some sand	38-54
SAND	(dirty)	54-57
SAND	clean, coarse	57-72
SAND	clean, gravel	72-90
SAND	dirty (clay), gravel	90-97

155-083-22ACC2, cont.

CLAY	sandy, clay	97-111

155-083-22ADA1
11-T

Date Completed:	1961	Well Type:	None
Depth Drilled (ft):	140	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1557

Lithologic Log

Unit	Description	Depth (ft)
CLAY	silt, sandy, clay, some fine sand	0-46
SAND	dirty, medium to fine sand, some lignite	46-68
SAND	some clean, clay lenses, lignite	68-78
SAND	clean, coarse, gravel	78-85
GRAVEL	mostly coarse	85-94
GRAVEL	very coarse, gravel, boulder, some sand	94-111
SAND	with gravel and boulders (clean)	111-120
CLAY	gray, some fine silty sand	120-140

155-083-22ADA2
MINOT CITY WELL #12

Date Completed:	1961	Well Type:	pubic supply
Depth Drilled (ft):	140	Principal Aquifer :	Minot
Screened Interval (ft):	?-120	L.S. Elevation (ft)	1555

Lithologic Log

Unit	Description	Depth (ft)
CLAY	silty, sandy clay, fine sand	0-46
SAND	dirty, medium to fine, some lignite	46-68
SAND	some clean, clay lenses, lignite	68-78
SAND	clean, coarse sand and gravel	78-85
GRAVEL	mostly coarse, rough drilling	85-94
GRAVEL	very coarse gravel, boulders, some sand	94-111

155-083-22ADA2, cont.

SAND	with gravel and boulders	111-120
CLAY	gray	120-140

155-083-22ADC
MINOT CITY WELL #13

Date Completed:	1961	Well Type:	public supply
Depth Drilled (ft):	115	Principal Aquifer :	Minot
Screened Interval (ft):	?-115	L.S. Elevation (ft)	1557

Lithologic Log

Unit	Description	Depth (ft)
CLAY	sandy	0-25
CLAY	blue	25-75
SAND & GRAVEL		75-80
GRAVEL		80-89
GRAVEL	coarse gravel and boulders	89-114
SAND		114-121
CLAY	with gravel	121-123

155-083-22ADD1
NORTHERN STATES POWER

Date Completed:	1960	Well Type:	industrial
Depth Drilled (ft):	96	Principal Aquifer :	Minot
Screened Interval (ft):	?-96	L.S. Elevation (ft)	1560

Lithologic Log

Unit	Description	Depth (ft)
GUMBO		0-2
CLAY	sandy	2-15
SAND		15-30
GRAVEL	muddy water	30-37
SAND	fine, and muddy water	37-80
CLAY & SAND		80-90

155-083-22ADD1, cont.

SAND	with water	90-96

155-083-22ADD2

USGS A3

Date Completed:	1945	Well Type:	monitoring
Depth Drilled (ft):	128	Principal Aquifer :	Minot
Screened Interval (ft):	?-128	L.S. Elevation (ft)	1557

Lithologic Log

Unit	Description	Depth (ft)
CLAY	gray; contains some medium grains of quartz sand	0-12
SAND	fine to medium, buff; contains some (fresh water) shell fragments	12-23
CLAY	gray, with few grains coarse sand, calcareous	23-29
CLAY	sand and gravel; calcareous; much wood 44-45 ft	29-69
SAND	fine to medium, well sorted	69-92
SAND	medium to coarse, and fine gravel	92-128

155-083-22BAB

13-AT

Date Completed:	1961	Well Type:	None
Depth Drilled (ft):	93	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1583

Lithologic Log

Unit	Description	Depth (ft)
SAND	clean, fine	0-70
SAND	with gravel, and boulders	70-80
CLAY	sandy, blue	80-93

155-083-22BAB2
NDSWC 13163

Date Completed:	5/20/93	Well Type:	None
Depth Drilled (ft):	140	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1580

Lithologic Log

Unit	Description	Depth (ft)
SOIL		0-1
CLAY	yellowish brown, oxidized, silty	1-9
SAND & GRAVEL	oxidized	9-27
CLAY	brownish/black, brittle	27-29
CLAY	grayish, sandy, brittle	29-46
SANDSTONE	gray, brittle, laminated, BEDROCK	46-71
CLAYSTONE	gray, sandy	71-104
SANDSTONE	gray, laminated	104-108
CLAYSTONE	black, carbonaceous	108-115
CLAYSTONE	gray	115-125
SANDSTONE	hard, gray	125-130
CLAYSTONE	gray to black	130-140

155-083-22BAC

NDSWC 13170

Date Completed:	5/26/93	Well Type:	monitoring
Depth Drilled (ft):	60	Principal Aquifer :	Minot
Screened Interval (ft):	47-52	L.S. Elevation (ft)	1564.83

Lithologic Log

Unit	Description	Depth (ft)
SOIL		0-1
CLAY	silty, yellowish brown, oxidized	1-5
GRAVEL	iron stained, sandy, rocky, oxidized, lignite from 22-23 feet	5-24
CLAY	gray, silty	24-26
GRAVEL	iron stained, coarse to pea to marble size gravel, rocky with cobbles, mixed 5 mud, gravel is composed of carbonates, shales, granites and lignite, well rounded to subrounded,	26-52
SANDSTONE	gray, with clay, drills smooth	52-60

155-083-22BCC1

NDSWC 16

Date Completed:	2/21/61	Well Type:	None
Depth Drilled (ft):	20	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1570

Lithologic Log

Unit	Description	Depth (ft)
GRAVEL	medium to coarse; rough drilling	0-11
GRAVEL	coarse; boulders; rough drilling, lost circulation, abandoned hole	11-20

155-083-22BCC2

BW 3

Date Completed:	11/2/64	Well Type:	monitoring
Depth Drilled (ft):	19	Principal Aquifer :	Souris Valley
Screened Interval (ft):		L.S. Elevation (ft)	1558

Lithologic Log

Unit	Description	Depth (ft)
FILL		0-1
SAND	medium, brown	1-4
SAND	fine to coarse, brown; minor amount of fine gravel; minor amount of lignite chips	4-5
SAND	medium, reddish brown; very uniform in size	5-6
SAND	medium, reddish brown; minor amount of cobbles	6-7
SAND	medium, reddish brown; very uniform in size	7-12
SAND	medium to coarse, silty, brownish gray; gravel, fine to medium, silty, brownish gray; minor amount of boulders	12-19

155-083-22BCD1

MINOT CITY WELL #17

Date Completed:	1961	Well Type:	public supply
Depth Drilled (ft):	91	Principal Aquifer :	Minot
Screened Interval (ft):	?-87	L.S. Elevation (ft)	1556

Lithologic Log

Unit	Description	Depth (ft)
CLAY		0-10
CLAY	sandy	10-26
GRAVEL	coarse	26-72
GRAVEL	fine	72-80
GRAVEL	fine gravel and sand	80-85
GRAVEL	with traces of clay	85-89
CLAY	hard	89-91

155-083-22BCD2

R9

Date Completed:	10/15/64	Well Type:	monitoring
Depth Drilled (ft):	78	Principal Aquifer :	Minot
Screened Interval (ft):	?-78	L.S. Elevation (ft)	1558.1

Lithologic Log

Unit	Description	Depth (ft)
FILL		0-4
CLAY	silty and sandy, olive gray	4-17
CLAY	very sandy, olive gray	17-23.5
SAND	medium to coarse	23.5-24
GRAVEL	fine to medium; sand, coarse	24-37
GRAVEL	fine to medium	37-39
GRAVEL	fine to medium, some coarse; sand, coarse; taking water, drilling fluid is muddy	39-53
SAND	very fine to medium, silty, slightly cohesive	53-55
GRAVEL	with some sand	55-70.5
SAND	fine to coarse, grayish, brown	70.5-76.5
GRAVEL	with some sand, dark brown; abundance of lignite fragments	76.5-78

155-083-22BDB

CITY TEST 13-T

Date Completed:	1961	Well Type:	None
Depth Drilled (ft):	121	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1557

Lithologic Log

Unit	Description	Depth (ft)
SILT & SAND		0-8
SAND & GRAVEL	rough drilling	8-40
SAND	gravel; very rough drilling	40-54
SAND	gravel	54-85

155-083-22BDB, cont.

GRAVEL	coarse, boulders, sand	85-111
CLAY	gravel	111-121

155-083-22BDC
MINOT CITY WELL # 16

Date Completed:	1961	Well Type:	public supply
Depth Drilled (ft):	121	Principal Aquifer :	Minot
Screened Interval (ft):	?-111	L.S. Elevation (ft)	1556

Lithologic Log

Unit	Description	Depth (ft)
SILTY & CLAY		0-8
SAND & GRAVEL		8-40
SAND & GRAVEL	small boulders	40-85
GRAVEL	coarse gravel, boulders	85-111
CLAY & GRAVEL		111-121

155-083-22CAA
R5

Date Completed:	1964	Well Type:	None
Depth Drilled (ft):	30	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1559.1

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2.5
SAND	soil, and some clay	2.5-5
CLAY	sandy with silt	5-7.5
CLAY	blue	7.5-10
CLAY	grayish blue	10-12.5
CLAY	sandy	12.5-15
CLAY	brown, blue	15-17.5
CLAY	yellow, some sand	17.5-20

155-083-22CAA, cont.

SAND	medium to coarse, some shells and coal; taking water at 21 ft	20-22.5
SAND	coarse, red, clean	22.5-25
SAND	coarse, with some gravel	25-27.5
GRAVEL	with coarse sand	27.5-30

155-083-22CAB1

R4

Date Completed:	1964	Well Type:	None
Depth Drilled (ft):	30	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1558.7

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2.5
SAND	silty	2.5-10
SAND	fine	10-12.5
CLAY	sandy	12.5-17.5
SAND	medium, with some shells	17.5-20
SAND	medium to coarse	20-22.5
SAND	coarse, with small gravel; drilling hard	22.5-25
GRAVEL	medium, with some coarse sand	25-30

155-083-22CAB2

BORED WELL # 5

Date Completed:	12/23/64	Well Type:	recharge
Depth Drilled (ft):	35	Principal Aquifer :	Minot
Screened Interval (ft):	?-35	L.S. Elevation (ft)	1559.3

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-1
SAND	very fine to fine, very silty; thin layers of sandy clay between 7-12 ft	1-12
SAND	fine, minor amounts of medium to coarse grains; pelecypod valves at 14-15 ft	12-15
CLAY	medium olive gray	15-17
SAND	fine to medium, abundance of lignite	17-21
SAND	coarse; gravel, fine	21-22
CLAY	silty and sandy, dark olive gray	22-25
CLAY	grayish brown	25-26
GRAVEL	clayey and silty	26-27
GRAVEL	fine to medium, clayey and silty, brownish black; sand, medium to coarse, clayey and silty, brownish black; slightly cohesive; abundance of lignite; rough drilling	27-35

155-083-22CBA1

R2

Date Completed:		Well Type:	None
Depth Drilled (ft):	64	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1559.2

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2.5
SOIL	black, with a little silt	2.5-5
CLAY	sandy	5-10
CLAY	sandy, olive	10-12.5
SAND	fine	12.5-15
CLAY	brownish; sand, fine	15-17.5
SAND	medium to coarse, clean; taking water at 19 ft	17.5-20
SAND	fine, brown	20-22.5
SAND	coarse	22.5-26
SAND	coarse; gravel, fine	26-30

155-083-22CBA2

R3

Date Completed:	1964	Well Type:	None
Depth Drilled (ft):	30	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1559

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-5
CLAY	olive, with some fine sand	5-7.5
CLAY	sandy	7.5-12.5
SAND	fine, some clay	12.5-17.5
SAND	medium to coarse, quite clean	17.5-20

155-083-22CBA2, cont.

GRAVEL	with a little sand; started taking a lot of water at 21 ft	20-25
GRAVEL	fine to coarse	25-27.5
SAND	coarse, with gravel; drilling rough	27.5-30

155-083-22CBA3

BORED WELL # 4

Date Completed:	12/22/64	Well Type:	None
Depth Drilled (ft):	36	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1559.1

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-1
CLAY	very sandy and silty, medium brown; interbedded with layers of gray and brown clay	1-19
CLAY	silty, dark olive gray, very cohesive	19-22
SAND	medium to coarse, silty, dark rusty brown; minor amount of fine gravel; abundance of lignite	22-26
SAND	medium to coarse, silty, dark rusty brown; gravel, fine to medium, silty, dark rusty brown; abundance of lignite	26-36

155-083-22CBB1

R1

Date Completed:	1964	Well Type:	None
Depth Drilled (ft):	30	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1556.9

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-5
CLAY	silty, olive brownish gray, with fine sand	5-10
CLAY	brown, with fine sand	10-12.5
CLAY	silty and sandy, dark olive gray; small amount of dark material; some coal fragments between 17.5-20 ft	12.5-20
SAND	coarse, brown, few coal fragments	20-22.5

155-083-22CBB1, cont.

SAND	coarse; gravel, fine; coal fragments; started taking water at 24 ft; hit rock at 25 ft; larger gravel reported but not sampled	22.5-30

155-083-22CBB2

R6

Date Completed:	1964	Well Type:	None
Depth Drilled (ft):	27	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1559.9

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2.5
SAND	silty	2.5-7.5
CLAY	sandy	7.5-10
SAND	fine, with a little clay; clayey sand	10-12.5
SAND	fine to coarse, brown, clean	12.5-15
SAND	medium to coarse, some coal and shells; rough drilling and taking a lot of water between 20-22.5 ft	15-22.5
SAND	coarse, brown; limestone boulder at 25 ft	22.5-25
SAND	coarse; gravel, fine; rough drilling, taking a lot of water	25-27

155-083-22CBB3

R8

Date Completed:	10/1/64	Well Type:	monitoring
Depth Drilled (ft):	68	Principal Aquifer :	Minot
Screened Interval (ft):	?-68	L.S. Elevation (ft)	1558.35

Lithologic Log

Unit	Description	Depth (ft)
SOIL	silty and sandy, black	0-2
CLAY	silty and sandy, dusky yellowish brown	2-18
CLAY	sandy and gravelly, dusky yellowish brown	18-22
SAND	fine to coarse, silty, some fine gravel	22-24
SAND	coarse; gravel, fine	24-44

155-083-22CBB3, cont.

SAND	medium, brown	44-48
GRAVEL	fine to coarse; sand, fine to coarse; abundance of lignite fragments between 64-68 ft	48-68

155-083-22CDD

NDSWC 13013

Date Completed:	7/22/92	Well Type:	monitoring
Depth Drilled (ft):	100	Principal Aquifer :	Souris Valley
Screened Interval (ft):	50-55	L.S. Elevation (ft)	1552.96

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
CLAY	yellowish brown, silty sandy with pebbles, sand from 8-9, oxidized till	1-10
CLAY	oxidized	10-18
CLAY	olive gray, plastic, soft	18-24
SAND	very fine to fine, drills fast, not taking much water	24-27
CLAY	interbedded with fine sand and silt	27-34
SAND	very fine to fine	34-36
CLAY	olive gray, silty, layer of very fine sand	36-47
SAND	very fine to coarse	47-56
CLAY	olive gray, very silty	56-71
SANDSTONE	whitish gray, very fine grained	71-74
CLAYSTONE	grayish white, very silty and sandy, layers of lignites and sandstone	74-83
SANDSTONE	whitish gray, hard	83-84
SANDSTONE	whitish gray, softer, more clay and silt, some lignites	84-100

155-083-22DAB1

NDSWC 13162A

Date Completed:	5/18/93	Well Type:	monitoring
Depth Drilled (ft):	117	Principal Aquifer :	Minot
Screened Interval (ft):	98-103	L.S. Elevation (ft)	1555.8

Lithologic Log

Unit	Description	Depth (ft)
SOIL		0-1
CLAY	grayish brown, silty oxidized	1-6
CLAY	yellowish brown, silty, oxidized, very fine sand from 10-11	6-21
SAND	very fine to fine, oxidized	21-24
SAND	very fine to medium, unoxidized	24-33
CLAY	gray, silty	33-36
SAND	fine to coarse, taking water	36-60
CLAY	gray, silty	60-67
GRAVEL	coarse, choppy drilling, gravel is pea to marble size, some 1 inch across	67-80
SAND	coarse to very coarse	80-88
GRAVEL	coarse to very coarse, rocky, taking lots of water, mixed 34 bags of mud and 15 loads of water, gravel has 10% lignite, remainder carbonates granites, and shale, pea to marble sized gravel some 1 inch across, drilling as if lots of boulders and cobbles, used 3 rock bits from 100 to 117	88-117

155-083-22DAB2

NDSWC 13162B

Date Completed:	5/20/93	Well Type:	monitoring
Depth Drilled (ft):	40	Principal Aquifer :	Souris Valley
Screened Interval (ft):	28-33	L.S. Elevation (ft)	1555.84

Lithologic Log

Unit	Description	Depth (ft)
SOIL		0-1
CLAY	yellowish brown, oxidized	1-24
SAND	very fine to medium	24-36

155-083-22DAB2, cont.

CLAY	very silty, gray	36-40

155-083-22DB
USGS B3

Date Completed:	1945	Well Type:	monitoring
Depth Drilled (ft):	90	Principal Aquifer :	Minot
Screened Interval (ft):		L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
CLAY	gray, well leached, with a few grains of sand	0-9
CLAY	gray, with a few sand grains; fine material is slightly calcareous	9-29
CLAY	gray, with a few grains of igneous rocks and coal	29-45
SAND	medium, dominantly of igneous rocks with a few shale particles; well sorted	45-56
SAND	medium to coarse, and gravel; boulder chips abundant; some of gravel larger than 1/4 inch	56-66
SAND	medium to coarse; abundant coal	66-68
SAND & GRAVEL	with pieces of coal	68-78
SAND	medium to coarse; coarse grains dominantly angular; small buff colored grains of limestone and shale present	78-90

155-083-22DDB
NDSWC 13012

Date Completed:	7/21/92	Well Type:	monitoring
Depth Drilled (ft):	140	Principal Aquifer :	Minot
Screened Interval (ft):	110-115	L.S. Elevation (ft)	1558.14

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
CLAY	yellowish brown, silty, sandy with pebbles, rocky oxidized till	1-10
SILT	yellowish brown, oxidized	10-17
CLAY	very silty with fine sand lenses, oxidized	17-20

155-083-22DDB, cont.

SAND & GRAVEL	oxidized	20-27
CLAY	silty, sandy, olive gray	27-41
SAND	very fine, silty	41-44
CLAY	olive gray, silty, very fine sand at 51-52	44-85
SAND	very fine, poor return, drills fast, silty?	85-91
CLAY	gray, silty, drills fast	91-110
CLAY	whitish gray, silty	110-113
GRAVEL	sandy, rough drilling, rocky, numerous fragments of whitish gray sandstone	113-115
CLAY	very sandy, whitish gray, soft, interbedded with whitish gray sandstone	115-133
SANDSTONE	hard, whitish gray	133-140

155-083-23AAD

NDSWC 13005

Date Completed:	6/23/92	Well Type:	monitoring
Depth Drilled (ft):	291	Principal Aquifer :	Minot
Screened Interval (ft):	118-123	L.S. Elevation (ft)	1552.17

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
GRAVEL	oxidized, iron stained	1-2
SILT	clayey, oxidized, very fine sand, maybe some pebbles ?	2-21
CLAY	silty, gray	21-25
SAND	very fine to medium, unoxidized, drills fast	25-31
CLAY	gray, sticky	31-43
SAND	very fine to fine, drills fast	43-46

155-083-23AAD, cont.

CLAY	gray sticky, drills fast	46-54
SAND	very fine to fine	54-65
CLAY	olive gray, silty	65-76
SAND	fine to coarse, drills fast	76-85
SAND & GRAVEL	drills fast, medium sand to fine gravel	85-86
SILT	some clay, drills fast and smooth, poor return	86-105
SAND	very fine to fine, interbedded with clay	105-115
GRAVEL	rocky, drills rough, coarse to very coarse sand with gravel, abundant limestone and dolomite, remainder granitics, some lignite, at 121 feet picking up more lignite and becoming coarser, taking water, mixed mud	115-144
CLAY	olive gray, drills slow (rock bit), gravel layer at 218-219	144-219
CLAY	black, silty, carbonaceous, also some gray sticky clay, fragments of whitish bentonite, appear to be drilling through occasional layer of lignite	219-269
GRAVEL	interbedded with gray sticky clay	269-275
CLAY	blackish, greenish specks, booting up	275-291

155-083-23BA1

CITY TEST # 8

Date Completed:	1915	Well Type:	None
Depth Drilled (ft):	135	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
	no log	0-108
SAND	fine to medium, clean	108-110
SAND	medium to coarse	110-112
SAND	coarse, and fine gravel	112-115

155-083-23BA1, cont.

SAND	medium to coarse	115-125
SAND	coarse, and fine gravel	125-130
SAND & CLAY		130-135

155-083-23BA2
CITY TEST # 1

Date Completed:	1938	Well Type:	None
Depth Drilled (ft):	154	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SAND & CLAY		0-70
SAND	fine, dirty	70-118
SAND & GRAVEL		118-120
CLAY		120-154

155-083-23BA3
CITY TEST # 2

Date Completed:	1938	Well Type:	None
Depth Drilled (ft):	155	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SAND & CLAY		0-36
CLAY	blue	36-58
SAND & CLAY		58-94
SAND	fine, hard, brown	94-98
SAND	fine, hard, black	98-104
SAND	fine, clean	104-118
SAND	fine, dirty	118-125
SAND & GRAVEL		125-132

155-083-23BA3, cont.

CLAY	sand, and gravel	132-136
CLAY	blue	136-155

155-083-23BAA1
MINOT CITY WELL # 1

Date Completed:	1916	Well Type:	public supply
Depth Drilled (ft):	138	Principal Aquifer :	Minot
Screened Interval (ft):	92-132	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
CLAY	sand, and gravel	0-85
SAND	coarse	85-98
GRAVEL & SAND		98-108
SAND	coarse, and lignite	108-112
SAND	fine to coarse	112-118
GRAVEL		118-122
SAND		122-126
GRAVEL & CLAY		126-130
SAND	coarse	130-135
CLAY	gravelly, and gumbo	135-138

155-083-23BAA2
MINOT CITY WELL #2

Date Completed:	1918	Well Type:	public supply
Depth Drilled (ft):	132	Principal Aquifer :	Minot
Screened Interval (ft):	92-132	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
CLAY	sand, and gravel	0-85
SAND		85-90
SAND	coarse, and clay	90-94

155-083-23BAA2, cont.

SAND	coarse	94-98
SAND	and lignite	98-101
SAND & GRAVEL		101-108
GRAVEL		108-113
SAND	coarse	113-115
SAND & GRAVEL		115-118
SAND	coarse	118-131
CLAY & SAND		131-132

155-083-23BAA3
MINOT CITY WELL # 7

Date Completed:	2/10/68	Well Type:	public supply
Depth Drilled (ft):	125	Principal Aquifer :	Minot
Screened Interval (ft):	?-125	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
FILL & TOPSOIL		0-4
CLAY	sandy	4-8
SAND		8-16
CLAY		16-86
SAND		86-90
SAND	coarse	90-100
SAND	fine	100-110
GRAVEL		110-115
SAND	medium	115-122

155-083-23BAA3, cont.

SAND & GRAVEL	122-125

155-083-23BAB1
MINOT CITY WELL #8

Date Completed:	6/10/48	Well Type:	public supply
Depth Drilled (ft):	133.5	Principal Aquifer :	Minot
Screened Interval (ft):	?-132.5	L.S. Elevation (ft)	1555

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-2
SAND CLAY		2-8
SAND		8-21
CLAY		21-63
SAND	with clay streaks	63-70
CLAY		70-90
SAND	muddy	90-100
SAND		100-118
GRAVEL	with coarse sand	118-133.5

155-083-23BAB2

NDSWC 2227

Date Completed:	5/11/64	Well Type:	monitoring
Depth Drilled (ft):	120	Principal Aquifer :	Minot
Screened Interval (ft):	?-118	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
CLAY	silty and sandy, olive gray	2-5
SAND	very fine to fine, silty; minor thin layers of clay	5-13
SAND	fine to coarse; pelecypod valves	13-23
CLAY	silty, olive gray	23-35
SAND	medium	35-42
CLAY	silty, olive gray	42-46
SILT	clayey, olive gray	46-56
SAND	fine to coarse; minor amount of fine gravel	56-69
SAND	medium; minor amount of thin layers of clay	69-74
SAND	medium to coarse; lignite fragments	74-117
GRAVEL	fine to coarse; rough drilling	117-120

155-083-23BAB3

NDSWC 2227A

Date Completed:	5/11/64	Well Type:	monitoring
Depth Drilled (ft):	21	Principal Aquifer :	Souris Valley
Screened Interval (ft):	?-21	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL		0-2
CLAY	silty and sandy, olive gray	2-5
SAND	very fine to fine, silty and clayey	5-13

155-083-23BAB3, cont.

SAND	fine to coarse; pelecypod valves	13-21

155-083-23BAC1

NDSWC 13009A

Date Completed:	7/20/92	Well Type:	monitoring
Depth Drilled (ft):	150	Principal Aquifer :	Minot
Screened Interval (ft):	118-123	L.S. Elevation (ft)	1554.81

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
SILT	oxidized appears to be fill material	1-19
SILT	gray	19-20
SAND	very fine drills fast	20-23
CLAY	silty, gray	23-28
SAND	10 % gravel	28-29
CLAY	gray, silty	29-32
SAND & GRAVEL	very fine sand to fine gravel	32-37
CLAY	silty, gray	37-38
SAND & GRAVEL	very fine sand to fine gravel	38-40
CLAY	gray, plastic	40-43
SAND	very fine to fine	43-44
CLAY	gray, sticky	44-46
SAND	very fine, drills fast	46-47
CLAY	olive gray, sticky, layers of very fine sand from 77-78 and 82-83	47-87
GRAVEL	rocky, very coarse gravel, taking lots of water, mixed 24 bags of mud, abundant lignite, pea to marble size gravel, rough drilling, caving hole and lost circulation	87-140

155-083-23BAC1, cont.

SANDSTONE	whitish gray, hard	140-143
CLAYSTONE	blackish, carbonaceous, some black shale	143-150

155-083-23BAC2
NDSWC 13009B

Date Completed:	7/21/92	Well Type:	monitoring
Depth Drilled (ft):	40	Principal Aquifer :	Souris Valley
Screened Interval (ft):	33-38	L.S. Elevation (ft)	1555.02

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
SILT	clayey, oxidized, yellowish brown, iron stained	1-18
SAND	very fine to fine, grayish to oxidized stained	18-25
CLAY	olive gray, silty, sand layer from 28-29 feet	25-34
SAND	very fine to coarse	34-40

155-083-23BB
CITY TEST # 10

Date Completed:	1915	Well Type:	monitoring
Depth Drilled (ft):	126	Principal Aquifer :	Minot
Screened Interval (ft):	?-126	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
no log	no log	0-19
SAND	fine	19-27
SAND	very fine, yellow	27-35
CLAY	gray, silt	35-82
SAND	fine to medium, gray	82-96
SAND & GRAVEL		96-100
SAND	fine to medium	100-108
SAND & GRAVEL		108-118

155-083-23BB, cont.

SAND	fine to medium	118-119
GRAVEL	fine	119-121
SAND	coarse, angular	121-126

155-083-23BBA1
NDSWC 2222

Date Completed:	5/26/64	Well Type:	monitoring
Depth Drilled (ft):	107	Principal Aquifer :	Minot
Screened Interval (ft):	?-100	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
CLAY	sandy, dark brown	2-8
SAND	fine to medium, clayey	8-14
SAND	very fine to coarse; abundant pelecypod valves at 20-22 ft	14-23
CLAY	greenish gray	23-32
SAND	fine to coarse; taking water	32-50
SAND	fine to very coarse; minor amount of fine gravel	50-58
GRAVEL	fine to medium; clay, greenish gray; taking water	58-62
SAND	medium to coarse; minor amount of greenish gray clay from 84-104 ft; abundance of lignite chips from 84-104 ft	62-104
GRAVEL	fine to coarse; rough drilling	104-107

155-083-23BBA2

NDSWC 2223

Date Completed:	5/4/64	Well Type:	monitoring
Depth Drilled (ft):	117	Principal Aquifer :	Minot
Screened Interval (ft):	?-116	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-4
SAND	very fine to medium; minor amount of silt and clay	4-24
CLAY	silty, greenish gray	24-32
SAND	very fine to medium	32-34
CLAY	silty, greenish gray	34-40
SILT	sandy, greenish gray	40-53
SAND	fine to coarse, clayey; lignite fragments from 74-110 ft	53-110
GRAVEL	fine to coarse; lost circulation, rough drilling	110-117

155-083-23BBA3

NDSWC 2225

Date Completed:	5/5/64	Well Type:	monitoring
Depth Drilled (ft):	106	Principal Aquifer :	Minot
Screened Interval (ft):	?-104	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
SAND	fine to coarse	2-22
CLAY	greenish gray	22-33
SAND	fine to coarse; interbedded with clay, greenish gray	33-57
SAND	very fine to very coarse; abundant lignite fragments; minor amount of clay	57-104
GRAVEL	fine to coarse; lost circulation, rough drilling	104-106

155-083-23BBA4

NDSWC 2225A

Date Completed:	5/5/64	Well Type:	monitoring
Depth Drilled (ft):	21	Principal Aquifer :	Souris Valley
Screened Interval (ft):	?	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
SAND	fine to coarse	2-21

155-083-23BBA5

NDSWC 2226

Date Completed:	5/7/64	Well Type:	monitoring
Depth Drilled (ft):	117	Principal Aquifer :	Minot
Screened Interval (ft):	114-117	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
SAND	very fine to medium, clayey	2-20
SAND	coarse to very coarse; abundance of pelecypod valves	20-23
CLAY	greenish gray	23-42

155-083-23BBA5, cont.

CLAY	sandy, greenish gray; interbedded with thin layers of sand	42-57
SAND	fine to coarse; gravel, fine to medium; minor amount of clay; abundance of lignite fragments	57-65
CLAY	sandy, greenish gray	65-70
SAND	fine to very coarse; minor amount of gravel; abundance of lignite fragments	70-74
SAND	very fine to very coarse; lost circulation	74-116
GRAVEL	fine to very coarse; rough drilling	116-117

155-083-23BBA6
NDSWC 2226A

Date Completed:	5/7/64	Well Type:	monitoring
Depth Drilled (ft):	21	Principal Aquifer :	Souris Valley
Screened Interval (ft):	?-21	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
SAND	very fine to medium; clayey	2-20
SAND	coarse to very coarse; abundance of pelecypod valves	20-21

155-083-23BBA7
NDSWC 2241

Date Completed:	5/22/64	Well Type:	monitoring
Depth Drilled (ft):	102	Principal Aquifer :	Minot
Screened Interval (ft):	?-102	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
CLAY	silty and sandy, yellowish brown	0-13
SAND	fine to coarse	13-18
CLAY	silty, olive gray	18-25
SAND	fine to medium	25-27
CLAY	sandy, olive gray	27-30

155-083-23BBA7, cont.

SAND	fine to coarse; minor amount of thin clay layers	30-35
CLAY	sandy, olive gray	35-39
SAND	fine to coarse	39-101
GRAVEL	fine to coarse; rough drilling	101-102

155-083-23BBA8
NDSWC 2241A

Date Completed:	5/21/64	Well Type:	monitoring
Depth Drilled (ft):	18	Principal Aquifer :	Souris Valley
Screened Interval (ft):	?-18	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
CLAY	silty and sandy, yellowish brown	0-13
SAND	fine to coarse	13-18

155-083-23BBA9
CORE 3

Date Completed:	5/21/64	Well Type:	None
Depth Drilled (ft):	46.2	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
	no sample	0-13.8
CLAY	silty, light olive gray	13.8-17.7
CLAY	very sandy, light olive gray	17.7-20
CLAY	silty, light olive gray	20-20.6
SAND	medium	20.6-21.2
CLAY	silty, light olive gray	21.2-23
SAND	fine to medium, silty	23-29
CLAY	silty, light olive gray, very cohesive	29-30.5
SAND	fine to medium	30.5-33

155-083-23BBA9, cont.

