

BULLETIN 60 PART II
NORTH DAKOTA GEOLOGICAL SURVEY

E. A. Noble, State Geologist

COUNTY GROUND WATER STUDIES 19 — PART II
NORTH DAKOTA STATE WATER COMMISSION

Milo W. Hoisveen, State Engineer

GROUND WATER BASIC DATA
McLEAN COUNTY, NORTH DAKOTA

by

Robert L. Klausung
U. S. Geological Survey

Prepared by the United States Geological Survey in cooperation
with the North Dakota State Water Commission, North Dakota
Geological Survey, and McLean County Board of Commissioners.

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GROUND-WATER BASIC DATA
MCLEAN COUNTY, NORTH DAKOTA

By
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INTRODUCTION

The purpose of the hydrologic investigation in McLean County, 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 the McLean County Board of Commissioners. 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 hydrologic and geologic data collected during the investigation and functions as a reference for Parts I and III.

The information in this report was collected chiefly between 1966 and 1970, and consists of the following: (1) Data on about 1,750 wells and test holes; (2) data on 12 springs; (3) water-level measurements in 196 observation wells; (4) logs of 729 test holes and selected wells; and (5) chemical analyses of 329 water samples.

The data in this report are useful for predicting geologic and ground-water conditions in McLean County. For example; a person considering the construction of a new well can locate the proposed site on plate 1 (in

pocket). The characteristics of nearby wells and springs may be determined from table 1, and the water-level fluctuations in the area may be determined from table 2. The type of material encountered in nearby wells may be determined from table 3, and 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, springs, 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 146-79-15DAA is in the NE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 15, T. 146 N., R. 79 W. Consecutive terminal numerals are added if more than one well is recorded within a 10-acre tract. The location of each well, spring, 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 local residents of McLean County, and the U.S. Corps of Engineers, the U.S. Bureau of Reclamation, and the U.S. Bureau of Indian Affairs. L. L. Froelich and C. E. Naplin, ground-water geologists with the North Dakota State Water Commission, logged most of the test holes.

METHODS OF STUDY

Observation wells were developed in selected test holes so that water-level measurements and water samples could be obtained. Most of the well casings were 1 $\frac{1}{2}$ -inch plastic; however, 2-inch steel, 4-inch plastic, and 4-inch steel casings were set in some test holes. All wells were screened

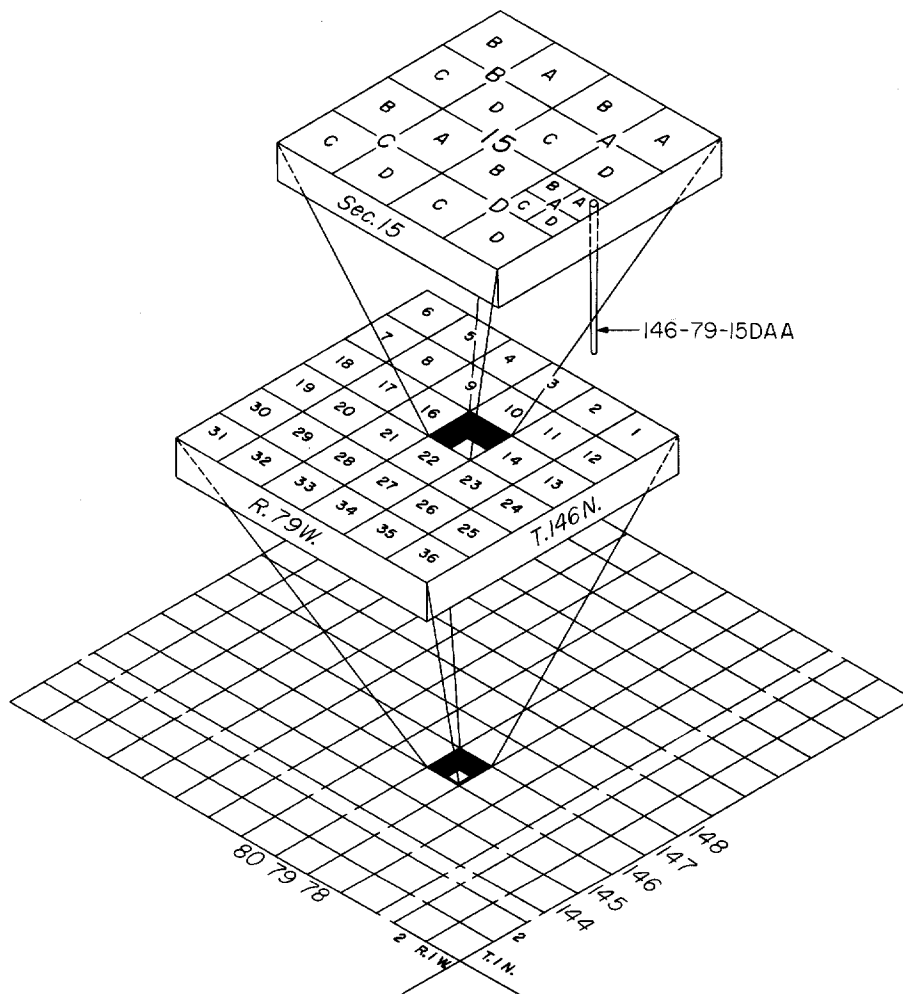


FIGURE 2.-- System of numbering wells, test holes, and springs.

or perforated in the most permeable sections of the aquifer. Most of the wells were pumped a minimum of 4 hours before water samples were collected for chemical analyses (table 4). Several unused privately owned wells were used as observation wells. Water-level measurements were made periodically from the summer of 1966 through December 1970. Five wells were equipped with continuous water-level recorders. Measurements will continue to be made in many of these wells as part of the statewide observation-well network. The locations of observation wells are shown on plate 1, and water-level measurements are given in table 2.

Test holes listed in table 3 with numbers between 2693 and 5822 were drilled as part of this investigation. The other numbered test holes were drilled by the North Dakota State Water Commission prior to the investigation. All of the numbered test-hole logs are composites of the well-site geologists', drillers' description, sample analyses, and electric logs (where available). Most of the samples were examined with a binocular microscope. Color descriptions were determined by comparing the sample with the Geological Society of America rock-color chart (1963). Grain-size determinations refer to the Wentworth (1922) size scale. Till, a descriptive term used in the test-hole logs, is an unsorted, unstratified, glacial deposit of clay, silt, sand, and gravel.

Logs of unnumbered test holes and wells were provided by the individual or agency shown in the heading of the log. The terminology used is that of the individual driller, with the exception that the order has been changed to present the principal lithology first.

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 $\mu\text{g/l}$, 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 $\mu\text{g/l}$ 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 (NO₃)

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 poisoned 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.

<u>Degrees Celsius</u>	<u>Degrees Fahrenheit</u>	<u>Degrees Celsius</u>	<u>Degrees Fahrenheit</u>	<u>Degrees Celsius</u>	<u>Degrees Fahrenheit</u>
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.

<u>Hardness range (calcium carbonate in mg/l)</u>	<u>Hardness description</u>
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 sometimes 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:

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

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 in McLean County 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 are often used as an indicator of the solvent power of water and 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 springs

		EXPLANATION	
	<u>Water level (feet)</u>	<u>Major aquifer, Continued</u>	<u>Specific conductance (in micromhos per centimeter at 25°C)</u>
	Water level, in feet below (+ above) land surface	11, ice-contact deposits	1, 51-150
	F, well flows	21, alluvium	2, 151-300
		31, outwash	3, 301-500
		41, till	4, 501-1,000
		51, buried-glaciofluvial deposits	5, 1,001-2,000
		52, buried-channel deposits	6, 2,001-5,000
			7, 5,001-10,000
			8, 10,001-20,000
			9, more than 20,000
	<u>Use of water</u>	<u>Water-bearing material</u>	
	H, domestic	2, fine grained	
	I, irrigation	3, medium grained	
	K, domestic and stock	6, clayey	
	P, public supply	7, silty	
	R, recreation	8, sandy	
	S, stock	9, gravelly	
	Z, other		
		1, lignite	
	<u>Major aquifer</u>	F, shale	
	FH, Fox Hills Formation	G, gravel	
	FU, Fort Union Group	P, clay	
	HC, Hell Creek Formation	Q, silt	
	K3, Upper Cretaceous	R, sand and gravel	
	QG, Quaternary-Pleistocene	S, sand	
	QR, Quaternary-Recent (Holocene)	T, till	
	TL, Tertiary-Paleocene	V, sandstone	
		X, silty sand	
		Y, clayey gravel	

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 CF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	SPECIFIC CONDUCTANCE	TEMPERATURE (°C)	ELEVATION OF LSD (FT.)
143NC80W02CC8	NDSWC 3894		60	--	--	1969	--	--	U	--	--	--	--	1914
143NC80W02DAC1	J. BASARABA		65	--	2	--	30	--	H	FU	1	5	8.5	1960
143NC80W02DAC2	J. BASARABA		54	--	2	--	16	--	S	FU	1	5	8.5	1960
143NC80W04DDA	P. BARNICK		140	--	3	--	50	--	K	FU	--	5	9.5	1920
143NC80W08AAA	NDSWC 3895	100	78	74	1	1969	25	1-7C	U	51	G	8	7.0	1890
143NC80W15BBB	P. CNVFRAU		145	--	2	1961	100	--	K	FU	--	6	8.5	2000
143NC80W16CC81	P. PATRICK		530	--	2	1958	200	--	K	FH	--	6	12.5	1980
143NC80W16CC82	P. PATRICK		35	--	24	--	18	--	S	--	S	6	7.5	1980
143NC80W17DDD	G. CLEVELAND		220	--	2	1914	120	--	K	FU	1	5	8.5	1991
143NC80W23CBC	W. HRUEU		112	--	2	1965	50	--	S	--	--	5	8.5	2070
143NC80W26BAB	P. KABVLNICK		60	--	6	--	30	--	S	--	--	6	7.5	2100
143NC80W34ADD	H. HOUSER		210	--	4	--	180	--	K	FU	S	5	10.5	2180
143NC80W35CAA1	WILTON		100	80	8	1953	70	4-68	U	FU	V	--	--	2165
143NC80W35DAA2	WILTON	102	85	--	12	1959	70	4-68	U	FU	V	--	--	2165
143NC80W35DAA3	WILTON	103	98	--	8	1959	75	--	P	FU	V	--	--	2170
143NC80W35DAA4	NDSWC 4104		400	--	--	1970	--	--	U	FU	2V	--	--	2140
143NC80W35DAD	WILTON	128	92	76	8	1953	70	--	P	FU	V	4	7.0	2160
143NC80W36BCC	R. GLYSON		110	--	4	1963	--	--	K	FU	S	3	8.5	2160
143NC80W36CBB	WILTON	108	102	88	8	1953	80	--	P	FU	6S	3	7.5	2180
143NC81W01AAA	NDSWC 4108		140	--	--	1970	--	--	U	--	--	--	--	1839
143NC81W02BBB	NDSWC 4107		280	--	--	1970	--	--	U	52	7S	--	--	1710
143NC81W02BCC1	NDSWC 3897	300	258	252	1	1969	+1	5-70	U	52	8G	6	9.5	1710
143NC81W02BCC2	NDSWC 3898	40	34	31	1	1969	6	12-69	U	51	S	4	6.5	1710
143NC81W04BDA	NDSWC 2695	190	160	157	1	1967	6	8-67	U	51	S	5	--	1680
143NC81W04CBB	USBR		120	--	--	1950	7	7-50	U	51	S	--	--	1663
143NC81W04DBC	L. CHESWORTH		35	--	1	--	7	--	H	51	G	4	7.5	1700
143NC81W08ACB	USBR		87	--	--	1950	9	7-50	U	51	R	--	--	1665
143NC81W08CCC1	USBR		70	--	--	1947	12	4-47	U	51	R	--	--	1668
143NC81W08CCC2	USBR		108	--	--	1950	15	8-50	U	51	S	--	--	1666
143NC81W10DAD	NDSWC 3896		80	--	--	1969	--	--	U	--	--	--	--	1770
143NC81W118BB	NDSWC 4106		80	--	--	1970	--	--	U	--	--	--	--	1768
143NC81W14C	USBR		72	--	--	1950	5	7-50	U	51	R	--	--	1663
143NC81W15BBB	USBR		46	--	--	1950	12	10-50	U	--	--	--	--	1713
143NC81W15CAA	G. OBERG		250	--	3	--	100	--	K	--	--	5	10.0	1733
143NC81W15CCC	USBR		61	--	--	1950	46	10-50	U	--	--	--	--	1728
143NC81W16CCC	USBR		145	--	--	1950	4	7-50	U	51	R	--	--	1661
143NC81W16CBB	NDSWC 2694	80	51	48	1	1967	7	8-67	U	51	9S	5	9.0	1661
143NC81W17ACC	NDSWC 2693	100	80	77	1	1967	11	8-67	U	51	R	--	--	1660
143NC81W17DDD	USBR		126	--	--	1950	8	9-50	U	51	R	--	--	1661
143NC81W19ACA	USBR		101	--	--	1950	10	8-50	U	51	R	--	--	1663

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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	SPECIFIC CONDUCTANCE	TEMPERATURE (°C)	ELEVATION OF LSD (FT.)
143N081W19DBD	USBR		91	--	--	1950	26	8-50	U	51	S	--	--	1661
143N081W208CA	USBR		105	--	--	1950	8	7-50	U	51	R	--	--	1662
143N081W20CCB	NDSWC 2808	120	55	53	1	1967	12	9-67	U	51	R	5	7.5	1661
143N081W20DCC	USBR		126	--	--	1950	4	7-50	U	51	R	--	--	1659
143N081W24CDA	L.FRANKLAND		350	--	2	--	50	--	K	HC	S	6	10.5	1820
143N081W24DDA1	NDSWC 51	25	17	14	1	1967	5	10-67	U	51	R	--	--	1780
143N081W24DDA2	NDSWC 4105	80	38	18	1	1970	5	8-70	U	51	R	6	7.5	1780
143N081W28ACB	J.LARSON		120	--	--	1955	40	--	K	--	--	6	9.5	1720
143N081W28BAB	USBR		86	--	--	1950	6	7-50	U	51	R	--	--	1658
143N081W298BA1	USBR		101	--	--	1950	11	7-50	U	51	R	--	--	1659
143N081W298BA2	NDSWC 2806	120	90	88	1	1967	10	10-67	U	51	R	5	9.0	1661
143N081W298BA3	NDSWC 2809	100	80	78	1	1967	9	9-67	U	51	R	5	7.0	1659
143N081W298B81	S.MCLEAN IRR.D.		107	82	12	1962	16	7-67	I	51	R	5	7.5	1645
143N081W298B82	NDSWC 2810	100	90	88	1	1967	11	5-67	U	51	G	5	7.5	1660
143N081W298B8D	NDSWC 2807	100	90	88	1	1967	13	9-67	U	51	G	5	7.5	1661
143N081W32AAA	USBR		155	--	--	1950	8	7-50	U	51	R	--	--	1660
143N081W35B8C1	F.VOLTIN		200	--	2	--	--	--	H	--	S	5	9.5	1880
143N081W35B8C2	F.VOLTIN		70	--	3	1962	30	--	S	--	S	5	9.5	1880
144N080W01DDD	E.WAGNER		310	--	2	1951	40	--	K	FU	--	5	9.0	1890
144N080W02BCB	NDSWC 4119		140	--	--	1970	--	--	U	--	--	--	--	1885
144N080W02DCC	F.BREZDEN		180	--	2	1925	120	--	K	--	--	5	8.5	1862
144N080W04CCC	NDSWC 4111	400	353	347	1	1970	52	8-70	U	52	R	5	9.0	1823
144N080W07ADC	R.WEIDRICK		144	--	6	1947	100	--	K	--	--	6	8.5	1810
144N080W14CCA	J.HOLKUP		35	--	2	1967	40	6-68	K	--	--	5	8.5	1800
144N080W15DAD	NDSWC 3890		80	--	--	1969	--	--	U	--	--	--	--	1795
144N080W18CCC	NDSWC 4109		260	--	--	1970	--	--	U	52	S	--	--	1770
144N080W18DDC	C.JENNINGS		10	--	48	--	--	6-68	S	--	--	3	13.5	1775
144N080W19ABA	NDSWC 4110	300	258	238	1	1970	2	8-70	U	52	G	5	8.0	1765
144N080W22ADD	B.HALL		220	--	2	1949	70	--	K	FU	S	6	10.0	1858
144N080W26BBA	J.EMINE		100	--	4	--	22	--	K	--	--	5	7.5	1776
144N080W26BB81	NDSWC 3891		15	13	1	1967	5	10-67	U	51	R	--	--	1770
144N080W26BB82	NDSWC 3891		80	--	--	1969	--	--	U	--	--	--	--	1770
144N080W26BBC	NDSWC 3892		140	--	--	1969	--	--	U	--	--	--	--	1795
144N080W26CCC	NDSWC 3893		160	--	--	1969	--	--	U	--	--	--	--	1835
144N080W28AAB	J.WAGNER		74	--	4	1958	12	--	K	51	S	5	8.5	1760
144N080W28BCB1	L.JENNINGS		47	--	48	--	30	--	K	51	G	5	7.5	1780
144N080W28BCB2	L.JENNINGS		50	--	4	--	20	--	S	51	G	5	7.5	1780
144N080W34AAA	B.SODERQUIST		350	--	--	1910	--	--	U	--	--	--	--	1850
144N080W34CCD	M.SAWICKI		580	--	4	1952	180	--	K	--	--	5	8.5	1950
144N081W04AAA	G.LEIDHOLM		90	--	4	1957	60	--	K	FU	--	4	8.5	1890

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144N081W0888B	R.KOST		120	--	6	1915	95	--	H	--	--			
144N081W10DDD	E.LARSON		36	--	2	1964	24	--	S	--	S	5	8.5	1942
144N081W12CCA	R.FALCK		170	--	6	1915	100	--	K	--	S	6	7.5	1821
144N081W13CDC	NDSWC 3901		40	--	--	1969	--	--	K	--	S	5	7.5	1820
144N081W16DDD	NDSWC 3902		60	--	--	1969	--	--	U	--	--	--	--	1865
									U	--	--	--	--	1740
144N081W17CBA	A.KOST		106	--	4	1964	50	--	K	--	--	5	8.5	1877
144N081W18BCC	M.SCHULZ		54	--	2	1965	25	--	K	--	S	4	8.5	1850
144N081W21ACB	A.J.TJENSTROM		377	--	5	1936	90	--	K	--	S	6	7.5	1820
144N081W22ACD1	L.FAHLGREN		377	--	2	1957	--	--	K	--	S	6	7.5	1830
144N081W22ACD2	L.FAHLGREN		40	--	4	--	--	--	S	--	P	6	7.5	1830
144N081W25AAA	NDSWC 2864		100	--	--	1967	F	10-67	U	51	8G	5	--	1715
144N081W25ADA	NOGS 64		18	17	1	1967	5	9-67	U	51	9S	6	7.5	1715
144N081W26CCB	NDSWC 3900		40	--	--	1969	--	--	U	--	--	--	--	1700
144N081W27DCA	E.FLEMMER		230	--	4	--	50	--	K	--	S	6	8.5	1730
144N081W29CBB	A.LIPSKI		420	--	2	--	100	--	H	--	--	6	7.5	1669
144N081W30ACC	NDSWC 2696		100	--	--	1967	--	--	U	51	S	--	--	1665
144N081W35CBB	NDSWC 3899		80	--	--	1969	--	--	U	--	--	--	--	1714
144N082W01ACC	A.KOST		113	--	6	--	96	6-68	K	FU	--	4	8.5	1905
144N082W02DCC	E.SCHOLL		113	--	4	1959	71	6-68	K	FU	S	5	8.5	1885
144N082W03ABC	J.GOETZ		175	--	48	1950	75	4-66	K	FU	I	6	10.0	1870
144N082W04DBB1	H.KESSELRING		145	--	48	--	80	--	S	--	--	5	7.0	1845
144N082W04DBB2	H.KESSELRING		175	--	48	--	80	--	H	FU	I	5	9.5	1845
144N082W08DDC1	L.LORENTZEN		220	--	2	--	--	--	K	--	--	6	9.0	1725
144N082W08DDC2	L.LORENTZEN		40	--	48	--	31	6-68	U	FU	V	--	--	1725
144N082W09DCC	H.LORENTZEN		26	--	48	1944	23	6-68	H	FU	V	4	9.0	1695
144N082W12C8A	E.SCHULZ		--	--	4	--	--	--	K	--	--	5	9.0	1925
144N082W13DCC	A.RENNER		90	--	4	1966	68	6-68	K	--	--	5	9.5	1845
144N082W17AAD	NDSWC 2697	60	41	38	1	1967	6	8-57	U	51	R	6	--	1670
144N082W18ABB	M.KNUDTSON		65	--	4	--	--	4-66	K	--	--	4	9.0	1700
144N082W24DBD	R.SLAGG		8	--	72	--	1	--	K	FU	I	5	9.0	1730
144N083W02DAC	H.FAHLGREN		180	--	4	--	100	6-63	K	--	--	5	9.5	1876
144N083W03BDD	D.PETERSON		265	--	3	1944	--	--	K	FU	--	6	7.5	1900
144N083W05CDA	L.LORENTZEN		100	--	4	--	--	--	K	--	--	6	9.0	1950
144N083W068AA	C.LEIDHOLM		43	--	4	1966	28	6-68	K	FU	I	5	8.5	1926
144N083W07CCD1	H.SCHALL JR.		60	--	--	--	--	--	K	--	--	5	7.5	1920
144N083W07CCD2	H.SCHALL JR.		67	--	10	--	54	6-68	S	--	--	--	--	--
144N083W12DCB1	C.NELSON		260	--	6	1941	--	--	K	FU	V	6	8.5	1800
144N083W12DCB2	C.NELSON		14	--	36	--	22	6-68	S	--	S	5	6.0	1800
144N083W13AAB	NDSWC 3903		70	--	--	1969	--	--	U	--	--	--	--	1810
144N083W14CBB	E.YUNKER		114	--	4	--	--	--	K	--	--	5	8.5	1790

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144N083W15ABA	M. HOLZMAGEL		150	--	4	1948	133	6-68	K	--	--	5	9.0	1800
144N083W21DCC	G. NESS		43	--	4	1945	--	--	K	--	--	5	9.0	1677
144N083W22BCD	E. NELSON		150	--	6	1938	--	--	K	FU	--	5	9.0	1723
144N083W28BAB	A. NESS		90	--	--	--	50	--	K	--	--	5	8.5	1700
144N083W30ACB1	J. THOMPSON		30	--	48	1950	--	--	K	FU	--	5	7.0	1690
144N083W30ACB2	J. THOMPSON		40	--	--	--	--	--	S	--	S	--	6.5	1690
144N083W3CDAA	NDSWC 2698	80	61	58	1	1967	10	8-67	U	51	R	5	7.5	1680
144N084W2CAD	C. ECKLUND		210	--	4	1962	197	--	H	FU	1	6	9.0	1970
144N084W2DCB	C. ECKLUND		50	--	--	1955	--	--	U	51	G	--	--	1960
144N084W3BAB	C. ECKLUND		63	--	4	1965	--	--	S	51	G	--	--	1780
144N084W4CDD1	G. REIMERS		92	--	3	1944	--	--	H	51	S	5	7.5	1710
144N084W4CDD2	G. REIMERS		22	--	6	1954	--	--	S	--	--	6	7.5	1715
144N084W10CAB	W. GREWE		49	44	4	--	--	--	S	51	R	5	6.5	1675
144N084W10CCC	NDSWC 2699	90	71	68	1	1967	11	8-67	U	51	R	5	7.5	1675
144N084W10CCA1	W. GREWE		99	--	--	1943	--	--	S	FU	1	--	--	1690
144N084W10CCA2	W. GREWE		104	--	4	1944	--	--	H	--	--	6	9.0	1690
144N084W14DAB	A. SWANSON		245	245	4	1964	--	--	H	FU	S	6	9.0	1750
144N084W14CAC	A. SWANSON		25	--	--	1947	--	--	S	21	S	5	7.0	1680
144N084W24BCD1	C. YUNKER	6	22	19	1	1947	9	5-68	S	21	S	5	7.0	1675
144N084W24BCD2	C. YUNKER		22	--	--	--	--	--	H	21	S	--	--	1675
144N084W24CBA	NDSWC 2911	100	62	57	4	1968	10	4-68	U	51	R	6	10.5	1670
145N079W03BCA	E. SCHELL		9	--	48	--	3	8-67	S	11	G	4	7.0	1880
145N079W04BCC	E. LAIB		30	--	48	--	--	--	S	51	G	6	5.5	1855
145N079W04CBB	E. LAIB		258	--	4	--	--	--	H	--	G	5	9.0	1860
145N079W06ABB	W. MANNER		11	--	24	--	7	8-67	S	11	R	5	6.5	1850
145N079W08BBB	NDSWC 2862		120	--	--	1967	--	--	U	--	--	--	--	1868
145N079W08CBC	M. STROBEL		275	--	4	1960	--	--	K	--	--	5	6.5	1851
145N079W09CDD	A. WALL		280	--	2	1956	--	--	K	--	S	5	7.5	1852
145N079W10CAB	F. PFENNING		240	--	2	1956	--	--	H	--	--	5	9.0	1875
145N079W12AAB	E. JUST		224	--	2	--	--	--	H	--	--	5	7.5	1898
145N079W14ADA	M. SCHUMANN		30	--	24	--	--	--	K	31	G	4	6.0	1895
145N079W14DDD	NDSWC 2865		260	--	--	1967	--	--	U	--	--	--	--	1885
145N079W18DCB	F. WAGNER		275	--	2	1912	--	--	K	FU	--	5	7.5	1857
145N079W19ADC	F. STRUBEL		60	--	30	1910	--	--	S	--	--	6	6.0	1850
145N079W19CCC	NDSWC 4115		200	--	--	1970	--	--	U	--	--	--	--	1852
145N079W20CBB	NDSWC 3889		160	--	--	1969	--	--	U	--	--	--	--	1815
145N079W20CCB	J. LAIB		605	--	2	--	--	--	K	FH	--	6	8.5	1873
145N079W23ADA	E. GESSELE		510	--	2	1963	--	--	K	HC	1	5	7.5	1860
145N079W23CBA	L. VOSSLER		16	--	36	--	--	--	K	11	S	5	--	1848
145N079W24CCA	F. KURLE		630	--	2	1958	--	--	K	--	--	6	8.5	1865

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145NC79W258DD	A. WALL		431	--	2	1957	--	--	K	HC	S	6	7.5	1855
145NC79W2888B	NDSWC 4114		180	--	--	1970	--	--	U	--	--	--	--	1877
145NC79W28DAA	NDSWC 4112		140	--	--	1970	--	--	U	--	--	--	--	1854
145NC79W28DDC	NDSWC 4113	160	112	106	1	1970	27	8-70	U	FU	2V	6	7.0	1858
145NC79W2988B	NDSWC 4118		200	--	--	1970	--	--	U	--	--	--	--	1862
145NC79W30DAC	H. SCHLAHT		420	--	4	--	--	--	S	--	--	5	7.0	1900
145NC79W31DCC	USBR		40	--	--	1955	13	1-55	U	51	S	--	--	1843
145NC79W32ABA	A. VOSSLER		400	--	4	1928	--	--	K	--	--	5	9.0	1880
145NC79W34BCA	R. NUEMILLER		285	--	2	1947	--	--	K	--	--	5	--	1872
145NC80W018AA	L. LAIB		116	--	4	1957	--	--	H	--	S	4	7.5	1850
145NC80W02AAB	NDGS	41	38	36	1	1967	16	9-67	U	31	R	4	6.5	1852
145NC80W03BAB	NDSWC 3884		100	--	--	1969	--	--	U	--	--	--	--	1885
145NC80W04CAD1	M. PHILBRICK		20	--	36	1916	--	--	U	41	P	--	--	1909
145NC80W04CAD2	M. PHILBRICK		159	--	4	1942	--	--	K	FU	1	5	7.0	1909
145NC80W04CDA	M. PHILBRICK		38	--	18	1957	10	8-67	S	41	P	6	6.0	1907
145NC80W07DDD	NDSWC 3886	60	28	18	1	1969	5	10-69	U	51	8G	5	18.5	1785
145NC80W08AAC	L. EVANS		165	--	4	--	--	--	K	FU	1	6	8.5	1925
145NC80W1GABA	NDSWC 3885	240	208	205	1	1969	23	10-69	U	52	8G	6	8.0	1830
145NC80W10CAC	C. RENFROM		10	--	36	--	3	8-67	S	11	G	4	11.0	1850
145NC80W118BA	A. KECK		9	--	1	1932	5	8-67	I	31	G	4	5.5	1830
145NC80W118BB	NDSWC 2861		120	--	--	1967	--	--	U	--	--	--	--	1847
145NC80W12BAB	J. FISCHER		165	--	4	1961	--	--	K	FU	F	5	7.5	1822
145NC80W13BDD	E. WAGNER		450	--	3	1961	--	--	K	--	P	5	9.5	1847
145NC80W14BDA	E. WAGNER		300	--	4	--	--	--	S	--	--	6	9.0	1830
145NC80W14DDC	NDSWC 3888		160	--	--	1969	--	--	U	--	--	--	--	1828
145NC80W17BAC	W. SINGER		80	--	4	--	--	--	S	FU	1	5	7.0	1830
145NC80W18ADB	A. PARKS		18	--	72	--	--	--	K	31	G	4	10.0	1860
145NC80W22AAA	E. WAGNER		694	--	4	1952	--	--	K	FH	--	5	10.5	1870
145NC80W22CCB	L. RODGERS		10	--	6	1948	6	8-67	S	31	G	5	7.0	1850
145NC80W23DDD	NDSWC 4117		200	--	--	1970	--	--	U	--	--	--	--	1855
145NC80W27AAA	NDSWC 2863		200	--	--	1967	--	--	U	--	--	--	--	1877
145NC80W27BBA	NDSWC 4116		120	--	--	1970	--	--	U	--	--	--	--	1850
145NC80W28AAA	C. RENFROM		11	--	30	1965	7	8-67	S	51	G	5	7.0	1857
145NC80W29CDC	O. REISER		220	--	4	--	3	8-67	S	--	--	6	7.0	1780
145NC80W29DCC	NDSWC 3887	40	16	6	1	1969	7	12-69	U	51	9S	5	6.5	1755
145NC80W31CCA	E. BENDER		46	--	18	1942	38	8-67	H	FU	1	6	6.0	1892
145NC81W04BAB	A. JOHNSON		172	--	4	--	--	--	H	FU	1	6	8.5	2025
145NC81W08CCB1	C. SHELDON		80	--	4	--	--	--	--	FU	1	5	7.5	1925
145NC81W08CCB2	C. SHELDON		230	--	4	1956	--	--	--	--	S	5	8.5	1925
145NC81W098BB	A. LANDEBERGER		140	--	4	1924	--	--	K	--	G	5	6.5	1962

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145N081W10BCA	K. TWEETEN		80	--	4	1910	--	--	K	--	--	4	7.5	1911
145N081W11ACD	E. SAUER		--	--	4	--	--	--	S	--	S	4	7.0	1950
145N081W11CDD	E. SAUER		170	--	4	--	--	--	K	--	--	4	8.5	1950
145N081W120AA	G. BAUER		85	--	6	--	--	--	K	FU	1	5	7.5	1835
145N081W13DDO	A. SCHULER		172	--	6	1915	--	--	K	FU	1	4	7.0	1960
145N081W14AAA	B. REISER		186	--	3	1937	--	--	K	--	--	4	6.5	1965
145N081W15BCD	E. TWEETEN		110	--	3	1927	--	--	K	--	S	4	7.5	1911
145N081W19BAA	NDSWC 3910	180	118	115	1	1969	36	11-69	U	FU	--	6	6.0	1865
145N081W22CCC	R. PETERSON		115	--	4	1925	--	--	H	FU	1	5	8.5	1902
145N081W26BBC	C. ENGCKSON		130	--	6	1925	--	--	K	--	S	5	7.0	1923
145N081W28ADD	M. ROTHMANN		85	--	4	--	--	--	K	FU	1	5	8.5	1909
145N081W29BCA	C. CARLSON		200	--	4	1966	--	--	K	FU	S	5	9.5	--
145N081W30CDD	B. GRUENEICH		165	--	4	1951	--	--	H	FU	1	5	9.0	--
145N081W31CDA	M. STRECKER		19	--	--	--	--	--	S	11	S	5	5.5	--
145N081W31CDC	M. STRECKER		240	--	4	1964	--	--	H	--	--	6	8.5	--
145N081W35BCC	A. BUEHLER		135	--	4	1957	94	7-67	H	--	S	5	8.5	1922
145N082W02ABB	C. BROWN		185	--	--	1949	--	--	H	--	P	4	9.5	1980
145N082W02BAA	C. BROWN		70	--	4	1918	--	--	S	--	--	5	9.5	1980
145N082W03ABB	NDSWC 2910		80	--	--	1968	--	--	U	--	--	--	--	1935
145N082W03ABD	J. SAYLER		90	--	6	1932	--	--	K	FU	1	4	9.0	1960
145N082W04CCC	S. RUETER		35	--	1	--	--	--	S	--	--	5	6.5	1925
145N082W06DAA	E. SCHAFER		100	--	2	1941	--	--	S	FU	1	6	7.0	1942
145N082W07DAA	NDSWC 2858	280	241	235	1	1967	60	10-67	U	S2	G	5	7.0	1885
145N082W07DDA	R. TRAXEL		100	--	2	--	--	--	K	FU	1	5	7.0	1895
145N082W08BBC	H. SAMUELSON		50	--	30	1936	--	--	Z	--	--	6	7.0	1905
145N082W10DCC	NDSWC 3913		140	--	--	1969	--	--	U	--	--	--	--	1871
145N082W12BCD	K. STEVENS		121	--	4	1951	--	--	H	FU	1	5	8.5	1890
145N082W12DDC	E. PETERSON		101	--	4	1944	--	--	S	FU	1	5	6.5	1892
145N082W15AAA	NDSWC 3909		60	--	--	1969	--	--	U	--	--	--	--	1895
145N082W15DCC	A. SAYLER		68	--	4	1923	--	--	K	FU	1	5	7.0	1876
145N082W17BAB	M. HEGER		64	--	4	--	40	7-67	U	--	--	--	--	1902
145N082W18BBC	M. HEGER		255	--	4	1964	--	--	H	FU	1	5	9.0	1910
145N082W21BCC	L. JOHNSON		160	--	4	--	--	--	K	FU	1	5	8.5	1905
145N082W22ADC	P. EICHORST		56	--	4	1916	--	--	K	51	G	5	6.0	1876
145N082W23BBB	NDSWC 3908		60	--	--	1969	--	--	U	--	--	--	--	1830
145N082W23CBC	G. LORENTZEN		52	--	4	--	14	7-67	U	--	--	--	--	1880
145N082W24CCC	H. PFAFF		175	--	4	1945	--	--	K	--	6S	5	7.5	1885
145N082W25CDD	L. BRCSZ		185	--	4	--	--	--	H	--	S	6	9.0	1835
145N082W26ABD	E. JOHNSON		70	--	6	--	--	--	K	--	--	5	6.5	1880
145N082W26CDD	H. EICHORST		223	--	4	--	146	7-67	K	--	--	5	7.5	1900

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	SPECIFIC CONDUCTANCE	TEMPERATURE (°C)	ELEVATION OF LSD (FT.)
145N082W27AAA	NDSWC 3905		80	--	--	1969	--	--	U	--	--	--	--	1890
145N082W27BAD	K. MALONEY		60	--	4	1920	--	--	K	FU	1	5	6.0	1880
145N082W27BBB	NDSWC 3906		60	--	--	1969	--	--	U	--	--	--	--	1875
145N082W28ABB	NDSWC 3907	40	37	34	1	1969	1	11-69	U	51	8G	6	7.0	1865
145N082W30CDA	E. NELSON		165	--	4	1956	--	--	K	FU	1	6	7.5	1951
145N082W32CCA	L. WOOD		36	--	18	1956	17	7-67	H	FU	1	6	6.5	1900
145N082W348AA	I. JOHNSON		65	--	32	1940	--	--	K	FU	1	6	6.0	1950
145N082W34DDC	NDSWC 3904		140	--	--	1969	--	--	U	--	--	--	--	1950
145N083W03AAA	NDSWC 4034		340	--	--	1970	--	--	U	52	G	--	--	1915
145N083W03ADD	NDSWC 3915		200	--	--	1969	--	--	U	--	--	--	--	1895
145N083W03DDD	NDSWC 3916		80	--	--	1969	--	--	U	--	--	--	--	1900
145N083W04CAC	R. SAYLOR		20	--	36	1916	--	--	U	--	--	--	--	1909
145N083W07ADD	M. LEIDHOLM		48	--	6	1969	29	11-66	K	--	--	5	7.0	1915
145N083W08AAA	NDSWC 3917		60	--	--	1969	--	--	U	--	--	--	--	1935
145N083W10DCC1	M. LANDENBERGER		80	--	4	1960	14	11-66	S	--	--	6	6.5	1922
145N083W10DCC2	M. LANDENBERGER		20	--	24	--	10	11-66	H	--	--	5	10.5	1920
145N083W11BCC	NDSWC 2707		60	--	--	1967	--	--	U	--	--	--	--	1900
145N083W11DCB	J. SAYLER		8	--	36	1902	4	11-66	K	--	--	6	4.5	1915
145N083W12AAA	H. SCHAFER		53	--	4	--	12	11-66	U	--	--	5	7.0	1895
145N083W15AAB	C. SWANSON		116	--	4	--	22	11-66	U	--	--	--	--	1936
145N083W17CCD	D. ROSBERG		21	--	--	--	16	11-66	S	--	--	5	6.5	1920
145N083W19ADA1	C. SWANSON		15	--	18	--	8	11-66	S	--	--	--	--	1910
145N083W19ADA2	C. SWANSON		25	--	--	--	8	11-66	S	--	--	--	--	1910
145N083W20BDA	M. BUSCH		20	--	24	--	9	11-66	S	--	--	4	7.0	1910
145N083W24ACB	E. BERG		240	--	3	--	148	11-66	S	--	--	4	5.5	1905
145N083W27BCC	T. CARLSON		86	--	4	1966	70	--	K	--	--	6	6.5	1992
145N083W27COC	S. PETERSON		49	--	8	--	16	11-66	U	--	--	--	--	2020
145N083W28ABB	M. CARLSON		23	--	24	--	9	11-66	U	--	--	6	6.5	1970
145N083W30ABB	F. LEIDHOLM		27	--	24	1950	12	11-66	H	--	--	4	9.0	1990
145N084W01BBB	NDSWC 2705		60	--	--	1967	--	--	U	--	--	--	--	1748
145N084W04BAB	NDSWC 2708		60	--	--	1967	--	--	U	--	--	--	--	1720
145N084W04CCB	M. SOLENBERGER		32	--	24	--	19	11-66	U	--	--	--	--	1700
145N084W09AAB	NDSWC 2703		80	--	--	1967	--	--	U	--	--	--	--	1718
145N084W10BAB	G. GUTKNECHT		58	--	24	--	49	11-66	U	--	--	--	--	1739
145N084W11ABA	NDSWC 2704	120	82	79	1	1967	45	8-67	U	51	R	4	9.0	1743
145N084W14ACD	O. KESSELRING		34	--	24	--	30	11-66	S	--	--	4	7.0	1728
145N084W14CCC	C. KUEHN		90	--	6	1965	--	--	K	--	--	4	8.5	1720
145N084W14CDD	NDSWC 2701	100	78	66	1	1967	48	8-67	U	51	R	5	11.0	1726
145N084W15DDC	NDSWC 2702	120	101	98	1	1967	36	8-67	U	51	R	5	10.0	1710
145N084W22DAD	USBR		94	--	--	1947	39	4-47	U	51	R	--	--	1723

