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COUNTY GROUND-WATER STUDIES 18 — PART II
NORTH DAKOTA STATE WATER COMMISSION

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GROUND-WATER BASIC DATA
BENSON and PIERCE COUNTIES, NORTH DAKOTA

by
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Prepared by the United States Geological Survey in cooperation with the North Dakota State Water Commission, North Dakota Geological Survey, Benson County Water Management District, and Pierce County Management District.

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INTRODUCTION

The purpose of the hydrologic investigation in Benson and Pierce Counties, N. Dak. (fig. 1) is to determine the quantity and quality of ground water available for municipal, domestic, livestock, industrial, and irrigation uses. Specifically, within the amount of financing and time available, the scope is to: (1) determine the location, extent, and nature of the major aquifers; (2) evaluate the occurrence and movement of ground water, including the sources of recharge and discharge; (3) estimate the quantities of water stored in the aquifers; (4) estimate the potential yields to wells tapping the major aquifers; and (5) determine the chemical quality of the ground water.

The investigation was made cooperatively by the U.S. Geological Survey, North Dakota State Water Commission, North Dakota Geological Survey, and Benson and Pierce Counties Water Management Districts. The results of the investigation will be published in a hydrologic atlas by the U.S. Geological Survey, and in three separate parts of the bulletin series of the North Dakota Geological Survey and the county ground-water studies series of the North Dakota State Water Commission. Part I is an interpretive report describing the geology, Part II is a compilation of the ground-water basic data, and Part III is an interpretive report describing the ground-water resources. Part II makes available geologic and hydrologic data collected during the investigation and functions as a reference for Parts I and III.

The information in this report was collected chiefly between 1967 and 1970, and consists of the following: (1) data for about 1,780 wells and test holes; (2) water-level measurements in 181 observation wells; (3) logs of 667 test holes and selected wells; (4) chemical analyses of 303 water samples, and (5) particle-size analyses of 177 samples of water-bearing materials.

The data in this report are useful for predicting geologic and ground-water conditions in Benson and Pierce Counties. For example; a person

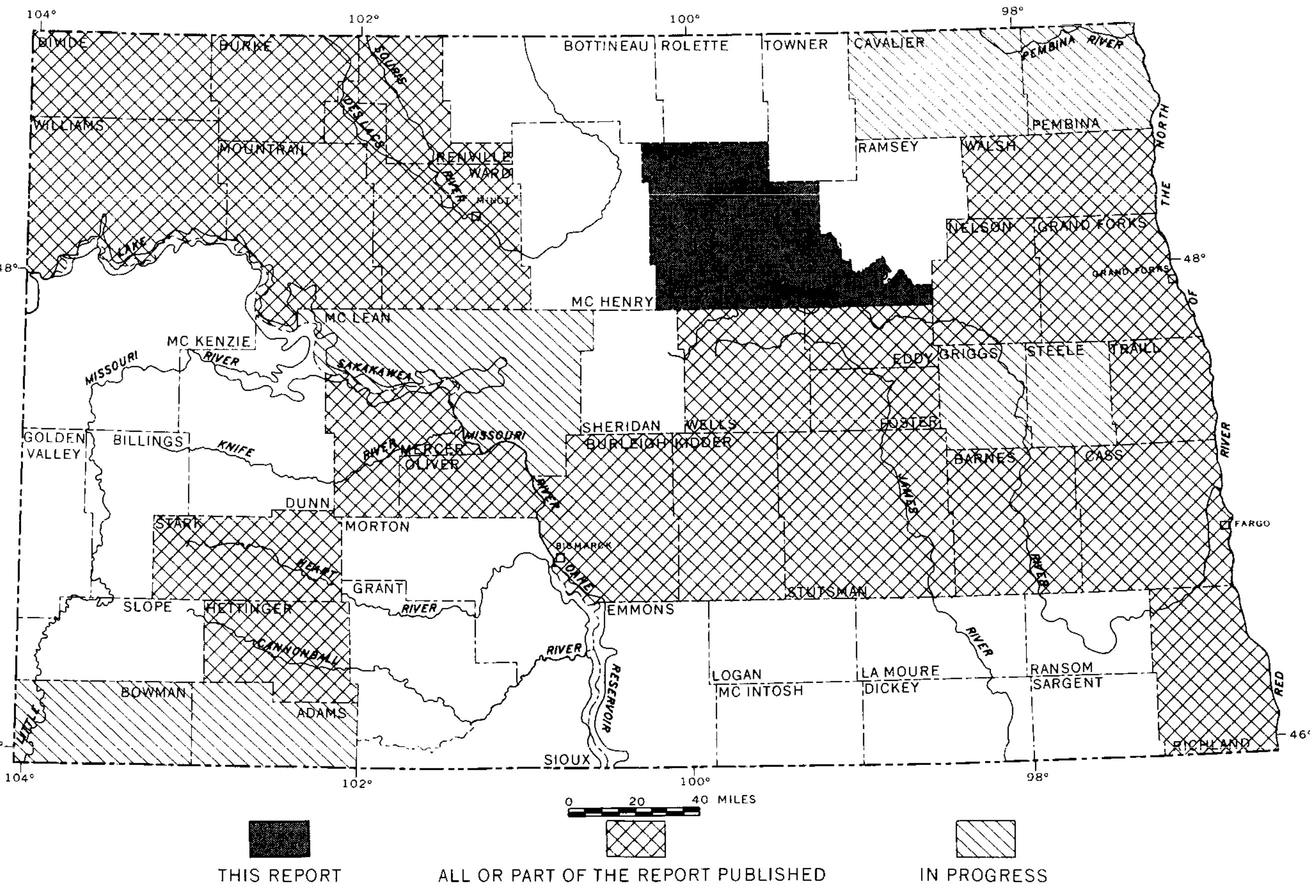

FIGURE 1.—County ground-water studies in North Dakota.

considering construction of a new well can locate the proposed site on plate 1 (in pocket). The characteristics of nearby wells may be determined from table 1, and the water-level fluctuations in the area may be determined from table 2. The type of material and hydrologic properties encountered in nearby wells may be determined from tables 3 and 5. The chemical quality of water in adjacent wells may be determined from table 4. Extrapolations based on these data should be conservative because of the irregular distribution of the water-bearing rocks.

Well-Numbering System

The wells and test holes listed in the tables are numbered according to a system based on the location in the public land classification of the United States Bureau of Land Management. The system is illustrated in figure 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. The 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 154-72-15ADA is in the NE¼SE¼NE¼ sec. 15, T. 154 N., R. 72 W. Consecutive terminal numerals are added if more than one well is recorded within a 10-acre tract. The location of each well and test hole listed in the tables is shown on plate 1.

Acknowledgments

The collection of data for this report was made possible by the cooperation of the County Commissioners and residents of Benson and Pierce Counties. The U.S. Bureau of Reclamation, the North Dakota Geological Survey, the C. A. Simpson & Son Drilling Company, the North Dakota State Health Department, and the North Dakota State Highway Department furnished logs and other information published in this report. C. E. Naplin, groundwater hydrologist, and Lewis Knutson, driller with the North Dakota State Water Commission, drilled and logged most of the test holes. G. O. Muri, chemist with the North Dakota State Water Commission, analyzed most of the water samples. J. D. Wald, technician with the U.S. Geological Survey, conducted most of the mechanical analyses.

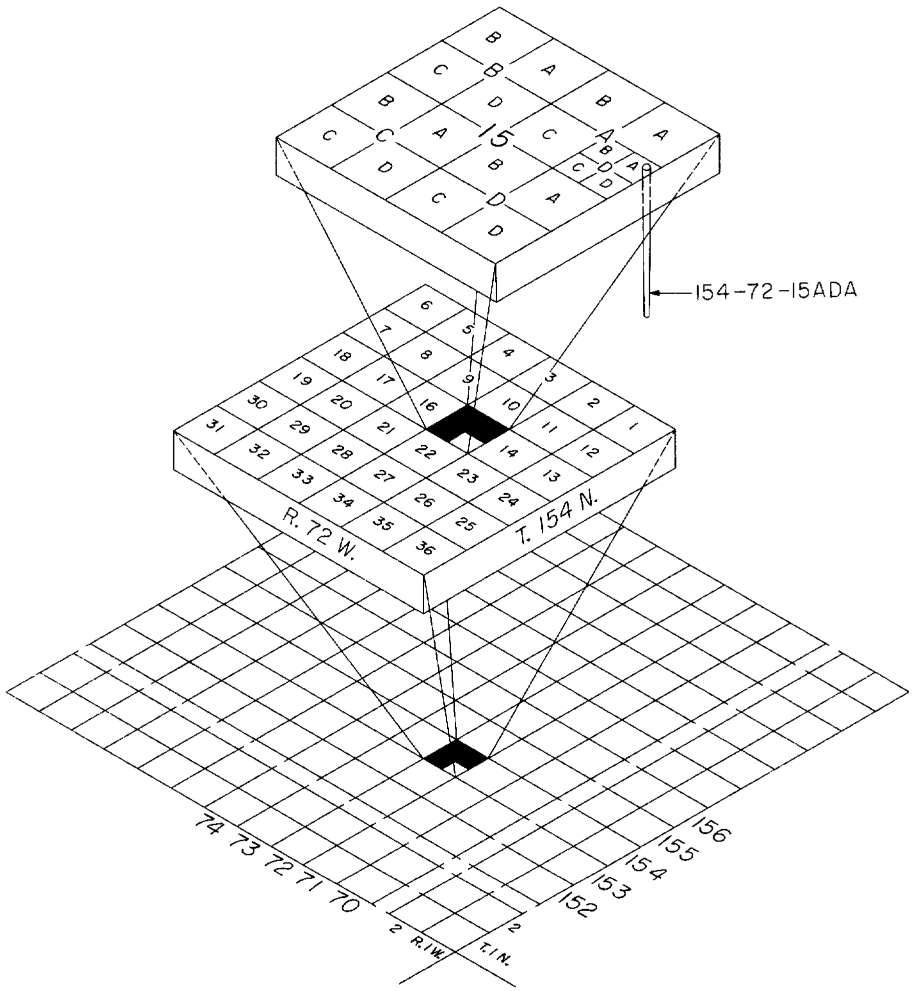

FIGURE 2.--System of numbering wells and test holes.

METHODS OF STUDY

Observation wells were developed in selected test holes for water-level measurements, quality-of-water sampling, and aquifer testing. The wells were constructed of 1¼-inch plastic or steel casing with 2 to 6 feet of 12- to 24-slot (0.012- to 0.024-inch openings) well screens and 4-inch plastic casing with 5 feet of 12- to 24-slot well screens. The observation wells were pumped from 4 to 12 hours for development before water samples were collected for chemical analyses (table 4). Several of the 4-inch wells were pumped at rates ranging from 22 to 102 gpm (gallons per minute) for about 24 hours. About 40 existing unused domestic and livestock wells were also used as observation wells.

Water-level measurements were made periodically from the summer of 1967 to December 1970. Eleven wells were equipped with continuous water-level recorders. Measurements will continue to be made in many of the wells as part of the statewide observation-well network. The locations of the observation wells are shown on plate 1, and the water-level measurements are given in table 2.

The logs of test holes given in table 3 are composites of the well-site geologists' and drillers' descriptions, sample analyses, and electric logs (where available). Many samples were examined with a binocular microscope in order to describe them more precisely and completely. Grain-size determinations refer to the Wentworth (1922) size scale. Color descriptions were determined by comparing the sample with the Geological Society of America rock-color chart (1963). Test holes with numbers between 2869 and 5689 were drilled as part of this investigation. Test holes with other numbers were drilled as part of municipal ground-water investigations for Devils Lake, Minnewaukan, Maddock, Leeds, and Rugby. These test holes are quoted from and referenced to reports published for the municipal studies.

The term "till" indicates an unsorted, unstratified, cohesive agglomeration of rock particles ranging from clay to boulders. Generally clay is the predominant particle size. If a particle size other than clay is dominant, that particle size is used as a modifying term. Consequently terms such as silty, sandy, or gravelly are textural terms used to indicate that the material described contains an appreciable, but not a dominant amount of the modifying material.

Particle-size distributions were determined by the sieve and hydrometer method for 177 selected samples, and are shown in table 5.

The stratigraphic nomenclature used in this report is that of the North Dakota Geological Survey and, in some instances, differs from that of the U.S. Geological Survey.

WATER-QUALITY DATA

Natural water contains dissolved mineral matter. Water in contact with soils or rock, even for only a few hours, will dissolve some mineral matter. The quantity of dissolved mineral matter in water depends primarily on the length of time and type of rocks or soil with which the water has been in contact. Ground water commonly is more highly mineralized than surface water because it remains in contact with rocks and soil for much longer periods.

The mineral constituents and physical properties of water reported in the table of analyses (table 4) include those that have a practical bearing on the value of the water for most purposes. The analyses generally include determinations of silica, iron, calcium, magnesium, sodium, potassium (or sodium and potassium together calculated as sodium), alkalinity as carbonate and bicarbonate, sulfate, chloride, fluoride, nitrate, boron, dissolved solids, pH, specific conductance, and temperature.

The dissolved mineral constituents in water are usually reported in milligrams per liter or micrograms per liter (mg/l or µg/l, as in table 4 of this report), parts per million (ppm), or grains per U.S. gallon (gr/gal). A milligram per liter is 1 thousandth (0.001) of a gram of dissolved material per liter of solution. A microgram per liter is 1 millionth (0.000001) of a gram of dissolved material per liter of solution. A part per million is a unit weight of dissolved material in a million unit weights of solution. A grain per U.S. gallon is 1 grain (unit of weight) of dissolved material per U.S. gallon of solution.

Milligrams per liter is practically equivalent to parts per million for water containing less than 7,000 ppm dissolved solids. Milligrams per liter can be converted to grains per gallon by dividing milligrams per liter by 17.12 (Hem, 1970, p. 81).

Equivalents per million (epm) is the unit chemical combining weight of a constituent in a million weights of water. These units are usually not reported, but are used to calculate percent sodium, the sodium-adsorption ratio (SAR), or to check the accuracy of a chemical analysis.

Mineral Constituents in Solution

Silica (SiO_2)

Silica is dissolved from practically all rocks. Some water contains less than 5 mg/l of silica and some contains more than 50 mg/l, but the more common range is from 10 to 30 mg/l. Silica affects the usefulness of water because it contributes to the formation of scale in pipes, water heaters, and boilers.

Iron (Fe)

Iron compounds are common in rocks and are easily leached by ground water. On exposure to air, normal basic water that contains more than 100 µg/l of iron soon becomes turbid with the insoluble reddish ferric oxide produced by oxidation. Surface water seldom contains as much as 1,000 µg/l of dissolved iron, although some acid water carries large quantities of iron in solution. Ground water usually contains less than 10,000 µg/l. The U.S. Public Health Service (1962) recommends an upper limit of 0.3 ppm (300 µg/l) of iron in drinking water because in greater concentrations it imparts a metallic taste. It also causes reddish-brown stains on porcelain or enamelware and fixtures and on fabrics washed in the water.

Calcium (Ca)

Calcium may be leached from most rocks. It is a major cause of hardness and forms scale on utensils and on boilers and pipes. The calcium content of ground water may be as high as several hundred milligrams per liter.

Magnesium (Mg)

Magnesium is dissolved from many rocks, particularly from dolomitic rocks. Its effect in water is similar to that of calcium. The magnesium in soft water may amount to only 1 or 2 mg/l, but water in areas that contain large quantities of dolomite or other magnesium-bearing rocks may contain more than 100 mg/l of magnesium. Sea water contains more than 1,000 mg/l of magnesium.

Sodium and potassium (Na and K)

Sodium and potassium are dissolved from practically all rocks. Sodium is the predominant cation in some of the more highly mineralized water found in the western United States. In water that contains less than 10 mg/l of sodium, the potassium concentration may commonly be from a tenth to a half that of sodium. However, the proportion of sodium to potassium becomes much greater as the total quantity of these constituents increases. Moderate quantities of sodium and potassium generally have little effect on the usefulness of water, but water that carries more than about 50 mg/l of the two may require careful operation of steam boilers to prevent foaming. More highly mineralized water that contains a large proportion of sodium salts may be unsatisfactory for irrigation. The presence of several hundred milligrams per liter of sodium in water makes it unsuitable for use in sodium-restricted diets used as therapy for cardiovascular diseases (North Dakota State Dept. of Health, 1962).

Bicarbonate and carbonate (HCO_3 and CO_3)

Bicarbonate and carbonate ions commonly are dissolved from carbonate rocks and are the major cause of alkalinity in most water. Although alkalinity is primarily due to the presence of bicarbonate and carbonate, other ions also contribute to alkalinity such as silicates, phosphates, borates, possibly fluoride, and certain organic anions that may occur in colored water. The significance of alkalinity to the domestic, agricultural, and industrial user is usually dependent upon the nature of the cations (Ca, Mg, Na, and K) associated with it. However, moderate amounts of alkalinity do not adversely affect most uses.

Sulfate (SO_4)

Sulfate is dissolved from many rocks and soils--in especially large quantities from beds of gypsum and shale. Sulfate in water that contains much calcium and magnesium causes the formation of hard scale in steam boilers and may increase the cost of softening the water. The U.S. Public Health Service (1962) recommends that 250 ppm (mg/l) of sulfate should be the upper limit for drinking water.

Chloride (Cl)

Chlorides are generally very soluble compounds and are found in most rocks; therefore, chlorides generally are found in all natural water. Large quantities of chloride may affect the industrial use of water by increasing the corrosiveness of water that contains large quantities of calcium and magnesium. The U.S. Public Health Service (1962) recommends an upper limit of 250 ppm (mg/l) of chloride for drinking water.

Fluoride (F)

Fluoride has been reported as being present in igneous and some sedimentary rocks to about the same extent as chloride. However, most fluorides, unlike the chlorides, are low in solubility so that the quantity of fluoride in natural water is ordinarily very small compared to that of chloride. Hem (1970, p. 178) indicated that fluoride concentrations in excess of 10 ppm (mg/l) are rare. Investigations have shown that fluoride concentrations between 0.6 and 1.7 ppm (mg/l) have a beneficial effect on the structure and resistance to decay of children's teeth, and that concentrations greater than 1.7 ppm also protect the teeth from cavities, but cause an undesirable black stain (Durfor and Becker, 1964). The U.S. Public Health Service (1962, p. 8) states, "When fluoride is naturally present in drinking water, the concentration should not average more than the appropriate upper limit..." (0.8 to 1.7 mg/l). "Presence of fluoride in average concentrations greater than two times the optimum values...shall constitute grounds for rejection of the supply." According to the U.S. Public Health Service, the recommended optimum fluoride concentration in drinking water depends on the annual average of the maximum daily air temperature (which presumably controls water intake). For climates having an average daily maximum air temperature between 50.0 and 53.7°F, such as in North Dakota, the optimum fluoride concentration is 1.2 ppm (mg/l), and the recommended upper limit is 1.7 ppm. Concentrations greatly higher than the stated limits may cause mottled enamel in teeth, endemic cumulative fluorosis, and skeletal defects.

Nitrate (NO_3)

Nitrate in water is considered a final oxidation product of nitrogenous material and may indicate contamination by sewage or other organic matter. U.S. Public Health Service (1962) sets 45 ppm (mg/l) as the upper limit for nitrate. Ingestion of water containing excessive quantities of nitrate may result in infantile methemoglobinemia. If the concentration is sufficiently great, both man and animals can be poisioned by nitrate.

Boron (B)

Boron in small quantities is essential for plant growth, but irrigation water containing more than 1,000 µg/l (1 mg/l) boron is detrimental to boron-sensitive crops.

Dissolved solids

The reported quantity of dissolved solids--the residue on evaporation--consists mainly of the dissolved mineral constituents in the water. It may also contain some organic matter and water of crystallization. Water with less than 500 mg/l of dissolved solids is usually satisfactory for domestic and some industrial uses. Water containing several thousand milligrams per liter dissolved solids is sometimes successfully used for irrigation where practices permit the removal of soluble salts through the application of large volumes of water on well-drained lands, but generally water containing more than about 2,000 mg/l is considered to be unsuitable for long-term irrigation under average conditions.

Properties and Characteristics of Water

Temperature

Temperature is an important factor in properly determining the quality of water. This is evident for such a direct use as an industrial coolant. Temperature also is important, but perhaps not so evident, for its indirect influence upon concentrations of dissolved gases and distribution of chemical solutes in ground water. Temperatures in this report (tables 1 and 4) are expressed in degrees Celsius (Centigrade). Degrees Celsius and the equivalent temperature in degrees Fahrenheit are given in the following table:

Degrees Celsius	Degrees Fahrenheit	Degrees Celsius	Degrees Fahrenheit	Degrees Celsius	Degrees Fahrenheit
2.0	36	10.5	51	19.0	66
2.5	37	11.0	52	19.5	67
3.0	38	11.5	53	20.0	68
4.0	39	12.0	54	20.5	69
4.5	40	12.5	55	21.0	70
5.0	41	13.5	56	21.5	71
5.5	42	14.0	57	22.0	72
6.0	43	14.5	58	22.5	73
6.5	44	15.0	59	23.5	74
7.0	45	15.5	60	24.0	75
7.5	46	16.0	61	24.5	76
8.5	47	16.5	62	25.0	77
9.0	48	17.0	63	25.5	78
9.5	49	17.5	64	26.0	79
10.0	50	18.5	65	26.5	80

Normally, the temperature of ground water within 60 feet of the surface approximates the mean annual air temperature and increases 0.56°C (1°F) for each 60 to 100 feet of increase in depth.

Hardness

Hardness is the characteristic of water that receives the most attention in industrial and domestic use. It is commonly recognized by the increased quantity of soap required to produce lather. The use of hard water is also objectionable because it contributes to the formation of scale in boilers, water heaters, radiators, and pipes, with a resultant decrease in rate of heat transfer and possibility of water heater or boiler failure.

Hardness is caused almost entirely by compounds of calcium and magnesium. Other constituents--such as iron, manganese, aluminum, barium, strontium, and free acid--also cause hardness, although they usually are not present in quantities large enough to have any appreciable effect.

Generally bicarbonate and carbonate determine the proportions of "carbonate" hardness of water. Carbonate hardness is the amount of hardness chemically equivalent to the amount of bicarbonate and carbonate in solution. Carbonate hardness is approximately equal to the amount of hardness that is removed from water by boiling and is termed temporary hardness.

Noncarbonate hardness is the difference between the hardness calculated from the total amount of calcium and magnesium in solution and the carbonate hardness. If the carbonate hardness (expressed as calcium carbonate) equals the amount of calcium and magnesium hardness (also expressed as calcium carbonate) there is no noncarbonate hardness. Noncarbonate hardness is about equal to the amount of hardness remaining after water is boiled. The scale formed at high temperatures by the evaporation of water containing noncarbonate hardness commonly is tough, heat resistant, and difficult to remove.

Although many people talk about soft water and hard water, there has been no firm line of demarcation. Water that seems hard to an easterner may seem soft to a westerner. Therefore, the U.S. Geological Survey has adopted the following classification.

Hardness range (calcium carbonate in mg/l)	Hardness description
0-60	Soft
61-120	Moderately hard
121-180	Hard
More than 180	Very hard

For public use, water with hardness of about 200 ppm (mg/l) generally requires softening treatment (Durfor and Becker, 1964).

Specific conductance (micromhos per centimeter at 25°C)

Specific conductance is a convenient, rapid determination used to estimate the amount of dissolved solids in water. It is a measure of the ability of water to conduct an electrical current. Commonly, the amount of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from well to well and it may even vary in the same source with changes in the composition of the water (Durfor and Becker, 1964).

Specific conductance of most water in the eastern United States is less than 1,000 micromhos, but in the arid western parts of the country, a specific conductance of more than 1,000 micromhos is common.

Sodium-adsorption ratio (SAR)

The term "sodium-adsorption ratio (SAR)" was introduced by the U.S. Salinity Laboratory Staff (1954). It is the ratio expressing the relative activity of sodium ions in exchange reaction with soil and is an index of the sodium or alkali hazard to the soil. Sodium-adsorption ratio is expressed by the equation:

$$SAR = \frac{Na^{+}}{\sqrt{\frac{Ca^{++}+Mg^{++}}{2}}}$$

where the concentration of the ions are expressed in milliequivalents per liter (or equivalents per million for most irrigation water).

Water is divided into sixteen classes (U.S. Salinity Laboratory Staff, 1954, p. 80), depending upon the SAR and specific conductance. Water varies in respect to sodium hazard and specific conductance from that which can be used for irrigation on almost all soils to that which is generally unsatisfactory for irrigation.

Hydrogen-ion concentration (pH)

Hydrogen-ion concentration is expressed in terms of pH units. The values of pH often are used as a measure of the solvent power of water or as an indicator of the chemical behavior certain solutions may have toward rock minerals.

The degree of acidity or alkalinity of water, as indicated by the hydrogen-ion concentration, expressed as pH, affects the corrosive properties of water, and partly determines the proper treatment for coagulation that may be necessary at water-treatment plants. A pH of 7.0 indicates that the water is neither acid nor alkaline. Readings progressively lower than 7.0 denote increasing acidity and those progressively higher than 7.0 denote increasing alkalinity. The pH of most ground water ranges between 5.5 and slightly more than 8.

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

EXPLANATION

Owner

NDSWC 5465, North Dakota State Water Commission, test hole number 5465

USGS, U.S. Geological Survey

USBR, U.S. Bureau of Reclamation

USBIA, U.S. Bureau of Indian Affairs

NDGS BP68-3, North Dakota Geological Survey, Benson and Pierce Counties, drilled in 1968, auger-hole number 3

Free Peoples Lake, Lake name and location from which water sample was collected for analysis

Water level (feet)

Water level, in feet below land surface
F, well flows

Water use

C, commercial
H, domestic
K, domestic and stock
P, public supply
S, stock
U, unused

Major aquifer

KE, surface lake
K3, Upper Cretaceous
PC, Fox Hills Formation
PD, Pierre Formation
PM, Dakota Group
QG, Quaternary-Pleistocene
01, lake deposits
11, ice-contact deposits
22, terrace deposits
31, outwash
41, till
51, buried-channel outwash deposits

Water-bearing material

1, very fine grained
2, fine grained
3, medium grained
4, coarse grained
6, clayey
7, silty
8, sandy
9, gravelly

F, shale
G, gravel
P, clay
R, sand and gravel
S, sand
T, till
V, sandstone
W, siltstone
1, lignite

Log available

D, drillers log
E, electric log
G, geologists log
8, other combination

Specific conductance (micromhos per centimeter at 25°C)

1, 51-150
2, 151-300
3, 301-500
4, 501-1,000
5, 1,001-2,000
6, 2,001-5,000
7, 5,001-10,000

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAM-ETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAIL-ABLE	SPE-CIFIC CON-DUCT ANCE	TEM-PER-ATURE (°C)	DEPTH TO CONSL. ROCK (FT.)	ELEVA-TION OF LSD (FT.)
151N062W06ACA	S.SENGER		69	--	5	--	52	5-68	K	PD	--	--	--	5	6.5	--	--
151N062W07CDC	M.DANCE EAGLE		51	--	--	--	45	--	U	--	--	--	--	--	--	--	--
151N062W08DCD	J.JUSTIN		64	--	--	--	58	4-68	U	--	--	--	--	--	--	--	--
151N062W11DCC	USBR		50	--	5	1961	29	1-61	U	--	7S	22	G	--	--	--	1498
151N062W13DDC	R.JOHNSON		27	--	30	--	19	--	U	--	--	--	--	4	8.5	--	--
151N062W14AAA	NDSWC 5466	300	224	218	1	1969	--	--	U	51	R	181	GE	4	6.5	280	1515
151N062W15AAA	NDSWC 5551	340	203	197	1	1969	43	11-69	U	--	R	157	GE	--	--	319	1490
151N062W15BBB	NDSWC 5465	240	204	198	1	1969	47	9-69	U	51	R	119	GE	4	6.5	216	1495
151N062W15CDD	B.DOIDGE		15	--	--	--	--	--	D	--	--	--	--	4	2.5	--	--
151N062W16CBC	USGS		50	--	5	1950	--	--	U	--	R	20	GE	--	--	43	1490
151N062W19AAA1	USBR		24	--	--	1952	20	6-52	U	31	--	--	--	--	--	--	1486
151N062W19AAA2	M.HARTLE		149	--	4	1958	23	10-04	U	--	S	--	--	--	--	--	1488
151N062W19ABA	M.HARTLE		33	--	48	--	22	10-67	K	--	S	--	--	4	7.5	--	--
151N062W19ADD1	NDSWC 2877	80	38	33	4	1967	18	11-67	U	31	R	25	GE	3	6.5	45	1485
151N062W19ADD2	NDGS BP68-3		30	28	1	1968	--	--	U	--	R	39	G	--	--	--	--
151N062W20CCB	USGS		125	--	5	1950	--	--	U	--	R	114	G	--	--	116	1465
151N062W21BAA	NDSWC 5550	200	166	160	1	1969	21	9-69	U	31	9S	53	GE	--	--	196	1485
151N062W22BBB1	B.DOIDGE		60	--	5	--	--	--	U	--	--	--	--	3	6.5	--	--
151N062W22BBB2	NDSWC 5549	200	177	171	1	1969	12	9-69	U	31	R	115	GE	4	5.5	184	1476
151N062W24AAA	NDSWC 5548	220	203	197	1	1969	40	11-69	U	51	R	63	GE	--	--	208	1495
151N062W25ABB	A.RUDE		24	--	36	--	17	4-68	S	--	--	--	--	4	6.0	--	--
151N062W26BBA	USBR		13	--	--	1952	5	6-52	U	31	--	--	--	--	--	--	1469
151N062W27AAA1	NDGS BP67-54	24	16	14	1	1967	4	11-67	U	31	R	20	G	--	--	--	1469
151N062W27AAA2	NDSWC 5464	320	204	198	1	1969	16	11-69	U	51	R	177	GE	4	6.5	290	1469
151N062W29BCC	NDGS BP68-16		15	--	3	1968	--	--	U	--	--	--	G	--	--	12	1475
151N062W29CBB	O.HALGREN		80	--	4	1956	--	--	S	--	--	--	--	6	7.5	--	--
151N062W30ADD	NDGS BP68-19		63	--	3	1968	--	--	U	--	S	51	G	--	--	58	1475
151N062W30DDA	NDSWC 5046		40	--	--	1968	--	--	U	--	S	6	G	--	--	14	1465
151N062W31AAB	NDGS BP68-15		9	--	3	1968	--	--	U	--	9S	2	G	--	--	2	1475
151N062W32BCC	NDGS BP68-20		15	--	3	--	--	--	U	--	--	--	G	--	--	5	1490
151N062W32CCB	NDGS BP67-53		19	15	1	1967	6	11-67	U	--	R	28	G	--	--	--	1468
151N062W33CAD	USGS		100	--	5	1953	--	--	U	--	R	76	D	--	--	--	1472
151N062W34CAD	L.MANNIE		16	--	48	--	7	4-68	K	--	--	--	--	4	6.5	--	--
151N062W34DDD	NDSWC 2875	220	170	167	1	1967	13	11-67	U	51	R	50	GE	4	7.0	180	1470
151N062W36CCC	NDSWC 5463	270	203	197	1	1969	10	11-69	U	51	R	149	GE	4	6.5	262	1463
151N063W01CCC	R.PAPACHEK		36	--	--	--	29	5-68	K	--	--	--	--	4	6.5	--	--
151N063W02DDC	B.PAPACHEK		185	--	--	--	60	--	K	--	--	--	--	5	10.0	--	--
151N063W03BBB1	L.ANDERSON		107	--	--	--	40	--	S	--	--	--	--	5	9.0	--	--
151N063W03BBB2	L.ANDERSON		200	--	--	--	30	--	K	--	--	--	--	5	3.0	--	--
151N063W03CDC	P.WILLIAMS		63	--	--	--	57	--	U	--	--	--	--	--	--	--	--

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAM-ETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAIL-ABLE	SPE-CIFIC CON-DUCT ANCE	TEM-PER-ATURE (°C)	DEPTH TO CONSL. ROCK (FT.)	ELEVA-TION OF LSD (FT.)
151N063W04CBC1	L.BERG		135	--	--	--	36	5-68	U	--	--	--	--	--	--	--	--
151N063W04CBC2	L.BERG		173	124	4	1963	40	9-63	K	--	F	58	D	6	7.5	115	1500
151N063W07ABB	M.PULST		118	--	--	--	--	--	K	--	--	--	--	4	5.5	--	--
151N063W08DDD	FREEPEOPLESLAKE		--	--	--	--	--	--	--	KE	--	--	--	7	5.5	--	--
151N063W10CCC	USGS		160	--	5	1951	--	--	U	--	R	68	GE	--	--	147	1471
151N063W12DDC	NDSWC 5467		200	--	5	1969	--	--	U	--	G	9	GE	--	--	185	1465
151N063W14AAA1	M.MATTERN		200	--	4	--	80	--	U	--	--	--	--	--	--	--	--
151N063W14AAA2	M.MATTERN		24	--	36	--	21	5-68	U	--	--	--	--	--	--	--	--
151N063W14AAA3	M.MATTERN		85	--	4	1966	26	5-68	K	--	--	--	--	4	3.0	--	--
151N063W14AAA4	USBR		31	--	1	1950	20	11-67	U	--	R	28	GE	--	--	97	1489
151N063W14DAA	M.MATTERN		34	--	4	--	21	9-67	U	--	--	--	--	--	--	--	1475
151N063W14DAD	M.MATTERN		34	--	4	--	21	5-68	U	--	--	--	--	--	--	--	--
151N063W14DDD	NDSWC 2876		80	--	5	1967	--	--	U	--	R	23	GE	--	--	37	1470
151N063W16BB	FREEPEOPLESLAKE		--	--	--	--	--	--	--	KE	--	--	--	8	22.0	--	--
151N063W16BC	ELBOW LAKE		--	--	--	--	--	--	--	KE	--	--	--	5	19.0	--	--
151N063W16DAA	USGS		85	--	5	1951	--	--	U	--	R	19	GE	--	--	79	1480
151N063W16DDA	NDGS BP68-34	33	25	20	1	1968	6	8-68	U	31	9S	33	G	4	7.0	--	1470
151N063W16DDD	USGS		100	--	5	1951	--	--	U	--	R	50	GE	--	--	95	1464
151N063W17AAB	M.BECKSTRAND		17	--	36	--	9	5-68	S	31	--	--	--	5	8.5	--	--
151N063W17ADA	ELBOW LAKE		--	--	--	--	--	--	--	KE	--	--	--	5	5.5	--	--
151N063W17CC	E.REEVES		183	141	4	1963	55	9-63	S	--	F	44	D	--	--	--	1500
151N063W19ABA	USGS		40	--	5	1951	--	--	U	--	R	23	GE	--	--	26	1477
151N063W20BCB	USGS		150	--	5	1951	--	--	U	--	7R	124	GE	--	--	145	1468
151N063W20BCD	USGS		120	--	5	1951	--	--	U	--	R	77	GE	--	--	107	1478
151N063W20CAC	USGS		145	--	5	1951	--	--	U	--	7R	102	G	--	--	133	1481
151N063W20CDA	USGS		195	--	5	1951	--	--	U	--	7R	176	GE	--	--	188	1483
151N063W20CDD1	USGS		190	--	5	1951	--	--	U	--	8R	144	GE	--	--	186	1482
151N063W20CDD2	USGS		125	--	5	1951	--	--	U	--	R	104	GE	--	--	--	1482
151N063W20CDD3	USGS		125	--	5	1951	--	--	U	--	6R	104	GE	--	--	--	1484
151N063W20CDD4	USGS		140	--	5	1951	--	--	U	--	6R	129	GE	--	--	--	1483
151N063W20CDD5	USGS		150	--	5	1951	--	--	U	--	9S	28	GE	--	--	139	1482
151N063W20CDD6	USGS		186	--	5	1952	--	--	U	--	6R	157	GE	--	--	178	1483
151N063W20CDD7	USGS		188	--	5	1952	--	--	U	--	7R	162	GE	--	--	183	1482
151N063W20CDD8	USGS		40	--	5	1952	--	--	U	--	R	29	GE	--	--	--	1482
151N063W20CDD9	USGS		189	--	5	1952	--	--	U	--	R	150	GE	--	--	178	1483
151N063W20CDD10	USGS		40	--	5	1952	--	--	U	--	S	29	GE	--	--	--	1483
151N063W20CDD11	DEVILS LAKE		135	--	12	1951	19	8-52	P	31	7R	116	D	--	--	--	1480
151N063W20CDD12	DEVILS LAKE		145	--	2	1952	23	8-69	P	--	7R	135	D	--	--	--	1480
151N063W20DCC	USGS		194	--	5	1951	--	--	U	--	9S	145	GE	--	--	187	1480
151N063W21DAA	USGS		95	--	5	1951	--	--	U	--	6R	56	GE	--	--	87	1477

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAM-ETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAIL-ABLE	SPE-CIFIC CON-DUCT ANCE	TEM-PER-ATURE (°C)	DEPTH TO CONSL. ROCK (FT.)	ELEVA-TION OF LSD (FT.)
151N063W24CBC	NDSWC 5468		100	--	5	1969	--	--	U	--	R	13	GD	--	--	64	1465
151N063W25AAB	NDSWC 2996	140	95	92	1	1968	7	12-68	U	31	R	136	GE	3	6.5	--	1470
151N063W25ACB	NDSWC 2995	80	59	18	1	1968	--	--	U	31	S	40	GD	3	--	70	1475
151N063W25ADB1	O.HALGREN		41	--	18	1953	6	10-67	U	31	S	24	D	3	6.5	42	1470
151N063W25ADB2	NDSWC 2993	120	49	18	1	1968	--	--	U	31	S	51	GE	3	--	91	1470
151N063W25ADB3	NDSWC 2994	80	64	18	1	1968	--	--	U	31	S	70	GE	3	--	76	1470
151N063W25ADB4	NDGS BP68-2	39	35	32	1	1968	6	7-68	U	--	S	24	G	--	--	--	--
151N063W25BBB	NDGS BP67-61	53	47	45	1	1967	11	11-67	U	31	R	42	G	3	7.5	--	1475
151N063W26BCC	NDGS BP67-59	14	12	10	1	1967	5	11-67	U	31	R	9	G	4	5.0	--	1467
151N063W26CBB	NDGS BP67-60		16	14	1	1967	7	11-67	U	31	R	9	G	4	5.5	--	1465
151N063W27CBA	NDGS BP67-58	19	16	14	1	1967	6	11-67	U	31	R	13	G	4	5.5	--	1470
151N063W27DCD	SHIN BONE LAKE		--	--	--	--	--	--	--	KE	--	--	--	6	15.5	--	--
151N063W28AAA	USGS		200	--	5	1951	--	--	U	--	7R	98	GE	--	--	--	1468
151N063W28ADA	NDGS BP67-57	47	40	38	1	1967	13	11-67	U	31	R	34	G	3	6.5	--	1475
151N063W28ADD	DEVILS LAKE		78	--	4	1951	--	--	P	31	6S	50	G	--	--	75	1476
151N063W28CCB	USGS		90	--	5	1951	--	--	U	--	9S	52	GE	--	--	83	1468
151N063W28CCD	USGS		200	--	5	1951	--	--	U	--	S	37	GE	--	--	194	1465
151N063W29AAC1	USGS		210	--	5	1951	--	--	U	--	7R	179	GE	--	--	203	1481
151N063W29AAC2	USGS		67	67	6	1951	20	9-68	U	--	R	58	GE	--	--	--	1483
151N063W29ABA	DEVILS LAKE 12		167	--	--	--	--	--	P	31	--	--	--	6	--	--	1480
151N063W29ABB1	DEVILS LAKE		70	--	1	--	22	9-68	U	--	--	--	--	--	--	--	1480
151N063W29ABB2	USGS		140	--	5	1951	--	--	U	--	R	110	GE	--	--	132	1482
151N063W29ABC1	DEVILS LAKE		70	--	1	--	19	12-68	U	--	--	--	--	--	--	--	1480
151N063W29ABC2	DEVILS LAKE 13		87	--	--	--	--	--	P	31	--	--	--	6	--	--	1481
151N063W29ABD1	DEVILS LAKE 11		112	--	--	--	--	--	P	31	--	--	--	4	7.0	--	--
151N063W29ABD2	DEVILS LAKE 10		108	--	--	--	--	--	P	31	--	--	--	5	--	--	1482
151N063W29BAA1	USGS		190	--	5	1951	--	--	U	--	R	147	GE	--	--	181	1480
151N063W29BAA2	USGS		150	--	5	1951	--	--	U	--	R	150	GE	--	--	--	1483
151N063W29BBA	G.JACOBSON		22	--	--	1940	15	8-50	K	31	--	--	--	--	--	--	1480
151N063W29DAA	USGS		140	--	5	1951	--	--	U	--	R	107	GE	--	--	127	1476
151N063W29DCC	NDGS BP67-56	47	42	40	1	1967	14	11-67	U	--	R	27	G	--	--	--	1476
151N063W31BBC	NDSWC 5049	140	40	37	1	1968	27	8-68	U	31	7R	50	GE	5	7.0	113	1485
151N063W32CBB	C.MOLSTAD		13	--	--	--	10	5-68	S	--	--	--	--	5	5.0	--	--
151N063W33DBB	USGS		110	--	5	1951	--	--	U	--	R	22	GE	--	--	106	1474
151N063W34BAC	SHIN BONE LAKE		--	--	--	--	--	--	--	KE	--	--	--	6	16.5	--	--
151N063W34CBA	U.S.POST OFFICE		10	--	1	1957	6	--	H	--	S	--	--	4	--	--	--
151N063W34DDA	USBR		11	--	--	--	8	12-68	U	--	--	--	--	--	--	--	1472
151N063W35CCC	NDGS BP68-31	26	24	19	1	1968	8	8-68	U	31	S	17	G	3	6.0	25	1470
151N063W35DCC	NDGS BP68-33	51	38	33	1	1968	3	8-68	U	31	7S	39	G	3	6.5	50	1465
151N063W36ADA	USGS		140	--	5	1950	--	--	U	--	7R	120	GE	--	--	131	1468

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAM-ETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAIL-ABLE	SPE-CIFIC CON-DUCT ANCE	TEM-PER-ATURE (C)	DEPTH TO CONSL. ROCK (FT.)	ELEVA-TION OF LSD (FT.)
151N063W36CCC	NDGS BP68-32	82	24	19	1	1968	4	8-68	U	31	S	77	G	3	6.0	--	1470
151N064W01DCC	L.ESTENSON		79	--	4	1964	47	5-68	S	--	--	--	--	3	7.5	--	--
151N064W02CAB	WOOD LAKE SCH.		21	--	--	--	32	5-68	H	--	--	--	--	4	14.0	--	--
151N064W02CAC1	TOKIO		43	--	--	--	36	5-68	U	--	--	--	--	--	--	--	--
151N064W02CAC2	D.GREENE		115	--	6	1967	98	--	H	--	--	--	--	5	7.5	--	--
151N064W02CAC3	TOKIO		38	--	--	--	32	5-68	--	--	--	--	--	4	6.5	--	--
151N064W04CCC	NDSWC 5474	140	103	97	1	1969	31	11-69	U	11	R	89	GE	3	6.5	120	1560
151N064W06CCC	NDGS BP67-49	54	49	39	1	1967	32	11-67	U	--	S	22	G	--	--	--	1585
151N064W07BBC	J.SINGER		137	--	4	1967	45	5-68	S	--	--	--	--	5	7.0	--	--
151N64W010AAA	NDSWC 2874	120	66	63	1	1967	14	11-67	U	51	8G	22	G8	4	7.0	78	1485
151N064W11DDD	SQUARE LAKE		--	--	--	--	--	--	--	KE	--	--	--	3	20.0	--	--
151N064W13CCB	MALLARD LAKE		--	--	--	--	--	--	--	KE	--	--	--	4	7.5	--	--
151N064W13DAD	C.FREDRICK		88	--	4	1961	47	10-67	S	--	S	--	--	--	--	--	1510
151N064W14DBD	E.FREDERICK		21	--	4	1965	11	5-68	S	--	--	--	--	5	7.5	--	--
151N064W14DD	MALLARD LAKE		--	--	--	--	--	--	--	KE	--	--	--	4	20.5	--	--
151N064W15BB	WOOD LAKE		--	--	--	--	--	--	--	KE	--	--	--	4	17.5	--	--
151N064W16AAA1	WOOD LAKE PARK		14	--	--	--	5	5-68	K	--	--	--	--	--	--	--	--
151N064W16AAA2	WOOD LAKE		--	--	--	--	--	--	--	KE	--	--	--	4	6.0	--	--
151N064W16DCC	L.TORNOW		35	--	--	--	30	5-68	S	--	--	--	--	4	4.0	--	--
151N064W18AAA	NDSWC 2873		180	--	5	1967	--	--	U	--	R	52	GE	--	--	147	1601
151N064W18BBB	USGS		150	--	5	1950	--	--	U	--	R	57	GE	--	--	142	1593
151N064W21CBC	L.JOHNSON		52	--	3	--	41	5-68	U	--	--	--	--	--	--	--	--
151N064W22CDC	A.POSSEN		75	--	--	1953	25	--	K	--	--	--	--	3	6.5	--	--
151N064W23DDC	NDSWC 5469	200	121	118	1	1969	77	9-69	U	--	R	79	GE	--	--	165	1620
151N064W25BDA	J.MONTEITH		35	--	--	--	30	5-68	U	--	--	--	--	--	--	--	--
151N064W29BBB	USGS		130	--	5	1950	--	--	U	--	7R	60	GE	--	--	126	1583
151N064W29BCC	V.HANSON		55	--	--	--	33	5-68	U	--	--	--	--	--	--	--	--
151N064W29CBB	A.DOYLE		50	--	--	--	34	5-68	K	--	--	--	--	5	6.5	--	--
151N064W33AAA	NDSWC 5050		160	--	--	1968	--	--	U	--	7R	84	GE	--	--	140	1590
151N064W35BCC	V.KOLSTAD		20	--	--	1958	F	--	S	--	--	--	--	3	6.0	--	--
151N064W36ADD	HORSESHOE LAKE		--	--	--	--	--	--	--	KE	--	--	--	8	8.5	--	--
151N065W02AAA	USGS		130	--	5	1950	--	--	U	--	R	15	GE	--	--	123	1615
151N065W02CDD	NDGS BP67-50	19	14	12	1	1967	4	11-67	U	31	G	15	G	4	7.5	--	1538
151N065W02DCC	USGS		100	--	5	1950	--	--	U	--	R	11	GE	--	--	89	1543
151N065W02DDC	NDSWC 5473		120	--	5	1969	--	--	U	--	R	22	GE	--	--	98	1540
151N065W04DCD	E.HAUKOM		18	--	--	--	15	--	K	--	--	--	--	4	7.0	--	--
151N065W04DDC	NDSWC 5688		60	--	5	1970	--	--	U	--	G	21	G	--	--	55	1545
151N065W06CBD	A.ZETTER		60	--	36	--	33	5-68	S	--	--	--	--	4	6.0	--	--
151N065W07ABB	A.ZETTER		22	--	30	1958	18	--	K	--	--	--	--	6	12.0	--	--
151N065W07BBB	NDSWC 5477		100	--	5	1969	--	--	U	--	R	5	GE	--	--	90	1525

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAM-ETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAIL-ABLE	SPE-CIFIC CON-DUCT ANCE	TEM-PER-ATURE (°C)	DEPTH TO CONSL. ROCK (FT.)	ELEVA-TION OF LSD (FT.)
151N065W08ABA	NDSWC 5475		120	--	5	1969	--	--	U	--	8G	10	GE	--	--	115	1540
151N065W09ABA	E.HAUKOM		24	--	24	--	19	5-68	S	--	--	--	--	--	--	--	--
151N065W12ADA	J.SINGER		53	--	--	--	50	5-68	S	--	--	--	--	4	6.0	--	--
151N065W14BDA	H.LYNN		84	--	4	--	26	5-68	K	--	--	--	--	4	6.0	--	--
151N065W18CCC	NDSWC 5478		80	--	5	1969	--	--	U	--	R	23	GD	--	--	60	1510
151N065W18DAD	M.CARLSON		26	--	24	--	24	9-67	U	31	--	--	--	4	7.0	--	1510
151N065W19CCC	NDGS BP67-43		14	--	3	1967	9	10-67	U	--	G	7	G	--	--	--	1495
151N065W20BBB	NDSWC 2872	160	60	58	1	1967	22	11-67	U	--	8G	36	GE	--	--	128	1545
151N065W21CAD	K.LAMOREAUX		18	--	--	--	15	5-68	U	--	--	--	--	--	--	--	--
151N065W22BDC1	NDGS BP67-46		39	32	1	1967	18	11-67	U	--	R	6	G	--	--	--	1510
151N065W22BDC2	NDSWC 5052		100	--	5	1968	--	--	U	--	R	23	G	--	--	70	1510
151N065W22BDD	BIG COULEE		--	--	--	--	F	--	U	--	--	--	--	4	--	--	--
151N065W23BCC	SULLIVAN		95	--	4	--	72	5-68	U	--	--	--	--	--	--	--	--
151N065W25CDD	J.SOOKOV		130	--	4	1963	33	5-68	K	--	--	--	--	5	5.5	--	--
151N065W26BBB	U.S.B.I.A.		47	--	24	--	38	5-68	U	--	--	--	--	--	--	--	1565
151N065W26DDD	NDSWC 5051		140	--	5	1968	--	--	U	--	R	9	GE	--	--	120	1550
151N065W29BBB	USBR		100	--	--	1953	6	3-53	U	--	S	90	G8	--	--	99	1425
151N066W01CCC	NDSWC 5054	120	50	47	1	1968	36	8-68	U	11	S	25	GE	4	6.5	90	1535
151N066W02CDC	C.BEUSCHLINK		34	--	--	--	28	5-68	S	--	--	--	--	5	9.0	--	--
151N066W03AAA	P.HOMELVIG		31	--	--	--	27	6-68	K	--	--	--	--	5	9.5	--	--
151N066W04DDD	NDSWC 2870		140	--	5	1967	--	--	U	--	R	15	GE	--	--	95	1480
151N066W09CBA	J.NORDLAND		70	--	24	--	46	10-67	U	--	--	--	--	5	6.5	--	1560
151N066W09CDB	M.FISHER		68	--	--	--	46	6-68	U	--	--	--	--	--	--	--	--
151N066W12CDA	H.MUSTAGH		48	--	--	--	44	5-68	U	--	--	--	--	--	--	--	--
151N066W17AAA	T.LOGAN		59	--	36	1953	45	5-68	K	--	--	--	--	5	6.5	--	--
151N066W19DDA	USBR		25	--	--	1955	--	--	U	--	S	9	G8	--	--	--	1550
151N066W20ABB	O.LOKEN		40	--	--	--	33	5-68	U	--	--	--	--	3	15.5	--	--
151N066W20ACC	O.LOKEN		49	--	36	--	45	5-68	U	--	--	--	--	--	--	--	--
151N066W20ADD	J.LOKEN		31	--	--	--	28	6-68	H	--	--	--	--	5	14.5	--	--
151N066W21ABA	USBR		40	--	--	1955	20	9-55	U	--	S	7	G8	--	--	--	1545
151N066W21BDD	G.NELSON		20	--	36	--	15	6-68	U	--	--	--	--	--	--	--	--
151N066W21CBB	USBR		25	--	--	1955	--	--	U	--	S	10	G8	--	--	--	1547
151N066W21CCC	NDSWC 2871	80	30	28	1	1967	4	11-67	U	31	G	15	GE	5	6.5	50	1528
151N066W23ADD1	N.BIRKLAND		26	--	24	--	20	5-68	U	--	--	--	--	--	--	--	--
151N066W23ADD2	USBR		20	--	2	--	7	8-68	U	37	--	--	--	4	5.5	--	1515
151N066W23ADD3	NDSWC 5053		100	--	5	1968	--	--	U	--	G	8	GE	--	--	35	1515
151N066W23ADD4	N.BIRKLAND		25	--	--	--	10	5-68	U	--	--	--	--	--	--	--	--
151N066W28CCC	USBR		22	--	2	--	14	11-67	U	41	--	--	--	5	6.5	--	1491
151N066W28DBC	L.NELSON		50	--	5	1962	--	--	K	--	--	--	D	--	--	--	--
151N066W29CDC	C.ERICKSON		6	--	36	--	5	--	U	--	--	--	--	--	--	--	--

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAM-ETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAIL-ABLE	SPE-CIFIC CON-DUCT ANCE	TEM-PER-ATURE (°C)	DEPTH TO CONSL. ROCK (FT.)	ELEVA-TION OF LSD (FT.)
151N066W32BBB	NDGS BP67-42	29	21	19	1	1967	10	11-67	U	31	S	19	G	4	5.0	--	1495
151N066W34ACB1	F.SWENSON		20	--	5	--	18	--	U	--	--	--	--	--	--	--	--
151N066W34ACB2	F.SWENSON		16	--	30	--	14	5-68	U	--	--	--	--	--	--	--	--
151N067W01DD	A.MITZEL		385	--	--	1962	--	--	K	--	G	21	D	--	--	155	--
151N067W02BBC	H.COMPTON		34	--	--	--	27	6-68	S	--	--	--	--	6	6.5	--	--
151N067W02BCB	USBR		25	--	3	1955	--	--	U	--	7S	15	G	--	--	--	1558
151N067W02CAD	J.NELSON		27	--	36	--	24	6-68	H	--	--	--	--	--	--	--	--
151N067W02CDB	W.SULLIVAN		21	--	--	--	20	6-68	H	--	--	--	--	4	16.5	--	--
151N067W02CDC	A.STENBERG		16	--	36	1898	10	10-67	U	--	S	--	--	--	--	--	1550
151N067W02DDC	G.HANSON		27	--	36	--	26	6-68	K	--	--	--	--	5	7.5	--	--
151N067W03ADD	NDSWC 5059		120	--	5	1968	--	--	U	--	S	20	GE	--	--	93	1553
151N067W04AAA	E.LARSEN		15	--	--	--	7	6-68	U	--	--	--	--	--	--	--	--
151N067W10AAA	L.BUEHLER		10	--	--	--	5	6-68	S	--	--	--	--	4	4.5	--	--
151N067W10BAD	V.HANSEN		22	--	36	--	8	6-68	U	--	--	--	--	--	--	--	--
151N067W11BAA	USBR		50	--	3	1955	12	8-55	U	--	S	9	G8	--	--	--	1580
151N067W11DDD	USBR		25	--	3	1955	--	--	U	--	S	11	G8	--	--	--	1553
151N067W12BBB	C.NIELSEN		69	--	--	--	64	6-68	U	--	--	--	--	--	--	--	--
151N067W13BCC	A.STENBERG		31	--	--	--	26	6-68	K	--	--	--	--	4	9.0	--	--
151N67W014BBB	L.JORDRE		22	--	30	--	7	6-68	H	--	--	--	--	4	13.5	--	--
151N067W14DDD1	C.NIELSEN		14	--	36	1967	12	--	H	--	--	--	--	5	--	--	--
151N067W14DDD2	C.NIELSEN		17	--	--	--	11	6-68	H	--	--	--	--	5	9.0	--	--
151N067W14DDD3	C.NIELSEN		21	--	--	--	16	6-68	S	--	--	--	--	6	9.0	--	--
151N067W14DDD4	C.NIELSEN		23	--	40	--	17	6-68	S	--	--	--	--	6	5.5	--	--
151N067W14DDD5	C.NEILSON	170	123	--	4	1962	--	--	K	--	F	22	D	--	--	123	--
151N067W14DDD6	USBR		25	--	3	1955	--	--	U	--	7S	22	G8	--	--	--	1553
151N067W15DDD	NDSWC 5479		80	--	5	1969	--	--	U	--	--	--	GD	--	--	67	1535
151N067W22AAA	USBR		20	--	--	--	12	10-67	U	--	--	--	--	--	--	--	1536
151N067W22AAD1	G.SCHAFFNER EST		30	--	--	--	14	6-68	U	--	--	--	--	6	6.0	--	--
151N067W22AAD2	G.SCHAFFNER EST		49	--	24	--	15	6-68	U	--	--	--	--	2	6.5	--	--
151N067W23CBB	V.POULSEN		22	--	30	--	10	6-68	U	--	--	--	--	7	6.0	--	--
151N067W24DDA	USBR		25	--	3	1955	--	--	U	--	--	--	G8	--	--	--	1550
151N067W25CBB	C.WALLACE		125	--	4	1962	--	--	K	--	F	7	D	--	--	123	--
151N067W26BCC	W.DRUMMOND		14	--	24	--	6	6-68	U	--	--	--	--	5	5.5	--	--
151N067W27DAA1	J.POULSEN		18	--	24	--	16	6-68	H	--	--	--	--	6	14.5	--	--
151N067W27DAA2	J.POULSEN		21	--	30	--	8	6-68	U	--	--	--	--	--	--	--	--
151N068W02DCC1	M.SIMON		73	--	36	--	33	7-68	H	--	--	--	--	5	7.0	--	--
151N068W02DCC2	M.SIMON		35	--	4	1960	7	--	U	--	--	--	--	--	--	--	--
151N068W04DCD	NDSWC 5499		40	--	5	1969	--	--	U	--	R	30	GD	--	--	35	1525
151N068W09ABB	C.VALLIER		14	--	60	--	10	7-68	K	--	--	--	--	5	11.5	--	--
151N068W10AAA	H.FINLEY		23	--	36	--	12	7-68	H	--	--	--	--	6	10.0	--	--

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151N068W11CBC	M.HEGLAND		28	--	24	--	13	7-68	S	--	--	--	--	7	7.0	--	--
151N068W13BBA1	N.SYLLING		190	--	6	1963	100	--	S	--	--	--	--	7	10.0	--	--
151N068W13BBA2	N.SYLLING		24	--	30	--	17	7-68	H	--	--	--	--	5	--	--	--
151N068W13DAA	E.BUEHLER		32	--	36	--	12	10-67	U	--	--	--	--	--	--	--	1535
151N068W18CDD	A.PAULSON		28	--	60	--	23	7-68	K	--	--	--	--	5	10.0	--	--
151N068W23DAD1	S.THOMAS		20	--	36	--	8	7-68	K	--	--	--	--	5	--	--	--
151N068W23DAD2	S.THOMAS		18	--	36	--	9	7-68	S	--	--	--	--	6	6.5	--	--
151N068W24AAB	J.NEER		13	--	32	--	9	7-68	H	--	--	--	--	4	10.0	--	--
151N068W25BAA	NDSWC 5062	60	26	23	1	1968	9	7-68	U	31	R	17	G	4	7.5	26	1506
151N068W25DDD	A.ALBRECHT		14	--	36	1963	10	7-68	S	--	--	--	--	4	11.5	--	--
151N068W29DDD	A.PAULSON		160	--	6	--	112	--	K	--	--	--	--	6	9.0	--	--
151N068W32BDA1	L.NELSON		15	--	30	--	11	7-68	U	--	--	--	--	4	10.0	--	--
151N068W32BDA2	L.NELSON		20	--	4	1965	13	7-68	S	--	--	--	--	4	14.0	--	--
151N068W36AAA	A.ALBRECHT		14	--	36	1965	10	7-68	S	--	--	--	--	4	12.0	--	--
151N069W01BBB	NDSWC 5500	180	103	97	1	1969	17	11-69	U	51	BG	82	GE	6	7.0	155	1550
151N069W02BCB	M.HAGEN		134	--	--	--	26	7-68	S	--	--	--	--	5	6.5	--	--
151N069W03CCC	NDSWC 5501	180	143	137	1	1969	12	11-69	U	51	R	73	GE	5	6.5	155	1560
151N069W08BBD1	D.BENSON		18	--	30	--	11	7-68	H	--	--	--	--	7	14.5	--	--
151N069W08BBD2	D.BENSON		19	--	24	--	11	7-68	U	--	--	--	--	6	5.5	--	--
151N069W09CCB	A.HERBECK		41	--	30	--	37	7-68	K	--	--	--	--	4	8.5	--	--
151N069W10DAA	USBR		16	--	2	--	12	11-67	U	--	--	--	--	--	--	--	1560
151N069W14BBB	J.SHAFFER		5	--	36	1967	3	7-68	U	--	--	--	--	--	--	--	--
151N069W15AAA	NDSWC 5063	200	146	143	1	1968	29	7-68	U	51	R	63	GE	4	7.0	157	1557
151N069W18BBB	B.FOSSEN		79	--	30	--	46	7-68	S	--	--	--	--	6	7.5	--	--
151N069W20CBC	V.HAKANSON		17	--	24	--	8	7-68	S	--	--	--	--	6	10.0	--	--
151N069W21DA	C.HVINDEN 1		2954	--	9	--	--	--	U	--	--	--	G	--	--	--	1490
151N069W22BBB	NDSWC 5503		60	--	5	1969	--	--	U	--	S	8	GD	--	--	56	1558
151N069W22DBB	S.LIUDAHL		38	--	4	--	20	7-68	K	--	--	--	--	5	13.5	--	--
151N069W26CCC	NDSWC 5502		40	--	5	1969	--	--	U	--	G	5	GD	--	--	33	1542
151N069W26DCC	A.BERGSGAARD		13	--	36	--	6	7-68	K	--	--	--	--	5	9.0	--	--
151N069W27DBD1	T.LIUDAHL		39	--	18	--	14	7-68	H	--	--	--	--	6	10.5	--	--
151N069W27DBD2	T.LIUDAHL		9	--	36	--	31	7-68	S	--	--	--	--	--	--	--	--
151N069W31AAB1	C.WISNESS		29	--	36	--	13	7-68	U	--	--	--	--	7	6.5	--	--
151N069W31AAB2	C.WISNESS		18	--	--	--	10	7-68	S	--	--	--	--	7	7.0	--	--
151N069W33BDA	R.BERG		36	--	36	--	21	7-68	S	--	--	--	--	6	9.0	--	--
151N069W35DBC	A.NELSON		43	--	24	1967	31	7-68	K	--	--	--	--	5	7.5	--	--
151N070W03CDD	NDGS BP67-34	24	12	10	1	1967	8	11-67	U	--	S	6	G	--	--	--	1550
151N070W05BBB	USBR		25	--	3	1955	16	7-55	U	--	S	8	GB	--	--	--	1600
151N070W07BBB	USBR		86	--	3	1955	9	9-55	U	--	F	4	GB	--	--	75	1608
151N070W07CDD	USBR		30	--	3	1955	2	7-55	U	--	F	--	GB	--	--	18	1595

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151N070W09BBB	NDGS BP68-28	20	12	10	1	1968	6	8-68	U	--	R	10	G	--	--	--	1535
151N070W09BCB	A.VIKANDER		20	--	1	1967	18	--	H	--	G	--	--	4	--	--	--
151N070W10BAA	R.GIGSTAD 1		3173	--	9	1954	--	--	U	--	--	--	--	--	--	--	1540
151N070W10BBB	NDGS BP68-35		50	--	3	1968	--	--	U	--	7S	25	G	--	--	47	1552
151N070W11DDC	N.HALVORSON		49	--	36	--	19	--	K	--	S	--	--	6	7.0	--	--
151N070W16AAA	NDGS BP68-29		40	--	3	1968	--	--	U	--	7S	23	G	--	--	35	1456
151N070W18CCC	NDSWC 5298		160	--	5	1969	--	--	U	--	--	--	GD	--	--	80	1620
151N070W18DCD	G.DAVIDSON		40	--	36	1937	32	--	K	--	7S	--	--	5	7.5	--	--
151N070W21AAD	J.JOHNSON		19	--	36	1961	14	--	K	--	G	--	--	--	--	--	--
151N070W25CCC	NDGS BP69-7		24	--	3	1969	--	--	U	--	W	9	G	--	--	15	1585
151N070W25DAA	A.WISNESS		40	--	24	--	15	7-68	S	--	G	--	--	6	6.5	--	--
151N070W28CCC	NDGS BP69-6		34	--	3	1969	--	--	U	--	W	18	G	--	--	16	1580
151N070W29AAD	O.FOSSEN		40	--	24	1949	26	7-68	K	--	G	--	--	5	--	--	--
151N070W32CCD1	O.OLSON		30	--	24	1898	22	--	K	--	7S	--	--	6	6.5	--	--
151N070W32CCD2	O.OLSON		27	--	36	1903	17	7-68	S	--	7S	--	--	6	6.5	--	--
151N070W34DAD1	M.ANDERSON		23	--	36	1900	15	7-68	H	--	S	--	--	6	6.5	--	--
151N070W34DAD2	M.ANDERSON		24	--	36	1900	15	--	S	--	S	--	--	6	6.5	--	--
151N071W08ABB	G.LEIER		46	--	4	1961	20	--	K	--	G	--	--	4	--	--	--
151N071W09CCC	NDSWC 5234		240	--	5	1968	--	--	U	--	--	--	GE	--	--	214	1605
151N071W09DAA	E.MARTHE		40	--	4	1964	38	--	K	--	P	--	--	4	6.5	--	--
151N071W13CBC1	H.OKSENDAHL		45	--	36	1908	25	--	S	--	P	--	--	4	--	--	--
151N071W13CBC2	H.OKSENDAHL		40	--	6	1943	22	--	H	--	P	--	--	4	--	--	--
151N071W13DAD	USBR		45	--	3	1955	16	7-55	U	--	S	5	G8	--	--	--	1615
151N071W18CBC	R.HEILMAN		25	--	30	1956	18	7-68	K	--	7S	--	--	5	6.5	--	--
151N071W21CCC	O.RIVELAND		44	--	4	--	21	10-67	U	--	--	--	--	--	--	--	1620
151N071W22AA	USBR		60	--	3	1955	36	7-55	U	--	S	5	G8	--	--	--	1580
151N071W22DCC	USBR		30	--	3	1955	30	7-55	U	--	S	15	G8	--	--	--	1606
151N071W23BAA	USBR		60	--	3	1955	60	7-55	U	--	9S	14	G8	--	--	--	1602
151N071W23BBC	USBR		60	--	3	1955	6	7-55	U	--	--	--	G8	--	--	--	1482
151N071W24BBB	USBR		40	--	3	1955	26	7-55	U	--	7S	8	G8	--	--	--	1620
151N071W25DAD	R.OLSON		30	--	24	1958	12	--	K	--	S	--	--	5	--	--	--
151N071W26DD	OLSON 1		2850	--	8	1966	--	--	U	--	--	--	--	--	--	--	1560
151N071W27CCC	USBR		30	--	3	1955	6	7-55	U	--	S	1	G8	--	--	--	1605
151N071W27DDA	V.THOMAS		135	--	6	1949	60	--	K	--	S	--	--	5	10.0	--	--
151N071W28CCC	USBR		30	--	3	1955	10	7-55	U	--	S	2	G8	--	--	--	1606
151N071W29CCC	USBR		24	--	3	1955	7	6-55	U	--	7S	10	G8	--	--	--	1607
151N071W30BBC	USBR		25	--	3	1955	8	7-55	U	--	S	7	G8	--	--	--	1600
151N071W31CBC	J.WIEST		120	--	5	1950	60	--	K	--	G	--	--	5	10.0	--	--
151N071W32ABB	NDSWC 5296		263	257	1	1969	78	11-69	U	51	R	142	GE	5	7.0	315	1605
151N071W33BBA	A.PFEIFER		26	--	36	--	13	7-68	K	--	7S	--	--	5	7.0	--	--

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151N072W01BBB	NDSWC 5235		270	--	5	1968	--	--	U	--	G	5	GE	--	--	252	1610
151N072W03CBC	A.SCHNEIDER		30	--	36	--	--	--	K	--	S	--	--	6	--	--	--
151N072W04DDD	NDSWC 5300		280	--	5	1969	--	--	U	--	6S	3	GE	--	--	252	1610
151N072W06CCB	O.RIVELAND		16	--	48	1948	12	4-68	S	--	S	--	--	4	6.5	--	--
151N072W09DDD	J.KELLER		14	--	36	1962	9	4-68	S	--	7S	--	--	5	5.0	--	--
151N072W13AAA	NDSWC 5297	280	123	117	1	1969	10	11-69	U	51	R	82	GE	5	6.5	248	1615
151N072W13BBC	F.HEILMAN		24	--	30	1947	18	4-68	H	--	R	--	--	4	--	--	--
151N072W16DDC	NDSWC 5308	280	203	197	1	1969	76	9-69	U	--	R	136	GE	--	--	275	1605
151N072W16DDD1	NDSWC 5233	340	253	247	1	1968	39	11-68	U	51	R	140	GE	5	6.5	306	1590
151N072W16DDD2	NDSWC 5233A	100	73	67	1	1968	13	11-68	U	31	S	27	GE	4	5.5	--	1590
151N072W18AAD	D.ROERICK		18	--	36	--	14	4-68	S	--	S	--	--	4	6.5	--	--
151N072W23CCC	USBR		25	--	3	1955	--	--	U	--	--	--	G8	--	--	--	1601
151N072W23BBB	NDSWC 5309	300	203	197	1	1969	74	11-69	U	--	R	158	GE	--	--	269	1605
151N072W23DDC	NDSWC 5310		340	--	5	1969	--	--	U	--	R	149	GE	--	--	305	1595
151N072W24BAB	N.AXTMAN		25	--	36	1948	20	4-68	S	--	S	--	--	6	5.5	--	--
151N072W25AAA	USBR		24	--	3	--	--	--	U	--	S	5	G8	--	--	--	1606
151N072W25BBC	NDSWC 5314	360	263	257	1	1969	--	--	U	51	R	207	GE	5	9.0	332	1605
151N072W25BCB1	NDSWC 5312	360	260	254	1	1969	--	--	U	51	R	191	GE	5	9.0	334	1605
151N072W25BCB2	NDSWC 5313	360	267	261	1	1969	--	--	U	51	R	201	GE	5	7.5	336	1600
151N072W25BCB3	NDSWC 5317		183	177	1	1969	--	--	U	--	R	82	GE	--	--	--	1600
151N072W25BCB4	NDSWC AQ TEST	310	295	250	16	1969	70	8-69	U	51	R	176	GD	5	7.0	--	1595
151N072W25BCC	NDSWC 5315	360	280	274	1	1969	--	--	U	51	7R	200	GE	4	6.5	340	1590
151N072W25CBB	NDSWC 5316	340	289	283	1	1969	--	--	U	51	R	176	GE	5	6.5	313	1590
151N072W26BCB	B.HELD		24	--	24	1955	17	--	H	--	7S	--	--	5	--	--	--
151N072W26DAD	NDSWC 5311	340	263	257	1	1969	70	11-69	U	51	R	152	GE	5	9.0	322	1600
151N072W28AAA	USBR		30	--	3	1955	15	7-55	U	--	7S	13	G8	--	--	--	1605
151N072W29AAA	USBR		18	--	3	1955	12	5-55	U	--	7S	6	G8	--	--	--	1601
151N072W29BCB1	A.GISI		165	--	2	1958	100	--	S	--	S	--	--	4	7.5	--	--
151N072W29BCB2	A.GISI		205	--	2	1966	90	--	K	--	S	--	--	5	7.5	--	--
151N072W30AAA	USBR		24	--	3	1955	--	--	U	--	S	9	G8	--	--	--	1604
151N072W30BBB	USBR		25	--	3	1955	6	7-55	U	--	S	5	G8	--	--	--	1605
151N072W33BAC	P.WECK		14	--	32	1964	--	--	H	--	G	--	--	5	--	--	--
151N072W33BBB1	NDSWC 5294	340	263	257	1	1969	76	11-69	U	51	R	156	GE	4	6.0	312	1605
151N072W33BBB2	NDSWC 5294A	80	72	69	1	1969	18	11-69	U	31	R	29	GD	4	7.0	--	1605
151N072W34AAA	NDSWC 5295	290	90	87	1	1969	61	11-69	U	51	R	16	GE	4	6.5	277	1600
151N072W36AAA1	NDSWC 2886	320	238	213	4	1967	73	11-67	U	51	R	190	G8	5	6.0	304	1602
151N072W36AAA2	NDSWC 2886A	92	77	74	1	1967	28	11-67	U	31	R	21	G8	5	6.5	--	1602
151N073W01CCB	P.DECK		22	--	24	1923	12	4-68	S	--	S	--	--	4	6.5	--	--
151N073W01DDD	NDSWC 2887		160	--	5	1967	--	--	U	--	S	5	GE	--	--	134	1605
151N073W02DDD1	P.DECK		46	--	4	1949	9	4-68	S	--	S	2	--	4	6.5	--	--

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151N073W02DDD2	P.DECK		46	--	4	1949	32	--	H	--	8P	8	--	4	--	--	--
151N073W04DDA1	E.& P.GRAD		29	--	18	1920	2	4-68	S	--	S	--	--	5	--	--	--
151N073W04DDA2	E.& P. GRAD		29	--	21	1961	18	4-68	H	--	S	--	--	5	--	--	--
151N073W04DDA3	E.& P. GRAD		77	--	4	1964	50	4-68	S	--	S	2	--	5	6.5	--	--
151N073W08C08	V.SEEFELD		425	--	6	1929	325	--	K	--	--	--	--	6	3.0	--	--
151N073W12DDD	C.KELLER		19	--	48	--	11	10-67	U	--	7S	--	--	--	--	--	--
151N073W14BBB	NDSWC 5232		200	--	5	1968	--	--	U	--	6V	70	GE	--	--	130	1600
151N073W14BCA	C.KELLER		150	--	4	1963	--	--	K	--	S	--	--	6	--	--	--
151N073W14CBB	C.KELLER		11	--	36	--	9	10-67	U	--	S	--	--	--	--	--	1602
151N073W16DDD	NDSWC 5679		220	--	5	1970	--	--	U	51	W	--	GE	--	--	209	1645
151N073W17OCC	R. SCHLENDER		150	--	--	--	--	--	H	51	--	--	--	4	6.5	--	--
151N073W20AAB	NDSWC 5230		220	--	5	1968	--	--	U	--	S	14	GE	--	--	161	1635
151N073W24AAA	NDSWC 5231		280	--	5	1968	--	--	U	--	R	91	GE	--	--	270	1600
151N073W24AAD	J.DECK		13	--	36	--	9	10-67	U	31	--	--	--	4	6.5	--	1600
151N073W24CCC	NDSWC 5293	380	220	214	1	1969	71	11-69	U	51	R	199	GD	4	6.5	340	1605
151N073W25AAA	USBR		24	--	3	1955	--	--	U	--	S	5	G8	--	--	--	1602
151N073W25BCC	USBR		32	--	3	1955	8	7-55	U	--	--	--	G8	--	--	--	1607
151N073W26AAA	USBR		10	--	3	1955	--	--	U	--	S	9	G8	--	--	--	1601
151N073W26CBB	H.MEIER		9	--	48	1961	8	4-68	S	--	G	2	--	4	3.0	--	--
151N073W27ODD	NDSWC 5252		400	--	5	1968	--	--	U	--	V	50	GE	--	--	350	1605
151N073W28CBC	E.APPELT		90	--	2	1940	60	--	K	--	--	--	--	4	6.5	--	--
151N073W28CCC	NDSWC 5680	190	163	157	1	1970	32	6-70	U	51	G	50	GE	4	--	185	1630
151N073W30AAD	E.SCHIEMAN		41	--	24	--	28	9-67	U	31	--	--	--	4	6.5	--	1625
151N073W30BBB	NDSWC 5228		60	--	5	1968	--	--	U	--	G	19	GE	--	--	--	1610
151N073W32CCC	NDSWC 5292	260	215	212	1	1969	46	11-69	U	--	R	21	GE	--	--	222	1655
151N073W34ABA	USBR		20	--	3	1955	--	--	U	--	S	20	G8	--	--	--	1613
151N074W02DAD1	M.CARTWRIGHT		23	--	48	1949	15	10-67	H	--	R	--	--	4	6.5	--	--
151N074W02DAD2	M.CARTWRIGHT		233	--	4	1959	55	--	S	--	--	--	--	6	7.5	--	--
151N074W03CAD	W.DOUBEK		160	--	4	1958	--	-15	K	--	--	--	--	6	--	--	--
151N074W04DDD	NDSWC 5290		140	--	5	1969	--	--	U	--	7S	7	G	--	--	96	1550
151N074W05CBC	C.PONZER		24	--	48	1930	15	10-67	K	--	V	--	--	7	7.5	--	--
151N074W08CCC	NDSWC 2884		160	--	5	1967	--	--	U	--	V	46	G8	--	--	--	1619
151N074W09DDD	NDSWC 5289		140	--	5	1969	--	--	U	--	S	36	GE	--	--	104	1555
151N074W16CDD	J.BECKER		31	--	36	--	--	--	K	--	--	--	--	4	7.5	--	--
151N074W17BCA	C.BARTZ		250	--	4	1962	40	-62	S	--	8G	102	D	--	--	--	1620
151N074W18CDC	E.BARTZ		65	--	4	1963	--	--	H	--	S	--	--	5	--	--	--
151N074W19AAD	NDSWC 5250		400	--	5	1968	--	--	U	--	R	96	GE	--	--	382	1620
151N074W20AAA	NDSWC 5251	320	262	256	1	1968	32	11-68	U	51	G	72	G	4	6.5	308	1605
151N074W23BAC	E.HAUSER		44	--	48	--	--	--	S	--	S	--	--	4	7.5	--	--
151N074W26AAA	NDSWC 5291	360	223	217	1	1969	45	11-69	U	51	R	148	GE	5	6.0	323	1620

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151N074W26AAD	S.SELZLER		22	--	32	--	11	10-67	K	--	G	--	--	5	9.0	--	--
151N074W27BBC	NDSWC 2885	260	177	172	4	1967	30	11-67	U	51	IR	80	GE	6	7.0	230	1605
151N074W30BAB1	G.RUDNICK		90	--	2	1945	50	--	S	--	--	--	--	5	--	--	--
151N074W30BAB2	G.RUDNICK		300	--	--	1965	80	--	S	PC	--	--	--	5	--	--	--
151N074W30BAB3	G.RUDNICK		151	--	2	1966	50	--	H	--	--	--	--	5	--	--	--
151N074W31AAA	NDSWC 5227		120	--	5	1968	--	--	U	--	V	17	G	--	--	74	1625
151N074W33CDD	M.MICHELSON		160	--	4	--	--	--	K	--	--	--	--	5	--	--	--
151N074W34CBB	T.HEISLER		75	--	2	1947	--	--	H	--	S	--	--	6	7.5	--	--
151N074W36AAA	NDSWC 5229		280	--	5	1968	--	--	U	--	G	8	GE	--	--	255	1640
152N063W10DAC	NDSWC 5047	240	174	170	1	1968	--	--	U	51	R	90	GE	5	8.5	210	1445
152N063W13BCD	E.HOLTZ		32	--	--	--	16	5-68	U	--	S	--	--	--	--	--	--
152N063W14BCC	J.WOOD		--	--	4	--	48	5-68	S	--	--	--	--	4	9.0	--	--
152N063W19ADA	NDSWC 5470		120	--	5	1969	--	--	U	--	--	21	GE	--	--	99	1420
152N063W19DCB	D.RUTH		58	--	--	1967	47	5-68	H	--	--	--	--	5	9.0	--	--
152N063W20CAD	P.WOOD		51	--	--	--	25	5-68	U	--	--	--	--	--	--	--	--
152N063W21ABB1	P.WOOD		97	--	--	--	44	5-68	S	--	--	--	--	5	10.0	--	--
152N063W21ABB2	P.WOOD		130	--	--	1957	64	5-68	H	--	--	--	--	5	11.0	--	--
152N063W25ACD	S.AZURE		37	--	--	--	19	5-68	U	--	--	--	--	--	--	--	--
152N063W25BAB1	E.HOLTZ		155	--	--	--	43	5-68	U	--	--	--	--	--	--	--	--
152N063W25BAB2	E.HOLTZ		65	--	--	--	54	5-68	H	--	--	--	--	5	4.0	--	--
152N063W31ACD	G.BERG		144	--	4	--	55	--	H	--	--	--	--	4	5.5	--	--
152N063W32CCC	NDSWC 5048		120	--	5	1968	--	--	U	--	R	28	GE	--	--	92	1452
152N063W34BAA	C.ANDERSON		100	--	--	--	37	5-68	K	--	--	--	--	5	4.0	--	--
152N063W36BCA	C.MCKINNON		178	--	4	--	52	--	K	--	--	--	--	5	6.5	--	--
152N064W02CBB	NDSWC 5471	160	113	107	1	1969	16	11-69	U	51	R	35	GE	5	6.5	143	1435
152N064W02CDD1	C.PETERSON		31	--	24	--	6	5-68	U	--	--	--	--	--	--	--	--
152N064W02CDD2	C.PETERSON		97	--	5	--	32	--	S	--	--	--	--	5	8.5	--	--
152N064W04DAD	L.KRAFT		100	--	--	1960	--	--	K	--	--	--	--	5	8.5	--	--
152N064W07ADC1	J.CAVANAUGH		64	61	4	1963	40	3-63	H	--	--	--	--	--	--	--	--
152N064W07ADC2	F.CHRISTENSON		83	80	4	1967	22	3-67	H	--	--	--	--	--	--	--	--
152N064W07BCA	NDSWC 5058	160	120	117	1	1968	20	7-68	U	51	R	42	GE	7	4.0	123	1433
152NC64W07CDD	L.MEBEBYA		48	45	4	1962	35	12-62	H	--	--	--	--	--	--	--	--
152N064W07DAB1	MRS P.BAKER		50	--	4	1963	35	3-63	H	--	--	--	--	--	--	--	--
152N064W07DAB2	F.CAVANAUGH		100	100	4	1963	40	1-63	H	--	G	19	D	--	--	99	--
152N064W07DCD	F.WHITESHIELD		106	103	4	1962	70	12-62	H	--	--	--	--	--	--	--	--
152N064W08	MISSION BAY		--	--	--	--	--	--	--	KE	--	--	--	8	14.5	--	--
152N064W08CBB	F.BROWN		167	--	4	1963	50	4-63	H	--	--	--	--	--	--	--	--
152N064W09DDD	L.KRAFT		110	--	4	--	--	--	K	--	--	--	--	6	9.0	--	--
152N064W11CCC	L.KRAFT		30	--	--	--	13	5-68	H	--	--	--	--	6	14.5	--	--
152N064W11DDC	H.CAVANAUGH		151	148	4	1963	65	1-63	H	--	--	--	--	--	--	--	--

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152N064W15BBC	J.LAWRENCE		133	--	4	1963	35	--	H	--	--	--	--	--	--	--	--
152N064W16CDC	C.LOHNES		145	--	4	1967	45	--	H	--	--	--	--	--	--	--	--
152N064W17AAC	ST.MICHAEL MISS		89	--	4	1962	33	10-67	S	--	S	--	--	5	7.5	--	--
152N064W17ADB1	ST.MICHAEL MISS		72	--	4	1930	--	--	H	--	S	--	--	6	10.0	--	--
152N064W17ADB2	ST.MICHAEL MISS		147	--	4	1946	27	--	U	--	--	--	--	--	--	--	--
152N064W17ADB3	ST.MICHAEL MISS		76	--	4	1959	38	10-67	H	--	S	--	--	4	10.0	--	--
152N064W17BDA	J.LOHNES SR.		98	95	4	1963	F	3-63	H	--	--	--	--	--	--	--	--
152N064W17DDB	J.BELL		98	95	4	1963	35	2-63	H	--	--	--	--	--	--	--	--
152N064W17DDC	F.GREYHORN		75	72	4	1962	42	12-62	H	--	--	--	--	--	--	--	--
152N064W18BBD	L.JACKSON		68	65	4	1963	32	1-63	H	--	--	--	--	--	--	--	--
152N064W18CAB	W.GREENE		152	--	4	1967	28	3-67	H	--	--	--	--	--	--	--	--
152N064W18CDA	A.THOMPSON		156	153	4	1963	111	--	H	--	--	--	--	--	--	--	--
152N064W18DBC	R.ALBERTS		85	82	4	1963	15	2-63	H	--	--	--	--	--	--	--	--
152N064W19ADD	H.THOMPSON		198	195	4	1963	145	2-63	H	--	--	--	--	--	--	--	--
152N064W20AAA	F.MARIN		80	77	4	1963	6	2-63	H	--	--	--	--	--	--	--	--
152N064W20AAD	M.THOMPSON		82	--	4	1963	7	2-63	H	--	--	--	--	--	--	--	--
152N064W20ABB	A.JETTY		81	78	4	1963	14	--	H	--	--	--	--	--	--	--	--
152N064W22CDD1	J.SOLWEY		38	--	4	--	11	5-68	U	--	--	--	--	4	7.5	--	--
152N064W22CDD2	J.SOLWEY		51	--	4	1962	20	--	K	--	--	--	--	4	10.0	--	--
152N064W23ABB	A.CAVANAUGH		124	--	4	1966	65	1-63	H	--	--	--	--	--	--	--	--
152N064W27BBB	NDSWC 2878	80	60	57	1	1967	13	11-67	U	51	R	49	GE	5	6.5	76	1450
152N064W27CCC	L.GOOD HOUSE		116	--	4	1963	22	3-63	H	--	--	--	--	--	--	--	--
152N064W27DAD	SCHOOL		23	--	--	--	20	--	U	--	--	--	--	5	9.0	--	--
152N064W28CCC	R.DOYLE		45	--	--	--	20	5-68	K	--	--	--	--	4	7.5	--	--
152N064W32BDC	KELLY-WALLACE		36	--	24	--	18	5-68	U	--	--	--	--	--	--	--	--
152N064W34BAA	L.GOOD HOUSE		6	--	30	--	3	--	S	--	--	--	--	4	4.5	--	--
152N064W35AC	SPRING LAKE		--	--	--	--	--	--	--	KE	--	--	--	7	16.5	--	--
152N064W35CCD	M.GLASER		69	69	4	1963	--	--	H	--	--	--	--	--	--	--	--
152N064W36CAA	A.SRONHAWK		90	--	4	1963	60	3-63	H	--	--	--	--	--	--	--	--
152N065W07BBB	NDSWC 5686		160	--	5	1970	--	--	U	--	--	13	GE	--	--	120	1500
152N065W07CCC	NDSWC 5056	240	130	127	1	1968	57	8-68	U	51	R	80	GE	5	7.0	204	1494
152N065W12ADB	CONCRETE CO.		65	--	4	1935	--	--	H	31	--	--	--	--	--	--	1435
152N065W13CAC	NDSWC 5472	180	143	137	1	1969	29	11-69	U	11	R	101	GE	4	7.0	172	1530
152N065W14BBA	NDSWC 5057		342	--	5	1968	--	--	U	--	G	35	GE	--	--	326	1735
152N065W18CAD	A.CORBINE		22	--	36	--	12	5-68	U	--	--	--	--	--	--	--	--
152N065W19BBB	NDSWC 5685		100	--	5	1970	--	--	U	--	G	--	G	--	--	78	1495
152N065W20ADA	USBIA		52	42	6	1967	34	9-67	P	--	--	7	D	--	--	--	--
152N065W21BBC	FORT TOTTEN		--	--	--	--	F	--	P	11	--	--	--	4	7.0	--	--
152N065W25CCC	NDSWC 2879		180	--	5	1967	--	--	U	--	R	11	GE	--	--	173	1620
152N065W28BBD1	M.JABS		110	--	--	--	108	5-68	S	--	--	--	--	4	9.0	--	--

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152N065W28BBD2	M.JABS		120	--	--	1966	--	--	K	--	--	--	--	4	7.5	--	--
152N065W28CCD1	H.JABS		64	--	--	--	60	5-68	K	--	--	--	--	4	7.5	--	--
152N065W28CCD2	H.JABS		46	--	4	1967	39	--	K	--	--	--	--	4	9.0	--	--
152N065W31BCC	C.ZETTER		45	--	--	--	--	5-68	U	--	--	--	--	--	--	--	--
152N065W32AAA	NDSWC 5476		140	--	5	1969	--	--	U	--	R	25	GE	--	--	115	1550
152N065W32CCD	A.BOHRER		52	--	--	--	37	5-68	S	--	--	--	--	4	7.5	--	--
152N065W35DAA	J.GALLOWAY		34	--	--	1963	27	--	K	--	--	--	--	3	10.0	--	--
152N066W01CAB	S.OLSON		120	--	4	--	50	5-68	S	--	--	--	--	6	10.0	--	--
152N066W02DDC	T.CLARK		39	--	--	--	35	5-68	S	--	--	--	--	5	10.0	--	--
152N066W07CBB	H.HASKIN		51	--	48	--	36	5-68	K	--	--	--	--	5	7.5	--	--
152N066W12BCC	S.OLSON SR.		80	--	--	--	60	5-68	K	--	--	--	--	5	11.0	--	--
152N066W18ACA	E.GRAHAM		58	--	--	--	43	5-68	S	--	--	--	--	6	7.0	--	--
152N066W18BBC	H.CARLSON		85	--	4	--	34	5-68	U	--	--	--	--	--	--	--	--
152N066W18CCC	R.KELLY		27	--	--	--	18	5-68	U	--	--	--	--	--	--	--	--
152N066W20ABA	R.KELLY		57	--	--	--	38	--	H	--	--	--	--	5	6.5	--	--
152N066W20CDD	C.SUNDET		42	--	30	--	31	5-68	U	--	--	--	--	--	--	--	--
152N066W21AAD	NDSWC 2869	240	145	140	4	1967	47	11-67	U	51	R	162	GE	5	7.5	209	1495
152N066W22CD	TWIN LAKES		--	--	--	--	--	--	--	KE	--	--	--	5	19.0	--	--
152N066W22DCA	TWIN LAKES		--	--	--	--	--	--	--	KE	--	--	--	6	3.0	--	--
152N066W23ABB1	A.JABS		34	--	36	1954	8	5-68	U	--	--	--	--	4	7.5	--	--
152N066W23ABB2	A.JABS		64	--	6	1967	8	5-68	H	--	--	--	--	4	13.5	--	--
152N066W24CAB	NDSWC 5481	180	103	97	1	1969	54	11-69	U	11	BG	66	GE	4	7.0	168	1585
152N066W24CDC	NDSWC 5480		27	--	5	1969	--	--	U	--	R	26	GD	--	--	--	1595
152N066W26CDD1	C.MOEN		66	--	24	--	53	5-68	H	--	--	--	--	5	9.0	--	--
152N066W26CDD2	C.MOEN		380	--	--	--	37	--	S	--	--	--	--	5	9.0	--	--
152N066W27DDD	NDSWC 5055		140	--	5	1968	--	--	U	--	--	--	G	--	--	118	1548
152N067W02BCC	L.PLUMMER		40	--	42	--	30	6-68	S	--	--	--	--	4	--	--	--
152N067W04BD	LONG LAKE		--	--	--	--	--	--	--	KE	--	--	--	5	18.5	--	--
152N067W08AAA	LONG LAKE		--	--	--	--	--	--	--	KE	--	--	--	6	11.0	--	--
152N067W09ABB	A.& H.GARMAN		23	--	36	--	13	6-68	U	--	--	--	--	--	--	--	--
152N067W10CBC	M.SEVERINSON		39	--	22	1959	22	6-68	K	--	--	--	--	5	6.0	--	--
152N067W11ACC	L.ROBERTS		390	--	5	1962	--	--	K	--	R	39	D	--	--	125	--
152N067W11DBB	L.ROBERTS		37	--	48	--	27	6-68	S	--	--	--	--	6	7.0	--	--
152N067W13CCA1	H.SCHMID		32	--	24	--	14	6-68	S	--	--	--	--	6	6.0	--	--
152N067W13CCA2	H.SCHMID		55	--	24	--	9	6-67	S	--	--	--	--	6	5.5	--	--
152N067W13CCA3	H.SCHMID		33	--	24	--	14	6-68	H	--	--	--	--	6	5.5	--	--
152N067W13DCC	USGS		90	--	5	1946	--	--	U	--	G	30	GE	--	--	75	1515
152N067W18ABB	NDSWC 5061		60	--	5	1968	--	--	U	--	G	9	G	--	--	49	1484
152N067W19CCB	USBR		25	--	3	1955	22	8-55	U	--	R	12	GB	--	--	--	1560
152N067W21CDB	W.JOHNANSON		55	--	4	1962	38	--	K	--	--	--	--	4	7.5	--	--

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAM-ETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAIL-ABLE	SPE-CIFIC CON-DUCT ANCE	TEM-PER-ATURE (°C)	DEPTH TO CONSL. ROCK (FT.)	ELEVA-TION OF LSD (FT.)
152N067W22ADD	R.SEVERINSON		48	--	30	--	20	6-68	U	--	--	--	--	--	--	--	--
152N067W23ABB	L.DONALDSON		54	--	24	--	13	6-68	H	--	--	--	--	6	--	--	--
152N067W23ABC	L. DONALDSON		75	65	4	1963	18	12-63	K	--	G	15	D	--	--	--	1555
152N067W23DBB	L.DONALDSON		33	--	24	--	14	6-68	S	--	--	--	--	5	6.0	--	--
152N067W27DBC1	E.GRIFFON		49	--	36	--	8	6-68	S	--	--	--	--	5	6.5	--	--
152N067W27DBC2	E.GRIFFIN		45	--	36	--	17	6-68	S	--	--	--	--	6	6.5	--	--
152N067W27DBC3	E.GRIFFIN		50	--	36	--	37	6-68	H	--	--	--	--	6	14.0	--	--
152N067W29CCB	USBR		25	--	3	1955	25	8-55	U	--	9S	--	G8	--	--	--	1560
152N067W29CDD	USGS		130	--	5	1946	--	--	U	--	R	10	GE	--	--	105	1557
152N067W30AAB	M.CHRISTIANSON		27	--	48	--	24	6-68	S	--	--	--	--	4	6.5	--	--
152N067W31CCC	NDGS BP67-38	29	24	22	1	1967	7	11-67	U	--	R	22	G	--	--	--	1534
152N067W32ABA	USGS		24	--	5	1946	--	--	U	--	R	10	GE	--	--	--	1580
152N067W32DDD	USBR		25	--	3	1955	9	8-55	U	--	S	10	G8	--	--	--	1560
152N067W33BCC	T.GILDERHUS		24	--	30	--	21	6-68	S	--	--	--	--	6	9.0	--	--
152N067W33DDD	USBR		25	--	5	1955	15	8-55	U	--	--	10	G8	--	--	--	1558
152N067W34ACC	H.COMPTON		36	--	60	--	31	6-68	S	--	--	--	--	--	--	--	--
152N067W35AAD1	V.WETZEL		33	--	48	--	23	6-68	S	--	--	--	--	6	7.0	--	--
152N067W35AAD2	V.WETZEL		42	--	24	--	25	6-68	U	--	--	--	--	6	6.5	--	--
152N068W01DAA	E.NORDHOUGEN		22	--	24	--	9	7-68	K	--	--	--	--	6	9.0	--	--
152N068W04AAA	L.MOSSER		38	--	4	--	26	7-68	K	--	--	--	--	5	9.0	--	--
152N068W08BCD	O.OLSON		65	--	24	1962	22	7-68	K	--	--	--	--	4	14.5	--	--
152N068W10ADC	E.NORDHOUGEN		45	--	4	--	37	7-68	S	--	--	--	--	6	7.5	--	--
152N068W11DDD	O.HOVDE		28	--	48	--	16	7-68	S	--	--	--	--	5	6.5	--	--
152N068W12ADC	N.HEISLER		24	--	30	--	11	7-68	K	--	--	--	--	5	10.0	--	--
152N068W13AAA	NDSWC 5060		67	--	5	1968	--	--	U	--	S	11	G	--	--	--	1543
152N068W14DAD	T.FOSSEN		45	--	24	--	15	7-68	K	--	--	--	--	6	10.5	--	--
152N068W16AD	J.MYHRE		2815	--	9	1954	--	--	U	--	--	--	--	--	--	--	1595
152N068W19BBB	NDSWC 5497		200	--	5	1969	--	--	U	--	R	32	GE	--	--	187	1620
152N068W21DDD	USBR		25	--	3	1955	10	8-55	U	--	S	9	G8	--	--	--	1564
152N068W22DCC	KANZELMAN BROS.		16	--	30	--	12	7-68	S	--	--	--	--	5	6.0	--	--
152N068W23CCC	USBR		25	--	3	1955	7	8-55	U	--	8T	--	G8	--	--	--	1570
152N068W25CDC	E.MAY		8	--	36	--	7	7-68	H	--	--	--	--	4	10.0	--	--
152N068W25CDD	USGS		100	--	5	1946	--	--	U	--	R	29	GE	--	--	80	1540
152N068W26ADD	R.BAKKEN		17	--	24	--	13	7-68	K	--	--	--	--	6	10.0	--	--
152N068W27CDD	USGS		60	--	5	1946	--	--	U	--	R	5	GE	--	--	--	1545
152N068W27DCC	USGS		61	--	5	1946	--	--	U	--	R	6	GE	--	--	40	1543
152N068W27DDC	USGS		105	--	5	1946	--	--	U	--	S	5	GE	--	--	90	1552
152N068W28ABB1	KANZELMAN BROS.		29	--	--	--	17	7-68	H	--	--	--	--	5	11.5	--	--
152N068W28ABB2	KANZELMAN BROS.		26	--	60	--	15	7-68	S	--	--	--	--	4	6.0	--	--
152N068W28BCB	USBR		25	--	3	1955	5	8-55	U	--	7R	25	G8	--	--	--	1570

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152N068W29AAA	NDSWC 5498		100	--	5	1968	--	--	U	--	8G	3	GD	--	--	88	1575
152N068W29BBC	USBR		25	--	3	1955	10	8-55	U	--	9T	--	G8	--	--	--	1575
152N068W30CCB	NDSWC 5064		140	--	5	1968	--	--	U	--	R	--	GE	--	--	114	1574
152N068W32DCD	D.WALKER		54	--	4	--	12	7-68	U	--	--	--	--	--	--	--	--
152N068W33BCC	L.WALKER		28	--	48	--	20	7-68	H	--	--	--	--	--	--	--	--
152N068W35AAA	USBR		11	--	2	--	6	11-67	U	--	--	--	--	--	--	--	1545
152N068W35BBC	USGS		61	--	5	1946	--	--	U	--	S	--	GE	--	--	54	1550
152N069W01BAD	L.MELAAS		94	--	2	--	92	--	U	--	--	--	--	7	9.0	--	--
152N069W01CBD	V.OLSON		35	--	24	--	20	--	K	--	S	--	--	5	--	--	--
152N069W02ABB	R.RANGEN		86	--	4	--	37	9-67	U	--	--	--	--	--	--	--	1675
152NC69W02DCD	NDSWC 5496		80	--	5	1969	--	--	U	--	7T	40	GD	--	--	40	1620
152N069W03BDA1	A.RANGEN		60	--	4	--	34	7-68	K	--	--	--	--	4	6.5	--	--
152NC69W03BDA2	A.RANGEN		102	--	--	--	39	7-68	U	--	--	--	--	--	--	--	--
152N069W04BCB	D.HALVORSON		31	--	24	--	17	7-68	S	--	--	--	--	6	6.5	--	--
152NC69W08CDC	A.ENGSTROM		90	--	6	--	25	--	K	--	--	--	--	5	9.0	--	--
152N069W14BBC	USBR		35	--	3	1955	10	8-55	U	--	S	--	G8	--	--	28	1585
152N069W14CCC	USBR		25	--	3	1955	5	8-55	U	--	T	--	G8	--	--	--	1577
152N069W19DCD	USGS		90	--	5	1954	--	--	U	--	S	20	GE	--	--	35	1575
152N069W20AAA	C.KNOTTERUD		66	--	36	--	14	7-68	U	--	--	--	--	--	--	--	--
152N069W20BCC	USBR		35	--	3	1955	7	8-55	U	--	S	--	G8	--	--	--	1592
152N069W20CBC	USGS		92	--	5	1954	--	--	U	--	S	65	GE	--	--	25	1585
152N069W21AD	E.SPIDAHL 1		2970	--	9	1954	--	--	U	--	--	--	--	--	--	--	1579
152N069W22DCB	E.WALKER		11	--	36	1962	7	--	H	--	S	--	--	4	--	--	--
152N069W22DCC	USGS		61	--	5	1954	--	--	U	--	9T	--	GE	--	--	60	1550
152N069W23CCC	M.MADDOCK		157	--	2	--	F	--	K	--	--	--	--	5	9.0	--	--
152N069W23CCD	M.MADDOCK		155	--	2	--	F	--	K	--	--	--	--	6	6.5	--	--
152N069W23DDC	L.WALKER		18	--	24	1968	--	--	H	--	--	--	--	--	--	--	--
152N069W24ABD1	L.WALKER		47	--	48	--	33	10-68	H	--	S	--	--	6	--	--	--
152N069W24ABD2	L.WALKER		24	--	36	--	9	10-68	H	--	S	--	--	5	7.0	--	--
152N069W24CCD	USGS		90	--	5	1954	--	--	U	--	T	--	GE	--	--	--	1570
152N069W24DDA	USBR		25	--	3	1955	7	8-55	U	--	S	8	G8	--	--	--	1575
152N069W26BBA	USGS		144	--	5	1954	--	--	U	--	9T	--	GE	--	--	139	1565
152N069W26CCC	NDSWC 5505		140	--	5	1969	--	--	U	--	7T	--	GD	--	--	133	1555
152N069W27DDB1	R.SCOTT		29	--	48	--	12	7-68	K	--	--	--	--	6	7.0	--	--
152N069W27DDB2	R.SCOTT		18	--	30	--	10	7-68	U	--	--	--	--	6	9.0	--	--
152N069W28AAB	USGS		104	--	5	1954	--	--	U	--	T	--	GE	--	--	100	1555
152N069W28BBA	USGS		90	--	5	1954	--	--	U	--	S	--	GE	--	--	35	1570
152N069W28DDD1	C.SUNDET		74	--	36	--	25	7-68	S	--	--	--	--	6	10.0	--	--
152N069W28DDD2	C.SUNDET		--	--	4	--	--	--	H	--	--	--	--	5	11.0	--	--
152N069W32CAC	M.KNATTERUD		30	--	36	--	18	7-68	K	--	--	--	--	5	10.0	--	--

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152N069W33CCC	NDSWC 5504		60	--	5	1969	--	--	U	--	S	21	GD	--	--	50	1562
152N069W35CCC	USBR		23	--	2	--	14	9-67	U	--	--	--	--	--	--	--	1576
152N069W36AAA	S.SABBE		22	--	36	--	11	7-68	S	--	--	--	--	6	9.0	--	--
152N069W36ACC	S.SABBE		35	--	4	1964	27	--	K	--	--	--	--	5	10.0	--	--
152N070W01AAA1	J.RASMUSSEN		70	60	4	1948	32	--	H	--	F	--	--	5	9.0	--	--
152N070W01AAA2	J.RASMUSSEN		32	--	48	--	22	--	S	--	7S	--	--	6	6.5	--	--
152N070W01AAA3	J.RASMUSSEN		120	100	4	1952	20	7-68	S	--	7S	--	--	4	9.0	--	--
152N070W05DDA	NDGS BP69-27		13	--	5	1969	--	--	U	--	7T	--	G	--	--	11	1620
152N070W05DDC1	E.SWANSON		55	--	24	1948	19	--	H	--	S	--	--	5	--	--	--
152N070W05DDC2	E.SWANSON		55	--	--	1948	22	--	S	--	S	--	--	5	--	--	--
152N070W09DDD	R.BURDICK		58	--	4	1947	25	--	K	--	S	--	--	4	--	--	--
152N070W11ADC	USBR		50	--	3	1955	38	7-55	U	--	S	--	G8	--	--	33	1575
152N070W11DAD	C.BACKSTROM		90	--	--	1935	55	--	K	--	7S	--	--	5	--	--	--
152N070W12BCC1	USBR		50	--	3	1955	4	8-55	U	--	R	38	G8	--	--	46	1530
152N070W12BCC2	USBR		50	--	3	1955	38	8-55	U	--	7S	30	G8	--	--	--	1593
152N070W13AAB	USBR		30	--	3	1955	17	--	U	--	6S	9	G8	--	--	26	1590
152N070W15CDD	USBR		40	--	3	1955	6	7-55	U	--	T	--	G8	--	--	--	1600
152N070W19CCC	NDSWC 5242	100	53	48	1	1968	22	7-69	U	--	S	30	GE	--	--	70	1630
152N070W22AAD	J.HELLESVIG		68	--	24	--	30	--	H	--	S	--	--	5	--	--	--
152N070W23DCD1	USGS		100	--	5	1954	--	--	U	--	6G	--	GE	--	--	80	1520
152N070W23DCD2	USGS		110	--	5	1954	--	--	U	--	R	79	GE	--	--	--	1520
152N070W23DDC	USGS		61	--	5	1954	--	--	U	--	R	29	GE	--	--	59	1525
152N070W24ABB	USBR		25	--	3	1955	9	8-55	U	--	S	13	G8	--	--	21	1580
152N070W24CCC	USGS		60	--	5	1954	--	--	U	--	S	--	GE	--	--	9	1540
152N070W25CCC	NDGS BP68-37		55	--	3	1968	--	--	U	--	R	32	G	--	--	52	1531
152N070W25DCA	I.WESTBY		50	--	24	1953	30	--	K	--	S	--	--	6	6.5	--	--
152N070W26AAA1	MADDOCK		65	35	10	1947	--	--	P	22	--	--	--	5	7.5	--	--
152N070W26AAA2	MADDOCK		65	--	--	1950	--	--	P	22	--	--	--	5	9.0	--	--
152N070W26DDC	USGS		47	--	5	1954	--	--	U	--	R	26	GE	--	--	35	1550
152N070W27AAB	USBR		25	--	3	1955	6	7-55	U	--	S	--	G8	--	--	--	1585
152N070W27CBB	USBR		27	--	3	1955	9	7-55	U	--	S	--	G8	--	--	19	1585
152N070W28CDD	M.BENSON		22	--	60	1942	--	--	K	--	7S	--	--	6	--	--	--
152N070W30BBA1	H.PFEIFER		24	--	48	1948	19	7-68	S	--	7S	--	--	5	6.5	--	--
152N070W30BBA2	H.PFEIFER		48	--	4	1965	18	--	H	--	S	--	--	4	--	--	--
152N070W31CDD1	L.JOHNSON		40	--	36	1960	--	--	H	--	S	--	--	5	--	--	--
152N070W31CDD2	L.JOHNSON		36	--	4	1962	17	--	S	--	7S	--	--	4	6.5	--	--
152N070W32AAB	USBR		25	--	3	1955	5	7-55	U	--	S	--	G8	--	--	21	1585
152N070W35ABA	USGS		81	--	5	1954	--	--	U	--	R	15	GE	--	--	68	1575
152N070W35DCC	A.JOHANSEN		40	--	--	1931	12	7-68	H	--	S	--	--	4	6.5	--	--
152N070W36BBB	USGS		41	--	5	1954	--	--	U	--	8G	24	GE	--	--	39	1515

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAM-ETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAIL-ABLE	SPE-CIFIC CON-DUCT ANCE	TEM-PER-ATURE (°C)	DEPTH TO CONSL. ROCK (FT.)	ELEVA-TION OF LSD (FT.)
152N071W01BBA	D.TOLLERUPE		100	--	4	1943	40	--	K	--	F	--	--	4	--	--	--
152N071W03BCB	L.SIMENSEN		120	--	4	1900	--	--	K	--	F	--	--	4	6.5	--	--
152N071W07CAC1	J.PACE		40	--	4	--	32	--	H	--	S	--	--	4	--	--	--
152N071W07CAC2	J.PACE		22	--	--	--	20	--	S	--	S	--	--	4	--	--	--
152N071W08ABB	NDSWC 5302		80	--	5	1969	--	--	U	--	9S	15	GD	--	--	40	1605
152N071W08CDD	NDSWC 1625		52	--	5	1959	--	--	U	--	R	11	G	--	--	36	1600
152N071W08DAA	NDSWC 1626		52	--	5	1959	--	--	U	--	R	26	G	--	--	36	1605
152N071W08DDD	USBR		43	--	3	1953	10	7-53	U	--	7S	13	G8	--	--	--	1589
152N071W09DDD	USBR		124	--	3	1953	23	7-53	U	--	S	30	G8	--	--	123	1618
152N071W10CCC	NDGS BP67-31	51	49	47	1	1967	26	11-67	U	31	R	25	G	4	6.0	--	1618
152N071W13ABB	H.HETLER		65	--	4	1942	45	--	H	--	S	--	--	4	--	--	--
152N071W16AAA1	NDSWC 1617		84	--	5	--	--	--	U	--	R	36	G	--	--	--	1610
152N071W16AAA2	NDSWC 1619		42	--	5	1959	--	--	U	--	R	36	G	--	--	--	1610
152N071W16AAA3	NDSWC 1		96	--	5	1959	24	--	U	--	9S	65	G	--	--	--	1610
152N071W16AAB	NDSWC 1618		73	--	5	1959	--	--	U	--	R	33	G	--	--	53	1605
152N071W16ABA	NDSWC 1620		52	--	5	1959	--	--	U	--	R	25	G	--	--	46	1605
152N071W16ADD1	L.ARNOLD		155	--	4	1943	25	--	H	PC	F	--	--	5	--	--	--
152N071W16ADD2	L.ARNOLD		20	--	1	1949	17	--	S	31	S	--	--	4	--	--	--
152N071W16BAA	NDSWC 1621		52	--	5	1959	--	--	U	--	R	20	G	--	--	42	1605
152N071W16BDD	NDSWC 1622		42	--	5	1959	--	--	U	--	R	14	G	--	--	32	1600
152N071W17AAA	NDSWC 1623		178.5	--	5	1959	--	--	U	--	S	145	G	--	--	--	1600
152N071W19BCB1	A.BACHMEIER		35	--	36	1918	27	7-68	H	--	S	--	--	5	--	--	--
152N071W19BCB2	A.BACHMEIER		44	--	24	1967	19	7-68	S	--	S	--	--	5	6.5	--	--
152N071W20AAA1	USBR		45	--	3	1953	3	7-53	U	--	S	11	G8	--	--	21	1576
152N071W20AAA2	NDSWC 1624		42	--	5	1959	--	--	U	--	S	14	G	--	--	26	1595
152N071W20CCC	USBR		15	--	3	1953	3	7-53	U	--	S	6	G8	--	--	--	1576
152N071W21DDC1	O.OLSON		10	--	--	1905	7	7-68	S	--	S	--	--	4	--	--	--
152N071W21DDC2	O.OLSON		17	--	--	1965	12	--	H	31	S	--	--	4	--	--	--
152N071W22BBB	USBR		35	--	3	1953	9	7-53	U	--	S	22	G8	--	--	--	1591
152N071W24BBB1	E.HUNTER		27	--	36	1956	23	7-68	H	--	7S	--	--	4	--	--	--
152N071W24BBB2	E.HUNTER		27	--	48	1956	24	--	S	--	7S	--	--	4	8.5	--	--
152N071W27CBB	NDGS BP67-32	29	14	12	1	1967	10	11-67	U	--	R	19	G	--	--	--	1587
152N071W28AAA	NDSWC		21	--	5	1959	--	--	U	31	--	--	D	--	--	--	--
152N071W31DDD1	J.LEIER		23	--	24	--	18	7-68	H	--	S	--	--	5	10.5	--	--
152N071W31DDD2	J.LEIER		23	--	48	--	19	--	S	--	S	--	--	4	5.5	--	--
152N071W36CCC	NDSWC 5299		80	--	5	1969	--	--	U	--	9S	6	GD	--	--	55	1630
152N072W01DDC	R.STREIFEL		12	--	24	1950	9	--	H	--	S	--	--	4	--	--	--
152N072W02CB	BUFFALO LAKE		--	--	--	--	--	--	--	KE	--	--	--	5	16.5	--	--
152N072W06DDD	NDSWC 5683		40	--	5	1970	--	--	U	--	W	--	G	--	--	30	1600
152N072W09ADD	R.RIPPLINGER		25	--	36	--	23	4-68	S	--	S	--	--	5	7.5	--	--

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAMETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAILABLE	SPECIFIC CONDUCTANCE	TEMPERATURE (°C)	DEPTH TO CONSL. ROCK (FT.)	ELEVATION OF LSD (FT.)
152N072W17BCB	K.GROSSMAN		20	--	36	1938	15	--	H	--	G	--	--	3	7.5	--	--
152N072W20BAB	M.LESMEISTER		25	--	2	--	--	--	S	--	S	--	--	4	5.5	--	--
152N072W21ADA	E.GRUMERINGER		25	--	24	1954	23	4-68	H	--	S	--	--	4	--	--	--
152N072W22ADA	V.HOFFARTH		20	--	36	1925	14	4-68	S	--	4G	--	--	5	5.0	--	--
152N072W22BBB	NDSWC 5236		360	--	5	1968	--	--	U	--	R	28	GE	--	--	195	1600
152N072W24DAB	J.BACHMEIER		21	--	2	1955	16	--	H	--	S	--	--	4	--	--	--
152N072W28CDC	M.SCHNEIDER		18	--	30	--	14	--	K	--	S	--	--	4	4.0	--	--
152N072W31ADD	A.LESMEISTER		31	--	36	1925	26	4-68	K	--	S	--	--	4	5.5	--	--
152N072W33AD	R.BISSELL 1		3117	--	9	1959	--	--	U	--	--	--	--	--	--	--	1606
152N072W35DDD	M.THOMAS		27	--	36	--	11	4-68	K	--	--	--	--	5	--	--	--
152N073W01BAA1	G.NORDLIE		97	--	4	1928	38	--	S	--	S	--	--	4	7.5	--	--
152N073W01BAA2	G.NORDLIE		95	--	2	1954	35	--	H	--	G	--	--	3	--	--	--
152N073W04BBB1	P.HAGER		93	--	2	1928	40	--	S	--	S	--	--	4	6.5	--	--
152N073W04BBB2	P.HAGER		95	--	4	1948	40	--	H	--	S	--	--	4	--	--	--
152N073W06AA	M.HAGER 1		3412	--	11	1954	--	--	U	--	--	--	--	--	--	--	1516
152N073W14DAD	W. HAGER		10	--	1	--	F	--	K	1S	--	--	--	4	--	--	--
152N073W15CCC	NDSWC 5671		60	--	5	1970	--	--	U	--	W	--	G	--	--	45	1619
152N073W16AAA	LESMEISTER LAKE		--	--	--	--	--	--	--	KE	--	--	--	7	19.0	--	--
152N073W18CCB	NDSWC 5672		100	--	5	1970	--	--	U	--	V	--	G	--	--	75	1537
152N073W18DBD	P.SCHMALTZ		7	--	30	1936	1	10-67	H	--	--	--	--	4	9.0	--	--
152N073W23ABB	NDSWC 5237		100	--	5	1968	--	--	U	--	G	8	GE	--	--	40	1620
152N073W24BCB1	W.HAGER		33	--	36	1920	28	10-67	S	--	P	--	--	5	7.5	--	--
152N073W24BCB2	W.HAGER		78	--	4	1949	24	10-67	U	--	--	--	--	--	--	--	--
152N073W24BCB3	W.HAGER		120	--	4	1957	30	--	H	--	Z1	--	--	5	--	--	--
152N073W26CDD	NDSWC 5682		40	--	5	1970	--	--	U	--	W	--	G	--	--	25	1605
152N073W28DDD	W.GROSSMAN		20	--	36	1932	13	10-67	S	--	R	--	--	5	6.5	--	--
152N073W33DDD	NDSWC 5681		140	--	5	1970	--	--	U	--	--	--	G	--	--	--	1595
152N073W36AAA	NDSWC 5301	100	55	52	1	1969	--	--	U	--	R	36	GD	--	--	56	1555
152N074W01BAA	NDSWC 2888	120	80	77	1	1967	33	11-67	U	--	R	44	GB	--	--	96	1565
152N074W04BAB	NDSWC 5541		40	--	5	1969	--	--	U	--	S	--	GD	--	--	22	1580
152N074W04DDA	M.MARQUART		26	--	36	--	13	4-68	H	--	S	--	--	5	--	--	--
152N074W06CDD	A.EISENZIMMER		32	--	--	--	--	--	S	--	--	--	--	5	6.5	--	--
152N074W08CDD	NDGS BP69-44		44	--	3	1969	--	--	U	--	S	22	G	--	--	22	1575
152N074W10ADD	NDSWC 5248		120	--	5	1968	--	--	U	--	S	11	GE	--	--	37	1570
152N074W11AAA	D.HAGER		21	--	24	--	15	4-68	K	--	S	--	--	4	--	--	--
152N074W12DCD	E.ERDMAN		21	--	36	--	17	4-68	K	--	7S	--	--	3	6.5	--	--
152N074W15BBC1	E.MARTIN		16	--	36	1925	12	--	H	--	7R	--	--	4	--	--	--
152N074W15BBC2	E.MARTIN		14	--	48	1961	12	4-68	S	--	7R	--	--	5	6.5	--	--
152N074W15CCC1	NDGS BP67-26	39	23	13	1	1967	9	11-67	U	--	S	11	G	--	--	--	1589

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAM-ETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAIL-ABLE	SPE-CIFIC CON-DUCT ANCE	TEM-PER-ATURE (°C)	DEPTH TO CONSL. ROCK (FT.)	ELEVA-TION OF LSD (FT.)
152N074W15CCC2	NDSWC 5542		40	--	5	1969	--	--	U	--	S	6	GD	--	--	26	1600
152N074W18CDC	H.LEMER		25	--	2	--	20	--	S	--	S	--	--	5	6.5	--	--
152N074W26DDA	J.DECKER		160	--	3	1936	8	--	K	--	V	--	--	5	--	--	--
152N074W28BBC	G.MERGEL		31	--	48	--	23	4-68	U	--	--	--	--	--	--	--	--
152N074W31DAD	L.DEGENSTEIN		17	--	--	1957	13	--	H	--	S	--	--	4	6.5	--	--
152N074W32DDD	NDSWC 5249		180	--	5	1968	--	--	U	--	S	61	GE	--	--	88	1550
153N063W30CBC	NDSWC 5689	200	143	137	1	1970	22	6-70	U	51	G	101	GE	5	--	181	1445
153N064W34CDD	M.FEATHY		170	--	4	1962	55	12-62	H	--	--	--	--	--	--	--	--
153N064W35BDD	M.JETTY		202	--	4	1963	60	3-63	W	--	--	--	--	--	--	--	--
153N064W35DAD	E.MILLER		35	--	4	--	19	9-50	K	--	--	--	--	5	9.0	--	--
153N064W36CCC	G.GESKE		29	--	4	--	26	--	U	--	--	--	--	--	--	--	--
153N065W28AA	USBR		70	--	3	1958	0	3-58	U	--	S	13	GB	--	--	--	1418
153N065W28CDA	USBR		70	--	3	1958	8	3-58	U	--	9T	--	GB	--	--	--	1430
153N065W28DBB	USBR		70	--	3	1958	6	3-58	U	--	9T	--	GB	--	--	--	1416
153N065W32BBB	NDSWC 5687		80	--	5	1970	--	--	U	PD	F	--	G	--	--	36	1450
153N065W32CDC	NDSWC 5482		240	--	5	1969	--	--	U	--	--	49	GE	--	--	220	1460
153N066W01DDD	NDSWC 5484	140	103	97	1	1969	22	11-69	U	51	R	35	GE	5	6.5	123	1445
153N066W02AAB	T.MOEN		103	--	4	1915	16	7-49	U	PD	--	--	--	--	--	--	1457
153N066W08DDD	R.WARD		22	--	30	--	12	9-46	S	31	--	--	--	--	--	--	1427
153N066W13CBD	W.GIEDD		62	--	--	--	23	5-68	K	--	--	--	--	6	7.5	--	--
153N066W15DCC	USGS		146	--	5	1946	--	--	U	--	G	18	G	--	--	135	1445
153N066W18DDD	R.WARD		53	--	4	--	16	10-67	S	--	--	--	--	--	--	--	1430
153N066W19BBB	USGS		66	--	5	1946	--	--	U	--	G	30	GE	--	--	51	1435
153N066W20BAB	USGS		239	--	5	1946	--	--	U	51	R	120	GE	--	--	236	1425
153N066W21AAB	USGS	103	60	--	5	1948	1	10-50	U	51	R	93	GE	5	9.0	--	1428
153N066W21BAB	USGS		230	--	5	1946	--	--	U	--	R	39	GE	--	--	222	1425
153N066W21BBB	USGS		324	--	5	1946	--	--	U	--	R	143	GE	--	--	319	1424
153N066W22BAB	USGS		130	--	5	1946	--	--	U	--	R	22	GE	--	--	112	1435
153N066W23AAD	SCHOOL		33	--	4	--	14	5-68	U	--	--	--	--	--	--	--	--
153N066W23DDC	H.MICHELS		45	--	24	1966	23	5-68	S	--	--	--	--	6	7.5	--	--
153N066W25AAD	NDSWC 5483		100	--	5	1969	--	--	U	--	7T	60	GD	--	--	60	1496
153N066W25DAD	C.ELSTAD		121	--	4	--	47	5-68	K	--	--	--	--	--	--	--	--
153N066W26AAD	H.MICHELS		127	--	--	1967	27	5-68	S	--	--	--	--	6	7.5	--	--
153N066W29CC	D. HOWARD		120	50	4	1964	25	10-64	S	--	F	88	D	--	--	32	1455
153N066W30DDC1	E.MARTINSON		28	--	--	--	23	5-68	U	--	--	--	--	--	--	--	--
153N066W30DDC2	E.MARTINSON		43	--	24	1964	22	5-68	K	--	--	--	--	6	7.5	--	--
153N066W34AAD	M.LENORE		18	--	4	--	4	--	S	--	--	--	--	3	7.0	--	--
153N066W35AAA	W.HOWARD		43	--	--	--	32	5-24	S	--	--	--	--	6	7.5	--	--
153N066W35BBD	W.HOWARD		24	--	--	--	2	--	S	--	--	--	--	4	7.5	--	--