CLAY	very silty, light olive gray, very cohesive	33-37
SAND	fine to coarse; stopped drilling at 46.2 ft, lost circulation	37-46.2

155-083-23BBA10

TEST CORE # 4

Date Completed:	6/5/64	Well Type:	monitoring
Depth Drilled (ft):	18	Principal Aquifer :	Souris Valley
Screened Interval (ft):	?-18	L.S. Elevation (ft)	1554.2

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
SAND	very fine to coarse	2-18

155-083-23BBB1

NDSWC 2220

Date Completed:	4/28/64	Well Type:	monitoring
Depth Drilled (ft):	114	Principal Aquifer :	Souris Valley
Screened Interval (ft):	?-56	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
SAND	fine to coarse	2-20
CLAY	greenish gray (core)	20-29.5
SAND	fine to coarse (core)	29.5-57
CLAY	greenish gray (core)	57-58.5
SAND	fine to coarse (core)	58.5-75
SAND	fine to medium; minor amount of silt and clay, greenish gray; minor amount of lignite fragments (core)	75-99
GRAVEL	fine to coarse; lost circulation, mixed 6 bags of bentonite at 98 ft; very rough drilling	99-114

155-083-23BBB2

NDSWC 2221

Date Completed:	4/30/64	Well Type:	monitoring
Depth Drilled (ft):	102.5	Principal Aquifer :	Minot
Screened Interval (ft):	?-92	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
SAND	very fine to coarse	2-20
CLAY	greenish gray	20-30
SAND	fine to coarse	30-60
SAND	fine to coarse; minor amount of clay; abundant small lignite chips	60-102
GRAVEL	coarse; rough drilling	102-102.5

155-083-23BBB3

NDSWC 2224

Date Completed:	5/5/64	Well Type:	monitoring
Depth Drilled (ft):	110	Principal Aquifer :	Minot
Screened Interval (ft):	?-101	L.S. Elevation (ft)	1555.57

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
SAND	very fine to medium	2-13
SAND	very fine to coarse, clayey	13-19
SAND	fine to coarse	19-21
CLAY	greenish gray	21-34
SAND	fine to coarse	34-64
SAND	very fine to coarse, clayey; abundant lignite fragments	64-77
SAND	very fine to medium, clayey	77-97
GRAVEL	fine to coarse; lost circulation, rough drilling	97-110

155-083-23BBB4
NDSWC 2228

Date Completed:	5/12/64	Well Type:	monitoring
Depth Drilled (ft):	110	Principal Aquifer :	Minot
Screened Interval (ft):	?-110	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
SILT	clayey and sandy, olive gray	2-10
SAND	fine to coarse	10-21
CLAY	dark greenish gray	21-27
SAND	medium to coarse; slightly clayey between 73-94 ft; abundance of lignite fragments between 94-102 ft	27-102
GRAVEL	fine	102-107
GRAVEL	fine to coarse; rough drilling, lost circulation	107-110

155-083-23BBB5
NDSWC 2228A

Date Completed:	5/12/64	Well Type:	monitoring
Depth Drilled (ft):	21	Principal Aquifer :	Souris Valley
Screened Interval (ft):	?-21	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
SILT	clayey and sandy, olive gray	2-10
SAND	fine to coarse	10-21

155-083-23BBB6
NDSWC 2231

Date Completed:	5/14/64	Well Type:	monitoring
Depth Drilled (ft):	21	Principal Aquifer :	Souris Valley
Screened Interval (ft):	?-21	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
SAND	fine to medium	2-21

155-083-23BBB7

NDSWC 2232

Date Completed:	5/14/64	Well Type:	monitoring
Depth Drilled (ft):	21	Principal Aquifer :	Souris Valley
Screened Interval (ft):	?-21	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
SAND	fine to medium	2-21

155-083-23BBB8

NDSWC P3

Date Completed:	9/30/64	Well Type:	None
Depth Drilled (ft):	60	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1551

Lithologic Log

Unit	Description	Depth (ft)
SOIL	sand, very fine to medium, brown	0-5
SAND	fine to medium, brown	5-18
CLAY	brown; sand, fine to medium, gray	18-20
SAND	fine to medium, gray	20-25
SAND	fine to coarse, brownish gray; some fine gravel between 35-40 ft; taking water	25-40
SAND	very fine to medium, gray; abundance of lignite	40-60

155-083-23BBB9

P4

Date Completed:	10/1/64	Well Type:	None
Depth Drilled (ft):	40	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	sand, very fine to medium, brown	0-5
SAND	fine to medium, brown	5-18
CLAY	brown; sand, fine to medium, gray	18-20
SAND	fine to medium, gray	20-25

155-083-23BBB9, cont.

SAND	fine to coarse, brownish gray; some fine gravel between 35-40 ft; taking water	25-40
SAND	very fine to medium, gray; abundance of lignite	40-60

155-083-23BBB10

P7

Date Completed:	10/1/64	Well Type:	None
Depth Drilled (ft):	40	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1553

Lithologic Log

Unit	Description	Depth (ft)
CLAY	sandy, brown	0-5
SAND	very fine to fine, brown	5-10
SAND	fine to medium, brown	10-15
SAND	medium to coarse, brown	15-25
SAND	medium to coarse, brown; minor layer of clay, gray	25-30
SAND	fine to coarse, gray	30-40

155-083-23BBB11

P8

Date Completed:	10/2/64	Well Type:	None
Depth Drilled (ft):	60	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1554.2

Lithologic Log

Unit	Description	Depth (ft)
CLAY	silty and sandy, brown	0-10
SAND	very fine to fine, clayey, brown	10-20
SAND	fine to coarse, brown	20-25
CLAY	gray; layers of very fine gravel	25-30
SAND	fine to coarse, gray	30-60

155-083-23BBC1

NDSWC 2229

Date Completed:	5/13/64	Well Type:	monitoring
Depth Drilled (ft):	102	Principal Aquifer :	Minot
Screened Interval (ft):	?-100	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
SAND	fine to medium; abundance of pelecypod valves	2-10
SAND	fine to coarse; few thin clayey layers	10-22
CLAY	olive gray; numerous thin layers of fine sand; lignite fragments	22-37
SAND	fine to medium	37-42
CLAY	silty and sandy, olive gray	42-47
SAND	fine to coarse; abundance of lignite fragments	47-99
GRAVEL	fine to medium	99-102

155-083-23BBC2

NDSWC 2229A

Date Completed:	5/13/64	Well Type:	monitoring
Depth Drilled (ft):	21	Principal Aquifer :	Souris Valley
Screened Interval (ft):	?-21	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
SAND	fine to medium	2-10
SAND	fine to coarse; minor amount of clay	10-21

155-083-23BBC3
NDSWC 2230

Date Completed:	5/13/64	Well Type:	monitoring
Depth Drilled (ft):	96	Principal Aquifer :	Minot
Screened Interval (ft):	?-83	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
SAND	very fine to fine	2-10
SAND	medium; abundance of pelecypod valves	10-21
SAND	fine to medium; clay, silty, olive gray	21-36
SAND	fine to coarse; abundance of lignite fragments from 70-94 ft	36-94
GRAVEL	fine to coarse; rough drilling	94-96

155-083-23BBC4
NDSWC 2230A

Date Completed:	5/13/64	Well Type:	monitoring
Depth Drilled (ft):	21	Principal Aquifer :	Souris Valley
Screened Interval (ft):	?-21	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
SAND	very fine to fine	2-10
SAND	medium; abundance of pelecypod valves	10-21

155-083-23BBC5
NDSWC 2235

Date Completed:	5/15/64	Well Type:	monitoring
Depth Drilled (ft):	100	Principal Aquifer :	Minot
Screened Interval (ft):	?-100	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
SAND	fine to medium	2-20
CLAY	sandy, olive gray; abundance of thin layers of sand	20-78

155-083-23BBC5, cont.

SAND	fine to coarse; minor amount of clay	78-86
GRAVEL	fine to medium; sand, medium to coarse	86-95
GRAVEL	fine to coarse; abundance of lignite fragments; rough drilling	95-105

155-083-23BBC6

P5

Date Completed:	10/1/64	Well Type:	None
Depth Drilled (ft):	60	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1553.8

Lithologic Log

Unit	Description	Depth (ft)
SOIL		0-1
SAND	very fine to fine, brown	1-5
SAND	fine to medium, brown	5-20
SAND	fine to medium, gray	20-25
CLAY	with layers of sand	25-30
SAND	very fine to fine, some clay	30-35
SAND	fine to coarse; gravel, very fine; taking a lot of water	35-40
SAND	fine to coarse	40-45
SAND	medium to coarse; gravel, very fine; taking a lot of water	45-60

155-083-23BBC7

P6

Date Completed:	10/1/64	Well Type:	None
Depth Drilled (ft):	60	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1549

Lithologic Log

Unit	Description	Depth (ft)
SAND	very fine to fine, brown	0-9
CLAY	sandy, brown	9-10
SAND	clayey, brown	10-15
SAND	clayey, gray	15-16
SAND	fine to medium, some coarse, gray	16-19
CLAY	sandy, gray; thin layers of fine to medium sand	19-32
SAND	fine to very coarse; gray; lignite fragments at 53 ft	32-60

155-083-23BBC8

P9

Date Completed:	10/2/64	Well Type:	None
Depth Drilled (ft):	60	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1552.7

Lithologic Log

Unit	Description	Depth (ft)
SOIL	sand, very fine, silty	0-5
SAND	very fine, silty	5-20
SAND	fine to medium, some coarse, brown	20-29
CLAY	with fine gravel, gray	29-33
SAND	fine to medium	33-35
SAND	fine to medium, some coarse, some very fine gravel between 45-50 ft; taking water	35-60

155-083-23BBD

MINOT CITY WELL #11

Date Completed:	1961	Well Type:	public supply
Depth Drilled (ft):	130	Principal Aquifer :	Minot
Screened Interval (ft):	?-130	L.S. Elevation (ft)	1554

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-3
CLAY	sandy	3-84
CLAY	some sand	84-90
SAND	dirty	90-99
COAL		99-102
SAND	coarse	102-104
GRAVEL	coarse	104-125
GRAVEL	with fine sand	125-130

155-083-23BC1

CITY TEST # 3

Date Completed:	1915	Well Type:	None
Depth Drilled (ft):	75	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
	no log	0-7
SAND	fine to medium	7-28
SILT	sandy, yellow	28-30
SILT	sandy, white	30-35
SILT	gray	35-56
SAND	fine, and clay	56-62
SILT	sandy, dark gray	62-75

155-083-23BC2

CITY TEST #4

Date Completed:	1915	Well Type:	None
Depth Drilled (ft):	43	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
	no log	0-13
SAND	fine	13-14
SAND	very fine, white	14-20
SAND	fine, gray	20-43

155-083-23BC3

CITY TEST # 6

Date Completed:	1915	Well Type:	None
Depth Drilled (ft):	126	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
	no log	0-19
QUICKSAND		19-20
SAND	fine	20-35
SAND	fine, and clay	35-82
QUICKSAND		82-98
SAND	fine, and clay	98-100
SAND	fine	100-107
SAND	fine, and clay	107-117
SAND	coarse	117-118
SAND & CLAY		118-120
SAND	coarse	120-121

155-083-23BC3, cont.

SAND	fine	121-126

155-083-23BCA
NDSWC 13011

Date Completed:	7/21/92	Well Type:	monitoring
Depth Drilled (ft):	127	Principal Aquifer :	Minot
Screened Interval (ft):	118-123	L.S. Elevation (ft)	1555.92

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
CLAY	yellowish brown, silty sandy with pebbles, rocky, oxidized till	1-22
SAND & GRAVEL		22-24
CLAY	silty, sandy, olive gray	24-88
SAND	gravelly, drills fast	88-96
GRAVEL	sandy, very coarse gravel, pea to marble size gravel, taking water, from 98 to 100 mostly lignite, gravel is mixture of carbonates, granites, shales and lignite, mixed 28 bags of mud and 5 tanks of water, lost circulation at 125 to 127 feet, quit drilling at 127 to set pipe, hole caved in and had to redrill to 125 to set pipe	96-127

155-083-23BCB
NDSWC 2237

Date Completed:	5/16/64	Well Type:	monitoring
Depth Drilled (ft):	96	Principal Aquifer :	Minot
Screened Interval (ft):	?-96	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
CLAY	silty, brownish black	2-8
CLAY	silty, yellowish brown	8-13
SAND	fine to coarse	13-20
SAND	fine to medium	20-23
CLAY	silty, olive gray	23-30

155-083-23BCB, cont.

SAND	fine to medium	30-34
CLAY	silty, olive gray	34-70
CLAY	silty, olive gray; sand, fine to medium; abundance of lignite fragments	70-85
SAND	fine to medium	85-89
GRAVEL	fine to coarse; rough drilling	89-96

155-083-23BD

CITY TEST # 11

Date Completed:	1915	Well Type:	None
Depth Drilled (ft):	148	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
no log	no log	0-90
QUICKSAND	and clay	90-93
CLAY		93-96
SAND	fine, clay and wood	96-106
SAND	coarse	106-108
SAND	fine	108-110
QUICKSAND	and clay	110-120
SAND	coarse	120-123
CLAY	with sand and gravel	123-124
QUICKSAND	with clay	124-125
CLAY	and sand	125-129
CLAY & GRAVEL		129-131

155-083-23BD, cont.

CLAY	blue	131-134
CLAY	sand, and gravel	134-141
SAND	fine	141-142
CLAY		142-144
SAND	fine, and lignite	144-145
CLAY		145-148

155-083-23BDA1
CITY TEST # 12

Date Completed:	1915	Well Type:	None
Depth Drilled (ft):	137	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
	no log	0-84
SAND	fine to coarse, and gravel	84-98
SAND	fine to coarse	98-102
SAND	and gravel	102-110
SAND	medium to coarse	110-114
SAND & GRAVEL		114-126
SAND & GRAVEL	clayey	126-128
SAND & GRAVEL		128-129
SAND & GRAVEL	silty	129-131
SAND & GRAVEL		131-132
SHALE	(or clay), black	132-133
CLAY	gray	133-137

155-083-23BDA2
CITY TEST # 7

Date Completed:	1915	Well Type:	None
Depth Drilled (ft):	133	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
	no log	0-117
SAND	coarse, well sorted	117-127
GRAVEL & SAND		127-133

155-083-23BDD
CITY TEST # 11BT

Date Completed:	1961	Well Type:	None
Depth Drilled (ft):	122	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1552

Lithologic Log

Unit	Description	Depth (ft)
SAND	fine, silty	0-17
SAND		17-22
SAND	black	22-28
CLAY		28-88
CLAY	with small amount of gravel	88-97
GRAVEL & BOULDERS		97-108
GRAVEL	with some particles of clay	108-122

155-083-23BDD2

NDSWC 13161A

Date Completed:	5/18/93	Well Type:	monitoring
Depth Drilled (ft):	140	Principal Aquifer :	Minot
Screened Interval (ft):	108-113	L.S. Elevation (ft)	1555.29

Lithologic Log

Unit	Description	Depth (ft)
SOIL		.5
CLAY	yellowish brown, silty, sandy with pebbles, oxidized till or fill	0.5-17
SAND	fine to coarse, gray, unoxidized	26-36
CLAY	gray, lacustrine, interbedded with very fine sand from 44-47, 49-53 and 58-60	36-61
SAND	very fine, drills fast, silty	61-75
CLAY	gray, silty	75-80
SAND	fine to medium, well sorted	80-93
SAND & GRAVEL	rocky, coarse sand to fine gravel, drills choppy, mixture of carbonates, granites, shales and lignites, taking a little water	93-121
CLAY	gray, silty	121-131
ROCKS		131-132
SANDSTONE	and siltstone, gray, BEDROCK	132-140

155-083-23BDD3

NDSWC 13161B

Date Completed:	5/18/93	Well Type:	monitoring
Depth Drilled (ft):	40	Principal Aquifer :	Souris Valley
Screened Interval (ft):	28-33	L.S. Elevation (ft)	1555.37

Lithologic Log

Unit	Description	Depth (ft)
SOIL		0-2
CLAY	yellowish brown, sandy and silty, oxidized	2-7
SAND	very fine to fine, oxidized	7-11

155-083-23BDD3, cont.

CLAY	yellowish brown, oxidized	11-17
SAND	fine, oxidized	17-30
SAND	very fine to medium, unoxidized	30-33
CLAY	gray, silty	33-40

155-083-23CBB
CITY TEST # 11A

Date Completed:	1961	Well Type:	None
Depth Drilled (ft):	100	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1555

Lithologic Log

Unit	Description	Depth (ft)
CLAY	with silty sand	0-16
SAND	silty	16-22
GRAVEL	intermixed with clay	22-30
SAND & CLAY		30-39
CLAY & GRAVEL		39-43
CLAY		43-100

155-083-23CBC
USGS A4

Date Completed:	1945	Well Type:	Unknown
Depth Drilled (ft):	266	Principal Aquifer :	Souris Valley
Screened Interval (ft):	?-30	L.S. Elevation (ft)	1554

Lithologic Log

Unit	Description	Depth (ft)
CLAY	yellow gray, well leached	0-4
CLAY	yellow gray, with limestone and other sand grains, calcareous	4-19
SAND	fine to coarse, and fine gravel	19-45
CLAY	gray, silty, calcareous	45-79

155-083-23CBC, cont.

CLAY	yellow gray to brown, gritty, sand grains and pebbles mostly angular	79-99
SHALE	blue gray, noncalcareous	99-239
SANDSTONE	gray, loosely cemented	239-266

1

155-083-24AAA1

NDSWC 2217

Date Completed:	11/19/63	Well Type:	monitoring
Depth Drilled (ft):	128	Principal Aquifer :	Minot
Screened Interval (ft):	?-110	L.S. Elevation (ft)	1560

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-1
CLAY	yellowish gray	1-4
SAND	very fine to fine	4-8
SAND	very fine to very coarse; abundance of pelecypod valves	8-16
CLAY	silty, dark greenish gray	16-73
CLAY	sandy, brownish gray	73-78

155-083-24AAA1, cont.

SAND	fine to coarse; abundance of lignite fragments; many fragments of pelecypod valves	78-89
GRAVEL	fine to very coarse; lost circulation from 100-128 ft; used 41 bags of bentonite; abandoned at 128 ft	89-128

155-083-24AAA2

NDSWC 2217A

Date Completed:	11/19/63	Well Type:	monitoring
Depth Drilled (ft):	40	Principal Aquifer :	Souris Valley
Screened Interval (ft):	?-40	L.S. Elevation (ft)	1560

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-1
CLAY	yellowish gray	1-4
SAND	very fine to fine	4-8
SAND	very fine to very coarse; abundance of pelecypod valves	8-16
CLAY	silty, dark greenish gray	16-40

155-083-24ADDA1

NDSWC 13014A

Date Completed:	7/22/92	Well Type:	monitoring
Depth Drilled (ft):	180	Principal Aquifer :	Minot
Screened Interval (ft):	118-123	L.S. Elevation (ft)	1548.14

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
CLAY	yellowish brown, iron stained, silty, sandy with pebbles, oxidized till	1-5
SAND	fine to medium, oxidized	5-10
CLAY	oxidized	10-14
SAND	medium to coarse, grayish	14-16
CLAY	yellowish brown, silty, oxidized	16-17

155-083-24ADDA1, cont.

SAND	gravelly, medium to very coarse sand to fine gravel, clam shells	17-37
CLAY	olive gray, very silty	37-41
SAND & GRAVEL		41-46
CLAY	olive gray, very silty, small layers of sand	46-66
GRAVEL	rocky, coarse, clam shells, gravel is pea to marble size, mixture of carbonates, shales and granites, well rounded to subrounded, taking several tank loads (10-12) of water, lost circulation and caving hole, mixed 103! bags of mud	66-142
SAND	very coarse to coarse, some gravel, lots of lignite fragments	142-160
CLAY	grayish black, some carbonaceous streaks, drills slow and smooth	160-180

155-083-24ADDA2

NDSWC 13014B

Date Completed:	7/24/92	Well Type:	monitoring
Depth Drilled (ft):	40	Principal Aquifer :	Souris Valley
Screened Interval (ft):	20-25	L.S. Elevation (ft)	1548.28

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
CLAY	silty, sandy, yellowish brown, oxidized till	1-6
CLAY	yellowish brown, silty, oxidized	6-9
SAND	very fine to fine, oxidized	9-14
CLAY	olive gray, silty	14-16
SAND	very fine to coarse, drills smooth and fast, some clam shells	16-26
CLAY	olive gray, soft and plastic	26-40

155-083-24BAAC
NDSWC 13016

Date Completed:	7/29/92	Well Type:	monitoring
Depth Drilled (ft):	280	Principal Aquifer :	Minot
Screened Interval (ft):	98-103	L.S. Elevation (ft)	1550.98

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
ROCKS		1-2
CLAY	yellowish brown, silty, sandy with pebbles, oxidized till	2-7
CLAY	olive gray, rocky, till	7-14
CLAY	yellowish brown, oxidized till	14-18
CLAY	very sandy, black oily coating on matrix, also wood fragments, and assorted debris i.e.. shoes, glass and concrete, (fill?)	18-24
CLAY	olive gray, silty, drills smooth	24-70
SAND	gravelly, coarse sand to fine gravel, rocky, drills fast, taking water	70-76
CLAY	gray, silty	76-80
SAND	medium to coarse	80-84
GRAVEL	sandy, well rounded to subrounded, large shale pebbles, rocky	84-96
GRAVEL	pea to marble size gravel, taking lots of water, mixed 14 bags of mud, lost circulation several times	96-107
CLAY	olive gray, slightly silty, drills slow and smooth	107-110
CLAY	brownish, some carbonaceous fragments, sandy, bedrock?	110-129
CLAY	olive gray, rocky, pebbles, till	129-163
CLAY	sandy, dark gray, some carbonaceous, occasional lignite layer	163-229

155-083-24BAAC, cont.

CLAY	very sandy, brownish to black, carbonaceous, also whitish sandy clay, occasional 2 to 3 foot thick lignite layers	229-280

155-083-24BAB3

NORTHERN STATES POWER # 1

Date Completed:	1930	Well Type:	industrial
Depth Drilled (ft):	102	Principal Aquifer :	Minot
Screened Interval (ft):	?-100	L.S. Elevation (ft)	1555

Lithologic Log

Unit	Description	Depth (ft)
FILL		0-18
CLAY	blue	18-72
CLAY	sandy	72-82
SAND & GRAVEL		82-100
CLAY	blue	100-102

155-083-24BAB4

NORTHERN STATES POWER # 2

Date Completed:	1932	Well Type:	industrial
Depth Drilled (ft):	111	Principal Aquifer :	Minot
Screened Interval (ft):	?-109	L.S. Elevation (ft)	1555

Lithologic Log

Unit	Description	Depth (ft)
FILL		0-5
CLAY		5-10
CLAY	sandy	10-35
CLAY	blue	35-70
CLAY	sandy	70-83
SAND		83-97
SAND & GRAVEL		97-109
CLAY	sandy	109-111

155-083-24BAC2

WHITES

Date Completed:	10/3/63	Well Type:	None
Depth Drilled (ft):	194	Principal Aquifer :	No Well
Screened Interval (ft)	?	L.S. Elevation (ft)	1550

Lithologic Log

Unit	Description	Depth (ft)
FILL		0-4
CLAY	yellow	4-16
CLAY	sandy, gray	16-40
ROCKS	hard pan	40-48
GRAVEL		48-67
SAND	clayey; with gravel	67-71
SAND & GRAVEL		71-82
CLAY	blue	82-171
SAND	clayey	171-178
CLAY	gravelly, blue	178-194

155-083-25AAB1

NDSWC 11364A

Date Completed:	10/20/83	Well Type:	None
Depth Drilled (ft):	380	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1730

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
CLAY	yellow brown, silty, slightly pebbly, friable, interbedded sand, oxidized (TILL)	1-39
CLAY	olive gray, silty, pebbly, interbedded sand (TILL)	39-86
GRAVEL	very coarse sand to pebble size gravel, predominantly gravel, angular to rounded, predominantly subangular	86-91
CLAY	olive gray, silty, pebbly (TILL)	91-95
GRAVEL		95-96
CLAY	olive gray, silty, pebbly (TILL)	96-98
GRAVEL		98-100
CLAY	olive gray, very silty and sandy, brittle, interbedded sand and gravel (TILL)	100-164
SILT	yellowish orange, clayey, oxidized	164-165
SAND	very fine, angular, slightly clayey, some cobbles	165-175
SILT	olive gray, clayey	175-187
CLAY	olive gray, silty, very sandy, interbedded sand and gravel (TILL)	187-235
SILT	greenish gray, slightly clayey, carbonaceous, interbedded detrital lignite	235-327
GRAVEL	very coarse sand to pebble gravel, predominantly very coarse sand and granule gravel, angular to rounded, predominantly subrounded to rounded	327-345
SILT	brownish gray, interbedded light gray silt and brown clay	345-380

155-083-25AAB2

NDSWC 113648

Date Completed:	11/3/83	Well Type:	monitoring
Depth Drilled (ft):	400	Principal Aquifer :	South Hill
Screened Interval (ft):	336-345	L.S. Elevation (ft)	1719.9

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
CLAY	yellow brown, silty, sandy, pebbly, oxidized (TILL)	1-29
SAND	fine to medium, oxidized	29-32
CLAY	yellow brown, silty, sandy, pebbly, oxidized (TILL)	32-38
CLAY	olive gray, silty, sandy, pebbly (TILL)	38-85
GRAVEL	fine to medium, sandy	85-91
CLAY	olive gray, silty, sandy, pebbly (TILL)	91-164
CLAY	olive gray, silty, sandy, pebbly, interbedded gray clay	164-208
CLAY	olive gray, silty, sandy, pebbly, interbedded detrital lignite (TILL)	208-235
CLAY	brown, silty, plastic, interbedded lignite	235-324
SAND	medium to coarse, gravelly, angular to subrounded, interbedded clay	324-342
CLAY	olive gray, sandy (TILL)	342-400

155-083-25BBB

Toads Wash and Shine

Date Completed:	10/01/91	Well Type:	none
Depth Drilled (ft):	440	Principal Aquifer :	
Screened Interval (ft):		L.S. Elevation (ft)	1725

Lithologic Log

Unit	Description	Depth (ft)
CLAY	yellow, fine sand from 17-22 feet	0-29
SAND		29-30
CLAY	gray, rocky	30-187
SAND		187-195
CLAY	gray, rocky	195-284
SAND	fine, brown	284-310
CLAY	hard	310-422
SAND	fine, blue	422-432
CLAY		432-440

155-083-25BDD1

NDSWC 5226

Date Completed:	10/23/68	Well Type:	None
Depth Drilled (ft):	500	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1730

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	sandy, silty, clayey, brownish black	0-1
CLAY	silty, slightly to moderately sandy, pebbly, moderate yellowish brown to dark yellowish brown, moderately cohesive, moderately plastic, oxidized (TILL)	1-28
SAND	fine to very coarse grained, angular to subrounded, fair sorting, oxidized to light brown color, predominantly quartz and carbonates, some lignite; not taking water, not caving	28-40
COAL	silty, slightly sandy, pebbly, olive gray, cohesive, slightly to moderately plastic, calcareous, occasional thin sand lenses; (TILL)	40-184
CLAY	silty, moderately sandy, occasional thin lenses of poorly sorted gravelly sand, pebbly, olive gray to medium dark gray, cohesive, slightly plastic, calcareous, numerous limestone, dolostone, shale, and granitic fragments in clay matrix (TILL)	184-220
GRAVEL	slightly to moderately sandy, interbedded throughout with silty clay lenses, fine to coarse, (mostly fine to medium), angular to subrounded, poor to fair sorting, predominantly limestone and dolostone, some shale and light colored granitics, small amount of lignite, not taking any water, not caving	220-275
CLAY	very silty, olive gray to brownish gray with occasional light olive gray laminations, slightly to moderately cohesive, moderately plastic, calcareous, a few thin lenses of very fine to fine grained sand, a few lignite chips (fluvial sediment)	275-444
CLAY	very silty, olive gray to medium dark gray, cohesive, moderately to very plastic, moderately calcareous, occasional light olive gray laminations and lignite chips, (fluvial sediment)	444-488
SANDSTONE	very fine grained, medium bluish gray to light bluish gray, slightly cemented, noncalcareous, interbedded with brownish gray to medium dark gray clayey siltstone, moderately indurated, noncalcareous (Fort Union Group)	488-500

155-083-25BDD2

NDSWC 5405

Date Completed:	7/18/69	Well Type:	monitoring
Depth Drilled (ft):	267	Principal Aquifer :	South Hill
Screened Interval (ft):		L.S. Elevation (ft)	1730

Lithologic Log

Unit	Description	Depth (ft)
	see log for 155-083-25BDD1	

155-083-25CBB

NORTHERN BOTTLING

Date Completed:	?	Well Type:	public supply
Depth Drilled (ft):	215	Principal Aquifer :	South Hill
Screened Interval (ft):	?-215	L.S. Elevation (ft)	1748

Lithologic Log

Unit	Description	Depth (ft)
CLAY		0-40
SAND	with water	40-50
CLAY	blue	50-102
GRAVEL	with water	102-108
CLAY		108-115
GRAVEL	with water	115-120
CLAY	sandy	120-135
CLAY	blue	135-160
GRAVEL	with gas	160-205
CLAY		205-215

155-083-25DDD

NDSWC 2240

Date Completed:	5/22/64	Well Type:	None
Depth Drilled (ft):	483	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1710

Lithologic Log

Unit	Description	Depth (ft)
CLAY	silty to sandy, yellowish brown	0-9
SAND	fine to medium	9-11
CLAY	silty to sandy, yellowish brown	11-14
GRAVEL	medium to coarse; sand, coarse; lost circulation	14-32
CLAY	silty to sandy, olive gray	32-94
GRAVEL	fine to medium; sand, medium to coarse	94-96
CLAY	silty to sandy, olive gray	96-97
GRAVEL	fine to medium; sandy, coarse	97-98
CLAY	silty, olive gray	98-99
GRAVEL	fine to medium; some lignite	99-102
CLAY	silty, olive gray; lignite fragments	102-154
GRAVEL	coarse to very coarse, clayey	154-189
CLAY	sandy, olive; interbedded with sand, medium to coarse	189-237
CLAY	slightly silty, olive gray	237-250
CLAY	silty to sandy, olive gray	250-317
CLAY	silty, olive gray	317-336
CLAY	silty to very sandy, olive gray; poor sample return	336-356
GRAVEL	fine to very coarse; rough drilling	356-388

155-083-25DDD, cont.

CLAY	silty, olive gray to light gray	388-441
CLAY	sandy, brownish gray to greenish gray; thin layers of lignite	441-483

155-083-26BBB3

ATLAS SAND AND GRAVEL

Date Completed:	?	Well Type:	industrial
Depth Drilled (ft):	320	Principal Aquifer :	Tongue River
Screened Interval (ft):	?	L.S. Elevation (ft)	1575

Lithologic Log

Unit	Description	Depth (ft)
	no samples	0-140
CLAY	blue	140-170
COAL		170-173
CLAY		173-180
COAL		180-185
SAND		185-190
CLAY		190-195
SAND		195-210
CLAY		210-220
SAND		220-225
CLAY		225-245
CLAY	hard	245-260
CLAY		260-285
CLAY	brown	285-320

155-083-26CCD

NDSWC 2238

Date Completed:	5/18/64	Well Type:	None
Depth Drilled (ft):	168	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1747

Lithologic Log

Unit	Description	Depth (ft)
CLAY	sandy, yellowish brown	0-11
SAND	fine to medium	11-15
CLAY	silty, brownish gray	15-18
SAND	fine to medium	18-21
CLAY	silty, olive gray	21-35
GRAVEL	fine to medium	35-37
CLAY	silty, olive gray; minor amount of lignite fragments	37-106
GRAVEL	fine to coarse	106-110
CLAY	silty, olive gray; minor amount of lignite fragments	110-138
GRAVEL	fine to medium	138-142
CLAY	silty, olive brown	142-148
CLAY	sandy, light greenish gray; thin layers of lignite	148-168

155-083-27BBD

J. LEHOLM

Date Completed:	1957	Well Type:	domestic
Depth Drilled (ft):	94	Principal Aquifer :	Tongue River
Screened Interval (ft):	?-94	L.S. Elevation (ft)	1572

Lithologic Log

Unit	Description	Depth (ft)
CLAY	hard	0-18
SAND		18-27
SAND	yellow	27-38
CLAY	dark	38-62
GRAVEL	dark; and sand	62-75
COAL	with sandy clay	75-80
COAL & CLAY		80-85
CLAY	blue	85-91
COAL	with water	91-94

155-083-28ADA

HOHUM MOTEL

Date Completed:	?	Well Type:	domestic
Depth Drilled (ft):	310	Principal Aquifer :	Tongue River
Screened Interval (ft):	?-310	L.S. Elevation (ft)	1687

Lithologic Log

Unit	Description	Depth (ft)
CLAY	gray	0-12
CLAY	yellow, sandy	12-35
CLAY	blue	35-69
COAL		69-87
CLAY		87-91
COAL		91-94

155-083-28ADA, cont.