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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	SPECIFIC CONDUCTANCE	TEMPERATURE (°C)	ELEVATION OF L.S.D (FT.)
145N084W23AAA	NDSMC 2700	140	60	57	1	1967	31	8-67	U	51	R	4	11.0	1758
145N084W24ADB	M.MILLER		26	--	12	--	15	11-66	K	--	--	5	8.5	1845
145N084W25CAA	H.SWANSON		202	--	4	1965	145	--	K	FU	--	6	7.5	1981
146N079W01CDD	C.NEFF		12	--	48	1966	--	--	H	31	S	4	9.5	1940
146N079W02BDC	L.WESTERLIND		580	--	4	1965	--	--	K	FH	V	5	8.5	1933
146N079W02CCA1	E.SCHLAHT		29	--	36	1938	8	7-67	U	--	P	--	--	1925
146N079W02CCA2	MERCER		585	--	--	--	100	--	P	FH	--	6	10.5	1926
146N079W04AAC	D.BIRST		212	--	2	1950	--	--	K	--	S	5	7.5	1900
146N079W06ACC1	R.O'SHEA		530	--	6	1959	--	--	K	FH	--	6	10.0	1860
146N079W06ACC2	R.OSHEA		110	--	4	--	66	7-67	U	--	--	--	--	1860
146N079W10AAC	L.GESSELE		150	--	2	1964	--	--	S	--	S	5	8.5	1910
146N079W10AAD	L.GESSELE		520	250	2	1959	--	--	K	--	--	5	8.5	1932
146N079W12B8C	NDSMC 2867		340	--	--	1967	--	--	U	--	--	--	--	1920
146N079W12C8A	E.HINSZ		205	--	2	1960	--	--	S	--	S	5	7.5	1970
146N079W15ADB	R.WISE		25	--	36	--	5	7-67	K	41	T	4	4.5	1864
146N079W15ADD	NDSMC 2866	240	23	21	1	1967	6	11-67	U	31	9S	4	7.5	1862
146N079W150AA	NDGS 44	25	20	18	1	1967	6	-67	U	--	R	--	--	1863
146N079W16DDC	L.BRUNNER		6	--	32	--	1	7-67	S	31	G	3	6.0	1887
146N079W180AB1	L.BRUNNER		635	--	4	--	--	--	H	FH	S	5	9.5	1940
146N079W180AB2	L.BRUNNER		156	--	4	--	--	--	S	--	--	5	7.5	1940
146N079W22C8B	J.LAIB		180	--	2	--	--	--	S	--	--	5	6.5	1880
146N079W23C8C	J.WENTZ		255	--	2	1962	--	--	K	--	--	5	7.0	1860
146N079W25BDA	A.WARDNER		590	--	2	--	--	--	S	FH	--	5	7.5	1890
146N079W24CDB	A.SCHEEL		8	--	48	--	5	7-67	S	--	G	5	4.5	1863
146N079W32C8B	F.LAIB		18	--	16	1957	--	--	S	--	G	4	10.0	1860
146N079W32C8C	F.LAIB		100	--	4	1947	--	--	S	--	S	5	8.5	1865
146N079W33DAA	M.WAGNER		18	--	30	1966	--	--	H	--	G	4	4.5	1835
146N079W3488B	NDSMC 3883		820	--	--	1969	--	--	U	51	S	--	--	1820
146N080W01DAB	E.ORMAN		48	--	20	--	22	7-67	S	11	G	5	--	1865
146N080W02CAD	A.SCHLAFMANN		140	--	6	1962	--	--	K	--	P	5	7.0	1870
146N080W0488B	SCHLICKENMAYER		85	--	6	--	--	--	S	11	R	5	7.5	1930
146N080W04DBB	USBR		50	--	--	1967	13	9-67	U	--	--	--	--	1835
146N080W04DCD	NDGS 66		20	18	1	1967	9	10-67	U	51	R	--	--	1835
146N080W05C8B1	R.SCHALFMANN		26	--	15	--	5	7-67	H	--	S	--	--	1890
146N080W05C8B2	R.SCHALFMANN		140	--	4	1963	--	--	H	--	S	5	10.0	1890
146N080W06ACB	K.SCHLAFMAN		70	--	15	--	--	--	K	FU	1	5	6.5	1900
146N080W08ADC	L.REISER		135	--	4	--	--	--	S	--	--	5	7.0	1860
146N080W08ADD	L.REISER		34	--	6	--	28	7-67	U	31	G	--	--	1850
146N080W08CBA	J.FANDRICK		24	--	20	1953	13	7-67	H	--	S	5	5.5	1890
146N080W09AAB1	E.FISCHER		20	--	18	--	13	7-67	S	--	--	4	6.0	1830

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146NC80WC9AAB2	USBR		100	--	--	1954	35	10-54	U	FU	S	--	--	
146NC80WC9AAB3	USBR		50	--	--	1967	23	9-67	U	FU	TV	--	--	1863
146NC80WC9ABA	USBR		70	--	--	1954	11	10-54	U	51	R	--	--	1834
146NC80WC9ABB1	USBR		65	--	--	1954	6	10-54	U	51	R	--	--	1828
146NC80WC9ABB2	USBR		65	--	--	1954	19	10-54	U	FU	V	--	--	1842
146NC80WC9BAA	USBR		130	--	--	1954	63	10-54	U	FU	S	--	--	1888
146NC80WC9CCC	L. REISER		25	--	8	1962	--	--	S	51	G	4	4.5	1835
146NC80WC9DDB	USBR		60	--	--	1967	14	9-67	U	51	2S	--	--	1836
146NC80W12BBC	A. HERRING		90	--	4	--	--	--	K	--	S	5	7.0	1880
146NC80W14ABB1	G. ZINGG		68	--	4	1917	--	--	S	--	P	5	5.5	1890
146NC80W14ABB2	G. ZINGG		148	--	4	1957	--	--	H	--	R	5	9.0	1890
146NC80W15AAD	W. SHANSON		233	--	4	1960	--	--	K	--	G	5	10.0	1980
146NC80W16BBB	USBR		60	--	--	1967	17	9-67	U	--	--	--	--	1844
146NC80W17ABA	D. THOMPSON		25	--	24	--	--	--	K	--	S	4	4.5	1860
146NC80W17DAB	USBR		60	--	--	1967	14	10-67	U	FU	2V	--	--	1837
146NC80W17DCC	USBR		60	--	--	1967	20	10-67	U	--	--	--	--	1846
146NC80W18CDC	E. KERZMANN		21	--	18	--	11	7-67	S	--	S	4	5.5	1820
146NC80W19ABB	NDSWC 2860		60	--	--	1967	--	--	U	51	8G	--	--	1815
146NC80W19BAA	K. GRABINGER		250	--	6	1952	--	--	K	--	--	5	9.0	1900
146NC80W20CAA	USBR		60	--	--	1967	22	10-67	U	--	--	--	--	1852
146NC80W20DAA	G. WAGNER		170	--	4	--	--	--	K	--	R	5	7.5	1940
146NC80W24BBC	C. GRANLE		15	--	48	--	7	7-67	S	--	--	4	5.5	1965
146NC80W26CCC	L. JOHNSON		102	--	4	--	--	--	S	--	S	5	7.5	1928
146NC80W27CCB1	P. FLEMMER		29	--	18	--	8	7-67	S	--	P	5	10.0	1935
146NC80W27CCB2	P. FLEMMER		230	--	2	--	--	--	S	--	P	6	7.0	1935
146NC80W28CAB	T. IMSDAHL		180	--	4	--	--	--	K	--	S	5	7.0	1935
146NC80W29BAB	USBR		85	--	--	1967	44	10-67	U	--	--	--	--	1883
146NC80W29BCA	USBR		101	--	--	1954	--	--	U	--	--	--	--	1864
146NC80W29CB1	USBR		45	--	--	1954	6	9-54	U	51	S	--	--	1812
146NC80W29CB2	USBR		43	--	--	1954	--	--	U	--	--	--	--	1807
146NC80W29CAB	D. GOVEN		100	--	4	--	--	--	S	FU	1	5	6.5	1890
146NC80W30AAC	USBR		108	--	--	1962	46	--	U	--	--	--	--	1866
146NC80W30AAC1	USBR		95	--	--	1954	--	--	U	--	--	--	--	1850
146NC80W30AAD2	USBR		30	--	--	1954	2	9-54	U	--	--	--	--	1810
146NC80W30ACC	W. FLEMMER		200	--	4	--	86	7-67	S	FU	S	5	9.0	1860
146NC80W30CDD	W. FLEMMER		25	--	24	--	--	--	S	--	S	5	5.5	1815
146NC80W31BAB	W. FLEMMER		40	--	24	--	20	7-67	K	--	S	4	7.0	1820
146NC80W33ACC	E. EVANS		370	--	4	1960	--	--	H	--	G	5	9.5	1900
146NC80W35CDC	NDSWC 2912	180	48	45	1	1968	14	5-68	U	51	R	4	6.5	1852
146NC81WC2CDD	NDSWC 3934		540	--	--	1969	--	--	U	--	--	--	--	1952

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146NC81W02DCC	H. HANSON OIL		7222	--	--	1953	--	--	U	--	--	--	--	1947
146NC81W04AAB	B. HANSON		60	--	4	--	--	--	S	FU	1	4	7.0	1925
146NC81W06AAA	C. SYNDER		104	--	6	1952	--	--	K	FU	1	5	9.5	1950
146NC81W06DOD	E. SCHAUER		210	--	6	--	--	--	K	FU	1	5	7.5	2003
146NC81W10CAC	SAMECAN OIL CO		9033	--	--	1950	--	--	U	--	--	--	--	1985
146NC81W10CAD1	R. HANSON		30	--	42	1883	10	7-67	I	11	G	--	--	1980
146NC81W10DAD2	R. HANSON		55	--	42	--	29	7-67	U	FU	F	--	--	1980
146NC81W10DAD3	R. HANSON		320	--	4	1965	--	--	S	--	S	5	10.0	1980
146NC81W11BBC	H. RATH		160	--	4	1955	--	--	K	--	P	5	7.5	1962
146NC81W12COC1	L. THEETEN		32	--	24	1917	27	7-67	U	FU	1	--	--	1955
146NC81W12COC2	L. THEETEN		200	--	4	1963	--	--	K	--	--	5	9.0	1955
146NC81W15DAD	E. JOHNSON		175	--	4	1964	--	--	H	--	S	5	9.0	1960
146NC81W16CCD	M. HERDT		60	--	4	--	--	--	K	--	G	5	6.5	1990
146NC81W18CBC	R. WEISZ		240	--	4	--	--	--	S	FU	1	6	9.0	2020
146NC81W18CDO	NDSWC 2859	280	187	185	1	1967	31	10-67	U	SZ	R	5	7.0	1920
146NC81W19CDC	R. HANSON		150	--	4	--	--	--	S	--	P	5	7.0	1980
146NC81W20CDD	E. LEE		100	--	4	1961	--	--	K	FU	S	4	7.5	1972
146NC81W22CC1	C. THEETEN		45	--	2	--	30	7-67	U	--	--	--	--	1963
146NC81W22CC2	C. THEETEN		60	--	4	1961	--	--	K	FU	1	5	6.5	1963
146NC81W24ADD	E. KERZMANN		63	--	24	--	49	7-67	K	--	S	4	7.5	1860
146NC81W24CDC	P. BERGQUIST		75	--	36	--	--	--	K	--	P	4	8.5	1910
146NC81W25CDA	E. WACKER		140	--	4	1964	--	--	K	--	--	5	7.0	1900
146NC81W27DAA	J. BERGQUIST		65	--	4	1940	--	--	K	--	--	3	6.5	1900
146NC81W31CCC	R. SAYLER		80	--	4	--	--	--	S	--	G	5	7.0	2004
146NC81W32DBB	M. ROTHMANN		14	--	24	--	6	7-67	H	--	P	5	7.0	1980
146NC81W32DBC	M. ROTHMANN		22	--	24	1956	7	7-67	S	--	P	6	7.0	1980
146NC81W34CBB	R. SAYLER		110	--	4	--	--	--	S	FU	1	6	8.5	1940
146NC81W35ACA	M. REISER		22	--	1	--	--	--	S	--	S	5	6.5	1850
146NC81W35OCB	J. LUTHLE		90	--	4	1966	--	--	K	--	S	4	6.5	1910
146NC82W01BAA	L. STENGEL		54	--	4	1961	5	11-66	U	--	--	4	9.5	1960
146NC82W01BBA	L. STENGEL		33	--	4	--	12	--	K	FU	1	5	8.5	1980
146NC82W01CCD	R. HOME		149	--	4	--	130	10-66	U	--	--	6	9.0	2070
146NC82W02BBB	C. STADICK		64	--	24	--	45	10-66	K	FU	1	5	7.0	2010
146NC82W04ABA	J. BUSCH		100	--	4	--	50	--	K	FU	1	4	10.5	2005
146NC82W05ADA1	W. JOHNSON		70	--	4	1950	36	10-66	K	FU	1	4	7.5	2004
146NC82W05ADA2	W. JOHNSON		35	--	24	--	20	--	K	FU	1	6	10.5	2004
146NC82W05ADA3	W. JOHNSON		70	--	4	1958	--	--	H	FU	1	6	16.5	2004
146NC82W05CCC	NDSWC 3922	400	324	312	2	1969	140	5-70	U	FU	S	5	7.0	2027
146NC82W06BBB1	L. MERTZ		110	--	4	--	50	--	Z	--	--	5	9.0	2005
146NC82W06BBB2	L. MERTZ		10	--	24	--	9	10-66	H	--	--	6	12.0	2005

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	SPECIFIC CONDUCTANCE	TEMPERATURE (°C)	ELEVATION OF LSD (FT.)
146N082W08ADD	D.MILLER		28	--	24	--	11	11-66	U	--	--	--	--	2045
146N082W09BCC	D.MILLER		128	--	4	--	84	10-66	U	--	--	--	--	2052
146N082W10DAD	W.SCHWAND		--	--	4	--	136	10-66	S	--	--	5	4.5	2110
146N082W10DCC	J.BUSCH		29	--	4	--	16	11-66	H	--	--	5	14.0	2055
146N082W20AAB	NDSMC 4039		60	--	--	1970	--	--	U	--	--	--	--	2025
146N082W218BD	UNDERWOOD		95	--	8	1947	27	11-66	P	FU	1	5	8.5	2025
146N082W218DC	UNDERWOOD	410	395	--	--	1964	--	--	U	FU	V	5	--	2045
146N082W218DD	UNDERWOOD		385	344	6	1964	97	11-66	U	--	V	5	--	2026
146N082W21CBB1	UNDERWOOD		82	--	8	1949	34	11-66	P	FU	1	4	9.0	2024
146N082W21CBB2	UNDERWOOD		87	--	8	1952	48	11-66	P	FU	1	4	9.0	2022
146N082W228DC	UNDERWOOD		17	--	24	--	12	11-66	R	--	--	--	6.0	2025
146N082W25AAB	R.KOENIG		32	--	30	--	21	11-66	K	FU	1	5	6.0	2000
146N082W31CCC	A.SHANSON		67	--	4	--	52	11-66	S	FU	1	6	7.5	1970
146N082W32CDA	H.HANSON OIL		6600	--	--	1957	--	--	U	--	--	--	--	2011
146N082W32CDC	NDSMC 3914	520	311	294	2	1969	152	5-70	U	FU	S	5	8.5	2032
146N082W33CDD	NDSMC 3912		60	--	--	1969	--	--	U	--	--	--	--	1945
146N082W34ADD	NDSMC 3911	100	80	78	1	1969	16	11-69	U	52	R	4	6.5	1925
146N083W03AAA	NDSMC 4038		260	--	--	1970	--	--	U	52	S	--	--	1958
146N083W08AAB	N.SIGURDSON		159	--	4	--	144	11-66	S	FU	1	6	11.0	1989
146N083W08DDD	NDSMC 4037	160	112	108	1	1970	97	7-70	U	51	R	--	--	1975
146N083W10BAA1	R.BUCHERT		200	--	4	1965	111	11-66	K	--	S	5	11.0	1968
146N083W10BAA2	R.BUCHERT		163	--	4	--	113	11-66	U	FU	1	--	--	1968
146N083W12CAC	J.EHRICHS		--	--	4	--	106	11-66	U	--	--	--	--	1950
146N083W12DDC	E.ANDERSON		152	--	4	--	130	11-66	U	--	--	--	--	1961
146N083W13ABB	A.SCHAFFER		--	--	4	--	58	11-66	U	--	--	--	--	1957
146N083W14BCC1	H.SNYDER		140	--	4	--	76	11-66	K	FU	1	6	8.5	1990
146N083W14BCC2	H.SNYDER		11	--	24	--	9	11-66	U	--	--	--	--	1990
146N083W15CCC	NDSMC 4036	460	284	278	1	1970	101	7-70	U	52	G	6	9.0	1958
146N083W19AAA	NDSMC 3919		260	--	--	1969	--	--	U	--	--	--	--	1962
146N083W22DCD1	C.FREBERG		171	--	4	1955	95	11-66	S	FU	1	6	5.5	1967
146N083W22DCD2	C.FREBERG		25	--	36	--	10	11-66	H	--	--	4	10.0	1966
146N083W24AAA	NDSMC 3921		60	--	--	1969	--	--	U	--	--	--	--	2040
146N083W268DC	L.LEIDHOLM		87	--	24	--	73	11-66	U	FU	1	--	--	1987
146N083W29CAC	E.SAYLER		99	--	4	1929	77	11-66	H	FU	1	4	7.0	1900
146N083W31AAD	G.SAYLER		29	--	18	--	22	11-66	K	--	--	--	--	1880
146N083W33BCC	NDSMC 3918		100	--	--	1969	--	--	U	--	--	--	--	1904
146N083W35BBB	NDSMC 4035		140	--	--	1970	--	--	U	--	--	--	--	1978
146N084W088DD	NDSMC 2713	140	29	18	1	1967	10	8-67	U	51	R	6	8.5	1697
146N084W12ABB	D.ROBINSON		72	--	12	1883	58	--	K	FU	1	4	10.5	1962
146N084W17DAA	NDSMC 2712	180	121	118	1	1967	32	8-67	U	51	S	6	9.5	1725

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146N084W20C8B	R. MANN		18	--	6	1958	--	--	H	--	--	5	9.5	1701
146N084W20CCD	NDSWC 2711	50	25	22	1	1967	25	8-67	U	51	8G	--	--	1700
146N084W25CDD	NDSWC 3920		100	--	--	1969	--	--	U	--	--	--	--	1810
146N084W26ADD	H. JOHANNES		65	--	6	1961	59	--	K	--	--	5	9.0	1925
146N084W28ABA	NDSWC 2710		50	--	--	1967	--	--	U	--	--	--	--	1750
146N084W28BBB	NDSWC 2709		100	--	--	1967	--	--	U	--	--	--	--	1765
146N084W28BCC	R. ASH		24	--	24	--	22	11-66	H	--	--	5	8.5	1717
146N084W29DDC	USBR		50	--	--	1947	6	4-47	U	FU	S	--	--	1692
146N084W34DDD1	V. CLARK		100	--	4	--	79	11-66	U	--	--	--	--	1760
146N084W34DDD2	V. CLARK		35	--	18	1966	16	11-66	S	--	--	4	6.5	1760
146N084W35DDA	NDSWC 2706		100	--	--	1967	--	--	U	--	--	--	--	1750
147N079W06BBB	NDSWC 3941	80	39	19	1	1969	17	12-69	U	31	9S	4	7.0	1906
147N079W02CDC	E. LITTLE		27	--	24	1945	--	--	S	31	S	3	7.0	1923
147N079W02DAD	E. ANDERSON		21	--	34	1927	15	7-67	K	31	S	6	4.5	1935
147N079W03DDC	A. SCHILIER		11	--	32	--	8	6-67	S	31	G	4	5.5	1880
147N079W05BCC	L. BRITTON		280	--	2	--	--	--	K	--	P	5	6.5	1910
147N079W06CAB	E. BIRST		80	--	3	1961	--	--	K	FU	1	5	8.5	1885
147N079W08BBB	NDSWC 3938		220	--	--	1969	--	--	U	--	--	--	--	1890
147N079W09BCA	O. FUELLER		130	--	--	--	--	--	S	--	--	5	8.5	1900
147N079W09CDB	M. BRENNSTER		20	--	48	--	--	--	S	31	G	4	4.5	1885
147N079W11BCB	NDSWC 2788	100	34	29	1	1967	4	9-67	U	31	9S	4	7.0	1860
147N079W12BCD	A. CHRISTIANSON		37	--	18	1923	--	--	S	31	G	6	6.0	1950
147N079W13BCD	M. WHITE		265	--	2	--	--	--	K	--	--	5	6.0	1920
147N079W14BCC	E. FIEDLER		150	--	2	--	--	--	K	--	--	5	7.0	1905
147N079W15BDB	R. FUELLER		140	--	4	1947	--	--	K	51	S	4	7.5	1917
147N079W17AAA	NDSWC 4092		160	--	--	1970	--	--	U	--	--	--	--	1885
147N079W18ADD	A. SCHOCK		60	--	4	1946	--	--	K	51	S	4	10.0	1869
147N079W19BAA1	NDSWC 2750	220	39	36	1	1967	10	9-67	U	51	8G	5	7.5	1825
147N079W19BAA2	NDSWC 2750	220	121	118	1	1967	10	8-67	U	51	R	5	7.5	1825
147N079W19BAA3	NDSWC 2750	220	190	188	1	1967	56	8-67	U	52	G	--	--	1825
147N079W20DAA	C. STUTE		62	--	16	1917	--	--	K	51	S	5	7.0	1874
147N079W21ADA	G. STUTE		175	--	2	1958	--	--	K	--	--	5	9.0	1860
147N079W22DAB	S. NIELSON		35	--	24	1943	--	--	K	--	S	5	8.5	1848
147N079W24CBC	J. RUST		280	--	2	1948	--	--	K	--	S	5	10.0	1916
147N079W25ADD1	NDSWC 3939	320	168	148	1	1969	38	12-69	U	51	R	4	7.0	1905
147N079W25ADD2	NDSWC 3940	60	59	39	1	1969	3	12-69	U	31	9S	3	6.5	1905
147N079W25CCA	S. RUST		140	--	2	--	--	--	K	--	G	4	9.5	1915
147N079W26CCC	E. KLEINGARTNER		90	--	3	1961	--	--	S	51	S	4	7.0	1880
147N079W27AAA	NDSWC 4093	180	44	24	1	1970	27	8-70	U	51	R	4	8.0	1855
147N079W27ACA	M. SKALEY		17	--	1	--	14	7-67	C	31	S	4	6.0	1840

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147N079W27ADA1	NDSWC 2787	200	177	167	1	1967	17	9-67	U	52	R	5	9.0	1837
147N079W27ADA2	NDSWC 2787A	60	36	34	1	1967	20	9-67	U	52	9S	4	7.5	1837
147N079W27DDD	USBR		238	--	--	1953	--	--	U	51	2S	--	--	1870
147N079W30DDD	NDSWC 2786		200	--	--	1967	--	--	U	--	--	--	--	1850
147N079W31ACD	A.SCHOCK		154	--	4	1958	--	--	K	FU	1	5	7.0	1862
147N079W32BCB	T.LEVI		60	--	24	--	--	--	K	--	--	6	6.5	1855
147N079W33DDC	W.WHITE		485	--	--	1957	--	--	K	--	1	6	8.5	1860
147N079W34BAA	I.KLEINGARTNER		415	--	2	1965	84	7-67	K	--	--	6	7.5	1900
147N079W34DDC	MACKEEFF BROS.		130	--	3	1965	--	--	H	--	S	5	9.5	1910
147N079W35BCC	NDSWC 4094	320	224	218	1	1970	102	8-70	U	52	S	--	--	1918
147N080W01CCC1	W.FUELLER		85	--	28	1918	71	6-67	K	51	8G	5	7.0	1910
147N080W01CCC2	NDSWC 3937	320	54	49	4	1969	38	12-69	U	51	8G	4	7.0	1880
147N080W02CAD	W.FUELLER		65	--	18	1903	44	6-67	K	--	P	4	6.0	1880
147N080W03BDC	NDSWC 4087	200	59	39	1	1970	37	8-70	U	51	R	--	--	1860
147N080W03CCC	NDSWC 2730	180	51	48	1	1967	31	9-67	U	51	8G	5	8.5	1875
147N080W048BB	NDSWC 4086		200	--	--	1970	--	--	U	51	R	--	--	1869
147N080W05BCC	NDSWC 2732		120	--	--	1967	--	--	U	51	8G	--	--	1868
147N080W06AAA	C.PETERSON		31	--	1	--	--	--	H	51	S	2	9.0	1870
147N080W07CBB	R.GROSZ		58	--	4	1952	--	--	K	51	S	4	8.5	1870
147N080W07CCC	NDSWC 2728		100	--	--	1967	--	--	U	51	R	--	--	1848
147N080W08ABB	W.HOFFER		7	--	1	1958	--	--	H	31	S	2	7.0	1850
147N080W09BCC	NDSWC 2731	120	25	22	1	1967	6	8-67	U	31	R	4	6.5	1845
147N080W10BBB	C.RITTER		14	--	1	--	--	--	S	51	8G	3	7.0	1880
147N080W11BDD	J.PRESSER		85	--	4	1963	--	--	K	51	G	4	7.5	1892
147N080W12BAA	R.HOFER		75	--	24	1963	--	--	K	51	S	6	7.0	1880
147N080W13CCC	NDSWC 2749	160	130	127	1	1967	33	8-67	U	51	8G	5	7.5	1855
147N080W140BA	E.WAGNER		325	--	4	1966	--	--	K	--	--	5	9.0	1872
147N080W15CCC1	M.HOFER		80	--	3	--	51	6-67	S	51	S	4	7.5	1860
147N080W15CCC2	M.HOFER		320	--	4	1961	--	--	K	FU	--	6	10.0	1860
147N080W17BCB	NDSWC 2729		120	--	--	1967	--	--	U	--	R	--	--	1835
147N080W17BCD	C.HANSON		70	--	4	--	--	--	S	51	S	2	7.5	1865
147N080W18CDA	E.GROVEN		115	--	4	--	--	--	K	51	S	5	8.5	1870
147N080W19ADD1	USBR		40	--	--	1954	12	8-54	U	51	S	--	--	1836
147N080W19ADD2	TURTLE LAKE		70	--	--	1968	--	--	U	--	--	--	--	1828
147N080W19ADD3	TURTLE LAKE	65	58	41	6	1968	8	4-68	U	51	R	4	6.5	1835
147N080W19BCC	NDSWC 2723	180	151	148	1	1967	22	8-67	U	52	S	5	9.0	1843
147N080W19DAA	NDSWC 2722	100	60	57	1	1967	10	8-67	U	51	9S	5	7.5	1840
147N080W19DBB	E.GOVEN		30	--	24	--	--	--	S	51	S	4	6.5	1844
147N080W20BBB	USBR		85	--	--	1954	31	11-54	U	51	S	--	--	1852
147N080W20CAA	TURTLE LAKE	61	44	39	6	1968	23	2-68	U	51	6S	--	--	1860

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147N080W20CDD	TURTLE LAKE		81	--	--	1968	--	--	U	--	--	--	--	1858
147N080W20DDD	R. SCHOCK		150	--	4	--	--	--	K	--	--	5	7.0	1865
147N080W22B8C	NDSMC 3936	180	131	128	1	1969	16	12-69	U	51	9S	5	7.0	1835
147N080W22BDA	H. SACKMAN		75	--	4	1923	--	--	K	--	P	5	7.5	1860
147N080W24B8C	R. SCHOCK		259	--	4	--	14	6-67	S	--	--	--	--	1835
147N080W28C8C	TURTLE LAKE		445	390	12	1957	45	3-67	P	HC	S	6	10.0	1880
147N080W28DAB	USBR		35	--	--	1954	13	11-54	U	51	S	--	--	1851
147N080W28DDB	USBR		40	--	--	1955	5	--	U	--	--	--	--	1848
147N080W29ACD	M. HOFER		178	--	4	--	--	--	K	--	P	5	8.5	1875
147N080W30AAD	W. KRAFT		240	--	4	1959	--	--	K	FU	P	5	8.5	1885
147N080W31DDD	J. SCHLAFMANN		140	--	4	--	--	--	K	--	G	5	7.5	1895
147N080W32BAA	J. SCHLAFMANN		240	--	4	--	103	6-67	U	--	--	--	--	1920
147N080W33ABA1	B. MILLER		16	--	24	--	9	6-67	S	51	G	5	7.5	1850
147N080W33ABA2	B. MILLER		64	--	4	--	--	--	H	FU	L	4	10.0	1850
147N080W33BBC	W. SCHLAFMAN		300	--	2	--	--	--	S	--	--	6	7.5	1905
147N080W33DCC	USBR		30	--	--	1954	10	8-54	U	51	S	--	--	1840
147N080W33DDD	NDSMC 3935	40	25	19	1	1969	4	12-69	U	51	S	5	7.0	1827
147N080W34CAA	V. MOLITAR SKY		29	--	4	1957	--	--	H	FU	L	4	6.5	1840
147N080W35DCA	M. FRANKE		6	--	36	--	2	6-67	S	31	R	4	7.0	1825
147N080W35DCC	C. FRANKE		88	--	4	1954	--	--	H	--	P	5	9.0	1840
147N081W01BAA	H. SEVERTS		20	--	1	--	--	--	H	31	G	4	7.0	1860
147N081W03BAB	J. RATH		20	--	--	1951	--	--	H	31	G	4	7.0	1846
147N081W04B8B1	A. KLAIN		83	--	3	1920	49	6-67	U	--	L	--	--	1886
147N081W04B8B2	A. KLAIN		150	--	3	1953	--	--	K	FU	L	5	7.0	1886
147N081W05CAA	F. KLAIN		100	--	3	1945	--	--	K	FU	L	5	8.5	1885
147N081W07DDD	NDSMC 4098	220	139	119	1	1970	74	8-70	U	51	G	5	7.5	1912
147N081W08C8B	H. SELLOW		165	--	4	1952	--	--	K	FU	L	6	8.5	1915
147N081W10ADD	NDSMC 2727		80	--	--	1967	--	--	U	51	6S	--	--	1864
147N081W11CCC	USBR		30	--	--	1955	--	--	U	--	--	--	--	1852
147N081W11COC	A. GRABINGER		18	--	42	--	--	--	S	31	G	5	4.5	1849
147N081W12DCC	J. GROSZ		86	--	4	1929	--	--	K	--	P	2	7.0	1865
147N081W14ACC	USBR		30	--	--	1955	--	--	U	--	--	--	--	1851
147N081W148BB	USBR		30	--	--	1954	10	8-54	U	--	--	--	--	1840
147N081W148OC	GERGEN BROS.		10	--	30	1903	1	6-67	S	31	G	3	6.5	1829
147N081W15BAD	USBR		32	--	--	1954	21	9-54	U	51	S	--	--	1847
147N081W15DCD1	B. HANSON		100	--	4	1915	--	--	S	FU	L	5	7.0	1842
147N081W15DCD2	B. HANSON		300	--	4	--	--	--	H	FU	L	6	10.0	1842
147N081W15DDD	NDSMC 2725		50	--	--	1967	--	--	U	31	8G	--	--	1830
147N081W16DAD	USBR		40	--	--	1955	8	3-55	U	--	--	--	--	1847
147N081W17CCC	W. LANDSEIDEL		80	--	4	--	--	--	U	FU	L	5	7.0	1840

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	SPECIFIC CONDUCTANCE	TEMPERATURE (°C)	ELEVATION OF LSD (FT.)
147N081W18CCC	H. NATHAN		140	--	4	1947	--	--	K	FU	1	5	8.5	1870
147N081W18DBC	USBR		35	--	--	1954	20	--	U	51	S	--	--	1860
147N081W19AAA	NDSWC 2718	120	99	96	1	1967	F	8-67	U	51	R	5	7.5	1837
147N081W20DCD	E. BRITTON		16	--	8	--	11	6-67	U	31	--	--	--	1840
147N081W21AAA	NDSWC 2726		80	--	--	1967	--	--	U	--	--	--	--	1847
147N081W21DAD	L. WITTRUP		72	--	3	--	--	--	S	--	S	5	6.5	1830
147N081W22BBC	L. WITTRUP		49	--	4	--	--	--	K	51	S	5	7.5	1842
147N081W23AAA	NDSWC 2724	70	50	47	1	1967	3	8-67	U	51	R	3	7.5	1825
147N081W24ABB	E. GOVEN		--	--	4	--	--	--	S	--	--	4	7.5	1850
147N081W24BAA	USBR		75	--	--	1954	7	8-54	U	51	R	--	--	1834
147N081W24DCC	TURTLE LAKE	53	30	22	4	1968	2	4-68	U	51	R	--	--	1824
147N081W25DCB	TURTLE LAKE	60	45	35	10	1969	3	3-68	P	31	R	5	7.0	1830
147N081W25DDD	NDSWC 2721		140	--	--	1967	--	--	U	51	S	--	--	1878
147N081W28ADD	NDSWC 2719	120	81	78	1	1967	6	8-67	U	51	8G	5	7.5	1838
147N081W28DDD	E. BREWSTER		100	--	4	--	--	--	H	--	S	5	7.0	1882
147N081W30ADD	NDSWC 4097	180	81	70	1	1970	16	8-70	U	51	R	5	7.0	1863
147N081W30CDD	NDSWC 3929		100	--	--	1969	--	--	U	--	--	--	--	1897
147N081W32ABB	F. SHAUER		112	--	4	1960	--	--	Z	FU	1	5	9.5	1929
147N081W32BBB	NDSWC 2717		80	--	--	1967	--	--	U	--	--	--	--	1905
147N081W33CAD	D. AHNSON		--	--	3	1917	--	--	K	--	--	4	7.0	1935
147N081W35AAA	L. JANSEN		14	--	4	--	8	4-67	U	31	S	--	--	1830
147N081W35ABB	NDSWC 2720	60	19	16	1	1967	5	8-67	U	31	9S	4	7.5	1852
147N081W35DBB	E. WAGNER		127	--	3	1916	--	--	K	FU	1	5	8.5	1911
147N081W36BAD	A. FANDRICK		40	--	18	--	14	6-67	U	--	--	4	6.5	1840
147N082W01ADD	J. PROUTY		123	--	4	--	98	10-66	U	--	--	--	--	1933
147N082W01BAD1	A. MEHLHOFF		213	--	4	1953	85	10-66	K	--	--	6	7.5	1920
147N082W01BAD2	A. MEHLHOFF		102	--	24	--	67	10-66	U	--	--	--	--	1918
147N082W11BBB	NDSWC 3927	160	104	98	1	1969	2	11-69	U	51	8G	5	7.0	1841
147N082W11BDC	S. ESLINGER		129	--	4	1956	50	--	S	--	--	5	8.5	1860
147N082W11CCC	NDSWC 3928		140	--	--	1969	--	--	U	--	--	--	--	1855
147N082W12CCC	C. HAWLEY		140	--	4	1950	60	--	S	--	--	5	8.5	1857
147N082W12CAA1	C. HAWLEY		170	--	4	1942	75	--	S	--	--	4	8.5	1900
147N082W12DDA2	C. HAWLEY		180	--	4	1956	60	10-66	H	--	--	5	11.0	1905
147N082W14BBB	S. ESLINGER		165	--	4	--	35	10-66	K	--	--	5	11.5	1872
147N082W15AAD1	J. NORLAND		70	--	5	1927	35	--	U	--	--	6	10.5	1868
147N082W15AAD2	J. NORLAND		234	--	5	1956	40	10-66	H	--	--	5	8.5	1860
147N082W15AAD3	J. NORLAND		90	--	5	1958	40	--	S	--	--	6	8.5	1875
147N082W15DDD	NDSWC 3926		100	--	--	1969	--	--	U	--	--	--	--	1927
147N082W18DCC1	L. NELSON		210	--	4	1962	170	--	H	FU	--	4	11.5	1870
147N082W18DCC2	NDSWC 2716		60	--	--	1967	--	--	U	--	--	--	--	1885

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	SPECIFIC CONDUCTANCE	TEMPERATURE (°C)	ELEVATION OF LSD (FT.)
147N082W19AB8	R. NELSON	160	--	4	---	1916	100	--	K	FU	--	4	9.0	1880
147N082W20CAA	W. KRANZ	22	--	18	--	---	4	10-66	S	--	--	4	10.0	1890
147N082W22DAD	E. PAULSON	100	--	4	--	---	60	--	K	--	--	5	7.5	1920
147N082W22DB8	E. PAULSON	140	--	4	--	---	80	--	S	FU	--	5	10.0	1880
147N082W23AAA	E. PAULSON	40	--	4	--	---	20	--	S	--	--	5	7.5	1882
147N082W23BCA1	E. PAULSON	190	--	4	--	---	100	--	S	FU	--	5	8.5	1932
147N082W23BCA2	E. PAULSON	140	--	4	--	---	50	--	H	FU	--	5	8.5	1933
147N082W24AAD	K. PECK	54	--	24	--	---	54	--	H	--	--	5	7.5	1845
147N082W24CC8	A. GRUENWICH	37	--	4	--	---	20	10-66	U	--	--	3	8.5	1910
147N082W24DDC	J. FAST	65	--	24	--	---	28	10-66	K	--	--	6	7.5	1898
147N082W26AAD	A. GRUENWICH	140	--	4	--	---	60	--	K	FU	--	6	9.0	1940
147N082W26CC8	J. WATT	80	--	5	--	---	70	--	K	--	--	6	8.5	2030
147N082W27DDA	NDSWC 4095	100	--	--	--	1970	--	--	U	--	--	--	--	2012
147N082W28ADD	E. PAULSON	90	--	4	--	---	40	--	S	--	--	6	7.5	1967
147N082W29ACC	R. NELSON	14	--	24	--	---	2	10-66	S	--	--	5	8.5	1880
147N082W30ABB1	W. KRANZ	127	--	4	---	1913	18	--	U	FU	1	5	11.5	1890
147N082W30ABB2	W. KRANZ	170	--	4	---	1940	65	--	K	FU	--	5	6.0	1890
147N082W31CCC	W. ALLENSTEIN	19	--	14	--	---	8	10-66	I	--	--	5	10.5	1985
147N082W31CDC	R. SULLWOLD	15	--	36	--	---	9	10-66	U	--	--	5	--	1985
147N082W31DCC	H. HOLBROOK	85	--	4	---	1961	15	--	Z	--	--	5	--	1980
147N082W34ADD1	W. SANDBERG	94	--	4	--	---	50	--	H	--	--	5	11.0	2007
147N082W34ADD2	W. SANDBERG	43	--	30	--	---	12	10-66	S	--	--	6	7.0	2004
147N082W34CCC	R. THOMPSON	90	--	4	--	---	50	--	K	--	--	5	7.5	1985
147N082W35AB0	C. LANDSEIDEL	--	--	--	--	---	--	--	H	--	--	6	7.0	2017
147N082W35BBC	NDSWC 4096	100	--	--	--	1970	--	--	U	--	--	--	--	2000
147N082W35DC8	N. HOPPE	73	--	4	---	1961	64	--	S	--	--	5	8.5	2040
147N082W35DCC	N. HOPPE	72	--	4	---	1961	60	--	S	--	--	5	7.5	2040
147N083W03CAC	USCE	220	--	6	---	1957	--	--	S	--	--	5	9.0	1860
147N083W048AA	USCE	184	--	--	--	1950	44	2-50	U	--	--	--	--	1828
147N083W048AD	USCE	87	--	--	--	1950	52	2-50	U	--	--	--	--	1787
147N083W048DD1	USCE	57	--	--	--	1950	53	12-50	U	--	--	--	--	1848
147N083W048DD2	USCE	66	--	--	--	1951	57	1-51	U	51	R	--	--	1851
147N083W04CAA	USCE	90	--	8	---	1950	--	--	U	--	--	--	--	1872
147N083W04DC0	A. HUMMEL	90	--	4	--	---	65	--	K	--	--	5	7.5	1881
147N083W05D	USCE	225	--	--	--	1950	39	4-50	U	--	--	--	--	1814
147N083W10ABC	A. FRANZEN	65	--	6	--	---	35	--	K	--	--	4	11.0	1739
147N083W11CCC1	A. FRANSEN	21	--	4	---	1914	14	12-69	U	51	S	--	--	1861
147N083W11CCC2	NDSWC 3924	240	--	--	--	1969	--	--	U	51	R	--	--	1860
147N083W13CC8	W. WINN	25	--	24	--	---	18	--	H	--	--	5	9.0	1890
147N083W13DD0	NDSWC 3925	60	--	--	--	1969	--	--	U	--	--	--	--	1881