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAM-ETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAIL-ABLE	SPE-CIFIC CON-DUCT ANCE	TEM-PER-ATURE (°C)	DEPTH TO CONSL. ROCK (FT.)	ELEVA-TION OF LSD (FT.)
153N066W36BBD1	E.FRANKLIN		34	--	--	--	30	5-68	S	--	--	--	--	6	7.5	--	--
153N066W36BBD2	E.FRANKLIN		78	--	--	1964	39	--	H	--	--	--	--	5	9.0	--	--
153N067W02DCA	USGS		72	--	4	1946	5	6-47	U	01	S	5	GE	--	--	71	1430
153N067W02DCB1	USGS		90	--	5	1946	--	--	U	--	R	7	GE	--	--	88	1430
153N067W02DCB2	USGS		73	--	4	1946	--	--	U	01	R	10	GE	--	--	69	1430
153N067W03ADD	USGS		65	--	5	1946	--	--	U	--	G	5	GE	--	--	50	1441
153N067W03DCD	N.ZACHER		96	--	4	1943	--	--	K	01	--	--	--	--	--	--	--
153N067W04BAA	P.TOFSRUD		71	--	4	1966	41	--	H	--	S	--	--	5	--	--	--
153N067W07BBB	NDSWC 5493		117	--	5	1969	--	--	U	--	R	--	GE	--	--	113	1530
153N067W10ABD	USGS		94	--	5	1946	--	--	U	--	S	2	GE	--	--	91	1445
153N067W10BBB	USGS		70	--	5	1946	--	--	U	--	9T	38	GE	--	--	50	1451
153N067W10DCC	USGS		100	--	5	1946	--	--	U	--	S	8	GE	--	--	79	1445
153N067W11BDC	USGS		79	--	5	1946	--	--	U	--	--	--	GE	--	--	58	1428
153N067W12CDD	USGS		129	--	5	1946	--	--	U	--	R	30	GE	--	--	124	1430
153N067W13CAA	B.KNOWLTON		18	--	36	1926	14	7-46	K	01	--	--	--	--	--	--	--
153N067W14BCA	USGS		83	--	5	1946	--	--	U	--	S	1	GE	--	--	74	1437
153N067W15BBC1	MINNEWAUKEN		44	--	10	1954	--	--	P	01	6R	27	G	5	--	44	--
153N067W15BBC2	MINNEWAUKAN		38	--	--	--	14	--	--	01	--	--	--	4	10.0	--	--
153N067W15BBC3	USGS		50	--	5	1946	--	--	U	--	S	19	GE	--	--	43	1461
153N067W15BBC4	USGS		50	--	5	1940	--	--	U	--	6R	27	GE	--	--	44	1641
153N067W15BBC5	USGS		50	--	5	1946	--	--	U	--	R	18	GE	--	--	45	1641
153N067W15BBC6	USGS		45	--	5	1946	--	--	U	--	6S	25	GE	--	--	--	1641
153N067W15BCB	USGS		50	--	5	1946	--	--	U	--	R	2	GE	--	--	39	1460
153N067W15BCC	USGS		57	--	5	1946	--	--	U	--	S	4	GE	--	--	48	1456
153N067W15BCD	USGS		63	--	5	1946	--	--	U	--	S	9	GE	--	--	56	1452
153N067W15BDA1	USGS		98	--	5	1946	--	--	U	01	R	8	GE	--	--	94	1449
153N067W15BDA2	USGS		64	--	5	1946	--	--	U	--	6R	27	GE	--	--	43	1449
153N067W15BDC	USGS		58	--	5	1946	--	--	U	--	S	6	GE	--	--	56	1450
153N067W15BDD	USGS		58	--	5	1946	--	--	U	--	R	2	GE	--	--	46	1451
153N067W15CAB	USGS		50	--	5	1946	10	5-52	U	01	6S	6	GE	--	--	46	1458
153N067W15CBA	USGS		50	--	5	1946	--	--	U	--	7R	9	GE	--	--	46	1458
153N067W15CBB	USGS		56	--	5	1946	--	--	U	--	R	10	G	--	--	25	1457
153N067W15DAB	B.KNOWLTON		114	--	6	1914	3	7-46	K	PD	--	--	--	--	--	--	--
153N067W15DBA1	H.HERMAN		22	--	30	1939	14	7-46	D	01	--	--	--	--	--	--	--
153N067W15DBA2	F.RISING		25	--	5	1946	--	--	U	--	G	3	GE	--	--	--	--
153N067W15DBB	MINNEWAUKAN		40	--	10	1946	8	7-46	P	01	R	1	G	--	--	51	1463
153N067W15DBD	COURTHOUSE		60	--	--	--	11	7-46	H	01	--	--	--	--	--	--	--
153N067W15DCC1	J.HAGER		25	--	36	1936	10	7-46	K	01	--	--	--	--	--	--	--
153N067W15DCC2	USGS		50	--	5	1946	--	--	U	--	R	2	GD	--	--	44	1461
153N067W16AAA	USGS		60	--	5	1946	--	--	U	--	6S	14	GD	--	--	46	1465

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAM-ETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAIL-ABLE	SPE-CIFIC CON-DUCT ANCE	TEM-PER-ATURE (°C)	DEPTH TO CONSL. ROCK (FT.)	ELEVA-TION OF LSD (FT.)
153N067W16AAD	USGS		50	--	5	1946	--	--	U	--	9S	28	GD	--	--	37	1457
153N067W16ABB	USGS		50	--	5	1952	18	5-52	U	11	8G	10	G	--	--	--	1478
153N067W16ADA	MINNEWAUKEN		33	--	--	1963	12	10-67	P	11	R	--	--	5	7.5	--	--
153N067W16BAA1	USGS		50	--	5	1946	--	--	U	--	8G	15	GE	--	--	--	1480
153N067W16BAA2	USGS		120	--	5	1946	--	--	U	--	8G	23	GD	--	--	77	1499
153N067W16CAB	E.SCHMID		30	--	4	1958	19	6-68	H	--	--	--	--	5	10.0	27	--
153N067W16DAA	USGS		50	--	5	1946	--	--	U	--	--	--	GE	--	--	27	1459
153N067W16DBA	USGS		120	--	5	1946	--	--	U	--	G	15	GD	--	--	46	1474
153N067W16DBB	USGS		50	--	5	1946	--	--	U	--	9S	11	GD	--	--	41	1466
153N067W16DCD	USGS		50	--	5	1946	--	--	U	--	R	31	GE	--	--	--	1494
153N067W19AAA1	N.WENTZ		20	--	30	--	5	7-46	K	11	--	--	--	--	--	--	--
153N067W19AAA2	N.WENTZ		46	--	4	1967	7	--	K	--	--	--	--	5	8.5	--	--
153N067W20ABC	T.SOLLIN		23	--	24	--	13	6-68	S	--	--	--	--	6	6.5	--	--
153N067W21AAA	USGS		50	--	5	1946	13	5-52	U	11	9S	5	GE	--	--	38	1472
153N067W21AAB	USGS		140	--	5	1946	--	--	U	--	Q	40	GE	--	--	72	1503
153N067W21CDD	USGS		50	--	5	1946	--	--	U	--	6S	10	GD	--	--	--	1507
153N067W21DCC	F.ANDERSON		28	--	18	--	22	6-68	S	--	--	--	--	4	7.5	--	--
153N067W21DDC	USGS		158	--	5	1946	--	--	U	--	R	9	GD	--	--	83	1517
153N067W21DDD	USGS		50	--	5	1946	--	--	U	--	6S	2	GD	--	--	--	1506
153N067W22BAA	USGS		50	--	5	1946	--	--	U	--	--	--	GD	--	--	28	1461
153N067W22BAB	USGS		50	--	5	1946	--	--	U	--	--	--	GE	--	--	36	1462
153N067W22BBB	USGS		50	--	5	1946	--	--	U	--	6S	8	GE	--	--	38	1463
153N067W22CCD	USGS		50	--	5	1946	--	--	U	--	6S	12	GD	--	--	--	1488
153N067W23AAA	USGS		59	--	5	1946	--	--	U	--	--	--	GD	--	--	55	1433
153N067W23ACB1	R.NEWCOMB		10	--	36	--	5	6-68	U	--	--	--	--	--	--	--	--
153N067W23ACB2	R.NEWCOMB		23	--	24	1965	6	6-68	S	--	--	--	--	6	6.5	--	--
153N067W23BAB	USGS		80	--	5	1946	--	--	U	--	--	--	GE	--	--	45	1445
153N067W23BAC	L.BURGESS		20	--	24	--	16	6-68	H	--	--	--	--	5	8.5	--	--
153N067W23DBD	R.NEWCOMB		19	--	24	--	11	6-68	S	--	--	--	--	7	6.5	--	--
153N067W24ABB	USGS		86	--	5	1946	--	--	U	--	S	12	GE	--	--	70	1430
153N067W24BAB	USGS		75	--	5	1946	--	--	U	--	--	--	GE	--	--	68	1434
153N067W25BDB	C.JOHNSON		30	--	4	1950	20	--	S	--	--	--	--	5	7.5	--	--
153N067W25BDD	C.JOHNSON		29	--	24	--	22	6-68	S	--	--	--	--	5	6.5	--	--
153N067W25CAB	A.JOHNSON		48	--	36	--	25	7-46	K	01	--	--	--	--	--	--	--
153N067W27BAB	M.CHRISTENSON 1		2485	--	9	1954	--	--	U	--	--	--	--	--	--	--	1481
153N067W27BDB1	P.SCHMID		32	--	24	--	13	6-68	S	--	--	--	--	--	--	--	--
153N067W27BDB2	P.SCHMID		40	--	24	1964	17	6-68	S	--	--	--	--	6	10.0	--	--
153N067W28ABA	USGS		50	--	5	1946	--	--	U	--	9T	--	GE	--	--	--	1504
153N067W28BBB	H.TIEGEN		44	--	4	1966	18	--	S	--	--	--	--	6	7.0	--	--
153N067W29AAA	F.ANDERSON		21	--	24	--	7	6-68	U	--	--	--	--	5	5.5	--	--

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153N067W34DCA	H.GILBERTSON		37	--	48	--	15	6-68	S	--	--	--	--	6	7.5	--	--
153N067W35AAC	USGS		164	--	5	1946	--	--	U	--	--	--	GE	--	--	147	1445
153N067W35DB	ROUND LAKE		--	--	--	--	--	--	--	KE	--	--	--	5	15.5	--	--
153N067W36AAB1	USGS		68	--	5	1946	--	--	U	--	G	14	GE	--	--	57	1445
153N067W36AAB2	USGS		97	--	5	1946	--	--	U	--	R	34	GD	--	--	51	1445
153N067W36ABA	USGS		49	--	5	1946	--	--	U	--	R	27	GE	--	--	39	1445
153N068W01AAA1	C.ANNENSON		58	--	18	1963	20	7-68	S	--	--	--	--	6	7.0	--	--
153N068W01AAA2	C.ANNENSON		32	--	36	--	15	7-68	S	--	--	--	--	7	6.5	--	--
153N068W03ADA	NDSWC 5684		300	--	5	1970	--	--	U	--	--	38	GE	--	--	295	1580
153N068W04DAD	M.ZACHER		45	--	24	--	15	7-68	K	--	--	--	--	5	5.5	--	--
153N068W06DDD	A.HANSON		29	--	36	--	18	7-68	Z	--	--	--	--	5	6.5	--	--
153N068W12DDD	E.SEARS		56	--	4	1967	28	7-68	H	--	--	--	--	5	7.5	--	--
153N068W14BAA	A.LYSNE		27	--	6	--	11	7-68	K	--	--	--	--	5	7.5	--	--
153N068W16AAA	NDSWC 5494		200	--	5	1969	--	--	U	--	R	11	GE	--	--	178	1600
153N068W17AD	C.TORGERSON 1		2881	--	9	1954	--	--	U	--	--	--	--	--	--	--	1633
153N068W17BBC	C.TORGERSON		33	--	42	--	22	7-68	K	--	--	--	--	6	7.5	--	--
153N068W18DDD1	NDSWC 5067	180	45	42	1	1968	19	8-68	U	51	R	13	GE	5	6.5	168	1618
153N068W18DDD2	NDSWC 5067A	180	80	77	1	1968	18	8-68	U	51	R	13	--	5	7.0	168	1618
153N068W19ABD	R.NELSON		76	--	4	1966	31	7-68	H	--	--	--	--	5	--	--	--
153N068W22AAD	A.JACOBSON		129	--	4	--	53	9-67	U	--	--	--	--	--	--	--	1660
153N068W22BAB	E.HAHN		110	--	4	1962	53	7-68	H	--	--	--	--	4	13.5	--	--
153N068W24AAA	NDSWC 5066		180	--	--	1968	--	--	U	--	9T	--	GE	--	--	156	1580
153N068W25BAA	L.PEDERSON		57	--	36	--	38	7-68	S	--	--	--	--	5	9.0	--	--
153N068W32DDD	NDSWC 5065		200	--	5	1968	--	--	U	--	R	10	GE	--	--	191	1656
153N068W34ACD	A.FLATEN		76	--	4	--	48	7-68	H	--	--	--	--	5	8.5	--	--
153N068W34BDC	P.FLATEN		89	--	4	--	38	7-68	H	--	--	--	--	5	6.5	--	--
153N068W36CDD	NDSWC 5495		120	--	5	1969	--	--	U	--	R	9	GD	--	--	109	1570
153N069W01ABC	R.MEYER		70	--	4	--	20	--	H	--	--	--	--	5	11.0	--	--
153N069W04DDD	J.JENSON EST		78	--	4	--	22	9-67	U	41	--	--	--	4	7.0	--	1625
153N069W05AAA	E.WESTAD		90	--	4	1955	30	--	K	--	S	--	--	5	6.0	--	--
153N069W11AAA	NDSWC 5068		160	--	--	1968	--	--	U	--	9T	--	GE	--	--	149	1609
153N069W11ADD	L.LALUM		30	--	4	--	22	--	K	--	--	--	--	4	12.0	--	--
153N069W13ADD	A.SCHAAN		37	--	24	--	25	7-68	K	--	--	--	--	5	9.0	--	--
153N069W18DDD	HALVORSON		31	--	4	--	25	10-67	U	--	--	--	--	4	7.5	--	1620
153N069W20BBB	NDSWC 2868		160	--	5	--	--	--	U	--	6G	22	GE	--	--	120	1620
153N069W22AB	L.TOGSTAD 1		3065	--	9	1959	--	--	U	--	--	--	--	--	--	--	1654
153N069W22BAA	N.FOSSUM		113	--	4	--	30	--	K	--	--	--	--	4	10.0	--	--
153N069W24CCA	L.TOGSTAD		43	--	18	--	30	7-68	K	--	--	--	--	6	7.5	--	--
153N069W28DAA	J.JACOBSON		66	--	24	--	7	7-68	K	--	--	--	--	6	6.5	--	--
153N069W30ABB1	H.KENNER		66	--	4	1920	40	--	H	--	F	--	--	--	--	--	--

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153N069W30ABB2	H.KENNER		100	--	4	1962	50	--	H	--	F	--	--	5	--	--	--
153N069W31DAA	NDGS BP69-26		24	--	3	1969	--	--	U	--	W	5	G	--	--	10	1605
153N069W33DCC	NDGS BP69-25		18	--	3	1969	--	--	U	--	--	--	G	--	--	10	1610
153N069W34BAA	NDSWC 5506		140	--	5	1969	--	--	U	--	W	117	GE	--	--	14	1620
153N069W34DCD	NDGS BP67-36	26	22	20	1	1967	9	11-67	U	--	9S	18	G	--	--	--	1625
153N069W35CAD1	L.MADDOCK		14	--	48	--	8	7-68	S	--	--	--	--	6	6.5	--	--
153N069W35CAD2	L.MELAAS		85	--	4	--	17	7-68	K	--	--	--	--	5	13.5	--	--
153N070W01DBB1	A.SMITH		50	--	36	1910	23	7-68	S	--	G	--	--	5	6.5	--	--
153N070W01DBB2	A.SMITH		90	--	4	1948	15	--	H	--	G	--	--	5	--	--	--
153N070W01DBB3	A.SMITH		50	--	4	1953	24	--	K	--	G	--	--	4	6.5	--	--
153N070W03DDD	NDSWC 5545		80	--	5	1969	--	--	U	--	7S	28	GD	--	--	55	1640
153N070W04ADA1	J.STADIG		140	--	6	1916	95	--	S	--	G	--	--	--	--	--	--
153N070W04ADA2	J.STADIG		175	--	6	1923	--	--	H	--	G	--	--	5	--	--	--
153N070W05AAA	NDSWC 5544		80	--	5	1969	--	--	U	--	6S	13	GD	--	--	68	1645
153N070W06AAA	V.LYBECK		60	--	4	1956	20	--	H	--	--	--	--	5	--	--	--
153N070W08DDB1	E.KARLSBRAATEN		100	--	1	1932	20	--	S	--	G	--	--	5	6.5	--	--
153N070W08DDB2	E.KARLSBRATTEN		65	--	4	1963	20	--	H	--	F	--	--	4	--	--	--
153N070W10ABB	ERICKSON ETAL		94	--	4	1919	69	7-68	U	--	S	--	--	--	--	--	--
153N070W14BBB1	O.SMITH		120	--	6	1931	42	7-68	S	--	S	--	--	5	--	--	--
153N070W14BBB2	O.SMITH		127	--	4	1948	40	--	H	--	R	--	--	4	--	--	--
153N070W19AAA1	G.HAGEN		84	--	4	1918	44	--	S	--	R	--	--	5	6.5	--	--
153N070W19AAA2	G.HAGEN		139	--	4	1948	60	--	H	--	F	--	--	5	12.0	--	--
153N070W21BBB	NDSWC 5240		200	--	5	1968	--	--	U	--	S	41	GE	--	--	184	1650
153N070W26ABA	A.& L.JOHNSON		82	--	6	1964	26	--	K	--	--	--	--	5	--	--	--
153N070W28CCC	M.&R.ERICKSON		87	--	4	--	36	9-67	U	--	--	--	--	--	--	--	1640
153N070W32DDD	NDSWC 5241		100	--	5	1968	--	--	U	--	8T	8	GE	--	--	41	1620
153N070W34DAD1	A.ERICKSON		90	--	6	1919	40	--	K	--	R	--	--	4	6.5	--	--
153N070W34DAD2	A.ERICKSON		60	--	4	1967	30	--	H	--	R	--	--	4	10.0	--	--
153N071W03ABB	NDSWC 5107		140	--	5	1968	--	--	U	--	6G	34	GE	--	--	60	1560
153N071W05BBB	NDSWC 5543		60	--	5	1969	--	--	U	--	S	22	GD	--	--	54	1590
153N071W05CDD1	J.MITZEL		97	--	4	1912	30	--	S	--	S	--	--	4	7.0	--	--
153N071W05CDD2	J.MITZEL		67	--	4	1952	50	--	H	--	S	--	--	4	--	--	--
153N071W10BAB	L.HEISLER		80	--	4	1918	50	--	K	--	V	--	--	4	11.0	--	--
153N071W12CBB	S.HOFFNER		110	--	6	1943	30	--	K	--	V	--	--	5	--	--	--
153N071W15CCC	NDSWC 5304	120	61	55	1	1969	58	7-69	U	--	S	40	GE	--	--	85	1650
153N071W15CDC	J.REIGER		90	--	4	1924	28	--	K	--	--	--	--	4	7.5	--	--
153N071W16CCC	USBR		115	--	5	1953	52	7-53	U	--	S	41	GB	--	--	92	--
153N071W17BBC	R.STREIFEL		18	--	24	--	12	10-67	S	--	--	--	--	--	--	--	--
153N071W17DDD1	NDSWC 5305	80	38	33	4	1969	3	8-69	U	31	R	31	GD	4	6.5	40	1572
153N071W17DDD2	NDSWC 5305A	60	40	37	1	1969	--	--	U	31	R	34	GD	4	7.5	40	1572

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153N071W17DDD3	NDGS BP69-12	39	28	22	1	1969	--	--	U	--	R	22	G	--	--	36	1572
153N071W19AAA	NDSWC 5307		40	--	5	1969	--	--	U	--	R	--	GD	--	--	20	1575
153N071W19DCC1	J.WOLF JR.		70	--	--	1937	40	--	J	--	S	--	--	4	9.5	--	--
153N071W19DCC2	J.WOLF JR.		72	--	4	1960	--	--	H	--	S	--	--	3	--	--	--
153N071W20CCC	NDSWC 5243	100	72	68	1	1968	16	--	U	31	R	70	GE	4	6.5	86	1562
153N071W21CCD	NDSWC 5306		60	--	5	1969	--	--	U	--	W	55	GD	--	--	5	1570
153N071W22CCC	NDSWC 5303		60	--	5	1969	--	--	U	--	9S	24	GD	--	--	34	1615
153N071W23AAA	NDSWC 5546		80	--	5	1969	--	--	U	--	--	17	GD	--	--	59	1615
153N071W24ABB	NDGS BP67-30		54	--	3	1967	14	9-67	U	--	S	39	G	--	--	--	1620
153N071W25CCB	N.TOLLERUD		107	--	4	1946	20	--	K	--	--	--	--	5	7.0	--	--
153N071W27CDD	NDSWC 1627		84	--	5	1959	--	--	U	--	R	63	G	--	--	74	1620
153N071W28ADA	USBR		30	--	5	--	--	--	U	--	7S	13	GB	--	--	--	--
153N071W32DDC1	J.HEISLER		24	--	36	--	17	7-68	S	--	S	--	--	4	6.5	--	--
153N071W32DDC2	J.HEISLER		23	--	1	1940	20	--	H	--	--	--	--	5	12.0	--	--
153N071W33AAA	NDSWC 5239		100	--	5	1968	--	--	U	--	R	14	GE	--	--	30	1620
153N071W34AA	E.JENSON		50	--	4	--	32	--	H	31	--	--	--	5	--	--	--
153N071W34AAD	E.HOFFNER		103	--	4	1967	35	10-67	H	--	R	--	--	--	--	--	--
153N072W03DDD	NDSWC 5244	80	62	58	1	1968	7	12-68	U	PC	S	3	GE	5	6.5	23	1550
153N072W04BAC1	P.LYSNE ESTATE		25	--	1	1953	16	10-67	S	--	S	--	--	4	7.5	--	--
153N072W04BAC2	P.LYSNE ESTATE		65	--	2	1962	30	--	H	--	--	--	--	4	--	--	--
153N072W07BBD	NDSWC		37	--	5	--	--	--	U	--	6S	18	G	--	--	29	1520
153N072W07CDA	V.WENTZ		32	--	4	1949	18	10-67	S	--	S	--	--	4	7.5	--	--
153N072W10BBC	A.LINDSETH		50	--	4	1961	25	--	S	--	S	--	--	4	6.5	--	--
153N072W14ADA1	C.HOFFART		40	--	1	1935	20	--	H	--	--	--	--	4	--	--	--
153N072W14ADA2	C.HOFFART		60	--	4	--	24	10-67	S	--	S	--	--	4	6.5	--	--
153N072W17CCC	NDSWC 5670		60	--	5	1970	--	--	U	--	W	--	G	--	--	20	1565
153N072W20AAD	L.NEISS		68	--	4	1953	28	-62	K	--	F	--	--	3	--	--	--
153N072W23CCC	O.FORS		90	--	4	--	78	--	K	--	V	--	--	4	6.5	--	--
153N072W25ABD	J.WOLFE		26	--	48	--	20	10-67	S	--	--	--	--	5	7.5	--	--
153N072W28DDC	A.VETTER		90	--	--	1930	31	10-67	S	--	--	--	--	3	7.5	--	--
153N072W29BBB	J.OLSON		73	--	4	--	31	10-67	S	--	F	--	--	4	6.5	--	--
153N072W32CDD	NDSWC 5238		100	--	5	1968	--	--	U	--	V	85	GE	--	--	15	1590
153N072W34DCC1	J.WOLF		45	--	--	1937	37	--	S	--	S	--	--	5	6.0	--	--
153N072W34DCC2	J.WOLF		40	--	2	1950	33	--	H	--	S	--	--	4	--	--	--
153N073W01CCC	J.RIPPLINGER		126	--	4	1940	90	--	K	--	V	--	--	3	--	--	--
153N073W02CCC	NDSWC 5666		60	--	5	1970	--	--	U	--	S	--	G	--	--	47	1507
153N073W05DDD	NDSWC 5674		80	--	5	1970	--	--	U	--	S	9	G	--	--	55	1500
153N073W06CCC	NDSWC 5673		80	--	5	1970	--	--	U	--	S	--	G	--	--	49	1555
153N073W06DDD	NDSWC 5667		100	--	5	1970	--	--	U	--	W	--	G	--	--	76	1556
153N073W09AAA	NDSWC 5676		120	--	5	1970	--	--	U	--	8G	94	GE	--	--	103	1494

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAM-ETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAIL-ABLE	SPE-CIFIC CON-DUCT ANCE	TEM-PER-ATURE (°C)	DEPTH TO CONSL. ROCK (FT.)	ELEVA-TION OF LSD (FT.)
153N073W09CCC1	R.HAGER		92	--	--	1946	57	--	H	--	1S	--	--	4	--	--	--
153N073W09CCC2	R.HAGER		90	--	4	--	60	--	S	--	1S	--	--	--	--	--	--
153N073W10BBA	NDSWC 5245		180	--	5	1968	--	--	U	--	7S	49	GE	--	--	60	1500
153N073W10BCC	NDSWC 5675		80	--	5	1970	--	--	U	--	S	38	G	--	--	49	1492
153N073W14AA	GIRARD LAKE		--	--	--	--	--	--	--	KE	--	--	--	7	16.5	--	--
153N073W14CCC	NDSWC 5669		80	--	5	1970	--	--	U	--	S	17	G	--	--	64	1574
153N073W17BBC	W.SCHERR		32	--	--	1966	7	--	S	--	S	--	--	--	--	--	--
153N073W17CCC	NDSWC 5539		60	--	5	1969	--	--	U	--	S	8	GD	--	--	45	1555
153N073W18AAD1	W.SCHERR		32	--	24	1957	7	--	S	--	S	--	--	4	7.5	--	--
153N073W18AAD2	W.SCHERR		25	--	24	1958	9	--	H	--	S	--	--	4	7.5	--	--
153N073W20BAA	P.SCHERR		13	--	21	1967	2	4-68	S	--	S	--	--	4	7.5	--	--
153N073W20BCB1	P.SCHERR		56	--	21	1951	28	4-68	H	--	S	--	--	--	--	--	--
153N073W20BCB2	P.SCHERR		103	--	--	1958	8	--	S	--	S	--	--	5	6.5	--	--
153N073W21AAA	NDSWC 5668		120	--	5	1970	--	--	U	--	W	--	G	--	--	81	1621
153N073W23AAC	L.MATTHEWS		90	--	4	--	40	--	S	--	S	--	--	4	7.5	--	--
153N073W27ABC1	G.GEBHARDT		48	--	4	1927	10	--	S	--	7S	--	--	4	7.5	--	--
153N073W27ABC2	G.GEBHARDT		50	--	4	1962	10	--	H	--	7S	--	--	4	--	--	--
153N074W04DDD	NDSWC 5247		100	--	5	1968	--	--	U	--	S	24	G	--	--	75	1560
153N074W06BDD	N.LINGHORN		32	--	1	1900	24	--	S	--	S	--	--	3	10.0	--	--
153N074W09CBC1	W.SCHELL		73	--	1	1924	6	4-68	H	--	S	--	--	3	7.5	--	--
153N074W09CBC2	W.SCHELL		20	--	1	1947	8	--	H	--	S	--	--	4	--	--	--
153N074W10BAA	N.SENGER		9	--	36	--	5	4-68	S	--	S	--	--	4	7.5	--	--
153N074W12BBB	NDGS 8P69-41		49	--	5	1969	--	--	U	--	S	28	G	--	--	21	1570
153N074W14DDD	NDSWC 5540		40	--	5	1969	--	--	U	--	2V	30	GD	--	--	10	1540
153N074W15CCC	A.LEIER		14	--	36	--	11	4-68	S	--	S	--	--	4	6.5	--	--
153N074W24BBB	J.MACK		22	--	48	1926	18	--	K	--	S	--	--	5	7.5	--	--
153N074W27CDC	M.HEINTZ		21	--	2	1910	--	--	S	--	--	--	--	4	7.5	--	--
153N074W29CBB	A.MILLER		8	--	--	1895	6	4-68	S	--	S	--	--	4	6.5	--	--
153N074W35DAA	P.HAGEL		240	--	4	1929	220	--	S	--	V	--	--	5	--	--	--
153N074W35DAD	P.HAGEL		47	--	24	1965	28	--	S	--	S	--	--	--	--	--	--
154N066W29AAA	NDSWC 5485		80	--	5	1969	--	--	U	--	R	19	GD	--	--	57	1445
154N066W29DDA	L.& I.FOSS		32	--	18	--	15	5-68	U	--	--	--	--	--	--	--	--
154N066W30DAD	NDSWC 5486		60	--	5	1969	--	--	U	--	8G	7	GD	--	--	52	1445
154N066W31DCB	L.JOHNSTON		76	--	4	1952	18	--	K	--	--	--	--	5	10.0	--	--
154N066W32ACC	USGS		175	--	5	1950	--	--	U	--	7S	29	GE	--	--	168	1472
154N066W33CCB	L.FOSS		86	--	4	--	36	--	U	--	--	--	--	--	--	--	--
154N066W34ADC	USGS		60	--	5	1950	--	--	U	--	6R	4	GD	--	--	50	1434
154N067W01CAB	T.MOEN		22	--	30	--	12	6-68	H	--	--	--	--	7	7.5	--	--
154N067W02ACA	O.FOSS		90	--	4	--	13	--	H	--	--	--	--	6	7.5	--	--
154N067W02BDB	A.YRI		21	--	9	--	17	6-68	U	--	--	--	--	--	--	--	--

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAM-ETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAIL-ABLE	SPE-CIFIC CON-DUCT ANCE	TEM-PER-ATURE (° C)	DEPTH TO CONSL. ROCK (FT.)	ELEVA-TION OF LSD (FT.)
154N067W02CAB	R.FOSS		70	--	4	1967	20	--	S	--	--	--	--	4	9.0	--	--
154N067W02DDD	USGS		95	--	5	1950	--	--	U	--	--	--	GE	--	--	84	1444
154N067W03ACB	SILVER LAKE		--	--	--	--	--	--	--	KE	--	--	--	5	6.0	--	--
154N067W03CCC	NDSWC 5488	160	103	97	1	1969	7	11-69	U	51	R	54	GE	--	--	125	1445
154N067W05AAA	G.HERMAN SR.		170	--	4	1954	70	--	H	--	G	--	--	6	--	--	--
154N067W06CCC	NDSWC 5073		220	--	5	1968	--	--	U	--	S	8	GE	--	--	212	1572
154N067W09CBB1	G.TOFSRUD		125	--	4	1945	70	--	S	--	--	--	--	5	7.0	--	--
154N067W09CBB2	G.TOLSRUD		225	--	4	1961	70	--	H	--	F	--	--	7	--	--	--
154N067W10DDB	G.TOFSRUD		156	--	4	1967	90	--	K	--	--	--	--	6	9.0	--	--
154N067W11DDD1	NDSWC 2880A	120	80	75	4	1967	17	11-67	U	31	G	63	GB	4	6.5	105	1455
154N067W11DDD2	NDGS BP68-1		70	68	1	1968	17	--	U	--	G	50	G	--	--	--	1454
154N067W12DDD	NDSWC 5487		100	--	5	1969	--	--	U	--	G	3	GD	--	--	96	1460
154N067W15BBB	NDSWC 5658	180	153	147	1	1970	33	6-70	U	51	BG	54	GE	6	--	172	1475
154N067W15CCB	NDSWC 5072		150	--	5	1968	--	--	U	--	BG	9	GE	--	--	137	1482
154N067W15DAD	FARMERS UNION		125	--	4	--	25	6-68	H	--	--	--	--	--	--	--	--
154N067W15DDA	A.PFEIFER		78	--	4	--	40	6-68	S	--	--	--	--	--	6.5	--	--
154N067W20DCC	NDSWC 5492		120	--	5	1967	--	--	U	--	R	8	GE	--	--	100	1470
154N067W23CAA1	S.& G.EIDE		90	--	4	1966	13	--	H	--	--	--	--	6	6.5	--	--
154N067W23CAA2	S.& G.EIDE		--	--	4	--	10	6-68	U	--	--	--	--	--	--	--	--
154N067W25DDD	A.YRI		85	--	--	--	46	6-68	K	--	--	--	--	5	7.5	--	--
154N067W26BAA	NDSWC 5659	180	143	137	1	1970	10	--	U	51	G	76	GE	--	--	168	1448
154N067W29BDD	R.THOMPSON		35	--	4	1964	15	--	H	--	S	--	--	5	--	--	--
154N067W35ADD1	USGS		140	--	5	1946	--	--	U	--	G	86	GD	--	--	133	1436
154N067W35ADD2	USGS		150	--	5	1946	--	--	U	--	G	42	GD	--	--	141	1435
154N067W35CBD	R.WEED		34	--	4	1952	9	6-68	U	--	--	--	--	5	6.0	--	--
154N067W35CCA1	J.GEFROH		170	--	4	--	34	6-68	S	--	--	--	--	7	7.0	--	--
154N067W35CCA2	J.GEFROH		37	--	36	--	29	6-68	U	--	--	--	--	--	--	--	--
154N067W36BCC	USGS		200	--	5	1946	--	--	U	51	R	128	GD	--	--	185	1434
154N067W36DAA	USGS		126	--	5	1946	--	--	U	--	--	--	GD	--	--	120	1439
154N068W01AAA	NDSWC 5657	240	203	197	1	1970	108	6-70	U	51	G	32	GE	--	--	221	1560
154N068W02DDD	R.LOKEN		80	--	4	--	12	--	K	--	--	--	--	4	9.0	--	--
154N068W03BCC	L.HAAGENSON		45	--	18	1964	13	7-68	K	--	--	--	--	5	14.5	--	--
154N068W05CBA	M.TROWBRIDGE		85	--	6	--	22	--	K	--	--	--	--	5	10.0	--	--
154N068W10CCB	C.SOLBERG		51	--	40	--	27	7-68	K	--	--	--	--	5	7.0	--	--
154N068W12CDA	R.RINGENBERG		66	--	6	--	51	7-68	U	--	--	--	--	6	6.5	--	--
154N068W17CCC	L.ROWE		18	--	24	--	8	7-68	K	--	--	--	--	5	9.0	--	--
154N068W19AAA	NDSWC 5509		180	--	5	1969	--	--	U	--	R	13	GE	--	--	172	1582
154N068W21AAA	SOO RAILROAD		40	40	99	--	9	10-67	U	--	--	--	--	--	--	--	1560
154N068W23CAA	W.GERIG		--	--	4	--	36	7-68	K	--	--	--	--	6	6.0	--	--
154N068W24ADB	L.BERGER		35	--	18	1967	20	7-68	K	--	--	--	--	6	--	--	--

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154N068W27AAA	NDSWC 5071		180	--	5	1968	--	--	U	--	9S	5	GE	--	--	166	1560
154N068W30DBB	H FRIESTAD		37	--	24	--	31	7-68	K	--	--	--	--	5	9.0	--	--
154N068W34DAD	J.STENBERG		30	--	18	--	13	7-68	K	--	--	--	--	6	5.5	--	--
154N069W02AA	H.HOFSTRAND 1		3030	--	9	1954	--	--	U	--	--	--	--	--	--	--	1650
154NC69WC7DAA1	S.SWENSON		31	--	30	--	27	7-68	K	--	--	--	--	5	6.5	--	--
154N069W07DAA2	S.SWENSON		78	--	4	--	37	7-68	S	--	--	--	--	5	8.5	--	--
154NC69W09CCC	M.ALVESHERE		97	--	6	--	41	7-68	K	--	--	--	--	5	9.0	--	--
154NC69W09DDD	O.RONNING		43	--	36	--	32	7-68	S	--	--	--	--	5	6.5	--	--
154N069W12DCB	C.LUNDE		29	--	36	--	13	7-68	K	--	--	--	--	5	7.0	--	--
154N069W13CCC	NDSWC 5508	200	73	67	1	1969	18	11-69	U	11	R	80	GD	4	6.0	184	1625
154N069W15BBA	NDSWC 5070	160	56	52	1	1968	32	7-68	U	11	S	23	GE	5	6.5	136	1651
154N069W15CBB	W.COHENOUR		165	--	4	1958	75	--	H	--	--	--	--	5	12.0	--	--
154N069W18DAD	B.MEYER		31	--	36	--	27	7-68	K	--	--	--	--	5	10.0	--	--
154N069W25BCC	J.WARNER		40	--	--	--	15	--	K	--	--	--	--	5	9.0	--	--
154N069W26CDD1	C.&V.THOMPSON		97	--	4	1962	40	--	K	--	--	--	--	5	7.0	--	--
154N069W26CDD2	C.&V.THOMPSON		37	--	36	--	30	7-68	S	--	--	--	--	6	6.5	--	--
154N069W26DDD	NDSWC 5507		160	--	5	1969	--	--	U	--	R	11	GE	--	--	145	1625
154N069W32BBB	NDSWC 5069		200	--	5	1968	--	--	U	--	R	20	G	--	--	72	1632
154N069W34CBA	C.HELGESON		92	--	4	1962	21	7-68	H	--	--	--	--	5	9.0	--	--
154N070W01CDC1	J.KIRKEIDE		110	--	4	1918	25	--	S	--	F	--	--	5	6.5	--	--
154N070W01CDC2	J.KIRKEIDE		110	--	4	1950	25	--	S	--	F	--	--	5	6.5	--	--
154N070W03AAA	J.BROE		70	--	4	1919	40	--	K	--	S	--	--	5	--	--	--
154N070W10CCD	P.JOHNSON		175	--	4	--	93	10-67	U	--	--	--	--	--	--	--	--
154N070W12BAB	J.KIRKEIDE		110	--	4	1948	25	--	H	--	F	--	--	5	--	--	--
154N070W15BDD	R. MARLANCE		120	--	4	--	25	--	H	--	S	5	D	--	--	103	1550
154N070W16BBB	NDSWC 5106	100	46	43	1	1968	8	8-68	U	31	R	28	GE	5	5.5	48	1588
154N070W17BAB	F.EBERLE		61	--	4	--	24	10-67	U	--	--	--	--	--	--	--	--
154N070W19DAC	M.MUFFENBIER		51	--	4	--	--	10-67	U	--	--	--	--	--	--	--	19
154N070W21DAA	D.RANDLE		120	--	4	--	30	--	K	--	R	--	--	5	8.5	--	--
154N070W24CBB	L.PEDERSON		15	--	1	1953	12	--	H	--	S	--	--	3	--	--	--
154N070W27DCC	M.MILLER		42	--	--	--	39	10-67	U	--	--	--	--	--	--	--	--
154N070W31DB	STADUM 1		5144	--	11	1954	--	--	U	--	--	--	--	--	--	--	1628
154N071W02DDB	O.CLSON		45	--	4	--	18	10-67	S	--	--	--	--	4	6.5	--	--
154N071W03CDD	A.OLSON		52	--	8	1918	23	10-67	S	--	P	--	--	--	--	--	--
154N071W08CDD	L.HOFFERT		51	--	4	--	29	9-67	U	--	--	--	--	--	--	--	1605
154N071W11AAD1	NDSWC 5105	100	45	42	1	1968	9	8-68	U	--	V	26	GE	--	--	14	1590
154N071W11AAD2	NDSWC 5108		240	--	5	1968	--	--	U	--	V	37	GE	--	--	17	1590
154N071W13AAA1	B.SIMONSON		80	--	4	1915	50	--	S	--	S	--	--	5	--	--	--
154N071W13AAA2	B.SIMONSON		45	--	4	1955	20	--	H	--	F	--	--	4	--	20	--
154N071W16DDD	H.JOHNSON		130	--	4	1938	--	--	H	PC	--	--	--	5	--	--	--

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154N071W20DDD	S.HOFFERT		113	--	4	--	62	--	U	PC	--	--	--	4	6.5	--	1640
154N071W23DAA1	F.EBERLE		40	--	--	1940	16	10-67	S	--	--	--	--	--	--	--	--
154N071W23DAA2	F.EBERLE		60	--	4	1952	--	--	H	--	R	--	--	5	--	--	--
154N071W25ADA1	T.BUNDY		89	--	4	1964	20	-63	H	--	--	--	--	5	--	--	--
154N071W25ADA2	T.BUNDY		60	--	4	--	16	10-67	S	--	--	--	--	5	6.5	--	--
154N071W27CCD	CRANBERRY LAKE		--	--	--	--	--	--	--	KE	--	--	--	9	13.5	--	--
154N071W30DCD	G.VETSCH		150	--	4	--	30	--	K	--	S	--	--	4	--	--	--
154N071W33BDD	C.BROSSART		90	--	4	--	--	--	K	--	S	--	--	4	7.5	--	--
154N071W35BCB	J.SCHWAB		94	--	4	1915	30	--	K	--	S	--	--	5	10.0	--	--
154N072W01BBB	N.DUSCHER		70	--	4	--	40	9-67	U	PC	--	--	--	5	6.5	--	1605
154N072W01CCC	NDGS BP69-52		49	--	3	1969	--	--	U	--	S	11	G	--	--	40	1580
154N072W06CCC	E.HEILMAN		100	--	4	1927	80	--	K	--	G	--	--	4	--	--	--
154N072W09DDC	A.LUNDE		90	--	4	1920	--	--	H	--	V	--	--	5	7.5	--	--
154N072W15ADA	W.DUCHSCHER		86	--	4	--	--	--	K	--	--	--	--	5	--	--	--
154N072W16AAB	NDSWC 5109		160	--	5	1968	--	--	U	--	1V	34	GE	--	--	66	1596
154N072W17DA	CYRUS-RANBERG 1		4440	--	11	1954	--	--	U	--	--	--	--	--	--	--	1555
154N072W19AAA1	G.STEPHENS		56	--	4	1915	23	4-68	U	--	R	--	--	--	--	--	--
154N072W19AAA2	G.STEPHENS		68	--	4	1962	22	--	S	--	--	--	--	4	6.5	--	--
154N072W19AAA3	G.STEPHENS		106	--	4	1965	14	--	H	--	R	--	--	5	--	--	--
154N072W21DDA	A.LINDSETH		47	--	4	1960	30	--	S	--	S	--	--	4	6.5	--	--
154N072W26DDD	A.GOETZ		80	--	4	--	60	--	K	--	--	--	--	5	--	--	--
154N072W28ABB1	A.LINDSETH		95	--	4	1926	--	--	H	--	V	--	--	4	--	--	--
154N072W28ABB2	A.LINDSETH		70	--	4	1949	30	--	S	--	--	--	--	6	7.5	--	--
154N072W28BAA	A.LINDSETH		70	--	--	1967	26	--	H	--	S	--	--	4	--	--	--
154N072W28BCB	A.LINDSETH		60	--	4	1926	28	--	S	--	S	--	--	4	6.5	--	--
154N072W34AAA	A.LINDSETH		40	--	36	1920	35	--	S	--	S	--	--	6	6.5	--	--
154N072W34CBA	A.LINDSETH		45	--	4	1960	30	--	S	--	S	--	--	--	--	--	--
154N073W06DAD1	W.AXTMAN		120	--	4	1918	55	--	S	--	F	--	--	4	6.5	--	--
154N073W06DAD2	W.AXTMAN		104	--	4	1963	60	--	H	--	F	--	--	4	--	--	--
154N073W09ABD	J.SCHAAN		45	--	4	1962	25	--	S	--	--	--	--	5	--	--	--
154N073W11ABA	NDSWC 5110		160	--	5	1968	--	--	U	--	S	17	GE	--	--	31	1561
154N073W11BB	R.SCHANN 1		3215	--	11	1954	--	--	U	--	--	--	--	--	--	--	1540
154N073W12CCC	A.SCHIFF		30	--	4	--	13	9-67	U	PC	--	--	--	4	6.0	--	1550
154N073W16ACC	NDSWC		33	--	5	1959	--	--	U	--	--	--	G	--	--	27	1520
154N073W19ADA	NDGS BP67-21	39	34	32	1	1967	6	11-67	U	51	S	25	G	5	6.5	--	1500
154N073W19ADB	NDSWC 5538	180	103	97	1	1969	8	11-69	U	51	S	156	GE	5	6.5	166	1500
154N073W20BBB	NDSWC 5731		100	--	5	1970	--	--	U	--	S	78	G	--	--	85	1500
154N073W21DAD	NDSWC 5678		140	--	5	1970	--	--	U	--	G	22	G	--	--	115	1585
154N073W22CBB	P.EBACH		18	--	30	1940	12	5-68	K	--	S	--	--	5	--	--	--
154N073W25DAD	T.EBACH		90	--	5	--	52	--	K	--	V	--	--	4	--	--	--

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAM-ETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAIL-ABLE	SPE-CIFIC CON-DUCT ANCE	TEM-PER-ATURE (°C)	DEPTH TO CONSL. ROCK (FT.)	ELEVA-TION OF LSD (FT.)
154N073W28DDD	NDSWC 5677		100	--	5	1970	--	--	U	--	S	--	G	--	--	85	1565
154N073W31BBC1	L.BICKLER		30	--	28	1934	10	--	S	--	V	--	--	4	5.5	--	--
154N073W31BBC2	L.BICKLER		40	--	--	1958	14	5-68	H	--	V	--	--	5	7.5	--	--
154N073W35BBB1	R.&I.BALTA		56	--	30	--	28	5-68	K	--	--	--	--	5	7.5	--	--
154N073W35BBB2	R.&I.BALTA		92	--	4	1966	--	--	H	--	S	--	--	4	--	--	--
154N074W03BCC	NDSWC 5665	280	163	157	1	1970	7	6-70	U	51	G	241	GE	3	--	265	1510
154N074W05CCC	NDSWC 5726		80	--	5	1970	--	--	U	--	--	--	G	--	--	71	1535
154N074W06AAA	NDSWC 5727		220	--	5	1970	--	--	U	--	S	32	GE	--	--	211	1523
154N074W08CCC	NDSWC 5725		40	--	5	1970	--	--	U	--	--	--	G	--	--	8	1510
154N074W10CCB	NDSWC 5246		400	--	5	1968	--	--	U	--	S	31	G	--	--	80	1500
154N074W11CBB	M.SATTLER		6	--	48	--	--	--	U	--	--	--	--	--	--	--	--
154N074W17CCC	NDGS BP67-20	29	24	22	1	1967	7	11-67	U	01	S	18	G	4	6.5	--	1500
154N074W19AAA	NDSWC 5724	80	50	47	1	1970	4	7-70	U	01	S	50	G	--	--	54	1500
154N074W22BBC	M.VOELLER		120	--	1	1928	20	--	K	--	P	--	--	6	6.5	--	--
154N074W22BC	M.VOELLER 1		3511	--	11	1954	--	--	U	--	--	--	--	--	--	--	1533
154N074W24DCC1	F.MITZEL		21	--	--	1943	12	--	S	--	S	--	--	4	6.5	--	--
154N074W24DCC2	F.MITZEL		21	--	--	1949	14	--	H	--	--	--	--	5	--	--	--
154N074W25ABB	F.MITZEL		18	--	24	1966	11	5-68	S	--	G	--	--	4	5.5	--	--
154N074W28ABA1	F.FETTIG		15	--	--	1928	9	--	S	--	7S	--	--	6	5.0	--	--
154N074W28ABA2	F.FETTIG		140	--	4	1942	36	--	H	--	V	--	--	6	7.5	--	--
154N074W31BBB	C.LINGOHR		42	--	31	1961	12	--	H	--	S	--	--	5	--	--	--
154N074W33CCC	L.REIGER		70	--	6	1965	20	--	K	--	R	--	--	4	7.5	--	--
154N074W34BBB	NDSWC 5732		100	--	5	1970	--	--	U	--	S	7	G	--	--	80	1565
155N067W01DAA	CHURCHS FERRY		71	--	5	--	25	8-68	P	51	--	--	--	5	7.0	--	--
155N067W01DDD	USGS		110	--	5	1950	--	--	U	--	S	13	GD	--	--	105	1459
155N067W02CAA1	L.&R.HAUSMANN		56	--	4	1967	15	--	H	--	--	--	--	5	6.5	--	--
155N067W02CAA2	L.&R.HAUSMANN		220	--	4	--	30	6-68	U	--	--	--	--	--	--	--	--
155N067W02CAA3	L.&R.HAUSMANN		90	--	4	1967	40	--	S	--	--	--	--	6	10.0	--	--
155N067W03DDD	USGS		130	--	5	1950	--	--	U	--	6R	23	GD	--	--	124	1457
155N067W04DAA	D.MCCONNELL		100	--	4	1968	50	--	H	--	--	--	--	6	9.0	--	--
155N067W05AAA	NDSWC 5660		160	--	5	1970	--	--	U	--	S	--	G	--	--	140	1480
155N067W05DDA	A.HALVORSON		40	--	28	--	18	7-68	K	--	--	--	--	6	9.5	--	--
155N067W07CCC1	NDGS BP67-70	34	26	24	1	1967	11	11-69	U	--	R	12	G	--	--	--	1500
155N067W07CCC2	NDSWC 5655		200	--	5	1970	--	--	U	--	S	--	GE	--	--	188	1490
155N067W09DAD	D.ROHRER		75	--	4	1942	40	--	H	--	F	--	--	5	--	--	--
155N067W11AAA	USGS		130	--	5	1950	--	--	U	--	9S	64	GD	--	--	123	1452
155N067W11ABD	STINK LAKE		--	--	--	--	--	--	--	KE	--	--	--	9	6.5	--	--
155N067W12ADA	A. SOLBERG		300	--	6	1969	--	--	H	PD	--	--	--	5	6.5	--	--
155N067W14BBA	STINK LAKE		--	--	--	--	--	--	--	KE	--	--	--	9	17.0	--	--
155N067W14CDD	USGS		130	--	5	1950	--	--	U	--	9S	63	GD	--	--	126	1450

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155N067W14DC	J.BLEGEN 1		2396	--	9	1954	--	--	U	--	--	--	--	--	--	--	1458
155N067W15AAB1	L.STUDNESS		116	--	4	--	54	6-68	S	--	--	--	--	5	10.0	--	--
155N067W15AAB2	L.STUDNESS		104	--	4	--	40	6-68	S	--	--	--	--	--	--	--	--
155N076W20ABA	H. HOFSTRAND		265	157	4	1964	40	6-64	H	--	8F	--	D	--	--	110	1455
155N067W20DCC	A.A.&C.STUDNESS		60	--	24	1961	--	--	H	--	S	--	--	6	--	--	--
155N067W22DDD	L.STUDNESS		51	--	4	--	28	6-68	U	--	--	--	--	4	6.5	--	--
155N067W24ADD	C.TORGERSON		26	--	12	--	19	6-68	U	--	--	--	--	--	--	--	--
155N067W24CCA	C.ROGNLIE		75	--	4	1953	20	--	K	--	--	--	--	6	8.5	--	--
155N067W25ADA	A.BYE		47	--	30	--	7	6-68	U	--	--	--	--	--	--	--	--
155N067W26AAA	USGS		100	--	5	1950	--	--	U	--	S	6	GD	--	--	91	1452
155N067W26BBC	J.HIAASAN		30	--	--	--	27	6-68	K	--	--	--	--	5	7.5	--	--
155N067W26DDC	USGS		100	--	5	1950	--	--	U	--	6S	5	GE	--	--	93	1450
155N067W28CCC	NDSWC 5489		160	--	5	1969	--	--	U	--	6S	16	GE	--	--	151	1485
155N067W30CCC	NDSWC 5074		220	--	5	1968	--	--	U	--	R	5	GE	--	--	192	1540
155N067W31CCC	G.HERMAN		200	--	4	1959	80	--	--	--	G	--	--	6	--	--	--
155N067W34BD	SILVER LAKE		--	--	--	--	--	--	--	KE	--	--	--	4	17.0	--	--
155N067W35ACC	H. TOFSRUD		215	--	--	1964	--	--	H	--	--	--	D	--	--	106	1470
155N067W35ACD	A.EIDE		19	--	30	--	10	6-68	U	--	--	--	--	--	--	--	--
155N067W35DAB	H.TOFSRUD		218	--	6	--	16	--	U	--	--	--	--	--	--	--	--
155N067W36BAC	C.ROGNLIE		65	--	4	1963	22	6-68	H	--	--	--	--	5	11.0	--	--
155N068W01DCD	W.TARANG		70	--	18	1967	23	7-68	K	--	--	--	--	5	7.5	--	--
155N068W02CBB	I.FOSS		122	--	4	--	50	7-68	K	--	--	--	--	5	11.0	--	--
155N068W05CAB	G.NESVIG		86	--	24	--	60	7-68	K	--	--	--	--	5	9.0	--	--
155N068W06AAA	USGS		178	--	5	1958	--	--	U	--	G	1	GE	--	--	175	1499
155N068W07DDD1	F.NELSON		80	--	4	--	40	--	K	--	--	--	--	6	7.5	--	--
155N068W07DDD2	F.NELSEN		41	--	6	--	25	7-68	U	--	--	--	--	--	--	--	--
155N068W08BBB	USGS		178	--	5	1958	--	--	U	--	9T	158	GE	--	--	174	1552
155N068W08CCC	USGS		178	--	5	1958	--	--	U	--	G	19	GE	--	--	167	1546
155N068W11AAA	NDSWC 5654		200	--	5	1970	--	--	U	--	F	--	GE	--	--	180	1500
155N068W15CCC	NDSWC 5491		180	--	5	1969	--	--	U	--	9T	--	GD	--	--	166	1505
155N068W19AAA1	J VON ALMAN		76	--	24	--	16	7-68	K	--	--	--	--	5	7.5	--	--
155N068W19AAA2	USGS		200	--	5	1958	--	--	U	--	G	2	GE	--	--	195	--
155N068W20CCC	USGS		147	--	5	1958	--	--	U	--	G	2	GE	--	--	--	--
155N068W21BB	A.KENNY		268	188	4	--	40	--	H	--	F	--	D	--	--	185	1480
155N068W22BCC	F.FOGELSON		74	--	24	--	38	7-68	K	--	--	--	--	5	6.5	--	--
155N068W23ABA	NDSWC 5490		300	--	5	1969	--	--	U	--	R	12	GE	--	--	281	1495
155N068W24BDB	M.ANDERSON		62	--	36	--	18	7-68	H	--	--	--	--	5	6.0	--	--
155N068W25AAA	NDSWC 5656		220	--	5	1970	--	--	U	--	G	3	GE	--	--	214	1550
155N068W26CDA	H.WALLER		58	--	30	--	7	7-68	H	--	--	--	--	5	8.5	--	--
155N068W30ADB	C.OWENS		80	--	4	--	--	--	H	--	--	--	--	6	5.5	--	--

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155N068W30DCC	F.OWENS		51	--	30	--	12	7-68	S	--	--	--	--	6	6.0	--	--
155N068W33BCB	G.GERALD		77	--	24	--	23	7-68	U	--	--	--	--	--	--	--	--
155N069W01CDD	O.NORDHAUGEN		75	--	24	--	21	6-68	K	--	--	--	--	6	4.0	--	--
155N069W02BBB	NDSWC 5661		300	--	5	1970	--	--	U	--	G	6	GE	--	--	233	1570
155N069WG2CCC	NDSWC 5512		240	--	5	1969	--	--	U	--	8G	8	GE	--	--	236	1644
155N069W04AAA	NDSWC 2881	220	180	177	1	1967	14	11-67	U	51	R	38	GE	6	5.5	197	1584
155N069W04BCC	NDSWC 5511		120	--	5	1969	--	--	U	--	T	--	GD	--	--	108	1571
155N069W04DDD	L.ELSTAD		109	--	24	--	3	--	U	--	--	--	--	5	10.0	--	--
155N069W06CCC	NDSWC 5080		160	--	5	1968	--	--	U	--	8T	--	GE	--	--	77	1588
155N069W06CDC	P.LARSON		65	--	6	--	15	6-68	K	--	--	--	--	5	9.0	--	--
155N069W11BCB	R.HENDRIE		30	--	24	--	23	6-68	U	--	--	--	--	5	--	--	--
155N069W14DAA	NDSWC 5513		240	--	5	1969	--	--	U	--	6S	10	GE	--	--	229	1645
155N069W15ABD	G.STRAND		120	--	4	--	28	--	H	--	--	--	--	6	9.0	--	--
155N069W20ABD	T.THOMPSON		68	--	6	--	10	6-68	U	--	--	--	--	6	9.0	--	--
155N069W25CCC	NDSWC 5083		210	--	5	1968	--	--	U	--	S	4	GE	--	--	195	1635
155N069W28BAB	NDSWC 5082		160	--	5	1968	--	--	U	--	8W	72	GE	--	--	66	1586
155N069W28BBA	O.THOMPSON		68	--	4	--	18	10-67	U	--	--	--	--	--	--	--	1580
155N069W31ABD1	O.ERIE		85	--	4	--	26	6-68	K	--	--	--	--	4	10.0	--	--
155N069W31ABD2	O.ERIE		80	--	4	--	13	6-68	S	--	--	--	--	4	7.0	--	--
155N069W32BDC1	L.TOLO		135	--	4	--	36	--	H	--	--	--	--	5	12.0	--	--
155N069W32BDC2	L.TOLO		137	--	4	--	37	6-68	S	--	--	--	--	5	13.5	--	--
155N069W35BBA1	M.LUNELL		24	--	--	--	11	6-68	H	--	--	--	--	5	9.0	--	--
155N069W35BBA2	M.LUNELL		28	--	36	--	8	6-68	S	--	--	--	--	6	7.5	--	--
155N070W03AAA	C.CRUM		178	162	4	1968	68	--	H	--	S	--	--	5	6.5	--	--
155N070W06DDD	D.PIERSON		--	--	4	--	15	--	K	--	F	--	--	5	--	--	--
155N070W09BAA	L.HOFFERT		140	--	4	1910	45	--	K	--	F	--	--	5	9.0	--	--
155N070W09BBB	NDSWC 5081		120	--	5	1968	--	--	U	--	S	8	GE	--	--	90	1626
155N070W09CAA	L.HOFFERT		147	--	4	1968	35	--	S	--	F	--	--	5	6.5	--	--
155N070W13BCB	C.WURGLER		80	--	--	1917	23	--	K	--	7S	--	--	5	--	--	--
155N070W18DDD	J.BROSSART		90	--	36	1963	45	--	S	--	S	--	--	7	6.5	--	--
155N070W19AAA	J.BROSSART		90	--	4	1966	45	--	H	--	S	--	--	5	13.5	--	--
155N070W25CDC1	P.TUFTE		48	--	4	1936	43	--	S	--	R	--	--	5	6.5	--	--
155N070W25CDC2	P.TUFTE		137	--	4	1939	50	--	H	--	F	--	--	5	7.5	--	--
155N070W25CDC3	P.TUFTE		161	126	4	1968	49	--	S	--	F	--	--	--	--	--	--
155N070W27BBB	I.ALLAN		97	--	6	1900	30	--	K	--	F	--	--	5	9.0	--	--
155N070W28AAA	NDSWC 5510		80	--	5	1969	--	--	U	--	W	22	GD	--	--	58	1625
155N070W30DAA	E.&A.TUFTE		58	--	4	--	38	--	U	--	--	--	--	--	--	--	--
155N070W32DDD1	H.WURGLER		95	--	4	1900	39	7-68	S	--	S	--	--	5	7.5	--	--
155N070W32DDD2	H.WURGLER		93	--	4	1958	40	--	H	--	S	--	--	4	13.5	--	--
155N071W07BBD	P.BAKKEN		101	--	4	1935	20	--	K	--	F	--	--	5	10.5	--	--

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155N071W11DDC	J.BOSCH		90	--	4	1918	--	--	K	--	S	--	--	5	--	--	--
155N071W12BAA	E.HOFFART		90	--	6	1918	50	--	H	--	S	--	--	5	7.0	--	--
155N071W18AAD	B.LACKER		65	--	4	1918	30	--	K	--	G	--	--	4	10.5	--	--
155N071W20BBB	NDSWC 5104		140	--	5	1968	--	--	U	--	G	17	G	--	--	62	1622
155N071W21AAD	L.HOFFERT		75	--	4	1943	40	--	H	--	--	--	--	4	--	--	--
155N071W25DBA	S.SLOTTO		100	--	2	1912	43	--	K	--	6S	--	--	4	9.5	--	--
155N071W28DDA	H.HALVORSON		80	--	6	1918	--	--	H	--	S	--	--	4	7.5	--	--
155N071W31DDC	L.HOFFERT		90	--	4	1966	60	--	H	--	F	--	--	4	--	--	--
155N072W03CCC	NDSWC 5532		60	--	5	1969	--	--	U	--	2V	17	GD	--	--	43	1550
155N072W05DAA	W.TANK		67	--	4	1952	20	--	K	--	G	--	--	4	--	--	--
155N072W06CBD1	J.VOLK		120	--	4	--	30	--	H	--	S	--	--	3	--	--	--
155N072W06CBD2	J.VOLK		86	--	4	1955	30	--	S	--	S	--	--	3	--	--	--
155N072W11AAB1	M.SCHIFF		75	--	4	1923	--	--	S	--	--	--	--	4	5.5	--	--
155N072W11AAB2	M.SCHIFF		78	--	4	1945	--	--	H	--	--	--	--	4	--	--	--
155N072W12DCB1	J.DUCHSCHER		80	--	4	1924	20	--	S	--	G	--	--	--	--	--	--
155N072W12DCB2	J.DUCHSCHER		80	--	4	1945	20	--	H	--	G	--	--	4	--	--	--
155N072W14CCB	T.BISCHOFF		85	--	4	1941	20	--	K	--	--	--	--	4	6.5	--	--
155N072W19DDC1	F.VOELLER		93	--	6	1927	40	--	S	--	--	--	--	5	6.5	--	--
155N072W19DDC2	F.VOELLER		90	--	4	1966	--	--	H	--	--	--	--	4	--	--	--
155N072W21DCB	W.HEILMAN		72	--	4	1921	30	--	K	--	R	--	--	4	--	--	--
155N072W24DCC	W.KRAMER		87	--	4	--	50	--	K	--	--	--	--	4	--	--	--
155N072W28DDD	NDSWC 5533		40	--	5	1969	--	--	U	--	1V	18	GD	--	--	22	1565
155N072W34BAA1	G.JUNDT		68	--	4	1915	30	--	S	--	--	--	--	4	5.5	--	--
155N072W34BAA2	G.JUNDT		80	--	4	1952	30	--	H	--	S	--	--	4	--	--	--
155N073W04CBC	M.TURNQUIST		65	--	4	1967	--	--	H	--	S	--	--	4	--	--	--
155N073W11DAA	O.SELLAND		65	--	4	1924	--	--	H	--	G	--	--	4	6.5	--	--
155N073W14DDD	NDSWC 5103	140	38	35	1	1968	31	8-68	U	--	S	18	GE	--	--	63	1593
155N073W15BBB	R.PFEIFER		106	--	1	1922	80	--	H	--	S	--	--	4	--	--	--
155N073W17BD	C.BISCHOFF 1		3112	--	7	1960	--	--	U	--	--	--	--	--	--	--	1530
155N073W17DDC	J.BOHL		80	--	4	1930	20	--	K	--	--	--	--	4	6.5	--	--
155N073W18AAB1	L.BRITSCH		46	--	4	1946	10	--	H	--	S	--	--	5	--	--	--
155N073W18AAB2	L.BRITSCH		76	--	4	1956	20	--	S	--	--	--	--	5	--	--	--
155N073W22CDC	V.AXTMAN		80	--	4	1918	22	--	K	--	--	--	--	4	--	--	--
155N073W23AAC1	R.AXTMAN		102	--	4	1945	60	--	S	--	F	--	--	4	7.5	--	--
155N073W23AAC2	R.AXTMAN		102	--	--	1959	60	--	H	--	F	--	--	4	--	--	--
155N073W31ADA	N.AXTMAN		96	--	4	1920	10	-61	K	--	F	--	--	5	--	--	--
155N073W33BDD1	B.EISENZIMMER		56	--	2	1909	13	5-68	S	--	F	--	--	4	--	--	--
155N073W33BDD2	B.EISENZIMMER		60	--	2	1959	10	--	H	--	F	--	--	4	--	--	--
155N073W35DDA	H.IVERSON		83	--	4	1930	24	10-67	U	51	--	--	--	3	7.0	--	1550
155N074W02DDD1	I.TEIGAN		60	--	3	1916	42	--	U	--	S	--	--	--	--	--	--

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAMETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAILABLE	SPECIFIC CONDUCTANCE	TEMPERATURE (°C)	DEPTH TO CONSL. ROCK (FT.)	ELEVATION OF LSD (FT.)
155N074W02DDD2	I.TEIGAN		90	--	4	1962	40	--	K	--	F	--	--	4	--	--	--
155N074W04AAA	NDSWC 5537		80	--	5	1969	--	--	U	--	8G	5	GD	--	--	54	1545
155N074W05AAA	F.VOELLER		54	--	--	1908	7	5-68	K	--	S	--	--	5	--	--	--
155N074W07BAC	J.JAEGER		45	--	18	1915	25	--	K	--	P	--	--	5	7.5	--	--
155N074W10DDD1	L.BACHMEIER		95	--	4	1922	60	--	S	--	F	--	--	4	7.5	--	--
155N074W10DDD2	L.BACHMEIER		110	--	4	1948	40	--	H	--	F	--	--	4	--	--	--
155N074W13AAA	NDSWC 5535		60	--	5	1969	--	--	U	--	2V	21	GD	--	--	39	1545
155N074W17ACC	P.HOFFART		72	--	16	1905	35	--	K	--	--	--	--	5	--	--	--
155N074W18AAD	NDGS BP69-36		49	--	3	1969	--	--	U	--	S	10	G	--	--	28	1530
155N074W21AAA	L.HOFFART		100	--	4	1948	10	--	H	--	F	--	--	5	--	--	--
155N074W22BBB	NDSWC 5102		180	--	5	1968	--	--	U	--	3V	15	GE	--	--	34	1544
155N076W26AAA	B.MIGLER		90	--	4	1928	45	--	K	--	--	--	--	4	--	--	--
155N074W30ADA	N.SCHALL		63	--	4	1934	20	--	K	--	--	--	--	4	7.5	--	--
155N074W30DDD	NDSWC 5729		80	--	5	1970	--	--	U	--	--	--	G	--	--	54	1545
155N074W31CDD	E.JUNDT		16	--	1	1946	11	--	H	--	G	--	--	4	--	--	--
155N074W32ADA1	V.HEILMAN		20	--	--	1952	--	--	H	--	S	--	--	3	--	--	--
155N074W32ADA2	V.HEILMAN		20	--	--	1962	5	--	S	--	--	--	--	4	7.5	--	--
155N074W32CBB	NDSWC 5728		260	--	5	1970	--	--	U	--	S	48	GE	--	--	238	1520
155N074W34DDA	E.WEIGEL		40	--	4	--	10	10-67	U	--	--	--	--	--	--	--	1515
155N074W36BCC	NDSWC 5730		40	--	5	1970	--	--	U	--	--	--	G	--	--	19	1530
156N067W02CA	O.SINNESS 1		2316	--	9	1954	--	--	U	--	--	--	--	--	--	--	1479
156N067W05BBD	H.LARSON		55	--	--	--	25	--	K	--	S	--	--	6	--	--	--
156N067W09DCD	G.MC INTYRE		47	--	24	1918	21	10-68	S	--	S	--	--	5	6.0	--	--
156N067W10AAB	NDSWC 5075		140	--	5	1968	--	--	U	--	--	--	GE	--	--	110	1469
156N067W10ADD	I.NORD		121	--	4	--	84	6-68	S	--	--	--	--	7	--	--	--
156N067W11DAD	W.GODMAN		38	--	4	--	14	--	U	--	--	--	--	--	--	--	--
156N067W12CDB	W.GODMAN		80	--	--	--	20	--	H	--	--	--	--	5	9.0	--	--
156N067W17CCD	R.DULMAGE ET AL		87	--	4	1950	30	--	H	--	S	--	--	5	--	--	--
156N067W17DDD	NDSWC 5076	140	80	77	1	1968	38	8-68	U	--	R	13	GE	--	--	114	1491
156N067W26DCC	W.MICHAELS		33	--	48	--	25	6-68	H	--	--	--	--	5	8.5	--	--
156N067W31ADD	I.ELVERUDE		60	--	28	1936	40	--	K	--	S	--	--	5	--	--	--
156N067W33DDD	A.HAUGEN		42	--	24	--	21	6-68	H	--	--	--	--	6	6.5	--	--
156N067W35CDA	R.HAUSMANN		35	--	42	--	24	6-68	U	--	--	--	--	--	--	--	--
156N067W36DDD	USGS		100	--	5	1950	--	--	U	--	R	9	GB	--	--	96	1456
156N068W04CDC	P.JORGENSON		160	--	6	--	34	6-68	S	--	--	--	--	6	6.5	--	--
156N068W05BA	B.JORGENSON 1		2650	--	9	1954	--	--	U	--	--	--	--	--	--	--	1574
156N068W05CCC	O.JORGENSON		36	--	30	--	19	6-68	S	--	--	--	--	6	6.5	--	--
156N068W06BCC1	O.RODLENDE		55	--	4	--	15	6-68	S	--	--	--	--	5	6.5	--	--
156N068W06BCC2	O.RODLENDE		55	--	4	--	17	6-68	H	--	--	--	--	5	9.0	--	--
156N068W06DAD1	G.JORGENSON		80	--	4	--	40	--	H	--	--	--	--	5	10.0	--	--

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAMETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAILABLE	SPECIFIC CONDUCTANCE	TEMPERATURE (°C)	DEPTH TO CONSL. ROCK (FT.)	ELEVATION OF LSD (FT.)
156N068W06DAD2	G.JORGENSON		80	--	4	--	42	--	H	--	--	--	--	6	7.5	--	--
156N068W07AAA	USGS		175	--	5	1958	--	--	U	--	G	2	GE	--	--	--	1570
156N068W07DAA	B.NORTH		59	--	36	--	18	9-67	U	51	--	--	--	7	6.5	--	1574
156N068W11AAA	NDSWC 5077		160	--	5	1968	--	--	U	--	6S	16	GE	--	--	136	1513
156N068W13CDA	O.ERICKSMOEN		45	--	24	--	24	6-68	H	--	--	--	--	6	10.0	--	--
156N068W16AAA	NDSWC 5653		180	--	5	1970	--	--	U	--	S	30	GE	--	--	174	1530
156N068W18AAA	USGS		210	--	5	1958	--	--	U	--	G	6	GE	--	--	202	1562
156N068W19AAA	USGS		189	--	5	1958	--	--	U	--	R	18	GE	--	--	181	1567
156N068W20CCC	C.JOHNSON		60	--	36	--	14	--	K	51	--	--	--	5	5.0	--	--
156N068W21DAB	J.BLEGEN		68	--	36	--	20	6-68	H	--	--	--	--	6	13.5	--	--
156N068W23CBB	N.GRESDAHL		31	--	24	--	17	6-68	U	--	--	--	--	--	--	--	--
156N068W27AAA	A.LUND		36	--	--	--	19	6-68	K	--	--	--	--	6	10.0	--	--
156N068W27BCC	P.BLEGEN		155	--	6	1951	20	--	D	51	--	--	--	5	--	--	--
156N068W27CCC	USGS		200	--	5	1958	--	--	U	--	G	30	GE	--	--	191	1511
156N068W27DDD1	USGS		147	--	5	1958	--	--	U	--	G	6	GE	--	--	--	1532
156N068W27DDD2	NDSWC 5652		260	--	5	1970	--	--	U	--	G	--	GE	--	--	248	1528
156N068W28DAA1	J.ENGSTROM		54	--	24	--	35	6-68	K	--	--	--	--	5	10.5	--	--
156N068W28DAA2	J.ENGSTROM		300	--	4	--	47	6-68	S	--	--	--	--	7	10.0	--	--
156N068W28DAC	J.ENGSTROM		270	--	4	1928	70	--	S	PD	--	--	--	8	6.0	--	--
156N068W29DDD	USGS		210	--	5	1958	--	--	U	--	G	7	GE	--	--	200	1520
156N068W30ADD	USGS		220	--	5	1958	--	--	U	--	G	4	GE	--	--	209	1543
156N068W30BBB	USGS		189	--	5	1958	--	--	U	--	6S	9	GE	--	--	179	--
156N068W30BCC	USGS		168	--	5	1958	--	--	U	--	G	15	GE	--	--	--	--
156N068W30CAA	USGS		189	--	5	1958	--	--	U	--	--	--	GE	--	--	179	--
156N068W31AAA	USGS		200	--	5	1958	--	--	U	--	6G	13	GE	--	--	193	1518
156N068W31ADC1	CITY OF LEEDS		1750	--	--	1965	F	--	P	PM	--	--	--	7	19.0	--	--
156N068W31ADC2	CITY OF LEEDS		1750	--	--	1966	F	--	P	PM	--	--	--	7	19.0	--	--
156N068W31BBA	USGS		189	--	5	1958	--	--	U	--	9T	--	GE	--	--	182	--
156N068W31BDD	USGS		178	--	5	1958	--	--	U	51	9T	--	GE	4	7.0	174	--
156N068W34CDD1	A.STRAND		50	--	24	--	47	--	H	--	--	--	--	5	6.5	--	--
156N068W34CDD2	A.STRAND		185	--	6	--	20	--	H	51	--	--	--	7	8.5	--	--
156N068W35DDD1	V.ANDERSON		96	--	24	1965	53	6-68	H	--	--	--	--	5	14.5	--	--
156N068W35DDD2	V.ANDERSON		16	--	24	--	7	6-68	H	--	--	--	--	4	5.5	--	--
156N068W36BBB	USGS		178	--	5	1958	--	--	U	--	R	19	GE	--	--	169	1519
156N069W01ABB	S.STRAABE		26	--	24	--	13	6-68	U	--	--	--	--	6	7.0	--	--
156N069W02AAA	M.STRAABE		70	--	6	--	16	6-68	K	--	--	--	--	4	9.0	--	--
156N069W02DDC	H.TANDBERG		34	--	--	--	16	6-68	H	--	--	--	--	5	7.0	--	--
156N069W03AAD	A.HOVE		43	--	4	--	14	9-67	U	--	--	--	--	--	--	--	--
156N069W08CDC	J.MC CARTY		82	--	4	1948	10	--	H	--	S	--	--	5	--	--	1580
156N069W10AAA	NDSWC 5515		180	--	5	1969	--	--	U	--	7G	5	GE	--	--	163	1558

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAMETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAILABLE	SPECIFIC CONDUCTANCE	TEMPERATURE (°C)	DEPTH TO CONSL. ROCK (FT.)	ELEVATION OF LSD (FT.)
156N069W10BDA	W.OEFFNER		180	--	30	--	22	6-68	H	--	--	--	--	6	11.0	--	--
156N069W10DDD	H.JORGENS		56	--	4	--	15	6-68	K	--	--	--	--	5	7.5	--	--
156N069W11DDC	E.SULLAND		28	--	24	--	12	--	H	--	--	--	--	7	12.0	--	--
156N069W12CDC	O.TANDBERG		32	--	24	--	20	9-67	U	41	--	--	--	6	6.5	--	1576
156N069W14AAB	P.TORSRUD		26	--	30	--	17	6-68	H	--	--	--	--	4	7.5	--	--
156N069W15DDD	NDSWC 5078	200	128	125	1	1968	30	8-68	U	51	R	28	GE	6	7.0	168	1551
156N069W17BDD	J.&C. MC CARTY		82	--	4	1948	12	--	H	--	S	--	--	5	--	--	--
156N069W18BCC	H.BERG		70	--	4	1890	30	--	K	--	--	--	--	5	--	--	--
156N069W19DCD	C. BISBEE		95	90	4	1966	18	8-66	H	--	2S	8	D	--	--	--	--
156N069W22CCC	NDSWC 5514	220	153	147	1	1969	11	11-69	U	51	R	28	GE	6	6.0	213	1598
156N069W23BA	J.STENSON 1		2495	--	9	1954	--	--	U	--	--	--	--	--	--	--	1534
156N069W23DAC	J.STENSON		35	--	32	1935	--	--	K	41	--	--	--	5	--	--	--
156N069W24CBA	T.STENSON		65	--	--	1906	30	--	K	41	--	--	--	5	6.0	--	--
156N069W24CBB	T.STENSON		66	--	36	--	22	6-68	H	--	--	--	--	5	6.5	--	--
156N069W25DBA	USGS		189	--	5	1958	--	--	U	--	9T	--	GE	--	--	181	--
156N069W26BCB	A.ANDERSON		74	--	24	--	41	6-68	K	--	--	--	--	5	9.0	--	--
156N069W27BCC	NDSWC 5717	160	123	117	1	1970	20	7-70	U	51	S	17	GE	4	--	--	1591
156N069W27CCC	LEEDS TEST		127	117	6	1970	18	6-70	U	51	G	--	--	5	--	--	--
156N069W27DBA	NDSWC 5718	160	103	97	1	1970	20	7-70	U	51	G	32	GE	6	--	--	1566
156N069W30AA	A.SEBELIAS		98	--	4	1965	14	--	H	PC	--	--	--	5	--	--	--
156N069W33AAA	NDSWC 5662	150	103	97	1	1970	11	5-70	U	51	G	51	GE	4	--	--	1573
156N069W33AAB	NDSWC 5716		160	--	5	1970	--	--	U	--	--	3	G	--	--	--	1574
156N069W33BAB	NDSWC 5663		220	--	5	1970	--	--	U	--	F	--	GE	--	--	178	1583
156N069W34ABA	NDSWC 5721	160	123	117	1	1970	--	--	U	51	G	48	GE	--	--	--	1583
156N069W34ABB	NDSWC 5090	200	93	88	4	1968	16	8-68	U	51	R	42	GE	6	6.0	194	1578
156N069W34BAB	NDSWC 5722		160	--	5	1970	--	--	U	--	--	--	GE	--	--	--	1584
156N069W34CC	E. FOLLMAN		119	98	4	1963	--	12-63	S	--	F	10	D	--	--	100	--
156N069W34DAD	NDSWC 5723		160	--	5	1970	--	--	U	--	--	4	G	--	--	--	1599
156N069W35AAA	USGS		178	--	5	1958	--	--	U	--	G	6	GE	--	--	174	1525
156N069W35BAA	NDSWC 5719		160	--	5	1970	--	--	U	--	--	3	G	--	--	--	1557
156N069W35BBB1	USGS		210	--	5	1958	--	--	U	PC	R	32	GE	6	--	206	1576
156N069W35BBB2	NDSWC 5720	140	109	103	1	1970	16	7-70	U	51	S	--	G	--	--	--	1580
156N069W36AAA	USGS		178	--	5	1958	--	--	U	--	R	9	GE	--	--	173	--
156N069W36ABC	USGS		178	--	5	1958	--	--	U	--	G	5	GE	--	--	174	--
156N069W36ADD	USGS		178	--	5	1958	--	--	U	--	R	2	GE	--	--	173	1506
156N069W36DAA	USGS		178	--	5	1958	--	--	U	--	9T	--	GE	--	--	170	--
156N070W01CBB	N.AXTMAN		134	131	4	1964	--	10-64	H	--	R	19	D	--	--	--	1643
156N070W02CCC	P.TUCHSHERER		108	--	4	--	49	9-67	U	PC	--	--	--	4	6.5	--	1660
156N070W06DCD1	F.BROSSART		90	--	4	--	15	--	H	--	S	--	--	5	11.0	--	--
156N070W06DCD2	F.BROSSART		90	--	4	--	15	--	S	--	S	--	--	5	6.5	--	--

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAM- ETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAIL- ABLE	SPE- CIFIC CON- DUCT ANCE	TEM- PER- ATURE (°C)	DEPTH TO CONSL. ROCK (FT.)	ELEVA- TION OF LSD (FT.)
156N070W08CCB	GNRR		90	--	6	1928	17	--	C	--	S	4	D	--	--	82	--
156N070W09AAB	W.&D.MEARS		55	--	4	1919	6	9-67	S	PC	--	--	--	6	6.5	--	1597
156N070W10BBB	E.KLEIN		20	--	4	--	1	--	K	--	--	--	--	5	6.5	--	--
156N070W13DDD	NDSWC 5079		180	--	5	1968	--	--	U	--	G	6	GE	--	--	157	1612
156N070W16BBB	NDSWC 2882		80	--	5	1967	--	--	U	--	R	16	GE	--	--	56	1600
156N070W19DAA	P.BURKHARTSMEIE		150	--	6	--	40	--	K	--	S	--	--	5	6.5	--	--
156N070W23CCD1	A.ANDERSON		100	--	6	1900	50	--	H	--	S	--	--	6	9.0	--	--
156N070W23CCD2	A.ANDERSON		75	--	6	1922	22	7-68	S	--	S	--	--	5	6.5	--	--
156N070W26AAA	W.THORESON		70	--	24	--	50	7-68	U	--	S	--	--	--	--	--	--
156N070W34DB	J.CRUM 1		2910	--	9	1954	--	--	U	--	--	--	--	--	--	--	1598
156N070W34DDD	C.CRUM		126	--	4	1926	60	--	H	--	S	--	--	5	--	--	--
156N071W01BBC	A.SATTLER		150	--	4	1940	30	--	K	--	F	--	--	4	8.5	--	--
156N071W04BBA	NDSWC 5086	140	58	18	4	1968	13	8-68	U	31	7R	86	GE	3	7.0	120	1604
156N071W04CBD	H.PAULSON		2	--	24	--	F	--	U	31	S	--	--	3	12.0	--	--
156N071W05CAD	H.OLSON		80	--	4	1918	--	--	K	--	7S	--	--	4	7.0	--	--
156N071W05CCB	NDSWC 5530		80	--	5	1969	--	--	U	--	S	48	GD	--	--	62	1574
156N071W09CCC	BROKEN BONE LAKES		--	--	--	--	--	--	--	KE	--	--	--	5	11.0	--	--
156N071W11DC	L. SCHAAN		235	154	4	1963	60	11-63	S	--	F	--	D	--	--	152	--
156N071W12BCB	M.HALVERSON		170	--	4	1913	30	--	K	--	--	--	--	6	--	--	--
156N071W15CBB	G.GREIG		140	--	4	1960	--	--	K	--	S	--	--	5	--	--	--
156N071W19BBB	NDSWC 5084		80	--	5	1968	--	--	U	--	6V	20	GE	--	--	60	1558
156N071W23CDC	W.TANK		130	--	4	1908	40	--	K	--	S	--	--	6	6.5	--	--
156N071W25DDA	W.KELLER		100	--	4	--	13	7-68	H	--	S	--	--	5	--	--	--
156N071W28AAA	NDSWC 5085		100	--	5	1968	--	--	U	--	R	5	GE	--	--	84	1590
156N071W28BAA1	R.OLSON		70	--	4	1928	45	--	S	--	S	--	--	4	7.0	--	--
156N071W28BAA2	R.OLSON		110	--	4	1958	--	--	H	--	S	--	--	5	--	--	--
156N071W32CCC	L.MOEN		75	--	4	1951	20	--	K	--	1S	--	--	4	--	--	--
156N071W34DAB	G.BAKKEN		135	--	4	1934	40	--	K	--	G	--	--	4	7.5	--	--
156N072W01BBB	NDSWC 5664		140	--	5	1970	--	--	U	--	G	4	GE	--	--	121	1568
156N072W01CBC1	F.MEYER		110	--	6	--	22	5-68	S	--	--	--	--	4	6.5	--	--
156N072W01CBC2	F.MEYER		110	--	4	--	--	--	H	--	--	--	--	5	--	--	--
156N072W04DCC	NDSWC		199	--	5	1964	--	--	U	--	7S	46	GE	--	--	143	1615
156N072W06DAA1	A.KOBLE		105	--	4	1950	20	5-68	S	--	--	--	--	4	8.5	--	--
156N072W06DAA2	A.KOBLE		68	--	4	1953	15	--	H	--	S	--	--	5	--	--	--
156N072W06DAA3	A.KOBLE		45	--	4	1968	20	--	H	--	S	--	--	6	--	--	--
156N072W10AAA	NDSWC		126	--	5	1964	--	--	U	--	8G	7	GE	--	--	113	1570
156N072W11DAD	NDSWC 5531		120	--	5	1969	--	--	U	--	8G	6	GD	--	--	101	1557
156N072W16BBC1	E.SEEL JR.		128	--	4	1910	30	--	H	--	F	--	--	5	--	--	--
156N072W16BBC2	E.SEEL JR.		145	--	4	1967	30	--	S	--	--	--	--	6	7.5	--	--
156N072W16BDB	E.SEEL JR.		90	--	4	1961	30	--	S	--	--	--	--	--	--	--	--

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAM-ETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAIL-ABLE	SPE-CIFIC CON-DUCT ANCE	TEM-PER-ATURE (°C)	DEPTH TO CONSL. ROCK (FT.)	ELEVA-TION OF LSD (FT.)
156N072W16CCC	NDSWC		105	--	5	1964	--	--	U	--	G	8	GE	--	--	74	1560
156N072W18CCB1	H.HARMEL		95	85	4	1934	42	5-68	H	--	F	--	--	4	7.0	--	--
156N072W18CCB2	H.HARMEL		48	--	1	1951	30	--	S	--	G	--	--	4	6.0	--	--
156N072W22AAD	J.SEIL		100	--	4	1942	20	--	K	--	S	--	--	4	11.5	--	--
156N072W23CBB	J.SEIL		105	--	4	1910	42	9-67	S	--	S	--	--	4	7.5	--	1585
156N072W24AAA	O.SELLAND		62	--	4	--	12	10-67	U	--	--	--	--	--	--	--	--
156N072W29AAA1	O.BLEKEBERG		97	--	4	1918	20	--	S	--	S	--	--	--	--	--	--
156N072W29AAA2	O.BLEKEBERG		72	--	4	1942	20	--	H	--	S	--	--	4	--	--	--
156N072W29AAA3	O.BLEKEBERG		152	--	4	1965	20	--	S	--	F	--	--	4	--	--	--
156N072W29AAA4	O.BLEKENBERG		152	--	4	1965	20	--	S	--	--	--	--	5	7.0	--	--
156N072W33BBB	NDSWC		73	--	5	1964	--	--	U	--	G	5	GE	--	--	55	1567
156N072W33BCC	V.BROSSART		47	--	4	--	27	9-67	U	--	--	--	--	--	--	--	1575
156N072W35CCB1	R.BULLOCK		63	--	4	1916	41	5-68	U	--	R	--	--	--	--	--	--
156N072W35CCB2	R.BULLOCK		106	--	4	1942	38	--	K	--	V	--	--	5	--	--	--
156N073W01B	RUGBY		52	--	95	--	40	--	U	51	--	--	--	--	--	--	--
156N073W01BBA	RUGBY CREAMERY		60	--	8	1940	30	--	N	51	--	--	--	5	10.0	--	1560
156N073W01CAB	NDSWC		84	--	5	1964	--	--	U	--	S	--	GE	--	--	66	1530
156N073W01CBC	C.HAMILTON		46	--	3	1958	20	9-58	H	51	--	--	--	4	12.0	--	1550
156N073W01CCA	RUGBY SCHOOL		42	--	4	1961	11	9-61	D	51	--	--	--	4	7.5	--	1550
156N073W01CCC1	A. BUCHL		118	85	5	1965	30	--	D	--	F	35	D	--	--	--	1550
156N073W01CCC2	A. BUCHL		75	63	4	1968	27	--	D	--	S	2	D	--	--	--	1550
156N073W01CDC	RUGBY MFG. CO.		100	--	4	1969	--	--	C	--	F	15	D	--	--	85	1550
156N073W01DDD	L. JOHNSON		92	--	--	1968	26	--	H	--	1S	12	D	--	--	92	1555
156N073W02DDC1	R.FOSSUM		80	--	4	1952	--	--	C	--	S	--	--	--	--	--	--
156N073W02DDC2	R.FOSSUM		71	--	4	1968	--	--	C	PC	S	--	--	4	11.0	--	--
156N073W03CCC	NDSWC		64	--	5	1964	--	--	U	--	3V	14	GE	--	--	40	1515
156N073W08CAA	J.SAND		40	--	--	1925	--	--	K	--	S	--	--	4	--	--	--
156N073W09ADC	H.OSTREM JR.		70	--	4	--	--	--	D	PC	--	--	--	4	9.0	--	1545
156N073W10ABA	J.LAVIK		60	--	4	1967	20	--	K	--	S	--	--	5	--	--	--
156N073W11AAB	P. FOSSUM		85	--	4	1969	18	--	N	--	8F	15	D	--	--	70	1545
156N073W11CCC1	Q.JELSING		100	--	4	1914	85	--	K	--	6S	--	--	4	--	--	--
156N073W11CCC2	Q.JELSING		38	--	4	--	35	5-68	U	--	--	--	--	--	--	--	--
156N073W12CCC	NDSWC 2883	120	77	72	4	1967	8	11-67	U	PC	3V	6	GB	5	6.5	60	1550
156N073W14DDD	NDSWC		94	--	5	1964	--	--	U	--	9T	7	GE	--	--	70	1560
156N073W16BBC	NDSWC		115	--	5	1964	--	--	U	--	S	3	GE	--	--	102	1500
156N073W17DDC1	B.GUNDERSON		72	--	4	1948	30	--	H	--	G	--	--	6	--	--	--
156N073W17DDC2	B.GUNDERSON		90	--	36	1948	40	--	S	--	G	--	--	6	6.5	--	--
156N073W22BBB1	M.OKSENDAHL		94	--	3	1936	20	--	S	--	G	--	--	4	7.5	--	--
156N073W22BBB2	M.OKSENDAHL		85	--	4	1949	15	--	H	--	G	--	--	4	--	--	--
156N073W23BDD	S.GROVE		110	--	4	1951	80	--	K	--	S	--	--	4	--	--	--

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAMETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAILABLE	SPECIFIC CONDUCTANCE	TEMPERATURE (°C)	DEPTH TO CONSL. ROCK (FT.)	ELEVATION OF LSD (FT.)
156N073W24BBB	NDSWC		165	--	5	1964	--	--	U	--	6S	10	GE	--	--	60	1550
156N073W29BCC	E.HILZENDAGER		90	--	4	1929	50	--	K	--	S	--	--	3	--	--	--
156N073W31DCC	NDSWC 26		60	--	1	1964	4	6-64	U	51	R	64	GE	4	9.0	74	1534
156N073W34BBB	NDSWC		73	--	5	1964	--	--	U	--	S	15	GE	--	--	51	1540
156N073W34DDD	NDSWC 5534		60	--	5	1969	--	--	U	--	1V	25	GD	--	--	35	1530
156N073W35ABB	J.HEILMAN		52	--	6	1920	25	-57	K	--	S	--	--	5	--	--	--
156N073W35DDD	NDSWC		63	--	5	1964	--	--	U	--	G	6	GE	--	--	36	1534
156N074W01CDA	A.JELSING		80	--	4	1968	--	--	S	--	S	--	--	5	6.5	--	--
156N074W03BBC1	E.EBELL		19	--	48	1952	18	--	H	--	--	--	--	6	--	--	--
156N074W03BBC2	E.EBELL		37	--	24	1961	9	5-68	S	--	--	--	--	5	--	--	--
156N074W05AC	B.HAGBOE 1		3300	--	9	1961	--	--	U	--	--	--	--	--	--	--	1496
156N074W05ACB	B.HAGBOE		17	--	--	1961	13	--	K	--	7S	--	--	4	5.0	--	--
156N074W10DCD1	M.SCHELL		48	--	24	--	18	--	S	--	--	--	--	4	7.5	--	--
156N074W10DCD2	M.SCHELL		40	--	18	1963	--	--	H	--	--	--	--	4	--	--	--
156N074W12BBB1	A.JELSING		126	--	4	1900	3	--	S	--	--	--	--	6	--	--	--
156N074W12BBB2	A.JELSING		120	--	4	1968	3	--	H	--	S	--	--	5	6.5	--	--
156N074W16CBC	P.MATTERN		38	--	3	--	--	--	S	--	--	--	--	4	--	--	--
156N074W17BBB	USBR		81	--	3	1955	71	9-55	U	--	7G	6	GB	--	--	--	1533
156N074W20ADD	KUNTZ AND PAUL		40	--	36	--	29	12-68	U	01	--	--	--	4	7.0	--	1570
156N074W20DAA	P.MATTERN		35	--	48	--	28	5-68	U	--	--	--	--	4	6.5	--	--
156N074W21AAA	P.MATTERN		55	--	4	1965	40	--	H	--	S	--	--	4	--	--	--
156N074W21AAB	P.MATTERN		40	--	1	1920	--	--	S	--	--	--	--	4	6.5	--	--
156N074W23AAA	NDSWC 5536		80	--	5	1969	--	--	U	--	8G	5	GD	--	--	72	1520
156N074W24CCC	M.HILZENDAGER		17	--	36	1920	10	5-68	S	--	S	--	--	4	7.5	--	--
156N074W25BBB	M.HILZENDAGER		100	--	4	1963	40	--	H	--	F	--	--	4	7.5	--	--
156N074W33ADB	W.PAUL		98	--	4	1954	22	--	K	--	F	--	--	6	--	--	--
156N074W35CCA1	R.SCHMALTZ		108	--	3	1950	25	--	H	--	--	--	--	6	--	--	--
156N074W35CCA2	R.SCHMALTZ		110	--	4	--	20	--	S	--	--	--	--	6	--	--	--
157N069W01BBB	NDSWC 5091	200	165	162	1	1968	10	8-68	U	51	R	12	GE	6	6.5	--	1552
157NC69W03DDD	E.MARCHUS		60	--	24	1955	6	9-67	U	--	--	--	--	--	--	--	1562
157N069W06CCC1	C.MUNDAHL		100	--	4	--	20	--	S	--	S	--	--	6	6.0	--	--
157N069W06CCC2	C.MUNDAHL		92	--	4	1944	20	--	H	--	S	--	--	5	9.5	--	--
157N069W08ABA1	P.DEPLAZES		89	--	24	1925	37	6-68	S	--	S	--	--	6	5.5	--	--
157N069W08ABA2	P.DEPLAZES		101	--	4	1949	30	--	H	--	7S	--	--	6	--	--	--
157N069W10BAA	E.MARCHUS		100	--	4	1912	70	--	K	--	S	--	--	5	--	--	--
157N069W14DDB	G.ENGSTON		38	--	24	1938	20	--	H	--	S	--	--	4	6.5	--	--
157N069W18DCD1	E.FOLLMAN		50	--	4	1948	40	--	K	--	S	--	--	6	--	--	--
157N069W18DCD2	E.FOLLMEN		60	56	4	1970	25	4-70	H	--	--	--	D	--	--	--	--
157N069W19BAB	F.FAY		80	--	4	--	20	--	H	--	S	--	--	5	7.0	--	--
157N069W21DAD1	O.BRAKEN		72	--	6	1960	25	--	H	--	S	--	--	6	--	--	--

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157N069W21DAD2	O.BRAKEN		70	--	24	--	20	--	U	--	S	--	--	7	7.5	--	--
157N069W24BBB	NDSWC 5517		200	--	5	1969	--	--	U	--	BG	4	GE	--	--	168	1556
157N069W25DCC	NDSWC 5516		160	--	--	1969	--	--	U	--	G	4	GD	--	--	150	1563
157N069W29CCD1	E.FOLLMAN		65	--	4	--	33	--	H	--	--	--	--	5	7.0	--	--
157N069W29CCD2	E.FOLLMAN		64	--	--	1962	30	6-68	S	--	--	--	--	5	6.0	--	--
157N069W33DDD	J.TUCHSCHERER		70	--	4	1900	9	--	K	--	S	--	--	5	7.0	--	--
157N069W35AAA	H.BURKE		113	--	--	1946	--	--	H	--	S	--	--	6	--	--	--
157N070W02DCD	N.EVANS		79	--	24	1961	35	6-68	K	--	S	--	--	5	--	--	--
157N070W07BBA	O.SOLLIN		74	--	4	1900	51	6-68	K	--	G	--	--	4	6.0	--	--
157N070W09AAA	J.JOHNSON		36	--	24	1930	18	6-68	K	--	S	--	--	5	5.5	--	--
157N070W10BA	G. JACOBSON		60	58	4	1966	19	5-66	H	--	S	2	D	--	--	--	1608
157N070W12DDC	A.VOELLER		45	--	4	1930	20	--	K	--	S	--	--	5	7.0	--	--
157N070W13CCD	V.WENTZ		170	--	4	--	15	--	S	--	S	--	--	5	--	--	--
157N070W17BAD	A.HOFFERT		140	--	4	1930	10	--	K	--	--	--	--	4	8.5	--	--
157N070W23AD	G.MARCHUS 1		4997	--	9	1954	--	--	U	--	--	--	--	--	--	--	1641
157N070W24CCD	NDSWC 5089		220	--	5	1968	--	--	U	--	S	12	GE	--	--	122	1643
157N070W25BCB	A.BORGEN		90	--	4	1928	40	--	K	--	S	--	--	5	7.5	--	--
157N070W31BBB1	R.BULLOCK		63	--	32	1920	44	--	S	--	G	--	--	4	6.0	--	--
157N070W31BBB2	R.BULLOCK		84	--	24	1965	44	--	H	--	G	--	--	5	--	--	--
157N070W35BBD	E.LARSON		90	--	4	1929	--	--	H	--	S	--	--	5	--	--	--
157N071W02ADD1	H.BURTON		140	--	--	1954	--	--	H	--	3V	--	--	5	--	--	--
157N071W02ADD2	H.BURTON		112	--	4	1960	42	--	S	--	G	--	--	5	8.5	--	--
157N071W02CCC	NDSWC 5088	100	35	32	1	1968	8	8-68	U	31	S	33	GE	4	7.0	77	1599
157N071W02DDD	H.BURTON		50	--	4	1960	--	--	S	--	G	--	--	--	--	--	--
157N071W05AAA1	A.BUROW		81	--	4	--	39	6-68	U	--	G	--	--	--	--	--	--
157N071W05AAA2	A.BURON		64	--	4	--	40	6-68	U	--	R	--	--	--	--	--	--
157N071W06AAA	NDSWC 5528		100	--	5	1969	--	--	U	--	S	26	GD	--	--	53	1522
157N071W07AAA1	K.HEIDELBAUGH		80	--	4	1930	30	--	S	--	S	--	--	4	--	--	--
157N071W07AAA2	K.HEIDELBAUG		80	--	4	1940	30	--	H	--	S	--	--	4	--	--	--
157N071W13DDD1	J.MEARS		170	--	6	1947	60	--	K	--	G	--	--	4	6.0	--	--
157N071W13DDD2	J.MEARS		110	--	4	1963	80	--	S	--	R	--	--	--	--	--	--
157N071W14ABB	T.HARTMAN		40	--	1	1918	--	--	H	--	R	--	--	4	7.0	--	--
157N071W19AAA	B.AXTMAN		27	--	18	1963	19	6-68	H	--	7S	--	--	4	--	--	--
157N071W20ADD	B.AXTMAN		34	--	24	1963	13	6-68	U	--	7S	--	--	--	--	--	--
157N071W20BBC	M.AXTMAN		101	--	4	1939	76	6-68	S	--	G	1	--	4	9.0	--	--
157N071W21ACD	B.AXTMAN		60	--	4	1945	30	--	S	--	F	--	--	4	8.5	--	--
157N071W22AAD1	M.HAGENESS		35	--	--	1930	33	--	S	--	S	--	--	4	8.5	--	--
157N071W22AAD2	M.HAGENESS		40	--	2	1960	--	--	H	--	S	--	--	4	--	--	--
157N071W22ACB	WILDLIFE CLUB		16	--	4	--	13	6-68	H	31	S	--	--	4	--	--	--
157N071W22ADB	SAND LAKE		--	--	--	--	--	--	--	KE	--	--	--	4	17.0	--	--

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157N071W22DDD	NDSWC 5087	160	60	57	1	1968	8	8-68	U	--	S	60	GE	--	--	134	1596
157N071W23BBC	M.HAGENESS		42	--	2	1966	--	-30	S	--	S	--	--	4	7.0	--	--
157N071W23DCC	M.HAGENESS		78	--	4	--	67	7-68	U	--	--	--	--	--	--	--	1670
157N071W26CBC	TWP.SCHOOL		21	--	4	--	18	6-68	U	31	--	--	--	4	--	--	--
157N071W27BBB	NDSWC 47	105	40	--	5	1965	9	11-68	U	--	7S	41	G	--	--	85	1596
157N071W27DCC	I.PAULSON		100	--	4	1929	20	--	K	--	7S	--	--	4	--	--	--
157N071W29ABB	NDSWC 5529		120	--	5	1969	--	--	U	--	7G	5	GD	--	--	106	1536
157N071W31BAA	NDSWC		115	--	5	1964	--	--	U	--	S	25	GE	--	--	84	1565
157N071W31BCC	NDSWC		105	--	5	1964	--	--	U	--	S	69	GE	--	--	80	1560
157N071W31CBB	NDSWC		86	--	5	1964	--	--	U	--	R	52	GE	--	--	82	1565
157N071W31CBD	NDSWC		116	--	5	1964	--	--	U	--	R	43	GE	--	--	96	1570
157N071W32ABB	G.HAGEN		120	--	4	--	18	--	H	PC	--	--	--	6	--	--	--
157N071W32DAA	NDSWC 49	126	100	--	1	1965	16	11-67	U	31	R	39	GE	4	--	115	1579
157N071W33B	R.HAGEN		120	--	4	--	--	--	H	51	--	--	--	4	--	--	--
157N072W02AAD1	R.HALVORSON		40	--	2	1930	25	--	S	--	S	--	--	4	--	--	--
157N072W02AAD2	R.HALVORSON		45	--	2	1963	43	--	H	--	S	--	--	4	--	--	--
157N072W03BCB	C.ALGBRIGHT		105	--	4	1957	40	--	K	--	V	--	--	4	--	--	--
157N072W09DCC1	R.BLESSUM		50	--	--	1934	47	--	S	--	G	--	--	4	--	--	--
157N072W09DCC2	R.BLESSUM		93	--	4	1948	40	--	H	--	V	--	--	4	--	--	--
157N072W10AAD	NDSWC		84	--	5	1964	--	--	U	--	G	4	GE	--	--	59	1565
157N072W14ADA1	L.SCHNEIDER		81	--	4	1929	--	--	S	--	8G	--	--	--	--	--	--
157N072W14ADA2	L.SCHNEIDER		81	--	4	1963	--	--	S	--	8G	--	--	6	11.0	--	--
157N072W14ADA3	L.SCHNEIDER		28	--	24	1964	22	--	H	--	6S	--	--	6	9.0	--	--
157N072W17BCC	NDSWC		84	--	5	1964	--	--	U	--	S	25	GE	--	--	69	1574
157N072W18BBB	NDSWC		84	--	5	1964	--	--	U	--	R	26	GE	--	--	54	1540
157N072W18BCC	NDSWC		38	--	1	1964	3	6-64	U	11	R	26	GE	9	7.5	58	1535
157N072W18BDD	NDSWC		63	--	5	1964	--	--	U	--	7S	26	GE	--	--	42	1540
157N072W18CBC	NDSWC		84	--	5	1964	--	--	U	--	S	4	GE	--	--	70	1540
157N072W18DDC	E.JOHNSTON		20	--	--	--	15	--	K	--	G	--	--	4	--	--	--
157N072W19AAA	NDSWC		94	--	5	1964	--	--	U	--	R	18	GE	--	--	73	1555
157N072W20CCC	NDSWC		126	--	5	1964	--	--	U	--	G	6	GE	--	--	110	1580
157N072W21CCC	NDSWC		315	--	5	1964	--	--	U	--	V	35	GE	--	--	82	1578
152N072W23AAA	J.SELESKY		100	--	4	1960	25	--	K	--	G	--	--	4	--	--	--
157N072W24CCC	F.SCHMALTZ		120	--	2	--	F	--	D	PC	--	--	--	4	--	--	--
157N072W25DDD	NDSWC		136	--	5	1964	--	--	U	--	S	48	GE	--	--	117	1565
157N072W26BBB	NDSWC		84	--	5	1964	--	--	U	--	V	28	GE	--	--	47	1558
157N072W27ABA1	A.TORGERSON		65	--	12	1909	60	--	S	--	S	--	--	5	--	--	--
157N072W27ABA2	A.TORGERSON		92	--	4	1965	--	--	H	--	6S	--	--	3	--	--	--
157N072W29CAD	P.BROSSART		109	--	4	1956	24	-66	H	--	--	--	--	6	--	--	--
157N072W29DBC	P.BROSSART		34	--	18	1909	20	6-68	S	--	G	--	--	6	7.0	--	--

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAM-ETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAIL-ABLE	SPE-CIFIC CON-DUCT ANCE	TEM-PER-ATURE (°C)	DEPTH TO CONSL. ROCK (FT.)	ELEVA-TION OF LSD (FT.)
157N072W30BBB1	NDSWC		105	--	5	1964	--	--	U	--	R	29	GE	--	--	85	1540
157N072W30BBB2	D.BLESSEN		75	--	4	1966	F	6-68	S	--	G	--	--	4	9.5	--	--
157N072W31ABB	NDSWC		80	--	1	1964	--	--	U	51	7S	50	GE	6	8.5	83	1535
157N072W31DA	RUGBY		57	--	22	--	48	--	P	51	--	--	--	--	--	--	--
157N072W31DC	RUGBY		135	--	8	--	60	--	P	51	--	--	--	4	--	--	--
157N072W31DD	RUGBY PARK		27	--	84	--	27	--	P	31	--	--	--	--	--	--	--
157N072W31DDC1	RUGBY		68	--	10	1948	--	--	U	51	--	--	--	4	--	--	--
157N072W31DDC2	RUGBY		70	--	16	1954	51	4-64	P	31	--	--	--	2	--	--	1562
157N072W31DDC3	RUGBY		70	--	16	1954	51	4-64	P	31	--	--	--	4	--	--	1562
157N072W34CAB1	J.HAMAN		36	--	4	1958	30	--	H	--	7S	--	--	4	--	--	--
157N072W34CAB2	J.HAMAN		100	--	--	--	23	6-68	U	--	--	--	--	--	--	--	--
157N072W34CAB3	J.HAMAN		97	--	4	--	--	--	S	--	--	--	--	6	--	--	--
157N072W34CBC	NDSWC		80	--	1	1964	19	6-64	U	--	--	51	GE	6	9.0	129	1552
157N072W36AAD	NDSWC	136	72	--	5	1964	--	--	U	--	R	94	GE	--	--	116	1563
157N072W36ACA	NDSWC		147	--	5	1964	--	--	U	--	--	50	GE	--	--	129	1575
157N072W36ADA	NDSWC		105	--	5	1964	--	--	U	--	R	58	GE	--	--	101	1555
157N072W36ADB	NDSWC		147	--	5	1964	--	--	U	--	7R	96	GE	--	--	130	1585
157N072W36ADD1	RUGBY		127	94	12	1965	45	1-65	P	11	R	78	GE	4	9.0	119	1580
157N072W36ADD2	RUGBY		135	102	12	1966	72	--	P	11	S	65	G	4	7.5	--	--
157N072W36ADD3	NDSWC	147	120	--	1	1964	53	6-64	U	--	R	46	GE	--	--	130	1580
157N072W36BBB	NDSWC		200	--	5	1964	--	--	U	--	S	10	GE	--	--	86	1556
157N072W36CBB	NDSWC		105	--	5	1964	--	--	U	--	7S	60	GE	--	--	94	1555
157N072W36DAD	NDSWC		136	--	5	1964	--	--	U	--	R	81	GE	--	--	115	1570
157N073W01DDC	NDGS BP67-7	34	33	31	1	1967	22	11-67	U	11	R	12	G	4	7.5	--	1565
157N073W02BAA	NDSWC		168	--	5	1964	--	--	U	--	8G	15	GE	--	--	131	1481
157N073W03CB	CHRISTENSON 1		3558	--	9	1954	--	--	U	--	--	--	--	--	--	--	1474
157N073W06AAB	NDSWC 5526		120	--	5	1969	--	--	U	--	9S	2	GD	--	--	102	1470
157N073W06BDA1	H.OLSON		70	--	24	1964	45	--	H	--	G	15	--	5	15.5	--	--
157N073W06BDA2	H.OLSON		50	--	24	--	33	--	S	--	G	--	--	5	6.0	--	--
157N073W06BDA3	H.OLSON		51	--	24	1966	21	5-69	S	--	--	--	--	--	--	--	--
157N073W09BDD	LEVERICH		60	--	6	--	10	--	H	--	7S	--	--	7	--	--	--
157N073W10ACC	C.HAMILTON		31	--	4	--	8	--	S	11	--	--	--	4	7.5	--	1530
157N073W11CDA	W.CHRISTENSON		93	--	4	1940	35	11-67	S	--	S	--	--	5	6.0	--	1590
157N073W11DCC	W.CHRISTENSON		73	--	24	--	36	9-67	U	--	S	--	--	--	--	--	1590
157N073W12AAA	V.BROSSART		30	--	1	1957	27	--	H	--	G	--	--	5	--	--	--
157N073W12CCC	NDSWC		126	--	5	1964	--	--	U	--	6S	50	GE	--	--	96	1570
157N073W14BBA	S.ELLSWORTH		72	--	4	1957	--	--	U	--	S	--	--	--	--	--	--
157N073W14BBC	NDSWC		94	--	5	1964	--	--	U	--	S	6	GE	--	--	79	1540
157N073W18ADD1	E.STUTRUD		87	--	4	1938	13	5-68	S	--	G	--	--	6	7.0	--	--
157N073W18ADD2	E.STUTRUD		75	--	4	1958	20	--	H	--	G	--	--	6	10.0	--	--

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157N073W21ADA	E.TUFF		60	--	16	1953	15	--	H	--	G	--	--	6	--	--	--
157N073W22BBA	E.TUFF		68	--	4	1940	25	--	S	--	G	--	--	--	--	--	--
157N073W23ADC	F.SCHMALTZ		70	--	4	1948	10	--	K	--	7S	--	--	4	4.0	--	--
157N073W24CCC	F.SCHMALTZ		66	--	4	1966	F	5-68	H	--	G	--	--	4	6.5	--	--
157N073W24DCC	F.SCHMALTZ		42	--	4	1958	4	5-68	S	--	G	--	--	5	9.0	--	--
157N073W25ABA	J.ANDERSON		60	--	4	1954	F	5-68	S	--	--	--	--	4	6.5	--	--
157N073W25ABB	J.ANDERSON		60	--	4	1954	F	--	S	51	--	--	--	4	9.0	--	1532
157N073W28DDD1	J.TUCHSCHERER		90	--	4	1940	--	--	S	--	S	--	--	4	8.5	--	--
157N073W28DDD2	J.TUCHSCHERER		110	--	4	1953	40	-67	H	--	S	--	--	4	--	--	--
157N073W29BCD	W.STUTRUD		40	--	24	1964	7	5-68	H	--	S	--	--	5	--	--	--
157N073W29DDD	F.SCHMACHER		40	--	4	1957	11	--	H	--	7S	--	--	6	--	--	--
157N073W30ADA	I.STUTRUD		40	--	24	1964	7	--	H	--	S	--	--	5	--	--	--
157N073W30DDD	NDSWC 5525		100	--	5	1969	--	--	U	--	R	3	GE	--	--	52	1492
157N073W31CDD1	P.STUTRUD		65	--	4	1940	--	--	S	--	S	--	--	6	7.0	--	--
157N073W31CDD2	P.STUTRUD		75	--	6	1962	--	--	H	--	S	--	--	6	9.0	--	--
157N073W35DAC1	L.BLESSUM		80	--	40	1930	15	--	K	--	S	--	--	5	--	--	--
157N073W35DAC2	L.BLESSUM		85	--	4	1966	--	--	S	--	S	--	--	5	7.5	--	--
157N074W01BCC	USBR		76	--	3	1955	65	10-55	U	--	9T	15	G8	--	--	40	1471
157N074W04DDD1	C.KREFTING		80	--	24	1950	30	--	S	--	G	--	--	5	7.0	--	1480
157N074W04DDD2	C.KREFTING		80	--	--	1958	30	--	H	--	G	--	--	5	10.0	--	1480
157N074W04DDD3	NDSWC 5100		180	--	5	1968	--	--	U	--	V	29	GE	--	--	54	1480
157N074W05ABC1	E.ISAACSON		24	--	36	1945	19	5-68	H	--	P	--	--	6	7.5	--	--
157N074W05ABC2	E.ISAACSON		14	--	24	1965	11	5-68	S	--	P	--	--	6	7.0	--	--
157N074W07ADA	S.ELLSWORTH		70	--	4	1953	--	--	K	--	--	--	--	6	8.5	--	--
157N074W11DCC	E.STUTRUD		48	--	18	1937	12	9-67	U	--	--	--	--	6	7.5	--	1490
157N074W13BBB	H.&O.DAHL		40	--	36	1920	20	--	K	--	--	--	--	6	7.5	--	--
157N074W17DAB1	M.VIG		12	--	--	1957	9	5-68	K	--	7S	--	--	5	6.0	--	--
157N074W17DAB2	M.VIG		13	--	--	1961	8	5-68	S	--	7S	--	--	5	5.5	--	--
157N074W19DCD	O.STUTRUD		54	--	24	--	15	5-68	K	--	--	--	--	6	7.5	--	--
157N074W22BCC	C.ENGEBRIT		85	--	4	1900	20	--	K	--	S	--	--	6	7.5	--	--
157N074W22DAA	M.THOMPSON		78	--	4	--	5	9-67	U	PC	--	--	--	5	7.0	--	1480
157N074W24DCB	ODDEN EST.		93	--	4	1965	9	--	K	--	S	--	--	5	7.5	--	--
157N074W25BBA	F.SCHUMACHER		90	--	4	1967	F	--	S	51	7S	--	--	5	8.5	--	--
157N074W27DBB1	V.BROSSART		55	--	12	1946	30	--	K	--	G	--	--	5	9.0	--	--
157N074W27DBB2	V.BROSSART		50	--	24	1966	25	--	S	--	G	10	--	6	8.5	--	--
157N074W32CBC	L.BLACK		53	--	10	1953	13	5-68	K	--	S	--	--	5	--	--	--
157N074W34DDD	NDSWC 5101		180	--	5	1968	--	--	U	--	S	4	GE	--	--	114	1504
158N069W03DBA	V.NELSON		87	--	4	1927	--	--	K	--	S	--	--	5	9.0	--	--
158N069W04BBB1	C.BENSON		63	--	24	--	47	7-68	K	--	S	--	--	5	9.0	--	--
158N069W04BBB2	C.BENSON		69	--	6	1948	50	--	H	--	7S	--	--	4	--	--	--

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158N069W06DCC	C.MUNDAHL EST.		70	--	--	1912	31	7-68	H	--	7S	--	--	5	9.0	--	--
158N069W10DDD	NDSWC 5092		160	--	5	1968	--	--	U	--	S	12	GE	--	--	96	1557
158N069W12AC	HECKMAN 1		4596	--	11	1953	--	--	U	--	--	--	--	--	--	--	1565
158N069W12ADA	F.HECKMAN		90	--	4	1957	--	--	H	--	S	--	--	6	6.5	--	--
158N069W14BAD1	W.HALLING		100	--	6	1900	20	--	S	--	--	--	--	6	--	--	--
158N069W14BAD2	W.HALLING		62	--	12	1917	28	7-68	H	--	--	--	--	6	9.0	--	--
158N069W16CCC1	A.FLETSCHOCK		55	--	16	1920	35	--	S	--	G	--	--	4	7.0	--	--
158N069W16CCC2	A.FLETSCHOCK		94	--	4	1953	20	--	H	--	S	--	--	4	--	--	--
158N069W18ACB	E.YODER		43	--	24	--	18	7-68	Z	--	S	--	--	6	7.5	--	--
158N069W23CCC	NDSWC 5518		140	--	5	1969	--	--	U	--	7R	35	GD	--	--	117	1573
158N069W24DAA	V.CARTWRIGHT		300	--	4	1920	--	--	S	--	F	--	--	8	--	--	--
158N069W27DDC	G.ENGSTROM		169	--	24	--	17	9-67	U	--	--	--	--	--	--	--	1604
158N069W31DAA1	G.PIETERICK		170	--	4	1923	--	--	H	--	S	--	--	5	--	--	--
158N069W31DAA2	G.PIETERICK		150	145	4	1970	60	4-70	H	--	--	15	D	--	--	--	--
158N069W31DCC1	NDSWC 5519		148	--	5	1969	--	--	U	--	7S	6	GD	--	--	139	1604
158N069W31DCC2	NDSWC 5519A		180	--	5	1969	--	--	U	--	7T	2	GE	--	--	138	1604
158N070W02ABB1	E.SLAUBAUGH		45	--	48	1900	35	--	S	--	S	--	--	5	--	--	--
158N070W02ABB2	E.SLAUBAUGH		45	--	24	1900	35	--	H	--	S	--	--	5	--	--	--
158N070W02ABB3	E.SLAUBAUGH		45	--	24	1964	35	--	H	--	S	--	--	6	--	--	--
158N070W03AB	J.BACHER 1		2875	--	9	1954	--	--	U	--	--	--	--	--	--	--	1597
158N070W03CAB	E.SLAUBAUGH		45	--	24	1961	40	--	S	--	S	--	--	6	9.0	--	--
158N070W10AAA	E.SLAUBAUGH		40	--	24	1954	35	--	S	--	S	--	--	7	9.0	--	--
158N070W11DDD	NDSWC 5093		120	--	5	1968	--	--	U	--	S	6	GE	--	--	90	1604
158N070W15CCC	H.STORHILL		60	--	24	1920	19	9-67	U	51	S	--	--	6	6.5	--	1629
158N070W15DCC	I.NEIRSON		65	--	36	--	13	9-67	U	--	--	--	--	--	--	--	--
158N070W17AAA	A.SLAUBAUGH		120	--	4	1967	60	--	S	--	S	--	--	5	9.0	--	--
158N070W17ABA	A.SLAUBAUGH		120	--	4	1943	5	--	H	--	S	--	--	4	--	--	--
158N070W21AAA1	NDSWC 5094	180	110	107	1	1968	17	8-68	U	--	G	8	GE	--	--	111	1625
158N070W21AAA2	NDSWC 5094	180	50	47	1	1968	17	8-68	U	51	S	14	GE	5	6.0	111	1625
158N070W21BDC	W.RUDOLPH		92	--	4	1957	20	--	H	--	S	--	--	5	11.0	--	--
158N070W25BBB1	W.BOWERSOX		45	--	24	1930	26	6-68	S	--	--	--	--	6	6.0	--	--
158N070W25BBB2	W.BOWERSOX		45	--	12	1947	15	--	H	--	G	--	--	6	--	--	--
158N070W27DCC	S.BOWERSOX		72	--	36	1900	46	6-68	K	--	S	--	--	6	--	--	--
158N070W29DCD	O.DUNHAM		90	--	4	1944	70	--	K	--	S	--	--	5	8.5	--	--
158N070W33CCC	N.ERICKSON		60	--	4	1918	30	--	K	--	S	--	--	4	--	--	--
158N071W07BDD	M.THOMPSON		53	--	24	1900	40	6-68	K	--	S	--	--	4	--	--	--
158N071W09ADD1	D.MONSON		40	--	48	1918	22	6-68	S	--	S	--	--	5	6.0	--	--
158N071W09ADD2	D.MONSON		28	--	24	1960	22	6-68	H	--	S	--	--	4	--	--	--
158N071W13DDA	F.RITZMAN		149	--	4	1918	100	--	K	--	S	--	--	4	5.5	--	--
158N071W14CDC1	H.HALVORSON		175	--	4	1930	--	--	S	--	G	--	--	4	6.5	--	--

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158N071W14CDC2	H.HALVORSON		180	--	4	1963	--	--	H	--	G	--	--	5	--	--	--
158N071W16DDD	NDSWC 5095	140	73	67	1	1968	3	8-68	U	--	V	10	G	--	--	47	1597
158N071W17BAB	THOMPSON &KOBLE		70	--	4	1960	30	--	K	--	S	--	--	4	6.0	--	--
158N071W26CAA	D.WINTER		50	--	30	1920	12	--	K	--	S	--	--	4	6.5	--	--
158N071W27BDD	M.LIMA		80	--	36	1940	34	6-68	K	--	7S	--	--	5	--	--	--
158N072W06DBA	R.JOHNSON		34	--	18	1908	20	--	H	--	G	--	--	5	--	--	--
158N072W08BC	FLECK F12-8P		2990	--	9	1954	--	--	U	--	--	--	--	--	--	--	1628
158N072W10AAA	NDSWC 5527		160	--	5	1969	--	--	U	--	2V	34	GD	--	--	126	1705
158N072W13BBC	H.THOMPSON		209	--	4	1949	30	--	K	--	7S	--	--	5	7.0	--	--
158N072W13DAD	M.THOMPSON		190	--	24	--	41	9-67	U	--	--	--	--	3	6.5	--	1650
158N072W16DDA	NDSWC 5096		140	--	5	1968	--	--	U	--	R	25	GE	--	--	83	1603
158N072W19ADA	C.NAUMAN		129	--	5	1946	60	--	K	--	7S	--	--	4	6.0	--	--
158N072W23DDA1	K.ROCHELEAU		34	--	36	--	19	6-68	S	31	--	--	--	5	7.0	--	--
158N072W23DDA2	K.ROCHELEAU		110	--	4	1955	--	--	H	51	G	--	--	4	--	--	--
158N072W24CBA	SPRING LAKE		--	--	--	--	--	--	--	KE	--	--	--	6	16.5	--	--
158N072W27BC	L.BELL 1		3051	--	11	1954	--	--	U	--	--	--	--	--	--	--	1626
158N072W27DAA1	R.BENNETT		25	--	1	1941	22	--	S	--	S	--	--	4	3.0	--	--
158N072W27DAA2	R.BENNETT		25	--	1	1953	21	--	H	--	S	--	--	4	--	--	--
158N072W29CAB	C.JOHNSON		75	--	4	1940	30	--	K	--	S	--	--	5	6.0	--	--
158N073W01CCD	A.WENTZ		42	--	18	1950	20	--	H	--	S	--	--	5	--	--	--
158N073W04CBB	C.SOBY		107	--	4	1955	10	--	K	--	S	--	--	5	5.5	--	--
158N073W08DDD1	H.FLUEVOG		70	--	18	1926	50	--	H	--	G	--	--	5	8.5	--	--
158N073W08DDD2	H.FLUEVOG		115	--	4	1954	40	--	H	--	G	--	--	5	8.5	--	--
158N073W14CDD	J.GRONVOLD		70	--	24	1932	17	9-67	S	--	--	--	--	7	10.5	--	--
158N073W14DCD	J.GRONVOLD		69	--	4	1957	4	11-67	U	--	--	--	--	--	--	--	1525
158N073W17BBB	NDSWC 5098	180	59	56	1	1968	4	9-68	U	01	S	32	GE	6	5.5	94	1508
158N073W19BBB	C.BYE		70	--	18	1932	20	--	H	--	--	--	--	5	8.5	--	--
158N073W21CBB1	P.GRUDEN		36	--	18	1936	20	--	S	--	P	--	--	7	7.0	--	--
158N073W21CBB2	P.CRUDEN		200	160	4	1966	140	--	H	--	P	--	--	7	7.0	--	--
158N073W23DCC	V.CLARK		50	--	24	1900	--	--	H	--	P	--	--	4	7.5	--	--
158N073W23DDD	NDSWC 5097		180	--	5	1968	--	--	U	--	V	14	GE	--	--	79	1530
158N073W25DAD1	M.EBACH		27	--	4	1958	10	--	S	--	S	--	--	4	8.5	--	--
158N073W25DAD2	M.EBACH		67	--	4	1962	20	--	H	--	S	--	--	4	8.5	--	--
158N073W29CCC	USBR		85	--	3	--	8	10-55	U	--	S	2	GB	--	--	76	1484
158N073W33ADD1	E.TUFF		15	--	36	1908	9	6-68	I	--	S	--	--	4	8.5	--	--
158N073W33ADD2	E.TUFF		18	--	12	1910	5	6-68	U	--	S	--	--	--	--	--	--
158N073W33ADD3	E.TUFF		30	--	36	1928	20	--	S	--	S	--	--	4	9.0	--	--
158N073W33ADD4	E.TUFF		30	--	4	1958	5	--	S	--	S	--	--	4	9.0	--	--
158N073W33ADD5	E.TUFF		30	--	4	1963	10	--	H	--	S	--	--	4	--	--	--
158N073W36ADC	STATE OF N.DAK.		67	--	4	1962	20	--	S	--	G	--	--	3	6.0	--	--

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT.)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIAM-ETER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	THICKNESS OF MAJOR AQUIFER (FT.)	LOG AVAIL-ABLE	SPE-CIFIC CON-DUCT ANCE	TEM-PER-ATURE (°C)	DEPTH TO CONSL. ROCK (FT.)	ELEVA-TION OF LSD (FT.)
158N074W09BBB	NDSWC 5099		180	--	5	1968	--	--	U	--	V	28	GE	--	--	28	1490
158N074W10CCC1	H.FEDJE		65	--	18	1905	30	--	S	--	G	--	--	6	6.0	--	--
158N074W10CCC2	H.FEDJE		38	--	24	1964	9	--	H	--	G	--	--	6	--	--	--
158N074W12CBB1	C.STRUM		72	--	18	1909	--	--	S	--	S	--	--	6	7.5	--	--
158N074W12CBB2	C.STRUM		42	--	18	1930	20	--	H	--	S	--	--	6	8.5	--	--
158N074W14DAB	A.BYE		125	--	--	1966	--	--	U	--	8P	--	D	--	--	54	1510
158N074W14DBB	A.DEARDUFF		50	--	24	1964	40	--	H	--	S	--	--	--	--	--	--
158N074W15BCC	H.FEDJE		50	--	24	1900	30	--	S	--	S	--	--	6	6.5	--	--
158N074W16DDD	NDGS BP67-2		34	--	3	1967	8	9-67	U	--	G	2	G	--	--	--	1480
158N074W18AAA	C.WELK		33	--	18	--	30	--	K	--	S	--	--	3	7.0	--	--
158N074W19CB	O.SAUDE 1		3361	--	9	1953	--	--	U	--	--	--	--	--	--	--	1476
158N074W19DCB	B.ENGELAND		118	--	1	1900	F	6-68	K	PC	G	--	--	4	7.5	--	--
158N074W21AAB	USBR		50	--	3	1955	4	10-55	U	--	S	2	GB	--	--	39	1478
158N074W25BAC1	J.SAUDE		110	--	4	1942	30	--	S	--	S	--	--	6	6.5	--	--
158N074W25BAC2	J.SAUDE		110	--	4	1961	30	--	H	--	7S	--	--	6	6.5	--	--
158N074W31ADA1	P.OLSEN		12	--	48	--	6	6-68	S	--	S	--	--	5	3.0	--	--
158N074W31ADA2	P.OLSEN		28	--	36	1966	9	6-68	H	--	P	--	--	6	5.5	--	--
158N074W35AAA	USBR		70	--	3	1955	7	10-55	U	--	S	34	GB	--	--	59	1489
158N074W35ABB	USBR		75	--	3	1955	11	10-55	U	--	S	15	GB	--	--	64	1487
158N074W35BBB	USBR		90	--	3	1955	17	10-55	U	--	S	40	GB	--	--	77	1483

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

EXPLANATION

MP, measuring point — Msl, mean sea level
Lsd, land surface datum — No. 12 slot, 0.12-inch openings

Depth to water, in feet below land surface

151-62-14AAA NDSWC Drilled artesian observation well in the Spiritwood(?) aquifer. Depth 300 ft. Cased to 218 ft with 1 1/4-inch plastic pipe, No. 12-slot screen 218-224 ft. MP top of casing 2.00 ft above lsd. Lsd 1515 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Sept. 16, 1969..	61.51	Apr. 15........	61.58	Nov. 30........	61.30
Nov. 19........	61.53	July 7........	61.29		
Feb. 18, 1970..	61.55	Oct. 6........	61.42		

151-62-15AAA NDSWC Drilled artesian observation well in the Spiritwood(?) aquifer. Depth 340 ft. Cased to 197 ft with 1 1/4-inch plastic pipe, No. 12-slot screen 197-203 ft. MP top of casing 2.50 ft above lsd. Lsd 1490 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Nov. 19, 1969..	42.95	July 7........	42.76	Nov. 30........	42.74
Apr. 15, 1970..	43.04	Oct. 6........	42.88		

151-62-15BBB NDSWC Drilled artesian observation well in the Spiritwood(?) aquifer. Depth 240 ft. Cased to 198 ft with 1 1/4-inch plastic pipe, No. 12-slot screen 198-204 ft. MP top of casing 2.00 ft above lsd. Lsd 1495 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Sept. 16, 1969..	46.97	Apr. 15........	46.98	Nov. 30........	46.76
Nov. 19........	46.96	July 7........	47.25		
Feb. 18, 1970..	46.94	Oct. 6........	46.90		

151-62-19AAA2 M. Hartle Drilled artesian well in the Pierre Formation. Depth 149 ft. Cased to 148.7 ft with 4-inch steel pipe. MP is hole in pump base 1.00 ft above lsd. Lsd 1488 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Sept. 6, 1967..	22.65	June 19........	22.80	Apr. 21........	22.25
Oct. 4........	22.84	July 15........	22.90	May 8........	22.05
Nov. 15........	22.98	Aug. 21........	23.03	June 17........	22.22
Dec. 14........	23.13	Sept. 17........	22.99	July 15........	22.24
Jan. 17, 1968..	23.23	Oct. 8........	23.04	Aug. 20........	22.54
Feb. 22........	23.39	Nov. 14........	23.09	Sept. 16........	22.78
Mar. 13........	23.33	Dec. 10........	23.09	Nov. 19........	22.94
Apr. 11........	22.99	Jan. 14, 1969..	23.22	Apr. 15, 1970..	22.94
May 13........	22.79	Mar. 12........	23.33		

Depth to water, in feet below land surface

151-62-19ADD1 NDSWC Drilled water-table observation well in the Warwick aquifer. Depth 80 ft. Cased to 33 ft with 4-inch plastic pipe, 24-slot galv. screen 33-38 ft. MP top of casing 1.00 ft above lsd. Lsd 1485 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Nov. 2, 1967	17.55	Aug. 31	17.50	Aug. 31	17.20
5	17.55	Sept. 5	17.50	Sept. 5	17.24
10	17.48	15	17.48	15	17.41
15	17.53	20	17.50	20	17.39
20	17.55	25	17.49	25	17.40
25	17.52	30	17.49	30	17.41
30	17.55	Oct. 5	17.48	Oct. 15	17.44
Dec. 5	17.56	10	17.52	20	17.44
10	17.58	15	17.49	25	17.46
15	17.66	20	17.49	31	17.48
20	17.64	25	17.54	Nov. 5	17.46
25	17.65	31	17.52	20	17.51
31	17.67	Nov. 15	17.55	25	17.48
Jan. 5, 1968	17.71	20	17.56	30	17.47
10	17.71	25	17.55	Dec. 5	17.49
15	17.73	30	17.51	Jan. 20, 1970	17.55
20	17.77	Dec. 10	17.50	25	17.59
25	17.79	15	17.54	31	17.63
31	17.78	20	17.57	Feb. 5	17.66
Feb. 5	17.81	25	17.61	15	17.70
10	17.82	Jan. 15, 1969	17.68	20	17.70
15	17.86	20	17.70	25	17.72
20	17.82	25	17.72	28	17.71
25	17.75	31	17.72	Mar. 5	17.69
29	17.71	Feb. 15	17.80	10	17.68
Mar. 5	17.79	20	17.81	25	17.77
10	17.82	25	17.81	31	17.72
15	17.89	28	17.82	Apr. 5	17.70
20	17.88	Mar. 10	17.83	10	17.62
25	17.83	15	17.83	15	17.52
31	17.88	20	17.83	20	17.45
Apr. 5	17.87	25	17.83	25	17.43
10	17.84	Apr. 10	17.75	30	17.40
15	17.76	15	17.53	May 15	17.22
20	17.60	20	17.22	20	17.19
25	17.56	25	17.20	25	17.11
30	17.51	30	17.19	31	17.09
May 5	17.44	May 5	17.13	June 25	16.98
15	17.39	10	16.96	30	16.96
20	17.37	15	16.92	July 5	17.15
25	17.34	20	16.90	10	17.20
31	17.32	25	16.86	Sept. 10	17.54
June 20	17.25	June 15	16.90	15	17.57
25	17.24	20	16.92	20	17.57
30	17.21	25	16.92	25	17.61
July 5	17.24	30	16.93	Oct. 5	17.68
10	17.24	July 5	16.89	10	17.68
15	17.29	15	16.88	15	17.71
20	17.31	20	16.89	20	17.71
25	17.32	25	16.92	Nov. 10	17.70
31	17.35	31	16.96	30	17.63
Aug. 20	17.47	Aug. 20	17.15		
25	17.52	25	17.17		

151-62-21BAA NDSWC Drilled artesian observation well in the Spiritwood(?) aquifer. Depth 200 ft. Cased to 160 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 160-166 ft. MP top of casing 1.50 ft above lsd. Lsd 1485 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Nov. 19, 1969..	20.89	June 23........	20.03	Nov. 30........	21.01
Apr. 15, 1970..	21.07	Sept. 8........	20.90		

151-62-22BBB2 NDSWC Drilled artesian observation well in the Spiritwood(?) aquifer. Depth 200 ft. Cased to 171 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 171-177 ft. MP top of casing 1.50 ft above lsd. Lsd 1476 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Nov. 19, 1969..	11.70	Apr. 15........	11.90	Sept. 8........	11.69
Feb. 18, 1970..	12.00	June 23........	10.85	Nov. 30........	11.80

151-62-24AAA NDSWC Drilled artesian observation well in the Spiritwood(?) aquifer. Depth 220 ft. Cased to 197 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 197-203 ft. MP top of casing 1.50 ft above lsd. Lsd 1495 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Nov. 19, 1969..	39.70	July 7........	39.13	Nov. 30........	39.37
Apr. 15, 1970..	39.44	Oct. 6........	39.23		

151-62-27AAA1 NDGS BP67-54 Augered water-table observation well in Warwick aquifer. Depth 24 ft. Cased to 14 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 14-16 ft. MP top of casing 1.80 ft above lsd. Lsd 1469 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Nov. 15, 1967..	4.28	Oct. 8........	1.88	Sept. 16........	4.23
Dec. 14........	4.65	Nov. 14........	2.20	Nov. 19........	3.84
Jan. 17, 1968..	5.02	Dec. 10........	2.24	Feb. 18, 1970..	5.73
Feb. 22........	5.18	Jan. 14, 1969..	3.99	Mar. 23........	5.68
Mar. 13........	4.60	Mar. 12........	4.22	Apr. 15........	4.73
June 19........	2.43	May 8........	.67	July 7........	2.76
July 15........	3.31	June 17........	2.50	Nov. 12........	3.31
Aug. 21........	2.33	July 15........	2.24	30........	3.81
Sept. 17........	.99	Aug. 20........	4.03		

151-62-27AAA2 NDSWC Drilled artesian observation well in the Spiritwood(?) aquifer. Depth 320 ft. Cased to 198 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 198-204 ft. MP top of casing 2.00 ft above lsd. Lsd 1510 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Sept. 16, 1969..	15.98	Mar. 23........	16.12	Nov. 12........	15.99
Nov. 19........	16.02	Apr. 15........	16.14	30........	15.86
Feb. 18, 1970..	16.11	July 7........	15.78		

151-62-32CCB NDGS BP67-53 Augered water-table observation well in the Warwick aquifer. Depth 19 ft. Cased to 15 ft with 1-1/4-inch steel pipe, No. 18-slot screen 15-17 ft. MP top of casing 2.00 ft above lsd. Lsd 1468 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Oct. 4, 1967..	5.30	July 14........	4.27	Apr. 21........	1.82
Nov. 15........	5.68	Aug. 21........	4.50	May 8........	2.12
Dec. 14........	5.85	Sept. 17........	3.77	June 17........	2.92
Jan. 17, 1968..	6.15	Oct. 8........	4.31	Aug. 20........	4.19
Feb. 22........	6.36	Nov. 14........	4.56	Sept. 16........	4.97
Mar. 13........	5.86	Dec. 10........	4.60	Nov. 19........	5.10
Apr. 17........	4.92	Jan. 14, 1969..	5.10	Apr. 15, 1970..	4.18
June 18........	3.19	Feb. 12........	5.41	Oct. 6........	5.56

151-62-34DDD NDSWC Drilled artesian observation well in the Spiritwood(?) aquifer. Depth 220 ft. Cased to 167 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 167-170 ft. MP top of casing 1.80 ft above lsd. Lsd 1470 ft above msl.