CLAY		94-112
QUICKSAND	water	112-114
CLAY	black	114-126
CLAY	brown	126-132
CLAY	blue	132-138
QUICKSAND		138-142
CLAY	light blue	142-146
CLAY	blue	146-160
CLAY		160-165
SAND		165-168
CLAY		168-175
SHALE	gray	175-190
CLAY		190-215
SHALE		215-218
CLAY		218-298
CAPROCK		298-300
SAND	water	300-310

155-083-28BAA

NDSWC # 14

Date Completed:	2/3/61	Well Type:	None
Depth Drilled (ft):	126	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1570

Lithologic Log

Unit	Description	Depth (ft)
SOIL	black	0-2
CLAY	sandy	2-12
GRAVEL	medium; sand	12-26
CLAY	sandy, greenish	26-32
CLAY	silty, gray; coal fragments	32-63
CLAY	silty; sandy layers	63-95
GRAVEL	boulders; sand	95-115
CLAY	silty	115-121
	lost circulation	121-126

155-083-28BAD

NDSWC # 15

Date Completed:	2/2/61	Well Type:	None
Depth Drilled (ft):	84	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1560

Lithologic Log

Unit	Description	Depth (ft)
CLAY	sandy, yellow	0-25
GRAVEL	medium to coarse; minor amount of clay	25-27
CLAY	sandy, yellow	27-37
CLAY	gray; coal fragments	37-58
COAL		58-59
CLAY	sandy, blue	59-84

155-083-35AAA1
NDSWC 2239

Date Completed:	5/19/64	Well Type:	None
Depth Drilled (ft):	473	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1732

Lithologic Log

Unit	Description	Depth (ft)
CLAY	silty to coarse; gravel, yellowish brown	0-30
CLAY	silty, yellowish brown, thin layers of fine to coarse sand and fine gravel	30-103
SAND	coarse; gravel, fine	103-109
CLAY	sandy, olive gray	109-148
GRAVEL	fine to medium	148-151
CLAY	silty and sandy, olive gray	151-193
CLAY	silty, brownish gray; minor amount of fine sand	193-320
CLAY	silty to sandy, olive gray; few boulders	320-449
BOULDER	granite	449-451
SAND	very fine, clayey, blue greenish gray	451-473

155-083-35AAA4
PURITY DAIRY

Date Completed:	1959	Well Type:	industrial
Depth Drilled (ft):	280	Principal Aquifer :	Gravel Sediments
Screened Interval (ft):	?-280	L.S. Elevation (ft)	1728

Lithologic Log

Unit	Description	Depth (ft)
CLAY	yellow	0-15
SAND		15-70
SAND	hard	70-93
SAND		93-130
CLAY	blue	130-148

155-083-35AAA4, cont.

SAND	with water	148-151
SAND	hard	151-153
CLAY & GRAVEL		153-158
CLAY & GRAVEL		158-185
CLAY	blue	185-250
CLAY	black	250-265
CLAY	blue; with gravel	265-270
SAND	with water	270-280

155-083-35AAD

JORDAHL ANIMAL HOSPITAL

Date Completed:	1959	Well Type:	domestic
Depth Drilled (ft):	215	Principal Aquifer :	Gravel Sediments
Screened Interval (ft):	?-215	L.S. Elevation (ft)	1723

Lithologic Log

Unit	Description	Depth (ft)
SAND	yellow	0-18
GRAVEL		18-25
SAND	yellow	25-30
CLAY	blue	30-42
SAND	with water	42-43
CLAY	blue	43-55
CLAY	sandy, blue	55-69
ROCK	gray	69-74
SAND	gray	74-79
SAND	with water	79-86

CLAY & GRAVEL		86-90
CLAY		90-125
ROCK		125-130
CLAY		130-136
ROCK		136-137
CLAY		137-148
BOULDER		148-149
CLAY		149-156
SAND	gas at 158-162 ft at 6 pounds pressure	156-165
SAND	coal; gas	165-180
GRAVEL	fine, with water	180-207
GRAVEL	with water	207-217

155-083-36AAB

NDSWC 11349

Date Completed:	9/28/83	Well Type:	monitoring
Depth Drilled (ft):	391	Principal Aquifer :	South Hill
Screened Interval (ft):	315-327	L.S. Elevation (ft)	1712.8

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
CLAY	yellow brown, very silty, pebbly, interbedded detrital lignite and sand, oxidized (TILL)	1-18
SAND	fine to coarse, predominantly medium, subrounded, oxidized	18-23
CLAY	yellow brown, very silty, pebbly, oxidized (TILL)	23-26
CLAY	olive gray, silty, sandy, pebbly, interbedded fine sand (TILL)	26-87
CLAY	interbedded sand and gravel (TILL)	87-91
GRAVEL	medium sand to fine gravel, predominantly fine gravel	91-102
CLAY	olive gray, silty, sandy, pebbly (TILL)	102-171
CLAY	olive gray, silty, sandy, slightly cohesive and plastic, interbedded detrital lignite (lacustrine)	171-190
DETRITAL LIGNITE	interbedded clay	190-216
CLAY	olive gray, silty, sandy (lacustrine)	216-235
CLAY	olive gray to black, carbonaceous, interbedded detrital lignite	235-240
CLAY	olive gray, silty, sandy (lacustrine)	240-286
SAND	very fine to medium, rounded, interbedded lignite	286-321
GRAVEL	coarse sand to pebble size gravel	321-327
GRAVEL	coarse sand to pebble gravel, interbedded clay	327-346
GRAVEL	coarse sand to pebble gravel	346-348

155-083-36AAB, cont.

CLAY	olive gray, silty, slightly sandy, interbedded detrital lignite	348-356
CLAY	olive gray, interbedded sand (Fort Union)	356-391

155-083-36ABB

NDSWC 11348

Date Completed:	9/27/83	Well Type:	monitoring
Depth Drilled (ft):	372	Principal Aquifer :	South Hill
Screened Interval (ft):	315-324	L.S. Elevation (ft)	1714.2

Lithologic Log

Unit	Description	Depth (ft)
FILL		0-2
CLAY	yellow brown, silty, sandy, pebbly, oxidized (TILL)	2-18
CLAY	olive gray, silty, sandy, pebbly, interbedded sand (TILL)	18-140
SAND	medium to coarse, subrounded to rounded	140-145
CLAY	olive gray, silty, sandy, pebbly, interbedded sand and gravel (TILL)	145-153
GRAVEL	coarse sand to pebble gravel, angular to subrounded	153-161
CLAY	olive gray, silty, sandy, cohesive, slightly plastic	161-236
CLAY	olive gray, very sandy	236-272
SAND	fine sand to fine gravel, predominantly fine and medium sand, subrounded to rounded	272-304
GRAVEL	sandy, subrounded to rounded	304-346
CLAY	olive gray, cohesive, plastic	346-372
CLAY	brownish gray to black, fissile interbedded sand and lignite (Fort Union)	372-420

155-083-36ADD

NDSWC 11352

Date Completed:	10/5/83	Well Type:	monitoring
Depth Drilled (ft):	380	Principal Aquifer :	South Hill
Screened Interval (ft):	315-327	L.S. Elevation (ft)	1728.1

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
CLAY	yellow brown, silty, sandy, pebbly, oxidized (TILL)	1-44
CLAY	olive gray, silty, sandy, pebbly, interbedded fine to medium sand (TILL)	44-266
SAND	medium sand to fine gravel, predominantly medium to coarse sand, subrounded to rounded	266-288
CLAY	olive gray, silty	288-291
SAND	gravelly, interbedded silty clay	291-301
DETRITAL LIGNITE	subrounded, interbedded fine and medium sand	301-306
SAND	poor cuttings return	306-323
SAND	medium sand to pebble gravel, subrounded to rounded	323-339
CLAY	olive gray, interbedded siltstone, brown clay (Fort Union)	339-380

155-083-36BAC

NDSWC 11347

Date Completed:	9/26/83	Well Type:	None
Depth Drilled (ft):	360	Principal Aquifer :	No Well
Screened Interval (ft):		L.S. Elevation (ft)	1690

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
CLAY	yellow brown, very sandy (fill)	1-6
CLAY	yellow brown, silty, very sandy, pebbly cohesive, slightly plastic, oxidized (TILL)	6-22
GRAVEL	sandy, rounded	22-27

155-083-36BAC, cont.

CLAY	olive gray, silty, very sandy, pebbly (TILL)	27-45
GRAVEL	sandy, subrounded to rounded	45-47
CLAY	olive gray, silty, sandy, pebbly (TILL)	47-62
GRAVEL	granule to pebble size, angular to rounded	62-65
SAND	fine to very coarse, predominantly very coarse, angular to rounded, predominantly angular to subangular	65-67
CLAY	olive gray, silty, sandy, pebbly (TILL)	67-77
SILT	olive gray, clayey	77-80
CLAY	olive gray, very silty, slightly sand, pebbly, slightly brittle, interbedded sand and gravel	80-129
CLAY	greenish gray, interbedded sand	129-131
SILT	olive gray, coarse; almost a very fine sand, slightly clayey (fluvial)	131-135
CLAY	olive gray, sandy, slightly pebbly (TILL)	135-141
CLAY	olive gray, sandy, slightly cohesive and plastic (fluvial)	141-154
CLAY	olive gray, silty, cohesive, plastic (fluvial)	154-169
DETRITAL LIGNITE	interbedded silty clay	169-181
CLAY	olive gray, silty, plastic, interbedded detrital lignite and sand	181-198
CLAY	olive gray, silty, sandy, pebbly (TILL)	198-203
GRAVEL	sandy, interbedded clay	203-205
CLAY	olive gray, silty, cohesive, plastic, interbedded detrital lignite	205-221

155-083-36BAC, cont.

CLAY	olive gray, silty, sandy, pebbly, interbedded silty clay (TILL)	221-285
CLAY	olive gray, sandy, bentonitic	285-301
CLAY	olive gray, less sandy (fluvial)	301-331
SANDSTONE	indurated	331-332
CLAY	whitish green, very sandy (Fort Union)	332-360

155-083-36DCB

NDSWC 11351

Date Completed:	10/4/83	Well Type:	monitoring
Depth Drilled (ft):	340	Principal Aquifer :	South Hill
Screened Interval (ft):	245-265	L.S. Elevation (ft)	1741.1

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL		0-1
CLAY	yellow brown, silty, sandy, pebbly, oxidized (TILL)	1-21
SAND	medium to coarse, subrounded to rounded, oxidized	21-23
CLAY	yellow brown, silty, sandy, interbedded sand, oxidized	23-27
CLAY	olive gray, silty, sandy, pebbly, interbedded sand and gravel (TILL)	27-156
DETRITAL LIGNITE	interbedded sand	156-164
CLAY	olive gray, silty, sandy, pebbly, interbedded detrital lignite (TILL)	164-191
DETRITAL LIGNITE	interbedded sand	191-221
SAND	gravelly, interbedded detrital lignite	221-245
SAND	medium sand to granule gravel	245-251
CLAY	olive gray, silty, sandy, cohesive, plastic	251-252

155-083-36DCB, cont.

SAND	medium sand to pebble gravel, subrounded to rounded, interbedded clay	252-267
CLAY	brown, silty, sandy	267-275
DETRITAL LIGNITE	interbedded clay	275-281
SAND	medium to coarse, interbedded detrital lignite	281-288
SAND	interbedded clay, poor cuttings return	288-296
CLAY	olive gray to brownish, silty, sandy (Fort Union)	296-340

155-083-36DDD
NDSWC 5217

Date Completed:	10/15/68	Well Type:	monitoring
Depth Drilled (ft):	440	Principal Aquifer :	South Hill
Screened Interval (ft):	197-203	L.S. Elevation (ft)	1732

Lithologic Log

Unit	Description	Depth (ft)
TOPSOIL	sandy, slightly silty, clayey, dark brown	0-1
CLAY	silty, sandy, pebbly, moderate yellowish brown to dark yellowish brown, moderately cohesive to cohesive, slightly to moderately plastic, moderately calcareous, oxidized, occasional carbonate, granitic, shale and lignite fragments in clay matrix (TILL)	1-29
SAND	fine to coarse grained, angular to subrounded, moderately well sorted 60-70% quartz, remainder mostly carbonates and granitics, some shale and lignite oxidized throughout	29-40
CLAY	silty, slightly sandy, occasional pebbles, olive gray with a few dark yellowish brown streaks (partially oxidized), cohesive, slightly to moderately plastic, moderately calcareous, numerous carbonate, light colored granitics, shale and lignite fragments in clay matrix (TILL)	40-91
GRAVEL	poorly sorted, fine to coarse, angular to subangular, approximately 60-70% limestone and dolostone, remainder mostly light colored granitics and shale, slightly oxidized	91-97
CLAY	moderately silty, very slightly sandy, occasional pebbles, olive gray, cohesive, moderately plastic, moderately calcareous, numerous limestone, dolostone, light colored granitics, shale and lignite fragments (TILL)	97-101

155-083-36DDD, cont.

GRAVEL	slightly sandy, clayey, fine to coarse, angular to subangular, poor to fair sorting, predominantly carbonates, some granitics, shale, sandstone, and lignite	101-108
CLAY	silty, very slightly sandy, a few pebbles, olive gray, cohesive, slightly to moderately plastic, calcareous, numerous limestone, dolostone, shale, granitic and lignite fragments in clay matrix (TILL)	108-156
GRAVEL	slightly to moderately sandy, interbedded with olive gray clay lenses (TILL), poorly sorted, fine to coarse, angular to subrounded, approximately 40-60% carbonates, remainder mostly granitics, some shale and detrital lignite fragments; not taking water, not caving	156-220
CLAY	very silty, a few sandy laminations, olive gray to dark greenish gray with light olive gray to medium bluish gray to brownish black laminations, slightly to moderately indurated, cohesive, non-plastic to very slightly plastic, a few lignite chips, moderately calcareous (fluvial sediment)	220-420
SILTSTONE	moderately clayey, brownish gray to brownish black (interbedded with very fine grained medium bluish gray to dark greenish gray sandstone), indurated, noncalcareous, bedded (bedrock, Fort Union)	420-440

TABLE 3. WATER LEVELS IN SELECTED WELLS

Depth to water and water level (WL) elevation are from land surface, SI=sreened Interval

155-082-19DBD LS Elev (msl,ft)=1543.42

Minot Aquifer SI (ft.)=98-108

Date	Depth to Water (ft)	WL Elev (msl, ft)
11/21/63	34.16	1509.26
01/08/64	37.75	1505.67
02/03/64	38.00	1505.42
03/04/64	38.28	1505.14
04/07/64	39.56	1503.86
05/05/64	38.20	1505.22
06/12/64	38.44	1504.98
07/02/64	38.62	1504.80
08/05/64	39.20	1504.22
09/14/64	38.34	1505.08
10/09/64	37.91	1505.51
01/11/65	38.03	1505.39
02/17/65	38.02	1505.40
03/16/65	37.72	1505.70
04/12/65	37.26	1506.16
05/12/65	37.30	1506.12
06/17/65	36.84	1506.58
08/11/65	36.82	1506.60
09/15/65	35.94	1507.48
11/22/65	35.48	1507.94
02/01/66	32.86	1510.56
03/15/66	33.81	1509.61
05/05/66	32.80	1510.62
10/04/66	31.91	1511.51
10/05/66	32.51	1510.91
10/27/66	31.12	1512.30
11/22/66	31.42	1512.00
12/19/66	31.52	1511.90
01/30/67	31.93	1511.49
02/17/67	32.17	1511.25
03/10/67	32.13	1511.29
04/19/67	31.76	1511.66
05/23/67	31.67	1511.75
06/21/67	31.83	1511.59
07/21/67	33.23	1510.19
08/16/67	32.94	1510.48
09/25/67	32.42	1511.00
10/23/67	32.17	1511.25
11/20/67	32.09	1511.33
12/18/67	31.88	1511.54
01/15/68	32.19	1511.23
02/14/68	31.23	1512.19
03/28/68	32.42	1511.00
04/15/68	32.18	1511.24
04/29/68	32.20	1511.22
05/29/68	32.55	1510.87
06/07/68	32.22	1511.20
07/23/68	32.12	1511.30
08/29/68	31.67	1511.75
09/24/68	31.44	1511.98
11/18/68	30.97	1512.45
12/17/68	30.85	1512.57
01/20/69	30.84	1512.58
02/17/69	31.23	1512.19
03/17/69	31.30	1512.12
07/26/69	26.54	1516.88
08/27/69	27.33	1516.09
09/15/69	28.05	1515.37
10/14/69	27.42	1516.00
11/17/69	26.37	1517.05
12/19/69	26.01	1517.41
01/12/70	25.64	1517.78
02/09/70	25.53	1517.89
03/09/70	25.35	1518.07
04/14/70	24.96	1518.46
06/12/70	24.66	1518.76
07/06/70	23.95	1519.47
08/05/70	24.43	1518.99
08/31/70	26.43	1516.99
09/30/70	25.30	1518.12
11/04/70	24.59	1518.83
12/02/70	23.89	1519.53
01/08/71	23.89	1519.53
02/11/71	23.86	1519.56
03/09/71	23.71	1519.71
04/15/71	23.20	1520.22
05/10/71	23.44	1519.98
06/02/71	24.58	1518.84
07/08/71	23.40	1520.02
08/03/71	23.29	1520.13
09/08/71	22.93	1520.49
10/08/71	22.71	1520.71
11/05/71	22.64	1520.78
12/01/71	22.51	1520.91
01/06/72	22.19	1521.23
02/10/72	22.13	1521.29
03/08/72	22.65	1520.77
04/05/72	22.42	1521.00
05/02/72	21.86	1521.56
06/06/72	22.56	1520.86
07/10/72	25.19	1518.23
08/10/72	25.26	1518.16
09/08/72	25.75	1517.67
10/06/72	26.07	1517.35
11/09/72	24.76	1518.66
12/06/72	24.42	1519.00
01/09/73	26.99	1516.43
03/08/73	27.04	1516.38
03/12/73	23.98	1519.44
04/11/73	25.84	1517.58
05/03/73	24.59	1518.83
05/31/73	24.87	1518.55
06/20/73	25.20	1518.22
06/29/73	25.55	1517.87
07/12/73	26.45	1516.97
08/08/73	26.91	1516.51
08/21/73	27.44	1515.98
08/30/73	26.31	1517.11
10/03/73	25.67	1517.75
11/01/73	26.77	1516.65

155-082-19DBD **(Continued)** LS Elev (msl,ft)=1543.42

Minot Aquifer SI (ft.)=98-108

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
11/08/73	26.01	1517.41	07/06/79	26.44	1516.98
12/04/73	25.87	1517.55	09/05/79	29.18	1514.24
12/06/73	26.34	1517.08	10/04/79	28.48	1514.94
			11/08/79	26.87	1516.55
01/16/75	25.34	1518.08	11/30/79	27.20	1516.22
03/06/75	25.02	1518.40			
05/02/75	22.70	1520.72	03/03/80	26.07	1517.35
05/14/75	23.25	1520.17	04/28/80	28.71	1514.71
06/26/75	20.89	1522.53	06/03/80	29.41	1514.01
07/25/75	22.29	1521.13	07/03/80	30.86	1512.56
09/04/75	22.82	1520.60	08/06/80	31.04	1512.38
09/30/75	22.99	1520.43	09/09/80	29.03	1514.39
11/06/75	23.37	1520.05	09/30/80	28.15	1515.27
12/03/75	23.47	1519.95	11/05/80	27.79	1515.63
			12/04/80	27.03	1516.39
01/06/76	23.53	1519.89			
02/05/76	23.88	1519.54	03/06/81	27.61	1515.81
03/10/76	23.82	1519.60	04/03/81	27.15	1516.27
04/08/76	22.81	1520.61	05/08/81	29.17	1514.25
06/11/76	20.75	1522.67	06/04/81	29.17	1514.25
07/08/76	21.29	1522.13	07/09/81	30.78	1512.64
08/06/76	23.06	1520.36	08/06/81	30.58	1512.84
09/02/76	22.58	1520.84	09/04/81	30.46	1512.96
10/08/76	23.10	1520.32	10/08/81	30.81	1512.61
11/05/76	23.68	1519.74	11/30/81	29.95	1513.47
12/01/76	23.85	1519.57			
			03/24/82	30.11	1513.31
01/06/77	23.54	1519.88	04/29/82	30.63	1512.79
02/02/77	23.37	1520.05	06/18/82	29.99	1513.43
03/03/77	23.46	1519.96	07/29/82	31.75	1511.67
04/08/77	24.05	1519.37	10/24/82	29.49	1513.93
05/05/77	25.00	1518.42	12/08/82	28.24	1515.18
06/08/77	26.46	1516.96			
07/07/77	26.49	1516.93	03/17/83	28.09	1515.33
08/04/77	27.90	1515.52	04/26/83	28.00	1515.42
09/13/77	27.95	1515.47	07/01/83	28.53	1514.89
10/07/77	27.75	1515.67	08/29/83	30.83	1512.59
11/02/77	27.15	1516.27	10/15/83	29.27	1514.15
12/06/77	26.65	1516.77	11/29/83	28.24	1515.18
01/12/78	26.35	1517.07	03/24/84	28.71	1514.71
02/07/78	26.73	1516.69	04/22/84	29.53	1513.89
03/08/78	27.45	1515.97	05/27/84	28.58	1514.84
04/06/78	26.73	1516.69	06/16/84	29.51	1513.91
05/04/78	27.78	1515.64	07/28/84	32.01	1511.41
06/06/78	26.92	1516.50	08/26/84	32.15	1511.27
06/27/78	27.60	1515.82	09/22/84	30.59	1512.83
07/31/78	27.84	1515.58	10/21/84	30.06	1513.36
09/08/78	30.05	1513.37	12/03/84	28.67	1514.75
10/06/78	28.07	1515.35	12/09/84	30.15	1513.27
11/01/78	28.08	1515.34			
11/30/78	27.57	1515.85	03/23/85	30.02	1513.40
			04/27/85	29.99	1513.43
01/01/79	27.45	1515.97	05/27/85	30.44	1512.98
01/05/79	27.21	1516.21	06/06/85	29.47	1513.95
02/01/79	27.45	1515.97	07/28/85	31.82	1511.60
03/02/79	27.51	1515.91	08/31/85	30.62	1512.80
03/28/79	27.29	1516.13	09/29/85	29.52	1513.90
05/17/79	24.88	1518.54	12/03/85	29.33	1514.09
06/05/79	26.06	1517.36	12/08/85	29.12	1514.30

155-082-19DBD **(Continued)** LS Elev (msl,ft)=1543.42

Minot Aquifer SI (ft.)=98-108

Date	Depth to Water (ft)	WL Elev (msl, ft)
03/29/86	29.67	1513.75
04/27/86	28.13	1515.29
05/31/86	29.26	1514.16
06/28/86	30.21	1513.21
07/27/86	28.96	1514.46
08/30/86	30.98	1512.44
09/29/86	29.05	1514.37
10/25/86	28.45	1514.97
12/02/86	28.77	1514.65
12/20/86	29.35	1514.07
04/19/87	28.99	1514.43
05/30/87	28.26	1515.16
06/20/87	29.82	1513.60
07/26/87	28.86	1514.56
08/30/87	28.71	1514.71
09/21/87	28.69	1514.73
09/27/87	28.40	1515.02
10/31/87	27.39	1516.03
12/09/87	29.55	1513.87
12/13/87	35.77	1507.65
03/27/88	28.13	1515.29
04/23/88	29.70	1513.72
05/28/88	32.22	1511.20
06/25/88	35.02	1508.40
08/27/88	35.06	1508.36
09/24/88	35.71	1507.71
10/30/88	35.98	1507.44
11/18/88	36.07	1507.35
12/10/88	36.40	1507.02
03/25/89	36.75	1506.67
04/30/89	36.03	1507.39
05/28/89	35.55	1507.87
06/24/89	35.44	1507.98
07/31/89	36.81	1506.61
08/27/89	38.28	1505.14
09/24/89	38.23	1505.19
10/29/89	37.55	1505.87
11/30/89	36.30	1507.12
12/09/89	36.36	1507.06
03/04/90	36.95	1506.47
04/28/90	37.51	1505.91
05/27/90	37.28	1506.14
06/26/90	36.92	1506.50
06/27/90	37.14	1506.28
07/23/90	37.25	1506.17
07/29/90	36.68	1506.74
08/14/90	37.70	1505.72
08/25/90	38.20	1505.22
09/12/90	37.36	1506.06
09/18/90	37.48	1505.94
10/09/90	36.55	1506.87
10/28/90	35.68	1507.74
11/15/90	35.83	1507.59
12/11/90	37.13	1506.29
01/17/91	38.13	1505.29
02/13/91	38.60	1504.82
03/13/91	39.29	1504.13
04/15/91	39.34	1504.08
05/14/91	38.61	1504.81
06/11/91	38.09	1505.33
07/10/91	37.81	1505.61
08/16/91	39.07	1504.35
09/16/91	38.49	1504.93
10/15/91	39.08	1504.34
11/18/91	36.55	1506.87
12/19/91	35.55	1507.87
01/22/92	35.03	1508.39
02/26/92	34.62	1508.80
03/19/92	36.03	1507.39
04/21/92	35.92	1507.50
05/21/92	36.17	1507.25
06/16/92	37.10	1506.32
07/13/92	36.39	1507.03
08/20/92	39.28	1504.14
09/15/92	37.56	1505.86
10/20/92	37.20	1506.22
11/18/92	37.00	1506.42
12/16/92	36.94	1506.48
02/22/93	37.89	1505.53
03/24/93	38.00	1505.42
04/19/93	37.41	1506.01
05/18/93	38.30	1505.12
06/15/93	37.90	1505.52
07/14/93	38.05	1505.37
08/09/93	38.00	1505.42
09/15/93	37.20	1506.22
10/20/93	38.14	1505.28
11/17/93	37.29	1506.13

155-082-29BBB
Minot Aquifer

LS Elev (msl,ft)=1544.3
SI (ft.)=90-93

Date	Depth to Water (ft)	WL Elev (msl, ft)
11/14/68	25.58	1518.72
11/27/68	25.75	1518.55
12/07/68	25.83	1518.47
12/11/68	25.74	1518.56
12/16/68	25.86	1518.44
12/20/68	25.88	1518.42
01/04/69	25.80	1518.50
03/05/69	26.05	1518.25
04/09/69	25.17	1519.13
05/27/69	20.46	1523.84
06/11/69	20.80	1523.50
06/27/69	20.78	1523.52
07/16/69	20.88	1523.42
07/30/69	21.13	1523.17
08/12/69	22.00	1522.30
09/11/69	22.42	1521.88
10/22/69	21.63	1522.67
10/25/69	21.64	1522.66
10/26/69	21.67	1522.63
10/30/69	21.72	1522.58
11/01/69	21.78	1522.52
11/02/69	21.85	1522.45
11/03/69	21.83	1522.47
11/04/69	21.89	1522.41
11/05/69	21.89	1522.41
11/06/69	21.89	1522.41
11/07/69	21.89	1522.41
11/08/69	21.89	1522.41
11/09/69	21.94	1522.36
11/10/69	21.89	1522.41
11/11/69	21.88	1522.42
11/12/69	21.82	1522.48
11/13/69	21.88	1522.42
11/17/69	21.74	1522.56
11/25/69	21.69	1522.61
12/04/69	21.60	1522.70
03/10/70	21.03	1523.27
06/09/70	18.83	1525.47
07/24/70	19.13	1525.17
09/03/70	21.25	1523.05
10/01/70	20.58	1523.72
12/23/70	19.66	1524.64
04/15/71	19.30	1525.00
07/22/71	19.63	1524.67
08/27/71	20.22	1524.08
12/21/71	18.63	1525.67
10/12/72	21.05	1523.25
06/07/73	20.66	1523.64

155-082-29BBC1
Minot Aquifer

LS Elev (msl,ft)=1543.3
SI (ft.)=80-100

Date	Depth to Water (ft)	WL Elev (msl, ft)
11/14/68	21.55	1521.75
11/27/68	21.72	1521.58
12/07/68	21.82	1521.48
12/11/68	21.72	1521.58
12/16/68	21.86	1521.44
01/04/69	21.78	1521.52
03/05/69	22.00	1521.30
04/09/69	21.24	1522.06
09/11/69	19.02	1524.28
10/22/69	17.69	1525.61
10/25/69	17.75	1525.55
10/30/69	17.85	1525.45
11/01/69	18.00	1525.30
11/02/69	17.97	1525.33
11/03/69	17.97	1525.33
11/04/69	17.97	1525.33
11/05/69	18.02	1525.28
11/06/69	17.99	1525.31
11/07/69	18.60	1524.70
11/08/69	18.58	1524.72
11/09/69	18.55	1524.75
11/10/69	18.52	1524.78
11/11/69	18.47	1524.83
11/12/69	17.91	1525.39
11/13/69	17.92	1525.38
11/17/69	18.41	1524.89
11/25/69	18.33	1524.97
12/04/69	18.19	1525.11
03/10/70	17.11	1526.19
04/15/71	15.31	1527.99
07/22/71	15.67	1527.63
08/27/71	16.19	1527.11
10/12/72	17.11	1526.19
06/07/73	16.69	1526.61
09/28/73	20.78	1522.52
07/02/74	17.47	1525.83
08/14/75	15.10	1528.20

155-082-29BCB LS Elev (msl,ft)=1544.9

Minot Aquifer SI (ft.)=100-103

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
11/14/68	25.61	1519.29			
11/27/68	25.77	1519.13	01/16/84	26.77	1518.13
12/07/68	25.85	1519.05	02/01/84	26.97	1517.93
12/11/68	25.75	1519.15	02/21/84	26.86	1518.04
12/16/68	25.94	1518.96	03/12/84	26.83	1518.07
12/19/68	25.89	1519.01	04/03/84	27.08	1517.82
12/20/68	25.94	1518.96	04/18/84	27.69	1517.21
12/27/68	25.83	1519.07	05/08/84	26.85	1518.05
			05/29/84	28.75	1516.15
01/04/69	25.85	1519.05	06/15/84	28.77	1516.13
05/27/69	20.72	1524.18	06/26/84	28.57	1516.33
06/11/69	21.08	1523.82	07/10/84	30.75	1514.15
06/27/69	21.13	1523.77	07/27/84	32.27	1512.63
07/16/69	21.19	1523.71	08/09/84	33.28	1511.62
07/30/69	21.39	1523.51	08/16/84	33.30	1511.60
08/12/69	22.25	1522.65	08/22/84	33.33	1511.57
09/11/69	22.58	1522.32	08/27/84	32.77	1512.13
10/20/69	21.85	1523.05	09/07/84	32.86	1512.04
10/21/69	21.85	1523.05	09/11/84	30.94	1513.96
10/22/69	21.88	1523.02	09/20/84	30.42	1514.48
10/24/69	21.91	1522.99	09/27/84	29.02	1515.88
10/25/69	21.97	1522.93	10/03/84	28.96	1515.94
10/26/69	22.00	1522.90	10/10/84	28.99	1515.91
10/30/69	22.08	1522.82	10/23/84	28.13	1516.77
11/01/69	22.16	1522.74	11/08/84	28.08	1516.82
11/02/69	22.19	1522.71	11/20/84	26.88	1518.02
11/03/69	22.19	1522.71	12/13/84	26.75	1518.15
11/04/69	22.24	1522.66			
11/05/69	22.24	1522.66	01/09/85	27.05	1517.85
11/06/69	22.25	1522.65	02/12/85	26.82	1518.08
11/07/69	22.25	1522.65	03/06/85	27.36	1517.54
11/08/69	22.27	1522.63	03/19/85	27.38	1517.52
11/09/69	22.27	1522.63	04/16/85	27.25	1517.65
11/10/69	22.21	1522.69	05/02/85	27.13	1517.77
11/11/69	22.19	1522.71	05/14/85	28.97	1515.93
11/12/69	22.11	1522.79	06/06/85	29.00	1515.90
11/13/69	22.11	1522.79	06/20/85	30.02	1514.88
11/17/69	22.02	1522.88	07/01/85	30.83	1514.07
11/25/69	21.97	1522.93	07/17/85	31.33	1513.57
12/04/69	21.86	1523.04	07/29/85	31.50	1513.40
			08/14/85	31.83	1513.07
06/09/70	18.94	1525.96	08/27/85	31.85	1513.05
07/24/70	19.25	1525.65	09/12/85	31.91	1512.99
09/03/70	21.35	1523.55	09/23/85	31.88	1513.02
10/01/70	20.72	1524.18	10/22/85	26.94	1517.96
12/23/70	20.77	1524.13	11/21/85	27.08	1517.82
04/15/71	19.41	1525.49	02/25/86	27.14	1517.76
07/22/71	19.67	1525.23	03/26/86	27.12	1517.78
08/27/71	20.19	1524.71	05/13/86	25.94	1518.96
12/21/71	18.72	1526.18	06/03/86	29.45	1515.45
			07/01/86	30.16	1514.74
10/12/72	21.11	1523.79	08/06/86	30.31	1514.59
			09/09/86	30.29	1514.61
06/07/73	20.74	1524.16	10/08/86	27.85	1517.05
09/28/73	15.63	1529.27	12/16/86	27.10	1517.80
07/02/74	20.94	1523.96	04/08/87	25.49	1519.41
			04/28/87	26.70	1518.20
08/14/75	18.63	1526.27	05/13/87	28.31	1516.59

155-082-29BCB **(Continued)** LS Elev (msl,ft)=1544.9

Minot Aquifer SI (ft.)=100-103

Date	Depth to Water (ft)	WL Elev (msl, ft)
06/18/87	30.37	1514.53
07/14/87	29.11	1515.79
08/18/87	29.59	1515.31
09/24/87	29.90	1515.00
10/20/87	28.72	1516.18
11/12/87	26.47	1518.43
12/09/87	26.91	1517.99
04/08/88	27.68	1517.22
05/13/88	29.14	1515.76
06/07/88	33.03	1511.87
07/08/88	33.81	1511.09
08/04/88	36.16	1508.74
09/16/88	34.69	1510.21
10/19/88	33.10	1511.80
11/18/88	32.57	1512.33
12/19/88	32.93	1511.97
03/08/89	33.60	1511.30
04/18/89	33.14	1511.76
05/09/89	33.95	1510.95
06/08/89	33.20	1511.70
07/06/89	34.80	1510.10
08/02/89	35.86	1509.04
08/30/89	35.77	1509.13
11/02/89	34.88	1510.02
12/12/89	33.76	1511.14
01/22/90	32.96	1511.94
03/19/90	32.89	1512.01
03/20/90	32.89	1512.01
05/02/90	34.93	1509.97
05/31/90	35.65	1509.25
06/20/90	35.09	1509.81
06/27/90	36.14	1508.76
07/23/90	35.63	1509.27
08/14/90	37.28	1507.62
09/12/90	36.56	1508.34
10/09/90	36.11	1508.79
11/15/90	35.18	1509.72
12/11/90	34.22	1510.68
04/15/91	36.19	1508.71
05/14/91	36.31	1508.59
06/12/91	36.15	1508.75
07/10/91	36.03	1508.87
08/16/91	38.44	1506.46
09/16/91	38.09	1506.81
10/15/91	37.29	1507.61
04/21/92	35.08	1509.82
05/21/92	36.88	1508.02
06/16/92	38.42	1506.48
07/13/92	36.60	1508.30
08/20/92	39.88	1505.02
09/15/92	37.81	1507.09
10/20/92	37.12	1507.78
11/18/92	36.19	1508.71
12/16/92	35.87	1509.03
02/22/93	35.85	1509.05
03/24/93	36.48	1508.42
04/19/93	36.84	1508.06
05/18/93	38.53	1506.37
06/15/93	37.65	1507.25
07/14/93	37.03	1507.87
08/09/93	36.50	1508.40
09/15/93	36.25	1508.65
10/20/93	36.60	1508.30
11/17/93	35.50	1509.40