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147N083W148CC	NDSWC 4041	260	261	258	1	1970	10	9-70	U	52	8G	6	10.0	1860
147N083W15CDD1	J. BUCHERT	--	--	--	4	--	--	--	U	--	--	5	8.5	1870
147N083W15CDD2	NDSWC 983-2	--	32	--	--	1962	--	--	U	--	--	--	--	1870
147N083W15CDD3	NDSWC 4042	--	140	--	--	1970	--	--	U	--	--	--	--	1865
147N083W15DCC	NDSWC 983-1	--	84	--	--	1962	--	--	U	--	--	--	--	1875
147N083W15CDD	H. HULTBERG	--	40	--	24	--	19	--	S	--	--	6	7.5	1881
147N083W22AC8	NDSWC 983-3	--	21	--	--	1966	--	--	U	--	T	--	--	1875
147N083W22CDD	I. FRANSEN	--	36	--	6	--	22	10-66	U	--	--	--	--	1898
147N083W22DBB1	NDSWC 983-4	--	32	--	--	1962	--	--	U	--	--	--	--	1881
147N083W22DBB2	NDSWC 983-11	--	31	--	--	1966	--	--	U	51	G	--	--	1881
147N083W22DBB3	NDSWC 983-7	--	42	--	--	1966	--	--	U	--	--	--	--	1881
147N083W22DBC1	NDSWC 983-12	32	18	14	1	1966	6	12-67	U	51	R	4	--	1881
147N083W22DBC2	NDSWC 983-10	--	31	--	--	1966	--	--	U	51	R	--	--	1880
147N083W22DBC3	NDSWC 983-9	32	19	17	1	1966	10	12-66	U	51	R	--	--	1880
147N083W22DBC4	NDSWC 983-8	21	12	10	1	1966	4	12-66	U	51	R	--	--	1880
147N083W22DBC5	NDSWC 983-5	21	21	19	1	1966	7	12-66	U	51	R	--	--	1880
147N083W22DBC6	NDSWC 983-6	--	168	--	--	1966	--	--	U	51	R	--	--	1880
147N083W22DBC7	NDSWC 983-14	32	20	16	1	1966	7	12-66	U	51	R	4	--	1880
147N083W22DBC8	COLEHARBOR	--	18	--	10	1968	--	--	P	51	R	4	8.5	1870
147N083W22DBD1	NDSWC 983-15	21	16	12	1	1966	2	12-66	U	31	R	--	--	1880
147N083W22DBD2	NDSWC 983-16	--	21	--	--	--	--	--	U	31	S	--	--	1880
147N083W22DCB	NDSWC 983-13	32	19	15	1	1966	8	12-66	U	31	R	4	--	1883
147N083W23DCB	M. ESLINGER	--	500	--	4	1951	250	--	K	FU	--	5	--	1908
147N083W24BBA	E. FLATH	--	85	--	4	--	65	--	S	--	--	5	8.5	1900
147N083W25AAA	NDSWC 4040	--	60	--	--	1970	--	--	U	--	--	--	--	1901
147N083W25BBC1	E. FLATH	--	85	--	4	--	60	--	S	--	--	5	7.5	1942
147N083W25BBC2	E. FLATH	--	140	--	4	1965	50	--	H	--	--	5	11.0	1942
147N083W25CBB	NDSWC 2715	--	140	--	--	1967	--	--	U	--	--	--	--	1937
147N083W26AAD	E. FLATH	--	40	--	24	1962	20	--	S	--	--	4	11.5	1925
147N083W26AAA	NDSWC 2714	--	200	--	--	1967	--	--	U	--	--	--	--	1905
147N083W29ADC	H. SIGURDSON	--	105	--	4	--	85	--	S	--	--	6	8.5	1959
147N083W30ABC	G. HAGER	--	185	--	5	--	95	--	S	--	--	5	8.5	1980
147N083W30CBB	H. PETERSON	--	71	--	8	--	66	10-66	K	--	--	5	9.5	1980
147N083W32BBA1	C. BARTZ	--	52	--	5	--	48	10-66	U	--	--	5	8.5	1925
147N083W32BBA2	C. BARTZ	--	27	--	24	--	20	10-66	U	--	--	--	--	1925
147N083W32CCD	H. BARTZ	--	160	--	6	--	130	--	U	--	--	6	8.5	1981
147N083W34ABB	NDSWC 3923	380	204	198	1	1969	58	12-69	U	52	G	6	6.5	1880
147N084W25CCC	W. WINN	--	73	--	18	--	60	11-66	S	--	--	4	7.5	1940
147N084W26DBD1	W. WINN	--	52	--	18	1958	41	11-66	K	--	--	5	9.0	1942
147N084W26DBD2	W. WINN	--	32	--	24	--	28	11-66	S	--	--	--	--	1943

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	SPECIFIC CONDUCTANCE	TEMPERATURE (°C)	ELEVATION OF LSD (FT.)
147N084W34A0B	USCE	264	243	179	6	1963	130	2-63	R	FU	8F	--	--	1948
147N086W01CAB	USCE		163	155	4	1957	148	5-57	R	FU	S	--	--	--
147N086W06CAB	A. MEHLHOFF		88	88	24	1960	77	7-66	U	--	--	--	--	--
147N087W03CCA	G. WHITECALF		275	--	4	1953	--	--	S	FU	S	6	7.5	2014
147N087W03CDB	USBIA		500	--	--	1951	--	--	H	--	--	--	--	2014
147N087W04ABA	N. KARLSON		380	--	4	--	--	--	K	FU	--	6	8.5	--
147N087W04ABC	F. WHITE		190	--	5	1953	--	--	K	FU	1	6	9.0	2022
147N087W09BAD	G. WHITECALF		271	--	--	1953	--	--	K	FU	S	6	--	1973
147N087W12BAB	M. WHITEBEAR	480	465	--	4	1952	206	10-51	K	FU	3S	6	8.5	1970
147N087W13BCB	M. WHITEBEAR	290	280	--	4	1954	144	6-67	U	FU	S	--	--	1965
147N087W13BCD	M. WHITEBEAR JR.	275	261	--	4	1951	204	10-51	U	FU	V	--	--	1955
147N088W01ABD	USBIA		500	--	--	--	--	--	--	--	--	--	--	2020
147N088W01ACB	USBIA		500	--	--	--	--	--	--	--	--	--	--	2010
147N088W01BDD	D. PAINT	100	87	--	--	1953	--	--	U	FU	1	--	--	2000
147N088W01CCD	F. HOWARD	181	175	--	--	1953	--	--	S	FU	S	5	8.5	1995
147N088W01DCC	R. PAINT		153	--	--	--	127	6-67	U	--	--	--	--	2003
147N088W03AAA	M. MOUNTAIN		200	--	3	--	170	--	H	FU	2S	5	7.5	--
147N088W03ABA1	P. PRICE		21	--	6	--	10	--	K	--	6P	5	7.5	--
147N088W03ABA2	USBIA		405	--	--	--	--	--	--	--	--	--	--	2052
147N088W03ABC	J. PRICE	500	439	--	4	--	287	10-51	H	--	1	--	--	2038
147N088W03ADB	L. ROSS		169	--	4	1952	149	--	H	FU	S	5	8.5	--
147N088W07BDD	WHITETAIL HEIRS	132	100	--	--	1953	--	--	S	--	6G	6	9.0	1875
147N088W11BAA1	USBIA		400	--	--	--	--	--	--	--	--	--	--	1996
147N088W11BAA2	B. PFLIGER		245	--	--	1954	--	--	S	FU	V	6	7.5	1996
147N088W11BAB	USBIA		500	--	--	--	--	--	U	--	--	--	--	1961
147N088W11BDC1	USBIA		195	--	--	--	--	--	U	--	--	--	--	1895
147N088W11BDC2	E. WHITE	500	461	--	4	--	167	10-51	H	--	X	--	--	1879
147N088W12BAD	E. NEST	500	489	--	4	--	229	10-51	U	FU	S	--	--	1962
147N088W12CAB	F. HOWARD	500	483	--	4	--	219	10-51	H	FU	7P	--	--	1950
147N088W12CBB	USBIA		122	--	--	--	--	--	U	--	--	--	--	1950
147N088W16ADA	M. ZIEGLER		196	--	4	1954	89	4-68	U	FU	1	--	--	1925
147N089W03DA	E. GILLETTE	152	148	--	--	1955	--	--	U	--	S	--	--	1955
147N089W03DBA	E. GILLETTE		58	--	--	--	38	7-66	U	--	--	--	--	--
147N089W11DAC	W. YELLCWBIRD		34	--	24	--	33	7-66	U	--	--	--	--	1972
148N079W08BBB	M. RAUSER		40	--	36	--	20	6-67	K	--	--	5	6.5	1965
148N079W08DDD	HETZLER BRCS.		184	--	4	--	92	6-67	U	--	--	--	--	1990
148N079W11DDD	NOSWC 3942		180	--	--	1969	--	--	U	51	G	--	--	1986
148N079W13BAA	G. KITTERLING		315	--	4	1963	--	--	K	FU	--	6	6.5	1975
148N079W13BDD	G. KITTERLING		115	--	4	--	--	--	S	--	--	5	--	1970
148N079W15BBC	J. DOCKTER		460	--	4	--	--	--	K	--	--	6	6.5	2020

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LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT)	WELL DEPTH (FT.)	CASING DEPTH (FT.)	CASING DIA-METER (IN.)	DATE DRILLED (YEAR)	WATER LEVEL (FT.)	DATE WATER LEVEL MEAS.	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	SPE-CIFIC CON-DUCT ANCE	TEM- PER- ATURE (°C)	ELE- VATION OF LSD (FT.)
148N079W16CCC	NDSWC 4091		180	--	--	1970	--	--	U	--	--	--	--	2020
148N079W17CBA	F.PRESSER		--	--	4	--	106	6-67	U	--	--	--	--	2000
148N079W19CCC	NDSWC 3946		240	--	--	1969	--	--	U	51	8G	--	--	1970
148N079W19CCD	W.LINDELL		127	--	4	--	98	6-67	U	--	--	--	--	1970
148N079W20AAA	B.SCHON		150	--	4	1915	--	--	K	--	--	6	6.5	2010
148N079W20DCD	J.SCHILLING		550	--	4	--	150	--	K	--	--	6	6.5	1975
148N079W26AAB	R.POSTEL		30	--	36	--	14	6-67	H	31	Y	5	8.5	1915
148N079W26BBB	M.FIEDLER		420	--	2	1945	180	--	K	--	2S	6	7.0	1980
148N079W27ADD1	NDSWC 2789	260	197	182	1	1967	24	9-67	U	52	8G	4	9.0	1905
148N079W27ADD2	NDSWC 2789	260	97	82	1	1967	18	9-67	U	52	G	4	7.5	1905
148N079W31DDD	NDSWC 4090		240	--	--	1970	--	--	U	52	7S	--	--	1944
148N079W32AAA	NDSWC 3945	160	110	107	1	1969	69	12-69	U	51	8G	4	7.0	1952
148N079W33CCB	A.HOFER		320	--	4	1963	87	6-67	K	FU	--	5	7.5	1960
148N079W35DBC	H.RAUSER		100	--	4	1954	75	--	K	--	2S	5	7.0	1950
148N080W01BBB	H.LARSON		290	--	4	--	--	--	K	FU	2S	6	10.0	2030
148N080W03ACB	K.JAMES		340	--	4	--	--	--	K	FU	--	6	7.5	2010
148N080W03DAA	NDSWC 2791		140	--	--	1967	--	--	U	--	--	--	--	2018
148N080W06ADA	G.ANDERSON		119	--	4	--	62	6-67	U	--	--	--	--	1945
148N080W08DCC	J.SEEGER		225	--	4	--	--	--	K	--	S	6	8.5	1935
148N080W10CDC	J.SCHILLING		191	--	4	--	102	6-67	U	--	--	--	--	1940
148N080W11CDC	A.FIELD		150	--	4	--	91	6-67	K	--	--	--	--	2000
148N080W12ADD	NDSWC 2790	120	28	23	1	1967	10	12-67	U	51	R	3	6.0	1970
148N080W13ABA	A.SCHILLING		12	--	36	--	7	6-67	S	31	S	4	6.5	1955
148N080W14ADA	K.LELM		145	--	4	--	51	6-67	K	41	Y	4	9.0	1965
148N080W15DDD	NDSWC 3947		120	--	--	1969	--	--	U	--	--	--	--	1960
148N080W17CAB1	NDSWC 4084		160	--	--	1970	--	--	U	52	8G	--	--	1910
148N080W17CAB2	NDSWC 4085	200	138	118	1	1970	59	8-70	U	52	G	5	10.0	1910
148N080W19CCC1	NDSWC 2745	300	200	198	1	1967	21	8-67	U	52	R	5	6.5	1862
148N080W19CCC2	NDSWC 2746	40	26	23	1	1967	14	8-67	U	51	8G	4	7.5	1862
148N080W19DCC	H.JEZY		70	--	4	--	--	--	K	51	--	5	7.0	1855
148N080W21CCC	NDSWC 3948	200	81	78	1	1969	68	12-69	U	51	9S	--	--	1901
148N080W24BAA	D.SANDROL		350	--	4	--	100	--	K	FU	--	5	7.5	1975
148N080W27BCB	G.SANDERSON		127	--	4	1913	--	--	K	--	S	5	7.5	1945
148N080W28DCD	USAF		100	--	--	1961	54	7-61	U	--	S	--	--	1895
148N080W29AAB	W.CARR		140	--	4	1942	85	6-67	H	--	--	4	7.5	1922
148N080W29BCC	J.LINDER		125	--	3	--	90	--	K	--	S	5	7.5	1882
148N080W30CCC	L.BOE		20	--	6	1964	12	6-67	U	31	S	--	--	1860
148N080W30CCD1	L.BOE		71	--	4	1961	19	6-67	S	51	G	5	7.0	1860
148N080W30CCD2	L.BOE		17	--	1	1964	14	6-67	H	31	S	4	7.0	1860
148N080W31AAA1	NDSWC 2747	260	210	207	1	1967	21	9-67	U	52	R	5	9.0	1860

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	SPE-CIFIC CON-DUCT ANCE	TEM-PERATURE (°C)	ELE-VATION OF LSD (FT.)
148N080W31AAA2	NDSWC 2747A	260	79	76	1	1967	17	8-67	U	51	R	5	8.5	1860
148N080W31ADC	R. BOE		34	30	1	1961	--	--	H	51	R	4	10.0	1863
148N080W338DA1	T. BOE		218	218	4	--	30	--	S	52	S	--	7.5	1865
148N080W338DA2	T. BOE		50	--	4	--	30	--	K	31	R	5	9.5	1865
148N080W33CBC1	NDSWC 958-1		52	--	1	1962	26	8-63	U	51	R	--	--	1859
148N080W33CBC2	NDSWC 958-2		49	--	1	1962	16	8-63	U	51	R	4	--	1850
148N080W33CBC3	NDSWC 5768	80	48	42	1	1970	19	9-70	U	51	8G	4	8.0	1877
148N080W33CBC4	NDSWC 5769		220	--	--	1970	--	--	U	51	R	--	--	1860
148N080W33CBD	T. BOE	70	51	39	17	1962	20	6-67	I	51	R	5	--	1864
148N080W33CCA1	NDSWC 958-4		53	--	1	1962	20	8-63	U	51	R	5	--	1868
148N080W33CCA2	NDSWC 5767	80	44	38	1	1970	18	9-70	U	51	R	5	8.0	1875
148N080W33CCB	NDSWC 5766	80	54	48	1	1970	22	9-70	U	51	9S	4	8.0	1880
148N080W33CCC	NDSWC 3-958	50	48	45	2	1962	26	5-64	U	51	R	5	--	1869
148N080W34CBC	H. CARLSON		42	--	1	--	--	--	K	31	S	4	7.0	1863
148N080W34DAA	NDSWC 4089		220	--	--	1970	--	--	U	51	R	--	--	1850
148N080W34DCC	NDSWC 4088	360	207	198	1	1970	29	8-70	U	51	R	5	8.0	1860
148N080W3588B1	E. FUELLER		27	--	1	--	--	--	K	31	R	5	9.0	1876
148N080W3588B2	E. FUELLER		40	--	1	--	28	6-67	U	51	R	--	--	1875
148N080W3588C	NDSWC 2748	120	41	38	1	1967	16	8-67	U	51	R	4	9.0	1858
148N081W02AAA	NDSWC 3950		80	--	--	1969	--	--	U	--	--	--	--	1950
148N081W02BBC	L. KLAIN		50	--	4	--	--	--	H	--	S	4	9.0	1910
148N081W03AAB	NDSWC 2804	60	37	32	4	1967	10	9-67	U	51	R	4	7.5	1885
148N081W04CCC	V. EDINGER		80	--	4	--	54	6-67	K	--	S	4	7.0	1910
148N081W06BBC	A. VOTH		90	--	4	--	--	--	K	51	G	4	9.5	1930
148N081W06BCC	NDSWC 3952		140	--	--	1969	--	--	U	51	G	--	--	1875
148N081W08CAD	J. OLSON		120	--	4	1966	--	--	K	51	R	5	8.5	1900
148N081W09BBB	J. EDINGER		48	--	1	--	--	--	K	51	S	4	6.0	1890
148N081W11BCB	E. GONDRINGER		22	--	48	--	--	--	S	31	S	4	5.5	1890
148N081W12ACD	L. GROSZ		60	--	4	1940	--	--	K	51	S	4	7.5	1905
148N081W12ADD	NDSWC 3949	100	41	38	1	1969	6	6-70	U	51	G	--	--	1890
148N081W13AAA	H. HALVERSON		93	--	6	--	--	--	K	41	P	4	8.5	1925
148N081W14CDD	NDSWC 5-C-6	144	141	136	1	1962	13	8-67	U	51	G	5	--	1860
148N081W15DDB	NDSWC 3-C-6	95	80	77	1	1962	50	8-62	U	51	G	5	--	1858
148N081W15DDD1	USAF		100	--	--	1961	18	6-61	U	51	S	--	6.0	1862
148N081W15DDD2	NDSWC 2-C-6		147	--	--	1962	--	--	U	51	G	4	--	1855
148N081W16DDD	NDSWC 2743	180	21	18	1	1967	10	8-67	U	51	8G	4	8.0	1850
148N081W17ADD	W. SWANSON		17	--	1	--	--	--	S	31	S	4	6.5	1855
148N081W18DCD1	NDSWC 2740	220	181	178	1	1967	+2	8-67	U	52	R	4	7.5	1856
148N081W18DCD2	NDSWC 2741	60	21	18	1	1967	4	8-67	U	51	8G	5	6.5	1856
148N081W20ADC	NDSWC 4101	320	178	138	1	1970	9	9-70	U	52	R	5	7.0	1840

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148NC81W20BAA	NDSWC 2742	180	151	148	1	1967	+2	8-67	U	52	R	4	7.5	1844
148NC81W20CAA	NDSWC 5765	240	184	178	1	1970	4	9-70	U	52	8G	5	7.0	1850
148NC81W20CCA	NDSWC 5762	180	155	149	1	1970	6	9-70	U	52	R	5	7.0	1847
148NC81W20CCD1	NDSWC 5761	280	175	169	1	1970	20	9-70	U	52	--	5	9.0	1860
148NC81W20CCD2	NDSWC 5763	240	185	179	1	1970	10	9-70	U	52	8G	5	7.5	1850
148NC81W20CCD3	NDSWC 5763A		105	99	1	1970	12	9-70	U	52	S	6	7.0	1850
148NC81W20CCD4	NDSWC 5763B		55	49	1	1970	13	9-70	U	51	9S	6	6.5	1850
148NC81W20CCD5	NDSWC	200	190	162	16	1970	20	9-70	Z	52	G	3	7.8	1859
148NC81W20CDC1	NDSWC 5764	260	185	179	1	1970	13	9-70	U	51	R	3	7.5	1854
148NC81W20CDC2	NDSWC 5764A		105	99	1	1970	15	9-70	U	52	9S	5	7.0	1854
148NC81W20CDC3	NDSWC 5764B		60	54	1	1970	17	9-70	U	51	R	5	7.0	1854
148NC81W21ABA	J.FORLAND		14	--	1	--	8	6-67	H	31	S	4	5.5	1851
148NC81W22AAB	NDSWC 1-C-6	100	87	85	2	1962	5	5-64	U	51	R	5	--	1850
148NC81W22AAD	NDSWC 6-C-6	94	81	63	2	1962	41	9-62	U	51	R	--	--	1850
148NC81W22ADD	H.TELENGA		30	--	1	--	--	--	H	31	S	4	10.0	1868
148NC81W22BAB	NDSWC 4-C-6	94	94	92	2	1962	4	3-68	U	51	S	5	--	1848
148NC81W24BBB	NDSWC 2744		230	--	--	1967	--	--	U	--	--	--	--	1864
148NC81W24DDC	H.WESTRUM		23	--	1	--	--	--	S	31	2G	4	10.0	1844
148NC81W26DBC	NDSWC 2735	120	81	78	1	1967	21	8-67	U	51	R	5	8.5	1860
148NC81W25BAA	NDSWC 4100	516	178	158	1	1970	16	9-70	U	52	R	5	8.0	1856
148NC81W29CAA	NDSWC 4099	120	49	39	1	1970	12	8-70	U	51	8G	6	7.0	1858
148NC81W29CCC	NDSWC 3930		80	--	--	1969	--	--	U	--	--	--	--	1860
148NC81W29CDD	G.KALLAND		43	--	4	--	--	--	K	FU	1	5	7.0	1860
148NC81W31BBB	NDSWC 2738		80	--	--	1967	--	--	U	51	S	--	--	1860
148NC81W32CCD	J.WALKER		140	--	4	1952	--	--	K	FU	1	5	7.0	1950
148NC81W32DDD	J.SCHAUER		140	--	4	1911	--	--	K	FU	1	5	7.0	1940
148NC81W33CDD	NDSWC 2737	80	38	35	4	1967	13	8-67	U	51	R	4	10.0	1847
148NC81W33CDD	L.RASMUSSEN		20	--	1	--	--	--	S	31	R	4	6.0	1848
148NC81W34DDD	NDSWC 2736	100	21	18	1	1967	6	8-67	U	31	9S	4	6.5	1845
148NC81W35CDA	B.GONDRINGER		18	--	1	--	--	--	H	31	R	5	5.5	1855
148NC81W35DCC	B.GONDRINGER		80	--	4	--	--	--	S	51	R	5	6.5	1855
148NC81W36BCB	B.GONDRINGER		22	--	1	--	--	--	S	31	R	2	5.5	1855
148NC81W36CCC	NDSWC 2734		120	--	--	1967	--	--	U	51	S	--	--	1846
148NC81W36DDD	NDSWC 2733	120	81	78	1	1967	10	8-67	U	51	S	5	7.5	1850
148NC82W01A08	C.OLSON		90	--	6	--	75	--	K	--	--	4	8.5	1930
148NC82W02DCD	A.HANSON		80	--	4	--	40	--	K	--	--	5	10.0	1910
148NC82W03ADA	O.KINN		110	--	5	--	60	--	K	--	--	5	11.5	1870
148NC82W03CDB	H.HANSON		32	--	18	1908	20	--	K	--	--	5	6.5	1865
148NC82W09CDC	J.BAUER		82	--	3	--	22	--	K	--	--	5	11.0	1878
148NC82W10ADC1	T.FETZER		40	--	4	1958	30	--	U	--	--	5	--	1875

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148NC82W10ADC2	T.FETZER		40	--	18	--	30	--	S	--	--	5	6.5	1875
148NC82W10CDD1	G. BOVKOON		73	--	4	--	36	--	K	--	--	5	7.5	1875
148NC82W10CDD2	G. BOVKOON		73	--	4	1966	37	--	K	--	--	5	13.5	1874
148NC82W11888	NDSWC 3953		160	--	--	1969	--	--	U	--	--	--	--	1882
148NC82W11CAC1	J. BAUER		8	--	16	--	6	--	K	31	--	4	12.0	1875
148NC82W11CAC2	J. BAUER		44	--	--	1960	10	--	H	--	--	--	--	1875
148NC82W12BBC	USAF		100	--	--	1961	60	5-61	U	51	S	5	7.0	1911
148NC82W12CC1	B. BLOTTER		96	--	4	1956	64	--	K	51	G	5	7.5	1878
148NC82W12CC2	B. BLOTTER		96	--	4	--	14	10-66	S	51	G	4	7.5	1878
148NC82W13888	NDSWC 3932	280	40	20	1	1969	1	12-69	U	52	R	4	7.0	1845
148NC82W1388C	A. WEISHAAR		45	--	4	--	37	--	H	51	G	4	8.5	1875
148NC82W13CCC	E. MAYER		197	--	4	1963	110	--	H	52	G	5	8.5	1882
148NC82W14CDD1	B. GOTTSCHALL		52	--	18	--	--	--	S	51	G	5	9.0	1881
148NC82W14CDD2	B. GOTTSCHALL		200	--	4	1954	40	--	K	52	G	5	11.0	1881
148NC82W15888	NDSWC 3933	250	197	176	1	1969	5	12-69	U	52	G	6	6.5	1860
148NC82W15CDD	M. STUMVOLL		123	--	4	1947	38	--	K	52	G	5	10.0	1872
148NC82W16BAA	M. STUMVALL		51	--	12	--	--	--	S	51	G	5	7.0	1880
148NC82W16CCB	E. SEIDLER		82	--	4	--	30	10-66	U	51	G	--	--	1880
148NC82W17CDB1	E. SEIDLER		50	--	10	1903	46	--	H	--	--	6	7.5	1870
148NC82W17CDB2	E. SEIDLER		300	--	5	1957	40	--	K	--	--	6	10.0	1870
148NC82W20ADD	W. GLSON		45	--	6	--	31	--	U	51	--	4	7.5	1858
148NC82W21ADD	C. OKERSON		150	--	4	1947	90	--	K	--	--	5	9.0	1889
148NC82W21888	NDSWC 4102		220	--	--	1970	--	--	U	52	R	--	--	1870
148NC82W21DAA	C. OKERSON		150	--	4	1958	90	--	S	--	--	5	8.5	1890
148NC82W22ADC	H. OKERSON		57	--	4	1958	37	--	K	--	--	4	10.0	1882
148NC82W23888	NDSWC 3931	300	204	198	1	1969	42	12-69	U	52	R	5	6.5	1880
148NC82W23DBC	E. ZWICKER		110	--	6	1949	42	--	K	--	--	5	10.0	1882
148NC82W24ABB	NDSWC 2739	230	201	198	1	1967	15	8-67	U	52	G	4	10.0	1880
148NC82W24BCB1	L. WESTMAN		38	--	4	--	30	--	K	51	G	5	11.0	1878
148NC82W24BCB2	L. WESTMAN		45	--	5	--	37	--	K	51	G	4	7.0	1880
148NC82W24CB8	J. ESLINGER		50	--	6	--	40	--	K	51	G	4	9.0	1872
148NC82W25BCB	G. ZWICKER		56	--	18	1943	--	--	S	--	--	6	6.5	1880
148NC82W25DDD1	E. KEEL		120	--	6	--	--	--	S	--	--	5	7.0	1860
148NC82W25DDD2	E. KEEL		160	--	4	--	--	--	H	--	--	5	7.5	1860
148NC82W27DAC	EVANSON BROS.		160	--	4	1943	40	--	K	--	--	5	8.5	1878
148NC82W34AAA	NDSWC 4103		140	--	--	1970	--	--	U	--	--	--	--	1893
148NC82W35AAA1	N. HANSEN		67	--	4	1946	52	--	S	--	--	4	12.5	1880
148NC82W35AAA2	N. HANSEN		184	--	4	--	54	--	S	--	--	4	8.5	1879
148NC82W36CCB	USAF		100	--	--	1961	67	5-61	U	51	X	5	--	1890
148NC83W01BAD	J. MAUTZ		165	--	6	--	90	--	K	FU	1	6	7.5	1921

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148N083W010BB	A. MAUTZ		112	--	4	1963	40	--	K	FU	1	6	9.0	1881
148N083W02ABC1	A. SCHUMAIER		74	--	4	1929	40	--	K	--	--	6	7.5	1800
148N083W02ABC2	A. SCHUMAIER		72	--	4	1966	8	--	S	--	--	5	8.5	1872
148N083W02BAD	M. SCHUMAIER		70	--	24	--	45	--	K	--	--	6	12.5	1885
148N083W02DCD	A. HENNE		108	--	5	--	20	--	K	FU	1	6	8.5	1860
148N083W02DDD	NDSWC 5593		120	--	--	1969	--	--	U	--	--	--	--	1845
148N083W03CDC	R. SEIDLER		88	--	4	--	60	--	K	51	G	6	7.5	1885
148N083W03DDD	A. ESLINGER		207	--	4	1959	100	--	K	--	--	6	8.5	1885
148N083W04BAD1	R. KREBSBACH		81	--	6	--	33	9-66	U	--	--	5	9.0	1922
148N083W04BAD2	R. KREBSBACH		86	--	6	1960	--	--	K	--	--	6	8.5	1922
148N083W04DBB1	W. SEIDLER		60	--	6	1952	20	--	H	FU	--	6	8.5	1875
148N083W04DBB2	W. SEIDLER		80	--	6	--	30	--	K	FU	--	6	7.0	1875
148N083W05CCB	USAF		100	--	--	1961	83	6-61	U	51	--	--	7.0	1942
148N083W05CDD	R. COLLINS		--	--	24	--	92	9-66	U	--	--	6	10.0	1920
148N083W05DCD	A. BOGER		120	--	--	--	100	--	K	--	--	5	7.0	1922
148N083W06CCC	J. BOGER		102	--	8	--	78	9-66	K	--	--	6	7.5	1950
148N083W06DDD	N. HANSON		120	--	6	--	60	--	S	FU	1	6	7.5	1965
148N083W07BDA	W. STEINHARD		120	--	4	1943	112	9-66	K	FU	1	6	5.5	1980
148N083W07DDD1	R. HUMMEL		20	--	18	1944	15	--	S	--	--	5	7.5	1930
148N083W07DDD2	R. HUMMEL		19	--	4	1951	17	9-66	H	--	--	4	11.5	1930
148N083W08DCC1	L. JOHNSON		225	--	4	--	--	--	K	FU	1	6	9.0	1923
148N083W08DCC2	L. JOHNSON		144	--	4	--	91	9-66	U	--	--	--	--	1923
148N083W09CCD	H. SEIDLER		--	--	--	--	--	--	K	--	--	5	7.0	1922
148N083W09DDD	NDSWC 5594		140	--	--	1969	--	--	U	--	--	--	--	1894
148N083W11ACA	C. EVENSON		27	--	12	--	20	9-66	U	--	--	--	--	1857
148N083W15CBB1	C. KEMPF		118	--	5	1951	75	--	S	FU	1	6	6.0	1875
148N083W15CBB2	C. KEMPF		72	--	5	1959	56	--	K	--	--	6	7.0	1875
148N083W17BBB	R. HUMMEL		--	--	5	--	46	9-66	S	--	--	5	10.0	1921
148N083W18BBB	NDSWC 5794		60	--	--	1970	--	--	U	--	--	--	--	1950
148N083W18CBB	NDSWC 5793		60	--	--	1970	--	--	U	--	--	--	--	1945
148N083W19CCC	NDSWC 5792		40	--	--	1970	--	--	U	--	--	--	--	1870
148N083W20ABB	USCE		139	--	5	--	89	9-66	U	--	--	6	12.5	1921
148N083W20DDA	USCE		87	--	8	1950	62	7-50	U	51	R	--	--	1864
148N083W21CCC	USCE		96	--	8	1950	73	5-50	U	51	R	--	--	1877
148N083W28BAB	USCE		100	--	4	1957	77	5-57	R	FU	S	--	--	--
148N083W28BBB	USCE		84	--	--	1950	58	7-50	U	--	--	--	--	1861
148N083W28BCA	USCE		264	--	--	1949	58	-49	U	--	--	--	--	1861
148N083W28BCD1	USCE		64	--	--	1950	38	-50	U	--	--	--	--	1841
148N083W28BCD2	USCE		80	--	--	1950	54	-50	U	--	--	--	--	1846
148N083W28CBA	USCE		152	--	--	1950	34	--	U	--	--	--	--	1835

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	SPE-CIFIC CON-DUCT ANCE	TEM- PER- ATURE (°C)	ELE- VATION OF LSD (FT.)
148N083W28CBD	USCE		182	--	--	1949	76	-49	U	--	--	--	--	1832
148N083W28CCA	USCE		179	--	--	1949	34	-49	U	--	--	--	--	1783
148N083W28CDC	USCE		352	--	--	1949	44	-49	U	--	--	--	--	1809
148N083W29CBB	USCE		59	--	--	1950	43	-50	U	--	--	--	--	1833
148N083W33BAB	USCE		154	--	--	1950	71	-50	U	--	--	--	--	1829
148N083W33BAC	USCE		171	--	--	1950	98	7-50	U	--	--	--	--	1830
148N083W33BDB	USCE		290	--	--	1950	12	-50	U	--	--	--	--	1793
148N083W33CAA	USCE		208	--	--	1950	49	-50	U	--	--	--	--	1837
148N083W33CAD	USCE		184	--	--	1950	33	-50	U	--	--	--	--	1816
148N084W01CCB	NDSWC 5582		60	--	--	1969	--	--	U	--	--	--	--	1960
148N084W03DAA	M. MAUTZ		80	--	4	--	--	--	K	FU	S	5	10.0	1954
148N084W04CCD	USAF		100	--	--	1961	89	8-61	U	FU	1	--	10.0	1965
148N084W06BBA	NDSWC 4059	200	138	118	1	1970	53	7-70	U	52	9S	5	12.0	1932
148N084W06C6A	NDSWC 4057		120	--	--	1970	--	--	U	--	--	--	--	1945
148N084W06CDA	C. FITZGERALD		82	--	12	--	76	7-66	K	--	--	--	--	1942
148N084W06DCB	NDSWC 4058	160	98	38	1	1970	8	8-70	U	52	R	5	10.0	1819
148N084W07AAB	NDSWC 4056	220	163	157	1	1970	63	7-70	U	52	R	5	8.0	1930
148N084W07AAD	NDSWC 4055	160	121	118	1	1970	67	7-70	U	52	8G	6	7.0	1932
148N084W07DAB	NDSWC 4054		60	--	--	1970	--	--	U	--	--	--	--	1920
148N084W07DDA	GARRISON	260	258	223	8	1962	126	10-66	P	FU	2S	6	7.5	1910
148N084W08BBB	NDSWC 4051		160	--	--	1970	--	--	U	--	--	--	--	1935
148N084W08BBB	NDSWC 4052		180	--	--	1970	--	--	U	--	--	--	--	1935
148N084W08BCB	NDSWC 4050	220	198	138	1	1970	71	7-70	U	52	9S	6	7.5	1936
148N084W08BCC	GARRISON		159	154	10	1947	77	--	P	52	R	5	7.0	1940
148N084W08CBA	GARRISON		200	--	8	1958	--	--	P	52	R	6	7.0	1942
148N084W08CBC	NDSWC 4053	300	251	239	1	1970	153	7-70	U	FU	1S	6	8.0	1905
148N084W08CCB	GARRISON		151	116	10	1959	62	10-66	P	52	S	5	8.3	1918
148N084W090DD	NDSWC 5581		60	--	--	1969	--	--	U	--	--	--	--	1880
148N084W11CCC	NDSWC 5790		100	--	--	1970	--	--	U	--	--	--	--	1940
148N084W12BBC	NDSWC 5805		50	--	--	1970	--	--	U	--	--	--	--	1945
148N084W12C8C	NDSWC 5804		80	--	--	1970	--	--	U	--	--	--	--	1965
148N084W1388B	NDSWC 5803		60	--	--	1970	--	--	U	--	--	--	--	1950
148N084W138CB	NDSWC 5818		60	--	--	1970	--	--	U	--	--	--	--	1945
148N084W138CC	NDSWC 5802		60	--	--	1970	--	--	U	--	--	--	--	1930
148N084W138CC	NDSWC 5819		40	--	--	1970	--	--	U	--	--	--	--	1930
148N084W1488C	NDSWC 5789	220	164	158	1	1970	79	9-70	U	52	R	6	8.0	1932
148N084W148CC	NDSWC 5788	180	144	138	1	1970	76	9-70	U	52	8G	5	--	1929
148N087W148CB	J. CRAWFORD		42	--	24	--	16	9-66	S	41	T	7	6.0	1937
148N084W14CCB	NDSWC 5787		100	--	--	1970	--	--	U	--	--	--	--	1940

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148N084W14CCD	NDSWC 5800		120	--	--	1970	--	--	U	--	--	--	--	1910
148N084W14CDC1	NDSWC 5798		180	--	--	1970	--	--	U	--	--	--	--	1895
148N084W14CDC2	NDSWC 5799		140	--	--	1970	--	--	U	--	--	--	--	1900
148N084W14CDC3	NDSWC 5821	120	103	97	1	1970	42	9-70	U	52	S	--	8.5	1891
148N084W14CDD1	NDSWC 5797		140	--	--	1970	--	--	U	52	8G	--	--	1910
148N084W14CDD2	NDSWC 5820		140	--	--	1970	--	--	U	--	--	--	--	1908
148N084W14DDC	NDSWC 5801		100	--	--	1970	--	--	U	52	S	--	--	1915
148N084W14DDD	NDSWC 5796		60	--	--	1970	--	--	U	--	--	--	--	1920
148N084W16AAC	E. MEHLHOFF		113	--	4	--	70	7-66	K	52	S	5	9.0	1982
148N084W16AAD	NDSWC 5822	120	108	102	1	1970	40	9-70	U	52	8G	5	8.5	1904
148N084W168BA	NDSWC 4066		200	--	--	1970	--	--	U	--	--	--	--	1930
148N084W17AAA	NDSWC 4065	220	180	177	1	1970	64	7-70	U	52	8G	5	9.0	1924
148N084W17AAB	NDSWC 4064	180	141	138	1	1970	70	7-70	U	52	R	5	--	1922
148N084W17ABA	NDSWC 4063	120	98	88	1	1970	62	7-70	U	52	G	5	--	1930
148N084W17CAA	L. FETZER		78	--	4	--	54	7-66	H	52	S	5	8.9	1910
148N084W21AAA	NDSWC 5780		120	--	--	1970	--	--	U	--	--	--	--	1890
148N084W21ABB	NDSWC 5779	80	50	47	1	1970	--	--	U	52	8G	5	8.5	1866
148N084W21BAB	NDSWC 5778		80	--	--	1970	--	--	U	--	--	--	--	1920
148N084W218BA	NDSWC 5777		40	--	--	1970	--	--	U	--	--	--	--	1905
148N084W22AAA	NDSWC 5781		80	--	--	1970	--	--	U	--	--	--	--	1915
148N084W22ACC	NDSWC 5783		140	--	--	1970	--	--	U	--	--	--	--	1870
148N084W22ACD	NDSWC 5784		100	--	--	1970	--	--	U	--	--	--	--	1870
148N084W22ADA	NDSWC 5786		40	--	--	1970	--	--	U	--	--	--	--	1890
148N084W22BDD	NDSWC 5785		60	--	--	1970	--	--	U	--	--	--	--	1880
148N084W23CBB	NDSWC 5782		32	--	--	1970	--	--	U	--	--	--	--	1870
148N084W24AAA	NDSWC 5791		60	--	9	--	--	--	U	--	--	--	--	1952
148N084W25ABB	NDSWC 5795		30	--	--	1970	--	--	U	--	--	--	--	1870
148N084W31DBD	USCE	140	118	67	2	1963	65	12-62	R	FU	--	--	--	1882
148N085W058BB	W. FISCHER		50	--	4	1962	25	7-66	H	FU	--	6	12.5	1950
148N085W098CD	C. DITTUS		179	--	2	--	177	7-66	U	FU	--	--	--	2025
148N085W118AA	J. LDHRMAN		150	--	4	1951	128	7-66	K	FU	--	6	11.5	1982
148N085W11DDA	R. ERICKSON		47	37	30	1963	25	7-66	H	FU	2S	4	10.0	1918
148N085W13CCD	F. GIFFEY		300	280	4	1956	115	7-66	H	FU	S	--	--	1922
148N085W15ACC	USAF		101	--	--	1961	28	5-61	U	FU	S	--	--	1957
148N085W15CDD	M. MISSLIN		300	--	4	--	11	7-66	U	FU	--	--	--	1963
148N085W16ACA	NDSWC 5580		20	--	--	1969	--	--	U	--	--	--	--	1875
148N085W18DAA	NDSWC 5579		40	--	--	1969	--	--	U	--	--	--	--	1870
148N085W23CDC	R. E. WEBER	1323	1240	--	2	1968	44	11-69	K	FH	V	6	11.1	1945
148N085W28AAA	NDSWC 2835		80	--	--	1967	--	--	U	--	--	--	--	1932
148N085W29CCC	NDSWC 2834		160	--	--	1967	--	--	U	--	--	--	--	1890