Nov. 15, 1967..	14.45	Oct. 8........	14.27	Feb. 18, 1970..	14.34
Dec. 14........	14.57	Nov. 14........	14.32	Mar. 23........	14.33
Jan. 17, 1968..	14.48	Dec. 10........	14.35	Apr. 15........	14.35
Feb. 22........	14.40	Jan. 14, 1969..	14.38	May 13........	14.03
Mar. 13........	14.60	Apr. 21........	14.39	June 23........	13.84
Apr. 11........	14.34	May 8........	14.21	July 7........	13.94
May 2........	14.41	June 17........	14.11	Sept. 8........	14.21
June 19........	14.22	July 15........	13.90	Oct. 6........	14.27
July 15........	14.33	Aug. 20........	14.12	Nov. 12........	14.20
Aug. 21........	14.29	Sept. 16........	13.90	30........	14.16
Sept. 17........	14.17	Nov. 19........	14.28		

151-62-36CCC NDSWC Drilled artesian observation well in the Spiritwood(?) aquifer. Depth 270 ft. Cased to 197 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 197-203 ft. MP top of casing 2.00 ft above lsd. Lsd 1463 ft above msl.

Sept. 16, 1969..	9.85	Apr. 15........	10.05	Nov. 30........	9.79
Nov. 19........	9.93	July 7........	9.66		
Feb. 18, 1970..	9.99	Oct. 6........	9.91		

151-63-14AAA4 USBR Drilled water-table observation well in the Warwick aquifer. Depth 31.0 ft. Cased to 31 ft with 1-1/4-inch steel pipe. MP top of casing 3.00 ft above lsd. Lsd 1489 ft above msl.

Jan. 4, 1952..	19.85	July 14........	20.00	Mar. 13........	20.15
18........	19.81	26........	20.0	May 13........	19.63
Feb. 3........	19.84	Aug. 12........	20.0	June 19........	19.84
24........	19.96	26........	20.0	July 15........	19.93
Mar. 10........	19.94	Sept. 9........	20.0	Aug. 21........	20.07
24........	19.99	23........	20.1	Sept. 17........	20.17
Apr. 1........	20.0	Oct. 11........	20.1	Oct. 8........	20.27
13........	19.88	25........	20.2	Nov. 14........	20.31
28........	19.89	Nov. 3........	20.2	Jan. 14, 1969..	20.39
May 5........	19.92	Dec. 6........	20.2	May 8........	18.60
26........	19.93	Oct. 9, 1967..	19.57	July 15........	19.04
June 3........	19.98	Nov. 15........	19.83	Sept. 16........	19.55
14........	19.99	Dec. 14........	20.03		
29........	19.99	Jan. 17, 1968..	20.06		

151-63-14DAA M. Mattern Drilled private well in the Warwick aquifer. Depth 34.2 ft. Cased to 33.2 ft with 4-inch steel pipe. MP top of casing 0.5 ft above lsd. Lsd 1475 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Sept. 6, 1967..	20.39	Jan. 17, 1968..	20.78	June 19........	20.29
Oct. 4........	20.51	Feb. 22........	21.00	Discontinued (being used)	
Nov. 15........	20.57	Mar. 13........	21.03		
Dec. 14........	20.67	May 13........	20.44		

151-63-16DDA NDGS BP68-34 Augered water-table observation well in the Warwick aquifer. Depth 33 ft. Cased to 20 ft with 1-1/4-inch steel pipe, No. 18-slot screen 20-25 ft. MP top of casing 1.00 ft above lsd. Lsd 1470 ft above msl.

Aug. 21, 1968..	9.90	Dec. 10........	10.01	May 8........	8.19
Sept. 17........	9.76	Jan. 13, 1969..	10.22	Aug. 20........	9.59
Oct. 8........	9.92	Mar. 12........	10.23	Nov. 19........	9.96
Nov. 14........	9.98	Apr. 21........	8.08		

151-63-20CDD11 Devils Lake Drilled water-table observation well in the Warwick aquifer. Depth 145 ft. Cased to 135 ft with 12-inch steel pipe. MP is hole in north side of casing 2.00 ft above lsd. Lsd 1480 ft above msl.

Sept. 5, 1967..	24.15	Apr. 11........	23.76	Oct. 8........	24.23
Nov. 15........	23.76	May 13........	23.70	Nov. 14........	24.33
Dec. 14........	23.92	June 19........	24.04	Dec. 10........	24.30
Jan. 17, 1968..	24.03	July 15........	24.59	May 8, 1969..	23.65
Feb. 22........	23.98	Aug. 21........	24.27		
Mar. 13........	24.00	Sept. 17........	24.02		

151-63-20CDD12 Devils Lake Drilled water-table observation well in the Warwick aquifer. Depth 155 ft. Cased to 155 ft with 12-inch steel pipe. MP is hole in east side of casing 2.00 ft above lsd. Lsd 1480 ft above msl.

Sept. 5, 1967..	23.17	May 13........	22.69	Dec. 10........	23.36
Nov. 15........	22.77	June 19........	23.04	Jan. 13, 1969..	23.47
Dec. 14........	22.93	July 15........	23.59	Apr. 21........	22.74
Jan. 17, 1968..	22.98	Aug. 21........	23.28	May 8........	22.65
Feb. 22........	22.99	Sept. 17........	23.29	Aug. 20........	23.36
Mar. 13........	23.05	Oct. 8........	23.25		
Apr. 11........	22.76	Nov. 14........	23.34		

151-63-25AAB NDSWC Drilled water-table observation well in the Warwick aquifer. Depth 140 ft. Cased to 92 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 92-95 ft. MP top of casing 2.00 ft above lsd. Lsd 1470 ft above msl.

June 26, 1968..	6.08	Aug. 21........	6.60	Oct. 7........	6.42
27........	6.08	Sept. 11........	6.40	Nov. 14........	6.56
July 17........	6.31	17........	6.27	May 8, 1969..	5.55

151-63-25BBB NDGS BP67-61 Augered water-table observation well in the Warwick aquifer. Depth 53 ft. Cased to 47 ft with 1-1/4-inch steel pipe, No. 18-slot screen 45-47 ft. MP top of casing 2.00 ft above lsd. Lsd 1475 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Nov. 15, 1967..	10.77	June 26........	10.22	Jan. 14, 1969..	10.78
Dec. 14........	10.94	27........	10.20	Apr. 21........	9.87
Jan. 17........	11.09	July 15........	10.33	May 8........	9.66
Feb. 22........	11.30	Aug. 21........	10.60	June 17........	9.73
Mar. 13........	11.30	Sept. 17........	10.49	Aug. 20........	9.83
Apr. 11........	10.90	Oct. 7........	10.45	Nov. 19........	10.52
May 13........	10.45	Nov. 14........	10.59	Apr. 15, 1970..	10.83
June 19........	10.20	Dec. 10........	10.60		

151-63-26BCC NDGS BP67-59 Augered water-table observation well in the Warwick aquifer. Depth 14 ft. Cased to 10 ft with 1-1/4-inch steel pipe, No. 18-slot screen 10-12 ft. MP top of casing 1.50 ft above lsd. Lsd 1467 ft above msl.

Oct. 5, 1967..	6.10	Dec. 10........	5.02	Aug. 4........	4.59
Nov. 15........	5.11	Jan. 14, 1969..	5.07	11........	4.68
Dec. 14........	5.37	Apr. 21........	3.27	20........	4.82
Jan. 17, 1968..	5.42	May 7........	3.61	25........	4.91
Feb. 22........	5.50	13........	3.75	Sept. 3........	5.03
Mar. 13........	4.73	21........	3.85	16........	5.04
Apr. 11........	4.42	26........	4.02	Nov. 19........	5.05
May 13........	4.00	June 17........	4.47	Apr. 15, 1970..	4.40
June 19........	4.61	24........	4.49	May 13........	4.43
July 15........	5.01	July 1........	3.53	June 23........	3.88
Aug. 21........	5.11	8........	3.73	July 7........	4.55
Sept. 17........	4.55	15........	4.26	Oct. 6........	5.18
Oct. 7........	5.02	22........	4.01		
Nov. 14........	5.04	29........	4.38		

151-63-26CBB NDGS BP67-60 Augered water-table observation well in the Warwick aquifer. Depth 16 ft. Cased to 14 ft with 1-1/4-inch steel pipe, No. 18-slot screen 14-16 ft. MP top of casing 1.00 ft above lsd. Lsd 1465 ft above msl.

Oct. 5, 1967..	4.50	June 17........	4.27	July 25........	4.17
Nov. 15........	4.82	24........	4.18	26........	4.14
Dec. 14........	4.90	July 1........	3.74	29........	4.21
Jan. 17, 1968..	4.88	8........	3.83	30........	4.23
Mar. 13........	4.64	9........	3.96	31........	4.26
Apr. 11........	4.30	10........	4.00	Aug. 1........	4.31
May 13........	4.07	11........	4.05	2........	4.35
June 19........	4.37	12........	4.07	3........	4.34
July 15........	4.65	13........	4.12	4........	4.32
Aug. 21........	4.78	14........	4.13	5........	4.32
Sept. 17........	4.42	15........	4.14	6........	4.29
Oct. 7........	4.75	16........	4.19	7........	4.18
Nov. 14........	4.74	17........	4.21	8........	4.23
Dec. 10........	4.30	18........	4.19	9........	4.30
Jan. 14, 1969..	4.77	19........	4.04	10........	4.38
Apr. 21........	3.56	20........	4.09	11........	4.42
May 7........	3.77	21........	4.11	12........	4.45
13........	3.93	22........	3.97	20........	4.53
21........	3.96	23........	4.04	25........	4.61
26........	4.04	24........	4.12	Sept. 3........	4.72

151-63-26CBB, Continued

Date	Water level	Date	Water level	Date	Water level
Sept. 4	4.73	Sept. 8	4.65	Nov. 19	4.79
5	4.66	9	4.70	May 13, 1970	3.80
6	4.57	10	4.70	July 7	4.30
7	4.63	16	4.75		

151-63-26CCB USGS Staff gage in Shinbone Lake near Warwick, N. Dak.
Elevation of 0.00 setting is 1461 ft.

Date	Water level	Date	Water level	Date	Water level
Oct. 9, 1967	0.50	June 29	1.28	Aug. 14	.89
Nov. 15	.46	30	1.27	15	.88
Apr. 11, 1968	.76	July 1	1.26	16	.87
May 13	1.00	2	1.26	17	.84
June 19	.90	3	1.26	18	.82
July 15	.69	4	1.26	19	.81
Aug. 21	.48	5	1.24	20	.80
Sept. 17	.64	6	1.25	21	.80
Oct. 7	.50	7	1.24	22	.78
Nov. 14	Frozen	8	1.24	23	.77
May 6, 1969	1.19	9	1.23	24	.76
7	1.18	10	1.23	25	.76
8	1.17	11	1.22	26	.73
9	1.16	12	1.21	27	.71
10	1.16	13	1.18	28	.70
11	1.15	14	1.16	29	.69
12	1.15	15	1.14	30	.67
13	1.14	16	1.12	31	.65
14	1.14	17	1.11	Sept. 1	.65
15	1.12	18	1.11	2	.64
16	1.12	19	1.11	3	.60
17	1.11	20	1.11	4	.58
18	1.10	21	1.09	5	.58
27	1.13	22	1.09	6	.61
28	1.09	23	1.13	7	.59
29	1.08	24	1.11	8	.58
30	1.08	25	1.11	9	.57
31	1.06	26	1.10	10	.56
June 1	1.00	29	1.09	11	.56
2	1.08	30	1.07	12	.55
3	1.09	31	1.05	13	.55
4	1.08	Aug. 1	1.04	16	.52
17	1.00	2	1.04	17	.50
18	.98	3	1.02	18	.49
19	.95	4	1.00	19	.50
20	.96	5	.99	20	.48
21	.96	6	.99	21	.48
22	.97	7	.99	22	.45
23	.97	8	.98	23	.45
24	.98	9	.98	24	.45
25	.98	10	.97	25	.43
26	1.14	11	.96	Nov. 19	.50
27	1.20	12	.95	July 7, 1970	1.00
28	1.27	13	.92		

151-63-27CBA NDGS BP67-58 Augered water-table observation well in the Warwick aquifer. Depth 19 ft. Cased to 14 ft with 1-1/4-inch steel pipe, No. 18-slot screen 14-16 ft. MP top of casing 1.00 ft above lsd. Lsd 1470 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Oct. 5, 1967..	7.40	May 13........	4.31	Dec. 10........	5.79
Nov. 15........	5.57	June 19........	4.91	Jan. 14, 1969..	5.96
Dec. 14........	5.80	July 15........	5.32	Apr. 21........	3.64
Jan. 17, 1968..	6.02	Aug. 21........	5.47	May 7........	3.80
Feb. 22........	6.08	Sept. 17........	5.43	13........	3.98
Mar. 13........	5.65	Oct. 7........	5.57	Well plugged - measure-	
Apr. 11........	5.05	Nov. 14........	5.50	ment discontinued.	

151-63-28ADA NDGS BP67-57 Augered water-table observation well in the Warwick aquifer. Depth 47 ft. Cased to 38 ft with 1-1/4-inch steel pipe, No. 18-slot screen 38-40 ft. MP top of casing 2.00 ft above lsd. Lsd 1475 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Nov. 15, 1967..	13.44	June 19........	12.83	Jan. 13, 1969..	13.42
Dec. 14........	13.31	July 15........	13.04	Apr. 21........	12.46
Jan. 17, 1968..	13.48	Aug. 21........	13.14	May 8........	12.10
Feb. 22........	13.62	Sept. 17........	13.05	Aug. 20........	12.57
Mar. 13........	13.47	Oct. 8........	13.12	Sept. 16........	12.84
Apr. 11........	13.13	Nov. 14........	13.23	Nov. 19........	13.11
May 13........	12.78	Dec. 10........	13.26	Apr. 15, 1970..	13.15

151-63-29AAC2 USGS Drilled unused water-table well in the Warwick aquifer. Depth 67 ft. Cased to 67 ft with 6-inch steel pipe, slotted 57-67 ft. MP top of casing 0.50 ft above lsd. Lsd 1483 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Jan. 10, 1966..	20.27	June 10........	20.20	Dec. 25........	20.05
15........	20.45	15........	20.05	Jan. 10, 1967..	20.06
20........	20.42	July 15........	20.17	20........	20.16
25........	20.46	20........	20.02	31........	20.19
31........	20.42	25........	19.88	Feb. 5........	20.24
Feb. 5........	20.48	31........	20.02	10........	20.26
10........	20.45	Aug. 5........	19.87	15........	20.26
15........	20.51	10........	19.78	20........	20.26
20........	20.53	15........	19.86	25........	20.31
25........	20.48	20........	19.84	28........	20.26
28........	20.58	25........	19.72	Mar. 5........	20.26
Mar. 5........	20.40	31........	19.96	10........	20.31
10........	20.60	Sept. 5........	19.84	15........	20.44
15........	20.33	10........	19.81	20........	20.39
20........	20.19	15........	19.99	25........	20.36
25........	20.14	20........	19.99	31........	20.06
31........	20.06	25........	19.85	Apr. 5........	20.09
Apr. 5........	20.02	30........	19.85	10........	19.95
10........	20.07	Oct. 25........	19.85	30........	20.00
15........	20.05	31........	19.88	May 5........	19.93
20........	20.06	Nov. 5........	19.84	10........	19.90
25........	20.07	10........	19.89	15........	19.98
30........	20.06	15........	19.94	20........	19.88
May 5........	20.09	20........	19.97	25........	19.84
10........	20.12	25........	19.90	31........	20.10
15........	20.04	30........	19.90	June 5........	20.06
20........	20.16	Dec. 5........	19.92	10........	20.21
25........	20.03	10........	19.92	15........	20.34
31........	20.04	15........	19.93	20........	20.05
June 5........	20.08	20........	20.05	25........	20.00

151-63-29AAC2, Continued

Date		Water level	Date		Water level	Date		Water level
June	30	20.04	May	20	20.67	May	10	20.82
July	5	20.21		25	20.67		15	20.65
	10	20.28		31	20.65		20	20.74
	15	20.37	June	5	20.83		25	20.77
	20	20.55		10	20.86		31	21.00
	25	20.60		15	20.95	June	5	21.10
	31	20.68		20	21.10		10	21.20
Aug.	5	20.69		25	21.17		15	21.17
	10	20.60		30	21.30		20	21.18
	15	20.82	July	5	21.13		25	21.10
	20	20.55		10	21.30		30	21.04
	25	20.91		15	21.34	July	5	21.04
	31	20.86		20	21.57		10	21.03
Sept.	5	20.91	Aug.	20	21.46		15	21.20
	10	20.84		25	21.52		20	21.22
	15	20.82		31	21.40		25	21.18
	20	20.93	Sept.	5	21.45		31	21.11
	25	21.15		20	21.39	Aug.	5	21.27
	30	21.17		25	21.30		10	21.27
Oct.	5	20.65		30	21.34		15	21.37
	10	20.64	Oct.	5	21.25		20	21.48
	15	20.65		10	21.30		25	21.72
	20	20.58		15	21.33		31	21.74
	25	20.70		20	21.32	Sept.	5	21.68
	31	20.78		25	21.33		10	21.54
Nov.	5	20.64		31	21.34		15	21.50
	10	20.66	Nov.	5	21.36		20	21.43
	15	20.76		10	21.25		25	21.43
	20	20.69		15	21.34		30	21.32
	25	20.79		20	21.30	Oct.	5	21.41
	30	20.72		25	21.30		10	21.45
Dec.	5	20.75		30	21.25		15	21.45
	10	20.81	Dec.	5	21.23		20	21.46
	15	20.81		10	21.37		25	21.52
	20	20.74		15	21.28		31	21.43
	25	20.77		20	21.18	Nov.	5	21.43
	31	20.91		25	21.28		10	21.38
Jan.	5, 1968	20.92		31	21.27		15	21.37
	10	21.01	Jan.	5, 1969	21.40		20	21.45
	20	21.06		10	21.40		25	21.56
	25	21.06		15	21.40		30	21.40
	31	21.08		20	21.20	Dec.	5	21.42
Feb.	5	21.08		25	21.45		10	21.40
	10	21.10		31	21.50		15	21.55
	15	21.02	Feb.	5	21.50		20	21.55
	20	21.10		10	21.48		25	21.37
	25	21.05		15	21.40		31	21.45
	29	21.07		20	21.27	Jan.	5, 1970	21.58
Mar.	5	21.09		25	21.30		10	21.62
	10	20.95		28	21.50		15	21.65
	15	21.00	Mar.	5	21.47		20	21.65
	20	21.04		10	21.25		25	21.70
	25	20.93		15	21.34		31	21.68
	31	20.85		20	21.28	Feb.	5	21.67
Apr.	5	20.81		25	21.53		10	21.57
	10	20.82		31	21.28		15	21.67
	15	20.81	Apr.	5	21.48		20	21.73
	20	20.83		10	21.40		25	21.74
	25	20.67		15	21.00		28	21.71
	30	20.75		20	20.79	Mar.	5	21.64
May	5	20.83		25	20.81		10	21.63
	10	20.84		30	20.83		15	21.60
	15	20.66	May	5	20.80		20	21.61

151-63-29AAC2, Continued

Date		Water level	Date		Water level	Date		Water level
Mar.	25........	21.63	June	10........	21.58	Aug.	20........	21.71
	31........	21.54		15........	21.72		25........	21.71
Apr.	5........	21.65		20........	21.74		31........	21.65
	10........	21.66		25........	21.80	Sept.	5........	21.48
	15........	21.03		30........	21.87	Oct.	15........	21.45
	20........	20.89	July	5........	21.90		20........	21.63
	25........	20.88		10........	22.12		25........	21.56
	30........	20.85		15........	22.02		31........	21.62
May	10........	21.10		20........	21.95	Nov.	5........	21.65
	15........	21.25		25........	21.83		10........	21.63
	20........	21.18		31........	21.75		15........	21.70
	25........	21.41	Aug.	5........	21.60		20........	21.52
	31........	21.38		10........	21.73		25........	21.49
June	5........	21.43		15........	21.75		30........	21.50

151-63-29ABB1 Devils Lake Drilled water-table observation well in the Warwick aquifer. Depth 70 ft. Cased to 69.5 ft with 1-1/4-inch steel pipe. MP top of casing 1.00 ft above lsd. Lsd 1480 ft above msl.

Sept.	5, 1967..	22.32	May	13........	22.02	Dec.	10........	22.70
Nov.	15........	22.11	June	19........	22.32	Jan.	13, 1969..	22.85
Dec.	14........	22.15	July	15........	22.71	Apr.	21........	22.13
Jan.	17, 1968..	22.28	Aug.	21........	22.70	May	8........	22.07
Feb.	22........	22.27	Sept.	17........	22.70	Aug.	20........	22.85
Mar.	13........	22.30	Oct.	7........	22.69	Sept.	16........	22.85
Apr.	11........	22.07	Nov.	14........	22.60	Nov.	19........	22.70

151-63-29ABC1 Devils Lake Drilled water-table observation well in the Warwick aquifer. Depth 70.0 ft. Cased to 68.5 ft with 1-1/2-inch steel pipe. MP top of casing 1.00 ft above lsd. Lsd 1480 ft above msl.

Sept.	5, 1967..	18.28	Mar.	13........	18.24	Sept.	17........	18.68
Nov.	15........	18.03	May	13........	18.01	Oct.	7........	18.60
Dec.	14........	18.08	June	19........	18.36	Nov.	14........	18.63
Jan.	17, 1968..	18.27	July	15........	18.70	May	8, 1969..	18.08
Feb.	22........	18.19	Aug.	21........	18.68	June	17........	18.56

151-63-29DCC NDGS BP67-56 Augered water-table observation well in the Warwick aquifer. Depth 47 ft. Cased to 40 ft with 1-1/4-inch steel pipe, No. 25-slot screen 40-42 ft. MP top of casing 2.00 ft above lsd. Lsd 1476 ft above msl.

Oct.	4, 1967..	13.40	July	15........	13.38	June	17........	12.96
Nov.	15........	13.38	Aug.	21........	13.29	July	15........	12.91
Dec.	14........	13.53	Sept.	17........	13.52	Aug.	20........	13.12
Jan.	17, 1968..	13.66	Oct.	7........	13.53	Sept.	16........	13.33
Feb.	22........	13.77	Nov.	14........	13.60	Nov.	19........	13.64
Mar.	13........	13.73	Dec.	10........	13.73	Feb.	18, 1970..	13.93
Apr.	11........	13.36	Jan.	13, 1969..	13.83	Apr.	15........	13.75
May	13........	13.30	Apr.	21........	13.09	Nov.	30........	13.47
June	19........	13.24	May	8........	12.88			

151-63-31BBC NDSWC Drilled water-table observation well in the Warwick aquifer. Depth 140 ft. Cased to 37 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 37-40 ft. MP top of casing 2.00 ft above lsd. Lsd 1485 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Aug. 21, 1968..	22.18	Oct. 7........	27.24	Aug. 25........	26.35
Sept. 11........	27.22	Nov. 14........	27.32	Nov. 19........	26.76
17........	27.20	May 8, 1969..	26.33		

151-63-34DDA USBR Augered water-table observation well in the Warwick aquifer. Depth 11 ft, perforated. MP top of casing 2.00 ft above lsd. Lsd 1472 ft above msl.

Date	Water level	Date	Water level	Date	Water level
July 17, 1968..	7.68	May 21........	6.56	Aug. 4........	7.07
Aug. 21........	8.03	26........	6.55	11........	7.21
Sept. 17........	8.01	June 17........	6.98	20........	7.46
Oct. 8........	8.11	27........	7.06	25........	7.60
Nov. 14........	8.33	July 1........	6.50	Sept. 3........	7.78
Dec. 10........	8.39	8........	6.57	10........	7.90
Apr. 21, 1969..	7.14	15........	6.75	16........	7.99
May 8........	6.63	22........	6.92	Nov. 19........	8.36
13........	6.60	29........	7.01	Apr. 15, 1970..	8.30

151-63-35CCC NDGS BP68-31 Augered water-table observation well in the Warwick aquifer. Depth 26 ft. Cased to 19 ft with 1-1/4-inch steel pipe, No. 18-slot screen 19-24 ft. MP top of casing 2.00 ft above lsd. Lsd 1470 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Aug. 13, 1968..	8.27	May 26........	6.43	Sept. 10........	7.95
21........	8.26	June 17........	6.84	16........	8.07
29........	8.35	24........	6.93	Nov. 19........	8.36
Sept. 17........	8.30	July 1........	6.50	Feb. 18........	8.84
Oct. 7........	8.27	8........	6.45	Mar. 23........	8.99
Nov. 14........	8.29	15........	6.69	Apr. 15........	8.34
Dec. 10........	8.40	22........	6.84	May 13........	8.33
Jan. 14, 1969..	8.63	29........	6.97	June 23........	6.80
Apr. 21........	6.53	Aug. 4........	7.08	July 7........	7.18
May 7........	6.35	11........	7.27	Nov. 12........	8.64
13........	6.39	20........	7.52	30........	8.67
21........	6.45	25........	7.62		

151-63-35DCC NDGS BP68-33 Augered water-table observation well in the Warwick aquifer. Depth 51 ft. Cased to 32.5 ft with 1-1/4-inch steel pipe, No. 18-slot screen 32.5-37.5 ft. MP top of casing 2.50 ft above lsd. Lsd 1465 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Aug. 13, 1968..	3.40	May 7........	2.27	July 22........	2.34
21........	3.40	13........	2.31	29........	2.58
29........	3.30	21........	2.28	Aug. 11........	2.88
Sept. 17........	3.18	26........	2.35	20........	3.17
Oct. 7........	3.30	June 17........	2.74	25........	3.29
Nov. 14........	3.54	24........	2.77	Sept. 3........	3.50
Dec. 10........	3.63	July 1........	1.94	16........	3.63
Jan. 14, 1969..	4.23	8........	2.04	Nov. 19........	3.91
Apr. 21........	2.42	15........	2.38	Apr. 15, 1970..	3.95

151-63-36CCC NDGS BP68-32 Augered water-table observation well in the Warwick aquifer. Depth 82 ft. Cased to 19 ft with 1-1/4-inch steel pipe, No. 18-slot screen 19-24 ft. MP top of casing 2.00 ft above lsd. Lsd 1470 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Aug. 13, 1968..	4.27	May 7........	2.73	July 22........	2.71
21........	4.27	13........	2.75	29........	3.09
29........	4.18	21........	2.69	Aug. 11........	3.35
Sept. 17........	3.97	26........	2.80	20........	3.65
Oct. 7........	4.13	June 17........	3.16	25........	3.78
Nov. 14........	4.37	24........	3.18	Sept. 3........	3.98
Dec. 10........	4.41	July 1........	2.49	16........	4.13
Jan. 14, 1969..	4.80	8........	2.47	Nov. 19........	4.22
Apr. 21........	3.12	15........	2.86	Apr. 15, 1970..	4.19

151-64-4CCC NDSWC Drilled water-table observation well in glacial outwash deposits. Depth 140 ft. Cased to 97 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 97-103 ft. MP top of casing 2.00 ft above lsd. Lsd 1560 ft above msl.

Nov. 19, 1969..	31.04	Apr. 15........	31.08	July 7........	30.87
Jan. 21, 1970..	31.07	May 13........	31.05		

151-64-6CCC NDGS BP67-49 Augered water-table observation well in glacial outwash deposits. Depth 54 ft. Cased to 49 ft with 1-1/4-inch plastic pipe, perforated 39-49 ft. MP top of casing 2.00 ft above lsd. Lsd 1585 ft above msl.

Nov. 15, 1967..	32.33	June 19........	32.27	Apr. 21........	29.36
Dec. 14........	32.48	July 15........	32.35	May 8........	30.03
Jan. 17, 1968..	32.49	Aug. 21........	32.44	Aug. 20........	31.23
Feb. 22........	32.60	Sept. 17........	32.53	Sept. 16........	31.33
Mar. 13........	32.60	Oct. 7........	32.61	Nov. 19........	31.55
Apr. 11........	32.28	Nov. 14........	32.60	Jan. 21, 1970..	31.76
May 13........	31.98	Jan. 13, 1969..	32.85	Apr. 15........	31.65

151-64-10AAA NDSWC Drilled artesian observation well in glacial outwash deposits. Depth 120 ft. Cased to 63 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 63-66 ft. MP top of casing 2.00 ft above lsd. Lsd 1485 ft above msl.

Nov. 15, 1967..	13.58	Sept. 17........	13.78	Aug. 20........	13.34
Dec. 14........	14.02	Oct. 7........	13.77	Sept. 16........	13.47
Jan. 17, 1968..	13.83	Nov. 14........	13.83	Nov. 19........	13.52
Feb. 22........	14.05	Dec. 10........	13.72	Jan. 21, 1970..	13.48
Mar. 13........	13.98	Jan. 13, 1969..	13.97	Feb. 18........	13.66
Apr. 11........	13.70	Mar. 12........	13.83	Apr. 15........	13.25
May 13........	13.53	Apr. 21........	13.64	May 13........	13.15
June 19........	13.67	May 8........	13.44	Oct. 6........	13.16
July 15........	13.70	June 17........	13.27	Nov. 30........	13.00
Aug. 21........	13.80	July 15........	13.16		

151-64-13DAD C. Fredrick Drilled private well in a glacial kame deposit. Depth 88 ft. Cased to 88 ft with 4-inch steel pipe. MP is hole in pump base 3.60 ft above lsd. Lsd 1510 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Oct. 4, 1967..	46.77	June 19........	46.93	Apr. 21........	47.44
Nov. 15........	46.73	July 15........	47.10	May 8........	47.22
Dec. 14........	47.08	Aug. 21........	46.86	July 15........	46.63
Jan. 17, 1968..	46.93	Sept. 17........	46.94	Aug. 20........	46.53
Feb. 22........	47.09	Oct. 7........	46.98	Sept. 16........	46.44
Mar. 13........	47.07	Nov. 14........	47.09	Nov. 19........	46.43
Apr. 11........	46.95	Dec. 10........	47.06	Apr. 15, 1970..	46.54
May 13........	46.88	Jan. 13, 1969..	47.26		

151-64-23DDC NDSWC Drilled water-table observation well in the Warwick aquifer. Depth 200 ft. Cased to 118 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 118-121 ft. MP top of casing 2.00 ft above lsd. Lsd 1620 ft above msl.

Sept. 16, 1969..	76.73	July 7, 1970..	76.80	Oct. 6........	76.76

151-65-2CDD NDGS BP67-50 Augered water-table observation well in collapsed-outwash deposits. Depth 19 ft. Cased to 12 ft with 1-1/4-inch steel pipe, No. 18-slot screen 12-14 ft. MP top of casing 2.00 ft above lsd. Lsd 1538 ft above msl.

Nov. 15, 1967..	3.82	Oct. 7........	2.93	Nov. 19........	3.17
Dec. 14........	3.81	Nov. 14........	2.76	Jan. 21, 1970..	3.36
Jan. 17, 1968..	4.18	Dec. 10........	2.76	Mar. 23........	2.55
Feb. 22........	4.27	Jan. 13, 1969..	3.59	Apr. 14........	2.63
June 19........	2.22	May 8........	1.52	May 13........	1.30
July 15........	3.17	June 17........	2.39	June 23........	2.00
Aug. 21........	3.78	Aug. 20........	3.70	Oct. 6........	3.58
Sept. 17........	2.61	Sept. 16........	3.87	Nov. 30........	3.04

151-65-18DAD M. Carlson Drilled private well in galcial outwash deposits. Depth 25.7 ft. Cased to 25.7 ft with 24-inch concrete culvert. MP top of casing 1.00 ft above lsd. Lsd 1510 ft above msl.

Sept. 6, 1967..	22.55	May 13........	22.50	Dec. 10........	22.90
Nov. 14........	22.67	June 19........	22.59	Apr. 21, 1969..	22.31
Dec. 13........	22.71	July 15........	22.64	May 8........	22.29
Jan. 16, 1968..	22.76	Aug. 20........	22.72	July 14........	22.24
Feb. 22........	22.85	Sept. 17........	22.76	Aug. 20........	22.30
Mar. 13........	22.80	Oct. 7........	22.90	Sept. 16........	22.36
Apr. 11........	22.44	Nov. 13........	22.90		

151-65-20BBB NDSWC Drilled water-table observation well in glacial outwash deposits. Depth 160 ft. Cased to 58 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 58-60 ft. MP top of casing 1.80 ft above lsd. Lsd 1545 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Nov. 14, 1967..	22.41	July 15........	22.39	May 8........	22.04
Dec. 13........	22.47	Aug. 20........	22.45	June 17........	22.12
Jan. 16, 1968..	22.47	Sept. 17........	22.52	July 14........	22.09
Feb. 22........	22.55	Oct. 7........	22.58	Aug. 20........	22.11
Mar. 13........	22.37	Nov. 13........	22.64	Sept. 16........	22.15
Apr. 11........	22.12	Dec. 10........	22.65	Nov. 19........	22.30
May 13........	22.29	Jan. 13, 1969..	22.73	Jan. 21, 1970..	22.28
June 19........	22.34	Apr. 21........	22.09	Apr. 15........	22.32

151-65-22BDC1 NDGS BP67-46 Augered water-table observation well in glacial outwash deposits. Depth 39 ft. Cased to 31 ft with 1-1/4-inch steel pipe, No. 18-slot screen 31-32 ft. MP top of casing 2.00 ft above lsd. Lsd 1510 ft above msl.

Nov. 15, 1967..	17.85	Aug. 21........	17.48	Aug. 20........	17.35
Dec. 14........	17.95	Sept. 17........	17.48	Sept. 16........	17.43
Jan. 17, 1968..	17.75	Oct. 7........	17.54	Nov. 19........	17.50
Feb. 22........	17.65	Nov. 14........	17.54	Jan. 21, 1970..	17.57
Mar. 13........	17.35	Dec. 10........	17.52	Mar. 23........	17.61
Apr. 11........	16.90	Jan. 13, 1969..	17.57	Apr. 15........	17.12
May 13........	17.10	Apr. 21........	15.89	May 13........	17.02
June 19........	17.28	May 8........	16.54	Nov. 30........	17.34
July 15........	17.39	June 17........	17.04		

151-65-26BBB USBIA Drilled private water-table well in glacial outwash deposits. Depth 47.5 ft. Cased to 47.5 ft with 24-inch concrete culvert. MP top of 1-1/2-inch pipe in base 1.5 ft above lsd. Lsd 1565 ft above msl.

Oct. 11, 1967..	37.50	June 19........	38.03	Apr. 21........	38.54
Nov. 15........	37.53	July 15........	37.99	May 8........	38.55
Dec. 14........	37.55	Aug. 21........	37.98	June 17........	38.17
Jan. 17, 1968..	37.52	Sept. 17........	38.00	Aug. 20........	37.88
Feb. 22........	37.45	Oct. 7........	38.08	Sept. 16........	37.79
Mar. 13........	37.84	Nov. 14........	38.13	Nov. 19........	37.81
Apr. 11........	37.87	Dec. 10........	38.21	Jan. 21, 1970..	37.83
May 13........	37.98	Jan. 13, 1969..	38.30	Apr. 15........	38.10

151-66-1CCC NDSWC Drilled water-table observation well in glaciofluvial deposits. Depth 120 ft. Cased to 47 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 47-50 ft. MP top of casing 2.00 ft above lsd. Lsd 1535 ft above msl.

Aug. 20, 1968..	35.93	Jan. 13, 1969..	35.88	Nov. 19........	35.45
Sept. 11........	35.59	Apr. 21........	36.07	Jan. 21, 1970..	35.22
17........	35.79	June 17........	35.39	Apr. 14........	35.50
Oct. 8........	35.90	July 14........	35.40	Oct. 6........	35.59
Nov. 13........	35.60	Aug. 20........	35.36		
Dec. 10........	35.51	Sept. 16........	35.39		

151-66-9CBA J. Nordland Bored private artesian well in the Pierre Formation. Depth 70.0 ft. Cased to 70.0 ft with planks, well is about 24 inches in diameter. MP hole in pump base 0.00 ft above lsd. Lsd 1560 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Oct. 3, 1967..	46.32	Apr. 11........	47.52	Aug. 20........	47.11
Nov. 14........	46.50	May 13........	47.31	Sept. 17........	47.13
Dec. 13........	46.70	June 19........	47.06	Oct. 7........	47.26
Mar. 13, 1968..	47.49	July 15........	47.04	Nov. 13........	47.51

151-66-21CCC NDSWC Drilled water-table observation well in glaciofluvial deposits. Depth 80 ft. Cased to 28 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 28-30 ft. MP top of casing 1.80 ft above lsd. Lsd 1528 ft above msl.

Nov. 14, 1967..	4.23	Sept. 17........	3.54	July 14........	1.00
Dec. 13........	4.34	Oct. 7........	3.67	Aug. 20........	2.44
Mar. 13, 1968..	4.15	Nov. 13........	3.63	Sept. 16........	3.37
Apr. 11........	3.40	Dec. 10........	3.38	Nov. 19........	3.58
May 13........	2.24	Jan. 13, 1969..	4.00	Apr. 15, 1970..	1.89
June 19........	1.58	Apr. 21........	1.52	Nov. 6........	3.45
July 15........	2.57	May 13........	1.19		
Aug. 20........	3.66	June 17........	1.93		

151-66-23ADD2 USBR Drilled water-table observation well in glacial outwash deposits. Cased to 20 ft with 2-inch steel pipe, perforated. MP top of casing 1.00 ft above lsd. Lsd 1515 ft above msl.

Aug. 20, 1968..	7.29	May 9........	6.98	Sept. 16........	7.32
Sept. 17........	7.37	13........	7.11	Nov. 19........	7.57
Oct. 9........	7.42	June 17........	7.04	Apr. 15, 1970..	7.40
Nov. 13........	7.57	July 14........	7.05		
Apr. 21, 1969..	7.05	Aug. 20........	7.22		

151-66-28CCC USBR Augered water-table observation well in glacial drift. Depth 22 ft. Cased to 22 ft with 2-inch galv. steel pipe. MP top of casing 1.00 ft above lsd. Lsd 1491 ft above msl.

Oct. 3, 1967..	14.50	June 19........	11.15	May 13........	8.97
11........	14.29	July 15........	12.02	June 17........	10.45
Nov. 14........	14.53	Aug. 20........	13.13	July 14........	9.78
Dec. 13........	14.70	Sept. 17........	13.40	Aug. 20........	11.32
Jan. 16, 1968..	14.77	Oct. 7........	13.64	Sept. 16........	12.46
Feb. 22........	14.98	Nov. 13........	14.00	Nov. 19........	13.53
Mar. 13........	13.02	Dec. 10........	14.28	Jan. 21, 1970..	14.02
Apr. 11........	10.44	Jan. 13, 1969..	14.65	Apr. 15........	7.13
May 13........	10.28	Apr. 21........	7.50		

151-66-32BBB NDGS BP67-42 Augered water-table observation well in the Oberon aquifer. Depth 29 ft. Cased to 19 ft with 1-1/4-inch steel pipe, No. 18-slot screen 19-21 ft. MP top of casing 2.00 ft above lsd. Lsd 1495 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Oct. 2, 1967..	9.70	Aug. 20........	9.29	Sept. 16........	8.89
11........	9.68	Sept. 17........	9.43	Nov. 19........	9.33
Nov. 14........	9.76	Oct. 7........	9.52	Jan. 21, 1970..	9.64
Dec. 13........	9.87	Nov. 13........	9.65	Mar. 23........	9.79
Jan. 16, 1968..	10.04	Dec. 10........	9.67	Apr. 15........	8.99
Feb. 22........	10.23	Jan. 13, 1969..	9.83	May 13........	7.99
Mar. 13........	9.89	Apr. 21........	8.18	Sept. 8........	9.26
Apr. 11........	9.34	May 13........	8.03	Oct. 6........	9.42
May 13........	8.66	June 17........	8.25	Nov. 30........	9.53
June 19........	8.29	July 14........	7.71		
July 15........	8.74	Aug. 20........	8.40		

151-67-2CDC A. Stenberg Dug private water-table well in the Oberon aquifer. Depth 15.6 ft. Cased to 15.6 ft with 36-inch concrete casing. MP square hole in pump base 0.5 ft above lsd. Lsd 1550 ft above msl.

Oct. 3, 1967..	10.10	Oct. 7........	11.05	Nov. 19........	10.73
Nov. 14........	11.20	Nov. 13........	11.18	Mar. 23, 1970..	10.91
Dec. 12........	11.26	Dec. 10........	11.26	Apr. 15........	10.45
Jan. 16, 1968..	11.33	Jan. 13, 1969..	11.40	May 13........	9.60
Apr. 11........	10.86	Apr. 23........	9.70	June 23........	10.15
May 13........	10.83	May 15........	9.88	Sept. 8........	10.72
June 19........	10.66	June 17........	10.13	Oct. 6........	10.89
July 15........	10.75	July 14........	9.98	Nov. 12........	10.93
Aug. 20........	10.94	Aug. 20........	10.23	30........	10.94
Sept. 17........	11.07	Sept. 16........	11.08		

151-67-22AAA USBR Driven water-table observation well. Depth 20.0 ft. Cased to 20 ft with 2-inch galv. pipe. MP top of casing 2.00 ft above lsd. Lsd 1536 ft above msl.

Nov. 30, 1954..	11.2	Oct. 4, 1967..	12.12	Sept. 17........	11.00
Dec. 20........	11.0	Nov. 14........	12.31	Oct. 7........	11.13
Feb. 4, 1955..	11.7	Dec. 13........	12.58	Nov. 13........	11.39
May 5........	7.6	Jan. 16, 1968..	12.80	Dec. 10........	11.66
June 9........	7.8	Feb. 22........	13.14	Jan. 13, 1969..	12.23
July 21........	8.0	Mar. 13........	13.22	May 15........	11.69
Aug. 18........	10.0	Apr. 11........	6.53	June 17........	10.12
Sept. 27........	11.7	May 13........	6.87	Aug. 20........	8.39
Nov. 2........	12.2	June 19........	7.96	Sept. 16........	9.49
Dec. 4........	12.8	July 15........	8.97	Nov. 19........	10.35
Jan. 10, 1956..	13.7	Aug. 20........	10.63	Apr. 15, 1970..	5.67

151-68-13DAA E. Buehler Dug private well in glacial outwash deposits. Depth 32 ft. Cased to 32 ft, open end. MP hole in pump base 1.00 ft above lsd. Lsd 1535 ft above msl.

Oct. 3, 1967..	11.99	July 15........	13.07	May 15........	11.36
Nov. 14........	12.75	Sept. 17........	14.20	June 17........	11.20
Dec. 13........	13.30	Oct. 7........	14.34	July 14........	10.78
Apr. 11, 1968..	14.00	Nov. 13........	14.62	Sept. 16........	10.78
May 13........	13.62	Dec. 10........	15.03	Nov. 19........	11.64
June 19........	13.09	Apr. 23, 1969..	12.76	Apr. 15, 1970..	12.26

151-68-25BAA NDSWC Drilled water-table observation well in glacial outwash deposits. Depth 60 ft. Cased to 23 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 23-26 ft. MP top of casing 1.50 ft above lsd. Lsd 1506 ft above msl.

Date	Water level	Date	Water level	Date	Water level
July 25, 1968..	8.70	Nov. 13........	9.45	July 14........	7.62
Aug. 20........	9.31	Dec. 10........	9.58	Sept. 16........	9.02
Sept. 11........	9.08	Apr. 23, 1969..	6.87	Nov. 19........	9.05
17........	9.22	May 15........	7.45	Apr. 15, 1970..	8.17
Oct. 7........	9.34	June 17........	8.24		

151-69-1BBB NDSWC Drilled water-table observation well in the Maddock aquifer. Depth 180 ft. Cased to 97 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 97-103 ft. MP top of casing 1.50 ft above lsd. Lsd 1550 ft above msl.

Nov. 19, 1969..	16.57	Apr. 15........	16.47	Nov. 12........	15.59
Jan. 21, 1970..	16.57	July 6........	17.13	30........	15.44
Mar. 23........	17.05	Sept. 8........	16.00		

151-69-3CCC NDSWC Drilled artesian observation well in the Maddock aquifer. Depth 180 ft. Cased to 137 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 137-143 ft. MP top of casing 2.00 ft above lsd. Lsd 1560 ft above msl.

Nov. 19, 1969..	11.65	July 6........	12.69	Nov. 30........	10.97
Jan. 21, 1970..	11.71	Sept. 8........	10.80		
Apr. 15........	11.80	Nov. 12........	11.12		

151-69-10DAA USBR Augered water-table observation well in glacial drift. Depth 16 ft. Cased to 16 ft with 2-inch steel pipe, open end. MP top of casing 1.50 ft above lsd. Lsd 1560 ft above msl.

June 13, 1956..	10.1	Nov. 6........	12.7	Oct. 7........	12.74
July 10........	11.4	Oct. 11, 1967..	12.41	Nov. 13........	12.93
Aug. 14........	12.2	Nov. 14........	12.69	Dec. 10........	13.16
Sept. 12........	13.6	Dec. 13........	12.80	Jan. 13, 1969..	13.31
Oct. 16........	12.9	Jan. 16, 1968..	12.99	May 15........	10.92
Nov. 20........	13.2	Feb. 22........	13.24	June 17........	10.86
Dec. 27........	13.3	Mar. 12........	13.34	July 14........	10.63
Feb. 5, 1957..	13.7	Apr. 11........	13.27	Sept. 16........	11.62
Mar. 5........	13.8	May 13........	12.82	Nov. 19........	12.09
Apr. 9........	14.3	June 19........	11.98	Mar. 23, 1970..	12.58
May 24........	14.0	July 16........	11.95	Apr. 15........	11.93
July 3........	13.8	Aug. 20........	12.42		
Sept. 9........	14.2	Sept. 17........	12.66		

151-69-15AAA NDSWC Drilled artesian observation well in the Maddock aquifer. Depth 200 ft. Cased to 143 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 143-146 ft. MP top of casing 1.80 ft above lsd. Lsd 1557 ft above msl.

Date	Water level	Date	Water level	Date	Water level
July 25, 1968..	29.05	Apr. 23........	29.30	Apr. 15........	29.16
Aug. 20........	29.09	May 15........	28.73	May 20........	28.30
Sept. 11........	29.02	June 17........	28.72	July 6........	28.32
17........	29.03	July 14........	28.43	Sept. 8........	28.63
Oct. 7........	29.29	Aug. 20........	28.83	Nov. 12........	28.15
Nov. 13........	29.27	Sept. 16........	29.23	30........	28.04
Dec. 10........	29.25	Nov. 19........	29.18		
Jan. 13, 1969..	29.69	Mar. 23, 1970..	29.65		

151-70-3CDD NDGS BP67-34 Augered water-table observation well in glacial outwash deposits. Depth 24 ft. Cased to 10 ft with 1-1/4-inch steel pipe, No. 18-slot screen 10-12 ft. MP top of casing 2.50 ft above lsd. Lsd 1550 ft above msl.

Sept. 27, 1967..	8.00	May 13........	8.42	Jan. 13, 1969..	9.20
Oct. 11........	8.10	June 19........	8.40	Apr. 23........	7.05
Nov. 14........	8.29	July 16........	8.56	May 15........	7.22
Dec. 13........	8.04	Aug. 20........	8.73	June 17........	7.43
Jan. 16, 1968..	8.56	Sept. 17........	8.81	July 14........	7.30
Feb. 22........	8.80	Oct. 7........	8.84	Aug. 20........	7.62
Mar. 12........	8.78	Nov. 13........	8.95	Apr. 15, 1970..	8.40
Apr. 11........	8.65	Dec. 10........	9.02		

151-70-9BBB NDGS BP68-28 Augered water-table observation well in glacial outwash deposits. Depth 20 ft. Cased to 10 ft with 1-1/4-inch steel pipe, No. 18-slot screen 10-12 ft. MP top of casing 1.50 ft above lsd. Lsd 1535 ft above msl.

Aug. 20, 1968..	5.70	Dec. 10........	5.71	July 14........	4.80
Sept. 17........	5.60	Apr. 23, 1969..	2.30	Aug. 20........	5.12
Oct. 7........	5.73	May 15........	3.29	Apr. 15, 1970..	4.15
Nov. 13........	5.74	June 17........	4.82		

151-71-21CCC O. Riveland Drilled private artesian well in glaciofluvial deposits. Depth 44 ft. Cased to 44 ft with 4-inch steel pipe. MP top of casing 1.00 ft above lsd. Lsd 1620 ft above msl.

Oct. 2, 1967..	21.05	June 19........	21.15	May 14........	20.19
12........	21.01	July 16........	20.88	June 18........	19.38
Nov. 13........	21.49	Aug. 19........	20.80	July 14........	19.29
Dec. 12........	21.57	Sept. 16........	20.68	Aug. 19........	20.14
Jan. 15, 1968..	22.43	Oct. 7........	20.52	Sept. 17........	20.84
Feb. 21........	22.62	Nov. 12........	20.75	Nov. 19........	21.54
Mar. 12........	22.85	Dec. 10........	20.84	Jan. 20, 1970..	22.06
Apr. 12........	22.48	Jan. 13, 1969..	21.44	Mar. 23........	22.71
May 13........	21.99	Apr. 23........	21.68	Apr. 14........	22.47

151-71-32ABB NDSWC Drilled artesian observation well in the New Rockford aquifer. Depth 340 ft. Cased to 257 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 257-263 ft. MP top of casing 2.00 ft above lsd. Lsd 1605 ft above msl.

Date	Water level	Date	Water level	Date	Water level
July 7, 1969..	77.63	Aug. 6........	78.17	Aug. 18........	79.65
17........	77.63	7........	78.82	19........	79.58
28........	77.68	8........	79.55	25........	79.32
29........	77.67	9........	80.21	Sept. 3........	79.03
30........	77.65	10........	80.60	17........	79.80
31........	77.69	11........	80.48	Nov. 19........	78.10
Aug. 1........	77.80	12........	80.25	Jan. 20, 1970..	77.81
2........	77.79	13........	80.14	Feb. 17........	77.51
4........	77.82	14........	80.05	Apr. 14........	77.49
5........	77.83	15........	79.96	Nov. 30........	76.94

151-72-13AAA NDSWC Drilled artesian observation well in the New Rockford aquifer. Depth 280 ft. Cased to 117 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 117-123 ft. MP top of casing 2.00 ft above lsd. Lsd 1615 ft above msl.

Date	Water level	Date	Water level	Date	Water level
July 7, 1969..	6.90	Aug. 6........	7.41	Aug. 15........	7.85
28........	7.16	7........	7.47	18........	8.03
29........	7.16	8........	7.52	19........	8.16
30........	7.13	9........	7.63	Sept. 17........	9.28
31........	7.24	10........	7.63	Nov. 19........	10.05
Aug. 1........	7.28	11........	7.68	Jan. 20, 1970..	10.55
2........	7.30	12........	7.69	Apr. 14........	10.28
4........	7.38	13........	7.74	Aug. 14........	7.47
5........	7.40	14........	7.83	Well destroyed.	

151-72-16DDC NDSWC Drilled artesian observation well in the New Rockford aquifer. Depth 280 ft. Cased to 197 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 197-203 ft. MP top of casing 2.00 ft above lsd. Lsd 1605 ft above msl.

Date	Water level	Date	Water level	Date	Water level
July 7, 1969..	75.03	Aug. 5........	75.11	Aug. 14........	77.48
17........	75.03	6........	75.12	15........	77.58
28........	75.07	7........	75.29	18........	77.66
29........	75.04	8........	75.53	19........	77.66
30........	75.05	9........	75.71	25........	77.42
31........	75.09	10........	76.35	Sept. 3........	76.89
Aug. 1........	75.10	11........	76.74	17........	76.44
2........	75.09	12........	76.98	Nov. 30, 1970..	76.73
4........	75.10	13........	77.24		

151-72-16DDD1 NDSWC Drilled artesian observation well in the New Rockford aquifer. Depth 340 ft. Cased to 247 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 247-253 ft. MP top of casing 2.00 ft above lsd. Lsd 1590 ft above msl.

Date	Water level	Date	Water level	Date	Water level
June 18, 1969	75.05	Aug. 8	75.50	Sept. 17	76.31
July 18	75.05	9	76.02	Nov. 19	75.35
28	74.98	10	76.31	Jan. 20, 1970	75.09
29	74.96	11	76.74	Mar. 23	74.63
30	74.97	12	76.99	Apr. 14	74.68
31	74.99	13	77.23	May 13	74.43
Aug. 1	75.01	14	77.44	June 24	74.40
2	75.00	15	77.52	Aug. 4	74.41
4	75.03	18	77.57	Sept. 8	74.46
5	75.05	19	77.56	Oct. 6	74.35
6	75.04	25	77.27	Nov. 12	74.28
7	75.83	Sept. 3	76.78	30	74.12

151-72-16DDD2 NDSWC Drilled artesian observation well in glaciofluvial deposits. Depth 100 ft. Cased to 67 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 67-73 ft. MP top of casing 1.00 ft above lsd. Lsd 1590 ft above msl.

Date	Water level	Date	Water level	Date	Water level
July 12, 1969	12.90	Aug. 8	12.82	Sept. 17	13.00
18	12.78	9	12.86	Nov. 19	13.09
28	12.75	10	12.85	Jan. 20, 1970	13.19
29	12.76	11	12.84	Apr. 14	13.35
30	12.76	12	12.83	May 13	13.09
31	12.73	13	12.83	June 24	12.35
Aug. 1	12.79	14	12.87	Aug. 4	12.59
2	12.80	15	12.87	Sept. 8	12.63
4	12.80	18	12.87	Oct. 6	12.38
5	12.80	19	12.93	Nov. 12	12.28
6	12.78	25	12.94	30	12.40
7	12.80	Sept. 3	12.96		

151-72-23BBB NDSWC Drilled artesian observation well in the New Rockford aquifer. Depth 300 ft. Cased to 197 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 197-203 ft. MP top of casing 2.00 ft above lsd. Lsd 1605 ft above msl.

Date	Water level	Date	Water level	Date	Water level
July 7, 1969	73.69	Aug. 7	75.52	Aug. 19	76.27
28	73.78	8	76.32	25	75.80
29	73.76	9	77.38	Sept. 3	75.35
30	73.75	10	77.74	17	75.01
31	73.79	11	77.79	Nov. 19	74.15
Aug. 1	73.80	12	77.50	Jan. 20, 1970	74.04
2	73.90	13	77.22	Apr. 14	73.53
4	73.93	14	76.98	Nov. 30	72.98
5	73.96	15	76.80		
6	74.71	18	76.37		

151-72-26DAD NDSWC Drilled artesian observation well in the New Rockford aquifer. Depth 340 ft. Cased to 257 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 257-263 ft. MP top of casing 2.00 ft above lsd. Lsd 1600 ft above msl.

Date	Water level	Date	Water level	Date	Water level
July 7, 1969..	69.51	Sept. 3........	71.06	Apr. 14, 1970..	69.39
Aug. 19........	71.90	17........	70.78	Nov. 30........	68.79
25........	71.44	Nov. 19........	69.99		

151-72-33BBB1 NDSWC Drilled artesian observation well in the New Rockford aquifer. Depth 340 ft. Cased to 257 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 257-260 ft and No. 24-slot screen 260-263 ft. MP top of casing 2.00 ft above lsd. Lsd 1605 ft above msl.

Date	Water level	Date	Water level	Date	Water level
July 7, 1969..	75.47	Aug. 9........	78.00	Nov. 19........	75.87
28........	75.49	10........	78.39	Jan. 20, 1970..	75.59
29........	75.49	11........	78.39	Feb. 17........	75.17
30........	75.47	12........	78.23	Mar. 23........	75.26
31........	75.52	13........	78.17	Apr. 14........	75.29
Aug. 1........	75.51	14........	78.08	May 13........	75.08
2........	75.56	15........	77.95	Aug. 4........	75.10
4........	75.61	18........	77.65	Sept. 8........	75.07
5........	75.61	19........	77.60	Oct. 6........	74.99
6........	76.08	25........	77.24	Nov. 12........	74.92
7........	76.62	Sept. 3........	76.89	30........	74.93
8........	77.24	17........	76.59		

151-72-33BBB2 NDSWC Drilled artesian observation well in glaciofluvial deposits. Depth 80 ft. Cased to 69 ft with 1-1/4-inch plastic pipe, No. 24-slot screen 69-72 ft. MP top of casing 2.00 ft above lsd. Lsd 1605 ft above msl.

Date	Water level	Date	Water level	Date	Water level
July 7, 1969..	17.77	Aug. 9........	17.83	Nov. 19........	18.10
28........	17.78	10........	17.83	Jan. 20, 1970..	18.17
29........	17.78	11........	17.83	Feb. 17........	18.16
30........	17.77	12........	17.80	Mar. 23........	18.44
31........	17.80	13........	17.79	Apr. 14........	18.57
Aug. 1........	17.80	14........	17.83	May 13........	18.13
2........	17.78	15........	17.82	Aug. 4........	16.58
4........	17.80	18........	17.82	Sept. 8........	16.25
5........	17.78	19........	17.88	Oct. 6........	16.08
6........	17.76	25........	17.90	Nov. 12........	15.97
7........	17.79	Sept. 3........	17.92	30........	15.80
8........	17.80	17........	18.02		

151-72-34AAA NDSWC Drilled artesian observation well in glaciofluvial deposits. Depth 290 ft. Cased to 87 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 87-90 ft. MP top of casing 1.50 ft above lsd. Lsd 1600 ft above msl.

Date	Water level	Date	Water level	Date	Water level
July 7, 1969..	60.38	Aug. 7........	60.52	Aug. 19........	61.95
28........	60.37	8........	60.66	25........	61.79
29........	60.33	9........	60.79	Sept. 3........	61.62
30........	60.34	10........	61.18	17........	61.37
31........	60.38	11........	61.37	Nov. 19........	60.72
Aug. 1........	60.38	12........	61.55	Jan. 20, 1970..	60.43
2........	60.38	13........	61.66	Apr. 14........	60.24
4........	60.39	14........	61.81	May 13........	60.00
5........	60.40	15........	61.87	Nov. 30........	59.28
6........	60.40	18........	61.93		

Depth to water, in feet below land surface

151-72-36AAA1 NDSWC Drilled artesian observation well in the New Rockford aquifer. Depth 320 ft. Cased to 238 ft with 4-inch plastic pipe, horizontally slotted 213-238 ft. MP top of casing 1.00 ft above lsd. Lsd 1602 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Nov. 1, 1967	73.35	Nov. 25	73.13	Sept. 25	73.72
5	73.36	30	73.14	30	73.68
10	73.36	Dec. 5	73.09	Oct. 5	73.52
15	73.59	10	73.12	10	73.39
20	73.60	15	73.12	15	73.40
25	73.60	20	73.11	20	73.35
30	73.60	25	73.12	25	73.33
Dec. 5	73.60	31	73.08	31	73.28
10	73.60	Jan. 5, 1969	73.07	Nov. 5	73.10
15	73.34	10	73.07	10	73.07
Jan. 15, 1968	73.23	15	73.05	15	73.00
20	73.29	20	73.04	20	73.12
Feb. 20	73.23	25	73.05	25	73.08
Mar. 10	73.15	31	73.04	30	73.09
Apr. 10	73.19	Feb. 5	73.01	Dec. 5	73.04
15	73.15	10	72.98	10	72.96
20	73.17	15	72.97	15	72.93
25	73.12	20	72.97	20	72.90
30	73.13	25	72.95	25	72.86
May 5	73.16	28	72.90	31	72.86
10	73.07	Mar. 5	72.78	Jan. 5, 1970	72.85
15	73.01	10	72.76	10	72.80
20	73.05	15	72.76	15	72.74
25	73.14	20	72.76	20	72.79
31	73.08	25	72.77	25	72.69
June 5	73.05	31	72.79	31	72.65
10	73.05	Apr. 5	72.73	Feb. 5	72.57
15	73.07	10	72.73	10	72.60
20	73.10	15	72.73	15	72.59
25	73.11	20	72.74	20	72.47
30	73.09	25	72.95	25	72.48
July 5	73.12	30	72.93	28	72.47
10	73.17	May 5	72.94	Mar. 5	72.42
15	73.17	10	72.90	10	72.43
20	73.08	15	72.85	15	72.43
25	73.05	20	72.92	20	72.45
31	73.05	25	72.96	25	72.46
Aug. 5	73.06	31	72.94	31	72.46
10	73.10	June 10	72.91	Apr. 5	72.44
15	73.06	20	73.01	15	72.49
20	73.06	25	72.82	20	72.38
25	73.01	30	72.87	25	72.37
31	73.02	July 5	72.90	30	72.33
Sept. 5	73.00	10	72.89	May 5	72.40
10	73.09	15	72.77	10	72.32
15	73.05	20	72.78	15	72.25
20	73.07	25	72.74	20	72.22
25	73.07	31	72.86	25	72.21
30	73.13	Aug. 5	74.80	31	72.19
Oct. 5	73.12	10	77.75	June 5	72.20
10	73.11	15	76.80	10	72.15
15	73.11	20	75.12	15	72.16
20	73.11	25	74.83	25	72.22
25	73.14	31	74.57	30	72.21
31	73.14	Sept. 5	74.33	July 5	72.33
Nov. 5	73.14	10	74.30	10	72.35
15	73.18	15	74.10	15	72.34
20	73.15	20	73.84	20	72.37

151-72-36AAA1, Continued

Date	Water level	Date	Water level	Date	Water level
July 25, 1970..	72.34	Sept. 10........	72.25	Oct. 25........	72.21
31........	72.20	15........	72.27	31........	72.18
Aug. 5........	72.26	20........	72.22	Nov. 5........	72.19
10........	72.31	25........	72.23	15........	72.15
15........	72.34	30........	72.23	20........	72.09
20........	72.36	Oct. 5........	72.20	25........	71.98
25........	72.36	10........	72.25	30........	71.99
31........	72.39	15........	72.28		
Sept. 5........	72.34	20........	72.27		

151-72-36AAA2 NDSWC Drilled artesian observation well in glaciofluvial deposits. Depth 92 ft. Cased to 74 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 74-77 ft. MP top of casing 1.80 ft above lsd. Lsd 1602 ft above msl.

Nov. 11, 1967..	28.13	July 14........	41.78	Aug. 15........	42.20
Dec. 12........	30.83	24........	41.88	18........	42.24
Jan. 15, 1968..	32.53	28........	41.88	19........	42.26
Feb. 21........	33.74	29........	41.88	25........	42.27
Mar. 12........	34.26	30........	41.84	Sept. 3........	42.24
Apr. 12........	34.90	31........	41.89	17........	42.21
May 13........	35.10	Aug. 1........	41.90	Nov. 19........	42.06
23........	35.39	2........	41.90	Jan. 20, 1970..	41.91
June 19........	40.85	4........	41.90	Feb. 17........	41.74
July 16........	40.83	5........	41.92	Mar. 23........	41.77
Aug. 19........	41.47	6........	41.87	Apr. 14........	41.90
Sept. 16........	41.55	7........	41.93	May 13........	41.42
Oct. 7........	41.61	8........	41.97	June 24........	41.27
Nov. 12........	41.72	9........	42.06	July 8........	41.31
Dec. 10........	41.74	10........	42.09	Aug. 4........	41.22
Jan. 13, 1969..	41.73	11........	42.11	Sept. 8........	41.19
Apr. 23........	42.04	12........	42.13	Oct. 6........	41.15
May 14........	41.92	13........	42.14	Nov. 12........	41.12
June 18........	41.87	14........	42.20	30........	41.00

151-73-14CBB C. Keller Dug private water-table well. Depth 11.3 ft. Cased to 11.3 ft with 36-inch concrete casing. MP top of wood cover 3.3 ft above lsd. Lsd 1602 ft above msl.

Oct. 3, 1967..	9.03	Apr. 12, 1968..	6.44	Oct. 17........	6.95
12........	8.55	July 16........	7.35	Nov. 12........	6.91
Nov. 13........	8.13	Aug. 19........	8.08	Dec. 10........	6.70
Dec. 12........	8.11	Sept. 16........	6.53	Apr. 23, 1969..	4.63

151-73-24AAD J. Deck Dug private water-table well. Depth 12.9 ft. Cased to 12.9 ft with 36-inch steel corrugated culvert. MP top of culvert 1.70 ft above lsd. Lsd 1600 ft above msl.

Oct. 3, 1967..	8.84	July 16........	8.48	June 19........	6.43
12........	8.63	Aug. 19........	8.85	July 14........	6.12
Nov. 13........	8.70	Sept. 16........	8.39	Aug. 19........	7.03
Dec. 12........	8.91	Oct. 7........	8.56	Sept. 17........	7.68
Jan. 15, 1968..	9.18	Nov. 12........	8.76	Nov. 18........	8.05
Apr. 12........	8.54	Dec. 10........	8.72	Apr. 14, 1970..	7.04
May 13........	8.10	Apr. 23, 1969..	4.43		
June 19........	8.06	May 13........	4.41		

151-73-24CCC NDSWC Drilled artesian observation well in the New Rockford aquifer. Depth 380 ft. Cased to 214 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 214-220 ft. MP top of casing 2.50 ft above lsd. Lsd 1605 ft above msl.

Date	Water level	Date	Water level	Date	Water level
July 8, 1969..	70.88	Aug. 7........	70.99	Aug. 19........	72.55
28........	70.88	8........	71.16	25........	72.36
29........	70.87	9........	71.28	Sept. 3........	72.07
30........	70.86	10........	71.70	17........	71.80
31........	70.89	11........	71.94	Nov. 18........	71.16
Aug. 1........	70.89	12........	72.07	Jan. 20, 1970..	70.91
2........	70.88	13........	72.25	Feb. 17........	70.59
4........	70.89	14........	72.44	Apr. 14........	70.65
5........	70.89	15........	72.48	Sept. 8........	70.47
6........	70.86	18........	72.54	Nov. 30........	70.12

151-73-28CCC NDSWC Drilled artesian observation well in the New Rockford aquifer. Depth 190 ft. Cased to 157 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 157-163 ft. MP top of casing 1.50 ft above lsd. Lsd 1630 ft above msl.

June 24, 1970..	32.03	Sept. 8........	31.42	Nov. 30........	31.26
July 8........	31.86	Oct. 6........	31.43		
Aug. 4........	31.52	Nov. 12........	31.39		

151-73-30AAD E. Schieman Bored private water-table well. Depth 41 ft. Cased to 41 ft with 24-inch wood casing. MP top edge of wood casing 1.30 ft above lsd. Lsd 1625 ft above msl.

Sept. 9, 1967..	27.29	Sept. 16........	27.51	Jan. 20, 1970..	26.75
Oct. 12........	26.60	Oct. 7........	27.46	Apr. 14........	26.95
Nov. 13........	27.25	Nov. 12........	27.40	May 13........	26.70
Dec. 12........	27.31	Dec. 10........	27.32	June 24........	26.11
Jan. 15, 1968..	27.38	Jan. 13, 1969..	27.79	Aug. 4........	25.38
Apr. 12........	27.61	Apr. 23........	27.42	Sept. 8........	25.18
May 13........	27.45	May 12........	27.22	Oct. 6........	24.98
June 18........	27.53	June 19........	27.01	Nov. 12........	25.11
July 16........	27.49	July 14........	26.81		
Aug. 19........	27.52	Nov. 18........	26.77		

151-73-32CCC NDSWC Drilled artesian observation well in the New Rockford aquifer. Depth 260 ft. Cased to 212 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 212-215 ft. MP top of casing 2.00 ft above lsd. Lsd 1655 ft above msl.

July 9, 1969..	45.87	Nov. 18........	45.86	Apr. 14........	45.78
Aug. 19........	45.80	Jan. 20, 1970..	45.77	Nov. 30........	45.29
Sept. 17........	45.90	Feb. 17........	45.59		

151-74-20AAA NDSWC Drilled artesian observation well in the New Rockford aquifer. Depth 320 ft. Cased to 256 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 256-259 ft, No. 24-slot 259-262 ft. MP top of casing 2.00 ft above lsd. Lsd 1605 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Nov. 20, 1968	31.50	July 14	31.28	Aug. 4	30.52
Dec. 10	31.73	Aug. 19	31.27	Sept. 8	30.46
Jan. 13, 1969	31.68	Sept. 17	31.34	Oct. 6	30.34
Feb. 10	31.53	Nov. 18	31.27	Nov. 12	30.39
Apr. 23	31.69	Jan. 20, 1970	31.14	30	30.15
May 12	31.56	Feb. 17	30.94		
June 19	31.40	Apr. 14	31.07		

151-74-26AAA NDSWC Drilled artesian observation well in the New Rockford aquifer. Depth 360 ft. Cased to 217 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 217-223 ft. MP top of casing 2.00 ft above lsd. Lsd 1620 ft above msl.

Date	Water level	Date	Water level	Date	Water level
July 8, 1969	44.51	Jan. 20, 1970	44.46	Aug. 4	43.82
Aug. 19	44.47	Feb. 17	44.20	Nov. 12	43.59
Sept. 17	44.62	Apr. 14	44.35	30	43.40
Nov. 18	44.55	May 13	44.09		

151-74-27BBC NDSWC Drilled artesian observation well in the New Rockford aquifer. Depth 260 ft. Cased to 172 ft with 4-inch plastic pipe, No. 24-slot stainless steel screen 172-177 ft. MP top of casing 2.00 ft above lsd. Lsd 1605 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Nov. 5, 1967	29.81	May 10	29.56	Oct. 20	29.29
10	29.60	15	29.52	25	29.30
15	29.78	20	29.60	31	29.28
20	29.79	25	29.48	Nov. 5	29.30
25	29.62	31	29.51	15	29.26
30	29.73	June 5	29.44	20	29.26
Dec. 5	29.69	10	29.44	25	29.25
10	29.76	15	29.51	30	29.25
15	29.85	20	29.52	Dec. 5	29.20
20	29.70	25	29.55	10	29.25
25	29.69	30	29.57	15	29.24
31	29.60	July 5	29.51	20	29.23
Jan. 5, 1968	29.68	10	29.52	25	29.23
10	29.69	15	29.54	31	29.22
15	29.61	20	29.48	Jan. 5, 1969	29.21
20	29.70	25	29.53	10	29.13
25	29.72	31	29.52	15	29.29
31	29.69	Aug. 5	29.52	20	29.25
Feb. 5	29.74	10	29.54	25	29.27
20	29.72	15	29.47	31	29.24
Mar. 10	29.76	20	29.41	Feb. 5	29.20
15	29.64	25	29.33	10	29.18
20	29.77	31	29.33	15	29.12
25	29.62	Sept. 5	29.25	20	29.13
31	29.68	10	29.27	25	29.11
Apr. 5	29.70	15	29.20	28	29.08
10	29.65	20	29.30	Mar. 5	29.09
15	29.66	25	29.31	10	29.08
20	29.64	30	29.32	15	29.02
25	29.64	Oct. 5	29.34	20	29.03
30	29.62	10	29.30	25	29.04
May 5	29.68	15	29.28	31	29.08

151-74-27BBC, Continued

Date	Water level	Date	Water level	Date	Water level
Apr. 5........	28.93	Oct. 15........	28.97	May 20........	28.22
10........	28.92	20........	28.74	25........	28.19
15........	28.94	31........	28.75	31........	28.13
20........	28.95	Nov. 5........	28.68	June 5........	28.15
25........	29.09	10........	28.67	10........	28.05
30........	29.06	15........	28.65	15........	28.10
May 5........	28.98	20........	28.75	25........	28.10
10........	28.98	25........	28.71	30........	28.00
15........	29.05	30........	28.71	July 5........	28.16
20........	29.10	Dec. 5........	28.69	10........	28.17
25........	29.09	10........	28.60	15........	28.11
31........	29.09	15........	28.65	20........	28.18
June 5........	29.11	20........	28.66	25........	28.03
10........	29.08	25........	28.57	31........	27.98
15........	29.12	31........	28.58	Aug. 5........	28.05
20........	28.98	Jan. 5, 1970..	28.59	10........	28.07
25........	28.95	10........	28.52	15........	28.08
30........	28.93	15........	28.54	20........	28.08
July 5........	28.91	20........	28.59	25........	28.07
10........	28.87	Feb. 15........	28.38	31........	28.11
15........	28.87	20........	28.50	Sept. 5........	28.00
20........	28.89	25........	28.52	10........	27.99
25........	28.77	28........	28.50	15........	28.04
31........	28.79	Mar. 5........	28.44	20........	27.92
Aug. 5........	28.78	10........	28.46	25........	28.09
10........	28.78	15........	28.49	30........	28.10
15........	28.74	20........	28.49	Oct. 5........	28.02
20........	28.77	25........	28.46	10........	27.97
25........	28.78	31........	28.47	15........	29.03
31........	28.78	Apr. 5........	28.46	20........	27.92
Sept. 5........	28.77	10........	27.93	25........	27.87
10........	28.85	15........	27.95	31........	27.92
15........	28.75	20........	27.98	Nov. 5........	27.98
20........	28.79	25........	28.00	10........	27.86
25........	28.78	30........	28.05	15........	27.98
30........	28.79	May 5........	28.10	20........	27.77
Oct. 5........	28.74	10........	28.21	25........	27.69
10........	28.70	15........	28.25	30........	27.69

152-63-10DAC NDSWC Drilled artesian observation well in buried-valley deposits. Depth 240 ft. Cased to 171 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 171-174 ft. MP top of casing 2.00 ft above lsd. Lsd 1445 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Aug. 21, 1968..	16.40	May 8........	16.17	Apr. 15........	16.04
Sept. 11........	16.34	July 15........	15.79	May 13........	16.00
17........	16.29	Aug. 25........	15.84	July 7........	15.72
Oct. 8........	16.37	Sept. 16........	15.93	Sept. 8........	15.78
Nov. 14........	16.34	Nov. 19........	15.95	Oct. 6........	15.92
Dec. 10........	16.36	Jan. 21, 1970..	15.99	Nov. 12........	15.83
Jan. 4, 1969..	16.20	Feb. 18........	16.14	30........	15.46
Apr. 21........	16.38	Mar. 23........	15.97		

152-64-2CBB NDSWC Drilled artesian observation well in glacial outwash deposits. Depth 160 ft. Cased to 107 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 107-113 ft. MP top of casing 2.50 ft above lsd. Lsd 1435 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Nov. 19, 1969..	15.73	Apr. 14........	15.94	Sept. 8........	14.89
Jan. 21, 1970..	15.86	June 23........	14.90	Nov. 12........	15.12
Feb. 18........	15.89	July 6........	14.94	Dec. 1........	15.01

152-64-7BCA NDSWC Drilled artesian observation well in buried-valley deposits. Depth 160 ft. Cased to 117 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 117-120 ft. MP top of casing 2.00 ft above lsd. Lsd 1433 ft above msl.

Date	Water level	Date	Water level	Date	Water level
July 24, 1968..	20.20	Apr. 21........	20.05	Feb. 18........	15.92
Aug. 20........	20.27	May 8........	19.89	Mar. 23........	15.68
Sept. 11........	20.44	June 17........	19.03	Apr. 14........	15.53
17........	20.36	July 15........	18.28	May 13........	15.09
Oct. 8........	20.47	Aug. 20........	17.45	Sept. 8........	13.62
Nov. 14........	20.57	Sept. 16........	17.06	Oct. 6........	13.64
Dec. 10........	20.58	Nov. 19........	16.39	Nov. 12........	13.62
Jan. 13, 1969..	20.76	Jan. 21, 1970..	15.98	Dec. 1........	13.49

152-64-27BBB NDSWC Drilled artesian observation well in glacial outwash deposits. Depth 80 ft. Cased to 57 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 57-60 ft. MP top of casing 1.80 ft above lsd. Lsd 1450 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Nov. 15, 1967..	13.33	July 15........	13.01	May 8........	12.63
Dec. 14........	13.62	Aug. 21........	13.44	June 17........	12.41
Jan. 17, 1968..	13.82	Sept. 17........	13.13	July 15........	12.29
Feb. 22........	13.73	Oct. 8........	13.24	Aug. 20........	12.70
Mar. 13........	13.72	Nov. 14........	13.25	Sept. 16........	12.97
Apr. 14........	13.46	Dec. 10........	13.20	Nov. 19........	13.13
May 13........	12.88	Jan. 13, 1969..	13.52	Apr. 14, 1970..	13.09
June 19........	12.88	Apr. 21........	13.05	Dec. 1........	12.39

152-65-7CCC NDSWC Drilled artesian observation well in the Minnewaukan aquifer. Depth 240 ft. Cased to 127 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 127-130 ft. MP top of casing 2.00 ft above lsd. Lsd 1494 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Aug. 20, 1968..	56.52	May 13........	56.62	Apr. 14........	56.05
Sept. 11........	56.45	June 17........	56.01	June 23........	55.02
17........	56.58	July 15........	55.74	July 7........	55.26
Oct. 8........	56.73	Aug. 20........	55.51	Sept. 8........	55.10
Nov. 14........	56.72	Sept. 16........	55.50	Oct. 6........	55.35
Dec. 10........	56.54	Nov. 19........	55.63	Nov. 12........	55.30
Jan. 14, 1969..	56.71	Feb. 18, 1970..	56.20	Dec. 1........	55.19
Apr. 21........	57.13	Mar. 23........	55.85		

Depth to water, in feet below land surface

152-65-13CAC NDSWC Drilled artesian observation well in glaciofluvial deposits. Depth 180 ft. Cased to 137 ft with 1-1/4-inch plastic pipe, No. 24-slot screen 137-143 ft. MP top of casing 2.00 ft above lsd. Lsd 1530 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Sept. 18, 1969	29.95	Feb. 18	29.23	July 6	31.04
Nov. 19	29.17	Mar. 23	29.10	Dec. 1	28.99
Jan. 21, 1970	29.18	Apr. 14	29.16		

152-66-21AAD NDSWC Drilled water-table observation well in the Minnewaukan aquifer. Depth 240 ft. Cased to 140 ft with 4-inch plastic pipe, No. 18-slot screen 140-145 ft. MP top of casing 1.00 ft above lsd. Lsd 1495 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Nov. 2, 1967	46.69	July 5	46.23	Feb. 28	46.66
14	46.79	10	46.27	Mar. 5	46.65
20	46.80	15	46.34	10	46.65
25	46.78	20	46.38	15	46.65
30	46.80	25	46.33	20	46.64
Dec. 5	46.81	31	46.37	25	46.64
10	46.83	Aug. 5	46.46	31	46.62
15	46.84	10	46.48	Apr. 5	46.61
20	46.83	15	46.52	10	46.55
25	46.82	20	46.53	15	46.50
31	46.83	25	46.56	20	46.34
Jan. 5, 1968	46.82	31	46.58	25	46.09
10	46.83	Sept. 5	46.59	30	46.05
15	46.81	10	46.62	May 5	45.98
20	46.82	15	46.63	10	45.94
25	46.81	20	46.66	15	45.90
31	46.80	25	46.67	20	45.87
Feb. 5	46.83	30	46.67	25	45.83
10	46.79	Oct. 5	46.68	31	45.80
15	46.77	10	46.68	June 5	45.79
20	46.77	15	46.69	10	45.77
25	46.78	20	46.70	15	45.80
29	46.79	25	46.69	20	45.83
Mar. 5	46.76	31	46.70	25	45.80
10	46.77	Nov. 5	46.69	30	45.82
15	46.73	10	46.69	July 5	45.79
20	46.74	15	46.69	10	45.76
25	46.67	20	46.70	15	45.80
31	46.61	25	46.70	20	45.83
Apr. 5	46.57	30	46.67	25	45.80
10	46.52	Dec. 5	46.67	31	45.83
15	46.50	10	46.66	Aug. 5	45.84
20	46.47	15	46.68	10	45.89
25	46.43	20	46.68	15	45.95
30	46.38	25	46.68	20	46.02
May 5	46.36	31	46.67	25	46.07
10	46.33	Jan. 5, 1969	46.66	31	46.15
15	46.31	10	46.69	Sept. 5	46.18
20	46.29	15	46.69	10	46.23
25	46.22	20	46.72	15	46.26
31	46.18	25	46.71	20	46.29
June 5	46.18	31	46.67	25	46.31
10	46.17	Feb. 5	46.67	30	46.33
15	46.18	10	46.70	Oct. 5	46.35
20	46.14	15	46.67	10	46.36
25	46.18	20	46.67	15	46.33
30	46.19	25	46.65	20	46.33

152-66-21AAD, Continued

Date		Water level	Date		Water level	Date		Water level
Oct.	25........	46.35	Mar.	5........	46.23	July	20........	45.82
	31........	46.37		10........	46.25		25........	45.86
Nov.	5........	46.35		15........	46.23		31........	45.90
	10........	46.35		20........	46.22	Aug.	5........	45.95
	15........	46.34		25........	46.23		10........	45.99
	20........	46.35		31........	46.20		15........	46.03
	25........	46.35	Apr.	5........	46.17		20........	46.08
	30........	46.32		10........	46.14		25........	46.11
Dec.	5........	46.32		15........	46.07		31........	46.15
	10........	46.31		20........	45.97	Sept.	5........	46.17
	15........	46.33		25........	45.94		10........	46.22
	20........	46.31		30........	45.90		15........	46.23
	25........	46.29	May	5........	45.86		20........	46.22
	31........	46.28		10........	45.79		25........	46.25
Jan.	5, 1970..	46.28		15........	45.77		30........	46.26
	10........	46.27		20........	45.71	Oct.	5........	46.25
	15........	46.27		25........	45.67		10........	46.27
	20........	46.28		31........	45.65		15........	46.27
	25........	46.25	June	5........	45.62		20........	46.26
	31........	46.25		10........	45.60		25........	46.26
Feb.	5........	46.28		15........	45.61		31........	46.25
	10........	46.27		25........	45.60	Nov.	5........	46.24
	15........	46.27		30........	45.63		15........	46.28
	20........	46.28	July	5........	45.66		20........	46.27
	25........	46.27		10........	45.74		25........	46.26
	28........	46.26		15........	45.78		30........	46.29

152-66-24CAB NDSWC Drilled water-table observation well in the Minnewaukan aquifer. Depth 180 ft. Cased to 97 ft with 1-1/4-inch plastic pipe, No. 24-slot screen 97-103 ft. MP top of casing 2.00 ft above lsd. Lsd 1585 ft above msl.

Nov.	19, 1969..	53.98	July	6........	53.74	Dec.	1........	53.85
Apr.	14, 1970..	53.29						

152-67-31CCC NDGS BP67-38 Augered water-table observation well in glacial outwash deposits. Depth 29 ft. Cased to 22 ft with 1-1/4-inch steel pipe, No. 18-slot screen 22-24 ft. MP top of casing 3.00 ft above lsd. Lsd 1534 ft above msl.

Oct.	11, 1967..	6.83	June	19........	5.05	Apr.	23........	2.75
Nov.	14........	6.67	July	15........	5.96	May	15........	3.84
Dec.	13........	6.84	Aug.	20........	6.67	June	17........	5.07
Jan.	16, 1968..	7.10	Sept.	17........	6.44	Aug.	20........	5.42
Feb.	22........	7.25	Oct.	7........	6.58	Sept.	16........	5.87
Mar.	13........	6.56	Nov.	13........	6.57	Nov.	19........	5.98
Apr.	11........	6.07	Dec.	10........	6.55	Apr.	15, 1970..	4.61
May	13........	4.94	Jan.	13, 1969..	6.94	Nov.	30........	4.99

Depth to water, in feet below land surface

152-68-35AAA USBR Augered water-table observation well in glacial outwash deposits. Depth 11.0 ft. Cased to 11 ft with 2-inch steel pipe. MP top of casing 1.00 ft above lsd. Lsd 1545 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Nov. 20, 1952..	6.0	Oct. 11, 1967..	6.03	Sept. 17........	6.07
Dec. 20, 1954..	6.4	Nov. 14........	6.17	Oct. 7........	6.16
Feb. 4, 1955..	5.3	Dec. 13........	6.25	Nov. 13........	6.25
May 5........	4.2	Jan. 16, 1968..	6.58	Dec. 10........	6.32
June 9........	2.1	Feb. 22........	6.25	Jan. 13, 1969..	6.44
July 21........	4.4	Mar. 13........	6.36	Apr. 23........	2.78
Aug. 18........	5.1	Apr. 11........	4.95	May 15........	4.33
Sept. 27........	5.5	May 13........	4.66	June 17........	4.96
Nov. 2........	5.4	June 19........	4.91	Aug. 20........	4.70
Dec. 4........	5.5	July 15........	5.34	Sept. 16........	5.02
Jan. 10, 1956..	5.6	Aug. 20........	6.03		

152-69-2ABB R. Rangen. Drilled private artesian well in glacial drift. Depth 86 ft. Cased to 86 ft with 4-inch steel pipe. MP hole in pump base 1.00 ft above lsd. Lsd 1675 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Sept. 27, 1967..	37.27	July 16........	37.07	May 15........	38.01
Nov. 14........	36.84	Aug. 20........	37.10	June 18........	37.34
Dec. 13........	37.04	Sept. 17........	37.25	Aug. 21........	36.29
Jan. 16, 1968..	37.15	Oct. 7........	37.09	Sept. 16........	36.18
Feb. 2........	37.58	Nov. 13........	37.18	Nov. 19........	36.23
Mar. 3........	37.80	Dec. 10........	37.28	Apr. 15, 1970..	36.96
May 14........	37.72	Jan. 13, 1969..	37.42		
June 19........	37.29	Apr. 23........	38.34		

152-69-35CCC USBR Augered water-table observation well. Depth 23.2 ft. Cased to 23.2 ft with 2-inch steel pipe. MP top of casing 1.50 ft above lsd. Lsd 1576 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Sept. 27, 1967..	12.74	June 19........	11.34	May 15........	9.65
Oct. 11........	12.88	July 16........	11.99	June 17........	10.68
Nov. 14........	13.57	Aug. 20........	13.12	July 14........	9.55
Dec. 13........	14.16	Sept. 17........	13.60	Aug. 20........	10.43
Jan. 16, 1968..	14.19	Oct. 7........	13.77	Sept. 16........	11.67
Feb. 22........	15.04	Nov. 13........	14.20	Nov. 19........	13.35
Mar. 12........	14.93	Dec. 10........	14.27	Jan. 21, 1970..	14.16
Apr. 11........	12.09	Jan. 13, 1969..	15.44	Apr. 15........	8.83
May 13........	11.69	Apr. 23........	9.25		

152-70-19CCC NDSWC Drilled water-table observation well in glacial outwash deposits. Depth 100 ft. Cased to 48 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 48-53 ft. MP top of casing 3.00 ft above lsd. Lsd 1630 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Apr. 23, 1969..	23.58	June 17........	22.48	July 14........	22.19
May 15........	23.01				

Depth to water, in feet below land surface

152-71-10CCC NDGS BP67-31 Augered water-table observation well in the Esmond aquifer. Depth 51 ft. Cased to 47 ft with 1-1/4-inch steel pipe, No. 18-slot screen 47-49 ft. MP top of casing 1.80 ft above lsd. Lsd 1618 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Sept. 26, 1967..	25.50	July 16........	25.65	July 14........	25.30
Oct. 11........	25.49	Aug. 19........	25.70	Aug. 19........	25.49
Nov. 13........	25.55	Sept. 16........	25.75	Sept. 17........	25.15
Dec. 12........	25.57	Oct. 7........	25.78	Nov. 19........	25.23
Jan. 15, 1968..	25.62	Nov. 12........	25.75	Jan. 21, 1970..	25.30
Feb. 21........	25.68	Dec. 10........	25.79	Mar. 20........	25.30
Mar. 12........	25.67	Jan. 13, 1969..	25.91	Apr. 14........	25.24
Apr. 12........	25.59	Apr. 23........	25.60	May 13........	25.10
May 13........	25.58	May 15........	25.36	Sept. 8........	24.90
June 19........	25.59	June 17........	25.29	Nov. 30........	24.85

152-71-27CBB NDGS BP67-32 Augered water-table observation well in the Esmond aquifer. Depth 29 ft. Cased to 12 ft with 1-1/4-inch steel pipe, No. 18-slot screen 12-14 ft. MP top of casing 2.00 ft above lsd. Lsd 1587 ft above msl.

Sept. 27, 1967..	10.80	June 19........	10.23	May 15........	9.01
Oct. 11........	10.43	July 16........	10.51	June 17........	9.43
Nov. 13........	10.50	Aug. 19........	10.82	July 14........	9.42
Dec. 12........	10.49	Sept. 16........	10.84	Aug. 19........	9.82
Jan. 15, 1968..	10.80	Oct. 7........	10.86	Sept. 17........	10.26
Feb. 21........	10.94	Nov. 12........	10.91	Nov. 19........	10.48
Mar. 12........	10.90	Dec. 10........	10.84	Mar. 23, 1970..	10.84
Apr. 12........	10.59	Jan. 13, 1969..	11.03	Apr. 14........	10.28
May 13........	10.27	Apr. 23........	9.63	May 13........	9.42

152-73-36AAA NDSWC Drilled water-table observation well in glacial outwash deposits. Depth 100 ft. Cased to 52 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 52-55 ft. MP top of casing 1.50 ft above lsd. Lsd 1555 ft above msl.

July 8, 1969..	12.80	Nov. 18........	14.62	Apr. 14........	13.88
Aug. 19........	13.40	Jan. 20, 1970..	15.16	Nov. 30........	13.80

152-74-1BAA NDSWC Drilled water-table observation well in glacial outwash deposits. Depth 120 ft. Cased to 77 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 77-80 ft. MP top of casing 1.80 ft above lsd. Lsd 1565 ft above msl.

Nov. 13, 1967..	32.75	July 16........	32.35	July 14........	31.54
Dec. 12........	32.64	Aug. 19........	32.46	Aug. 19........	31.30
Jan. 15, 1968..	32.45	Sept. 16........	32.33	Sept. 17........	31.42
Feb. 21........	32.35	Oct. 7........	32.35	Nov. 18........	31.42
Mar. 12........	32.27	Nov. 12........	32.35	Jan. 20, 1970..	31.34
Apr. 12........	32.00	Dec. 11........	32.23	Apr. 16........	30.91
May 14........	32.07	Apr. 23, 1969..	31.48	Nov. 30........	30.69
24........	31.67	May 13........	31.51		
June 19........	32.24	June 18........	31.69		

152-74-15CCC1 NDGS BP67-26 Augered water-table observation well in glacial outwash deposits. Depth 39 ft. Cased to 13 ft with 1-1/4-inch plastic pipe, slotted 13-23 ft. MP top of casing 2.00 ft above lsd. Lsd 1589 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Oct. 12, 1967..	9.33	May 14........	8.19	Apr. 23, 1969..	5.46
Nov. 13........	9.27	July 16........	9.20	May 13........	5.00
Dec. 13........	9.24	Aug. 19........	9.74	July 14........	5.85
Jan. 15, 1968..	9.82	Sept. 16........	7.90	Nov. 17........	6.71
Feb. 21........	10.16	Oct. 7........	7.98	Jan. 20, 1970..	8.17
Mar. 12........	9.81	Nov. 12........	8.25		

153-63-30CBC NDSWC Drilled artesian observation well in buried-valley deposits. Depth 200 ft. Cased to 137 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 137-143 ft. MP top of casing 2.00 ft above lsd. Lsd 1445 ft above msl.

Date	Water level	Date	Water level	Date	Water level
June 23, 1970..	21.85	Sept. 8........	21.94	Dec. 1........	22.07
July 6........	21.87	Nov. 12........	22.18		

153-66-1DDD NDSWC Drilled artesian observation well in the Minnewaukan aquifer. Depth 140 ft. Cased to 97 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 97-103 ft. MP top of casing 2.00 ft above lsd. Lsd 1445 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Nov. 18, 1969..	21.62	June 23........	20.44	Oct. 6........	20.02
Apr. 14, 1970..	21.38	July 7........	20.45	Nov. 12........	19.98
May 13........	20.97	Sept. 8........	20.05	Dec. 1........	19.87

153-66-18DDD R. Ward Drilled private water-table well in beach deposits. Depth 53.0 ft. Cased to 53 ft with 4-inch steel pipe. MP hole in pump base 2.50 ft above lsd. Lsd 1430 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Oct. 3, 1967..	15.98	July 16........	15.13	Sept. 16........	14.37
Nov. 14........	16.17	Aug. 20........	16.40	Nov. 18........	14.92
Dec. 13........	16.40	Sept. 17........	16.55	Mar. 23, 1970..	15.23
Jan. 16, 1968..	16.85	Oct. 8........	16.74	Apr. 14........	14.75
Feb. 22........	17.40	Nov. 13........	16.66	May 13........	15.12
Mar. 13........	17.61	Dec. 10........	16.69	Nov. 12........	14.68
Apr. 11........	16.70	Jan. 14, 1969..	17.21	30........	14.86
May 13........	15.73	Apr. 23........	15.39		
June 18........	14.80	Aug. 20........	13.79		

Depth to water, in feet below land surface

153-66-21AAB USGS Drilled water-table observation well in the Minnewaukan aquifer. Depth 103 ft. Cased to 60 ft with 5-inch steel pipe. MP hole in pump base 3.4 ft above lsd. Lsd 1428 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Oct. 4, 1967	3.15	Feb. 25	5.01	Feb. 28	1.82
Nov. 14	2.67	28	4.98	Mar. 5	1.80
Dec. 13	3.18	Mar. 5	4.90	10	1.85
Jan. 16, 1968	4.05	10	4.83	15	1.89
Feb. 22	4.50	15	4.78	20	1.86
Mar. 13	4.07	20	4.75	25	1.65
Apr. 11	2.50	25	4.72	31	1.60
May 10	1.56	31	4.64	Apr. 5	1.43
15	1.94	Apr. 5	4.60	10	1.34
20	1.66	10	3.47	15	1.23
25	2.15	25	1.10	20	1.10
31	2.25	30	.32	25	1.07
June 5	2.41	May 5	.42	30	1.10
10	1.82	10	.49	May 5	1.09
15	2.10	June 20	.79	10	.82
20	2.54	25	.76	15	.59
25	2.50	July 15	.83	20	.52
30	2.72	20	.77	25	.41
July 5	2.68	25	.81	31	.37
10	2.90	Aug. 20	1.35	June 5	.40
15	3.38	25	1.36	10	.53
20	3.56	31	1.36	15	.57
25	3.74	Sept. 5	1.32	25	.63
31	3.71	10	1.46	30	.78
Aug. 25	3.29	15	1.55	July 5	.98
31	3.30	20	1.60	10	1.02
Sept. 5	2.98	25	1.59	15	1.04
10	2.96	30	1.67	20	1.15
15	3.16	Oct. 5	1.66	25	1.17
20	4.21	10	1.69	31	.96
25	4.18	15	1.62	Aug. 5	1.19
30	4.28	20	1.67	10	1.20
Oct. 5	4.29	25	1.72	15	1.21
10	4.33	31	1.74	20	1.25
15	4.34	Nov. 5	1.77	25	1.30
20	4.11	10	1.79	31	1.39
25	4.07	15	1.80	Sept. 5	1.41
31	4.04	20	2.02	10	1.60
Nov. 5	4.06	25	1.97	15	1.70
15	4.13	30	1.93	20	1.78
20	4.11	Dec. 5	1.91	25	1.93
25	3.80	10	1.84	30	2.05
30	3.73	15	1.81	Oct. 5	2.17
Dec. 5	3.71	20	1.77	10	2.16
10	4.06	25	1.80	15	2.10
15	4.21	31	1.78	20	2.05
20	4.25	Jan. 5, 1970	1.74	25	1.99
Jan. 15, 1969	4.86	10	1.79	31	1.90
20	4.87	15	1.80	Nov. 5	1.86
25	4.88	20	1.78	10	1.89
31	4.92	25	1.75	15	1.88
Feb. 5	4.93	Feb. 5	1.76	20	1.92
10	5.01	15	1.91	25	1.95
15	5.01	20	1.92	30	1.97
20	5.02	25	1.86		

153-68-18DDD1 NDSWC Drilled artesian observation well in the upper part of the Minnewaukan aquifer. Depth 180 ft. Cased to 42 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 42-45 ft. MP top of casing 2.20 ft above lsd. Lsd 1618 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Aug. 20, 1968..	18.57	Dec. 10........	18.42	July 15........	17.98
Sept. 16........	18.44	Jan. 13, 1969..	18.63	Aug. 21........	17.91
17........	18.42	Apr. 23........	18.94	Sept. 16........	17.90
Oct. 7........	18.39	May 14........	18.38	Nov. 19........	17.85
Nov. 13........	18.24	June 18........	17.93	Apr. 15, 1970..	18.13

153-68-18DDD2 NDSWC Drilled artesian observation well in the Minnewaukan aquifer. Depth 180 ft. Cased to 77 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 77-80 ft. MP top of casing 1.70 ft above lsd. Lsd 1618 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Aug. 20, 1968..	18.45	Dec. 10........	18.38	July 15........	18.05
Sept. 11........	18.38	Jan. 13, 1969..	18.37	Aug. 21........	17.83
17........	18.12	Apr. 23........	18.89	Sept. 16........	17.83
Oct. 7........	18.29	May 14........	18.33	Nov. 19........	17.75
Nov. 13........	18.17	June 18........	18.08	Apr. 15, 1970..	18.20

153-68-22AAD A. Jacobson Drilled private artesian well in glacial drift. Depth 128.5 ft. Cased to 128.5 ft with 4-inch steel pipe. MP top of casing 2.50 ft above lsd. Lsd 1660 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Sept. 27, 1967..	53.13	Mar. 12........	53.53	Oct. 8........	53.45
Oct. 13........	52.89	Apr. 11........	53.70	Nov. 13........	53.46
Nov. 14........	53.00	May 14........	53.69	Dec. 10........	53.45
Dec. 13........	53.06	June 18........	53.66	Apr. 23, 1969..	54.20
Jan. 16, 1968..	53.18	July 16........	53.66	May 14........	54.08
Feb. 22........	53.32	Aug. 20........	53.62	June 18........	54.17

153-69-4DDD J. Jensen Estate Drilled private artesian well in glacial drift. Depth 77.5 ft. Cased to 77.5 ft with 4-inch steel pipe. MP hole in pump base 2.00 ft above lsd. Lsd 1625 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Sept. 27, 1967..	21.75	June 18........	21.69	May 15........	22.08
Oct. 13........	20.88	July 16........	21.50	June 18........	21.18
Nov. 14........	21.18	Aug. 20........	21.55	July 15........	20.61
Dec. 13........	21.36	Sept. 17........	21.37	Aug. 21........	19.98
Jan. 16, 1968..	21.55	Oct. 7........	21.36	Sept. 17........	19.90
Feb. 22........	22.02	Nov. 13........	21.39	Apr. 15, 1970..	20.94
Mar. 12........	22.20	Dec. 10........	21.98	Sept. 8........	17.17
Apr. 11........	22.30	Jan. 13, 1969..	21.67		
May 14........	22.09	Apr. 23........	22.60		

153-69-18DDD A. Halvorson Drilled private artesian well in glacial drift. Depth 31.2 ft. Cased to 31.2 ft with 4-inch steel pipe. MP hole in pump base 1.80 ft above lsd. Lsd 1620 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Oct. 2, 1967..	24.69	May 14........	24.79	Dec. 10........	24.75
Nov. 14........	24.78	June 18........	24.72	Jan. 13, 1969..	25.22
Dec. 13........	24.98	July 16........	24.66	Apr. 23........	24.58
Jan. 16, 1968..	25.06	Aug. 20........	24.69	May 14........	23.71
Feb. 22........	25.25	Sept. 17........	24.02	Well destroyed.	
Mar. 12........	25.30	Oct. 7........	24.11		
Apr. 11........	24.98	Nov. 13........	24.39		

153-69-34DCD NDGS BP67-36 Augered water-table observation well in glacial outwash deposits. Depth 26.5 ft. Cased to 20 ft with 1-1/4-inch steel pipe, No. 18-slot screen 20-22 ft. MP top of casing 1.00 ft above lsd. Lsd 1625 ft above msl.

Oct. 11, 1967..	9.08	June 19........	6.93	Apr. 23........	9.09
Nov. 14........	9.15	July 16........	7.20	May 15........	8.21
Dec. 13........	9.55	Aug. 20........	7.98	June 18........	7.83
Jan. 16, 1968..	9.99	Sept. 17........	7.69	Aug. 21........	6.63
Feb. 22........	10.47	Oct. 7........	8.03	Sept. 16........	7.34
Mar. 12........	10.62	Nov. 13........	8.57	Nov. 19........	8.56
Apr. 11........	9.05	Dec. 10........	8.93	Apr. 15, 1970..	8.77
May 14........	7.96	Jan. 13, 1969..	9.75		

153-70-28CCC M. & R. Erickson Drilled private artesian well in glacial drift. Depth 87 ft. Cased to 87 ft with 4-inch steel pipe. MP hole in pump base 0.40 ft above lsd. Lsd 1640 ft above msl.

Sept. 29, 1967..	36.02	Apr. 12........	36.85	Oct. 7........	36.91
Nov. 13........	35.98	May 13........	36.69	Nov. 12........	37.28
Dec. 12........	36.41	June 19........	36.15	Dec. 10........	36.33
Jan. 15, 1968..	36.74	July 16........	36.15	15........	36.49
Feb. 21........	36.15	Aug. 19........	36.22		
Mar. 12........	36.20	Sept. 16........	36.88		

153-71-15CCC NDSWC Drilled water-table observation well in the Esmond aquifer. Depth 120 ft. Cased to 55 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 55-61 ft. MP top of casing 2.00 ft above lsd. LSD 1650 ft above msl.

July 8, 1969..	57.95	Nov. 18........	57.88

153-71-17DDD1 NDSWC Drilled water-table observation well in the Esmond aquifer. Depth 80 ft. Cased to 33 ft with 4-inch plastic pipe, No. 18-slot screen 33-38 ft. MP top of casing 0.50 ft above lsd. LSD 1572 ft above msl.

July 7, 1969..	3.70	Aug. 10........	4.53	Sept. 20........	5.15
9........	3.77	20........	4.55	25........	5.14
14........	4.04	25........	4.85	30........	5.04
20........	3.81	31........	5.00	Oct. 5........	4.88
25........	3.55	Sept. 5........	5.05	10........	4.74
31........	3.51	10........	5.15	15........	4.75
Aug. 5........	3.48	15........	5.15	Nov. 20........	4.80

153-71-17DDD1, Continued

Date	Water level	Date	Water level	Date	Water level
Nov. 25........	4.81	Apr. 5........	4.52	Aug. 5........	4.98
30........	4.77	10........	4.16	10........	5.08
Dec. 5........	4.78	15........	4.14	15........	5.14
10........	4.76	20........	3.80	20........	5.19
15........	4.75	25........	3.40	25........	5.22
20........	4.87	30........	3.34	31........	5.21
25........	4.93	May 5........	3.31	Sept. 5........	5.28
31........	4.96	10........	3.22	10........	4.96
Jan. 5, 1970..	4.97	15........	3.16	15........	4.93
10........	5.08	20........	3.13	20........	4.94
15........	5.17	25........	3.14	25........	4.94
20........	5.27	31........	3.12	30........	4.95
Feb. 15........	5.30	June 5........	3.19	Oct. 5........	4.97
20........	5.32	10........	3.26	10........	4.96
25........	5.36	15........	3.30	15........	4.95
28........	5.27	25........	3.50	20........	4.93
Mar. 5........	5.20	30........	3.63	25........	4.91
10........	5.22	July 5........	3.73	31........	4.86
15........	5.27	10........	3.84	Nov. 5........	4.82
20........	5.24	15........	3.79	12........	4.57
25........	4.95	20........	3.87	30........	4.58
31........	4.87	25........	3.81		

153-71-20CCC NDSWC Drilled water-table observation well in the Esmond aquifer. Depth 100 ft. Cased to 68 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 68-72 ft. MP top of casing 2.00 ft above lsd. Lsd 1562 ft above msl.

Dec. 17, 1968..	16.18	Aug. 19........	15.50	Apr. 14........	15.65
Jan. 16, 1969..	16.59	Sept. 17........	15.45	May 13........	15.62
May 15........	13.33	Nov. 19........	15.57	Aug. 4........	15.23
June 18........	15.56	Jan. 20, 1970..	15.74	Nov. 30........	15.14
July 15........	15.58	Feb. 17........	15.72		

153-72-3DDD NDSWC Drilled artesian observation well in the Fox Hills Formation. Depth 80 ft. Cased to 58 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 58-60 ft, No. 18-slot sand point 60-61.5 ft. MP top of casing 2.00 ft above lsd. Lsd 1550 ft above msl.

Dec. 11, 1968..	6.59	June 18........	6.02	June 24, 1970..	4.96
Apr. 23, 1969..	5.95	July 15........	6.00	Nov. 30........	5.55
May 13........	5.88	Aug. 19........	5.65		
May 15........	5.87	Nov. 18........	5.96		

154-67-3CCC NDSWC Drilled artesian observation well in the Minnewaukan aquifer. Depth 160 ft. Cased to 97 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 97-103 ft. MP top of casing 2.50 ft above lsd. Lsd 1445 ft above msl.