155-082-29CBC LS Elev (msl,ft)=1558.2

Souris Valley Aquifer SI (ft.)=48-53

Date	Depth to Water (ft)	WL Elev (msl, ft)
11/14/68	17.64	1540.56
11/27/68	17.77	1540.43
12/07/68	17.94	1540.26
12/11/68	17.92	1540.28
12/16/68	18.00	1540.20
12/19/68	18.05	1540.15
12/20/68	18.07	1540.13
12/27/68	18.11	1540.09
01/04/69	18.19	1540.01
03/05/69	18.85	1539.35
03/12/69	18.91	1539.29
04/09/69	16.80	1541.40
05/07/69	14.11	1544.09
05/27/69	13.57	1544.63
06/11/69	13.67	1544.53
06/27/69	13.59	1544.61
07/16/69	12.71	1545.49
07/30/69	12.86	1545.34
08/12/69	13.25	1544.95
09/11/69	14.25	1543.95
10/22/69	14.97	1543.23
10/25/69	15.02	1543.18
11/01/69	15.07	1543.13
11/02/69	15.10	1543.10
11/03/69	15.09	1543.11
11/04/69	15.10	1543.10
11/05/69	15.07	1543.13
11/06/69	15.14	1543.06
11/07/69	15.14	1543.06
11/08/69	15.17	1543.03
11/09/69	15.15	1543.05
11/10/69	15.22	1542.98
11/11/69	15.21	1542.99
11/12/69	15.18	1543.02
11/13/69	15.21	1542.99
11/17/69	15.31	1542.89
11/25/69	15.39	1542.81
12/04/69	15.46	1542.74
03/10/70	16.32	1541.88
06/09/70	10.53	1547.67
07/24/70	12.02	1546.18
09/03/70	10.97	1547.23
10/01/70	11.60	1546.60
12/23/70	13.46	1544.74
04/15/71	13.18	1545.02
07/22/71	12.26	1545.94
08/27/71	13.31	1544.89
12/21/71	12.23	1545.97
10/12/72	13.69	1544.51
06/07/73	14.43	1543.77
07/02/74	11.19	1547.01
08/14/75	10.90	1547.30
01/16/84	13.56	1544.64
02/01/84	13.68	1544.52
02/21/84	13.56	1544.64

155-082-30CCD
South Hill Aquifer

LS Elev (msl,ft)=1716
SI (ft.)=294-303

Date	Depth to Water (ft)	WL Elev (msl, ft)
11/17/83	200.47	1515.53
12/08/83	201.08	1514.92
12/13/83	200.91	1515.09
01/03/84	200.78	1515.22
01/16/84	201.21	1514.79
02/01/84	200.69	1515.31
02/21/84	200.83	1515.17
03/12/84	201.21	1514.79
04/03/84	201.55	1514.45
04/18/84	201.38	1514.62
05/08/84	201.52	1514.48
05/29/84	201.72	1514.28
06/15/84	201.58	1514.42
06/26/84	201.52	1514.48
07/10/84	201.50	1514.50
07/27/84	201.92	1514.08
08/09/84	201.82	1514.18
08/16/84	201.83	1514.17
08/22/84	201.88	1514.12
08/27/84	201.72	1514.28
09/07/84	201.78	1514.22
09/11/84	201.80	1514.20
09/20/84	202.11	1513.89
09/28/84	202.82	1513.18
10/10/84	202.80	1513.20
11/20/84	202.33	1513.67
12/13/84	202.44	1513.56
01/09/85	202.52	1513.48
02/12/85	202.47	1513.53
03/06/85	202.08	1513.92
03/19/85	202.25	1513.75
04/10/85	202.38	1513.62
05/02/85	202.47	1513.53
05/14/85	202.35	1513.65
06/06/85	202.50	1513.50
06/20/85	202.61	1513.39
07/01/85	202.50	1513.50
07/17/85	202.63	1513.37
07/29/85	202.10	1513.90
08/14/85	201.75	1514.25
08/27/85	201.69	1514.31
09/12/85	201.91	1514.09
09/23/85	201.80	1514.20
10/22/85	202.11	1513.89
11/21/85	202.99	1513.01
02/25/86	202.48	1513.52
03/26/86	203.11	1512.89
05/13/86	202.25	1513.75
06/03/86	202.69	1513.31
07/01/86	202.99	1513.01
08/06/86	202.94	1513.06
09/12/86	203.23	1512.77
10/08/86	203.62	1512.38
12/16/86	203.35	1512.65
04/08/87	203.25	1512.75
04/28/87	203.14	1512.86
05/13/87	202.80	1513.20
06/18/87	203.39	1512.61
07/14/87	203.34	1512.66
08/18/87	203.62	1512.38
09/24/87	203.78	1512.22
10/20/87	204.04	1511.96
11/12/87	203.74	1512.26
12/09/87	203.58	1512.42
04/08/88	203.13	1512.87
06/07/88	203.28	1512.72
08/04/88	202.82	1513.18
09/16/88	204.37	1511.63
10/19/88	204.41	1511.59
11/18/88	204.30	1511.70
12/19/88	203.68	1512.32
03/08/89	204.90	1511.10
04/18/89	205.06	1510.94
05/09/89	205.16	1510.84
06/08/89	205.15	1510.85
07/06/89	205.87	1510.13
08/02/89	204.76	1511.24
08/30/89	205.17	1510.83
11/02/89	205.90	1510.10
12/13/89	205.96	1510.04
01/22/90	205.58	1510.42
03/19/90	206.01	1509.99
03/20/90	206.01	1509.99
05/02/90	206.07	1509.93
06/01/90	203.33	1512.67
06/12/90	205.75	1510.25
06/27/90	206.07	1509.93
07/23/90	206.35	1509.65
08/14/90	206.51	1509.49
09/12/90	206.70	1509.30
10/09/90	207.17	1508.83
11/15/90	207.11	1508.89
12/11/90	207.14	1508.86
04/15/91	207.33	1508.67
05/14/91	207.44	1508.56
06/11/91	207.46	1508.54
07/10/91	208.01	1507.99
08/16/91	208.16	1507.84
09/16/91	208.36	1507.64
10/15/91	208.58	1507.42
12/19/91	209.02	1506.98
01/21/92	209.08	1506.92
02/25/92	209.82	1506.18
03/18/92	209.92	1506.08
04/21/92	209.86	1506.14
05/21/92	210.13	1505.87
06/16/92	210.16	1505.84
07/13/92	210.42	1505.58
08/20/92	210.56	1505.44
10/20/92	211.44	1504.56
11/18/92	211.69	1504.31

155-082-30CCD **(Continued)**

South Hill Aquifer

LS Elev (msl,ft)=1716

SI (ft.)=294-303

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
12/16/92	211.81	1504.19	07/14/93	213.12	1502.88
			08/09/93	212.92	1503.08
04/19/93	212.32	1503.68	09/15/93	213.04	1502.96
05/18/93	212.56	1503.44	10/20/93	213.42	1502.58
06/15/93	212.86	1503.14	11/17/93	213.40	1502.60

155-082-31CAD

Sundre Aquifer

LS Elev (msl,ft)=1713.2

SI (ft.)=273-282

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
10/10/84	209.86	1503.34	04/18/89	207.81	1505.39
11/16/84	203.64	1509.56	05/09/89	206.40	1506.80
11/20/84	203.69	1509.51	08/30/89	208.00	1505.20
12/13/84	203.41	1509.79	11/02/89	209.76	1503.44
			12/13/89	209.82	1503.38
01/09/85	202.88	1510.32			
03/06/85	202.96	1510.24	01/22/90	208.57	1504.63
03/19/85	202.91	1510.29	03/19/90	205.41	1507.79
04/16/85	203.02	1510.18	03/20/90	205.41	1507.79
05/02/85	203.02	1510.18	05/02/90	208.85	1504.35
06/06/85	204.05	1509.15	05/03/90	208.85	1504.35
06/20/85	204.44	1508.76	09/12/90	213.50	1499.70
07/01/85	204.44	1508.76	10/09/90	214.46	1498.74
07/17/85	204.50	1508.70	11/15/90	214.28	1498.92
07/29/85	205.88	1507.32	12/11/90	212.49	1500.71
08/14/85	206.00	1507.20			
08/27/85	205.86	1507.34	04/15/91	209.67	1503.53
10/22/85	202.94	1510.26	05/14/91	211.10	1502.10
			06/11/91	212.46	1500.74
03/27/86	202.51	1510.69	07/10/91	213.72	1499.48
05/13/86	202.55	1510.65	10/15/91	216.85	1496.35
06/03/86	203.05	1510.15			
07/01/86	204.77	1508.43	01/21/92	217.80	1495.40
08/06/86	204.14	1509.06	04/21/92	217.55	1495.65
09/12/86	206.20	1507.00	05/21/92	218.07	1495.13
10/08/86	207.25	1505.95	06/16/92	218.77	1494.43
12/16/86	204.09	1509.11	07/13/92	219.44	1493.76
			10/20/92	220.86	1492.34
09/24/87	206.15	1507.05	11/18/92	220.65	1492.55
12/09/87	203.31	1509.89	12/16/92	220.55	1492.65
04/08/88	200.70	1512.50	04/19/93	219.33	1493.87
10/19/88	205.78	1507.42	05/18/93	220.13	1493.07
11/18/88	205.70	1507.50	10/20/93	218.85	1494.35
12/19/88	205.52	1507.68	11/17/93	218.79	1494.41

155-082-31DCA
Sundre Aquifer

LS Elev (msl,ft)=1711
SI (ft.)=315-321

Date	Depth to Water (ft)	WL Elev (msl, ft)
11/17/83	202.72	1508.28
12/08/83	203.13	1507.87
12/13/83	203.11	1507.89
01/04/84	202.82	1508.18
01/16/84	203.10	1507.90
02/01/84	202.11	1508.89
02/21/84	201.99	1509.01
05/29/84	201.97	1509.03
06/15/84	201.96	1509.04
07/10/84	203.83	1507.17
07/27/84	206.22	1504.78
08/09/84	206.72	1504.28
08/16/84	207.44	1503.56
08/22/84	207.27	1503.73
08/27/84	206.86	1504.14
09/07/84	206.80	1504.20
09/11/84	205.60	1505.40
09/20/84	205.75	1505.25
09/28/84	204.63	1506.37
10/10/84	204.72	1506.28
11/20/84	201.22	1509.78
12/13/84	199.97	1511.03
01/09/85	201.02	1509.98
03/06/85	201.72	1509.28
03/19/85	201.85	1509.15
04/16/85	201.36	1509.64
05/02/85	201.41	1509.59
06/06/85	202.08	1508.92
06/20/85	203.19	1507.81
07/01/85	203.17	1507.83
07/29/85	205.19	1505.81
08/14/85	205.30	1505.70
08/27/85	205.38	1505.62
10/22/85	200.36	1510.64
03/26/86	200.76	1510.24
05/13/86	200.39	1510.61
06/03/86	202.28	1508.72
07/01/86	204.70	1506.30
08/06/86	203.95	1507.05
09/10/86	206.12	1504.88
10/08/86	205.28	1505.72
12/16/86	202.15	1508.85
05/13/87	199.88	1511.12
06/18/87	203.25	1507.75
07/14/87	205.18	1505.82
09/24/87	205.34	1505.66
12/09/87	200.31	1510.69
04/08/88	198.65	1512.35
10/19/88	203.34	1507.66
11/18/88	204.79	1506.21
12/19/88	205.21	1505.79
04/18/89	206.56	1504.44
05/09/89	203.86	1507.14
08/30/89	208.01	1502.99
11/02/89	209.83	1501.17
12/13/89	208.82	1502.18
01/22/90	204.70	1506.30
03/19/90	202.56	1508.44
03/20/90	202.56	1508.44
05/02/90	209.12	1501.88
05/03/90	209.12	1501.88
09/13/90	215.24	1495.76
10/09/90	216.19	1494.81
11/15/90	215.18	1495.82
12/11/90	211.06	1499.94
04/15/91	209.61	1501.39
05/14/91	211.01	1499.99
06/11/91	213.56	1497.44
07/10/91	214.69	1496.31
10/25/91	198.61	1512.39
01/21/92	218.91	1492.09
04/21/92	217.26	1493.74
05/21/92	218.43	1492.57
06/16/92	220.23	1490.77
07/14/92	220.71	1490.29
08/20/92	217.98	1493.02
10/20/92	221.79	1489.21
11/18/92	221.51	1489.49
12/16/92	220.27	1490.73
04/19/93	219.06	1491.94
05/18/93	220.05	1490.95
07/14/93	220.91	1490.09
08/09/93	218.27	1492.73
09/15/93	215.81	1495.19
10/20/93	217.21	1493.79
11/17/93	217.59	1493.41

155-082-31DDA
Sand Sediments

LS Elev (msl,ft)=1583.7
SI (ft.)=43-48

Date	Depth to Water (ft)	WL Elev (msl, ft)
12/08/83	7.21	1576.49
12/14/83	7.21	1576.49
01/03/84	7.22	1576.48
01/16/84	7.31	1576.39
02/01/84	7.27	1576.43
02/21/84	7.18	1576.52
03/12/84	6.81	1576.89
04/03/84	6.51	1577.19
04/18/84	6.07	1577.63
05/08/84	5.32	1578.38
05/29/84	6.09	1577.61
06/15/84	6.05	1577.65
06/26/84	6.35	1577.35
07/10/84	6.59	1577.11
07/27/84	6.97	1576.73
08/09/84	7.02	1576.68
08/16/84	7.05	1576.65
08/22/84	7.09	1576.61
08/27/84	7.48	1576.22
09/07/84	7.59	1576.11
09/12/84	7.71	1575.99
09/20/84	7.77	1575.93
09/28/84	7.81	1575.89
10/04/84	7.85	1575.85
10/10/84	7.86	1575.84
10/23/84	7.30	1576.40
11/08/84	7.25	1576.45
11/20/84	7.32	1576.38
12/13/84	7.31	1576.39
01/09/85	7.43	1576.27
02/12/85	7.60	1576.10
03/06/85	6.72	1576.98
03/19/85	6.73	1576.97
04/16/85	6.42	1577.28
05/02/85	6.50	1577.20
05/14/85	6.31	1577.39
06/06/85	6.31	1577.39
06/20/85	6.35	1577.35
07/01/85	6.59	1577.11
07/17/85	7.02	1576.68
07/29/85	7.21	1576.49
08/14/85	7.56	1576.14
08/27/85	7.68	1576.02
09/12/85	7.72	1575.98
09/23/85	8.05	1575.65
10/22/85	6.82	1576.88
11/21/85	6.97	1576.73
12/30/85	6.60	1577.10
02/25/86	6.67	1577.03
03/26/86	6.40	1577.30
05/13/86	6.16	1577.54
06/03/86	6.59	1577.11
07/01/86	6.95	1576.75
08/06/86	7.01	1576.69
09/09/86	7.60	1576.10
10/08/86	7.35	1576.35
12/16/86	7.15	1576.55
04/08/87	6.25	1577.45
04/28/87	6.58	1577.12
05/13/87	6.82	1576.88
06/18/87	7.15	1576.55
07/14/87	7.66	1576.04
09/24/87	6.71	1576.99
10/20/87	6.90	1576.80
11/12/87	6.94	1576.76
12/09/87	6.96	1576.74
04/08/88	6.94	1576.76
05/13/88	6.88	1576.82
06/07/88	7.40	1576.30
07/08/88	7.44	1576.26
08/04/88	8.17	1575.53
09/16/88	8.06	1575.64
10/19/88	9.12	1574.58
11/18/88	9.09	1574.61
12/19/88	9.11	1574.59
03/08/89	9.27	1574.43
04/18/89	7.20	1576.50
05/09/89	7.18	1576.52
06/08/89	7.45	1576.25
07/06/89	7.57	1576.13
08/02/89	7.97	1575.73
08/30/89	8.77	1574.93
11/02/89	8.49	1575.21
12/13/89	8.68	1575.02
01/22/90	8.89	1574.81
03/19/90	8.52	1575.18
03/20/90	8.52	1575.18
05/02/90	7.91	1575.79
05/31/90	7.55	1576.15
06/27/90	6.56	1577.14
07/24/90	6.76	1576.94
08/13/90	7.20	1576.50
09/12/90	7.43	1576.27
10/09/90	7.94	1575.76
11/14/90	8.06	1575.64
12/11/90	8.18	1575.52
04/15/91	7.96	1575.74
05/14/91	7.32	1576.38
06/12/91	7.15	1576.55
07/10/91	7.15	1576.55
08/16/91	7.34	1576.36
09/16/91	7.62	1576.08
10/15/91	7.57	1576.13
04/21/92	7.17	1576.53
05/21/92	7.36	1576.34
06/16/92	7.65	1576.05
07/14/92	7.53	1576.17
08/20/92	8.39	1575.31
09/15/92	8.70	1575.00
10/20/92	8.95	1574.75
11/18/92	9.02	1574.68

155-082-31DDA **(Continued)** LS Elev (msl,ft)=1583.7

Sand Sediments SI (ft.)=43-48

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
12/16/92	9.13	1574.57	06/15/93	7.14	1576.56
			07/14/93	7.06	1576.64
02/22/93	9.35	1574.35	08/09/93	6.66	1577.04
03/23/93	8.11	1575.59	09/15/93	7.10	1576.60
04/19/93	7.67	1576.03	10/20/93	7.39	1576.31
05/18/93	7.67	1576.03	11/17/93	7.42	1576.28

155-082-33CCD
Souris Valley Aquifer

LS Elev (msl,ft)=1550.6
SI (ft.)=46-49

Date	Depth to Water (ft)	WL Elev (msl, ft)
11/14/68	17.88	1532.72
11/22/68	17.91	1532.69
11/27/68	17.89	1532.71
12/07/68	17.99	1532.61
12/11/68	17.88	1532.72
12/16/68	17.94	1532.66
12/17/68	17.97	1532.63
12/19/68	17.97	1532.63
12/20/68	18.00	1532.60
12/21/68	18.00	1532.60
12/27/68	18.00	1532.60
01/04/69	18.00	1532.60
02/06/69	18.16	1532.44
03/05/69	18.25	1532.35
03/12/69	18.28	1532.32
04/08/69	17.50	1533.10
05/07/69	14.48	1536.12
05/15/69	14.35	1536.25
05/27/69	14.39	1536.21
06/11/69	14.64	1535.96
06/25/69	14.72	1535.88
07/16/69	14.27	1536.33
07/29/69	14.43	1536.17
08/12/69	14.53	1536.07
09/09/69	15.03	1535.57
09/26/69	15.14	1535.46
10/08/69	15.22	1535.38
10/16/69	15.31	1535.29
10/19/69	15.32	1535.28
10/20/69	15.35	1535.25
10/21/69	15.39	1535.21
10/22/69	15.50	1535.10
10/23/69	15.47	1535.13
10/24/69	15.53	1535.07
10/25/69	15.61	1534.99
10/26/69	15.65	1534.95
10/27/69	15.65	1534.95
10/28/69	15.64	1534.96
10/29/69	15.67	1534.93
10/30/69	15.72	1534.88
10/31/69	15.72	1534.88
11/01/69	15.77	1534.83
11/02/69	15.81	1534.79
11/03/69	15.77	1534.83
11/04/69	15.78	1534.82
11/05/69	15.73	1534.87
11/06/69	15.77	1534.83
11/07/69	15.73	1534.87
11/08/69	15.77	1534.83
11/09/69	15.72	1534.88
11/10/69	15.68	1534.92
11/11/69	15.71	1534.89
11/12/69	15.69	1534.91
11/13/69	15.71	1534.89
11/17/69	15.77	1534.83
11/24/69	15.75	1534.85
12/02/69	15.80	1534.80
12/03/69	15.82	1534.78
12/04/69	15.80	1534.80
12/05/69	15.80	1534.80
01/27/70	16.00	1534.60
03/10/70	16.30	1534.30
04/06/70	16.02	1534.58
06/09/70	12.26	1538.34
07/24/70	12.89	1537.71
08/27/70	13.01	1537.59
10/01/70	13.44	1537.16
12/22/70	14.15	1536.45
04/16/71	13.82	1536.78
07/22/71	13.56	1537.04
08/26/71	13.97	1536.63
12/21/71	13.68	1536.92
10/12/72	13.90	1536.70
06/07/73	14.22	1536.38
09/28/73	14.35	1536.25
07/01/74	12.14	1538.46
10/13/74	15.10	1535.50
08/13/75	11.00	1539.60
03/19/76	12.56	1538.04
06/04/76	7.22	1543.38
02/08/77	13.10	1537.50
03/15/77	13.53	1537.07
05/06/77	13.38	1537.22
06/03/77	13.42	1537.18
06/30/77	13.50	1537.10
07/14/77	14.22	1536.38
07/28/77	14.72	1535.88
08/26/77	15.42	1535.18
09/14/77	15.68	1534.92
10/11/77	15.85	1534.75
11/10/77	16.36	1534.24
12/15/77	16.82	1533.78
01/24/78	17.41	1533.19
02/22/78	17.96	1532.64
03/28/78	17.49	1533.11
04/26/78	17.38	1533.22
05/28/78	17.69	1532.91
06/27/78	18.05	1532.55
07/26/78	18.24	1532.36
08/29/78	18.91	1531.69
09/26/78	18.66	1531.94
10/27/78	19.30	1531.30
12/04/78	19.63	1530.97
01/19/79	20.00	1530.60
02/28/79	20.36	1530.24
03/28/79	20.36	1530.24
04/30/79	17.00	1533.60
05/30/79	15.48	1535.12
06/27/79	16.33	1534.27

155-082-33CCD **(Continued)** LS Elev (msl,ft)=1550.6

Souris Valley Aquifer SI (ft.)=46-49

Date	Depth to Water (ft)	WL Elev (msl, ft)
07/31/79	16.27	1534.33
08/28/79	17.61	1532.99
09/27/79	18.52	1532.08
10/31/79	18.97	1531.63
11/29/79	19.41	1531.19
12/18/79	19.63	1530.97
01/20/80	20.27	1530.33
02/27/80	20.55	1530.05
04/25/80	20.89	1529.71
05/27/80	21.80	1528.80
06/12/80	21.75	1528.85
06/19/80	21.78	1528.82
06/27/80	22.50	1528.10
07/16/80	22.63	1527.97
07/18/80	22.47	1528.13
07/21/80	22.19	1528.41
07/25/80	22.08	1528.52
07/27/80	22.16	1528.44
07/29/80	22.07	1528.53
08/01/80	22.07	1528.53
08/05/80	21.96	1528.64
08/28/80	22.39	1528.21
09/26/80	22.38	1528.22
10/29/80	22.33	1528.27
11/25/80	22.52	1528.08
12/29/80	22.86	1527.74
01/29/81	23.10	1527.50
02/24/81	23.25	1527.35
03/26/81	23.24	1527.36
04/30/81	23.61	1526.99
05/28/81	23.88	1526.72
06/29/81	23.91	1526.69
07/14/81	24.16	1526.44
07/22/81	24.27	1526.33
07/28/81	24.38	1526.22
08/11/81	24.13	1526.47
08/18/81	24.05	1526.55
08/28/81	24.61	1525.99
09/29/81	24.94	1525.66
10/28/81	25.17	1525.43
11/27/81	25.47	1525.13
12/30/81	25.75	1524.85
01/08/82	26.02	1524.58
02/26/82	26.38	1524.22
03/29/82	26.19	1524.41
04/05/82	25.83	1524.77
04/13/82	25.63	1524.97
04/20/82	25.03	1525.57
04/30/82	24.55	1526.05
05/27/82	24.16	1526.44
06/29/82	23.88	1526.72
07/28/82	23.69	1526.91
08/31/82	24.52	1526.08
09/30/82	24.75	1525.85
10/29/82	24.27	1526.33
11/29/82	24.22	1526.38
12/27/82	24.49	1526.11
01/28/83	24.74	1525.86
02/28/83	25.02	1525.58
03/31/83	24.88	1525.72
04/29/83	24.03	1526.57
05/27/83	24.10	1526.50
07/08/83	24.30	1526.30
07/28/83	26.22	1524.38
08/30/83	25.03	1525.57
01/16/84	26.94	1523.66
02/01/84	26.00	1524.60
02/21/84	26.05	1524.55
03/12/84	26.11	1524.49
04/03/84	25.97	1524.63
04/18/84	25.63	1524.97
05/08/84	24.86	1525.74
05/29/84	24.33	1526.27
06/15/84	24.19	1526.41
06/26/84	24.13	1526.47
07/10/84	24.58	1526.02
07/27/84	25.35	1525.25
08/09/84	25.38	1525.22
08/16/84	25.77	1524.83
08/22/84	25.72	1524.88
08/27/84	25.86	1524.74
09/07/84	25.88	1524.72
09/12/84	25.66	1524.94
09/20/84	25.77	1524.83
09/27/84	25.61	1524.99
10/03/84	25.71	1524.89
10/10/84	25.75	1524.85
10/23/84	25.55	1525.05
11/07/84	25.38	1525.22
11/20/84	25.38	1525.22
12/13/84	25.33	1525.27
01/09/85	25.64	1524.96
02/12/85	25.94	1524.66
03/06/85	26.10	1524.50
03/19/85	26.16	1524.44
04/16/85	25.42	1525.18
05/02/85	25.13	1525.47
05/14/85	24.97	1525.63
06/06/85	24.94	1525.66
06/20/85	24.88	1525.72
07/01/85	24.80	1525.80
07/17/85	25.46	1525.14
07/29/85	25.52	1525.08
08/14/85	25.58	1525.02
09/11/85	25.80	1524.80
09/24/85	25.78	1524.82
10/23/85	24.75	1525.85
11/21/85	24.47	1526.13
12/30/85	24.47	1526.13
02/25/86	25.27	1525.33
03/26/86	25.13	1525.47
05/13/86	24.03	1526.57
06/04/86	24.18	1526.42

155-082-33CCD **(Continued)** LS Elev (msl,ft)=1550.6

Souris Valley Aquifer SI (ft.)=46-49

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
07/01/86	24.79	1525.81	07/24/90	30.52	1520.08
08/06/86	24.74	1525.86	08/13/90	30.98	1519.62
09/09/86	25.54	1525.06	09/12/90	31.59	1519.01
10/09/86	25.66	1524.94	10/09/90	32.03	1518.57
12/16/86	25.72	1524.88	11/14/90	32.27	1518.33
			12/11/90	31.74	1518.86
04/08/87	24.21	1526.39			
04/28/87	23.66	1526.94	01/17/91	31.60	1519.00
05/13/87	24.55	1526.05	02/13/91	31.54	1519.06
06/18/87	25.49	1525.11	03/13/91	31.45	1519.15
07/14/87	26.01	1524.59	04/16/91	32.21	1518.39
08/18/87	25.59	1525.01	05/13/91	32.60	1518.00
09/24/87	25.37	1525.23	06/12/91	31.84	1518.76
10/20/87	25.49	1525.11	07/10/91	32.79	1517.81
11/12/87	25.46	1525.14	08/15/91	33.09	1517.51
12/09/87	25.21	1525.39	09/16/91	33.80	1516.80
			10/15/91	34.02	1516.58
04/08/88	25.54	1525.06	11/18/91	34.46	1516.14
05/13/88	25.62	1524.98	12/19/91	34.74	1515.86
06/07/88	26.46	1524.14			
07/08/88	26.55	1524.05	01/22/92	35.11	1515.49
08/04/88	28.01	1522.59	02/26/92	35.50	1515.10
09/16/88	27.94	1522.66	03/19/92	35.37	1515.23
10/19/88	27.58	1523.02	04/21/92	35.22	1515.38
11/18/88	28.06	1522.54	05/21/92	35.67	1514.93
12/19/88	28.32	1522.28	06/16/92	36.17	1514.43
			07/14/92	36.41	1514.19
03/08/89	29.17	1521.43	08/20/92	36.99	1513.61
04/18/89	28.72	1521.88	09/15/92	37.16	1513.44
05/09/89	28.17	1522.43	10/20/92	37.58	1513.02
06/08/89	28.08	1522.52	11/18/92	37.81	1512.79
07/06/89	26.68	1523.92	12/16/92	37.73	1512.87
08/02/89	29.17	1521.43			
08/30/89	29.49	1521.11	02/23/93	37.78	1512.82
11/02/89	30.09	1520.51	03/23/93	37.93	1512.67
12/13/89	30.15	1520.45	04/19/93	38.20	1512.40
			05/18/93	38.39	1512.21
01/22/90	29.85	1520.75	06/16/93	38.68	1511.92
03/19/90	29.69	1520.91	07/14/93	38.31	1512.29
03/20/90	29.69	1520.91	08/09/93	37.22	1513.38
05/01/90	30.91	1519.69	09/16/93	36.41	1514.19
06/01/90	31.08	1519.52	10/20/93	36.53	1514.07
06/28/90	31.36	1519.24	11/17/93	36.64	1513.96

155-082-34CDC LS Elev (msl,ft)=1611.4

Gravel Sediments SI (ft.)=86-89

Date	Depth to Water (ft)	WL Elev (msl, ft)
11/14/68	80.38	1531.02
11/22/68	80.21	1531.19
11/27/68	80.22	1531.18
12/07/68	81.02	1530.38
12/11/68	80.08	1531.32
12/16/68	80.35	1531.05
12/19/68	80.61	1530.79
12/20/68	80.69	1530.71
12/21/68	80.63	1530.77
12/27/68	80.50	1530.90
01/04/69	80.19	1531.21
02/06/69	80.52	1530.88
03/05/69	80.33	1531.07
04/08/69	80.57	1530.83
05/07/69	75.38	1536.02
05/15/69	73.88	1537.52
05/27/69	73.36	1538.04
06/11/69	74.35	1537.05
06/25/69	74.67	1536.73
07/16/69	76.89	1534.51
07/29/69	77.02	1534.38
08/12/69	77.00	1534.40
09/09/69	78.22	1533.18
09/25/69	78.35	1533.05
10/08/69	78.66	1532.74
10/16/69	78.83	1532.57
10/19/69	78.63	1532.77
10/20/69	78.85	1532.55
10/21/69	78.91	1532.49
10/22/69	79.25	1532.15
10/23/69	78.89	1532.51
10/24/69	79.02	1532.38
10/25/69	79.25	1532.15
10/26/69	79.30	1532.10
10/27/69	79.17	1532.23
10/28/69	78.89	1532.51
10/29/69	78.92	1532.48
10/30/69	79.11	1532.29
10/31/69	79.00	1532.40
11/01/69	79.13	1532.27
11/02/69	79.30	1532.10
11/03/69	79.07	1532.33
11/04/69	79.00	1532.40
11/05/69	78.75	1532.65
11/06/69	79.13	1532.27
11/07/69	79.16	1532.24
11/08/69	79.28	1532.12
11/09/69	79.44	1531.96
11/10/69	79.17	1532.23
11/11/69	79.47	1531.93
11/12/69	79.39	1532.01
11/13/69	79.63	1531.77
11/17/69	79.91	1531.49
11/25/69	80.00	1531.40
12/04/69	79.66	1531.74
01/27/70	79.69	1531.71
03/10/70	80.08	1531.32
04/06/70	79.72	1531.68
06/08/70	73.39	1538.01
07/24/70	74.32	1537.08
08/27/70	75.89	1535.51
10/01/70	77.14	1534.26
12/22/70	78.05	1533.35
04/15/71	77.86	1533.54
07/22/71	78.00	1533.40
08/27/71	78.05	1533.35
12/21/71	77.63	1533.77
07/13/72	76.02	1535.38
10/12/72	77.88	1533.52
06/07/73	77.50	1533.90
09/28/73	79.00	1532.40
07/01/74	73.63	1537.77
08/13/75	73.85	1537.55
10/21/76	75.47	1535.93
01/16/84	87.27	1524.13
02/01/84	86.88	1524.52
02/21/84	87.50	1523.90
03/12/84	87.57	1523.83
04/03/84	87.00	1524.40
04/18/84	87.03	1524.37
05/08/84	87.03	1524.37
05/29/84	87.03	1524.37
06/15/84	87.02	1524.38
06/26/84	86.72	1524.68
07/10/84	86.99	1524.41
07/27/84	87.14	1524.26
08/09/84	87.28	1524.12
08/16/84	86.32	1525.08
08/21/84	86.28	1525.12
08/27/84	86.30	1525.10
09/07/84	86.28	1525.12
09/12/84	86.53	1524.87
09/20/84	86.72	1524.68
09/27/84	86.94	1524.46
10/03/84	86.69	1524.71
10/10/84	86.72	1524.68
10/23/84	87.02	1524.38
11/07/84	86.67	1524.73
11/20/84	87.00	1524.40
12/13/84	87.35	1524.05
01/09/85	87.07	1524.33
02/12/85	86.89	1524.51
03/06/85	86.74	1524.66
03/19/85	86.83	1524.57
04/16/85	86.97	1524.43
05/02/85	86.96	1524.44
05/14/85	86.92	1524.48
06/06/85	86.94	1524.46
06/20/85	87.07	1524.33
07/01/85	87.08	1524.32