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148N085W29DDD	G. SCHICHTING		82	--	24	--	52	7-66	U	--	--	--	--	--
148N085W31DBD1	YMCA	220	205	197	2	1963	65	7-66	U	52	R	5	--	1889
148N085W31DBD2	YMCA	213	205	180	6	1963	88	2-64	P	52	G	5	10.5	1889
148N085W31DBD3	YMCA		160	--	--	--	--	--	P	52	--	5	9.0	--
148N086W02ADC	G. ZIMMERMAN		60	--	24	--	26	7-66	K	FU	--	6	16.5	2061
148N086W09AAA	J. LEE		150	150	6	1910	--	--	H	FU	S	6	7.0	2053
148N086W11DCD	USAF		102	--	--	1961	90	4-61	U	FU	8Q	--	6.5	2023
148N086W12CCD1	M. RIME		226	--	4	1966	175	7-66	K	FU	1	5	9.0	2042
148N086W12CCD2	M. RIME		197	--	4	--	175	12-66	U	FU	1	--	--	2042
148N086W13BCC	J. TRUEBLOCC		80	--	4	1938	67	7-66	K	FU	1	6	9.5	1960
148N086W17DDD	L. BEATTIE		36	--	14	1920	34	7-66	H	FU	1	5	11.5	1966
148N086W20AAA	NDSWC 4043		60	--	--	1970	--	--	U	--	--	--	--	1967
148N086W20DAA	NDSWC 4044	240	208	188	1	1970	66	7-70	U	52	R	5	8.0	1917
148N086W22BAD	D. IGLEHART		19	--	4	1912	11	7-66	H	--	--	5	--	1929
148N086W29AAA1	NDSWC 5568		140	--	--	1969	--	--	U	--	--	--	--	1900
148N086W29AAA2	NDSWC 4044	360	138	118	1	1970	47	--	U	52	R	5	9.0	1902
148N086W29DAA	NDSWC 5569		140	--	--	1969	--	--	U	--	--	--	--	1935
148N086W31AAA1	E. HODGES		468	465	2	1964	--	--	K	FU	S	6	11.5	--
148N086W31AAA2	E. HODGES	41	17	18	24	--	11	7-66	U	21	S	--	--	1862
148N086W32ADA1	C. ELLISON		195	195	4	1958	--	--	H	FU	S	--	--	--
148N086W32ADA2	C. ELLISON		95	--	24	--	14	7-66	U	--	--	--	--	--
148N086W36ADD	NATIONAL GUARD		164	140	4	1967	--	--	P	52	S	5	10.0	1875
148N087W01CCC	NDSWC 5567		180	--	--	1969	--	--	U	--	--	--	--	2003
148N087W04CDD	N. HEINZEN		12	--	12	--	7	9-66	U	51	--	--	--	2033
148N087W06DCA	R. MOLL		16	--	40	--	12	9-66	S	--	G	--	--	1971
148N087W06DCC	NDSWC 2839		240	--	--	1967	--	--	U	--	--	--	--	1960
148N087W07AAA1	NDGS 38	19	16	14	1	1967	11	8-67	U	--	--	4	7.5	1966
148N087W07AAA2	NDSWC 3626	420	278	258	4	1968	112	9-68	U	52	8G	5	--	1966
148N087W07DDD	H. KLABUNDE		74	--	24	1910	50	9-66	H	--	--	--	--	1982
148N087W10CCC	L. KLABUNDE		80	--	4	1958	50	9-66	K	--	--	5	7.5	1943
148N087W11DDD	F. HEINZER		13	13	24	--	9	10-66	K	31	G	4	12.0	1957
148N087W13BBB	NDSWC 3619		278	258	1	1968	104	9-68	U	52	9S	5	--	1954
148N087W13DDD	NDSWC 5565	420	305	299	1	1969	106	11-69	U	52	9S	5	15.5	1955
148N087W15DCC	NDSWC 5564		60	--	--	1969	--	--	U	--	--	--	--	1930
148N087W16AAA	USAF		103	--	3	1961	52	5-61	U	FU	S	--	7.0	1954
148N087W19DDD	L. ZIEGLER		61	--	24	--	41	--	U	FU	--	--	--	2015
148N087W24BCD	V. NYBERG		61	--	24	1953	46	9-66	K	--	G	6	5.5	1922
148N087W24CCC	NDSWC 5566		40	--	--	1969	--	--	U	--	--	--	--	1929
148N087W27ADA	A. KERZMAN		135	--	6	--	78	9-66	K	FU	--	6	6.0	1963
148N087W278BD	L. ZIEGLER		109	--	4	--	88	10-67	U	FU	--	--	--	--

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148N087W27CCC	NDSWC 3620		20	--	--	1968	--	--	U	--	--	--	--	1972
148N087W27DBD	F. CRAWFORD		78	--	24	--	68	9-66	K	--	--	--	--	1983
148N087W27DDA	W. KERZMAN		228	--	4	--	137	9-66	K	FU	1	6	10.0	--
148N087W318AA	A. DEERING		152	--	5	--	114	5-67	U	FU	--	--	--	2014
148N087W34AAD	M. PETERSON		96	--	18	1906	26	9-66	K	FU	--	--	--	1954
148N087W358BC	NDSWC 5563		40	--	--	1969	--	--	U	--	--	--	--	1945
148N087W35DDO	J. KOLDEN		111	--	5	--	94	6-67	U	FU	--	--	--	1978
148N088W01AAA	S. HOPKINS		232	--	--	1952	--	--	--	52	7S	--	--	1976
148N088W0188B	E. LOCKWOOD		218	--	--	1952	--	--	--	52	S	--	--	2050
148N088W01CB	G. FOX		197	--	--	1952	--	--	--	52	9S	--	--	1992
148N088W02DDA	USBIA		232	198	8	1965	144	5-65	P	52	--	5	7.5	1976
148N088W02DDB	USBIA		215	181	8	1963	94	10-66	P	52	--	5	9.0	1983
148N088W05ABA	NDSWC 3624		320	--	--	1968	--	--	U	52	R	--	--	2036
148N088W07DCC	J. SNAKE		33	--	--	1952	--	--	--	FU	1	--	--	2120
148N088W07DDO	J. SNAKE		26	--	--	1952	--	--	--	--	--	--	--	2105
148N088W08CAC	L. WATERS		78	--	3	1954	--	--	K	--	S	5	9.0	2080
148N088W08DDC	D. WOLF	195	183	--	4	1952	118	10-51	H	FU	S	5	8.5	2035
148N088W10AAA	M. YELLOWFACE		105	--	4	1953	--	--	U	FU	1	--	--	2018
148N088W10CDD	NDSWC 3621		40	--	--	1968	--	--	U	--	--	--	--	2005
148N088W10DDO	T. YELLOWFACE		200	--	--	1953	--	--	U	FU	S	--	--	2030
148N088W11AAA	NDSWC 5562		200	--	--	1969	--	--	U	--	--	--	--	1995
148N088W11CCC	J. WHITE		105	85	4	1953	90	--	H	FU	1	5	9.0	2040
148N088W11DBB	E. WHITE		150	150	30	1968	126	11-68	H	--	S	--	--	2028
148N088W12CCD1	USBIA	37	26	24	30	1968	19	11-68	H	FU	1	--	--	2015
148N088W12CCD2	USBIA		37	27	30	1968	13	11-68	H	FU	1	--	--	2017
148N088W12CDC2	USBIA	37	26	27	30	1968	13	11-68	H	FU	1	--	--	2017
148N088W12CDD	USBIA	60	51	48	30	1968	18	11-68	H	FU	1	--	--	2024
148N088W12CDC1	USBIA	34	29	24	30	1968	16	11-68	H	FU	1	--	--	2015
148N088W13BCB	M. HOPKINS	170	146	--	4	--	97	10-51	H	FU	S	--	--	2025
148N088W15CCB	E. PACKINEAU		150	--	4	1954	--	--	U	FU	V	--	--	2062
148N088W16DAA	J. WHITE	160	148	--	4	--	106	10-51	H	FU	S	--	--	2050
148N088W18CBA	L. WATERS		200	--	--	1953	--	--	U	FU	V	--	--	2152
148N088W21DBC	USBIA		235	--	--	1952	--	--	--	FU	1	--	--	2155
148N088W26BAD	J. PACKINEAU	435	382	--	4	--	266	10-51	H	FU	7P	--	--	2111
148N088W28DD	USBIA	121	117	--	--	1952	--	--	--	FU	V	--	--	2076
148N088W30AAA	A. HOSIE		130	--	4	--	80	--	K	FU	S	6	9.5	--
148N088W35ABD	P. ROSS		118	--	4	1954	103	--	K	FU	1	6	8.5	--
148N088W35ACA	P. ROSS	505	476	--	4	--	305	10-51	H	FU	1	--	--	2062
148N088W350DD1	L. ROSS	46	43	--	--	1953	--	--	H	FU	1	5	--	2022
148N088W350DD2	USBIA		500	--	--	1953	--	--	U	--	--	--	--	2022

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	SPECIFIC CONDUCTANCE	TEMPERATURE (°C)	ELEVATION OF LSD (FT.)
148N088W36CCC	W. YELLOWBIRD	98	84	--	--	--	--	--	U	--	S	--	--	2017
148N089W04CDD	W. SCHELLER	205	192	--	4	1932	160	--	K	FU	V	5	7.5	2106
148N089W06CAD1	M. LUNDEN		13	--	12	--	7	7-66	U	--	S	--	--	2072
148N089W06CAD2	M. LUNDEN		30	--	6	1946	24	--	H	S1	R	5	7.0	2070
148N089W07DDD	B. SLOCUM	250	256	--	4	1952	164	--	H	FU	S	5	8.5	2103
148N089W11AA	USBIA		400	--	--	--	--	--	--	--	--	--	--	2127
148N089W12BDD	C. DRABLOS	116	103	--	--	--	--	--	U	FU	S	--	--	2120
148N089W12DB	USBIA		285	--	--	1952	--	--	U	--	--	--	--	2118
148N089W12DCC	H. GILLETTE		24	--	--	1952	--	--	--	FU	1	--	--	2134
148N089W13BCC1	D. NELSON		130	--	24	--	127	--	S	FU	S	5	7.5	2158
148N089W13BCC2	D. NELSON		185	--	4	1963	163	--	K	FU	S	5	8.5	2168
148N089W180CD	A. PACKINEAU		115	--	--	1954	--	--	U	S1	G	--	--	2038
148N089W20BAC	M. WOLF		240	--	--	1955	--	--	K	FU	S	6	--	2060
148N089W20BAD	N. GOODBIRD		122	--	--	1953	--	--	U	FU	1	--	--	--
148N089W20CBB	NDSMC 5552		100	--	--	1969	--	--	U	--	--	--	--	2018
148N089W22CDA	J. WILKINSON		150	--	--	1954	--	--	K	FU	S	5	9.0	2082
148N089W22DAB	J. WILKINSON	295	290	--	4	--	222	10-51	H	FU	S	--	--	2065
148N089W27CDC	E. BADGER		105	--	4	1953	--	--	U	FU	--	--	--	1953
148N089W28ACB	B. DEANE	405	358	--	4	--	199	10-51	H	FU	1	--	--	1998
148N089W30ADA	L. SMITH	78	63	--	3	1953	19	8-66	U	FU	1	--	--	2000
148N089W36AAA	J. RIPLEY		100	--	4	1964	75	--	K	FU	S	6	7.5	--
148N089W36CAA1	E. HANSON		37	--	4	1965	24	7-66	H	S1	R	5	7.0	1950
148N089W36CAA2	E. HANSON		124	--	6	--	90	--	S	--	S	4	7.0	1950
148N089W36CAA3	E. HANSON	147	104	--	--	1954	--	--	S	FU	1	4	7.5	1929
148N090W01ABA	EMPIRE ST. OIL		8595	--	--	1968	--	--	U	--	--	--	--	2052
148N090W01BAD	E. SANDERSON		90	--	--	1953	--	--	U	FU	V	--	--	2085
148N090W01CAC	T. BEAR		130	--	--	1954	--	--	U	FU	S	--	--	2080
148N090W02DB	V. MALNDURIE		160	--	--	1952	--	--	--	FU	S	--	--	2123
148N090W05AAD	L. MALNDURIE		194	--	--	--	--	--	U	FU	V	--	--	1989
148N090W060DD	NDSMC 5576		80	--	--	1969	--	--	U	--	--	--	--	2015
148N090W088B	USBIA		405	--	--	--	--	--	S	--	--	--	--	2108
148N090W09DBA	M. JONES		185	--	--	1954	--	--	U	FU	S	--	--	2125
148N090W10CDA	L. EVERETT	153	151	--	4	--	95	7-51	U	FU	S	--	--	2076
148N090W12DDB	P. COFFEE	154	72	--	4	1953	--	--	H	FU	V	4	8.5	2065
148N090W138BC	L. HOLTAN		74	60	4	1946	55	--	S	FU	V	--	--	2057
148N090W13DDC	S. BADBRAVE		225	--	--	1952	--	--	U	FU	1	--	--	2050
148N090W229CC	E. HALL	270	235	--	4	--	135	7-51	U	FU	S	--	--	1927
148N090W23AAA	USBIA		300	--	--	1951	--	--	--	--	--	--	--	2076
148N090W23ABC	M. CROSS	175	167	--	4	--	121	10-51	H	FU	S	--	--	2020
148N090W23DDC	USBIA		292	--	--	--	--	--	H	--	--	--	--	1985

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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	SPECIFIC CONDUCTANCE	TEMPERATURE (°C)	ELEVATION OF LSD (FT.)
148N090W24DCC	K. PACKINEAU	391	359	--	4	--	298	10-66	U	FU	S	--	--	2102
148N090W25BC	L. HOLTAN	1310	1281	1281	2	1967	+51	11-67	S	FH	V	6	15.5	1920
148N090W26AB81	L. HOLTAN	117	115	106	4	1942	88	10-66	S	FU	1	--	--	1927
148N090W26AB82	L. HOLTAN	142	126	126	4	1952	--	--	H	FU	S	6	9.0	1930
149N078W02CCC	C. JACOBSON		211	--	4	1961	117	6-67	S	--	--	5	6.5	2020
149N078W03ACC	M. ZAKOPYKO	155	--	--	4	--	155	6-67	U	--	--	--	--	2045
149N078W04C8B	NDSMC 2795	60	--	--	--	1967	--	--	U	--	--	--	--	2015
149N078W06DDD	H. VERBITSKY	29	--	--	30	1943	1	6-67	K	51	S	5	10.0	2000
149N078W09BB81	M. YECOSHENKO	400	--	--	3	--	--	--	K	FU	--	6	7.5	1976
149N078W09BB82	M. YECOSHENKO	12	--	--	36	--	6	6-67	U	--	S	--	--	1976
149N078W09DDD	NDSMC 3943	220	--	--	--	1969	--	--	U	--	--	--	--	2015
149N078W10BAA	C. JACOBSON	317	--	--	4	--	--	--	K	FU	--	6	6.5	2000
149N078W12ABB	L. STIG	479	479	4	4	1961	224	6-67	K	FU	--	6	9.0	2022
149N078W21CCD	J. HARCHENKO	300	--	--	4	1943	--	--	K	FU	--	6	7.5	2000
149N078W228BC	T. HARCHENKO	11	--	--	36	--	5	6-67	U	--	--	--	--	1998
149N078W22DAA	T. KETTERLING	13	--	--	30	--	8	6-67	U	--	--	--	--	1995
149N078W238BB	NDSMC 2794	40	--	--	--	1967	--	--	U	--	--	--	--	2000
149N078W27CCC	T. NORBERG	28	--	--	36	--	--	--	K	11	G	5	10.0	1990
149N078W28DCC	D. FIEDLER	25	--	--	--	--	4	6-67	U	--	--	--	--	1990
149N078W33CCD	NDSMC 2793	320	--	--	--	1967	--	--	U	--	--	--	--	1980
149N078W35DDA	B. MANZ	210	--	--	3	1960	--	--	K	--	--	5	7.5	2000
149N079W01A0B	J. MOSEANKO	409	--	--	2	--	--	--	K	--	S	6	7.0	2042
149N079W07DDD1	M. LINDTEI GEN	110	--	--	4	--	26	6-67	U	FU	1	--	--	1950
149N079W07DDD2	M. LINDTEI GEN	190	--	--	4	1963	32	6-67	K	51	G	6	7.5	1950
149N079W08ADA	NDSMC 5612	240	--	--	--	1969	--	--	U	--	--	--	--	1980
149N079W09CBA	A. VERBITSKY	500	--	--	3	--	--	--	K	--	--	5	9.0	1990
149N079W09DAD	J. EVANENKO	6	--	--	36	--	3	6-67	U	11	--	--	--	1990
149N079W11CDD	A. LETVIN	400	--	--	2	1961	--	--	K	--	--	6	9.0	1980
149N079W13ABD	P. EVANENKO	36	--	--	36	--	4	6-67	U	--	--	--	--	1970
149N079W21DAB	L. KVAMME	250	220	4	4	1953	100	--	K	FU	--	6	10.0	2020
149N079W25BCD	L. FIEDLER	365	200	3	3	1961	--	--	K	FU	--	6	--	1985
149N079W25DCC	NDSMC 2792	100	--	--	--	1967	--	--	U	--	--	--	--	2000
149N079W26CCC	G. LOVE	36	--	--	4	--	23	6-67	U	31	S	--	--	1987
149N079W26DCC	NDSMC 5614	120	40	37	1	1969	3	12-69	U	31	8G	4	6.0	1970
149N079W28CCC	H. STADLER	159	--	--	4	--	94	6-67	U	--	--	--	--	2000
149N079W29DCA	L. JAMES	174	--	--	4	--	116	6-67	--	--	--	6	7.0	2020
149N080W03CDD	NDSMC 2802	60	38	33	1	1967	14	9-67	U	51	8G	3	7.0	1960
149N080W04DAA	USAF	100	--	--	--	1961	40	5-61	U	--	--	--	7.0	2006
149N080W06CBC	NDSMC 5600	60	41	38	1	1969	7	12-69	U	31	8Q	4	6.5	1990
149N080W06DCC	R. WILLOUGHBY	80	--	--	5	--	--	--	S	--	--	4	6.0	2040

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149N080W13ABC	G. KAPANKE		144	--	4	--	--	--	K	51	G	5	7.5	1920
149N080W13ADA	NDSWC 5611		120	--	--	1969	--	--	U	--	--	--	--	1950
149N080W15CBA	B. MCCARTNEY		8	--	2	1966	--	--	H	31	G	4	7.0	1955
149N080W16DDD1	A. BOYKO		87	--	4	--	--	--	K	31	--	4	7.0	1955
149N080W16DDD2	NDSWC 5599	100	57	47	1	1969	34	11-69	U	31	8G	4	6.5	1958
149N080W17CBC	C. PETERSON		16	--	1	--	--	--	K	31	G	4	7.5	1940
149N080W19AAA	NDSWC 2803	60	38	35	1	1967	7	9-67	U	31	R	5	7.5	1912
149N080W19AAB	D. BOYKO		12	--	48	--	--	--	K	31	G	4	7.0	1920
149N080W20AAA	NDSWC 5598		80	--	--	1969	--	--	U	31	8G	--	--	1930
149N080W20DBB	J. RAVNAAS		64	--	4	--	--	--	S	FU	1	3	7.5	1900
149N080W21DDA	P. ZABOLOTNEY		29	--	4	1959	16	7-67	U	31	S	--	--	--
149N080W22DBA	S. KVAMME		19	--	20	--	12	6-67	S	31	G	3	6.5	1940
149N080W23CCD	NDSWC 4082		160	--	--	1970	--	--	U	--	--	--	--	1920
149N080W26AAB	NDSWC 4083		140	--	--	1970	--	--	U	52	8G	--	--	1980
149N080W26ABA	NDSWC 5613	180	82	76	1	1969	16	12-69	U	52	8G	5	--	1930
149N080W26CAD	H. SUNDBY		95	--	4	--	--	--	S	51	G	5	6.5	1975
149N080W28CBB	NDSWC 5597		140	--	--	1969	--	--	U	--	--	--	--	1935
149N080W29DCD	G. RAVNAAS		110	--	6	--	--	--	K	FU	1	4	6.5	1940
149N080W31BBD	NDSWC 5596		60	--	--	1969	--	--	U	31	8G	--	--	1895
149N080W32CCD	A. BIRST		87	--	4	--	--	--	K	FU	1	4	8.5	1955
149N080W34CBB	USAF		101	--	--	1961	53	5-61	U	41	T	--	6.5	1971
149N080W34CCB	J. STADLER		170	--	4	--	--	--	S	FU	--	5	6.5	1960
149N081W01CDC	N. BOKHAY		52	--	4	--	42	6-67	H	51	G	4	7.0	2000
149N081W03ACD	A. EMIL		186	--	6	1955	--	--	H	--	--	5	6.0	2030
149N081W03ABD	H. ZABOLOTNEY		67	--	24	--	61	6-67	K	--	S	5	6.0	1980
149N081W05BBC	USAF		82	--	--	--	--	--	U	--	--	--	--	1988
149N081W06BCC	L. ROBINSON		162	--	4	1924	51	6-67	H	51	G	6	6.5	1940
149N081W08CDC	F. LEVEY		65	--	6	1912	--	--	K	51	G	4	6.5	1955
149N081W09ACD	P. SLCBODIN		35	--	24	--	--	--	K	--	S	6	5.5	1880
149N081W10AAD	N. WICK		60	--	--	--	--	--	K	51	G	5	5.5	1990
149N081W11BBA	A. BOGZENNY		150	--	6	1958	107	6-67	K	--	P	6	6.0	2005
149N081W11DCC	M. BOYKO		120	--	18	1903	--	--	K	--	--	5	9.0	1985
149N081W13DCC	K. FYLLING		89	--	10	--	71	6-67	S	41	P	5	6.5	1960
149N081W14DDC	G. BORGEN		21	--	16	1915	5	6-67	K	--	--	6	9.0	1985
149N081W19BBC	J. GOTTSCHOLL		100	--	6	--	--	--	K	--	--	6	6.5	1922
149N081W23BB	USAF		82	--	3	1961	53	4-61	U	FU	7S	4	--	1958
149N081W25CCD	NDSWC 3951	100	50	47	1	1969	20	12-69	U	51	8G	5	6.0	1900
149N081W26CDA	A. BAUER		90	--	4	--	--	--	K	--	--	4	7.0	1965
149N081W29BAA	NDSWC 5595		140	--	--	1969	--	--	U	--	--	--	--	1910
149N081W30CCD	G. BOVKOON		78	--	3	--	--	--	K	--	--	5	6.0	1885

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149N081W35ADA	G. LOVE		110	--	4	1915	--	--	K	FU	P	4	6.0	1860
149N082W03DAA	V. BERGER		9	--	24	--	7	10-66	U	31	--	--	--	1910
149N082W0688B1	F. GIESE		12	--	24	--	9	10-66	H	31	--	4	12.5	2071
149N082W0688B2	F. GIESE		19	--	18	--	6	10-66	S	--	--	6	9.5	2060
149N082W06CDD	NDSWC 5589		180	--	--	1969	--	--	U	--	--	--	--	2020
149N082W07BAD	A. THOMPSON		100	--	4	--	--	--	K	--	--	6	9.0	2030
149N082W07DBA	M. HEUSERS		100	--	4	--	--	--	K	--	--	5	10.5	2005
149N082W0888C	C. HAUGE BERG		120	--	2	--	103	--	K	--	--	6	11.5	2005
149N082W08DCB	L. KREBSBACH		115	--	5	--	85	--	K	--	--	5	8.5	2022
149N082W09DAC	S. VITKO		150	--	4	--	60	--	K	--	--	6	7.5	1960
149N082W10CCA	R. KREBSBACH		125	--	5	--	70	--	K	--	--	4	7.0	1962
149N082W10CCC	NDSWC 4075		80	--	--	1970	--	--	U	--	--	--	--	1962
149N082W11CCB	C. KIMM		30	--	4	--	22	--	K	31	--	5	7.0	1901
149N082W12AAA	NDSWC 3591		140	--	--	1969	--	--	U	51	9S	--	--	1940
149N082W12BAB1	NDSWC 2833	220	55	52	1	1967	5	10-67	U	51	R	4	7.5	1895
149N082W12BAB2	NDSWC 5607		80	--	4	1969	5	12-69	U	51	9S	--	--	1895
149N082W12BBB	NDSWC 5590	140	56	67	1	1969	45	11-69	U	51	9S	4	6.0	1930
149N082W14BDD	O. HAUGEN		73	--	1	--	8	--	h	51	--	5	7.0	1900
149N082W15AAA	NDSWC 5592	160	22	68	1	1969	22	11-69	U	51	8G	6	6.0	1902
149N082W15AAC	J. SCHOCK		100	--	4	--	60	--	K	51	--	6	10.0	1926
149N082W15B0C	G. SCHOCK		--	--	--	--	--	--	U	51	--	5	11.0	1900
149N082W18DDD	A. SCHREINER		107	--	4	--	80	--	K	--	--	4	10.0	2008
149N082W19BCC	H. PFLIPSEN		100	--	5	--	90	--	K	--	--	5	7.5	2002
149N082W20ABC1	L. KREBSBACH		260	--	4	1961	160	--	K	FU	--	6	7.5	2015
149N082W20ABC2	L. KREBSBACH		90	--	24	--	48	10-66	U	FU	--	--	--	2010
149N082W22BBB	R. MILLER		51	--	4	--	49	10-66	U	--	--	--	--	1956
149N082W22B8C	R. MILLER		120	--	4	1945	95	--	K	--	--	5	7.5	1964
149N082W24DBA1	H. SCHUMAIER		30	--	18	--	8	10-66	S	51	--	5	7.5	1875
149N082W24DBA2	H. SCHUMAIER		11	--	6	--	14	10-66	H	--	--	5	10.0	1880
149N082W24ABB	A. WEISHAAR		60	--	6	--	30	--	K	--	--	5	9.0	1902
149N082W27BBB	USAF		100	--	--	1961	54	5-61	U	FU	V	--	7.5	1954
149N082W27DDD	NDSWC 4074		60	--	--	1970	--	--	U	--	--	--	--	1899
149N082W28BDD1	E. BADER		175	--	4	1946	60	10-66	K	--	--	5	10.0	1970
149N082W28BDD2	E. BADER		73	--	5	--	52	10-66	U	--	--	5	8.5	1972
149N082W28BDD3	E. BADER		52	--	4	--	47	10-66	U	--	--	--	--	1968
149N082W30ADD	H. FETZER		150	--	4	--	120	--	K	--	--	6	7.5	1963
149N082W31BAB	A. SCHUMAIER		87	--	24	--	75	9-66	U	--	--	--	--	1950
149N082W34BBA	B. WEISHAAR		110	--	5	--	60	--	K	--	--	5	8.5	1910
149N082W34CCC	NDSWC 4073		120	--	--	1970	--	--	U	--	--	--	--	1890
149N082W34DBC	G. REIBE		90	--	5	--	49	10-66	U	--	--	4	7.5	1890

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149N082W35CCB	A.ESLINGER		20	--	24	--	16	--	S	--	--	5	7.5	1883
149N082W36ABA	NDSWC 2805	140	38	32	1	1967	F	9-67	U	51	R	5	6.0	1850
149N083W02CCD	J.FLATH		107	--	4	1935	86	9-66	U	--	P	--	--	2065
149N083W02DDB	R.IVERSON		74	--	4	--	73	--	S	--	--	5	7.5	--
149N083W03ADD	A.SENCHENKO		120	--	4	--	88	8-66	U	--	--	--	--	--
149N083W03CAC	M.TORGERSON		107	--	3	1940	9	9-66	S	--	--	6	8.5	--
149N083W06AAA	D.LINDQUIST		80	--	6	--	25	--	K	--	--	6	9.0	--
149N083W09CCD	A.FLATH		67	--	6	--	55	--	S	--	--	6	7.5	2020
149N083W11CAA	R.IVERSON		94	--	4	--	74	--	K	--	--	6	7.5	2025
149N083W12BCA	H.ZENZ		80	--	4	--	78	--	K	--	--	4	7.5	2020
149N083W13DDD	C.ANDERSON		148	--	6	--	122	3-67	U	--	--	--	--	2010
149N083W15AAD	D.FLATH		96	--	5	--	72	9-66	U	--	--	6	7.0	2015
149N083W15BBC	USAF		100	--	--	1961	23	6-61	U	41	T	--	6.0	2005
149N083W17BBB	R.MAUTZ		112	--	6	--	110	--	K	--	--	6	6.0	1895
149N083W18AAC	H.MAUTZ		100	--	4	--	78	9-66	K	--	--	6	10.0	1987
149N083W18CAD1	E.MAUTZ		65	--	6	--	58	9-66	S	--	--	6	7.5	1963
149N083W18CAD2	E.MAUTZ		72	--	4	1951	66	9-66	H	--	--	6	17.5	1963
149N083W19DCB	A.STEINWAND		115	--	6	--	52	9-66	K	--	--	6	9.5	1965
149N083W20AAA	T.FLATH		--	--	--	--	52	9-66	S	--	--	6	6.5	1980
149N083W22DDC	A.FRIESE		161	--	4	1961	115	--	Z	--	--	6	19.0	1960
149N083W23ACC	R.BERG		21	--	12	1947	13	9-66	K	--	--	6	7.5	1970
149N083W23DDB	C.BERG		100	--	6	--	95	--	K	--	--	6	9.0	1982
149N083W25BAA	N.MORGAN		107	--	4	1955	--	--	K	41	--	6	9.5	1982
149N083W28DDB	A.NEHLHOFF		120	--	4	--	102	9-66	K	--	--	6	8.5	1960
149N083W31ADD	C.ENGEL		17	--	4	1961	7	9-66	K	--	--	--	--	1982
149N083W33BBC	H.UHLICH		116	--	6	--	--	--	H	--	--	5	10.0	--
149N083W33CAA1	A.UHLICH		123	--	4	1945	85	--	K	--	--	6	7.5	--
149N083W33CAA2	A.UHLICH		117	--	4	1966	80	--	S	--	--	6	7.0	--
149N084W02CDD	L.SORENSEN		96	--	6	--	F	8-66	S	FU	1	--	6.5	1965
149N084W02DDB	L.SORENSEN		81	--	4	1964	F	8-66	S	--	S	5	7.0	1955
149N084W02DCC	L.SORENSEN		62	--	4	--	9	8-66	U	51	S	--	--	1968
149N084W03BCC	L.HEILNAM		240	--	--	1958	110	--	K	FU	--	6	9.0	--
149N084W04CCD	R.SORENSEN		80	--	4	--	49	8-66	H	FU	--	--	--	2024
149N084W06DDD	NDSWC 2837		60	--	--	1967	--	--	U	--	--	--	--	2020
149N084W08BCA	K.FLIGINGER		9	--	24	--	5	8-66	U	--	--	--	--	2017
149N084W11DDD	NDSWC 5584		100	--	--	1969	--	--	U	--	--	--	--	1961
149N084W12ABB	H.MAUTZ		97	--	4	--	40	8-66	K	FU	--	6	7.0	2000
149N084W14DDD	A.ENGEL		165	135	6	1957	68	8-66	H	FU	--	--	--	1990
149N084W1588B	USAF		100	--	--	1961	40	5-61	U	FU	S	--	7.0	2008
149N084W15CBB	NOTTOM BROS.		90	--	4	--	56	8-66	K	FU	--	--	--	2040

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149N084W21CCD	NOTTEM BRCS.		67	--	4	--	26	8-66	K	FU	--	--	--	2000
149N084W24CDD	E.ARLT		18	--	12	--	12	8-66	S	--	S	--	--	1920
149N084W25ABB	NDSWC 5583		100	--	--	1969	--	--	U	--	--	--	--	1935
149N084W27CBB	B.BENDICKSON		43	--	--	1916	24	8-66	K	--	--	--	--	1982
149N084W29BDD	E.FREDRICH		33	--	18	1904	25	8-66	U	--	--	--	--	1989
149N084W29CDD	NDSWC 5806		60	--	--	1970	--	--	U	--	--	--	--	1980
149N084W29DCD	NDSWC 5807		30	--	--	1970	--	--	U	--	--	--	--	1955
149N084W30CDC	D.MAJERES		150	--	4	--	75	--	H	FU	1	6	9.0	1968
149N084W30DAB	A.SAYLER		20	--	6	--	7	8-66	S	--	--	--	--	1974
149N084W31AAA	NDSWC 5809		180	--	--	1970	--	--	U	52	6S	--	--	1960
149N084W31AAB	NDSWC 5810		120	--	--	1970	--	--	U	--	--	--	--	1955
149N084W31ADA	NDSWC 5814		80	--	--	1970	--	--	U	--	--	--	--	1940
149N084W31AOD	NDSWC 5812		100	--	--	1970	--	--	U	--	--	--	--	1965
149N084W32BBB	NDSWC 5811		140	--	--	1970	--	--	U	--	--	--	--	1962
149N084W32CBC	NDSWC 5813		100	--	--	1970	--	--	U	--	--	--	--	1965
149N084W32DAA	NDSWC 5817		200	--	--	1970	--	--	U	--	--	--	--	1940
149N084W32DDD	NDSWC 4062		80	--	--	1970	--	--	U	--	--	--	--	1975
149N084W33ABB	NDSWC 5816		80	--	--	1970	--	--	U	--	--	--	--	1970
149N084W33BAB	NDSWC 5815	120	58	52	1	1970	11	9-70	U	52	S	6	8.5	1952
149N084W33BBB	NDSWC 5808		20	--	--	1970	--	--	U	--	--	--	--	1955
149N084W33CCC	NDSWC 4061		220	--	--	1970	--	--	U	52	S	--	--	1890
149N084W33DCD	NDSWC 4060		80	--	--	1970	--	--	U	--	--	--	--	1920
149N084W34CBB	A.BRANDNER		76	--	12	1943	48	8-66	K	--	S	--	--	1952
149N084W35BBA	R.MEHLHOFF		113	--	4	1954	43	--	K	FU	--	4	--	1944
149N085W01CDD	B.STAEHR		60	--	24	--	37	8-66	U	--	--	--	--	2020
149N085W02AAA	L.NOVODVORSKY		114	--	4	--	84	8-66	U	--	--	--	--	--
149N085W05AAB	O.OSTBY		53	--	16	1929	49	8-66	U	--	--	--	--	--
149N085W05CCD	N.PETERSON		35	--	28	1920	31	8-66	K	51	6S	--	--	2040
149N085W05CDC	NDSWC 2838		80	--	--	1967	--	--	U	--	--	--	--	2035
149N085W06CCB	M.WITT		87	--	24	--	81	8-66	U	--	--	--	--	--
149N085W08ABB	C.WESTBERG		45	--	24	1966	40	8-66	K	51	--	4	9.0	2057
149N085W13CDD	J.SAYLER		21	--	20	1961	19	8-66	K	51	--	--	--	1981
149N085W13DDD	A.KASTNER		50	--	20	--	35	8-66	K	--	--	--	--	1996
149N085W14CDD	USAF		100	--	--	1961	74	6-61	U	51	--	--	10.0	2022
149N085W17CBC	H.SOLENBERGER		8	--	--	--	3	8-66	U	51	6R	--	--	2002
149N085W18BCC	C.BENTLEY		29	--	24	--	18	8-66	U	--	6S	--	--	2040
149N085W18CDC	A.CARLSON		34	--	18	--	19	8-66	S	--	6G	--	--	2062
149N085W19CDD	H.TRUEBLOOD		30	--	6	1965	11	8-66	K	FU	--	6	7.0	2045
149N085W20AAA	J.HUSTON		73	--	15	--	59	8-66	K	--	--	--	--	1980
149N085W22BAA	E.CONKLIN		87	--	20	--	47	8-66	K	--	--	--	--	1996

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149N085W25DDC1	J. CONKLIN		135	--	4	--	51	8-66	H	FU	--	--	--	1970
149N085W25DDC2	J. CONKLIN		92	--	6	--	54	8-66	U	FU	--	6	--	1970
149N085W30DCC	J. FISCHER		104	--	6	--	92	8-66	S	FU	--	--	--	2061
149N085W30DDA	F. JOHNSON		50	--	20	1949	30	8-66	H	FU	--	--	--	2050
149N085W34CAA	A. CONKLIN		93	--	20	1926	51	8-66	K	FU	--	--	--	2002
149N086W03CAD	O. ROMSAAS		85	--	24	--	7	7-66	K	--	6S	6	6.5	2098
149N086W03CBB	USAF		100	--	--	1961	23	6-61	U	51	S	--	6.0	2099
149N086W08CDB	D. JOHNSON		135	--	--	1920	125	7-66	H	FU	6S	--	--	2197
149N086W12ADA	W. PRICE		92	--	30	--	72	7-66	K	FU	6S	--	--	2064
149N086W12CBB	W. PRICE		27	--	--	--	5	7-66	U	--	--	--	--	2064
149N086W13CCC	A. LARSON		73	--	24	--	42	7-66	K	51	--	--	--	2073
149N086W15ABB	NDSWC 3618		60	--	--	1968	--	--	U	--	--	--	--	2105
149N086W20DCC	H. RIME		29	--	6	--	20	7-66	U	51	6S	--	--	2150
149N086W25DDA	H. AULTBURG		7	--	18	--	2	7-66	U	11	--	--	--	2048
149N086W26BCC	J. IGLEHART		47	--	18	1906	37	7-66	K	--	--	--	--	2085
149N086W32AAA	NDSWC 5570		60	--	--	1969	--	--	U	--	--	--	--	2050
149N086W33ADA	USAF		100	--	--	1961	39	5-61	U	FU	S	--	--	2073
149N086W34DDA	CHRISTOPHERSON		47	--	24	--	36	7-66	K	--	--	--	--	2088
149N087W02DDC1	E. PEDERSON	49	83	--	24	--	71	9-66	U	--	--	--	--	2147
149N087W02DDC2	E. PEDERSON		100	--	4	1953	65	--	K	FU	S	4	7.0	2148
149N087W03ADD	A. AUSTAD		76	--	36	--	53	9-66	U	FU	P	--	--	2122
149N087W05CDD	J. SUYDAM		87	--	4	--	57	9-66	K	FU	S	5	9.0	2098
149N087W05DDB	J. MATTSON		90	--	4	1950	54	9-66	H	--	S	--	--	2140
149N087W05DCC	ROEGLEN		39	--	24	--	24	9-66	U	--	--	--	--	2102
149N087W06DCC	NDSWC 3616		80	--	--	1968	--	--	U	--	--	--	--	2085
149N087W08ABB	I. VANGSNESS		220	--	4	--	63	9-66	H	FU	--	6	10.0	2110
149N087W09DAD	A. KOLDEN		140	--	4	1964	55	9-66	K	FU	--	5	6.0	2097
149N087W11BCC	V. ROSTAD		89	--	4	--	--	--	K	FU	S	5	5.5	2099
149N087W15AAD	R. HAUGEN		190	--	4	1965	54	9-66	H	FU	6V	5	7.0	2091
149N087W17DCC	E. GIFFEY		187	--	--	--	103	9-66	K	FU	--	5	7.0	2100
149N087W20BBB	NDSWC 5571		60	--	--	1969	--	--	U	--	--	--	--	2070
149N087W21CCD	H. SKEITEN		94	--	4	1962	74	9-66	H	FU	S	--	--	2033
149N087W24CBB	M. RUSTAD		120	--	4	1959	46	9-66	H	--	S	4	6.0	2093
149N087W25CAB	E. KERZMAN		85	--	24	--	38	9-66	H	--	--	--	--	2110
149N087W27AAB	H. SNIPPEN		94	--	24	--	87	9-66	H	--	--	5	6.5	2062
149N087W27CBB	A. HILL		76	--	24	--	63	9-66	U	--	--	--	--	2043
149N087W28ADB	A. HILL		84	--	4	1964	57	9-66	K	--	--	5	7.0	2043
149N087W29DDD	K. HILL		97	--	4	1963	29	9-66	H	--	--	5	6.5	2003
149N087W30ADD	NDSWC 5561		320	--	--	1969	--	--	U	--	--	--	--	2000
149N087W32CCC	NDSWC 3622	440	358	338	1	1968	138	9-68	U	52	8G	5	--	2002