Nov. 18, 1969..	6.99	May 13........	6.46	Dec. 1........	6.24
Jan. 22, 1970..	6.95	July 7........	6.32		
Apr. 14........	6.79	Oct. 6........	6.29		

Depth to water, in feet below land surface

154-67-11DDD1 NDSWC Drilled artesian observation well in the Minnewaukan aquifer. Depth 120 ft. Cased to 75 ft with 4-inch plastic pipe, No. 18-slot red brass screen 75-80 ft. MP top of casing 1.00 ft above lsd. Lsd 1455 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Nov. 5, 1967	17.45	Sept. 5	16.92	July 20	16.27
15	17.46	10	16.95	25	16.20
20	17.45	15	16.89	31	16.22
25	17.47	20	16.91	Aug. 5	16.24
30	17.47	25	16.91	10	16.30
Dec. 5	17.50	30	16.92	15	16.36
10	17.51	Oct. 5	16.93	20	16.42
15	17.57	10	16.96	25	16.47
20	17.58	15	16.96	31	16.54
25	17.60	20	16.98	Sept. 5	16.53
31	17.63	25	17.00	10	16.53
Jan. 5, 1968	17.70	31	17.02	15	16.65
10	17.71	Nov. 5	17.06	20	16.54
15	17.75	15	17.07	25	16.57
20	17.78	20	17.09	30	16.59
25	17.77	25	17.11	Oct. 5	16.60
31	17.81	30	17.09	10	16.49
Feb. 5	17.84	Dec. 5	17.13	15	16.59
10	17.85	10	17.18	20	16.57
15	17.86	15	17.26	31	16.62
20	17.90	20	17.29	Nov. 5	16.58
25	17.94	25	17.35	10	16.61
29	17.97	31	17.40	15	16.60
Mar. 5	17.99	Jan. 5, 1969	17.46	20	16.71
10	18.00	10	17.53	25	16.74
15	17.94	15	17.50	30	16.71
20	17.95	20	17.54	Dec. 5	16.71
25	17.85	25	17.58	10	16.75
31	17.89	Feb. 15	17.75	15	16.79
Apr. 5	17.84	20	17.77	20	16.76
10	17.83	25	17.78	25	16.82
15	17.75	28	17.82	31	16.83
20	17.73	Mar. 5	17.80	Jan. 5, 1970	16.88
25	17.69	10	17.81	10	16.87
30	17.67	15	17.85	15	16.95
May 5	17.64	20	17.85	20	16.97
10	17.56	25	17.87	25	16.98
15	17.42	31	17.88	31	16.99
20	17.29	Apr. 5	17.85	Feb. 5	17.07
25	17.20	10	17.83	10	17.09
31	17.11	15	17.45	15	17.12
June 5	17.08	20	17.20	20	17.15
10	17.05	25	17.01	25	17.18
15	17.06	30	16.88	28	17.18
20	17.05	May 5	16.83	Mar. 5	17.19
25	17.06	10	16.75	10	17.21
30	17.05	15	16.70	15	17.24
July 5	17.04	20	16.68	20	17.25
10	17.05	25	16.60	25	17.20
15	17.04	31	16.56	31	17.13
20	17.04	June 5	16.55	Apr. 5	17.02
25	17.07	10	16.52	10	16.96
31	17.06	15	16.55	15	16.88
Aug. 5	17.00	20	16.62	20	16.77
10	17.00	25	16.59	25	16.71
15	16.98	30	16.45	30	16.66
20	17.03	July 5	16.39	May 5	16.61
25	17.03	10	16.30	10	16.52
31	16.97	15	16.33	15	16.38

154-67-11DDD1, Continued

Date		Water level	Date		Water level	Date		Water level
May	20........	16.26	July	25........	15.89	Sept.	25........	15.76
	25........	16.16		31........	15.77		30........	15.77
	31........	16.11	Aug.	5........	15.75	Oct.	5........	15.77
June	5........	16.06		10........	15.77		10........	15.80
	10........	16.03		15........	15.73		15........	15.81
	15........	16.01		20........	15.72	Nov.	5........	15.82
	25........	15.95		25........	15.75		15........	16.03
	30........	15.97		31........	15.78		20........	15.99
July	5........	15.95	Sept.	5........	15.76		25........	15.92
	10........	15.96		10........	15.77		30........	16.11
	15........	15.93		15........	15.73			
	20........	15.92		20........	15.70			

154-67-15BBB NDSWC Drilled artesian observation well in the Minnewaukan aquifer. Depth 180 ft. Cased to 147 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 147-153 ft. MP top of casing 2.00 ft above lsd. Lsd 1475 ft above msl.

June	23, 1970..	33.14	Sept.	9........	33.65	Nov.	12........	33.23
July	7........	33.24	Oct.	6........	33.18	Dec.	1........	33.12

154-67-26BAA NDSWC Drilled artesian observation well in the Minnewaukan aquifer. Depth 180 ft. Cased to 137 ft with 1-1/4-inch plastic pipe, No. 25-slot screen 137-143 ft. MP top of casing 2.00 ft above lsd. Lsd 1448 ft above msl.

June	23, 1970..	9.83	Sept.	9........	10.25	Nov.	12........	10.31
July	7........	9.99	Oct.	6........	10.27	Dec.	1........	10.21

154-68-1AAA NDSWC Drilled artesian observation well in the Minnewaukan aquifer. Depth 230 ft. Cased to 197 ft with 1-1/4-inch plastic pipe, No. 25-slot screen 197-203 ft. MP top of casing 2.00 ft above lsd. Lsd 1560 ft above msl.

June	23, 1970..	107.70	Oct.	6........	107.47	Dec.	1........	107.33
Sept.	9........	107.53	Nov.	12........	107.60			

154-68-21AAA Soo Line Railroad Dug water-table well in glacial drift. Depth 40.0 ft. Lined with bricks to 40.0 ft, diameter 11 ft. MP top of concrete base east edge of well at lsd. Lsd 1560 ft above msl.

Oct.	10, 1967..	8.53	Mar.	13........	9.10	Aug.	20........	8.17
Nov.	14........	8.45	Apr.	24........	8.95	Sept.	18........	7.98
Dec.	13........	8.82	May	14........	8.56	Oct.	7........	8.15
Jan.	16, 1968..	8.95	June	19........	7.30	Nov.	13........	8.20
Feb.	22........	9.43	July	16........	7.75			

154-69-13CCC NDSWC Drilled artesian observation well in glaciofluvial deposits. Depth 200 ft. Cased to 67 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 67-73 ft. MP top of casing 2.00 ft above lsd. Lsd 1625 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Nov. 19, 1969..	18.40	Apr. 14........	19.46	Nov. 30........	17.50
Jan. 21, 1970..	18.83	July 7........	16.57		

154-69-15BBA NDSWC Drilled artesian observation well in glacial ice-contact deposits. Depth 160 ft. Cased to 52.5 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 52.5-55.5 ft. MP top of casing 2.00 ft above lsd. Lsd 1651 ft above msl.

Date	Water level	Date	Water level	Date	Water level
July 29, 1968..	31.75	Apr. 23........	32.60	Mar. 23........	31.68
Aug. 20........	32.50	May 15........	32.33	Apr. 14........	31.87
Sept. 10........	31.92	June 18........	32.03	May 13........	31.69
17........	32.45	July 15........	31.97	June 23........	31.24
Oct. 7........	32.35	Aug. 21........	31.88	Sept. 8........	30.69
Nov. 13........	32.13	Sept. 17........	31.93	Oct. 6........	30.39
Dec. 11........	32.12	Nov. 19........	31.69	Nov. 12........	30.45
Jan. 15, 1969..	32.22	Jan. 21, 1970..	31.54	30........	30.17

154-70-16BBB NDSWC Drilled artesian observation well in glacial outwash deposits. Depth 100 ft. Cased to 43 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 43-46 ft. MP top of casing 1.50 ft above lsd. Lsd 1588 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Aug. 14, 1968..	7.90	Apr. 23........	4.49	Mar. 23........	8.23
20........	7.57	May 15........	4.48	Apr. 14........	4.98
Sept. 10........	6.67	June 18........	6.33	May 13........	3.39
17........	6.06	July 15........	5.16	June 23........	4.90
Oct. 7........	6.70	Aug. 21........	6.22	Sept. 8........	7.50
Nov. 13........	6.72	Sept. 17........	7.60	Oct. 6........	7.56
Dec. 11........	6.68	Nov. 19........	7.25	Nov. 12........	6.69
Jan. 15, 1969..	8.20	Jan. 21, 1970..	8.20	30........	6.80

154-71-8CDD L. Hoffert Drilled private artesian well in glacial drift. Depth 50.7 ft. Cased to 50.7 ft with 4-inch steel pipe. MP hole in pump base 2.30 ft above lsd. Lsd 1605 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Sept. 29, 1967..	29.07	June 19........	29.32	May 13........	28.94
Oct. 12........	28.93	July 16........	29.35	June 18........	28.57
Nov. 13........	29.11	Aug. 20........	29.58	July 15........	28.53
Dec. 12........	29.29	Sept. 17........	29.40	Aug. 21........	28.51
Jan. 15, 1968..	29.24	Oct. 7........	29.39	Sept. 17........	28.53
Feb. 21........	29.44	Nov. 13........	29.33	Nov. 19........	28.63
Mar. 12........	29.52	Dec. 11........	29.31	Apr. 14, 1970..	28.89
Apr. 12........	29.66	Jan. 15, 1969..	29.54		
May 14........	29.25	Apr. 23........	29.52		

154-71-11AAD1 NDSWC Drilled artesian observation well in the Fox Hills Formation. Depth 100 ft. Cased to 42 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 42-45 ft, gravel packed. MP top of casing 2.00 ft above lsd. Lsd 1590 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Aug. 20, 1968..	8.60	Apr. 23........	6.84	Jan. 21, 1970..	8.50
Sept. 10.......	8.40	May 15........	7.35	Mar. 23........	8.66
17........	8.29	June 18........	7.77	Apr. 14........	7.38
Oct. 7........	8.41	July 15........	7.70	May 13........	6.96
Nov. 13........	8.53	Aug. 21........	7.81	Sept. 8........	7.56
Dec. 11........	8.67	Sept. 17........	8.14	Nov. 12........	7.85
Jan. 15, 1969..	8.82	Nov. 19........	8.45	30........	7.76

154-71-20DDD S. Hoffert Drilled private artesian well in the Fox Hills Formation. Depth 113.2 ft. Cased to 113.2 ft with 4-inch steel pipe. MP hole in pump base 2.80 ft above lsd. Lsd 1640 ft above msl.

Sept. 29, 1967..	61.81	May 14........	61.68	Jan. 15, 1969..	61.80
Oct. 12........	61.59	June 19........	61.73	Apr. 23........	61.95
Nov. 13........	61.66	July 16........	61.78	May 13........	61.94
Dec. 12........	61.85	Aug. 20........	61.95	July 15........	61.70
Jan. 15, 1968..	61.61	Sept. 17........	61.86	Aug. 21........	61.66
Feb. 21........	61.69	Oct. 7........	61.84	Sept. 17........	61.58
Mar. 12........	61.70	Nov. 13........	61.79	Nov. 19........	61.47
Apr. 12........	61.97	Dec. 11........	61.69	Apr. 14, 1970..	61.24

154-72-1BBB N. Duscher Drilled private artesian well in the Fox Hills Formation. Depth 70 ft. Cased to 70 ft with 4-inch steel pipe. MP hole in pump base 1.70 ft above lsd. Lsd 1605 ft above msl.

Sept. 28, 1967..	40.35	May 14........	40.33	Dec. 11........	40.43
Oct. 12........	39.90	June 19........	40.58	Jan. 15, 1969..	40.49
Nov. 13........	40.06	July 16........	40.59	Apr. 23........	40.84
Dec. 12........	39.98	Aug. 20........	40.60	May 13........	40.53
Jan. 15, 1968..	40.26	Sept. 17........	40.42	June 18........	40.12
Feb. 21........	40.43	Oct. 7........	40.41	Aug. 21........	39.56
Mar. 12........	40.55	Nov. 14........	40.43		

154-73-12CCC A. Schiff Drilled private water-table well in glacial drift. Depth 30 ft. Cased to 30 ft with 4-inch steel pipe. MP hole in pump base 1.00 ft above lsd. Lsd 1550 ft above msl.

Sept. 28, 1967..	13.16	June 19........	13.10	May 13........	11.63
Oct. 12........	13.18	July 10........	13.24	June 18........	12.32
Nov. 13........	13.33	Aug. 19........	13.52	July 16........	12.38
Dec. 12........	13.45	Sept. 16........	12.99	Aug. 19........	12.27
Jan. 15, 1968..	13.52	Oct. 7........	13.18	Sept. 17........	12.76
Feb. 21........	13.70	Nov. 12........	13.29	Nov. 18........	13.03
Mar. 12........	13.29	Dec. 11........	13.32	Apr. 16, 1970..	11.44
Apr. 12........	13.19	Jan. 16, 1969..	13.63		
May 14........	12.71	Apr. 24........	11.39		

154-73-19ADA NDGS BP67-21 Augered water-table observation well in the Kilgore aquifer. Depth 39 ft. Cased to 32 ft with 1-1/4-inch steel pipe, No. 18-slot screen 32-34 ft. MP top of casing 3.00 ft above lsd. Lsd 1500 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Sept. 22, 1967..	7.74	Sept. 16........	6.78	Jan. 22, 1970..	5.16
Oct. 12........	7.61	Oct. 7........	6.98	Feb. 17........	4.98
Nov. 13........	7.54	Nov. 12........	7.05	Mar. 20........	4.90
Dec. 12........	7.58	Dec. 11........	6.97	Apr. 16........	3.86
Jan. 15, 1968..	8.05	Jan. 16, 1969..	7.37	June 24........	3.77
Feb. 21........	8.18	Apr. 24........	4.27	July 8........	4.45
Mar. 12........	7.33	May 13........	4.42	Sept. 9........	4.46
Apr. 12........	6.80	June 18........	5.13	Oct. 7........	5.11
May 14........	6.53	July 16........	4.91	Nov. 13........	4.83
June 19........	7.28	Aug. 19........	4.32	30........	4.82
July 10........	7.69	Sept. 17........	5.16		
Aug. 19........	7.70	Nov. 18........	5.11		

154-73-19ADB NDSWC Drilled water-table observation well in the Kilgore aquifer. Depth 180 ft. Cased to 97 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 97-103 ft. MP top of casing 2.00 ft above lsd. Lsd 1500 ft above msl.

Nov. 18, 1969..	8.47	June 24........	7.15	Nov. 13........	8.24
Feb. 17, 1970..	8.34	July 8........	7.62	30........	8.20
Mar. 25........	8.27	Sept. 9........	7.98		
Apr. 16........	7.53	Oct. 7........	8.38		

154-74-3BCC NDSWC Drilled water-table observation well in the Kilgore aquifer. Depth 280 ft. Cased to 157 ft with 1-1/4-inch plastic pipe. No. 18-slot screen 157-163 ft. MP top of casing 2.00 ft above lsd. Lsd 1510 ft above msl.

June 23, 1970..	6.90	Sept. 9........	8.70	Nov. 13........	8.66
July 8........	7.87	Oct. 7........	8.89	30........	8.65

154-74-17CCC NDGS BP67-20 Augered water-table observation well in glacial Lake Souris deposits. Depth 29 ft. Cased to 22 ft with 1-1/4-inch steel pipe, No. 18-slot screen 22-24 ft. MP top of casing 2.00 ft above lsd. Lsd 1500 ft above msl.

Sept. 22, 1967..	6.79	Aug. 19........	6.38	Sept. 17........	4.53
Oct. 12........	6.80	Sept. 16........	3.94	Nov. 18........	4.99
Nov. 13........	6.91	Oct. 7........	4.42	Mar. 25, 1970..	5.73
Dec. 12........	7.03	Nov. 12........	4.91	Apr. 16........	3.48
Jan. 15, 1968..	7.36	Dec. 11........	4.97	June 24........	3.09
Feb. 21........	7.58	Jan. 16, 1969..	5.77	July 16........	3.05
Mar. 12,.......	6.85	Apr. 24........	2.71	Sept. 9........	5.02
Apr. 12........	6.14	May 13........	3.02	Oct. 7........	5.42
May 14........	5.27	June 18........	4.11	Nov. 13........	5.43
June 19........	5.80	July 16........	3.88	30........	5.49
July 10........	6.21	Aug. 19........	3.29		

154-74-19AAA NDSWC Drilled water-table observation well in glacial Lake Souris deposits. Depth 80 ft. Cased to 47 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 47-50 ft. MP top of casing 3.00 ft above lsd. Lsd 1500 ft above msl.

Date	Water level	Date	Water level	Date	Water level
July 16, 1970..	3.95	Oct. 7........	4.44	Nov. 13........	4.49
Sept. 9........	4.02	Nov. 13........	4.44		

155-67-7CCC1 NDGS BP67-70 Augered artesian observation well in glacial outwash deposits. Depth 34 ft. Cased to 24 ft with 1-1/4-inch plastic pipe, No. 25-slot screen 24-26 ft. MP top of casing 1.50 ft above lsd. Lsd 1500 ft above msl.

Oct. 11, 1967..	12.30	Aug. 20........	11.62	Aug. 20........	10.73
Nov. 14........	11.83	Sept. 18........	11.17	Sept. 17........	10.70
Dec. 13........	12.01	Oct. 8........	11.04	Nov. 18........	10.65
Jan. 16, 1968..	12.35	Nov. 13........	10.96	Jan. 22, 1970..	11.10
Feb. 22........	12.90	Dec. 11........	11.02	Apr. 15........	11.99
Mar. 12........	13.18	Jan. 14, 1969..	11.20	May 13........	11.27
Apr. 11........	13.19	Apr. 23........	12.70	Sept. 9........	8.55
May 14........	12.81	May 14........	12.44	Oct. 6........	8.42
June 20........	12.39	June 18........	12.04	Nov. 12........	8.78
July 16........	12.02	July 15........	11.39	Dec. 1........	8.81

155-69-4AAA NDSWC Drilled artesian observation well in the Leeds aquifer. Depth 220 ft. Cased to 177 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 177-180 ft. MP top of casing 1.50 ft above lsd. Lsd 1584 ft above msl.

Nov. 14, 1967..	13.74	Sept. 18........	13.92	Sept. 17........	14.09
Dec. 13........	13.65	Oct. 8........	13.95	Nov. 18........	13.80
Jan. 16, 1968..	13.36	Nov. 13........	13.86	Apr. 15, 1970..	13.37
Feb. 22........	13.34	Dec. 11........	13.71	May 13........	13.34
Mar. 13........	13.53	Jan. 15, 1969..	13.46	Sept. 9........	13.15
Apr. 11........	13.68	Apr. 23........	13.78	Oct. 6........	12.90
May. 14........	13.71	May 14........	13.89	Nov. 12........	12.75
June 20........	13.95	June 18........	14.14	Dec. 1........	12.59
July 16........	14.04	July 15........	14.15		
Aug. 20........	14.07	Aug. 20........	14.16		

155-69-28BBA O. Thompson Drilled private artesian well in glaciofluvial deposits. Depth 68 ft. Cased to 68 ft with 4-inch steel pipe. MP top of casing 2.00 ft above lsd. Lsd 1580 ft above msl.

Oct. 10, 1967..	17.82	May 14........	18.14	Dec. 11........	17.77
Nov. 14........	17.90	June 19........	17.99	Jan. 15, 1969..	17.90
Dec. 13........	18.32	July 16........	17.96	Apr. 23........	17.99
Jan. 16, 1968..	18.49	Aug. 20........	17.85	July 15........	17.80
Feb. 22........	18.41	Sept. 18........	17.59	Aug. 21........	17.48
Mar. 13........	18.23	Oct. 8........	17.63	Apr. 15, 1970..	17.02
Apr. 25........	18.27	Nov. 14........	17.66	May 13........	16.73

155-73-14DDD NDSWC Drilled water-table observation well in glaciofluvial deposits. Depth 140 ft. Cased to 35 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 35-38 ft. MP top of casing 1.50 ft above lsd. Lsd 1593 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Aug. 19, 1968..	31.05	Jan. 16, 1969..	31.55	Sept. 17........	30.59
Sept. 9........	31.09	Apr. 24........	31.00	Nov. 18........	30.53
16........	31.07	May 13........	30.89	Jan. 22, 1970..	30.52
Oct. 7........	31.04	June 18........	30.73	Apr. 16........	30.55
Nov. 12........	30.99	July 16........	30.66		
Dec. 11........	30.94	Aug. 20........	30.63		

155-73-35DDA H. Iverson Drilled private artesian well in glacial drift. Depth 83.4 ft. Cased to 83.4 ft with 4-inch steel pipe. MP hole in pump base 1.60 ft above lsd. Lsd 1550 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Oct. 3, 1967..	23.62	June 19........	21.25	Mar. 13........	22.79
12........	21.51	July 16........	21.42	Apr. 24........	20.84
Nov. 13........	21.46	Aug. 19........	21.59	May 13........	20.47
Dec. 12........	21.51	Sept. 16........	21.24	June 18........	20.63
Jan. 15, 1968..	21.71	Oct. 7........	21.28	Aug. 20........	20.44
Feb. 21........	21.78	Nov. 12........	21.24	Sept. 17........	20.78
Mar. 12........	21.70	Dec. 11........	21.22	Nov. 18........	20.70
Apr. 12........	21.34	Jan. 16, 1969..	21.58	Apr. 16, 1970..	20.45
May 14........	20.96	Feb. 12........	21.66		

155-74-34DDA E. Weigel Drilled private water-table well in glacial Lake Souris deposits. Depth 40.3 ft. Cased to 40.3 ft with 4-inch steel pipe. MP hole in pump base 1.70 ft above lsd. Lsd 1515 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Oct. 3, 1967..	10.46	June 19........	10.05	June 18........	7.77
Nov. 13........	10.73	Aug. 19........	10.35	July 16........	7.39
Dec. 12........	10.68	Sept. 16........	8.08	Aug. 17........	7.79
Jan. 15, 1968..	10.99	Oct. 7........	8.15	Nov. 18........	9.29
Feb. 21........	11.32	Dec. 11........	8.63	Apr. 16, 1970..	8.29
Mar. 12........	11.29	Jan. 16, 1969..	9.33	Sept. 9........	8.71
Apr. 12........	10.67	Apr. 24........	7.49		
May 14........	10.06	May 13........	7.05		

156-67-17DDD NDSWC Drilled artesian observation well in glaciofluvial deposits. Depth 140 ft. Cased to 77 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 77-80 ft. MP top of casing 2.00 ft above lsd. Lsd 1491 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Aug. 20, 1968..	38.14	Dec. 11........	38.04	July 15........	38.24
Sept. 10........	38.29	Jan. 15, 1969..	38.29	Sept. 17........	38.19
18........	38.22	Apr. 23........	38.54	Nov. 18........	37.90
Oct. 8........	38.28	May 14........	38.37	Jan. 22, 1970..	37.42
Nov. 13........	38.05	June 18........	38.22		

Depth to water, in feet below land surface

156-68-7DAA B. North Drilled private water-table well in glaciofluvial deposits. Depth 59 ft. Cased to 59 ft with wood shoring, diameter 36 inches. MP top of platform at lsd. Lsd 1574 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Sept. 26, 1967..	17.97	May 14........	18.37	Apr. 24........	18.07
Oct. 12........	17.41	June 20........	18.57	May 14........	18.16
Nov. 14........	17.43	July 16........	18.61	June 18........	18.25
Dec. 13........	17.38	Aug. 20........	18.42	July 15........	18.03
Jan. 16, 1968..	17.42	Sept. 18........	18.13	Aug. 20........	17.81
Feb. 22........	17.75	Nov. 13........	17.65	Nov. 18........	16.93
Mar. 12........	16.85	Dec. 11........	17.36	Apr. 15, 1970..	17.33
Apr. 11........	18.35	Jan. 15, 1969..	17.68		

156-69-3AAD A. Hove Drilled private artesian well in glaciofluvial deposits. Depth 43 ft. Cased to 43 ft with 4-inch steel pipe. MP top of casing 1.00 ft above lsd. Lsd 1580 ft above msl.

Sept. 26, 1967..	13.71	May 14........	14.70	Nov. 13........	14.10
Oct. 12........	13.64	June 20........	14.87	Dec. 11........	13.93
Nov. 14........	13.71	July 16........	14.60	May 14, 1969..	14.57
Dec. 13........	13.77	Aug. 19........	14.55	Nov. 18........	13.57
Jan 15, 1968..	13.87	Sept. 18........	14.37		
Feb. 22........	14.06	Oct. 8........	14.31		

156-69-12CDC O. Tandberg Drilled private water-table well in glacial drift. Depth 32 ft. Cased to 32 ft with plank shoring, diameter 24 inches. MP hole in platform at lsd. Lsd 1576 ft above msl.

Sept. 27, 1967..	19.54	Feb. 22........	19.70	Dec. 11........	19.13
Oct. 12........	19.08	Mar. 12........	20.01	Apr. 24, 1969..	20.27
Nov. 14........	19.19	July 16........	20.60	May 14........	20.01
Dec. 13........	19.22	Sept. 18........	20.04	June 18........	19.96
Jan. 15, 1968..	19.24	Nov. 13........	19.31	July 15........	19.72

156-69-15DDD NDSWC Drilled artesian observation well in the Leeds aquifer. Depth 200 ft. Cased to 125 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 125-128 ft. MP top of casing 2.00 ft above lsd. Lsd 1551 ft above msl.

Aug. 20, 1968..	29.88	Apr. 24, 1969..	10.10	Jan. 22, 1970..	8.44
Sept. 10........	22.70	May 14........	9.89	Apr. 15........	8.05
18........	19.30	June 18........	9.79	Oct. 6........	8.02
Oct. 8........	17.19	July 15........	9.51	Dec. 1........	7.86
Nov. 13........	14.39	Aug. 20........	9.37		
Dec. 11........	13.10	Nov. 18........	8.84		

156-69-22CCC NDSWC Drilled artesian observation well in the Leeds aquifer. Depth 220 ft. Cased to 147 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 147-153 ft. MP top of casing 2.50 ft above lsd. Lsd 1598 ft above msl.

Nov. 18, 1969..	10.83	Apr. 15........	8.48	Oct. 6........	8.14
Feb. 17, 1970..	10.77	July 8........	9.02	Dec. 1........	8.02

156-69-27BCC NDSWC Drilled artesian observation well in the Leeds aquifer. Depth 160 ft. Cased to 117 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 117-123 ft. MP top of casing 2.00 ft above lsd. Lsd 1591 ft above msl.

Date	Water level	Date	Water level	Date	Water level
July 14, 1970..	19.90	Oct. 6........	19.06	Dec. 1........	18.80
Sept. 9........	19.23	Nov. 12........	18.95		

156-69-27DBA NDSWC Drilled artesian observation well in the Leeds aquifer. Depth 160 ft. Cased to 97 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 97-103 ft. MP top of casing 2.00 ft above lsd. Lsd 1566 ft above msl.

July 14, 1970..	10.90	Oct. 6........	10.48	Dec. 1........	10.11
Sept. 9........	10.57	Nov. 12........	10.32		

156-69-33AAA NDSWC Drilled artesian observation well in the Leeds aquifer. Depth 150 ft. Cased to 97 ft with 1-1/4-inch plastic pipe. No. 18-slot screen 97-103 ft. MP top of casing 2.00 ft above lsd. Lsd 1573 ft above msl.

June 23, 1970..	10.13	Oct. 6........	9.97	Dec. 1........	9.50
Sept. 9........	10.18	Nov. 12........	9.76		

156-69-34ABA NDSWC Drilled artesian observation well in the Leeds aquifer. Depth 160 ft. Cased to 117 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 117-123 ft. MP top of casing 3.00 ft above lsd. Lsd 1583 ft above msl.

Aug. 4, 1970..	12.20	Oct. 6........	11.70	Dec. 1........	11.20
Sept. 9........	12.01	Nov. 12........	11.40		

156-69-34ABB NDSWC Drilled artesian observation well in the Leeds aquifer. Depth 200 ft. Cased to 88 ft with 4-inch plastic pipe, No. 18-slot red brass screen 88-93 ft, gravel packed. MP top of casing 2.00 ft above lsd. Lsd 1578 ft above msl.

Sept. 10, 1968..	14.86	Dec. 20........	14.70	May 31........	15.04
15........	14.80	25........	14.70	June 5........	15.07
20........	14.90	31........	14.66	10........	15.07
25........	14.89	Jan. 5, 1969..	14.62	15........	15.13
30........	14.92	10........	14.63	20........	15.22
Oct. 5........	14.87	15........	14.54	25........	15.21
10........	14.87	20........	14.54	30........	15.09
15........	14.85	25........	14.55	July 5........	15.12
20........	14.84	31........	14.50	10........	15.09
25........	14.85	Feb. 5........	14.49	15........	15.17
31........	14.80	10........	14.53	20........	15.14
Nov. 5........	14.85	15........	14.54	25........	15.10
15........	14.75	Apr. 25........	14.91	31........	15.15
20........	14.69	30........	14.92	Aug. 5........	15.18
25........	14.67	May 5........	14.94	10........	15.21
30........	14.65	10........	14.98	15........	15.20
Dec. 5........	14.63	15........	14.95	25........	15.26
10........	14.67	20........	15.01	31........	15.27
15........	14.73	25........	15.02	Sept. 5........	15.22

156-69-34ABB, Continued

Date		Water level	Date		Water level	Date		Water level
Sept.	10........	15.26	Feb.	25........	14.69	July	15........	14.14
	15........	15.22		28........	14.67		20........	14.08
	20........	15.18	Mar.	5........	14.60		25........	13.92
	25........	15.17		10........	14.65		31........	13.83
	30........	15.17		15........	14.61	Aug.	5........	13.78
Oct.	5........	15.12		20........	14.66		10........	13.74
	10........	15.03		25........	14.69		15........	13.65
	15........	15.03		31........	14.70		20........	13.56
	20........	15.02	Apr.	5........	14.72		25........	13.49
	31........	15.03		10........	14.80		31........	13.31
Nov.	5........	14.95		15........	14.74	Sept.	5........	13.22
	10........	14.98		20........	14.65		10........	13.21
	15........	14.93		25........	14.68		15........	13.18
	20........	15.00		30........	14.71		20........	12.96
	25........	14.98	May	5........	14.79		25........	12.92
	30........	14.94		10........	14.66		30........	12.97
Dec.	5........	14.93		15........	14.63	Oct.	5........	12.89
	10........	14.87		20........	14.60		10........	12.86
	15........	14.89		25........	14.61		15........	12.85
	20........	14.85		31........	14.53		20........	12.77
	25........	14.83	June	5........	14.54		25........	12.71
	31........	14.81		10........	14.47		31........	12.68
Jan.	20, 1970..	14.73		15........	14.40	Nov.	5........	12.64
	25........	14.72		20........	14.35		15........	12.57
	31........	14.70		25........	14.28		20........	12.48
Feb.	5........	14.68		30........	14.25		25........	12.41
	15........	14.61	July	5........	14.28		30........	12.37
	20........	14.67		10........	14.26			

156-69-35BBB2 NDSWC Drilled artesian observation well in the Leeds aquifer. Depth 140 ft. Cased to 103 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 103-109 ft. MP top of casing 4.5 ft above lsd. Lsd 1580 ft above msl.

July	15, 1970..	13.95	Oct.	6........	12.75	Dec.	1........	12.25
Sept.	9........	13.09	Nov.	12........	12.45			

156-70-2CCC P. Tuchsherer Drilled private artesian well in kame deposit. Depth 108.5 ft. Cased to 108.5 ft with 4-inch steel pipe. MP hole in pump base 2.50 ft above lsd. Lsd 1660 ft above msl.

Sept.	27, 1967..	51.77	May	14........	46.94	Apr.	24, 1969..	47.60
Oct.	12........	46.21	June	20........	47.00	May	14........	47.13
Nov.	14........	46.34	July	16........	47.02	June	18........	46.90
Dec.	13........	46.38	Aug.	19........	46.84	Aug.	20........	46.99
Jan.	16, 1968..	46.47	Sept.	18........	46.72	Sept.	17........	45.65
Feb.	22........	46.75	Oct.	8........	46.68	Nov.	18........	45.11
Mar.	13........	46.90	Nov.	13........	46.58	Apr.	16, 1970..	45.63
Apr.	11........	47.21	Dec.	11........	46.52			

156-70-9AAB W. & D. Mears Drilled private water-table well in the Fox Hills Formation. Depth 55 ft. Cased to 55 ft with 4-inch steel pipe. MP hole in pump base 0.65 ft above lsd. Lsd 1597 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Sept. 27, 1967	6.20	June 20	6.51	Apr. 24	6.30
Nov. 14	6.09	July 16	6.50	May 14	6.16
Dec. 13	6.16	Aug. 19	6.48	June 18	6.12
Jan. 16, 1968	6.13	Sept. 18	6.24	Aug. 20	5.59
Feb. 22	6.25	Oct. 8	6.24	Sept. 17	5.63
Mar. 13	6.42	Nov. 13	6.06	Nov. 18	5.44
Apr. 11	6.62	Dec. 11	6.00	Apr. 16, 1970	5.51
May 14	6.40	Jan. 15, 1969	5.95		

156-71-4BBA NDSWC Drilled water-table observation well in Pleasant Lake aquifer. Depth 140 ft. Cased to 58 ft with 4-inch plastic pipe, slotted 18-58 ft, gravel packed. MP top of casing 1.00 ft above lsd. Lsd 1604 ft above msl.

Sept. 10, 1968	12.13	Apr. 20	11.16	Nov. 25	11.40
15	12.13	25	11.13	30	11.37
20	12.19	30	11.07	Dec. 5	11.38
25	12.19	May 5	11.04	10	11.39
30	12.20	10	11.01	15	11.38
Oct. 5	12.23	15	11.02	20	11.38
10	12.26	20	11.05	25	11.41
15	12.26	25	11.07	31	11.42
20	12.24	31	11.13	Jan. 5, 1970	11.45
25	12.24	June 5	11.18	10	11.47
31	12.23	10	11.20	15	11.50
Nov. 5	12.25	15	11.25	20	11.51
15	12.22	20	11.28	25	11.48
20	12.22	25	11.26	31	11.47
25	12.21	30	11.07	Feb. 5	11.49
31	12.20	July 5	11.03	10	11.52
Dec. 5	12.21	10	11.50	15	11.52
10	12.23	15	11.42	20	11.57
15	12.29	20	11.45	25	11.59
20	12.32	25	11.40	28	11.58
25	12.35	31	11.45	Mar. 5	11.57
31	12.40	Aug. 5	11.40	10	11.59
Jan. 5, 1969	12.42	10	11.30	15	11.60
10	12.46	15	11.11	20	11.61
15	12.49	20	11.17	25	11.57
20	12.50	25	11.23	31	11.56
25	12.51	31	11.30	Apr. 5	11.45
31	12.52	Sept. 5	11.32	10	10.87
Feb. 5	12.55	10	11.36	15	10.83
10	12.58	15	11.39	20	10.77
15	12.61	20	11.39	25	10.68
20	12.62	25	11.40	30	10.51
25	12.62	30	11.41	May 5	10.47
28	12.62	Oct. 5	11.39	10	10.38
Mar. 5	12.60	10	11.34	15	10.28
10	12.60	15	11.28	20	10.19
15	12.57	20	11.29	25	10.17
20	12.56	25	11.32	31	10.13
25	12.56	31	11.33	June 5	10.17
31	12.56	Nov. 5	11.30	10	10.23
Apr. 5	12.52	10	11.32	15	10.20
10	11.51	15	11.33	25	10.28
15	11.22	20	11.37	30	10.37

156-71-4BBA, Continued

Date		Water level	Date		Water level	Date		Water level
July	5	10.44	Aug.	25........	10.74	Oct.	15........	10.81
	10........	10.52		31........	10.68		20........	10.80
	15........	10.45	Sept.	5........	10.73		25........	10.79
	20........	10.48		10........	10.68		31........	10.78
	25........	10.37		15........	10.70	Nov.	5........	10.74
	31........	10.39		20........	10.68		15........	10.77
Aug.	5........	10.57		25........	10.71		20........	10.78
	10........	10.60		30........	10.72		25........	10.80
	15........	10.65	Oct.	5........	10.78		30........	10.83
	20........	10.68		10........	10.79			

156-72-23CBB J. Seil Drilled private artesian well in the Fox Hills Formation. Depth 105 ft. Cased to 105 ft with 4-inch steel pipe. MP hole in pump base 1.20 ft above lsd. Lsd 1585 ft above msl.

Sept.	28, 1967..	42.49	Dec.	12........	42.34	Mar.	12........	42.38
Oct.	12........	42.27	Jan.	15, 1968..	42.32	Apr.	12........	42.30
Nov.	14........	42.33	Feb.	21........	42.35	May	14........	42.03

156-72-24AAA O. Selland Drilled private artesian well in lacustrine deposits. Depth 61.5 ft. Cased to 61.5 ft with 4-inch steel pipe. MP top of casing 3.00 ft above lsd.

Oct.	12, 1967..	12.14	June	20........	12.76	Apr.	24........	12.76
Nov.	13........	12.20	July	10........	12.88	May	13........	12.41
Dec.	12........	12.41	Aug.	20........	12.90	June	18........	12.18
Jan.	15, 1968..	12.46	Sept.	16........	12.69	Aug.	20........	11.24
Feb.	21........	12.73	Oct.	7........	12.48	Sept.	17........	11.00
Mar.	12........	12.82	Nov.	13........	12.30	Nov.	18........	10.79
Apr.	12........	12.80	Dec.	11........	12.10	Apr.	16, 1970..	11.05
May	14........	12.68	Jan.	15, 1969..	12.29			

156-72-33BCC V. Brossart Drilled private water-table well in glacial drift. Depth 47 ft. Cased to 47 ft with 4-inch steel pipe. MP hole in pump base 3.00 ft above lsd. Lsd 1575 ft above msl.

Sept.	28, 1967..	26.60	Apr.	12........	26.75	Nov.	13........	25.85
Oct.	12........	26.51	May	14........	26.25	Dec.	11........	25.74
Nov.	14........	26.64	June	20........	26.25	Apr.	24, 1969..	25.93
Dec.	12........	26.62	July	11........	26.30	May	13........	25.43
Jan.	15, 1968..	26.79	Aug.	19........	26.32	July	16........	24.65
Feb.	21........	27.00	Sept.	16........	25.94			
Mar.	12........	27.09	Oct.	7........	25.89			

156-73-12CCC NDSWC Drilled artesian observation well in the Fox Hills Formation. Depth 120 ft. Cased to 72.5 ft with 4-inch plastic pipe, No. 12-slot red brass screen 72.5-77.5 ft. MP top of casing 1.00 ft above lsd. Lsd 1550 ft above msl.

Nov.	5, 1967..	7.00	Dec.	5........	6.78	Jan.	5, 1968..	7.00
	10........	6.95		10........	6.72		10........	6.94
	15........	6.71		15........	6.85		15........	7.06
	20........	6.72		20........	6.80		20........	7.16
	25........	6.67		25........	6.87		25........	7.21
	30........	6.75		31........	6.86		31........	7.26

Depth to water, in feet below land surface

156-73-12CCC, Continued

Date	Water level	Date	Water level	Date	Water level
Feb. 5	7.37	Dec. 31	5.16	Dec. 20	4.73
10	7.38	Jan. 5, 1969	5.27	25	4.77
15	7.40	10	5.38	31	4.87
20	7.46	15	5.40	Jan. 5, 1970	4.87
25	7.43	20	5.53	10	4.90
29	7.46	25	5.62	15	4.94
Mar. 5	7.54	31	5.63	20	4.93
10	7.58	Feb. 5	5.78	25	4.96
15	7.48	10	5.80	31	5.07
20	7.52	15	6.07	Feb. 5	5.17
25	7.32	20	6.13	10	5.22
31	7.27	25	6.17	15	5.24
Apr. 5	7.17	28	6.16	20	5.26
10	7.10	Mar. 5	6.18	25	5.32
15	6.99	10	6.22	28	5.34
20	6.88	15	6.31	Mar. 5	5.32
25	6.78	20	6.36	10	5.39
30	6.70	25	6.35	15	5.46
May 5	6.64	31	6.36	20	5.49
10	6.52	Apr. 5	6.36	25	5.66
15	6.42	10	6.35	31	5.67
20	6.42	15	6.15	Apr. 5	5.63
25	6.32	20	5.70	10	5.60
31	6.22	25	5.31	15	5.32
June 5	6.18	30	5.10	20	4.83
10	6.15	May 5	4.79	25	4.66
15	6.17	10	4.62	30	4.29
20	6.12	15	4.27	May 5	4.06
25	6.15	20	4.21	10	3.57
30	6.13	25	4.13	15	3.17
July 5	6.12	31	4.07	20	2.98
10	6.20	June 5	4.10	25	2.82
15	6.21	10	4.07	31	2.78
20	6.28	15	4.13	June 5	2.76
25	6.38	20	4.16	10	2.70
31	6.33	25	4.13	15	2.65
Aug. 5	6.36	30	3.97	25	2.62
10	6.40	July 5	3.85	30	2.67
20	6.34	10	3.72	July 5	2.81
25	6.19	15	3.64	10	2.82
31	5.78	20	3.80	15	2.83
Sept. 5	5.64	Aug. 15	3.65	20	2.89
10	5.43	20	3.76	25	2.84
15	5.22	25	3.84	31	2.86
20	5.18	31	3.97	Aug. 5	2.96
25	5.08	Sept. 5	4.08	10	3.01
30	5.04	20	4.31	Sept. 10	3.60
Oct. 5	4.97	25	4.36	15	3.64
10	4.98	30	4.42	20	3.57
15	4.96	Oct. 5	4.45	25	3.56
20	4.96	10	4.40	30	3.60
25	4.98	15	4.41	Oct. 5	3.67
31	4.96	20	4.38	10	3.65
Nov. 5	4.98	31	4.43	15	3.76
15	4.92	Nov. 5	4.38	20	3.72
20	4.93	10	4.42	25	3.72
25	4.94	15	4.40	31	3.77
30	4.93	20	4.53	Nov. 5	3.75
Dec. 5	4.93	25	4.57	15	3.73
10	4.94	30	4.56	20	3.69
15	5.00	Dec. 5	4.57	25	3.58
20	5.06	10	4.59	30	3.70
25	5.10	15	4.68		

Depth to water, in feet below land surface

156-74-20ADD Kuntz and Paul Dug private water-table well in glacial Lake Souris deposits. Depth 40 ft. Cased to 40 ft with 36-inch steel casing. MP top of casing 1.50 ft above lsd. Lsd 1570 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Aug. 19, 1968..	29.62	Nov. 12........	29.45	Apr. 24........	29.51
Sept. 16........	29.72	Dec. 11........	29.45	May 13........	29.37
Oct. 7........	29.88	Jan. 15, 1969..	29.48	June 18........	29.14

157-69-1BBB NDSWC Drilled artesian observation well in glacial outwash deposits. Depth 200 ft. Cased to 162 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 162-165 ft. MP top of casing 2.00 ft above lsd. Lsd 1552 ft above msl.

Aug. 19, 1968..	9.57	Dec. 11........	8.09	Sept. 17........	7.73
Sept. 10........	7.74	Apr. 22, 1969..	7.94	Nov. 18........	7.46
16........	8.65	May 14........	7.86	Oct. 6, 1970..	6.54
Oct. 8........	8.59	June 18........	7.91	Dec. 1........	6.38
Nov. 13........	8.26	Aug. 20........	7.73		

157-69-3DDD E. Marchus Drilled private water-table well in glacial drift. Depth 60 ft. Cased to 60 ft with plank shoring, diameter 24 inches. MP top of platform 1.00 ft above lsd. Lsd 1562 ft above msl.

Sept. 28, 1967..	5.86	June 20........	6.71	May 14........	5.82
Oct. 12........	5.83	July 10........	5.85	June 18........	6.03
Nov. 14........	5.82	Aug. 19........	5.56	Aug. 20........	5.21
Dec. 13........	6.00	Sept. 16........	5.14	Sept. 17........	5.54
Jan. 15, 1968..	6.28	Oct. 8........	5.16	Nov. 18........	5.35
Mar. 12........	6.48	Nov. 13........	5.16	Apr. 15, 1970..	5.16
Apr. 11........	6.47	Dec. 11........	5.40		
May 14........	6.23	Apr. 22, 1969..	6.49		

157-71-2CCC NDSWC Drilled artesian observation well in the Pleasant Lake aquifer. Depth 100 ft. Cased to 32 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 32-35 ft. MP top of casing 2.00 ft above lsd. Lsd 1599 ft above msl.

Aug. 7, 1968..	8.15	Dec. 11........	7.68	Aug. 20........	6.40
19........	7.73	Jan. 15, 1969..	8.00	Sept. 17........	6.76
Sept. 9........	7.45	Apr. 24........	6.46	Nov. 18........	6.78
16........	7.52	May 13........	6.19	Jan. 22, 1970..	7.01
Oct. 7........	7.63	June 18........	6.50	Mar. 24........	7.11
Nov. 12........	7.64	July 16........	6.17	Dec. 1........	6.43

157-71-22DDD NDSWC Drilled water-table observation well in the Pleasant Lake aquifer. Depth 160 ft. Cased to 57 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 57-60 ft. MP top of casing 1.00 ft above lsd. Lsd 1596 ft above msl.

Aug. 8, 1968..	8.18	Sept. 9........	8.25	Well destroyed.	
19........	7.85				

157-71-23DCC M. Hageness Drilled unused stock well in glacial drift. Depth 78 ft. Cased to 78 ft with 4-inch steel casing. MP top of casing 2.00 ft above lsd. Lsd 1670 ft above msl.

Date	Water level	Date	Water level	Date	Water level
July 6, 1968..	67.00	Sept. 16........	67.16	May 13, 1969..	66.98
Aug. 19........	67.13				

157-71-27BBB NDSWC Drilled water-table observation well in the Pleasant Lake aquifer. Depth 105 ft. Cased to 40 ft with 1-1/4-inch plastic pipe, slotted. MP top of casing 2.00 ft above lsd. Lsd 1596 ft above msl.

Aug. 19, 1968..	9.77	Apr. 24, 1969..	8.83	Nov. 18........	8.51
Sept. 9........	9.30	May 13........	8.44	Oct. 7, 1970..	8.06
16........	9.39	July 16........	8.18	Dec. 1........	8.00
Oct. 7........	9.43	Aug. 20........	8.36		
Nov. 12........	9.34	Sept. 17........	8.75		

157-71-32DAA NDSWC Drilled water-table observation well in the Pleasant Lake aquifer. Depth 126 ft. Cased to 100 ft with 1-1/4-inch plastic pipe, open end. MP top of casing 1.80 ft above lsd. Lsd 1579 ft above msl.

Nov. 13, 1967..	15.65	Sept. 9........	15.14	Aug. 20........	11.72
Dec. 12........	15.63	16........	15.00	Sept. 17........	12.62
Jan. 15, 1968..	15.82	Oct. 7........	14.78	Nov. 18........	12.77
Feb. 21........	16.09	Nov. 12........	14.53	Jan. 22, 1970..	12.87
Mar. 12........	15.76	Dec. 11........	14.41	Feb. 17........	13.05
Apr. 12........	14.92	Jan. 15, 1969..	14.68	Mar. 24........	13.30
May 14........	14.59	Apr. 24........	12.45	Apr. 16........	12.08
June 20........	14.61	May 13........	11.80	May 14........	10.24
July 11........	15.06	June 18........	11.73	Oct. 7........	11.25
Aug. 19........	15.67	July 16........	11.58	Dec. 1........	11.13

157-72-36AAD NDSWC Drilled water-table observation well in the Pleasant Lake aquifer. Depth 136.5 ft. Cased to 72 ft with 1-1/4-inch plastic pipe. MP top of casing 2.00 ft above lsd. Lsd 1563 ft above msl.

Sept. 7, 1967..	15.03	July 11........	16.26	May 13........	16.62
Oct. 12........	15.13	Aug. 19........	16.64	June 18........	17.00
Nov. 13........	15.27	Sept. 16........	16.58	July 16........	17.01
Dec. 12........	15.36	Oct. 7........	16.62	Aug. 20........	17.22
Apr. 11, 1968..	15.79	Nov. 12........	16.59	Sept. 17........	17.61
May 14........	15.68	Dec. 11........	16.65	Nov. 18........	16.90
June 20........	16.02	Apr. 24, 1969..	16.79		

157-72-36ADD3 NDSWC Drilled artesian observation well in the Pleasant Lake aquifer. Depth 147 ft. Cased to 120 ft with 1-1/4-inch plastic pipe, slotted 110-120 ft, gravel packed. MP top of casing 2.00 ft above lsd. Lsd 1580 ft above msl.

Date	Water level	Date	Water level	Date	Water level
May 5, 1966	53.95	June 18	65.94	July 28	70.78
12	53.15	25	66.09	Aug. 4	70.81
19	53.74	July 2	66.36	11	70.75
26	53.71	9	66.42	18	70.60
June 1	53.68	16	66.92	25	70.40
7	53.63	23	67.37	Sept. 1	70.66
13	53.61	30	67.76	8	70.70
16	(a)	Aug. 6	68.14	15	70.82
20	55.34	13	68.20	22	70.74
27	56.23	20	68.31	29	70.69
July 4	56.94	27	68.58	Oct. 6	70.59
13	57.48	Sept. 3	68.74	13	70.73
19	58.17	10	68.97	20	70.51
26	59.08	17	68.88	27	70.65
Aug. 1	59.33	24	68.75	Nov. 3	70.51
6	59.66	Oct. 1	68.94	10	70.58
14	59.63	8	68.89	17	70.54
21	59.61	15	68.85	24	70.44
Sept. 4	60.46	22	68.69	30	70.47
11	61.83	29	68.77	Dec. 8	70.49
18	61.35	Nov. 5	68.54	15	70.64
25	61.40	12	68.58	22	70.72
Oct. 2	61.49	19	68.52	29	70.61
9	61.74	26	68.47	Jan. 5, 1969	70.62
16	61.97	Dec. 3	68.44	12	70.71
23	61.95	10	68.49	19	69.99
30	61.91	17	68.46	26	70.68
Nov. 6	62.21	24	68.54	Feb. 5	70.58
13	61.96	31	68.48	9	70.80
20	62.21	Jan. 7, 1968	68.71	16	71.00
27	62.48	14	68.83	23	71.07
Dec. 4	62.56	21	68.74	Mar. 2	71.19
11	62.57	23	68.69	9	71.37
18	62.61	28	68.83	16	71.46
26	62.83	Feb. 4	68.89	30	71.51
31	62.94	11	68.88	Apr. 6	71.58
Jan. 8, 1967	62.47	18	68.96	13	71.59
15	63.13	25	69.00	20	71.49
22	63.28	Mar. 3	68.96	27	71.51
29	63.36	10	68.95	May 4	71.29
Feb. 5	63.59	17	68.96	11	71.42
12	63.64	24	69.05	18	71.43
19	63.78	31	69.06	25	71.85
26	63.97	Apr. 7	68.98	June 1	71.89
Mar. 5	64.06	14	68.98	8	71.92
12	64.05	21	69.05	15	72.33
19	64.15	28	69.06	22	72.46
24	64.27	May 5	69.18	29	72.28
Apr. 2	64.46	12	69.18	July 6	72.31
9	64.55	19	69.25	13	72.54
16	64.55	26	69.33	20	72.60
23	64.63	June 2	69.43	27	72.60
30	64.64	9	69.51	Aug. 3	72.58
May 7	64.71	16	69.68	10	72.71
14	64.79	23	70.16	17	72.95
21	64.88	30	70.08	24	73.21
28	64.99	July 7	70.24	31	73.55
June 4	65.43	14	70.49	Sept. 7	73.61
11	65.85	21	70.51	14	73.82

[a]Nearby well field started pumping.

157-72-36ADD3, Continued

Date	Water level	Date	Water level	Date	Water level
Sept. 21........	73.74	Mar. 1........	73.65	Aug. 9........	75.76
28........	73.65	8........	73.69	16........	75.79
Oct. 5........	73.45	15........	73.73	23........	76.10
12........	73.49	22........	73.81	30........	76.28
19........	73.30	29........	73.87	Sept. 6........	76.08
26........	73.35	Apr. 5........	73.88	13........	75.96
Nov. 2........	73.24	12........	73.89	20........	75.84
9........	73.31	19........	73.94	27........	75.94
16........	73.04	26........	73.93	Oct. 4........	75.74
23........	73.18	May 3........	73.93	11........	75.72
30........	73.21	10........	73.95	18........	75.70
Dec. 7........	73.31	17........	73.89	25........	75.73
14........	73.25	24........	73.88	Nov. 1........	75.69
21........	73.23	31........	73.94	8........	75.67
28........	73.30	June 7........	74.07	15........	75.65
Jan. 4, 1970..	73.27	14........	74.18	22........	75.63
11........	73.30	21........	74.22	29........	75.59
18........	73.25	28........	74.56	Dec. 6........	75.62
25........	73.33	July 5........	75.12	13........	75.67
Feb. 1........	73.36	12........	75.96	20........	75.69
8........	73.41	19........	75.49	27........	75.72
15........	73.57	26........	75.53		
22........	73.64	Aug. 2........	75.46		

157-73-1DDC NDGS BP67-7 Augered water-table observation well in glacial ice-contact deposits. Depth 34 ft. Cased to 31 ft with 1-1/4-inch steel pipe, No. 28-slot screen 31-33 ft. MP top of casing 1.70 ft above lsd. Lsd 1565 ft above msl.

Sept. 21, 1967..	22.93	June 20........	23.01	May 13........	22.25
Oct. 12........	22.92	July 11........	23.05	June 18........	21.79
Nov. 14........	23.07	Aug. 19........	23.17	July 16........	21.46
Dec. 12........	23.12	Sept. 16........	22.85	Aug. 20........	21.33
Jan. 15, 1968..	23.18	Oct. 7........	22.79	Sept. 17........	21.50
Feb. 21........	23.20	Nov. 12........	22.78	Nov. 18........	21.69
Mar. 12........	23.32	Dec. 11........	22.76	Apr. 16, 1970..	21.85
Apr. 11........	23.15	Jan. 15, 1969..	22.93	Dec. 1........	21.14
May 14........	23.03	Apr. 24........	22.70		

157-73-11DCC W. Christenson Drilled private water-table well in the Fox Hills Formation. Depth 72.7 ft. Cased to 72.7 ft with plank shoring, diameter 24 inches. MP top of platform 1.30 ft above lsd. Lsd 1590 ft above msl.

Sept. 27, 1967..	35.37	Apr. 11........	35.40	Nov. 12........	35.49
Oct. 12........	35.26	May 14........	35.41	Dec. 11........	35.43
Nov. 14........	35.37	June 20........	35.44	Jan. 15, 1969..	35.55
Dec. 12........	35.38	July 11........	35.46	Apr. 24........	35.29
Jan. 15, 1968..	35.39	Aug. 19........	35.44	May 13........	35.06
Feb. 21........	35.37	Sept. 16........	35.47	June 18........	34.93
Mar. 12........	35.45	Oct. 7........	35.49	Well destroyed.	

157-74-11DCC E. Stutrud Drilled private water-table well in glacial Lake Souris deposits. Depth 48 ft. Cased to 48 ft with tile, diameter 18 inches. MP hole in pump base 1.00 ft above lsd. Lsd 1490 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Sept. 25, 1967..	12.42	Aug. 19........	10.24	Sept. 17........	7.85
Oct. 12........	9.87	Sept. 16........	8.69	Nov. 18........	8.20
Nov. 14........	10.21	Oct. 7........	8.54	Mar. 25, 1970..	8.88
Dec. 12........	10.35	Nov. 12........	8.79	Apr. 16........	8.09
Jan. 15, 1968..	11.67	Dec. 11........	8.86	May 14........	6.17
Feb. 21........	10.70	Jan. 15, 1969..	9.06	Sept. 9........	7.68
Mar. 12........	10.65	Apr. 24........	5.72	Oct. 7........	7.73
Apr. 11........	10.27	May 13........	5.83	Nov. 13........	8.22
May 13........	9.77	June 18........	6.84	Dec. 1........	7.78
June 20........	9.35	July 16........	6.42		
July 11........	9.50	Aug. 20........	7.19		

157-74-22DAA M. Thompson Drilled private artesian well in the Fox Hills Formation. Depth 78 ft. Cased to 78 ft with 4-inch steel pipe. MP hole in pump base 3.30 ft above lsd. Lsd 1480 ft above msl.

Sept. 25, 1967..	5.32	July 11........	6.48	July 16........	5.64
Oct. 12........	6.20	Aug. 19........	6.45	Aug. 20........	5.84
Nov. 14........	6.37	Sept. 16........	6.25	Sept. 17........	6.05
Dec. 12........	6.40	Oct. 7........	6.34	Nov. 18........	5.98
Jan. 15, 1968..	6.34	Nov. 12........	6.38	Mar. 25, 1970..	5.52
Feb. 21........	6.33	Dec. 11........	6.26	Apr. 16........	5.29
Mar. 12........	6.35	Jan. 15, 1969..	6.22	Sept. 9........	5.40
Apr. 11........	6.28	Apr. 24........	5.48	Oct. 1........	5.44
May 14........	6.22	May 13........	5.48	Nov. 13........	5.40
June 20........	6.41	June 18........	5.72		

158-69-27DDC G. Engstrom Drilled private water-table well in glacial drift. Depth 169.45 ft. Cased to 169-45 ft with plank shoring, diameter 24 inches. MP top of wood curbing 2.55 ft above lsd. Lsd 1604 ft above msl.

Sept. 28, 1967..	16.93	Apr. 11........	19.42	Dec. 11........	18.53
Oct. 12........	17.04	May 14........	18.06	Apr. 22, 1969..	19.45
Nov. 14........	17.80	June 20........	17.91	May 14........	19.97
Dec. 13........	18.04	July 10........	18.17	Aug. 20........	17.28
Jan. 15, 1968..	18.28	Aug. 19........	18.54	Sept. 17........	18.29
Feb. 22........	18.85	Sept. 16........	18.84		
Mar. 12........	19.07	Oct. 8........	18.97		

158-70-15CCC H. Starhill Drilled private artesian well in glaciofluvial deposits. Depth 60 ft. Cased to 60 ft with wood shoring, diameter 24-inches. MP hole in pump base 1.50 ft above lsd. Lsd 1629 ft above msl.

Sept. 26, 1967..	19.49	June 20........	19.63	May 14........	19.49
Oct. 12........	18.10	July 10........	19.57	June 18........	18.82
Nov. 14........	19.41	Aug. 19........	19.50	July 16........	17.71
Dec. 13........	19.07	Sept. 16........	19.05	Aug. 20........	17.35
Jan. 16, 1968..	19.75	Oct. 7........	18.87	Sept. 17........	17.74
Feb. 21........	20.62	Nov. 12........	18.92	Nov. 18........	17.67
Mar. 12........	20.87	Dec. 11........	18.85	Mar. 24, 1970..	19.39
Apr. 11........	20.48	Jan. 15, 1969..	19.48	Apr. 15........	18.33
May 14........	20.01	Apr. 24........	20.38		

158-70-21AAA1 NDSWC Drilled artesian observation well in glaciofluvial deposits. Depth 180 ft. Cased to 107 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 107-110 ft. MP top of casing 2.00 ft above lsd. Lsd 1625 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Aug. 19, 1968..	16.65	Nov. 12........	16.24	May 14........	17.25
Sept. 10........	16.53	Dec. 11........	16.22	June 18........	16.52
16........	16.39	Jan. 15, 1969..	16.64		
Oct. 7........	16.17	Apr. 24........	17.84		

158-70-21AAA2 NDSWC Drilled artesian observation well in glaciofluvial deposits. Depth 180 ft. Cased to 47 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 47-50 ft. MP top of casing 1.00 ft above lsd. Lsd 1625 ft above msl.

Aug. 9, 1968..	16.87	Oct. 7........	15.85	Apr. 24........	17.33
19........	16.51	Nov. 12........	15.82	May 14........	16.34
Sept. 10........	16.24	Dec. 11........	15.77	June 18........	15.68
16........	16.01	Jan. 15, 1969..	16.44		

158-71-16DDD NDSWC Drilled artesian observation well in the Fox Hills Formation. Depth 140 ft. Cased to 67 ft with 1-1/4-inch plastic pipe, No. 12-slot screen 67-70 ft. MP top of casing 2.00 ft above lsd. Lsd 1597 ft above msl.

Aug. 19, 1968..	2.51	Dec. 11........	2.06	July 16........	0.90
Sept. 10........	2.00	Jan. 15, 1969..	2.55	Aug. 20........	1.29
16........	1.98	Apr. 24........	2.76	Sept. 17........	1.59
Oct. 7........	1.93	May 13........	1.82	Nov. 18........	1.47
Nov. 12........	2.00	June 18........	1.51	Jan. 22, 1970..	1.99

158-72-13DAD M. Thompson Drilled private artesian well in the Fox Hills Formation. Depth 190 ft. Cased to 190 ft with wood shoring, diameter 24 inches. MP top of protective well box 1.50 ft above lsd. Lsd 1650 ft above msl.

Sept. 25, 1967..	40.71	Feb. 21........	42.00	July 10........	41.01
Oct. 12........	41.05	Mar. 12........	42.10	Aug. 19........	41.15
Nov. 14........	41.33	Apr. 11........	41.53	Sept. 16........	41.35
Dec. 13........	41.57	May 14........	41.22		
Jan. 15, 1968..	41.70	June 20........	40.81		

158-73-14DCD J. Gronvold Drilled private artesian well in glaciofluvial deposits. Depth 69 ft. Cased to 69 ft with 4-inch steel pipe. MP hole in pump base 1.80 ft above lsd. Lsd 1525 ft above msl.

Sept. 21, 1967..	0.52	June 20........	4.22	May 13........	3.18
Oct. 12........	4.06	July 11........	4.10	June 18........	3.44
Nov. 14........	4.11	Aug. 19........	3.90	July 16........	3.00
Dec. 13........	4.25	Sept. 16........	3.64	Aug. 20........	3.16
Jan. 15, 1968..	4.25	Oct. 7........	3.78	Sept. 17........	3.34
Feb. 21........	4.23	Nov. 12........	3.80	Nov. 18........	3.28
Mar. 12........	4.26	Dec. 11........	3.63	Apr. 16, 1970..	3.00
Apr. 11........	4.28	Jan. 15, 1969..	3.28		
May 14........	4.03	Apr. 24........	3.00		

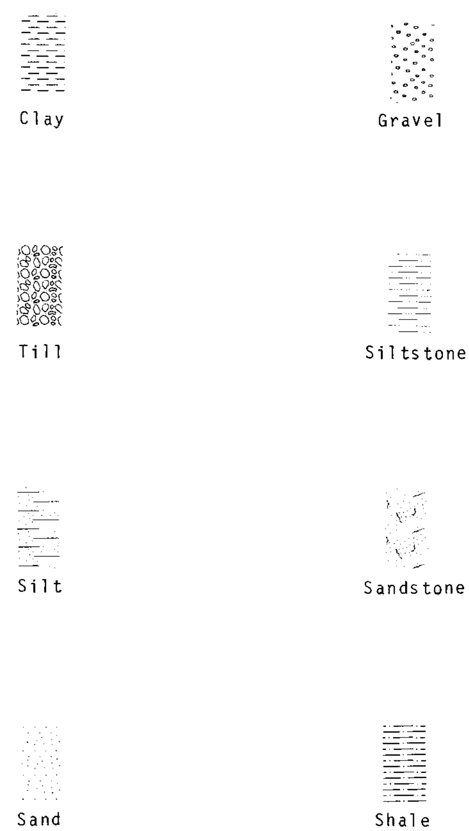
Depth to water, in feet below land surface

158-73-17BBB NDSWC Drilled artesian observation well in glacial Lake Souris deposits. Depth 180 ft. Cased to 56 ft with 1-1/4-inch plastic pipe, No. 18-slot screen 56-59 ft. MP top of casing 1.00 ft above lsd. Lsd 1508 ft above msl.

Date	Water level	Date	Water level	Date	Water level
Aug. 12, 1968..	8.62	Dec. 11........	4.25	Aug. 20........	4.77
19........	6.48	Jan. 15, 1969..	4.62	Sept. 17........	4.95
Sept. 10........	3.88	Apr. 24........	6.13	Nov. 18........	5.08
16........	3.89	May 13........	6.06	Dec. 1, 1970..	3.72
Oct. 7........	4.78	June 18........	5.28		
Nov. 12........	4.10	July 16........	4.79		

TABLE 3.--Logs of test holes and wells

EXPLANATION



151-62-11DCC
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil - black, organic, dry, silty sand, trace of clay	2	2
	Silty sand - brown, dry, fine, silty, trace of clay to clayey, with occasional shale particles	2	4
	Silty clay - brown dries to tan, dry becoming moist at 15 ft, very silty, laminated in zones, stiff, low to medium plasticity	21.3	25.3
	Silt - brown with gray zone at 28 ft, very fine sandy silt with laminated silty clay zone 28 to 28.7 ft	3.4	28.7
	Sand - brown, becoming gray at 33.6 ft, wet becoming saturated at 29.4 ft, fine, uniform, clean to trace of silt, cohesionless, occasional fine gravel and shale fragments, glacial till finger at 45.5 to 45.8 ft, medium density	21.3	50

151-62-14AAA
NDSWC 5466

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, yellowish-brown, sandy	1	1
	Sand, fine to coarse, silty, oxidized (about 30 percent medium to coarse gravel)	23	24
	Clay, medium-gray, silty	10	34
	Sand, fine to medium, rounded to subrounded; interbedded with silty clay	9	43
	Sand, medium to coarse, subrounded to subangular (about 30 percent medium gravel); mostly quartz, carbonates, and igneous rocks; some lignite	7	50
	Till, olive- to medium-gray, very silty to sandy	10	60
	Sand, fine to medium; interbedded with lenses of silty clay	11	71
	Boulders and cobbles, granite and dolomite	1	72
	Clay, medium-gray, very silty; with light-gray streaks	11	83
	Sand, fine to medium, rounded to subrounded; about 40 percent quartz	19	102
	Sand, fine to medium; interbedded with lenses of silty clay	12	114
	Clay, medium-gray; with light-gray streaks; very silty to sandy in places	66	180
	Sand, fine to coarse, well-rounded to subrounded; about 30 percent lignite and 25 percent shale	20	200
	Gravel, fine to medium, well-rounded to subangular (about 30 percent coarse sand); about 40 percent quartz	58	258
	Gravel, fine to coarse, well-rounded to subangular; fair sorting (about 10 percent coarse sand)	22	280
Pierre Formation:			
	Shale, dark-gray, siliceous, indurated, noncalcareous	20	300

151-62-15AAA
NDSWC 5551

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty to sandy	1	1
	Sand, very fine to coarse, subangular to subrounded, silty to clayey, oxidized	8	9
	Clay, moderate-yellowish-brown, very silty, oxidized	3	12
	Sand, fine to coarse, subangular to rounded; oxidized; mostly quartz and carbonates	18	30
	Till, olive-gray, silty, slightly sandy, very gravelly	20	50
	Clay, olive- to medium-gray, very silty (fluvial)	50	100
	Sand, very fine to medium, subangular to subrounded; about 55 percent quartz and 15 percent shale and carbonates	20	120
	Clay, medium-gray; with occasional light-gray laminations; some detrital lignite	36	156
	Clay, medium-gray; interbedded with thin lenses of very fine to medium sand	26	182
	Sand, very fine to very coarse, subangular to rounded; about 50 percent quartz and 15 percent carbonates and shale; occasional thin lenses of silty clay	42	224
	Gravel, fine to coarse, angular to rounded (about 35 percent very coarse sand); about 25 percent carbonates, 25 percent shale, and 20 percent granitics and siliceous rocks; interbedded with thin lenses of clay	36	260
	Sand, fine to very coarse, angular to rounded (about 20 percent fine to medium gravel); about 65 percent quartz, 25 percent carbonates, shale, granitics, and lignite	20	280
	Gravel, fine to coarse, angular to rounded; abundant cobbles and boulders; about 55 percent detrital rounded shale; a few thin lenses of silty clay	39	319
Niobrara Formation:			
	Shale, medium- to brownish-gray, bedded, slightly calcareous; numerous small white specks	21	340

151-62-15BBB
NDSWC 5465

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty	1	1
	Clay, moderate-yellowish-brown, very silty, oxidized	7	8
	Sand, fine to coarse, subrounded to angular (about 30 percent fine to medium gravel); mostly carbonates and detrital shale	12	20
	Clay, medium-gray, very silty, calcareous	3	23
	Sand, fine to medium, subangular to rounded; about 40 percent quartz	12	35
	Clay, olive-gray, silty, calcareous	5	40
	Clay, medium-gray, very silty, calcareous	56	96
	Sand, fine to coarse, subrounded to angular, gravelly; about 50 percent detrital shale and carbonates; interbedded with lenses of silty clay	19	115
	Sand, fine to coarse, rounded to subrounded; abundant detrital lignite	4	119

151-62-15BBB, Continued
NDSWC 5465

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued			
	Sand, fine to medium; abundant detrital lignite; about 50 percent interbedded clay-	15	134
	Clay, light- to medium-gray, very silty, very calcareous----------------------------	22	156
	Sand, fine to medium, subrounded to angular, silty; about 50 percent quartz-------------	4	160
	Clay, medium-gray, silty---------------------	3	163
	Gravel, fine to coarse, rounded to subangular (about 35 percent coarse sand); about 45 percent quartz, carbonates, and detrital shale--------------------------------------	22	185
	Sand, fine to coarse, rounded to subrounded (about 40 percent medium gravel)-----------	15	200
	Gravel, medium to coarse, well-rounded to subrounded (about 30 percent coarse sand); about 50 percent quartz and carbonate rocks	16	216
Pierre Formation:			
	Shale, dark-gray, siliceous, indurated; fractured 216-225 ft-----------------------	24	240

151-62-16CBC
Test hole 336
(Log from Paulson and Akin, 1964, p. 65)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black-------------------------------	1	1
	Sand and gravel, light-brown, fine to medium, mainly detrital shale----------------------	14	15
	Gravel, medium to coarse, and sand; gravel mainly detrital shale----------------------	16	31
	Till, gray-----------------------------------	12	43
Pierre Shale:			
	Shale, gray----------------------------------	7	50

151-62-19ADD1
NDSWC 2877

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Till, moderate-yellowish-brown, sandy to gravelly, oxidized------------------------	3	4
	Sand, very fine to medium, subangular to rounded, well-sorted, oxidized------------	16	20
	Sand, medium to very coarse; small amount of medium gravel--------------------------	8	28
	Gravel, coarse to very coarse, angular to rounded; coarse to very coarse sand--------	13	41
	Till, olive-gray, gravelly, calcareous-------	2	43
	Gravel, coarse to very coarse, angular to rounded, sandy----------------------------	2	45
Pierre Formation:			
	Shale, medium-dark-gray, indurated, fractured	35	80

151-62-19ADD2
NDGS auger hole BP68-3

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Gravel, medium-------------------------------	8	8
	Sand, yellowish-gray; some iron staining-----	15	23
	Gravel, fine to medium, sandy----------------	16	39

151-62-20CCB
Test hole 335
(Log from Paulson and Akin, 1964, p. 65)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	2	2
	Sand, medium to very coarse, coarser material mainly detrital shale	8	10
	Sand, medium to very coarse, and gravel, fine to medium, coarser sand and gravel mainly detrital shale	20	30
	Gravel, fine to medium, and sand, medium to very coarse, coarser sand and gravel mainly detrital shale; material coarser toward bottom	40	70
	Gravel, fine to coarse, and sand, coarse to very coarse, material mainly detrital shale	46	116
Pierre Shale:			
	Shale, gray	9	125

151-62-21BAA
NDSWC 5550

Glacial drift:			
	Topsoil, grayish-black, silty to sandy	1	1
	Sand, fine to very coarse, subangular to rounded, slightly gravelly; about 55 percent quartz and 15 percent carbonates	33	34
	Till, olive-gray, very sandy to silty; cobbles and boulders 40-43 ft	9	43
	Clay, olive- to medium-gray, very silty; a few light-gray streaks	97	140
	Till, olive-gray; occasional thin lenses of gravel	16	156
	Sand, very fine to very coarse, subangular to rounded, gravelly; about 55 percent quartz, 15 percent carbonates, and 15 percent shale; interbedded with thin lenses of silty clay	39	195
	Boulder, granite	1	196
Pierre Formation:			
	Shale, grayish-black, siliceous, indurated, noncalcareous, bentonitic	4	200

151-62-22BBB2
NDSWC 5549

Glacial drift:			
	Topsoil, grayish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, very sandy to silty, oxidized	3	4
	Sand, very fine to medium, subangular to rounded, oxidized; mostly quartz	10	14
	Till, olive- to medium-gray, silty to very sandy	7	21
	Clay, olive- to medium-gray, very silty; occasional light-gray streaks	58	79
	Sand, very fine to very coarse, subangular to rounded; about 55 percent quartz and 20 percent shale and carbonates; occasional thin lenses of silty clay	45	124
	Gravel, fine to coarse, subangular to rounded; about 55 percent quartz, 15 percent carbonates, and 15 percent detrital shale	21	145

151-62-22BBB2, Continued
NDSWC 5549

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued			
	Sand, very fine to very coarse, subangular to rounded	15	160
	Gravel, fine to very coarse, subangular to rounded; fair to good sorting; about 35 percent carbonates, 20 percent detrital shale, and 25 percent granitics, detrital lignite, and siliceous rocks	24	184
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, bentonitic; slightly fractured 184-195 ft	16	200

151-62-24AAA
NDSWC 5548

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty to sandy	1	1
	Gravel, fine to coarse, angular to subrounded, sandy to silty	19	20
	Sand, very fine to coarse, angular to rounded, silty, oxidized; about 55 percent quartz and 25 percent detrital shale	19	39
	Clay, olive-gray, very calcareous; with light-gray laminations	106	145
	Sand, very fine to medium, subangular to rounded; about 65 percent quartz and 15 percent carbonates and detrital shale; interbedded with thin lenses of silty clay	29	174
	Clay, olive- to medium-gray, very silty; interbedded with thin lenses of very fine sand	6	180
	Sand, fine to very coarse, subangular to rounded; about 55 percent quartz and 25 percent carbonates and detrital shale; interbedded with thin lenses of silty clay	28	208
Pierre Formation:			
	Shale, grayish-black, siliceous, bentonitic	12	220

151-62-27AAA1
NDGS auger hole BP67-54

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Sand, fine to medium, silty; oxidized to 7 ft	10	10
	Gravel and sand, clayey	10	20
	Till, olive-gray	4	24

151-62-27AAA2
NDSWC 5464

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Sand, fine to medium, angular to subrounded, oxidized	10	11
	Till, olive-gray, silty to sandy	14	25
	Clay, olive-gray, very silty	39	64
	Sand, fine to medium, subrounded; about 55 percent quartz	5	69
	Till, olive- to medium-gray, silty	11	80
	Clay, medium- to light-gray, silty	48	128

151-62-27AAA2, Continued
NDSWC 5464

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Sand, fine to medium, subangular to rounded; about 55 percent quartz and 20 percent detrital lignite	32	160
	Gravel, fine to coarse, subangular to subrounded (about 50 percent coarse sand); about 50 percent quartz and 30 percent shale	42	202
	Sand, fine to coarse, subangular to subrounded (about 40 percent fine to medium gravel); occasional lenses of silty clay	88	290
Niobrara Formation:			
	Shale, light-brownish-gray, calcareous; with buff and light-gray streaks	30	320

151-62-29BCC
NDGS auger hole BP68-16

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Clay, yellowish-gray, silty (lacustrine)	2	3
	Till, light-olive-gray, silty to sandy	9	12
Pierre Formation:			
	Shale, medium-dark-gray, indurated	3	15

151-62-30ADD
NDGS auger hole BP68-19

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, sandy	1	1
	Sand, dark-yellowish-brown, fine	12	13
	Sand, light-olive-gray, fine, saturated	15	28
	Sand, medium-gray, fine to medium, saturated	29	57
	Boulder	1	58
Pierre Formation:			
	Shale, light-bluish-gray, indurated	5	63

151-62-30DDA
NDSWC 5046

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, dusky-yellow, silty to sandy, oxidized	5	6
	Sand, very fine to medium, angular to subrounded, well-sorted	6	12
	Till, olive- to medium-dark-gray, silty	2	14
Pierre Formation:			
	Shale, grayish-black, indurated, moderately fractured	26	40

151-62-31AAB
NDGS auger hole BP68-15

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Sand, gravelly	2	2
Pierre Formation:			
	Shale, dark-gray; oxidized along fractures; crumbly	7	9

151-62-32BCC
NDGS auger hole BP68-20

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Till, light-olive-brown, sandy	4	5
Pierre Formation:			
	Shale, dark-gray	10	15

151-62-32CCB
NDGS auger hole BP67-53

Glacial drift:			
	Sand, fine to medium; oxidized to 9 ft	16	16
	Gravel, medium	2	18
	Till, olive-gray	1	19

151-62-33CAD
E. W. Kjorlein test 2
(Log from Paulson and Akin, 1964, p. 66)

Fine and medium sand	10	10
Mostly coarse sand, some fine gravel	15	25
Fine and medium sand	5	30
Gravel and coarse sand	5	35
Coarse shale gravel and coarse sand	5	40
Fine and medium sand	15	55
Fine gravel and coarse sand	10	65
Fine and medium gravel and coarse sand	8	73
Clay	3	76
Fine and medium gravel and coarse sand	3	79
Clay	21	100

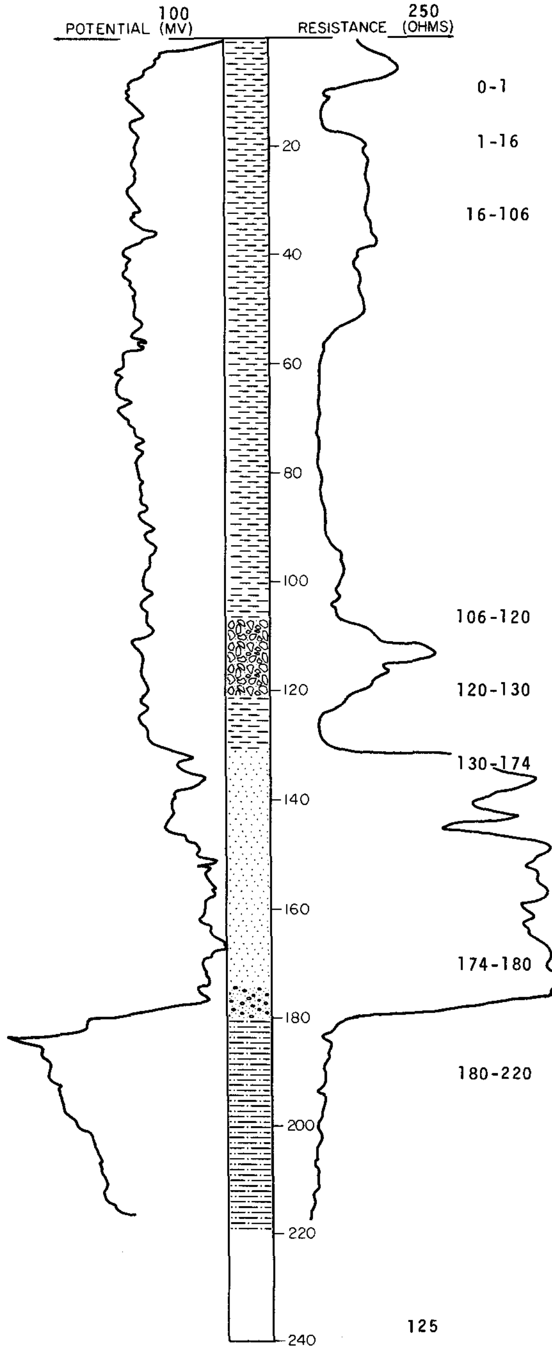
NDSWC 2875

LOCATION: 151-62-34DDD

DATE DRILLED: October 1967

ELEVATION: 1470
(FT, MSL)

DEPTH: 220
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, brownish-black, silty to sandy.
1-16	Clay, dusky-yellow, silty to sandy, cohesive, oxidized (fluvial).
16-106	Clay, olive-gray, very silty, cohesive, plastic, calcareous (lacustrine).
106-120	Till, olive-gray, silty to sandy; gravelly from 110 to 114 ft.
120-130	Clay, dark-greenish-gray, very silty, cohesive, calcareous (fluvial).
130-174	Sand, very fine to medium, subrounded to well-rounded.
174-180	Gravel, coarse to very coarse, subangular to rounded, sandy.

Pierre Formation

180-220	Shale, medium-dark-gray, indurated; fractured upper 20 ft.

151-62-36CCC
NDSWC 5463

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Till, moderate-yellowish-brown, silty, oxidized------------------------------------	6	7
	Clay, moderate-yellowish-brown, very silty to sandy, oxidized-------------------------	66	80
	Till, olive-gray, silty, slightly sandy------	33	113
	Sand, very fine to medium, subangular to subrounded----------------------------------	34	147
	Gravel, fine to coarse, subangular to rounded------------------------------------	12	159
	Sand, very fine to very coarse, subangular to well rounded---------------------------	31	190
	Gravel, fine to coarse, subangular to rounded (about 30 percent fine to very coarse sand); some cobbles; about 25 percent carbonates, 20 percent detrital shale, and 35 percent granitics and siliceous rocks-------------	30	220
	Sand, very fine to very coarse, subangular to rounded; mostly quartz------------------	21	241
	Sand, medium to coarse, subangular to well rounded; fair sorting; interbedded with thin lenses of clay-----------------------	21	262
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, noncalcareous------------------	8	270

151-63-4CBC2
(Log from C. A. Simpson & Son)

	Yellow clay----------------------------------	15	15
	Hard sandy clay------------------------------	20	35
	Blue clay------------------------------------	80	115
	Shale (Pierre)-------------------------------	58	173

151-63-10CCC
Test hole 415
(Log from Paulson and Akin, 1964, p. 66)

Glacial drift:			
	Topsoil, light-brown, sandy------------------	2	2
	Sand, light-brown, very fine to fine, very clayey-------------------------------------	1	3
	Sand, medium to very coarse, and gravel fine to medium, coarser material mainly detrital shale----------------------------	6	9
	Gravel, fine to coarse, and some very coarse sand; material coarser toward bottom; mainly detrital shale---------------------	11	20
	Till, gray-----------------------------------	54	74
	Silt and clay, gray, sandy and gravelly------	23	97
	Sand, very fine to very coarse, and gravel, fine to medium, gray, coarser material mainly detrital shale, very clayey---------	50	147
Pierre Shale:			
	Shale, gray----------------------------------	13	160

151-63-12DDC
NDSWC 5467

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Gravel, fine to coarse, rounded to subangular, oxidized (about 25 percent fine to coarse sand)	9	10
	Till, light-olive to medium-gray, silty; a few lenses (3 to 6 inches thick) of sand and gravel; five boulders	175	185
Pierre Formation:			
	Shale, dark-grayish-black, siliceous, indurated, fissile	15	200

151-63-14AAA4
Test hole 338
(Log from Paulson and Akin, 1964, p. 67)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Sand, coarse to very coarse, and gravel, fine to coarse, light-grayish-brown, coarser material about two-thirds detrital shale, clayey	11	12
	Sand, light-brown, medium	14	26
	Sand, medium to very coarse, coarser material detrital shale	12	38
	Sand, coarse to very coarse, and gravel, fine, gray, mainly detrital shale, clayey	10	48
	Till, gray, sandy and gravelly	49	97
Pierre Shale:			
	Shale, gray	3	100

151-63-14DDD
NDSWC 2876

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Clay, black, silty; high organic content	2	3
	Sand, fine to coarse, angular to rounded	9	12
	Gravel, fine to coarse, angular to subrounded (about 30 percent coarse to very coarse sand)	14	26
	Till, olive-gray, silty to sandy, cohesive, very plastic, calcareous	11	37
Pierre Formation:			
	Shale, medium-dark-gray, indurated; fractured 37-47 ft	43	80

151-63-16DAA
Test hole 416
(Log from Paulson and Akin, 1964, p. 67)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, light-brown, sandy	1	1
	Sand and gravel, brown, fine to medium, mainly detrital shale	8	9
	Sand, medium to very coarse, and gravel, fine to coarse; coarser material mainly detrital shale	11	20
	Till, gray	59	79
Pierre Shale:			
	Shale, gray	6	85

151-63-16DDA
NDGS auger hole BP68-34

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Sand, fine to medium, well-sorted, oxidized--	5	5
	Sand, fine to medium, saturated-------------	15	20
	Sand and gravel------------------------------	13	33

151-63-16DDD
Test hole 414
(Log from Paulson and Akin, 1964, p. 68)

Glacial drift:			
	Topsoil, black, sandy------------------------	2	2
	Silt and clay, gray, sandy-------------------	1	3
	Sand, medium---------------------------------	19	22
	Gravel, fine to medium, mainly detrital shale, sandy------------------------------	10	32
	Sand, coarse, and gravel, fine, gray, mainly detrital shale, clayey---------------------	5	37
	Till, gray-----------------------------------	34	71
	Gravel, fine to medium, and sand, very coarse, mainly detrital shale, clayey------	11	82
	Till, gray-----------------------------------	8	90
	Gravel, fine to medium, and sand, very coarse, gray, about two-thirds detrital shale, clayey-----------------------------	5	95
Pierre Shale:			
	Shale, gray----------------------------------	5	100

151-63-17CC
(Log from C. A. Simpson & Son)

Topsoil--------------------------------------	1	1
Yellow clay----------------------------------	14	15
Blue clay------------------------------------	75	90
Shale--	48	138
Sand---	1.5	139.5
Shale--	43.5	183

151-63-19ABA
Test hole 406
(Log from Paulson and Akin, 1964, p. 68)

Glacial drift:			
	Topsoil, black-------------------------------	1	1
	Clay and silt, brown, sandy------------------	2	3
	Sand, medium to very coarse, and gravel, brown, mainly detrital shale---------------	14	17
	Sand, fine to coarse, and gravel, gray, mainly detrital shale, clayey; upper part may be till--------------------------------	9	26
Pierre Shale:			
	Shale, gray----------------------------------	14	40

151-63-20BCB
Test hole 407
(Log from Paulson and Akin, 1964, p. 69)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Sand and gravel, gray, clayey	3	4
	Sand, fine to very coarse, and gravel, fine to medium, gray-brown, clayey and silty	11	15
	Sand, fine to very coarse, and gravel, fine, gray, mainly detrital shale, some detrital lignite, fairly clean	5	20
	Sand, gray, fine to very coarse, clean	10	30
	Sand, gray, fine, some detrital shale and lignite, clayey	10	40
	Silt and sand, very fine to fine, gray, some detrital shale and lignite, clayey	15	55
	Sand, gray, very fine to medium, some detrital shale and lignite, fairly clean	40	95
	Thin beds of clay, silt, sand, fine to very coarse, and some gravel, fine, gray, some detrital shale and lignite	21	116
	Gravel, gray, fine to medium, about two-thirds detrital shale, clean	11	127
	Gravel, gray, medium to coarse, mainly detrital shale, cleaner towards bottom	18	145
Pierre Shale:			
	Shale, gray	5	150

151-63-20BCD
Test hole 408
(Log from Paulson and Akin, 1964, p. 70)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Clay and silt, brown, sandy	1	2
	Sand and gravel, gray, mainly detrital shale	2	4
	Sand, fine to very coarse, and gravel, fine, brown	5	9
	Sand, medium to very coarse, and gravel, fine to medium, brown, coarser material mainly detrital shale	6	15
	Sand, gray, fine to medium, some detrital lignite	5	20
	Sand, gray, fine to medium, some detrital lignite, fairly clean though clayey toward bottom	50	70
	Sand, fine to medium, and gravel, gray, medium, about two-thirds detrital shale, some detrital lignite; more clayey toward bottom; lower part may include some till	37	107
Pierre Shale:			
	Shale, gray	13	120

151-63-20CAC
Test hole 409
(Log from Paulson and Akin, 1964, p. 71)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Sand and gravel, brown, clayey and silty	2	3
	Sand, medium to very coarse, and gravel, fine, brown, about one-third of coarser material detrital shale	7	10
	Sand, brown, very fine to medium; clean	10	20

151-63-20CAC, Continued
Test hole 409

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Gravel, coarse, and sand, medium to very coarse, brown, coarser material detrital shale, clayey	5	25
	Sand, medium, and some gravel, fine to medium, gray, coarser material detrital shale, some detrital lignite	10	35
	Thin beds of sand, clay, silt and detrital shale, gravel, gray	5	40
	Sand, gray, fine to medium, fairly clean	30	70
	Interbedded sand, fine, silty and clay, gray	51	121
	Sand, very coarse, and gravel, fine, gray, mainly detrital shale, clayey toward bottom	12	133
Pierre Shale:			
	Shale, gray	12	145

151-63-20CDA
Test hole 422
(Log from Paulson and Akin, 1964, p. 72)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, sandy	1	1
	Gravel, fine to coarse, and sand, medium to very coarse; coarser material mainly detrital shale	9	10
	Gravel, medium to coarse, mainly detrital shale	5	15
	Sand, fine to very coarse, gravelly, coarser material mainly detrital shale	20	35
	Sand, fine to medium, gravelly	35	70
	Sand, gray, fine to very coarse, gravelly and clayey; coarser material detrital shale	10	80
	Sand, gray, very fine to very coarse, silty and clayey, coarser material mainly detrital shale; gravelly interval from 70 to 118 ft probably includes several thin beds of silt and clay	38	118
	Gravel, fine to medium, mainly detrital shale	9	127
	Gravel, fine to medium, and some sand, very coarse, gray, clayey	3	130
	Gravel, fine, and sand, very coarse, gray, about one-half detrital shale, clayey	11	141
	Till, gray, very sandy and gravelly	9	150
	Sand, very coarse, and gravel, fine, gray, clayey or till, very sandy and gravelly	38	188
Pierre Shale:			
	Shale, gray	7	195

151-63-20CDD1
Test hole 423
(Log from Paulson and Akin, 1964, p. 73)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black, sandy	1	1
	Sand, very fine to very coarse, and gravel, medium, light-brown, very clayey	2	3
	Sand, fine to very coarse, and gravel, fine to medium, coarser material mainly detrital shale	22	25
	Sand, fine to medium	50	75
	Interbedded sand, very fine to medium, gravel, fine to coarse, silt and clay	20	95

151-63-20CDD1, Continued
Test hole 423

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Clay and silt, gray	22	117
	Gravel, fine to coarse, about two-thirds detrital shale and one-third limestone and dolomite, and some sand, very coarse	17	134
	Sand, very fine to very coarse, and gravel, fine, gray, coarser material mainly detrital shale, silty and clayey	16	150
	Sand, coarse to very coarse and gravel, fine, gray, coarser material is mainly detrital shale, clayey, less clayey towards bottom	27	177
	Sand, very fine to very coarse, and some gravel, fine, gray, coarser material mainly detrital shale, silty and clayey	9	186
Pierre Shale:			
	Shale, gray	4	190

151-63-20CDD2
Test hole 454
(Log from Paulson and Akin, 1964, p. 74)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Sand, fine to very coarse, and gravel, fine to medium, light-brown	6	7
	Gravel, fine to coarse, and some sand, fine to very coarse, light-brown, coarser material detrital shale	13	20
	Gravel, fine to medium, mainly detrital shale, sandy	10	30
	Sand, medium to very coarse, and gravel, fine; coarser material mainly detrital shale	10	40
	Sand, medium to coarse, considerable detrital lignite toward bottom	76	116
	Gravel, fine to coarse, mainly detrital shale, sandy	9	125

151-63-20CDD3
Test hole 455
(Log from Paulson and Akin, 1964, p. 74)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Sand, medium to very coarse, gravelly	19	20
	Gravel, fine to medium, and some sand, very coarse, gray, clayey and silty	10	30
	Interbedded sand, fine to very coarse, and clay, silt, and some gravel, fine, gray	10	40
	Sand, gray, fine to medium	25	65
	Interbedded sand, fine, silty, clay and some gravel, fine to medium	30	95
	Sand, gray, fine to coarse	21	116
	Gravel, fine to coarse, and sand, medium to very coarse, material about two-thirds detrital shale, finer with higher shale content toward bottom	9	125

151-63-20CDD4
Test hole 456
(Log from Paulson and Akin, 1964, p. 75)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Sand, light-brown, gravelly and clayey	3	4
	Sand, light-brown, medium to very coarse, gravelly	4	8
	Sand, medium to very coarse, and gravel, fine to medium; coarser material mainly detrital shale	12	20
	Sand, medium to coarse, gravelly	45	65
	Interbedded silty clay, sand, very fine to fine, and gravel, fine to medium, gray; coarser material largely detrital shale	5	70
	Sand, medium to coarse, gravelly; gravel content higher toward bottom	45	115
	Clay and silt, and sand, very fine to fine	5	120
	Gravel, fine to coarse, and some sand, medium to very coarse; material about two-thirds detrital shale, about one-third limestone and dolomite, coarser toward bottom	20	140

151-63-20CDD5
Test hole 486
(Log from Paulson and Akin, 1964, p. 75)

Glacial drift:			
	Topsoil, brown, sandy	1	1
	Sand, medium to very coarse, gravelly	19	20
	Sand, very fine to medium, silty and gravelly	70	90
	Sand, medium to very coarse, and some gravel, fine, gray, mainly detrital shale, clayey, more clayey toward bottom	44	134
	Sand, very coarse, and gravel, fine, some boulders	5	139
Pierre Shale:			
	Shale, gray	11	150

151-63-20CDD6
Test hole 501
(Log from Paulson and Akin, 1964, p. 76)

Glacial drift:			
	Topsoil, black, sandy	1	1
	Sand, fine to very coarse, and some gravel, fine, gray	29	30
	Sand, medium to very coarse, and gravel, fine, gray	10	40
	Sand, gray, fine to medium, gravelly	10	50
	Sand, very fine to coarse, and some gravel, fine to medium, gray, silty	10	60
	Sand, gray, very fine to coarse, silty and gravelly	40	100
	Sand, medium to very coarse, and gravel, fine, gray, silty and clayey; may include some thin layers of clay and silt	24	124
	Sand, very coarse, and gravel, fine to medium, gray, about two-thirds detrital shale	16	140
	Sand, very coarse, and gravel, fine, gray, mainly detrital shale, clayey; more clayey toward bottom; lower part may be till	38	178
Pierre Shale:			
	Shale, gray	8	186

151-63-20CDD7
Test hole 502
(Log from Paulson and Akin, 1964, p. 77)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, sandy	1	1
	Sand, medium to very coarse, and gravel, fine to medium, mainly detrital shale	21	22
	Sand, medium to very coarse, gravelly, coarser material mainly detrital shale	12	34
	Gravel, fine to coarse, and sand, medium to very coarse, mainly detrital shale	14	48
	Sand, medium to coarse, gravelly, coarser material mainly detrital shale	52	100
	Sand, very fine to very coarse, and gravel, fine to medium, gray, coarser material mainly detrital shale, clayey	20	120
	Gravel, fine to coarse, about one-half detrital shale, clean	9	129
	Sand, very coarse, and gravel, fine, gray, clayey, many cobbles and boulders; may include some till	44	173
	Till, gray, sandy and gravelly	10	183
Pierre Shale:			
	Shale, gray	5	188

151-63-20CDD8
Test hole 503
(Driller's log)
(Log from Paulson and Akin, 1964, p. 77)

Note: The site of this test hole is a few feet from the site of test hole 502. No samples were collected.

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, sandy	1	1
	Sand, fine to coarse, and gravel; gravel largely detrital shale	39	40

151-63-20CDD9
Test hole 504
(Log from Paulson and Akin, 1964, p. 78)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, sandy	1	1
	Sand, brown, fine to medium, gravelly	27	28
	Sand, medium to coarse, and gravel, fine, coarser material mainly detrital shale	38	66
	Sand, medium to coarse, and gravel, medium, coarser material mainly detrital shale	10	76
	Sand, medium to coarse, gray, gravelly and clayey	14	90
	Sand, medium to very coarse, and gravel, fine, coarser material mainly detrital shale	8	98
	Sand, medium to very coarse, and gravel, fine, gray, coarser material mainly detrital shale, clayey	20	118
	Gravel, medium to coarse, about one-half detrital shale, sandy	13	131
	Sand and gravel, gray, coarser material mainly detrital shale, poorly sorted, very clayey	41	172
	Till, gray, sandy and gravelly	6	178
Pierre Shale:			
	Shale, gray	11	189

151-63-20CDD10
Test hole 505
(Driller's log)
(Log from Paulson and Akin, 1964, p. 78)

Geologic source	Material	Thickness (feet)	Depth (feet)
Note:	The site of this test hole is a few feet from the site of test hole 504. No samples were collected.		
Glacial drift:			
	Topsoil, brown, sandy	1	1
	Sand, fine to medium	39	40

151-63-20CDD11
Devils Lake city test well 1
(Driller's log)
(Log from Paulson and Akin, 1964, p. 79)

Material	Thickness (feet)	Depth (feet)
Topsoil	2	2
Yellow sand (upper part dry)	54	56
Muddy gray sand, some sand loose at 85 ft	54	110
Very clayey sand	6	116
Slightly cleaner sand	6	122
Good sand and gravel	2	124
Very muddy sand and gravel	2	126
Cleaner sand and gravel but with chunks of clay, drilled open hole	3	129
As above except siltier	6	135

Samples were available for the lower part of the test well; descriptions and depths at which samples were taken are given below.

Material			Depth (feet)
Sand, gray, very fine to fine			118
Sand, coarse to very coarse, and gravel, fine to coarse, gray, mainly detrital shale			122
Sand, fine to very coarse, and gravel, fine to medium, gray, clayey			123
Sand, very fine to fine, and very coarse, and gravel, fine to coarse, gray	125	&	126
Sand, very fine to very coarse, and gravel, fine to medium, gray, coarser material mainly detrital shale	126	&	129
Sand, very fine to very coarse, and some gravel, fine to medium, gray, coarser material mainly detrital shale	131	&	135
Sand, gray, very fine to medium	134	&	136

151-63-20CDD12
Devils Lake city test well 2
(Driller's log)
(Log from Paulson and Akin, 1964, p. 80)

Material	Thickness (feet)	Depth (feet)
Topsoil	1	1
Brown sand and gravel with clay	2	3
Brown sand with a little clay	35	38
Fine gray sand	19	57
Slightly coarser gray sand with some gravel	20	77
Fine gray sand with clay	25	102
Very clayey fine sand	8	110
Medium fine shale sand	6	116
Soft gray clay	3	119
Fine gray sand, slightly clayey with some coarser sand and gravel	5	124
Coarse sand	1	125
Fine and coarse sand, gravel, and stones	8	133
Coarse gravel and sand, stones and a few chunks of clay	6	139

151-63-20CDD12, Continued
Devils Lake city test well 2

Geologic source	Material	Thickness (feet)	Depth (feet)
	Fine sand, clayey, with small amount of coarser sand and gravel--------------------	8	147
	Very clayey sand and gravel------------------	3	150
	Soft gray gravelly clay----------------------	5	155

Samples were available for the upper part of the test well; descriptions and depths at which samples were taken are given below.

	Sand, fine to very coarse, and some gravel, fine, brown; coarser material mainly detrital shale, clayey---------------------		4
	Sand, gray-brown, fine to very coarse, gravelly-----------------------------------		10
	Sand, brown, very fine to fine, gravelly-----		20
	Sand, brown, medium--------------------------		30
	Sand, gray, very fine to fine----------------		40
	Sand, gray, fine to medium-------------------		50
	Sand, gray, very fine to fine----------------		60
	Sand, gray, fine to coarse, gravelly---------		70
	Sand, gray, fine to coarse	80 &	90

151-63-20DCC
Test hole 404
(Log from Paulson and Akin, 1964, p. 81)

Glacial drift:			
	Topsoil, black, sandy and gravelly-----------	1	1
	Sand, brown, medium to coarse, gravelly, fairly clean-------------------------------	14	15
	Sand, brown, fine to medium, gravelly--------	10	25
	Sand, gray, fine to medium, gravelly---------	6	31
	Clay and silt, gray, sandy-------------------	11	42
	Sand, white to gray, fine to medium----------	13	55
	Sand, gray, fine to coarse, fairly clean; coarser material detrital shale; some detrital shale gravel toward bottom--------	25	80
	Sand, medium to very coarse, and gravel, fine, gray, mainly detrital shale, some detrital lignite, clayey-------------------	17	97
	Clay and silt, gray, sandy-------------------	10	107
	Sand, gray, very coarse, and gravel, fine, gray, mainly detrital shale, clayey--------	3	110
	Gravel, gray, fine to coarse, about one-half detrital shale, fairly clean----------	26	136
	Sand, medium to very coarse, and gravel, gray, fine; coarser material mainly detrital shale, clayey-----------------------------	13	149
	Sand, gray, fine to very coarse; coarser material mainly detrital shale-------------	27	176
	Sand, gray, very fine to fine, clayey and silty--------------------------------------	11	187
Pierre Shale:			
	Shale, gray----------------------------------	7	194

151-63-21DAA
Test hole 417
(Log from Paulson and Akin, 1964, p. 82)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black, sandy	1	1
	Sand, light-brown, fine to medium, very clayey	1	2
	Sand, very fine to very coarse, and gravel, fine to coarse, light-brown, clayey	2	4
	Sand, medium to very coarse, and gravel, fine to medium, coarser material mainly detrital shale	15	19
	Gravel, fine to coarse, and sand, medium to very coarse, coarser material mainly detrital shale	11	30
	Sand, medium to very coarse, gravelly, coarser material mainly detrital shale	15	45
	Sand, medium to very coarse, and gravel, fine, coarser material mainly detrital shale	7	52
	Gravel, medium to coarse, mainly detrital shale, sandy	16	68
	Gravel, fine and sand, very coarse, gray, mainly detrital shale, clayey	19	87
Pierre Shale:			
	Shale, gray	8	95

151-63-24CBC
NDSWC 5468

Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Sand, fine to coarse, subrounded to rounded (about 30 percent medium gravel); mostly carbonates and shale	13	14
	Till, medium-gray, silty; abundant boulders 40-64 ft	50	64
Pierre Formation:			
	Shale, dark-grayish-black, siliceous; fractured 64-80 ft	36	100

151-63-25AAB
NDSWC 2996
Observation well 5

Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Clay, moderate-yellowish-brown, slightly plastic, oxidized	3	4
	Sand, fine to coarse, subangular to subrounded, well-sorted; predominantly quartz; some shale; oxidized to 10 ft	26	30
	Sand, medium to very coarse, angular to subrounded, moderately well sorted; gravelly at 80-85 ft	65	95
	Gravel, fine to coarse, angular to subrounded, predominantly shale; about one-third coarse to very coarse angular to subrounded sand	45	140

151-63-25ACB
NDSWC 2995
Observation well 4
(Removed after pumping test)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Clay, moderate-yellowish-brown, silty to sandy, oxidized	2	3
	Sand, fine to coarse, angular to rounded, well-sorted; oxidized to 12 ft	22	25
	Sand, medium to very coarse, angular to rounded, well-sorted; shale content increasing with depth	40	65
	Till, olive-gray, silty to sandy, calcareous	5	70
Pierre Formation:			
	Shale, grayish-black, siliceous, slightly fractured	10	80

151-63-25ADB1
E. W. Kjorlein test 3
(Driller's log)
(Log from Paulson and Akin, 1964, p. 82)

Material	Thickness (feet)	Depth (feet)
Sandy soil	5	5
Fine sand	10	15
Clay and sand	5	20
Clay	18	38
Fine sand	2	40
Coarse sand and some fine	2	42
Shale	42	84

151-63-25ADB2
NDSWC 2993
Observation well 3
(Removed after pumping test)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Sand, fine to coarse, angular to rounded, well-sorted; predominantly quartz with some limestone, shale, and lignite; oxidized to 10 ft, clayey to 15 ft	41	42
	Clay, olive-gray, very sandy, silty, slightly cohesive	1	43
	Sand, fine to coarse, angular to rounded, well-sorted; predominantly quartz, but more lignite than above	7	50
	Till, olive-gray, silty to sandy, calcareous	30	80
	Sand, fine to coarse, angular to subrounded; fair sorting; predominantly shale with about equal amounts of quartz, limestone, and lignite	3	83
	Till, olive-gray, silty to sandy, calcareous	8	91
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated	29	120

151-63-25ADB3
NDSWC 2994
Observation well 2
(Removed after pumping test)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Clay, moderate-yellowish-brown, silty to sandy, oxidized----------------------------	2	3
	Sand, fine to coarse, angular to rounded, well-sorted; predominantly quartz; shale content increasing with depth--------------	27	30
	Sand, medium to very coarse, angular to rounded, well-sorted; predominantly quartz; clayey at 71-76 ft-----------------	46	76
Pierre Formation:			
	Shale, grayish-black, moderately indurated, slightly fractured-------------------------	4	80

151-63-25ADB4
NDGS auger hole BP68-2

Glacial drift:			
	Sand, medium, yellowish-brown, oxidized------	39	39

(Well pulled after aquifer test.)

151-63-25BBB
NDGS auger hole PB-68-61

Glacial drift:			
	Sand, medium to coarse-----------------------	9	9
	Sand; interbedded with gravel----------------	15	24
	Gravel, sandy--------------------------------	29	53

151-63-26BCC
NDGS auger hole BP67-59

Glacial drift:			
	Sand, medium to coarse-----------------------	7	7
	Gravel, medium-------------------------------	7	14

151-63-26CBB
NDGS auger hole BP67-60

Glacial drift:			
	Sand---	9	9
	Gravel---------------------------------------	7	16

151-63-27CBA
NDGS auger hole BP67-58

Glacial drift:			
	Sand, medium to coarse-----------------------	7	7
	Gravel---------------------------------------	12	19

151-63-28AAA
Test hole 418
(Log from Paulson and Akin, 1964, p. 83)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, sandy	1	1
	Sand, gray, very fine to medium, very clayey	2	3
	Sand, fine to medium	45	48
	Clay and silt, gray	4	52
	Sand, very fine to fine	13	65
	Sand, fine to medium, and gravel, fine, mainly detrital shale	5	70
	Sand, fine to medium	10	80
	Clay, silty, and sand, very fine, gray, gravelly	43	123
	Sand, gray, very fine to very coarse, clayey and silty, coarser material detrital shale	13	136
	Sand, very coarse, and gravel, fine, gray, mainly detrital shale, clayey	6	142
	Till, gray	58	200

151-63-28ADA
NDGS auger hole BP67-57

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Sand, medium to coarse	17	17
	Gravel	1	18
	Sand	27	45
	Undifferentiated	2	47

151-63-28ADD
Devils Lake city test 3
(Log from Paulson and Akin, 1964, p. 84)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, very fine to medium, silty and clayey, light-brown	12	12
	Sand, very fine to fine, silty and clayey, occasional gravel and grains of medium to very coarse sand, gray	23	35
	Sand, very fine, gray	29	64
	Till, gray	11	75
	Shale, gray	3	78

151-63-28CCB
Test hole 412
(Log from Paulson and Akin, 1964, p. 83)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black, sandy	1	1
	Sand, light-brown, very fine to fine, very clayey	2	2
	Sand, light-brown, fine to medium	12	15
	Sand, medium to coarse, gravelly	27	42
	Sand, medium to very coarse, and gravel, fine, very clayey, gray, coarser material mainly detrital shale, clayier toward bottom	11	53
	Till, gray	30	83
Pierre Shale:			
	Shale, gray	7	90

151-63-28CCD
Test hole 410
(Log from Paulson and Akin, 1964, p. 84)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black, peaty	1	1
	Clay and silt, brown, sandy and gravelly	2	3
	Sand, brown, medium to coarse, some of coarser material detrital shale, clean	23	26
	Sand, very coarse, and gravel, fine, gray, about two-thirds detrital shale, about one-third dolomite-limestone, clayey toward bottom	14	40
	Till, gray, very sandy and gravelly	30	70
	Till, gray	124	194
Pierre Shale:			
	Shale, gray	6	200

151-63-29AAC1
Test hole 411
(Log from Paulson and Akin, 1964, p. 85)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black, sandy	1	1
	Sand and gravel, brown, mainly detrital shale, weathered, clayey	2	3
	Sand, medium to very coarse, and gravel, fine to medium, gray-brown, coarser material detrital shale, some detrital lignite, slightly clayey	47	50
	Sand, gray, medium to coarse, slightly clayey	13	63
	Gravel, gray, medium to coarse, clean	14	77
	Clay and silt, gray	4	81
	Gravel, gray, fine to medium, mainly detrital shale	13	94
	Thin beds of gravel, sand, clay and silt, gray	38	132
	Gravel, gray, fine to medium, mainly detrital shale, slightly clayey	8	140
	Sand, very coarse, and gravel, fine, gray, mainly detrital shale, clayey; some boulders and cobbles of dolomite-limestone	58	198
	Cobbles and boulders, limestone-dolomite, and gravel, fine, mainly detrital shale	5	203
Pierre Shale:			
	Shale, gray	7	210

151-63-29AAC2
Test hole 424
(Log from Paulson and Akin, 1964, p. 85)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, sandy	1	1
	Sand, light-brown, fine to coarse, clayey	2	3
	Sand, gray, medium to very coarse and gravel, fine, coarser material mainly detrital shale	12	15
	Sand, medium to very coarse, gravelly, coarser material mainly detrital shale	50	65
	Gravel, fine to medium, and some sand, very coarse; material is mainly detrital shale	15	80

151-63-29ABB2
Test hole 419
(Log from Paulson and Akin, 1964, p. 86)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black, sandy	1	1
	Sand, light-brown, very fine to coarse, clayey	2	3
	Sand, light-brown, medium to coarse	22	25
	Sand, very fine to fine	5	30
	Sand, very fine to medium	5	35
	Sand, medium to coarse	30	65
	Sand, medium to very coarse, gravelly	5	70
	Gravel, fine to medium, and sand, medium to very coarse, coarser material mainly detrital shale	25	95
	Sand, medium to very coarse	10	105
	Sand, gray, very fine to fine, silty	15	120
	Sand, very fine to very coarse, and some gravel, fine to medium, gray, coarser material mainly detrital shale, clayey	3	123
	Gravel, fine to medium, and some sand; coarser material mainly detrital shale	9	132
Pierre Shale:			
	Shale, gray	8	140

151-63-29BAA1
Test hole 420
(Log from Paulson and Akin, 1964, p. 87)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black, sandy	1	1
	Sand, light-brown, clayey	2	3
	Sand, medium to very coarse, and some gravel, fine to medium, mainly detrital shale	7	10
	Sand, medium to very coarse	10	20
	Sand, gray, very fine to medium, silty, clayey and gravelly	10	30
	Gravel, fine to coarse, and some sand, gray, coarser material mainly detrital shale	10	40
	Sand, gray, very fine to medium, clayey and gravelly	20	60
	Sand, very fine to very coarse, and gravel, fine to medium; coarser material mainly detrital shale	10	70
	Gravel, fine, and sand, very coarse, gray, silty and clayey, probably includes thin beds of clay and silt	10	80
	Sand, very fine to very coarse, and some gravel, fine; coarser material mainly detrital shale	20	100
	Sand, very coarse, and gravel, fine, gray, clayey and silty, probably includes thin beds of clay and silt	18	118
	Clay, silt, sand, and gravel, probably interbedded	34	152
	Gravel, fine, and sand, very coarse, gray, clayey	29	181
Pierre Shale:			
	Shale, gray	9	190

151-63-29BAA2
Test hole 487
(Log from Paulson and Akin, 1964, p. 88)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, sandy	1	1
	Sand, medium to very coarse, brown, gravelly	13	14
	Sand, fine to medium, brown, gravelly	6	20
	Sand, very fine to medium, gray, clayey towards bottom	65	85
	Sand, very fine to medium, gray, very clayey and gravelly	15	100
	Sand, very fine to very coarse, gray, clayey	16	116
	Sand, very fine to very coarse, and gravel, fine, gray, clayey, coarser material about one-half detrital shale	12	128
	Sand, very fine to very coarse, and gravel, fine, gray, coarser material about one-half detrital shale, clayey, more clayey toward bottom	22	150

151-63-29DAA
Test hole 405
(Log from Paulson and Akin, 1964, p. 89)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Clay and silt, brown, sandy	2	3
	Sand, brown, fine to medium, clean	18	21
	Sand, brown, fine to medium, clayey and gravelly	18	39
	Sand, gray, mostly fine, some medium and coarse, slightly clayey	7	46
	Sand, gray, fine to very coarse, coarser material mainly detrital shale	4	50
	Sand, fine to very coarse, and gravel, gray, fine, mainly detrital shale	8	58
	Gravel, gray, fine to medium, mainly detrital shale, sandy	13	71
	Dolomite(?) boulder	1	72
	Gravel, gray, mainly detrital shale and probably some thin beds of sand and clay	5	77
	Sand, very coarse, and gravel, gray, fine to medium, gray, mainly detrital shale, clayey	7	84
	Sand and gravel, gray, clayey; may include some thin beds of clay	6	90
	Sand, very coarse, and gravel, fine, gray, mainly detrital shale	37	127
Pierre Shale:			
	Shale, gray	13	140

151-63-29DCC
NDGS auger hole BP67-56

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Sand, medium to coarse, oxidized	11	11
	Gravel	1	12
	Sand	25	37
	Gravel	2	39
	Sand and gravel	5	44
	Undifferentiated	3	47

151-63-31BBC
NDSWC 5049

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Till, dusky-yellow, calcareous, oxidized-----	7	8
	Till, dusky-yellow to dark-yellowish-brown, calcareous, oxidized-----------------------	17	25
	Sand, medium to very coarse, angular to subrounded----------------------------------	15	40
	Gravel, fine to coarse; interbedded with silt and clay layers---------------------------	12	52
	Till, olive-gray, silty to sandy, calcareous-	38	90
	Gravel, fine to coarse, angular to sub-angular; predominantly detrital shale------	7	97
	Till, olive-gray, gravelly, calcareous-------	3	100
	Gravel, fine to coarse, angular to sub-angular; interbedded with clay------------	13	113
Pierre Formation:			
	Shale, medium-dark-gray to grayish-black, slightly fractured------------------------	27	140

151-63-33DBB
Test hole 413
(Log from Paulson and Akin, 1964, p. 90)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black, sandy------------------------	3	3
	Sand, very fine to medium, and some gravel, gray-brown, mainly detrital shale----------	10	13
	Gravel, fine to coarse, and sand, medium to very coarse, coarser material mainly detrital shale-----------------------------	13	26
	Till, gray----------------------------------	53	79
	Gravel, fine, and sand, very coarse, gray; about one-third detrital shale, clayey-----	11	90
	Gravel, medium to coarse, about one-third detrital shale, sandy---------------------	6	96
	Till, gray----------------------------------	2	98
	Gravel, fine, and sand, very coarse, mainly detrital shale----------------------------	3	101
	Till, gray, sandy and gravelly---------------	5	106
Pierre Shale:			
	Shale, gray---------------------------------	4	110

151-63-35CCC
NDGS auger hole BP68-31

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Sand, fine to medium, oxidized---------------	10	10
	Sand, fine to medium, silty; some detrital lignite------------------------------------	5	15
	Sand, fine to medium, silty to clayey; abundant lignite--------------------------	10	25
Pierre Formation:			
	Shale, dark-gray, hard-----------------------	1	26

151-63-35DCC
NDGS auger hole BP68-33

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Sand, fine to medium, oxidized---------------	5	5
	Sand, fine to medium, silty to clayey; abundant detrital lignite------------------	45	50
Pierre Formation:			
	Shale, dark-gray, hard-----------------------	1	51

151-63-36ADA
Test hole 334
(Log from Paulson and Akin, 1964, p. 90)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black-------------------------------	1	1
	Sand, medium, light-brown--------------------	9	10
	Gravel, fine to coarse, mainly detrital shale, and some sand-----------------------------	14	24
	Silt and clay, gray, sandy, and gravelly-----	18	42
	Sand, coarse to very coarse, and gravel, fine to medium, sand and gravel mainly detrital shale-------------------------------------	58	100
	Sand, coarse to very coarse, and gravel, fine, sand and gravel mainly detrital shale-------------------------------------	31	131
Pierre Shale:			
	Shale, gray----------------------------------	9	140

151-63-36CCC
NDGS auger hole BP68-32

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Sand, fine to medium, uniformly sorted-------	28	28
	Sand, fine to medium; predominantly quartz; uniformly sorted; silty to clayey in places------------------------------------	53	81
	Till, olive-gray, sandy----------------------	1	82

151-64-4CCC
NDSWC 5474

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, sandy------------------------	0.5	0.5
	Till, moderate-yellowish-brown, silty to very sandy, oxidized----------------------	2.5	3
	Gravel, fine to coarse, angular to subrounded; poor sorting (about 20 percent coarse sand)	9	12
	Sand, fine to very coarse, angular to subrounded; about 35 percent shale, 35 percent quartz, remainder mostly carbonates and detrital lignite; oxidized to about 40 ft-------------------------------------	108	120
Pierre Formation:			
	Shale, grayish-black, siliceous, bentonitic, noncalcareous, slightly fractured-----------	20	140

151-64-6CCC
NDGS auger hole BP67-49

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Sand, fine to medium, gravelly	54	54

151-64-10AAA
NDSWC 2874

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black, silty to sandy	1	1
	Till, moderate-yellowish-brown, calcareous, oxidized	13	14
	Till, olive-gray, silty to sandy, calcareous	32	46
	Gravel, coarse to very coarse, angular to subrounded (about 30 percent sand)	12	58
	Gravel, coarse to very coarse, subrounded; abundant grayish-red sandstone	10	68
	Till, olive-gray, silty to sandy, calcareous	10	78
Pierre Formation:			
	Shale, grayish-black, indurated; fractured 78-107 ft	42	120

151-64-18AAA
NDSWC 2873

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Sand, medium to very coarse, angular to rounded; clayey 10-12 ft	11	12
	Gravel, fine to coarse, angular to subrounded (about 30 percent coarse to very coarse sand)	14	26
	Clay, medium-gray, sandy, plastic, calcareous, fluvial	9	35
	Sand, very fine to coarse, angular to rounded	24	60
	Clay, olive-gray, sandy, plastic, calcareous, fluvial	4	64
	Sand, very fine to coarse, angular to rounded; interbedded with clay	16	80
	Clay, olive-gray, silty, calcareous	8	88
	Sand, very fine to medium, angular to rounded	2	90
	Clay, olive-gray, silty to sandy, calcareous, plastic, fluvial	46	136
	Till, olive-gray, silty to gravelly, cohesive, calcareous	11	147
Pierre Formation:			
	Shale, grayish-black, indurated; fractured 147-172 ft	33	180

151-64-18BBB
Test hole 341
(Log from Paulson and Akin, 1964, p. 91)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Gravel, fine to coarse, and sand, coarse to very coarse, coarser material detrital shale	24	25
	Gravel, coarse, sandy, detrital shale	10	35
	Till, light-brown, sandy and gravelly	25	60
	Till, gray, sandy and gravelly	17	77
	Sand, gray, very fine to medium, clayey	23	100

151-64-18BBB, Continued
Test hole 341

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Till, gray	42	142
Pierre Shale:			
	Shale, gray	8	150

151-64-23DDC
NDSWC 5469

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Gravel, medium to coarse, subangular to subrounded (about 30 percent coarse sand); about 50 percent detrital shale	14	15
	Till, moderate-yellowish-brown, silty	8	23
	Clay, moderate-yellowish-brown, very silty	2	25
	Clay, medium-gray, very silty	18	43
	Sand, fine to medium, subangular to subrounded; about 40 percent quartz	2	45
	Clay, medium-gray, very silty	28	73
	Sand, fine to medium; about 30 percent quartz and 30 percent shale; abundant detrital lignite in places; interbedded with thin lenses of silty clay	26	99
	Gravel, fine to coarse, angular to subrounded (about 20 percent coarse sand); about 70 percent detrital shale	34	133
	Gravel, fine to coarse, angular to subrounded; interbedded with lenses of sand and silty clay	19	152
	Clay, medium-gray, silty to sandy; interbedded with lenses of silty light-gray clay	13	165
Pierre Formation:			
	Shale, dark-grayish-black, siliceous, indurated; fractured 165-185 ft	35	200

151-64-29BBB
Test hole 340
(Log from Paulson and Akin, 1964, p. 91)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Sand, medium to very coarse, and gravel, fine to coarse, light-brown, clayey, coarser material detrital shale	9	10
	Gravel, fine to coarse, and sand, coarse to very coarse, coarser material detrital shale	10	20
	Gravel, fine to coarse, and sand, coarse to very coarse, mainly detrital shale	20	40
	Sand, coarse to very coarse, and gravel, fine, mainly detrital shale	8	48
	Silt and clay, gray, sandy and gravelly, till	9	57
	Sand, medium to coarse, gravelly, some of coarser material detrital shale	19	76
	Sand, very coarse, and gravel, fine, about one-half detrital shale	5	81
	Till, gray, gravel content increases toward bottom	45	126
Pierre Shale:			
	Shale, gray	4	130

151-64-33AAA
NDSWC 5050

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	0.5	0.5
	Gravel, medium to very coarse, oxidized; about one-third sand; predominantly detrital shale	20.5	21
	Silt, dusky-yellow to moderate-yellowish-brown, oxidized	30	51
	Silt, olive-gray; very fine subangular to to rounded sand	36	87
	Gravel, fine to medium; about one-third very coarse sand	9	96
	Silt, olive-gray, clayey, very calcareous	8	104
	Till, olive-gray, gravelly, calcareous	36	140
Pierre Formation:			
	Shale, grayish-black to black	20	160

151-65-2AAA
Test hole 343
(Log from Paulson and Akin, 1964, p. 92)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, light-brown, sandy	1	1
	Gravel, fine to coarse, detrital shale, and sand	35	36
	Till, light-grayish-brown, sandy and gravelly	40	76
	Till, gray, sandy and gravelly	24	100
	Sand, very coarse, and gravel, fine, gray, mainly detrital shale, clayey	10	110
	Till, gray	13	123
Pierre Shale:			
	Shale, gray	7	130

151-65-2CDD
NDGS auger hole BP67-50

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Gravel, coarse	19	19

151-65-2DCC
Test hole 342
(Log from Paulson and Akin, 1964, p. 92)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	2	2
	Sand, medium to very coarse, and gravel, fine to medium, coarser material detrital shale	8	10
	Gravel, fine to coarse, and sand, coarse to very coarse, mainly detrital shale	11	21
	Till, gray, sandy and gravelly	68	89
Pierre Shale:			
	Shale, gray	11	100

151-65-2DDC
NDSWC 5473

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty, oxidized	2	3
	Gravel, fine to coarse, angular to subrounded (about 30 percent fine to very coarse sand); about 65 percent shale and 20 percent carbonates	19	22
	Till, olive-gray, silty to sandy	18	40
	Clay, light-olive to brownish-gray, very silty to sandy	10	50
	Sand, fine to very coarse, angular to subrounded; fair sorting (about 20 percent fine gravel)	13	63
	Boulder, granite	1	64
	Till, olive-gray, silty to sandy	26	90
	Till, olive-gray; about 50 percent reworked Pierre shale	8	98
Pierre Formation:			
	Shale, grayish-black, siliceous, bentonitic, moderately indurated	22	120

151-65-4DDC
NDSWC 5688

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, light-olive-gray, silty, moderately sandy	5	6
	Gravel, fine to coarse, angular to rounded, moderately sandy; some cobbles; fair to poor sorting; about 60 percent detrital shale, 20 percent carbonates, and 20 percent granitics, metamorphics, and other siliceous rocks	31	37
	Till, olive-gray, silty, calcareous	18	55
Pierre Formation:			
	Shale, grayish-black to black, siliceous, indurated, moderately fractured	5	60

151-65-7BBB
NDSWC 5477

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Gravel, fine to coarse, subangular to rounded (about 25 percent fine to very coarse sand); about 50 percent shale, 30 percent carbonates; oxidized to 20 ft	30	31
	Till, olive-gray, silty	19	50
	Gravel, fine to coarse, subangular to subrounded, sandy, mostly carbonates	4	54
	Till, olive-gray, silty; occasional cobbles and boulders	36	90
Pierre Formation:			
	Shale, grayish-black, siliceous, bentonitic, noncalcareous	10	100

151-65-8ABA
NDSWC 5475

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Till, dusky-yellow, very silty, oxidized-----	2	3
	Gravel, fine to medium, angular to subrounded, oxidized (about 35 percent fine to coarse sand)------------------------------------	7	10
	Clay, moderate-yellowish-brown, very silty, oxidized---------------------------------	10	20
	Clay, olive-gray, very silty to sandy--------	6	26
	Gravel, fine to coarse, angular to subrounded, sandy; about 50 percent shale and 25 percent carbonates------------------	10	36
	Till, olive-gray, silty to sandy; some thin lenses of sand----------------------------	54	90
	Boulder, granite----------------------------	1	91
	Till, olive-gray, silty to sandy------------	24	115
Pierre Formation:			
	Shale, grayish-black to black, siliceous, bentonitic, noncalcareous------------------	5	120

151-65-18CCC
NDSWC 5478

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Gravel, fine to coarse, angular to subrounded, silty to sandy, poorly sorted, oxidized; about 50 percent detrital shale--	15	16
	Till, olive-gray, silty---------------------	11	27
	Sand, fine to very coarse, subangular to subrounded, gravelly, oxidized----------------	8	35
	Till, olive-gray, silty---------------------	4	39
	Sand, fine to very coarse, subangular to subrounded (about 30 percent fine to coarse gravel)----------------------------	11	50
	Till, olive-gray, silty to sandy------------	10	60
Pierre Formation:			
	Shale, grayish-black, siliceous, bentonitic, noncalcareous-----------------------------	20	80

151-65-19CCC
NDGS auger hole BP67-43

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Gravel, bouldery----------------------------	5	5
	Clay, yellowish-brown, sandy----------------	7	12
	Gravel, bouldery----------------------------	2	14

151-65-20BBB
NDSWC 2872

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	2	2
	Gravel, coarse to very coarse, angular to rounded, sandy----------------------------	58	60
	Clay, medium-dark-gray, very silty, fluvial--	56	116
	Till, olive-gray, sandy to silty, plastic, calcareous---------------------------------	10	126
	Boulder, granitic---------------------------	2	128
Pierre Formation:			
	Shale, grayish-black, indurated; fractured 128-152 ft--------------------------------	32	160

151-65-22BDC1
NDGS auger hole BP67-46

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Gravel	26	26
	Sand	6	32
	Gravel	1	33

151-65-22BDC2
NDSWC 5052

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, gravelly	1	1
	Gravel, fine to coarse, oxidized; about one-third sand	19	20
	Sand, fine to medium, gravelly	4	24
	Till, olive-gray, sandy, calcareous	46	70
Pierre Formation:			
	Shale, grayish-black to medium-dark-gray, slightly fractured	30	100

151-65-26DDD
NDSWC 5051

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Till, dark-yellowish-brown, silty, oxidized	3	4
	Sand, medium to very coarse, subangular to subrounded, oxidized	27	31
	Till, olive-gray, silty, calcareous	4	35
	Gravel, fine to coarse, angular to subrounded; predominantly detrital shale; about one-fourth clay and silt	5	40
	Till, olive-gray, silty to sandy, calcareous	50	90
	Till, olive-gray to medium-dark-gray, calcareous	30	120
Pierre Formation:			
	Shale, dark-gray to grayish-black, fissile, slightly fractured	20	140

151-65-29BBB
(Log from U.S. Bureau of Reclamation)

Material	Thickness (feet)	Depth (feet)
Sand - dark, silty, topsoil	1.4	1.4
Sand - buff, fine, uniform, silty	12	13.4
Sand - gray, fine, uniform, trace of silt, cohesionless, pervious	31.6	45
Silt - gray, sandy, soft	22	67
Clay - gray, silty, soft, highly plastic	4	71
Sand - gray, fine, uniform, clean, pervious	4.8	75.8
Silt - gray, trace of fine sand, soft	1.3	77.1
Sand - gray, fine, uniform, clean, cohesionless, pervious	7.9	85
Sand - gray, medium to coarse, cohesionless, pervious	8	93
Sand - gray, gravelly, trace of silt, pervious	2	95
Sand - gray, well graded, cohesionless, pervious	2	97
Clay - gray, gravelly	2	99
Shale - gray, hard	1	100

151-66-1CCC
NDSWC 5054

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Till, moderate-yellowish-brown, sandy, oxidized-----------------------------------	14	15
	Till, olive-gray, silty to sandy-------------	19	34
	Sand, medium to very coarse, angular to subrounded; about one-third fine to medium angular to subrounded gravel---------------	21	55
	Till, olive- to medium-dark-gray, calcareous-	2	57
	Boulder, yellowish-gray, limestone-----------	2	59
	Till, olive-gray, silty to sandy, calcareous-	7	66
	Sand, fine to coarse, angular to subrounded, silty; predominantly detrital shale--------	4	70
	Till, olive-gray, silty, calcareous----------	20	90
Pierre Formation:			
	Shale, grayish-black to medium-dark-gray, indurated; bentonitic streaks--------------	30	120

151-66-4DDD
NDSWC 2870

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Sand, medium to very coarse, angular to rounded-----------------------------------	17	18
	Gravel, fine to coarse, angular to subrounded, (about 30 percent medium to very coarse sand)--	.4	22
	Till, medium-dark-gray, very sandy, plastic, calcareous--------------------------------	53	75
	Till, medium-dark-gray, silty to sandy, calcareous--------------------------------	20	95
Pierre Formation:			
	Shale, grayish-black, indurated; fractured 95-125 ft----------------------------------	45	140

151-66-19DDA
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil--------------------------------------	1.2	1.2
	Clay - light gray to buff, silty, laminated in zones, lime 1.2 to 4 ft., slightly plastic, impervious------------------------	7.8	9
	Silt - tan and buff, zones of silty clay laminae, becomes sandy in lower portion, semipervious to impervious-----------------	1.1	10.1
	Sand - brown and gray, fine and medium, silty lenses, semipervious to pervious-----------	1.7	11.8
	Clay (glacial till) buff, silty, sandy, fine to medium gravel throughout, zone of silty medium and coarse sand with approximately 30 percent gravel from 11.8 to 12.8 ft., cobble or boulder at 14.2 ft, semipervious-	4.2	16
	Sand - brown, becoming gray at 21 ft., silty, fine, uniform, trace of clay in zones, oxidized to 21 ft., semipervious to pervious-----------------------------------	9	25

151-66-21ABA
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil	1	1
	Clay (glacial till) tan and buff, silty, sandy, fine gravel throughout, occasional shale fragments, impervious	12.2	13.2
	Sand - tan and buff, medium, clayey, approximately 15 percent gravel, semi-pervious to impervious	7.1	20.3
	Clay (glacial till) brown, becoming gray at 27.2 ft., silty, sandy, stiff, compact, numerous boulders, fine to coarse gravel throughout, occasional sandy zones, oxidized to 27.2 ft., impervious	19.7	40

151-66-21CBB
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay (glacial till) buff becoming gray at 11.7 ft., silt rich, sandy in zones, fine gravel throughout, occasional medium and coarse gravel and shale fragments, oxidized to 11.7 ft., semipervious	15	15
	Sand - gray, fairly well graded, silty, approximately 10 percent gravel, trace of clay to clayey in zones, semipervious to pervious	6.2	21.2
	Sand - gray, very fine, silty, trace of clay in zones, semipervious	3.8	25

151-66-21CCC
NDSWC 2871

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, olive-gray, silty to sandy	4	5
	Clay, medium-gray, plastic, calcareous, fluvial	13	18
	Gravel, fine to medium, subrounded (about 25 percent coarse sand)	15	33
	Till, olive-gray, gravelly, calcareous	17	50
Pierre Formation:			
	Shale, medium-dark-gray, indurated	30	80

151-66-23ADD3
NDSWC 5053

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, very sandy to silty, oxidized	2	3
	Gravel, fine to coarse, angular to subangular, oxidized; about one-third medium to very coarse angular to subrounded sand	8	11
	Till, olive-gray, sandy; with thin lenses of gravel	5	16
	Gravel, fine to coarse, angular to subrounded and coarse to very coarse angular to sub-rounded sand; some clay	6	22
	Till, olive-gray, silty to sandy, calcareous	13	35
Pierre Formation:			
	Shale, grayish-black to medium-dark-gray; moderately fractured 75-100 ft	65	100

151-66-28DBC
(Log from Schnell, Inc.)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil	2	2
	Yellow clay	7	9
	Brown sand	1	10
	Brown clay	2	12
	Dark gray clay (till), sand, and coarse gravel at 29 ft	17	29
	Gray clay (till)	6	35
	Hard gray clay	15	50

151-66-32BBB
NDGS auger hole BP67-42

Glacial drift:			
	Sand, moderate-yellowish-brown, medium	13	13
	Sand, medium to coarse	16	29

151-67-1DD
(Log from Schnell, Inc.)