155-082-34CDC **(Continued)** LS Elev (msl,ft)=1611.4

Gravel Sediments SI (ft.)=86-89

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
07/17/85	89.22	1522.18	01/22/90	88.15	1523.25
07/29/85	89.24	1522.16	03/19/90	88.35	1523.05
08/14/85	89.38	1522.02	03/20/90	88.35	1523.05
09/11/85	89.52	1521.88	05/01/90	88.48	1522.92
09/24/85	89.63	1521.77	06/01/90	88.31	1523.09
10/23/85	87.41	1523.99	06/28/90	88.26	1523.14
11/21/85	87.07	1524.33	07/24/90	88.23	1523.17
12/30/85	87.08	1524.32	08/13/90	88.20	1523.20
			09/12/90	88.20	1523.20
02/25/86	86.69	1524.71	10/09/90	88.46	1522.94
03/26/86	87.25	1524.15	11/14/90	88.10	1523.30
05/13/86	86.62	1524.78	12/12/90	88.36	1523.04
06/04/86	86.85	1524.55			
07/01/86	86.52	1524.88	01/17/91	88.52	1522.88
08/06/86	86.54	1524.86	02/13/91	88.23	1523.17
09/09/86	86.55	1524.85	03/13/91	88.64	1522.76
10/09/86	87.26	1524.14	04/16/91	88.45	1522.95
12/16/86	87.11	1524.29	05/13/91	88.66	1522.74
			06/12/91	88.63	1522.77
04/08/87	86.70	1524.70	07/11/91	88.81	1522.59
04/28/87	86.47	1524.93	08/15/91	88.33	1523.07
05/13/87	86.46	1524.94	09/16/91	88.63	1522.77
06/18/87	86.85	1524.55	10/14/91	88.60	1522.80
07/14/87	86.74	1524.66	11/18/91	88.70	1522.70
08/18/87	87.25	1524.15	12/19/91	88.23	1523.17
09/24/87	87.23	1524.17			
10/20/87	87.47	1523.93	01/22/92	88.29	1523.11
11/12/87	87.14	1524.26	02/26/92	88.39	1523.01
12/09/87	87.50	1523.90	03/19/92	88.58	1522.82
			04/21/92	88.60	1522.80
04/08/88	87.47	1523.93	05/21/92	88.62	1522.78
05/13/88	87.25	1524.15	06/16/92	88.80	1522.60
06/07/88	87.25	1524.15	07/14/92	88.47	1522.93
07/08/88	87.27	1524.13	08/20/92	88.94	1522.46
08/04/88	87.84	1523.56	09/15/92	88.57	1522.83
09/16/88	87.61	1523.79	10/20/92	88.99	1522.41
10/19/88	88.13	1523.27	11/18/92	89.20	1522.20
11/18/88	88.03	1523.37	12/16/92	88.76	1522.64
12/19/88	87.45	1523.95			
			02/23/93	88.35	1523.05
03/08/89	88.00	1523.40	03/23/93	88.52	1522.88
04/18/89	88.19	1523.21	04/20/93	88.87	1522.53
05/09/89	88.28	1523.12	05/19/93	88.72	1522.68
06/08/89	88.32	1523.08	06/16/93	88.62	1522.78
07/06/89	88.40	1523.00	07/15/93	88.61	1522.79
08/02/89	87.72	1523.68	08/09/93	88.89	1522.51
08/30/89	88.03	1523.37	09/16/93	88.60	1522.80
11/02/89	88.34	1523.06	10/20/93	88.76	1522.64
12/13/89	88.41	1522.99	11/17/93	88.68	1522.72

155-083-04AAA LS Elev (msl,ft)=1749.8

Northwest Buried-Channel Aquifer SI (ft.)=400-420

Date	Depth to Water (ft)	WL Elev (msl, ft)
01/17/84	233.25	1516.55
02/02/84	233.64	1516.16
02/21/84	233.69	1516.11
03/12/84	233.78	1516.02
04/03/84	233.96	1515.84
04/18/84	234.02	1515.78
05/08/84	233.97	1515.83
05/29/84	233.80	1516.00
06/15/84	233.82	1515.98
06/26/84	234.03	1515.77
07/10/84	234.22	1515.58
07/27/84	234.69	1515.11
08/09/84	234.77	1515.03
08/27/84	235.25	1514.55
09/07/84	235.16	1514.64
09/11/84	235.08	1514.72
09/20/84	235.33	1514.47
09/28/84	235.50	1514.30
10/04/84	235.27	1514.53
10/10/84	235.28	1514.52
10/24/84	234.61	1515.19
11/08/84	235.11	1514.69
11/20/84	235.05	1514.75
12/13/84	235.08	1514.72
01/09/85	235.02	1514.78
02/12/85	235.58	1514.22
03/06/85	234.41	1515.39
03/19/85	234.41	1515.39
04/17/85	234.69	1515.11
05/02/85	234.64	1515.16
05/14/85	234.74	1515.06
06/06/85	234.80	1515.00
06/20/85	234.97	1514.83
07/01/85	235.19	1514.61
07/30/85	235.28	1514.52
08/14/85	235.50	1514.30
08/28/85	235.77	1514.03
09/11/85	235.80	1514.00
09/25/85	235.99	1513.81
10/22/85	234.57	1515.23
11/21/85	234.42	1515.38
12/30/85	234.44	1515.36
02/25/86	235.34	1514.46
03/26/86	235.72	1514.08
06/03/86	234.32	1515.48
07/01/86	234.59	1515.21
08/06/86	234.62	1515.18
10/08/86	234.79	1515.01
12/16/86	234.19	1515.61
04/08/87	233.64	1516.16
04/28/87	234.14	1515.66
05/13/87	234.31	1515.49
06/18/87	233.95	1515.85
07/14/87	233.82	1515.98
08/18/87	233.85	1515.95
09/24/87	233.20	1516.60
10/20/87	233.03	1516.77
11/12/87	232.81	1516.99
12/09/87	233.42	1516.38
04/08/88	233.36	1516.44
08/04/88	236.95	1512.85
09/16/88	237.42	1512.38
10/19/88	238.71	1511.09
11/18/88	239.51	1510.29
12/19/88	239.79	1510.01
03/08/89	240.12	1509.68
04/18/89	240.14	1509.66
05/09/89	239.80	1510.00
06/08/89	239.27	1510.53
07/06/89	239.05	1510.75
08/02/89	238.99	1510.81
08/30/89	239.81	1509.99
11/02/89	240.56	1509.24
12/12/89	239.87	1509.93
01/22/90	240.31	1509.49
03/19/90	241.20	1508.60
03/20/90	241.20	1508.60
05/02/90	240.95	1508.85
06/12/90	240.22	1509.58
06/27/90	239.99	1509.81
07/23/90	239.99	1509.81
08/14/90	239.96	1509.84
09/12/90	240.05	1509.75
10/09/90	239.84	1509.96
11/15/90	239.08	1510.72
12/11/90	239.57	1510.23
04/15/91	242.95	1506.85
05/14/91	242.07	1507.73
06/11/91	241.37	1508.43
07/10/91	241.20	1508.60
08/16/91	241.27	1508.53
09/16/91	241.07	1508.73
10/15/91	240.44	1509.36
04/21/92	240.85	1508.95
05/21/92	238.71	1511.09
06/16/92	238.42	1511.38
07/13/92	238.68	1511.12
08/20/92	239.67	1510.13
10/20/92	239.52	1510.28
11/18/92	238.83	1510.97
12/16/92	238.20	1511.60
04/19/93	240.46	1509.34
05/18/93	240.03	1509.77
06/15/93	240.63	1509.17
07/14/93	240.19	1509.61
08/09/93	240.09	1509.71
09/15/93	240.27	1509.53
10/20/93	240.57	1509.23
11/17/93	240.78	1509.02

155-083-11BCD LS Elev (msl,ft)=1738.39

Northwest Buried-Channel Aquifer SI (ft.)=294-306

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
10/20/92	230.14	1508.25	06/15/93	233.20	1505.19
12/16/92	232.04	1506.35	07/14/93	233.21	1505.18
			08/09/93	233.24	1505.15
02/22/93	232.84	1505.55	09/15/93	233.30	1505.09
03/24/93	232.86	1505.53	10/20/93	233.76	1504.63
04/19/93	232.98	1505.41	11/17/93	233.84	1504.55
05/18/93	232.95	1505.44			

155-083-13BDDC1 LS Elev (msl,ft)=1587.06

Minot Aquifer SI (ft.)=178-183

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
10/29/92	86.43	1500.63	04/19/93	86.96	1500.10
11/05/92	86.42	1500.64	05/18/93	87.23	1499.83
11/10/92	86.39	1500.67	06/15/93	87.30	1499.76
11/18/92	86.44	1500.62	07/14/93	87.32	1499.74
12/16/92	86.75	1500.31	08/09/93	87.48	1499.58
			09/15/93	87.06	1500.00
02/22/93	87.40	1499.66	10/20/93	87.78	1499.28
03/24/93	86.95	1500.11	11/17/93	87.39	1499.67

155-083-13BDDC2 LS Elev (msl,ft)=1587.42

Minot Aquifer SI (ft.)=118-123

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
10/29/92	87.49	1499.93	04/19/93	86.88	1500.54
11/05/92	86.58	1500.84	05/18/93	86.90	1500.52
11/10/92	86.58	1500.84	06/15/93	87.20	1500.22
11/18/92	86.63	1500.79	07/14/93	87.00	1500.42
12/16/92	86.60	1500.82	08/09/93	86.96	1500.46
			09/15/93	86.89	1500.53
02/22/93	86.79	1500.63	10/20/93	87.20	1500.22
03/24/93	86.72	1500.70	11/17/93	87.17	1500.25

155-083-13CBDC LS Elev (msl,ft)=1549.44

Minot Aquifer SI (ft.)=238-241

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
10/27/92	46.15	1503.29	04/19/93	49.67	1499.77
11/05/92	46.78	1502.66	05/18/93	51.95	1497.49
11/10/92	48.55	1500.89	06/15/93	52.21	1497.23
11/18/92	47.68	1501.76	07/14/93	51.13	1498.31
12/16/92	51.34	1498.10	08/09/93	53.81	1495.63
			09/15/93	50.13	1499.31
02/22/93	53.67	1495.77	10/20/93	54.14	1495.30
03/24/93	51.21	1498.23	11/17/93	50.99	1498.45

155-083-13CBDC2
Minot Aquifer

LS Elev (msl,ft)=1549.74
SI (ft.)=178-183

Date	Depth to Water (ft)	WL Elev (msl, ft)
06/15/93	52.55	1497.19
07/14/93	51.20	1498.54
08/09/93	54.05	1495.69
09/15/93	50.16	1499.58
10/20/93	54.35	1495.39
11/17/93	51.01	1498.73

155-083-13CBDC3
Minot Aquifer

LS Elev (msl,ft)=1550.07
SI (ft.)=115-120

Date	Depth to Water (ft)	WL Elev (msl, ft)
06/15/93	52.83	1497.24
07/14/93	51.53	1498.54
08/09/93	54.32	1495.75
09/15/93	50.49	1499.58
10/20/93	54.63	1495.44
11/17/93	51.31	1498.76

155-083-13CDB
Minot Aquifer

LS Elev (msl,ft)=1551.35
SI (ft.)=258-263

Date	Depth to Water (ft)	WL Elev (msl, ft)
07/30/92	52.73	1498.62
08/12/92	53.51	1497.84
08/20/92	56.04	1495.31
09/15/92	50.35	1501.00
10/20/92	48.93	1502.42
11/18/92	49.40	1501.95
12/16/92	52.85	1498.50
02/22/93	55.13	1496.22
03/24/93	52.88	1498.47
04/19/93	51.38	1499.97
05/18/93	53.38	1497.97
06/15/93	53.82	1497.53
07/14/93	52.81	1498.54
08/09/93	55.24	1496.11
09/15/93	51.77	1499.58
10/20/93	55.54	1495.81
11/17/93	52.67	1498.68

155-083-13CDCA
Minot Aquifer

LS Elev (msl,ft)=1551.46
SI (ft.)=118-123

Date	Depth to Water (ft)	WL Elev (msl, ft)
11/05/92	48.60	1502.86
11/18/92	48.57	1502.89
12/16/92	52.50	1498.96
02/22/93	54.94	1496.52
03/24/93	53.10	1498.36
04/19/93	51.53	1499.93
05/18/93	53.19	1498.27
06/15/93	53.65	1497.81
07/14/93	53.10	1498.36
08/09/93	55.02	1496.44
09/15/93	51.90	1499.56
10/20/93	55.32	1496.14
11/17/93	52.78	1498.68

155-083-13DCA LS Elev (msl,ft)=1547.32

Minot Aquifer SI (ft.)=118-123

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
10/27/92	43.46	1503.86	05/18/93	47.16	1500.16
11/05/92	43.15	1504.17	06/15/93	47.33	1499.99
11/18/92	44.08	1503.24	07/14/93	47.17	1500.15
12/16/92	46.65	1500.67	08/09/93	48.74	1498.58
			09/15/93	46.13	1501.19
02/22/93	48.83	1498.49	10/20/93	49.09	1498.23
03/24/93	47.23	1500.09	11/17/93	46.98	1500.34
04/19/93	45.82	1501.50			

155-083-13DCB1 LS Elev (msl,ft)=1548.12

Minot Aquifer SI (ft.)=198-201

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
10/27/92	44.66	1503.46	05/18/93	48.81	1499.31
11/05/92	44.43	1503.69	06/15/93	49.13	1498.99
11/18/92	45.38	1502.74	07/14/93	48.62	1499.50
12/16/92	48.22	1499.90	08/09/93	50.46	1497.66
			09/15/93	47.55	1500.57
02/22/93	50.38	1497.74	10/20/93	50.77	1497.35
03/24/93	48.61	1499.51	11/17/93	48.44	1499.68
04/19/93	47.22	1500.90			

155-083-13DCB2 LS Elev (msl,ft)=1548.42

Minot Aquifer SI (ft.)=182-193

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
10/27/92	45.73	1502.69	05/18/93	49.98	1498.44
11/05/92	45.51	1502.91	06/15/93	50.29	1498.13
11/18/92	46.59	1501.83	07/14/93	50.03	1498.39
12/16/92	49.49	1498.93	08/09/93	51.83	1496.59
			09/15/93	48.83	1499.59
02/22/93	51.80	1496.62	10/20/93	52.16	1496.26
03/24/93	50.05	1498.37	11/17/93	49.76	1498.66
04/19/93	48.48	1499.94			

155-083-13DCDA LS Elev (msl,ft)=1550.65

Minot Aquifer SI (ft.)=138-143

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
11/05/92	46.68	1503.97	05/18/93	51.98	1498.67
11/18/92	48.66	1501.99	06/15/93	52.44	1498.21
12/16/92	51.54	1499.11	07/14/93	52.12	1498.53
			08/09/93	53.85	1496.80
02/22/93	53.84	1496.81	09/15/93	51.01	1499.64
03/24/93	52.22	1498.43	10/20/93	54.18	1496.47
04/19/93	50.64	1500.01	11/17/93	51.91	1498.74

155-083-13DDD LS Elev (msl,ft)=1549.92

Minot Aquifer SI (ft.)=107-112

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
10/28/92	44.83	1505.09	05/18/93	47.97	1501.95
11/05/92	44.32	1505.60	06/15/93	48.30	1501.62
11/18/92	45.18	1504.74	07/14/93	48.11	1501.81
12/16/92	47.50	1502.42	08/09/93	49.32	1500.60
			09/15/93	47.02	1502.90
02/22/93	49.48	1500.44	10/20/93	49.63	1500.29
03/24/93	48.32	1501.60	11/17/93	47.94	1501.98
04/19/93	46.90	1503.02			

155-083-14AAD LS Elev (msl,ft)=1653.08

Northwest Buried-Channel Aquifer SI (ft.)=238-243

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
06/15/93	153.60	1499.48	09/15/93	153.42	1499.66
07/14/93	153.62	1499.46	10/20/93	154.19	1498.89
08/09/93	153.70	1499.38	11/17/93	154.03	1499.05

155-083-14CBB LS Elev (msl,ft)=1575.19

Minot Aquifer SI (ft.)=128-133

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
06/15/93	74.95	1500.24	09/15/93	75.35	1499.84
07/14/93	74.98	1500.21	10/20/93	75.95	1499.24
08/09/93	75.25	1499.94	11/17/93	76.06	1499.13

155-083-14CDA2 LS Elev (msl,ft)=1556.24

Minot Aquifer SI (ft.)=138-143

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
07/01/92	56.52	1499.72	04/19/93	56.95	1499.29
08/20/92	58.78	1497.46	05/18/93	58.21	1498.03
09/15/92	55.49	1500.75	06/15/93	58.20	1498.04
10/20/92	54.68	1501.56	07/14/93	57.68	1498.56
11/18/92	54.65	1501.59	08/09/93	59.46	1496.78
12/16/92	57.39	1498.85	09/15/93	57.70	1498.54
			10/20/93	60.05	1496.19
02/22/93	59.09	1497.15	11/17/93	58.38	1497.86
03/24/93	57.83	1498.41			

155-083-14CDA3
Souris Valley Aquifer

LS Elev (msl,ft)=1556.42
SI (ft.)=22-27

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
06/15/93	15.52	1540.90	09/15/93	15.52	1540.90
07/14/93	14.65	1541.77	10/20/93	16.14	1540.28
08/09/93	15.09	1541.33	11/17/93	16.14	1540.28

155-083-14DBA3
Minot Aquifer

LS Elev (msl,ft)=1558.45
SI (ft.)=138-143

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
06/15/93	61.13	1497.32	09/15/93	59.39	1499.06
07/14/93	59.77	1498.68	10/20/93	62.92	1495.53
08/09/93	62.51	1495.94	11/17/93	60.11	1498.34

155-083-14DDD5
Minot Aquifer

LS Elev (msl,ft)=1553.3
SI (ft.)=128-133

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
07/01/92	56.64	1496.66	03/24/93	54.88	1498.42
08/05/92	57.71	1495.59	04/19/93	53.66	1499.64
08/20/92	62.49	1490.81	05/18/93	58.94	1494.36
09/15/92	52.36	1500.94	06/15/93	58.32	1494.98
10/20/92	51.11	1502.19	07/14/93	54.80	1498.50
11/18/92	51.48	1501.82	08/09/93	60.06	1493.24
12/16/92	57.27	1496.03	09/15/93	54.34	1498.96
			10/20/93	60.44	1492.86
02/22/93	60.28	1493.02	11/17/93	54.95	1498.35

155-083-14DDD6
Souris Valley Aquifer

LS Elev (msl,ft)=1553.56
SI (ft.)=75-85

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
06/15/93	49.77	1503.79	09/15/93	48.10	1505.46
07/14/93	48.96	1504.60	10/20/93	50.92	1502.64
08/09/93	50.58	1502.98	11/17/93	48.71	1504.85

155-083-14DDD7
Souris Valley Aquifer

LS Elev (msl,ft)=1553.65
SI (ft.)=29-34

Date	Depth to Water (ft)	WL Elev (msl, ft)
06/15/93	17.92	1535.73
07/14/93	17.51	1536.14
08/09/93	16.93	1536.72
09/15/93	16.89	1536.76
10/20/93	16.93	1536.72
11/17/93	17.41	1536.24

155-083-22BAC
Minot Aquifer

LS Elev (msl,ft)=1564.83
SI (ft.)=47-52

Date	Depth to Water (ft)	WL Elev (msl, ft)
07/14/93	51.71	1513.12
08/09/93	51.76	1513.07
09/15/93	51.73	1513.10
10/20/93	51.81	1513.02
11/17/93	51.87	1512.96

155-083-22CBB3 LS Elev (msl,ft)=1558.35

Minot Aquifer SI (ft.)=?-68

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
09/21/65	57.57	1500.78			
11/04/65	48.39	1509.96	01/12/70	41.32	1517.03
12/10/65	40.93	1517.42	02/09/70	41.14	1517.21
			03/09/70	42.06	1516.29
01/31/66	40.26	1518.09	04/14/70	42.16	1516.19
03/15/66	40.84	1517.51	05/13/70	42.61	1515.74
04/12/66	42.95	1515.40	06/11/70	39.09	1519.26
05/12/66	42.49	1515.86	07/06/70	38.94	1519.41
06/09/66	43.27	1515.08	08/04/70	41.89	1516.46
07/14/66	44.81	1513.54	08/31/70	45.15	1513.20
08/15/66	41.82	1516.53	09/30/70	47.63	1510.72
10/27/66	46.80	1511.55	11/04/70	46.29	1512.06
11/21/66	44.78	1513.57	11/30/70	45.34	1513.01
12/05/66	44.48	1513.87			
12/19/66	44.70	1513.65	01/08/71	42.50	1515.85
			02/10/71	40.41	1517.94
01/17/67	47.43	1510.92	03/09/71	40.79	1517.56
02/16/67	46.02	1512.33	04/15/71	41.60	1516.75
03/10/67	48.25	1510.10	05/10/71	42.05	1516.30
04/19/67	50.42	1507.93	06/02/71	41.70	1516.65
05/24/67	49.35	1509.00	07/08/71	41.99	1516.36
06/21/67	51.57	1506.78	08/03/71	43.25	1515.10
07/21/67	48.35	1510.00	09/08/71	45.67	1512.68
08/16/67	49.89	1508.46	10/08/71	43.52	1514.83
09/13/67	49.75	1508.60	11/04/71	42.75	1515.60
09/25/67	49.16	1509.19	12/01/71	43.17	1515.18
10/23/67	49.04	1509.31			
11/20/67	53.78	1504.57	01/06/72	42.82	1515.53
12/20/67	51.45	1506.90	02/08/72	41.99	1516.36
			03/08/72	43.09	1515.26
01/15/68	51.92	1506.43	04/04/72	43.70	1514.65
02/14/68	52.30	1506.05	05/02/72	43.88	1514.47
03/28/68	54.50	1503.85	06/06/72	45.31	1513.04
04/15/68	46.45	1511.90	07/10/72	45.78	1512.57
04/29/68	45.93	1512.42	08/10/72	46.36	1511.99
05/29/68	47.24	1511.11	09/08/72	47.15	1511.20
06/27/68	48.04	1510.31	10/06/72	38.68	1519.67
07/23/68	48.32	1510.03	11/09/72	44.23	1514.12
08/29/68	47.12	1511.23	12/05/72	43.15	1515.20
09/23/68	46.81	1511.54			
10/03/68	47.70	1510.65	03/13/73	41.23	1517.12
10/12/68	49.64	1508.71	04/03/73	41.74	1516.61
10/21/68	49.59	1508.76	05/11/73	40.23	1518.12
11/18/68	50.89	1507.46	06/08/73	40.32	1518.03
12/16/68	51.40	1506.95	06/29/73	40.15	1518.20
			08/03/73	41.50	1516.85
01/20/69	51.88	1506.47	08/31/73	42.85	1515.50
02/17/69	51.30	1507.05	10/03/73	43.59	1514.76
03/17/69	53.89	1504.46	11/08/73	46.52	1511.83
04/30/69	49.50	1508.85	12/06/73	46.40	1511.95
05/26/69	46.65	1511.70			
06/16/69	47.84	1510.51	01/09/74	46.14	1512.21
06/26/69	47.89	1510.46	03/08/74	47.78	1510.57
07/30/69	49.18	1509.17	04/11/74	48.50	1509.85
08/27/69	37.32	1521.03	06/20/74	43.64	1514.71
09/15/69	40.62	1517.73	07/12/74	43.89	1514.46
10/14/69	41.34	1517.01	08/09/74	45.84	1512.51
11/17/69	43.03	1515.32	09/06/74	47.44	1510.91
12/15/69	42.45	1515.90	10/16/74	47.90	1510.45
12/19/69	42.27	1516.08	12/04/74	47.10	1511.25

155-083-22CBB3 **(Continued)** LS Elev (msl,ft)=1558.35

Minot Aquifer SI (ft.)=?-68

Date	Depth to Water (ft)	WL Elev (msl, ft)
01/16/75	46.15	1512.20
04/10/75	47.59	1510.76
05/02/75	47.21	1511.14
06/20/75	24.47	1533.88
08/14/75	40.35	1518.00
09/05/75	43.48	1514.87
09/30/75	46.15	1512.20
11/06/75	46.50	1511.85
12/03/75	46.85	1511.50
01/06/76	47.52	1510.83
02/06/76	47.77	1510.58
03/04/76	47.90	1510.45
04/01/76	47.59	1510.76
06/11/76	26.45	1531.90
06/24/76	31.02	1527.33
07/08/76	35.13	1523.22
08/05/76	40.53	1517.82
09/02/76	44.07	1514.28
10/08/76	47.01	1511.34
11/04/76	48.17	1510.18
12/01/76	49.08	1509.27
01/06/77	49.86	1508.49
02/01/77	49.97	1508.38
03/03/77	48.83	1509.52
04/04/77	48.20	1510.15
05/02/77	48.58	1509.77
06/08/77	48.99	1509.36
07/08/77	49.47	1508.88
08/04/77	49.73	1508.62
09/09/77	49.93	1508.42
10/03/77	49.45	1508.90
11/03/77	48.58	1509.77
12/02/77	48.41	1509.94
01/12/78	48.61	1509.74
02/07/78	48.89	1509.46
03/08/78	49.10	1509.25
04/06/78	48.88	1509.47
05/04/78	48.17	1510.18
06/06/78	47.45	1510.90
06/27/78	47.60	1510.75
08/03/78	48.07	1510.28
09/08/78	49.35	1509.00
10/03/78	48.83	1509.52
11/01/78	49.81	1508.54
11/30/78	49.36	1508.99
01/01/79	48.92	1509.43
02/28/79	49.21	1509.14
03/28/79	49.96	1508.39
05/11/79	45.52	1512.83
06/05/79	42.39	1515.96
07/06/79	42.49	1515.86
08/02/79	43.15	1515.20
09/05/79	45.65	1512.70
10/04/79	46.60	1511.75
11/08/79	46.81	1511.54
11/30/79	46.37	1511.98
03/07/80	45.75	1512.60
04/01/80	45.77	1512.58
04/29/80	45.65	1512.70
06/04/80	46.70	1511.65
07/03/80	47.73	1510.62
08/07/80	48.64	1509.71
09/04/80	48.75	1509.60
09/09/80	49.90	1508.45
09/30/80	49.62	1508.73
11/05/80	49.14	1509.21
03/06/81	47.90	1510.45
05/08/81	48.64	1509.71
06/10/81	48.72	1509.63
07/10/81	49.28	1509.07
08/05/81	49.51	1508.84
09/04/81	50.39	1507.96
10/08/81	51.42	1506.93
11/30/81	51.63	1506.72
03/22/82	51.28	1507.07
04/29/82	51.09	1507.26
06/17/82	51.19	1507.16
07/29/82	49.87	1508.48
09/23/82	50.34	1508.01
12/08/82	49.30	1509.05
03/14/83	49.42	1508.93
04/26/83	48.32	1510.03
06/14/83	48.71	1509.64
07/22/83	49.03	1509.32
08/29/83	48.94	1509.41
10/15/83	49.58	1508.77
11/29/83	50.03	1508.32
03/24/84	51.32	1507.03
04/22/84	51.61	1506.74
05/27/84	50.20	1508.15
06/16/84	49.22	1509.13
07/28/84	49.44	1508.91
08/26/84	51.28	1507.07
09/22/84	51.53	1506.82
10/21/84	50.68	1507.67
12/03/84	51.20	1507.15
12/09/84	51.50	1506.85
03/23/85	53.75	1504.60
04/27/85	53.35	1505.00
05/27/85	52.37	1505.98
06/06/85	52.24	1506.11
07/28/85	53.84	1504.51
08/31/85	52.18	1506.17
09/29/85	51.17	1507.18
12/03/85	50.59	1507.76
12/08/85	50.74	1507.61
03/29/86	50.73	1507.62
04/27/86	51.24	1507.11

155-083-22CBB3 **(Continued)** LS Elev (msl,ft)=1558.35

Minot Aquifer SI (ft.)=?-68

Date	Depth to Water (ft)	WL Elev (msl, ft)
05/31/86	52.07	1506.28
06/28/86	52.33	1506.02
07/27/86	51.59	1506.76
08/30/86	54.65	1503.70
09/29/86	51.70	1506.65
10/25/86	51.52	1506.83
12/02/86	51.42	1506.93
12/20/86	50.53	1507.82
04/19/87	50.54	1507.81
05/30/87	50.78	1507.57
06/20/87	50.92	1507.43
07/26/87	51.83	1506.52
08/30/87	49.12	1509.23
09/22/87	48.23	1510.12
09/27/87	47.07	1511.28
10/31/87	47.22	1511.13
12/09/87	46.28	1512.07
12/13/87	46.29	1512.06
03/27/88	54.31	1504.04
04/23/88	55.35	1503.00
05/28/88	56.71	1501.64
06/25/88	59.23	1499.12
07/30/88	60.21	1498.14
08/27/88	60.49	1497.86
09/24/88	52.40	1505.95
10/30/88	64.29	1494.06
11/18/88	64.07	1494.28
12/10/88	63.47	1494.88
03/25/89	58.54	1499.81
04/30/89	58.75	1499.60
05/28/89	59.66	1498.69
06/24/89	60.49	1497.86
07/31/89	60.13	1498.22
08/27/89	60.96	1497.39
10/29/89	61.45	1496.90
11/30/89	61.24	1497.11
12/09/89	61.12	1497.23
03/04/90	67.47	1490.88
04/28/90	66.86	1491.49
06/26/90	62.80	1495.55
06/27/90	63.73	1494.62
07/23/90	61.45	1496.90
07/29/90	60.24	1498.11
08/14/90	60.74	1497.61
08/25/90	59.50	1498.85
09/12/90	59.98	1498.37
09/18/90	59.10	1499.25
10/09/90	59.11	1499.24
10/28/90	57.29	1501.06
11/15/90	57.99	1500.36
12/11/90	57.93	1500.42
01/17/91	59.67	1498.68
02/13/91	58.96	1499.39
03/13/91	62.27	1496.08
04/15/91	63.38	1494.97
05/14/91	62.79	1495.56
06/11/91	61.47	1496.88
07/10/91	60.35	1498.00
08/16/91	60.35	1498.00
09/16/91	59.74	1498.61
10/15/91	58.98	1499.37
11/18/91	57.86	1500.49
12/19/91	57.00	1501.35
01/22/92	56.17	1502.18
02/26/92	55.36	1502.99
03/19/92	54.85	1503.50
04/21/92	54.66	1503.69
05/21/92	54.56	1503.79
06/16/92	55.84	1502.51
07/13/92	55.68	1502.67
08/20/92	55.90	1502.45
09/15/92	57.12	1501.23
10/20/92	56.64	1501.71
11/18/92	55.90	1502.45
12/16/92	55.31	1503.04
02/22/93	58.23	1500.12
03/24/93	59.42	1498.93
04/19/93	59.17	1499.18
05/18/93	58.83	1499.52
06/15/93	57.98	1500.37
07/14/93	57.39	1500.96
08/09/93	56.85	1501.50
09/15/93	59.73	1498.62
10/20/93	60.39	1497.96
11/17/93	59.74	1498.61

155-083-22CDD LS Elev (msl,ft)=1552.96

Souris Valley Aquifer SI (ft.)=50-55

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
07/23/92	22.09	1530.87	04/19/93	21.68	1531.28
08/20/92	21.40	1531.56	05/18/93	21.68	1531.28
09/15/92	21.44	1531.52	06/15/93	21.37	1531.59
10/20/92	21.29	1531.67	07/14/93	20.91	1532.05
11/18/92	21.17	1531.79	08/09/93	20.28	1532.68
12/16/92	21.20	1531.76	09/15/93	21.10	1531.86
			10/20/93	21.07	1531.89
02/22/93	22.19	1530.77	11/17/93	20.99	1531.97

155-083-22DAB1 LS Elev (msl,ft)=1555.8

Minot Aquifer SI (ft.)=98-103

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
06/15/93	58.00	1497.80	09/15/93	63.30	1492.50
07/14/93	58.01	1497.79	10/20/93	60.93	1494.87
08/09/93	59.62	1496.18	11/17/93	59.93	1495.87

155-083-22DAB2 LS Elev (msl,ft)=1555.84

Souris Valley Aquifer SI (ft.)=28-33

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
06/15/93	26.95	1528.89	09/15/93	25.44	1530.40
07/14/93	26.48	1529.36	10/20/93	25.53	1530.31
08/09/93	25.64	1530.20	11/17/93	25.54	1530.30