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149N087W34ABB	USAF		100	--	--	1961	75	5-61	U	51	S	--	5.5	1992
149N087W35DCB	R. KERZMAN		95	--	24	--	6	9-66	U	--	--	--	--	--
149N088W01CDD	USAF		100	--	--	1961	64	7-61	U	51	S	--	5.5	2047
149N088W02CDC	R. VANGSNESS		178	--	4	1966	38	--	K	--	S	5	8.5	2065
149N088W04DCD	F. SPRENGER		53	--	18	1935	32	--	K	FU	F	4	7.0	2037
149N088W11DAA	D. WEIGEL		57	--	24	--	43	--	K	51	S	6	7.0	1978
149N088W19BCC	NDSWC 4046	340	161	158	1	1970	75	9-70	U	52	R	--	--	2040
149N088W20CBC	J. QUALLEY		30	--	24	1963	24	--	H	51	6S	6	6.5	1968
149N088W21BBB	D. ANDERSON		17	--	6	--	10	8-66	U	52	6S	--	--	1982
149N088W23BBB	V. WEIGELL		80	--	24	--	72	--	K	52	G	5	7.0	1970
149N088W25CAA	S. RUSTAD		21	--	24	1957	11	--	K	51	S	4	6.5	2000
149N088W27BBB	NDSWC 3625		60	--	--	1968	--	--	U	--	--	--	--	1955
149N088W27CCC	USAF		103	--	--	1961	87	7-61	U	--	--	--	--	2005
149N088W30BAA	A. LIND		44	--	24	1953	32	--	K	--	8P	4	7.0	1980
149N088W32AAC	E. KLOPPEDEL	575	270	--	4	1942	180	--	K	52	R	5	9.0	2042
149N088W35AAA	R. RUSTAD		180	--	6	--	177	8-66	U	52	--	--	--	2002
149N088W35ABB	NDSWC 5560		400	--	--	1969	--	--	U	--	--	--	--	2025
149N088W35BAA	R. RUSTAD		284	--	5	--	209	--	H	52	S	5	9.0	2030
149N088W36AAA	NDSWC 3623	300	268	248	1	1968	134	9-68	U	52	7G	--	--	1986
149N089W01ACB1	T. WEINAND		84	--	4	--	22	--	S	--	S	5	7.0	--
149N089W01ACB2	T. WEINAND		17	--	36	1962	13	--	H	31	S	5	9.5	--
149N089W02ADA	C. PETERSON		20	--	48	1956	17	--	K	31	G	4	14.0	--
149N089W02BBB	NDSWC 5556	301	263	257	1	1969	88	11-69	U	52	8G	6	15.5	1942
149N089W02DAD	NDSWC 2842		360	--	--	1967	--	--	U	51	R	--	--	1881
149N089W03BBB	R. FOLDEN		206	--	4	1956	126	--	H	FU	1	5	8.5	--
149N089W04CDC	D. MUHLBRADT	110	99	98	4	1947	61	--	H	51	S	5	8.5	1906
149N089W07BAB	C. MILLER		200	--	4	1963	120	--	K	--	--	5	8.5	--
149N089W08CBC	NDSWC 3612		80	--	--	1968	--	--	U	--	--	--	--	1862
149N089W09BAB	NDSWC 2841		100	--	--	1967	--	--	U	51	G	--	--	1902
149N089W10AAA	NDSWC 3613		260	--	--	1968	--	--	U	51	R	--	--	1885
149N089W18BBC	NDGS 41	35	18	16	1	1967	5	9-67	U	51	7S	6	8.5	1880
149N089W10CBB	L. BILLADEAU		132	--	4	1964	90	--	K	--	S	5	9.0	1942
149N089W11BBB1	F. LUDWIG		21	--	6	1948	13	6-66	H	51	S	4	11.0	--
149N089W11BBB2	F. TOMHAVE		20	7	72	1965	15	--	H	51	2S	5	7.5	--
149N089W11CBB	W. ZAHNOW	170	130	--	3	1945	92	--	K	51	6S	6	7.5	1942
149N089W13AAA	NDSWC 4067		420	--	--	1970	--	--	U	52	R	--	--	1963
149N089W13CDC	D. ROBERTS		70	--	4	1960	40	--	H	--	1S	5	8.5	--
149N089W13DAA	NDSWC 4049		400	--	--	1970	--	--	U	52	8G	--	--	1960
149N089W15AAA	NDSWC 5555		300	--	--	1969	--	--	U	52	9S	--	--	1930
149N089W15DDC	NDSWC 5574		165	--	--	1969	--	--	U	51	8G	--	--	1945

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149N089W15DDD	NDSWC 5573		40	--	--	1969	--	--	U	--	--	--	--	1950
149N089W18ADB	W.MYERS		112	--	4	1942	81	12-42	U	52	R	--	--	1935
149N089W18BDA	G.GILBERTSON		98	--	4	1956	38	--	H	51	G	5	8.5	--
149N089W19ADA	AY	167	160	--	2	1916	130	--	S	FU	V	5	6.0	1982
149N089W20CCB	NDSWC 5554		40	--	--	1969	--	--	U	--	--	--	--	1930
149N089W23CCC	C.DRABLOS	147	142	142	4	1932	120	10-66	H	FU	--	5	10.0	2017
149N089W24AAA	NDSWC 4048	380	172	163	1	1970	62	7-70	U	52	S	6	8.0	1957
149N089W25AAA	NDSWC 5559		320	--	--	1969	--	--	U	--	--	--	--	1980
149N089W25ADD	NDSWC 4047		120	--	--	1970	--	--	U	--	--	--	--	1996
149N089W27DBB	E.MOLL		130	--	2	--	124	--	K	--	P	5	8.5	2036
149N089W28ADA	E.THEOBALD		129	--	4	--	129	7-66	U	FU	--	--	--	--
149N089W36BBB1	D.ROBERTS		130	--	4	1963	88	5-67	S	FU	S	4	8.5	2015
149N089W36BBB2	NDSWC 2840		100	--	--	1967	--	--	U	--	--	--	--	2036
149N090W01AAA	NDSWC 4070		200	--	--	1970	--	--	U	--	--	--	--	1975
149N090W01AAB	T.HAUGAN		211	--	4	--	121	7-66	U	FU	V	--	--	2011
149N090W04DDD	B.YOUNGBIRD		170	--	--	1953	--	--	U	FU	S	--	--	1900
149N090W05AB	CALVERT DRG.CC		8650	--	--	1956	--	--	U	--	--	--	--	1980
149N090W05DCC	A.FOOTE	15	120	--	4	1952	--	--	K	FU	S	5	8.5	1902
149N090W11ADA1	E.FOOTE	245	210	--	4	--	159	10-51	H	FU	S	--	--	1995
149N090W11ADA2	J.FOOTE		199	194	4	1963	40	--	K	FU	S	6	11.0	1995
149N090W11DBC	A.FOOTE,SR.	237	237	229	5	1963	210	--	S	FU	S	6	9.0	1923
149N090W24BDA	B.BRUGH		170	--	5	--	115	--	H	FU	1	--	9.0	--
149N090W24CDA	M.FREDERICKS	175	173	--	2	1953	--	--	U	FU	1	4	--	1935
149N090W28DDD	NDSWC 5575		60	--	--	1969	--	--	U	--	--	--	--	1900
149N090W34CCC	NDSWC 5553		380	--	--	1969	--	--	U	51	8G	--	--	1946
145N090W35ABC			225	--	--	1953	--	--	U	FU	S	--	--	1998
150N078W01DCD	NDSWC 2796		200	--	--	1967	--	--	U	51	6R	--	--	1625
150N078W05BCC	NDSWC 5605		120	--	--	1969	--	--	U	--	--	--	--	1735
150N078W05DCB	D.BAUER		120	--	3	--	--	--	K	--	--	5	6.5	1742
150N078W06ACD	R.PLESUK		94	--	2	--	27	6-67	U	--	8P	--	--	1743
150N078W06BCB	S.VERBITSKY		200	--	2	--	--	--	H	FU	--	5	6.0	1761
150N078W06DCD	R.PLESUK		180	--	5	1949	--	--	K	--	--	5	7.0	1768
150N078W07ABA	NDSWC 2797		160	--	--	1967	--	--	U	--	--	--	--	1765
150N078W09DDD	R.ZAVOLNEY		130	--	3	--	--	--	H	--	--	6	9.0	1811
150N078W10AAB	P.PLESUK		117	--	5	1947	--	--	K	FU	S	5	7.0	1750
150N078W10BDC	R.ZAVOLNEY		135	--	2	1946	--	--	K	FU	--	6	7.5	1813
150N078W12BBD	R.PLESUK		85	--	3	1962	15	6-67	K	FU	S	5	11.0	1653
150N078W12DAB	NDSWC 5606		40	--	--	1969	--	--	U	--	--	--	--	1625
150N078W13AAC	R.MANSKE		24	--	--	--	4	6-67	U	51	--	--	--	1651
150N078W17BBB	D.DOSSENKO		113	--	2	--	36	6-67	H	--	S	6	6.5	1821

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	SPECIFIC CONDUCTANCE	TEMPERATURE (°C)	ELEVATION OF LSD (FT.)
150NC78W19BCC	P. TARASENKO		210	--	2	1958	--	--	K	FU	S	5	6.5	2055
150NC78W20BDC	H. ANDERSON		325	--	3	1925	--	--	K	FU	--	6	7.0	1970
150NC78W25ADC	P. PLESUK		165	--	2	1957	--	--	H	--	S	5	8.5	1808
150NC78W27CBB	E. STRIKA		200	--	5	1887	--	--	H	--	S	6	6.5	2004
150NC78W28BAA	R. KOSTENKO		30	--	24	--	--	--	H	--	S	5	5.5	1985
150NC78W28CBB	NDSWC 3944		200	--	--	1969	--	--	U	--	--	--	--	2050
150NC78W28CBC	N. YECOSHENKO		118	--	4	--	67	--	H	51	G	5	6.0	2049
150NC78W29AAA	P. KANKOVSKY		110	--	7	--	--	--	K	--	S	5	6.0	2016
150NC78W32ADD	G. EISENRICH		21	--	36	1928	6	6-67	K	11	G	5	4.0	2030
150NC78W33DAD	J. HAUGEN		400	--	2	1928	--	--	K	HC	--	6	6.5	2029
150NC78W34DDD	G. VERBITSKY		200	196	2	1963	14	9-63	S	--	--	--	--	--
150NC79W04ABD	R. DINGA		360	--	2	--	--	--	K	--	--	6	7.0	1840
150NC79W04CAB	R. HURDA		24	--	60	--	11	6-67	K	--	--	6	6.5	2060
150NC79W09ABC	D. MOVCHAN		340	--	4	--	200	--	K	FU	--	6	7.5	2060
150NC79W09BAD	D. MOVCHAN		11	--	18	--	5	6-67	U	11	G	--	--	2065
150NC79W10DD81	S. MILLER		430	350	2	1964	204	6-67	U	FU	S	--	--	2100
150NC79W10DD82	S. MILLER		435	--	2	--	--	--	H	--	S	6	7.0	2100
150NC79W12ABC1	J. BOOZENNY		150	--	4	1966	70	6-67	S	--	2S	6	7.5	1820
150NC79W12ABC2	J. BOOZENNY		15	--	48	--	9	6-67	K	11	G	6	5.5	1815
150NC79W148DD	I. J. WILHITE CC.		5153	--	--	1962	--	--	U	--	--	--	--	2079
150NC79W14CCD	NDSWC 5604		340	--	--	1969	--	--	U	--	--	--	--	2020
150NC79W15ADD1	NDSWC 4078		200	--	--	1970	--	--	U	--	--	--	--	2280
150NC79W15ADD2	NDSWC 4079		500	--	--	1970	--	--	U	51	S	--	--	2291
150NC79W15BAC	C. LUNAS		6	--	36	--	3	6-67	U	31	G	--	--	2060
150NC79W20AAA	R. HERDA		52	--	24	--	12	6-67	U	--	--	--	--	2060
150NC79W21DCA	E. RITTENBACH		12	--	--	--	4	6-67	S	31	G	5	10.0	2055
150NC79W22888	J. DEMCHUK		20	--	36	--	5	6-67	S	31	G	--	--	2040
150NC79W2288C	J. DEMCHUK		120	--	4	--	60	--	H	51	G	5	9.5	2048
150NC79W25DDC	N. ZAREK		600	--	2	--	300	--	K	--	--	6	7.0	2075
150NC79W28DCA	N. SANDHOFNER		51	--	24	--	10	6-67	U	--	--	--	--	2085
150NC79W29ADD1	USAF		100	--	--	1961	76	8-61	U	51	R	--	10.0	2029
150NC79W29ADD2	NDSWC 2798	220	77	72	1	1967	74	9-67	U	51	R	--	--	2028
150NC79W31ABB	NDSWC 5610		140	--	--	1969	--	--	U	--	--	--	--	1998
150NC79W33BAD	J. HAUSLER		24	--	--	--	8	6-67	K	--	2S	5	4.5	2080
150NC79W35AAB1	J. ARNDT		500	--	5	--	--	--	K	HC	S	5	7.0	2040
150NC79W35AAB2	J. ARNDT		15	--	36	--	2	6-67	S	11	G	5	--	2065
150NC80W02888	S. HEGNEY		520	--	4	--	--	--	H	HC	S	5	6.5	2005
150NC80W02DDC	NDSWC 4080	380	324	318	1	1970	40	8-70	U	52	R	5	--	2015
150NC80W03DDC	NDSWC 5603		260	--	--	1969	--	--	U	51	G	--	--	2035
150NC80W058DD	RUSO		10	--	24	--	6	6-67	U	31	G	--	--	2074

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150N080W05DDC	J. HANSON		13	--	1	--	3	6-67	U	31	G	--	--	2055
150N080W07BBB	NDSWC 5602		120	--	--	1969	--	--	U	--	--	--	--	2080
150N080W07BCA	J. JOHNSON		65	--	24	1920	45	6-67	K	51	G	4	6.5	2075
150N080W08AAB1	J. HANSON		70	--	6	--	39	6-67	K	51	G	5	7.0	2045
150N080W08AAB2	J. HANSON		13	--	36	--	8	6-67	U	31	G	--	--	2043
150N080W09BBD	USAF		100	--	--	1961	72	4-61	U	FU	S	--	--	2063
150N080W10AAA	P. KRUEGER		65	--	3	--	19	6-67	U	51	--	--	--	2057
150N080W10ABB	NDSWC 2799		120	--	--	1967	--	--	U	--	--	--	--	2030
150N080W11BBB	C. SHEELAR		364	--	2	--	100	--	K	52	--	5	7.5	2040
150N080W14BBC	CARDINAL PET. CO		5301	--	--	1962	--	--	U	--	--	--	--	1994
150N080W16CCB	NDSWC 2800	200	39	34	1	1967	27	9-67	U	51	R	--	--	2030
150N080W21AAA	NDSWC 4081		169	--	--	1970	--	--	U	51	8G	--	--	1985
150N080W21BBC	P. MADSEN		60	--	18	--	45	6-67	K	51	G	4	6.0	2025
150N080W22CDD	H. HARMON		50	--	48	--	38	6-67	S	51	G	4	6.5	2005
150N080W23CCD	A. ANDERSON		16	--	24	--	6	6-67	U	31	G	--	--	1980
150N080W24BDC	A. ANDERSON		76	--	4	--	42	6-67	S	51	G	--	--	2020
150N080W24CAA	A. ANDERSON		7	--	36	--	0	6-67	U	31	G	--	--	2020
150N080W25AAB	H. SCHEELER		10	--	36	1960	3	6-67	S	31	R	4	12.5	1955
150N080W25DCD	NDSWC 5609	180	142	136	1	1969	18	12-69	U	52	8G	4	6.5	1940
150N080W26CBB	J. PREISINGER		21	--	36	--	--	--	H	31	S	3	10.0	1878
150N080W26DCC	H. SCHEELER		50	--	18	--	--	--	K	51	G	4	7.0	1968
150N080W27DDD	NDSWC 5608	120	48	45	1	1969	33	12-69	U	51	8G	4	7.5	1985
150N080W28CCB	STANGLIND OIL		8900	--	--	1952	--	--	U	--	--	--	--	2081
150N080W29CCC	NDSWC 5601		260	--	--	1969	--	--	U	31	G	--	--	2045
150N080W30BBB	E. THOMPSON		181	--	6	--	167	6-67	U	--	--	--	--	2142
150N080W32BCB	V. MILLER		14	--	40	--	8	6-67	K	31	S	5	6.5	2135
150N080W33DAB	D. WILLOUGHBY		60	--	4	--	--	--	S	51	S	4	6.5	2000
150N080W33DCD	D. WILLOUGHBY		120	--	4	--	--	--	K	--	S	5	6.5	2042
150N080W35ABB	NDSWC 2801	100	79	73	1	1967	37	9-67	U	51	8G	4	7.0	1985
150N081W04BA8	A. MOSENG		520	--	4	--	--	--	K	--	G	5	6.5	2005
150N081W06BCB	N. BAKLENKO		200	--	4	1910	145	8-67	K	FU	1	5	7.0	2105
150N081W06DCA	A. EMIL		180	--	3	1932	144	6-67	K	--	--	--	--	2080
150N081W08DDD	C. GULLICKSON		167	--	4	1961	137	--	K	FU	1	5	7.0	2080
150N081W15BAA	USAF		100	--	--	1961	47	5-61	U	--	--	--	--	2104
150N081W15DDC	G. LUNDER		82	--	16	--	66	6-67	K	51	G	4	6.5	2100
150N081W19BBB	K. WESTMAN		140	--	6	--	98	6-67	K	FU	1	5	7.0	2040
150N081W22CCC	F. LORENZ		90	--	4	--	--	--	S	--	S	4	7.0	2060
150N081W23COC	J. YESENKO		8	--	36	--	4	6-67	U	31	G	--	--	2060
150N081W24ADB	R. JOHNSON		16	--	28	1907	5	6-67	U	31	G	4	6.5	2128
150N081W24BBB	E. OLSON, JR.		19	--	36	1918	12	6-67	H	31	R	4	6.0	2125

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150N081W26BBB	J. YESENKO		49	--	4	1950	35	6-67	K	31	G	4	7.5	2069
150N081W27AAA	NDSWC 2832		100	--	--	1967	--	--	U	31	R	--	--	2068
150N081W27BAA	OKERSON BROS.		20	--	48	--	4	6-67	U	31	G	--	--	2057
150N081W30DAB	H. POLSFUT		88	--	3	--	67	6-7	U	--	--	--	--	2018
150N081W31CAC	E. KOHLER		618	--	5	--	150	--	K	HC	--	6	7.5	1970
150N081W32ABA	F. SPELEVAY		105	--	4	--	100	6-67	U	--	--	--	--	2050
150N082W02ACC	I. LINDLAUF		186	--	4	--	56	10-66	U	--	--	--	--	2105
150N082W05C8B1	F. DEVNICH		20	--	18	1930	8	--	K	--	--	5	15.5	2140
150N082W05C8B2	F. DEVNICH		360	--	4	1961	244	--	K	--	--	5	10.0	2145
150N082W06AAA	N. SEMCHENKO		32	--	24	--	15	--	K	--	--	5	6.5	2130
150N082W060CD	M. SEMCHENKO		22	--	48	--	7	10-66	S	11	R	3	7.0	2150
150N082W07CDB	P. HAUF		14	--	36	--	8	9-66	U	--	--	5	10.0	2145
150N082W080CC	S. SCHULTZ		243	--	4	--	224	9-66	U	--	--	--	--	2182
150N082W09CCB	J. BARNICK		306	--	4	1933	226	9-66	K	--	--	6	7.5	2130
150N082W10CCD	NDSWC 5588	300	163	157	1	1969	142	12-69	U	52	8G	--	--	2050
150N082W10CC1	D. SCHERESKY		188	--	3	1927	148	10-66	U	52	R	5	5.5	2045
150N082W10CC2	D. SCHERESKY		180	--	6	1964	120	--	K	52	R	--	--	2050
150N082W13BAA	NDSWC 5586		120	--	--	1969	--	--	U	--	--	--	--	2023
150N082W14AAC	C. WAGNER		160	--	4	--	120	--	K	--	--	5	8.5	2067
150N082W15CCC	R. POLSFUT		167	--	4	1957	--	--	K	--	--	5	7.5	2035
150N082W150DD	NDSWC 4077	380	276	216	1	1970	118	8-70	U	52	8G	5	6.5	2011
150N082W16CCC	NDSWC 5585	100	70	68	1	1969	61	11-69	U	51	9S	--	--	2049
150N082W17BAB	A. HAUF		225	--	4	--	217	9-66	K	--	--	6	6.0	2140
150N082W17DAB	S. SCHULTZ		--	--	4	--	--	--	K	--	--	5	7.5	2060
150N082W18CCB	D. FLITAG		295	--	4	--	285	--	K	--	--	--	--	--
150N082W18CCC	M. DOBOWEY		230	--	5	--	220	9-66	K	--	--	6	7.0	2178
150N082W19BBB	Q. HAUF		200	--	3	--	150	--	K	--	--	--	--	--
150N082W19BBB	Q. HAUF		250	--	6	--	223	8-66	K	FU	--	6	7.0	2182
150N082W20ACB	E. HAUF		230	--	5	--	168	10-66	K	--	--	5	7.0	1975
150N082W20BBB	P. HAUF		185	--	4	--	163	10-66	K	--	--	6	5.5	2120
150N082W21DAB	D. HAUF		280	--	2	--	260	--	S	--	--	6	8.5	2180
150N082W22ABD	R. POLSFUT		74	--	5	--	12	10-66	U	--	--	5	7.0	2000
150N082W24ACC	E. THOMPSON		--	--	4	--	52	10-66	K	--	--	5	7.5	1975
150N082W25CCD	H. POLSFUT		67	--	4	1962	45	--	K	--	--	5	8.5	1970
150N082W26DDD	NDSWC 5587		140	--	--	1969	--	--	U	31	8G	--	--	1948
150N082W27BCB1	L. POLSFUT		140	--	4	--	133	--	K	--	--	4	8.5	2038
150N082W27BCB2	L. POLSFUT		11	--	48	--	8	10-66	U	--	--	5	9.5	2030
150N082W28BBB	NDSWC 4076		300	--	--	1970	--	--	U	--	--	--	--	2081
150N082W28BCD	A. WELLPOTT		240	--	4	--	176	10-66	S	FU	--	6	8.5	2070
150N082W29DCD	USAF		102	--	--	1961	27	5-61	U	--	--	--	--	2113

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150N082W30AA	L. PEDE		300	--	4	--	--	--	K	--	--	--	--	2138
150N082W30AAD	O. KOHLER		280	--	4	--	237	10-66	S	--	--	6	7.0	2145
150N082W30CCC	W. SCHMIOT		20	--	--	--	--	--	H	11	--	4	11.0	2120
150N082W30CCD	W. SCHMIOT		185	--	4	--	150	--	K	--	--	--	--	--
150N082W31ABB	E. SCHMIOT		240	--	4	--	200	--	K	--	--	6	12.0	2140
150N082W31DAA	H. LANGE		285	--	4	1918	255	--	K	--	S	--	--	--
150N082W31DAC	O. HAUF		12	--	30	--	8	10-66	S	11	--	3	10.0	2150
150N082W32DAD	W. POLSFUT		180	--	2	--	163	--	K	--	--	6	7.5	2185
150N082W33AAB	R. OLSON		140	--	3	--	128	--	K	--	--	6	11.0	2045
150N082W33ABA	C. OLSON		155	--	4	--	--	--	K	--	--	6	12.5	2040
150N082W35BCC1	C. HELGESON		21	--	24	--	15	10-66	S	--	--	6	8.5	1955
150N082W35BCC2	C. HELGESON		12	--	23	--	8	10-66	S	--	--	6	9.5	1948
150N083W01AAC	E. ZADERAKA		12	--	48	--	12	8-66	U	--	S	--	--	--
150N083W01AAD	A. BAUCH		20	--	36	--	6	--	K	--	G	--	--	--
150N083W01BAC	S. DEVNICK		180	--	--	--	--	--	K	--	S	--	--	--
150N083W03ADA	B. STEINHAUS		160	--	6	--	114	8-66	U	--	--	--	--	--
150N083W04DAA	NDSMC 1378		126	--	5	1958	--	--	U	--	--	--	--	2155
150N083W05CCC	G. ROTH		127	--	6	--	84	8-66	K	51	G	6	7.0	--
150N083W05DCC	M. PHILIPENKOE		150	--	6	1918	130	--	K	FU	1	--	--	--
150N083W06COC	M. SCHNAIBL		51	--	--	--	21	8-66	U	--	--	--	--	--
150N083W07CAB	H. BIESE		107	--	5	1930	57	--	S	FU	1	--	--	--
150N083W09ABB	MAX	100	97	83	6	1964	79	11-67	U	51	G	--	--	2117
150N083W09ACC	NDSMC 1367		136	--	5	1958	--	--	U	--	--	--	--	--
150N083W09ADA	J. JUNGLING		120	--	--	--	100	--	S	--	--	--	--	--
150N083W09BAA	NDSMC 1380		126	--	5	1958	--	--	U	--	--	--	--	2142
150N083W09BAD	M. GALLAGHER		112	--	4	--	102	8-66	U	--	--	--	--	--
150N083W09CCC	NDSMC 1368		105	--	5	1958	--	--	U	--	--	--	--	2076
150N083W09CDA	E. TORNO		115	--	24	--	60	--	K	--	S	--	--	--
150N083W09DAA	MAX		12	--	48	--	--	--	P	51	G	6	--	--
150N083W09DAD	MAX		122	--	6	--	64	12-66	U	51	--	--	--	--
150N083W09DCB1	MAX		500	--	--	1956	--	--	U	--	--	--	--	2095
150N083W09DCB2	NDSMC 1381		94	--	5	1958	--	--	U	--	--	--	--	2095
150N083W09DDA	MAX		130	--	8	1954	60	--	P	51	G	6	6.5	--
150N083W10AAA	NDSMC 1377		84	--	5	1958	--	--	U	--	--	--	--	2106
150N083W10BCC	B. BEVERS		125	--	4	--	90	--	U	FU	1	--	--	--
150N083W110CC	R. WAGNER		182	--	4	--	112	--	K	51	G	--	--	--
150N083W11CCD	J. BOSTON		200	--	6	--	134	8-66	U	--	--	--	--	--
150N083W13DDA	O. HAUF		227	--	4	--	221	8-66	U	--	--	--	--	--
150N083W14CCA	A. MICHALENKO		102	--	24	--	--	--	K	51	G	--	--	--
150N083W15AAA	NDSMC 1376		105	--	5	1958	--	--	U	--	--	--	--	2106

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150N083W15AAB	C. HAETTL		260	--	6	--	--	--	K	--	--	--	--	--
150N083W16ABB	MAX		23	--	96	--	15	12-66	P	11	R	5	6.5	--
150N083W16AC	SOD LINE R.R.	2500	225	--	--	--	--	--	U	--	--	--	--	--
150N083W16BAC	MAX		151	--	--	1956	--	--	U	--	G	--	--	--
150N083W16CCC	NDSWC 1373		116	--	5	1958	--	--	U	--	--	--	--	2066
150N083W17AA	A. VINARCKAI		92	--	24	--	90	--	S	--	P	--	--	--
150N083W17CCD	NDSWC 1372		116	--	5	1958	--	--	U	--	--	--	--	2031
150N083W17DAA	W. LEE		117	--	4	1963	52	--	S	FU	--	6	7.0	--
150N083W18AAA	NDSWC 1369		220	--	5	1958	--	--	U	--	--	--	--	2065
150N083W18BBB	NDSWC 1370		146	--	5	1958	--	--	U	--	--	--	--	2101
150N083W18DAA	J. WENGER		240	--	4	1930	200	--	K	FU	1	--	--	--
150N083W19ABB	W. BEGLD		26	--	36	--	25	8-66	U	--	--	--	--	--
150N083W20BBB	T. WENGER		265	--	3	1935	200	--	K	--	1	--	--	--
150N083W20CCC	F. GIESE		150	--	3	--	F	8-66	U	FU	1	6	6.5	--
150N083W21ABB	A. HENNE		190	--	5	1939	150	--	K	--	--	--	--	--
150N083W21CCD	M. LEE		240	--	3	1929	74	8-66	K	--	S	--	--	--
150N083W21DAD	USAF		100	--	--	1961	76	6-61	U	41	T	--	--	2082
150N083W23BCB	J. FINKBEINER		80	--	4	1939	--	--	S	--	--	--	--	--
150N083W23CBC	J. FINKBEINER		62	--	3	--	43	8-66	S	--	--	--	--	--
150N083W23CCD	T. ANDERSON		76	--	--	--	61	8-66	U	--	--	--	--	--
150N083W23DAB	R. JUNGLING		180	--	6	--	131	8-66	K	--	--	--	--	--
150N083W27BBA	E. BAUER		140	--	6	1920	118	--	K	--	--	--	--	--
150N083W27CDA	H. SONGSTED		151	--	4	1918	21	--	S	--	S	--	--	--
150N083W28BBB	NDSWC 1374		126	--	5	1958	--	--	U	--	--	--	--	2026
150N083W29DAB1	C. LINDQUIST		48	--	6	--	14	--	K	51	G	--	--	--
150N083W29DAB2	C. LINDQUIST		56	--	4	--	24	--	S	51	G	--	--	--
150N083W30ACD	R. KOSTENKO		45	--	4	--	F	8-66	K	FU	1	6	7.5	--
150N083W30CDA	G. OLSON		90	--	4	--	25	--	K	--	S	--	--	--
150N083W31BDA	G. OLSON		91	--	4	--	40	--	S	51	G	--	--	--
150N083W33ABC	C. LINDQUIST		101	--	4	--	80	--	K	--	S	--	--	--
150N083W33BBB	NDSWC 1375		147	--	5	1958	--	--	U	--	--	--	--	2130
150N083W33DBB	H. OLSON		128	--	6	--	--	--	U	--	S	--	--	--
150N083W34CBB	T. TORGERSON		112	--	4	1913	106	--	K	FU	1	--	--	--
150N083W35BDC	V. ZENZ		84	--	--	--	65	8-66	U	--	--	--	--	--
150N083W35DBD	V. ZENZ		112	--	4	--	--	--	K	FU	1	--	--	--
150N084W06ABB	NDSWC 5578		140	--	--	1969	--	--	U	--	--	--	--	2125
150N084W12AA	J. FINKBEINER		142	--	4	1940	122	--	K	--	S	--	--	--
150N084W12CCC	NDSWC 1371		105	--	5	1958	--	--	U	--	--	--	--	2071
150N084W13AAA	I. DAY		35	--	24	--	8	8-66	U	--	--	--	--	--
150N084W13ACD	G. DAY		50	--	4	1913	40	--	K	--	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	SPECIFIC CONDUCTANCE	TEMPERATURE (°C)	ELEVATION OF LSD (FT.)
150N084W13BDA	G. DAY		98	--	4	--	38	--	K	--	S	--	--	--
150N084W13BDC	P. HAUF		53	--	30	--	20	8-66	U	--	--	--	--	--
150N084W13CAA	J. FINKBEINER		93	--	3	--	36	8-66	S	--	--	--	--	--
150N084W14BCA	G. JACOBSON		--	--	6	--	46	8-66	K	--	--	--	--	--
150N084W18DAC	J. WAGNER		86	--	24	--	43	8-66	K	--	--	--	--	--
150N084W20BDD	M. GALLAGHER		102	--	6	--	48	8-66	U	--	--	--	--	--
150N084W22CCB	USAF		100	--	--	1961	14	5-61	U	41	T	--	--	2028
150N084W26BAA	F. BALUCKI		50	--	12	1954	F	8-66	S	FU	--	5	7.0	--
150N084W27BAA	M. JOHNSON		125	--	4	--	40	8-66	K	--	--	--	--	--
150N084W30CDA	J. FRANK		56	--	4	1964	31	8-66	H	51	S	6	6.0	--
150N084W32DDA	S. SORENSON		86	--	4	--	42	8-66	U	FU	1	--	--	--
150N084W33BCB	E. SCHMEICHEL		100	--	4	--	--	--	K	FU	--	5	10.0	--
150N084W33CCA	S. SORENSON		90	--	4	1964	49	8-66	H	FU	1	--	--	--
150N084W35CCCL	H. FLIGINGER		--	--	4	--	36	8-66	S	--	--	--	--	--
150N084W35CCCL	H. FLIGINGER		125	--	4	1949	39	8-66	H	FU	1	--	--	1994
150N085W01DAA	N. NARUM		24	--	18	--	7	7-66	U	--	--	--	--	--
150N085W01DDD	NDSWC 2836		60	--	--	1967	--	--	U	--	--	--	--	2058
150N085W05DDC	A. SAYLER		56	--	18	--	6	7-66	U	--	--	--	--	2118
150N085W14AAC	A. CARLSON		74	--	--	--	39	7-66	U	--	--	--	--	2035
150N085W14CCB	P. PALMESON		64	--	18	--	52	7-66	U	--	--	--	--	2073
150N085W21CCD	C. DELZER		74	--	18	--	29	7-66	K	--	--	--	--	2110
150N085W23BAB	USAF		101	--	--	1961	21	5-61	U	51	7S	--	9.5	2071
150N085W25DBA	C. ENGLE		40	--	24	--	29	8-66	S	--	--	--	--	--
150N085W26DCC	E. BRICKNER		69	--	24	--	25	8-66	U	--	--	--	--	2175
150N085W32DDC	N. OSTBY		37	--	--	1963	25	8-66	H	--	--	--	--	2072
150N085W36ABA	J. FRANK		33	--	24	--	15	8-66	S	51	S	4	8.5	--
150N086W01ABB	F. ROBERTS		40	--	24	--	29	7-66	U	--	--	--	--	2161
150N086W01BBB	L. PETERSON		32	--	6	--	12	7-66	U	--	--	--	--	2163
150N086W04AAA	E. HANSEN		60	--	18	--	17	7-66	K	--	--	--	--	2161
150N086W04CCC	D. ANDERSON		38	--	24	1948	15	7-66	K	--	--	5	6.0	2161
150N086W06DBD	W. HANSEN		43	--	--	--	22	7-66	K	--	--	--	--	2165
150N086W17BBA	D. ANDERSON		60	--	18	1941	39	7-66	U	--	--	--	--	2188
150N086W21DDC	NDSWC 3617		60	--	--	1968	--	--	U	--	--	--	--	2120
150N086W26BCD	W. FIEDLER		90	--	4	--	24	7-66	K	--	--	--	--	2140
150N086W29DCC	D. FOLDEN		24	--	24	--	8	7-66	S	--	--	5	6.5	2116
150N086W35CBB	G. HGPKINS		25	--	--	--	5	7-66	U	--	--	--	--	2140
150N087W02DCC	NDSWC 2848		40	--	--	1967	--	--	U	--	--	--	--	2168
150N087W03BAB	NDSWC 5577		50	--	--	1969	--	--	U	--	--	--	--	2150
150N087W16DDA	H. SHAFER		79	--	24	--	17	8-66	U	--	--	--	--	2140
150N087W20CBC	A. JORGENSON		83	--	24	--	36	8-66	U	--	--	--	--	2132

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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	SPECIFIC CONDUCTANCE	TEMPERATURE (°C)	ELEVATION OF LSD (FT.)
150N087W21AAA	NDSWC 2847		200	--	--	1967	--	--	U	--	--	--	--	2135
150N087W22DAA	J. AKAN		64	--	24	--	40	8-66	K	--	--	4	8.5	2185
150N087W23ABA	L.F. JELDAHL		55	--	18	--	45	--	K	--	S	4	6.5	2190
150N087W27BBB	USAF		100	--	--	1961	15	5-61	U	FU	7S	--	--	2133
150N087W32CBB	NDSWC 2845		40	--	--	1967	--	--	U	--	--	--	--	2105
150N087W32CCC	C. HALVORSON		80	--	24	--	65	--	K	--	--	5	7.0	2184
150N087W33BAA	NDSWC 2846		60	--	--	1967	--	--	U	--	--	--	--	2125
150N087W34AAD	E. AUSTAD		42	--	24	--	32	--	K	51	E	6	7.0	2144
150N088W01DDD	USAF		102	--	--	1961	75	6-61	U	FU	7S	--	5.5	2169
150N088W02CBB	I. MOSS		45	--	24	1950	31	8-66	H	--	2S	5	6.5	2130
150N088W03CDD	E. MOSS		180	--	5	1913	100	--	S	FU	2S	6	9.0	2120
150N088W05DAA	N. RUE		80	--	24	1950	55	--	H	FU	V	6	9.0	2100
150N088W07DBB	J. HARNEY		41	--	18	1913	28	8-66	U	FU	1	--	--	2030
150N088W08CBB	S. RING		50	--	24	--	20	8-66	K	FU	1	5	7.5	2030
150N088W13CBB	W. LEMCKE		97	--	18	--	76	8-66	U	--	--	--	--	2140
150N088W15CBB	G. RUDIE		225	--	6	1912	160	--	K	FU	1	5	9.0	2056
150N088W16CCD	NDSWC 3614		160	--	--	1968	--	--	U	--	--	--	--	1990
150N088W18ADD1	A. SLIND	65	58	58	4	1952	33	10-66	H	FU	1	5	7.5	2031
150N088W18ADD2	A. SLIND		65	--	4	1952	35	--	K	FU	61	5	7.5	2027
150N088W24CCC	NDSWC 2844		80	--	--	1967	--	--	U	--	--	--	--	2083
150N088W25BAA	W. BRAASCH		55	--	5	--	43	8-66	U	--	--	--	--	2097
150N088W27DAA	J. AMUNDSON		40	--	24	1956	20	--	H	--	G	4	7.5	2050
150N088W28DDD	NDSWC 3615		80	--	--	1968	--	--	U	--	--	--	--	1990
150N088W29CCD	R. HAUGE		16	--	24	--	10	--	H	--	G	5	6.5	1950
150N088W29CDC	NDSWC 2843		180	--	--	1967	--	--	U	--	--	--	--	1940
150N088W35BAB	H. OLSON		64	--	24	1916	56	--	U	--	S	--	--	2061
150N089W01BCB	O. PAULSON		140	--	5	1923	100	--	H	--	S	5	7.5	--
150N089W04DCA	C. CARLSON		125	--	5	1914	105	--	K	51	R	4	7.5	--
150N089W06ADA	H. LUNDE		90	--	12	--	21	7-66	U	--	--	--	--	--
150N089W08DDD	L. WAHNER		310	--	6	1964	270	--	K	FU	F	5	8.5	--
150N089W09CCC	J. BINKLEY	254	245	245	4	--	237	--	U	FU	V	--	--	2132
150N089W13CBC	A. HENDRICKSON		38	--	24	1960	26	9-60	H	51	G	--	--	--
150N089W15ADA	T. ODERMAN		180	--	4	1964	140	--	H	FU	S	6	--	--
150N089W19CDD	I. AVERY	75	70	70	4	1957	54	10-66	H	FU	1	5	11.0	2053
150N089W20DCC	O. OAU		44	--	24	1915	29	--	S	FU	1	6	--	--
150N089W22DDA	W. VEUM	71	53	53	6	1945	12	7-45	K	FU	1	5	7.5	1976
150N089W23DCB1	H. FOLDEN		74	--	12	--	4	7-66	S	--	S	5	7.5	--
150N089W23DCB2	H. FOLDEN		27	--	6	--	5	--	K	--	S	5	--	--
150N089W25CBB	P. PEISAR	82	82	--	6	1945	47	3-45	S	51	6R	--	--	1959
150N089W26AAA	NDSWC 5558		100	--	--	1969	--	--	U	--	--	--	--	1965

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	SPECIFIC CONDUCTANCE	TEMPERATURE (°C)	ELEVATION OF LSD (FT.)
150N089W26BCC	P. PEISAR	52	45	45	6	1945	33	3-45	S	FU	1	6	6.5	1944
150N089W31BCC	NDSMC 4069	360	278	238	1	1970	118	7-70	U	52	G	5	8.0	1965
150N089W31DAA	A. JOHNSON		126	--	6	--	114	--	K	52	S	4	7.5	--
150N089W32DAA	NDSMC 5557	234	224	218	1	1969	117	11-69	U	52	8G	5	12.5	1972
150N089W33BCC	W. MYERS	232	227	227	4	--	143	--	K	52	S	--	--	1979
150N089W34AAA	NDSMC 5572		60	--	--	1969	--	--	U	--	--	--	--	1933
150N089W34DDD	R. FOLDEN	135	132	132	4	1948	--	--	U	52	S	--	--	1937
150N090W03CDD	L. GROVE		80	--	18	1928	64	9-66	K	51	G	4	6.5	--
150N090W1288B1	W. CONKLING		180	--	--	1952	--	--	U	FU	1	--	--	2188
150N090W1288B2	W. CONKLIN		112	--	4	1963	97	--	U	--	--	--	--	2188
150N090W12DAA	D. OLSON	107	105	--	4	1951	85	--	U	FU	S	4	7.5	2167
150N090W13ACA	M. NECKLACE	305	298	--	4	--	218	10-51	H	FU	S	--	--	2104
150N090W13ADA	M. NECKLACE	141	122	117	4	1963	--	--	U	FU	S	--	--	2085
150N090W13ADD	M. NECKLACE		10	--	--	1952	--	--	U	--	--	--	--	2077
150N090W16C88	USBIA		405	--	--	--	--	--	H	--	--	--	--	2042
150N090W16CCC	NDSMC 3611		400	--	--	1968	--	--	U	52	R	--	--	2037
150N090W17C8A	B. CONKLIN		205	--	4	1963	--	--	U	--	--	--	--	--
150N090W17CCC	NDSMC 4072		320	--	--	1970	--	--	U	52	R	--	--	1990
150N090W19AAC	C. WHITMAN		80	75	4	1963	18	--	U	51	G	--	--	1855
150N090W20BDB	F. YOUNG		240	--	4	1963	190	--	U	--	--	--	--	--
150N090W21BCC	USBIA		312	--	--	--	--	--	U	52	TS	--	--	2026
150N090W21C8B	USBIA		246	--	4	1952	--	--	P	52	S	5	--	2018
150N090W22CCC	E. KERZMAN	330	297	--	4	--	216	8-51	H	52	R	--	--	2045
150N090W24DDD	L. BENNO		40	--	--	1952	--	--	U	--	--	--	--	2030
150N090W25DAA1	T. BLUESTONE	260	258	--	4	--	172	8-51	H	FU	S	--	--	2005
150N090W25DAA2	T. BLUESTONE		225	--	4	1963	--	--	H	FU	S	5	--	--
150N090W25DAA3	NDSMC 4068		300	--	--	1970	--	--	U	FU	S	--	--	2005
150N090W25DAD	J. GRADY	207	200	195	4	1963	63	--	U	FU	S	--	--	2002
150N090W28DOC	L. HOLTAN	265	255	--	4	--	174	8-51	H	TL	S	--	--	2005
150N090W29ADA	L. HOLTAN		169	--	--	1954	--	--	U	FU	--	--	--	2025
150N090W32ACB1	G. FOOTE		45	--	--	1953	--	--	U	FU	1	--	--	2012
150N090W32ACB2	G. FOOTE, SR.		45	25	24	1965	27	9-65	K	FU	61	4	6.5	2039
150N090W32COC	J. FOOTE		210	--	--	1953	--	--	U	FU	1	--	--	2042
150N090W32CDD	J. WHITE BODY		200	196	2	1963	14	9-63	K	FU	--	--	--	2000
150N090W32DC	USBIA		500	--	--	1952	--	--	U	--	--	--	--	2000
150N090W33BDC	C. BEARS TAIL		132	119	2	1963	--	--	K	--	--	--	--	--
150N090W33DCA	A. GIESE	185	183	178	4	1963	160	--	K	FU	S	--	--	1986
150N090W36AAA	NDSMC 4071	380	299	259	1	1970	153	7-70	U	52	R	6	10.0	1997
150N090W36ADD	L. BRYN		225	--	--	1952	--	--	U	52	R	--	--	1977