	Topsoil	2	2
	Yellow sandy clay - gray clay at 2 ft	12	14
	Gravel and sand - rock at 17 ft	3	17
	Gray sandy clay - till	53	70
	Sand, gravel, slate	3	73
	Clay	3	76
	Gravel and slate	2	78
	Clay - till	2	80
	Gravel, slate, clay	16	96
	Clay - till	15	111
	Hard clay	44	155
	Shale with clay streaks	200	355
	Shale	30	385

151-67-2BCB
(Log from U.S. Bureau of Reclamation)

	Topsoil	0.7	0.7
	Sand - light gray to tan, silty, fine and medium, ojcasional zones of coarse, trace of clay in zones, occasional gravels, semipervious to pervious	14.3	15
	Sand - brown, silty, fine and medium, zones of coarse sand and fine gravel, semipervious to pervious	10	25

151-67-3ADD
NDSWC 5059

Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Till, moderate-yellowish-brown, sandy, oxidized	2	3
	Sand, fine to coarse, angular to subrounded, gravelly, oxidized	22	25
	Boulder, yellowish-gray, dolostone	2	27
	Till, olive-gray, silty to sandy; lignite fragments	66	93
Pierre Formation:			
	Shale, medium-dark-gray to grayish-black; some bentonite streaks	27	120

151-67-11BAA
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil	0.8	0.8
	Clay (glacial till) light gray to 4 ft., becoming tan at 4 to 15 ft., silty, sandy, occasional fine gravel, lime to 4 ft., impervious	14.2	15
	Clay (glacial till) gray-brown to 22 ft., becoming gray at 22 to 35 ft., stiff, compact, silty, fine to medium gravel throughout, occasional boulder, slightly oxidized at 22 ft, impervious	20	35
	Clay (glacial till) gray and brown to 36.5 ft., being gray at 36.5 to 41.5 ft., silty, sandy rich till, few gravels, slightly oxidized at 35 to 36.5 ft., semipervious to impervious	6.5	41.5
	Sand - gray and brown to 44.2 ft., becoming gray at 45.8 to 50 ft., silty with trace of clay to 44.2 ft., boulder at 44.2 to 45.8 ft., becoming silty, fine uniform sand at 45.8 to 50 ft., semipervious	8.5	50

151-67-11DDD
(Log from U.S. Bureau of Reclamation)

	Topsoil	0.8	0.8
	Sand - brown, silty, clayey, fine and medium, zones of coarse sand, approximately 10 percent fine gravel, semipervious to impervious	18.3	19.1
	Clay (glacial till) gray, silty, sand rich till, fine to medium, gravel, semipervious	5.9	25

151-67-14DDD5
(Log from Schnell, Inc.)

	Topsoil	2	2
	Yellow clay with boulders	16	18
	Sand	22	40
	Clay	83	123
	Shale	2	125
	Shales, water bearing	45	170

151-67-14DDD6
(Log from U.S. Bureau of Reclamation)

	Topsoil	1	1
	Sand - tan and brown, silty, fine zones of silty clay laminae zone of clayey coarse sand and gravel at 15 ft., semipervious	20	21
	Sand - brown, fine and medium, fairly clean, cohesionless, pervious	2	23
	Clay (glacial till) gray, silty, sandy, fine gravel throughout, unoxidized, semipervious to impervious	2	25

151-67-15DDD
NDSWC 5479

Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	21	22

151-67-15DDD, Continued
NDSWC 5479

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Till, olive-gray, silty	45	67
Pierre Formation:			
	Shale, grayish-black, siliceous, bentonitic, noncalcareous	13	80

151-67-24DDA
(Log from U.S. Bureau of Reclamation)

Material	Thickness (feet)	Depth (feet)
Topsoil	0.5	0.5
Silt - light gray, few fine and medium gravels, fairly high lime concentration, semipervious	4.3	4.8
Clay (glacial till) brown, silty, sandy, zone of sandy gravelly till at 13.2 to 20 ft., cobbles or boulders at 10 to 13.2 ft., semipervious	15.3	20.1
Silt - gray, predominantly silt with lenses of plastic clay, semipervious to impervious	4.9	25

151-67-25CBB
(Log from Schnell, Inc.)

Material	Thickness (feet)	Depth (feet)
Topsoil	2	2
Yellow clay and boulder	9	11
Gravel	1	12
Gray clay with boulders	10	22
Gray clay	58	80
Hard gray clay	43	123
Shale, water bearing	27	150

151-68-4DCD
NDSWC 5499

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	4	5
	Gravel, fine to medium, angular to subrounded (about 20 percent sand); about 35 percent carbonates, 25 percent granitics, and 15 percent detrital shale	30	35
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, noncalcareous	5	40

151-68-25BAA
NDSWC 5062

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, moderate-yellowish-brown, silty to sandy	1	1
	Sand, medium to very coarse, angular to subrounded, oxidized; about one-third fine to medium angular to subrounded gravel	25	26
Pierre Formation:			
	Shale, medium-dark-gray to grayish-black, indurated; some thin bentonitic layers	34	60

151-69-1BBB
NDSWC 5500

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized----------------------------	2	3
	Gravel, fine to coarse, angular to rounded (about 25 percent fine to very coarse sand); about 30 percent carbonates, 25 percent detrital shale, and 25 percent granitics; oxidized to 25 ft--------------------------	44	47
	Gravel and cobbles, fine to coarse, angular to rounded; about 40 percent granitics, 25 percent carbonates; remainder sandstones, detrital shale, quartzite, and metamorphic rocks; interbedded with lenses of till-----	13	60
	Till, olive-gray, silty to sandy; cobbles----	20	80
	Gravel, fine to coarse, angular to rounded (about 25 percent medium to coarse sand); about 55 percent carbonates, 20 percent granitics; remainder siliceous rocks and detrital shale-----------------------------	5	85
	Till, olive-gray, silty----------------------	2	87
	Gravel, fine to coarse, angular to rounded; fair sorting (about 25 percent medium to very coarse sand); about 25 percent caro-nates (with oxidized surfaces), 25 percent granitics; remainder siliceous rocks, sandstone, siltstone, detrital shale, and lignite--------------------------------	20	107
	Till, olive-gray, gravelly-------------------	48	155
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, noncalcareous-------------------	25	180

151-69-3CCC
NDSWC 5501

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty---------------	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized----------------------------	20	21
	Till, olive-gray, silty to sandy-------------	11	32
	Sand, very fine to medium, subangular to rounded, well-sorted; about 75 percent quartz; remainder carbonates, granitics, detrital shale, and lignite----------------	10	42
	Till, olive-gray, silty----------------------	47	89
	Gravel, fine to coarse, angular to subrounded, poorly sorted; cobbles; mostly carbonates, some granitics----------------------------	3	92
	Till, olive-gray, silty----------------------	3	95
	Gravel, fine to coarse, angular to rounded (about 45 percent medium to coarse sand); about 45 percent carbonates (surfaces iron stained), and about 25 percent granitics---	5	100
	Sand, very fine to coarse, subangular to rounded, well-sorted; about 60 percent quartz; interbedded with thin lenses of silty clay---------------------------------	41	141
	Gravel, fine to medium, angular to rounded (about 30 percent medium to very coarse sand); about 25 percent granitics, 35 per-cent carbonates (surfaces iron stained), and 20 percent detrital shale--------------	14	155
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, noncalcareous-------------------	25	180

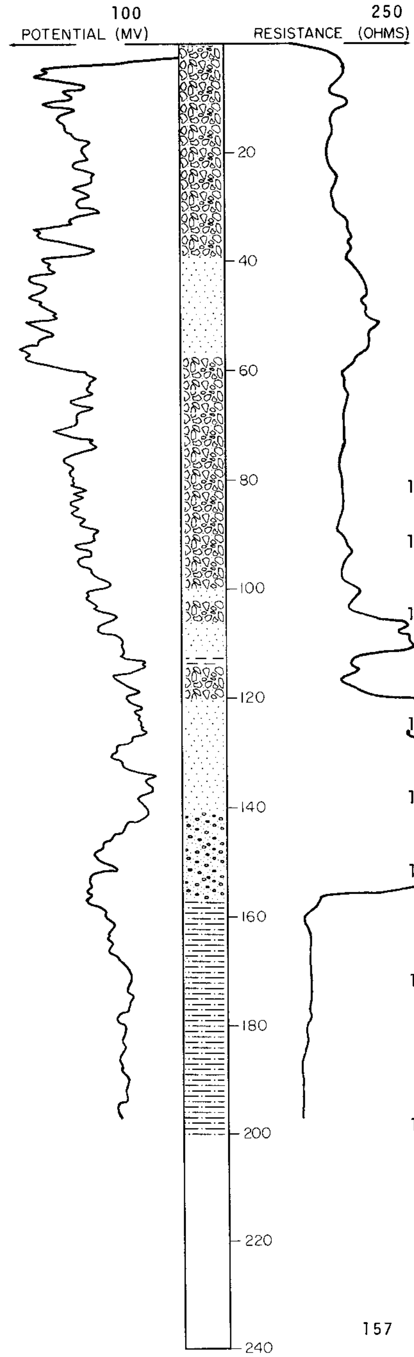
NDSWC 5063

LOCATION: 151-69-15AAA

DATE DRILLED: July 1968

ELEVATION: 1557
(FT, MSL)

DEPTH: 200
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, dark-yellowish-brown.
1-17	Till, dusky-yellow to moderate-yellowish-brown, silty to sandy, oxidized.
17-40	Till, olive- to medium-dark-gray, silty to sandy, calcareous.
40-58	Sand, coarse to very coarse, angular to subrounded; about one-fourth fine angular to subrounded gravel; some clay.
58-100	Till, olive-gray, silty to sandy, calcareous; some cobbles.
100-102	Sand, medium to very coarse, angular to subrounded.
102-106	Till, olive- to medium-dark-gray, silty to sandy, calcareous.
106-112	Sand, medum to very coarse, subangular to rounded; about one-third fine to medium angular to sub-rounded gravel.
112-114	Clay, olive-gray, very silty, plastic, very calcareous.
114-120	Till, olive-gray, silty to sandy, calcareous; some gravel lenses.
120-140	Sand, medium to very coarse, subangular to rounded; about one-fourth fine to medium angular to sub-rounded gravel.
140-157	Gravel, fine to coarse, angular to subrounded; about one-third medium to very coarse subangular to subrounded sand.

Pierre Formation

157-200	Shale, medium-dark-gray, moderately indurated.

151-69-22BBB
NDSWC 5503

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty, oxidized	16	17
	Till, olive-gray, silty	31	48
	Sand, very fine to very coarse, subangular to rounded; about 55 percent quartz; remainder shale and carbonates	8	56
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, calcareous	4	60

151-69-26CCC
NDSWC 5502

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Gravel, fine to coarse, angular to subrounded, oxidized	4	5
	Boulder, granite	.5	5.5
	Till, moderate-yellowish-brown, silty to sandy, oxidized	11.5	17
	Till, olive-gray, silty	16	33
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, noncalcareous	7	40

151-70-3CDD
NDGS auger hole BP67-34

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Sand, olive-gray, fine to medium	14	14
	Till	10	24

151-70-5BBB
(Log from U.S. Bureau of Reclamation)

Material	Thickness (feet)	Depth (feet)
Clay (till) - buff to brown, weathered, sandy, minor percent of fine gravel, slightly plastic, dries hard, impervious	15.1	15.1
Sand - brown, very fine, uniform, silty, cohesionless, semipervious	7.9	23
Silt - gray, sandy, laminated, sand is fine, uniform, semipervious	2	25

151-70-7BBB
(Log from U.S. Bureau of Reclamation)

Material	Thickness (feet)	Depth (feet)
Clay (glacial till) light gray and buff, silty, sandy, few fine gravels, predominantly silt at 3 to 6 ft., semipervious	11.2	11.2
Sand - brown, fine, silty, semipervious	1	12.2
Clay (glacial till) brown, same as till above	2.3	14.5
Clay (glacial till) gray, same as till above, unoxidized	2.5	17
Sand - gray, fine, silty, few gravels, occasional clayey zone, semipervious	2.8	19.8
Clay (glacial till) gray, soft, silty, sandy, fine gravels throughout, semipervious to impervious	36.8	56.6

151-70-7BBB, Continued
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay (glacial till) gray, sandy, gravelly at 65 to 70 ft., semipervious to impervious---	13.4	70
	Clay (glacial till) gray, coarse gravel and reworked shale, cobbles or boulders at 71 and 73 ft., impervious---------------------	5.2	75.2
	Shale - gray, silty clay shale, few small lignitic inclusions in lower portion, impervious---------------------------------	10.8	86

151-70-7CDD
(Log from U.S. Bureau of Reclamation)

	Clay (till) - brown, sandy, gravelly, compact, moderately plastic, impervious-------------	8.6	8.6
	Clay (till) - same as above, unoxidized------	8.9	17.5
	Shale - gray, silty, sandy, clay shale, moderately consolidated but not cemented, impervious---------------------------------	12.5	30

151-70-9BBB
NDGS aguer hole BP68-28

Glacial drift:			
	Sand, medium to coarse-----------------------	13	13
	Gravel, coarse-------------------------------	3	16
	Till, olive-gray-----------------------------	4	20

151-70-10BBB
NDGS auger hole BP68-35

Glacial drift:			
	Sand, brown, fine to medium, well-sorted, silty--------------------------------------	18	18
	Sand, medium to coarse, saturated------------	11	29
	Boulder--------------------------------------	1	30
	Sand, coarse, saturated----------------------	13	43
	Till, olive-gray, silty to sandy-------------	4	47
Pierre Formation:			
	Shale, dark-gray, hard, cohesive-------------	3	50

151-70-16AAA
NDGS auger hole BP68-29

Glacial drift:			
	Sand, grayish-brown, fine to medium, silty to clayey---------------------------------	5	5
	Sand, light-brownish-gray, fine, silty to clayey-------------------------------------	5	10
	Sand, light-brownish-gray, silty, saturated--	10	20
	Sand, silty to clayey, saturated-------------	5	25
	Sand, olive-gray, silty to clayey, saturated---------------------------------	8	33
	Till, olive-gray-----------------------------	2	35
Pierre Formation:			
	Shale, dark-gray, hard, cohesive-------------	5	40

151-70-18CCC
NDSWC 5298

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, dusky-yellow to moderate-yellowish-brown, very silty, oxidized	26	27
	Till, olive-gray	13	40
	Siltstone, medium-gray to brownish-gray; possibly reworked or displaced Fox Hills Formation by glacial ice	40	80
Fox Hills Formation:			
	Siltstone, medium- to brownish-gray, siliceous; interbedded with medium-bluish-gray to brownish-gray fine-grained crumbly sandstone	80	160

151-70-25CCC
NDGS auger hole BP69-7

Glacial drift:			
	Till, moderate-yellowish-brown; interbedded with thin lenses of gravel at 4-12 ft	15	15
Fox Hills Formation:			
	Siltstone, medium- to brownish-gray, clayey	9	24

151-70-28CCC
NDGS auger hole BP69-6

Glacial drift:			
	Till, olive-brown	16	16
Fox Hills Formation:			
	Siltstone, medium- to brownish-gray, clayey	18	34

151-71-9CCC
NDSWC 5234

Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Clay, moderate-yellowish-brown, very sandy, oxidized	15	16
	Till, olive-gray, gravelly	84	100
	Till, olive-gray, sandy; interbedded with thin lenses of sand and gravel	60	160
	Till, olive-gray, sandy to gravelly; interbedded with thin lenses of gravel generally 2-4 inches thick	54	214
Pierre Formation:			
	Shale, grayish-black, indurated	26	240

151-71-13DAD
(Log from U.S. Bureau of Reclamation)

	Topsoil	1	1
	Clay (glacial till) brown and buff, sandy, with gravel and lignite fragments, occasional zone of predominantly silt and sand, oxidized, impervious	18.9	19.9

151-71-13DAD, Continued
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay (glacial till) brown and gray, soft, silty, sandy, occasional gravel, slightly oxidized, impervious----------------------------	9.9	29.8
	Clay (glacial till) gray, hard, silty sand rich till, fine gravel throughout, occasional lignite fragments, impervious---	10.8	40.6
	Sand - gray, fine, fairly uniform sand, trace of silt, small amount of fine gravel, pervious to semipervious-------------------	4.4	45

151-71-22AA
(Log from U.S. Bureau of Reclamation)

Material	Thickness (feet)	Depth (feet)
Topsoil---------------------------------------	0.4	0.4
Silt - tan, with very fine sand, semipervious	4.8	5.2
Sand - buff, silty, clayey, few gravels, semipervious------------------------------	4.8	10
Clay (glacial till) brown, silty sand rich till, semipervious-------------------------	4.5	14.5
Sand - buff to tan, silty, fine sand, occasional clayey lignitic slack zones, semipervious to pervious------------------	25.5	40
Sand, brown, fine sand, trace of clay, oxidized to 44.8 ft., semipervious to pervious---------------------------------	4.8	44.8
Clay, gray, very sandy clay, zone of silty clay at 54 ft., semipervious---------------	14.2	59
Clay,(glacial till) gray, silty,tsandy, fine to medium gravel, slightly plastic when saturated, impervious-----------------	1	60

151-71-22DCC
(Log from U.S. Bureau of Reclamation)

Material	Thickness (feet)	Depth (feet)
Topsoil---------------------------------------	0.8	0.8
Silt - tan, silt with some very fine sand----	1.2	2
Clay (glacial till) tan, becoming gray and brown at 8 to 14.6 ft., dry, silty, sandy, occasional gravel, very hard, dry, compact till at 8 to 14.6 ft., slightly oxidized at 8 to 14.6 ft., lower portion moderately plastic, impervious------------------------	12.6	14.6
Sand -tan and buff, silty, fine sand till lenses or fingers at 16 ft.,19 ft., and 21 ft., semipervious-----------------------	6.4	21
Sand- tan, compact, silty, fine and very fine sand, till lens at 21.5 to 22 ft., occasional stratified zones of silty sand and thin lignite slack laminae, semipervious-------------------------------	9	30

151-71-23BAA
(Log from U.S. Bureau of Reclamation)

Material	Thickness (feet)	Depth (feet)
Topsoil---------------------------------------	0.5	0.5
Silt - tan, silt with very fine sand, few gravels, semipervious----------------------	13.5	14
Clay (glacial till) buff and tan, very silty, some fine sand, few gravels throughout, semipervious------------------	15.5	29.5
Clay (glacial till) brown, silty, sandy, some gravel throughout, occasional zones of predominantly silt, semipervious--------------	10.5	40

151-71-23BAA, Continued
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Silt - buff, silt with some very fine sand, semipervious-------------------------------	6	46
	Sand -brown, dry, fine and medium, some silt in upper portion, becomes fairly clean sand at 48 ft., fairly well graded sand with some gravel at 55 to 60 ft., pervious------	14	60

151-71-23BBC
(Log from U.S. Bureau of Reclamation)

	Clay (glacial till) brown, becoming gray and brown at 14 to 20 ft., stiff silty, sandy gravel throughout, occasional lignite fragments, oxidized to 14 ft., slightly oxidized at 14 to 20 ft., moderate plastic when saturated, impervious----------------	20	20
	Clay (glacial till) gray, hard, silty, clay rich till, gravel throughout, coarse, sandy, gravelly zone at 55 ft., cobbles or boulders at 24.5, 35, and 58 ft., moderately plastic to plastic when saturated, impervious--------------------------------	40	60

151-71-24BBB
(Log from U.S. Bureau of Reclamation)

	Topsoil--------------------------------------	1.8	1.8
	Silt - tan, some fine sand, trace of clay, few gravels-------------------------------	4.7	6.5
	Sand - buff to tan, silty fine and medium sand, some gravel, semipervious------------	3	9.5
	Clay (glacial till) brown, soft, silty, sandy, some gravel and lignite fragments, slightly plastic, impervious--------------	15.5	25
	Sand - brown and gray, silty, very fine sand, slightly oxidized, semi-impervious---	4	29
	Sand - gray, fairly well graded, trace of silt, pervious----------------------------	4.5	33.5
	Clay (glacial till) gray, stiff, silty clay rich, some gravel throughout, moderately plastic, impervious-----------------------	6.5	40

151-71-27CCC
(Log from U.S. Bureau of Reclamation)

	Topsoil--------------------------------------	0.4	0.4
	Clay (glacial till) gray to brown, silty, sandy, fine gravel, becomes very silty and sandy at 4 to 5 ft., impervious-----------	4.6	5
	Silt - brown, silty with very fine sand and trace of clay-----------------------------	3	8
	Clay (glacial till) brown, very silty, sandy, till to 13.5 ft., becoming compact with more clay at 13.5 to 16.4 ft., oxidized to 16.4 ft., impervious--------------------	8.4	16.4
	Clay (glacial till) gray, silty, clay rich till, fine gravel throughout, occasional lignite fragments, moderately plastic, impervious--------------------------------	6.6	23
	Clay (glacial till) gravel, hard, silty, sandy, fine gravel, occasional lignite fragments, impervious---------------------	6.5	29.5
	Sand - gray, silty, fine sand, semipervious--	.5	30

151-71-28CCC
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil	0.6	0.6
	Clay (glacial till) tan to brown, soft, silt, very sandy till, some fine gravel throughout with occasional coarse gravel, occasional zones predominantly silty sand, becomes clayey and more compact at 14 to 17.3 ft., oxidized to 17.3 ft., semi-pervious to impervious	16.7	17.3
	Clay (glacial till) brown and gray, compact silty, sandy, clay rich till, slightly oxidized, moderately plastic, impervious	1	18.3
	Sand - gray, silty, very fine sand, semi-pervious to impervious	2.2	20.5
	Clay (glacial till) gray, compact, silty sandy, clay rich till, fine gravel throughout, occasional lignite fragments, gravelly zone at 25 to 30 ft., or boulders at 26.8 to 30 ft., moderately plastic, impervious	9.5	30

151-71-29CCC
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay (topsoil) black, sandy, silty, organic	1	1
	Clayey sand - brown, clay content diminishes from predominantly clay near surface to clayey sand at 7 ft., sand is medium to fine, uniform and moist, low plasticity to nonplastic	6	7
	Silty sand - brown, medium to fine sand, few pebbles, trace of clay varying to clayey at 16 ft.; nonplastic, wet and stable	10	17
	Clay (glacial till) dark-gray, sandy, numerous pebbles scattered throughout, very firm and tough; moist to wet; low to medium plasticity	7	24

151-71-30BBC
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil	1.5	1.5
	Clay (glacial till) gray to buff, silty, sandy, few fine gravels, alkaline, dry in lower portion, impervious	3.5	5
	Sand - brown, silty, very fine to fine sand, occasional fine gravel, semipervious	8	13
	Sand - brown, fine and medium, cohesionless, approximately 5 to 10 percent gravel, oxidized to 14.6 ft., pervious	1.6	14.6
	Clay (glacial till) gray, compact, silty, clay rich till at 15 to 20 ft., becoming silty, sandy till at 20 to 25 ft., fine gravel throughout, occasional lignite fragments, moderately plastic in upper portion to slightly plastic in lower portion when saturated, impervious in upper zone, semipervious in lower zone	10.4	25

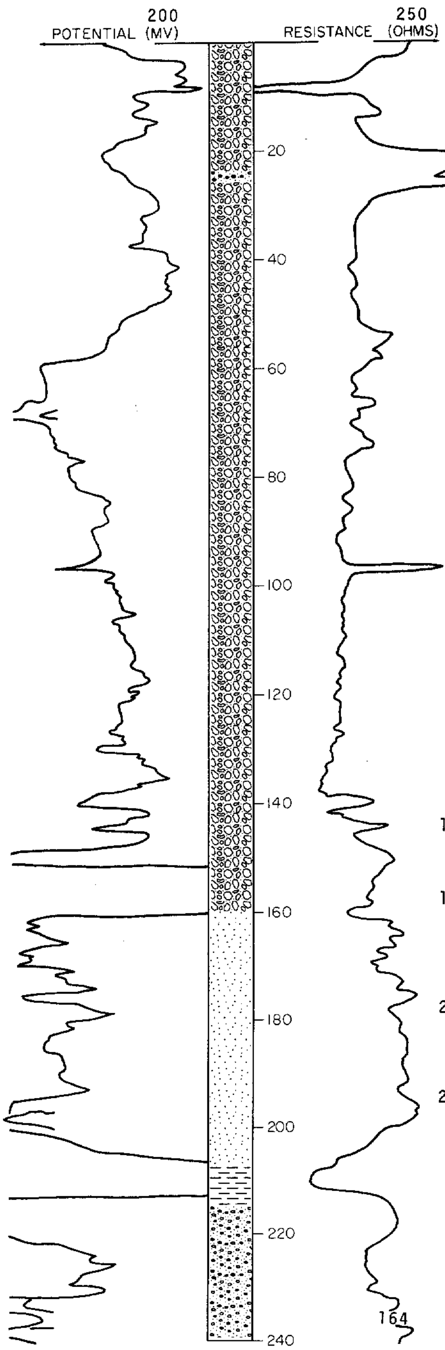
NDSWC 5296

LOCATION: 151-71-32ABB

ELEVATION: 1605
(FT, MSL)

DATE DRILLED: June 1969

DEPTH: 340
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, brownish-black, silty to sandy.
1-15	Till, moderate-yellowish-brown, very silty, oxidized.
15-25	Till, olive-gray, moderately silty.
25-27	Gravel, fine to medium, angular to subrounded, sandy, poorly sorted.
27-144	Till, olive- to medium-dark-gray, silty.
144-160	Till, olive-gray; interbedded with thin lenses of sand.
160-206	Sand, very fine to very coarse, angular to subrounded, slightly gravelly; about 50 percent quartz.
206-214	Clay, olive-gray, very silty; with light-olive-gray laminations (fluvial sediment).
214-270	Gravel, fine to coarse, angular to subrounded (about 30 percent fine to very coarse sand); about 30 percent carbonates, 20 percent shale; remainder is siliceous rocks, sandstone, granitics, and lignite.

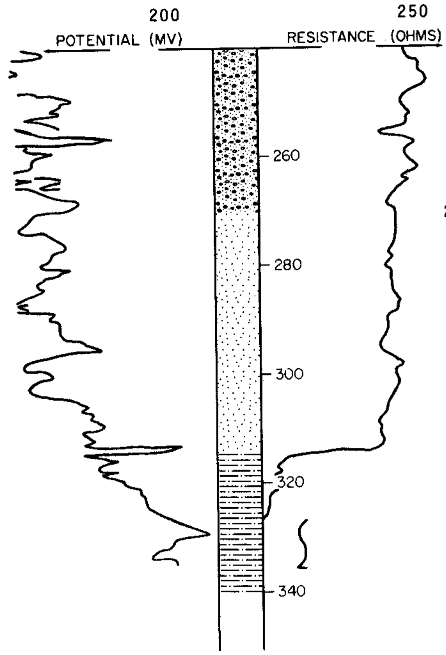
NDSWC 5296, Continued

LOCATION: 151-71-32ABB

DATE DRILLED: June 1969

ELEVATION: 1605
(FT, MSL)

DEPTH: 340
(FT)



DESCRIPTION OF DEPOSITS

270-315 Sand, very fine to very coarse; occasional thin silty clay layers; mostly quartz.

Pierre Formation

315-340 Shale, grayish-black, siliceous, indurated.

151-72-1BBB
NDSWC 5235

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Clay, very pale orange, leached	4	5
	Sand, very fine to coarse, moderate-yellowish-brown, oxidized	7	12
	Till, olive-gray, silty	23	35
	Clay, medium-dark-gray; about one-half medium to coarse sand	27	62
	Till, olive-gray, sandy	116	178
	Till, olive-gray; interbedded with fine to coarse gravel	17	195
	Gravel, fine to medium, subrounded to rounded; about one-third medium to coarse sand	5	200
	Clay, medium-dark-gray, silty	52	252
Pierre Formation:			
	Shale, dark-gray; occasional thin layers of bentonite	18	270

151-72-4DDD
NDSWC 5300

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, very silty to sandy, oxidized	14	15
	Till, olive-gray	27	42
	Sand, fine to coarse, subangular, clayey, poorly sorted; mostly quartz and shale	3	45
	Till, olive-gray; interbedded with thin lenses of sand	100	145
	Till, olive-gray to medium-dark-gray, moderately sandy, silty, and pebbly; a few cobbles	107	252
Fox Hills Formation:			
	Sandstone, medium-bluish-gray to dark-greenish-gray, very fine to fine-grained, subangular; not cemented	18	270
Pierre Formation:			
	Shale, grayish-black, siliceous, indurated; not fractured; a few light-gray bentonitic laminae	10	280

151-72-13AAA
NDSWC 5297

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, very silty, moderately sandy, pebbly, oxidized	15	16
	Till, olive-gray to medium-dark-gray, moderately silty; occasional cobbles	48	64
	Sand, very fine to coarse, angular to subrounded, gravelly, poorly sorted; interbedded with clay lenses	8	72
	Till, olive-gray to medium-dark-gray, slightly silty to sandy; occasional cobbles	14	86
	Gravel, fine to medium, angular to rounded (about 25-45 percent fine to very coarse sand); about 20-30 percent shale; remainder is granitics and siliceous rock	14	100
	Sand, very fine to medium, angular to rounded, well-sorted; about 60-80 percent quartz; interbedded throughout with very silty to sandy clay lenses; more clay between 140-160 ft	60	160
	Till, olive-gray to medium-dark-gray, silty to very sandy	65	225
	Sandstone, medium-bluish-gray, very fine to fine-grained, micaceous, silty to clayey; displaced Fox Hills Formation	7	232
	Till, olive-gray to medium-dark-gray, silty; abundant shale fragments	16	248
Pierre Formation:			
	Shale, grayish-black, siliceous, indurated, bentonitic; occasional limestone concretions	32	280

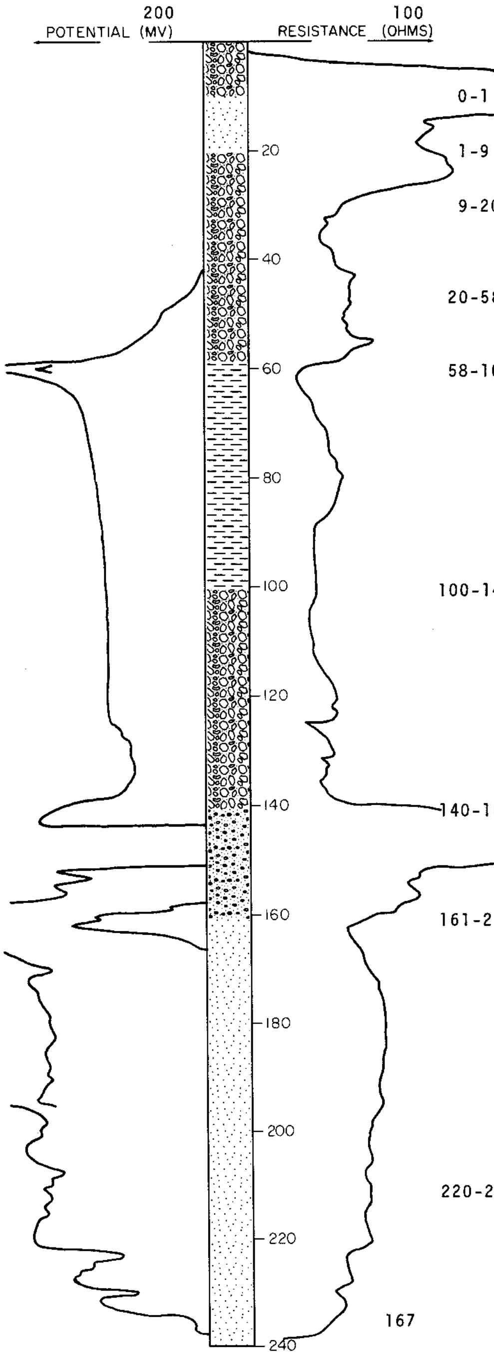
NDSWC 5308

LOCATION: 151-72-16DDC

DATE DRILLED: June 1969

ELEVATION: 1605
(FT, MSL)

DEPTH: 280
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, brownish-black, silty to sandy.
1-9	Till, dusky-yellow, very sandy, oxidized.
9-20	Sand, very fine to medium, angular to subrounded, moderately well sorted, oxidized.
20-58	Till, olive-gray; occasional cobbles; few boulders.
58-100	Clay, olive-gray to medium-dark-gray; occasional organic streaks (fluvial sediment).
100-140	Till, olive-gray, silty to sandy.
140-161	Gravel, fine, angular to subrounded.
161-220	Sand, very fine to very coarse, angular to subrounded; about 60-80 percent quartz; remainder siliceous rocks, carbonates, scoria, and lignite; occasional thin layers of silty clay.
220-275	Sand, very fine to very coarse; fair sorting; interbedded with thin clay lenses throughout.

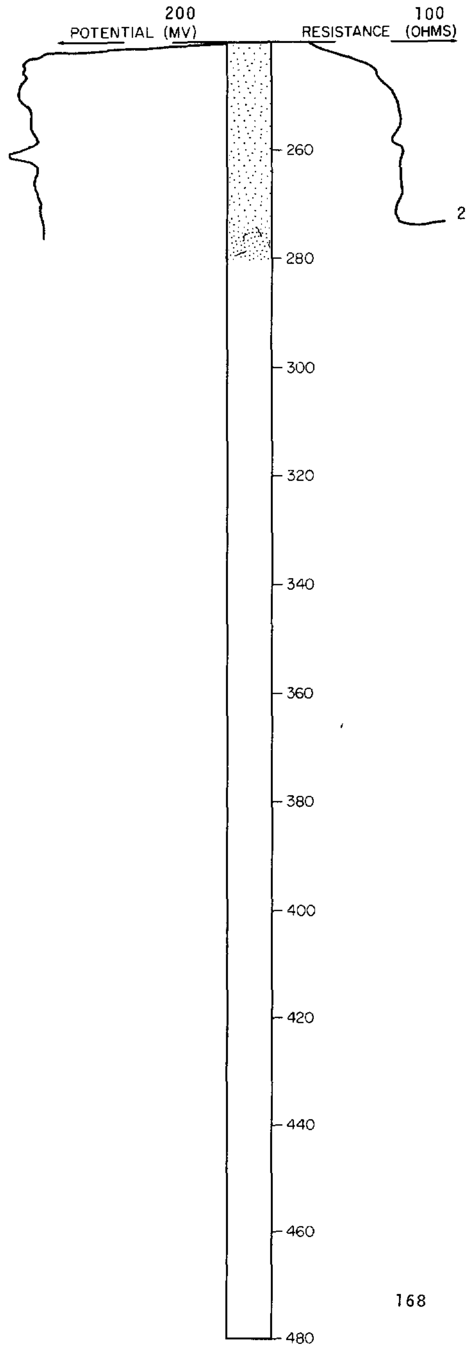
NDSWC 5308, Continued

LOCATION: 151-72-16DDC

DATE DRILLED: June 1969

ELEVATION: 1605
(FT, MSL)

DEPTH: 280
(FT)



DESCRIPTION OF DEPOSITS

Fox Hills Formation

275-280 Sandstone, medium-bluish-gray, fine-grained, cemented; interbedded with medium-dark-gray siltstone; twisted off drill sub at 280 ft.

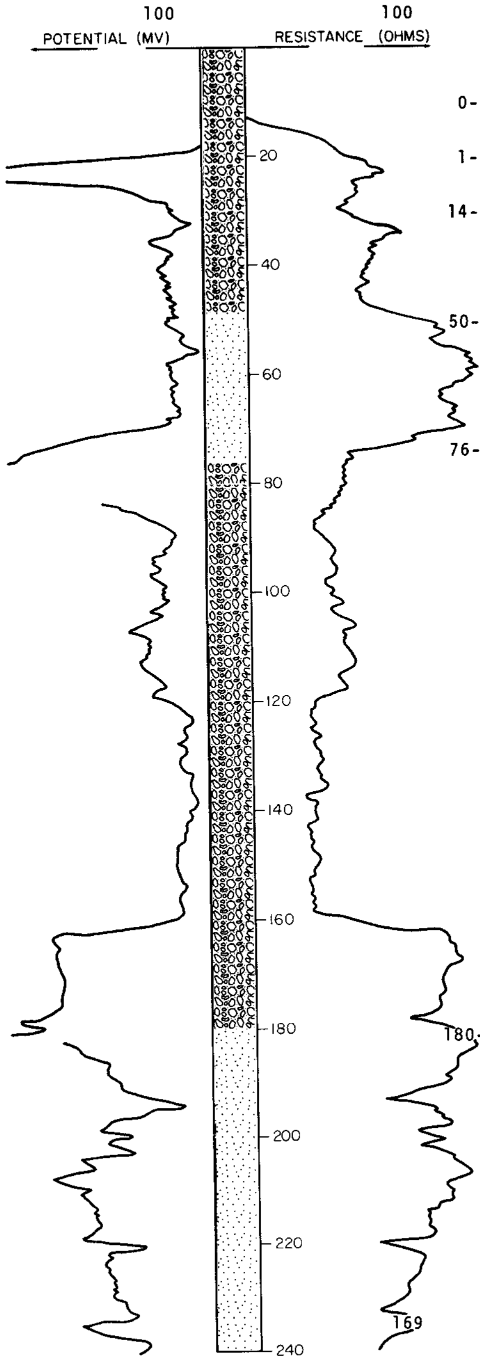
NDSWC 5233

LOCATION: 151-72-16DDD1

DATE DRILLED: November 1968

ELEVATION: 1590
(FT, MSL)

DEPTH: 340
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, brownish-black, sandy.
1-14	Till, moderate-yellowish-brown, silty, oxidized.
14-50	Till, olive-gray, moderately silty.
50-76	Sand, fine to very coarse, angular to rounded, moderately well sorted.
76-180	Till, olive-gray, silty.
180-262	Sand, very fine to very coarse, angular to rounded, moderately well sorted; predominantly quartz, carbonates, and detrital lignite; occasionally interbedded with olive-gray silty to sandy clay.

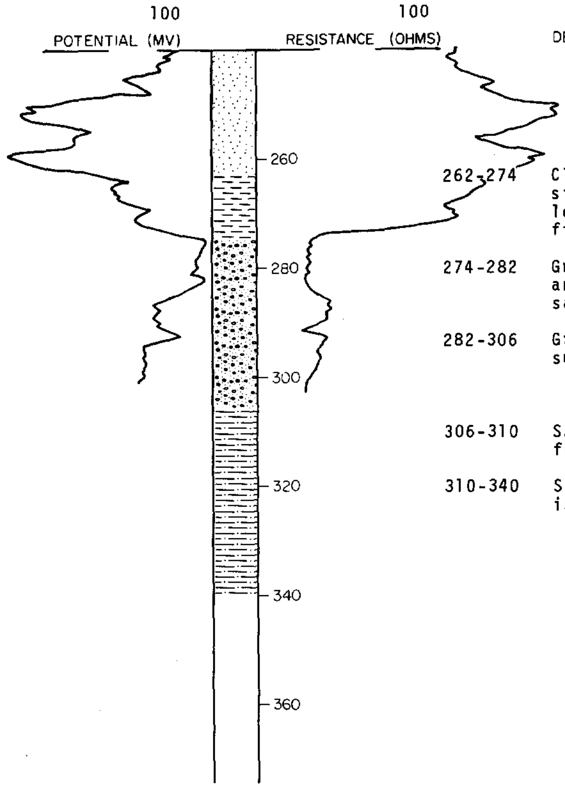
NDSWC 5233, Continued

LOCATION: 151-72-16DDD1

DATE DRILLED: November 1968

ELEVATION: 1590
(FT, MSL)

DEPTH: 340
(FT)



DESCRIPTION OF DEPOSITS

262-274 Clay, olive-gray, very silty; interbedded with lenses of very fine to fine sand.

274-282 Gravel, fine to coarse, angular to subrounded, sandy.

282-306 Gravel, fine to coarse, subrounded, clayey.

Pierre Formation

306-310 Shale, grayish-black, fractured.

310-340 Shale, grayish-black, indurated.

151-72-16DDD2
NDSWC 5233A

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black, silty-------------------------	1	1
	Till, moderate-yellowish-brown, silty, oxidized-----------------------------------	14	15
	Till, olive-gray, moderately silty-----------	35	50
	Sand, fine to coarse, angular to rounded, moderately well sorted---------------------	27	77
	Till, olive-gray, silty----------------------	23	100

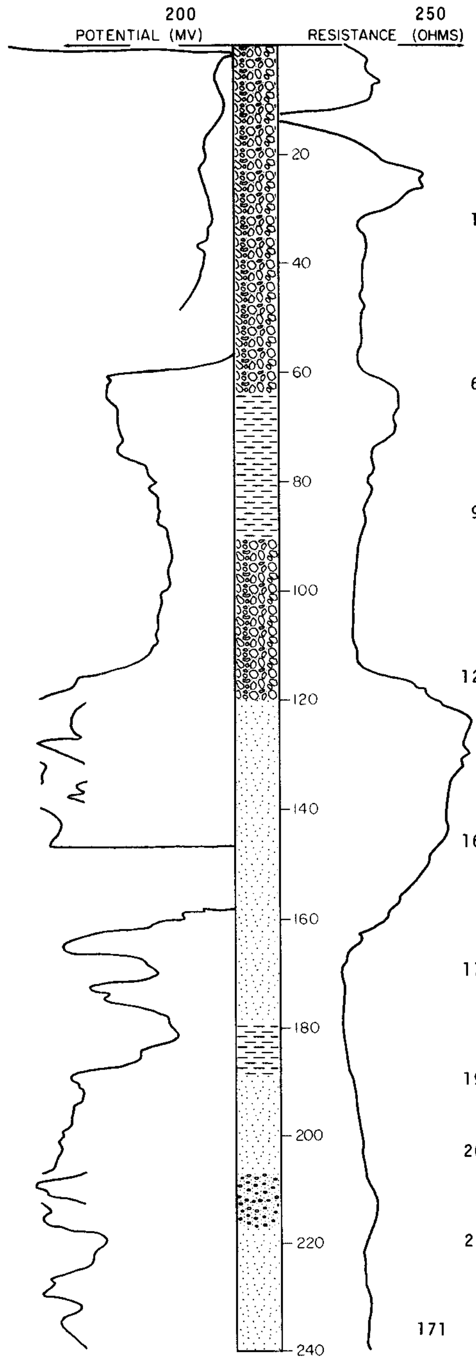
NDSWC 5309

LOCATION: 151-72-23BBB

DATE DRILLED: June 1969

ELEVATION: 1605
(FT, MSL)

DEPTH: 300
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, brownish-black, silty to sandy.
1-15	Till, moderate-yellowish-brown, very sandy to silty, oxidized.
15-63	Till, olive-gray, silty to sandy; occasional cobbles.
63-90	Clay, olive-gray to medium-dark-gray, very silty; occasional grayish-black laminae; interbedded with layers of fine to very fine sand (fluvial sediment).
90-120	Till, olive-gray, silty.
120-160	Sand, very fine to very coarse, angular to sub-rounded, moderately well sorted; about 50-70 percent quartz; remainder is western siliceous material, carbonates, and lignite; small amounts of scoria.
160-179	Sand, very fine to medium, subangular; interbedded with very silty clay.
179-190	Clay, brownish-black to black, very sandy, silty (fluvial sediment).
190-208	Sand, very fine to very coarse, angular to sub-rounded; some lignite.
208-218	Gravel, fine to medium; about 30-40 percent fine to coarse angular to sub-rounded sand.
218-269	Sand, fine to very coarse, angular to subrounded; interbedded with silty to sandy clay.

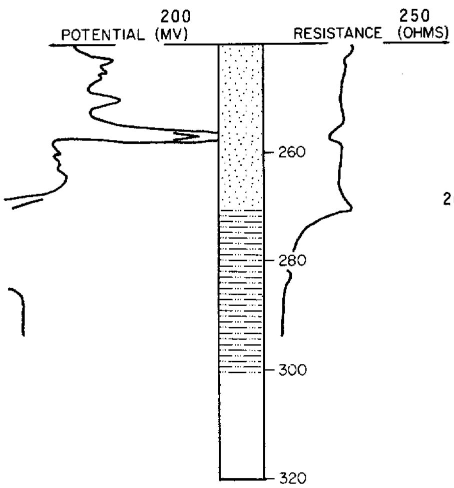
NDSWC 5309, Continued

LOCATION: 151-72-23BBB

DATE DRILLED: June 1969

ELEVATION: 1605
(FT, MSL)

DEPTH: 300
(FT)



DESCRIPTION OF DEPOSITS

Fox Hills Formation

269-300 Siltstone, medium-gray to medium-dark-gray, siliceous, moderately indurated, bedded.

151-72-23CCC
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil--------------------------------------	0.8	0.8
	Sand -brown, silty, fine, sand, with few fine to medium gravel, semipervious-------------	1.2	2
	Clay (glacial till) brown, becoming gray and brown at 8.7 ft., compact, silty, sandy, fine gravel and lignite fragments throughout, gypsum at 2 to 5.5 ft., oxidized to 8.7 ft., slight oxidation at 8.7 to 11.6 ft., impervious----------------------------	9.6	11.6
	Sand - gray, silty, fine sand, with some fine gravel, lignite fragments, semipervious----	3.2	14.8
	Sandstone (boulder) gray, dense, well cemented, lignitic shale streaks throughout, gypsum in lower portion--------------	1.6	16.4
	Clay (glacial till) gray, compact, silty, clay rich till, fine gravel throughout with occasional medium and coarse gravel, moderately plastic when saturated, impervious---------------------------------	3.9	20.3
	Sandstone (boulder) pink and white, medium with some coarse, well cemented quartz sand, drilled at right angles to bedding plane-------------------------------------	1.1	21.4
	Clay (glacial till) same as gray till above--	3.6	25

151-72-23DDC
NDSWC 5310

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown	9	10
	Till, olive-gray, silty, slightly sandy	32	42
	Sand, very fine to medium, subangular; fair sorting; mostly quartz	7	49
	Till, olive-gray, very silty, slightly sandy, pebbly	11	60
	Clay, olive-gray, very silty, moderately sandy (fluvial sediment)	20	80
	Till, olive-gray, silty, pebbly; occasional thin gravel lenses	10	90
	Gravel, fine to coarse, clayey	2	92
	Till, olive-gray, silty, slightly sandy, pebbly; a few cobbles and boulders	64	156
	Gravel, fine to medium (mostly fine), angular to subrounded; about 40-60 percent lignite and siliceous rocks; some scoria; interbedded with thin layers of silty clay	6	162
	Sand, very fine to very coarse, angular to subrounded; about 25-50 percent lignite and quartz; some siliceous rocks; interbedded with lenses of silty clay	56	218
	Sand, fine to very coarse, angular to subrounded; mostly quartz and siliceous rocks; some carbonates, granitics, shale, lignite, and scoria	32	250
	Gravel, fine to coarse, angular to subrounded (about 25-35 percent medium to coarse sand); mostly siliceous, shale, and carbonate rock; some lignite, scoria, and granitics	55	305
Pierre Formation:			
	Shale, grayish-black, siliceous, indurated; bentonite streaks	35	340

151-72-25AAA
(Log from U.S. Bureau of Reclamation)

Material	Thickness (feet)	Depth (feet)
Clay (topsoil), black, sandy, organic	1	1
Sandy clay - brown, medium to fine sand, silty; moist and firm; low plasticity to nonplastic; glacial fluvial	8	9
Sand - gray-brown, fine, uniform, trace of silt; cohesionless, outwash	5	14
Clay - brown, few pebbles, sandy, moist and firm; low plasticity; glacial fluvial	6	20
Clay (glacial till) dark-gray, sandy, silty, numerous pebbles, thin sand lenses; moist to wet and firm; low plasticity	4	24

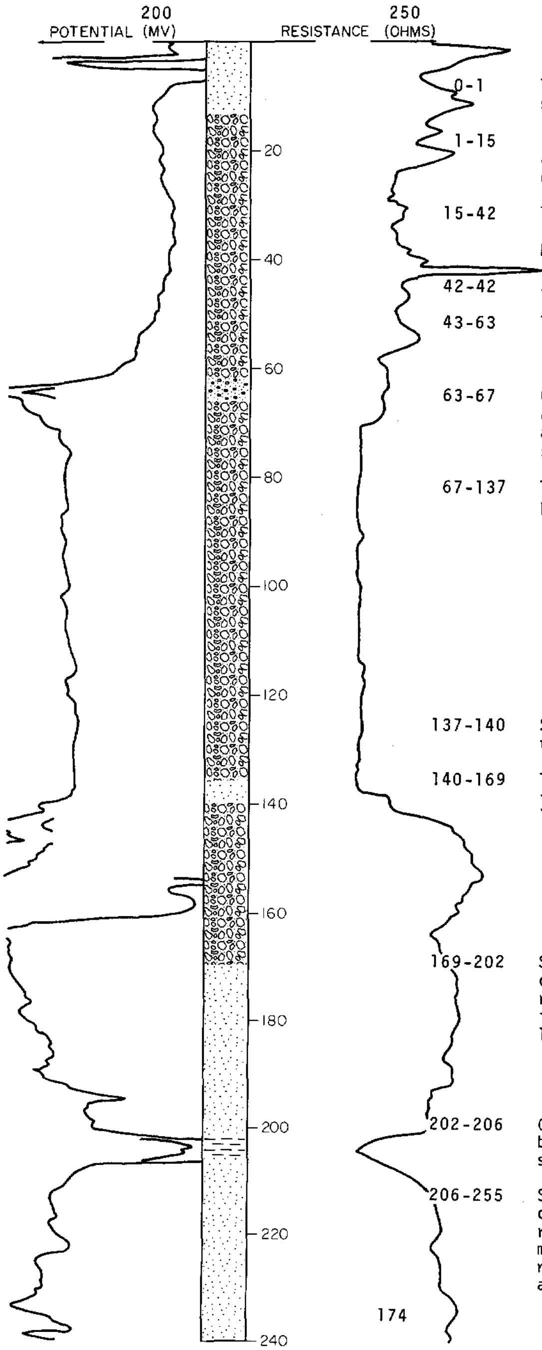
NDSWC 5314

LOCATION: 151-72-25BBC

DATE DRILLED: June 1969

ELEVATION: 1605 (FT, MSL)

DEPTH: 360 (FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, brownish-black, silty to sandy.
1-15	Sand, fine to very coarse, angular to subangular, oxidized.
15-42	Till, olive-gray, silty, pebbly; a few cobbles and boulders.
42-42	Boulder, granite.
43-63	Till, olive-gray, silty.
63-67	Gravel, fine to coarse, angular, poorly sorted; abundant cobbles; mostly shale and carbonates.
67-137	Till, olive-gray, silty, pebbly; a few cobbles.
137-140	Sand, fine to coarse, angular to subrounded, clayey.
140-169	Till, olive-gray, silty; interbedded with sand lenses.
169-202	Sand, very fine to very coarse, angular to subrounded; fair sorting; interbedded with thin layers of silty clay.
202-206	Clay, dark-gray to grayish-black, very silty (fluvial sediment).
206-255	Sand, very fine to very coarse, angular to subrounded; some gravel; mostly quartz and siliceous rocks; some carbonates and lignite.

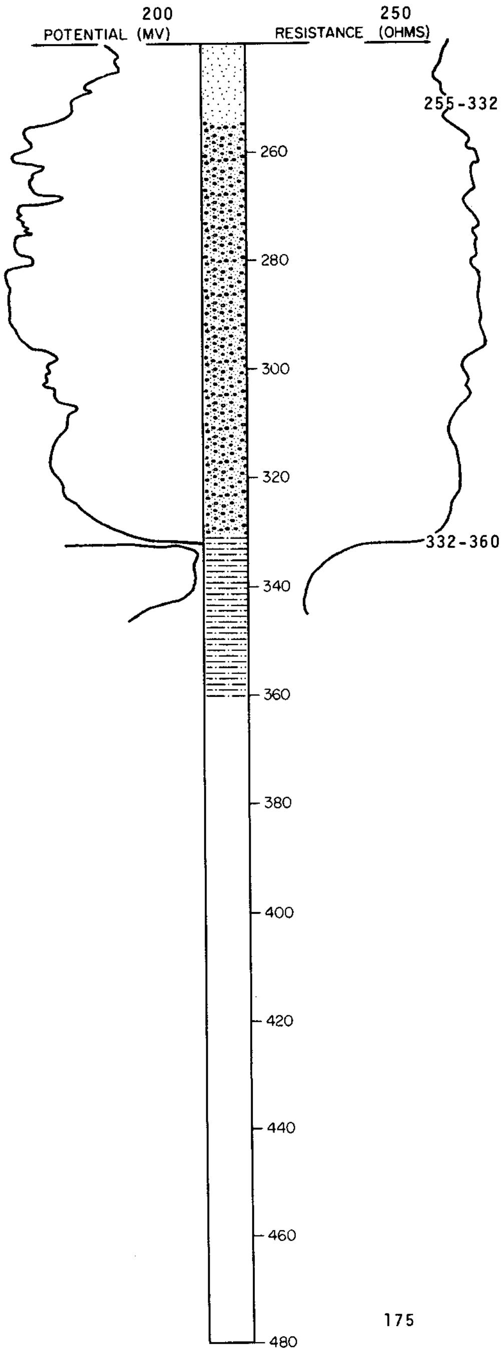
NDSWC 5314, Continued

LOCATION: 151-72-25BBC

DATE DRILLED: June 1969

ELEVATION: 1605
(FT, MSL)

DEPTH: 360
(FT)



DESCRIPTION OF DEPOSITS

255-332 Gravel, fine to coarse, angular to subrounded (about 30-40 percent coarse sand); mostly siliceous and carbonate rocks; some granitics, sandstone, siltstone, scoria, and lignite.

Pierre Formation

332-360 Shale, grayish-black, siliceous, indurated; a few bentonite layers.

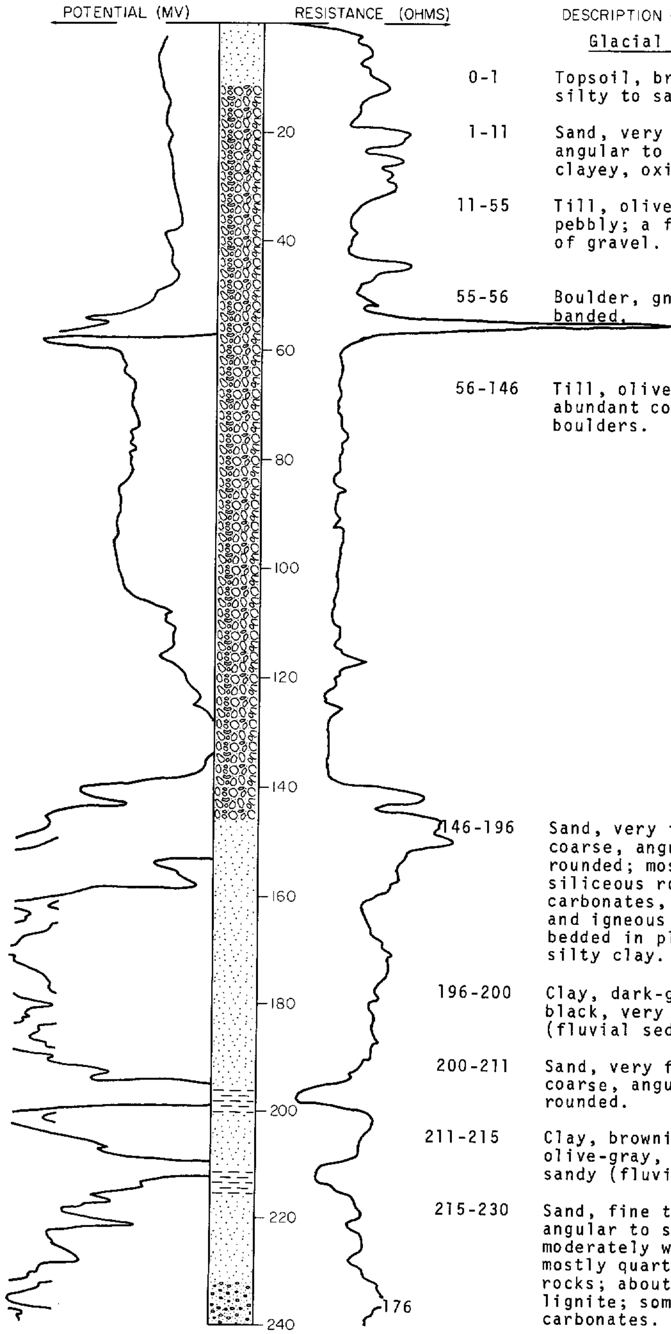
NDSWC 5312

LOCATION: 151-72-25BCB1

DATE DRILLED: June 1969

ELEVATION: 1605
(FT, MSL)

DEPTH: 360
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, brownish-black, silty to sandy.
1-11	Sand, very fine to medium, angular to subrounded, clayey, oxidized.
11-55	Till, olive-gray, silty, pebbly; a few thin lenses of gravel.
55-56	Boulder, gneiss, black, banded.
56-146	Till, olive-gray, silty; abundant cobbles and boulders.
146-196	Sand, very fine to very coarse, angular to subrounded; mostly quartz and siliceous rocks; some carbonates, lignite, shale, and igneous rocks; interbedded in places with silty clay.
196-200	Clay, dark-gray to grayish-black, very silty to sandy (fluvial sediment).
200-211	Sand, very fine to very coarse, angular to subrounded.
211-215	Clay, brownish-black to olive-gray, very silty to sandy (fluvial sediment).
215-230	Sand, fine to very coarse, angular to subrounded, moderately well sorted; mostly quartz and siliceous rocks; about 15-25 percent lignite; some scoria and carbonates.

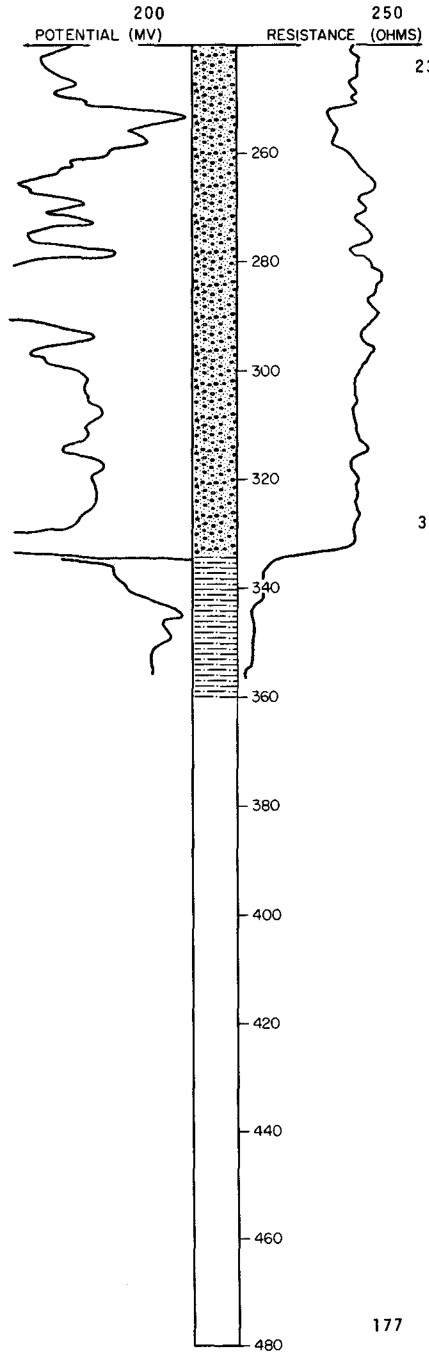
NDSWC 5312, Continued

LOCATION: 151-72-25BCB1

DATE DRILLED: June 1969

ELEVATION: 1605
(FT, MSL)

DEPTH: 360
(FT)



DESCRIPTION OF DEPOSITS

230-334 Gravel, fine to coarse, angular to subrounded (about 30-45 percent very fine to very coarse sand); predominantly quartz, siliceous rocks, and carbonates; some shale, lignite, scoria, sandstone, siltstone, and a few granitics.

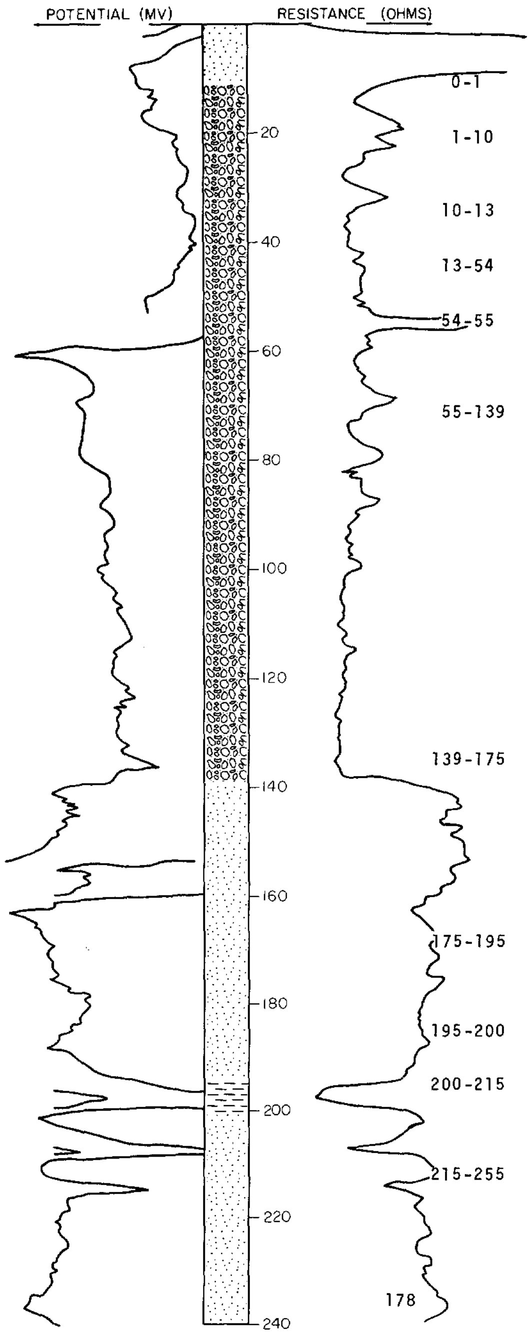
Pierre Formation

334-360 Shale, grayish-black, siliceous, indurated, bedded; a few bentonite layers.

NDSWC 5313

LOCATION: 151-72-25BCB2 DATE DRILLED: June 1969

ELEVATION: 1600 (FT, MSL) DEPTH: 360 (FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1 Topsoil, brownish-black, silty to sandy.

1-10 Sand, fine to coarse, angular to subrounded, oxidized.

10-13 Till, moderate-yellowish-brown, oxidized.

13-54 Till, olive-gray, silty; some cobbles and boulders.

54-55 Boulder, limestone.

55-139 Till, olive-gray, silty to sandy; boulders.

139-175 Sand, very fine to coarse, angular to subrounded; abundant detrital lignite; interbedded with thin lenses of silty clay.

175-195 Sand, very fine to coarse, angular to subrounded (about 25 percent fine gravel).

195-200 Clay, olive-gray, very silty to sandy.

200-215 Sand, very fine to very coarse; interbedded with lenses of clay.

215-255 Sand, very fine to very coarse, subangular to rounded (about 25 percent fine gravel).

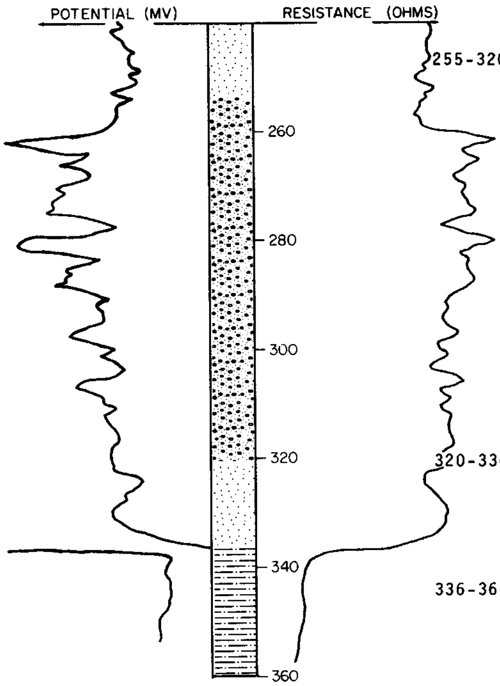
NDSWC 5313, Continued

LOCATION: 151-72-25BCB2

DATE DRILLED: June 1969

ELEVATION: 1600
(FT, MSL)

DEPTH: 360
(FT)



DESCRIPTION OF DEPOSITS

255-320 Gravel, fine to coarse, angular to subrounded (about 25 percent fine to very coarse sand).

320-336 Sand, fine to very coarse, angular to subrounded (about 30 percent medium gravel).

Pierre Formation

336-360 Shale, grayish-black, siliceous, bentonitic, noncalcareous.

151-72-25BCB3
NDSWC 5317

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Sand, fine to very coarse, angular, silty to clayey, oxidized--------------------------	9	10
	Till, moderate-yellowish-brown, very sandy, oxidized----------------------------------	3	13
	Till, olive-gray, silty to sandy-------------	27	40
	Gravel, fine to medium, angular to sub-rounded, poorly sorted---------------------	4	44
	Till, olive-gray, silty to sandy; some cobbles	38	82
	Gravel, fine to coarse, angular to sub-angular, slightly sandy--------------------	16	98
	Till, olive-gray, very silty to sandy; some cobbles----------------------------------	41	139
	Sand, very fine to coarse, angular to sub-rounded, slightly gravelly; interbedded with thin lenses of silty clay-------------	23	162
	Till, olive-gray to grayish-black, silty to sandy------------------------------------	3	165
	Sand, very fine to very coarse, angular to subrounded; interbedded with thin lenses of silty clay------------------------------	30	195
	Clay, olive-gray, very silty-----------------	5	200

151-72-25BCB4
NDSWC (Selz test well)
(Removed after test)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Sand, very fine to medium, silty to clayey	9	10
	Till, moderate-yellowish-brown, very silty to sandy, oxidized	3	13
	Till, olive-gray, silty to sandy; some boulders and cobbles	122	135
	Sand, very fine to coarse, subangular to rounded; interbedded with thin lenses of silty clay and lenses of detrital lignite; some fine gravel and cobbles	110	245
	Gravel, fine to coarse, subangular to well rounded (about 25 percent medium to very coarse sand)	65	310

151-72-25BCC
NDSWC 5315

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, dusky-yellow, silty to sandy, oxidized	2	3
	Sand, fine to coarse, angular, poorly sorted, oxidized	6	9
	Till, olive-gray, silty to sandy; cobbles	13	22
	Sand, fine to medium, angular, gravelly	4	26
	Till, olive-gray, silty to sandy; some cobbles	102	128
	Sand, very fine to coarse, angular to subrounded; interbedded with lenses of silty clay	10	138
	Clay, olive-gray, very silty to sandy	22	160
	Sand, very fine to very coarse, subangular; interbedded with lenses of silty clay	88	248
	Gravel, fine to coarse, angular to subrounded (about 35 percent fine to very coarse sand); interbedded with thin lenses of silty clay, mostly siliceous rocks, detrital shale, and carbonates	92	340
Pierre Formation:			
	Shale, grayish-black, siliceous, bentonitic, indurated, noncalcareous	20	360

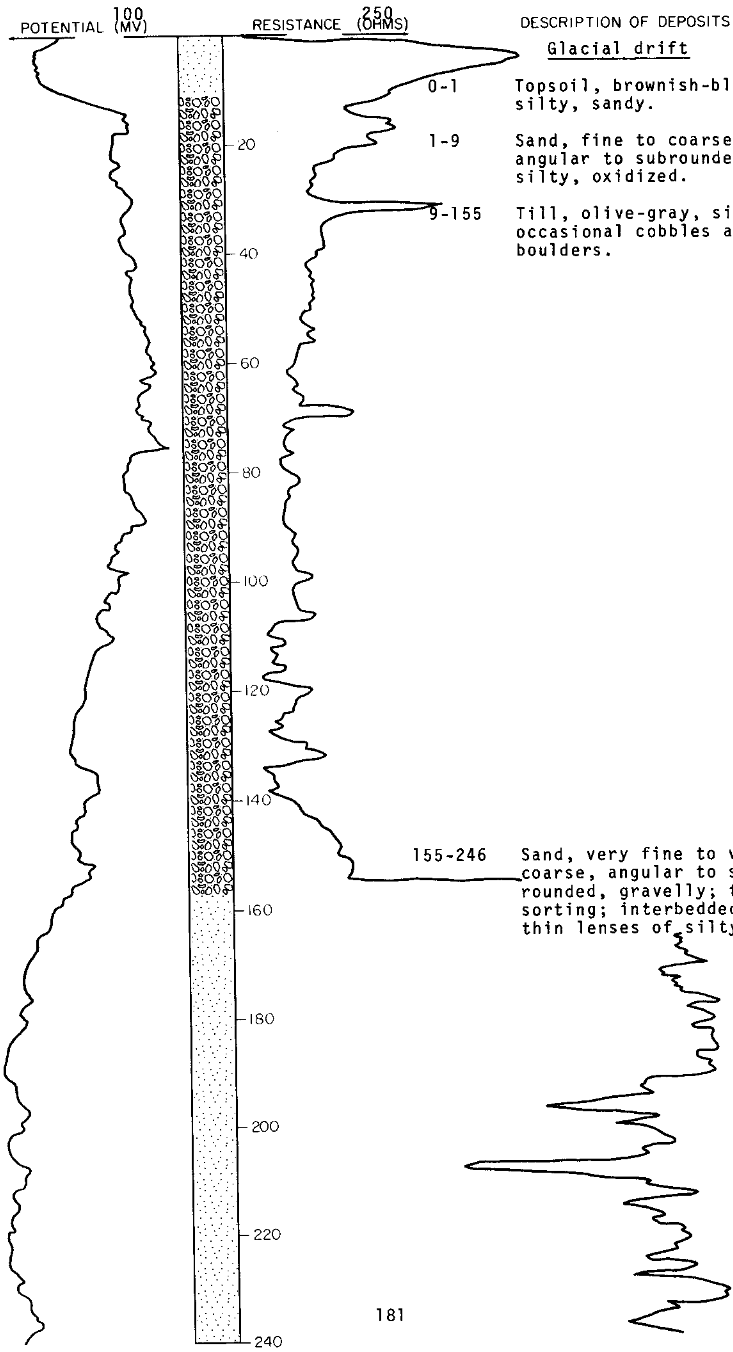
NDSWC 5316

LOCATION: 151-72-25CBB

DATE DRILLED: June 1969

ELEVATION: 1590
(FT, MSL)

DEPTH: 340
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

- 0-1 Topsoil, brownish-black, silty, sandy.
- 1-9 Sand, fine to coarse, angular to subrounded, silty, oxidized.
- 9-155 Till, olive-gray, silty; occasional cobbles and boulders.
- 155-246 Sand, very fine to very coarse, angular to subrounded, gravelly; fair sorting; interbedded with thin lenses of silty clay.

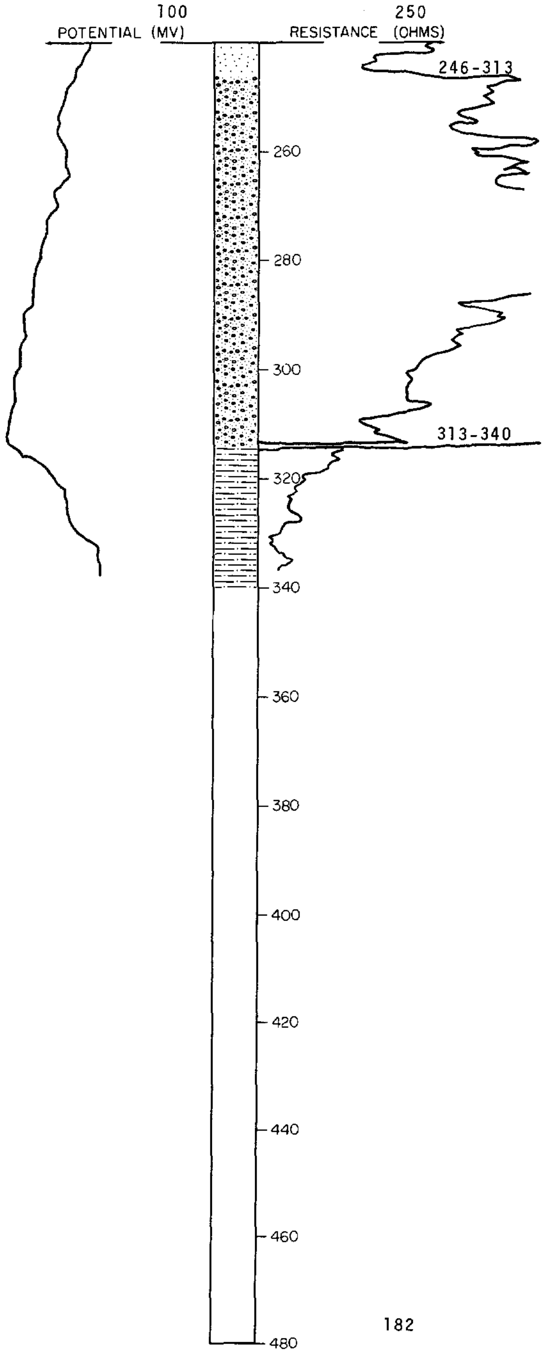
NDSWC 5316, Continued

LOCATION: 151-72-25CBB

DATE DRILLED: June 1969

ELEVATION: 1590
(FT, MSL)

DEPTH: 340
(FT)



DESCRIPTION OF DEPOSITS

246-313 Gravel, fine to coarse, angular to subrounded (about 40 percent fine to very coarse sand); mostly western siliceous rocks and carbonates; some shale, granitics, and detrital lignite.

Pierre Formation

313-340 Shale, grayish-black, siliceous, moderately indurated, noncalcareous.

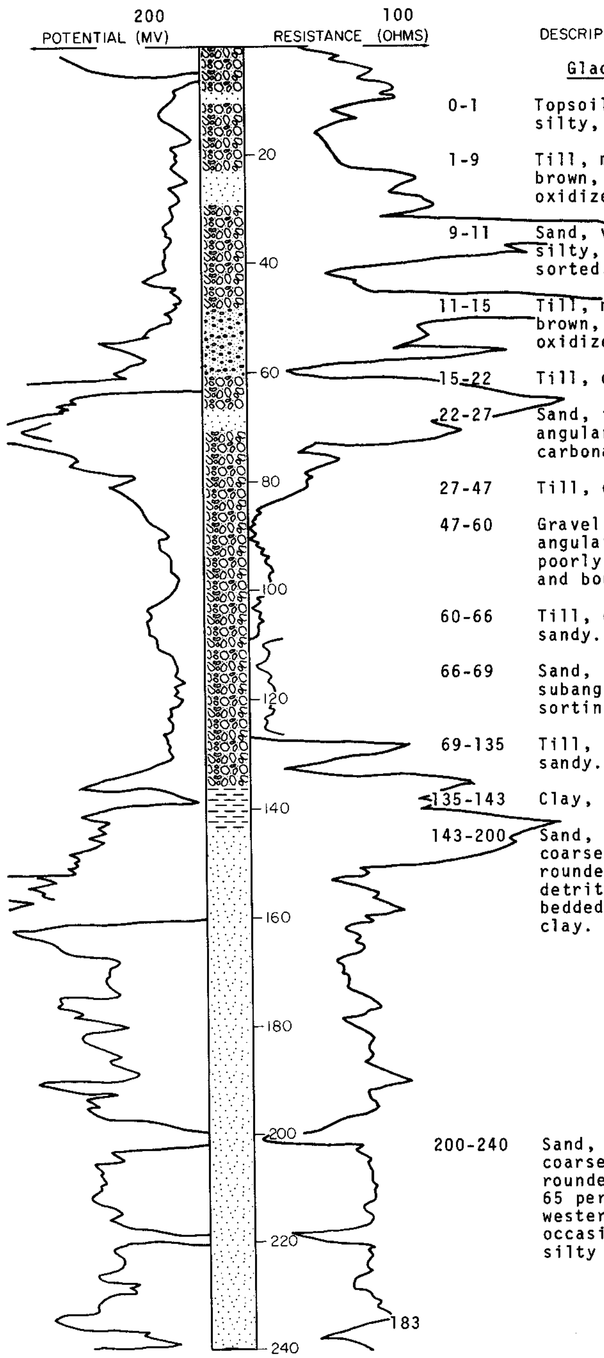
NDSWC 5311

LOCATION: 151-72-26DAD

DATE DRILLED: June 1969

ELEVATION: 1600 (FT, MSL)

DEPTH: 340 (FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, brownish-black, silty, sandy.
1-9	Till, moderate-yellowish-brown, silty, very sandy, oxidized.
9-11	Sand, very fine to medium, silty, clayey, poorly sorted, oxidized.
11-15	Till, moderate-yellowish-brown, silty, sandy, oxidized.
15-22	Till, olive-gray.
22-27	Sand, fine to coarse, subangular; mostly quartz and carbonates.
27-47	Till, olive-gray, silty.
47-60	Gravel, fine to coarse, angular to subrounded, poorly sorted; cobbles and boulders.
60-66	Till, olive-gray, silty, sandy.
66-69	Sand, very fine to medium, subangular, silty; fair sorting.
69-135	Till, olive-gray, silty to sandy.
135-143	Clay, olive-gray, very silty.
143-200	Sand, very fine to very coarse, angular to subrounded; about 25 percent detrital lignite; interbedded with lenses of silty clay.
200-240	Sand, very fine to very coarse, angular to subrounded, gravelly; about 65 percent quartz and western siliceous rocks; occasional lenses of silty clay.

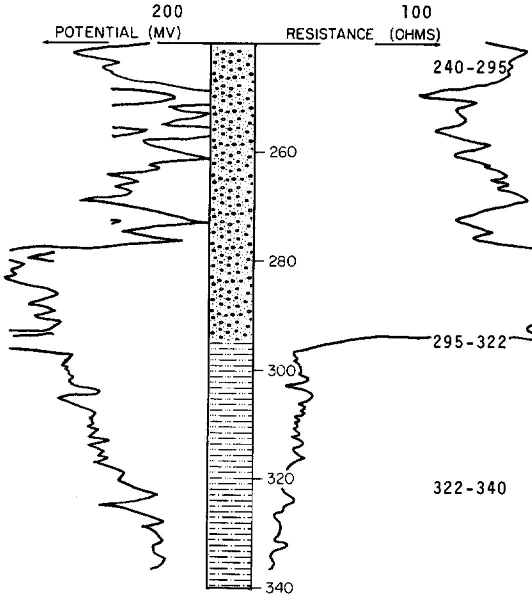
NDSWC 5311, Continued

LOCATION: 151-72-26DAD

DATE DRILLED: June 1969

ELEVATION: 1600
(FT, MSL)

DEPTH: 340
(FT)



DESCRIPTION OF DEPOSITS

240-295 Gravel, fine to medium, angular to subrounded (about 35 percent medium to very coarse sand); mostly western siliceous rocks; some shale, granitics, scoria, and detrital lignite.

Fox Hills Formation

295-322 Siltstone, medium-dark-gray, siliceous; occasional small white concretions.

Pierre Formation

322-340 Shale, medium-dark-gray to grayish-black, indurated, noncalcareous; interbedded with thin layers of bentonite.

151-72-28AAA
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil	1.3	1.3
	Clay (glacial till) light-gray to brown, silty, sandy, some fine and medium gravel, limy to 5 ft., sandy zones at 5 to 8 ft., slightly plastic	6.7	8
	Silt - brown with blue-gray laminae, clayey, with some very fine sand, semipervious to impervious	1	9
	Sand - brown becoming gray at 17 ft., fine uniform sand, trace of silt in zones, oxidized to 17 ft., semipervious to pervious	13	22
	Sand - gray, fairly well graded sand, approximately 10 percent fine gravel, slity in upper portion, till lens or finger in 22.5 to 22.9 ft.	3.7	25.7
	Sand - gray, silty, fine sand, clayey zones, semipervious to impervious	2.8	28.5
	Clay (glacial till) gray, silty, sandy, with fine gravel and lignite fragments, impervious	1.5	30

151-72-29AAA
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay (topsoil) black, sandy, silty, organic--	1	1
	Sandy clay - brown, very sandy, occasional pebbles, moist and firm, water worked glacial till-------------------------------	6	7
	Sand - brown becoming gray at 16 ft., uniformly fine, trace of silt, moist to 12 ft., then saturated, unstable below water table, fluvial-----------------------------------	11	18

151-72-30AAA
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay (topsoil) black, sandy, silty-----------	1	1
	Clay - brown, very sandy, occasional pebbles scattered throughout, moist and firm, low plasticity---------------------------------	7	8
	Sand - brown, fine sand, very silty, trace of clay in lower portion of strata, moist to wet and fairly stable, fluvial-------------	9	17
	Clay (glacial till) gray, unoxidized, sandy, silty, pebbles and cobbles throughout, moist and firm----------------------------	7	24

151-72-30BBB
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil--------------------------------------	1.8	1.8
	Clay (glacial till) brown, silty, sandy, few fine and medium gravels, slightly plastic when saturated, impervious-----------------	3.7	5.5
	Sand - brown, medium, some fine and coarse, approximately 10 percent gravel, trace of silt and clay, pervious-----------------	3.5	9
	Clay (glacial till) brown, same as above-----	.5	9.5
	Sand - brown, silty fine sand, semipervious--	1.3	10.8
	Clay (glacial till) brown becoming gray at 13 ft., stiff, compact, clay rich till, silty, sandy, abundant fine to coarse gravel, lignite fragments, cobbles or boulders at 17 and 21 ft., gypsum at 24.5 to 25 ft., moderately plastic when saturated, impervious----------------------	14.2	25

151-72-33BBB1
NDSWC 5294

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Till, moderate-yellowish-brown, very sandy to silty, oxidized------------------------	7	8
	Sand, fine to coarse, angular to subrounded, poorly sorted, oxidized--------------------	4	12
	Till, moderate-yellowish-brown, silty to sandy, oxidized---------------------------	6	18
	Till, olive-gray; interbedded with thin lenses of gravel 50-55 ft------------------	37	55
	Gravel, fine to coarse, angular to subrounded (about 30 percent fine to very coarse sand); about 20 percent shale and siltstone and 30 percent carbonates---------------------	25	80
	Clay, medium-dark-gray, very silty to sandy; occasional streaks of light-gray-----------	22	102

151-72-33BBB1, Continued
NDSWC 5294

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Till, olive- to medium-gray, silty	58	160
	Sand, fine to very coarse, gravelly	20	180
	Gravel, fine to medium, sandy	5	185
	Sand, fine to very coarse, angular to subrounded; interbedded with thin lenses of silty clay	50	235
	Gravel and cobbles	5	240
	Sand, very fine to very coarse, angular to subrounded; about 60 percent quartz; interbedded with thin lenses of silty clay	38	278
	Sand, very fine to very coarse, angular to subrounded, gravelly	22	300
	Gravel, fine to medium, sandy	12	312
Pierre Formation:			
	Shale, grayish-black, siliceous, bentonitic, noncalcareous	28	340

151-72-33BBB2
NDSWC 5294A

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty	1	1
	Till, moderate-yellowish-brown, very silty to sandy, oxidized	7	8
	Sand, fine to coarse, angular to subrounded, poorly sorted, oxidized	4	12
	Till, moderate-yellowish-brown, moderately sandy, oxidized	6	18
	Till, olive-gray, silty to sandy	37	55
	Gravel, fine to coarse, angular to subrounded (about 30 percent fine to very coarse sand)	25	80

151-72-34AAA
NDSWC 5295

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, very silty, oxidized	7	8
	Sand, medium to coarse, angular to subrounded, oxidized	3	11
	Till, moderate-yellowish-brown, silty to gravelly, oxidized	6	17
	Sand, medium to very coarse, angular to subrounded, poorly sorted, oxidized	2	19
	Till, olive-gray, silty	6	25
	Sand, fine to very coarse, angular to rounded; mostly quartz	5	30
	Till, olive- to medium-dark-gray, silty, abundant cobbles and boulders 30-42 ft	55	85
	Sand, very fine to very coarse, subangular; about 60 percent quartz; remainder carbonates, granitics, shale, and lignite	16	101
	Till, olive-gray, silty	20	121
	Boulders and cobbles; granitics, limestone, dolostone, sandstone; some western shales and chalcedony	5	126
	Till, olive-gray, silty	15	141
	Till, olive- to medium-dark-gray, silty to sandy	5	146

151-72-34AAA, Continued
NDSWC 5295

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Till, olive- to medium-dark-gray, silty to sandy, occasional thin lenses of gravel----	74	220
	Clay, olive-gray, silty----------------------	6	226
	Till, medium-dark-gray, silty; gravelly in places------------------------------------	51	277
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, noncalcareous; occasional limestone concretions----------------------	13	290

151-72-36AAA1
NDSWC 2886

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Till, moderate-yellowish-brown, silty to sandy, calcareous, oxidized----------------	4	5
	Sand, medium to very coarse (about 30 percent fine to medium gravel); clayey at 4-14 ft--	13	18
	Till, moderate-yellowish-brown, calcareous, oxidized------------------------------------	5	23
	Till, olive-gray, calcareous-----------------	45	68
	Gravel, fine to coarse, angular to subrounded (about 50 percent medium to coarse sand)---	24	92
	Till, medium-dark-gray, silty to sandy, calcareous; abundant limestone and shale granules------------------------------------	4	96
	Gravel, fine to medium, poorly sorted; sandy to clayey in parts------------------	16	112
	Till, olive-gray, silty to sandy, calcareous---------------------------------	37	149
	Gravel, fine to coarse, angular to rounded (about 30 percent medium to very coarse sand); occasionally interbedded with clay; increasing in lignite content toward lower section------------------------------	155	304
Pierre Formation:			
	Shale, grayish-black, indurated--------------	16	320

151-72-36AAA2
NDSWC 2886A

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy---------------	1	1
	Till, moderate-yellowish-brown, sandy, calcareous, oxidized-----------------------	4	5
	Sand, medium to very coarse (about 30 percent fine to medium gravel); clayey from 5-10 ft.--------------------------------------	13	18
	Till, moderate-yellowish-brown, calcareous, oxidized------------------------------------	5	23
	Till, olive-gray, calcareous-----------------	48	71
	Gravel, fine to coarse, angular to subrounded, well-sorted (about 50 percent medium to coarse sand)-------------------------------	21	92

151-73-1DDD
NDSWC 2887

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	14	15
	Till, olive-gray, silty to sandy, calcareous; abundant limestone, dolomite, and shale	16	31
	Clay, olive-gray, very sandy	7	38
	Till, olive-gray, silty to sandy, calcareous	43	81
	Sand, fine to medium, angular to rounded (about 20 percent fine to coarse gravel)	5	86
	Till, dark-greenish-gray, silty to sandy, calcareous	26	112
	Clay, light-olive-gray, silty to sandy, lignitic, calcareous, fluvial	8	120
	Till, olive-gray, silty to sandy, cohesive, calcareous	14	134
Hell Creek Formation(?):			
	Sandstone, grayish-blue-green, fine- to medium-grained, lignitic	20	154
Fox Hills Formation:			
	Sandstone, medium-bluish-gray; limonitic concretions	6	160

151-73-14BBB
NDSWC 5232

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Till, moderate-yellowish-brown, sandy, oxidized; occasional thin lenses of gravel	11	12
	Till, olive-gray, silty	7	19
	Cobbles and boulders; granitics	2	21
	Till, olive-gray, silty	19	40
	Till, olive-gray, moderately sandy	90	130
Fox Hills Formation:			
	Sandstone, dark-greenish-gray, very fine to fine-grained, clayey, micaceous, fossiliferous; occasional thin layer cemented	70	200

151-73-16DDD
NDSWC 5679

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty, oxidized	27	28
	Till, olive-gray, silty to sandy; occasional thin lenses of sand and gravel	43	71
	Clay, olive-gray, very silty, very calcareous (fluvial sediment)	78	149
	Till, olive-gray, silty	60	209
Fox Hills Formation:			
	Siltstone, medium- to dark-gray, moderately indurated, bedded, noncalcareous	11	220

151-73-20AAB
NDSWC 5230

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy to gravelly	1	1
	Sand, very fine to medium, angular to subrounded, moderately well-sorted, oxidized; predominantly quartz and carbonates	25	26
	Till, olive-gray, very silty	12	38
	Sand, very fine to medium, angular to rounded; predominantly quartz	14	52
	Clay, olive-gray, very silty, slightly laminated; interbedded with thin lenses of sand	26	78
	Till, olive-gray, silty; occasional thin lens of gravel	83	161
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, very fine to fine-grained, cemented	8	169
	Siltstone, medium-bluish- to brownish-gray, clayey, moderately indurated, fossiliferous	17	186
	Sandstone, medium-bluish-gray, very fine to fine-grained; interbedded with brownish-gray clayey shale	34	220

151-73-24AAA
NDSWC 5231

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Till, moderate-yellowish-brown, oxidized	11	12
	Till, olive-gray, silty	6	18
	Boulders, granite	4	22
	Till, olive-gray, silty to gravelly	124	146
	Gravel, fine to coarse, angular to subrounded; predominantly siliceous and carbonate rocks	24	170
	Sand, very fine to very coarse, angular to rounded; predominantly quartz; interbedded with small amounts of clay	10	180
	Gravel, fine to coarse, angular to subrounded, moderately well-sorted; about one-third fine to very coarse sand; predominantly carbonates and siliceous rocks	57	237
	Till, olive-gray, silty	33	270
Fox Hills Formation:			
	Sandstone, dark-greenish-gray, very fine to fine-grained, clayey, glauconitic, fossiliferous	10	280

151-73-24CCC
NDSWC 5293

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, very silty, oxidized	15	16
	Till, olive-gray, silty	9	25
	Sand, fine to very coarse, angular to subrounded, slightly gravelly	3	28
	Till, olive-gray, silty	32	60
	Till, medium-gray, silty; occasional thin lenses of sand and gravel	74	134

151-73-24CCC, Continued
NDSWC 5293

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Gravel, fine to coarse, angular to subrounded, poorly sorted; mostly carbonates and granitics	4	138
	Till, olive- to medium-gray, silty	10	148
	Gravel, fine to coarse, angular to rounded (about 40 percent fine to very coarse sand); occasional thin lenses of silty clay	12	160
	Sand, fine to very coarse, angular to subrounded; mostly siliceous material; occasional thin lenses of silty clay	140	300
	Gravel, fine to medium, angular to subrounded (about 35 percent fine to very coarse sand); about 40 percent siliceous rocks; remainder is shale, granitics, carbonates, sandstone, and lignite	40	340
Pierre Formation:			
	Shale, grayish-black, siliceous, noncalcareous; bentonite streaks	40	380

151-73-25AAA
(Log from U.S. Bureau of Reclamation)

Material	Thickness (feet)	Depth (feet)
Clay (topsoil) black, very sandy, silty, organic	1	1
Sand - brown, clayey, silty, occasional pebbles, moist becoming wet at 6 ft., stable, glacial outwash	5	6
Clay (glacial till) brown to 15 ft., then dark-gray, silty, sandy, with pebbles, cobbles, and boulders throughout, moist and very firm in places	18	24

151-73-25BCC
(Log from U.S. Bureau of Reclamation)

Material	Thickness (feet)	Depth (feet)
Topsoil	1.2	1.2
Clay - gray, silty, appears alkaline, slightly plastic, impervious	1.2	2.4
Clay (glacial till) brown, silty, sandy, fine and medium gravel throughout, oxidized, cobbles or boulders at 15 to 16 ft., clay rich moderately plastic till at 16 to 20 ft., impervious	17.6	20
Clay (glacial till) gray, silty, clay rich till, fine and medium gravel throughout, cobbles or boulders at 20 to 21 ft., moderately plastic when saturated, impervious	12	32

151-73-26AAA
(Log from U.S. Bureau of Reclamation)

Material	Thickness (feet)	Depth (feet)
Clay (topsoil) black, sandy, silty, organic	1	1
Sand - brown, medium sand, clayey, silty, numerous pebbles and cobbles, moist and stable, nonplastic	3	4
Sand - brown, fine, uniform, trace of silt, cohesionless, wet with water table at 7 ft., unstable	4	8
Sand - brown, poorly graded, predominantly medium sand, 10 percent fine gravel, trace of silt, cohesionless and unstable, fluvial	2	10

151-73-27DDD
NDSWC 5252

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black, sandy	1	1
	Clay, moderate-yellowish-brown, oxidized	5	6
	Sand, fine to medium, clayey, oxidized	4	10
	Till, medium-dark-gray, silty	52	62
	Boulder, granite	2	64
	Till, medium-dark-gray, silty	81	145
	Till, olive-gray, gravelly	15	160
	Silt, medium-dark-gray, clayey	5	165
	Till, olive-gray, silty to sandy	40	205
	Till, medium-dark-gray; interbedded with thin lenses of sand and gravel; abundant lignite	35	240
	Till, medium-dark-gray, sandy	49	289
	Till, medium-dark-gray, gravelly to bouldery	6	295
	Till, medium-dark-gray	55	350
Fox Hills Formation:			
	Sandstone, grayish-blue-green, fine- to medium-grained, glauconitic; carbonaceous streaks; interbedded with dark-gray clayey siltstone	30	380
	Sandstone, grayish-blue-green, glauconitic; cemented beds 2-4 inches thick	20	400

151-73-28CCC
NDSWC 5860

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, silty to sandy	1	1
	Till, dusky-yellow to moderate-yellowish-brown, very silty, sandy, oxidized	15	16
	Till, olive-gray, moderately silty	16	32
	Sand, very fine to medium, subangular to rounded, silty, well-sorted; mostly quartz and detrital lignite	17	49
	Till, olive-gray, silty	18	67
	Gravel, fine to coarse, angular to subrounded, slightly sandy, poorly sorted; mostly carbonates and detrital shale	4	71
	Till, olive-gray, silty	77	148
	Gravel, fine to coarse, subrounded, slightly sandy, poorly sorted; about 40 percent carbonates, 30 percent detrital shale, 30 percent granitics, siliceous rocks, and detrital lignite	15	163
	Till, olive-gray, silty; occasional thin lenses of sand and gravel	5	168
	Gravel, fine to coarse, angular to subrounded, slightly sandy; some cobbles; fair sorting; about 40 percent carbonates, 30 percent detrital shale, 30 percent granitics, metamorphics, siliceous rocks, and detrital lignite; occasional thin clay lenses	13	181
	Till, olive-gray, silty	4	185
Fox Hills Formation:			
	Sandstone, medium-gray, moderately silty, clayey, moderately indurated, noncalcareous	5	190

151-73-30BBB
NDSWC 5228

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty---------------	1	1
	Till, moderate-yellowish-brown, very sandy, oxidized------------------------------------	17	18
	Till, olive-gray, silty----------------------	3	21
	Gravel, fine to coarse, angular to subrounded; about one-half medium to very coarse sand; predominantly carbonates------	9	30
	Gravel, fine to coarse, angular to subrounded; abundant cobbles and boulders-----	10	40
	Till, olive-gray, silty to gravelly----------	10	50
	Till, olive-gray, silty; abundant boulders---	10	60

151-73-32CCC
NDSWC 5292

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized---------------------------	19	20
	Till, olive-gray, silty to sandy-------------	5	25
	Gravel, fine to coarse, angular to subrounded, poorly sorted, oxidized; mostly carbonates and shale---------------------------------	7	32
	Till, olive- to medium-gray, silty-----------	82	114
	Sand, fine to very coarse, angular to subangular, poorly sorted---------------------	4	118
	Till, olive- to medium-gray, silty; abundant cobbles and boulders at 118-146 ft---------	83	201
	Gravel, fine to coarse, subangular to rounded (about 35 percent fine to very coarse sand); about 20 percent granitics, 15 percent shale, and 30 percent carbonates-----------	21	222
Fox Hills Formation:			
	Siltstone, medium- to brownish-gray, noncalcareous; limonitic concretions; occasionally interbedded with sandstone-----------------	38	260

151-73-34ABA
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sandy clay (topsoil) brown, silty, organic---	1	1
	Sand - brown, poorly graded, predominantly fine sizes, clean and moist, 5 percent gravel and cobbles, fairly stable, fluvial-	19	20
	Silt - gray, clayey, sandy, moist and stable, low plasticity---------------------	4	24

151-74-4DDD
NDSWC 5290

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Clay, moderate-yellowish-brown, very sandy to silty, oxidized------------------------	2	3
	Sand, very fine to fine, subangular to subrounded, silty, oxidized------------------	7	10
	Silt, olive-gray, clayey---------------------	64	74
	Till, olive-gray, silty to sandy-------------	22	96

151-74-4DDD, Continued
NDSWC 5290

Geologic source	Material	Thickness (feet)	Depth (feet)
Fox Hills Formation:			
	Sandstone, dark-greenish-gray, very fine to fine-grained, noncalcareous	16	112
	Siltstone, medium-gray, clayey, moderately indurated	28	140

151-74-8CCC
NDSWC 2884

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, calcareous, oxidized	14	15
	Till, olive-gray, silty to sandy, calcareous; interbedded with gravel	27	42
	Till, dark-greenish-gray, silty to sandy, cohesive, calcareous	10	52
	Boulder, granitic	2	54
	Till, olive-gray, silty to sandy, very cohesive, calcareous	60	114
Fox Hills Formation:			
	Sandstone, light-bluish-gray to greenish-gray, fine- to medium-grained	46	160

151-74-9DDD
NDSWC 5289

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Sand, very fine to fine, subangular to subrounded; oxidized to 15 ft; interbedded with thin lenses of clay 26-36 ft	36	37
	Silt, olive-gray, clayey, laminated, semi-plastic	55	92
	Till, olive-gray, silty	12	104
Fox Hills Formation:			
	Sandstone, dark-greenish-gray, very fine to fine-grained, silty; mostly quartz and some mica grains; occasional concretions	16	120
	Siltstone, medium- to dark-gray, bedded, noncalcareous	20	140

151-74-17BCA
(Log from Mike Wetch)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Surface soil material	8	8
	Fine gravel	12	20
	Clay with gravel streaks	110	130
	Gravel, fine (good domestic and stock well supply	10	140
	Clay with gravel streaks	25	165
	Soft detrital coal	40	205
	Gravel pea size with cobbles and boulders	40	245
	Clay with coal	5	250

151-74-19AAD
NDSWC 5250

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Till, moderate-yellowish-brown, sandy, oxidized	17	18
	Till, olive-gray, sandy	20	38
	Till, olive-gray; interbedded with lenses of medium to coarse gravel	10	48
	Sand, medium to coarse; interbedded with fine gravel; all materials subangular to subrounded; predominantly quartz and carbonates	15	63
	Till, olive-gray, sandy to gravelly	50	113
	Gravel, medium to coarse, subrounded; and coarse sand; predominantly carbonates and shale; interbedded with till in about 2-5 ft intervals	25	138
	Till, olive-gray, sandy to gravelly	127	265
	Silt, medium-dark-gray, clayey	40	305
	Till, medium-dark-gray; carbonaceous streaks	15	320
	Gravel, medium to coarse; boulders and medium to coarse sand; all materials are angular to rounded; carbonate rocks have iron-stained surfaces	55	375
	Clay, medium-dark-gray	1	376
	Gravel, medium to coarse, rounded to well-rounded; uniform sorting; predominantly carbonates and shale	6	382
Fox Hills Formation:			
	Sandstone, grayish-blue-green, fine- to medium-grained, glauconitic	18	400

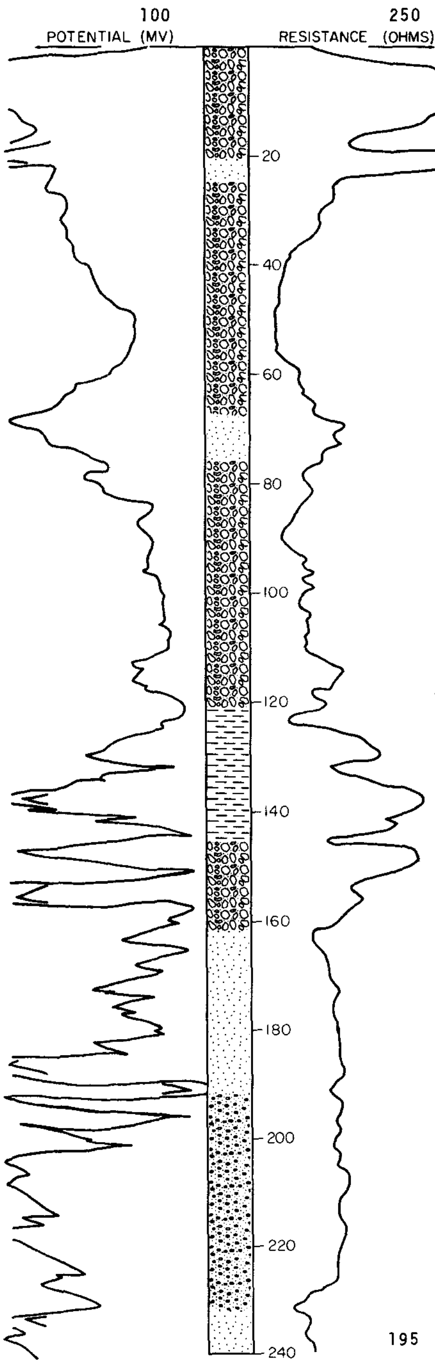
151-74-20AAA
NDSWC 5251

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black	1	1
	Till, moderate-yellowish-brown, oxidized	22	23
	Till, medium-dark-gray, sandy	28	51
	Gravel, medium to coarse, subrounded, predominantly carbonates	11	62
	Till, olive-gray, gravelly	113	175
	Silt, medium-dark-gray, clayey	60	235
	Till, olive-gray, silty	12	247
	Gravel, fine to coarse; and boulders; about one-third medium to coarse sand; all materials subrounded to well rounded; predominantly igneous and carbonates; carbonates have iron-stained surfaces	42	289
	Cobbles, boulders, and medium to coarse subrounded to well-rounded gravel	19	308
Fox Hills Formation(?):			
	Shale, brownish-gray; interbedded with medium-bluish-gray siltstone and clay; some carbonaceous material	12	320

NDSWC 5291

LOCATION: 151-74-26AAA | DATE DRILLED: May 1969

ELEVATION: 1620 (FT, MSL) | DEPTH: 360 (FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, brownish-black, silty, sandy.
1-20	Till, moderate-yellowish-brown, sandy, oxidized; interbedded with lenses of gravel.
20-23	Sand, very fine to medium, subangular to rounded, silty, oxidized.
23-28	Till, moderate-yellowish-brown, silty, oxidized.
28-50	Till, olive-gray, silty.
50-67	Till, medium-dark-gray, silty; with light-gray streaks.
67-76	Sand, fine to very coarse, angular to subrounded, gravelly.
76-120	Till, olive-gray, silty; occasional cobbles and boulders.
120-145	Clay, medium-dark-gray, very silty, sandy.
145-160	Till, olive-gray; interbedded with lenses of gravelly sand.
160-190	Sand, medium to very coarse, angular to subrounded, gravelly; fair sorting.
190-230	Gravel, fine to coarse (about 35 percent fine to very coarse sand); about 25 percent carbonates, 20 percent shale, 40 percent western rocks; remainder is carbonates, detrital lignite, and scoria.

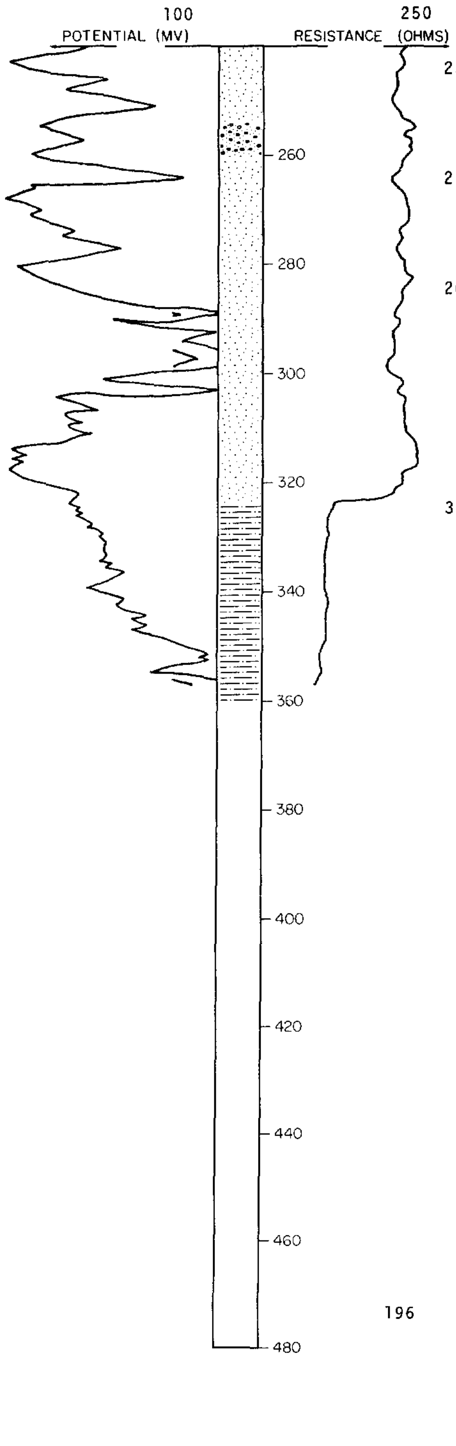
NDSWC 5291, Continued

LOCATION: 151-74-26AAA

DATE DRILLED: May 1969

ELEVATION: 1620
(FT, MSL)

DEPTH: 360
(FT)



DESCRIPTION OF DEPOSITS

230-254 Sand, fine to very coarse, angular to subrounded, gravelly; about 65 percent quartz; remainder is shale, lignite, and western rocks.

254-260 Gravel, fine to coarse, subangular to subrounded; (about 25 percent fine to very coarse sand); mostly western rocks.

260-323 Sand, fine to very coarse, angular to subrounded (about 30 percent fine to medium gravel); about 65 percent quartz; remainder is carbonates, shale, granitics, and detrital lignite.

Fox Hills Formation

323-360 Shale, brownish-gray, silty, slightly sandy, moderately indurated; occasional concretions.

151-74-27BBC
NDSWC 2885

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Clay, moderate-yellowish-brown, very sandy, calcareous, oxidized, fluvial--------------	7	8
	Gravel, fine to medium, clayey, poorly sorted, oxidized---------------------------	8	16
	Till, olive-gray, silty to sandy, cohesive, calcareous--------------------------------	8	24
	Sand, fine to medium, angular to subrounded, oxidized----------------------------------	4	28
	Till, olive-gray, very silty to sandy, cohesive, plastic, calcareous--------------	22	50
	Sand, fine to coarse, angular to subrounded--	8	58
	Clay, olive-gray, very sandy, lignitic, cohesive, plastic, calcareous, fluvial-----	34	92
	Till, olive-gray, silty, cohesive------------	28	120
	Sand, fine to medium, angular to rounded, well-sorted-------------------------------	14	134
	Clay, dark-greenish-gray, silty to sandy, cohesive, plastic, calcareous, fluvial-----	4	138
	Sand, fine to medium, angular to rounded, well-sorted; clay at 148 to 150 ft---------	28	166
	Gravel, fine to coarse, angular to subrounded, sandy----------------------------	20	186
	Clay, medium-gray, silty to very sandy, plastic, fluvial--------------------------	21	207
	Gravel, fine to coarse, subangular to rounded----------------------------------	5	212
	Till, olive- to brownish-gray, cohesive, calcareous--------------------------------	16	228
	Boulder, granitic----------------------------	2	230
Fox Hills Formation:			
	Sandstone, dark-yellowish-orange, fine- to medium-grained, oxidized; limonitic concretions--------------------------------	6	236
	Sandstone, light-bluish-gray, clayey---------	24	260

151-74-31AAA
NDSWC 5227

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy---------------	1	1
	Till, moderate-yellowish-brown, oxidized-----	13	14
	Till, olive-gray, silty----------------------	10	24
	Boulder, granite-----------------------------	2	26
	Till, medium-dark-gray, silty----------------	48	74
Fox Hills Formation:			
	Siltstone, medium-bluish-gray, moderately clayey, slightly indurated-----------------	14	88
	Sandstone, medium-bluish-gray, very fine grained, slightly clayey, micaceous--------	6	94
	Sandstone, medium-bluish-gray, very fine grained, micaceous, cemented---------------	11	105
	Siltstone, medium- to brownish-gray, moderately clayey, bedded------------------	15	120

151-74-36AAA
NDSWC 5229

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	19	20
	Till, olive-gray, silty	95	115
	Till, olive-gray, gravelly	13	128
	Till, olive-gray, silty to sandy	60	188
	Till, olive-gray, silty; interbedded with lenses of medium to coarse gravel	12	200
	Gravel, fine to coarse, angular to subrounded, poorly sorted; predominantly carbonates	8	208
	Till, olive-gray, silty to sandy	47	255
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, very fine to fine-grained, clayey	25	280

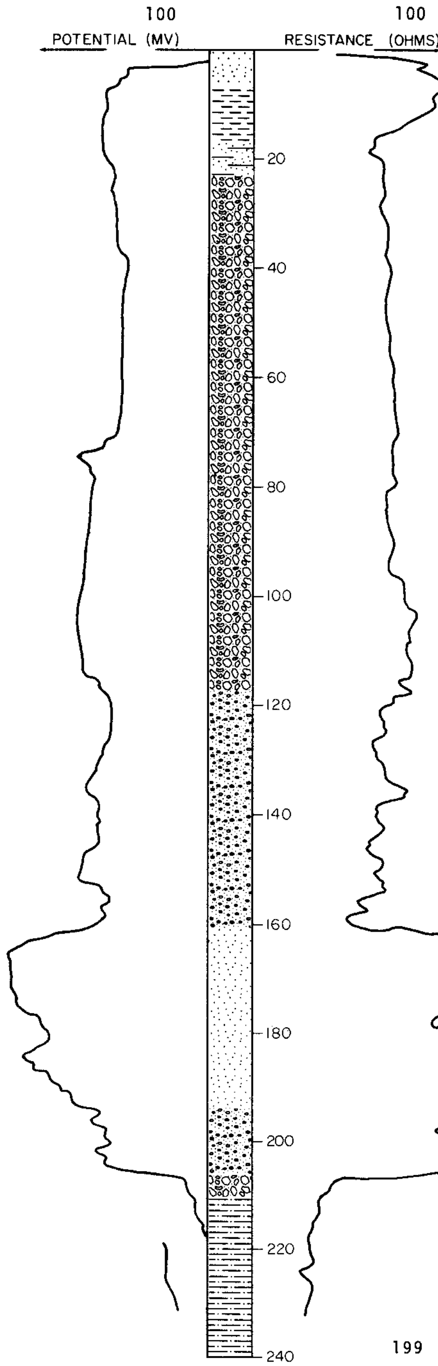
NDSWC 5047

LOCATION: 152-63-10DAC

DATE DRILLED: July 1968

ELEVATION: 1445
(FT, MSL)

DEPTH: 240
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-5	Sand, medium to very coarse, angular to subrounded, gravelly.
5-15	Clay, dusky-yellow, very silty, oxidized; lacustrine sediment.
15-22	Silt, medium-dark-gray, clayey, very calcareous; lacustrine sediment.
22-117	Till, olive-gray, silty to sandy.
117-127	Gravel, fine to coarse, angular to subangular; and medium to very coarse angular to subrounded sand; predominantly detrital shale.
127-130	Boulder, grayish-black, shale.
130-160	Gravel, fine to coarse, angular to subangular; about one-third medium to very coarse angular to subrounded sand; some cobbles.
160-176	Sand, medium to very coarse, angular to rounded, gravelly; predominantly quartz.
176-194	Sand, very fine to medium, angular to subrounded; predominantly quartz.
194-207	Gravel, fine to coarse, angular to subrounded; about one-third medium to very coarse angular to subrounded sand; predominantly shale.
207-210	Till, olive-gray to medium-dark-gray, gravelly, calcareous.

Pierre Formation

210-240	Shale, medium-dark-gray to grayish-black, indurated, fractured.