155-083-22DDB LS Elev (msl,ft)=1558.14

Minot Aquifer SI (ft.)=110-115

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
07/30/92	25.43	1532.71	04/19/93	26.21	1531.93
08/20/92	25.88	1532.26	05/18/93	26.26	1531.88
09/15/92	25.87	1532.27	06/15/93	25.96	1532.18
10/20/92	25.80	1532.34	07/14/93	25.59	1532.55
11/18/92	25.72	1532.42	08/09/93	25.25	1532.89
12/16/92	25.90	1532.24	09/15/93	25.92	1532.22
			10/20/93	25.82	1532.32
02/22/93	26.88	1531.26	11/17/93	25.73	1532.41
03/24/93	26.79	1531.35			

155-083-23AAD
Minot Aquifer

LS Elev (msl,ft)=1552.17
SI (ft.)=118-123

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
06/26/92	53.37	1498.80	04/19/93	51.95	1500.22
08/20/92	56.25	1495.92	05/18/93	54.05	1498.12
09/15/92	50.65	1501.52	06/15/93	54.12	1498.05
10/20/92	49.59	1502.58	07/14/93	52.89	1499.28
11/18/92	49.78	1502.39	08/09/93	55.39	1496.78
12/16/92	53.01	1499.16	09/15/93	52.35	1499.82
			10/20/93	55.79	1496.38
02/22/93	55.26	1496.91	11/17/93	53.11	1499.06
03/24/93	53.04	1499.13			

155-083-23BAC1
Minot Aquifer

LS Elev (msl,ft)=1554.81
SI (ft.)=118-123

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
07/24/92	55.09	1499.72	04/19/93	56.57	1498.24
08/20/92	57.51	1497.30	05/18/93	58.23	1496.58
09/15/92	54.78	1500.03	06/15/93	57.36	1497.45
10/20/92	53.79	1501.02	07/14/93	56.75	1498.06
11/18/92	53.35	1501.46	08/09/93	60.34	1494.47
12/16/92	56.24	1498.57	09/15/93	58.51	1496.30
			10/20/93	60.16	1494.65
02/22/93	58.48	1496.33	11/17/93	58.11	1496.70
03/24/93	57.45	1497.36			

155-083-23BAC2
Souris Valley Aquifer

LS Elev (msl,ft)=1555.02
SI (ft.)=33-38

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
07/22/92	15.42	1539.60	04/19/93	14.02	1541.00
08/20/92	16.55	1538.47	05/18/93	15.54	1539.48
09/15/92	14.94	1540.08	06/15/93	14.31	1540.71
10/20/92	15.58	1539.44	07/14/93	14.49	1540.53
11/18/92	15.82	1539.20	08/09/93	14.14	1540.88
12/16/92	16.10	1538.92	09/15/93	14.49	1540.53
			10/20/93	14.92	1540.10
02/22/93	16.75	1538.27	11/17/93	15.69	1539.33
03/24/93	15.16	1539.86			

155-083-23BBB3 LS Elev (msl,ft)=1555.57

Minot Aquifer SI (ft.)= ?-101

Date	Depth to Water (ft)	WL Elev (msl, ft)
01/31/66	58.80	1496.77
04/12/66	56.29	1499.28
05/12/66	54.22	1501.35
06/09/66	53.44	1502.13
07/14/66	54.02	1501.55
08/15/66	54.89	1500.68
10/27/66	55.74	1499.83
11/21/66	54.11	1501.46
12/19/66	53.75	1501.82
01/17/67	54.64	1500.93
02/27/67	55.39	1500.18
03/10/67	55.90	1499.67
04/19/67	54.92	1500.65
05/24/67	54.07	1501.50
06/21/67	54.88	1500.69
07/21/67	56.11	1499.46
08/16/67	57.17	1498.40
09/25/67	56.30	1499.27
10/23/67	55.94	1499.63
12/06/67	56.90	1498.67
12/18/67	56.54	1499.03
01/15/68	55.80	1499.77
02/14/68	55.88	1499.69
03/28/68	56.67	1498.90
04/15/68	56.09	1499.48
04/29/68	55.80	1499.77
05/29/68	55.71	1499.86
06/27/68	55.31	1500.26
07/23/68	56.05	1499.52
08/29/68	55.41	1500.16
09/23/68	54.08	1501.49
10/03/68	53.58	1501.99
10/21/68	52.89	1502.68
11/18/68	53.95	1501.62
12/16/68	53.86	1501.71
01/21/69	54.14	1501.43
02/17/69	54.58	1500.99
03/17/69	55.20	1500.37
05/21/69	49.95	1505.62
05/26/69	49.80	1505.77
06/26/69	49.84	1505.73
07/30/69	50.73	1504.84
08/27/69	50.86	1504.71
09/15/69	52.70	1502.87
10/14/69	49.60	1505.97
11/17/69	48.89	1506.68
12/19/69	47.85	1507.72
01/12/70	47.46	1508.11
02/09/70	46.64	1508.93
03/09/70	46.08	1509.49
04/14/70	45.45	1510.12
05/13/70	44.71	1510.86
06/11/70	44.70	1510.87
07/06/70	44.49	1511.08
08/04/70	45.76	1509.81
08/31/70	49.94	1505.63
09/30/70	49.44	1506.13
11/04/70	49.32	1506.25
12/02/70	48.53	1507.04
01/08/71	48.10	1507.47
02/11/71	46.89	1508.68
03/09/71	46.56	1509.01
04/15/71	46.20	1509.37
05/10/71	45.78	1509.79
06/02/71	45.59	1509.98
07/07/71	45.67	1509.90
08/03/71	45.20	1510.37
09/08/71	45.89	1509.68
10/08/71	46.07	1509.50
11/05/71	45.82	1509.75
12/01/71	45.64	1509.93
01/06/72	44.74	1510.83
02/08/72	44.40	1511.17
03/08/72	44.31	1511.26
04/06/72	45.88	1509.69
05/02/72	45.41	1510.16
07/10/72	48.60	1506.97
08/10/72	48.02	1507.55
09/08/72	48.98	1506.59
10/06/72	49.75	1505.82
11/09/72	48.28	1507.29
12/05/72	47.93	1507.64
03/13/73	45.39	1510.18
04/03/73	45.84	1509.73
05/11/73	46.48	1509.09
06/08/73	47.64	1507.93
07/03/73	48.32	1507.25
08/03/73	48.89	1506.68
08/31/73	49.30	1506.27
09/23/73	49.29	1506.28
11/08/73	49.27	1506.30
12/06/73	50.10	1505.47
01/09/74	51.37	1504.20
03/08/74	51.10	1504.47
04/11/74	50.69	1504.88
06/20/74	51.16	1504.41
07/12/74	52.30	1503.27
08/09/74	52.80	1502.77
09/06/74	51.37	1504.20
11/01/74	50.55	1505.02
12/04/74	50.51	1505.06
01/16/75	50.15	1505.42
04/10/75	49.66	1505.91
05/02/75	49.50	1506.07
09/05/75	47.56	1508.01
09/30/75	47.78	1507.79
11/06/75	48.22	1507.35
12/03/75	50.00	1505.57
01/06/76	49.72	1505.85
02/06/76	49.07	1506.50

155-083-23BBB3 **(Continued)** LS Elev (msl,ft)=1555.57

Minot Aquifer SI (ft.)= ?-101

Date	Depth to Water (ft)	WL Elev (msl, ft)
03/04/76	49.74	1505.83
04/01/76	49.85	1505.72
04/07/76	50.13	1505.44
06/11/76	48.51	1507.06
07/08/76	48.46	1507.11
08/05/76	50.72	1504.85
09/02/76	50.61	1504.96
10/08/76	49.40	1506.17
11/02/76	51.47	1504.10
12/01/76	50.92	1504.65
01/06/77	49.91	1505.66
02/02/77	48.74	1506.83
03/03/77	47.98	1507.59
04/04/77	48.16	1507.41
05/02/77	49.72	1505.85
06/08/77	50.72	1504.85
07/08/77	51.12	1504.45
08/04/77	51.40	1504.17
09/13/77	51.17	1504.40
10/03/77	50.79	1504.78
11/03/77	50.77	1504.80
12/02/77	49.86	1505.71
01/12/78	49.24	1506.33
02/07/78	48.88	1506.69
03/08/78	49.14	1506.43
04/06/78	48.96	1506.61
05/04/78	49.99	1505.58
06/06/78	50.64	1504.93
06/27/78	49.80	1505.77
08/04/78	49.93	1505.64
09/08/78	51.53	1504.04
10/03/78	50.97	1504.60
11/01/78	50.93	1504.64
11/30/78	50.37	1505.20
01/05/79	49.58	1505.99
02/01/79	49.98	1505.59
02/28/79	49.35	1506.22
03/28/79	49.82	1505.75
05/11/79	48.47	1507.10
06/05/79	48.76	1506.81
07/06/79	47.90	1507.67
08/01/79	50.22	1505.35
09/05/79	50.09	1505.48
10/04/79	49.32	1506.25
10/08/79	49.86	1505.71
11/30/79	47.62	1507.95
03/06/80	46.49	1509.08
04/01/80	47.26	1508.31
04/29/80	47.06	1508.51
06/04/80	48.85	1506.72
07/03/80	48.97	1506.60
08/07/80	53.04	1502.53
09/09/80	50.92	1504.65
09/30/80	50.25	1505.32
11/05/80	49.81	1505.76
12/04/80	48.46	1507.11
03/06/81	48.50	1507.07
05/08/81	49.70	1505.87
06/10/81	49.58	1505.99
07/10/81	53.17	1502.40
08/05/81	50.90	1504.67
09/04/81	51.49	1504.08
10/08/81	51.75	1503.82
11/30/81	51.84	1503.73
03/22/82	50.46	1505.11
04/29/82	52.83	1502.74
06/17/82	52.40	1503.17
07/29/82	54.28	1501.29
09/23/82	52.98	1502.59
12/08/82	51.05	1504.52
03/14/83	50.20	1505.37
04/26/83	49.42	1506.15
06/14/83	49.29	1506.28
07/22/83	50.70	1504.87
08/29/83	51.89	1503.68
10/15/83	50.60	1504.97
11/29/83	50.56	1505.01
03/24/84	51.04	1504.53
04/22/84	52.29	1503.28
05/27/84	52.64	1502.93
06/16/84	51.90	1503.67
07/28/84	52.59	1502.98
08/26/84	54.30	1501.27
09/22/84	54.23	1501.34
10/21/84	52.43	1503.14
11/30/84	52.90	1502.67
12/09/84	51.56	1504.01
03/23/85	53.20	1502.37
04/27/85	52.80	1502.77
05/27/85	54.47	1501.10
06/06/85	53.56	1502.01
07/28/85	54.66	1500.91
08/31/85	53.79	1501.78
09/29/85	53.54	1502.03
12/03/85	51.99	1503.58
12/08/85	52.06	1503.51
03/29/86	51.58	1503.99
04/27/86	51.48	1504.09
05/31/86	52.23	1503.34
06/28/86	51.60	1503.97
07/27/86	50.33	1505.24
08/30/86	53.03	1502.54
09/29/86	51.26	1504.31
10/25/86	50.34	1505.23
12/02/86	50.18	1505.39
12/20/86	50.09	1505.48
04/19/87	50.61	1504.96
05/30/87	50.13	1505.44
06/20/87	51.99	1503.58

155-083-23BBB3 **(Continued)** LS Elev (msl,ft)=1555.57

Minot Aquifer SI (ft.)= ?-101

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
07/26/87	50.99	1504.58	10/28/90	57.85	1497.72
08/30/87	50.37	1505.20	11/15/90	57.38	1498.19
09/22/87	49.19	1506.38	12/11/90	59.89	1495.68
09/27/87	50.24	1505.33			
10/31/87	48.00	1507.57	01/17/91	61.57	1494.00
12/09/87	48.16	1507.41	02/13/91	62.51	1493.06
			03/13/91	63.55	1492.02
03/27/88	54.28	1501.29	04/15/91	64.22	1491.35
04/23/88	55.00	1500.57	05/14/91	62.91	1492.66
05/28/88	56.11	1499.46	06/11/91	61.62	1493.95
06/25/88	59.15	1496.42	07/10/91	60.69	1494.88
07/30/88	59.65	1495.92	08/16/91	60.59	1494.98
08/27/88	59.92	1495.65	09/16/91	60.58	1494.99
09/24/88	62.14	1493.43	10/15/91	59.23	1496.34
10/30/88	65.66	1489.91	11/18/91	57.83	1497.74
11/18/88	63.94	1491.63	12/19/91	56.72	1498.85
12/10/88	63.59	1491.98			
			01/22/92	55.58	1499.99
03/25/89	59.72	1495.85	02/26/92	54.47	1501.10
05/28/89	57.60	1497.97	03/19/92	54.27	1501.30
06/24/89	60.55	1495.02	04/21/92	54.35	1501.22
07/31/89	60.64	1494.93	05/21/92	54.68	1500.89
08/27/89	65.08	1490.49	06/16/92	55.23	1500.34
09/24/89	64.15	1491.42	07/13/92	55.37	1500.20
10/29/89	62.36	1493.21	08/20/92	55.50	1500.07
11/30/89	60.72	1494.85	09/15/92	55.57	1500.00
12/09/89	61.79	1493.78	10/20/92	55.64	1499.93
			11/18/92	55.31	1500.26
03/04/90	66.54	1489.03	12/16/92	55.29	1500.28
04/28/90	65.16	1490.41			
05/27/90	63.64	1491.93	02/22/93	55.45	1500.12
06/26/90	62.34	1493.23	03/24/93	54.75	1500.82
06/27/90	62.18	1493.39	04/19/93	55.65	1499.92
07/23/90	61.21	1494.36	05/18/93	56.25	1499.32
07/29/90	61.10	1494.47	06/15/93	56.63	1498.94
08/14/90	60.85	1494.72	07/14/93	57.05	1498.52
08/25/90	60.79	1494.78	08/09/93	57.41	1498.16
09/12/90	60.06	1495.51	09/15/93	58.06	1497.51
09/18/90	59.90	1495.67	10/20/93	58.46	1497.11
10/09/90	58.78	1496.79	11/17/93	58.77	1496.80

155-083-23BCA LS Elev (msl,ft)=1555.92

Minot Aquifer SI (ft.)=118-123

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
07/24/92	55.47	1500.45	04/19/93	58.31	1497.61
08/20/92	57.88	1498.04	05/18/93	59.63	1496.29
09/15/92	56.91	1499.01	06/15/93	58.40	1497.52
10/20/92	55.78	1500.14	07/14/93	58.19	1497.73
11/18/92	54.66	1501.26	08/09/93	62.21	1493.71
12/16/92	57.90	1498.02	09/15/93	60.77	1495.15
			10/20/93	61.57	1494.35
02/22/93	59.53	1496.39	11/17/93	59.87	1496.05
03/24/93	59.21	1496.71			

155-083-23BDD2 LS Elev (msl,ft)=1555.29

Minot Aquifer SI (ft.)=108-113

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
06/15/93	55.10	1500.19	09/15/93	58.08	1497.21
07/14/93	56.42	1498.87	10/20/93	59.77	1495.52
08/09/93	59.64	1495.65	11/17/93	57.62	1497.67

155-083-23BDD3 LS Elev (msl,ft)=1555.37

Souris Valley Aquifer SI (ft.)=28-33

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
06/15/93	16.70	1538.67	09/15/93	15.84	1539.53
07/14/93	16.28	1539.09	10/20/93	15.81	1539.56
08/09/93	15.76	1539.61	11/17/93	16.27	1539.10

155-083-24ADDA1 LS Elev (msl,ft)=1548.14

Minot Aquifer SI (ft.)=118-123

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
07/31/92	46.90	1501.24	03/24/93	49.86	1498.28
08/13/92	48.57	1499.57	04/19/93	48.28	1499.86
08/20/92	50.66	1497.48	05/18/93	48.84	1499.30
09/15/92	47.26	1500.88	06/15/93	49.19	1498.95
10/20/92	45.71	1502.43	07/14/93	49.51	1498.63
11/18/92	46.07	1502.07	08/09/93	50.62	1497.52
12/16/92	48.27	1499.87	09/15/93	48.50	1499.64
			10/20/93	50.91	1497.23
02/22/93	50.72	1497.42	11/17/93	49.45	1498.69

155-083-24ADDA2 LS Elev (msl,ft)=1548.28

Souris Valley Aquifer SI (ft.)=20-25

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
07/31/92	11.32	1536.96	04/19/93	10.50	1537.78
08/20/92	12.01	1536.27	05/18/93	10.66	1537.62
09/15/92	11.97	1536.31	06/15/93	10.51	1537.77
10/20/92	12.10	1536.18	07/14/93	10.17	1538.11
11/18/92	12.02	1536.26	08/09/93	10.42	1537.86
12/16/92	12.10	1536.18	09/15/93	10.88	1537.40
			10/20/93	10.43	1537.85
02/22/93	12.04	1536.24	11/17/93	10.41	1537.87
03/24/93	11.66	1536.62			

155-083-24BAAC LS Elev (msl,ft)=1550.98

Minot Aquifer SI (ft.)=98-103

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
07/31/92	51.98	1499.00	04/19/93	51.32	1499.66
08/20/92	55.03	1495.95	05/18/93	52.65	1498.33
09/15/92	50.36	1500.62	06/15/93	53.30	1497.68
10/20/92	48.82	1502.16	07/14/93	52.90	1498.08
11/18/92	49.40	1501.58	08/09/93	54.55	1496.43
12/16/92	52.14	1498.84	09/15/93	51.68	1499.30
			10/20/93	54.84	1496.14
02/22/93	54.54	1496.44	11/17/93	52.58	1498.40
03/24/93	52.97	1498.01			

155-083-25AAB2 LS Elev (msl,ft)=1719.9

South Hill Aquifer SI (ft.)=336-345

Date	Depth to Water (ft)	WL Elev (msl, ft)
12/08/83	198.19	1521.71
12/12/83	198.91	1520.99
01/03/84	198.77	1521.13
01/16/84	199.02	1520.88
02/01/84	198.61	1521.29
02/21/84	198.77	1521.13
03/12/84	199.16	1520.74
04/03/84	199.52	1520.38
04/18/84	199.27	1520.63
05/08/84	199.60	1520.30
05/29/84	199.58	1520.32
06/15/84	199.52	1520.38
06/26/84	199.47	1520.43
07/10/84	199.55	1520.35
07/27/84	199.66	1520.24
08/09/84	199.58	1520.32
08/16/84	199.61	1520.29
08/22/84	199.64	1520.26
08/27/84	199.30	1520.60
09/07/84	199.32	1520.58
09/11/84	199.44	1520.46
09/20/84	199.82	1520.08
09/28/84	200.38	1519.52
10/04/84	201.38	1518.52
10/10/84	201.39	1518.51
11/20/84	200.11	1519.79
12/13/84	200.08	1519.82
01/09/85	200.33	1519.57
02/12/85	200.24	1519.66
03/06/85	199.92	1519.98
03/19/85	200.19	1519.71
04/16/85	200.24	1519.66
05/02/85	200.38	1519.52
05/14/85	200.16	1519.74
06/06/85	200.30	1519.60
06/20/85	200.39	1519.51
07/01/85	200.50	1519.40
07/17/85	200.33	1519.57
07/29/85	200.25	1519.65
08/14/85	199.91	1519.99
08/27/85	199.80	1520.10
09/12/85	199.75	1520.15
09/23/85	199.69	1520.21
10/22/85	199.86	1520.04
11/21/85	200.89	1519.01
02/25/86	200.47	1519.43
03/26/86	201.11	1518.79
05/13/86	200.69	1519.21
06/03/86	200.82	1519.08
07/01/86	201.00	1518.90
08/06/86	201.02	1518.88
09/10/86	201.12	1518.78
10/08/86	201.51	1518.39
12/16/86	201.19	1518.71
04/08/87	201.35	1518.55
04/28/87	201.40	1518.50
05/13/87	201.02	1518.88
06/18/87	201.66	1518.24
07/14/87	201.49	1518.41
08/18/87	201.66	1518.24
09/24/87	201.77	1518.13
10/20/87	202.00	1517.90
11/12/87	201.58	1518.32
12/09/87	201.53	1518.37
04/08/88	201.67	1518.23
06/07/88	201.74	1518.16
08/04/88	202.23	1517.67
09/16/88	202.43	1517.47
10/19/88	202.53	1517.37
11/18/88	202.42	1517.48
12/19/88	201.79	1518.11
03/08/89	202.96	1516.94
04/18/89	203.06	1516.84
05/09/89	203.20	1516.70
06/08/89	203.26	1516.64

155-083-36AAB
South Hill Aquifer

LS Elev (msl,ft)=1712.8
SI (ft.)=315-327

Date	Depth to Water (ft)	WL Elev (msl, ft)
11/17/83	197.08	1515.72
12/08/83	197.69	1515.11
12/13/83	197.50	1515.30
01/03/84	197.44	1515.36
01/16/84	197.80	1515.00
02/01/84	197.30	1515.50
02/21/84	197.47	1515.33
03/12/84	197.94	1514.86
04/03/84	198.22	1514.58
04/18/84	197.97	1514.83
05/08/84	198.41	1514.39
05/29/84	198.36	1514.44
06/15/84	198.28	1514.52
06/26/84	198.10	1514.70
07/10/84	198.22	1514.58
07/27/84	198.52	1514.28
08/09/84	198.38	1514.42
08/16/84	198.39	1514.41
08/22/84	198.42	1514.38
08/27/84	198.27	1514.53
09/07/84	198.33	1514.47
09/11/84	198.50	1514.30
09/20/84	198.80	1514.00
09/28/84	199.16	1513.64
10/10/84	199.22	1513.58
11/20/84	199.08	1513.72
12/13/84	199.00	1513.80
01/09/85	199.19	1513.61
02/12/85	199.17	1513.63
03/06/85	198.80	1514.00
03/19/85	198.80	1514.00
04/16/85	199.11	1513.69
05/02/85	199.19	1513.61
05/14/85	199.00	1513.80
06/06/85	199.50	1513.30
06/20/85	199.30	1513.50
07/01/85	199.30	1513.50
07/17/85	199.52	1513.28
07/29/85	198.80	1514.00
08/14/85	198.30	1514.50
08/27/85	198.17	1514.63
09/12/85	198.41	1514.39
09/23/85	198.30	1514.50
10/22/85	198.80	1514.00
11/21/85	199.71	1513.09
02/25/86	199.21	1513.59
03/26/86	199.77	1513.03
05/13/86	199.42	1513.38
06/03/86	199.44	1513.36
07/01/86	199.65	1513.15
08/06/86	199.47	1513.33
09/12/86	199.88	1512.92
10/08/86	200.24	1512.56
12/16/86	199.96	1512.84
04/08/87	200.01	1512.79
04/28/87	199.97	1512.83
05/13/87	199.51	1513.29
06/18/87	200.09	1512.71
07/14/87	199.98	1512.82
08/18/87	200.27	1512.53
09/24/87	200.41	1512.39
10/20/87	200.72	1512.08
11/12/87	200.30	1512.50
12/09/87	200.28	1512.52
04/08/88	199.99	1512.81
06/07/88	199.94	1512.86
08/04/88	200.61	1512.19
09/16/88	200.88	1511.92
10/19/88	201.01	1511.79
11/18/88	200.90	1511.90
12/19/88	200.26	1512.54
03/08/89	201.49	1511.31
04/18/89	201.60	1511.20
05/09/89	201.76	1511.04
06/08/89	201.76	1511.04
07/06/89	202.00	1510.80
08/02/89	201.40	1511.40
08/30/89	201.80	1511.00
11/02/89	202.52	1510.28
12/13/89	202.58	1510.22
01/22/90	202.20	1510.60
03/19/90	202.67	1510.13
03/20/90	202.67	1510.13
05/02/90	202.78	1510.02
05/03/90	202.78	1510.02
06/01/90	202.50	1510.30
06/12/90	202.36	1510.44
06/27/90	202.63	1510.17
07/23/90	202.84	1509.96
08/14/90	203.10	1509.70
09/12/90	203.19	1509.61
10/09/90	203.65	1509.15
11/15/90	203.67	1509.13
12/11/90	203.60	1509.20
04/12/91	203.97	1508.83
05/14/91	204.05	1508.75
06/11/91	204.06	1508.74
07/10/91	204.53	1508.27
09/16/91	204.60	1508.20
12/19/91	205.02	1507.78
01/21/92	204.97	1507.83
02/25/92	206.11	1506.69
03/18/92	206.33	1506.47
05/21/92	206.54	1506.26
06/16/92	206.63	1506.17
07/13/92	206.88	1505.92
10/20/92	207.87	1504.93
12/16/92	208.28	1504.52
04/19/93	208.82	1503.98
05/18/93	209.20	1503.60

155-083-36AAB **(Continued)** LS Elev (msl,ft)=1712.8

South Hill Aquifer SI (ft.)=315-327

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
06/15/93	209.08	1503.72	09/15/93	209.60	1503.20
07/14/93	209.58	1503.22	10/20/93	209.92	1502.88
08/09/93	209.42	1503.38	11/17/93	209.96	1502.84

155-083-36ABB LS Elev (msl,ft)=1714.2

South Hill Aquifer SI (ft.)=315-324

Date	Depth to Water (ft)	WL Elev (msl, ft)
12/08/83	198.91	1515.29
12/13/83	198.86	1515.34
01/03/84	198.72	1515.48
01/16/84	199.03	1515.17
02/01/84	198.52	1515.68
02/21/84	198.66	1515.54
03/12/84	199.27	1514.93
04/03/84	199.52	1514.68
04/18/84	199.35	1514.85
05/08/84	199.69	1514.51
05/29/84	199.63	1514.57
06/15/84	199.41	1514.79
06/26/84	199.39	1514.81
07/10/84	199.50	1514.70
07/27/84	199.80	1514.40
08/09/84	199.64	1514.56
08/16/84	199.69	1514.51
08/22/84	199.72	1514.48
08/27/84	199.47	1514.73
09/07/84	199.52	1514.68
09/11/84	199.71	1514.49
09/20/84	200.00	1514.20
09/28/84	200.38	1513.82
10/10/84	200.49	1513.71
11/20/84	200.36	1513.84
12/13/84	200.32	1513.88
01/09/85	200.61	1513.59
02/12/85	200.47	1513.73
03/06/85	200.11	1514.09
03/19/85	200.10	1514.10
04/16/85	200.44	1513.76
05/02/85	200.52	1513.68
05/14/85	200.33	1513.87
06/06/85	200.39	1513.81
06/20/85	200.55	1513.65
07/01/85	200.50	1513.70
07/17/85	200.53	1513.67
07/29/85	200.00	1514.20
08/14/85	199.55	1514.65
08/27/85	199.38	1514.82
09/12/85	199.55	1514.65
09/23/85	199.41	1514.79
10/22/85	200.08	1514.12
11/21/85	201.08	1513.12
02/25/86	200.55	1513.65
03/26/86	201.11	1513.09
05/13/86	199.97	1514.23
06/03/86	200.72	1513.48
07/01/86	200.89	1513.31
08/06/86	200.73	1513.47
09/12/86	201.12	1513.08
10/08/86	201.50	1512.70
12/16/86	201.26	1512.94
04/08/87	201.34	1512.86
04/28/87	201.32	1512.88
05/13/87	200.87	1513.33
06/18/87	201.43	1512.77
07/14/87	201.25	1512.95
08/18/87	201.54	1512.66
09/24/87	201.69	1512.51
10/20/87	202.00	1512.20
11/12/87	201.55	1512.65
12/09/87	201.58	1512.62
04/08/88	201.29	1512.91
06/07/88	201.24	1512.96
08/04/88	201.77	1512.43
09/16/88	202.02	1512.18
10/19/88	202.18	1512.02
11/18/88	202.09	1512.11
12/19/88	201.48	1512.72
03/08/89	202.67	1511.53
04/18/89	202.78	1511.42
05/09/89	202.94	1511.26
06/08/89	202.97	1511.23
07/06/89	203.21	1510.99
08/02/89	202.47	1511.73
08/30/89	202.86	1511.34
11/02/89	203.56	1510.64
12/13/89	203.62	1510.58
01/22/90	203.28	1510.92
03/19/90	203.79	1510.41
03/20/90	203.79	1510.41
05/02/90	203.90	1510.30
05/03/90	203.90	1510.30
06/01/90	202.57	1511.63
06/12/90	203.42	1510.78
06/27/90	203.72	1510.48
07/23/90	203.95	1510.25
08/14/90	204.13	1510.07
09/12/90	204.22	1509.98
10/09/90	204.68	1509.52
11/15/90	204.68	1509.52
12/11/90	204.61	1509.59
04/12/91	205.04	1509.16
05/14/91	205.15	1509.05
06/11/91	205.11	1509.09
07/10/91	205.59	1508.61
08/16/91	205.72	1508.48
09/16/91	205.94	1508.26
10/15/91	206.01	1508.19
12/19/91	206.45	1507.75
01/21/92	206.53	1507.67
02/25/92	207.23	1506.97
03/18/92	207.35	1506.85
04/21/92	207.32	1506.88
05/21/92	207.62	1506.58
06/16/92	207.63	1506.57
07/13/92	207.87	1506.33
08/20/92	208.14	1506.06
10/20/92	208.88	1505.32
11/18/92	209.12	1505.08

155-083-36ABB **(Continued)** LS Elev (msl,ft)=1714.2

South Hill Aquifer SI (ft.)=315-324

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
12/16/92	209.27	1504.93	07/14/93	210.57	1503.63
			08/09/93	210.45	1503.75
04/19/93	209.89	1504.31	09/15/93	210.57	1503.63
05/18/93	210.08	1504.12	10/20/93	210.99	1503.21
06/15/93	210.25	1503.95	11/17/93	210.99	1503.21

155-083-36ADD LS Elev (msl,ft)=1728.1

South Hill Aquifer SI (ft.)=315-327

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
12/08/83	213.41	1514.69	09/16/88	216.34	1511.76
12/13/83	213.11	1514.99	10/19/88	216.40	1511.70
			11/18/88	216.37	1511.73
01/03/84	213.02	1515.08	12/19/88	215.70	1512.40
01/16/84	213.41	1514.69			
02/01/84	212.89	1515.21	03/08/89	216.96	1511.14
02/21/84	213.11	1514.99	04/18/89	217.04	1511.06
03/12/84	213.47	1514.63	05/09/89	217.22	1510.88
04/03/84	213.80	1514.30	06/08/89	217.23	1510.87
04/18/84	213.80	1514.30	07/06/89	217.44	1510.66
05/08/84	214.08	1514.02	08/02/89	216.71	1511.39
05/29/84	213.99	1514.11	08/30/89	216.97	1511.13
06/15/84	213.96	1514.14	11/02/89	217.86	1510.24
06/26/84	214.30	1513.80	12/13/89	217.95	1510.15
07/10/84	213.97	1514.13			
07/27/84	214.22	1513.88	01/22/90	217.59	1510.51
08/09/84	214.14	1513.96	03/19/90	218.05	1510.05
08/16/84	214.11	1513.99	03/20/90	218.05	1510.05
08/22/84	214.21	1513.89	05/02/90	218.16	1509.94
08/27/84	213.94	1514.16	05/03/90	218.16	1509.94
09/07/84	214.07	1514.03	06/01/90	217.40	1510.70
09/11/84	214.11	1513.99	06/12/90	217.73	1510.37
09/20/84	214.53	1513.57	06/27/90	218.01	1510.09
09/28/84	215.08	1513.02	07/23/90	218.28	1509.82
10/04/84	217.02	1511.08	08/14/90	218.51	1509.59
10/10/84	215.21	1512.89	09/12/90	218.61	1509.49
			10/09/90	219.08	1509.02
07/29/85	214.74	1513.36	11/15/90	219.14	1508.96
08/14/85	214.63	1513.47	12/11/90	219.04	1509.06
08/27/85	214.00	1514.10			
09/11/85	214.41	1513.69	04/15/91	219.39	1508.71
09/23/85	214.30	1513.80	05/14/91	219.45	1508.65
10/22/85	214.35	1513.75	06/11/91	219.47	1508.63
			07/10/91	219.98	1508.12
02/25/86	214.72	1513.38	08/16/91	220.13	1507.97
03/26/86	215.25	1512.85	09/16/91	220.38	1507.72
05/13/86	214.69	1513.41	10/15/91	220.52	1507.58
06/03/86	214.91	1513.19			
07/01/86	215.10	1513.00	01/21/92	221.04	1507.06
08/06/86	214.75	1513.35	02/25/92	221.76	1506.34
09/12/86	215.38	1512.72	03/18/92	221.92	1506.18
10/08/86	215.73	1512.37	04/21/92	221.89	1506.21
12/16/86	215.48	1512.62	05/21/92	222.14	1505.96
			06/16/92	222.18	1505.92
04/08/87	215.48	1512.62	07/13/92	222.42	1505.68
04/28/87	215.43	1512.67	08/20/92	222.73	1505.37
05/13/87	215.00	1513.10	10/20/92	223.50	1504.60
06/18/87	215.54	1512.56	11/18/92	223.74	1504.36
07/14/87	215.41	1512.69	12/16/92	223.90	1504.20
08/18/87	215.70	1512.40			
09/24/87	215.85	1512.25	04/19/93	224.44	1503.66
10/20/87	216.19	1511.91	05/18/93	224.65	1503.45
11/12/87	215.79	1512.31	06/15/93	225.00	1503.10
12/09/87	215.77	1512.33	07/14/93	225.18	1502.92
			08/09/93	225.02	1503.08
04/08/88	215.40	1512.70	09/15/93	225.14	1502.96
06/07/88	215.35	1512.75	10/20/93	225.56	1502.54
08/04/88	215.98	1512.12	11/17/93	225.54	1502.56