LOCAL SPRING 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	SPE- CIFIC CON- DUCT ANCE	TEM- PER- ATURE (°C)	ELE- VATION OF LSD (FT.)
144N080W32ADC	M. LAUGHLIN	--	--	--	--	--	F	6-68	K	--	S	4	10.5	--
144N081W20DAC	A. TJENSTROM	--	--	--	--	--	F	6-68	S	--	--	5	12.5	--
144N083W08ABA	F. PETERSON	--	--	--	--	--	F	6-68	S	--	--	5	17.0	1930
147N088W05BCB	T. FREDRICKSON	--	--	--	--	--	F	8-66	H	--	T	4	7.5	--
148N079W07AAC	M. RAUSER	--	--	--	--	--	F	6-67	S	--	--	4	12.0	1950
148N085W08CDC	M. KRUGER	--	--	--	--	--	F	7-66	S	FU	T	6	9.0	--
148N086W22BAC	D. INGLEHART	--	--	--	--	--	F	7-66	S	--	--	5	9.0	--
148N090W07CBC	D. CHARGING	--	--	--	--	--	F	7-66	K	FU	T	5	6.0	--
148N090W21AAB	B. LOCKHOOD	--	--	--	--	--	F	8-66	S	--	P	5	5.5	--
150N078W25DAA	P. PLESUK	--	--	--	--	--	F	7-68	S	--	--	5	8.5	1780
150N083W30DAB	R. KOSTENKO	--	--	--	--	--	F	3-66	S	--	--	5	9.5	--
150N089W27AAA	R. BOLKAN	--	--	--	--	--	F	7-66	H	--	8P	4	--	--

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

Depth to water, in feet below (or + above) land surface

143-80-8AAA					
Date	Water level	Date	Water level	Date	Water level
Jan. 20, 1970..	25.25	May 4.....	24.81	Sept. 8.....	24.81
Feb. 18.....	26.18	June 4.....	25.54	Nov. 30.....	24.91
Mar. 23.....	25.34	23.....	25.02		

143-81-2BCC1					
Date	Water level	Date	Water level	Date	Water level
Dec. 18, 1969..	Frozen	Mar. 23.....	Frozen	June 30.....	+1.32
Jan. 20, 1970..	No access	May 4.....	+0.65	Sept. 8.....	+ .62
Feb. 20.....	No access	June 4.....	+1.02	Nov. 30.....	Frozen

143-81-2BCC2					
Date	Water level	Date	Water level	Date	Water level
Dec. 18, 1969..	6.50	Mar. 23.....	6.40	June 30.....	5.54
Jan. 20, 1970..	No access	May 4.....	5.27	Sept. 8.....	6.73
Feb. 20.....	No access	June 4.....	4.88	Nov. 30.....	6.73

143-81-4BDA					
Date	Water level	Date	Water level	Date	Water level
Aug. 3, 1967..	5.86	Apr. 11.....	6.52	Oct. 1.....	6.98
Sept. 12.....	6.62	May 16.....	6.58	Dec. 18.....	6.91
Oct. 11.....	6.76	June 12.....	6.77	Mar. 23, 1970..	6.89
Nov. 15.....	6.95	July 15.....	7.14	May 4.....	6.19
Dec. 13.....	6.65	Jan. 14, 1969..	6.20	June 4.....	6.00
Jan. 9, 1968..	5.95	Apr. 15.....	5.45	30.....	6.07
Feb. 13.....	5.80	July 15.....	6.55	Sept. 8.....	7.22
Mar. 12.....	5.09	Aug. 27.....	6.51	Nov. 30.....	7.21

143-81-16DBB					
Date	Water level	Date	Water level	Date	Water level
Aug. 3, 1967..	6.73	Apr. 11.....	6.34	Oct. 1.....	7.49
Sept. 12.....	8.24	May 16.....	6.25	Dec. 18.....	8.22
Oct. 11.....	8.76	June 12.....	6.41	Mar. 23, 1970..	7.82
Nov. 15.....	9.00	July 15.....	6.39	May 4.....	5.22
Dec. 13.....	8.93	Jan. 14, 1969..	8.19	June 4.....	5.40
Jan. 9, 1968..	8.85	Apr. 15.....	5.10	30.....	5.39
Feb. 13.....	8.58	July 15.....	5.87	Sept. 8.....	7.69
Mar. 12.....	7.04	Aug. 27.....	6.53	Nov. 30.....	8.30

Depth to water, in feet below (or + above) land surface

143-81-17ACC

Date	Water Level	Date	Water Level	Date	Water Level
Aug. 3, 1967..	11.06	May 16.....	11.25	Mar. 23, 1970..	11.82
Sept. 12.....	11.08	June 12.....	11.46	May 4.....	10.17
Oct. 11.....	11.36	July 15.....	12.13	June 4.....	10.50
Nov. 15.....	11.78	Apr. 15, 1969..	8.80	June 30.....	10.56
Dec. 13.....	10.63	July 15.....	11.27	Sept. 8.....	10.84
Feb. 13, 1968..	9.48	Aug. 27.....	10.76	Nov. 30.....	10.89
Mar. 12.....	9.74	Oct. 1.....	11.75		
Apr. 11.....	10.89	Dec. 18.....	11.45		

143-81-24DDA1

Oct. 11, 1967..	4.69	June 12.....	2.90	Mar. 23.....	3.47
Nov. 15.....	4.67	July 15.....	3.93	May 4.....	2.70
Dec. 13.....	4.67	Jan. 14, 1969..	3.78	June 4.....	3.39
Jan. 9, 1968..	4.63	Apr. 15.....	2.50	June 30.....	3.49
Feb. 13.....	4.50	July 15.....	3.65	Sept. 8.....	4.40
Mar. 12.....	4.11	Oct. 1.....	4.80	Nov. 30.....	4.17
Apr. 11.....	3.96	Dec. 18.....	4.43		
May 16.....	3.33	Feb. 18, 1970..	4.17		

143-81-24DDA2

Aug. 18, 1970..	4.58	Sept. 8.....	4.30	Nov. 30.....	4.23
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143-81-29BBA2

Oct. 11, 1967..	10.05	June 12.....	11.46	Mar. 23, 1970..	11.89
Nov. 15.....	11.14	July 15.....	12.76	May 4.....	11.37
Dec. 13.....	9.80	Jan. 14, 1969..	7.60	June 4.....	10.50
Jan. 9, 1968..	7.16	Apr. 15.....	10.28	June 30.....	10.67
Feb. 13.....	7.31	July 15.....	11.10	Sept. 8.....	12.55
Mar. 12.....	9.09	Aug. 27.....	11.86	Nov. 30.....	10.80
Apr. 11.....	10.96	Oct. 1.....	11.52		
May 16.....	11.54	Dec. 18.....	9.98		

144-80-4CCC

Aug 20, 1970..	52.31	Sept. 8.....	52.31	Nov. 30.....	52.20
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144-80-19ABA

Aug. 20, 1970..	2.25	Sept. 8.....	2.28	Nov. 30.....	2.20
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Depth to water, in feet below (or + above) land surface

144-80-26BBB1

Date	Water	Date	Water	Date	Water
Oct. 11, 1967..	4.63	June 12.....	4.85	Dec. 18.....	4.82
Nov. 15.....	4.80	July 15.....	4.99	Mar. 23, 1970..	4.78
Dec. 13.....	4.85	Jan. 14, 1969..	5.45	May 4.....	2.22
Jan. 9, 1968..	4.84	Apr. 17.....	3.18	June 4.....	3.83
Feb. 13.....	4.92	July 15.....	4.19	30.....	3.53
Mar. 12.....	4.52	Aug. 27.....	4.39	Sept. 8.....	3.96
Apr. 11.....	4.44	Oct. 1.....	4.59	Nov. 30.....	4.20
May 16.....	4.69	Nov. 4.....	4.79		

144-81-25ADA

Sept. 12, 1967..	5.48	May 16.....	2.25	Nov. 4.....	3.98
Oct. 11.....	4.93	June 12.....	1.98	Dec. 18.....	3.90
Nov. 15.....	4.25	July 15.....	3.61	Mar. 23, 1970..	3.43
Dec. 13.....	3.98	Jan. 14, 1969..	4.15	May 4.....	1.33
Jan. 9, 1968..	3.99	Apr. 17.....	1.06	June 4.....	2.30
Feb. 13.....	3.99	July 15.....	2.32	30.....	2.36
Mar. 12.....	2.89	Aug. 27.....	3.97	Sept. 8.....	4.41
Apr. 11.....	2.74	Oct. 1.....	4.32	Nov. 30.....	4.04

144-82-17AAD

Aug. 3, 1967..	5.63	Apr. 11.....	5.12	Oct. 1.....	7.04
Sept. 12.....	6.50	May 16.....	5.49	Dec. 18.....	5.88
Oct. 11.....	6.09	June 12.....	6.04	Mar. 23, 1970..	5.47
Nov. 15.....	5.99	July 15.....	6.96	May 4.....	2.03
Dec. 13.....	5.33	Jan. 14, 1969..	4.96	June 4.....	4.29
Jan. 9, 1968..	4.17	May 14.....	3.54	30.....	4.90
Feb. 13.....	3.41	July 15.....	6.38	Sept. 8.....	7.08
Mar. 12.....	3.33	Aug. 27.....	6.73	Nov. 30.....	5.93

144-83-30DAA

Aug. 3, 1967..	10.02	May 16.....	11.35	Dec. 18.....	10.38
Sept. 12.....	11.00	June 12.....	11.46	Mar. 23, 1970..	12.25
Oct. 11.....	10.78	July 15.....	13.14	May 4.....	9.05
Nov. 15.....	11.26	Jan. 14, 1969..	9.41	June 4.....	9.43
Dec. 13.....	9.88	Apr. 15.....	8.87	30.....	10.74
Feb. 13, 1968..	8.32	July 15.....	11.56	Sept. 8.....	12.54
Mar. 12.....	8.44	Aug. 27.....	11.40	Nov. 30.....	11.40
Apr. 11.....	10.38	Oct. 1.....	12.42		

Depth to water, in feet below (or + above) land surface

144-84-10CCC

Date	Water level	Date	Water level	Date	Water level
Aug. 3, 1967..	11.28	June 12.....	12.20	Mar. 23, 1970..	No access
Sept. 12.....	12.07	July 15.....	12.97	May 4.....	11.99
Oct. 11.....	11.90	Jan. 14, 1969..	11.79	June 4.....	11.37
Nov. 15.....	11.93	Apr. 15.....	9.89	30.....	11.98
Dec. 13.....	11.54	July 15.....	12.54	Sept. 8.....	13.25
Feb. 13, 1968..	10.47	Aug. 27.....	12.72	Nov. 30.....	12.54
Apr. 11.....	11.19	Oct. 1.....	13.03		
May 16.....	11.93	Dec. 18.....	12.27		

144-84-24CBA

Apr. 30, 1968..	10.36	Jan. 15.....	6.27	Nov. 30.....	10.06
May 16.....	9.33	Feb. 15.....	6.31	Dec. 5.....	9.33
25.....	9.33	20.....	5.80	10.....	8.24
30.....	9.26	Mar. 15.....	7.22	15.....	7.62
June 5.....	9.83	20.....	7.62	20.....	7.82
10.....	9.88	25.....	8.14	25.....	8.89
15.....	9.64	Apr. 15.....	9.72	30.....	9.56
20.....	10.1	May 14.....	10.74	Jan. 5, 1970..	9.56
25.....	10.52	June 15.....	9.82	10.....	6.63
30.....	10.32	20.....	10.42	15.....	6.60
July 5.....	10.63	25.....	10.43	20.....	6.12
10.....	10.60	30.....	10.65	25.....	5.7
15.....	10.62	July 5.....	10.65	Feb. 1.....	5.88
20.....	10.18	10.....	9.84	20.....	7.82
25.....	10.49	15.....	9.35	25.....	9.15
30.....	10.38	20.....	8.76	Mar. 1.....	9.69
Aug. 5.....	10.18	25.....	8.48	5.....	9.45
10.....	10.30	30.....	8.37	10.....	10.02
15.....	10.29	Aug. 5.....	8.71	15.....	10.28
20.....	10.35	10.....	8.88	20.....	11.47
25.....	10.38	15.....	8.67	25.....	11.13
30.....	9.73	20.....	8.68	30.....	10.22
Sept. 5.....	10.12	25.....	9.75	Apr. 5.....	10.68
10.....	10.20	30.....	9.52	10.....	10.77
15.....	10.11	Sept. 5.....	8.82	15.....	9.18
20.....	9.92	10.....	9.09	20.....	8.68
25.....	9.06	15.....	9.50	May 5.....	9.05
30.....	8.37	20.....	9.55	10.....	9.24
Oct. 5.....	7.94	25.....	9.85	15.....	8.04
10.....	7.91	30.....	10.13	20.....	8.30
15.....	7.89	Oct. 5.....	9.89	25.....	8.00
20.....	8.09	10.....	9.28	30.....	8.12
25.....	8.01	15.....	9.18	June 5.....	8.70
30.....	8.77	20.....	9.75	10.....	9.10
Nov. 5.....	9.17	25.....	9.85	15.....	8.85
10.....	9.56	Nov. 5.....	8.72	20.....	8.54
15.....	9.15	10.....	8.80	25.....	8.92
Dec. 2.....	8.62	15.....	8.85	Nov. 30.....	8.38
5.....	8.41	20.....	8.77		
Jan. 14, 1969..	6.34	25.....	9.64		

145-79-28DDD

Aug. 24, 1970..	27.27	Sept. 8.....	27.18	Nov. 30.....	26.89
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Depth to water, in feet below (or + above) land surface

145-80-2AAB

Date	Water level	Date	Water level	Date	Water level
Sept. 14, 1967..	15.60	May 16.....	14.64	Nov. 4.....	15.87
Oct. 13.....	15.50	June 12.....	14.87	Dec. 18.....	15.92
Nov. 15.....	15.49	July 16.....	15.23	Mar. 23, 1970..	15.85
Dec. 13.....	15.70	Jan. 14, 1969..	15.98	May 4.....	14.37
Jan. 11, 1968..	15.58	Apr. 17.....	14.06	June 4.....	14.34
Feb. 13.....	15.57	July 17.....	14.81	30.....	14.48
Mar. 13.....	14.80	Aug. 28.....	15.48	Sept. 8.....	15.89
Apr. 11.....	14.63	Oct. 2.....	15.86	Nov. 30.....	15.26

145-80-7DDD

Oct. 31, 1969..	5.04	Mar. 23.....	2.65	Sept. 8.....	3.38
Dec. 18.....	3.08	May 4.....	+ .12	Nov. 30.....	2.55
Jan. 20, 1970..	2.95	June 4.....	.90		
Feb. 18.....	2.85	June 30.....	1.65		

145-80-10ABA

Oct. 30, 1969..	23.04	Mar. 23.....	22.63	Sept. 8.....	22.61
Dec. 18.....	22.99	May 4.....	22.38	Nov. 30.....	22.57
Jan. 20, 1970..	22.84	June 4.....	22.20		
Feb. 18.....	22.76	30.....	23.42		

145-80-29DCC

Oct. 31, 1969..	6.69	Mar. 23.....	5.53	Sept. 8.....	6.79
Dec. 10.....	6.98	May 4.....	5.36	Nov. 30.....	6.65
Jan. 20, 1970..	5.92	June 4.....	6.25		
Feb. 18.....	6.04	23.....	6.24		

145-82-7DAA

Oct. 11, 1967..	60.35	June 12.....	60.26	Mar. 23, 1970..	59.76
Nov. 15.....	60.37	July 15.....	60.33	May 4.....	59.50
Dec. 13.....	60.49	Jan. 14, 1969..	60.15	June 4.....	59.36
Jan. 9, 1968..	60.40	Apr. 15.....	60.15	30.....	59.25
Feb. 13.....	60.45	July 15.....	60.04	Sept. 8.....	59.30
Mar. 12.....	60.32	Aug. 27.....	60.05	Nov. 30.....	58.99
Apr. 11.....	60.40	Oct. 1.....	59.97		
May 16.....	60.26	Dec. 18.....	59.98		

Depth to water, in feet below (or + above) land surface

145-82-28ABB

Date	Water level	Date	Water level	Date	Water level
Nov. 7, 1969..	0.99	Mar. 23.....	2.12	Sept. 8.....	2.07
Dec. 18.....	4.83	May 4.....	.32	Nov. 30.....	2.60
Jan. 20, 1970..	3.91	June 4.....	.96		
Feb. 18.....	3.91	23.....	1.08		

145-83-15AAB

Nov. 28, 1966..	21.70	July 10.....	19.76	Dec. 13.....	20.42
Dec. 14.....	21.69	Aug. 15.....	20.05	Jan. 9, 1968..	20.56
Feb. 28, 1967..	21.98	Sept. 12.....	20.15	Feb. 13.....	20.78
May 4.....	21.47	Oct. 11.....	20.32	Discontinued	
May 31.....	19.92	Nov. 15.....	20.30		

145-84-10BAB

Nov. 23, 1966..	48.65	May 31.....	48.50	Nov. 15.....	47.80
Dec. 14.....	48.58	July 10.....	48.28	Dec. 13.....	48.82
Feb. 28, 1967..	48.49	Aug. 15.....	48.20	Jan. 9, 1968..	48.12
Apr. 4.....	48.43	Sept. 12.....	50.95	Feb. 13.....	48.07
May 4.....	48.75	Oct. 11.....	48.94	Discontinued	

145-84-11ABA

Aug. 15, 1967..	45.20	Apr. 11.....	45.30	Oct. 1.....	46.20
Sept. 12.....	45.25	May 16.....	45.95	Dec. 18.....	46.79
Oct. 11.....	45.62	June 12.....	46.15	Mar. 23, 1970..	46.48
Nov. 15.....	45.72	July 15.....	46.43	May 4.....	46.72
Dec. 13.....	45.98	Jan. 14, 1969..	46.50	June 4.....	46.29
Jan. 9, 1968..	45.00	Apr. 17.....	46.79	30.....	46.26
Feb. 13.....	44.69	July 15.....	46.54	Sept. 8.....	46.53
Mar. 12.....	45.59	Aug. 27.....	46.19	Nov. 30.....	46.02

145-84-14CDD

Aug. 15, 1967..	47.71	Apr. 11.....	48.62	Oct. 1.....	49.34
Sept. 12.....	48.17	May 16.....	49.41	Dec. 18.....	49.07
Oct. 11.....	48.45	June 12.....	49.51	Mar. 23, 1970..	49.68
Nov. 15.....	48.86	July 15.....	50.09	May 4.....	49.62
Dec. 13.....	48.49	Jan. 14, 1969..	48.83	June 4.....	49.28
Jan. 9, 1968..	46.83	Apr. 17.....	49.43	30.....	49.45
Feb. 13.....	47.97	July 15.....	49.70	Sept. 8.....	49.72
Mar. 12.....	48.25	Aug. 27.....	48.90	Nov. 30.....	49.12

Depth to water, in feet below (or + above) land surface

145-84-15DDC

Date	Water level	Date	Water level	Date	Water level
Aug. 15, 1967..	36.37	Mar. 12.....	37.59	July 15.....	38.80
Sept. 12.....	37.08	Apr. 11.....	38.03	Aug. 27.....	37.86
Oct. 11.....	37.25	May 16.....	38.99	Oct. 1.....	38.67
Nov. 15.....	38.12	June 12.....	38.98	Dec. 18.....	37.67
Dec. 13.....	37.33	July 15.....	38.82	Mar. 23, 1970..	39.19
Jan. 9, 1968..	34.60	Jan. 14, 1969..	37.35	May 4.....	38.73
Feb. 13.....	36.88	Apr. 17.....	38.69	Sealed off	

145-84-23AAA

Aug. 15, 1967..	31.16	Apr. 11.....	30.48	Oct. 1.....	30.40
Sept. 12.....	31.41	May 16.....	30.83	Dec. 18.....	30.63
Oct. 11.....	31.73	June 12.....	30.99	Mar. 23, 1970..	30.82
Nov. 15.....	31.80	July 15.....	31.00	May 4.....	29.32
Dec. 13.....	31.79	Jan. 14, 1969..	31.35	June 4.....	28.77
Jan. 9, 1968..	31.74	Apr. 17.....	28.71	30.....	29.16
Feb. 13.....	31.80	July 15.....	30.07	Sept. 8.....	29.62
Mar. 12.....	30.33	Aug. 27.....	30.30	Nov. 30.....	29.74

146-79-15ADD

Nov. 15, 1967..	6.16	Apr. 11.....	5.43	Apr. 17.....	5.00
Dec. 13.....	6.18	May 16.....	5.43	Aug. 28.....	5.48
Jan. 11, 1968..	6.24	June 12.....	5.50	Dec. 18.....	5.82
Feb. 13.....	6.33	July 16.....	5.81	Sept. 8, 1970..	5.29
Mar. 13.....	5.50	Jan. 14, 1969..	6.47		

146-79-15DAA

Sept. 14, 1967..	5.95	May 16.....	5.20	Dec. 18.....	5.16
Oct. 13.....	5.70	June 12.....	4.88	Mar. 23, 1970..	5.04
Nov. 15.....	5.57	July 16.....	5.15	May 4.....	4.95
Dec. 13.....	5.46	Jan. 14, 1969..	5.85	June 4.....	4.02
Jan. 11, 1968..	5.50	Apr. 17.....	4.43	30.....	4.22
Feb. 13.....	5.48	July 17.....	4.78	Sept. 8.....	4.78
Mar. 13.....	5.50	Aug. 28.....	4.88	Nov. 30.....	4.76
Apr. 11.....	5.20	Oct. 2.....	5.15		

146-80-4DCD

Oct. 13, 1967..	8.66	June 12.....	8.56	Mar. 23, 1970..	8.35
Nov. 15.....	8.70	July 16.....	8.43	May 4.....	8.00
Dec. 13.....	8.75	Jan. 14, 1969..	8.57	June 4.....	7.44
Jan. 11, 1968..	8.75	Apr. 17.....	8.46	30.....	7.13
Feb. 13.....	8.70	July 17.....	7.97	Sept. 8.....	6.83
Mar. 13.....	8.77	Aug. 28.....	7.92	Nov. 30.....	6.60
Apr. 11.....	8.73	Oct. 2.....	7.98		
May 15.....	8.64	Dec. 18.....	8.26		

Depth to water, in feet below (or + above) land surface

146-80-35DDC

Date	Water level	Date	Water level	Date	Water level
May 16, 1968..	13.73	Aug. 28.....	14.61	Mar. 23.....	14.98
June 12.....	13.98	Oct. 2.....	15.00	May 4.....	13.43
July 16.....	14.36	Nov. 4.....	15.00	June 4.....	13.45
Jan. 14, 1969..	15.10	Dec. 18.....	15.05	30.....	13.64
Apr. 17.....	13.20	Jan. 20, 1970..	15.10	Sept. 8.....	14.52
July 17.....	13.95	Feb. 18.....	15.14	Nov. 30.....	14.39

146-81-18CDD

Oct. 11, 1967..	31.13	July 15.....	31.49	Feb. 18.....	26.78
Nov. 15.....	31.30	Jan. 14, 1969..	32.17	Mar. 23.....	27.19
Dec. 13.....	31.52	Apr. 16.....	31.45	May 4.....	25.94
Jan. 12, 1968..	31.73	July 15.....	23.18	June 4.....	23.58
Feb. 13.....	31.93	Aug. 27.....	23.55	30.....	22.80
Mar. 12.....	32.05	Oct. 1.....	24.23	Sept. 8.....	22.96
Apr. 11.....	32.00	Nov. 4.....	24.91	Nov. 30.....	23.61
May 16.....	31.63	Dec. 18.....	25.77		
June 12.....	31.42	Jan. 20, 1970..	26.31		

146-82-8ADD

Nov. 23, 1966..	11.30	July 10.....	8.43	Dec. 13.....	11.26
Dec. 14.....	11.44	Aug. 15.....	9.27	Mar. 12, 1968..	10.15
Feb. 28, 1967..	12.00	Sept. 12.....	10.25	Apr. 11.....	9.02
Apr. 4.....	9.15	Oct. 11.....	10.57	May 16.....	9.00
May 31.....	6.45	Nov. 15.....	10.80	Discontinued	

146-82-9BCC

Oct. 28, 1966..	83.7	May 31.....	64.10	Nov. 15.....	63.58
Dec. 14.....	80.35	July 10.....	62.10	Dec. 13.....	62.70
Feb. 28, 1967..	64.50	Aug. 15.....	62.67	Feb. 13, 1968..	62.35
Apr. 4.....	64.17	Sept. 12.....	62.70	Discontinued	
May 4.....	63.10	Oct. 11.....	63.53		

146-82-21BDD

Nov. 9, 1966..	97.20	May 31.....	128.92	Nov. 15.....	170.40
Dec. 14.....	103.89	July 10.....	172.27	Dec. 13.....	170.52
Feb. 28, 1967..	105.77	Aug. 15.....	170.94	Feb. 13, 1968..	170.50
Apr. 4.....	117.60	Sept. 12.....	170.70	Discontinued	
May 4.....	127.58	Oct. 11.....	170.34		

Depth to water, in feet below (or + above) land surface

146-82-32CDC

Date	Water level	Date	Water level	Date	Water level
May 4, 1970..	152.18	June 30.....	151.80	Sept. 8.....	151.60
June 4.....	150.84	July 6.....	151.90	Nov. 30.....	151.38

146-82-34ADD

Nov. 10, 1969..	15.75	Mar. 23.....	15.53	Sept. 8.....	11.43
Dec. 18.....	16.07	May 4.....	12.64	Nov. 30.....	11.30
Jan. 20, 1970..	No access	June 4.....	10.71		
Feb. 20.....	No access	23.....	10.67		

146-83-8DDD

July 13, 1970..	97.17	Sept. 8.....	98.57	Nov. 30.....	99.89
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146-83-15CCC

July 13, 1970..	100.80	Sept. 8.....	100.86	Nov. 30.....	100.55
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146-84-8DBD

Aug. 15, 1967..	10.40	Apr. 11.....	10.37	Oct. 1.....	9.76
Sept. 12.....	11.02	May 16.....	10.25	Dec. 18.....	9.69
Oct. 11.....	10.95	June 12.....	10.08	Mar. 27, 1970..	No access
Nov. 15.....	10.90	July 15.....	10.05	May 4.....	8.95
Dec. 13.....	10.65	Jan. 14, 1969..	10.07	June 4.....	8.17
Jan. 9, 1968..	10.79	Apr. 17.....	9.70	30.....	8.32
Feb. 13.....	10.91	July 15.....	9.20	Sept. 8.....	9.20
Mar. 12.....	10.70	Aug. 27.....	9.56	Dec. 1.....	9.34

146-84-17DAA

Aug. 15, 1967..	31.58	Apr. 11.....	31.46	Oct. 1.....	31.32
Sept. 12.....	31.45	May 16.....	31.64	Dec. 18.....	31.50
Oct. 11.....	32.40	June 12.....	31.62	Mar. 23, 1970..	31.42
Nov. 15.....	31.49	July 15.....	31.58	May 4.....	31.59
Dec. 13.....	31.48	Jan. 14, 1969..	31.57	June 4.....	31.33
Jan. 9, 1968..	31.70	Apr. 17.....	31.76	30.....	31.29
Feb. 13.....	31.66	July 15.....	31.67	Sept. 8.....	31.16
Mar. 12.....	31.57	Aug. 27.....	31.38	Nov. 30.....	31.03

Depth to water, in feet below (or + above) land surface

146-84-20CCD

Date	Water level	Date	Water level	Date	Water level
Aug. 15, 1967..	24.92	Dec. 13.....	24.59	June 12.....	25.39
Sept. 12.....	24.93	Feb. 13, 1968..	Plugged	July 15.....	25.54
Oct. 11.....	24.86	Apr. 11.....	24.93	Discontinued	
Nov. 15.....	24.35	May 16.....	25.10		

146-84-28BCC

Nov. 7, 1966..	22.03	Aug. 15.....	21.66	Apr. 11.....	21.84
Dec. 14.....	22.07	Sept. 12.....	21.97	May 16.....	21.88
Feb. 28, 1967..	22.02	Oct. 11.....	21.83	June 12.....	21.82
Apr. 4.....	21.99	Nov. 15.....	22.07	July 15.....	21.82
May 4.....	21.92	Dec. 13.....	21.84	Discontinued	
31.....	21.84	Jan. 9, 1968..	22.47		
July 10.....	21.84	Mar. 12.....	21.77		

147-78-6BBB

Dec. 10, 1969..	17.16	Mar. 25.....	17.37	June 24.....	16.04
Jan. 21, 1970..	17.21	May 5.....	16.79	Sept. 8.....	16.00
Feb. 19.....	17.32	June 4.....	16.39	Nov. 30.....	16.09

147-79-11BCB

Sept. 14, 1967..	4.38	June 12.....	3.70	Mar. 25, 1970..	4.64
Oct. 13.....	4.06	July 16.....	4.41	May 5.....	2.90
Nov. 15.....	3.94	Jan. 16, 1969..	4.84	June 4.....	3.03
Dec. 13.....	4.33	Apr. 17.....	3.37	30.....	3.44
Feb. 13, 1968..	4.43	July 17.....	4.08	Sept. 8.....	3.31
Mar. 13.....	3.80	Aug. 28.....	4.54	Nov. 30.....	2.91
Apr. 11.....	3.46	Oct. 2.....	4.54		
May 16.....	3.38	Dec. 10.....	4.54		

147-79-19BAA1

Aug. 18, 1967..	9.72	Apr. 12.....	9.12	Oct. 2.....	9.72
Sept. 14.....	9.89	May 16.....	9.24	Dec. 10.....	9.54
Oct. 11.....	9.85	June 12.....	9.50	Mar. 25, 1970..	9.12
Nov. 17.....	9.80	July 16.....	9.70	May 5.....	8.82
Dec. 15.....	9.72	Jan. 16, 1969..	10.27	June 4.....	8.33
Jan. 12, 1968..	9.55	Apr. 17.....	8.72	July 1.....	9.20
Feb. 13.....	9.37	July 17.....	9.44	Sept. 10.....	9.34
Mar. 14.....	9.10	Aug. 28.....	9.64	Dec. 2.....	8.67

Depth to water, in feet below (or + above) land surface

147-79-25ADD2

Date	Water level	Date	Water level	Date	Water level
Dec. 10, 1969..	2.98	Mar. 25.....	No access	June 24.....	2.22
Jan. 21, 1970..	No access	May 5.....	2.25	Sept. 8.....	2.77
Feb. 19.....	No access	June 4.....	2.12	Nov. 30.....	No access

147-79-27AAA

Aug. 24, 1970..	27.26	Sept. 8.....	27.42	Nov. 30.....	27.34
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147-79-27ADA1

Sept. 14, 1967..	17.20	May 16.....	17.00	Dec. 10.....	17.44
Oct. 13.....	17.27	June 12.....	17.10	Mar. 25, 1970..	17.27
Nov. 15.....	17.36	July 16.....	17.30	May 5.....	16.87
Dec. 13.....	17.44	Jan. 16, 1969..	17.54	June 4.....	16.73
Jan. 11, 1968..	17.32	Apr. 17.....	17.03	June 30.....	16.77
Feb. 13.....	17.18	July 17.....	17.00	Sept. 8.....	17.00
Mar. 13.....	17.07	Aug. 28.....	17.18	Nov. 30.....	16.87
Apr. 11.....	16.92	Oct. 2.....	17.33		

147-79-27ADA2

Sept. 14, 1967..	19.77	May 16.....	19.50	Dec. 10.....	19.92
Oct. 13.....	18.77	June 12.....	19.54	Mar. 25, 1970..	19.77
Nov. 15.....	17.75	July 16.....	19.76	May 5.....	19.17
Dec. 13.....	20.00	Jan. 16, 1969..	20.06	June 4.....	18.89
Jan. 11, 1968..	19.88	Apr. 17.....	19.21	June 30.....	18.98
Feb. 13.....	19.83	July 17.....	19.40	Sept. 8.....	19.44
Mar. 13.....	19.47	Aug. 28.....	19.59	Nov. 30.....	19.40
Apr. 11.....	19.30	Oct. 2.....	19.75		

147-79-35BCC

Aug. 24, 1970..	102.07	Sept. 8.....	102.00	Nov. 30.....	101.83
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147-80-1CCC2

Dec. 3, 1969..	37.65	Aug. 5.....	37.40	Oct. 5.....	36.96
Dec. 30.....	37.42	Aug. 10.....	37.41	Oct. 10.....	37.26
Jan. 21, 1970..	37.42	Aug. 15.....	37.42	Oct. 15.....	37.57
Feb. 19.....	37.90	Aug. 20.....	37.42	Oct. 20.....	37.10
Mar. 25.....	37.58	Aug. 25.....	37.31	Oct. 25.....	37.14
May 5.....	37.57	Aug. 30.....	37.55	Oct. 30.....	37.49
June 4.....	37.15	Sept. 5.....	37.15	Nov. 5.....	37.19
June 25.....	37.22	Sept. 10.....	37.55	Nov. 10.....	37.42
July 30.....	37.26	Sept. 30.....	37.04	Nov. 15.....	37.02

Depth to water, in feet below (or + above) land surface

147-80-1CCC2, Continued

Date	Water level	Date	Water level	Date	Water level
Nov. 20.....	37.25	Dec. 5.....	37.77	Dec. 20.....	37.54
25.....	37.17	10.....	37.65	25.....	37.46
30.....	37.31	15.....	37.28	30.....	37.41

147-80-3BDC

Aug. 11, 1970..	37.16	Sept. 10.....	37.10	Nov. 30.....	No access
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147-80-3CCC

Sept. 14, 1967..	31.46	May 16.....	31.35	Dec. 30.....	31.43
Oct. 11.....	31.32	June 12.....	31.32	Mar. 25, 1970..	31.55
Nov. 17.....	31.43	July 15.....	31.36	May 5.....	31.36
Dec. 15.....	31.20	Jan. 16, 1969..	31.80	June 4.....	31.28
Jan. 11, 1968..	31.46	Apr. 17.....	31.78	July 1.....	31.20
Feb. 15.....	31.27	July 17.....	31.48	Sept. 10.....	32.85
Mar. 13.....	31.25	Aug. 27.....	31.36	Dec. 2.....	30.68
Apr. 12.....	31.42	Oct. 2.....	31.25		

147-80-9BCC

Aug. 15, 1967..	6.05	May 16.....	4.40	Mar. 25, 1969..	No access
Sept. 14.....	6.97	June 12.....	4.57	May 5.....	3.28
Oct. 11.....	5.94	July 15.....	5.15	June 4.....	3.25
Nov. 17.....	5.75	Apr. 17, 1969..	4.09	July 1.....	3.90
Dec. 15.....	5.63	July 17.....	4.28	Sept. 10.....	4.38
Mar. 13, 1968..	5.34	Aug. 27.....	5.12	Oct. 2.....	No access
Apr. 12.....	5.16	Oct. 2.....	5.25		

147-80-13CCC

Aug. 11, 1967..	32.84	Apr. 12.....	32.45	Oct. 2.....	32.83
Sept. 14.....	33.20	May 16.....	32.55	Dec. 30.....	32.71
Oct. 11.....	33.18	June 12.....	32.68	Mar. 25, 1970..	32.39
Nov. 17.....	33.18	July 16.....	32.89	May 5.....	32.13
Dec. 15.....	32.94	Jan. 16, 1969..	32.77	June 4.....	32.18
Jan. 12, 1968..	32.80	Apr. 17.....	32.12	July 1.....	32.38
Feb. 15.....	32.61	July 17.....	32.60	Sept. 10.....	32.44
Mar. 14.....	32.42	Aug. 28.....	32.80	Dec. 2.....	32.43

Depth to water, in feet below (or + above) land surface

147-80-19BCC

Date	Water level	Date	Water level	Date	Water level
Aug. 15, 1967..	21.50	May 16.....	19.56	Dec. 30.....	19.45
Sept. 15.....	20.13	June 12.....	19.66	Mar. 24, 1970..	No access
Oct. 11.....	20.10	July 15.....	19.73	May 5.....	18.60
Nov. 17.....	20.17	Apr. 17, 1969..	19.16	June 5.....	18.39
Dec. 13.....	20.27	July 17.....	19.13	July 1.....	18.63
Mar. 14, 1968..	19.71	Aug. 27.....	19.29	Sept. 10.....	18.97
Apr. 12.....	19.66	Oct. 2.....	19.38	Dec. 2.....	No access

147-80-19DAA

Aug. 15, 1967..	9.89	Apr. 12.....	9.57	Oct. 2.....	9.39
Sept. 15.....	10.23	May 16.....	9.50	Dec. 30.....	9.46
Oct. 11.....	10.15	June 13.....	9.43	Mar. 24, 1970..	9.43
Nov. 17.....	10.18	July 15.....	9.88	May 5.....	9.29
Dec. 13.....	10.10	Jan. 16, 1969..	9.83	June 5.....	9.03
Jan. 11, 1968..	9.98	Apr. 17.....	9.73	July 1.....	9.03
Feb. 15.....	10.01	July 17.....	9.52	Sept. 10.....	8.98
Mar. 13.....	9.98	Aug. 27.....	9.45	Dec. 2.....	8.92

147-80-22BBC

Dec. 30, 1969..	16.25	Mar. 25.....	16.10	June 24.....	15.96
Jan. 21, 1970..	16.19	May 5.....	15.90	Sept. 10.....	15.98
Feb. 19.....	16.20	June 4.....	15.89	Dec. 2.....	15.90

147-80-33DDD

Dec. 2, 1969..	4.19	Mar. 23.....	3.83	Sept. 8.....	3.07
18.....	4.01	May 4.....	1.99	Nov. 30.....	3.93
Jan. 21, 1970..	4.26	June 4.....	2.06		
Feb. 18.....	4.29	24.....	2.21		

147-81-7DDD

Aug. 24, 1970..	74.50	Sept. 9.....	75.27	Dec. 1.....	75.46
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147-81-20DCD

June 26, 1967..	11.10	Oct. 11.....	12.84	June 12.....	12.46
July 10.....	11.75	Nov. 15.....	12.70	Discontinued	
Aug. 15.....	12.18	Dec. 13.....	12.98		
Sept. 15.....	No access	Apr. 12, 1968..	12.58		

Depth to water, in feet below (or + above) land surface

147-81-23AAA

Date	Water Level	Date	Water Level	Date	Water Level
Aug. 15, 1967..	2.91	June 13.....	2.60	Dec. 30.....	2.53
Sept. 15.....	3.20	July 15.....	2.77	Mar. 24, 1970..	2.47
Oct. 11.....	3.24	July 17, 1969..	2.03	May 5.....	1.51
Nov. 17.....	3.24	Aug. 28.....	2.26	June 5.....	1.21
Dec. 13.....	3.05	Oct. 2.....	2.39	July 1.....	1.45
Apr. 12, 1968..	Plugged	17.....	2.43	Sept. 10.....	1.87
May 16.....	2.55	24.....	2.45	Dec. 2.....	2.00

147-81-28ADD

Aug. 15, 1967..	6.09	Apr. 11.....	5.43	Dec. 30.....	4.89
Sept. 15.....	6.69	May 16.....	5.29	Mar. 24, 1970..	4.88
Oct. 11.....	5.75	June 12.....	5.39	May 5.....	4.45
Nov. 15.....	5.73	July 15.....	5.46	June 4.....	4.12
Dec. 13.....	5.70	Jan. 16, 1969..	5.35	July 1.....	4.15
Jan. 11, 1968..	5.67	July 17.....	4.79	Sept. 10.....	4.30
Feb. 13.....	5.73	Aug. 27.....	4.85	Dec. 1.....	4.28
Mar. 14.....	5.54	Oct. 2.....	4.86		