152-63-19ADA
NDSWC 5470

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Sand, fine to coarse, subrounded to subangular (about 50 percent medium gravel); about 40 percent granitics	11	12
	Clay, medium-gray, silty to sandy	66	78
	Gravel, fine to coarse, subrounded to angular; boulders and cobbles (about 30 percent coarse sand); about 30 percent carbonates, 30 percent igneous rocks, and 30 percent detrital shale; interbedded with thin lenses of silty clay	19	97
	Boulders and cobbles	2	99
Pierre Formation:			
	Shale, grayish-black, siliceous, noncalcareous; fractured at 99-110 ft	21	120

152-63-32CCC
NDSWC 5048

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, dusky-yellow to moderate-yellowish-brown, silty to slightly sandy, oxidized	11	12
	Till, olive-gray; interbedded with thin lenses of sand and gravel	15	27
	Gravel, fine to coarse, angular to subrounded, poorly sorted, oxidized; predominantly shale	2	29
	Till, olive-gray, silty, sandy to gravelly	3	32
	Gravel, fine to medium; about one-third medium to very coarse sand; all materials angular to subrounded; predominantly shale and limestone	3	35
	Till, olive-gray, silty to gravelly	17	52
	Sand, very fine to medium, angular to rounded, well-sorted; predominantly quartz	12	64
	Till, olive-gray, silty; interbedded with thin lenses of gravel	8	72
	Gravel, fine to coarse, angular to subrounded, sandy to clayey; predominantly shale	4	76
	Silt, olive-gray, very clayey	4	80
	Gravel, fine to coarse; about one-third medium to very coarse sand; all materials angular to subrounded; predominantly shale	8	88
	Till, olive-gray, silty to sandy	4	92
Pierre Formation:			
	Shale, grayish-black, moderately fractured	28	120

152-64-2CBB
NDSWC 5471

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, silty to sandy	0.5	0.5
	Till, moderate-yellowish-brown, very silty, oxidized	15.5	16
	Till, olive-gray, silty; gravelly at 84-91 ft	75	91
	Gravel, fine to coarse, angular to subrounded, poorly sorted (about 15 percent medium to coarse sand); about 50 percent detrital shale	11	102
	Sand, fine to very coarse, subangular to rounded; fair sorting (about 20 percent fine gravel)	19	121
	Clay, dark- to olive-gray, very silty	14	135
	Sand, fine to coarse, subangular to subrounded; mostly quartz; some carbonates and detrital lignite	4	139
	Clay, dark-gray, very silty	3	142
	Gravel, fine to coarse, clayey	1	143
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, noncalcareous	17	160

152-64-7BCA
NDSWC 5058

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Clay, moderate-yellowish-brown, very silty, oxidized	13	14
	Till, moderate-yellowish-brown, silty to sandy	4	18
	Till, olive-gray, silty to sandy	2	20
	Clay, olive-gray, very silty	9	29
	Till, olive-gray, silty to slightly sandy	48	77
	Gravel, fine to coarse; about one-third medium to very coarse sand; all materials angular to subrounded; predominantly shale	27	104
	Till, olive-gray, silty to slightly sandy	4	108
	Sand, medium to very coarse; about one-fourth fine to medium gravel; all material angular to subrounded; predominantly quartz	15	123
Pierre Formation:			
	Shale, grayish-black, moderately fractured	37	160

152-64-7DAB2
(Driller's log from U.S. Bureau of Indian Affairs)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Sand and gravel, brown	18	18
	Sand and clay, brown	7	25
	Clay and sand, hardpan, gray	22	47
	Clay, gray	13	60
	Clay, gray, hardpan with rocks	11	71
	Rock, gray	9	80
	Gravel, gray clay and rocks	19	99
Pierre Formation(?):			
	Black slate	1	100

152-64-27BBB
NDSWC 2878

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Sand, moderate-yellowish-brown, medium to very coarse, gravelly, oxidized------------	7	8
	Till, medium-dark-gray, silty to very sandy--	19	27
	Gravel, fine to coarse; predominantly mudstones----------------------------------	49	76
Pierre Formation:			
	Shale, grayish-black, indurated--------------	4	80

152-65-7BBB
NDSWC 5686

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, silty, sandy-----------------	0.5	0.5
	Till, dusky-yellow to moderate-yellowish-brown, silty, sandy, oxidized--------------	19.5	20
	Till, moderate-yellowish-brown to dark-yellowish-brown, silty, very sandy, oxidized-----------------------------------	15	35
	Till, olive-gray, silty----------------------	17	52
	Till, grayish-black; bentonitic in places; limestone concretions; samples crumble easily (displaced Pierre Formation)--------	57	109
	Gravel, fine to coarse, angular to sub-rounded, slightly sandy and clayey; fair to poor sorting; some cobbles; about 30 percent detrital shale, 30 percent carbonates, and 30 percent granitics and metamorphics-------------------------------	11	120
Pierre Formation:			
	Shale, grayish-black to black, slightly fractured, noncalcareous; bentonitic in places-------------------------------------	40	160

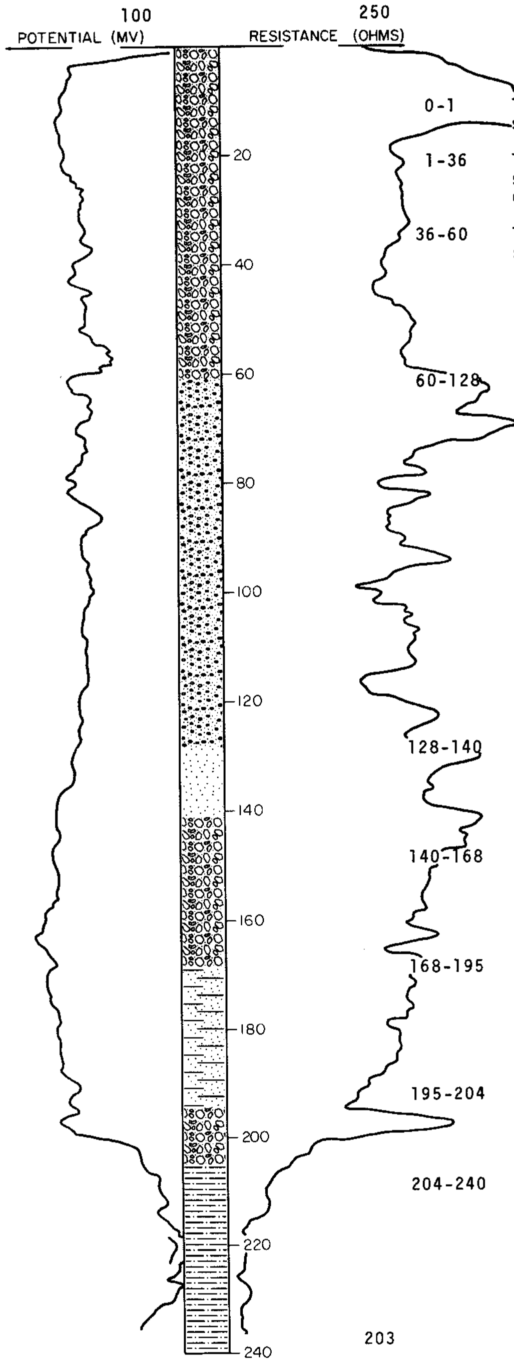
NDSWC 5056

LOCATION: 152-65-7CCC

DATE DRILLED: July 1968

ELEVATION: 1494
(FT, MSL)

DEPTH: 240
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, brownish-black, sandy.
1-36	Till, dark-yellowish-brown, silty to moderately sandy, oxidized.
36-60	Till, olive-gray, silty, slightly sandy.
60-128	Gravel, fine to coarse, angular to subrounded; fair sorting; predominantly shale.
128-140	Sand, fine to very coarse; about one-fourth fine to medium gravel; all materials angular to subrounded; moderately well sorted.
140-168	Till, olive-gray, silty to gravelly.
168-195	Silt, olive-gray; interbedded with thin layers of sandy gravel.
195-204	Till, olive-gray, very silty.

Pierre Formation

204-240	Shale, grayish-black; fractured in the upper 10-15 ft; occasional bentonite streaks.

152-65-13CAC
NDSWC 5472

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, silty to sandy	2	2
	Till, moderate-yellowish-brown, very silty to sandy, oxidized	16	18
	Till, olive-gray, silty	32	50
	Clay, dark-gray, very silty to sandy	6	56
	Sand, fine to very coarse, angular to subrounded; interbedded with thin lenses of silty clay	38	94
	Till, olive-gray, very silty, sandy	15	109
	Gravel, fine to coarse, angular to rounded, slightly sandy; occasional cobbles; about 75 percent detrital shale; remainder is carbonates, siltstone, granitics and detrital lignite	63	172
Pierre Formation:			
	Shale, grayish-black to black, siliceous, bentonitic, moderately indurated, slightly fractured, noncalcareous	8	180

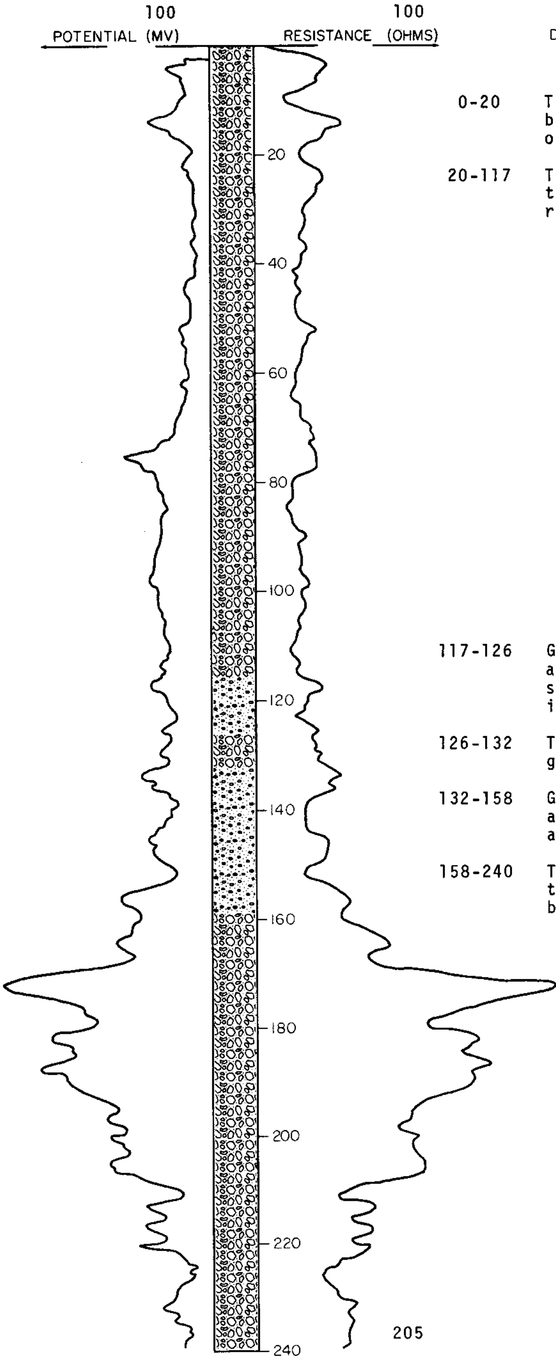
NDSWC 5057

LOCATION: 152-65-14BBA

DATE DRILLED: July 1968

ELEVATION: 1735
(FT, MSL)

DEPTH: 342
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-20	Till, moderate-yellowish-brown, very gravelly, oxidized.
20-117	Till, olive-gray; about three-fourths shale matrix reworked.
117-126	Gravel, fine to coarse, angular to subrounded, silty to clayey; predominantly shale.
126-132	Till, olive-gray, silty to gravelly.
132-158	Gravel, fine to coarse, angular to subrounded; abundant cobbles.
158-240	Till, olive-gray, silty to sandy, slightly oxidized; bouldery in places.

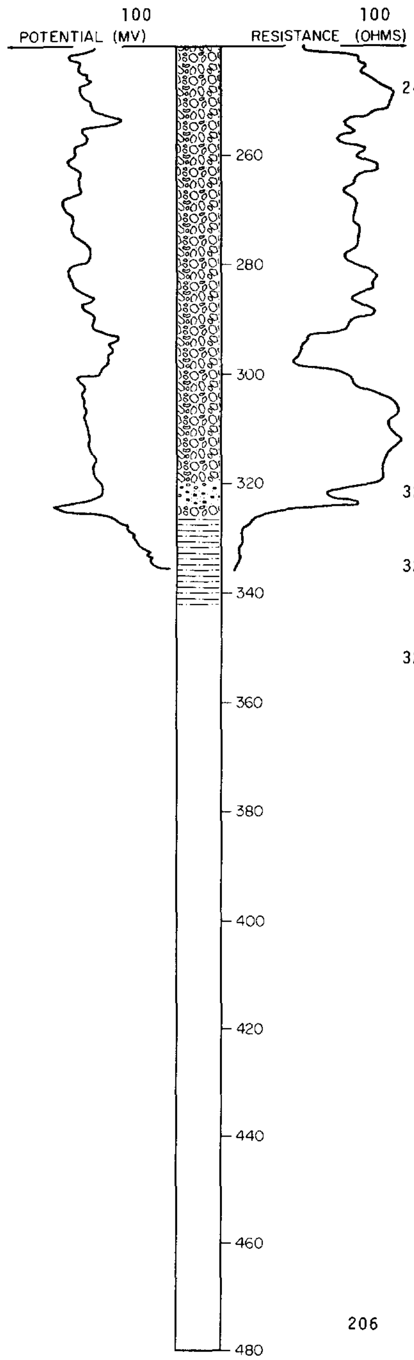
NDSWC 5057, Continued

LOCATION: 152-65-14BBA

DATE DRILLED: July 1968

ELEVATION: 1735
(FT, MSL)

DEPTH: 342
(FT)



DESCRIPTION OF DEPOSITS

240-320 Till, medium-dark-gray; interbedded with thin lenses of sand and gravel.

320-324 Cobbles and boulders; limestone, dolostone, and granite.

324-326 Till, medium-dark-gray, silty.

<u>Pierre Formation</u>

326-342 Shale, grayish-black, fissile; slightly fractured upper 5 ft.

152-65-19BBB
NDSWC 5685

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty, sandy	1	1
	Till, dusky-yellow to moderate-yellowish-brown, silty, sandy, oxidized	9	10
	Till, olive- to medium-dark-gray, silty, moderately sandy	4	14
	Gravel, fine to coarse, angular to subrounded; fair sorting; about 40 percent carbonates, 30 percent detrital shale, 30 percent granitics, metamorphics, and siliceous rocks; occasional lenses of sand and clay	15	29
	Till, olive-gray, silty; numerous cobbles, boulders, and shale blocks	49	78
Pierre Formation:			
	Shale, grayish-black to black, siliceous, slightly fractured, noncalcareous	22	100

152-65-20ADA
(Log from U.S. Bureau of Indian Affairs)

Material	Thickness (feet)	Depth (feet)
Topsoil	1.5	1.5
Clay, yellow	28.5	30
Clay, blue	17	47
Sand	1	48
Clay, blue	4	52
Sand and gravel	7	59
Shale	3	62

152-65-25CCC
NDSWC 2879

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Sand, medium to very coarse, angular to rounded (about 10 percent fine to medium gravel)	20	21
	Gravel, fine to coarse, angular to rounded (about 35 percent coarse to very coarse sand)	11	32
	Clay, moderate-yellowish-brown, calcareous, oxidized, fluvial	108	140
	Clay, medium-dark-gray, calcareous, fluvial; interbedded with moderate-yellowish-brown layers 140-150 ft	31	171
	Gravel, fine to medium, angular to subrounded, clayey, poorly sorted	2	173
Pierre Formation:			
	Shale, grayish-black, indurated	7	180

152-65-32AAA
NDSWC 5476

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	11	12
	Till, olive-gray, silty	10	22
	Sand, fine to coarse, subangular to subrounded; mostly quartz and shale	3	25
	Till, olive-gray, silty to sandy; abundant cobbles and boulders	5	30

152-65-32AAA, Continued
NDSWC 5476

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Gravel, fine to coarse, subangular to rounded (about 20 percent fine to very coarse sand); about 35 percent shale, 30 percent carbonates, 15 percent granitics; others are siltstone, sandstone, and detrital lignite	10	40
	Till, olive-gray, silty	8	48
	Sand, very fine to medium, subangular to rounded, well-sorted	7	55
	Till, olive-gray, silty	13	68
	Sand, very fine to very coarse, subangular to subrounded; interbedded with lenses of silty clay	5	73
	Till, olive-gray, silty	42	115
Pierre Formation:			
	Shale, grayish-black, siliceous, bentonitic, noncalcareous	25	140

152-66-21AAD
NDSWC 2869

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Sand, moderate-yellowish-brown, fine to medium, well-sorted, oxidized	9	10
	Sand, fine to medium, well-sorted; and fine to coarse subrounded gravel	55	65
	Gravel, fine to coarse; and coarse to very coarse sand; abundant shale	69	134
	Gravel, fine to coarse, rounded, sandy	28	162
	Gravel, coarse, subrounded; boulders; clay in zones	17	179
	Gravel, coarse; cobbles and boulders; silty clay in zones	30	209
Pierre Formation:			
	Shale, grayish-black, indurated	31	240

152-66-24CAB
NDSWC 5481

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, silty to sandy	0.5	0.5
	Till, moderate-yellowish-brown, silty to sandy, oxidized	9.5	10
	Clay, grayish-black, silty; interbedded with lenses of sand	10	20
	Gravel, fine to coarse, angular to subrounded; about 75 percent detrital shale and 10 percent carbonates	70	90
	Gravel, fine to coarse, angular to subrounded, poorly sorted; a few cobbles and boulders	10	100
	Gravel, fine to very coarse, angular to rounded; abundant cobbles and boulders; about 55 percent shale, 25 percent carbonates; remainder is siltstone, sandstone, chalcedony, quartzite, and detrital lignite	14	114
	Till, olive-gray, silty	3	117
	Sand, fine to coarse, gravelly, poorly sorted	3	120

152-66-24CAB, Continued
NDSWC 5481

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Till, olive-gray, silty, slightly sandy------	48	168
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, noncalcareous; occasional limestone concretions----------------------	12	180

152-66-24CDC
NDSWC 5480

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	0.5	0.5
	Gravel, fine to coarse (about 20 percent fine to very coarse sand); some cobbles; about 50 percent detrital shale, 25 percent carbonates; lost circulation---------------	26.5	27

152-66-27DDD
NDSWC 5055

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy---------------	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized----------------------------	14	15
	Till, olive-gray, silty to sandy------------	103	118
Pierre Formation:			
	Shale, grayish-black, indurated; bentonite streaks------------------------------------	22	140

152-67-11ACC
(Log from Schnell, Inc.)

Material	Thickness (feet)	Depth (feet)
Topsoil---------------------------------------	1	1
Medium to coarse gravel----------------------	10	11
Fine sand, medium gravel---------------------	29	40
Gray clay------------------------------------	11	51
Boulders-------------------------------------	3	54
Clay---	71	125
Medium hard shale----------------------------	55	180
Hard shale-----------------------------------	20	200
Medium hard shale with soapstone-------------	155	355
Hard shale-----------------------------------	35	390

152-67-13DCC
USGS test 23
(Log from Aronow, Dennis, and Akin, 1953, p. 78)

Material	Thickness (feet)	Depth (feet)
Till, light-gray, sandy----------------------	12	12
Till, gray, sandy----------------------------	6	18
Sand and gravel, gray------------------------	7	25
Till, gray, sandy----------------------------	20	45
Gravel, coarse, angular, mostly shale--------	30	75
Pierre shale---------------------------------	15	90

152-67-18ABB
NDSWC 5061

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy to gravelly	1	1
	Silt, moderate-yellowish-brown, clayey, slightly sandy, oxidized	14	15
	Silt, olive-gray, clayey, slightly sandy	3	18
	Gravel, fine to medium, angular to subangular, poorly sorted	3	21
	Clay, olive-gray, very silty	4	25
	Gravel, fine to medium, angular to subrounded, poorly sorted	6	31
	Till, olive-gray, silty to sandy	5	36
	Boulder, granite	.5	36.5
	Till, olive-gray, silty to sandy	11.5	48
	Boulder, granite	1	49
Pierre Formation:			
	Shale, grayish-black, indurated	11	60

152-67-19CCB
(Log from U.S. Bureau of Reclamation)

Material	Thickness (feet)	Depth (feet)
Topsoil	1.5	1.5
Silt - buff, predominantly silt with some very fine sand, semipervious	3.5	5
Sand and gravel - brown, silty, clayey zones, contains cobbles or boulders which required blasting, semipervious	5	10
Silt - buff, predominantly silt, thin silty clay laminae, some very fine sand, semipervious	4	14
Sand and gravel - brown becoming gray at 18.2 ft., silty, trace of clay, contains cobbles or boulders, high percent of shale fragments at 18.2 to 19.3 ft., semipervious	5.3	19.3
Clay (glacial till) brown, silty, sandy, gravelly, contains cobbles or boulders, impervious	3.7	23
Sand and gravel - brown, silty, clayey, medium and coarse sand, approximately 25 percent gravel, semipervious	2	25

152-67-23ABC
(Log from Norman Stai)

Material	Thickness (feet)	Depth (feet)
Topsoil	1	1
Yellow sandy clay	13	14
Gray clay with till	46	60
Boulders with cobbles; fine sand, lignite	13	73
Medium to coarse sand with some slate and fine gravel	2	75
Rock, possible boulder	.5	75.5
Pure gray clay	14.5	90

152-67-29CCB
(Log from U.S. Bureau of Reclamation)

Material	Thickness (feet)	Depth (feet)
Sand - tan and buff, compact, silty, fine, approximately 10 percent gravel, occasional zones of silty clay and clayey coarse sand and gravel, semipervious	25	25

152-67-29CDD
USGS test 21
(Log from Aronow, Dennis, and Akin, 1953, p. 78)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, brown, medium to coarse, well-sorted---	5	5
	Gravel, gray, medium to coarse, many shale pebbles------------------------------------	26	31
	Till, gray, silty and sandy------------------	64	95
	Sand, fine-----------------------------------	10	105
	Pierre shale---------------------------------	25	130

152-67-31CCC
NDGS auger hole BP67-38

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Gravel, sandy--------------------------------	12	12
	Sand---	10	22
	Gravel, coarse-------------------------------	2	24
	Sand---	5	29

152-67-32ABA
USGS test 22
(Log from Aronow, Dennis, and Akin, 1953, p. 78)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, brown, medium to coarse, well-sorted---	5	5
	Gravel, brown, medium to coarse, well-sorted-	19	24

152-67-32DDD
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil--------------------------------------	0.8	0.8
	Sand - light-gray to brown, silty, fine, occasional silty clay laminae, semi-pervious------------------------------------	9.2	10
	Sand - brown, fine to medium, zones of clayey coarse sand and fine gravel, oxidized to 12.8 ft., pervious-------------	2.8	12.8
	Sand - gray, silty, fine, uniform, silty clay zones at 18-19 ft.--------------------	6.2	19
	Silt - gray, with very fine sand, clayey in lower portion, semipervious----------------	5	24
	Clay (glacial till) gray, silty rich in upper portion, few fine and medium gravels, hard and compact at 24.8 to 25 ft., impervious---------------------------------	1	25

152-67-33DDD
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil--------------------------------------	0.8	0.8
	Sand - light-gray to brown, silty, fairly well graded, approximately 10 percent gravel, occasional clayey zones, semi-pervious------------------------------------	19	19.8
	Silt - gray, occasional clay laminae, fine sand with few fine gravels in lower portion, semipervious----------------------	5.2	25

152-68-13AAA
NDSWC 5060

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Till, moderate-yellowish-brown, silty to very sandy, oxidized	13	14
	Till, olive-gray, silty to sandy	9	23
	Sand, medium to very coarse, angular to subrounded, gravelly, poorly sorted	7	30
	Till, olive-gray, silty	2	32
	Boulder, granite	1.5	33.5
	Till, olive-gray, silty to sandy	2.5	36
	Sand, medium to very coarse, angular to subrounded, poorly sorted; predominantly quartz and carbonates	4	40
	Till, olive-gray, silty; abundant boulders; abandoned hole	27	67

152-68-19BBB
NDSWC 5497

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty, oxidized	22	23
	Sand, very fine to medium, subangular to rounded, silty, oxidized	4	27
	Till, moderate-yellowish-brown, silty to sandy, oxidized	6	33
	Sand, fine to coarse, subangular to subrounded, silty, slightly gravelly, oxidized	4	37
	Till, olive-gray, silty to sandy; a few cobbles	3	40
	Gravel, fine to coarse, angular to subrounded, silty to sandy, poorly sorted	2	42
	Till, olive-gray, silty, slightly sandy; some cobbles	51	93
	Gravel, fine to coarse, angular to rounded; fair sorting; cobbles; about 65 percent carbonates, 15 percent granitics; remainder is shale, sandstone, and metamorphics	7	100
	Till, olive-gray, silty to sandy; interbedded with thin lenses of fine gravel	49	149
	Sand, fine to very coarse, angular to rounded, slightly gravelly	4	153
	Till, olive-gray, silty to sandy	2	155
	Gravel, fine to coarse, silty, clayey	4	159
	Till, olive-gray, silty to sandy; interbedded with thin lenses of medium gravel	21	180
	Gravel, fine to coarse, angular to subrounded (about 35 percent medium to very coarse sand); about 35 percent carbonates, 30 percent granitics, and 15 percent detrital shale	7	187
Pierre Formation:			
	Shale, grayish-black, siliceous, bedded, noncalcareous	13	200

152-68-21DDD
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil	0.8	0.8
	Sand - lime-gray to 5 ft., brown at 5 to 10 ft., silty, clayey, fine to coarse gravel throughout, semipervious	9.2	10
	Clay (glacial till) brown becoming gray at 14 ft., silty sand rich till, occasional gravels, oxidized to 14 ft., semi-pervious	6	16
	Sand - gray, fairly well graded, clayey in upper portion, numerous shale fragments, zones of fairly clean cohesionless sand, approximately 5 percent gravel, semi-pervious to pervious	9	25

152-68-23CCC
(Log from U.S. Bureau of Reclamation)

	Topsoil	0.5	0.5
	Clay (glacial till) lime-gray to 3 ft., becoming gray and brown at 4.5 ft., silty, sandy, few gravels, impervious	4	4.5
	Clay (glacial till) brown, silty sand rich till, occasional zones of predominantly coarse sand and gravel, oxidized to 15.5 ft., semipervious to impervious	11	15.5
	Clay (glacial till) gray, soft, silty, sandy, fine and medium gravel throughout, impervious	9.5	25

152-68-25CDD
USGS test 20
(Log from Aronow, Dennis, and Akin, 1953, p. 78)

	Sand, brown, medium to coarse, silty	10	10
	Gravel, gray, shale, angular	30	40
	Till, gray, sandy and silty	40	80
	Pierre shale	20	100

152-68-27CDD
USGS test 16
(Log from Aronow, Dennis, and Akin, 1953, p. 79)

	Topsoil, light-brown, silty and sandy	5	5
	Gravel, fine, brown, and medium to coarse brown sand	15	20
	Till, gray	40	60

152-68-27DCC
USGS test 17
(Log from Aronow, Dennis, and Akin, 1953, p. 79)

	Sand, brown, medium to coarse	9	9
	Gravel, gray, coarse, angular, with shale pebbles	6	15
	Till, gray, silty, sandy	25	40
	Pierre shale	21	61

152-68-27DDC
USGS test 18
(Log from Aronow, Dennis, and Akin, 1953, p. 79)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, light-brown, silty, and limestone pebbles	5	5
	Gravel, brown, fairly well-sorted	10	15
	Till, gray, silty and sandy	70	85
	Sand, fine	5	90
	Pierre shale	15	105

152-68-28BCB
(Log from U.S. Bureau of Reclamation)

	Sand - lime-gray to 6 ft., becoming brown at 6 to 15 ft., silty, fairly well graded zones of coarse sand, approximately 5 percent gravel, semipervious to pervious	15	15
	Sand - brown, becoming gray at 18.5 ft., medium and coarse, trace of clay to clayey in lower portion, approximately 10 percent fine gravel, oxidized to 18.5 ft., semi-pervious to pervious	5	20
	Boulder - granite boulder (blasted)	1	21
	Sand - gray, silty, fine, zone of medium and coarse sand and few gravels at 22 ft., semipervious to pervious	4	25

152-68-29AAA
NDSWC 5498

Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	17	18
	Till, olive-gray, silty, slightly sandy	2	20
	Gravel, fine, angular to subrounded, sandy	3	23
	Till, olive-gray, silty; few cobbles	65	88
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, noncalcareous	12	100

152-68-29BBC
(Log from U.S. Bureau of Reclamation)

	Topsoil	1	1
	Silt - gray to brown, clayey zones and sandy zones, semipervious	4.6	5.6
	Sand - brown, fairly well graded, silty and clayey zones throughout, few gravels, semipervious	3.6	9.2
	Clay (glacial till) brown, silty sand rich till, few gravels, oxidized to 14.8 ft., semipervious to impervious	11.3	20.5
	Clay (glacial till) gray, hard, compact, silty, occasional sandy zones, numerous boulders, cored granite boulder at 20.5 to 22.5 ft., gravelly till zone at 22.5 to 24 ft., impervious	4.5	25

152-68-30CCB
NDSWC 5064

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, dark-yellowish-brown, sandy---------	1	1
	Till, dark-yellowish-brown, silty to sandy, oxidized----------------------------------	2	3
	Gravel, fine to coarse, oxidized; about one-fourth coarse to very coarse sand; all materials angular to subrounded------------	4	7
	Till, moderate-yellowish-brown, silty to sandy, oxidized---------------------------	7	14
	Till, olive-gray, silty; interbedded with a few thin lenses of sand and gravel-------	86	100
	Till, olive-gray, silty; interbedded with lenses of reworked Fox Hills sandstone-----	14	114
Pierre Formation:			
	Shale, grayish-black, moderately indurated; occasional bentonite streaks---------------	26	140

152-68-35BBC
USGS test 19
(Log from Aronow, Dennis, and Akin, 1953, p. 79)

	Sand, brown, medium to coarse, well-sorted---	10	10
	Silt, light-brown, and limestone pebbles-----	16	26
	Till, gray, silty and sandy------------------	9	35
	Cretaceous or Tertiary clay, sandy and gypsiferous---------------------------------	19	54
	Pierre shale---------------------------------	7	61

152-69-2DCD
NDSWC 5496

Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized----------------------------	8	9
	Till, olive-gray, silty to sandy-------------	31	40
Pierre Formation:			
	Shale, grayish-black, siliceous, noncalcareous; appears to be reworked shale at 40-74 ft----------------------------------	40	80

152-69-14BBC
(Log from U.S. Bureau of Reclamation)

	Topsoil---------------------------------------	1	1
	Clay (glacial till) gray and tan, dry, silty, sandy, limy to 4 ft., fine to medium gravel, impervious-------------------------	5.5	6.5
	Sand - tan, silty fairly well graded sand, approximately 10 percent gravel, semi-pervious to pervious-----------------------	2.6	9.1
	Clay (glacial till) tan, silty, sandy, gravelly, zones are predominantly clayey gravel, oxidized to 17 ft., semipervious---	7.9	17
	Clay (glacial till) gray, hard and compact, silty, clay rich till, fine to medium gravel throughout, impervious--------------	10.5	27.5
Pierre Formation:			
	Shale - gray, plastic clay shale within sand seams, occasional pebbles to 34.7 ft. indicates glacial reworking of the upper portion of the shale-------------------------------	7.5	35

152-69-14CCC
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil--	0.6	0.6
	Clay (glacial till) tan and buff, silty, sandy, some fine gravel, gypsum at 2 ft., impervious---------------------------------	5.5	6.1
	Granite boulder - diamond drilled-----------	3.5	9.6
	Clay (glacial till) gray with some brown iron oxide staining to 20.2 ft., hard, compact, silty, clay rich till, gravelly zone at 10 to 11 ft., gypsum at 11 ft., fine gravel throughout, slightly oxidized to 20.2 ft., moderately plastic, impervious-------------	15.3	24.9

152-69-19DCD
(Log from Brookhart and Powell, 1961, p. 65)

Geologic source	Material	Thickness (feet)	Depth (feet)
Till and associated sand and gravel deposits:			
	Sand, fine to medium, clayey, brown----------	15	15
	Gravel, fine to medium, and shale pebbles----	15	30
	Sand, fine, angular, gypsiferous, clayey, brown-------------------------------------	5	35
Fox Hills Formation:			
	Sand, fine, gypsiferous, clayey, gray--------	55	90

152-69-20BCC
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil--	0.4	0.4
	Clay (glacial till) brown to gray, moderately weathered, sandy, moderately plastic, few small gravels, impervious------------------	6.6	7
	Sand - brown, fine, uniform, consolidated, clayey, impervious------------------------	6.5	13.5
	Shale - gray-brown, sandy, clay shale, impervious---------------------------------	2.5	16
	Sand - blue, clayey, very fine, compact, impervious---------------------------------	2	18
	Shale - gray, compact, clay shale, impervious	2	20
	Sand - blue-gray, fine, uniform, clayey, compact, impervious-----------------------	15	35

152-69-20CBC
(Log from Brookhart and Powell, 1961, p. 65)

Geologic source	Material	Thickness (feet)	Depth (feet)
Till and associated sand and gravel deposits:			
	Clay, very sandy, yellow, and fine to medium gravel-------------------------------------	9	9
	Clay, sandy, gray, and fine to medium gravel and shale pebbles-------------------	16	25
Fox Hills Formation:			
	Sand, fine, angular, gypsiferous, light-gray-	65	90
Pierre Shale:			
	Shale, gray----------------------------------	2	92

152-69-22DCC
(Log from Brookhart and Powell, 1961, p. 65)

Geologic source	Material	Thickness (feet)	Depth (feet)
Till and associated sand and gravel deposits:			
	Clay, silty, yellow, and fine to medium gravel	10	10
	Clay, sandy, gray, and fine to medium gravel and shale pebbles	50	60
Pierre Shale:			
	Shale, gray	1	61

152-69-24CCD
(Log from Brookhart and Powell, 1961, p. 65)

Till and associated sand and gravel deposits:			
	Clay, silty, yellow, and fine to medium gravel	7	7
	Clay, sandy, gray, and fine to medium gravel	83	90

152-69-24DDA
(Log from U.S. Bureau of Reclamation)

	Topsoil	1	1
	Clay (glacial till) gray and brown, silty, sandy, some fine gravel, heavy gypsum concentration at 2 to 5 ft., impervious	4.5	5.5
	Sand - brown, fine, uniform, silty, clayey, lenses or fingers of sandy till throughout, semipervious to impervious	7.6	13.1
	Clay (glacial till) gray with brown staining to 17 ft., hard, compact, silty, clay rich fine gravel throughout, slightly oxidized to 17 ft., soft silty zone at 21.5 ft., occasional sandy zones, moderately plastic, sandy zones pervious, hard till impervious	11.9	25

152-69-26BBA
(Log from Brookhart and Powell, 1961, p. 66)

Till and associated sand and gravel deposits:			
	Clay, silty, yellow, and fine gravel	11	11
	Clay, sandy, gray, and fine to medium gravel and shale pebbles	128	139
Pierre Shale:			
	Shale, gray	5	144

152-69-26CCC
NDSWC 5505

Glacial drift:			
	Topsoil, grayish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty, oxidized	14	15
	Till, olive-gray, silty; occasional cobbles and boulders	118	133
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, noncalcareous	7	140

152-69-28AAB
(Log from Brookhart and Powell, 1961, p. 66)

Geologic source	Material	Thickness (feet)	Depth (feet)
Till and associated sand and gravel deposits:			
	Clay, silty, yellow, and fine gravel---------	10	10
	Clay, sandy, gray, and fine to medium gravel and shale pebbles-------------------	90	100
Pierre Shale:			
	Shale, gray----------------------------------	4	104

152-69-28BBA
(Log from Brookhart and Powell, 1961, p. 66)

Till and associated sand and gravel deposits:			
	Clay, silty, light-gray, and fine gravel, highly calcareous--------------------------	5	5
	Sand, poorly sorted, silty, brown------------	10	15
	Clay, sandy, gray, and fine gravel-----------	20	35
Fox Hills Formation:			
	Sand, fine, angular, gypsiferous, gray-------	55	90

152-69-33CCC
NDSWC 5504

Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized----------------------------	17	18
	Till, olive-gray, silty to sandy-------------	9	27
	Sand, very fine to medium, subangular to rounded; about 65 percent quartz, 15 percent carbonates, and 15 percent granitics and lignite; interbedded with thin lenses of silty clay------------------------------	10	37
	Till, olive-gray, silty to sandy-------------	2	39
	Sand, fine to very coarse, subangular to rounded; about 55 percent quartz; remainder is shale, granitics, carbonates, and detrital lignite---------------------------	11	50
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, noncalcareous-------------------	10	60

152-70-5DDA
NDGS auger hole BP69-27

Glacial drift:			
	Till, moderate-yellowish-brown, silty--------	11	11
Fox Hills Formation:			
	Siltstone, medium-bluish-gray----------------	2	13

152-70-11ADC
(Log from U.S. Bureau of Reclamation)

	Topsoil--------------------------------------	0.3	0.3
	Sand and gravel - light-gray, silty, clayey, fine to coarse sand, semipervious----------	5.9	6.2
	Sand, buff, silty, very fine, uniform sand, semipervious--------------------------------	13.8	20

152-70-11ADC, Continued
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, brown, silty, very fine sand, silty clay laminae and lenses throughout, some small moderately indurated sandy concretions at 25 to 27 ft., some fine gravel at 30 to 33 ft., semipervious to impervious	13	33
Fox Hills Formation:			
	Shale - brown, becoming gray at 44 ft., sandy, with zones of silty plastic clay throughout, occasional zones of predominantly silt, small lignite inclusions in silt at 41 ft., moderately consolidated, not cemented, oxidized to 44 ft., semipervious to impervious	17	50

152-70-12BCC1
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil	0.6	0.6
	Clay - gray with some brown streaks, silty, very sandy, few snail shell fragments throughout, semipervious	4.9	5.5
	Clay (glacial till) gray, with some brown to 6 ft., silty, sandy, some fine gravel and snail shell fragments, oxidized to 6 ft., impervious	3	8.5
	Sand and gravel - gray, medium and coarse sand with approximately 30 percent fine to coarse gravel, occasional silty clay lenses, silty with a trace of clay to 25 ft., zones of fairly clean sand and gravel at 25 to 40 ft., cobbles or boulder at 40 to 42 ft., pervious	37.5	46
Pierre Formation:			
	Shale - gray, silty, plastic clay shale, moderately consolidated, not cemented, impervious	4	50

152-70-12BCC2
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil	1	1
	Sand - brown, fine, uniform, trace of silt, may be windblown, pervious	3	4
	Silt - brown to 13 ft., gray to 15.2 ft., compact, sandy, bedding indistinct, impervious	11.2	15.2
	Sand - brown, fine, uniform, trace of silt, pervious	1	16.2
	Shale - gray, moderately compact to hard, thin bedded siltstone	7.8	24
	Sand - brown, fine, uniform, trace of silt to silty, zones are hard but not cemented, can be broken with digital pressure	26	50

152-70-13AAB
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil	1	1
	Clay (glacial till) brown, sandy, gravelly, impervious	3.1	4.1
	Sand - brown to gray, shaly, compact, zones are very clayey	21.9	26
Fox Hills Formation:			
	Sandstone and shale - alternating sandstone and shale, moderately cemented, hard	4	30

152-70-15CDD
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Silt - buff to brown, clayey, some very fine sand, semipervious to impervious	7	7
	Clay (glacial till) buff, silty, very sandy till, coarse sand and fine clayey gravel at 14 to 17.5 ft., semipervious	10.5	17.5
	Clay (glacial till) gray, very compact till, clay rich till, gravel and lignite fragments throughout, moderately plastic, impervious	15.5	33
	Clay (glacial till) gray, silty with sand rich zones throughout, semipervious	7	40

152-70-19CCC
NDSWC 5242

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Till, moderate-yellowish-brown, oxidized	14	15
	Till, moderate-yellowish-brown, sandy, oxidized	15	30
	Sand, fine to medium, subrounded; uniformly sorted; predominantly quartz	28	58
	Cobbles and boulders	2	60
	Till, medium-gray, silty	10	70
Fox Hills Formation:			
	Siltstone, medium-bluish-gray; interbedded with silt, clay, and fine sand	30	100

152-70-23DCD1
(Log from Brookhart and Powell, 1961, p. 66)

Geologic source	Material	Thickness (feet)	Depth (feet)
Till and associated sand and gravel deposits:			
	Topsoil, silty, light-brown	5	5
	Gravel, fine, fairly well-sorted, clayey, gray	16	21
	Clay, light-gray, and fine to medium gravel and shale pebbles	59	80
Pierre Shale:			
	Shale, gray	20	100

152-70-23DCD2
(Log from Brookhart and Powell, 1961, p. 67)

Geologic source	Material	Thickness (feet)	Depth (feet)
Till and associated sand and gravel deposits:			
	Clay, light-gray	5	5
	Sand, medium to coarse, brown	5	10
	Sand, coarse, and fine gravel, and the coarser fraction consists of shale fragments	10	20
	Gravel, very coarse, clayey, brown	7	27
	Gravel, fine, and coarse sand, light-brown	6	33
	Clay, silty, light-brown and fine gravel	7	40
	Clay, silty, gray and fine gravel	19	59
	Sand, fine to medium, gray	21	80
	Gravel, fine to medium	30	110

152-70-23DDC
(Log from Brookhart and Powell, 1961, p. 67)

Till and associated sand and gravel deposits:			
	Gravel, poorly sorted, clayey, brown	10	10
	Sand, medium to coarse, brown	10	20
	Gravel, fine to medium, brown	10	30
	Gravel, medium to coarse, brown	29	59
Pierre Shale:			
	Shale, gray	2	61

152-70-24ABB
(Log from U.S. Bureau of Reclamation)

	Topsoil	0.4	0.4
	Clay (glacial till) brown, hard, sandy, impervious	7.6	8
	Sand - brown, clayey, minor amount of fine gravel, semipervious to pervious	8.5	16.5
	Sand - brown to gray, very fine, clayey, compact	4.1	20.6
Pierre Formation:			
	Shale - gray, silty shale, compact, no evidence of bedding, impervious	4.4	25

152-70-24CCC
(Log from Brookhart and Powell, 1961, p. 67)

Till and associated sand and gravel deposits:			
	Sand, medium to coarse, brown	9	9
Pierre Shale:			
	Shale, gray	51	60

152-70-25CCC
NDGS auger hole BP68-37

Glacial drift:			
	Sand, light-brown, fine to medium, well-sorted, clean, oxidized	10	10
	Gravel, coarse	4	14
	Sand, fine to medium, gravelly, well-sorted	2	16
	Gravel	1	17
	Sand, medium, well-sorted, oxidized	2	19
	Gravel, coarse	1	20
	Sand, silty, oxidized, dry	1	21

152-70-25CCC, Continued
NDGS auger hole BP68-37

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Gravel	1	22
	Sand, gravelly	2	24
	Boulders and gravel	2.5	26.5
	Sand	1	27.5
	Gravel	.5	28
	Sand, gravelly	2.5	30.5
	Gravel	1.5	32
	Sand, fine, well-sorted, saturated	3	35
	Sand, coarse, well-sorted	5	40
	Sand, coarse, gravelly, slightly oxidized	12	52
Pierre Formation:			
	Shale, dark-gray, cohesive, dry	3	55

152-70-26DDC
(Log from Brookhart and Powell, 1961, p. 67)

Till and associated sand and gravel deposits:			
	Clay, sandy, brown	9	9
	Sand, fine to medium, brown	5	14
	Gravel, well-sorted, angular, clean, brown	21	35
Pierre Shale:			
	Shale, gray	12	47

152-70-27AAB
(Log from U.S. Bureau of Reclamation)

Clay (glacial till) gray, silty, some very fine sand, few fine to coarse gravels, impervious	3	3
Sand - buff, silty, fine, uniform hard fairly compact zone at 5.3 to 6 ft., silty clay zone at 8 ft., cobbles or boulders at 3 ft., 5 ft., and 7 ft., semipervious	7.2	10.2
Clay (glacial till) tan, silty, sand rich till, fine gravel, impervious	3	13.2
Clay (glacial till) gray, compact, silty, sandy, clay rich till, fine to coarse gravel throughout, cobbles or boulders at 14 ft., 19 ft., and 22 ft., slightly oxidized to 23 ft., moderately plastic, impervious	11.8	25

152-70-27CBB
(Log from U.S. Bureau of Reclamation)

Topsoil	0.7	0.7
Clay (glacial till) gray and tan, hard, dry, silt rich, sandy, with fine gravel, impervious	4.5	5.2
Sand - tan and buff, compact, silty, very fine sand, zones predominantly silt, semipervious	5.9	11.1
Clay (glacial till) tan and buff, silty with sand rich zones, fine to coarse gravel, cobble or boulder at 17 and 19 ft. impervious	7.9	19

152-70-27CBB, Continued
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
Fox Hills Formation:			
	Shale - gray with streaks of brown, compact, silty, clay shale, with sand lenses, slightly oxidized, moderately consolidated, not cemented, impervious	3.6	22.6
	Shale - gray, compact, silty, clay shale, trace of fine sand, slightly oxidized to 25.5 ft., impervious	4.4	27

152-70-32AAB
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil	0.5	0.5
	Clay (glacial till) tan, silty, sandy, fine gravel, sand rich zones, impervious	4.3	4.8
	Sand - brown, fairly well graded sand, approximately 10 to 15 percent gravel, trace of silt, pervious	2.6	7.5
	Clay (glacial till) brown, silty, sand rich till, fine and medium gravel throughout, cobble or boulder at 9.5 ft., impervious	4.5	12
	Clay (glacial till) gray, tough, compact, silty, sandy, with gravel, cobble or boulder at 13.2 ft., impervious	9.4	21.4
Fox Hills Formation:			
	Shale - gray, compact, silt shale with clay lenses and thin fine sand seams, impervious	3.6	25

152-70-35ABA
(Log from Brookhart and Powell, 1961, p. 68)

Geologic source	Material	Thickness (feet)	Depth (feet)
Till and associated sand and gravel deposits:			
	Sand, medium, silty, brown	20	20
	Sand, medium, and fine gravel, and the coarser fraction consists of shale fragments	15	35
	Clay, silty, gray, and fine to medium gravel, and shale pebbles	33	68
Pierre Shale:			
	Shale, gray	13	81

152-70-36BBB
(Log from Brookhart and Powell, 1961, p. 68)

Geologic source	Material	Thickness (feet)	Depth (feet)
Till and associated sand and gravel deposits:			
	Topsoil, silty, gray, and fine gravel	5	5
	Gravel, coarse, sandy, brown	34	39
Pierre Shale:			
	Shale, gray	2	41

152-71-8ABB
NDSWC 5302

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Sand, fine to very coarse, angular to subrounded, gravelly, oxidized----------------	25	26
	Till, olive-gray, very silty-----------------	14	40
Fox Hills Formation:			
	Siltstone, medium-gray, bedded, noncalcareous; occasional brownish-gray concretions-------	40	80

152-71-8CDD
NDSWC 1625

Glacial drift:			
	Topsoil, black, sandy------------------------	2	2
	Sand, fine to coarse-------------------------	19	21
	Gravel, fine to medium-----------------------	11	32
	Clay, gray-----------------------------------	4	36
Fox Hills Formation:			
	Sandstone, greenish-black--------------------	16	52

152-71-8DAA
NDSWC 1626

Glacial drift:			
	Topsoil, brown, sandy------------------------	2	2
	Sand, fine to medium-------------------------	8	10
	Sand, coarse; gravel, fine-------------------	26	36
Fox Hills Formation:			
	Sandstone, greenish-black--------------------	16	52

152-71-8DDD
(Log from U.S. Bureau of Reclamation)

	Topsoil--------------------------------------	1	1
	Sand - buff, fine, uniform, gravelly, trace of silt------------------------------------	9	10
	Sand - buff to gray, gravelly, fairly well graded, thin zones are clayey--------------	5	15
	Sand - gray, medium, uniform, small percent of coarse sand and fine gravel, fairly clean--	13	28
	Sand - gray, fine, uniform, clean------------	7.4	35.4
	Clay (glacial till) tough, compact, mixture of sand, gravel, and clay------------------	7.9	43.3

152-71-9DDD
(Log from U.S. Bureau of Reclamation)

	Topsoil--------------------------------------	1	1
	Sand - brown, very fine, uniform, fairly clean to trace of silt, cohesionless, moderately compacted-----------------------	19	20
	Sand - brown, fine to medium, fairly clean, few clay balls and streaks, cohesionless, moderately compacted, fair gradation-------	5	25

152-71-9DDD, Continued
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand - gray-brown, medium to coarse, approximately 10 to 15 percent gravel, fairly clean, cohesionless, fair gradation--------	20	45
	Sand - gray, medium to coarse, approximately 30 to 40 percent gravel, silty, cohesionless, fair gradation-----------------------	5	50
	Clay (glacial till) gray, hard, moist, silty, sandy, moderately plastic when saturated, pebbles and shale particles throughout-----	15	65
	Sand - gray, medium, excess silt and clay, approximately 25 percent gravel, dries with slight bind--------------------------	5	70
	Clay (glacial till) same as 50 to 65 ft.-----	5	70
Pierre Formation:			
	Shale - gray, silty, firm to hard but badly fractured in upper portion, vertically jointed, with heavy iron oxide deposits along joint planes, abundant macerated plant fragments on bedding surfaces--------	12	135

152-71-10CCC
NDGS auger hole BP67-31

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Sand, gravelly------------------------------	6	6
	Sand, coarse, oxidized-----------------------	40	46
	Gravel, sandy--------------------------------	5	51

152-71-16AAA1
NDSWC 1617

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, sandy------------------------	2	2
	Sand, fine-----------------------------------	3	5
	Gravel, fine to medium-----------------------	6	11
	Sand, fine to coarse-------------------------	36	47
	Till, gray-----------------------------------	37	84

152-71-16AAA2
NDSWC 1619
(500 feet west of 16AAA1)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, sandy------------------------	2	2
	Gravel, fine to medium-----------------------	4	6
	Sand, coarse; gravel, fine-------------------	6	12
	Sand, coarse---------------------------------	25	37
	Sand, coarse; gravel, fine-------------------	5	42

152-71-16AAA3
NDSWC 1

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil--------------------------------------	2	2
	Sand, brown----------------------------------	23	25
	Medium sand----------------------------------	19	44
	Coarse sand----------------------------------	8	52
	Fine sand------------------------------------	32	84
	Stratified sand and fine gravel--------------	6	90
	Hard gray clay-------------------------------	6	96

152-71-16AAB
NDSWC 1618

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, sandy	2	2
	Sand, fine to medium	3	5
	Sand, coarse; gravel, fine to medium	6	11
	Sand, fine to medium	20	31
	Gravel, fine; sand, coarse	11	42
	Sand, coarse	11	53
Fox Hills Formation:			
	Sandstone, greenish-black	20	73

152-71-16ABA
NDSWC 1620

Glacial drift:			
	Topsoil, brown, sandy	2	2
	Sand, coarse; gravel, fine	3	5
	Sand, fine to medium	16	21
	Gravel, fine; sand, coarse	25	46
Fox Hills Formation:			
	Sandstone, greenish-black	6	52

152-71-16BAA
NDSWC 1621

Glacial drift:			
	Topsoil, brown, sandy	2	2
	Sand, fine	9	11
	Sand, fine to coarse	11	22
	Gravel, fine to coarse	5	27
	Sand, coarse; gravel, fine	15	42
Fox Hills Formation:			
	Sandstone, greenish-black	10	52

152-71-16BDD
NDSWC 1622

Glacial drift:			
	Topsoil, brown, sandy	2	2
	Sand, coarse	3	5
	Gravel, fine to medium	6	11
	Sand, coarse	15	26
	Till, gray	6	32
Fox Hills Formation:			
	Sandstone, greenish-gray	10	42

152-71-17AAA
NDSWC 1623

Glacial drift:			
	Topsoil, brown, sandy	2	2
	Sand, coarse	30	32
	Sand, fine to medium	31	63
	Sand, fine to medium; some lignite	32	95
	Sand, fine	21	116
	Sand, fine to coarse	41	157
	Clay, gray and brown, sandy	21.5	178.5

152-71-20AAA1
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand - brown, fine to medium, silty, cohesionless, moderately compacted---------	4.8	4.8
	Sand - brown, fairly clean to trace of silt, cohesionless, moderately compacted---------	5.2	10
	Sand - gray, fine to coarse, 10 percent fine gravel, fairly clean, cohesionless, fair gradation----------------------------------	11.4	21.4
Fox Hills Formation:			
	Shale - gray, clayey, stiff to firm, appears to have been subjected to considerable weathering---------------------------------	4.6	26
	Shale - gray, silty, hard, massive, badly fractured and jointed----------------------	18.6	44.6
	Sandstone - greenish-gray, hard, calcareous, cementation, micaceous, friable------------	.4	45

152-71-20AAA2
NDSWC 1624

Glacial drift:			
	Topsoil, brown, sandy------------------------	2	2
	Sand, fine to medium-------------------------	9	11
	Sand, medium to coarse-----------------------	15	26
Fox Hills Formation:			
	Sandstone, green-----------------------------	16	42

152-71-20CCC
(Log from U.S. Bureau of Reclamation)

Topsoil--------------------------------------	1	1
Clay - buff, sandy, medium plastic-----------	3.5	4.5
Sand - medium, poorly graded, clayey---------	5.5	10
Clay (glacial till) tough, compact, gravelly clay---------------------------------------	5	15

152-71-22BBB
(Log from U.S. Bureau of Reclamation)

Topsoil--------------------------------------	1.5	1.5
Sand - buff, fine, uniform, silty------------	4	5.5
Sand - buff, very fine, uniform, trace of silt--	4.5	10
Sand - brown, medium, uniform, trace of silt-	3	13
Sand - gray, medium, uniform, clean----------	3.5	16.5
Sand and gravel - well graded, medium--------	4.5	21
Sand - gray, fine, uniform, clean------------	6	27
Sand and gravel - medium, well graded, trace of silt------------------------------------	4.5	31.5
Clay (glacial till) tough, compact, gravelly clay---------------------------------------	3.5	35

152-71-27CBB
NDGS auger hole BP67-32

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Sand, moderate-yellowish-brown, medium to coarse	8	8
	Gravel	1	9
	Sand	3	12
	Gravel	10	22
	Sand	2	24
	Gravel and cobbles	2	26
	Sand	2	28
	Gravel	1	29

152-71-28AAA
NDSWC

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Sand, medium to coarse	8	8
	Sand, medium	4	12
	Sand, fine to coarse	9	21

152-71-36CCC
NDSWC 5299

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	29	30
	Till, olive-gray, silty to sandy; occasional thin lenses of sand	10	40
	Sand, fine to very coarse, angular to subrounded, gravelly; mostly shale and carbonates	6	46
	Till, olive-gray, silty to sandy	9	55
Fox Hills Formation:			
	Siltstone, medium-gray, siliceous, clayey, bedded, noncalcareous	25	80

152-72-6DDD
NDSWC 5683

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty, sandy	1	1
	Sand, fine to very coarse, subangular, very clayey, silty, poorly sorted, oxidized	5	6
	Till, moderate-yellowish-brown, silty, moderately sandy, oxidized	15	21
	Till, olive-gray, silty, moderately sandy	9	30
Fox Hills Formation:			
	Siltstone, medium-dark-gray, siliceous, slightly clayey, bedded, noncalcareous	10	40

152-72-22BBB
NDSWC 5236

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Till, light-brown, sandy, oxidized	9	10
	Gravel, fine to coarse, subrounded to rounded, clayey, oxidized; about one-third medium to coarse sand	8	18
	Till, medium-gray, sandy	12	30
	Gravel, medium, rounded; about one-third medium to coarse sand	6	36
	Till, olive-gray, silty to sandy	9	45
	Silt, medium-dark-gray; interbedded with thin lenses of fine sand	15	60
	Silt, dark-gray, clayey (displaced Hell Creek Formation)	50	110
	Sand, fine to medium, dark-greenish-gray, glauconitic; interbedded with siltstone (displaced Fox Hills Formation)	14	124
	Silt, dark-gray, clayey	18	142
	Till, dark-gray, silty	8	150
	Till, dark-gray; interbedded with about one-third medium to coarse gravel; predominantly carbonates having surface oxidation	25	175
	Clay, dark-gray; occasional streaks of bentonite and silt	10	185
	Clay, medium-light-gray, silty	10	195
Fox Hills Formation:			
	Siltstone, medium-light-gray, indurated	35	230
	Sand, fine to medium, medium-bluish-gray	5	235
	Siltstone, light-gray, clayey; carbonaceous streaks	20	255
	Shale, grayish-black, fissile; occasional bentonite streaks	5	260
	Shale, grayish-black, silty	20	280
	Siltstone, medium-gray, clayey, micaceous	30	310
	Siltstone, brownish-black, micaceous, indurated	10	320
Pierre Formation:			
	Shale, brownish-black, indurated	30	350
	Shale, grayish-black, indurated; with thin bentonite layers	10	360

152-73-15CCC
NDSWC 5671

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty, sandy	1	1
	Till, dusky-yellow to moderate-yellowish-brown, silty, oxidized	15	16
	Till, olive-gray, silty	29	45
Fox Hills Formation:			
	Siltstone, medium- to medium-dark-gray, moderately sandy, clayey, bedded, noncalcareous	15	60

152-73-18CCB
NDSWC 5672

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty, sandy---------	1	1
	Clay, moderate-yellowish-brown to light-olive-gray, very silty, sandy, oxidized (lacustrine sediment)----------------------	14	15
	Clay, olive-gray, very silty, sandy (lacustrine sediment)----------------------	13	28
	Till, olive-gray, very silty, sandy----------	47	75
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, moderately clayey, silty, bedded, noncalcareous; interbedded with thin lenses of siltstone--	25	100

152-73-23ABB
NDSWC 5237

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-brown, sandy----------------	1	1
	Till, dark-yellowish-orange, sandy, oxidized----------------------------------	4	5
	Gravel, medium to coarse, subrounded to rounded, oxidized; and medium sand; predominantly granitics--------------------	8	13
	Till, moderate-yellowish-brown, oxidized-----	4	17
	Till, moderate-olive-brown, sandy------------	23	40
Fox Hills Formation:			
	Sand, medium-greenish-gray, very fine to fine, silty to clayey----------------------	35	75
	Siltstone, medium-gray, clayey, micaceous; carbonaceous streaks-----------------------	25	100

152-73-26CDD
NDSWC 5682

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty, sandy--------	1	1
	Till, dusky-yellow to moderate-yellowish-brown, silty, oxidized---------------------	13	14
	Till, olive-gray, silty, moderately sandy----	11	25
Fox Hills Formation:			
	Siltstone, medium- to medium-dark-gray, indurated, bedded, noncalcareous; occasional small quartz crystals-----------	15	40

152-73-33DDD
NDSWC 5681

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty, sandy--------	1	1
	Till, dusky-yellow to moderate-yellowish-brown, very silty, sandy, oxidized---------	17	18
	Gravel, fine to coarse, subangular to rounded, slightly sandy, poorly sorted, oxidized; predominantly carbonates---------	9	27
	Till, olive-gray, silty; abundant cobbles and boulders; lower 3 ft drilled like bedrock--	113	140

152-73-36AAA
NDSWC 5301

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Gravel, fine to coarse, angular to rounded, sandy, oxidized	20	20
	Sand, very fine to medium, angular to subangular, well-sorted; mostly quartz, carbonates, and shale; some lignite	36	56
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, very fine to fine-grained, micaceous; not cemented; interbedded with thin lenses of medium-gray siltstone	44	100

152-74-1BAA
NDSWC 2888

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Clay, moderate-yellowish-brown, plastic, oxidized, fluvial	25	26
	Sand, very fine to coarse, subangular to well-rounded	18	44
	Clay, olive-gray, calcareous, fluvial	8	52
	Gravel, fine to coarse, angular to subrounded (about 50 percent coarse to very coarse sand)	44	96
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, fine-to medium-grained, indurated	24	120

152-74-4BAB
NDSWC 5541

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Sand, very fine, subangular to rounded, very silty to clayey, oxidized	8	9
	Till, moderate-yellowish-brown, very silty to sandy, oxidized	7	16
	Till, olive-gray, silty	6	22
Fox Hills Formation:			
	Siltstone, medium- to brownish-gray; interbedded with thin lenses of bluish- to dark-greenish-gray very fine grained sandstone	18	40

152-74-8CDD
NDGS auger hole PB69-44

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Sand, moderate-yellowish-brown	22	22
Fox Hills Formation(?):			
	Siltstone, medium-bluish-gray, sandy	22	44

152-74-10ADD
NDSWC 5248

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Till, moderate-yellowish-brown; oxidized to 16 ft	25	26
	Sand, fine to coarse, subrounded; predominantly quartz	11	37
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, very fine to medium-grained, glauconitic; occasional carbonaceous streaks; interbedded with medium-gray micaceous siltstone	53	90
	Sandstone, grayish-blue-green, medium-grained, glauconitic; occasional carbonaceous streaks; cemented 100-101 ft and 109-110 ft	20	110
	Siltstone, medium-dark-gray, siliceous, clayey	10	120

152-74-15CCC1
NDGS auger hole BP67-26

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Sand, moderate-yellowish-brown	8	8
	Till, light-olive-gray	1	9
	Sand, clayey	19	28
	Sand, blue	11	39

152-74-15CCC2
NDSWC 5542

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Sand, very fine to fine, subangular to rounded, silty, oxidized	6	7
	Till, moderate-yellowish-brown, very silty to sandy, oxidized	7	14
	Till, olive-gray, silty	12	26
Fox Hills Formation:			
	Siltstone, brownish- to medium-gray, clayey, noncalcareous; interbedded with thin lenses of medium-bluish-gray fine-grained sandstone	14	40

152-74-32DDD
NDSWC 5249

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Clay, moderate-yellowish-brown, clayey, oxidized	9	10
	Sand, fine to medium, rounded, silty to clayey; predominantly quartz	61	71
	Till, olive-gray, sandy	17	88
Hell Creek Formation(?):			
	Siltstone, medium-dark-gray; interbedded with brownish-gray clay	42	130

152-74-32DDD, Continued
NDSWC 5249

Geologic source	Material	Thickness (feet)	Depth (feet)
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, fine- to medium-grained, glauconitic; carbonaceous streaks; occasional cemented lenses 1-2 inches thick	12	142
	Sandstone, medium-bluish-gray, fine- to medium-grained, micaceous, cemented	8	150
	Sandstone, medium-bluish-gray, fine-grained; interbedded with siltstone and clay	21	171
	Siltstone, medium-bluish-gray to medium-gray; some carbonaceous streaks	9	180

153-63-30CBC
NDSWC 5689

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty, sandy	1	1
	Till, dusky-yellow to moderate-yellowish-brown, silty, oxidized	12	13
	Till, olive-gray, silty, slightly sandy	26	39
	Clay, olive-gray, very silty (fluvial sediment)	41	80
	Sand, very fine to medium, slightly clayey, silty, moderately well sorted; about 70 percent quartz; remainder mostly detrital shale and lignite	25	105
	Sand, very fine to very coarse, subangular to rounded, moderately well sorted; some gravel; about 70 percent quartz, 20 percent shale; remainder granitics, lignite, and feldspar	30	135
	Gravel, fine to coarse, subangular to rounded, sandy, moderately well sorted; about 60 percent quartz, 15 percent detrital shale, 15 percent carbonates, granitics, and lignite	46	181
Pierre Formation:			
	Shale, grayish-black to black, siliceous, slightly bentonitic, very slightly fractured, noncalcareous	19	200

153-65-28AA
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil - black, organic clay, gravels, with scattered surface boulder	1	1
	Clay (glacial till) brown, gravels throughout, stiff	17	18
	Clay (glacial till) gray, gravels throughout, stiff	14	32
	Sand - gray, clayey, dense	5.5	37.5
	Clay (glacial till) gray, sandy zones, occasional gravels, stiff	10.5	48
	Sand - gray, fine, silty, medium density to very dense in lower portion	13	61
	Clay (glacial till) gray, gravels throughout, occasional lignite fragments, very stiff	9	70

153-65-28CDA
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil - gray, organic, clayey	1	1
	Sand - brown, clayey, with fine gravels	3.5	4.5
	Silt - brown, very fine sandy silt, soft (lacustrine)	7.5	12
	Clay - brown, with thin sandy zones, soft to stiff (lacustrine)	10	22
	Clay (glacial till) gray, gravels throughout, occasional lignite and shale particles, stiff	48	70

153-65-28DBB
(Log from U.S. Bureau of Reclamation)

	Topsoil - gray, clayey	1.5	1.5
	Clay - brown, very sandy, gravelly, soft	15.5	17
	Clay (glacial till) gray, occasional gravels, plastic, soft to stiff	53	70

153-65-32BBB
NDSWC 5687

Glacial drift:			
	Topsoil, brown, silty, sandy	1	1
	Till, moderate-yellowish-brown, silty, sandy, oxidized	11	12
	Till, olive-gray, silty	8	20
	Boulder, granite	1.5	21.5
	Till, olive-gray, silty	14.5	36
Pierre Formation:			
	Shale, grayish-black to black, siliceous, indurated, slightly fractured, noncalcareous; occasional limestone concretions	44	80

153-65-32CDC
NDSWC 5482

Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Clay, moderate-yellowish-brown, silty to sandy, oxidized	9	10
	Till, moderate-yellowish-brown, silty to sandy, oxidized	14	24
	Sand, fine to very coarse, subangular to rounded (about 20 percent medium gravel); mostly quartz and granitics; oxidized to 30 ft	16	40
	Sand, very fine to fine, subangular to rounded; interbedded with thin lenses of silty clay	33	73
	Silt, olive-gray, clayey; interbedded with thin lenses of very fine sand	67	140
	Till, olive-gray; interbedded with thin lenses of silty clay	60	200
	Till, olive-gray to grayish-black, silty; occasional boulders of detrital shale	20	220
Pierre Formation:			
	Shale, grayish-black to dark-gray, siliceous, bentonitic, noncalcareous; some limestone concretions	20	240

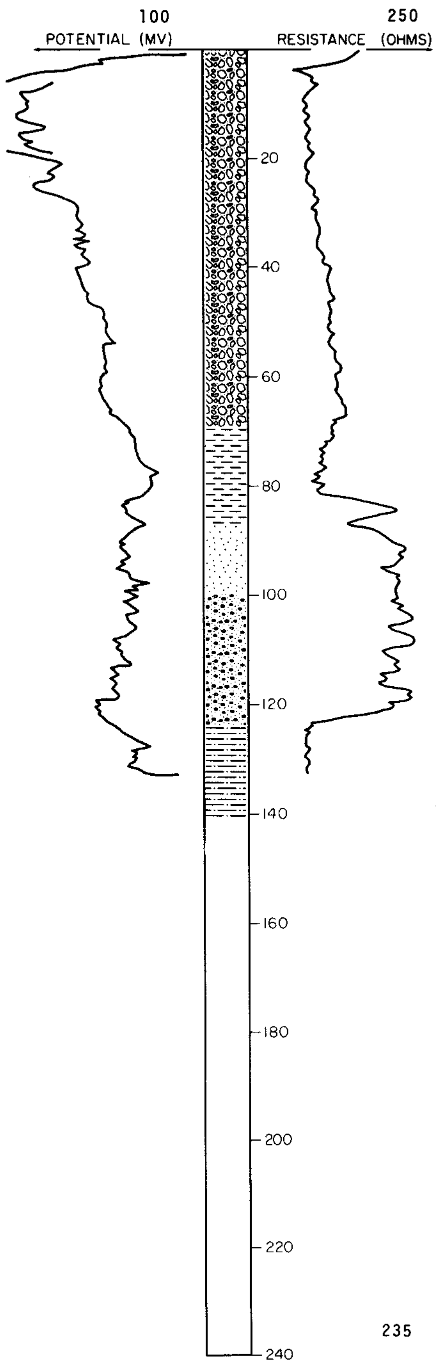
NDSWC 5484

LOCATION: 153-66-1DDD

DATE DRILLED: September 1969

ELEVATION: 1445
(FT, MSL)

DEPTH: 140
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, brownish-black, silty.
1-14	Till, moderate-yellowish-brown, silty, oxidized.
14-70	Till, olive-gray, silty; some cobbles.
70-88	Clay, olive- to medium-gray, very silty.
88-99	Sand, very fine to coarse, subangular to rounded.
99-123	Gravel, fine to coarse, subangular to rounded (about 40 percent fine to very coarse sand); about 45 percent shale, 25 percent carbonates; remainder is granitics, chalcedony, siltstone, sandstone, and lignite; interbedded with thin lenses of silty clay.

Pierre Formation

123-140	Shale, grayish-black to dark-gray, siliceous, moderately indurated, slightly fractured, noncalcareous.

153-66-15DCC
USGS test 45
(Log from Aronow, Dennis, and Akin, 1953, p. 80)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Silt, gray, sandy	7	7
	Silt, light-brown, clayey	12	19
	Silt, brown-gray, clayey	11	30
	Till, gray, many shale pebbles	37	67
	Gravel and sand, gray, clayey, with shale and limestone-dolomite pebbles	18	85
	Till, gray	50	135
	Pierre shale	11	146

153-66-19BBB
USGS test 39
(Log from Aronow, Dennis, and Akin, 1953, p. 80)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay, light-brown, silty (till?)	21	21
	Gravel and sand, gray, shale	30	51
	Pierre shale	15	66

153-66-20BAB
USGS test 42
(Log from Aronow, Dennis, and Akin, 1953, p. 80)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Silt and clay, gray, pebbly (till?)	28	28
	Sand, gray, fine to medium, well-sorted	29	57
	Gravel, gray, fine to medium, with coal and shale pebbles	35	92
	Clay and silt, gray	35	127
	Till, gray, silty	53	180
	Gravel, gray, fine to medium, with shale pebbles	22	202
	Sand and gravel, gray, shale	7	209
	Gravel, gray, fine to medium	18	227
	Gravel, gray, coarse	9	236
	Pierre shale	3	239

153-66-21AAB
USGS test 41
(Log from Aronow, Dennis, and Akin, 1953, p. 80)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, brown, medium to coarse, well-sorted	5	5
	Gravel and sand, gray, angular	6	11
	Gravel, gray, coarse, angular, with many large shale pebbles	92	103

153-66-21BAB
USGS test 43
(Log from Aronow, Dennis, and Akin, 1953, p. 81)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay and silt, light-gray	26	2[illegible]
	Sand, brown, medium to coarse	12	
	Gravel, fine to coarse, with shale pebbles	3	
	Till, gray, silty	65	
	Gravel, gray, fine to coarse, with angular shale fragments	4	
	Gravel, gray, medium to coarse, angular, clayey	20	
	Till, gray, silty	92	
	Pierre shale	8	

153-66-21BBB
USGS test 40
(Log from Aronow, Dennis, and Akin, 1953, p. 81)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay and silt, light-brown-------------------	22	22
	Clay and silt, gray--------------------------	29	51
	Till, gray-----------------------------------	11	62
	Gravel, gray, shale--------------------------	28	90
	Till, gray-----------------------------------	22	112
	Gravel, gray, very coarse, many shale pebbles	36	148
	Sand and gravel, gray, clayey, with coal and shale pebbles------------------------------	35	183
	Till or clay, gray---------------------------	97	280
	Sand and gravel, gray, clayey, with coal and shale pebbles------------------------------	39	319
	Pierre shale---------------------------------	5	324

153-66-22BAB
USGS test 44
(Log from Aronow, Dennis, and Akin, 1953, p. 81)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay and silt, light-brown-------------------	4	4
	Clay and silt, gray-brown--------------------	8	12
	Sand, gray, clayey---------------------------	5	17
	Till, gray, with shale and limestone-dolomite pebbles--------------------------	29	46
	Sand and gravel, gray, clayey----------------	9	55
	Gravel, gray, coarse, angular, with shale and limestone-dolomite pebbles-------------	13	68
	Till, gray-----------------------------------	44	112
	Pierre shale---------------------------------	18	130

153-66-25AAD
NDSWC 5483

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, silty to sandy---------------	1	1
	Clay, moderate-yellowish-brown, very silty, oxidized----------------------------------	8	9
	Till, moderate-yellowish-brown, silty, oxidized----------------------------------	11	20
	Till, olive-gray, silty----------------------	40	60
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, noncalcareous; a few limestone concretions-------------------------------	40	100

153-66-29CC
(Log from C. A. Simpson & Son)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil--------------------------------------	2	2
	Yellow clay with rocks-----------------------	20	22
	Blue clay with rocks-------------------------	10	32
	Shale (Pierre)-------------------------------	88	120

153-67-2DCA
Minnewaukan test 2
(Log from Aronow, Dennis, and Akin, 1953, p. 82)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Till, yellow, sandy--------------------------	7	7
	Till, light-brown, sandy---------------------	27	34
	Gravel, light-brown, coarse, with limestone and granite pebbles somewhat rounded-------	1	35
	Till, gray----------------------------------	1	36
	Sand, brown, coarse, with a few pebbles------	2	38
	Till, gray----------------------------------	30	68
	Sand, gray, shale---------------------------	3	71
	Pierre shale--------------------------------	1	72

153-67-2DCB1
Minnewaukan test 8
(Log from Aronow, Dennis, and Akin, 1953, p. 82)

	Clay, yellow--------------------------------	14	14
	Gravel; contained some water-----------------	2	16
	Clay, gray (till?)--------------------------	65	81
	Sand, gravel, some coal, water-bearing-------	2	83
	Gravel, shale-------------------------------	5	88
	Pierre shale--------------------------------	2	90

153-67-2DCB2
Minnewaukan test 9
(Log from Aronow, Dennis, and Akin, 1953, p. 82)

	Clay, yellow, sandy-------------------------	8	8
	Clay, gray----------------------------------	1	9
	Sand, coarse--------------------------------	4	13
	Quicksand-----------------------------------	2	15
	Clay, gray, sandy (till?)-------------------	27	42
	Sand, water-bearing-------------------------	2	44
	Clay, gray (till?)--------------------------	5	49
	Gravel--------------------------------------	2	51
	Clay, gray, and sand (till?)----------------	6	57
	Pebbles-------------------------------------	1	58
	Clay, gray, and sand (till?)----------------	11	69
	Sand, shaly---------------------------------	4	73

153-67-3ADD
USGS test 35
(Log from Aronow, Dennis, and Akin, 1953, p. 83)

	Till, light-brown, sandy and silty-----------	5	5
	Till, gray----------------------------------	40	45
	Gravel, gray, clayey, mostly shale-----------	5	50
	Pierre shale--------------------------------	15	65

153-67-7BBB
NDSWC 5493

Glacial drift:			
	Topsoil, brownish-black, silty---------------	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized---------------------------	7	8
	Till, olive-gray, silty (cored 20-22 ft)-----	34	42
	Gravel, fine to medium, angular to subrounded (about 35 percent medium to very coarse sand); about 45 percent carbonates, 20 percent detrital shale; remainder is granitics and quartz-----------------------	7	49

153-68-7BBB, Continued
NDSWC 5493

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Till, olive-gray, silty	4	53
	Boulder, granite	.5	53.5
	Sand, fine to coarse (about 25 percent medium gravel	3.5	57
	Clay, light-greenish-gray, silty	1	58
	Till, olive-gray, silty	55	113
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, noncalcareous (cored 115-117 ft)	4	117

153-67-10ABD
Minnewaukan test 4
(Log from Aronow, Dennis, and Akin, 1953, p. 83)

Material	Thickness (feet)	Depth (feet)
Clay, sand, and gravel, mixture of, brown (till?)	24	24
Sand	7	31
Clay, gray	11	42
Clay, gray, and sand	9	51
Hardpan (till?)	1	52
Sand	2	54
Clay, blue, pebbly (till?)	37	91
Pierre shale	3	94

153-67-10BBB
USGS test 30
(Log from Aronow, Dennis, and Akin, 1953, p. 83)

Material	Thickness (feet)	Depth (feet)
Till, light-brown, silty	12	12
Till, gray, silty, with angular shale pebbles	38	50
Pierre shale	20	70

153-67-10DCC
Minnewaukan test 5
(Log from Aronow, Dennis, and Akin, 1953, p. 83)

Material	Thickness (feet)	Depth (feet)
Clay, yellow, pebbly (till?)	16	16
Clay, gray	13	29
Sand	8	37
Clay, blue, pebbly (till?)	42	79
Pierre shale	21	100

153-67-11BDC
Minnewaukan test 6
(Log from Aronow, Dennis, and Akin, 1953, p. 84)

Material	Thickness (feet)	Depth (feet)
Clay, yellow, silty	14	14
Clay, gray, silty	18	32
Till, gray	26	58
Pierre shale	21	79

Note: Depths from driller; samples examined by U.S. Geological Survey

153-67-12CDD
Minnewaukan test 7
(Log from Aronow, Dennis, and Akin, 1953, p. 84)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand and gravel	2	2
	Clay, brown, pebbly (till?)	6	8
	Till, gray	40	48
	Clay, gray, silty	28	76
	Sand, gray, very fine	13	89
	Gravel, gray, mostly coarse, subrounded, silty	1	90
	Limestone boulder	1	91
	Sand, gray, fine to coarse, some small quartz and shale pebbles	1	92
	Sand, gray, mostly coarse, silty	1	93
	Till, gray	18	111
	Sand, gray, mostly fine	1	112
	Sand, gray, very fine to coarse, some shale gravel	2	114
	Sand and gravel, gray shale	5	119
	Gravel, gray, coarse, very clayey	5	124
	Shale, gray	5	129

Note: Depths from driller; samples from 8 feet to 119 feet examined by U.S. Geological Survey.

153-67-14BCA
Minnewaukan test 3
(Log from Aronow, Dennis, and Akin, 1953, p. 85)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay, brown	25	25
	Sand	1	26
	Clay, gray	23	49
	Sand, medium to coarse	1	50
	Clay, blue	11	61
	Clay, blue, and coarse gravel (till?)	13	74
	Pierre shale	9	83

153-67-15BBC1
Test hole 649
(Log from Paulson and Akin, 1964, p. 109)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Clay, gray	1	2
	Till or lake clay, light-brown or tan	10	12
	Till, gray	5	17
	Sand and gravel, clayey, gray, coarser material toward bottom	27	44
Pierre Shale:			
	Shale, gray	6	50

153-67-15BBC3
Test hole 648
(Log from Paulson and Akin, 1964, p. 110)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Clay, gray	2	3
	Till, light-brown or tan	8	11
	Sand, fine, clayey, light-brown	4	15
	Till, light-brown or tan	8	23
	Sand, fine to medium, clayey	15	38
	Till, gray	5	43
Pierre Shale:			
	Shale, gray	7	50

153-67-15BBC4
Test hole 649
(Log from Paulson and Akin, 1964, p. 110)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Clay, gray	1	2
	Till or lake clay, light-brown or tan	10	12
	Till, gray	5	17
	Sand and gravel, clayey, gray, coarser material toward bottom	27	44
Pierre Shale:			
	Shale, gray	6	50

153-67-15BBC5
Test hole 650
(Log from Paulson and Akin, 1964, p. 110)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Clay, gray	1	2
	Till, light-brown or tan	11	13
	Sand and gravel, gray	1	14
	Till, gray	13	27
	Sand and gravel	18	45
Pierre Shale:			
	Shale, gray	5	50

153-67-15BBC6
Minnewaukan supply well 1
(Driller's log)
(Log from Pualson and Akin,1964, p. 111)

Material	Thickness (feet)	Depth (feet)
Topsoil	1	1
Yellow clay	11	12
Sandy yellow clay	3	15
Very sandy blue clay	5	20
Muddy fine sand	12	32
Muddy fine and coarse sand	13	45

153-67-15BCB
USGS test 514
(Log from Aronow, Dennis, and Akin, 1953, p. 85)

Material	Thickness (feet)	Depth (feet)
Topsoil, black	1	1
Clay, sandy and gravelly, gray	1	2
Sand and gravel, very clayey, gray	2	4
Till, light-brown	10	14
Till, gray	25	39
Pierre shale, gray	11	50

153-67-15BCC
Minnewaukan test 16
(Log from Aronow, Dennis, and Akin, 1953, p. 85)

Material	Thickness (feet)	Depth (feet)
Topsoil,	1	1
Gray clay	3	4
Yellow sandy clay	5	9
Blue sandy clay	15	24
Sand	2	26
Blue clay	12	38
Sand	2	40
Blue sandy clay	8	48
Blue clay (shale?)	9	57

153-67-15BCD
Minnewaukan test 15
(Log from Aronow, Dennis, and Akin, 1953, p. 86)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil--	2	2
	Yellow sandy clay----------------------------	6	8
	Blue sandy clay------------------------------	14	22
	Sand---	4	26
	Blue sandy clay------------------------------	10	36
	Sand---	5	41
	Blue sandy clay------------------------------	15	56
	Blue clay, sticky (Pierre shale?)------------	7	63

153-67-15BDA1
Minnewaukan test 11
(Log from Aronow, Dennis, and Akin, 1953, p. 86)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Fill---	3	3
	Sandy clay-------------------------------------	9	12
	Blue sand and clay---------------------------	18	30
	Sand and gravel------------------------------	4	34
	Sand and gravel------------------------------	4	38
	Blue clay--------------------------------------	56	94
	Shale--	4	98

153-67-15DBA2
Minnewaukan test 12
(Log from Aronow, Dennis, and Akin, 1953, p. 86)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay---	4	4
	Yellow sand (shells)-------------------------	8	12
	Blue sand and clay---------------------------	29	41
	Sand and gravel------------------------------	2	43
	Blue clay (Pierre shale?)--------------------	21	64

153-67-15BDC
Minnewaukan test 14
(Log from Aronow, Dennis, and Akin, 1953, p. 86)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil--	2	2
	Yellow sand clay-----------------------------	10	12
	Blue sandy clay------------------------------	16	28
	Sand---	6	34
	Blue clay (sand streaks)---------------------	22	56
	Blue clay (Pierre shale?)--------------------	2	58

153-67-15BDD
Minnewaukan test 13
(Log from Aronow, Dennis, and Akin, 1953, p. 87)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Yellow clay------------------------------------	13	13
	Blue sandy clay------------------------------	3	16
	Sand---	2	18
	Blue sandy clay------------------------------	8	26
	Sand and gravel------------------------------	2	28
	Blue sandy clay------------------------------	18	46
	Blue clay (Pierre shale?)--------------------	12	58

153-67-15CAB
USGS test 522
(Log from Aronow, Dennis, and Akin, 1953, p. 87)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil, black	1	1
	Clay, sandy and gravelly	2	3
	Silt and very fine sand, clayey and gravelly, light-brown (till?)	11	14
	Silt and very fine sand, clayey and gravelly, gray (till?)	6	20
	Till, gray	8	28
	Sand, fine to very coarse, very clayey, gray; some of coarser material, shale	6	34
	Till, gray	12	46
	Pierre shale, gray	4	50

153-67-15CBA
USGS test 521
(Log from Aronow, Dennis, and Akin, 1953, p. 87)

	Topsoil, black	1	1
	Sand, very fine to very coarse, clayey, light-brown	4	5
	Till, silty, light-brown, or silt and very fine sand, clayey and gravelly	8	13
	Till, gray	4	17
	Sand, very coarse, and gravel, fine, very silty and clayey, gray	9	26
	Till, gray	20	46
	Pierre shale, gray	4	50

153-67-15CBB
USGS test 29
(Log from Aronow, Dennis, and Akin, 1953, p. 88)

	Silt, light-brown, with shale pebbles	10	10
	Sand and gravel, gray, with angular shale pebbles	10	20
	Till, gray	5	25
	Pierre shale	31	56

153-67-15DBA2
F. Rising
(Log from Aronow, Dennis, and Akin, 1953, p. 88)

	Topsoil	1	1
	Clay, yellow	9	10
	Clay, blue	12	22
	Gravel	3	25

153-67-15DBB
Minnewaukan test 10
(Log from Aronow, Dennis, and Akin, 1953, p. 88)

	Topsoil	2	2
	Sandy clay	26	28
	Sand and gravel	1	29
	Blue clay with rocks	22	51
	Blue clay, sticky (Pierre shale?)	40	91
	Shale, hard	5	96

153-67-15DCC2
USGS test 523
(Log from Aronow, Dennis, and Akin, 1953, p. 88)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil, black	3	3
	Clay, sandy and gravelly, gray	2	5
	Till, silty, light-brown	11	16
	Sand, medium to very coarse, and gravel, fine, clayey, gray	2	18
	Till, gray	26	44
	Pierre shale, gray	6	50

153-67-16AAA
USGS test 512
(Log from Aronow, Dennis, and Akin, 1953, p. 89)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Silt and very fine sand, clayey and gravelly, light-brown	11	11
	Silt and very fine sand, clayey and gravelly, gray	12	23
	Till, gray	9	32
	Sand, very fine to medium, very clayey and silty, gray; coarser material shale	14	46
	Pierre shale, gray	14	60

153-67-16AAD
USGS test 513
(Log from Aronow, Dennis, and Akin, 1953, p. 89)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil, black	1	1
	Clay, sandy and gravelly, gray	4	5
	Silt and very fine sand, clayey and gravelly, light-brown	4	9
	Sand and gravel, very silty, gray (or very sandy and gravelly till)	17	26
	Sand, medium to very coarse, and gravel, fine, fairly free of clay at top, more clayey toward bottom, gray; about one-fourth shale	11	37
	Pierre shale, gray	13	50

153-67-16ABB
USGS test 511
(Log from Aronow, Dennis, and Akin, 1953, p. 89)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil, black	1	1
	Sand, medium to very coarse, and gravel, fine to medium, very clayey, light-brown	8	9
	Till, light-brown	5	14
	Till, gray	12	26
	Gravel, fine to coarse, and some sand; very little clay; finer gravel shale	10	36
	Till, gray	14	50

153-67-16BAA1
USGS test 509
(Log from Aronow, Dennis, and Akin, 1953, p. 90)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, fine to very coarse, light-brown, clayey	5	5
	Till, silty, light-brown, or silt and sand, very fine, clayey and gravelly	12	17
	Till, sandy and gravelly, gray	5	22
	Gravel, fine to medium, and some sand, very little clay; about one-third shale	15	37
	Till, gray	13	50

153-67-16BAA2
USGS test 510
(Log from Aronow, Dennis, and Akin, 1953, p. 90)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil, light-brown to black, silty---------	1	1
	Clay and silt, pebbly, light-brown-----------	2	3
	Sand, very fine to medium, and silt, light-brown, clayey------------------------------	9	12
	Sand, very fine to fine, light-brown---------	7	19
	Silt and very fine sand, gravelly and clayey, light-brown, or till---------------	16	35
	Silt and sand, very fine, gravelly and clayey, gray (till?)-----------------------	11	46
	Gravel, fine to medium, and some sand, very coarse, fairly free of clay, gray; about one-third shale---------------------------	23	69
	Till, gray-----------------------------------	8	77
	Pierre shale, gray---------------------------	43	120

153-67-16DAA
USGS test 508
(Log from Aronow, Dennis, and Akin, 1953, p. 90)

	Topsoil, black-------------------------------	3	3
	Sand and gravel, very clayey, light-brown----	3	6
	Till, light-brown, sandy and gravelly--------	3	9
	Till, gray-----------------------------------	18	27
	Pierre shale---------------------------------	23	50

153-67-16DBA
USGS test 507
(Log from Aronow, Dennis, and Akin, 1953, p. 91)

	Topsoil, dark-brown--------------------------	2	2
	Sand and gravel, very clayey, light-brown----	2	4
	Till, light-brown----------------------------	8	12
	Gravel, fine to medium and sand, very coarse, very clayey, light-brown; about one-half shale---------------------------------------	4	16
	Gravel, fine to medium, and sand, very coarse, very clayey, gray; about one-half shale----	11	27
	Till, gray-----------------------------------	19	46
	Pierre shale, gray---------------------------	74	120

153-67-16DBB
USGS test 506
(Log from Aronow, Dennis, and Akin, 1953, p. 91)

	Topsoil, black-------------------------------	2	2
	Till, gray-----------------------------------	2	4
	Till, light-brown----------------------------	4	8
	Till, gray-----------------------------------	5	13
	Sand, medium to very coarse, and some fine gravel, slightly clayey, gray; coarser material, shale----------------------------	11	24
	Till, gray-----------------------------------	17	41
	Pierre shale, gray---------------------------	9	50

153-67-16DCD
USGS test 515
(Log from Aronow, Dennis, and Akin, 1953, p. 91)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Silt, clay and sand, very fine, light-brown	3	3
	Sand, fine to very coarse, and some gravel, fine to coarse, slightly clayey, light-brown	19	22
	Gravel, fine to medium, and sand, medium to very coarse, slightly clayey, gray; gravel about one-third shale	6	28
	Sand, medium to very coarse, and gravel, fine to medium, very clayey, gray; coarse material is shale	8	36
	Till, gray	14	50

153-67-21AAA
USGS test 517
(Log from Aronow, Dennis, and Akin, 1953, p. 92)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Till, silty, light-brown, or silt and sand, very fine, clayey and gravelly	15	15
	Sand, medium to very coarse and some gravel, fine, very clayey, gray; about one-third shale	5	20
	Till, gray	18	38
	Pierre shale, gray	12	50

153-67-21AAB
USGS test 516
(Log from Aronow, Dennis, and Akin, 1953, p. 92)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Silt and very fine sand, clayey and gravelly, light-brown	25	25
	Silt and very fine sand, clayey and gravelly, gray; more gravel toward bottom	40	65
	Till, gray, sandy and gravelly, or very clayey sand and gravel	7	72
	Pierre shale, gray	68	140

153-57-21CDD
USGS test 524
(Log from Aronow, Dennis, and Akin, 1953, p. 92)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil, black	1	1
	Clay, sandy and gravelly, gray	4	5
	Till, silty, light-brown, or silt and sand, very fine, clayey and gravelly	10	15
	Sand, very fine to medium, clayey, gray	10	25
	Till, gray	25	50

153-67-21DDC
USGS test 526
(Log from Aronow, Dennis, and Akin, 1953, p. 93)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil, black	1	1
	Silt and very fine sand, clayey and gravelly, light-brown	18	19
	Silt and very fine sand, clayey and gravelly, gray	8	27
	Sand, very coarse, and gravel, fine, very clayey, gray; mostly shale	7	34
	Till, gray	18	52

153-67-21DDC, Continued
USGS test 526

Geologic source	Material	Thickness (feet)	Depth (feet)
	Gravel, fine, and sand, very coarse, very clayey, gray; mostly shale	2	54
	Till, gray	29	83
	Pierre shale, gray	75	158

153-67-21DDD
USGS test 527
(Log from Aronow, Dennis, and Akin, 1953, p. 93)

	Topsoil, black	2	2
	Clay, sandy and gravelly, gray	2	4
	Till, light-brown	9	13
	Sand, fine to very coarse, very clayey, light-brown	2	15
	Till, gray	35	50

153-67-22BAA
USGS test 520
(Log from Aronow, Dennis, and Akin, 1953, p. 93)

	Topsoil, black	1	1
	Clay, sandy and gravelly, gray	1	2
	Till, light-brown	9	11
	Till, gray	17	28
	Pierre shale, gray (till?)	22	50

153-67-22BAB
USGS test 519
(Log from Aronow, Dennis, and Akin, 1953, p. 94)

	Topsoil, light-brown	1	1
	Clay, sandy and gravelly, gray	1	2
	Till, silty, light-brown	10	12
	Till, gray	24	36
	Pierre shale, gray	14	50

153-67-22BBB
USGS test 518
(Log from Aronow, Dennis, and Akin, 1953, p. 94)

	Topsoil, gray	1	1
	Till, silty, light-brown or silt and sand, very fine, gravelly and clayey	7	8
	Sand, fine to coarse, clayey, gray; mostly shale	8	16
	Till, gray	22	38
	Pierre shale, gray	12	50

153-67-22CCD
USGS test 528
(Log from Aronow, Dennis, and Akin, 1953, p. 94)

	Topsoil, black	2	2
	Clay, sandy and gravelly, gray	1	3
	Till, light-brown	13	16
	Till, silty, gray, or silt and sand, very fine, clayey and gravelly	4	20
	Sand, medium to very coarse, and gravel, fine, very clayey, gray mostly shale	12	32
	Till, gray, sandy, and gravelly	18	50

153-67-23AAA
USGS test 28
(Log from Aronow, Dennis, and Akin, 1953, p. 94)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Silt, light-brown	10	10
	Clay, gray, with fresh-water gastropod	15	25
	Till, light-brown	30	55
	Pierre shale	4	59

153-67-23BAB
USGS test 36
(Log from Aronow, Dennis, and Akin, 1953, p. 95)

	Silt, light-brown	18	18
	Silt, gray	27	45
	Pierre shale	35	80

153-67-24ABB
USGS test 37
(Log from Aronow, Dennis, and Akin, 1953, p. 95)

	Silt and clay, light-brown	8	8
	Sand, brown, fine to medium, well-sorted	12	20
	Till, gray, many shale pebbles	50	70
	Pierre shale	16	86

153-67-24BAB
USGS test 38
(Log from Aronow, Dennis, and Akin, 1953, p. 95)

	Clay and silt, light-brown (till?)	23	23
	Till, gray, silty, with shale pebbles	45	68
	Pierre shale	7	75

153-67-28ABA
USGS test 525
(Log from Aronow, Dennis, and Akin, 1953, p. 95)

	Topsoil, black	2	2
	Clay, sandy and gravelly, gray	3	5
	Till, silty, light-brown, or silt and very fine sand, clayey and gravelly	4	9
	Till, silty, gray, or silt and very fine sand, clayey and gravelly	5	14
	Till, sandy and gravelly, gray	11	25
	Till, gray	25	50

153-67-35AAC
USGS test 24
(Log from Aronow, Dennis, and Akin, 1953, p. 96)

	Silt, gray	5	5
	Silt, light-brown	10	15
	Silt, gray	15	30
	Till, gray, silty, with some limestone pebbles	117	147
	Pierre shale	17	164

153-67-36AAB1
USGS test 26
(Log from Aronow, Dennis, and Akin, 1953, p. 96)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, brown	7	7
	Till, light-brown, sandy and silty	11	18
	Gravel, gray, coarse, angular, and shale	14	32
	Till, gray	25	57
	Pierre shale	11	68

153-67-36AAB2
USGS test 25
(Log from Aronow, Dennis, and Akin, 1953, p. 96)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil, gray, silty	5	5
	Sand, light-brown, silty	12	17
	Sand, gray, fine to medium	9	26
	Gravel, gray, coarse, angular	25	51
	Pierre shale	46	97

153-67-36ABA
USGS test 27
(Log from Aronow, Dennis, and Akin, 1953, p. 96)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Till, light-brown, silty	12	12
	Sand and gravel, gray, fairly well sorted, with shale pebbles	18	30
	Sand and gravel, gray, poorly sorted, with some weathered shale	9	39
	Shale	10	49

153-68-3ADA
NDSWC 5684

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty, sandy	1	1
	Till, moderate-yellowish-brown, silty, oxidized	19	20
	Till, olive-gray, silty	23	43
	Sand, medium to very coarse, subangular to rounded, moderately well sorted; about 50 percent detrital shale; remainder mostly quartz and carbonates	14	57
	Clay, olive-gray, very silty, sandy, calcareous (fluvial sediment)	3	60
	Sand, fine to coarse; about 35 percent detrital shale and lignite; remainder mostly quartz; interbedded with lenses of silty clay	10	70
	Clay, olive-gray, silty, sandy, calcareous (fluvial sediment)	7	77
	Sand, fine to medium, subangular to rounded, clayey	4	81
	Till, olive-gray, silty	6	87
	Gravel, fine to coarse, subangular to rounded, slightly sandy; about 55 percent carbonates, 30 percent shale; remainder granitics, detrital lignite, and siliceous rocks; interbedded with a few thin lenses of clay	10	97
	Till, medium-dark-gray to dark-gray, silty; numerous cobbles and boulders	79	176
	Clay, medium-dark-gray to olive-gray, very silty; some detrital lignite (fluvial sediment)	32	208

153-68-3ADA, Continued
NDSWC 5684

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Till, olive- to dark-gray, silty; occasional thin lens of gravel	87	295
Pierre Formation:			
	Shale, grayish-black to black, siliceous, brittle, slightly fractured, noncalcareous	5	300

153-68-16AAA
NDSWC 5494

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	0.5	0.5
	Till, moderate-yellowish-brown, silty to sandy, oxidized	14.5	15
	Till, olive-gray, silty	9	24
	Boulder, limestone	1	25
	Till, olive-gray, silty	6	31
	Sand, very fine to medium, subangular to rounded; about 45 percent quartz, 35 percent shale; remainder mostly carbonates and detrital lignite	7	38
	Till, olive-gray, silty	18	56
	Gravel, fine to coarse, angular to rounded; about 40 percent carbonates; remainder is granitics, quartzite, quartz, shale, sandstone, and metamorphics	4	60
	Till, olive-gray, silty; abundant cobbles and boulders 120-142 ft	118	178
Pierre Formation:			
	Shale, grayish-black, siliceous, bedded, noncalcareous	22	200

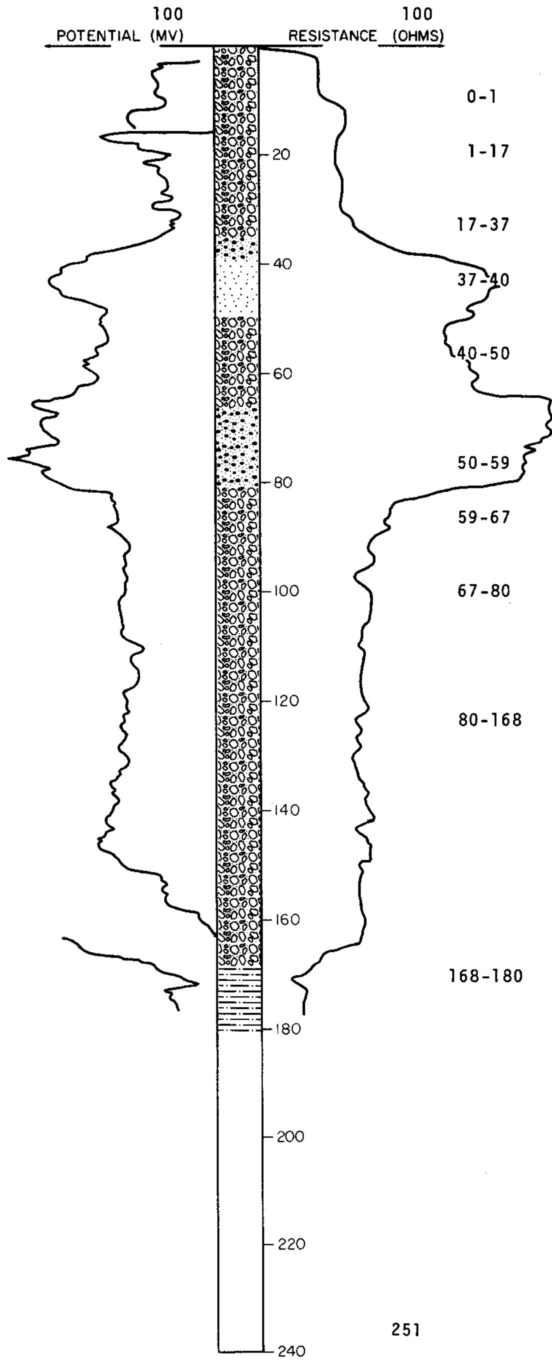
NDSWC 5067

LOCATION: 153-68-18DDD

DATE DRILLED: July 1968

ELEVATION: 1618
(FT, MSL)

DEPTH: 180
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, brownish-black, silty to sandy.
1-17	Till, moderate-yellowish-brown, silty to sandy, oxidized.
17-37	Till, olive-gray, silty, sandy.
37-40	Gravel, fine to medium, angular to subrounded; fair sorting.
40-50	Sand, fine to very coarse, angular to subrounded, moderately well sorted; some gravel; predominantly quartz.
50-59	Till, olive-gray, slightly sandy.
59-67	Till, olive-gray, silty; interbedded with 1-2 ft lenses of sand and gravel.
67-80	Gravel, medium to very coarse; about one-third medium to very coarse sand; all materials angular to subrounded; predominantly quartz and carbonates.
80-168	Till, olive-gray, silty, slightly sandy.

Pierre Formation

168-180	Shale, grayish-black, indurated; some bentonite streaks.

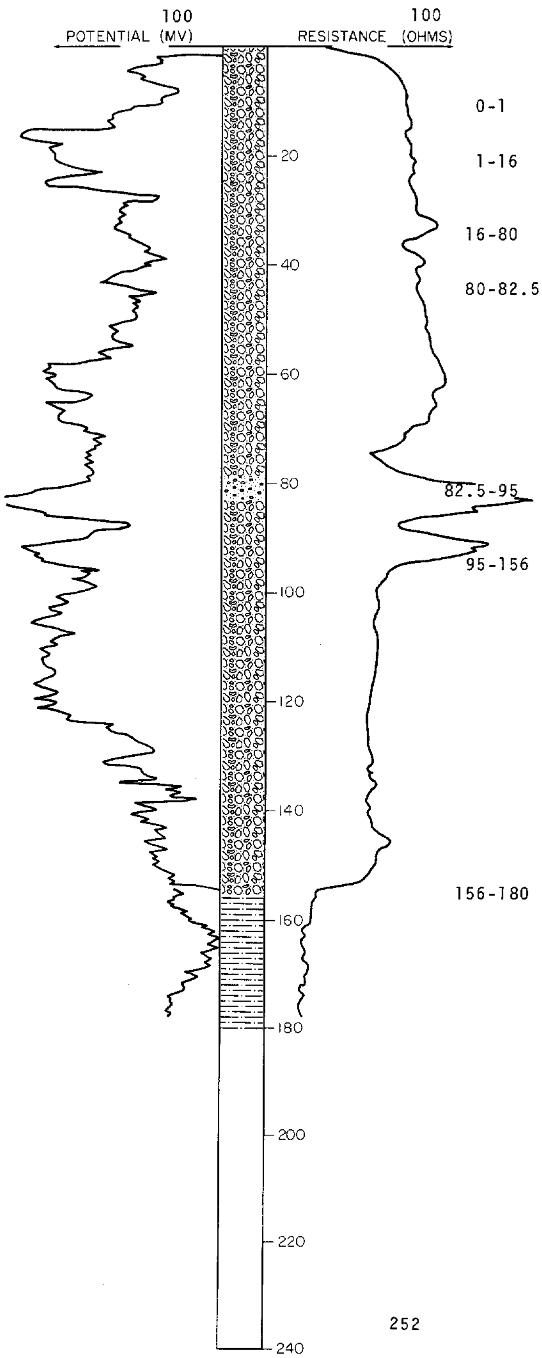
NDSWC 5066

LOCATION: 153-68-24AAA

DATE DRILLED: July 1968

ELEVATION: 1580
(FT, MSL)

DEPTH: 180
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, brownish-black, sandy.
1-16	Till, moderate-yellowish-brown, silty, sandy, oxidized.
16-80	Till, olive-gray, silty to slightly sandy.
80-82.5	Boulders; sandstone and granitics.
82.5-95	Till, olive-gray, silty, sandy, gravelly; abundant cobbles and boulders.
95-156	Till, medium-dark-gray, silty; possibly older till than above.

Pierre Formation

156-180	Shale, grayish-black, indurated; some bentonite streaks.

153-68-32DDD
NDSWC 5065

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, dark- ellowish-brown, sandy	1	1
	Till, moderate-yellowish-brown, very silty, oxidized	17	18
	Till, olive-gray, very silty to sandy	68	86
	Gravel, fine to coarse, angular to sub-rounded, poorly sorted; with a few cobbles; predominantly carbonates	4	90
	Till, olive-gray, silty to gravelly	4	94
	Sand, medium to coarse, angular to rounded, moderately well sorted; predominantly quartz and shale	6	100
	Till, olive-gray; about one-half sand and gravel occurring as interbedded lenses	9	109
	Sand, fine to coarse	1	110
	Till, olive-gray, silty to sandy; interbedded with thin lenses of sand, gravel, and cobbles	81	191
Pierre Formation:			
	Shale, grayish-black, moderately indurated	9	200

153-68-36CDD
NDSWC 5495

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	14	15
	Till, olive-gray, silty	22	37
	Gravel, fine to medium, angular to rounded (about 35 percent medium to very coarse sand); about 30 percent shale, 25 percent granitics, 35 percent carbonates	9	46
	Till, olive-gray, silty; occasional cobbles and boulders	13	59
	Boulder, dolomite	3	62
	Till, olive-gray, silty; some cobbles and boulders; interbedded with thin lenses of sandy gravel	47	109
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, noncalcareous	11	120

153-69-11AAA
NDSWC 5068

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty, sandy	1	1
	Till, moderate-yellowish-brown, oxidized	13	14
	Till, olive-gray, silty	12	26
	Clay, olive-gray, very silty to sandy	16	42
	Till, olive-gray, silty	18	60
	Till, medium-dark-gray; silty to gravelly in places	89	149
Pierre Formation:			
	Shale, grayish-black, fissile	11	160

153-69-20BBB
NDSWC 2868

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Till, moderate-yellowish-brown, calcareous, oxidized------------------------------------	19	20
	Till, medium-dark-gray, calcareous-----------	70	90
	Gravel, fine to coarse, angular to subrounded (about 20 percent coarse to very coarse sand)-------------------------------------	2	92
	Till, olive-gray, silty to sandy, cohesive, calcareous---------------------------------	4	96
	Gravel, fine to coarse, angular to subrounded (about 20 percent coarse to very coarse sand)-------------------------------------	4	100
	Till, olive-gray, silty and gravelly, cohesive, calcareous-----------------------	4	104
	Gravel, fine to coarse, very clayey; about 5 percent lignite--------------------------	16	120
Hell Creek Formation:			
	Shale, brownish-gray, siliceous, slightly calcareous---------------------------------	28	148
Pierre Formation:			
	Shale, grayish-black, indurated--------------	12	160

153-69-31DAA
NDGS auger hole BP69-26

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Till, moderate-yellowish-brown, silty--------	10	10
Fox Hills Formation:			
	Clay, brownish-gray, silty-------------------	9	19
	Siltstone, brownish-gray---------------------	5	24

153-69-33DCC
NDGS auger hole BP69-25

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Till, moderate-yellowish-brown, silty--------	6	6
	Till, moderate-yellowish-brown, gravelly-----	4	10
Fox Hills Formation:			
	Siltstone, brownish-gray, clayey; iron concretions--------------------------------	8	18

153-69-34BAA
NDSWC 5506

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized----------------------------	13	14
Fox Hills Formation:			
	Siltstone, medium- to medium-bluish-gray; interbedded with medium-bluish-gray very fine-grained micaceous sandstone-----------	117	131
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, noncalcareous; streaks of bentonite----------------------------------	9	140

153-69-34DCD
NDGS auger hole BP67-36

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Clay, silty to sandy	9	9
	Sand; gravelly intervals	17.5	26.5

153-70-3DDD
NDSWC 5545

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	21	22
	Sand, very fine to coarse, subangular to rounded, silty, oxidized; about 55 percent quartz, 15 percent carbonates; remainder is granitics, shale, and detrital lignite	28	50
	Till, olive-gray, silty to sandy	5	55
Fox Hills Formation:			
	Siltstone, medium- to brownish-gray, slightly clayey, moderately indurated, noncalcareous	25	80

153-70-5AAA
NDSWC 5544

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized; cobbles	26	27
	Till, olive-gray, silty to sandy	28	55
	Sand, very fine to medium, subangular to rounded, clayey; about 65 percent quartz, 15 percent shale; remainder is carbonates and detrital lignite	13	68
Fox Hills Formation:			
	Siltstone, brownish- to medium-gray, clayey, moderately indurated, noncalcareous; interbedded with thin lenses of medium-bluish-gray fine- to medium-grained sandstone	12	80

153-70-21BBB
NDSWC 5240

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black	1	1
	Till, moderate-yellowish-brown, oxidized	14	15
	Sand, fine to medium; oxidized; interbedded with silt	35	50
	Silt, medium-gray; interbedded with fine to medium sand and clay	29	79
	Boulder, granodiorite	1	80
	Clay, medium-gray	5	85
	Till, medium-dark-gray, sandy	9	94
	Sand, medium-bluish-gray, clayey; interbedded with thin (6-inch) lenses of carbonaceous shale (displaced Hell Creek Formation)	6	100
	Till, medium-dark-gray, sandy to gravelly	9	109
	Till, medium-dark-gray; interbedded with medium-bluish-gray sand and carbonaceous shale (displaced bedrock)	41	150

153-70-21BBB, Continued
NDSWC 5240

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Silt, dark-gray	15	165
	Till, medium-dark-gray	14	179
	Boulder, dolomite	5	184
Fox Hills Formation:			
	Sand, dark-greenish-gray, fine to medium; interbedded with dark-gray clay and shale	16	200

153-70-32DDD
NDSWC 5241

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, sandy	1	1
	Till, moderate-yellowish-brown, oxidized	27	28
	Till, medium-gray	4	32
	Till, medium-bluish-gray; interbedded with silt and fine to medium sand; predominantly carbonates	8	40
	Boulders, dolomite	1	41
Fox Hills Formation:			
	Sandstone, dark-greenish-gray, medium-grained, glauconitic, cemented	5	46
	Clay, medium-bluish-gray to brownish-gray; occasional carbonaceous streaks; inter-bedded with silt and sand	54	100

153-71-3ABB
NDSWC 5107

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty, moderately sandy, oxidized	7	8
	Clay, dark-yellowish-brown, very silty, slightly sandy, laminated, oxidized	18	26
	Gravel, fine to coarse, angular to sub-rounded, poorly sorted; interbedded with dark-yellowish-brown to olive-gray till; oxidized to 45 ft	34	60
Fox Hills Formation:			
	Sandstone, dark-greenish-gray, very fine to fine-grained; interbedded with medium-dark-gray slightly to moderately indurated siltstone	38	98
	Siltstone, medium-dark-gray, clayey; occasional carbonaceous streaks	42	140

153-71-5BBB
NDSWC 5543

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	0.5	0.5
	Till, moderate-yellowish-brown, very silty to sandy, oxidized	14.5	15
	Till, olive-gray, silty to sandy	17	32
	Sand, very fine to fine, subangular to rounded; about 55 percent quartz, 25 percent shale; interbedded with thin lenses of silty clay	22	54

153-71-5BBB, Continued
NDSWC 5543

Geologic source	Material	Thickness (feet)	Depth (feet)
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, very fine to fine-grained, cemented, micaceous; biotite flakes	6	60

153-71-15CCC
NDSWC 5304

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	39	40
	Sand, very fine to medium, angular to subangular, moderately well sorted, oxidized; mostly quartz	40	80
	Till, olive-gray, silty to sandy	5	85
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, very fine to fine-grained, micaceous, unconsolidated, noncalcareous	35	120

153-71-16CCC
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay (glacial till) gray-brown, silty, sandy, dry, hard, oxidized, slightly plastic when saturated, pebbles and shale particles throughout	39	39
	Sand - brown, fine to medium, fair gradation, silty, cohesionless, moderately compacted, approximately 10-15 percent gravel, maximum 1 inch	8	47
	Sand - gray-brown, fine, fairly clean, trace of silt to clean, uniform, cohesionless, moderately compacted	17	64
	Sand - gray-brown, fine to medium, fair gradation, trace of silt to clean, cohesionless, moderately compacted, heavy iron oxide staining from 64-70 ft.	16	80
	Silt - gray, large proportion of clay, well compacted, coarse gravel at 88.2 to 88.6 ft.	12	92
Fox Hills Formation:			
	Sandstone - greenish-gray, shaly, hard, friable, micaceous	4	96
	Shale - gray, hard, silty, laminated, organic silt from 107 to 107.5 ft., organic plant remains disseminated throughout	19	115

153-71-17DDD1
NDSWC 5305

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Gravel, fine to coarse, angular to subrounded, poor sorting, oxidized	9	10
	Till, olive-gray, silty to sandy	6	16
	Gravel, fine to coarse, angular to subrounded, sandy; fair sorting	3	19

153-71-17DDD1, Continued
NDSWC 5305

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Till, olive-gray, silty to sandy-------------	2	21
	Sand, fine to very coarse, angular to subrounded, gravelly; about 70 percent quartz; remainder is carbonates, granitics, and shale---------------------------------------	19	40
Fox Hills Formation:			
	Siltstone, medium-dark-gray, siliceous, moderately indurated, noncalcareous--------	40	80

153-71-17DDD2
NDSWC 5305A

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Gravel, fine to coarse, angular to subrounded, oxidized; poor sorting------------	10	11
	Till, olive-gray, silty to sandy-------------	5	16
	Sand, fine to very coarse, angular to subrounded (about 25 percent fine to coarse gravel)-----------------------------------	24	40
Fox Hills Formation:			
	Siltstone, medium-dark-gray, siliceous, moderately indurated, noncalcareous--------	20	60

153-71-17DDD3
NDGS auger hole BP69-12

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Gravel, medium to coarse, sandy--------------	14	14
	Sand, fine to coarse; interbedded with thin lenses of silty clay-----------------------	22	36
Fox Hills Formation:			
	Siltstone, medium-bluish-gray, sandy---------	3	39

153-71-19AAA
NDSWC 5307

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Sand, fine to coarse, angular to subrounded, silty, oxidized---------------------------	13	14
	Till, dusky-yellow, silty to sandy, oxidized------------------------------------	4	18
	Gravel, fine to medium, angular, poorly sorted, oxidized--------------------------	2	20
Fox Hills Formation:			
	Siltstone, moderate-yellowish-brown, oxidized	10	30
	Siltstone, medium-dark-gray, moderately indurated, noncalcareous-------------------	10	40

153-71-20CCC
NDSWC 5243

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Sand, medium to coarse, subangular to rounded; uniform sorting; about one-tenth medium gravel; predominantly quartz	59	60
	Gravel, coarse, subrounded to rounded; about one-fourth sand	26	86
Fox Hills Formation(?):			
	Shale, medium-dark-gray, fractured; interbedded with bluish-gray sandstone	14	100

153-71-21CCD
NDSWC 5306

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, very silty to sandy, oxidized	4	5
Fox Hills Formation:			
	Siltstone, moderate-yellowish-brown, siliceous, oxidized	10	15
	Siltstone, medium-gray, clayey, moderately indurated, bedded, noncalcareous	45	60

153-71-22CCC
NDSWC 5303

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	0.5	0.5
	Till, dusky-yellow, very silty to sandy, oxidized	4.5	5
	Sand, fine to very coarse, angular to subrounded, gravelly, oxidized; fair sorting; mostly quartz and carbonates	24	29
	Till, olive-gray, silty to sandy	5	34
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, very fine grained, noncalcareous; interbedded with medium-gray siltstone; some brownish-gray concretions	26	60

153-71-23AAA
NDSWC 5546

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, very silty to sandy, oxidized	4	5
	Sand, fine to very coarse, angular to subrounded, gravelly, poorly sorted, oxidized; mostly quartz and carbonates	5	10
	Till, olive-gray, silty to sandy	32	42
	Sand, very fine to medium, subangular to rounded; about 35 percent quartz, 15 percent shale, 15 percent carbonates, and some lignite; interbedded with thin lenses of silty clay	17	59

153-71-23AAA, Continued
NDSWC 5546

Geologic source	Material	Thickness (feet)	Depth (feet)
Fox Hills	Formation:		
	Sandstone, medium-bluish-gray, very fine to fine-grained, silty to clayey, unconsolidated, micaceous; interbedded with siltstone; brownish-gray at 70-80 ft-------	21	80

153-71-24ABB
NDGS auger hole BP67-30

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial	drift:		
	Till, light-olive-gray, sandy, oxidized------	15	15
	Sand, fine to coarse, silty------------------	39	54

153-71-27CDD
NDSWC 1627

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial	drift:		
	Topsoil, brown, sandy------------------------	2	2
	Sand, coarse---------------------------------	4	6
	Gravel, fine to medium-----------------------	5	11
	Sand, fine to coarse-------------------------	63	74
Fox Hills	Formation:		
	Sandstone------------------------------------	10	84

153-71-28ADA
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil--------------------------------------	1.5	1.5
	Silt - buff, sandy---------------------------	3.5	5
	Sand - buff, fine, uniform, silty------------	6	11
	Sand - buff to gray, coarse, gravelly--------	11.5	22.5
	Clay (glacial till) tough, compact, gravelly clay------------------------------	4.5	27
	Sand - gray, very fine-----------------------	3	30

153-71-33AAA
NDSWC 5239

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial	drift:		
	Topsoil, brownish-black, sandy---------------	1	1
	Sand, medium to coarse, subrounded to rounded, oxidized; about one-third medium gravel; predominantly quartz and granitics-	24	25
	Till, pale-yellowish-orange, oxidized--------	5	30
Fox Hills	Formation:		
	Sandstone, medium-bluish-gray, fine-to medium-grained, glauconitic; interbedded with siltstone and clay with occasional carbonaceous streaks-----------------------	26	56
	Siltstone, medium-gray, siliceous------------	44	100

153-72-3DDD
NDSWC 5244

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown	1	1
	Till, pale-yellowish-brown, sandy, oxidized	9	10
	Till, medium-dark-gray, gravelly	10	20
	Sand, medium to coarse, subrounded; predominantly quartz	3	23
Fox Hills Formation:			
	Sandstone, dark-greenish-gray, fine- to medium-grained; interbedded with medium-gray siltstone, silt, and clay	57	80

153-72-7BBD
NDSWC

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Clay, yellow, sandy	10	11
	Sand, gray, clayey	5	16
	Sand, gray, clayey, semisoft	13	29
Fox Hills Formation:			
	Shale; alternating with sandstone	8	37

153-72-17CCC
NDSWC 5670

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, silty, sandy	1	1
	Till, dusky-yellow to moderate-yellowish-brown, very silty, oxidized	19	20
Fox Hills Formation:			
	Siltstone, dark-yellowish-brown to medium-gray; slightly fractured and weathered to 35 ft	40	60

153-72-32CDD
NDSWC 5238

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Clay, dark-yellowish-orange, oxidized	5	6
	Till, medium-gray, gravelly	9	15
Fox Hills Formation:			
	Sand, medium-bluish-gray; interbedded with silt and clay	45	60
	Sandstone, medium-bluish-gray, glauconitic; occasional carbonaceous streaks; interbedded with siltstone and clay	40	100

153-73-2CCC
NDSWC 5666

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, silty, sandy	1	1
	Silt, dusky-yellow to moderate-yellowish-brown, very sandy, clayey, oxidized (fluvial sediment)	5	6
	Sand, fine to very coarse, angular to subrounded, silty, moderately well sorted; about 65 percent quartz; remainder carbonates, granitics, shale, feldspar, and lignite; oxidized to 25 ft	41	47
Fox Hills Formation:			
	Siltstone, medium-gray, slightly sandy, clayey, indurated, noncalcareous	13	60

153-73-5DDD
NDSWC 5674

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, silty, sandy	1	1
	Till, dusky-yellow to moderate-yellowish-brown, silty, oxidized	8	9
	Gravel, fine to coarse, angular to subrounded, silty to very clayey, poorly sorted, oxidized; mostly carbonates	6	15
	Till, moderate-yellowish-brown, silty, oxidized	5	20
	Clay, moderate-yellowish-brown, very silty, sandy, oxidized (fluvial sediment)	13	33
	Till, moderate-yellowish-brown, silty, oxidized	7	40
	Sand, very fine to medium, subangular to subrounded, silty, oxidized	9	49
	Till, medium- to dark-gray, silty; abundant siltstone (reworked bedrock)	6	55
Fox Hills Formation:			
	Siltstone, medium-dark-gray, siliceous, bedded, noncalcareous; occasional iron concretions	25	80

153-73-6CCC
NDSWC 5673

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, silty, sandy	1	1
	Sand, very fine to coarse, subangular to rounded, oxidized	25	26
	Till, olive-gray, silty	23	49
Fox Hills Formation:			
	Siltstone, medium-dark-gray, clayey, indurated, bedded	31	80

153-73-6DDD
NDSWC 5667

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty, sandy	1	1
	Till, moderate-yellowish-brown, silty, oxidized	13	14
	Till, olive-gray, silty	62	76
Fox Hills Formation:			
	Siltstone, medium-gray, clayey, moderately sandy, bedded; numerous brownish-gray concretions, occasional small quartz crystals	24	100

153-73-9AAA
NDSWC 5676

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Roadfill, brown	4	4
	Clay, light-olive-gray, very silty, calcareous (fluvial sediment)	5	9
	Sand, very fine to coarse, subangular to rounded, well-sorted; about 65 percent quartz, 15 percent granitics; remainder feldspar, shale, carbonates, and lignite; occasional thin lenses of silty clay	61	70
	Silt, medium-gray, very clayey, calcareous; interbedded with thin lenses of sand (fluvial sediment)	12	82
	Sand, fine to coarse, subangular to rounded, moderately well sorted; mostly quartz and detrital lignite	18	100
	Gravel, fine to coarse, poorly sorted; some cobbles and boulders; mostly carbonates	3	103
Fox Hills Formation:			
	Siltstone, medium-dark-gray, siliceous, indurated, noncalcareous	17	120

153-73-10BBA
NDSWC 5245

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, sandy	1	1
	Sand, fine to coarse, subangular to rounded; gravel from 9-10 ft; predominantly quartz, some detrital lignite; oxidized to 14 ft	19	20
	Silt, medium-gray, sandy	5	25
	Sand, medium, silty to clayey; predominantly quartz and lignite	35	60
Hell Creek Formation(?):			
	Silt, medium-dark-gray, clayey	20	80
Fox Hills Formation:			
	Sand, greenish-gray, glauconitic	4	84
	Siltstone, medium-dark-gray; occasional carbonaceous streaks; interbedded with brownish-gray clay	96	180

153-73-10BCC
NDSWC 5675

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty, sandy--------	1	1
	Clay, light-olive-gray, very silty, calcareous (fluvial sediment)--------------	10	11
	Sand, very fine to very coarse, subangular to subrounded, moderately well sorted; about 65 percent quartz, 15 percent granitics; remainder carbonates, feldspar and lignite-	38	49
Fox Hills Formation:			
	Siltstone, medium-gray, clayey, indurated, bedded, noncalcareous----------------------	31	80

153-73-14CCC
NDSWC 5669

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, silty, sandy-----------------	1	1
	Sand, fine to medium, subangular, very silty, clayey, oxidized--------------------	6	7
	Till, dusky-yellow to moderate-yellowish-brown, silty, sandy, oxidized-------------	22	29
	Till, olive-gray, silty----------------------	18	47
	Sand, very fine to fine, subangular, very silty, clayey; fair sorting; mostly quartz and lignite------------------------------	13	60
	Gravel, fine to coarse, angular to subrounded, sandy, clayey, poorly sorted; mostly carbonates-------------------------	4	64
Fox Hills Formation:			
	Siltstone, medium-dark-gray, clayey, moderately sandy, bedded, noncalcareous----	16	80

153-73-17CCC
NDSWC 5539

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty to sandy-------	1	1
	Sand, very fine to fine, subangular, very silty, clayey; oxidized to 6 ft------------	8	9
	Clay, light- to medium-gray, very silty------	9	18
	Till, olive-gray, silty to sandy------------	27	45
Fox Hills Formation:			
	Siltstone, medium- to brownish-gray; interbedded with medium-bluish-gray sandstone from 50 to 60 ft--------------------------	15	60

153-73-21AAA
NDSWC 5668

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, very sandy, silty------------	1	1
	Till, dusky-yellow to moderate-yellowish-brown, oxidized----------------------------	20	21
	Till, moderate-yellowish-brown, silty, oxidized; interbedded with thin lenses of sandy gravel------------------------------	26	47
	Clay, moderate-yellowish-brown, very silty, oxidized (fluvial sediment)----------------	18	65

153-73-21AAA, Continued
NDSWC 5668

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Clay, medium-gray, very silty, moderately sandy, calcareous (fluvial sediment)-------	16	81
Fox Hills Formation:			
	Siltstone, medium-gray to dark-greenish-gray, sandy, micaceous, indurated, noncalcareous------------------------------	39	120

153-74-4DDD
NDSWC 5247

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, sandy------------------------	1	1
	Clay, moderate-yellowish-brown, sandy, oxidized------------------------------------	11	12
	Sand, fine to coarse, subrounded, predominantly quartz------------------------------	24	36
	Silt, medium-gray, clayey--------------------	4	40
	Till, olive-gray, gravelly-------------------	35	75
Fox Hills Formation:			
	Sandstone, dark-greenish-gray, medium-grained, glauconitic; occasional carbonaceous streaks; interbedded with medium-dark-gray siltstone------------------------	25	100

153-74-12BBB
NDGS auger hole BP69-41

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Till, moderate-yellowish-brown, silty--------	16	16
	Till, olive-gray, silty----------------------	5	21
Fox Hills Formation(?):			
	Sand, moderate-yellowish-brown, oxidized-----	18	39
	Sand, clayey; interbedded with siltstone-----	10	49

153-74-14DDD
NDSWC 5540

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty to sandy-------	1	1
	Till, moderate-yellowish-brown, very silty and sandy, oxidized------------------------	9	10
Fox Hills Formation:			
	Sandstone, yellowish-brown, very fine grained, unconsolidated, oxidized----------	3	13
	Sandstone, medium-bluish-gray, very fine grained, unconsolidated, noncalcareous; interbedded with medium- to brownish-gray siltstone-----------------------------	27	40

154-66-29AAA
NDSWC 5485

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Sand, very fine to medium, angular to subrounded, silty to clayey, oxidized	2	3
	Till, moderate-yellowish-brown, silty to sandy, oxidized	11	14
	Till, olive-gray, silty to sandy	10	24
	Gravel, fine to medium, angular to subrounded (about 30 percent fine to very coarse sand); about 40 percent carbonates, 20 percent shale, 30 percent granitics, siltstone, mudstone, and sandstone; occasionally interbedded with thin lenses of olive-gray till	19	43
	Till, olive-gray, silty	14	57
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, slightly fractured, noncalcareous	23	80

154-66-30DAD
NDSWC 5486

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty to sandy	0.5	0.5
	Clay, moderate-yellowish-brown, very silty, oxidized	8.5	9
	Clay, olive- to medium-gray, very silty, laminated	4	13
	Till, olive-gray, silty to gravelly	8	21
	Gravel, fine to coarse, angular to subrounded, sandy; about 55 percent carbonates; remainder is siliceous rock, shale, sandstone, and siltstone	7	28
	Till, olive-gray, silty to gravelly	24	52
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, slightly fractured, noncalcareous	8	60

154-66-32ACC
Test hole 359
(Log from Paulson and Akin, 1964, p. 135)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black, sandy	1	1
	Silt, clay, and sand, light-brown, very fine to fine, probably laminated	23	24
	Sand, very fine to fine, and some clay, and silt, gray, probably laminated	29	53
	Till, gray	24	77
	Sand and gravel, gray, clayey	4	81
	Till, gray	15	96
	Sand and gravel, gray, clayey	3	99
	Till, gray	45	144
	Sand and gravel, gray, clayey	4	143
	Till, gray	20	168
Pierre Shale:			
	Shale, gray	7	175

154-66-34ADC
Test hole 355
(Log from Paulson and Akin, 1964, p. 135)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	2	2
	Clay, light-brown, silt and some sand	8	10
	Clay, gray, silt and some sand	4	14
	Till, gray	16	30
	Till, gray	16	46
	Sand and gravel, gray, clayey	4	50
Pierre Shale:			
	Shale, gray	10	60

154-67-2DDD
Test hole 353
(Log from Paulson and Akin, 1964, p. 138)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Till, light-brown	7	8
	Till, gray	76	84
Pierre Shale:			
	Shale, gray	11	95

154-67-3CCC
NDSWC 5488

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	13	14
	Till, olive-gray, silty to gravelly	45	59
	Gravel, fine to coarse, angular to subrounded (about 35 percent medium to very coarse sand); about 35 percent carbonates, 20 percent shale; remainder is granitics, lignite, siltstone, and sandstone	8	67
	Till, olive-gray, silty to gravelly	2	69
	Gravel, fine to coarse, angular to subrounded, poorly sorted	2	71
	Till, olive-gray, silty to sandy	8	79
	Sand, very fine to coarse, subangular to rounded; about 60 percent quartz, 30 percent shale; remainder is carbonates and lignite	5	84
	Till, olive-gray, silty to sandy	2	86
	Sand, very fine to very coarse, subangular to rounded, gravelly; about 45 percent quartz, 35 percent shale; remainder is carbonates and lignite	34	120
	Gravel, cobbles, and boulders; granitics, detrital shale, and carbonates	5	125
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, noncalcareous; fractured at 125-140 ft	35	160

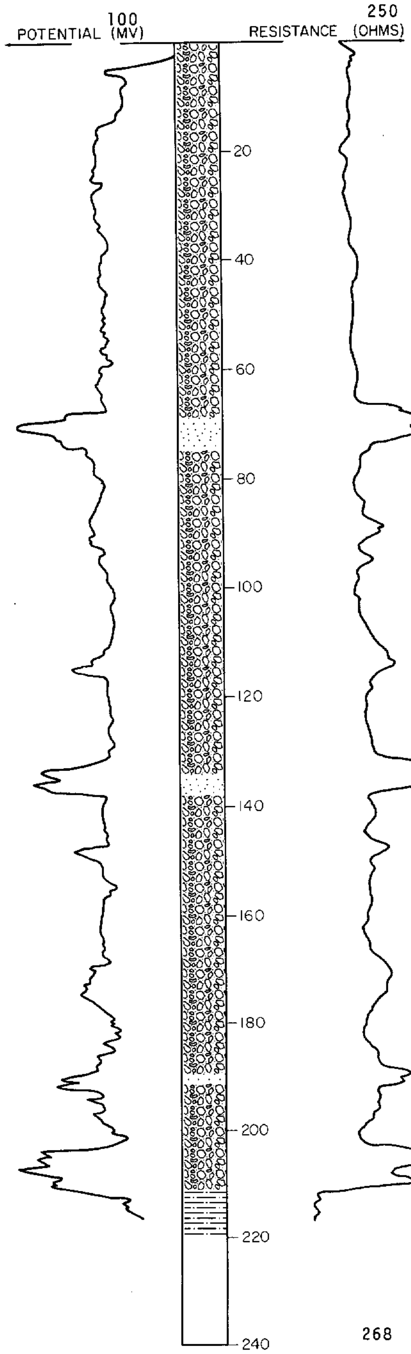
NDSWC 5073

LOCATION: 154-67-6CCC

ELEVATION: 1572
(FT, MSL)

DATE DRILLED: July 1968

DEPTH: 220
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, brownish-black, silty to sandy.
1-18	Till, dark-yellowish-brown, silty, oxidized.
18-68	Till, olive-gray, silty to gravelly.
68-74	Sand, very fine to medium, subangular to rounded, silty to clayey, moderately well sorted; predominantly quartz.
74-133	Till, olive-gray, silty; few cobbles.
133-137	Sand, fine to very coarse, angular to well rounded; predominantly quartz.
137-189	Till, medium-dark-gray, silty to sandy.
189-191	Sand, medium to very coarse, angular to subrounded; fair sorting; predominantly quartz.
191-204	Till, medium-dark-gray, silty to sandy.
204-212	Till, medium-dark-gray, silty to sandy; abundant cobbles and boulders.