155-083-36DCB
Sundre Aquifer

LS Elev (msl,ft)=1741.1
SI (ft.)=245-265

Date	Depth to Water (ft)	WL Elev (msl, ft)
12/08/83	226.55	1514.55
12/13/83	226.47	1514.63
01/03/84	226.33	1514.77
01/16/84	226.58	1514.52
02/01/84	226.08	1515.02
02/21/84	225.94	1515.16
03/12/84	226.63	1514.47
04/02/84	227.02	1514.08
04/17/84	226.86	1514.24
05/08/84	227.13	1513.97
05/29/84	227.13	1513.97
06/15/84	226.94	1514.16
06/26/84	226.82	1514.28
07/10/84	226.91	1514.19
07/27/84	227.38	1513.72
08/09/84	227.25	1513.85
08/16/84	227.36	1513.74
08/22/84	227.35	1513.75
08/27/84	227.05	1514.05
09/07/84	227.02	1514.08
09/11/84	227.36	1513.74
09/20/84	227.63	1513.47
09/28/84	228.11	1512.99
10/04/84	227.52	1513.58
10/10/84	227.55	1513.55
10/23/84	227.94	1513.16
11/08/84	227.30	1513.80
11/20/84	228.02	1513.08
12/13/84	227.91	1513.19
01/09/85	228.11	1512.99
02/12/85	227.96	1513.14
03/06/85	227.67	1513.43
03/19/85	227.80	1513.30
04/16/85	227.91	1513.19
05/02/85	228.02	1513.08
05/14/85	227.85	1513.25
06/06/85	227.78	1513.32
06/20/85	227.75	1513.35
07/01/85	228.16	1512.94
08/14/85	227.94	1513.16
08/27/85	227.91	1513.19
09/12/85	227.89	1513.21
09/23/85	227.88	1513.22
10/22/85	227.55	1513.55
02/25/86	228.00	1513.10
03/26/86	228.50	1512.60
05/13/86	227.98	1513.12
06/03/86	228.18	1512.92
07/01/86	228.34	1512.76
08/06/86	228.21	1512.89
09/12/86	228.65	1512.45
10/08/86	229.04	1512.06
12/16/86	228.79	1512.31
04/08/87	228.79	1512.31
04/28/87	228.53	1512.57
05/13/87	228.32	1512.78
06/18/87	228.79	1512.31
07/14/87	228.62	1512.48
08/18/87	228.97	1512.13
09/24/87	229.18	1511.92
10/20/87	229.49	1511.61
11/12/87	229.09	1512.01
12/09/87	229.06	1512.04
04/08/88	228.28	1512.82
06/07/88	228.58	1512.52
08/04/88	229.20	1511.90
09/16/88	229.56	1511.54
10/19/88	229.77	1511.33
11/18/88	229.64	1511.46
12/19/88	228.94	1512.16
03/08/89	230.25	1510.85
04/18/89	230.58	1510.52
05/09/89	230.51	1510.59
06/08/89	230.53	1510.57
07/06/89	230.74	1510.36
08/02/89	229.98	1511.12
08/30/89	230.41	1510.69
11/02/89	231.13	1509.97
12/13/89	231.26	1509.84
01/22/90	230.88	1510.22
03/19/90	231.32	1509.78
03/20/90	231.32	1509.78
05/02/90	231.42	1509.68
05/03/90	231.42	1509.68
06/01/90	231.28	1509.82
06/12/90	231.01	1510.09
06/27/90	231.29	1509.81
07/23/90	231.58	1509.52
08/14/90	231.81	1509.29
09/12/90	231.91	1509.19
10/09/90	232.38	1508.72
11/15/90	232.50	1508.60
12/11/90	232.41	1508.69
04/15/91	232.77	1508.33
05/14/91	232.84	1508.26
06/11/91	232.79	1508.31
07/10/91	233.33	1507.77
08/16/91	233.51	1507.59
09/16/91	233.76	1507.34
10/15/91	233.90	1507.20
01/21/92	234.47	1506.63
02/25/92	235.19	1505.91
03/18/92	235.36	1505.74
04/21/92	235.32	1505.78
05/21/92	235.68	1505.42
06/16/92	235.64	1505.46
07/13/92	235.92	1505.18
08/20/92	236.24	1504.86
10/20/92	237.02	1504.08
11/18/92	237.25	1503.85
12/16/92	237.42	1503.68

155-083-36DCB **(Continued)** LS Elev (msl,ft)=1741.1

Sundre Aquifer SI (ft.)=245-265

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
04/19/93	239.06	1502.04	08/09/93	238.42	1502.68
05/18/93	238.17	1502.93	09/15/93	238.70	1502.40
06/15/93	238.54	1502.56	10/20/93	239.08	1502.02
07/14/93	238.56	1502.54	11/17/93	239.10	1502.00

TABLE 4. RECORDS OF SURFACE WATER DATA COLLECTION SITES

Location	Water Body	Elevation of Datum	Remarks
15508219BCCR	SOURIS RIVER	1557.97	WATER QUALITY & STAGE MEASUREMENT, BRIDGE EAST OF ZOO
15508229DB	SOURIS RIVER		WATER QUALITY
15508233DDCR	SOURIS RIVER	1551.18	WATER QUALITY & STAGE MEASUREMENT, SAUGSTAD BRIDGE
15508317DBB	SOURIS RIVER	1545.75	WATER QUALITY & USGS GAGING STATION
15508322CB	RECHARGE PIT		WATER QUALITY
15508323BAAR	SOURIS RIVER	1555.28	WATER QUALITY & STAGE MEASURMENT, 4TH AVE. NORTH BRIDGE, SOUTH RAIL
15508323BBB	SOURIS RIVER		WATER QUALITY
15508323CC	SOURIS RIVER		WATER QUALITY
15508323CCBR	SOURIS RIVER	1555	WATER QUALITY AND STAGE MEASUREMENT, NORTH OF WATER TREATMENT PLANT
15508324BBAR	SOURIS RIVER	1558.37	STAGE MEASUREMENT, 4TH & MAIN, WALKING BRIDGE, WEST DECK

TABLE 5. STAGE OF THE SOURIS RIVER AT SELECTED SITES

155-082-19BCCR
Souris River, Burdick Exp. Bridge
Measuring Elev (msl,ft)=1557.97

Date	Depth to Water (ft)	WL Elev (msl, ft)
08/04/92	24.60	1533.37
08/20/92	23.37	1534.60
09/15/92	23.22	1534.75
10/20/92	23.30	1534.67
04/19/93	21.92	1536.05
05/18/93	23.08	1534.89
07/14/93	22.62	1535.35
09/15/93	22.79	1535.18
10/20/93	23.12	1534.85
11/17/93	24.10	1533.87

155-082-33DDCR
Souris River, Saugstad Bridge
Measuring Elev (msl,ft)=1551.18

Date	Depth to Water (ft)	WL Elev (msl, ft)
04/12/84	23.19	1527.99
04/18/84	23.80	1527.38
05/08/84	22.83	1528.35
05/29/84	24.17	1527.01
06/15/84	24.05	1527.13
06/26/84	24.13	1527.05
07/10/84	25.36	1525.82
07/27/84	25.78	1525.40
08/09/84	23.60	1527.58
08/16/84	23.80	1527.38
08/21/84	23.50	1527.68
08/27/84	24.25	1526.93
09/07/84	24.39	1526.79
09/12/84	24.00	1527.18
09/20/84	23.88	1527.30
09/27/84	23.94	1527.24
10/03/84	24.13	1527.05
10/10/84	23.61	1527.57
10/23/84	23.27	1527.91
04/18/85	23.58	1527.60
05/14/85	23.33	1527.85
06/06/85	23.69	1527.49
06/20/85	24.00	1527.18
07/01/85	23.99	1527.19
07/17/85	25.07	1526.11
07/29/85	23.94	1527.24
08/14/85	24.07	1527.11
08/27/85	23.89	1527.29
09/11/85	24.07	1527.11
09/24/85	23.97	1527.21
10/23/85	24.02	1527.16
03/26/86	23.76	1527.42
05/13/86	23.74	1527.44
06/04/86	24.27	1526.91
07/01/86	23.85	1527.33
08/06/86	23.98	1527.20
09/09/86	24.03	1527.15
10/08/86	23.92	1527.26
04/08/87	22.03	1529.15
04/29/87	23.90	1527.28
05/13/87	24.23	1526.95
07/14/92	24.38	1526.80
06/18/87	24.96	1526.22
07/14/87	24.37	1526.81
08/18/87	24.03	1527.15
09/24/87	24.00	1527.18
10/20/87	24.14	1527.04
11/12/87	24.16	1527.02
04/08/88	24.40	1526.78
05/13/88	24.30	1526.88
06/08/88	25.32	1525.86
07/08/88	24.23	1526.95
08/04/88	25.68	1525.50
09/16/88	24.09	1527.09
10/19/88	24.53	1526.65
04/18/89	24.16	1527.02
05/09/89	24.29	1526.89
06/08/89	24.31	1526.87
07/06/89	24.70	1526.48
08/02/89	24.76	1526.42
08/30/89	26.01	1525.17
11/02/89	26.36	1524.82
03/20/90	26.36	1524.82
05/02/90	23.40	1527.78
05/03/90	23.40	1527.78
06/01/90	24.20	1526.98
06/28/90	24.00	1527.18
07/24/90	24.40	1526.78
08/13/90	25.07	1526.11
09/13/90	26.00	1525.18
10/09/90	26.62	1524.56
04/16/91	24.38	1526.80
05/13/91	24.12	1527.06
06/12/91	24.62	1526.56
07/10/91	24.30	1526.88
08/15/91	24.54	1526.64
09/16/91	24.92	1526.26
10/15/91	24.82	1526.36
04/21/92	24.29	1526.89
05/21/92	24.38	1526.80
06/16/92	24.40	1526.78

155-082-33DDCR **(continued)** Measuring Elev (msl,ft)=1551.18

Souris River, Saugstad Bridge

Date	Depth to Water (ft)	WL Elev (msl, ft)
08/20/92	24.72	1526.46
09/15/92	25.67	1525.51
10/20/92	27.30	1523.88
04/19/93	23.20	1527.98
05/18/93	24.75	1526.43
06/16/93	24.22	1526.96
07/14/93	24.05	1527.13
08/09/93	24.11	1527.07
09/16/93	24.05	1527.13
10/20/93	24.25	1526.93
11/17/93	24.34	1526.84

155-083-23BAAR Measuring Elev (msl,ft)=1555.28

Souris River, 4th ave. north Bridge

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
08/04/92	17.00	1538.28	06/15/93	16.27	1539.01
08/20/92	17.92	1537.36	07/14/93	16.33	1538.95
09/15/92	17.92	1537.36	08/09/93	17.65	1537.63
10/20/92	17.78	1537.50	09/15/93	17.82	1537.46
			10/20/93	17.25	1538.03
04/19/93	15.75	1539.53	11/17/93	17.64	1537.64
05/18/93	18.89	1536.39			

155-083-23CCBR Measuring Elev (msl,ft)=1555

Souris River, north of water treatment plant

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
05/18/93	2.91	1552.09	09/15/93	1.96	1553.04
06/15/93	1.30	1553.70	10/20/93	2.34	1552.66
07/14/93	2.41	1552.59	11/17/93	2.40	1552.60
08/09/93	2.00	1553.00			

155-083-24BBAR Measuring Elev (msl,ft)=1558.37

Souris River, 4th & main, walking bridge

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
08/04/92	20.65	1537.72	06/15/93	17.97	1540.40
08/20/92	21.47	1536.90	07/14/93	18.12	1540.25
09/15/92	21.20	1537.17	08/09/93	18.00	1540.37
10/20/92	21.95	1536.42	09/15/93	17.89	1540.48
			10/20/93	18.00	1540.37
04/19/93	17.41	1540.96	11/17/93	19.26	1539.11
05/18/93	19.47	1538.90			

TABLE 6. CHEMICAL ANALYES OF GROUND WATER

Location	Screened Interval (ft)	Date Sampled	(milligrams per liter) SiO_2	Fe	Mn	Ca	Mg	Na	K	HCO_3	CO_3	SO_4	Cl	F	NO_3	B	TDS	Hardness as $CaCO_3$	NCH	% Na	SAR	Spec Cond (µmho)	Temp (°C)	pH
155-082-19DBD	98-108	11/19/63	21	0.76		55	14	261	12	645	7	133	79	0.5	3	0	904	196	0				8.3	
155-082-19DBD	98-108	08/05/71	17	0.55	0.05	68	29	142	5.2	619	0	39	33	0.2	7.6	0.4	647	289	0	51	3.6	800	7	
155-082-19DBD	98-108	06/06/85	22	0.83	0.25	81	30	220	6.6	711	7	38	61	0.3	7.5	0.23	825	330	0	59	5.3	1480	7.1	7.43
155-082-20DCC	?-65	12/06/63	11	0.53		11	5.5	540	13	895	17	421	35	0.5	2	0.38	1500	50	0	95	33			
155-082-29BCB	100-103	11/15/63	22	1.1		57	31	237	14	583	0	145	140	0.4	2	0	936	268	0	64	6.3			
155-082-29BCB	100-103	09/10/68	25	1.3	0.02	81	24	254	5.8	682	0	219	50	0.3	2	0.19	999	302	0	64	6.4		7.8	
155-082-29BCB	100-103	07/02/71	24	1	0.03	90	36	223	5.7	598	0	180	124	0.4	6	0.42	986	374	0	56	5	1400	7	
155-082-29BCB	100-103	06/20/90	22	0.12	0.07	37	23	280	5.9	579	9	270	31	0.3	1	0.3	965	190	0	76	8.8			
155-082-29BCB	100-103	08/12/92	22	0.01	0.01	47	24	260	6.9	560	0	330	28	0.3	0	0.28	995	220	0	72	7.6	1550	9	7.44
155-082-29CBC	48-53	09/10/68	19	0.13	0.02	124	69	120	3.8	475	0	290	88	0.2	44	0.31	992	592	204	30	2.1		7.8	
155-082-30CCD	294-303	10/20/83	29	0.03	0.24	180	54	180	11	597	0	420	69	0.3	1	0.16	1240	670	180	36	3	1750		
155-082-30DCC	?-257	08/20/65	17	5.2		155	56	162	11	692	0	285	87	0.4	0.7	0.18	1120	615	48	36	2.8		12.2	
155-082-31CAD	273-282	11/16/84	28	0.11	0.08	130	36	330	9.5	732	0	330	170	0.2	1	0.42	1400	470	0	60	6.6	2300	10	
155-082-31DCA	315-321	10/26/83	27	0.03	0.13	80	23	340	9.1	576	0	160	270	0.2	1	0.42	1190	290	0	71	8.7	2100	10	
155-082-31DCA	315-321	11/16/84	27	0.13	0.07	130	36	340	9.6	731	0	330	170	0.2	1	0.42	1400	470	0	60	6.8	2200	10	
155-082-31DDA	43-48	10/18/83	28	3.2	1.3	120	47	180	6.8	530	0	430	14	0.3	1	0.07	1090	490	59	44	3.5	1500	9	
155-082-31DDB	?-24	07/24/90	25	0.02	0.01	120	64	83	29	401	0	320	78	0.2	72	0.11	989	560	230	23	1.5	1500	12	
155-082-33CCD	46-49	09/11/68	22	0.1	0.18	111	30	282	6.4	583	0	489	18	0.1	2.5	0.12	1250	400		60	6.1			
155-082-33CDA	?-20	07/07/70	19	0.05	0.51	117	40	215	2.7	566	0	457	6.1		8.6	0	1140	459	0	50	4.4	1625	10	
155-082-33DBC	?-36	07/07/70	15	0.42	0.54	105	32	138	6.2	450	0	302	14	0.2	2.5	0.12	837	396	27	43	3	1250	10	
155-082-33DCC	117-120	09/12/68	25	0.5	0.02	53	14	216	3.6	555	0	152	25	0.3	1	0.19	764	188	0	71	6.8	1100	7.2	
155-083-01CCC	?-30	08/27/65	16	0.08		488	151	421		380	0	2300	32	0.4	4.7	0.42	3600	1840	1530	33	4.3		8.9	
155-083-01CCC	?-30	08/21/79	26	0.1	6.6	430	220	310	14	484	0	2200	38	0.2	4.6	0.07	3490	2000	1600	25	3	3500	7	
155-083-01CCC	?-30	08/11/92	23	0.03	4.4	390	240	370	18	495	0	2200	91	0.2	2.2	0.33	3580	2000	1600	29	3.6	4170	10	5.96
155-083-04AAA	400-420	08/05/92	24	0.38	0.39	230	63	240	12	871	0	530	30	0.2	14	0.28	1570	830	120	38	3.6	1830	13	
155-083-11BCD	294-306	08/12/92	12	0.06	0.26	100	42	400	12	711	0	260	350	0.4	0	0.26	1530	420	0	67	8.5	2550	11	
155-083-13BDDC1	178-183	11/10/92	25	1.1	0.13	130	40	300	8	917	0	280	87	0.2	7.7	0.21	1330	490	0	57	5.9	2170	9	
155-083-13BDDC2	118-123	11/24/92	24	2.2	0.89	230	86	110	3.6	568	0	680	11	0.2	0.3	0.09	1430	930	460	20	1.6	2430	9	
155-083-13CBDC	238-241	11/10/92	16	0.46	0.04	38	15	570	5.5	745	0	22	550	0.6	3.2	0.7	1590	160	0	88	20	2810	10	
155-083-13CBDC	238-241	06/03/93	16	0.45	0.06	37	15	550	6.5	748	0	5.8	560	0.6	0	0.5	1560	150	0	88	20	2900	13	
155-083-13CBDC2	178-183	06/03/93	19	0.02	0.11	36	14	540	6.4	774	0	36	480	0.5	0	0.34	1510	150	0	88	19	2720	12	
155-083-13CBDC3	115-120	06/03/93	27	0.11	0.7	110	38	39	5.1	407	0	180	17	0.2	0	0	617	430	98	16	0.8	928	11	
155-083-13CDB	258-263	08/12/92	22	0.18	0.03	20	8	520	5.9	762	0	3.3	460	0.4	4.6	0.98	1420	83	0	93	25	2600	12	
155-083-13CDCA	118-123	11/05/92	17	0.06	0.21	92	35	220	5.8	563	0	300	77	0.3	1.6	0.14	1030	370	0	56	5	1460		
155-083-13DCA	118-123	10/06/92	23	4.2	0.29	220	73	190	11	605	0	570	170	0.2	0	0.11	1560	850	350	32	2.8	2340	9	
155-083-13DCB1	198-201	11/06/92	22	6.4	0.45	210	67	130	8.5	524	0	430	150	0.2	10	0.2	1290	800	370	26	2	2010	8	
155-083-13DCB2	182-193	11/06/92	24	2.5	0.49	170	61	160	7.2	679	0	360	95	0.2	3.6	0.23	1270	680	120	34	2.7	2110	9	
155-083-13DCDA	138-143	11/06/92	21	2	0.43	170	59	160	7.2	653	0	390	88	0.3	5.6	0.17	1230	670	130	34	2.7	1550	8	
155-083-13DDD	107-112	11/06/92	19	8.4	0.42	290	110	120	6.8	461	0	1000	30	0.2	3.5	0.17	1820	1200	800	18	1.5	2230	8	
155-083-14AAD	238-243	06/04/93	23	0.09	0.25	140	49	290	11	776	0	360	100	0.3	0	0.31	1360	550	0	53	5.4	2060	9	
155-083-14ADD	?-?	00/00/58		0		278	290	75	10	224	40	482	0	0.2	0.4	0.1		568						
155-083-14CBB	128-133	06/03/93	25	2.6	0.15	170	67	330	9.2	957	0	390	190	0.2	0	0	1660	700	0	50	5.4	2530	10	
155-083-14CDA	?-139	12/06/63	21	0.3		78	27	259	14	687	0	110	146	0.4	1	0	994	304	0	64	6.4		8.3	
155-083-14CDA	?-139	02/11/69	26	1.5	0.58	118	35	330	8.9	817	0	140	240	0.3	2.5	0.19	1300	440	0	61	6.8		8.9	
155-083-14CDA2	138-143	08/12/92	25	2.1	0.2	96	34	470	12	894	0	91	440	0.4	5.8	0.22	1620	380	0	72	10	2800	11	
155-083-14CDA2	138-143	06/03/93	24	0.26	0.29	98	36	470	12	892	0	110	430	0.4	2.3	0.03	1620	390	0	71	10	2780	9	
155-083-14CDA3	22-27	06/03/93	21	10	6.3	160	46	160	4.4	683	0	340	62	0.2	0	0	1150	590	29	37	2.9	1704	8	
155-083-14CDD1	138-158	01/15/32		2.3		93	28			982		143	300				1555	347						
155-083-14CDD1	138-158	02/01/40	30	2.3		56	25			677		67	133	0.73			1220	245						
155-083-14DBA1	?-170	05/15/64	21	0.32		168	60	309	14	797	0	381	219	0.6	1	0.18	1570	665	120	50	5.2		10.8	
155-083-14DBA3	138-143	06/04/93	25	2.1	0.31	170	65	300	13	908	0	360	200	0.3	0	0.05	1580	690	0	48	5	2430	11	
155-083-14DCA	?-148	12/11/63	22	1.2		93	87	305	12	747	0	181	338	0.5	4.5	0	1410	590	0	52	5.5		8.3	
155-083-14DCA	?-148	02/11/69	28	1.4	0.28	134	38	383	9.6	835	0	261	280	0.3	0.3	0.19	1550	493	0	62	7.5		9.4	
155-083-14DCC	125-155	02/01/40	26	3		52	27			648		105	153	0.5			1262	316						
155-083-14DDD2	?-147	09/20/46		0.1		106	33			744		144	190				1147	390						
155-083-14DDD2	?-147	00/00/64	21	0.25		102	32	218	13	589	0	72	232	0.2	0	0	980	388	0	54	4.8		8.3	
155-083-14DDD2	?-147	02/07/69	26	2.1	0.37	120	33	241	7.7	629	0	170	191	0.3	1	0.19	1100	435	0	54	5		8.9	
155-083-14DDD2	?-147	06/09/70	29		0.42	115	34	233	5.5	627	0	190	171	0.1	1	0.19	1090	428	0	54	4.9		8.9	
155-083-14DDD2	?-147	07/25/72	26	0	0.49	111	43	236	6.5	627	0	167	188	0.3	1.7	0.14	1090	453	0	53	4.8		9.4	
155-083-14DDD2	?-147	07/23/86	26	2.9	0.39	110	42	180	8.9	593	0	250	70	0.3	3.4	0.17	986	450	0	46	3.7	1800	9	
155-083-14DDD2	?-147	07/25/89	25	3	0.41	120	45	190	8.2	649	0	240	120	0.3	1	0.21	1070	480	0	46	3.8	2040	9	

TABLE 6 CONTINUED

Location	Screened Interval (ft)	Date Sampled	(milligrams per liter) SiO_2	Fe	Mn	Ca	Mg	Na	K	HCO_3	CO_3	SO_4	Cl	F	NO_3	B	TDS	Hardness as $CaCO_3$	NCH	% Na	SAR	Spec Cond (µmho)	Temp (°C)	pH
155-083-14DDD2	?-147	11/08/89	26	2.5	0.31	120	46	230	8.2	673	0	260	140	0.3	0.5	0.21	1170	490	0	50	4.5	1856	11	
155-083-14DDD2	?-147	09/22/92	24	1.8	0.28	98	39	210	6.8	548	0	260	120	0.5	3.3	0.17	1030	410	0	52	4.5	1551	12	
155-083-14DDD2	?-147	07/07/93	25	2.9	0.4	130	48	220	7.6	681	0	250	150	0.3	0	0.19	1170	520	0	47	4.2	1852	10	
155-083-14DDD3	?-139	00/00/64	22	0.25		124	16	250	13	634	0	225	137	0.3	1.5	0	1100	376	0	58	5.6		8.3	
155-083-14DDD3	?-139	02/11/69	26	1.9	0.02	108	28	264	7.5	651	0	122	222	0.3	2.5	0.19	1100	386	0	59	5.8		8.9	
155-083-14DDD3	?-139	06/09/70	28	0	0.34	100	27	260	5.8	645	0	136	185	0.2	1	0.15	1060	361	0	61	6		9.4	
155-083-14DDD3	?-139	07/23/86	28	3	0.38	110	42	180	8.4	609	0	240	82	0.3	3.7	0.19	998	450	0	46	3.7	1750	9	
155-083-14DDD3	?-139	07/25/89	25	2.7	0.34	120	44	210	8.1	642	0	240	150	0.4	1.4	0.21	1120	480	0	48	4.2	2070	9	
155-083-14DDD3	?-139	11/08/89	26	0.83	0.28	120	46	230	8.3	664	0	270	140	0.3	2.6	0.21	1170	490	0	50	4.5	1827	12	
155-083-14DDD3	?-139	09/22/92	24	2.4	0.31	120	47	250	7.6	689	0	250	170	0.3	3.7	0.17	1210	490	0	52	4.9	2100	9	
155-083-14DDD3	?-139	07/07/93	24	2.3	0.32	110	40	270	8.5	745	0	180	170	0.3	0	0.17	1170	440	0	57	5.6	1878	10	
155-083-14DDD4	?-?	06/03/93	25	2.8	0.27	92	30	180	6	504	0	240	91	0.3	1.6	0	917	350	0	52	4.2	1423	12	
155-083-14DDD5	128-133	08/05/92	23	1.2	0.22	90	28	190	6.3	486	0	240	91	0.3	3.3	0.17	912	340	0	54	4.5	1268	13	
155-083-14DDD6	75-85	06/03/93	31	0.24	0.45	84	34	86	4.4	588	0	40	27	0.3	5.8	0.11	603	350	0	35	2	963	11	
155-083-14DDD7	29-34	06/03/93	27	2.1	0.91	73	36	130	12	461	0	160	86	0.2	13	0.08	767	330	0	45	3.1	1206	11	
155-083-20C	?-60	07/08/66		2.1						1620	0	2.1	480		0			40	0	98	62			
155-083-20D	?-45	07/11/66		0.93						512	0	365	26		0	0		530	111	37	2.7			
155-083-21DAA2	?-99	12/11/63	10	2.3		13	2.9	345		698	38	35	92	0.8	0	0	882	44	0	94	23		8.3	
155-083-22ABC	?-115	12/11/63	19	0.5		58	54	67	6	473	0	96	24	0.3	0	0	558	370	0	28	1.5		8.9	
155-083-22ABC	?-115	09/20/68	22	0.66	0.77	91	22	131	4.9	480	0	185	30	0.1	0	0.24	723	320	0	47	3.2		9.4	
155-083-22ABC	?-115	02/07/69	22	0.43	0.85	102	26	132	5.1	493	0	190	31	0.1	1	0.29	753	362	0	44	3		8.9	
155-083-22ABC	?-115	06/09/70	24	0.68	0.73	98	31	126	5.1	506	0	198	25	0.3	1	0	758	371	0	42	2.8		10	
155-083-22ABC	?-115	07/23/86	23	0.35	1.3	140	54	86	8.1	498	0	270	61	0.1	4.8	0.07	894	570	160	24	1.6	1500	9	
155-083-22ABC	?-115	11/08/89	16	0.09	0.07	170	61	100	8.1	538	0	380	70	0.2	1.9	0.16	1070	680	230	24	1.7	1604	13	
155-083-22ABC	?-115	09/22/92	21	0.43	0.94	120	50	150	8.4	733	0	180	72	0.1	0.6	0.19	965	510	0	39	2.9	1435	10	
155-083-22ABC	?-115	07/07/93	20	0.6	0.84	110	44	170	8.8	718	0	170	74	0.1	0	0.25	953	460	0	44	3.5	1468		
155-083-22ACC1	?-105	12/06/63	19	0.6		38	26	315	9	878	0	44	97	0.5	1	0	982	202	0	76	9.6		8.3	
155-083-22ACC1	?-105	09/20/68	22	3.1	0.23	58	16	262	4	675	0	170	54	0.3	0	0.49	923	211	0	73	7.8		8.9	
155-083-22ACC1	?-105	02/10/69	21	1.8	0.05	55	18	296	4.2	721	0	157	66	0.3	1	0.47	976	209	0	75	8.9		8.3	
155-083-22ACC1	?-105	06/26/70	22	0.24	0.27	85	34	238	4.4	656	0	244	51	0.5	0	0.63	1000	354	0	59	5.5		8.9	
155-083-22ACC1	?-105	07/24/70	21	2.2	0.36	81	31	219	4.5	612	0	240	46	0.4	5.5	0.6	952	332	0	59	5.2		10	
155-083-22ACC1	?-105	07/25/72	24	1.5	0.12	70	32	179	5.3	551	0	163	37	0.3	2.7	0.32	787	305	0	56	4.5		9.4	
155-083-22ACC1	?-105	05/27/82	19	3.9	0.54	75	30	220	5.1	694	0	130	61	0.3	1	0.26	888	310	0	60	5.4	880	10	
155-083-22ACC1	?-105	07/23/86	22	3.1	0.5	66	29	230	8.2	697	0	130	68	0.3	3.6	0.47	904	280	0	63	6	1550	9	
155-083-22ACC1	?-105	07/25/89	21	3	0.5	71	30	240	7.6	743	0	140	72	0.3	2.9	0.43	955	300	0	63	6	1760	9	
155-083-22ACC1	?-105	11/08/89	17	0.46	0.39	58	24	270	7.8	797	0	100	79	0.3	0.3	0.46	951	240	0	70	7.6	1588	13	
155-083-22ACC1	?-105	09/22/92	20	2.4	0.29	42	22	310	5.3	806	0	130	75	0.3	4.7	0.5	1010	200	0	77	9.5	1548	9	
155-083-22ACC1	?-105	07/07/93	19	1.9	0.28	40	18	310	5.3	801	0	110	75	0.3	0.9	0.53	976	170	0	79	10	1513	10	
155-083-22ADA2	?-120	00/00/64	21	0.48		52	34	188	11	581	0	165	29	0.4	1	0	788	270	0	59	5		8.3	
155-083-22ADA2	?-120	02/12/69	24	0.76	0.53	83	27	268	6.1	772	0	165	69	0.2	2.5	0.27	1030	320	0	64	6.5		8.9	
155-083-22ADA2	?-120	06/26/70	24	0	0.82	101	45	249	4.8	766	0	231	60	0.5	0	0.27	1090	438	0	55	5.2		8.9	
155-083-22ADA2	?-120	05/27/82	23	3.3	1.4	130	48	130	4.4	616	0	220	43	0.2	1	0.13	907	520	17	35	2.5	1420	10	
155-083-22ADA2	?-120	07/23/86	27	2.5	1.1	120	50	140	7.4	668	0	140	110	0.2	1.2	0.1	929	510	0	37	2.7	1650	9	
155-083-22ADA2	?-120	07/25/89	25	2.6	1.2	140	54	170	7.6	716	0	150	160	0.2	0.5	0.16	1060	570	0	39	3.1	1980	9	
155-083-22ADA2	?-120	11/08/89	20	2.5	0.4	59	25	280	7.7	795	0	110	78	0.4	0.6	0.48	976	250	0	70	7.7	1590	11	
155-083-22ADA2	?-120	09/22/92	25	3	1.4	150	61	160	6.4	764	0	220	110	0.2	0	0.17	1110	630	0	35	2.8	1612	10	
155-083-22ADA2	?-120	07/07/93	23	2.4	0.45	90	31	240	6.2	701	0	240	66	0.3	1.4	0.33	1050	350	0	59	5.6	1594	10	
155-083-22ADC	?-115	12/11/63	18	0.94		39	30	265	5	712	0	74	102	0.5	0	0	885	220	0	72	7.8		7.8	
155-083-22ADC	?-115	09/20/68	22	2.3	0.17	42	19	347	3.7	882	0	76	108	0.4	0	0.59	1050	185	0	80	11		8.9	
155-083-22ADC	?-115	02/07/69	23	2.3	0.2	56	28	300	4	804	0	126	86	0.4	1	0.43	1020	255	0	72	8.2		8.3	
155-083-22ADC	?-115	07/25/72	16	2.5	0.1	62	35	296	4.5	762	0	173	78	0.4	1.9	0.25	1040	299	0	68	7.4		8.9	
155-083-22ADC	?-115	07/23/86	25	1.9	0.28	42	20	330	6.2	801	0	160	72	0.4	4.3	0.57	1060	190	0	79	10	1850	9	
155-083-22ADC	?-115	07/25/89	24	3.6	0.46	81	36	260	6.1	734	0	220	72	0.3	0.9	0.45	1070	350	0	61	6	1920	9	
155-083-22ADC	?-115	11/08/89	20	2.3	0.38	59	25	270	7.6	797	0	110	78	0.3	2.6	0.48	969	250	0	69	7.4	1599	12	
155-083-22ADC	?-115	09/22/92	22	2.6	0.3	51	27	330	5.1	827	0	190	89	0.3	5	0.45	1130	240	0	75	9.3	1681	9	
155-083-22ADC	?-115	07/07/93	21	1.5	0.23	42	21	360	5	848	0	180	87	0.4	2	0.51	1140	190	0	80	11	1739	9	
155-083-22BCD1	?-87	12/06/63	19	0.67		72	28	153	10	616	0	83	49	0.3	1	0	719	296	0	52	3.9		8.3	
155-083-22BCD1	?-87	00/00/66	15	0.35		73	26	123	13	435	0	177	23	0.3	0.3	0.18	665	289	0	47	3.1		10	
155-083-22BCD1	?-87	09/20/68	15	1.1	0.66	78	23	112	11	375	0	200	30	0.2	0	0.1	655	289	0	45	2.9		12.2	