147-81-30ADD

Aug. 24, 1970..	16.14	Sept. 9.....	15.99	Dec. 1.....	16.42
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147-81-35AAA

Apr. 4, 1967..	7.80	Oct. 11.....	12.43	Apr. 11.....	10.98
May 4.....	10.52	Nov. 15.....	11.81	May 16.....	11.05
31.....	10.82	Dec. 13.....	11.72	June 12.....	11.39
July 10.....	11.30	Jan. 11, 1968..	11.85	July 15.....	11.69
Aug. 15.....	12.33	Feb. 13.....	11.53	Discontinued	
Sept. 15.....	12.82	Mar. 14.....	11.27		

147-81-35ABB

Aug. 15, 1967..	6.60	Apr. 11.....	5.51	Oct. 2.....	6.02
Sept. 15.....	6.86	May 16.....	5.55	Dec. 30.....	5.79
Oct. 11.....	6.83	June 12.....	5.70	Mar. 24, 1970..	5.38
Nov. 13.....	6.26	July 15.....	7.01	May 5.....	4.75
Dec. 13.....	6.26	Jan. 16, 1969..	7.32	June 4.....	4.95
Jan. 11, 1968..	6.03	Apr. 17.....	4.65	July 1.....	5.42
Feb. 13.....	5.62	July 17.....	5.34	Sept. 10.....	5.86
Mar. 14.....	5.42	Aug. 27.....	5.86	Dec. 2.....	5.74

Depth to water, in feet below (or + above) land surface

147-81-36BAD

Date	Water level	Date	Water level	Date	Water level
June 26, 1967..	13.57	Nov. 15.....	15.82	Apr. 11.....	15.64
July 10.....	14.75	Dec. 13.....	16.16	May 16.....	15.67
Aug. 15.....	15.27	Feb. 13, 1968..	16.15	June 12.....	15.58
Sept. 15.....	15.68	Mar. 14.....	15.89	Discontinued	
Oct. 11.....	15.77				

147-82-118BB

Nov. 20, 1969..	1.91	Mar. 24.....	Frozen	Sept. 9.....	1.70
Dec. 19.....	2.02	May 5.....	Frozen	Dec. 1.....	1.79
Jan. 21, 1970..	Frozen	June 5.....	1.80		
Feb. 18.....	Frozen	23.....	1.75		

147-83-11CCCI

Dec. 18, 1969..	14.38	Mar. 23.....	14.28	Sept. 8.....	13.76
Jan. 20, 1970..	14.35	May 4.....	14.03	Dec. 1.....	13.39
Feb. 18.....	14.25	June 30.....	14.02		

147-83-14BCC

July 13, 1970..	10.37	Sept. 8.....	10.12	Dec. 1.....	No measurement
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147-83-22CDD

Oct. 26, 1966..	22.15	July 10.....	20.60	Jan. 9, 1968..	21.35
Dec. 14.....	22.27	Aug. 15.....	20.59	Feb. 13.....	20.19
Feb. 28, 1967..	22.53	Sept. 12.....	20.79	Mar. 12.....	20.49
Apr. 4.....	22.14	Oct. 11.....	20.52	Apr. 11.....	20.86
May 4.....	21.63	Nov. 15.....	20.77	May 16.....	20.70
31.....	20.95	Dec. 13.....	20.78	Discontinued	

147-83-34ABB

Dec. 18, 1969..	58.16	Mar. 23.....	No access	June 23.....	57.66
Jan. 20, 1970..	No access	May 4.....	57.83	Sept. 8.....	57.65
Feb. 19.....	No access	June 4.....	57.76	Dec. 1.....	57.35

Depth to water, in feet below (or + above) land surface

147-84-25CCC

Date	Water level	Date	Water level	Date	Water level
Nov. 21, 1966..	60.50	May 31.....	58.58	Nov. 15.....	60.27
Dec. 14.....	60.45	July 10.....	60.07	Dec. 13.....	Pumping
Feb. 28, 1967..	60.79	Aug. 15.....	60.20	Feb. 13, 1968..	60.48
Apr. 4.....	60.29	Sept. 12.....	60.15	Discontinued	
May 4.....	58.40	Oct. 11.....	60.24		

148-79-27ADD1

Sept. 14, 1967..	23.70	May 16.....	23.96	Dec. 10.....	23.87
Oct. 13.....	23.70	June 12.....	23.91	Mar. 25, 1970..	25.04
Nov. 15.....	23.67	July 16.....	23.85	May 5.....	24.06
Dec. 13.....	24.26	Jan. 16, 1969..	24.05	June 4.....	23.79
Jan. 11, 1968..	23.86	Apr. 17.....	24.05	June 30.....	23.47
Feb. 13.....	24.10	July 17.....	24.02	Sept. 8.....	23.62
Mar. 13.....	23.67	Aug. 28.....	23.72	Nov. 30.....	23.12
Apr. 11.....	23.46	Oct. 2.....	23.49		

148-79-27ADD2

Sept. 14, 1967..	18.28	May 16.....	18.31	Dec. 10.....	18.29
Oct. 13.....	18.25	June 12.....	18.28	Mar. 25, 1970..	18.38
Nov. 15.....	18.28	July 16.....	18.36	May 5.....	18.20
Dec. 13.....	18.40	Jan. 16, 1969..	18.54	June 4.....	18.07
Jan. 11, 1968..	18.40	Apr. 17.....	18.42	June 30.....	18.04
Feb. 13.....	18.38	July 17.....	18.22	Sept. 8.....	18.06
Mar. 13.....	18.30	Aug. 28.....	18.22	Nov. 30.....	17.96
Apr. 11.....	18.23	Oct. 2.....	18.20		

148-79-32AAA

Dec. 10, 1969..	68.97	Mar. 25.....	68.35	June 24.....	67.62
Jan. 21, 1970..	68.53	May 5.....	68.26	Sept. 8.....	67.48
Feb. 19.....	68.43	June 4.....	67.62	Dec. 2.....	67.48

148-80-12ADD

Oct. 13, 1967..	11.38	May 16.....	9.54	Oct. 2.....	9.16
Nov. 15.....	10.05	June 12.....	9.51	Dec. 19.....	9.48
Dec. 13.....	9.75	July 16.....	9.74	May 5, 1970..	8.66
Jan. 11, 1968..	9.89	Jan. 16, 1969..	10.07	June 4.....	8.16
Feb. 15.....	10.00	Apr. 17.....	7.96	July 1.....	8.28
Mar. 13.....	9.64	July 17.....	8.85	Sept. 10.....	8.49
Apr. 11.....	9.59	Aug. 19.....	8.92	Dec. 2.....	8.45

Depth to water, in feet below (or + above) land surface

148-80-19CCC1

Date	Water level	Date	Water level	Date	Water level
Aug. 10, 1967..	21.37	Apr. 11.....	21.34	Oct. 2.....	21.35
Sept. 14.....	22.02	May 16.....	21.56	Dec. 30.....	21.58
Oct. 13.....	21.93	June 13.....	21.57	Mar. 24, 1970..	21.69
Nov. 17.....	21.99	July 15.....	21.72	May 5.....	21.38
Dec. 15.....	21.92	Jan. 15, 1969..	21.71	June 5.....	21.09
Jan. 12, 1968..	21.95	Apr. 17.....	21.63	July 1.....	21.27
Feb. 15.....	21.85	July 16.....	21.23	Sept. 10.....	21.47
Mar. 14.....	21.76	Aug. 27.....	21.25	Dec. 2.....	21.44

148-80-19CCC2

Aug. 9, 1967..	13.64	Apr. 11.....	14.88	Oct. 2.....	14.42
Sept. 14.....	15.00	May 16.....	14.80	Dec. 30.....	14.74
Oct. 13.....	15.18	June 13.....	14.70	Mar. 24, 1970..	14.97
Nov. 17.....	15.25	July 15.....	14.70	May 5.....	14.49
Dec. 15.....	14.93	Jan. 15, 1969..	15.08	June 5.....	13.86
Jan. 12, 1968..	15.03	Apr. 17.....	14.89	July 1.....	13.70
Feb. 15.....	15.02	July 16.....	14.39	Sept. 10.....	14.00
Mar. 14.....	15.00	Aug. 27.....	14.17	Dec. 2.....	14.21

148-80-21CCC

Dec. 30, 1969..	68.13	Mar. 25.....	No access	June 24.....	68.80
Jan. 21, 1970..	No access	May 5.....	68.45	Sept. 9.....	68.88
Feb. 19.....	No access	June 5.....	68.64	Dec. 2.....	No access

148-80-30CCC

June 22, 1967..	12.26	Oct. 13.....	14.26	Feb. 15.....	13.92
July 10.....	12.77	Nov. 17.....	13.72	Mar. 14.....	13.09
Aug. 9.....	13.57	Dec. 15.....	13.84	Discontinued	
Sept. 15.....	13.93	Jan. 11, 1968..	14.76		

148-80-30CCD2

June 22, 1967..	19.12	Oct. 13.....	Pumping	Feb. 15.....	19.50
July 10.....	19.30	Nov. 17.....	19.60	Mar. 14.....	19.54
Aug. 9.....	19.68	Dec. 15.....	19.68	Discontinued	
Sept. 15.....	20.74	Jan. 11, 1968..	Pumping		

Depth to water, in feet below (or + above) land surface

148-80-31AAA1

Date	Water level	Date	Water level	Date	Water level
Sept. 15, 1967..	21.49	May 16.....	20.98	Dec. 30.....	20.98
Oct. 13.....	21.42	June 13.....	20.98	Mar. 24, 1970..	21.17
Nov. 17.....	21.47	July 15.....	21.14	May 5.....	20.93
Dec. 15.....	21.36	Jan. 15, 1969..	21.10	June 5.....	20.65
Jan. 12, 1968..	21.29	Apr. 17.....	21.12	July 1.....	20.98
Feb. 15.....	21.14	July 17.....	20.67	Sept. 10.....	21.20
Mar. 13.....	21.20	Aug. 27.....	20.68	Dec. 2.....	21.38
Apr. 12.....	21.12	Oct. 2.....	20.79		

148-80-31AAA2

Aug. 10, 1967..	17.45	Apr. 12.....	17.73	Oct. 2.....	17.44
Sept. 15.....	18.05	May 16.....	17.56	Dec. 30.....	17.55
Oct. 13.....	18.08	June 13.....	17.62	Mar. 24, 1970..	17.56
Nov. 17.....	18.08	July 15.....	17.75	May 5.....	17.25
Dec. 15.....	17.99	Jan. 15, 1969..	17.88	June 5.....	16.83
Jan. 11, 1968..	18.08	Apr. 17.....	17.80	July 1.....	17.13
Feb. 15.....	17.92	July 16.....	17.33	Sept. 10.....	17.36
Mar. 13.....	17.87	Aug. 27.....	17.37	Dec. 2.....	17.15

148-80-33CCC

May 13, 1964..	25.58	Apr. 4, 1967..	25.45	Apr. 17, 1969..	24.90
Oct. 8.....	25.82	May 31.....	24.84	July 17.....	24.89
May 24, 1965..	25.30	July 10.....	24.44	Aug. 27.....	24.59
Sept. 15.....	25.49	Aug. 9.....	25.10	Oct. 2.....	24.04
Oct. 5.....	25.28	Sept. 14.....	25.29	Dec. 30.....	No access
Nov. 4.....	25.21	Oct. 13.....	25.16	Jan. 21, 1970..	No access
Dec. 10.....	25.32	Nov. 17.....	25.07	Feb. 18.....	No access
May 12, 1966..	25.77	Dec. 15.....	25.15	Mar. 24.....	No access
June 9.....	25.79	Mar. 13, 1968..	25.07	May 5.....	23.54
July 14.....	24.75	Apr. 12.....	24.94	June 5.....	24.23
Aug. 18.....	25.16	May 16.....	24.82	July 1.....	23.02
Sept. 29.....	25.10	June 12.....	25.33	Sept. 10.....	24.07
Dec. 14.....	25.24	July 15.....	24.76	Dec. 2.....	23.46

148-80-34DCC

Aug. 12, 1970..	28.99	Sept. 10.....	30.08	Dec. 2.....	No access
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Depth to water, in feet below (or + above) land surface

148-80-35BBC

Date	Water level	Date	Water level	Date	Water level
Aug. 11, 1967..	16.46	Apr. 12.....	16.88	Oct. 2.....	16.92
Sept. 14.....	16.89	May 16.....	16.82	Dec. 30.....	17.19
Oct. 13.....	16.97	June 12.....	16.94	Mar. 25, 1970..	17.40
Nov. 17.....	16.98	July 15.....	17.16	May 5.....	16.69
Dec. 15.....	17.05	Jan. 16, 1969..	17.65	June 4.....	16.30
Jan. 11, 1968..	17.19	Apr. 17.....	16.78	July 1.....	16.40
Feb. 15.....	17.19	July 17.....	16.54	Sept. 10.....	16.11
Mar. 13.....	16.99	Aug. 27.....	16.97	Dec. 2.....	16.58

148-81-3AAB

Sept. 14, 1967..	10.15	July 20.....	10.00	Mar. 30.....	9.46
Oct. 13.....	9.94	25.....	10.08	Apr. 5.....	9.39
Nov. 17.....	9.80	30.....	10.17	10.....	8.79
Dec. 15.....	9.88	Aug. 5.....	10.27	15.....	8.80
20.....	9.88	10.....	10.30	20.....	8.92
25.....	9.85	15.....	10.37	25.....	8.97
30.....	9.80	20.....	10.15	30.....	9.04
Jan. 5, 1968..	9.83	25.....	9.95	May 5.....	9.0
10.....	9.83	30.....	9.96	10.....	9.10
15.....	9.88	Sept. 5.....	9.89	15.....	9.20
20.....	9.83	10.....	9.88	20.....	9.28
25.....	9.77	15.....	9.95	25.....	9.36
30.....	9.74	20.....	9.85	30.....	9.44
Feb. 5.....	9.73	25.....	9.85	June 5.....	9.51
10.....	9.70	30.....	9.88	10.....	9.54
15.....	9.65	Oct. 5.....	9.90	15.....	9.59
20.....	9.66	10.....	9.90	20.....	9.63
25.....	9.64	15.....	9.90	25.....	9.60
Mar. 1.....	9.61	20.....	9.86	30.....	9.52
5.....	9.55	25.....	9.85	July 5.....	9.57
10.....	9.28	30.....	9.85	10.....	9.54
15.....	9.28	Nov. 5.....	9.89	15.....	9.68
20.....	9.27	10.....	9.91	20.....	9.72
25.....	9.24	15.....	9.91	25.....	9.76
30.....	9.20	20.....	9.90	30.....	9.77
Apr. 5.....	9.24	25.....	9.83	Aug. 5.....	9.73
10.....	9.20	30.....	9.85	10.....	9.83
15.....	9.19	Dec. 5.....	9.86	15.....	9.80
20.....	9.20	10.....	9.93	20.....	9.95
25.....	9.22	15.....	9.97	25.....	10.04
30.....	9.23	20.....	9.96	30.....	10.01
May 5.....	9.30	25.....	10.00	Sept. 5.....	10.18
10.....	9.28	Jan. 15, 1969..	10.01	10.....	10.23
15.....	9.27	20.....	9.95	15.....	10.28
20.....	9.33	25.....	9.95	20.....	10.25
25.....	9.44	30.....	9.95	25.....	10.27
30.....	9.51	Feb. 5.....	9.91	30.....	10.26
June 5.....	9.59	10.....	9.86	Oct. 5.....	10.14
10.....	9.55	15.....	9.84	10.....	10.06
15.....	9.61	20.....	9.80	15.....	9.99
20.....	9.69	25.....	9.75	20.....	9.97
25.....	9.67	Mar. 5.....	9.67	25.....	9.95
30.....	9.71	10.....	9.62	30.....	9.96
July 5.....	9.73	15.....	9.58	Nov. 5.....	9.93
10.....	9.86	20.....	9.54	10.....	9.91
15.....	9.92	25.....	9.50	15.....	9.93

Depth to water, in feet below (or + above) land surface

148-81-3AAB, Continued

Date	Water level	Date	Water level	Date	Water level
Nov. 20.....	9.98	Mar. 20.....	9.56	July 20.....	9.77
25.....	9.83	25.....	9.51	25.....	9.64
30.....	9.81	30.....	9.47	30.....	9.62
Dec. 5.....	9.78	Apr. 5.....	9.40	Aug. 5.....	9.67
10.....	9.76	10.....	9.17	10.....	9.77
15.....	9.76	15.....	9.14	15.....	9.83
20.....	9.76	20.....	9.08	20.....	9.91
25.....	9.76	25.....	9.02	25.....	9.93
30.....	9.76	30.....	8.81	30.....	9.97
Jan. 5, 1970..	9.73	May 5.....	8.90	Sept. 5.....	10.04
10.....	9.75	10.....	8.82	10.....	9.86
15.....	9.76	15.....	8.82	15.....	9.82
20.....	9.76	20.....	8.89	20.....	9.79
25.....	9.87	25.....	8.92	25.....	9.79
30.....	9.80	30.....	9.01	30.....	9.77
Feb. 5.....	9.76	June 5.....	9.10	Oct. 5.....	9.88
10.....	9.76	10.....	9.20	10.....	9.86
15.....	9.72	15.....	9.15	15.....	9.84
20.....	9.70	20.....	9.25	20.....	9.82
25.....	9.68	25.....	9.37	25.....	9.79
Mar. 1.....	9.65	July 1.....	9.54	30.....	9.77
5.....	9.62	5.....	9.62	Dec. 5.....	9.77
10.....	9.60	10.....	9.73	10.....	9.75
15.....	9.58	15.....	9.67	15.....	9.75

148-81-12ADD

June 5, 1970..	5.79	Sept. 10.....	7.02	Dec. 2.....	No access
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148-81-14CDD

Aug. 8, 1967..	13.05	Apr. 11.....	12.86	Oct. 2.....	12.56
Sept. 14.....	12.95	May 16.....	12.73	Dec. 19.....	12.80
Oct. 13.....	13.02	June 13.....	12.74	Mar. 24, 1970..	12.86
Nov. 17.....	13.23	July 15.....	12.88	May 5.....	12.58
Dec. 15.....	13.06	Jan. 15, 1969..	12.96	June 5.....	12.32
Jan. 12, 1968..	13.04	Apr. 17.....	12.90	July 1.....	12.41
Feb. 15.....	12.99	July 11.....	12.39	Sept. 9.....	12.59
Mar. 13.....	12.97	Aug. 27.....	12.48	Dec. 2.....	12.83

148-81-16DDD

Aug. 9, 1967..	9.66	Apr. 11.....	10.49	Oct. 2.....	10.21
Sept. 14.....	10.64	May 16.....	9.95	Dec. 19.....	10.63
Oct. 13.....	10.87	June 13.....	9.76	Mar. 24, 1970..	10.97
Nov. 17.....	10.92	July 15.....	10.02	May 5.....	9.64
Dec. 15.....	10.88	Jan. 15, 1969..	10.98	June 5.....	8.50
Jan. 12, 1968..	11.04	Apr. 17.....	10.62	July 1.....	8.80
Feb. 15.....	11.17	July 11.....	9.18	Sept. 9.....	12.04
Mar. 14.....	10.90	Aug. 27.....	9.59	Dec. 2.....	10.31

Depth to water, in feet below (or + above) land surface

148-81-18DCD1

Date	Water level	Date	Water level	Date	Water level
Aug. 8, 1967..	+1.9	June 13.....	+0.12	Mar. 24, 1970..	+0.47
Sept. 14.....	+ .3	July 15.....	+ .05	May 5.....	+ .82
Oct. 13.....	+ .24	Apr. 17, 1969..	+ .31	June 5.....	+ .95
Nov. 17.....	+ .29	Aug. 27.....	+ .30	July 1.....	+ .84
Apr. 11, 1968..	+ .38	Oct. 2.....	+ .33	Sept. 9.....	+ .43
May 16.....	+ .22	Dec. 19.....	+ .65	Dec. 2.....	Frozen

148-81-18DCD2

Aug. 8, 1967..	3.47	Apr. 11.....	2.62	Oct. 2.....	3.35
Sept. 14.....	3.00	May 16.....	2.79	Dec. 19.....	3.48
Oct. 13.....	3.13	June 13.....	3.07	Mar. 24, 1970..	2.79
Nov. 17.....	3.08	July 15.....	3.77	May 5.....	1.99
Dec. 15.....	3.48	Jan. 15, 1969..	4.63	June 5.....	2.40
Jan. 12, 1968..	3.48	Apr. 17.....	2.29	Aug. 1.....	2.80
Feb. 15.....	3.33	July 11.....	2.90	Sept. 9.....	2.69
Mar. 14.....	2.77	Aug. 27.....	3.62	Dec. 2.....	2.75

148-81-20ADC

Aug. 14, 1970..	9.08	Sept. 9.....	9.18	Dec. 2.....	9.40
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148-81-20BAA

Aug. 8, 1967..	+1.65	July 15.....	+1.57	May 5.....	+1.88
Sept. 14.....	+1.41	Apr. 17, 1969..	+1.68	June 5.....	+2.1
Oct. 13.....	+1.44	July 11.....	+2.5	July 1.....	+1.83
Nov. 17.....	+1.37	Aug. 27.....	+2.0	Sept. 9.....	+1.66
Apr. 11, 1968..	+1.02	Oct. 2.....	+1.95	Dec. 2.....	Frozen
May 16.....	+1.73	Dec. 19.....	+1.52		
June 13.....	+1.69	Mar. 24, 1970..	+1.56		

148-81-20CCD2

Sept. 23, 1970..	10.50	Dec. 2.....	9.67
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148-81-20CCD3

Sept. 23, 1970..	12.04	Dec. 2.....	11.15
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148-81-20CCD4

Sept. 23, 1970..	13.20	Dec. 2.....	12.75
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Depth to water, in feet below (or + above) land surface

148-81-22AAB

Date	Water level	Date	Water level	Date	Water level
May 11, 1964..	5.13	Dec. 14.....	5.48	June 13.....	4.30
Oct. 8.....	5.40	Mar. 2, 1967..	5.78	July 15.....	4.72
May 24, 1965..	4.78	Apr. 4.....	5.23	Jan. 15, 1969..	5.30
Sept. 15.....	5.08	May 4.....	4.10	Apr. 17.....	4.56
Oct. 5.....	4.75	July 31.....	3.87	July 11.....	3.80
Nov. 4.....	4.86	July 10.....	5.28	Aug. 27.....	4.34
Dec. 10.....	4.95	Aug. 8.....	4.82	Oct. 2.....	4.71
Jan. 4, 1966..	6.11	Sept. 14.....	5.19	Dec. 19.....	4.93
31.....	6.27	Oct. 13.....	5.18	Mar. 20, 1970..	4.84
Mar. 14.....	6.31	Nov. 17.....	5.00	May 5.....	3.81
Apr. 12.....	5.88	Dec. 15.....	5.17	June 5.....	3.43
May 12.....	5.44	Jan. 12, 1968..	5.29	July 1.....	3.34
June 9.....	5.13	Feb. 15.....	5.34	Sept. 9.....	4.60
July 14.....	4.46	Mar. 13.....	5.02	Dec. 2.....	4.55
Aug. 18.....	4.93	Apr. 11.....	4.56		
Sept. 29.....	5.27	May 16.....	4.29		

148-81-22BAB

Mar. 14, 1968..	3.84	Apr. 17.....	3.73	Mar. 24.....	3.72
Apr. 11.....	3.44	July 11.....	2.53	May 5.....	2.94
May 16.....	3.05	Aug. 27.....	2.85	June 5.....	2.25
June 13.....	2.99	Oct. 2.....	3.22	July 1.....	2.37
July 15.....	3.23	Dec. 19.....	3.52	Sept. 9.....	3.13
Jan. 15, 1969..	3.77	Jan. 21, 1970..	3.58	Dec. 2.....	3.25

148-81-26DBC

Aug. 15, 1967..	20.51	Apr. 12.....	19.87	May 5, 1970..	19.15
Sept. 15.....	20.55	May 21.....	19.65	July 1.....	19.12
Oct. 13.....	20.49	July 15.....	19.95	Sept. 10.....	19.53
Dec. 15.....	20.31	Apr. 17, 1969..	19.83	Dec. 2.....	No access
Mar. 14, 1968..	19.16	Oct. 2.....	19.69		

148-81-29BAA

Aug. 14, 1970..	15.40	Sept. 9.....	15.56	Dec. 2.....	15.75
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148-81-29CAA

Aug. 14, 1970..	12.42	Sept. 9.....	12.73	Dec. 2.....	14.01
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Depth to water, in feet below (or + above) land surface

148-81-33CDD

Date	Water Level	Date	Water Level	Date	Water Level
Aug. 15, 1967..	13.39	Feb. 20.....	15.07	Mar. 10.....	14.64
Sept. 15.....	13.60	25.....	15.07	15.....	14.65
Oct. 13.....	13.69	Mar. 1.....	15.10	20.....	14.63
Nov. 17.....	14.50	13.....	15.11	25.....	14.52
Dec. 15.....	14.60	Apr. 20.....	14.42	30.....	14.53
Jan. 15, 1968..	14.74	25.....	14.39	Apr. 5.....	14.41
20.....	14.74	30.....	14.37	10.....	14.31
25.....	14.74	May 5.....	14.37	15.....	14.31
30.....	14.72	10.....	14.37	20.....	14.29
Feb. 5.....	14.80	15.....	14.35	25.....	14.30
10.....	14.79	20.....	14.31	30.....	14.18
15.....	14.79	25.....	14.30	May 5.....	14.10
20.....	14.83	June 5.....	14.27	10.....	13.99
25.....	14.84	15.....	14.23	15.....	13.94
29.....	14.85	20.....	14.25	20.....	13.82
Mar. 5.....	14.78	25.....	14.20	25.....	13.67
10.....	14.60	July 16.....	14.15	30.....	13.55
14.....	14.59	25.....	14.12	June 5.....	13.42
May 21.....	15.64	30.....	14.10	10.....	13.38
25.....	15.65	Aug. 5.....	14.09	15.....	13.38
30.....	15.62	10.....	14.08	20.....	13.38
June 5.....	15.62	15.....	14.06	25.....	13.38
10.....	15.60	20.....	14.05	July 1.....	13.11
15.....	15.63	25.....	14.04	5.....	13.09
20.....	15.60	30.....	14.06	10.....	13.07
25.....	15.63	Sept. 5.....	14.08	15.....	13.08
30.....	15.60	10.....	14.14	20.....	13.09
July 5.....	15.63	15.....	14.15	25.....	13.10
10.....	15.62	20.....	14.14	30.....	13.12
15.....	15.61	25.....	14.17	Aug. 5.....	13.18
20.....	15.63	30.....	14.20	10.....	13.22
25.....	15.66	Oct. 5.....	14.19	15.....	13.26
30.....	15.67	10.....	14.22	20.....	13.29
Aug. 5.....	15.68	15.....	14.23	25.....	13.32
10.....	15.75	20.....	14.24	30.....	13.37
15.....	15.70	25.....	14.29	Sept. 5.....	13.35
20.....	15.76	30.....	14.30	10.....	13.43
25.....	15.78	Nov. 5.....	14.26	15.....	13.45
30.....	15.78	10.....	14.32	20.....	13.45
Sept. 5.....	15.78	15.....	14.31	25.....	13.72
10.....	15.79	20.....	14.37	30.....	13.74
15.....	15.75	25.....	14.38	Oct. 1.....	13.73
20.....	15.79	30.....	14.35	5.....	13.70
25.....	15.80	Dec. 5.....	14.37	10.....	13.79
30.....	15.80	10.....	14.39	15.....	13.83
Oct. 5.....	15.79	15.....	14.41	20.....	13.83
10.....	15.82	20.....	14.40	25.....	13.86
15.....	15.81	25.....	14.43	30.....	13.91
20.....	15.83	30.....	14.44	Nov. 5.....	13.92
25.....	15.84	Jan. 5, 1970..	14.48	10.....	13.97
Nov. 5.....	14.78	10.....	14.45	15.....	13.96
10.....	14.79	15.....	14.51	20.....	14.00
15.....	14.77	20.....	14.52	25.....	13.99
20.....	14.78	25.....	14.50	Dec. 5.....	14.10
25.....	14.81	30.....	14.54	10.....	14.12
30.....	14.78	Feb. 5.....	14.56	15.....	14.12
Dec. 5.....	14.80	10.....	14.58	20.....	14.15
10.....	14.81	15.....	14.58	25.....	14.16
Jan. 15, 1969..	14.95	20.....	14.62	30.....	14.19
20.....	14.97	25.....	14.63		
24.....	15.00	Mar. 1.....	14.63		
Feb. 15.....	15.06	5.....	14.63		

Depth to water, in feet below (or + above) land surface

148-81-34DDD

Date	Water level	Date	Water level	Date	Water level
Aug. 15, 1967..	5.58	Apr. 12.....	5.14	Oct. 2.....	5.36
Sept. 15.....	5.90	May 16.....	4.43	Dec. 30.....	5.51
Oct. 13.....	5.75	June 13.....	4.62	Mar. 24, 1970..	5.38
Nov. 17.....	5.72	July 15.....	5.39	May 5.....	2.89
Dec. 15.....	5.88	Jan. 15, 1969..	6.02	June 5.....	3.14
Jan. 12, 1968..	6.08	Apr. 17.....	4.05	July 1.....	4.12
Feb. 15.....	6.15	July 16.....	4.24	Sept. 10.....	5.25
Mar. 14.....	5.40	Aug. 27.....	4.98	Dec. 1.....	5.08

148-81-36DDD

Aug. 15, 1967..	9.67	Apr. 12.....	9.25	Oct. 2.....	8.94
Sept. 15.....	9.14	May 16.....	9.00	Dec. 30.....	9.05
Oct. 13.....	9.28	June 13.....	9.05	Mar. 24, 1970..	9.10
Nov. 17.....	9.32	July 15.....	9.23	May 5.....	8.66
Dec. 15.....	9.45	Jan. 15, 1969..	9.45	June 5.....	8.30
Jan. 12, 1968..	9.57	Apr. 17.....	9.30	July 1.....	8.35
Feb. 15.....	9.57	July 16.....	8.72	Sept. 10.....	8.70
Mar. 14.....	9.36	Aug. 27.....	8.80	Dec. 1.....	8.70

148-82-12CCC2

Oct. 14, 1966..	13.65	July 10.....	25.87	Dec. 15.....	26.00
Dec. 14.....	12.88	Aug. 8.....	25.83	Jan. 12, 1968..	24.70
Mar. 2, 1967..	14.00	Sept. 14.....	25.94	Feb. 15.....	25.02
Apr. 4.....	26.40	Oct. 13.....	25.90	Discontinued	
May 31.....	26.05	Nov. 17.....	25.88		

148-82-15BBB

Dec. 3, 1969..	4.82	Mar. 24.....	5.02	Sept. 9.....	4.42
30.....	4.47	Apr. 22.....	4.70	Dec. 2.....	4.68
Jan. 21, 1970..	4.62	June 5.....	4.48		
Feb. 18.....	4.80	23.....	3.12		

148-82-23BBB

Dec. 3, 1969..	41.87	Mar. 23.....	42.22	Sept. 9.....	42.02
30.....	41.91	Apr. 22.....	42.08	Dec. 2.....	42.30
Jan. 21, 1970..	42.03	June 5.....	41.85		
Feb. 18.....	42.19	23.....	41.93		

Depth to water, in feet below (or + above) land surface

148-82-24ABB

Date	Water level	Date	Water level	Date	Water level
Aug. 8, 1967..	14.64	Apr. 11.....	14.70	Oct. 2.....	14.30
Sept. 14.....	14.93	May 16.....	14.65	Dec. 19.....	14.72
Oct. 13.....	14.93	June 13.....	14.68	Mar. 24, 1970..	14.96
Nov. 17.....	15.00	July 15.....	14.76	May 5.....	14.70
Dec. 15.....	14.89	Jan. 15, 1969..	14.66	June 5.....	14.50
Jan. 12, 1968..	14.91	Apr. 17.....	14.67	July 1.....	14.63
Feb. 15.....	14.84	July 11.....	14.19	Sept. 9.....	14.74
Mar. 14.....	14.78	Aug. 27.....	14.17	Dec. 2.....	14.99

148-84-6BBA

July 28, 1970..	52.82	Sept. 10.....	52.87	Oct. 29.....	51.91
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148-84-6DCB

Aug. 12, 1970..	7.70	Oct. 29.....	6.27	Dec. 3.....	6.11
Sept. 3.....	7.79				

148-84-7AAB

July 20, 1970..	63.16	Sept. 22.....	61.70	Dec. 3.....	60.39
28.....	62.73	Oct. 29.....	61.00		

148-84-7AAD

July 20, 1970..	67.42	Sept. 3.....	67.06	Dec. 1.....	64.87
27.....	66.95	Oct. 29.....	65.10		

148-84-8BCB

July 16, 1970..	70.99	July 27.....	72.02	Oct. 29.....	69.27
17.....	71.07	Sept. 3.....	71.24	Dec. 1.....	69.05

148-84-8CBC

July 20, 1970..	152.58	Sept. 3.....	153.16	Dec. 1.....	144.81
28.....	146.40	Oct. 29.....	146.68		

Depth to water, in feet below (or + above) land surface

148-84-14BBC

Date	Water level	Date	Water level	Date	Water level
Sept. 22, 1970..	78.83	Oct. 29.....	78.57	Dec. 1.....	78.75
30.....	78.70				

148-84-14BCC

Sept. 22, 1970..	76.06	Oct. 29.....	75.92	Dec. 1.....	76.16
30.....	76.28				

148-84-14CDC3

Sept. 22, 1970..	41.67	Oct. 29.....	41.80	Dec. 3.....	42.44
30.....	41.67				

148-84-16AAD

Sept. 22, 1970..	39.85	Oct. 29.....	39.13	Dec. 1.....	38.92
30.....	39.62				

148-84-17AAA

July 21, 1970..	67.43	Sept. 3.....	64.08	Dec. 1.....	62.20
27.....	63.97	Oct. 29.....	62.44		

148-84-17AAB

July 21, 1970..	70.30	Sept. 3.....	69.73	Dec. 1.....	67.54
27.....	69.56	Oct. 29.....	67.60		

148-84-17ABA

July 27, 1970..	61.81	Oct. 29.....	59.69	Dec. 1.....	59.36
Sept. 3.....	62.03				

148-85-23CDC

Nov. 4, 1969..	43.76	Mar. 24.....	44.68	June 30.....	44.10
Dec. 11.....	44.15	May 5.....	44.43	Sept. 9.....	43.83
Jan. 21, 1970..	44.27	June 5.....	44.20	Dec. 1.....	44.53

Depth to water, in feet below (or + above) land surface

148-85-29DDD

Date	Water level	Date	Water level	Date	Water level
July 22, 1966..	51.77	June 1.....	50.61	Dec. 14.....	51.03
Dec. 15.....	51.82	July 11.....	50.33	Jan. 10, 1968..	50.75
Mar. 1, 1967..	51.47	Sept. 12.....	49.92	Feb. 14.....	50.64
Apr. 5.....	51.31	Oct. 13.....	49.99	Discontinued	
May 4.....	51.11	Nov. 16.....	50.50		

148-85-31DBD1

July 22, 1966..	65.13	Dec. 14.....	68.50	July 16.....	59.28
Dec. 15.....	73.25	Jan. 10, 1968..	69.75	Aug. 20.....	59.58
Mar. 1, 1967..	78.24	Feb. 14.....	71.40	Dec. 11.....	No access
Apr. 5.....	77.35	Mar. 12.....	71.76	Jan. 21, 1970..	No access
May 4.....	75.58	Apr. 12.....	70.32	Feb. 19.....	No access
June 1.....	71.92	May 21.....	71.36	Mar. 24.....	No access
July 11.....	62.24	June 13.....	69.94	June 5.....	67.46
Sept. 12.....	63.47	July 17.....	65.54	July 30.....	63.38
Oct. 12.....	64.72	Jan. 15, 1969..	66.55	Sept. 9.....	61.56
Nov. 16.....	66.34	Apr. 17.....	66.57	Dec. 1.....	64.13

148-86-12DCD2

Dec. 15, 1966..	174.59	Apr. 5.....	176.86	June 1.....	175.05
Mar. 1, 1967..	176.08	May 4.....	175.48	Discontinued	

148-86-20DAA

July 10, 1970..	65.80	Sept. 9.....	64.67	Dec. 1.....	No access
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148-86-29AAA2

July 14, 1970..	47.23	Sept. 9.....	46.59	Dec. 1.....	47.66
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148-87-7AAA1

Aug. 23, 1967..	10.80	Apr. 12.....	8.89	Mar. 23.....	9.96
Sept. 13.....	10.50	June 13.....	8.49	Apr. 22.....	8.88
Oct. 12.....	9.62	July 17.....	9.00	June 5.....	3.98
Nov. 16.....	10.02	Jan. 15, 1969..	10.85	June 30.....	5.07
Dec. 14.....	10.21	Apr. 17.....	8.04	Sept. 9.....	7.24
Jan. 10, 1968..	10.94	July 11.....	5.84	Dec. 1.....	7.74
Feb. 14.....	11.42	Oct. 2.....	8.38		
Mar. 12.....	10.45	Jan. 20, 1970..	10.26		

Depth to water, in feet below (or + above) land surface

148-87-7AAA2

Date	Water level	Date	Water level	Date	Water level
Sept. 9, 1968..	112.35	July 5.....	110.91	Apr. 5.....	111.50
15.....	112.12	10.....	110.73	10.....	111.51
30.....	111.95	15.....	110.58	15.....	111.51
Oct. 5.....	111.95	20.....	110.60	20.....	111.23
10.....	111.95	25.....	110.40	25.....	111.31
15.....	111.95	30.....	110.20	30.....	111.36
20.....	112.00	Aug. 5.....	110.10	May 5.....	111.61
25.....	112.00	10.....	110.08	10.....	111.27
30.....	111.85	15.....	109.98	15.....	111.42
Nov. 5.....	112.10	20.....	109.97	20.....	111.37
10.....	112.10	25.....	109.97	25.....	111.33
15.....	112.00	30.....	109.97	June 1.....	111.34
20.....	112.00	Sept. 5.....	109.91	5.....	111.23
25.....	112.00	10.....	110.11	10.....	110.96
30.....	111.90	15.....	110.03	15.....	110.82
Dec. 5.....	111.89	20.....	110.00	20.....	110.74
10.....	112.04	25.....	109.97	25.....	110.57
15.....	112.07	30.....	110.06	30.....	110.47
20.....	112.06	Oct. 5.....	109.99	July 5.....	110.41
25.....	112.16	10.....	110.21	10.....	110.24
30.....	112.10	15.....	110.15	15.....	109.99
Jan. 15, 1969..	112.10	20.....	110.11	20.....	109.89
20.....	112.16	25.....	110.30	25.....	109.49
25.....	112.32	30.....	110.27	30.....	109.33
30.....	112.31	Nov. 5.....	110.07	Aug. 5.....	109.29
Feb. 5.....	112.30	10.....	110.15	10.....	109.24
10.....	112.38	15.....	110.12	15.....	109.18
15.....	112.52	20.....	110.35	20.....	109.18
20.....	112.66	25.....	110.43	30.....	109.15
25.....	112.67	30.....	110.37	Sept. 10.....	108.91
Mar. 1.....	112.78	Dec. 5.....	110.33	15.....	108.93
5.....	112.81	10.....	110.29	20.....	108.81
10.....	112.95	15.....	110.44	25.....	108.92
15.....	112.95	20.....	110.50	30.....	108.86
20.....	113.02	25.....	110.54	Oct. 5.....	108.67
25.....	113.10	30.....	110.63	10.....	108.78
30.....	113.17	Jan. 5, 1970..	110.83	15.....	108.93
Apr. 5.....	112.91	10.....	110.82	20.....	108.79
10.....	112.76	15.....	110.96	25.....	108.67
20.....	112.45	20.....	111.06	30.....	108.84
25.....	112.35	25.....	110.85	Nov. 5.....	108.98
30.....	112.25	30.....	110.99	10.....	108.92
May 5.....	112.17	Feb. 5.....	111.12	15.....	108.96
10.....	112.14	10.....	111.30	20.....	108.82
15.....	112.09	15.....	111.32	25.....	108.76
20.....	112.14	20.....	111.41	Dec. 1.....	108.71
25.....	112.03	25.....	111.51	5.....	109.03
30.....	111.90	Mar. 1.....	111.48	10.....	109.09
June 5.....	111.75	5.....	111.43	15.....	108.99
10.....	111.61	10.....	111.49	20.....	109.11
15.....	111.65	15.....	111.61	25.....	109.05
20.....	111.49	20.....	111.60	30.....	109.03
25.....	111.10	25.....	111.56		
30.....	111.07	30.....	111.56		