Pierre Formation

212-220	Shale, grayish-black, indurated.

154-67-11DDD1
NDSWC 2880A

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Clay, moderate-yellowish-brown, silty to sandy, oxidized, fluvial-------------------	24	25
	Clay, olive-gray, silty to sandy, fluvial----	8	33
	Sand, very fine to medium, angular to subrounded, clayey---------------------------	35	68
	Gravel, fine to coarse, angular to rounded---	28	96
	Till, olive-gray, silty to sandy, calcareous-	9	105
Pierre Formation:			
	Shale, grayish-black, indurated; fractured at 105-115 ft------------------------------	15	120

154-67-11DDD2
NDGS auger hole BP68-1

Glacial drift:			
	Till, yellowish-brown, silty-----------------	15	15
	Gravel, medium to coarse---------------------	55	70

154-67-12DDD
NDSWC 5487

Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized---------------------------	24	25
	Gravel, fine to coarse, angular to subrounded, silty to clayey, oxidized---------	3	28
	Till, olive-gray, silty, gravelly------------	57	85
	Boulder, granite-----------------------------	1	86
	Till, olive-gray, silty, gravelly------------	10	96
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, noncalcareous------------------	4	100

154-67-15BBB
NDSWC 5658

Glacial drift:			
	Topsoil, brownish-black, silty, sandy--------	1	1
	Till, dark-yellowish-brown, silty, moderately sandy, oxidized---------------------	25	26
	Till, olive-gray, silty----------------------	52	78
	Sand, very fine to medium, subangular, silty---------------------------------------	6	84
	Till, olive-gray, silty----------------------	15	99
	Gravel, fine to coarse, angular to subrounded, slightly sandy; fair sorting; predominantly carbonates-------------------------	9	108
	Till, olive-gray, silty, sandy---------------	11	119
	Gravel, fine to coarse, angular to rounded, slightly sandy, moderately well sorted; about 30 percent carbonates, 25 percent granitics and metamorphics; remainder siliceous rocks and lignite----------------	6	125
	Till, olive-gray, silty, gravelly------------	14	139

154-67-15BBB, Continued
NDSWC 5658

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Gravel, fine to coarse, subangular to rounded, moderately sandy; about 30 percent carbonates, 30 percent granitics, and metamorphics; remainder siliceous rocks and lignite	24	163
	Boulders, granite, limestone, dolostone; some clayey gravel	9	172
Pierre Formation:			
	Shale, grayish-black to black, bentonitic, indurated, slightly fractured, noncalcareous	8	180

154-67-15CCB
NDSWC 5072

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty	1	1
	Till, moderate-yellowish-brown, silty, oxidized	29	30
	Till, olive-gray, silty	40	70
	Gravel, fine to coarse, angular to subangular, sandy to clayey, poorly sorted; predominantly shale	5	75
	Till, olive-gray; interbedded with thin lenses of fine to medium sand	29	104
	Gravel, fine to coarse; about one-fourth medium to very coarse sand; all materials angular to subrounded; silty to clayey in places	4	108
	Till, olive-gray, silty; interbedded with thin lenses of sand, gravel, and in places, cobbles	29	137
Pierre Formation:			
	Shale, grayish-black, indurated	13	150

154-67-20DCC
NDSWC 5492

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Gravel, fine to medium, angular to subrounded, silty to sandy, poorly sorted, oxidized	7	8
	Till, moderate-yellowish-brown, silty to sandy, oxidized	5	13
	Till, olive-gray, silty, gravelly	19	32
	Gravel, fine to coarse, angular to rounded, oxidized (about 25 percent medium to very coarse sand); calcium carbonate concretions (geodes)	8	40
	Till, olive-gray, silty to sandy; occasional thin lenses of gravel	47	87
	Till, medium- to dark-gray, silty (appears to be older than overlying till)	13	100
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, bedded, noncalcareous	20	120

154-67-26BAA
NDSWC 5659

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Roadfill, dusky-yellow	4	4
	Clay, dusky-yellow to moderate-yellowish-brown, very silty, oxidized (lacustrine sediment)	3	7
	Clay, olive-gray, very silty (lacustrine sediment)	3	10
	Till, dark-yellowish-brown, silty	11	21
	Till, olive-gray, silty	48	69
	Gravel, fine to coarse, angular to subrounded, moderately sandy; about 25 percent carbonates, 30 percent shale, 35 percent granitics and metamorphics; remainder siliceous rocks and detrital lignite	6	75
	Till, olive-gray, silty	23	98
	Gravel, fine to coarse, subangular to rounded, very sandy, moderately well sorted; about 35 percent shale, 25 percent carbonates, 25 percent granitics and metamorphics; remainder siliceous rocks and detrital lignite	23	121
	Gravel, fine to coarse, subangular to rounded; fair sorting; some cobbles; very permeable	8	129
	Till, olive-gray, silty, sandy	3	132
	Gravel, fine to coarse, subangular to rounded, sandy; fair sorting; some cobbles; about 55 percent detrital shale, 25 percent carbonates, 20 percent granitics, metamorphics and detrital lignite	23	155
	Sand, fine to very coarse, subangular to to rounded, well-sorted; about 55 percent quartz	13	168
Pierre Formation:			
	Shale, grayish-black to black, siliceous, indurated, slightly fractured	12	180

154-67-35ADD1
USGS test 34
(Log from Aronow, Dennis, and Akin, 1953, p. 97)

Material	Thickness (feet)	Depth (feet)
Clay and silt, light-brown	14	14
Clay and silt, gray	16	30
Till, gray	17	47
Gravel, gray, angular shale	23	70
Gravel, gray, very coarse, angular	20	90
Gravel, gray, shale and some coal	43	133
Pierre shale	7	140

154-67-35ADD2
USGS test 31
(Log from Aronow, Dennis, and Akin, 1953, p. 97)

Material	Thickness (feet)	Depth (feet)
Silt, very light-gray	5	5
Silt, light-brown	15	18
Clay and silt, gray	33	51
Sand and gravel, gray, shaly, clayey	14	65
Till, gray	25	90
Clay, gray, silty	9	99
Gravel, gray, shale, angular	42	141
Pierre shale	9	150

154-67-36BCC
USGS test 33
(Log from Aronow, Dennis, and Akin, 1953, p. 97)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Silt, light-brown, with a few shale pebbles--	18	18
	Silt, gray------------------------------------	22	40
	Till, gray, with shale pebbles---------------	5	45
	Gravel and sand-------------------------------	2	47
	Till, gray, with shale pebbles---------------	10	57
	Sand and gravel, gray, clean, angular, poorly sorted, with some shale pebbles-----	79	136
	Gravel, gray, shale, with some clay----------	8	144
	Gravel, gray, shale, coarse, round-----------	16	160
	Sand and gravel, gray, with some shale pebbles and coal, clayey-------------------	25	185
	Pierre shale----------------------------------	15	200

154-67-36DAA
USGS test 32
(Log from Aronow, Dennis, and Akin, 1953, p. 98)

	Till, yellow, silty--------------------------	8	8
	Till, gray------------------------------------	112	120
	Pierre shale----------------------------------	6	126

154-68-1AAA
NDSWC 5657

Glacial drift:			
	Topsoil, brownish-black, silty, sandy--------	1	1
	Till, moderate-yellowish-brown, silty, oxidized----------------------------------	31	32
	Sand, very fine to fine, subangular to rounded, silty; fair sorting---------------	5	37
	Till, moderate-yellowish-brown, silty, oxidized----------------------------------	39	76
	Sand, very fine to medium, subangular, silty, oxidized; mostly quartz-------------	7	83
	Till, olive-gray, silty; abundant cobbles and boulders------------------------------	106	189
	Gravel, fine to coarse, angular to rounded; fair sorting; about 40 percent carbonates, 30 percent shale, and 30 percent granitics, siliceous rocks, and detrital lignite----------------------------------	32	221
Pierre Formation:			
	Shale, grayish-black to black, siliceous, bentonitic, indurated, noncalcareous-------	19	240

154-68-19AAA
NDSWC 5509

Glacial drift:			
	Topsoil, grayish-black, silty to sandy-------	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized----------------------------	11	12
	Till, olive-gray, silty; occasional boulders and cobbles------------------------	52	64
	Sand, very fine to medium, subangular to rounded, clayey; about 55 percent quartz, 30 percent shale; remainder is carbonates and lignite---------------------------------	5	69
	Till, olive-gray, silty to sandy-------------	45	114

154-68-19AAA, Continued
NDSWC 5509

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Siltstone, greenish-gray, indurated, noncalcareous (glacial shove-block of Fox Hills Formation)	5	119
	Till, olive-gray, silty to sandy	18	137
	Gravel, cobbles, and boulders	3	140
	Till, olive-gray, silty to sandy	17	157
	Gravel, fine to coarse, angular to subrounded, sandy; cobbles and boulders; mostly carbonates	5	162
	Till, olive-gray, silty, gravelly	10	172
Pierre Formation:			
	Shale, grayish-black, siliceous, bentonitic, moderately indurated, noncalcareous	8	180

154-68-27AAA
NDSWC 5071

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty to gravelly, oxidized	17	18
	Till, olive-gray, silty to gravelly	44	62
	Sand, very fine to medium, subangular to subrounded; predominantly quartz	3	65
	Till, olive-gray, silty	63	128
	Cobbles and boulders; carbonates and granitics	2	130
	Till, medium-dark-gray, silty to gravelly	36	166
Pierre Formation:			
	Shale, medium-dark-gray, indurated; occasional bentonite streaks	14	180

154-69-13CCC
NDSWC 5508

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	20	21
	Sand, very fine to fine, subangular to rounded; mostly quartz, shale, and lignite	3	24
	Till, olive-gray, silty to sandy	4	28
	Sand, very fine to medium, subangular to rounded, moderately well sorted; about 55 percent quartz, 25 percent shale; remainder is carbonates and lignite	40	68
	Gravel, fine to coarse, angular to rounded, sandy; some cobbles	9	77
	Till, olive-gray; silty to sandy in parts	79	156
	Gravel, fine to coarse, subangular to rounded, sandy; about 35 percent carbonates, 20 percent shale, 25 percent granitics, siliceous rocks, and lignite; interbedded with thin lenses of silty clay	28	184
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, bedded, noncalcareous	16	200

154-69-15BBA
NDSWC 5070

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	16	17
	Clay, moderate-yellowish-brown, very silty, oxidized	13	30
	Till, olive-gray, silty to gravelly	5	35
	Sand, fine to coarse, subangular to subrounded, moderately well sorted, predominantly quartz	23	58
	Clay, olive-gray, silty to sandy	24	82
	Till, olive-gray, silty to gravelly	54	136
Fox Hills Formation:			
	Sandstone, medium-bluish-gray to dark-greenish-gray, medium-grained, silty to clayey	24	160

154-69-26DDD
NDSWC 5507

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-gray, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	6	7
	Gravel, fine to coarse, silty, sandy, clayey, oxidized	4	11
	Till, moderate-yellowish-brown, silty, sandy, gravelly, oxidized	3	14
	Gravel, fine to coarse, angular to rounded, silty to sandy, poorly sorted, oxidized	4	18
	Till, moderate-yellowish-brown, silty, oxidized	4	22
	Till, olive-gray, silty to sandy	33	55
	Sand, very fine to fine, angular to subrounded, silty; fair sorting	7	62
	Till, olive-gray, silty to sandy	83	145
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, noncalcareous	15	160

154-69-32BBB
NDSWC 5069

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Till, moderate-yellowish-brown, silty to very sandy, oxidized	39	40
	Sand, very fine to medium, angular to subrounded, very silty to clayey; predominantly quartz	12	52
	Gravel, medium to very coarse, poorly sorted, oxidized; about one-third medium to very coarse sand; all materials angular to subrounded	8	60
	Till, olive-gray, silty to gravelly	12	72
Fox Hills Formation:			
	Sandstone, medium-bluish-gray; interbedded with siltstone	108	180
Pierre Formation:			
	Shale, medium-dark-gray to grayish-black indurated	20	200

154-70-15BDD
(Log from K. Jacobson)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil	1	1
	Fine sand	3	4
	Clay, yellow	11	15
	Gray clay	10	25
	Rock	1	26
	Gray clay	15	41
	Fine sand to medium	5	46
	Clay, gray	32	78
	Rock	1	79
	Clay, blue	24	103
	Shale (Pierre)	17	120

154-70-16BBB
NDSWC 5106

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, dark-yellowish-brown, sandy	2	2
	Gravel, fine to medium, angular, sandy to clayey, poorly sorted, oxidized	8	10
	Till, moderate-yellowish-brown, sandy	10	20
	Sand, very fine to medium, subangular to subrounded, well-sorted; predominantly quartz; some clay	15	35
	Gravel, fine to coarse, angular to subrounded; some sand; predominantly carbonates	13	48
Fox Hills Formation:			
	Sandstone, medium-bluish-gray; carbonaceous streaks; interbedded with medium-dark-gray siliceous siltstone	52	100

154-71-11AAD1
NDSWC 5105

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Sand, fine to very coarse, subangular to subrounded, clayey, oxidized; predominantly quartz	4	5
	Clay, moderate-yellowish-brown, very silty to sandy, oxidized	5	10
	Clay, olive-gray, very silty	4	14
Fox Hills Formation:			
	Siltstone, brownish- to medium-gray, siliceous, clayey	9	23
	Sandstone, medium-bluish-gray, very fine to fine-grained, silty to clayey	26	49
	Siltstone, brownish- to medium-gray, siliceous, clayey	51	100

154-71-11AAD2
NDSWC 5108

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Sand, fine to very coarse, subangular to subrounded, clayey, gravelly, oxidized	3	4
	Clay, moderate-yellowish-brown, very silty, oxidized	10	14

154-71-11AAD2, Continued
NDSWC 5108

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Clay, olive-gray, very silty	3	17
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, very fine to fine-grained, silty to clayey	37	54
	Siltstone, brownish- to medium-gray, siliceous; interbedded with clay	155	209
Pierre Formation:			
	Shale, grayish-black, indurated; occasional bentonite streaks	31	240

154-72-1CCC
NDGS auger hole BP69-52

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Till, yellowish-brown, silty to sandy	14	14
	Till, brownish-gray, silty	10	24
	Till, medium-gray, silty	5	29
	Sand, fine to medium	11	40
Fox Hills Formation:			
	Sand, medium-light-gray, very fine to fine-grained	9	49

154-72-16AAB
NDSWC 5109

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Till, moderate-yellowish-brown, silty, oxidized	41	42
	Till, olive-gray, silty	24	66
Fox Hills Formation:			
	Sandstone, dark-greenish-gray, very fine to fine-grained, silty to clayey, moderately indurated, cemented; interbedded with sparse thin beds of gray siltstone	34	100
	Siltstone, medium- to brownish-gray, clayey; interbedded with medium-bluish-gray clayey sandstone	60	160

154-73-11ABA
NDSWC 5110

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Till, moderate-yellowish-brown, silty to very sandy, oxidized	13	14
	Sand, fine to very coarse, subangular to subrounded; predominantly quartz; interbedded with thin lenses of clay; oxidized to 25 ft	17	31
Fox Hills Formation:			
	Siltstone, medium-gray, slightly indurated; a few carbonaceous streaks	34	65
	Siltstone, light-olive to brownish-gray; inberbedded with clay	5	70

157-73-11ABA, Continued
NDSWC 5110

Geologic source	Material	Thickness (feet)	Depth (feet)
Fox Hills	Formation, Continued:		
	Siltstone, medium- to dark-gray; interbedded with clay----------------------------------	60	130
	Shale, grayish-black, siliceous, indurated---	10	140
	Siltstone, medium- to dark-gray, indurated---	17	157
	Sandstone, greenish-gray, cemented-----------	3	160

154-73-16ACC
NDSWC

Geologic source	Material	Thickness (feet)	Depth (feet)
	Black topsoil--------------------------------	1	1
	Yellow clay----------------------------------	11	12
	Gray clay------------------------------------	15	27
	Shale (Pierre)-------------------------------	6	33

154-73-19ADA
NDGS auger hole BP67-21

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, yellowish-brown, silty, oxidized-------	12	12
	Clay, black, calcareous----------------------	2	14
	Sand, black; interbedded with clay-----------	25	39

154-73-19ADB
NDSWC 5538

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty to sandy-------	0.5	0.5
	Clay, moderate-yellowish-brown, very silty to sandy, oxidized------------------------	5.5	6
	Sand, very fine to fine, subangular to rounded, well-sorted, oxidized------------	7	13
	Clay, black, very silty, carbonaceous; abundant shell and partially decayed detrital wood fragments--------------------	4	17
	Sand, very fine to coarse, subangular to rounded, well-sorted; about 65 percent quartz, 15 percent shale; remainder is lignite and carbonates; interbedded with silty clay lenses at 155-166 ft------------	149	166
Fox Hills Formation:			
	Sandstone, medium-bluish to dark-greenish-gray, very fine to fine-grained; interbedded with medium- to brownish-gray siltstone---------------------------------	14	180

154-73-20BBB
NDSWC 5731

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty to sandy-------	1	1
	Clay, dark-yellowish-brown, very silty to sandy, partially oxidized (fluvial)--------	6	7
	Sand, very fine to medium, subangular to subrounded, moderately well sorted; about 70 percent quartz, 20 percent carbonates, feldspar, and detrital lignite------------	22	29
	Silt, olive-gray, very sandy, calcareous; occasional thin lenses of gravel (fluvial)-	6	35
	Sand, very fine to medium, subangular to subrounded, slightly clayey to silty, well-sorted; about 70 percent quartz, 20 percent carbonates, feldspar, and detrital lignite-	21	56

154-73-20BBB, Continued
NDSWC 5731

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Silt, olive-gray, clayey, calcareous; occasional thin lenses of sand-------------	29	85
Fox Hills Formation:			
	Siltstone, medium-gray, clayey to slightly sandy, moderately indurated, noncalcareous-	15	100

154-73-21DAD
NDSWC 5678

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, silty, sandy-----------------	1	1
	Till, dusky-yellow, very silty, oxidized-----	4	5
	Sand, very fine to medium, subangular to rounded, silty, pyritiferous, oxidized; mostly quartz and lignite------------------	18	23
	Clay, olive-gray, very silty, sandy, calcareous; interbedded with thin lenses of sand (fluvial sediment)-----------------	35	58
	Gravel, fine to coarse, angular to sub-rounded, poorly sorted---------------------	2	60
	Clay, olive-gray, very silty, sandy; inter-bedded with lenses of sandy gravel (fluvial sediment)-------------------------	18	78
	Gravel, fine to coarse, angular to sub-rounded, silty, very clayey----------------	22	100
	Clay, olive-gray, sandy, very silty; occasional thin lenses of gravel (fluvial sediment)-------------------------	15	115
Fox Hills Formation:			
	Siltstone, medium-gray, siliceous, slightly sandy, indurated, bedded, noncalcareous----	25	140

154-73-28DDD
NDSWC 5677

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, silty, sandy-----------------	1	1
	Till, moderate-yellowish-brown, very silty and sandy, oxidized------------------------	44	45
	Sand, fine to medium, subangular to rounded, silty, clayey, moderately well sorted, oxidized------------------------------------	5	50
	Clay, moderate-yellowish-brown, very silty, oxidized; interbedded with lenses of fine to medium sand (fluvial sediment)-----	10	60
	Clay, olive-gray, very silty; interbedded with lenses of sand (fluvial sediment)-----	7	67
	Till, olive-gray, silty, sandy---------------	18	85
Fox Hills Formation:			
	Siltstone, medium-gray, clayey, moderately sandy, indurated, bedded, noncalcareous----	15	100

154-74-3BCC
NDSWC 5665

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, silty, sandy	0.5	0.5
	Silt, moderate-yellowish-brown, very sandy, oxidized (lacustrine sediment)	14.5	15
	Silt, olive-gray, very fine, very sandy (lacustrine sediment)	9	24
	Sand, very fine to medium, subangular to subrounded, well-sorted, pyritiferous; mostly quartz with some carbonates, igneous rocks, and lignite	26	50
	Silt, olive-gray, very sandy, slightly clayey (lacustrine sediment)	14	64
	Sand, very fine to very coarse, subangular to subrounded, moderately well sorted; about 65 percent quartz, 10 percent carbonates, 5 percent shale, 5 percent granitics; remainder siliceous rocks and lignite	28	92
	Gravel, fine to coarse, angular to subrounded; fair sorting; about 40 percent carbonates, 25 percent detrital shale, 25 percent granitics; remainder lignite and siliceous rocks	8	100
	Sand, very fine to very coarse, subangular to subrounded, moderately well sorted; becoming coarser with depth	20	120
	Gravel, fine to oarse, moderately sandy, moderately well sorted; about 35 percent carbonates, 15 percent shale, 25 percent granitics; remainder siliceous rocks and detrital lignite	20	140
	Silt, olive-gray, sandy, moderately clayey, calcareous (fluvial sediment)	8	148
	Gravel, fine to medium, angular to rounded, very sandy, moderately well sorted; about 40 percent carbonates, 30 percent granitics, 20 percent detrital shale; remainder siliceous rocks and detrital lignite; occasional thin lens of silty clay	117	265
Fox Hills Formation:			
	Shale, medium-dark-gray to dark-gray, indurated, bedded; occasional small brownish concretions	15	280

154-74-5CCC
NDSWC 5726

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to very sandy	1	1
	Sand, very fine to medium, subangular to subrounded, slightly clayey to silty, oxidized; about 70 percent quartz, 20 percent carbonates and feldspar, 10 percent detrital shale, lignite, and siliceous rocks	10	11
	Clay, moderate-yellowish-brown, silty to very sandy, oxidized (fluvial)	4	15
	Sand, very fine to fine, clayey to silty, oxidized (fluvial)	3	18
	Silt, moderate-yellowish-brown to dark-yellowish-brown, oxidized (fluvial)	12	30

154-74-5CCC, Continued
NDSWC 5726

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Silt, olive-gray, moderately clayey to very sandy, very calcareous (fluvial)	37	67
	Gravel, fine to coarse, slightly clayey, sandy, poorly sorted; mostly granitics and carbonates	4	71
Fox Hills Formation:			
	Siltstone, medium-bluish-gray, moderately clayey to sandy, indurated, noncalcareous	9	80

154-74-6AAA
NDSWC 5727

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to very sandy	1	1
	Sand, very fine to very coarse, subangular to subrounded, slightly clayey to silty, oxidized; about 60 percent quartz, 20 percent carbonates and feldspar, 20 percent detrital lignite and siliceous rock fragments	18	19
	Silt, dark-yellowish-brown to olive-gray, very sandy, bedded (fluvial)	10	29
	Sand, fine to medium, subangular to subrounded, silty to clayey; about 70 percent quartz, 20 percent carbonates and feldspar, and 10 percent detrital shale and lignite	13	42
	Silt, olive-gray, very sandy; interbedded with thin gravel lenses 42-60 ft	130	172
	Till, olive-gray, silty; interbedded with thin lenses of gravelly sand	39	211
Fox Hills Formation:			
	Siltstone, medium-gray, indurated, noncalcareous; interbedded with dark-greenish-gray sandstone	9	220

154-74-8CCC
NDSWC 5725

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to very sandy	1	1
	Till, moderate-yellowish-brown, silty to moderately sandy, oxidized	7	8
Fox Hills Formation:			
	Siltstone, medium-bluish-gray; interbedded with thin lenses of fine-grained micaceous sandstone	32	40

154-74-10CCB
NDSWC 5246

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, sandy	1	1
	Sand, fine to coarse; predominantly quartz; oxidized to 16 ft	29	30
	Till, medium-dark-gray, sandy	33	63

154-74-10CCB, Continued
NDSWC 5246

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Sand, fine to coarse, subrounded to rounded; predominantly quartz	2	65
	Till, medium-dark-gray, silty	5	70
	Silt, medium-dark-gray, clayey	10	80
Fox Hills Formation:			
	Sandstone, dark-greenish-gray, fine- to medium-grained, glauconitic; interbedded with medium-dark-gray siltstone and clay	97	177
	Sandstone, dark-greenish-gray, fine- to medium-grained, friable, cemented	1	178
	Sand, dusky-blue-green, fine to medium, glauconitic; interbedded with siltstone and shale	32	210
	Siltstone, medium-dark-gray, indurated, micaceous	30	240
	Siltstone, dark-gray, micaceous; occasional fossil specks; interbedded with very thin lenses (0.1 to 0.3 ft thick) of yellowish-gray limestone	130	370
Pierre Formation:			
	Shale, grayish-black, indurated	30	400

154-74-17CCC
NDGS auger hole BP67-20

Glacial drift:			
	Sand, moderate-yellowish-brown, medium, well-sorted, oxidized	12	12
	Sand, olive-gray, medium, clean	17	29

154-74-19AAA
NDSWC 5724

Glacial drift:			
	Topsoil, dark-brown, silty to very sandy	1	1
	Clay, moderate-yellowish-brown, silty to very sandy, oxidized (fluvial)	3	4
	Sand, very fine to medium, subangular to subrounded, silty, well-sorted; about 70 percent quartz, 20 percent carbonates, and feldspar, 10 percent detrital shale, lignite, and siliceous rocks	42	46
	Gravel, fine to coarse, angular to rounded, moderately sandy; fair sorting; about 30 percent siliceous rocks, granitics, and metamorphics, 40 percent carbonates, 30 percent detrital shale, lignite, and sandstone	8	54
Fox Hills Formation:			
	Siltstone, medium-gray; occasional dark-reddish-brown concretions; interbedded with thin lenses of medium-bluish-gray to brownish-gray moderately indurated sandstone	26	80

154-74-34BBB
NDSWC 5732

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	13	14
	Till, olive-gray, silty	10	24
	Sand, very fine to fine, subangular to subrounded, moderately well sorted; mostly quartz and lignite	7	31
	Till, olive-gray; interbedded with thin lenses of sand	24	55
	Sand, very fine to medium, clayey to silty, poorly sorted	7	62
	Till, olive-gray, silty to sandy; some cobbles and boulders	18	80
Fox Hills Formation:			
	Siltstone, medium-gray, moderately indurated; brownish-gray concretions	20	100

155-67-1DDD
Test hole 346
(Log from Paulson and Akin, 1964, p. 152)

Glacial drift:			
	Topsoil, black	1	1
	Till, light-brown	23	24
	Sand, coarse to very coarse, and gravel, fine, gray-brown, clayey	7	31
	Till, gray	58	89
	Sand, medium to coarse, mainly detrital shale, clayey and gravelly	13	102
	Till, gray, sandy and gravelly	3	105
Pierre Shale:			
	Shale, gray	5	110

155-67-3DDD
Test hole 349
(Log from Paulson and Akin, 1964, p. 152)

Glacial drift:			
	Topsoil, black-0	2	2
	Till or silt and clay, brown to light-gray, gravelly	8	10
	Sand, very coarse, and gravel, fine, light-brown, clayey	7	17
	Till, gray, sandy and gravelly	13	30
	Till, gray	71	101
	Sand, coarse to very coarse, and gravel, fine, gray, about one-half detrital shale, includes some clayey beds	23	124
Pierre Shale:			
	Shale, gray	6	130

155-67-5AAA
NDSWC 5660

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty, sandy--------	1	1
	Till, moderate-yellowish-brown, silty, sandy, oxidized----------------------------	21	22
	Till, olive-gray, silty----------------------	9	31
	Sand, very fine to coarse, subangular to subrounded, silty--------------------------	2	33
	Till, olive-gray, silty; occasional thin lenses of sand-----------------------------	81	114
	Sand, very fine to medium, subangular to rounded, silty, moderately well sorted-----	5	119
	Till, olive-gray, silty, pebbly-------------	21	140
Pierre Formation:			
	Shale, grayish-black to black, siliceous, bentonitic, indurated, noncalcareous-------	20	160

155-67-7CCC1
NDGS auger hole BP67-70

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Till, light-olive-gray, sandy, cohesive, calcareous----------------------------------	21	21
	Till, dark-olive-gray, sandy, cohesive, calcareous----------------------------------	3	24
	Gravel, undifferentiated---------------------	2	26
	Sand and gravel, undifferentiated------------	8	34

155-67-7CCC2
NDSWC 5655

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty, sandy--------	1	1
	Till, dark-yellowish-brown, silty, oxidized------------------------------------	22	23
	Till, olive-gray, silty----------------------	32	55
	Sand, very fine to fine, subangular to rounded, silty, moderately well sorted-----	12	67
	Clay, olive-gray, very silty, sandy, calcareous (fluvial sediment)---------	7	74
	Till, medium-dark-gray, very silty, sandy-------------------------------------	114	188
Pierre Formation:			
	Shale, grayish-black to black, siliceous, bentonitic, indurated, bedded, noncalcareous-----------------------------------	12	200

155-67-11AAA
Test hole 348
(Log from Paulson and Akin, 1964, p. 153)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black-------------------------------	1/2	1/2
	Till, light-brown----------------------------	12 1/2	13
	Till, gray-----------------------------------	46	59
	Sand, medium to very coarse, and gravel, fine to medium, coarser material is mainly detrital shale-----------------------------	29	88
	Sand, fine to very coarse, mainly detrital shale--	17	105

155-67-11AAA, Continued
Test hole 348

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Sand, medium to very coarse, and some gravel, fine, coarser material is mainly detrital shale, clayey	18	123
Pierre Shale:			
	Shale, gray	7	130

155-67-14CDD
Test hole 350
(Log from Pualson and Akin, 1964, p. 153)

Glacial drift:			
	Till, light-brown, sandy and gravelly	6	6
	Till, gray	57	63
	Sand, medium to very coarse, and some gravel, fine, gray, mainly detrital shale, clayey	7	70
	Sand, coarse to very coarse, mainly detrital shale	5	75
	Sand, coarse to very coarse, and gravel, fine to medium, about one-half detrital shale	51	126
Pierre Shale:			
	Shale, gray	4	130

155-67-20ABA
(Log from C. A. Simpson & Son)

	Topsoil	1	1
	Yellow clay	19	20
	Blue clay	45	65
	Hard sandy clay	20	85
	Blue clay	25	110
	Sandy blue clay (Pierre)	45	155
	Blue shale	110	265

155-67-26AAA
Test hole 352
(Log from Paulson and Akin, 1964, p. 154)

Glacial drift:			
	Topsoil, black	1	1
	Till, light-brown	5	6
	Till, gray	37	43
	Till, gray-brown	4	47
	Till, gray	4	51
	Sand and gravel, gray, very clayey	3	54
	Till, gray	17	71
	Sand and gravel, gray, very clayey	3	74
	Till, gray	17	91
Pierre Shale:			
	Shale, gray	9	100

155-67-26DDC
Test hole 351
(Log from Paulson and Akin, 1964, p. 154)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Till, light-brown	5	6
	Till, gray	15	21
	Sand, gray, coarse to very coarse, about one-half detrital shale, clayey	5	26
	Till, gray	49	75
	Clay, silt, and very fine sand, gravelly, gray	18	93
Pierre Shale:			
	Shale, gray	7	100

155-67-28CCC
NDSWC 5489

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	31	32
	Till, olive-gray, silty; interbedded with thin lenses of fine sand	17	49
	Sand, very fine to medium, subangular to rounded, silty to clayey; about 60 percent quartz, 25 percent shale	10	59
	Till, olive-gray, silty; occasionally interbedded with thin lenses of fine to medium sand	53	112
	Sand, very fine to fine, subangular; interbedded with thin lenses of silty clay	6	118
	Till, olive-gray, silty to sandy	33	151
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, slightly fractured, noncalcareous	9	160

155-67-30CCC
NDSWC 5074

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, dark-yellowish-brown	1	1
	Till, moderate-yellowish-brown, silty to gravelly, oxidized	40	41
	Till, olive-gray, silty to sandy	7	48
	Sand, medium to very coarse, angular to subrounded; predominantly shale	5	53
	Till, olive-gray, silty	17	70
	Till, olive-gray, silty to gravelly; possibly older than above	10	80
	Sand, fine to very coarse, silty to clayey, poorly sorted	2	82
	Till, olive-gray; interbedded with thin lenses of silty gravelly sand	10	92
	Gravel, fine to medium	2	94
	Till, olive-gray; interbedded with thin lenses of silty sand	9	103
	Sand, medium to very coarse, subangular to subrounded	4	107
	Till, olive-gray, silty, slightly sandy	22	129

155-67-30CCC, Continued
NDSWC 5074

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Sand, fine to coarse, angular to subrounded; predominantly quartz	4	133
	Till, olive-gray, silty; interbedded with thin lenses of gravelly sand	35	168
	Sand, fine to coarse	2	170
	Till, olive-gray, silty; interbedded with thin lenses of gravelly sand	7	177
	Till, olive-gray; abundant cobbles and boulders	12	189
	Cobbles and boulders; carbonates and granitics	3	192
Pierre Formation:			
	Shale, grayish-black, siliceous, indurated, moderately fractured	28	220

155-67-35ACC
(Log from C. A. Simpson & Son)

Topsoil	1	1
Yellow clay	21	22
Blue clay	18	40
Fine sandy clay	61	101
Clayey sand	5	106
Shale - dry	9	115
Shale	100	215

155-68-6AAA
Test hole 1300
(Log from Randich and Bradley, 1962, p. 14)

Glacial drift:			
	Topsoil, black	1	1
	Till; clay, silty to sandy, yellowish-gray	4	5
	Gravel, fine to coarse	2	7
	Till; clay, gray; fine to medium gravel, shale pebbles	29	36
	Gravel, fine to medium	1	37
	Till; clay, gray, medium to coarse gravel; shale pebbles and some cobbles	138	175
Pierre Shale:			
	Shale, gray	3½	178½

155-68-8BBB
Test hole 1302
(Log from Randich and Bradley, 1962, p. 14)

Glacial drift:			
	Topsoil, black	2	2
	Till; clay, yellowish-gray; some gravel	14	16
	Till; clay, gray; fine to coarse gravel	158	174
Pierre Shale:			
	Shale, gray	4½	178½

155-68-8CCC
Test hole 1303
(Log from Randich and Bradley, 1962, p. 14)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Clay, medium to coarse sand	2	2
	Gravel, medium to coarse	2	4
	Till; clay, yellow to brown; medium to coarse gravel	8	12
	Till; clay, gray; fine to medium gravel	49	61
	Sand, fine to medium	17	78
	Gravel, fine to medium	2	80
	Till; clay, gray; medium to coarse gravel; shale pebbles	87	167
Pierre Shale:			
	Shale, gray; some lignite fragments	11½	178½

155-68-11AAA
NDSWC 5654

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty, sandy	1	1
	Till, moderate-yellowish-brown, silty, oxidized	34	35
	Till, olive-gray, silty, slightly sandy	145	180
Pierre Formation:			
	Shale, grayish-black to black, siliceous, indurated, slightly fractured, bedded, noncalcareous	20	200

155-68-15CCC
NDSWC 5491

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty, gravelly, oxidized	14	15
	Till, olive-gray, silty to gravelly	151	166
Pierre Formation:			
	Shale, grayish-black, siliceous, bentonitic, moderately indurated, noncalcareous	14	180

155-68-19AAA2
Test hole 1304
(Log from Randich and Bradley, 1962, p. 15

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	2	2
	Till; clay, yellowish-gray; fine gravel	19	21
	Till; clay, gray; fine to medium gravel	63	84
	Gravel, fine to medium	2	86
	Till; clay, gray; fine to medium gravel; large concentration of boulders from 131 to 137 feet	109	195
Pierre Shale:			
	Shale, gray	4½	199½

155-68-20CCC
Test hole 1305
(Log from Randich and Bradley, 1962, p. 15)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	2	2
	Till; clay, sandy, light-gray	4	6
	Till; clay, yellow to brown; fine to medium gravel	8	14
	Till; clay, gray; fine to medium gravel and shale pebbles	53	67
	Gravel, fine to medium	2	69
	Till; clay, gray; fine to medium gravel and shale pebbles	21	90
	Till; clay, gray; fine to medium gravel and lignite fragments which become large from 131 to 147 feet	57	147

155-68-21BB
(Log from C. A. Simpson & Son)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clayey sand	112	112
	Blue clay	53	165
	Sandy blue clay	20	185
	Shale	83	268

155-68-23ABA
NDSWC 5490

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Gravel, fine to medium, angular to subrounded, silty to clayey, oxidized; about 65 percent carbonates, 15 percent shale; remainder is granitics	18	19
	Till, olive-gray, silty	24	43
	Sand, very fine to medium, subangular to rounded; about 65 percent quartz, 15 percent shale, 15 percent carbonates, lignite, and granitics	12	55
	Till, olive-gray, silty to sandy	52	107
	Gravel, fine to medium, angular to subrounded, sandy, poorly sorted	3	110
	Till, olive-gray, silty	65	175
	Clay, olive- to dark-gray, very silty, cohesive (fluvial sediment)	40	215
	Till, olive-gray, silty to sandy	66	281
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, noncalcareous	19	300

155-68-25AAA
NDSWC 5656

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty, sandy	1	1
	Till, moderate- to dark-yellowish-brown, silty; a few thin lenses of sand	54	55
	Till, olive-gray, silty; some gravel lenses	38	93
	Gravel, fine to coarse, subangular to rounded; fair sorting	3	96
	Till, olive-gray, silty	91	187
	Boulder, dolostone	1	188

155-68-25AAA, Continued
NDSWC 5656

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Till, olive-gray, silty	26	214
Pierre Formation:			
	Shale, grayish-black to black, siliceous, bentonitic, indurated, bedded, noncalcareous	6	220

155-69-2BBB
NDSWC 5661

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty, sandy	1	1
	Till, dark-yellowish-brown, silty, oxidized	33	34
	Till, olive-gray, silty	75	109
	Sand, fine to coarse, subangular, silty, clayey; fair sorting	5	114
	Till, olive-gray, silty; occasional thin lenses of sand	14	128
	Sand, fine to very coarse, subangular to subrounded, silty, clayey, moderately well sorted	4	132
	Till, olive-gray, silty; occasional dark-brown organic material 150-153 ft	44	176
	Gravel, fine to coarse, angular to rounded, moderately sandy; about 70 percent carbonates; remainder granitics, metamorphics, and detrital shale	6	182
	Till, olive-gray, silty	51	233
Fox Hills Formation:			
	Shale, dark-greenish-gray, bedded, noncalcareous; some small quartz crystals; a few light-gray concretions	31	264
Pierre Formation:			
	Shale, medium-dark-gray, siliceous, indurated, bedded, noncalcareous	36	300

155-69-2CCC
NDSWC 5512

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	14	15
	Till, olive-gray, silty	87	102
	Gravel, fine to coarse, angular to subrounded, poorly sorted	2	104
	Till, olive-gray, silty; interbedded with thin lenses of sandy gravel	16	120
	Gravel, fine to coarse, angular to rounded, sandy; about 45 percent carbonates, 25 percent shale, 20 percent granitics and siliceous rocks	6	126
	Till, olive-gray, silty	110	236
Pierre Formation:			
	Shale, grayish-black, siliceous, moderately indurated, noncalcareous	4	240

155-69-4AAA
NDSWC 2881

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black, silty to sandy	1	1
	Till, moderate-yellowish-brown, plastic, calcareous, oxidized	19	20
	Till, olive-gray, calcareous	20	40
	Clay, olive-gray, very silty to sandy, cohesive, plastic, calcareous, fluvial	22	62
	Till, olive-gray, silty to sandy, cohesive, calcareous	10	72
	Sand, fine to medium, angular to sub-rounded	8	80
	Till, olive-gray, silty to sandy, cohesive, calcareous	12	92
	Sand, fine to medium	2	94
	Till, olive-gray, silty to sandy, cohesive, calcareous	44	138
	Gravel, fine to medium, clayey to sandy, poorly sorted	2	140
	Till, olive-gray, silty to sandy, calcareous	15	155
	Gravel, fine to coarse, angular to sub-rounded; coarse to very coarse angular to subangular sand	38	193
	Till, olive-gray, sandy, calcareous	4	197
Pierre Formation:			
	Shale, grayish-black, indurated	23	220

155-69-4BCC
NDSWC 5511

Glacial drift:			
	Topsoil, grayish-black, silty, sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	14	15
	Till, olive-gray, silty; interbedded with thin lenses of gravelly sand	58	73
	Boulder, granite	1	74
	Till, olive-gray, silty; interbedded with thin lenses of gravelly sand	34	108
Pierre Formation:			
	Shale, medium-dark-gray, siliceous, bentonitic, moderately indurated, noncalcareous	12	120

155-69-6CCC
NDSWC 5080

Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	19	20
	Till, olive-gray, silty	42	62
	Till, olive-gray, silty, very sandy; interbedded with thin lenses of sand	15	77
Fox Hills Formation:			
	Siltstone, dark-greenish-gray; interbedded with clayey fine- to medium-grained glauconitic sandstone	73	150
Pierre Formation:			
	Shale, grayish-black, indurated; thin bentonitic streaks	10	160

155-69-14DAA
NDSWC 5513

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty, sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	11	12
	Till, olive-gray, silty; interbedded with thin lenses of gravel	57	69
	Sand, very fine to medium, subangular to rounded, silty	2	71
	Till, olive-gray, silty; occasionally interbedded with thin lenses of gravelly sand	106	177
	Sand, very fine to coarse; interbedded with lenses of silty clay	10	187
	Till, olive-gray, silty to sandy; occasionally interbedded with thin lenses of fine to medium sand	42	229
Pierre Formation:			
	Shale, grayish-black to dark-gray, siliceous, moderately indurated, noncalcareous	11	240

155-69-25CCC
NDSWC 5083

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black, sandy	1	1
	Till, moderate-yellowish-brown, silty, oxidized	11	12
	Till, olive-gray to brownish-gray, silty	48	60
	Till, olive-gray, silty to sandy	23	83
	Sand, fine to medium	4	87
	Till, olive-gray, sandy to gravelly; possibly older than above	27	114
	Sand, fine to medium	2	116
	Till, olive-gray, sandy to gravelly; occasional dark-greenish-gray silty sand lens	79	195
Pierre Formation:			
	Shale, grayish-black, moderately indurated	15	210

155-69-28BAB
NDSWC 5082

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	21	22
	Till, olive-gray, silty	4	26
	Boulder, granite	1	27
	Till, olive-gray, sandy	39	66
Fox Hills Formation:			
	Siltstone, dark-gray; interbedded with very fine to fine-grained glauconitic sandstone	72	138
Pierre Formation:			
	Shale, grayish-black, indurated	22	160

155-70-9BBB
NDSWC 5081

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy---------------	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized----------------------------	25	26
	Till, olive-gray, silty to sandy-------------	56	82
	Sand, very fine to fine, subangular to subrounded; interbedded with silt and clay-	8	90
Fox Hills Formation:			
	Sandstone, medium-bluish-gray to dark-greenish-gray, clayey, slightly glauconitic; interbedded with thin lenses of medium-dark-gray siltstone------------------------	30	120

155-70-28AAA
NDSWC 5510

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty, sandy---------	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized----------------------------	24	25
	Till, olive-gray, silty to sandy-------------	33	58
Fox Hills Formation:			
	Siltstone, medium-bluish-gray, clayey, moderately silty, moderately indurated, noncalcareous------------------------------	22	80

155-71-20BBB
NDSWC 5104

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Gravel, medium, oxidized; about one-third medium to very coarse sand; all materials angular to subrounded----------------------	28	28
	Clay, moderate-yellowish-brown, very silty to sandy, oxidized------------------------	10	38
	Gravel, fine to coarse, angular to subrounded, poorly sorted; predominantly carbonates--------------------------------	2	40
	Till, dark-yellowish-brown, partially oxidized; interbedded with thin lenses of sandy gravel---------------------------	16	56
	Till, olive-gray; interbedded with thin lenses of gravel--------------------------	6	62
Fox Hills Formation:			
	Siltstone, medium-dark-gray, siliceous, clayey, moderately indurated; carbonaceous streaks------------------------------------	78	140

155-72-3CCC
NDSWC 5532

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty----------------	1	1
	Clay, olive-gray, very silty, slightly sandy-	42	43
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, very fine grained, clayey, silty, micaceous; interbedded with thin layers of medium- to brownish-gray siltstone--------------------	17	60

155-72-28DDD
NDSWC 5533

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty	1	1
	Till, moderate-yellowish-brown, silty, oxidized	9	10
	Till, olive-gray, silty; a few cobbles	12	22
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, very fine to fine-grained, micaceous; not cemented	18	40

155-73-14DDD
NDSWC 5103

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	9	10
	Sand, fine to medium, angular to subrounded, well-sorted; predominantly quartz; oxidized to 34 ft	29	39
	Till, olive-gray, very silty	24	63
Fox Hills Formation:			
	Siltstone, medium-dark-gray, siliceous, clayey; occasional carbonaceous streaks	77	140

155-74-4AAA
NDSWC 5537

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty, sandy	1	1
	Till, moderate-yellowish-brown, silty, sandy, oxidized	15	16
	Till, olive-gray, silty	12	28
	Gravel, fine to coarse, angular to rounded, sandy; about 25 percent carbonates, 30 percent granitics; remainder is mostly shale and some siltstone	5	33
	Till, olive-gray, silty; occasional cobbles and boulders	21	54
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, fine-grained, micaceous; interbedded with bluish- to brownish-gray siltstone	26	80

155-74-13AAA
NDSWC 5535

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty	1	1
	Till, moderate-yellowish-brown, silty, sandy, and gravelly, oxidized	14	15
	Till, olive-gray, silty, sandy	24	39
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, very fine grained, micaceous; interbedded with thin layers of medium- to brownish-gray siltstone	21	60

155-74-18AAD
NDGS auger hole BP69-36

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Till, yellowish-brown, silty	9	9
	Sand, fine to medium	10	19
	Till, brownish-gray, silty	9	28
Fox Hills Formation:			
	Sandstone, medium-bluish-gray; interbedded with gray siltstone	21	49

155-74-22BBB
NDSWC 5102

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Clay, moderate-yellowish-brown, very silty, oxidized	7	8
	Till, olive-gray, silty	26	34
Fox Hills Formation:			
	Siltstone, medium-gray, siliceous, clayey; occasional carbonaceous streaks	10	44
	Siltstone, medium-dark-gray, siliceous; interbedded with grayish-black siliceous indurated shale	56	100
	Sandstone, dark-greenish-gray, very fine to fine-grained, silty, slightly clayey	15	115
	Siltstone, medium-dark-gray, siliceous, clayey; occasional carbonaceous streaks	65	180

155-74-30DDD
NDSWC 5729

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty, oxidized; occasional thin lenses of gravel	25	26
	Till, olive-gray, silty; interbedded with thin lenses of gravel	12	38
	Till, olive-gray, very silty; interbedded with thin lenses of gravel	16	54
Fox Hills Formation:			
	Siltstone, medium-gray, slightly sandy, indurated, noncalcareous	26	80

155-74-32CBB
NDSWC 5728

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to very sandy	1	1
	Sand, very fine to medium, mostly fine, subangular to subrounded, well-sorted, oxidized; about 70 percent quartz, 20 percent carbonates and feldspar; remainder detrital shale and lignite	57	58
	Silt, olive-gray, very sandy, bedded	115	173
	Till, olive-gray, silty to very sandy; interbedded with thin lenses of gravel	25	198
	Silt, olive-gray, very sandy; occasional lens of sandy gravel and detrital lignite	40	238

155-74-32CBB, Continued
NDSWC 5728

Geologic source	Material	Thickness (feet)	Depth (feet)
Fox Hills Formation:			
	Siltstone, medium-dark-gray, indurated, noncalcareous; interbedded with greenish-gray sand lenses	22	260

155-74-36BCC
NDSWC 5730

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty, slightly sandy, oxidized	11	12
	Till, olive-gray, silty, slightly sandy	7	19
Fox Hills Formation:			
	Siltstone, medium-gray, siliceous, slightly clayey, indurated, noncalcareous; occasional brown concretions	21	40

156-67-10AAB
NDSWC 5075

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, dark-yellowish-brown	1	1
	Clay, dusky-yellow, very silty, oxidized	4	5
	Till, moderate-yellowish-brown, silty to sandy, oxidized	10	15
	Till, olive-gray, silty to sandy	30	45
	Till, olive-gray, silty to gravelly	51	96
	Boulder, granite	1.5	97.5
	Till, olive-gray, silty to gravelly	12.5	110
Pierre Formation:			
	Shale, grayish-black; occasional bentonite streaks; fractured 110-120 ft	30	140

156-67-17DDD
NDSWC 5076

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, dark-yellowish-brown	1	1
	Till, moderate-yellowish-brown, silty, oxidized	21	22
	Till, olive-gray, silty	4	26
	Sand, fine to medium	2	28
	Till, olive-gray, silty to gravelly	6	34
	Sand, fine to very coarse, subangular to rounded; predominantly quartz and carbonates	6	40
	Till, olive-gray, silty to gravelly	31	71
	Gravel, fine to coarse, angular to subrounded; about one-third medium to very coarse subangular to subrounded sand	13	84
	Till, olive-gray, silty to sandy	30	114
Pierre Formation:			
	Shale, grayish-black, moderately indurated, slightly fractured	26	140

156-67-36DDD
Test hole 345
(Log from Paulson and Akin, 1964, p. 155)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Till, or silt and clay, light-brown, gravelly	4	5
	Till, light-brown	12	17
	Till, gray	39	56
	Till, or sand, silt and clay, gray, gravelly	16	72
	Sand, medium to very coarse, and gravel fine to medium, about one-half detrital shale	9	81
	Till, gray	15	96
Pierre Shale:			
	Shale, gray	4	100

156-68-7AAA
Test hole 1299
(Log from Randich and Bradley, 1962, p. 15)

Glacial drift:			
	Topsoil, black	1	1
	Till; clay, yellow to brown; medium to coarse gravel	14	15
	Till; clay, gray; fine to medium gravel; shale pebbles	40	55
	Gravel, coarse; some cobbles	2	57
	Till; clay, gray; fine to medium gravel and some cobbles; shale pebbles	118	175

156-68-11AAA
NDSWC 5077

Glacial drift:			
	Topsoil, dark-yellowish-brown	1	1
	Till, moderate-yellowish-brown, silty to gravelly, oxidized	14	15
	Till, olive-gray, silty to gravelly	25	40
	Sand, fine to very coarse, angular to rounded; predominantly quartz; interbedded with a few thin lenses of clay	16	56
	Till, olive-gray, silty to sandy	78	134
	Cobbles and boulders; carbonates	2	136
Pierre Formation:			
	Shale, grayish-black, moderately indurated	24	160

156-68-16AAA
NDSWC 5653

Glacial drift:			
	Topsoil, brownish-black, silty, sandy	1	1
	Till, dusky-yellow to moderate-yellowish-brown, silty, oxidized	18	19
	Till, olive-gray, silty	10	29
	Gravel, fine to coarse, subangular to subrounded, silty, clayey, poorly sorted	3	32
	Till, olive-gray, silty	50	82

156-68-16AAA, Continued
NDSWC 5653

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Sand, very fine to coarse, subangular to rounded, silty, clayey, moderately well sorted	3	85
	Till, medium- to dark-greenish-gray, very sandy (older till than above)	16	101
	Sand, very fine to fine, silty; interbedded throughout with thin lenses of silty clay	30	131
	Till, medium-dark- to dark-brownish-gray, silty, sandy	15	146
	Sand, very fine to fine, subangular, silty, clayey; fair sorting	6	152
	Till, medium-dark- to dark-brownish-gray, silty, sandy (appears to be a much older till than those above)	22	174
Pierre Formation:			
	Shale, grayish-black to black, siliceous, indurated, bedded, noncalcareous; occasional light-gray bentonite streaks	6	180

156-68-18AAA
Test hole 1298
(Log from Randich and Bradley, 1962, p. 16)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Till; clay, yellow to brown; shale pebbles	16	17
	Till; clay, gray; fine to medium gravel; shale pebbles	13	30
	Gravel, fine to coarse; shale pebbles	6	36
	Till; clay, gray; medium to coarse gravel; shale pebbles	74	110
	Till; clay, gray; medium to coarse sand; shale pebbles and lignite fragments	10	120
	Till; clay, gray; medium to coarse gravel; shale pebbles	70	190
	Till; clay, gray; medium to coarse sand; shale pebbles	12	202
Pierre Shale:			
	Shale, gray	8	210

156-68-19AAA
Test hole 1297
(Log from Randich and Bradley, 1962, p. 16)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	2	2
	Till; clay, yellowish-brown; fine to medium gravel	21	23
	Till; clay, gray; fine to medium gravel; shale pebbles	49	72
	Sand, fine to medium, large concentrations of shale fragments	8	80
	Gravel, fine to coarse; cobbles	10	90
	Till; clay, gray; fine to coarse gravel; shale pebbles, cobbles	91	181
Pierre Shale:			
	Shale, gray	8	189

156-68-27CCC
Test hole 1308
(Log from Randich and Bradley, 1962, p. 17)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	4	4
	Till; clay, yellow; coarse sand grains and pebbles; shale pebbles	10	14
	Till; clay, gray; fine to medium gravel; shale pebbles	69	83
	Gravel, fine to medium	5	88
	Till; clay, gray; fine to medium gravel	46	134
	Gravel, fine to medium	25	159
	Till; clay, gray; fine gravel	9	168
	Gravel, medium to coarse	5	173
	Till; clay, gray; fine to medium gravel; shale and lignite pebbles	18	191
Pierre Shale:			
	Shale, gray	8½	199½

156-68-27DDD1
Test hole 1309
(Log from Randich and Bradley, 1962, p. 17)

Glacial drift:			
	Topsoil, black	2	2
	Till; clay, yellow; coarse sand grains and some pebbles	19	21
	Till; clay, gray; fine to medium gravel; shale pebbles	114	135
	Gravel, fine, medium and coarse	6	141
	Till; clay, gray; fine to medium gravel; shale pebbles	6	147

156-68-27DDD2
NDSWC 5652

Glacial drift:			
	Topsoil, brownish-black, silty, sandy	1	1
	Till, dusky-yellow to moderate-yellowish-brown, silty, oxidized	26	27
	Till, olive-gray, silty	58	85
	Clay, olive-gray, very silty, moderately sandy, calcareous (fluvial sediment)	15	100
	Till, olive-gray, silty	60	160
	Gravel, fine to coarse, angular to subrounded, poorly sorted; about 40 percent carbonates, 35 percent detrital shale	5	165
	Till, olive-gray, silty; occasional thin lenses of gravel and a few layers of cobbles and boulders	36	201
	Till, dark- to dark-greenish-gray, very sandy, silty (older till than above)	17	218
	Till, medium-dark- to dark-gray, silty, moderately sandy	30	248
Pierre Formation:			
	Shale, grayish-black to black, siliceous, indurated, bedded, noncalcareous; occasional light-gray bentonite streaks	12	260

156-68-29DDD
Test hole 1307
(Log from Randich and Bradley, 1962, p. 18)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	4	4
	Till; clay, yellow to brown; carbonate pebbles	12	16
	Till; clay, gray; medium to coarse gravel; shale pebbles	32	48
	Gravel, medium to coarse; and coarse sand	3	51
	Till; clay, gray; fine to medium gravel; shale pebbles	38	89
	Till; clay, gray; medium to coarse sand	16	105
	Gravel, medium to coarse	7	112
	Till; clay, gray; medium to coarse gravel; cobbles and shale pebbles	88	200
Pierre Shale:			
	Shale, gray	10	210

156-68-30ADD
Test hole 1296
(Log from Randich and Bradley, 1962, p. 18)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, clayey, black	2	2
	Till; clay, sandy, yellow-brown	17	19
	Till; clay, gray; fine to medium gravel; shale pebbles	50	69
	Gravel, medium to coarse; shale pebbles	4	73
	Till; clay, gray; fine to medium gravel; cobbles and shale pebbles	136	209
Pierre Shale:			
	Shale, gray	11	220

156-68-30BBB
Test hole 1311
(Log from Randich and Bradley, 1962, p. 19)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	2	2
	Till; clay, light-gray-yellow	12	14
	Till; clay, sandy, light-gray	9	23
	Till; clay, gray; fine to medium gravel; shale pebbles	51	74
	Sand, fine to medium, clayey	9	83
	Till; clay, gray; fine to medium gravel; shale pebbles	22	105
	Till; clay, gray; fine to medium gravel; shale pebbles	74	179
Pierre Shale:			
	Shale, gray-blue	10	189

156-68-30BCC
Test hole 1294
(Log from Randich and Bradley, 1962, p. 19)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Till; clay, sandy, yellow-brown	12	13
	Clay, light-gray	5	18
	Till; clay, gray; fine to coarse gravel; cobbles and shale pebbles	37	55
	Gravel, fine to coarse; medium to coarse sand; cobbles	5	60
	Till; clay, gray; fine to coarse gravel; cobbles and shale pebbles	93	153
	Gravel, coarse; cobbles	15	168

156-68-30CAA
Test hole 1312
(Log from Randich and Bradley, 1962, p. 19)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Till; clay, yellow; fine to medium gravel	11	12
	Till; clay, gray; fine to medium gravel	133	145
	Till; clay, gray; fine to medium gravel; small boulders	34	179
Pierre Shale:			
	Shale, gray	10	189

156-68-31AAA
Test hole 1306
(Log from Randich and Bradley, 1962, p. 20)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	2	2
	Till; clay, yellowish-gray; fine to medium gravel	12	14
	Till; clay, gray, fine to medium gravel	29	43
	Gravel, fine	2	45
	Till; clay, gray; fine to medium gravel	17	62
	Gravel, fine to medium; interbedded with gray clay	13	75
	Till; clay, gray; fine and medium gravel	71	146
	Till; clay, gray; fine gravel	22	168
	Till; clay, gray; fine to medium gravel and cobbles	25	193
Pierre Shale:			
	Shale, gray	6½	199½

156-68-31BBA
Test hole 1301
(Log from Randich and Bradley, 1962, p. 20)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	5	5
	Till; clay, yellow to yellowish-gray; medium gravel	12	17
	Till; gray, clay; fine to medium gravel	165	182
Pierre Shale:			
	Shale, gray	7	189

156-68-31BDD
Test hole 1295
(Log from Randich and Bradley, 1962, p. 21)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, sandy, black	1	1
	Sand, medium to coarse; granule gravel	5	6
	Clay, gray; medium to coarse gravel; cobbles	6	12
	Till; clay, gray; fine to medium gravel; shale pebbles	19	31
	Till; clay, gray; medium to coarse sand	53	84
	Till; clay, gray; medium to coarse gravel; cobbles	74	158
	Till; clay, gray; medium to coarse sand	16	174
Pierre Shale:			
	Shale, gray	4½	178½

156-68-36BBB
Test hole 1310
(Log from Randich and Bradley, 1962, p. 21)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	2	2
	Gravel, fine to medium	5	7
	Till; clay, yellow; some fine gravel	11	18
	Till; clay, gray; fine to medium gravel	26	44
	Sand, fine gravel	19	63
	Till; clay, gray; fine to medium gravel; lignite fragments	106	169
Pierre Shale:			
	Shale, gray	9½	178½

156-69-10AAA
NDSWC 5515

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty, sandy	1	1
	Till, moderate-yellowish-brown, silty, oxidized	15	16
	Till, olive-gray, silty, interbedded with thin lenses of gravel; stratified	92	108
	Sandstone, medium-bluish-gray, very fine to fine-grained, noncalcareous (glacial shove-block of Fox Hills Formation)	4	112
	Till, olive-gray, silty	28	140
	Gravel, fine to coarse, angular to subrounded, silty, very clayey, poorly sorted	5	145
	Till, olive-gray, silty to sandy; occasional boulders of sandstone from Fox Hills Formation	10	155
	Till, olive-gray, silty	8	163
Pierre Formation:			
	Shale, grayish-black to dark-gray, siliceous, moderately indurated, noncalcareous	17	180

156-69-15DDD
NDSWC 5078

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black	1	1
	Till, moderate-yellowish-brown, silty, oxidized	11	12
	Till, olive-gray, silty	28	40
	Till, olive-gray, silty; interbedded with thin lenses of medium to coarse sand; possibly older than above	80	120
	Boulder, dolostone	1	121
	Gravel, fine to coarse; about one-fourth medium to coarse sand; all materials angular to rounded; predominantly carbonates	17	138
	Sand, very fine to coarse, subangular to rounded, well-sorted; predominantly quartz	11	149
	Till, olive-gray, silty to gravelly	19	168
Pierre Formation:			
	Shale, grayish-black, indurated	32	200

156-69-19DCD
(Log from C. A. Simpson & Son)

Material	Thickness (feet)	Depth (feet)
Topsoil	1	1
Yellow clay	22	23
Sandy blue clay	64	87
Fine sand	8	95

156-69-22CCC
NDSWC 5514

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty, sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	21	22
	Till, olive-gray, silty; interbedded with thin lenses of sandy gravel at 60-69 ft	98	120
	Gravel, fine to medium, subangular to rounded, silty, very sandy and clayey, poorly sorted	8	128
	Till, olive-gray, silty to sandy	5	133
	Gravel, fine to coarse, angular to subrounded (about 25 percent fine to very coarse sand); about 45 percent carbonates, 20 percent granitics, 15 percent shale; interbedded with thin lenses of silty clay	10	143
	Till, olive-gray, silty	3	146
	Gravel, fine to coarse, angular to subrounded, sandy; fair sorting; interbedded with thin lenses of silty clay	15	161
	Till, olive-gray, silty	10	171
	Gravel, fine to coarse, angular to subrounded, sandy, poorly sorted; about 35 percent carbonates, 25 percent granitics, 25 percent shale and siliceous rocks; interbedded with thin lenses of silty clay	6	177
	Till, grayish-black to dark-gray, very silty	4	181
	Till, olive- to brownish-gray, silty	30	211
	Till, moderate-yellowish-brown, silty, oxidized	2	213
Pierre Formation:			
	Shale, grayish-black to dark-gray, siliceous, moderately indurated, noncalcareous	7	220

156-69-25DBA
Test hole 1313
(Log from Randich and Bradley, 1962, p. 22)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	3	3
	Till; clay, sandy, yellowish-gray; fine to medium gravel (weathered till)	8	11
	Clay, sandy, gray; a few pebbles (sandy till)	9	20
	Till; clay, sandy, gray	9	29
	Till; clay, gray; fine to medium gravel	152	181
Pierre Shale:			
	Shale, gray	8	189

156-69-27BCC
NDSWC 5717

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	33	34
	Till, olive-gray, silty; interbedded with thin lenses of gravelly sand	64	98
	Sand, fine to very coarse, gravelly; fair sorting; about 30 percent shale, 50 percent quartz, 20 percent carbonates and feldspar	4	102
	Till, olive-gray, silty; interbedded with thin lenses of gravelly sand	6	108
	Gravel, fine to coarse, angular to subrounded, clayey to sandy; fair sorting; about 40 percent carbonates, 40 percent granitics and metamorphics, 20 percent shale	17	125
	Till, olive-gray, silty; interbedded with thin lenses of sand	15	140
	Till, olive-gray, silty to sandy	20	160

156-69-27DBA
NDSWC 5718

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty to slightly sandy, oxidized	24	25
	Till, olive-gray, silty to slightly sandy	66	91
	Gravel, fine to coarse, angular to subrounded, moderately sandy, poorly sorted; about 50 percent carbonates, 30 percent granitics and metamorphics, 20 percent shale	8	99
	Till, olive-gray, silty to slightly sandy	2	101
	Gravel, fine to very coarse, angular to subrounded, moderately sandy; fair sorting; about 50 percent carbonates, 30 percent granitics	9	110
	Till, olive-gray, silty; interbedded with thin lenses of sandy gravel	3	113
	Gravel, fine to coarse, angular to subrounded, clayey to sandy, poorly sorted; about 50 percent carbonates, 30 percent granitics and metamorphics, 20 percent detrital shale	10	123
	Till, olive-gray, silty to sandy	37	160

156-69-33AAA
NDSWC 5662

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty, sandy	1	1
	Till, dark-yellowish-brown, silty, moderately sandy, oxidized	31	32
	Till, olive-gray, silty	53	85
	Gravel, fine to coarse, angular to subrounded, slightly sandy, fair sorting; some cobbles; about 50 percent carbonates, 30 percent granitics and metamorphics; remainder mostly detrital shale	37	122
	Gravel, fine to medium, subangular to subrounded; fair sorting	7	129
	Gravel, fine to coarse, angular to subrounded, slightly sandy, poorly sorted; interbedded with lenses of till	7	136
	Till, olive-gray, silty	14	150

156-69-33AAB
NDSWC 5716

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Roadfill, brownish-black, silty clay	2	2
	Till, moderate-yellowish-brown, silty to sandy, oxidized	26	28
	Till, olive-gray, silty to sandy	11	39
	Gravel, fine to coarse, angular to subrounded, sandy; about 40 percent shale, 30 percent carbonates, 30 percent granitics and metamorphics	3	42
	Till, olive-gray, silty; interbedded with thin lenses of sand	70	112
	Gravel, fine to coarse, sandy	2	114
	Till, olive-gray, silty to sandy	7	121
	Gravel, fine to very coarse, angular to subrounded, very sandy, poorly sorted	3	124
	Till, olive-gray, silty; interbedded with thin lenses of sand	36	160

156-69-33BAB
NDSWC 5663

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty, sandy	1	1
	Till, dark-yellowish-brown, silty, oxidized	24	25
	Till, olive-gray, silty; interbedded with lenses of gravel from 40 to 50 ft	153	178
Fox Hills Formation:			
	Shale, dark-greenish-gray, moderately indurated, bedded, noncalcareous; numerous gray to brownish-gray concretions	37	215

156-69-34ABA
NDSWC 5721

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized----------------------------	23	24
	Till, olive-gray, silty to sandy-------------	54	78
	Sand, very fine to coarse, subangular to subrounded; coarser with increasing depth; about 60 percent quartz, 20 percent detrital shale, 20 percent carbonates, feldspar, and lignite----------------------	27	105
	Sand, very fine to very coarse, subangular to subrounded, moderately well sorted; becomes gravelly with increasing depth' greater percent of carbonates than above---	21	126
	Till, olive-gray, silty; interbedded with thin lenses of sandy gravel----------------	34	160

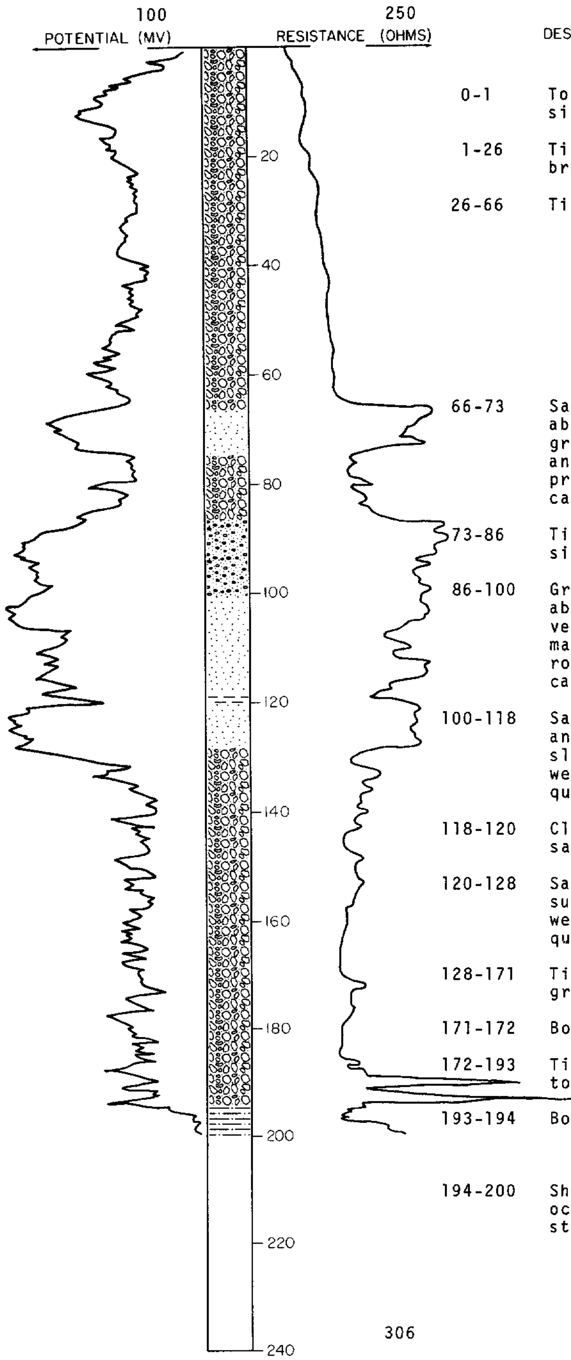
NDSWC 5090

LOCATION: 156-69-34ABB

ELEVATION: 1578
(FT, MSL)

DATE DRILLED: August 1968

DEPTH: 200
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, brownish-black, silty to sandy.
1-26	Till, moderate-yellowish-brown, silty, oxidized.
26-66	Till, olive-gray, silty.
66-73	Sand, medium to very coarse; about one-fourth fine gravel; all materials angular to subrounded; predominantly quartz and carbonates.
73-86	Till, olive-gray, very silty to sandy.
86-100	Gravel, fine to medium; about one-third medium to very coarse sand; all materials angular to subrounded; predominantly carbonates.
100-118	Sand, very fine to coarse, angular to subrounded, slightly clayey, moderately well sorted; predominantly quartz.
118-120	Clay, olive-gray, very sandy to silty.
120-128	Sand, very fine to medium, subangular to rounded, well-sorted; predominantly quartz.
128-171	Till, olive-gray, silty to gravelly.
171-172	Boulder, granite.
172-193	Till, olive-gray, silty to sandy.
193-194	Boulder, granite.

Pierre Formation

194-200	Shale, grayish-black; occasional bentonite streaks.

156-69-34BAB
NDSWC 5722

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	24	25
	Till, olive-gray, silty; interbedded with occasional lenses of sandy gravel	63	88
	Sand, very fine to very coarse, angular to subrounded, well-sorted; about 50 percent quartz, 30 percent carbonates and feldspar, 20 percent detrital shale and lignite	3	91
	Till, olive-gray, silty to sandy	69	160

156-69-34CC
(Log from C. A. Simpson & Son)

Material	Thickness (feet)	Depth (feet)
Yellow clay	20	20
Blue clay, some soft	70	90
Sandy blue clay	10	100
Blue shale(?)	19	119

156-69-34DAD
NDSWC 5723

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	22	23
	Till, olive-gray, silty	34	57
	Sand, fine to coarse, subangular to subrounded, clayey to silty	3	60
	Till, olive-gray, silty; interbedded with occasional lenses of sandy gravel	60	120
	Sand, very fine to medium, subangular to subrounded, clayey to silty; about 60 percent quartz, 20 percent detrital shale, 20 percent carbonates, feldspar, and detrital lignite	4	124
	Till, olive-gray, silty; interbedded with thin lenses of sandy gravel	36	160

156-69-35AAA
Test hole 1291
(Log from Randich and Bradley, 1962, p. 22)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Till; clay, sandy, yellow-brown	14	15
	Till; clay, gray; fine to coarse gravel; cobbles; shale pebbles	26	41
	Gravel, fine to medium; shale pebbles	6	47
	Till; clay, gray; fine to coarse gravel; shale pebbles	100	147
	Till; clay, gray; fine to coarse gravel; cobbles; shale pebbles	27	174
Pierre Shale:			
	Shale, gray	4	178

156-69-35BAA
NDSWC 5719

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Till, moderate-eyllowish-brown, silty to sandy, oxidized----------------------------	20	21
	Till, olive-gray, silty; interbedded with thin lenses of sandy gravel----------------	32	53
	Sand, fine to very coarse, subangular, silty--	2	55
	Till, olive-gray, silty to sandy------------	18	73
	Gravel, fine to coarse, angular to sub-rounded, sandy to clayey, poorly sorted----	2	75
	Till, olive-gray, silty to sandy------------	3	78
	Sand, very fine to very coarse, subangular to subrounded, gravelly; fair sorting------	3	81
	Till, olive-gray, silty; interbedded with thin lenses of sandy gravel----------------	45	126
	Till, olive-gray, silty---------------------	34	160

156-69-35BBB1
Test hole 1293
(Log from Randich and Bradley, 1962, p. 23)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black------------------------------	2	2
	Till; clay, yellow to brown; fine to medium gravel-------------------------------------	30	32
	Till; clay, gray; medium to coarse gravel----	31	63
	Sand, fine to medium------------------------	10	73
	Sand, medium to coarse----------------------	11	84
	Gravel, medium to coarse--------------------	6	90
	Gravel, medium to coarse; carbonate pebbles------------------------------------	5	95
	Till; clay, gray, sandy; shale pebbles-------	5	100
	Sand, medium to coarse; shale pebbles--------	5	105
	Till; clay, gray; medium to coarse gravel----	5	110
	Till; clay, gray; fine to medium gravel; shale pebbles; cobbles---------------------	96	206
Pierre Shale:			
	Shale, gray----------------------------------	4	210

156-69-35BBB2
NDSWC 5720

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized; interbedded with occasional lenses of gravel----------------	30	31
	Till, olive-gray, silty to sandy-------------	16	47
	Sand, very fine to very coarse, subangular, gravelly; poor to fair sorting-------------	4	51
	Till, olive-gray, silty to sandy-------------	30	81
	Sand, very fine to very coarse, subangular to subrounded, silty to clayey; about 60 percent quartz, 20 percent carbonates and feldspar, 15 percent detrital shale, 5 percent siliceous rock fragments and detrital lignite---------------------------	17	98
	Till, medium-dark-gray, very silty to sandy--	2	100

156-69-35BBB2, Continued
NDSWC 5720

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Sand, fine to very coarse, subangular to subrounded, silty to clayey, about 60 percent quartz, 20 percent carbonates and feldspar, 20 percent lignite and siliceous rocks	9	109
	Till, olive-gray, silty to sandy; interbedded with a few thin lenses of gravel	31	140

156-69-36AAA
Test hole 1314
(Log from Randich and Bradley, 1962, p. 23)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	2	2
	Till; clay, yellow; medium sand; carbonate pebbles	10	12
	Till; clay, gray; fine to medium gravel; a few coarse carbonate pebbles; shale pebbles	9	21
	Gravel, medium to coarse	2	23
	Till; clay, gray; fine to medium gravel; a few coarse carbonate pebbles; shale pebbles	16	39
	Gravel, fine to medium; coarse sand; shale pebbles	9	48
	Till; clay, gray; fine to medium gravel; shale pebbles	125	173
Pierre Shale:			
	Shale, gray-blue	5½	178½

156-69-36ABC
Test hole 1292
(Log from Randich and Bradley, 1962, p. 24)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Till; clay, yellow to brown; pebbles	6	7
	Till; clay, gray; fine to medium gravel; shale pebbles	51	58
	Gravel, fine to medium	5	63
	Till; clay, gray; medium to coarse gravel	74	137
	Gravel, fine to medium	2	139
	Till; clay, gray; medium gravel	19	158
	Till; clay, gray; fine gravel	16	174
Pierre Shale:			
	Shale, gray	4½	178½

156-69-36ADD
Test hole 1315
(Log from Randich and Bradley, 1962, p. 24)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black	1	1
	Till; clay, yellowish-gray; gravel	15	16
	Till; clay, gray; fine and medium gravel	26	42
	Sand, and fine gravel	2	44
	Till; clay, gray; fine to coarse gravel; abundant gravel in samples from 58 to 80 feet	129	173
Pierre Shale:			
	Shale, gray	5½	178½

156-69-36DAA
Test hole 1290
(Log from Randich and Bradley, 1962, p. 25)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, sandy, black	2	2
	Till; clay, gray; carbonate, and granite pebbles	4	6
	Clay, sandy, brown to gray; carbonate pebbles	4	10
	Till; clay, gray; medium to coarse gravel; shale, granite, and carbonate pebbles	160	170
Pierre Shale:			
	Shale, gray	8½	178½

156-70-1CBB
(Log from C. A. Simpson & Son)

Material	Thickness (feet)	Depth (feet)
Topsoil	1	1
Gravelly yellow clay	44	45
Gravelly blue clay	25	70
Sand and gravel, dry	7	77
Gravelly blue clay	38	115
Fine sand or sandstone	15	130
Sand	4	134

156-70-8CCB
(Log from Great Northern Railway)

Material	Thickness (feet)	Depth (feet)
Yellow clay	10	10
Blue clay	18	28
Blue clay and sand	34	62
Blue sand, some water	1	63
Blue clay	15	78
Blue sand, water bearing	4	82
Blue shale	8	90

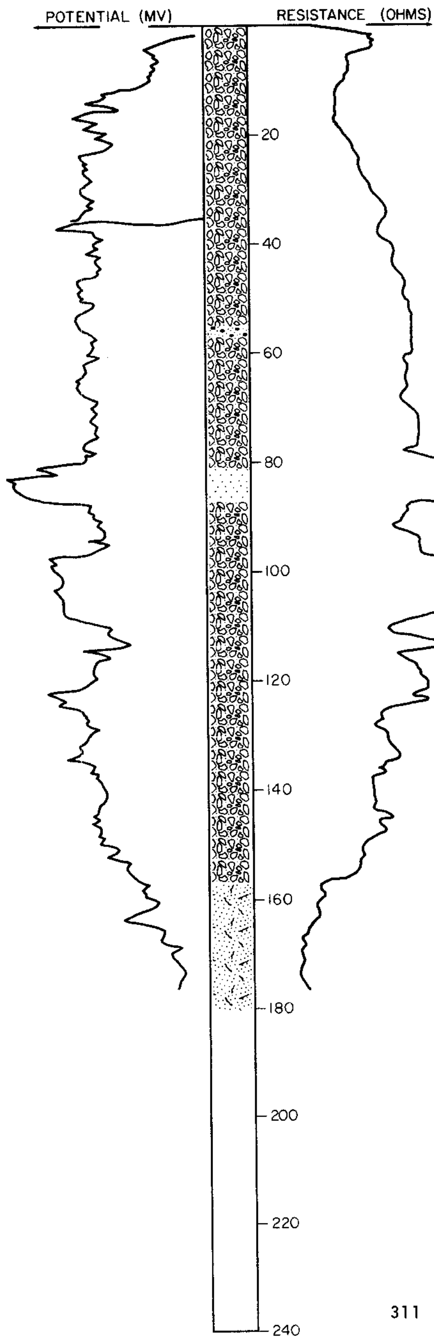
NDSWC 5079

LOCATION: 156-70-13DDD

DATE DRILLED: August 1968

ELEVATION: 1612
(FT, MSL)

DEPTH: 180
(FT)



DESCRIPTION OF DEPOSITS

	<u>Glacial drift</u>
0-1	Topsoil, brownish-black, sandy.
1-20	Till, moderate-yellowish-brown, silty to sandy, oxidized.
20-54	Till, olive-gray, silty to sandy.
54-56	Gravel, fine to coarse, angular to rounded, poorly sorted; predominantly carbonates.
56-80	Till, olive-gray, silty.
80-86	Sand, very fine to coarse, silty to clayey, poorly sorted; predominantly quartz.
86-97	Till, olive-gray, silty to gravelly.
97-109	Till, olive-gray, silty; interbedded with thin lenses of gravel.
109-113	Till, olive-gray, silty to sandy.
113-125	Till, olive-gray, silty to sandy; abundant cobbles and boulders.
125-157	Till, olive-gray, silty to sandy.
	<u>Fox Hills Formation</u>
157-180	Sandstone, greenish-gray, fine-grained, clayey; interbedded with dark-greenish-gray siltstone.

156-70-16BBB
NDSWC 2882

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty to sandy------	1	1
	Till, moderate-yellowish-brown, silty to sandy--	9	10
	Till, olive-gray, silty to sandy, cohesive, calcareous--------------------------------	26	36
	Till, brownish-gray, silty to sandy, cohesive, calcareous------------------------	4	40
	Sand, fine to coarse, angular to subrounded--	3	43
	Gravel, fine to coarse; interbedded with clay---	12	55
	Boulder, granitic----------------------------	1	56
Fox Hills Formation:			
	Shale, medium-light-gray, very sandy, indurated----------------------------------	24	80

156-71-4BBA
NDSWC 5086

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy---------------	0.5	0.5
	Sand, very fine to medium, angular to subrounded, well-sorted, oxidized; predominantly quartz and carbonates--------	63.5	64
	Sand, very fine to medium, well-sorted; interbedded with olive-gray sandy silt-----	20	84
	Silt, olive-gray, moderately clayey; interbedded with very fine to fine sand---------	13	97
	Gravel, fine to medium-----------------------	3	100
	Clay, olive-gray, very silty; interbedded with very fine to medium sand-------------	20	120
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, clayey, micaceous----------------------------------	20	140

156-71-5CCB
NDSWC 5530

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty, sandy--------	1	1
	Clay, moderate-yellowish-brown, very silty, oxidized----------------------------------	13	14
	Sand, very fine to coarse, angular to subrounded; about 65 percent quartz, 25 percent carbonates, shale, and detrital lignite; oxidized to 22 ft----------------	48	62
Fox Hills Formation:			
	Sandstone, medium bluish-gray, clayey, silty, slightly indurated, noncalcareous; not cemented----------------------------------	18	80

156-71-11DC
(Log from C. A. Simpson & Son)

Material	Thickness (feet)	Depth (feet)
Topsoil--------------------------------------	1	1
Slightly sandy yellow clay-------------------	11	12
Blue clay------------------------------------	123	135
Sandy blue clay------------------------------	17	152
Shale--	83	235

156-71-19BBB
NDSWC 5084

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty	1	1
	Clay, moderate-yellowish-brown, very silty, oxidized; some lamination	19	20
	Clay, olive-gray, very silty, laminated	40	60
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, very fine to fine-grained, clayey, micaceous; interbedded with thin lenses of medium-dark-gray siltstone	20	80

156-71-28AAA
NDSWC 5085

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Sand, fine to medium, angular to subrounded, oxidized; predominantly quartz	6	7
	Gravel, fine to coarse, angular to subrounded, poorly sorted, oxidized; predominantly carbonates and shale	3	10
	Clay, moderate-yellowish-brown, very silty, laminated, oxidized	15	25
	Clay, olive-gray, very silty	10	35
	Sand, very fine to fine, angular to subangular, silty, well-sorted, predominantly quartz	5	40
	Till, olive-gray, silty to sandy	9	49
	Gravel, fine to coarse, angular to subrounded, clayey; predominantly carbonates	2	51
	Till, olive-gray, silty	13	64
	Boulder, dolostone	2	66
	Till, olive-gray, silty to gravelly	18	84
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, very fine to fine-grained, clayey; interbedded with medium-dark-gray clayey siltstone	16	100

156-72-1BBB
NDSWC 5664

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty, sandy	1	1
	Clay, dusky-yellow to moderate-yellowish-brown, very silty, oxidized (lacustrine sediment)	28	29
	Clay, olive-gray to medium-gray, very silty, calcareous (lacustrine sediment)	88	117
	Gravel, fine to coarse, angular to subrounded, slightly sandy, poorly sorted	4	121
Fox Hills Formation:			
	Shale, dark-greenish-gray; interbedded with dark-gray to medium-dark-gray indurated, noncalcareous sandstone	19	140

156-72-4DCC
Test hole 19
(Log from Froelich, 1965, p. 44)

Geologic source	Material	Thickness (feet)	Depth (feet)
Ice-contact deposits:			
	Topsoil, sandy loam, dark brown	1	1
	Sand, medium, yellowish brown, well-sorted, subangular to subrounded, slightly calcareous, oxidized	28	29
	Sand, fine, silty, yellowish brown, moderately well-sorted, oxidized	10	39
	Silt, sandy, yellowish gray, soft, friable, oxidized	10	49
	Sand, fine, olive gray, well-sorted, generally subrounded	8	57
	Silt, sandy, olive gray, soft, friable, poor sample return	23	80
Lacustrine deposits:			
	Silt, olive gray, soft, moderately cohesive, calcareous	23	103
	Silt, clayey, olive gray, soft, cohesive, slightly plastic	40	143
Till:			
	Clay, silty with sand grains and pebbles, olive gray, tightly compacted, slightly hard, cohesive; contains numerous thin gravel layers	28	171
Fox Hills Formation:			
	Shale, olive gray, moderately hard, tight and Sandstone, clayey, light greenish gray to dark greenish gray, moderately soft to moderately hard	28	199

156-72-10AAA
Test hole 18
(Log from Froelich, 1965, p. 44 and 45)

Geologic source	Material	Thickness (feet)	Depth (feet)
Lacustrine deposits:			
	Topsoil, silty clay, black	2	2
	Clay, silty, yellowish gray to light gray, heavy iron stains, soft, cohesive, plastic, sticky, oxidized; upper 4 feet cracked or fractured	20	22
	Clay, silty, olive gray, soft, cohesive, plastic, sticky	28	50
Till:			
	Clay, very sandy with numerous pebbles, olive gray, soft, slightly cohesive	12	62
	Gravel, fine and medium, sandy, thin clayey layers, moderately sorted, subangular to subrounded; drills easy, takes water	7	69
	Clay, silty to sandy with pebbles and sand lenses, olive gray, slightly hard, cohesive	36	105
	Clay, silty to sandy with pebbles, olive gray, moderately hard, cohesive	8	113
Fox Hills Formation:			
	Shale, sandy, light olive gray, hard; contains layers of dark greenish gray sandy clay	13	126

156-72-11DAD
NDSWC 5531

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty, sandy--------	1	1
	Clay, moderate-yellowish-brown, very silty, oxidized------------------------------------	25	26
	Clay, olive-gray, very silty-----------------	69	95
	Gravel, fine to coarse, angular to subrounded, sandy; fair sorting---------------	6	101
Fox Hills Formation:			
	Siltstone, medium-gray, moderately indurated; interbedded with thin lenses of medium-bluish-gray fine-grained sandstone---------	19	120

156-72-16ACC
Test hole 20
(Log from Froelich, 1962, p. 45)

Geologic source	Material	Thickness (feet)	Depth (feet)
Lacustrine deposits:			
	Topsoil, silty loam, black-------------------	1	1
	Silt, clayey, yellowish gray to dusky yellow, soft, moderately cohesive, slightly plastic, oxidized--------------------------	18	19
	Silt, clayey, with interbedded clay, silt, and sandy clay, olive gray, soft, moderately cohesive to cohesive, slightly to moderately plastic-------------------------	36	55
Till:			
	Clay, silty with sand grains and pebbles, olive gray, slightly hard, tightly compacted----------------------------------	11	66
	Gravel, fine to coarse, moderately sorted; rough drilling, takes water----------------	8	74
Fox Hills Formation:			
	Sandstone, fine and medium, clayey, dark greenish gray, moderately soft, moderately loose and friable---------------	19	93
	Shale, sandy, light olive gray to brownish gray, moderately soft, moderately plastic, tight; contains traces of carbonaceous material----------------------------------	12	105

156-72-33BBB
Test hole 21
(Log from Froelich, 1962, p. 46)

Geologic source	Material	Thickness (feet)	Depth (feet)
Lacustrine deposits:			
	Topsoil, fine sandy loam, black--------------	1	1
	Sand, fine, silty with a little clay, brown to gray, loose, "dirty"--------------	12	13
	Silt, clayey to sandy, olive gray, soft, moderately cohesive------------------------	14	27
Till:			
	Clay, very sandy with pebbles and gravel stringers, olive gray, soft to moderately soft, cohesive, slightly plastic-----------	6	33
	Gravel, fine to medium, sandy, moderately well-sorted, subrounded, clean-------------	5	38
	Clay, very sandy with pebbles and gravel stringers, olive gray, moderately soft, cohesive, moderately plastic---------------	17	55

156-72-33BBB, Continued
Test hole 21

Geologic source	Material	Thickness (feet)	Depth (feet)
Fox Hills	Formation:		
	Sand, fine to medium, clayey, dark greenish gray, well-sorted, subrounded	5	60
	Shale, sandy, light olive gray, moderately soft, cohesive, moderately plastic; contains thin light bluish gray bentonite layers	13	73

156-73-1CAB
Test hole 23
(Log from Froelich, 1965, p. 46 and 47)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Roadfill	8	8
Alluvium:			
	Sand, fine to coarse, dark gray, moderately well-sorted, subangular to subrounded, saturated	12	20
Till:			
	Clay, very sandy with pebbles and a few cobbles, olive gray, soft, cohesive, slightly plastic; gravelly	9	29
Lacustrine deposits:			
	Silt, sandy, olive gray, soft, slightly cohesive	6	35
	Silt, clayey, olive gray, soft, moderately cohesive, slightly plastic	20	55
Till:			
	Clay, silty to sandy with pebbles and gravel stringers, olive gray, moderately soft to slightly hard, cohesive	11	66
Fox Hills	Formation:		
	Sand, fine to medium, clayey, dark greenish gray, slightly friable	8	74
	Shale, olive gray, moderately soft, plastic	10	84

156-73-1CCC1
(Log from Fred Simpson)

Material	Thickness (feet)	Depth (feet)
Topsoil	1	1
Clay, yellow	16	17
Clay, blue	31	48
Clay, blue, sandy	31	79
Shale, blue	35	114
Shale, blue, sticky	21	135

156-73-1CCC2
(Log from Fred Simpson)

Material	Thickness (feet)	Depth (feet)
Topsoil	1	1
Sand, yellow, mushy	29	30
Clay, blue, sandy, mushy	17	47
Clay, blue	22	69
Sand, coarse	2	71
Clay, sandy	4	75

156-73-1CDC
(Log from C. A. Simpson & Son)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay, yellow, sandy	15	15
	Clay, blue, sandy	70	85
	Shale	15	100

156-73-1DDD
(Log from Fred Simpson)

	Basement	6	6
	Clay, yellow, sandy	20	26
	Clay, blue, sandy	54	80
	Sand, fine	12	92
	Shale	8	100

156-73-3CCC
Test hole 28
(Log from Froelich, 1965, p. 47)

Lake Souris deposits:			
	Silt, yellowish gray to dusky yellow, soft, occasional coarse sand grains	9	9
	Clay, very silty, olive gray, soft, smooth, cohesive, plastic	10	19
Till:			
	Clay, very sandy with pebbles, olive gray, cohesive, moderately plastic	9	28
Lacustrine deposits:			
	Silt, clayey, olive gray, soft, slightly crumbly	12	40
Fox Hills Formation:			
	Sand, dark greenish gray, moderately soft, slightly friable	14	54
	Limestone, black, indurated	2	56
	Shale, silty to sandy, olive gray, soft, moderately plastic	8	64

156-73-11AAB
(Log from Fred Simpson)

	Topsoil	1	1
	Clay, yellow, sandy	25	26
	Clay, blue, sandy	44	70
	Shale or clay, blue, sandy	15	85

156-73-12CCC
NDSWC 2883

Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Clay, moderate-yellowish-brown, silty to sandy, calcareous, oxidized, fluvial	9	10
	Clay, medium-dark-gray, calcareous, fluvial	12	22
	Till, olive-gray, calcareous	14	36
	Gravel, fine to medium, poorly sorted	6	42
	Till, olive-gray, sandy, calcareous	18	60
Fox Hills Formation:			
	Sandstone, fine- to medium-grained; clayey from 60-72 ft	60	120

156-73-14DDD
Test hole 22
(Log from Froelich, 1965, p. 47 and 48)

Geologic source	Material	Thickness (feet)	Depth (feet)
Lacustrine deposits:			
	Topsoil, silt loam, black	1	1
	Clay, silty, yellowish gray to dusky yellow, soft, cohesive, plastic, oxidized	5	6
	Silt, clayey, dusky yellow, soft, cohesive, moderately plastic, oxidized	11	17
	Silt, clayey, olive gray, soft, cohesive; some very fine and fine sand, sand content increasing with depth	44	61
Till:			
	Clay, silty to sandy with pebbles and gravel stringers, olive gray, moderately soft to slightly hard, cohesive	9	70
Fox Hills Formation:			
	Sand, fine and medium, clayey, dark greenish gray, moderately soft, slightly friable	7	77
	Shale, olive gray, moderately soft, plastic; contains streaks of sand	17	94

156-73-16BBC
Test hole 27
(Log from Froelich, 1965, p. 48)

Geologic source	Material	Thickness (feet)	Depth (feet)
Lake Souris deposits:			
	Clay, dusky yellow, soft, cohesive, plastic, oxidized	10	10
	Clay, olive gray, soft, cohesive, plastic	77	87
Till:			
	Sand, medium and coarse, some fine gravel, well-sorted, subangular to subrounded	3	90
	Clay, silty to sandy with pebbles, olive gray, soft, cohesive, tight	12	102
Fox Hills Formation:			
	Shale, silty, light olive gray, hard; contains dark greenish gray, moderately soft sandstone strata	13	115

156-73-24BBB
Dr. Lynn Lunde water well
(Log from Fred Simpson)
(Log from Froelich, 1965, p. 48)

Geologic source	Material	Thickness (feet)	Depth (feet)
Lacustrine deposits:			
	Topsoil	1	1
	Clay, yellow	14	15
	Clay, blue	20	35
	Clay, sandy, blue	15	50
	Sand, very clayey	10	60
Fox Hills Formation:			
	Clay, sandy, gray	30	90
Pierre Formation:			
	Shale	75	165

156-73-31DCC
Test hole 26
(Log from Froelich, 1965, p. 49)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Roadfill, gravelly clay	10	10
Outwash:			
	Gravel, fine and medium, well-sorted, subrounded; takes water	12	22
	Sand, fine to coarse, becoming finer with depth, tannish gray to dark greenish gray, well-sorted, subrounded	52	74
Pierre Shale:			
	Shale, olive black, hard, shaley partings, fractured to about 80 feet; tough drilling	31	105

156-73-34BBB
Test hole 25
(Log from Froelich, 1965, p. 49)

Geologic source	Material	Thickness (feet)	Depth (feet)
Ice-contact deposits:			
	Topsoil, very fine sandy loam, black	1	1
	Silt, clayey to sandy with sand lenses, dusky yellow, soft, oxidized	8	9
	Silt, sandy, dusky yellow to moderate olive brown, soft, uniformly sorted	8	17
	Sand, coarse and very coarse with fine to medium gravel, moderately sorted, subangular to subrounded, clean	15	32
Till:			
	Clay, silty to sandy with gravel stringers, olive gray, moderately soft, cohesive	19	51
Pierre Shale:			
	Shale, olive black, hard, brittle, fissile; tough drilling	22	73

156-73-34DDD
NDSWC 5534

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty, sandy	1	1
	Till, moderate-yellowish-brown, very silty, oxidized	12	13
	Till, olive-gray, very silty	7	20
	Clay, medium-dark-gray, very silty, sandy, very calcareous	5	25
	Till, olive-gray, silty	10	35
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, very fine to fine-grained, micaceous, noncalcareous; not cemented	25	60

156-73-35DDD
Test hole 24
(Log from Froelich, 1965, p. 49 and 50)

Geologic source	Material	Thickness (feet)	Depth (feet)
Lacustrine deposits:			
	Silt, clayey with sand stringers, dusky yellow, soft, loose, oxidized	9	9
	Silt, clayey, olive gray, soft, cohesive, moderately plastic	21	30

156-73-35DDD, Continued
Test hole 24

Geologic source	Material	Thickness (feet)	Depth (feet)
Outwash:			
	Gravel, fine to coarse, some coarse sand, moderately well-sorted, subangular to subrounded; fairly rough drilling----------	6	36
Pierre Shale:			
	Shale, olive black, hard, brittle, shaley partings-----------------------------------	27	63

156-74-17BBB
(Log from U.S. Bureau of Reclamation)

	Topsoil--------------------------------------	1.4	1.4
	Sand - brown, fine, silty, semipervious------	11.4	12.8
	Clay (glacial till) gray, stiff, silty, sandy, occasional fine gravels, impervious-	15.2	28
	Clay (glacial till) gray, sandy and gravelly to 33 ft., sandy from 33 to 36 ft., semipervious-------------------------------	8	36
	Clay (glacial till) gray, stiff, occasional sandy zones, fine gravel, impervious-------	15.8	51.8
	Sand - gray, fine uniform, cohesionless, pervious-----------------------------------	3.2	55
	Clay (glacial till) gray, stiff, moderately plastic, occasional sandy zones, fine to medium gravel throughout, impervious-------	16.5	71.5
	Sand - gray, medium, zones with some coarse, occasional thin lenses or fingers of till, pervious--------------------------	3.3	74.8
	Clay (glacial till) gray, sandy with silty fine sand zones, semipervious-------------	5.8	80.6

156-74-23AAA
NDSWC 5536

Glacial drift:			
	Topsoil, grayish-black, silty, sandy---------	1	1
	Till, moderate-yellowish-brown, very silty, sandy, oxidized---------------------------	11	12
	Till, olive-gray, very silty, sandy----------	6	18
	Gravel, fine to medium, angular to subrounded, sandy, poorly sorted--------------	5	23
	Till, olive-gray, silty; some cobbles and boulders-----------------------------------	49	72
Fox Hills Formation:			
	Siltstone, medium- to brownish-gray, moderately indurated, noncalcareous; occasional thin layer of medium-bluish-gray sandstone----------------------------	8	80

157-69-1BBB
NDSWC 5091

Glacial drift:			
	Topsoil, brownish-black, silty---------------	1	1
	Clay, moderate-yellowish-brown, oxidized-----	8	9
	Till, moderate-yellowish-brown, silty to gravelly, oxidized------------------------	9	18
	Till, olive-gray, silty to gravelly----------	47	65

157-69-1BBB, Continued
NDSWC 5091

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Gravel, fine to coarse, angular to sub-rounded; fair sorting; about one-fourth medium to very coarse sand; predominantly carbonates	9	74
	Till, olive-gray, silty	8	82
	Sand, fine to medium	3	85
	Till, olive-gray, silty	5	90
	Till, olive-gray; about one-third very fine to fine sand; some carbonaceous material	32	122
	Boulder, granite	1	123

157-69-18DCD2
(Log from Fred Simpson)

	Topsoil	1	1
	Sandy yellow clay	17	18
	Sandy blue clay	37	55
	Coarse gravel	5	60

157-69-24BBB
NDSWC 5517

Glacial drift:			
	Topsoil, grayish-black, silty, sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	14	15
	Till, olive-gray, silty	22	37
	Gravel, fine to coarse, angular to rounded, silty to sandy; poor sorting	4	41
	Till, olive-gray, silty	127	168
Fox Hills Formation:			
	Siltstone, dark-greenish-gray, moderately indurated, noncaclareous	27	195
Pierre Formation:			
	Shale, grayish-black to dark-gray, siliceous, bentonitic, noncalcareous	5	200

157-69-25DCC
NDSWC 5516

Glacial drift:			
	Topsoil, grayish-black, silty, sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	15	16
	Till, olive-gray, silty	47	63
	Gravel, fine to coarse, angular to rounded, sandy; fair sorting	4	67
	Till, olive-gray, silty	13	80
	Till, olive-gray, silty; interbedded with thin lenses of sandy gravel	70	150
Pierre Formation:			
	Shale, grayish-black to dark-gray, siliceous, moderately indurated, noncalcareous	10	160

157-70-10BA
(Log from C. A. Simpson & Son)

	Topsoil	1	1
	Yellow clay	18	19
	Sandy blue clay	39	58
	Sand	2	60

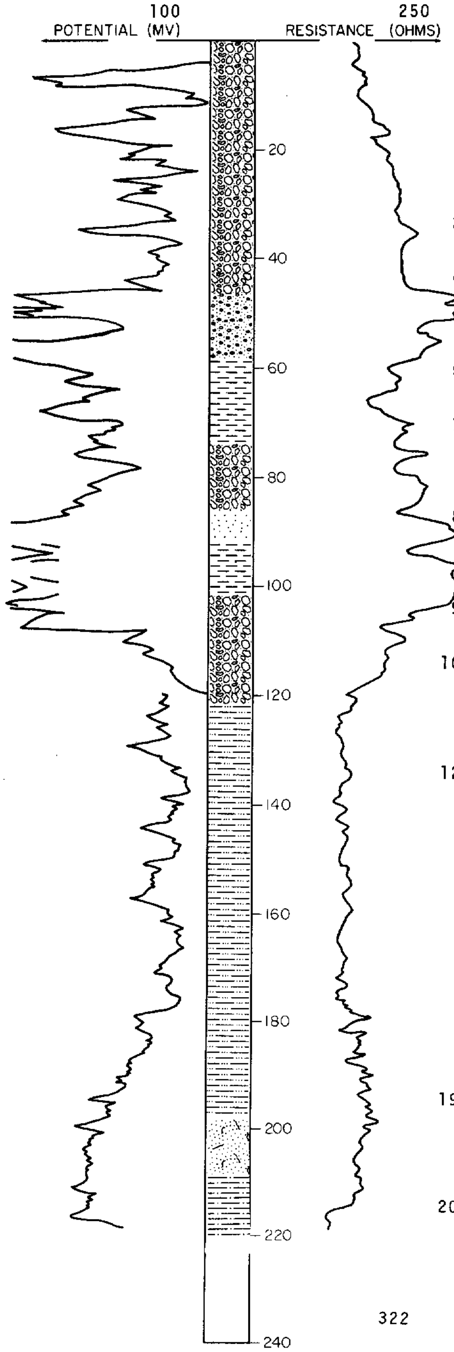
NDSWC 5089

LOCATION: 157-70-24CCD

DATE DRILLED: August 1968

ELEVATION: 1642
(FT, MSL)

DEPTH: 220
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, brownish-black, silty.
1-20	Till, moderate-yellowish-brown, very silty to sandy, oxidized.
20-46	Till, olive-gray, silty.
46-58	Gravel, medium to very coarse, angular to sub-rounded; about one-third sand.
58-75	Clay, olive-gray, very silty.
75-87	Till, olive-gray, silty to gravelly.
87-92	Sand, very fine to fine, angular to rounded, well-sorted; predominantly quartz.
92-102	Clay, olive-gray, very silty.
102-122	Till, olive-gray; inter-bedded with a few thin lenses of gravel.

Fox Hills Formation

122-198	Siltstone, medium-dark-gray, clayey; a few iron concretions.
198-207	Sandstone, dusky-blue-green, very fine to fine-grained, clayey, glauconitic.

Pierre Formation

207-220	Shale, grayish-black; a few bentonitic streaks.