TABLE 6 CONTINUED

Location	Screened Interval (ft)	Date Sampled	(milligrams per liter) SiO_2	Fe	Mn	Ca	Mg	Na	K	HCO_3	CO_3	SO_4	Cl	F	NO_3	B	TDS	Hardness $CaCO_3$	as NCH	% Na	SAR	Spec Cond (µmho)	Temp (°C)	pH
155-083-22BCD1	?-87	12/20/68	17	0.14	0.58	94	31	126	13	466	0	205	29	0.2	0	0.31	746	364	0	42	2.9		13.3	
155-083-22BCD1	?-87	02/10/69	18	0.05	0.63	88	32	126	13	460	0	204	31	0.2	0	0.12	739	351	0	43	2.9		14.4	
155-083-22BCD1	?-87	12/23/70	14	0.58	0.66	78	35	81	8.9	375	0	165	21	0.6	1	0.11	590	340	32	33	1.9		11.7	
155-083-22BCD1	?-87	08/04/71	14	0.38	0.52	81	40	77	8.3	387	0	176	19	0.1	1	0.13	608	368	51	31	1.7	750	7	
155-083-22BDC	?-111	12/11/63	16	1.5		78	39	205	15	751	19	26	112	0.3	2	0	884	354	0	54	4.7		7.8	
155-083-22BDC	?-111	09/20/68	20	4.6	0.43	77	23	165	7.6	513	0	201	35	0.2	0	0.29	787	288	0	55	4.2		10	
155-083-22BDC	?-111	02/07/69	20	4.2	0.45	80	29	188	8.6	577	0	180	46	0.3	1	0.43	842	319	0	55	4.6		10	
155-083-22BDC	?-111	07/24/70	17	2	0.41	79	30	149	5.5	491	0	217	29	0.3	1	0.51	772	320	0	50	3.6		7.8	
155-083-22BDC	?-111	07/23/86	21	4.5	0.53	67	27	240	8.5	714	0	130	64	0.2	2.4	0.45	918	280	0	64	6.2	1550	9	
155-083-22BDC	?-111	07/25/89	20	4.7	0.55	66	26	260	8.2	797	0	110	82	0.3	2.5	0.44	974	270	0	67	6.9	1800	9	
155-083-22BDC	?-111	11/08/89	18	1.3	0.34	56	24	270	7.7	791	0	110	77	0.3	1.4	0.45	956	240	0	70	7.6	1560	16	
155-083-22BDC	?-111	09/22/92	19	3.8	0.39	49	22	290	6.3	802	0	120	82	0.3	3.2	0.46	991	210	0	74	8.7	1514	9	
155-083-22BDC	?-111	07/07/93	19	4	0.42	52	22	290	7.2	818	0	100	90	0.3	2.1	0.46	990	220	0	73	8.5	1567	9	
155-083-22CBB3	?-68	08/04/71	16	0	0.02	68	32	93	7.3	356	0	188	31	0.1	1	0.27	612	303	11	39	2.3	910	7	
155-083-22CBB3	?-68	11/18/87	18	0.52	0.81	93	28	76	7.6	310	0	150	37	0.1	1	0.14	565	350	93	32	1.8			
155-083-22CDD	57-55	08/12/92	24	2.4	0.15	64	38	490	7.1	1130	0	350	130	0.4	21	0.45	1680	320	0	77	12	2560	9	
155-083-22DAB1	98-103	06/03/93	21	0.28	0.09	16	8	450	5.1	802	0	310	99	0.5	5.9	0.45	1310	73	0	92	23	1997	10	
155-083-22DAB2	28-33	06/04/93	24	6	1.7	160	57	92	8.6	589	0	340	26	0.2	0	0	1010	630	150	24	1.6	1460	8	
155-083-22DDB	117-115	08/05/92	21	0.37	0.06	38	17	520	6.4	912	0	400	150	0.5	6.8	0.45	1610	170	0	87	17	2500	11	
155-083-23AAD	118-123	08/05/92	27	2.7	0.16	110	30	130	6.9	407	0	250	67	0.2	3.6	0.24	828	400	65	41	2.8	1166	13	
155-083-23BAA1	92-132	01/15/32		1		37	16			536		17	76				657	166						
155-083-23BAA1	92-132	02/01/40	28	1.75		58	24			468		35	46	0.75			742	243						
155-083-23BAA2	92-132	01/15/32		2		75	31			704		96	124				924	315						
155-083-23BAA2	92-132	02/01/40	26	2.3		60	21			406		48	28	0.8			648	236						
155-083-23BAA3	?-125	12/11/63	21	0.5		63	48	100	8	498	0	129	32	0.2	1	0	648	356	0	37	2.3		8.3	
155-083-23BAA3	?-125	02/07/69	25	3	0.29	78	17	250	3.8	750	0	62	91	0.4	1	0.29	900	266	0	67	6.7		8.3	
155-083-23BAA3	?-125	07/25/72	24	0.16	0.32	98	38	258	6	714	0	111	168	0.3	3.4	0.04	1060	400	0	58	5.6		8.3	
155-083-23BAB1	?-132.5	12/06/63	21	1		66	26	235	16	717	0	96	81	0.3	1	0	896	272	0	64	6.2		7.2	
155-083-23BAB1	?-132.5	02/12/69	25	2.1	0.08	83	28	141	4.2	569	0	114	32	0.2	1	0.16	711	324	0	48	3.4		7.8	
155-083-23BAB1	?-132.5	08/27/70	26	0	0.02	72	22	184	4.2	640	0	91	48	0.1	1	0.08	763	269	0	59	4.9		8.3	
155-083-23BAB1	?-132.5	07/23/86	27	2.5	0.44	120	43	340	11	787	0	200	260	0.3	2.6	0.1	1390	480	0	60	6.7	2600	9	
155-083-23BAB1	?-132.5	07/25/89	24	3.6	0.43	120	43	310	9.6	791	0	130	290	0.3	0.7	0.17	1320	480	0	58	6.1	2590	10	
155-083-23BAB1	?-132.5	11/08/89	22	1.8	0.39	81	35	280	7.7	785	0	170	100	0.3	1	0.4	1090	350	0	63	6.5	1151	12	
155-083-23BAB1	?-132.5	09/22/92	24	2.9	0.39	120	44	350	8.9	822	0	160	320	0.2	4.4	0.14	1440	480	0	61	6.9	2380	9	
155-083-23BAB1	?-132.5	07/07/93	24	3.2	0.36	120	42	370	9.9	842	0	120	340	0.3	0	0.16	1440	470	0	62	7.4	2420	10	
155-083-23BAB2	?-118	05/13/64	21	0.38		84	29	115	4	470	7.2	130	40	0.5	0	0	663	328	0	43	2.8			
155-083-23BAB3	?-21	05/13/64	13	0.13		112	28	107	6.8	495	0	179	33	0.4	0	0	723	396	0	36	2.3		8.9	
155-083-23BAC1	118-123	08/11/92	22	0.19	0.08	55	25	410	6.1	825	0	250	180	0.4	5.4	0.42	1360	240	0	78	12	2330	11	0
155-083-23BAC2	33-38	08/11/92	21	2.8	0.66	64	29	140	6.8	441	0	150	66	0.3	6.6	0.26	704	280	0	51	3.6	1193	12	0
155-083-23BBA1	?-100	05/12/64	15	0.94		35	13	235	8	510	16	179	36	0.7	0	0.38	789	142	0	77	8.6		10	
155-083-23BBA3	?-104	05/22/64	10	3.6		50	16	164	12	410	0	172	38	0.4	2	0	670	192	0	63	5.1			
155-083-23BBA4	?-?	05/22/64	19	1.7		103	34	83	8.8	401	7.2	190	29	0.5	20	0	693	396	56	31	1.8			
155-083-23BBA5	114-117	05/22/64	20	1		93	34	122	6.6	478	0	186	43	0.1	2	1.1	743	370	0	41	2.8			
155-083-23BBA6	?-21	05/14/64	15	1.3		80	25	121	13	525	0	92	30	0.5	30	0.7	666	304	0	45	3		10	
155-083-23BBA7	?-102	06/19/64	16	0.85		40	14	204	5.6	527	10	115	23	0.6	4.8	0	694	156	0	73	7.1			
155-083-23BBA8	?-18	06/19/64	21	0.66		104	43	73	8.3	492	0	153	25	0.6	2	0	676	435	32	26	1.5			
155-083-23BBB3	?-101	05/12/64	15	0.97		56	16	135	9.2	421	0	130	23	0.5	0.5	0.15	593	204	0	58	4.1		7.8	
155-083-23BBB3	?-101	08/04/71	10	0	0.27	40	20	36	11	218	0	68	11	0.1	1	0.18	305	181	3	29	1.2	500	7	
155-083-23BBB3	?-101	06/06/85	21	0.07	0.59	130	57	190	7.3	507	0	180	140	0.1	1	0.08	977	560	140	42	3.5	1720	7.4	7.8
155-083-23BBB3	?-101	09/22/87	15	0.7	0.55	65	25	70	12	318	0	120	29		1	0.08	495	270	5	35	1.9	800	8.5	7.9
155-083-23BBB3	?-101	11/23/87	25	0.02	0.44	110	43	180	6.2	509	0	170	77	0.2	1	0.07	864	450	35	46	3.7			
155-083-23BBB4	?-110	05/12/64	20	0.55		74	26	131	5.6	480	0	74	55	0.5	0	0.43	622	290		49	3.3		8.9	
155-083-23BBB5	?-21	05/13/64	15	0.43		56	18	112	8.6	428	0	86	21	0.5	1	0	529	212	0	52	3.3			
155-083-23BBB7	?-21	05/22/64	19	0.93		71	23	135	6.2	533	0	90	33	0.4	2.5	0.8	644	272	0	51	3.6			
155-083-23BBC1	?-100	05/22/64	20	0.72		86	19	85	5.5	456	0	81	20	0.3	3	0.75	545	292	0	38	2.2			
155-083-23BBC2	?-21	05/22/64	14	1		57	29	112	15	398	0	143	34	0.2	2	0	603	260	0	47	3			
155-083-23BBC3	?-83	05/22/64	16	0.47		77	32	89	7	577	0	23	21	0.3	1	0.85	551	324	0	37	2.2			
155-083-23BBC5	?-100	06/15/64	17	0.62		35	13	251	5	661	0	22	79	0.5	1	0	750	140	0	80	9.2			
155-083-23BBD	?-130	00/00/63	21	0.57		67	30	152	11	573	0	128	29	0.2	1	0	722	290	0	52	3.9		7.8	
155-083-23BBD	?-130	02/07/69	26	4.6	0.74	112	28	159	4.5	655	0	117	48	0.2	1	0.21	824	394	0	46	3.5			

TABLE 6 CONTINUED

Location	Screened Interval (ft)	Date Sampled	(milligrams per liter) SiO_2	Fe	Mn	Ca	Mg	Na	K	HCO_3	CO_3	SO_4	Cl	F	NO_3	B	TDS	Hardness as $CaCO_3$	NCH	% Na	SAR	Spec Cond (µmho)	Temp (∞C)	pH
155-083-23BBD	?-130	08/27/70	27	1.9	0.02	82	29	138	4.7	564	0	131	37	0.1	1	0.08	730	325	0	48	3.3		8.3	
155-083-23BBD	?-130	05/27/82	24	5.1	0.74	120	44	170	4.6	693	0	130	110	0.2	1	0.09	951	480	0	43	3.4	1550	10	
155-083-23BBD	?-130	07/23/86	27	3.8	0.62	120	46	220	8	755	0	160	130	0.2	2.2	0.11	1090	490	0	49	4.3	1900	9	
155-083-23BBD	?-130	07/25/89	25	4.2	0.55	110	41	230	7.5	751	0	150	150	0.3	1.7	0.16	1090	440	0	53	4.8	2080	9	
155-083-23BBD	?-130	11/08/89	20	2.5	0.39	68	29	270	7.5	784	0	130	86	0.3	1.4	0.43	1000	290	0	66	6.9	1630	11	
155-083-23BBD	?-130	09/22/92	24	3.6	0.53	110	46	260	7.1	779	0	160	200	0.2	3	0.13	1200	460	0	54	5.3	1842	10	
155-083-23BBD	?-130	07/07/93	23	2.8	0.54	120	46	260	7.4	787	0	160	190	0.2	0.7	0.15	1200	490	0	53	5.1	1883	9	
155-083-23BCA	118-123	08/11/92	21	0.18	0.08	34	13	440	4.9	834	0	220	160	0.4	4.6	0.4	1310	140	0	87	16	2130	11	0
155-083-23BDD2	108-113	06/03/93	22	2.7	0.19	120	68	260	5.6	726	0	460	77	0.2	7.3	0.55	1280	580	0	49	4.7	1926	9	
155-083-23BDD3	28-33	06/03/93	22	1.7	1.4	94	37	130	6.5	502	0	110	63	0.2	8.8	0.01	722	390	0	42	2.9	1279	15	
155-083-24ADDA1	118-123	08/13/92	26	1.2	0.15	100	37	200	7.5	629	0	240	82	0.3	4.2	0.28	1010	400	0	51	4.3	1541	11	
155-083-24ADDA2	20-25	08/13/92	31	2.8	1	76	36	130	7.6	644	0	52	56	0.3	14	0.23	724	340	0	45	3.1	1176	14	
155-083-24BAAC	98-103	08/13/92	29	0.11	0.35	210	80	190	8.2	926	0	420	95	0.2	0.4	1.9	1490	850	94	32	2.8	2280	10	
155-083-25AAB2	336-345	11/17/83	26	0.1	0.16	250	95	220	13	659	0	760	61	0.3	1	0.19	1750	1000	470	32	3	2500	9.5	
155-083-25AAB2	336-345	10/10/84	22	0.04	0.18	270	93	220	11	720	0	750	60	0.3	1	0.34	1780	1100	470	31	2.9	2600	9	
155-083-35AAD	?-215	08/20/65	18	0.8		193	71	298	11	941	0	620	13	0.4	2.9	0.25	1690	775	4		4.6		16.1	
155-083-36AAB	315-327	10/14/83	31	0.05	0.17	230	70	200	13	730	0	480	72	0.2	1	0.14	1460	860	260	33	3	2100	9.5	
155-083-36AAB	315-327	10/03/84	19	0.03	0.09	170	70	200	12	611	0	440	70	0.1	1	0.18	1280	710	210	37	3.3	2250	9	
155-083-36ABB	315-324	11/21/83	27	0.06	0.15	190	62	220	13	700	0	430	69	0.2	1	0.16	1360	730	160	39	3.5	2175	8	
155-083-36ABB	315-324	10/09/84	24	0.11	0.14	200	65	210	11	765	0	440	68	0.2	1	0.2	1400	770	140	37	3.3	2250	9	
155-083-36ADD	315-327	11/18/83	24	0.1	0.23	210	71	200	14	674	0	490	65	0.2	0.1	0.11	1410	820	260	34	3	2150	8	

TABLE 7. CHEMICAL ANALYSES OF SURFACE WATER

Location	Source	Date Sampled	(milligrams per liter) SiO_2	Fe	Mn	Ca	Mg	Na	K	HCO_3	CO_3	SO_4	Cl	F	NO_3	B	TDS	Hardness as $CaCO_3$	Hardness as NCH	% Na	SAR	Spec Cond (µmho)	Temp (∞C)	pH
155-082-29DB	Souris River	10/02/68	2.5	0.18	0.08	50	25	118	13	331	0	163	45	0.3	0	0.29	580	226	0	51	3.4			
155-082-33DDCR	Souris River	10/02/68	0.9	0.42	0.03	58	25	134	14	357	0	189	47	0.2	0	0.24	645	248	0	52	3.7			
155-082-33DDCR	Souris River	08/16/84	4.9	0.03	0.04	47	26	76	14	308	0	130	20	0.3	1	0.39	471	220	0	41	2.2	770	25	
155-082-33DDCR	Souris River	09/12/84	3.5	0.04	0.04	52	30	85	14	322	0	140	31	0.3	1	0.38	516	250	0	41	2.3	900	15	
155-082-33DDCR	Souris River	06/26/85	6.3	0.01	0.09	57	38	130	15	377	0	250	25	0.2	1	0.21	709	300		47	3.3	1280	12	
155-082-33DDCR	Souris River	08/27/85	1.1	0.02	0.03	47	31	98	13	332	0	170	24	0.2	1	0.39	550	250	0	45	2.7	930	21	
155-082-33DDCR	Souris River	09/24/85	3	0.02	0.06	48	34	97	14	347	0	160	24	0.3	0	0.34	552	260	0	43	2.6	875	11	
155-082-33DDCR	Souris River	05/18/88	2.6	0.03	0.09	70	49	170	16	394	7	300	83	0.3	1	0.4	893	380	42	48	3.8	1550	17	
155-082-33DDCR	Souris River	05/02/90	2.9	0.02	0.02	54	39	150	16	398	0	240	43	0.2	1	0.27	742	300	0	51	3.8	1154	9	
155-083-17DBB	Souris River	09/15/69	11	0	0.01	62	20	127	16	343	0	215	12	0.1	0	0.71	633	235	0	52	3.6			
155-083-17DBB	Souris River	10/13/69	6.3	0	0.01	62	21	102	15	316	0	193	11	0.1	0	0.26	568	240	0	46	2.9			
155-083-17DBB	Souris River	11/17/69	2	0	0.01	61	24	92	14	314	0	172	10	0.1	1	0	531	250	0	43	2.5		1	
155-083-17DBB	Souris River	12/29/69	2	0.16	0.03	55	23	64	13	285	0	123	9.9	0.1	0	0.15	430	230	0	36	1.8		0.6	
155-083-17DBB	Souris River	01/09/70	2.5	0.05	0.02	59	33	87	13	332	0	192	19	0	1	0.05	571	285	13	39	2.2			
155-083-17DBB	Souris River	01/12/70	3.4	0.2	0.02	54	29	61	13	291	0	127	13	0.2	1	0.04	445	255	16	33	1.7			
155-083-17DBB	Souris River	02/12/70	5.6	0.1	0.01	58	26	62	13	298	0	126	11	0	1	0.07	450	250	6	34	1.7			
155-083-17DBB	Souris River	03/09/70	6.2	0.12	0.02	63	27	69	13	314	0	139	16	0.1	2	0.07	490	270	12	34	1.8			
155-083-17DBB	Souris River	04/06/70	4.4	0.88	0.01	47	18	72	11	247	0	144	14	0.1	2.4	0.22	436	193	0	43	2.3			
155-083-17DBB	Souris River	05/13/70	5.7	0.42	0.01	47	21	46	9.9	214	0	119	13	0.1	7.5	0.26	375	204	29	32	1.4			
155-083-17DBB	Souris River	06/25/70	1.6	1.2	0.05	45	21	58	11	218	0	137	10	0.4	0	0.09	392	198	20	37	1.8		21.5	
155-083-17DBB	Souris River	07/06/70	5.2	1	0.08	49	22	71	11	242	0	168	11	0.2	0	0.39	458	215	17	40	2.1			
155-083-17DBB	Souris River	08/04/70	10	4.5	0.22	63	27	104	13	312	0	221	14	0.1	4.4	0	615	269	13	44	2.8		21	
155-083-17DBB	Souris River	08/31/70	9.1	0.12	0.05	82	37	150	13	430	0	293	26	0.2	1	0.09	824	359	6	47	3.4			
155-083-17DBB	Souris River	09/30/70	5.6		0.01	50	28	73	12	278	0	137	23	0.2	2	0.05	468	242	14	38	2		14	
155-083-17DBB	Souris River	11/05/70	5.6	0.03	0.01	54	33	83	12	317	0	181	18	0.5	2	0.13	545	270	10	39	2.2			
155-083-17DBB	Souris River	01/04/71	3.2		0.01	60	34	87	13	323	0	191	18	0.1	1	0.14	566	291	26	38	2.2			
155-083-17DBB	Souris River	02/11/71	3.3		0.01	61	34	86	14	329	0	183	18	0.6	1	0.35	563	293	23	38	2.2		0	
155-083-17DBB	Souris River	03/11/71	4.8	0.12	0.01	54	29	76	14	298	0	159	16	0.7	1	0.1	502	256	12	38	2.1			
155-083-17DBB	Souris River	04/13/71	6.3	0	0.01	42	21	66	9.8	201	0	158	12	0.6	2.5	0.14	417	191	27	41	2.1		6	
155-083-17DBB		05/11/71	3.2	0.14	0	48	28	68	11	271	0	142	16	0	2	0.1	451	237	15	37	1.9			
155-083-17DBB	Souris River	06/01/71	5.1	0	0.28	55	32	80	11	307	0	179	25	0.2	0	0.14	539	269	17	38	2.1			
155-083-17DBB	Souris River	07/08/71	5.2	0.76	0.03	41	22	57	9.3	202	0	138	12	0.4	1	0	387	194	29	38	1.8			
155-083-17DBB	Souris River	08/04/71	6	0	0.06	42	27	67	11	247	0	147	16	0.4	1	1.1	441	214	12	39	2		19.5	
155-083-17DBB	Souris River	09/10/71	14	0	0.02	50	37	102	12	312	0	201	21	0.5	2.5	1.1	595	276	20	43	2.7		17	
155-083-17DBB	Souris River	07/12/72	7.8	0	0.14	45	24	59	11	239	0	135	9.3	0.1	2.5	0.36	412	210	0	36	1.8	670	20	
155-083-17DBB	Souris River	05/11/73	4.3	0.08	0.41	90	74	207	11	436	0	569	33	0.2	1	0.03	1210	533	175	45	3.9	1670	12	
155-083-17DBB	Souris River	07/05/73	15	0.3	0.47	76	46	87	11	291	0	320	18	0.2	2.1	0.09	720	380	140	32	1.9	1030	20.5	
155-083-17DBB	Souris River	05/16/74	3.6	0.16	0.01	37	19	42	8.7	158	0	130	8.4	0.1	1	0.13	328	170	41	34	1.4		10	
155-083-17DBB	Souris River	08/09/74	9.7	0.37	0.2	47	25	62	9.8	260	0	140	12	0.6	0.5	0.12	436	220	7	37	1.8	710	21.5	
155-083-17DBB	Souris River	04/22/75	3.7	0.23	0.2	38	21	35	10	139	0	130	20	0.1	12	0	339	180	66	28	1.1	520	2	7.6
155-083-17DBB	Souris River	08/07/75	9.6	0.17	0.2	68	41	120	13	376	0	280	25	0.1	4.6	0.28	748	340	32	42	2.8	1120	22	8.1
155-083-17DBB	Souris River	04/07/76	7.9	0.08	0.06	41	24	55	7	165	0	160	12	0.1	3	0.08	391	200	65	36	1.7	575	6	7.8
155-083-17DBB	Souris River	07/08/76	3.1	0.08	0	43	22	43	8.4	222	2	110	7.4	0.1	2.5	0.08	351	200	15	31	1.3	545	23	8.7
155-083-17DBB	Souris River	04/06/77	6.7	0.04	0.16	68	39	95	6.2	319	0	260	20	0.1	1	0.21	654	330	68	38	2.3	950	4	8.5
155-083-17DBB	Souris River	09/09/77	6.4	0.06	0.48	71	52	140	15	412	10	300	49	0.1	2	0.19	850	390	36	43	3.1	1260	15	8.2
155-083-17DBB	Souris River	04/06/78	9.9	0.06	0.48	49	29	63	9	223	0	170	15	0.1	2	0.27	458	240	58	35	1.8	710	3.5	8.1
155-083-17DBB	Souris River	09/22/78	8.6	0.02	0.24	45	41	99	11	286	33	190	25	0.2	4.8	0.06	600	280	0	42	2.6	870	11	8.1
155-083-17DBB	Souris River	05/01/79	5.8	0.08	0.1	38	21	59	8.9	179	0	150	10	0.1	3.1	0.24	384	180	34	40	1.9	610	4.5	8.1
155-083-17DBB	Souris River	10/05/79	19	0	0.1	70	45	120	16	395	0	300	18	0.2	2	0.26	787	360	36	41	2.7	1130	10.5	8.4
155-083-17DBB	Souris River	06/03/80	14	0.01	0.91	74	45	140	11	409	0	310	29	0.2	1	0.03	826	370	35	44	3.2	1200	18.5	8.1

TABLE 7. CONTINUED

Location		Date Sampled	(milligrams per liter) SiO_2	Fe	Mn	Ca	Mg	Na	K	HCO_3	CO_3	SO_4	Cl	F	NO_3	B	TDS	Hardness $CaCO_3$	as NCH	% Na	SAR	Spec Cond (µmho)	Temp (∞C)	pH
155-083-17DBB	Souris River	03/30/81	3.7	0.02	0.11	43	25	66	5.2	232	0	130	18	0.1	1	0.06	406	210	20	40	2	640	8	8.4
155-083-17DBB	Souris River	09/04/81	0.7	0.01	0.08	50	40	150	17	389	0	230	44	0.2	1	0.73	727	290	0	51	3.8	1050	15.5	8.6
155-083-17DBB	Souris River	04/03/84	9.7	0.09	0.16	39	17	44	12	194	0	94	10	0.2	1	0.21	323	170	9	34	1.5	520	4	7.9
155-083-17DBB	Souris River	08/23/84	4	0.02	0.37	49	27	76	14	312	0	120	18	0.2	1	0.26	464	230	0	40	2.2	750	21.5	8
155-083-17DBB	Souris River	03/19/85	6.6	0.18	0.05	23	10	19	9.7	106	0	53	5.7	0.1	2.3	0.03	182	100	12	27	0.8	275		8
155-083-17DBB	Souris River	09/05/85	2.5	0.03	0.1	47	31	93	14	318	2	150	25	0.2	1	0.23	523	250	0	44	2.6	850	18	8
155-083-17DBB	Souris River	04/07/86	8.4	0.04	0.13	45	24	75	11	250	0	150	16	0.2	1	0.19	454	210	6	42	2.3	720	9.5	8
155-083-17DBB	Souris River	08/26/86	5.9	0.01	0.06	47	29	85	13	288	0	160	22	0.2	1	0.35	506	240	1	42	2.4	805	18.5	7.99
155-083-17DBB	Souris River	03/26/87	8.9	0.17	0.06	24	12	21	11	104	0	73	8.1	0.1	1	0.04	210	110	25	27	0.9	380	0.5	7.85
155-083-17DBB	Souris River	09/10/87	0	0.03	0.03	46	36	130	16	372	0	190	35	0.3	0.6	0.24	637	260	0	50	3.5	1015	15.5	8.29
155-083-17DBB	Souris River	05/02/88	2.5	0.01	0.03	55	35	100	8.7	344	0	210	3.2	0.2	1	0.2	585	280	0	43	2.6	980	12.5	8.64
155-083-17DBB	Souris River	08/25/88	7.6	0.01	0.04	52	36	120	16	330	26	220	36	0.3	1	0.29	678	280	0	47	3.1	1080	20.5	7.9
155-083-17DBB	Souris River	03/29/89	7.5	0.2	0.12	22	11	22	9	93	0	70	6.9	0.1	2.5	0.05	197	100	24	30	1	320	0	7.69
155-083-17DBB	Souris River	09/06/89	0.3	0.03	0.01	38	40	170	21	386	33	180	56	0.3	1	0.18	730	260	0	56	4.6	1165	17.5	8.99
155-083-17DBB	Souris River	05/02/90	0.3	0.01	0.01	54	39	150	14	396	0	250	44	0.3	1	0.28	748	300	0	51	3.8	1160		8.27
155-083-17DBB	Souris River	03/28/91	8.3	0.01	0.04	72	58	240	23	588	0	400	75	0.3	1	0.53	1170	420	0	54	5.1	1740	1.5	8.34
155-083-17DBB	Souris River	03/27/92	6.5	0.03	0.08	73	54	290	24	608	0	440	120	0.4	0	1.1	1310	400	0	59	6.3	1960	4.5	8.91
155-083-17DBB	Souris River	05/04/92	0.4	0.02	0.04	68	54	270	22	552	11	410	110	0.5	0	0.97	1220	390	0	58	5.9	1880	17.5	8.62
155-083-17DBB	Souris River	04/19/93	5.2	0.02	0.01	65	56	270	22	536	20	390	110	0.5	0	0.87	1200	390	0	58	5.9	1750	9	8.6
155-083-19BCCR	Souris River	08/13/92	1.3	0.04	0.09	35	23	96	9.1	231	9	140	44	0.2	0.09	0.32	473	180	0	52	3.1	882	20	
155-083-22CB	Reharge pit	08/04/71	5.4	0	0.03	43	27	65	11	238	0	152	15	0.1	1	0.09	437	219	24	38	1.9		22	
155-083-23BAAR	Souris River	08/11/92	2.5	0.02	0.02	42	25	70	7.5	189	16	170	29	0.2	2.7	0.23	458	210	27	41	2.1	1113	21	
155-083-23BBB	Souris River	05/18/64	2.8	0.33		66	29	152	17	431	9	214	31	0.4	5	0.75	738	284	0	52	3.9		20.6	
155-083-23BBB	Souris River	05/18/64	17	0.24		127	54	87	17	543	0	259	27	0.3	8	0	863	540	95	25	1.6		25	
155-083-23BBB	Souris River	05/18/64	7.6	0.25		46	21	62	15	267	0	72	20	0.5	50	0	425	204	0	38	1.9		25	
155-083-23CC	Souris River	10/02/68	5	0.18	0.08	56	29	135	13	373	0	232	29	0.3	0	0.2	684	260	0	52	3.6			
155-083-23CCBR	Souris River	08/12/92	1.3	0.03	0.03	52	69	200	15	229	37	490	93	0.4	0	0.58	1070	410	160	50	4.3	1566	19	

Table 8 - - Dissolved chemical constituents in water - - their effects upon usability and recommended concentration limits for domestic and municipal water supplies in North Dakota.

Constituent or Parameter	Effects of dissolved constituents on water use	Suggested limits for drinking water in North Dakota	U.S. Public Health Service recommended limits for drinking water[2]
Silica (Sio_2)	No physiological significance.		
Iron (Fe)	Concentrations over 0.1 mg/l will cause staining of fixtures. Over 0.5 mg/l may impart taste and colors to food and drink.		0.3 mg/l
Manganese (Mn)	Produces black staining when present in amounts exceeding 0.05 mg/l.		0.05 mg/l
Calcium (Ca) and Magnesium (Mg)	Calcium and magnesium are the primary causes of hardness. High concentrations may have a laxative effect on persons not accustomed to this type of water.		
Sodium (Na)	No physiological significance except for people on salt-free diets. Does have an effect on the irrigation usage of water.		
Potassium (K)	Small amounts of potassium are essential to plant and animal nutrition.		
Bicarbonate (HCO_3) and Carbonate (CO_3)	No definite significance, but high bicarbonate content will impart a flat taste to water.		
Sulfate (SO_4)	Combines with Calcium to form scale. More than 500 mg/l tastes bitter and may be a laxative	0-300 mg/l - low 300-700 mg/l - high over-700 mg/l - very high	250 mg/l
Percent Sodium and Sodium Adsorption Ratio (SAR)	Indicate the sodium hazard of irrigation water.		
Chloride (cl)	Over 250 mg/l may impart a salty taste, greatly excessive concentrations may be physiologically harmful. Humans and animals may adapt to higher concentrations.		250 mg/l
Flouride (F)	Flouride helps prevent tooth decay within specified limits. Higher concentrations cause mottled teeth.	Limits of 0.9 mg/l to 1.5 mg/l	Recommended limits depend on average of daily temperatures. Limits range from 0.6 mg/l at 32°C. to 1.7 mg/l at 10°C.
Nitrate (NO_3)	Over 45 mg/l can be toxic to infants. Larger concentrations can be tolerated by adults. More than 200 mg/l may have a deleterious effect on livestock health.		45 mg/l
Boron (B)	No physiological significance. Greater than 2.0 mg/l may be detrimental to many plants.		
Total dissolved solids	Persons may become accustomed to water containing 2,000 mg/l or more dissolved solids.	0-500 mg/l - low 500-1400 mg/l average 1400-2500 mg/l high over 2500 mg/l very high	500 mg/l
Hardness (as $CaCo_3$)	Increases soap consumption, but can be removed by a water-softening system.	0-200 mg/l - low 200-300 mg/l average 300-450 mg/l high over 450 mg/l very high	
pH	Should be between 6.0 and 9.0 for domestic consumption.		
Specific Conductance	An electrical indication of total dissolved solids measured in micromhos per Centimeter at 25°C. Used primarily for irrigation analyses.		

1. Schmid, R.W., 1965, Water Quality Explanation: North Dakota State Water Commission, unpublished report, File No. 989.
2. U.S. Public Health Service, 1962, Public Health Service Drinking Water Standards: U.S. Public Health Service, Pub. No. 956, 61 p.