157-71-2CCC
NDSWC 5088

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, dark-yellowish-brown, sandy	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized	1	2
	Gravel, fine to medium, angular to subangular, oxidized; fair sorting	5	7
	Till, moderate-yellowish-brown, very silty to sandy, oxidized	4	11
	Till, olive-gray, very silty	4	15
	Sand, very fine to coarse, angular to subrounded, silty; predominantly quartz	23	38
	Clay, olive-gray, very silty to sandy	5	43
	Sand, very fine to medium, angular to subrounded, well-sorted; predominantly quartz	10	53
	Clay, olive-gray, very silty to sandy; some detrital lignite	24	77
Fox Hills Formation:			
	Siltstone, medium-dark-gray, siliceous; interbedded with medium-bluish-gray fine-grained sandstone	23	100

157-71-6AAA
NDSWC 5528

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty, sandy	1	1
	Clay, moderate-yellowish-brown, very silty, sandy, oxidized	9	10
	Till, dark-yellowish-brown, very silty, sandy, oxidized	10	20
	Till, olive-gray, very silty	7	27
	Sand, very fine to medium, angular to subrounded; about 55 percent quartz, 15 percent carbonates, 20 percent shale and detrital lignite	26	53
Fox Hills Formation:			
	Sandstone, medium-bluish-gray; interbedded with thin layers of medium-gray siltstone	47	100

157-71-22DDD
NDSWC 5087

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, dark-yellowish-brown, sandy	0.5	0.5
	Sand, very fine to very coarse, angular to subrounded, moderately well sorted, oxidized; predominantly quartz and carbonates	29.5	30
	Sand, fine to very coarse, subangular, silty to clayey; predominantly quartz and carbonates	10	40
	Till, olive-gray, very silty to sandy	16	56
	Sand, fine to very coarse, angular to subrounded, moderately well sorted; some clay; predominantly quartz and carbonates; some lignite	9	65
	Till, olive-gray, very silty to sandy	20	85
	Sand, very fine to coarse, subangular to subrounded, silty to clayey; fair sorting; predominantly quartz	10	95

157-71-22DDD, Continued
NDSWC 5087

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Till, olive-gray; interbedded with thin lenses of medium silty sand; abundant lignite at 95-123 ft	39	134
Fox Hills Formation:			
	Siltstone, medium-gray, sandy, laminated	26	160

157-71-27BBB
NDSWC 47

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black, sandy	1	1
	Sand, medium, oxidized	42	43
	Sand, coarse, silty	8	51
	Clay, olive-gray, silty to sandy	14	65
	Clay, very silty to sandy	20	85
Fox Hills Formation:			
	Siltstone, light-bluish-gray; layers of sandstone	20	105

157-71-29ABB
NDSWC 5529

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty, sandy	1	1
	Clay, moderate-yellowish-brown, very silty, very sandy, oxidized	19	20
	Gravel, fine to coarse, angular to subrounded, very silty, sandy, poorly sorted	5	25
	Clay, olive- to medium-dark-gray, very silty, sandy	81	106
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, very fine grained, noncalcareous; interbedded with thin layers of medium-gray siltstone	14	120

157-71-31BAA
Test hole 32
(Log from Froelich, 1965, p. 50)

Geologic source	Material	Thickness (feet)	Depth (feet)
Outwash:			
	Topsoil, silty loam, black	1	1
	Clay, silty, dusky yellow, soft	5	6
	Sand, fine to medium, moderately well-sorted, subrounded	25	31
Lacustrine deposits:			
	Silt, clayey, olive gray, soft	13	44
Till:			
	Clay, sandy with pebbles and sand stringers, olive gray, moderately soft, moderately cohesive	40	84
Fox Hills Formation:			
	Shale, silty, light olive gray, soft, with dark greenish gray sandstone strata	31	115

157-71-31BCC
Test hole 36
(Log from Froelich, 1965, p. 50 and 51)

Geologic source	Material	Thickness (feet)	Depth (feet)
Ice-contact deposits:			
	Topsoil, silt, black	1	1
	Silt, clayey to gravelly with much sand, yellowish brown, noncohesive, oxidized	7	8
	Silt, sandy with pebbles, olive gray to dark greenish gray, soft, cohesive	6	14
	Silt, sandy, greenish gray to olive gray, soft, slightly cohesive	8	22
	Sand, medium to coarse, some gravel, poorly to moderately sorted, angular to subrounded	10	32
	Clay, sandy (very fine and fine), olive gray, soft, slightly cohesive	10	42
	Silt, olive gray, slightly hard, cohesive, laminated	9	51
	Clay, silty, olive gray, moderately soft, cohesive, slightly plastic	7	58
	Sand, fine to medium, moderately well-sorted, subangular to subrounded	6	64
	Silt, clayey, olive gray, moderately soft, cohesive, slightly plastic	7	71
Till:			
	Clay, silty with pebbles, olive gray, slightly hard, cohesive	9	80
Fox Hills Formation:			
	Shale, olive gray, soft, plastic with dark greenish gray, very fine to fine-grained, soft sandstone strata	25	105

157-71-31CBB
Test hole 37
(Log from Froelich, 1965, p. 51 and 52)

Geologic source	Material	Thickness (feet)	Depth (feet)
Ice-contact deposits:			
	Topsoil, silty loam, black	1	1
	Clay, sandy, with interbedded layers of silt and sand, yellowish brown, poorly sorted, highly variable composition, loose to moderately cohesive, oxidized	17	18
	Sand, medium to very coarse, gravelly, poorly sorted, subangular to subrounded; drills good, takes water	40	58
	Gravel, fine to coarse, poorly sorted, subangular to subrounded; rough drilling, takes much water	12	70
	Silt, sandy, olive gray to dark greenish gray, soft, cohesive, laminated	6	76
Till:			
	Clay, silty with pebbles, olive gray to dark greenish gray, slightly hard, cohesive	6	82
Fox Hills Formation:			
	Shale, light olive gray, moderately soft, with dark greenish gray, soft, clayey sand	3	85
	Sandstone, light greenish gray, indurated, cemented, medium-grained	1	86

157-71-31CBD
Test hole 40
(Log from Froelich, 1965, p. 52)

Geologic source	Material	Thickness (feet)	Depth (feet)
Ice-contact deposits:			
	Topsoil, silty loam, black	1	1
	Clay, silty to sandy with occasional pebbles and lenses of silt to coarse sand, yellowish brown and light olive gray, soft, crumbly, poorly sorted, oxidized	16	17
	Clay as above, interbedded with lenses of fine sand	14	31
	Clay, dark greenish gray, cohesive, slightly hard, tight; "resembles weathered shale"	13	44
	Sand, coarse, gravelly in spots, poorly sorted to well-sorted, subangular to subrounded	22	66
	Silt, clayey to sandy, olive gray, moderately soft, cohesive	7	73
	Sand, coarse, well-sorted, subangular to subrounded	7	80
Till:			
	Silt, clayey to sandy with pebbles, olive gray, slightly hard, cohesive	2	82
	Gravel, fine to coarse, poorly sorted, subangular to rounded	14	96
Fox Hills Formation:			
	Siltstone, olive gray, slightly hard, cohesive, noncalcareous	4	100
	Sand, clayey, dark greenish gray, moderately soft, slightly friable, "salt and pepper" appearance	15½	115½

157-71-32DAA
NDSWC 49

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black, silty to sandy	0.5	0.5
	Sand, fine, angular to subrounded	7.5	8
	Sand, yellowish-gray, silty	14	22
	Clay, dark-greenish-gray, silty	19	41
	Till, olive-gray, sandy	16	57
	Sand, angular to subangular, poorly sorted	2	59
	Clay, olive-gray, silty to sandy	6	65
	Sand, subangular to rounded, well-sorted; becomes gravelly toward bottom	31	96
	Gravel, sandy to clayey	8	104
	Clay, olive-gray, calcareous	11	115
Fox Hills Formation:			
	Clay, greenish-gray, silty to sandy	11	126

157-72-10AAD
Test hole 3
(Log from Froelich, 1965, p. 53)

Geologic source	Material	Thickness (feet)	Depth (feet)
Outwash:			
	Topsoil, very fine sandy loam, black	1	1
	Sand, fine to medium, well-sorted, rusty	3	4
	Clay, silty to sandy, yellowish gray to dusky yellow, soft, slightly cohesive, oxidized	11	15

157-72-10AAD, Continued
Test hole 3

Geologic source	Material	Thickness (feet)	Depth (feet)
Lacustrine deposits:			
	Clay and silt, olive gray, soft, cohesive, sticky, laminated	16	31
Till:			
	Clay, silty to sandy with pebbles and gravel lenses, olive gray, moderately soft, cohesive	11	42
Lacustrine deposits:			
	Silt, clayey, olive gray, soft, cohesive	13	55
Outwash:			
	Gravel, fine to coarse, poorly sorted, subrounded; rough drilling	4	59
Fox Hills Formation:			
	Sandstone, fine to medium, dark greenish gray, soft, friable, noncalcareous	25	84

157-72-17BCC
Test hole 7
(Log from Froelich, 1965, p. 53)

Ice-contact deposits:			
	Topsoil, sandy loam, black	1	1
	Sand, coarse and very coarse with fine gravel, moderately sorted, subrounded, oxidized	15	16
	Sand, medium and coarse, olive gray, well-sorted, subrounded	25	41
Lacustrine deposits:			
	Clay, silty, olive gray, soft, cohesive, plastic	9	50
	Silt, olive gray, slightly hard, cohesive, slightly plastic	19	69
Fox Hills Formation:			
	Shale, light olive gray, upper 8 feet very sandy, moderately hard, slightly calcareous	15	84

157-72-18BBB
Test hole 4
(Log from Froelich, 1965, p. 54)

Outwash:			
	Topsoil, silty loam, black	1	1
	Clay, silty to sandy, yellowish gray to dusky yellow, soft, oxidized	8	9
Ice-contact deposits:			
	Clay, very sandy with occasional pebbles, olive gray, soft, till	8	17
	Gravel, fine and medium with medium to coarse sand, moderately sorted, subrounded, clean	10	27
	Gravel, fine and medium, sandy to clayey, very poorly sorted, dirty	13	40

157-72-18BBB, Continued
Test hole 4

Geologic source	Material	Thickness (feet)	Depth (feet)
Till:			
	Clay, silty to sandy with pebbles, moderately soft, cohesive, moderately plastic; gravelly in spots	11	51
	Sand, medium, well-sorted, clean	3	54
Fox Hills Formation:			
	Sandstone, dark greenish gray, fine to medium, soft, moderately friable	11	65
	Shale, sandy (very fine), light olive gray, slightly hard, slightly calcareous; contains zones of dark green, highly glauconitic sand	19	84

157-72-18BCC
Test hole 12
(Log from Froelich, 1965, p. 54)

Geologic source	Material	Thickness (feet)	Depth (feet)
Outwash:			
	Topsoil, clay loam, black	1	1
	Clay, silty to very gravelly, yellowish gray to dusky yellow, unassorted to very poorly sorted, soft, noncohesive	12	13
	Gravel, fine to medium with coarse sand, moderately sorted, subrounded; takes water	26	39
Lacustrine deposits:			
	Silt, clayey, olive gray, moderately soft, cohesive, slightly plastic	19	58
Fox Hills Formation:			
	Sandstone, clayey, dark greenish gray, moderately soft, moderately friable	15½	73½

157-72-18BDD
Test hole 14
(Log from Froelich, 1965, p. 55)

Geologic source	Material	Thickness (feet)	Depth (feet)
Ice-contact deposits:			
	Topsoil, sandy loam, black	1	1
	Sand, fine to coarse, clayey in spots, moderately sorted, subrounded	16	17
	Silt, olive gray, soft, moderately cohesive; contains occasional gravel stringers	15	32
	Sand, medium to coarse, well-sorted, subrounded	5	37
	Clay, silty, olive gray, moderately soft, slightly crumbly	5	42
Fox Hills Formation:			
	Sandstone, clayey, dark greenish gray, soft, slightly friable	7	49
	Shale, clayey, light olive gray, soft, sticky	14	63

157-72-18CBC
Test hole 13
(Log from Froelich, 1965, p. 55)

Geologic source	Material	Thickness (feet)	Depth (feet)
Outwash:			
	Topsoil, clay loam, black--------------------	1	1
	Clay, silty and sandy, dusky yellow, sorted, soft, noncohesive, oxidized----------------	14	15
	Silt, clayey with gravel stringers and some sand, very gravelly in spots, olive gray, soft, moderately cohesive------------------	17	32
	Sand, medium, olive gray, well-sorted, subrounded--------------------------------	4	36
Lacustrine deposits:			
	Silt with layers of fine sand, olive gray, soft, slightly cohesive--------------------	16	52
	Silt, clayey, olive gray, soft, moderately cohesive, slightly plastic-----------------	11	63
	Clay, silty, olive gray, soft, cohesive, plastic, slightly sticky-------------------	7	70
Fox Hills Formation:			
	Shale, light olive gray to olive gray, moderately soft to slightly hard; tight drilling-----------------------------------	14	84

157-72-19AAA
Test hole 8
(Log from Froelich, 1965, p. 56)

Geologic source	Material	Thickness (feet)	Depth (feet)
Outwash:			
	Topsoil, silty loam, black-------------------	1	1
	Clay, silty, dusky yellow, soft--------------	8	9
	Sand, medium to coarse with fine gravel, moderately well-sorted, subrounded, clean--	11	20
Lacustrine deposits:			
	Clay, silty, olive gray, soft, cohesive------	11	31
	Sand, fine and medium, gray, well-sorted, subrounded-------------------------------	5	36
	Silt, clayey, olive gray, soft; contains fine sand layers--------------------------	18	54
	Sand, fine and medium, silty, olive gray, loose-----------------------------------	9	63
	Silt, clayey to sandy, olive gray, soft, moderately cohesive-----------------------	6	69
Outwash:			
	Gravel, fine to medium, well-sorted---------	4	73
Fox Hills Formation:			
	Shale, sandy, light olive gray, moderately hard; contains layers of noncalcareous, friable, moderately soft, dark greenish gray sandstone----------------------------	21½	94½

157-72-20CCC
Test hole 9
(Log from Froelich, 1965, p. 56 and 57)

Geologic source	Material	Thickness (feet)	Depth (feet)
Till:			
	Topsoil, very fine sandy loam, black---------	1	1
	Clay, silty to sandy with pebbles, dusky yellow, soft, slightly cohesive; contains fine sand stringers-----------------------	19	20

157-72-20CCC, Continued
Test hole 9

Geologic source	Material	Thickness (feet)	Depth (feet)
Lacustrine deposits:			
	Silt, clayey, dusky yellow, soft, cohesive, slightly plastic	9	29
	Sand, very fine to fine, silty, olive gray, slightly cohesive	11	40
	Silt, clayey, olive gray, moderately soft, crumbly to slightly cohesive, highly calcareous	25	65
	Silt, sandy, olive gray, soft, very slightly to slightly cohesive, laminated; some loose fine sand stringers	39	104
Outwash:			
	Gravel, fine to coarse, subrounded, moderately sorted; rough drilling	6	110
Fox Hills Formation:			
	Sandstone, dark greenish gray, clayey, moderately soft, slightly friable and Shale, light olive gray, sandy, moderately hard	16	126

157-72-21CCC
Test hole 1
(Log from Froelich, 1965, p. 57)

Geologic source	Material	Thickness (feet)	Depth (feet)
Till:			
	Topsoil, very fine sandy loam, black	1	1
	Clay, silty, yellowish gray, soft, slightly cohesive; wave-washed till	4	5
	Clay, silty with pebbles, dusky yellow, soft, cohesive, moderately plastic, oxidized, numerous rusty streaks	9	14
Lacustrine deposits:			
	Sand, medium, brown to gray, well-sorted, subangular to subrounded	7	21
	Clay, sandy, olive gray, soft, moderately cohesive	7	28
	Silt, olive gray, soft, slightly plastic, uniformly sorted	16	44
	Clay, olive gray, soft, cohesive, plastic	12	56
Till:			
	Clay, very sandy with pebbles and fine gravel stringers, olive gray, slightly cohesive, nonplastic	15	71
	Clay, very sandy with lenses of silt and gravel, olive gray, moderately soft, slightly cohesive	11	82
Fox Hills Formation:			
	Sandstone, fine to medium, dark greenish gray, well-sorted, subangular, friable, noncalcareous; quartzose with glauconite, lignite, and mica	35	117
	Shale, silty to sandy, light olive gray to medium gray, soft to slightly hard, slightly brittle, occasionally bentonitic, slightly calcareous	188	305
Pierre Shale:			
	Shale, olive black, moderately hard, brittle, noncalcareous	10	315

157-72-25DDD
Test hole 31
(Log from Froelich, 1965, p. 58)

Geologic source	Material	Thickness (feet)	Depth (feet)
Ice-contact deposits:			
	Topsoil, sandy loam, black-------------------	1	1
	Sand, fine to medium, well-sorted but interbedded with silt and clay lenses-----------	26	27
	Silt, very clayey, grading to sandy, olive gray, soft, slightly cohesive, laminated---	15	42
Till:			
	Clay, silty to sandy with pebbles, boulders, and lenses of sand and gravel, olive gray, cohesive to loose--------------------------	20	62
Outwash:			
	Sand, fine to medium, light olive gray, moderately well-sorted, subangular to subrounded---------------------------------	12	74
	Sand, fine to medium, light olive gray, contains lenses of slightly cohesive clayey sand-------------------------------	19	93
	Sand, fine to medium, clayey, olive gray, well-sorted, subrounded--------------------	17	110
Till:			
	Clay, silty with sand grains and pebbles, olive gray, moderately soft, cohesive------	7	117
Fox Hills Formation:			
	Sandstone, fine to medium, clayey, dark greenish gray, moderately soft, well-sorted, subangular to subrounded and Shale, silty, light olive gray, slightly hard, cohesive; tight drilling-------------------	19½	136½

157-72-26BBB
Test hole 2
(Log from Froelich, 1965, p. 58 and 59)

Geologic source	Material	Thickness (feet)	Depth (feet)
Lacustrine deposits:			
	Topsoil, silty loam, black-------------------	1	1
	Clay, dusky yellow, soft, tight, oxidized----	5	6
	Clay, silty, moderate olive brown, soft, cohesive, moderately plastic, oxidized-----	16	22
Till:			
	Clay, silty to sandy with coarse sand grains and pebbles, olive gray, moderately soft, cohesive, slightly plastic; contains numerous lenses of poorly sorted sand and gravel-------------------------------------	25	47
Fox Hills Formation:			
	Sandstone, fine to medium, dark greenish gray, moderately soft, friable, noncalcareous----	28	75
	Shale, silty, light olive gray, moderately soft, cohesive; tight drilling-------------	9	84

157-72-30BBB1
Test hole 15
(Log from Froelich, 1965, p. 59 and 60)

Geologic source	Material	Thickness (feet)	Depth (feet)
Lacustrine deposits:			
	Topsoil, silty loam, black	2	2
	Silt, dusky yellow, soft, noncohesive, oxidized	8	10
	Silt, clayey, olive gray, moderately soft, cohesive, slightly plastic; contains occasional gravel lenses	20	30
	Sand, fine to medium, silty, olive gray, moderately sorted, noncohesive	7	37
	Silt, olive gray, moderately soft, moderately cohesive	4	41
Outwash:			
	Sand, fine to medium, olive gray, well-sorted in layers, subrounded	15	56
	Silt, olive gray, moderately soft, moderately cohesive	4	60
	Sand, fine to medium, olive gray, well-sorted, subrounded	3	63
	Gravel, fine to medium with very coarse sand, poorly sorted, generally subrounded	11	74
Lacustrine deposits:			
	Silt, olive gray, moderately soft, slightly crumbly	2	76
	Silt, clayey, olive gray, moderately soft, cohesive, slightly plastic	9	85
Fox Hills Formation:			
	Shale, silty, moderately soft to moderately hard, light olive gray to olive gray; tight drilling	20	105

157-72-31ABB
Test hole 10
(Log from Froelich, 1965, p. 60)

Geologic source	Material	Thickness (feet)	Depth (feet)
Lake Souris deposits:			
	Topsoil, silty clay loam, black	3	3
	Silt, clayey, yellowish gray to dusky yellow, soft, noncohesive, oxidized	6	9
	Silt, clayey, olive gray, soft, cohesive, slightly plastic	24	33
Outwash:			
	Sand, fine to very coarse, silty to gravelly, poorly sorted, interbedded, subangular to subrounded	50	83
Fox Hills Formation:			
	Sandstone, clayey, dark greenish gray, medium-grained, moderately soft to hard	22	105

157-72-34CBC
Test hole 16
(Log from Froelich, 1965, p. 60)

Geologic source	Material	Thickness (feet)	Depth (feet)
Outwash:			
	Topsoil, gravelly loam, black	1	1
	Sand, fine to very coarse with fine gravel, moderately sorted, subangular to subrounded, highly oxidized	20	21
	Sand, fine to very coarse, moderately well-sorted, subrounded	7	28
	Silt, clayey, olive gray, soft, moderately cohesive	4	32
	Sand, medium to very coarse, olive gray, well-sorted, generally subrounded; taking water	37	69
	Silt, clayey, olive gray, soft, moderately cohesive	4	73
	Sand, fine to very coarse with fine gravel, moderately well-sorted, subrounded	10	83
Fox Hills Formation:			
	Shale, silty, olive gray, soft, crumbly, micaceous, moderately calcareous	43	126

157-72-36AAD
Test hole 35
(Log from Froelich, 1965, p. 61)

Geologic source	Material	Thickness (feet)	Depth (feet)
Ice-contact deposits:			
	Topsoil, silty loam, black	1	1
	Silt, clayey to sandy, dusky yellow, soft, slightly cohesive, oxidized	15	16
	Clay, silty, sandy, and gravelly, dark greenish gray, moderately soft, slightly to moderately cohesive (till)	6	22
Outwash:			
	Sand, medium to coarse, well-sorted, subangular to subrounded	13	35
	Gravel, fine and medium, sandy, moderately sorted, subrounded	5	40
	Sand, medium, well-sorted, subrounded; interbedded but fairly uniform	52	92
	Sand, medium to very coarse with interbedded lenses of clay, gravel and boulders, very poorly sorted to well-sorted, subangular to rounded	24	116
Fox Hills Formation:			
	Siltstone, sandy, lignitic, dark greenish gray, slightly hard, brittle, noncalcareous	3	119
	Shale, sandy, dark greenish gray, moderately soft to slightly hard, cohesive, noncalcareous	17½	136½

157-72-36ACA
Test hole 39
(Log from Froelich, 1965, p. 61 and 62)

Geologic source	Material	Thickness (feet)	Depth (feet)
Ice-contact deposits:			
	Topsoil, silty loam, black	1	1
	Silt, clay with sand stringers from 20 to 30 feet, dusky yellow, soft, poorly sorted, slightly cohesive, oxidized	33	34
	Silt, interbedded with silty clay, very fine sand, and detrital shale and lignite, olive gray, moderately soft, sorted in layers, slightly to moderately cohesive	50	84
Till:			
	Clay, silty to sandy, olive gray, moderately soft, cohesive; contains occasional shale, limestone, and granite pebbles and boulders	45	129
Fox Hills Formation:			
	Shale, sandy, dark greenish gray, slightly hard, moderately cohesive, micaceous, noncalcareous	18	147

157-72-36ADA
Test hole 34
(Log from Froelich, 1965, p. 62)

Geologic source	Material	Thickness (feet)	Depth (feet)
Ice-contact deposits:			
	Topsoil, silty loam, black	1	1
	Clay, silty to sandy, dusky yellow to light olive gray, soft, slightly cohesive, oxidized	5	6
	Clay, silty, moderate olive brown to olive gray, soft, slightly to moderately cohesive, calcareous, partially oxidized	13	19
Till:			
	Clay, silty to sandy with pebbles, olive gray to dark greenish gray, moderately soft, moderately cohesive; contains lenses of fine to medium-grained sand	16	35
Outwash:			
	Sand, medium, well-sorted, subangular to subrounded	9	44
	Gravel, fine to coarse, sandy, moderately sorted, subangular to subrounded	22	66
	Gravel, fine and medium with coarse and very coarse sand, moderately well-sorted, generally subrounded	27	93
Till:			
	Clay, sandy with pebbles, olive gray to dark greenish gray, soft, cohesive, slightly plastic, slightly calcareous	8	101
Outwash:			
	Gravel, very coarse; lost circulation, abandoned hole	4	105

157-72-36ADB
Test hole 38
(Log from Froelich, 1965, p. 63)

Geologic source	Material	Thickness (feet)	Depth (feet)
Ice-contact deposits:			
	Topsoil, silty loam, black-------------------	2	2
	Gravel, fine, sandy, poorly sorted, highly oxidized-------------------------------------	3	5
	Silt, clayey to gravelly with boulders, light olive gray to olive gray with iron stains, soft to moderately soft, slightly to moderately cohesive, very poorly sorted, partially oxidized-------------------------	21	26
	Gravel, clayey to sandy with occasional cobbles and boulders, appears to be unassorted but may be lenticular, "dirty"----	15	41
Outwash:			
	Sand, coarse but lensed with silty clay, olive-gray, moderately sorted, angular to subrounded---------------------------------	7	48
	Gravel, fine and medium with coarse and very coarse sand, poorly sorted, angular to subangular---------------------------------	8	56
	Sand, medium to coarse, well-sorted, subangular to rounded----------------------	12	68
	Gravel, fine to coarse, sandy, poorly sorted, subangular to subrounded-------------------	9	77
	Silt, sandy with pebbles and gravel stringers, light olive gray, slightly hard, moderately compacted, cohesive (till)---------	7	84
	Sand, medium to coarse, well-sorted, subangular to subrounded----------------------	29	113
	Sand, fine to medium, clayey, light olive gray, moderately soft, moderately cohesive-	11	124
	Clay, silty to sandy with pebbles, light olive gray, moderately soft, cohesive; contains lenses of silt--------------------	6	130
Fox Hills Formation:			
	Sandstone, fine to medium, dark greenish gray, moderately soft, cohesive, lignitic and micaceous-----------------------------	17	147

157-72-36ADD1
(Log from C. A. Simpson & Son)
(Log from Froelich, 1965, p. 64)

Ice-contact deposits:			
	Topsoil---------------------------------------	1	1
	Clay, yellow----------------------------------	2	3
	Sand, clayey----------------------------------	2	5
	Sand, yellow----------------------------------	11	16
	Sand, clayey----------------------------------	5	21
	Clay, yellow----------------------------------	17	38
	Clay, gray------------------------------------	3	41
Outwash:			
	Gravel, clayey--------------------------------	4	45
	Gravel, clayey and sandy----------------------	9	54
	Gravel, sandy---------------------------------	7	61
	Gravel, clayey and sandy----------------------	10	71
	Sand, clayey----------------------------------	33	104
	Sand, clean, some gravel----------------------	6	110
	Sand, clayey----------------------------------	1	111
	Sand and gravel-------------------------------	8	119
	Clay, dark greenish gray, smooth--------------	1	120

157-72-36ADD2
(Log from Frederickson's, Inc.)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil, brown	1	1
	Sand, brown	49	50
	Clay, brown	5	55
	Clay, blue	15	70
	Sand, blue	65	135
	Sand, blue	5	140

157-72-36ADD3
Test hole 17
(Log from Froelich, 1965, p. 64 and 65)

Geologic source	Material	Thickness (feet)	Depth (feet)
Ice-contact deposits:			
	Topsoil, silty sand loam, dark brown	1	1
	Silt, clayey to gravelly, dusky yellow, soft, slightly cohesive, oxidized	9	10
	Gravel, fine, sandy, moderately sorted, subangular to subrounded, oxidized, dry	32	42
Outwash:			
	Silt, clayey with very fine sand, moderate olive brown, soft, slightly cohesive, oxidized	10	52
	Silt, clayey, olive gray, soft, moderately cohesive, slightly plastic	12	64
	Sand, fine to medium, olive gray, well-sorted, subrounded	3	67
	Silt, clayey, olive gray, soft, moderately cohesive, slightly plastic	9	76
	Gravel, fine and medium, sandy, moderately well-sorted, subrounded; drills easy, takes water	43	119
Till:			
	Clay, silty with sand grains, pebbles, and lenses of gravel, olive gray, cohesive, moderately plastic, tightly compacted	11	130
Fox Hills Formation:			
	Sandstone, fine to medium, clayey, dark greenish gray, moderately cohesive; contains lenses of olive gray shale and tan limestone	17	147

157-72-36BBB
Test hole 30
(Log from Froelich, 1965, p. 65)

Geologic source	Material	Thickness (feet)	Depth (feet)
Lacustrine deposits:			
	Topsoil, silty loam, black	1	1
	Clay, silty, olive gray, soft, cohesive, moderately plastic, uniformly sorted	5	6
Till:			
	Clay, silty to sandy with pebbles, olive gray, moderately soft, cohesive	8	14
Outwash:			
	Sand, medium to coarse, gravelly, moderately sorted, subangular to subrounded	10	24
	Silt, sandy, interbedded with silty sand, olive gray, soft, slightly to moderately cohesive	38	62

157-72-36BBB, Continued
Test hole 30

Geologic source	Material	Thickness (feet)	Depth (feet)
Till:			
	Silt, clayey to very sandy with pebbles and lenses of gravel, olive gray, moderately soft, moderately cohesive------------------	24	86
Fox Hills Formation:			
	Shale, silty to sandy, light olive gray to olive gray, moderately soft, moderately cohesive; drills smooth and easy----------	70	156
	Shale, silty and sandy, light gray to olive black, moderately soft to slightly hard, slightly to moderately cohesive; olive black zones very rich in carbonaceous material (decayed vegetation)-------------	44	200

157-72-36CBB
Test hole 29
(Log from Froelich, 1965, p. 66)

Lacustrine deposits:			
	Topsoil, silty clay loam, black--------------	2	2
	Clay, silty, yellowish gray to dusky yellow, soft, cohesive, sticky, oxidized-----------	16	18
	Clay, silty, olive gray, soft, smooth, cohesive, plastic, sticky------------------	16	34
Outwash:			
	Sand, fine, clayey, greenish gray, soft, noncohesive--------------------------------	11	45
	Silt, clayey, olive gray, moderately soft, slightly crumbly--------------------------	4	49
	Sand, fine, clayey, olive gray, soft, slightly cohesive; drills fast and easy----	11	60
	Sand, fine to coarse, light gray, moderately well-sorted, subangular to subrounded, noncohesive--------------------------------	21	81
	Sand, coarse, olive gray, well-sorted, subangular to subrounded-------------------	4	85
	Sand, fine, silty, olive gray, well-sorted, subrounded---------------------------------	9	94
Fox Hills Formation:			
	Sandstone, fine, clayey, dark greenish gray, slightly hard, cohesive--------------------	11	105

157-72-36DAD
Test hole 33
(Log from Froelich, 1965, p. 66 and 67)

Ice-contact deposits:			
	Topsoil, sandy loam, black-------------------	1	1
	Sand, medium to coarse, well sorted----------	2	3
	Clau, sandy, dusky yellow, soft, slightly cohesive, poorly sorted, oxidized----------	9	12
	Silt, clayey to sandy with pebbles, dusky yellow to moderate olive brown, soft, slightly cohesive, poorly sorted, oxidized-	11	23
	Silt, interbedded with clayey and sandy lenses, pebbly, greenish gray, soft, slightly to moderately cohesive------------	11	34

157-72-36DAD, Continued
Test hole 33

Geologic source	Material	Thickness (feet)	Depth (feet)
Outwash:			
	Sand, medium to coarse, dark greenish gray, well-sorted, subangular to rounded, lignitic	14	48
	Sand, fine to medium, greenish gray, well-sorted, generally subrounded	16	64
	Sand, very fine and fine, silty, greenish gray, slightly cohesive	24	88
	Sand, fine, greenish gray, well-sorted, subrounded	13	101
Till:			
	Silt, sandy with pebbles, greenish gray to olive gray, moderately soft, cohesive	9	110
	Gravel, fine and medium, sandy, moderately sorted, subrounded	5	115
Fox Hills Formation:			
	Sandstone, fine, clayey, dark greenish gray, slightly hard, cohesive, micaceous	21½	136½

157-73-1DDC
NDGS auger hole BP67-7

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Sand, silty, oxidized	7	7
	Till, light-olive-gray, sandy to gravelly	15	22
	Gravel, undifferentiated	3	25
	Sand, undifferentiated	9	34

157-73-2BAA
Test hole 6
(Log from Froelich, 1965, p. 67 and 68)

Geologic source	Material	Thickness (feet)	Depth (feet)
Lake Souris deposits:			
	Topsoil, clay loam, black	2	2
	Clay, silty, yellowish gray, soft, oxidized	8	10
	Clay, silty, olive gray, soft, cohesive, plastic, sticky, laminated	52	62
	Silt, clayey with very fine sand, olive gray, soft, cohesive, plastic, laminated	38	100
Outwash:			
	Gravel, fine to medium with medium to very coarse sand, moderately sorted, subangular to subrounded	4	104
	Silt, sandy, very fine to fine, olive gray, soft, cohesive	9	113
	Gravel, fine to medium with medium to very coarse sand, moderately sorted, subangular to subrounded	11	124
Till:			
	Clay, silty to sandy with pebbles and cobbles, olive gray, moderately soft, cohesive, tightly compacted	7	131
Fox Hills Formation:			
	Sandstone, fine to medium, clayey, dark greenish gray, moderately soft, moderately cohesive	3	134
	Shale, silty, light olive gray, slightly hard, cohesive; contains greenish gray sandstone strata	34	168

157-73-6AAB
NDSWC 5526

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty, sandy---------	1	1
	Clay, moderate-yellowish-brown, very silty, oxidized------------------------------------	11	12
	Clay, olive-gray, very silty-----------------	30	42
	Till, olive-gry to medium-dark-gray, silty---	48	90
	Sand, fine to coarse, subangular to rounded, gravelly------------------------------------	2	92
	Till, olive-gray, silty----------------------	10	102
Fox Hills Formation:			
	Sandstone, dark-greenish- to medium-bluish-gray, very fine to fine-grained, micaceous; cemented with calcium carbonate at 108 to 110 ft------------------------------------	18	120

157-73-12CCC
Test hole 11
(Log from Froelich, 1965, p. 68)

Geologic source	Material	Thickness (feet)	Depth (feet)
Ice-contact deposits:			
	Topsoil, sandy loam, dark brown--------------	2	2
	Sand, medium to very coarse, moderately sorted, subangular to subrounded, oxidized-	12	14
	Sand, clayey, dusky yellow, soft, slightly cohesive------------------------------------	4	18
	Sand, fine to coarse, moderate olive brown to olive gray, moderately sorted, subrounded----------------------------------	12	30
	Sand, fine to medium, olive gray, well-sorted, subrounded; clayey in spots--------	32	62
Lacustrine deposits:			
	Silt, clayey, olive gray, soft to moderately soft, cohesive, slightly to moderately plastic, highly calcareous-----------------	27	89
	Clay, olive gray, soft, cohesive, plastic----	7	96
Fox Hills Formation:			
	Sandstone, fine to medium, clayey, dark greenish gray, moderately soft with light greenish gray indurated layers-------------	8	104
	Shale, silty, light olive gray to olive gray, moderately soft to slightly hard; contains soft sandstone strata-------------	22	126

157-73-14BBC
Test hole 5
(Log from Froelich, 1965, p. 69)

Geologic source	Material	Thickness (feet)	Depth (feet)
Ice-contact deposits:			
	Gravel and small cobbles, sandy, poorly sorted, subrounded, oxidized---------------	10	10
	Sand, medium to coarse, gravelly, moderately sorted, subrounded, oxidized---------------	6	16
Lacustrine deposits:			
	Clay, silty, olive gray, cohesive, slightly to moderately plastic----------------------	14	30
	Silt, clayey and sandy, olive gray, soft, slightly to moderately cohesive, inter-bedded and laminated-----------------------	30	60

157-73-14BBC, Continued
Test hole 5

Geologic source	Material	Thickness (feet)	Depth (feet)
Lacustrine deposits, Continued:			
	Clay, silty, olive gray, soft, cohesive, slightly plastic	8	68
	Clay, olive gray, soft, cohesive, plastic	5	73
	Sand, very fine to fine, silty, olive gray, soft, slightly cohesive	6	79
Fox Hills Formation:			
	Sandstone, dark greenish gray, fine-grained, moderately soft, moderately friable, noncalcareous	15	94

157-73-30DDD
NDSWC 5525

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty, sandy	1	1
	Clay, moderate- to dark-yellowish-brown, very silty, oxidized	29	30
	Gravel, fine to coarse, angular to subrounded, sandy, poorly sorted, oxidized	3	33
	Till, olive-gray, very silty, sandy	19	52
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, very fine grained, micaceous; streaks of dark-brown carbonaceous material; interbedded with thin lenses of medium-gray siltstone	48	100

157-74-1BCC
(Log from U.S. Bureau of Reclamation)

Material	Thickness (feet)	Depth (feet)
Topsoil	1	1
Clay - buff, silty, some very fine sand, slightly to moderately plastic, impervious, lacustrine	7	8
Clay - gray and buff to 11 ft., becoming gray at 11 to 25.4 ft., soft, silty, plastic, lake clay, impervious	17.4	25.4
Clay (glacial till) gray, soft, silty, sandy, occasional fine gravels, semipervious to impervious	14.4	39.8
Shale - gray, compact, silty clay shale, occasional lens of very fine sandy shale, moderate induration in zones, impervious	27.2	67
Shale - gray, compact, silty, very fine sandy shale, occasional zone of silty clay shale, impervious	8.5	75.5

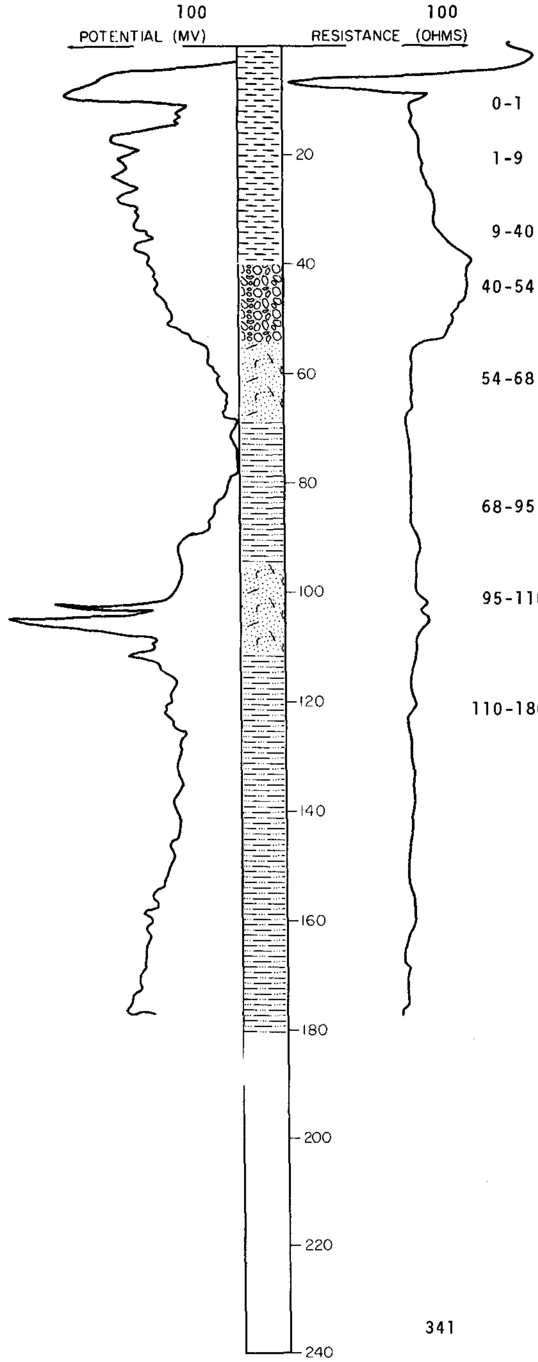
NDSWC 5100

LOCATION: 157-74-4DDD3

DATE DRILLED: August 1968

ELEVATION: 1480
(FT, MSL)

DEPTH: 180
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, brownish-black, silty.
1-9	Clay, moderate-yellowish-brown, very silty, laminated, oxidized.
9-40	Clay, olive-gray, very silty, laminated.
40-54	Till, olive-gray, silty to sandy.

Fox Hills Formation

54-68	Sandstone, medium-bluish-gray, very fine to fine-grained, clayey; interbedded with brownish-gray indurated siliceous siltstone.
68-95	Siltstone, medium-dark-gray, clayey, moderately indurated; carbonaceous streaks.
95-110	Sandstone, dark-greenish-gray, fine-grained, glauconitic; a few thin beds of medium-dark-gray siliceous siltstone.
110-180	Siltstone, medium-dark-gray, siliceous, argillaceous, moderately indurated.

157-74-34DDD
NDSWC 5101

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy---------------	1	1
	Sand, very fine to fine, subangular to subrounded, very clayey, oxidized-------------	17	18
	Clay, olive-gray, very silty-----------------	31	49
	Till, olive-gray, silty to sandy-------------	15	64
	Sand, medium to very coarse, subangular to subrounded, clayey------------------------	3.5	67.5
	Till, olive-gray, silty----------------------	46.5	114
Fox Hills Formation:			
	Sandstone, dark-greenish-gray, very fine to fine-grained, clayey-----------------------	16	130
	Siltstone, medium-dark-gray, clayey, siliceous; carbonaceous streaks------------	50	180

158-69-10DDD
NDSWC 5092

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty---------------	1	1
	Till, moderate-yellowish-brown, silty to sandy, oxidized----------------------------	10	11
	Till, olive-gray, silty to gravelly----------	49	60
	Sand, very fine to medium, angular to rounded, well-sorted; predominantly quartz-	6	66
	Clay, olive-gray, very silty, sandy, laminated----------------------------------	13	79
	Sand, very fine to medium, angular to rounded, well-sorted; predominantly quartz; some lignite and shale---------------------	6	85
	Till, olive-gray, silty----------------------	11	96
Pierre Formation:			
	Shale, grayish-black; occasional light-olive-gray bentonite streaks---------------------	64	160

158-69-23CCC
NDSWC 5518

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, silty, sandy---------	1	1
	Till, moderate-yellowish-brown, very silty, sandy, oxidized----------------------------	11	12
	Till, olive-gray, silty----------------------	6	18
	Sand, very fine to medium, subangular to rounded; about 65 percent quartz, 20 percent shale; remainder is carbonates and detrital lignite; interbedded with thin lenses of silty clay----------------------	17	35
	Till, olive-gray, very silty, sandy----------	12	47
	Sand, very fine to medium, subangular to rounded, silty; about 55 percent quartz, 15 percent carbonates, 15 percent shale; some granitics and detrital lignite--------	6	53
	Till, olive-gray, silty----------------------	4	57
	Sand, very fine to medium, subangular to rounded; about 60 percent quartz, 15 percent carbonates, 15 percent shale; some granitics and detrital lignite; interbedded with thin lenses of silty clay-------------	10	67
	Till, medium-dark-gray, very silty, sandy----	5	72

158-69-23CCC, Continued
NDSWC 5518

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, continued:			
	Gravel, fine to coarse, angular to rounded, sandy; mostly coarbonates and granitics; some shale; interbedded with thin lenses of silty clay	8	80
	Till, olive-gray, silty	37	117
Fox Hills Formation:			
	Siltstone, medium-bluish-gray, moderately clayey, indurated, noncalcareous; some microfossils	23	140

158-69-31DAA2
(Log from Fred Simpson)

	Topsoil	1	1
	Clay, yellow, sandy	16	17
	Clay, blue, gravelly, rocks	118	135
	Sand, coarse, with yellow clay	9	144
	Sand, coarse	6	150

158-69-31DDC1
NDSWC 5519

Glacial drift:			
	Topsoil, grayish-black, silty, sandy	1	1
	Till, moderate-yellowish-brown, silty, oxidized	19	20
	Till, olive-gray, silty	19	39
	Clay, light- to medium-gray, very silty	9	48
	Till, olive-gray, silty	23	71
	Sand, fine to coarse, subangular to rounded, silty	6	77
	Till, olive-gray, silty	50	127
	Till, moderate-yellowish- to greenish-yellowish-brown, silty, oxidized	2	129
	Till, dark- to olive-gray; older till	10	139
Fox Hills Formation(?):			
	Siltstone, dark-greenish-gray, clayey, moderately indurated, noncalcareous; possible glacial shove block	4	143
Pierre Formation:			
	Shale, grayish-black siliceous, moderately indurated, noncalcareous	5	148

158-69-31DCC2
NDSWC 5519A

Glacial drift:			
	Topsoil, grayish-black, silty, sandy	1	1
	Till, moderate-yellowish-brown, silty, oxidized	19	20
	Till, olive-gray, silty	19	39
	Clay, light- to medium-gray, very silty	9	48
	Till, olive-gray, silty	23	71
	Sand, fine to medium; cobbles and boulders	2	73
	Till, olive-gray, silty; some oxidation at 124 ft; cored 120.5 to 128 ft	54	127

158-69-31DCC2, Continued
NDSWC 5519A

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Till, moderate-yellowish- to greenish-yellow-brown, silty, gravelly, oxidized----------	2	129
	Till, dark- to olive-gray, silty, gravelly; older till--------------------------------	9	138
Pierre Formation:			
	Shale, grayish-black to dark-gray, moderately indurated, noncalcareous; fractured at 138-150 ft--------------------------------	42	180

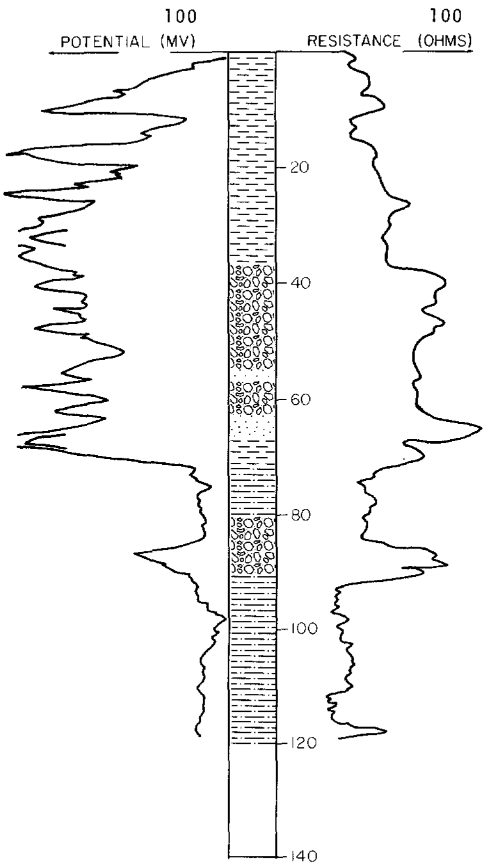
NDSWC 5093

LOCATION: 158-70-11DDD

DATE DRILLED: August 1968

ELEVATION: 1604 (FT, MSL)

DEPTH: 120 (FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, dark-yellowish-brown, silty.
1-28	Clay, moderate-yellowish-brown, very silty, laminated, oxidized.
28-38	Clay, olive-gray, very silty, laminated.
38-57	Till, olive-gray, silty to sandy.
57-59	Sand, fine to coarse; about one-fourth gravel.
59-65	Till, olive-gray, silty to sandy.
65-69	Sand, very fine to coarse, angular to subrounded, moderately well sorted; predominantly quartz.
69-73	Clay, dark-greenish-gray, silty to sandy.
73-80	Shale, grayish-black; occasional bentonite streaks (displaced Pierre Formation).
80-89	Till, medium-dark-gray, silty.
89-90	Boulder, granite.

Pierre Formation

90-120	Shale, grayish-black, siliceous, moderately indurated; some bentonite streaks.

158-70-21AAA1 and 2
NDSWC 5094

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty	1	1
	Till, moderate-yellowish-brown, very silty to sandy, oxidized	14	15
	Till, olive-gray, silty to gravelly	23	38
	Sand, very fine to very coarse, subangular to subrounded, moderately well-sorted; predominantly quartz and shale	14	52
	Till, olive-gray, very silty to sandy	26	78
	Till, olive-gray; interbedded with thin lenses of fine to coarse sand	25	103
	Gravel, medium to coarse, fair sorting; about one-third medium to very coarse sand; all materials angular to subrounded; predominantly siliceous rocks	8	111
Fox Hills Formation:			
	Siltstone, medium-dark-gray, clayey	34	145
	Sandstone, dusky-blue-green, fine- to medium-grained	9	154
Pierre Formation:			
	Shale, grayish-black, siliceous; occasional bentonite streaks	26	180

158-71-16DDD
NDSWC 5095

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty	1	1
	Till, moderate-yellowish-brown, very silty, oxidized	11	12
	Till, olive-gray, very silty	35	47
Fox Hills Formation:			
	Siltstone, brownish-gray, clayey	21	68
	Sandstone, medium-bluish-gray, very fine to fine-grained, slightly clayey	10	78
	Siltstone, medium-dark-gray, slightly siliceous, moderately indurated	62	140

158-72-10AAA
NDSWC 5527

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty, sandy	1	1
	Clay, moderate-yellowish- to dark-yellowish-brown, very silty, sandy, oxidized	94	95
	Clay, olive-gray, very silty, sandy	31	126
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, clayey, silty; carbonaceous streaks; interbedded with very thin layers of medium-gray micaceous siltstone	34	160

158-72-16DDA
NDSWC 5096

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, dark-yellowish-brown, sandy	1	1
	Sand, fine to very coarse, subangular to subrounded, gravelly, moderately well sorted, oxidized; predominantly quartz and carbonates	31	32
	Gravel, fine to coarse, angular to subrounded, oxidized; fair sorting; about one-third coarse to very coarse sand; predominantly carbonates and granitics	4	36
	Till, moderate-yellowish-brown, very silty, oxidized	4	40
	Till, olive-gray, very silty	34	74
	Silt, olive-gray, clayey	9	83
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, very fine to medium-grained, slightly clayey, glauconitic	47	130
	Siltstone, brownish-gray, clayey, moderately indurated	10	140

158-73-17BBB
NDSWC 5098

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty	1	1
	Clay, moderate-yellowish-brown, silty, laminated, oxidized	7	8
	Till, moderate-yellowish-brown, silty to sandy, oxidized	27	35
	Till, olive-gray, silty	4	39
	Sand, medium to very coarse, angular to rounded, moderately well sorted; predominantly quartz and carbonates	32	71
	Till, olive-gray, silty	23	94
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, very fine to fine-grained, slightly clayey	24	118
	Siltstone, brownish-gray, clayey, siliceous; interbedded with thin lenses of dark-greenish-gray glauconitic sandstone	62	180

158-73-23DDD
NDSWC 5097

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty	1	1
	Clay, moderate-yellowish-brown, very silty, laminated, oxidized	14	15
	Clay, olive-gray, very silty	57	72
	Till, olive-gray, silty to gravelly	7	79
Fox Hills Formation:			
	Sandstone, medium-greenish-gray, very fine to medium-grained, slightly clayey	14	93
	Siltstone, medium-dark-gray, siliceous, very clayey, moderately indurated	67	160
	Sandstone, dark-greenish-gray, fine- to medium-grained, glauconitic; interbedded with medium-gray siltstone	20	180

158-73-29CCC
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil	0.5	0.5
	Clay - buff, silty, lime 0.5 to 2 ft., gypsum at 2-5 ft., moderately plastic to plastic, impervious	12.6	13.1
	Clay (glacial till) buff, and gray, stiff, compact, silty, sandy, clay rich, fine gravels throughout, moderately plastic, slightly oxidized, impervious	17.7	30.8
	Clay (glacial till) gray, same as above, unoxidized, impervious	35.2	66
	Sand - gray, fine, silty, lenses of medium to coarse sand, semipervious	2.2	68.2
	Clay (glacial till) gray, compact, silty, sandy, fine gravel throughout, occasional coarse gravel, slightly plastic, impervious	7.3	75.5
Fort Union Formation (Cannonball Member?):			
	Shale - gray, firm, well consolidated silty clay shale, fine gravels from 81 to 82 ft., moderately indurated shale particles in lower portion indicates glacial reworking	9.5	85

158-74-9BBB
NDSWC 5099

Glacial drift:			
	Topsoil, brownish-black, silty	1	1
	Till, moderate-yellowish-brown, silty, oxidized	13	14
	Till, olive-gray, silty	14	28
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, very fine to fine-grained; interbedded with brownish-gray siltstone	28	56
	Siltstone, medium-brownish-gray, clayey; becomes more siliceous with depth; interbedded with thin lenses of dark-greenish-gray sandstone	124	180

158-74-14DAB
(Log from C. A. Simpson & Son)

Topsoil	1	1
Sandy yellow clay	26	27
Sandy blue clay	27	54
Shale	71	125

158-74-16DDD
NDGS auger hole BP67-2

Glacial drift:			
	Silt, grayish-orange, clayey, laminated (lacustrine)	5	5
	Clay, light-olive-gray, silty; slight bedding	6	11
	Clay, light-olive-gray, cohesive	1	12
	Till, olive-gray, sandy	10	22
	Till, olive-gray	5	27
	Gravel, bouldery	2	29
	Undifferentiated	5	34

158-74-21AAB
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil	0.8	0.8
	Silt - tan to brown, very fine sand, silt, pervious	.7	1.5
	Clay - buff, silty, moderately plastic to plastic, oxidized, gypsum at 5 to 9 ft., impervious	7.5	9
	Clay - gray and buff, very plastic lake clay, slightly oxidized to 19.6 ft., impervious	10.6	19.6
	Clay (glacial till) gray, soft, silty, sandy, occasional fine gravels, slightly plastic, impervious	8.2	27.8
	Sand - gray, fine, silty, trace of clay to clayey, semipervious	2.2	30
	Clay (glacial till) gray, same as above, zone of silty, clayey, sand and fine gravel at 37.4 to 38.5 ft., semipervious to impervious	8.5	38.5
Fort Union Formation (Cannonball Member?):			
	Sand - gray, firm, fine, silty, micaceous sand, occasional zones containing hard, well indurated shale particles, evidently glacial worked bedrock, semipervious to impervious	11.5	50

158-74-35AAA
(Log from U.S. Bureau of Reclamation)

Material	Thickness (feet)	Depth (feet)
Topsoil	1	1
Sand - tan, silty, very fine, semipervious to pervious	4	5
Sand - tan, fine, uniform, cohesionless, pervious	3.8	8.8
Clay - gray and buff, silty, plastic, impervious	1.2	10
Clay (glacial till) gray with few iron oxide stains to 18 ft., stiff, silty, sandy, tough, moderately plastic, fine gravel throughout, slightly oxidized to 18 ft., impervious	11.2	21.2
Sand - light-gray, very fine, uniform, cohesionless, pervious	1.3	22.5
Sand - light-gray, fine to fairly well graded in zones, silty, clayey till zones, few gravels, semipervious	8.5	31
Sand - light-gray, fine, occasional medium zones, few gravels at 43 ft., cohesionless zones, silty zones, pervious	14	45
Sand - light-gray, medium to zones of fairly well graded, cohesionless zones, silty clayey zone at 52 ft., few gravels, pervious	10.2	55.2
Clay (glacial till) gray, stiff, compact, clay rich, fine gravels, impervious, moderately plastic	3.8	59
Shale - gray, compact, silty clay shale, occasional silty, very fine sandy zone, impervious	11	70

158-74-35ABB
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil	1.2	1.2
	Sand - brown, very fine, silty, wind blown, semipervious to pervious	4.1	5.3
	Sand - tan to buff, very fine, uniform, silty, zone of plastic clay at 14.5 to 15 ft., becoming clayey, silty fine sand at 15 to 16 ft., semipervious to impervious in lower portion	10.7	16
	Clay - gray, silty, plastic to very plastic lake clay, impervious	39.4	55.4
	Clay (glacial till) gray, soft, plastic clay rich with few fine gravels to 59 ft., becomes sandy at 59 to 64 ft., impervious	8.6	64
	Shale- gray, compact, silty, clay shale, occasional silty, very fine sandy shale zones, impervious	11	75

158-74-35BBB
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil	1	1
	Sand - tan, very fine, uniform, silty, semipervious to pervious	13.2	14.2
	Clay - brown, silty, moderately plastic, impervious	.9	15.1
	Sand - brown, very fine, uniform, silty, oxidized, semipervious to pervious	10.4	25.5
	Sand - gray, very fine, uniform, silty in zones, trace of clay to clayey in zones, cohesionless zones, semipervious to pervious	27.5	53
	Silt - gray, predominantly silt with some very fine sand, semipervious	3	56
	Sand - gray, very fine borderline silt and sand, pervious	2.6	58.6
	Clay - gray, silty, plastic lake clay, streaks light-gray silt, few fine gravels at 74.6 to 77 ft., indicate glacial reworking, impervious	18.4	77
	Shale - gray, silty clay shale, zones of silty very fine sand, pebbles in upper portion indicate glacial reworking, impervious	13	90

TABLE 4.--Chemical analyses of selected water samples

(Analyses are in milligrams per liter, except as otherwise noted)

LOCAL NUMBER	MAJOR AQUIFER 1/	DEPTH OF WELL (FT.)	DATE OF SAMPLE	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DISSOLVED SOLIDS (RESIDUE AT 180°C)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SODIUM ADSORPTION RATIO	PERCENT SODIUM	SPECIFIC CONDUCTANCE (MICROMHOS)	PH	TEMPERATURE (DEG C)
151N062W14AAA	QG51	224	09-11-69	32	6600	117	18	10	3.3	361	0	77	2.1	.1	.0	40	410	366	70	.2	6	665	8.0	6.5
151N062W15BBB	QG51	204	09-11-69	31	580	64	12	80	4.1	386	0	48	11	.1	.0	260	410	208	0	2.4	45	680	7.9	6.5
151N062W19AAA1	QG31	24	07-14-52	--	--	85	30	12	--	195	36	84	21	--	--	--	--	336	--	.3	7	--	--	--
151N062W19ADD1	QG31	38	10-20-67	24	240	80	20	27	4.5	254	0	119	6.1	.7	1.0	490	417	283	75	.7	17	618	7.9	6.5
151N062W19ADD1	QG31	38	04-18-68	27	0	65	17	14	2.7	228	0	65	4.1	5.4	.0	0	290	232	45	.4	11	476	8.0	6.5
151N062W19ADD1	QG31	38	05-01-68	28	50	62	16	13	2.7	230	0	63	3.9	.3	.0	--	283	220	32	.4	11	478	8.0	6.5
151N062W22BBB2	QG31	177	10-17-69	31	400	58	17	91	5.3	366	0	94	4.4	.1	1.0	300	441	213	0	2.7	47	742	7.6	4.2
151N062W26BBA	QG31	13	06-16-52	--	--	57	20	18	--	177	36	42	3.6	--	--	--	--	225	--	.5	15	--	--	--
151N062W27AAA2	QG51	204	09-11-69	31	580	63	18	46	5.1	358	0	25	6.8	.1	1.0	150	321	231	0	1.3	30	610	7.7	6.5
151N062W34DDD	QG51	170	10-19-67	29	300	60	11	46	5.5	329	0	17	4.1	.6	3.0	100	325	195	0	1.4	33	526	7.8	7.0
151N062W36CCC	QG51	203	09-10-69	31	2300	74	20	31	4.8	381	0	10	2.7	.1	1.0	110	319	268	0	.8	20	575	8.1	6.5
151N063W08DDD	LAKE	--	04-30-60	16	20	13	93	2390	130	1560	2000	3000	741	.2	1.5	4500	7490	415	--	--	92	9690	8.6	5.5
151N063W16BB	LAKE	--	06-20-49	38	600	80	92	2810	100	1410	4000	3600	800	.8	3.0	--	8600	578	--	--	91	11200	9.0	22.0
151N063W16BB	LAKE	--	06-25-68	14	70	12	102	2570	110	1430	3000	3350	797	.1	2.2	5200	7780	448	0	5.3	92	9860	9.2	17.0
151N063W16BB	LAKE	--	06-25-68	15	--	11	100	2560	110	1420	3000	3300	795	.1	2.2	5200	8000	438	0	5.3	92	10000	9.2	17.0
151N063W16BC	LAKE	--	06-20-49	13	80	20	41	268	22	608	47	160	50	.2	1.2	--	926	219	--	--	70	1460	8.5	19.0
151N063W16DDA	QG31	25	08-29-68	29	1300	100	23	11	1.2	349	0	84	3.7	.1	.0	50	451	345	59	.3	6	666	8.1	7.0
151N063W17AAB	QG31	17	06-25-68	22	--	97	32	257	32	827	0	153	64	.1	56	900	1130	374	0	5.8	57	1720	8.0	6.0
151N063W17ADA	LAKE	--	04-30-60	20	20	19	41	188	23	624	0	87	34	.3	.5	500	755	215	--	--	62	1170	7.8	5.5
151N063W20CDD11	QG31	135	08-15-51	--	250	57	12	18	--	281	0	.0	1.0	.0	.0	--	--	192	--	.6	17	--	--	--
151N063W20CDD11	QG31	135	08-23-51	--	100	61	11	26	--	295	0	.0	8.0	.0	1.0	--	--	198	--	.8	22	--	--	--
151N063W25AAB	QG31	93	06-25-68	26	--	66	13	12	3.0	288	0	12	2.9	.2	.0	--	263	216	0	.4	11	445	7.9	6.5
151N063W25ACB	QG31	59	06-25-68	25	980	58	12	7.0	2.6	239	0	20	2.0	.1	.0	100	222	194	0	.2	7	396	7.9	--
151N063W25ADB1	QG31	41	06-26-68	25	720	86	12	7.0	2.2	252	0	71	3.7	.2	.0	--	326	264	57	.2	5	512	7.9	--
151N063W25ADB1	QG31	41	07-08-68	24	260	80	17	7.0	1.7	260	0	72	3.3	.1	.0	150	299	268	55	.2	5	522	7.9	6.5
151N063W25ADB1	QG31	41	07-11-68	24	640	80	16	7.0	1.3	258	0	67	2.9	.2	1.0	150	278	266	54	.2	5	512	7.9	6.5
151N063W25ADB2	QG31	49	06-25-68	23	50	61	13	16	2.3	233	0	53	3.5	.3	.0	100	256	206	15	.5	14	457	8.0	--
151N063W25ADB3	QG31	64	06-25-68	25	70	69	16	13	1.5	281	0	39	2.7	.2	.0	150	265	236	6	.4	11	489	8.1	--
151N063W25BBB	QG31	47	10-09-67	28	180	72	11	13	3.1	278	0	15	1.8	.6	1.0	100	269	224	0	.4	11	435	7.9	7.5
151N063W26BCC	QG31	12	05-07-69	25	3300	80	24	23	2.5	389	0	26	.0	.7	1.0	560	380	298	0	.6	14	586	7.9	5.0
151N063W26BCC	QG31	12	10-09-67	29	580	100	21	21	3.2	401	0	41	1.8	.8	.0	150	414	336	7	.5	12	639	8.2	7.5
151N063W26CBB	QG31	16	05-07-69	24	4700	81	39	33	2.9	490	0	12	2.9	.2	1.0	110	455	361	0	.8	16	725	7.8	5.5
151N063W27CBA	QG31	16	05-07-69	29	1400	74	19	13	4.0	320	0	19	1.3	.2	1.0	70	324	263	1	.3	10	519	7.8	5.5
151N063W27DCD	LAKE	--	05-13-69	8.4	740	23	32	553	73	1040	1000	103	214	.1	.0	1300	1660	190	0	17	81	2550	9.0	7.0
151N063W27DCD	LAKE	--	06-24-69	14	380	18	28	577	94	1080	1000	108	221	.3	2.5	1500	1780	160	0	20	82	2730	9.0	15.5
151N063W28ADA	QG31	40	10-09-67	27	200	65	14	5.0	2.7	257	0	9.3	1.9	.7	.0	50	253	220	10	.1	5	399	8.1	6.5
151N063W28ADD	QG31	78	04-06-51	--	8200	54	18	10	--	283	0	.0	1.0	--	--	--	--	209	--	.3	9	--	--	--
151N063W29ABA	QG31	167	- -63	--	10	68	15	5.0	--	287	0	15	1.0	.2	--	--	390	230	--	--	4	2500	7.3	--
151N063W29ABC2	QG31	87	- -63	--	10	68	17	6.0	--	299	0	22	5.0	.3	--	--	417	240	--	--	5	2350	7.2	--
151N063W29ABD1	QG31	112	- -63	--	300	64	19	10	--	311	0	38	3.0	.3	--	--	446	240	--	--	8	2300	7.2	--
151N063W29ABD1	QG31	112	06-25-68	27	70	64	8.4	47	4.7	312	0	30	12	.2	2.5	--	332	194	0	1.5	34	548	8.0	7.0
151N063W29ABD2	QG31	108	- -63	--	10	62	13	40	--	366	0	38	8.0	.3	--	--	742	210	--	--	29	1900	7.3	--
151N063W29BBA	QG31	22	05-22-51	--	640	59	24	1.0	--	254	0	1.0	10	.1	22	--	--	246	--	--	1	--	--	--
151N063W31BBC	QG31	40	07-22-68	24	240	131	35	157	13	531	0	325	54	.3	.0	340	1010	470	35	3.2	41	1490	8.0	7.0
151N063W34BAC	LAKE	--	06-20-49	33	60	16	30	536	50	1010	1000	109	180	.2	2.6	--	1570	164	--	--	84	2480	8.8	20.0
151N063W34BAC	LAKE	--	04-30-60	23	40	8.6	21	638	75	1270	50	124	243	.5	.4	1700	1930	108	--	--	87	2970	8.6	5.5
151N063W34BAC	LAKE	--	06-26-68	13	340	16	32	590	62	1100	1000	105	226	.4	.0	2000	1830	170	0	2.0	84	2730	9.0	16.5
151N063W34BAC	LAKE	--	06-26-68	13	320	17	32	593	62	1110	1000	106	225	.4	.0	2000	1820	175	0	2.0	84	2700	9.0	16.5
151N063W35CCC	QG31	24	08-29-68	23	3400	81	18	10	3.0	302	0	55	1.7	.1	.0	100	363	276	28	.3	7	547	8.1	6.5
151N063W35CCC	QG31	24	05-07-69	23	8700	68	18	10	2.4	284	0	34	.0	.0	.0	--	295	244	12	.3	8	468	7.9	6.0
151N063W35DCC	QG31	38	08-29-68	29	--	63	18	15	2.6	293	0	30	5.1	.2	.0	100	286	233	0	.4	12	444	8.0	7.0
151N063W35DCC	QG31	38	05-07-69	28	1400	59	14	16	2.3	247	0	32	4.2	.0	.0	--	276	203	1	.5	14	435	7.8	6.5
151N063W36CCC	QG31	24	08-29-68	26	760	78	11	2.0	1.2	281	0	15	.8	.2	.0	--	297	239	9	.1	2	446	8.1	6.0
151N064W04CCC	QG11	103	09-18-69	32	80	62	9.6	19	5.4	259	0	23	2.2	.1	.0	40	220	194	0	.6	17	411	8.1	6.5
151N064W10AAA	QG51	66	10-18-67	25	480	94	18	83	7.0	457	0	94	17	.8	1.0	290	557	310	0	2.1	36	876	8.0	7.0
151N064W11DDD	LAKE	--	06-20-49	12	80	33	22	22	11	208	0	60	4.0	.2	1.8	--	282	173	--	--	20	438	7.7	20.0
151N064W11DDD	LAKE	--	05-01-60	16	30	27	21	26	8.3	213	0	37	3.0	.3	3.1	110	268	154	--	--	26	413	7.0	7.0
151N064W13CCB	LAKE	--	05-01-60	17	40	39	52	53	19	447	0	60	9.3	.5	13	200	537	312	--	--	26	793	7.7	7.5
151N064W14DD	LAKE	--	06-20-49	15	80	78	34	52	5.6	524	0	14	1.5	.2	2.7	--	498	335	--	--	25	760	7.9	20.5
151N064W15BB	LAKE	--	05-19-49	12	20	29	52	25	13	297	20	70	6.0	.3	.2	--	407	286	--	--	15	719	8.6	--

LOCAL NUMBER	MAJOR AQUIFER	DEPTH OF WELL (FT.)	DATE OF SAMPLE	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DISS-OLVED SOLIDS (RESI-DUE AT 180 C)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	PERCENT SODIUM	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH	TEMP-ERATURE (DEG C)
151N064W15BB	LAKE	--	06-16-49	13	80	27	55	27	9.6	316	8	72	7.5	.2	1.5	--	384	294	--	--	16	647	8.2	21.5
151N064W15BB	LAKE	--	05-15-52	13	40	28	48	23	15	308	10	54	6.5	.2	1.6	--	351	268	--	--	15	629	8.4	--
151N064W15BB	LAKE	--	06-25-68	6.8	--	30	41	20	13	322	0	23	4.8	.3	2.5	50	306	242	0	.6	14	532	8.0	17.5
151N064W15BB	LAKE	--	06-25-68	6.6	--	29	41	20	13	322	0	25	4.5	.3	.0	100	293	241	0	.6	14	524	7.9	17.5
151N064W16AAA2	LAKE	--	04-30-60	12	10	27	43	21	13	324	0	39	4.6	.4	.4	90	338	246	--	--	15	550	7.8	6.0
151N064W36ADD	LAKE	--	05-01-60	14	20	13	30	2280	170	1350	2000	2790	849	.2	5.6	2200	7180	155	--	--	97	9530	8.8	8.5
151N065W02CDD	QG31	14	10-03-67	29	3600	75	17	19	4.4	306	2	31	3.0	.6	.0	100	351	256	5	.5	14	513	8.3	7.5
151N065W18DAD	QG31	26	05-08-69	26	720	71	23	25	4.4	299	0	58	5.1	.0	19	70	389	271	26	.7	16	601	7.5	7.0
151N065W22BDD	--	--	05-20-65	30	40	77	24	22	5.0	374	0	25	5.8	.3	.2	70	381	292	0	.6	14	600	8.0	--
151N065W22BDD	--	--	05-15-67	29	40	65	26	20	5.4	335	0	32	5.5	.3	.1	70	354	269	0	.5	14	534	8.2	--
151N066W01CCC	QG11	50	07-23-68	24	--	91	29	17	4.7	297	0	124	7.4	.1	.0	150	438	345	101	.4	9	686	7.9	6.5
151N066W21CCC	QG31	30	05-13-69	26	5500	83	18	147	9.9	476	0	170	25	.3	.3	370	770	281	0	3.8	52	1090	7.8	6.5
151N066W21CCC	QG31	30	05-13-69	26	1200	80	23	147	9.9	477	0	175	25	.2	.3	370	704	296	0	3.7	51	1090	7.8	6.5
151N066W23ADD2	QG37	20	05-13-69	24	920	46	13	67	4.3	304	0	64	4.8	.0	3.0	40	378	169	0	2.2	46	591	7.8	5.5
151N066W28CCC	QG41	22	08-29-68	25	1200	88	12	150	10	470	0	179	25	.2	2.5	630	730	270	0	4.0	54	1110	7.9	6.5
151N066W32BBB	QG31	21	10-02-67	25	1400	81	27	50	6.2	276	0	169	8.2	.7	8.7	200	500	314	88	1.2	25	764	7.8	6.5
151N066W32BBB	QG31	21	05-13-69	25	720	114	28	50	5.4	395	0	180	6.5	.0	7.4	40	619	401	77	1.1	21	907	7.9	5.5
151N068W25BAA	QG31	26	07-24-68	23	1100	96	26	58	7.0	347	0	182	11	.2	.2	150	568	346	61	1.4	26	862	8.0	7.5
151N069W01BBB	QG51	103	09-25-69	30	120	236	69	155	15	405	0	780	67	.6	.9	450	1510	875	543	2.3	27	2010	7.9	7.0
151N069W03CCC	QG51	143	09-25-69	28	--	74	2.6	383	7.5	561	0	428	100	.6	1.0	860	1240	195	0	12	80	1930	7.9	6.5
151N069W15AAA	QG51	146	07-25-68	25	--	39	7.9	169	7.9	403	0	143	18	.3	.0	340	598	130	0	6.1	72	870	8.1	7.0
151N071W32ABB	QG56	263	06-04-69	25	26000	61	20	168	8.4	605	0	71	32	.2	.1	260	678	235	0	4.8	60	1090	7.8	7.0
151N072W13AAA	QG51	123	06-03-69	27	12000	180	43	148	13	509	0	515	18	.1	.6	740	1190	626	209	2.6	33	1630	7.7	6.5
151N072W16DDD1	QG51	253	05-14-69	23	1300	72	38	305	9.2	999	0	69	75	.1	1.0	220	1040	335	0	7.3	66	1730	7.8	6.5
151N072W16DDD2	QG31	73	05-14-69	28	1900	82	17	90	9.8	434	0	118	5.1	.0	1.0	440	560	273	0	2.4	41	840	8.1	5.5
151N072W25BBC	QG51	263	06-13-69	26	1400	63	19	172	8.0	611	0	76	26	.2	.3	110	689	236	0	4.9	60	1080	7.8	9.0
151N072W25BCB1	QG51	260	06-12-69	26	1300	64	19	163	7.8	600	0	74	26	.2	.3	480	690	236	0	4.6	59	1090	7.8	9.0
151N072W25BCB2	QG51	267	06-12-69	26	2300	64	19	161	7.7	600	0	71	25	.2	.3	70	679	236	0	4.6	59	1060	7.8	7.5
151N072W25BCB4	QG51	295	08-05-69	28	20	50	15	172	6.6	556	0	64	27	.5	1.0	150	588	188	0	5.5	66	1020	8.0	7.0
151N072W25BCB4	QG51	295	08-07-69	28	100	51	15	166	6.6	564	0	66	26	.5	1.0	110	605	188	0	5.3	65	1030	7.9	7.0
151N072W25BCB4	QG51	295	08-09-69	31	180	58	15	169	6.6	585	0	65	27	.5	1.0	70	668	205	0	5.1	63	1060	7.9	7.0
151N072W25BCB4	QG51	295	08-10-69	28	100	61	12	168	6.6	585	0	63	26	.5	1.0	190	615	200	0	5.2	64	1060	7.9	7.0
151N072W25BCC	QG51	280	06-16-69	24	--	67	26	117	8.7	516	0	79	17	.2	1.0	220	605	273	0	3.1	47	948	7.9	6.5
151N072W25CBB	QG51	289	06-16-69	26	--	62	17	164	7.7	579	0	72	26	.2	1.0	110	644	224	0	4.8	60	1040	7.9	6.5
151N072W26DAD	QG51	263	06- -69	26	1600	83	19	131	9.0	575	0	79	19	.2	.2	110	590	285	0	3.4	49	1010	7.9	9.0
151N072W33BBB1	QG51	263	06-02-69	25	40000	89	21	98	8.9	513	0	81	13	.1	.0	1000	609	310	0	2.4	40	935	7.9	6.0
151N072W33BBB2	QG31	72	06-02-69	32	500	91	12	69	11	376	0	122	1.0	.0	.7	960	511	276	0	1.8	34	793	7.7	7.0
151N072W34AAA	QG51	90	06-03-69	26	--	90	24	53	12	351	0	141	2.3	.2	2.5	70	543	325	37	1.3	25	771	7.8	6.5
151N072W36AAA1	QG51	238	10-31-67	24	2600	65	20	156	8.2	503	0	137	21	.2	4.0	390	677	246	0	4.3	57	1050	8.0	6.0
151N072W36AAA2	QG31	77	10-31-67	25	260	75	15	188	7.7	487	0	251	7.0	.4	2.5	680	794	249	0	5.2	61	1200	8.0	6.5
151N073W17DCC	QG51	150	05-12-69	14	880	71	31	94	10	397	0	185	4.1	.0	1.0	190	608	305	0	2.3	39	935	7.9	6.5
151N073W24AAD	QG31	13	05-13-69	14	1000	125	39	26	9.3	349	0	199	24	.0	9.1	190	595	472	186	.5	10	934	7.7	6.5
151N073W24CCC	QG51	220	05-29-69	24	200	78	27	81	9.3	482	0	81	7.7	.1	1.0	220	450	308	0	2.0	36	839	7.9	6.5
151N073W28CCC	QG51	163	05-28-70	30	680	80	15	139	8.6	558	0	114	7.1	.4	1.0	40	674	262	0	3.7	53	1030	8.1	7.0
151N073W30AAD	QG31	41	05-12-69	19	340	103	55	25	4.6	460	0	102	20	.0	19	--	551	484	107	.5	10	949	7.6	6.5
151N074W20AAA	QG51	266	05-14-69	29	480	78	18	67	11	433	0	66	3.9	.0	2.5	220	469	271	0	1.8	34	761	7.8	6.5
151N074W26AAA	QG51	223	05-28-69	26	620	83	34	107	9.3	495	0	151	21	.1	2.5	300	595	349	0	2.5	39	1040	7.8	6.0
151N074W27BBC	QG51	177	10-27-67	24	3500	51	18	357	9.5	756	0	167	142	.5	.0	1220	1140	200	0	11	78	1800	8.2	7.0
151N074W27BBC	QG51	177	05-24-68	26	2700	78	11	406	8.9	903	0	171	162	.6	3.0	1400	1250	240	0	11	78	2030	8.1	7.0
151N074W30BAB2	K3PC	300	10-04-65	--	2000	--	--	377	--	710	0	256	21	--	.0	--	982	58	0	22	--	1510	7.9	--
152N063W10DAC	QG51	174	07-19-68	26	1100	131	36	128	12	444	0	370	25	.1	6.1	630	1000	477	113	2.5	36	1340	7.8	8.5
152N064W02CBB	QG51	113	09-16-69	31	940	118	22	312	11	567	0	507	70	.1	2.0	900	1310	385	0	6.9	63	1960	8.0	6.5
152N064W07BCA	QG51	120	07-23-68	24	5200	638	157	766	24	444	0	2890	499	.0	3.0	730	5300	2240	1880	7.0	42	6100	7.7	4.5
152N064W08	LAKE	--	05-15-52	13	80	80	515	2440	26	581	22	5550	1230	.8	3.6	--	10400	2320	--	--	69	12500	8.3	14.5
152N064W27BBB	QG51	60	10-23-67	26	240	142	31	105	11	409	0	354	17	.2	.5	150	909	484	149	21	32	1240	8.0	6.5
152N064W35AC	LAKE	--	06-20-49	13	60	112	280	819	55	406	24	2300	380	.4	1.3	--	4360	1430	--	--	54	5410	8.2	20.0
152N064W35AC	LAKE	--	04-30-60	15	30	59	485	1350	150	552	0	3980	619	.2	6.3	2300	6940	2140	--	--	58	8440	7.4	26.0
152N064W35AC	LAKE	--	06-25-68	2.4	70	42	392	1320	130	570	39	3320	553	.0	4.0	1700	6200	1720	1190	14	62	7530	8.7	16.5
152N065W07CCC	QG51	130	07-23-68	25	200	125	31	88	9.3	375	0	261	33	.1	.0	340	768	439	131	1.8	30	1100	7.9	7.0
152N065W12ADB	QG31	65	01-20-50	--	350	173	91	224	--	388	0	768	128	.0	4.3	--	--	806	--	3.4	38	--	--	--

LOCAL NUMBER	MAJOR AQUIFER	DEPTH OF WELL (FT.)	DATE OF SAMPLE	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DISS-OLVED SOLIDS (RESI-DUE AT 180 C)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	PERCENT SODIUM	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH	TEMP-ERATURE (DEG C)
152N065W12ADB	QG31	65	01-19-51	--	1200	204	63	324	--	366	0	922	116	.1	4.3	--	--	769	--	5.1	48	--	--	--
152N065W13CAC	QG11	143	9-18-69	28	220	86	17	26	3.9	307	0	77	3.7	.1	.0	70	361	285	33	.7	16	613	8.0	7.0
152N065W21BBC	QG11	--	02-17-53	--	720	110	34	--	--	300	17	40	10	.1	--	--	--	420	--	--	--	1205	8.6	--
152N065W21BBC	QG11	--	- -62	--	--	52	33	10	--	110	24	155	10	.2	.0	--	--	265	--	--	8	1795	8.3	--
152N065W21BBC	QG11	--	01-28-63	--	--	136	30	16	--	403	--	158	13	.3	--	--	--	465	--	--	7	1205	7.7	--
152N065W21BBC	QG11	--	05-27-63	--	--	134	28	.0	--	281	48	155	8.0	.3	--	--	--	450	--	--	0	1180	8.2	--
152N065W21BBC	QG11	--	10-09-67	28	940	132	20	18	4.7	344	0	143	6.1	.3	.0	200	531	412	130	.4	9	792	8.0	7.0
152N066W21AAD	QG51	145	10-17-67	29	1300	108	63	143	16	534	0	352	38	.1	3.0	240	1010	527	88	2.7	36	1460	8.0	7.5
152N066W22CD	LAKE	--	06-20-49	7.6	40	37	65	101	26	261	14	312	43	.2	2.3	--	739	360	--	--	36	1140	8.4	19.0
152N066W22DCA	LAKE	--	05-03-60	9.5	30	42	149	288	56	440	0	876	108	.3	2.9	570	1860	718	--	--	44	2460	7.3	38.0
152N066W24CAB	QG11	103	09-19-69	30	280	102	23	19	3.7	356	0	78	5.7	.1	.0	--	420	350	58	.4	10	668	8.2	7.0
152N067W04BD	LAKE	--	06-20-49	5.0	20	73	82	144	30	305	0	536	55	.6	3.8	--	1180	519	--	--	36	1600	7.9	18.5
152N067W08AAA	LAKE	--	04-28-57	3.7	10	57	116	218	60	390	0	675	78	.2	1.6	290	1480	620	--	--	41	2020	7.9	11.0
152N067W08AAA	LAKE	--	05-03-60	18	50	42	158	294	77	400	0	963	114	.3	1.0	240	1970	754	--	--	43	2630	6.9	4.5
152N070W26AAA1	QG22	65	- -62	--	--	44	4.0	125	--	122	36	270	10	.3	--	--	--	125	--	--	68	1250	8.8	--
152N070W26AAA1	QG22	65	10-19-67	28	1300	92	34	139	10	509	0	240	11	.1	.0	290	803	369	88	3.1	44	1170	8.0	7.5
152N070W26AAA2	QG22	65	- -	--	--	67	26	157	--	428	--	239	12	--	10	--	--	--	--	--	55	--	7.7	--
152N070W26AAA2	QG22	65	10-19-67	27	3100	102	36	148	10	534	0	272	11	.1	.0	440	870	405	0	3.2	44	1250	8.0	9.0
152N071W10CCC	QG31	49	09-26-67	30	1800	82	19	72	7.3	402	0	95	8.0	.1	.0	240	496	284	0	19	35	761	8.0	6.0
152N071W16ADD1	K3PC	155	08-19-59	--	--	.7	--	19	.2	--	--	--	--	--	--	--	--	--	--	20	95	--	7.8	--
152N071W16ADD2	QG31	20	08-19-59	--	--	2.6	--	1.0	--	--	--	--	--	--	--	--	--	--	--	.1	25	--	7.8	--
152N071W21DDC2	QG31	17	08-19-59	--	--	2.7	--	3.0	.2	--	--	--	--	--	--	--	--	--	--	1.4	48	--	7.5	--
152N071W28AAA	QG31	21	08-19-59	--	--	3.0	--	2.0	.2	--	--	--	--	--	--	--	--	--	--	1.1	36	--	7.4	--
152N072W02CB	LAKE	--	06-26-68	24	160	18	20	300	25	641	41	162	26	.3	3.0	630	945	126	0	12	80	1430	8.9	16.5
152N072W02CB	LAKE	--	06-26-68	24	30	18	20	300	25	640	42	161	27	.3	1.0	630	943	126	0	12	80	1430	8.8	16.5
152N073W14DAD	QG1S	10	06-27-68	46	80	23	6.9	156	4.2	471	0	50	4.3	.3	.5	290	504	86	0	7.3	79	783	8.1	--
152N073W16AAA	LAKE	--	06-27-68	20	120	10	18	1610	74	2110	5000	982	215	.5	2.5	3600	4070	100	0	70	95	6410	9.3	19.0
153N063W30CBC	QG51	143	06-03-70	32	2700	93	29	235	9.1	490	0	371	69	.3	.5	0	1080	350	0	5.5	58	1660	7.9	.8
153N066W01DDD	QG51	103	9-22-69	32	60	75	13	359	11	663	0	395	67	.7	2.5	940	1250	240	0	10	75	1900	7.9	6.5
153N066W02AAB	K3PD	103	11-20-50	--	--	9.0	66	455	--	734	0	491	100	--	--	--	--	294	--	11	77	--	--	--
153N066W08DDD	QG31	22	09-01-46	--	1000	250	97	350	--	560	0	1160	140	--	--	--	--	1020	--	4.8	43	--	--	--
153N066W20BAB	QG51	239	05-04-48	--	400	110	47	400	--	590	0	700	80	.0	6.4	--	--	470	--	8.0	65	--	--	--
153N066W21AAB	QG51	60	08-17-48	--	1900	140	70	430	--	560	0	870	150	.0	22	--	--	640	--	7.4	59	--	--	--
153N066W21AAB	QG51	60	05-10-68	31	2500	130	74	469	16	575	0	925	169	1.7	6.9	680	2020	630	159	8.0	61	2890	7.9	9.0
153N067W02DCA	QG01	72	06-12-47	--	--	25	7.0	750	--	820	--	400	450	.0	--	--	--	90	--	--	95	--	--	--
153N067W02DCB2	QG01	73	09-30-49	--	200	26	12	830	--	770	14	370	610	.0	10	--	--	110	--	--	94	--	--	--
153N067W03DCD	QG01	96	09-01-46	--	43000	140	36	230	--	440	19	460	140	--	--	--	--	500	--	--	50	--	--	--
153N067W13CAA	QG01	18	09-01-46	--	2000	130	35	60	--	410	0	260	40	--	--	--	--	470	--	--	22	--	--	--
153N067W15BBC1	QG01	44	01-03-53	--	1800	90	51	95	--	480	0	210	20	.1	4.3	--	--	436	--	2.0	32	--	--	--
153N067W15BBC1	QG01	44	01-10-64	--	5350	160	74	32	--	403	0	650	30	.4	.0	--	--	705	--	--	9	1645	7.2	--
153N067W15BBC2	QG01	38	09-24-51	--	370	132	62	59	--	412	--	296	50	.2	--	--	--	588	--	--	18	--	8.1	--
153N067W15BDA1	QG01	98	09-24-51	--	400	130	63	59	--	410	0	300	50	.2	--	--	--	580	--	--	18	--	--	--
153N067W15CAB	QG01	50	05-14-52	--	900	280	690	1990	--	600	--	6570	380	.0	--	--	--	3540	--	--	55	--	--	--
153N067W15DAB	K3PD	114	07-12-46	--	9600	73	22	2060	--	440	38	210	2890	--	--	--	--	270	--	--	94	--	--	--
153N067W15DBA1	QG01	22	07-12-46	--	2100	440	220	930	--	520	0	3040	360	--	--	--	--	2000	--	--	50	--	--	--
153N067W15DBB	QG01	40	07-12-46	--	1200	420	170	66	--	230	48	1300	200	--	--	--	--	1750	--	--	8	--	--	--
153N067W15DBD	QG01	60	07-12-46	--	2800	420	97	380	--	350	7	1680	160	--	--	--	--	1450	--	--	36	--	--	--
153N067W15DCC1	QG01	25	07-12-46	--	400	430	170	110	--	320	25	1450	260	--	--	--	--	1780	--	--	12	--	--	--
153N067W16ABB	QG11	50	05-06-52	--	4100	54	26	--	--	250	0	--	8.0	.1	.0	--	--	240	--	--	--	--	--	--
153N067W16ADA	QG11	33	- -62	--	5400	160	74	32	--	403	0	650	30	.4	--	--	--	705	--	--	9	645	7.2	--
153N067W16ADA	QG11	33	11-29-63	--	--	84	26	43	--	354	0	150	16	.3	--	--	--	315	--	--	23	1230	7.6	--
153N067W16ADA	QG11	33	02-28-64	--	360	104	32	59	--	403	0	210	18	.3	11	--	--	390	--	--	25	1100	7.6	--
153N067W16ADA	QG11	33	11-29-65	--	1500	113	49	83	--	487	0	280	16	.2	24	--	--	483	--	--	27	997	7.3	--
153N067W16ADA	QG11	33	10-04-67	26	200	118	45	78	6.3	338	0	333	17	.1	2.0	240	804	479	202	1.6	26	1110	8.0	7.5
153N067W19AAA1	QG11	20	09-01-46	--	2000	180	61	250	--	550	0	710	30	--	--	--	--	700	--	--	44	--	--	--
153N067W21AAA	QG11	50	05-09-52	--	700	95	84	250	--	370	0	680	86	--	2.1	--	--	580	--	--	48	--	--	--
153N067W25CAB	QG01	48	09-01-46	--	1100	114	55	95	--	460	0	310	17	--	--	--	--	510	--	--	29	--	--	--
153N067W35DB	LAKE	--	06-20-49	25	20	45	36	71	15	223	0	194	21	.6	6.6	--	526	261	--	--	36	783	7.4	18.5
153N067W35DB	LAKE	--	4-28-57	22	10	71	56	100	26	293	0	340	29	.2	2.8	250	816	406	--	--	33	1160	7.4	11.5
153N067W35DB	LAKE	--	05-03-60	21	30	37	54	115	29	193	0	375	39	.2	3.5	160	816	315	--	--	42	1150	6.9	4.5

LOCAL NUMBER	MAJOR AQUIFER	DEPTH OF WELL (FT.)	DATE OF SAMPLE	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DISS-OLVED SOLIDS (RESI-DUE AT 180 C)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	PERCENT SODIUM	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH	TEMP-ERATURE (DEG C)
153N067W35DB	LAKE	--	06-25-68	17	--	88	77	150	45	306	0	555	50	.2	4.0	240	1170	535	284	2.8	35	1580	7.8	15.5
153N067W35DB	LAKE		06-25-68	17	--	88	73	150	46	306	0	555	49	.2	4.0	490	1160	521	270	2.9	36	1590	7.9	15.5
153N068W18DDD1	QG51	45	07-29-68	23	580	148	31	52	10	395	0	276	8.7	.1	.0	390	769	499	175	1.0	18	1060	8.0	6.5
153N068W18DDD2	QG51	80	07-29-68	26	520	118	24	226	11	463	0	469	25	.3	.3	730	1130	395	15	4.9	55	1590	8.0	7.0
153N069W04DDD	QG41	78	05-15-69	2.8	660	5.4	3.3	186	13	215	0	257	8.6	.0	.3	300	590	27	0	16	90	929	7.9	7.0
153N071W17DDD1	QG31	38	07-09-69	29	--	79	21	42	6.3	362	0	84	1.9	.0	1.0	150	424	282	0	1.1	24	680	7.9	6.5
153N071W17DDD1	QG31	38	8- 7-69	32	50	58	20	41	5.7	286	0	78	1.8	.1	.0	110	348	226	0	1.2	28	588	8.1	7.0
153N071W17DDD2	QG31	40	06-06-69	28	5800	80	20	45	6.3	362	0	86	1.4	.1	.0	190	430	284	0	1.2	25	688	8.0	7.5
153N071W20CCC	QG31	72	05-15-69	42	1600	16	5.1	171	4.2	460	0	53	3.0	.0	.4	260	524	61	0	10	85	790	8.0	6.5
153N071W34AA	QG31	50	02-08-66	--	260	--	--	--	--	368	0	315	27	--	6.0	--	--	580	279	.8	--	1180	7.5	--
153N072W03DDD	K3PC	62	05-15-69	45	4300	2.4	.7	279	3.2	588	14	101	5.2	.3	.9	670	717	9	0	40	98	1110	8.5	6.5
153N073W14AA	LAKE	--	06-28-68	8.2	5100	9.6	44	1440	68	1870	5000	678	159	.3	.0	3000	4010	205	0	44	91	5480	9.6	16.5
154N067W03ACB	LAKE	--	05-03-60	15	30	51	43	99	24	286	0	235	33	.2	8.7	170	720	302	--	--	39	1030	7.1	6.0
154N067W03CCC	QG51	103	09-23-69	30	920	169	46	212	12	476	0	591	62	.3	1.0	600	1320	610	220	3.7	42	1860	7.7	6.5
154N067W11DDD1	QG31	80	10-24-67	26	240	86	25	16	4.3	300	0	77	7.4	.1	.0	200	386	316	70	.4	10	590	8.2	6.0
154N067W11DDD1	QG31	80	05-09-68	28	220	87	22	23	4.2	317	0	89	8.9	1.1	.0	50	416	306	46	.6	14	651	7.9	6.5
154N067W11DDD1	QG31	80	05-09-68	28	--	82	19	17	3.8	308	0	71	6.4	1.6	.0	150	376	285	32	.4	11	601	7.8	6.5
154N067W15BBB	QG51	153	05-22-70	32	900	119	34	563	13	622	0	906	188	.2	.6	1100	2120	438	0	12	73	3070	7.7	7.0
154N067W26BAA	QG51	143	05-25-70	29	680	128	28	524	12	603	0	822	170	.1	1.0	590	2010	435	0	11	72	2780	7.8	7.0
154N067W36BCC	QG51	200	05-04-48	--	3500	95	29	550	--	600	--	870	110	.0	--	--	--	360	--	--	77	--	--	--
154N068W01AAA	QG51	203	05-21-70	26	3200	103	27	649	13	583	0	762	396	.3	.7	1500	2230	368	0	15	79	3470	7.7	8.0
154N068W01AAA	QG51	203	05-22-70	30	1100	115	28	647	13	624	0	771	396	.3	.5	1600	2310	403	0	14	77	3500	7.8	8.0
154N069W13CCC	QG11	73	9-26-69	27	1100	115	31	33	8.3	329	0	198	3.9	.1	1.0	70	583	415	145	.7	14	870	7.9	6.0
154N069W15BBA	QG11	56	07-30-68	23	1300	224	49	20	18	372	0	487	6.2	.1	.0	200	1060	762	456	.3	5	1320	7.7	6.5
154N070W16BBB	QG31	46	08-14-68	29	80	113	37	125	9.4	471	0	332	8.8	.1	2.0	340	901	436	50	2.6	38	1280	7.9	5.5
154N071W16DDD	K3PC	130	07-01-66	--	840	--	--	1.0	--	549	49	108	5.5	--	4.0	--	--	21	0	28	--	1170	8.6	--
154N071W20DDD	K3PC	113	05-13-69	4.7	500	2.4	.5	237	3.6	486	44	54	7.6	.5	.0	630	609	8	0	36	98	988	9.0	6.5
154N071W27CCD	LAKE	--	06-17-49	22	20	4.0	5.0	8220	65	2250	3300	9730	591	--	3.8	--	23500	31	--	--	99	25600	9.8	13.5
154N071W27CCD	LAKE	--	08-02-50	27	20	2.0	15	4340	74	1500	2300	5060	347	--	.4	--	12400	67	--	--	98	14400	9.7	--
154N071W27CCD	LAKE	--	05-15-52	11	100	2.9	9.5	8690	--	3600	3300	--	668	--	5.8	--	24800	46	--	--	100	27500	9.8	16.0
154N071W27CCD	LAKE	--	05-03-60	.0	450	28	4.4	21700	280	6090	8300	25700	1290	1.8	1.0	9990	61200	88	--	--	97	55000	9.4	9.0
154N072W01BBB	K3PC	70	05-13-69	3.8	380	7.6	4.9	221	8.6	279	16	242	15	.1	.2	410	617	39	0	15	91	1050	8.8	6.5
154N073W12CCC	K3PC	30	05-13-69	28	260	16	9.2	121	3.7	325	0	68	1.9	.1	.5	300	407	78	0	6.0	76	626	8.1	6.0
154N073W19ADA	QG51	39	09-22-67	28	3700	80	75	260	13	870	9	327	15	.5	.2	540	1200	509	0	5.0	52	1800	8.3	6.5
154N073W19ADB	QG51	103	10-13-69	36	1100	65	38	318	23	961	0	208	35	.6	.3	300	1210	320	0	7.7	67	1850	8.1	6.0
154N074W03BCC	QG51	163	05-26-70	31	4200	65	12	39	4.4	337	0	30	3.3	.3	.1	0	348	211	0	1.2	28	558	8.0	7.0
154N074W17CCC	QG01	29	09-22-67	22	3100	50	30	22	2.0	338	0	18	1.9	.1	.0	150	331	250	0	.6	16	524	8.1	6.5
154N074W19AAA	QG01	50	07-16-70	23	1800	88	32	71	4.9	567	0	32	6.3	.2	--	60	532	351	0	1.6	30	879	7.9	7.0
155N067W01DAA	QG51	71	08-29-68	18	5300	46	15	376	1.6	593	0	381	89	.4	3.4	1200	1230	178	0	12	82	1880	7.8	7.0
155N067W11ABD	LAKE	--	05-03-60	1.2	120	68	895	9830	240	482	1000	21600	2210	.2	.6	7700	37300	3850	--	--	85	34800	8.8	6.5
155N067W12ADA	K3PD	300	05-14-69	4.0	1800	6.4	5.6	336	7.1	395	20	298	93	.2	1.0	630	955	39	0	23	94	1540	8.7	6.5
155N067W14BBA	LAKE	--	06-17-49	17	90	41	590	6370	190	464	43	13000	1670	3.4	2.1	--	22200	2530	--	--	84	23900	8.3	17.0
155N067W34BD	LAKE	--	06-17-49	11	20	48	17	27	9.6	222	0	54	18	.6	4.9	--	324	190	--	--	23	508	7.3	17.0
155N069W04AAA	QG51	180	10-24-67	24	100	73	22	470	9.3	476	0	740	107	.2	.0	1400	1690	271	0	12	78	2430	8.0	5.5
155N073W35DDA	QG51	83	05-13-69	3.0	180	14	8.8	45	4.6	178	0	24	2.1	.0	1.1	260	203	71	0	2.3	56	327	8.2	7.0
156N068W07DAA	QG51	59	05-14-69	20	2500	475	424	681	21	619	0	3570	189	.1	16	520	6140	2930	2420	5.5	33	6040	7.6	6.5
156N068W20CCC	QG51	60	04-02-58	--	700	179	111	306	12	471	--	455	54	.2	.4	1000	--	290	--	--	42	1960	7.4	5.5
156N068W27BCC	QG51	155	04-03-58	--	1800	220	116	240	15	561	--	251	49	.0	.7	1000	--	336	--	--	33	1780	8.1	--
156N068W28DAC	K3PD	270	04-03-58	--	8000	179	158	2030	29	460	--	7.0	3000	.0	10	5100	--	337	--	--	80	8460	8.1	6.0
156N068W31ADC2	K3PM	1750	- -	--	--	22	11	1240	--	805	24	1160	1050	1.2	444	--	--	100	--	--	96	--	7.5	--
156N068W31ADC2	K3PM	1750	10- -67	19	1400	44	14	1480	--	867	--	1260	950	3.6	31	--	4290	173	--	--	95	--	--	--
156N068W31ADC2	K3PM	1750	10-05-67	8.4	3400	21	6.2	1500	8.6	830	21	1230	1020	4.0	1.0	4700	4240	78	0	74	97	6460	8.4	19.0
156N068W31BDD	QG51	178	05-14-69	24	4800	110	39	23	5.0	347	0	172	8.1	.0	.1	40	564	436	151	.5	10	851	7.7	7.0
156N068W34CDD2	QG51	185	04-04-58	--	8200	108	166	372	14	155	--	494	284	.0	.4	--	--	274	--	--	45	2280	8.0	5.5
156N069W12CDC	QG41	32	05-14-69	30	300	382	116	43	12	613	0	888	39	.0	1.6	110	1900	1430	927	.5	6	2270	7.2	6.5
156N069W15DDD	QG51	128	08-01-68	14	80	115	35	750	8.9	447	0	1050	482	.2	.0	1300	2670	433	66	16	79	3920	8.2	7.0
156N069W22CCC	QG51	153	9-30-69	31	120	93	24	406	9.7	555	0	657	71	.1	.0	820	1540	330	0	9.7	72	2260	7.9	6.0
156N069W23DAC	QG41	35	04-03-58	--	380	276	158	36	4.0	324	--	144	35	.2	2.2	200	--	434	--	--	6	1020	6.9	--
156N069W24CBA	QG41	65	04-03-58	--	1400	263	178	215	--	440	--	362	111	.3	.5	700	--	441	--	--	25	1850	7.1	6.0
156N069W27BCC	QG51	160	07-15-70	25	420	146	33	356	10	568	0	756	57	.2	1.0	540	1640	502	36	6.9	60	2270	7.8	7.0

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LOCAL NUMBER	MAJOR AQUIFER	DEPTH OF WELL (FT.)	DATE OF SAMPLE	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DISS-OLVED SOLIDS (RESI-DUE AT 180 C)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	PERCENT SODIUM	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH	TEMP-ERATURE (DEG C)
156N069W27CCC	QG51	127	06-30-70	24	3600	106	24	344	9.6	537	0	584	53	.5	--	750	1410	364	0	7.8	67	2000	7.6	6.0
156N069W27DBA	QG51	103	07-15-70	24	1400	128	32	368	10	500	0	757	74	.2	1.0	420	1660	451	41	7.5	63	2280	7.8	7.0
156N069W30AA	K3PC	98	09-20-65	--	800	--	--	349	--	612	0	590	34	--	.0	--	--	405	0	7.5	--	2000	7.7	--
156N069W33AAA	QG51	103	05-26-70	26	3300	95	21	321	9.2	468	0	588	42	.3	.5	410	1340	324	0	7.8	68	1860	7.7	7.0
156N069W33AAA	QG51	103	06-30-70	24	0	126	32	333	9.7	521	0	677	43	.5	--	840	1530	447	20	6.9	61	2150	7.8	--
156N069W34ABA	QG51	123	07-15-70	26	140	185	47	325	12	556	0	878	36	.1	1.0	480	1770	657	201	5.5	51	2370	7.7	7.0
156N069W34ABB	QG51	93	08-08-68	24	480	172	23	359	11	499	0	848	43	.1	.4	1000	1750	523	114	6.8	59	2320	7.8	7.0
156N069W34ABB	QG51	93	08-30-68	28	30	158	34	353	9.1	531	0	825	42	.2	.0	980	1750	535	100	6.6	58	2340	7.9	6.0
156N069W35BBB1	K3PD	210	04-26-58	--	6800	318	187	360	14	426	--	794	54	.1	.9	800	--	505	--	--	33	2740	7.8	--
156N069W35BBB2	QG51	109	07-15-70	25	540	219	59	271	13	560	0	871	28	.1	1.0	810	1760	789	329	4.2	42	2310	7.6	6.0
156N070W02CCC	K3PC	109	05-14-69	2.8	300	14	11	115	7.3	309	2	63	13	.0	2.5	300	380	81	0	5.6	74	632	8.3	6.5
156N070W09AAB	K3PC	55	09-27-67	24	900	25	4.0	483	5.7	702	0	490	59	.4	4.0	1200	1340	79	0	24	92	2130	8.2	6.5
156N071W04BBA	QG31	58	08-06-68	20	140	63	13	5.0	2.0	223	0	33	.5	.2	.0	50	251	210	28	.1	5	393	8.1	7.0
156N071W04BBA	QG31	58	08-13-69	25	50	64	12	4.4	1.9	219	6	21	.5	.1	1.0	70	225	208	29	.1	4	391	8.4	7.0
156N071W04CBD	QG31	2	05-13-21	27	270	57	14	--	--	237	0	14	1.0	--	1.0	--	230	200	--	--	--	--	--	--
156N071W04CBD	QG31	2	07-11-68	21	30	67	12	5.0	2.2	253	0	22	15	.1	1.0	200	226	215	8	.1	5	420	7.8	12.0
156N071W09CCC	LAKE	--	06-17-49	26	20	46	35	39	8.0	296	0	108	2.0	.5	5.1	--	418	259	--	--	24	680	7.6	15.5
156N071W09CCC	LAKE	--	05-10-60	16	10	24	118	169	35	698	0	352	20	.6	.5	530	1170	544	--	--	38	1610	7.6	11.0
156N073W01B	QG51	52	- -	25	9100	94	31	32	--	298	0	145	18	--	.5	--	510	362	--	--	16	--	--	--
156N073W01BBA	QG51	60	09-08-64	20	2300	214	69	68	10	463	0	495	61	.3	.0	--	1220	820	441	1.0	15	1640	7.4	10.0
156N073W01CBC	QG51	46	09-10-64	21	100	57	20	16	5.1	270	0	39	3.4	.4	.0	--	305	226	5	.5	13	505	7.4	12.0
156N073W01CCA	QG51	42	09-08-64	19	80	74	28	17	5.0	260	0	113	5.4	.3	8.0	--	406	300	87	.4	11	658	7.3	17.5
156N073W02DDC2	K3PC	71	07-11-68	33	30	6.0	1.7	172	2.4	410	0	49	6.5	.4	3.0	490	440	22	0	16	94	722	8.2	11.0
156N073W09ADC	K3PC	70	09-09-64	23	630	19	7.8	157	6.8	489	0	29	3.9	.4	1.0	--	490	80	0	7.6	79	797	7.5	9.0
156N073W12CCC	K3PC	77	11-01-67	41	1800	4.5	1.0	346	2.8	723	6	131	27	.7	.0	1400	955	15	0	39	98	1420	8.3	6.5
156N073W31DCC	QG51	60	06-05-64	29	110	54	14	53	5.3	285	7	58	5.0	.2	7.0	--	396	192	0	1.7	37	571	8.4	9.0
156N074W20ADD	QG01	40	05-13-69	13	22000	63	25	9.0	11	327	0	1.4	4.1	.0	11	70	298	259	0	.2	7	584	7.0	7.0
157N069W01BBB	QG51	165	08-08-68	20	980	108	36	442	11	419	0	90	677	.3	1.5	490	1630	418	74	9.4	69	2840	7.9	6.5
157N071W02CCC	QG31	35	08-07-68	22	120	78	17	23	3.9	301	0	62	3.7	.2	.0	150	366	266	19	.6	16	558	8.0	7.0
157N071W22ACB	QG31	16	06-26-68	24	240	49	11	113	9.6	446	0	56	11	.2	.0	340	452	166	0	3.8	58	782	8.1	--
157N071W22ADB	LAKE	--	06-27-68	3.7	--	15	66	81	14	387	46	90	18	.2	.0	150	517	310	0	2.0	35	845	9.1	17.0
157N071W22ADB	LAKE	--	06-27-68	3.5	50	19	68	81	14	371	59	92	18	.4	.0	240	546	327	23	1.9	34	855	9.2	17.0
157N071W26CBC	QG31	21	06-26-68	15	1100	57	29	5.5	4.3	225	0	82	3.8	.1	11	100	288	260	75	.1	4	517	7.8	--
157N071W32ABB	K3PC	120	04-14-65	33	1200	3.6	1.0	540	4.0	988	38	98	158	.9	1.0	2200	1410	13	0	65	98	2220	8.6	--
157N071W32DAA	QG31	100	05-14-65	26	2400	60	22	73	7.8	430	0	58	5.0	.2	.0	500	447	242	0	2.0	39	747	8.2	--
157N071W33B	QG51	120	04-14-65	24	350	22	20	107	6.3	399	0	48	2.5	.2	1.0	--	419	136	0	4.0	62	714	7.7	--
157N072W18BCC	QG11	38	06-01-64	18	1200	332	2030	3780	96	1200	0	15800	224	1.7	.0	1300	25800	9170	8200	--	82	19600	8.0	7.5
157N072W24CCC	K3PC	120	06-26-68	31	760	18	6.1	204	4.6	447	0	132	11	.3	.6	370	603	70	0	11	85	966	8.1	--
157N072W31ABB	QG51	80	05-28-64	22	380	122	32	724	13	474	0	1480	62	.9	30	500	2850	435	47	15	78	3610	8.2	8.5
157N072W31DA	QG51	57	- -	34	1800	152	51	32	--	370	--	301	40	.2	1.3	--	871	604	--	--	11	--	--	--
157N072W31DC	QG51	135	09-29-66	28	80	71	19	33	5.8	333	0	43	4.7	.2	.8	550	363	256	0	.9	21	590	7.8	--
157N072W31DD	QG31	27	- -	27	700	78	31	53	--	310	--	168	14	.6	1.3	--	477	334	--	--	26	--	--	--
157N072W31DDC1	QG51	68	- -62	--	2500	256	90	173	--	473	0	863	36	--	.0	--	--	1010	--	--	27	536	7.3	--
157N072W31DDC2	QG31	70	- -62	--	8300	392	165	500	--	693	0	2000	45	--	.0	--	--	1660	--	--	40	291	7.0	--
157N072W31DDC3	QG31	70	- -62	--	3700	300	87	145	--	512	0	925	34	--	.0	--	--	1110	--	--	22	505	7.1	--
157N072W34CBC	QG51	80	06-02-64	22	480	80	92	820	11	858	0	1500	86	.9	.0	1700	3220	580	0	15	75	3970	8.2	9.0
157N072W36ADD1	QG11	127	06-02-64	21	200	60	17	34	5.2	317	0	34	6.0	.3	9.0	500	357	222	0	1.0	25	560	8.2	9.0
157N072W36ADD1	QG11	127	01-20-65	22	150	34	18	30	5.8	218	0	38	3.0	.2	.0	--	270	157	0	1.0	28	443	7.3	6.5
157N072W36ADD1	QG11	127	07-11-68	23	--	81	15	35	5.1	337	0	70	5.0	.2	.0	100	377	263	0	.9	22	634	7.9	9.0
157N072W36ADD2	QG11	135	07-15-68	17	30	18	7.3	39	5.6	89	36	72	12	.6	.0	200	265	75	0	2.0	51	333	8.8	9.0
157N072W36ADD2	QG11	135	07-15-68	25	--	79	22	35	5.4	353	0	78	6.8	.2	2.0	200	467	288	0	.9	21	659	7.9	7.5
157N073W01DDC	QG11	33	09-21-67	22	3000	49	33	42	11	336	0	78	4.9	.1	.0	100	438	258	0	1.1	25	657	8.1	7.5
157N073W10ACC	QG11	31	09-10-64	18	180	109	49	12	8.8	408	0	159	11	.4	.0	--	574	475	141	.2	5	890	7.3	7.5
157N073W25ABB	QG51	60	09-08-64	24	3000	51	19	104	11	376	0	119	8.8	.5	2.0	--	532	206	0	3.2	51	830	7.4	9.0
157N074W22DAA	K3PC	78	05-13-69	1.6	360	11	7.2	282	7.5	475	23	120	83	.2	1.2	630	766	57	0	19	90	1270	8.8	7.0
157N074W25BBA	QG51	90	07-11-68	23	70	65	12	156	8.6	393	0	204	29	.2	.0	410	657	210	0	4.7	60	1060	7.9	6.5
158N070W15CCC	QG51	60	05-14-69	21	240	235	93	187	13	593	0	626	178	.0	4.7	440	1710	968	481	2.6	29	2310	7.7	6.5
158N070W21AAA2	QG51	50	08-09-68	22	420	130	31	166	9.9	484	0	392	17	.1	.0	630	999	454	57	3.4	44	1410	7.9	6.0
158N072W23DDA1	QG31	34	06-27-68	24	1200	68	105	168	34	703	0	343	34	.2	44	440	1150	603	27	3.0	36	1740	7.9	--
158N072W23DDA2	QG51	110	06-27-68	29	200	89	11	66	5.6	410	0	77	5.7	.1	2.0	150	449	269	0	1.7	34	765	7.8	--
158N072W24CBA	LAKE	--	06-27-68	17	70	31	118	277	50	833	20	437	29	.4	2.6	730	1400	565	0	5.1	49	2030	8.5	16.5
158N073W17BBB	QG01	59	08-12-68	21	2400	408	112	557	13	469	0	2210	75	.0	.0	680	3810	1480	1100	6.3	45	4250	7.9	5.5
158N074W19DCB	K3PC	118	07-11-68	25	120	58	11	141	8.0	485	0	60	33	.3	.0	540	542	190	0	4.4	61	915	7.9	6.5

1/ See table 1 for explanation.

TABLE 5.--Particle-size analyses

Location	Sample depth interval (ft below land surface)	Percent particle sizes											
				Sand (in millimeters)					Gravel (in millimeters)				
		Clay <0.004 (mm)	Silt 0.004-0.0625 (mm)	Very fine 0.0625-0.125	Fine 0.125-0.25	Medium 0.25-0.5	Coarse 0.5-1	Very coarse 1-2	Very fine 2-4	Fine 4-8	Medium 8-16	Coarse 16-32	Very coarse 32-64
151-62-14AAA	114-180	1		-	-	[a]30	7	21	27	12	2	-	-
14AAA	180-200	4		4	27	[a]46	6	7	5	1	-	-	-
14AAA	200-220	1		2	1	6	[a]51	3	18	13	5	-	-
14AAA	220-240	2		1	3	12	[a]29	27	7	14	5	-	-
14AAA	260-280	1		1	3	5	11	17	20	[a]26	16	-	-
151-62-15BBB	163-180	1		-	3	16	[a]33	17	13	9	8	-	-
15BBB	200-220	1		-	1	11	12	21	[a]21	19	15	-	-
151-62-17DCC	10-11	6	4	2	15	[a]29	20	5	7	7	5	-	-
151-62-19ADD1	4-20	5		12	[a]49	25	3	2	1	2	1	-	-
19ADD1	20-41	1		1	4	9	17	16	15	16	[a]17	4	-
151-62-27AAA2	140-160	6		9	26	[a]41	7	5	4	2	-	-	-
27AAA2	180-200	1		1	4	17	[a]26	20	15	10	6	-	-
27AAA2	260-280	1		-	4	15	[a]29	19	15	12	5	-	-
27AAA2	290-320	16		9	13	[a]23	15	16	1	3	-	-	-
151-62-36CCC	60-80	[a]30		8	11	21	25	5	-	-	-	-	-
151-62-36CCC	150-170	3		6	33	[a]45	9	4	-	-	-	-	-
36CCC	170-190	2		2	14	30	[a]36	6	4	2	4	-	-
36CCC	190-200	1		-	3	13	[a]20	19	16	15	10	3	-
36CCC	200-220	1		1	4	7	16	[a]26	24	14	7	-	-
151-63-25ABC	6-7	2		17	[a]73	7	1	-	-	-	-	-	-
151-63-25ADB4	20-25	4		8	[a]34	33	9	5	2	2	1	2	-
151-63-31BBC	25-40	1		1	2	7	[a]32	24	11	10	11	1	-
151-63-35CCC	15-25	3		6	[a]55	31	3	1	1	-	-	-	-
151-63-35DCC	35-45	1		2	10	[a]40	28	8	7	3	1	-	-
151-63-36CCC	15-25	4		3	13	[a]53	24	1	1	1	-	-	-
151-64- 4CCC	12-120	1		3	20	[a]57	12	4	2	1	-	-	-
151-64-10AAA	46-60	2		1	1	7	11	17	22	[a]25	10	4	-
151-64-18AAA	2-30	1		1	2	12	[a]24	16	14	15	15	-	-
18AAA	30-50	-		2	14	[a]31	25	10	6	7	5	-	-
18AAA	50-80	1		3	21	[a]34	14	6	5	7	8	1	-

Location	Sample depth interval (ft below land surface)	Clay <0.004 (mm)	Silt 0.004-0.0625 (mm)	Percent particle sizes: Sand (in millimeters): Very fine 0.0625-0.125	Fine 0.125-0.25	Medium 0.25-0.5	Coarse 0.5-1	Very coarse 1-2	Gravel (in millimeters): Very fine 2-4	Fine 4-8	Medium 8-16	Coarse 16-32	Very coarse 32-64
151-64-23DDC	73-99	4		16	28	[a]43	6	2	1	-	-	-	-
23DDC	100-120	2		1	3	8	15	17	18	[a]19	15	2	-
151-65-20BBB	10-60	-		1	2	5	8	5	21	10	22	[a]26	-
151-66- 1CCC	35-54	4		1	5	13	16	[a]18	15	14	10	4	-
151-66-21CBB	15-21.2	6	10	6	17	[a]21	14	9	7	7	3	-	-
151-66-21CCC	18-33	1		-	1	2	8	8	16	22	19	[a]23	-
151-66-23ADD3	0-10	2		1	3	12	20	[a]20	16	13	9	4	-
23ADD3	10-15	1		1	2	7	24	[a]26	17	16	3	3	-
151-67-11DDD	0.8-19.1	12	[a]16	6	12	[a]15	10	9	6	11	3	-	-
151-68- 4DCD	5-35	1		-	2	4	11	16	[a]20	20	17	9	-
151-68-25BAA	10-20	1		-	2	17	[a]24	18	16	11	4	7	-
151-69-15AAA	40-60	2		1	1	13	[a]21	18	14	14	11	5	-
15AAA	120-140	1		1	3	10	22	[a]22	19	16	6	-	-
151-71-13DAD	40.6-45	1	8	4	8	[a]56	18	2	1	1	-	-	-
151-71-30BBC	13-14.6	3	9	4	32	[a]38	8	2	2	2	-	-	-
151-71-33AAA	2-20	1.7	3.3	.9	5.4	[a]27.6	25.4	20.6	10.2	3.9	1.0	-	-
151-72-13AAA	89-100	1	1	1	3	7	[a]22	15	18	17	15	-	-
13AAA	100-160	2	2	5	31	[a]33	11	4	5	5	2	-	-
151-72-16DDC	140-220	1	2	-	5	21	[a]45	4	7	5	3	-	-
151-72-16DDD1	60-80	5.8	4.3	4.0	30.9	[a]39.0	12.2	2.9	.5	.4	-	-	-
151-72-16DDD1	200-260	8	6.4	3.5	13.3	[a]32.1	22.2	8.6	3.5	2.1	.3	-	-
151-72-23BBB	120-160	1	3	2	6	17	[a]36	14	8	6	6	1	-
23BBB	210-269	1	3	5	10	[a]27	24	11	8	7	4	-	-
151-72-23DDC	218-280	1		3	3	13	[a]30	23	16	9	2	-	-
23DDC	280-305	1		1	3	10	[a]34	15	17	14	5	-	-
151-72-25BBC	220-332	1		1	3	15	[a]28	20	20	9	3	-	-
151-72-25BCB1	220-336	1		2	7	17	[a]25	17	16	12	3	-	-
151-72-25BCB3	165-195	1	2	3	9	29	[a]32	14	6	3	1	-	-
151-72-25BCC	220-250	1	2	2	7	[a]29	21	16	11	7	2	2	-
25BCC	250-260	1	1	1	6	18	22	[a]22	17	9	3	-	-

Location	Sample depth interval (ft below land surface)	Percent particle sizes: Clay <0.004 (mm)	Silt 0.004-0.0625 (mm)	Sand (in millimeters): Very fine 0.0625-0.125	Fine 0.125-0.25	Medium 0.25-0.5	Coarse 0.5-1	Very coarse 1-2	Gravel (in millimeters): Very fine 2-4	Fine 4-8	Medium 8-16	Coarse 16-32	Very coarse 32-64
151-72-25BCC	280-300	1		1	3	6	11	19	[a]28	22	9	-	-
25BCC	250-341	2		3	7	15	[a]19	15	18	16	5	-	-
151-72-26DAD	143-240	3		4	11	[a]39	25	5	5	5	3	-	-
26DAD	240-295	2		2	6	11	[a]27	23	19	8	2	-	-
151-72-28AAA	22-25.7	7		7	15	[a]29	18	9	7	6	2	-	-
151-72-30BBB	5.5-9.0	4	8	3	6	24	[a]29	12	6	7	1	-	-
151-71-32ABB	240-260	1		1	1	5	14	23	20	[a]31	4	-	-
151-72-33BBB1	200-220	1	3	3	19	[a]51	7	4	6	5	1	-	-
33BBB1	240-260	2		2	10	23	[a]25	18	13	6	1	-	-
151-72-36AAA1	69-72	3		1	4	[a]30	21	19	14	6	2	-	-
151-72-36AAA1	195-304	4		1	6	11	18	13	14	[a]20	13	-	-
151-73-24AAA	180-220	1.5	2.2	.6	1.6	4.1	14.5	20.5	[a]22.3	21.9	9.3	1.5	-
24AAA	180-220	1.2	2.3	.5	1.3	5.0	13.7	19.0	[a]19.6	19.3	14.6	3.5	-
24AAA	220-240	2.7	3.9	1.3	4.0	13.9	[a]25.0	19.5	20.7	7.4	1.6	-	-
151-73-24CCC	160-180	1		1	2	13	[a]41	19	12	9	2	-	-
151-73-24CCC	200-220	2		2	3	23	[a]29	14	16	10	1	-	-
24CCC	260-280	2		-	5	14	[a]33	21	16	7	2	-	-
151-74- 9DDD	0-30	-	14	32	[a]51	4	-	.6	.4	-	-	-	-
151-74-13BDD	10-10.5	30	19	12	[a]37	2	-	-	-	-	-	-	-
151-74-20AAA	250-260	4.8	6.4	1.3	2.4	6.1	12.3	19.3	[a]26.1	16.9	4.4	-	-
151-74-20AAA	260-280	4.2	6.4	1.1	2.2	4.1	10.6	17.2	[a]24.1	22.4	7.7	-	-
20AAA	247-300	1.1		.1	.2	.6	1.1	7.0	31.5	[a]42.0	16.4	-	-
151-74-26AAA		7	12	8	6	9	18	[a]26	3	2	9	-	-
26AAA	180-200	2		2	5	9	[a]23	15	15	12	5	2	10
26AAA	200-220	2		1	5	7	16	14	17	[a]18	14	6	-
151-74-26AAA	220-240	1		-	1	4	6	7	8	10	[a]33	31	-
26AAA	300-320	2		2	4	9	[a]34	14	17	7	2	-	-
151-74-27BBC	120-164	4		11	26	[a]30	13	6	5	3	2	-	-
27BBC	164-184	-		-	1	1	1	3	3	15	[a]61	15	-
152-63-10DAC	117-127	3		1	1	2	9	13	14	20	[a]29	8	-

Location	Sample depth interval (ft below land surface)	Percent particle sizes											
		Clay <0.004 (mm)	Silt 0.004-0.0625 (mm)	Sand (in millimeters)					Gravel (in millimeters)				
				Very fine 0.0625-0.125	Fine 0.125-0.25	Medium 0.25-0.5	Coarse 0.5-1	Very coarse 1-2	Very fine 2-4	Fine 4-8	Medium 8-16	Coarse 16-32	Very coarse 32-64
152-63-10DAC	140-160	2		-	1	10	15	[a]19	17	18	15	3	-
10DAC	160-180	1		-	1	9	25	[a]36	17	8	2	1	-
152-64- 7BCA	80-100	1		-	1	1	4	13	18	22	[a]31	9	-
7BCA	110-120	1		1	2	[a]35	16	16	10	11	5	3	-
7BCA	110-120	1		1	1	20	[a]21	14	15	12	12	3	-
152-64-27BBB	27-76	-		-	1	3	6	11	15	16	[a]25	23	-
152-65- 7CCC	62-80	2		2	2	5	11	17	17	16	[a]19	9	-
7CCC	80-100	1		-	1	1	4	10	19	[a]26	24	14	-
7CCC	100-110	1		-	1	2	7	19	[a]24	22	16	8	-
7CCC	130-140	1		-	1	6	16	19	[a]21	17	17	2	-
152-66-21AAD	0-20	1		3	18	[a]20	18	9	8	9	8	6	-
21AAD	20-40	1		2	9	25	[a]38	13	7	4	1	-	-
21AAD	40-60	-		3	6	17	[a]26	12	13	11	12	-	-
21AAD	60-80	1		-	4	14	[a]25	20	16	12	6	2	-
21AAD	80-100	-		1	1	4	11	13	[a]21	20	20	9	-
152-66-21AAD	10-179	1		1	-	1	1	2	7	30	[a]48	9	-
21AAD	150-210	-		-	1	1	2	3	14	17	[a]50	12	-
152-66-24CAB	40-60	1		-	2	4	9	19	21	[a]23	19	-	-
24CAB	80-100	.2		.2	.6	2	6	12	18	22	[a]29	10	-
24CAB	100-120	1		-	-	1	2	4	6	10	32	[a]44	-
152-67-29CCB	0-25	7	17	8	17	[a]19	10	7	5	8	2	-	-
152-67-33DDD	0.8-19.8	5	9	4	17	[a]21	13	10	9	10	2	-	-
152-68-21DDD	16-25	3	7	5	18	[a]24	23	12	5	2	1	-	-
152-68-28BCB	0-15	4	10	8	18	[a]23	13	10	5	7	2	-	-
28BCB	15-20	8		4	12	18	[a]18	18	12	8	2	-	-
152-68-30CCB	5-15	8		3	6	14	[a]21	20	13	9	6	-	-
152-69-14BBC	6.5-9.1	7	14	8	17	[a]18	10	10	7	7	2	-	-
152-69-24DDA	5.5-13.1	10	[a]31	19	23	9	2	1	1	3	1	-	-
152-70-11ADC	0.3-6.2	10	13	4	5	11	7	15	12	[a]17	5	1	-
152-70-12BCC1	8.5-25	1	7	2	4	8	15	15	13	[a]16	7	10	2

Location	Sample depth interval (ft below land surface)	Percent particle sizes											
		Clay <0.004 (mm)	Silt 0.004-0.0625 (mm)	Sand (in millimeters)					Gravel (in millimeters)				
				Very fine 0.0625-0.125	Fine 0.125-0.25	Medium 0.25-0.5	Coarse 0.5-1	Very coarse 1-2	Very fine 2-4	Fine 4-8	Medium 8-16	Coarse 16-32	Very coarse 32-64
152-70-12BCC1	25-46	5		1	2	10	14	18	16	[a]22	10	2	-
152-70-27AAB	3-10.3	10	20	18	[a]36	12	1	1	1	1	-	-	-
152-71- 8DDD	15-20	4		2	8	[a]30	27	13	6	5	4	1	-
8DDD	20-30	7		1	12	[a]28	25	13	6	6	2	-	-
8DDD	30-35	10		5	21	[a]26	16	8	3	8	3	-	-
152-71- 9DDD	1-10	18		6	24	[a]24	12	7	5	4	-	-	-
9DDD	10-20	17		10	[a]41	29	2	-	1	-	-	-	-
9DDD	20-25	11		5	20	[a]28	21	8	4	3	-	-	-
9DDD	25-35	14		1	13	[a]28	20	12	6	5	1	-	-
9DDD	35-45	6		1	7	20	[a]27	22	10	5	2	-	-
152-71- 9DDD	45-50	-		1	6	15	18	[a]18	18	14	6	2	2
152-71-22BBB	15-20	4		2	12	[a]34	24	10	6	6	2	-	-
22BBB	25-27	3		1	17	[a]48	21	2	1	-	2	4	1
22BBB	27-31.5	4		1	8	18	[a]22	20	13	7	4	2	1
152-71-33BBC	3-4	3	1	1	3	12	18	[a]31	3	14	13	1	-
152-72-22BBB	30-36	4.2	1.5	.7	1.3	2.4	12.4	[a]34.3	25.0	11.2	7.0	-	-
152-73-36AAA	20-56	1	2	10	28	[a]42	5	1	.9	.1	-	-	-
152-74- 1BAA	26-96	1		1	1	3	8	14	28	[a]31	12	1	-
153-68-18DDD1	37-50	5		1	3	[a]25	23	18	12	10	1	2	-
18DDD1	60-70	1		-	1	8	[a]39	28	12	6	3	2	-
153-68-32DDD	94-100	8		7	17	[a]23	20	14	6	2	3	-	-
153-70-36DCC	1.0-1.9	3	10	35	[a]50	2	-	-	-	-	-	-	-
153-71-17DDD1	22-40	2		4	15	[a]28	20	11	9	7	4	-	-
153-71-17DDD2	21-40	1	2	6	23	[a]32	19	7	4	4	1	1	-
153-71-20CCC	0-20	3.2	5.0	2.1	13.2	[a]31.3	23.1	11.1	5.7	4.3	1.0	-	-
153-71-20CCC	20-60	3.0	3.3	1.1	5.9	25.1	[a]30.8	20.5	8.0	1.4	.9	-	-
20CCC	60-80	3.4	5.1	.6	1.8	9.5	19.7	[a]27.2	21.6	10.2	.9	-	-
153-72-27DAA	5-6	4	9	[a]63	24	-	-	-	-	-	-	-	-
154-67-11DDD1	29-69	12		9	[a]37	30	7	3	2	-	-	-	-
11DDD1	64-86	1		1	2	10	[a]19	17	16	18	16	-	-

Location	Sample depth interval (ft below land surface)	Percent particle sizes: Clay <0.004 (mm)	Silt 0.004-0.0625 (mm)	Sand (in millimeters): Very fine 0.0625-0.125	Fine 0.125-0.25	Medium 0.25-0.5	Coarse 0.5-1	Very coarse 1-2	Gravel (in millimeters): Very fine 2-4	Fine 4-8	Medium 8-16	Coarse 16-32	Very coarse 32-64
154-69-15BBA	50-55	3		1	6	33	[a]35	13	5	5	1	-	-
15BBA	55-60	4		3	12	[a]42	26	7	4	1	1	-	-
154-70-16BBB	25-35	11		17	[a]52	17	1	1	1	-	-	-	-
16BBB	35-50	1		-	1	5	10	16	19	20	[a]25	3	-
155-69- 4AAA	155-193	3		3	3	9	[a]19	17	19	17	9	1	-
156-67-17DDD	34-40	5		4	13	[a]34	23	9	7	2	3	-	-
17DDD	70-80	3		1	2	3	9	18	21	18	[a]23	2	-
156-69-15DDD	130-140	1		-	5	9	11	17	[a]20	18	15	4	-
15DDD	140-149	3		1	7	12	11	16	[a]19	14	17	-	-
156-69-34ABB	85-100	2		1	3	11	[a]21	19	16	14	8	5	-
156-69-34ABB	100-130	2		2	11	[a]43	24	7	4	3	4	-	-
156-71- 4BBA	0-20	1		4	[a]48	44	1	1	1	-	-	-	-
4BBA	20-40	1		5	39	[a]53	1	1	-	-	-	-	-
4BBA	40-60	2		8	40	[a]40	3	3	3	1	-	-	-
4BBA	5.0-6.2	9		21	[a]49	19	2	-	-	-	-	-	-
157-71- 2CCC	20-40	4		3	12	[a]41	22	10	4	2	2	-	-
157-71-22DDD	0-20	1		2	19	[a]45	16	10	5	1	1	-	-
22DDD	20-40	4		4	20	[a]45	10	6	6	3	2	-	-
158-70-21AAA1	38-52	4		1	6	[a]26	21	13	12	12	4	1	-
21AAA1	103-111	2		1	2	2	7	14	15	18	[a]32	7	-
158-73-17BBB	39-71	1		2	5	16	[a]24	18	12	10	8	4	-
158-74-35AAA	31-45	5	14	16	[a]35	24	4	-	1	1	-	-	-
35AAA	45-55.2	11		4	23	[a]32	14	6	3	6	1	-	-
158-74-35ABB	5.3-14.5	12	25	[a]35	24	3	-	1	-	-	-	-	-
158-74-35BBB	1-14.2	11	25	24	[a]32	7	-	-	-	-	-	-	-
158-74-35BBB	15.1-25.5	9	10	[a]46	32	2	1	-	-	-	-	-	-
35BBB	25.5-53.0	6	9	21	[a]48	15	1	-	-	-	-	-	-

[a]Chief ingredient (modal class).