Depth to water, in feet below (or + above) land surface

148-87-13888

Date	Water level	Date	Water level	Date	Water level
Sept. 9, 1968..	104.33	Nov. 4.....	102.49	June 5.....	104.74
Jan. 15, 1969..	104.59	Dec. 19.....	103.46	Dec. 30.....	103.15
Apr. 17.....	105.42	Jan. 20, 1970..	104.28	Sept. 9.....	101.16
July 16.....	102.19	Feb. 19.....	105.01	Dec. 1.....	101.50
Sept. 5.....	101.56	Mar. 2.....	105.18		
Nov. 2.....	101.90	Apr. 22.....	105.17		

148-87-13DDD

Nov. 4, 1969..	106.27	Mar. 24.....	No access	Sept. 9.....	105.06
Dec. 9.....	107.51	Apr. 22.....	No access	Dec. 1.....	No access
Jan. 20, 1970..	No access	June 5.....	108.97		
Feb. 18.....	No access	Feb. 25.....	107.59		

148-87-31BAA

May 5, 1967..	113.91	Oct. 12.....	113.43	Feb. 14.....	113.60
June 1.....	113.87	Nov. 16.....	113.51	Mar. 12.....	113.65
July 11.....	113.60	Dec. 14.....	113.63	Apr. 12.....	113.61
Sept. 13.....	113.40	Jan. 10, 1968..	113.44		Discontinued

148-90-24DCC

Oct. 13, 1966..	297.80	July 11.....	297.34	Feb. 14.....	296.34
Dec. 15.....	297.47	Sept. 13.....	296.69	Mar. 12.....	296.24
Mar. 1, 1967..	297.67	Oct. 12.....	295.87	Apr. 12.....	296.03
Apr. 5.....	297.61	Nov. 16.....	No access		Discontinued
May 4.....	297.76	Dec. 14.....	No access		
June 1.....	298.40	Jan. 10, 1968..	No access		

148-90-26ABB1

Oct. 13, 1966..	87.6	June 1.....	87.03	Dec. 14.....	86.93
Dec. 15.....	87.65	July 11.....	86.81	Jan. 10, 1968..	No access
Mar. 1, 1967..	No access	Sept. 13.....	87.30	Feb. 14.....	No access
Apr. 5.....	87.63	Oct. 12.....	Pumping		Discontinued
May 4.....	83.30	Nov. 16.....	86.24		

149-78-28DCC

June 14, 1967..	3.92	Nov. 16.....	6.73	May 16.....	5.20
July 11.....	4.90	Dec. 13.....	6.87	June 12.....	5.85
Aug. 16.....	5.70	Feb. 13, 1968..	7.21	July 16.....	6.43
Sept. 14.....	6.13	Mar. 13.....	6.72		Discontinued
Oct. 13.....	6.41	Apr. 11.....	5.17		

Depth to water, in feet below (or + above) land surface

149-79-26CCC

Date	Water level	Date	Water level	Date	Water level
June 14, 1967..	23.12	Dec. 13.....	25.27	June 12.....	25.00
July 11.....	24.75	Jan. 11, 1968..	25.22	July 16.....	25.39
Aug. 16.....	25.07	Feb. 13.....	25.22	Jan. 16, 1969..	25.50
Sept. 14.....	25.29	Mar. 13.....	24.95	Apr. 17.....	24.78
Oct. 13.....	25.23	Apr. 11.....	24.82	Aug. 19.....	24.78
Nov. 15.....	25.25	May 16.....	24.89	Dec. 19.....	23.16

149-79-26CDC

Dec. 19, 1969..	3.29	Mar. 25.....	3.22	June 25.....	2.36
Jan. 21, 1970..	3.30	May 5.....	2.39	Sept. 10.....	2.50
Feb. 19.....	3.35	June 4.....	2.23	Dec. 2.....	2.51

149-80-3CDD

Sept. 14, 1967..	13.99	June 13.....	14.64	Mar. 25, 1970..	No access
Oct. 13.....	14.07	July 16.....	14.69	May 5.....	14.72
Nov. 17.....	14.44	Apr. 17.....	14.97	June 5.....	14.12
Dec. 15.....	14.36	July 16.....	14.54	July 1.....	13.74
Mar. 14, 1968..	14.46	Aug. 18.....	14.51	Sept. 10.....	13.32
Apr. 11.....	14.45	Oct. 2.....	14.50	Dec. 2.....	13.26
May 16.....	14.55	Dec. 19.....	14.73		

149-80-6CBC

Dec. 19, 1969..	6.55	Mar. 24.....	6.68	June 24.....	2.72
Jan. 21, 1970..	6.69	May 5.....	1.27	Sept. 10.....	4.49
Feb. 18.....	6.65	June 5.....	2.09	Dec. 2.....	4.78

149-80-16DDD2

Nov. 24, 1969..	34.30	Mar. 25.....	34.70	Sept. 10.....	33.42
Dec. 19.....	34.38	May 5.....	34.42	Dec. 2.....	33.43
Jan. 21, 1970..	34.46	June 5.....	34.05		
Feb. 18.....	34.58	June 24.....	33.75		

149-80-21DDA

July 11, 1967..	16.19	Mar. 14.....	16.43	Oct. 2.....	16.07
Aug. 16.....	16.14	Apr. 11.....	16.50	Dec. 19.....	16.44
Sept. 14.....	16.23	May 16.....	16.60	Mar. 25, 1970..	16.86
Oct. 13.....	16.33	June 13.....	16.70	May 5.....	16.56
Nov. 17.....	16.37	July 16.....	16.76	June 5.....	15.80
Dec. 15.....	16.48	Jan. 16, 1969..	17.02	July 1.....	15.52
Jan. 11, 1968..	16.64	Apr. 17.....	16.69	Sept. 10.....	15.34
Feb. 15.....	16.72	July 16.....	16.13	Dec. 2.....	15.58

Depth to water, in feet below (or + above) land surface

149-80-26ABA

Date	Water level	Date	Water level	Date	Water level
Dec. 19, 1969..	16.32	Mar. 25.....	16.41	June 24.....	16.93
Jan. 21, 1970..	16.25	May 5.....	16.29	Sept. 10.....	15.63
Feb. 18.....	16.34	June 5.....	16.18	Dec. 2.....	15.52

149-81-25CCD

Dec. 12, 1969..	19.55	Mar. 24.....	19.39	June 24.....	19.40
Jan. 21, 1970..	19.54	May 5.....	19.51	Sept. 10.....	19.37
Feb. 18.....	19.55	June 5.....	19.40	Dec. 2.....	19.34

149-82-12BAB1

Oct. 12, 1967..	5.33	July 16.....	5.44	Mar. 24.....	5.29
Nov. 17.....	5.59	Jan. 15, 1969..	5.48	May 5.....	5.64
Dec. 14.....	6.29	Apr. 17.....	5.71	June 5.....	5.13
Jan. 10, 1968..	5.28	July 16.....	5.60	July 1.....	5.14
Feb. 14.....	5.52	Aug. 19.....	5.50	Sept. 9.....	5.11
Apr. 12.....	5.55	Oct. 2.....	5.28	Dec. 2.....	4.98
May 16.....	5.69	Dec. 19.....	5.71		
June 13.....	5.42	Jan. 21, 1970..	5.56		

149-82-12BAB2

Dec. 19, 1969..	5.07	July 30.....	4.32	Oct. 25.....	4.15
Jan. 21, 1970..	4.83	Aug. 25.....	4.43	30.....	4.50
Feb. 18.....	5.20	Sept. 1.....	4.62	Nov. 5.....	4.64
June 25.....	4.41	5.....	4.26	10.....	4.31
30.....	4.41	10.....	4.46	15.....	4.42
July 5.....	4.71	30.....	4.23	Dec. 5.....	3.68
10.....	4.55	Oct. 5.....	4.12	10.....	3.57
15.....	4.44	10.....	4.45	15.....	3.44
20.....	4.38	15.....	4.45	20.....	3.48
25.....	4.43	20.....	4.39		

149-82-12BBB

Nov. 21, 1969..	45.21	Mar. 24.....	45.23	Sept. 9.....	45.33
Dec. 19.....	45.84	May 5.....	45.98	Dec. 2.....	45.18
Jan. 21, 1970..	45.46	June 5.....	45.26		
Feb. 18.....	45.84	July 1.....	45.29		

Depth to water, in feet below (or + above) land surface

149-82-15AAA

Date	Water level	Date	Water level	Date	Water level
Nov. 21, 1969..	22.19	Mar. 24.....	22.30	Sept. 9.....	21.63
Dec. 19.....	22.29	May 5.....	22.12	Dec. 2.....	21.74
Jan. 21, 1970..	22.27	June 5.....	21.74		
Feb. 18.....	22.35	23.....	21.67		

149-84-2DCC

Aug. 9, 1966..	9.37	July 11.....	7.77	Jan. 10, 1968..	7.63
Mar. 1, 1967..	No access	Sept. 14.....	No access	Feb. 14.....	7.59
Apr. 4.....	8.62	Oct. 12.....	7.69	Mar. 13.....	7.62
May 4.....	8.60	Nov. 16.....	7.75	Apr. 12.....	7.67
31.....	7.70	Dec. 14.....	7.76	Discontinued	

149-84-27CBB

Aug. 8, 1966..	23.98	Apr. 4.....	34.15	July 10.....	33.17
Dec. 15.....	26.42	May 4.....	22.86	Sept. 13.....	24.59
Mar. 1, 1967..	26.10	31.....	22.38	Discontinued	

149-84-33BAB

Sept. 22, 1970..	10.63	Sept. 30.....	9.56	Dec. 1.....	9.35
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149-85-8ABB

Aug. 3, 1966..	40.32	July 11.....	38.16	Jan. 10, 1968..	38.50
Mar. 1, 1967..	39.47	Sept. 12.....	38.00	Feb. 14.....	38.60
Apr. 5.....	38.88	Oct. 12.....	38.58	Discontinued	
May 4.....	39.50	Nov. 16.....	38.87		
June 1.....	41.96	Dec. 14.....	38.20		

149-86-12CBB

July 26, 1966..	5.48	July 11.....	5.35	Apr. 12.....	4.63
Dec. 15.....	7.05	Sept. 12.....	7.14	May 14.....	3.73
Mar. 1, 1967..	No access	Oct. 12.....	6.57	June 13.....	4.14
Apr. 5.....	5.10	Nov. 16.....	6.49	July 17.....	5.66
May 4.....	No access	Dec. 14.....	6.73	Discontinued	
June 1.....	3.81	Mar. 13, 1968..	6.58		

Depth to water, in feet below (or + above) land surface

149-86-20DCC

Date	Water level	Date	Water level	Date	Water level
July 26, 1966..	19.75	July 11.....	18.84	Mar. 13.....	21.46
Dec. 15.....	22.09	Sept. 12.....	20.50	Apr. 12.....	20.47
Mar. 1, 1967..	22.02	Oct. 12.....	20.07	May 14.....	19.33
Apr. 5.....	21.52	Nov. 16.....	20.45	June 13.....	19.35
May 4.....	19.47	Dec. 14.....	21.17	July 17.....	20.02
June 1.....	19.68	Jan. 10, 1968..	21.13	Discontinued	

149-86-26BCC

July 27, 1966..	37.05	Mar. 1, 1967..	27.07	May 4.....	36.62
Dec. 15.....	37.52	Apr. 5.....	37.37	June 1.....	36.94
				Discontinued	

149-87-2DDC1

Sept. 13, 1966..	70.55	June 1.....	73.84	Dec. 14.....	73.70
Dec. 15.....	70.37	July 11.....	73.63	Jan. 10, 1968..	73.48
Mar. 1, 1967..	72.18	Sept. 13.....	73.30	Discontinued	
Apr. 5.....	73.87	Oct. 12.....	73.46		
May 4.....	73.80	Nov. 16.....	73.54		

149-87-32CCC

Sept. 9, 1968..	137.86	Oct. 2.....	135.37	Apr. 22.....	136.44
Jan. 15, 1969..	137.57	Dec. 19.....	135.94	June 5.....	136.35
Apr. 17.....	137.91	Jan. 20, 1970..	136.13	30.....	135.70
July 16.....	136.18	Feb. 19.....	136.45	Sept. 9.....	134.28
Aug. 26.....	135.55	Mar. 24.....	136.40	Dec. 1.....	133.96

149-88-36AAA

Sept. 9, 1968..	133.88	Apr. 17.....	135.30	Sept. 9, 1970..	130.04
Jan. 15, 1969..	133.10	July 16.....	Plugged	Dec. 1.....	129.49

149-89-2BBB

Nov. 4, 1969..	88.35	Mar. 24.....	88.10	Sept. 9.....	87.47
Dec. 19.....	88.62	Apr. 22.....	87.68	Dec. 1.....	87.20
Jan. 20, 1970..	88.48	June 5.....	88.27		
Feb. 19.....	88.41	30.....	87.87		

Depth to water, in feet below (or + above) land surface

149-89-10BBC

Date	Water level	Date	Water level	Date	Water level
Sept. 13, 1967..	5.28	May 14.....	2.39	Mar. 24, 1970..	2.33
Oct. 12.....	5.28	June 13.....	2.73	Apr. 22.....	1.61
Nov. 16.....	4.17	July 17.....	3.45	June 5.....	1.08
Dec. 14.....	3.95	Jan. 15, 1969..	3.12	30.....	2.23
Jan. 10, 1968..	3.85	July 16.....	2.23	Sept. 9.....	3.29
Feb. 14.....	3.84	Aug. 26.....	3.31	Dec. 1.....	3.04
Mar. 12.....	2.66	Oct. 2.....	3.67		
Apr. 12.....	2.05	Dec. 19.....	3.64		

149-89-24AAA

July 14, 1970..	61.85	Sept. 9.....	61.65	Dec. 1.....	61.20
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149-89-36BBB1

May 5, 1967..	87.50	Nov. 16.....	86.65	Apr. 12.....	86.77
June 1.....	Pumping	Dec. 14.....	86.88	May 14.....	Pumping
July 11.....	Pumping	Jan. 10, 1968..	86.99	June 13.....	86.62
Sept. 13.....	86.60	Feb. 14.....	86.79	July 17.....	86.69
Oct. 12.....	86.58	Mar. 12.....	86.78		Discontinued

149-90-1AAB

July 26, 1966..	121.00	May 4.....	124.20	Oct. 12.....	124.70
Dec. 15.....	122.53	June 1.....	122.25		Discontinued
Mar. 1, 1967..	124.20	July 11.....	122.87		
Apr. 5.....	124.25	Sept. 13.....	123.65		

150-78-6ACD

June 8, 1967..	26.76	Dec. 14.....	30.90	July 16.....	30.22
July 11.....	28.46	Jan. 11, 1968..	31.10	Jan. 16, 1969..	30.19
Aug. 16.....	29.40	Feb. 15.....	31.28	Apr. 17.....	29.30
Sept. 14.....	29.98	Mar. 13.....	31.00		Discontinued
Oct. 13.....	30.49	Apr. 11.....	30.23		
Nov. 17.....	30.65	May 16.....	30.08		

150-78-13AAC

June 13, 1967..	4.29	Nov. 17.....	7.64	May 16.....	4.87
July 11.....	6.20	Dec. 14.....	7.55	July 16.....	6.82
Aug. 16.....	7.35	Feb. 14, 1968..	7.22		Discontinued
Sept. 14.....	7.98	Mar. 13.....	5.53		
Oct. 13.....	7.90	Apr. 11.....	4.62		

Depth to water, in feet below (or + above) land surface

150-79-100DB1

Date	Water level	Date	Water level	Date	Water level
June 9, 1967..	204.17	Dec. 14.....	No access	July 16.....	205.36
July 11.....	204.35	Jan. 11, 1968..	205.12	Jan. 16, 1969..	205.30
Aug. 16.....	204.55	Feb. 15.....	203.00	Apr. 17.....	205.15
Sept. 14.....	204.60	Mar. 13.....	202.96		Discontinued
Oct. 13.....	204.78	Apr. 11.....	208.40		
Nov. 17.....	No access	May 16.....	205.40		

150-79-29ADD2

Sept. 14, 1967..	74.40	May 16.....	74.68	Mar. 25, 1970..	74.23
Oct. 13.....	74.55	June 13.....	74.84	May 5.....	74.08
Nov. 17.....	75.54	July 16.....	74.96	June 5.....	73.67
Dec. 14.....	74.31	Jan. 16, 1969..	75.39	Aug. 3.....	73.06
Jan. 11, 1968..	74.85	July 16.....	74.26	Sept. 10.....	72.72
Feb. 15.....	74.86	Aug. 19.....	74.18	Dec. 2.....	72.15
Mar. 13.....	74.88	Oct. 2.....	74.04		
Apr. 11.....	74.77	Dec. 19.....	74.12		

150-80-2DCC

Aug. 6, 1970..	39.89	Sept. 10.....	40.83	Dec. 2.....	40.57
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150-80-8AAB2

June 7, 1967..	8.42	Nov. 17.....	11.57	July 16.....	10.62
July 11.....	9.20	Dec. 14.....	11.69	Apr. 17, 1969..	11.22
Aug. 16.....	10.39	Apr. 11, 1968..	11.32		Discontinued
Sept. 14.....	11.10	May 16.....	9.25		
Oct. 12.....	11.65	June 13.....	10.10		

150-80-10AAA

June 7, 1967..	18.88	Nov. 17.....	19.26	June 13.....	18.91
July 11.....	18.98	Dec. 14.....	19.36	July 16.....	18.99
Aug. 16.....	19.13	Mar. 13, 1968..	18.98		Discontinued
Sept. 14.....	19.12	Apr. 11.....	18.67		
Oct. 13.....	19.70	May 16.....	18.87		

Depth to water, in feet below (or + above) land surface

150-80-16CCB

Date	Water level	Date	Water level	Date	Water level
Sept. 14, 1967..	26.95	Apr. 11.....	27.70	Aug. 19.....	26.50
Oct. 12.....	27.37	May 16.....	28.03	Oct. 2.....	26.70
Nov. 17.....	27.65	June 13.....	28.28	Dec. 19.....	27.33
Dec. 14.....	27.88	July 15.....	28.49	May 5, 1970..	23.64
Jan. 10, 1968..	28.13	Jan. 16, 1969..	29.29	June 5.....	22.88
Feb. 14.....	28.24	Apr. 17.....	25.01	July 1.....	22.19
Mar. 13.....	27.60	July 16.....	26.11	10.....	23.10

150-80-23CCD

June 7, 1967..	6.13	Dec. 15.....	6.77	July 16.....	6.95
July 11.....	6.38	Feb. 15, 1968..	7.00	Jan. 16, 1969..	7.60
Aug. 17.....Pumping		Mar. 14.....	6.50	Apr. 17.....	5.96
Sept. 14.....	6.55	Apr. 11.....	5.92	Discontinued	
Oct. 12.....	6.60	May 16.....	6.38		
Nov. 17.....	6.65	June 13.....	6.63		

150-80-25DCD

Dec. 19, 1969..	17.73	Mar. 25.....No access		June 25.....	17.46
Jan. 21, 1970..No access		May 5.....	17.58	Sept. 10.....	17.32
Feb. 18.....No access		June 5.....	17.35	Dec. 2.....No access	

150-80-27DDD

Dec. 19, 1969..	33.20	Mar. 25.....	33.09	June 25.....	31.99
Jan. 21, 1970..	32.90	May 5.....	32.84	Sept. 10.....	30.92
Feb. 18.....	32.97	June 5.....	32.25	Dec. 2.....	30.81

150-80-35ABB

Sept. 14, 1967..	36.62	May 16.....	37.42	Nov. 24.....	37.41
Oct. 12.....	36.61	June 13.....	37.54	Dec. 19.....	37.41
Nov. 17.....	37.53	July 16.....	37.59	Mar. 25, 1970..	37.42
Dec. 15.....	37.54	Jan. 16, 1969..	37.86	May 5.....	37.32
Jan. 11, 1968..	37.51	Apr. 17.....	37.80	June 5.....	37.02
Feb. 15.....	37.53	July 16.....	37.60	July 1.....	36.86
Mar. 14.....	37.50	Aug. 27.....	37.50	Sept. 10.....	36.24
Apr. 11.....	37.46	Oct. 2.....	37.45	Dec. 2.....	36.00

150-81-23CDC

June 6, 1967..	4.35	Oct. 12.....	6.58	May 16.....	6.08
July 11.....	5.48	Nov. 17.....	6.71	June 13.....	6.12
Aug. 16.....	6.10	Dec. 14.....No access		July 16.....	6.33
Sept. 14.....	6.43	Apr. 12, 1968..	3.30	Discontinued	

Depth to water, in feet below (or + above) land surface

150-82-10CCD

Date	Water level	Date	Water level	Date	Water level
Dec. 19, 1969..	142.16	June 5.....	142.38	Sept. 9.....	141.88
May 5, 1970..	142.32	June 25.....	142.00	Dec. 2.....	141.79

150-82-15DDD

Aug. 3, 1970..	117.55	Sept. 9.....	117.61	Dec. 2.....	118.12
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150-82-16CCC

Nov. 5, 1969..	61.28	Mar. 24.....	66.20	Sept. 9.....	64.27
Dec. 19.....	65.86	May 5.....	66.22	Dec. 2.....	64.13
Jan. 21, 1970..	65.93	June 5.....	65.47		
Feb. 18.....	65.93	June 25.....	65.05		

150-83-9ABB

Nov. 9, 1967..	79.19	Feb. 15.....	79.09	June 13.....	79.08
Nov. 16.....	79.24	Mar. 13.....	79.38	July 16.....	79.10
Dec. 14.....	79.52	Apr. 12.....	79.00	Discontinued	
Jan. 10, 1968..	78.99	May 21.....	79.01		

150-83-9DBD

Dec. 14, 1966..	63.70	Dec. 15.....	64.13	Apr. 16.....	62.30
Mar. 1, 1967..	63.93	Jan. 10, 1968..	63.63	July 16.....	62.84
Apr. 4.....	66.88	Feb. 14.....	63.65	Aug. 27.....	63.93
May 4.....	64.88	Mar. 13.....	66.59	Oct. 3.....	63.74
May 31.....	Pumping	Apr. 12.....	63.43	May 5, 1970..	62.39
July 11.....	Pumping	May 21.....	64.27	July 1.....	61.76
Sept. 14.....	Pumping	June 13.....	86.86	Sept. 10.....	64.13
Oct. 12.....	65.09	July 16.....	87.50	Dec. 2.....	68.49
Nov. 16.....	65.30	Jan. 16, 1969..	63.62		

150-83-11CCD

Aug. 11, 1966..	134.14	Apr. 4.....	134.89	May 31.....	134.17
Aug. 16.....	135.28	May 4.....	133.02	Discontinued	
May 1, 1967..	136.09				

Depth to water, in feet below (or + above) land surface

150-84-32DDA

Date	Water Level	Date	Water Level	Date	Water Level
Aug. 2, 1966..	42.28	July 11.....	40.35	Jan. 10, 1968..	40.45
Mar. 1, 1967..	41.12	Sept. 13.....	40.20	Feb. 14.....	40.58
Apr. 4.....	41.12	Oct. 12.....	40.78	Mar. 13.....	40.62
May 4.....	40.61	Nov. 16.....	40.36	Apr. 12.....	40.53
31.....	40.34	Dec. 14.....	40.52	Discontinued	

150-85-1DAA

July 29, 1966..	6.87	May 31.....	5.50	Dec. 14.....	8.42
Dec. 16.....	8.17	July 11.....	6.33	Jan. 10, 1968..	8.29
Mar. 1, 1967..	8.52	Sept. 13.....	8.23	Discontinued	
Apr. 5.....	7.48	Oct. 12.....	8.24		
May 4.....	5.30	Nov. 16.....	9.44		

150-86-4AAA

July 28, 1966..	17.43	June 1.....	13.82	Nov. 16.....	16.80
Mar. 1, 1967..	No access	July 11.....	14.13	Dec. 14.....	16.45
Apr. 5.....	16.04	Sept. 13.....	15.17	Feb. 14, 1968..	17.03
May 4.....	13.57	Oct. 12.....	15.82	Discontinued	

150-87-16DDA

Aug. 9, 1966..	17.00	June 1.....	15.69	Dec. 14.....	17.83
Dec. 15.....	18.30	July 11.....	16.05	Jan. 10, 1968..	18.29
Mar. 1, 1967..	19.89	Sept. 13.....	17.19	Feb. 14.....	18.68
Apr. 5.....	17.77	Oct. 12.....	17.42	Discontinued	
May 4.....	15.31	Nov. 16.....	17.57		

150-88-7DBB

Aug. 5, 1966..	27.80	May 4.....	27.18	Oct. 12.....	28.87
Dec. 15.....	27.67	June 1.....	27.19	Nov. 16.....	27.61
Mar. 1, 1967..	No access	July 11.....	27.54	Dec. 14.....	27.78
Apr. 5.....	27.60	Sept. 13.....	No access	Discontinued	

150-89-6ADA

July 5, 1966..	21.16	Apr. 5.....	21.99	June 1.....	21.88
Dec. 15.....	21.27	May 4.....	21.93	Discontinued	
Mar. 1, 1967..	No access				

Depth to water, in feet below (or + above) land surface

150-89-31BCC

Date	Water level	Date	Water level	Date	Water level
July 28, 1970..	117.86	Sept. 9.....	117.74	Dec. 1.....	117.10

150-89-32DAA




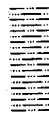
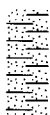
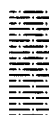



Nov. 4, 1969..	117.21	Mar. 24.....	116.80	Sept. 9.....	116.42
Dec. 19.....	117.58	Apr. 22.....	118.86	Dec. 1.....	115.79
Jan. 20, 1970..	117.38	June 5.....	117.08		
Feb. 19.....	117.35	30.....	116.72		

150-90-36AAA

July 28, 1970..	152.92	Sept. 9.....	152.82	Dec. 1.....	152.21
-----------------	--------	--------------	--------	-------------	--------

TABLE 3.--Logs of wells and test holes

EXPLANATION

	
Clay	Sandstone
	
Till	Siltstone
	
Silt	Shale
	
Sand	Lignite
	
Gravel	

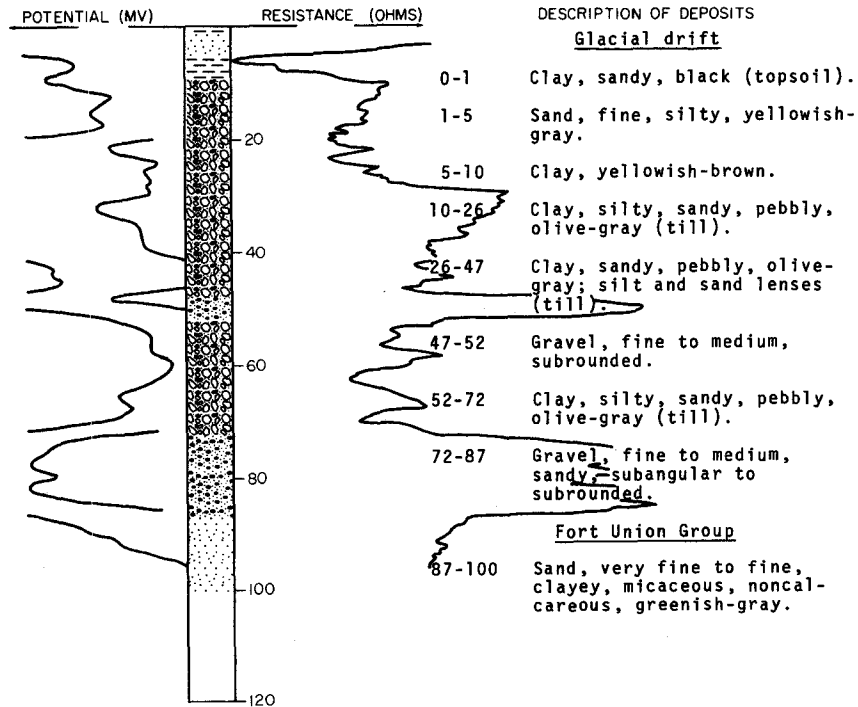
Elevation: 1914 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, black-----	1	1
	Silt, clayey, yellowish-gray-----	2	3
	Clay, silty, yellowish-gray to olive-brown; scattered sand and gravel (till)-----	16	19
	Clay, silty, sandy, olive-gray; scattered pebbles (till)-----	13	32
Fort Union Group:			
	Shale, sandy, carbonaceous, variegated gray, green, and brown; interbedded with fine greenish-gray sand and lignite-----	28	60

LOCATION: 143-80-8AAA
ELEVATION: 1890
(FT, MSL)

NDSWC 3895

DATE DRILLED: November 1969
DEPTH: 100
(FT)



143-80-35DAA1
 City of Wilton Well 2
 (Log from C. A. Simpson & Son)

Elevation: 2165 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil-----	2	2
	Clay, gray-----	7	9
	Clay, yellow, hard-----	66	75
	Sandstone-----	2	77
	Sand and brown clay-----	7	84
	Clay, gray, sandy-----	16	100

143-80-35DAA2
 City of Wilton Well 4
 (Log from Layne-Minnesota Co.)

Elevation: 2165 ft

	Topsoil, clay-gravel-----	20	20
	Clay, sandy-----	15	35
	Sand-----	50	85
	Clay, sandy-----	17	102

143-80-35DAA3
 City of Wilton Well 5
 (Log from Layne-Minnesota Co.)

Elevation: 2170 ft

	Topsoil, gravelly clay-----	15	15
	Coal and clay-----	10	25
	Clay, soft-----	13	38
	Sandstone, hard-----	2	40
	Sand-----	50	90
	Clay, sandy-----	13	103

143-80-35DAA4
 NDSWC 4104

Elevation: 2140 ft

Glacial drift:			
	Silt, clayey, sandy, yellowish-gray (till)--	3	3
	Clay, silty, sandy, moderate-olive-brown; scattered pebbles (till)-----	9	12
Fort Union Group:			
	Sandstone, fine, subangular, dusky-yellow---	2	14
	Sandstone, very fine, calcareous, dark-gray-----	3	17
	Sandstone, very fine, dusky-yellow-----	12	29
	Sandstone, very fine, hard, calcareous, dark-gray-----	5	34
	Sandstone, fine, silty, subangular, reddish- brown-----	17	51
	Sandstone, very fine, silty, subangular, yellowish-gray-----	23	74
	Sandstone, very fine to fine, clayey, silty, fossiliferous, dark-gray; interbedded with lignite and hard carbonaceous black shale-	59	133
	Sandstone, fine, subangular, dark-greenish- gray-----	28	161

143-80-35DAA4, Continued
NDSWC 4104

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Fort Union Group, Continued:			
	Siltstone, clayey, sandy, hard, light-gray	18	179
	Sandstone, very fine to fine, silty, micaceous, noncalcareous; greenish-gray; interbedded with thin beds of lignite, silty shale, and siltstone-----	59	238
	Shale, silty, hard, noncalcareous, greenish-gray; interbedded with siltstone and fine-grained sandstone-----	56	294
Hell Creek Formation(?):			
	Shale, silty, sandy, hard, noncalcareous, dark-gray to brown-----	106	400

143-80-35DAD
City of Wilton Well 1
(Log from C. A. Simpson & Son)

Elevation: 2160 ft

Topsoil-----	1	1
Clay, yellow-----	29	30
Clay, yellow, hard-----	46	76
Sand, clay, hard-----	8	84
Sand and coal-----	4	88
Clay, gray, coal-----	40	128

143-80-36CBB
City of Wilton Well 3
(Log from C. A. Simpson & Son)

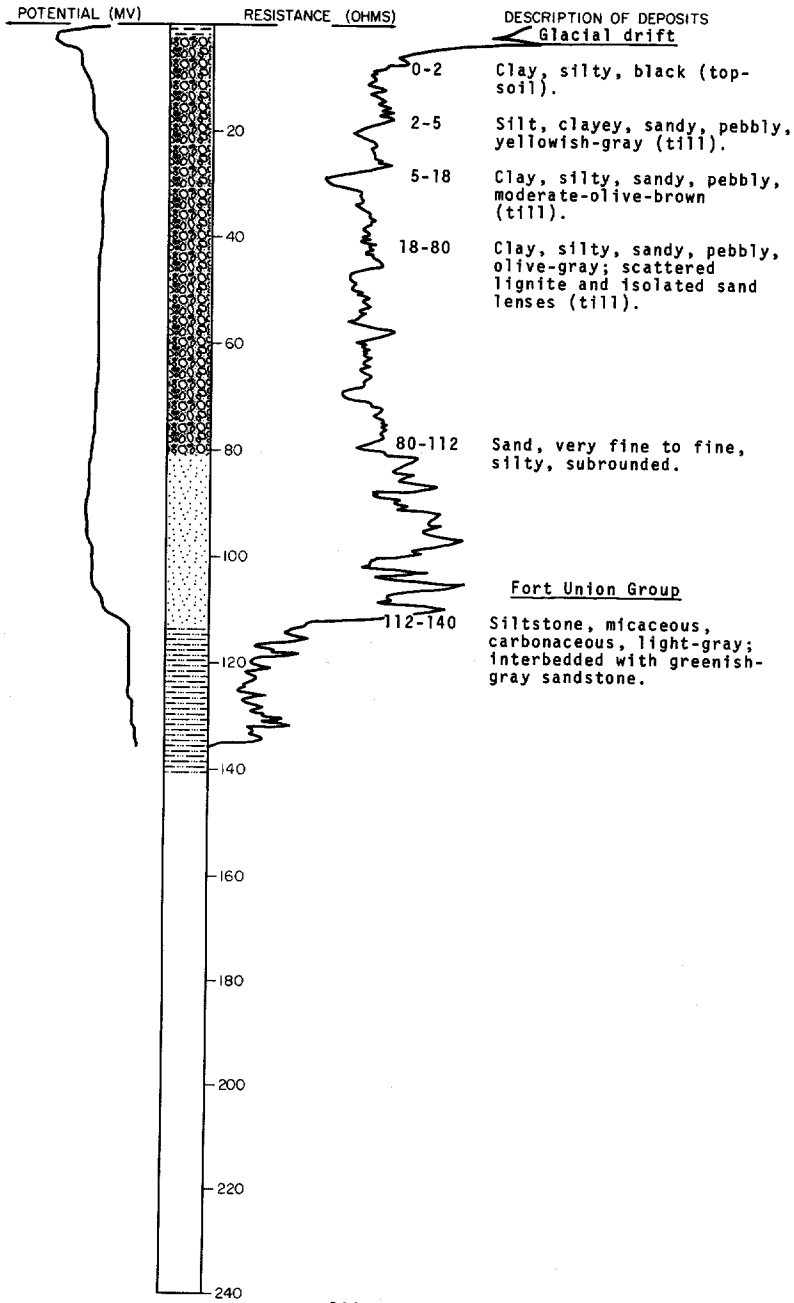
Elevation: 2180 ft

Topsoil-----	8	8
Clay, sandy, yellow-----	83	91
Sand, dirty, clay lenses-----	13	104
Shale, brown-----	4	108

LOCATION: 143-81-1AAA
ELEVATION: 1839
(FT, MSL)

NDSWC 4108

DATE DRILLED: August 1970
DEPTH: 140
(FT)



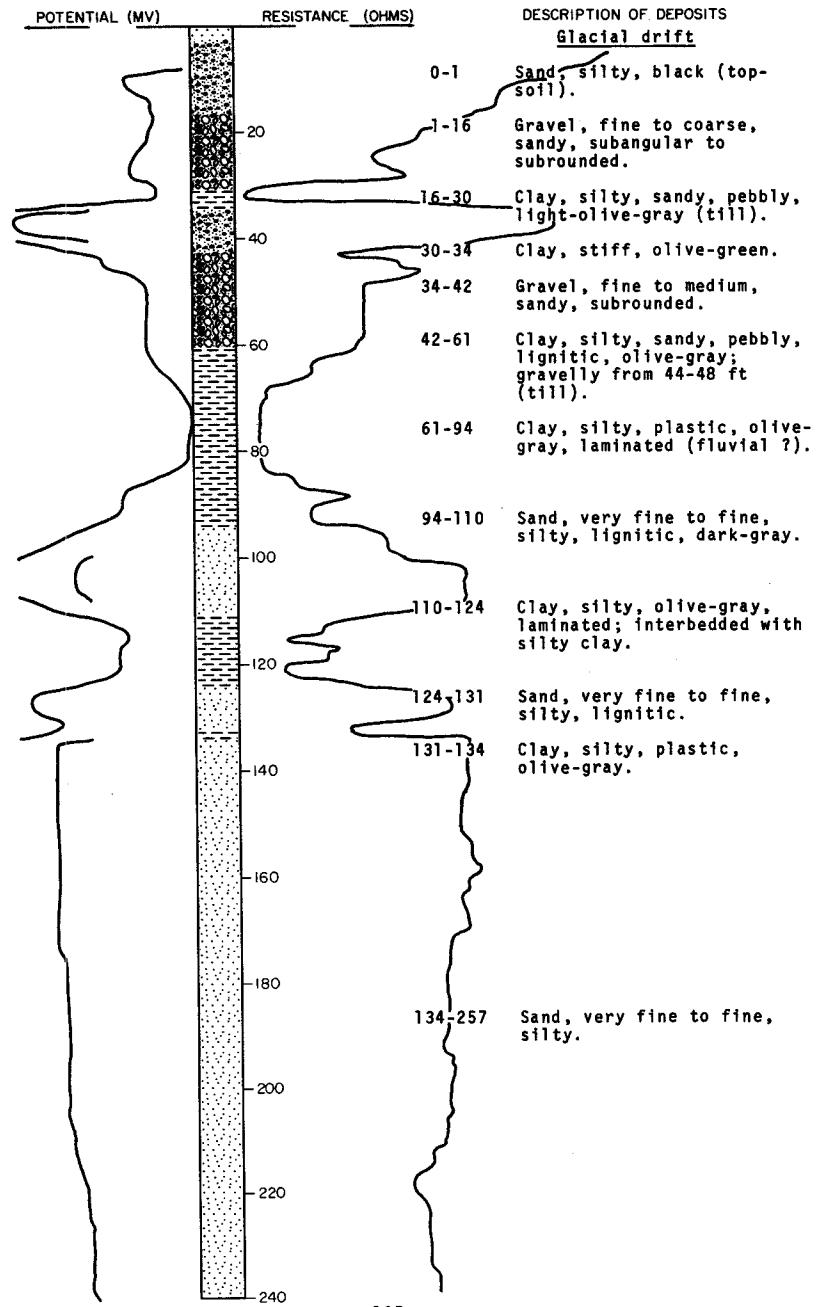
LOCATION: 143-81-2888

NDSWC 4107

DATE DRILLED: August 1970

ELEVATION: 1710
(FT, MSL)

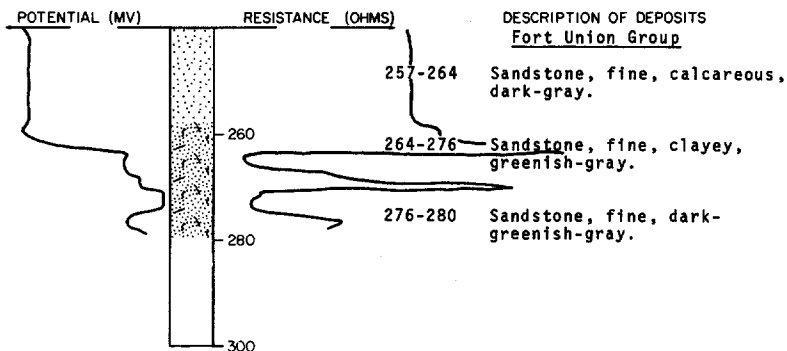
DEPTH: 280
(FT)



LOCATION: 143-81-2BBB
 ELEVATION: 17'0
 (FT, MSL)

NDSWC 4107, Continued

DATE DRILLED: August 1970
 DEPTH: 280
 (FT)



143-81-2BCC1
 NDSWC 3897

Elevation: 1710 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Sand, medium to coarse, gravelly-----	5	5
	Silt, clayey, sandy, dark-brown-----	3	8
	Clay, silty, light-gray to bluish-gray---	7	15
	Sand, clayey, dark-brownish-gray-----	2	17
	Clay, silty, plastic, fossiliferous, variegated gray and brown-----	10	27
	Sand, fine to very coarse; interbedded with fine to medium gravel-----	38	65
	Sand, fine to coarse-----	44	109
	Silt, olive-gray; interbedded with fine sand and clay-----	140	249
	Gravel, fine to coarse, sandy, subangular to subrounded-----	29	278
Fort Union Group:			
	Shale, silty, sandy, hard, carbonaceous, noncalcareous to slightly calcareous, variegated gray, green, and brown-----	22	300

143-81-2BCC2
 NDSWC 3898

Elevation: 1710 ft

Glacial drift:			
	Sand, medium to very coarse, gravelly-----	5	5
	Clay, silt, and fine sand, fossiliferous, variegated brown, gray, green, and blue; interbedded-----	28	33
	Sand, medium to coarse, gravelly-----	7	40

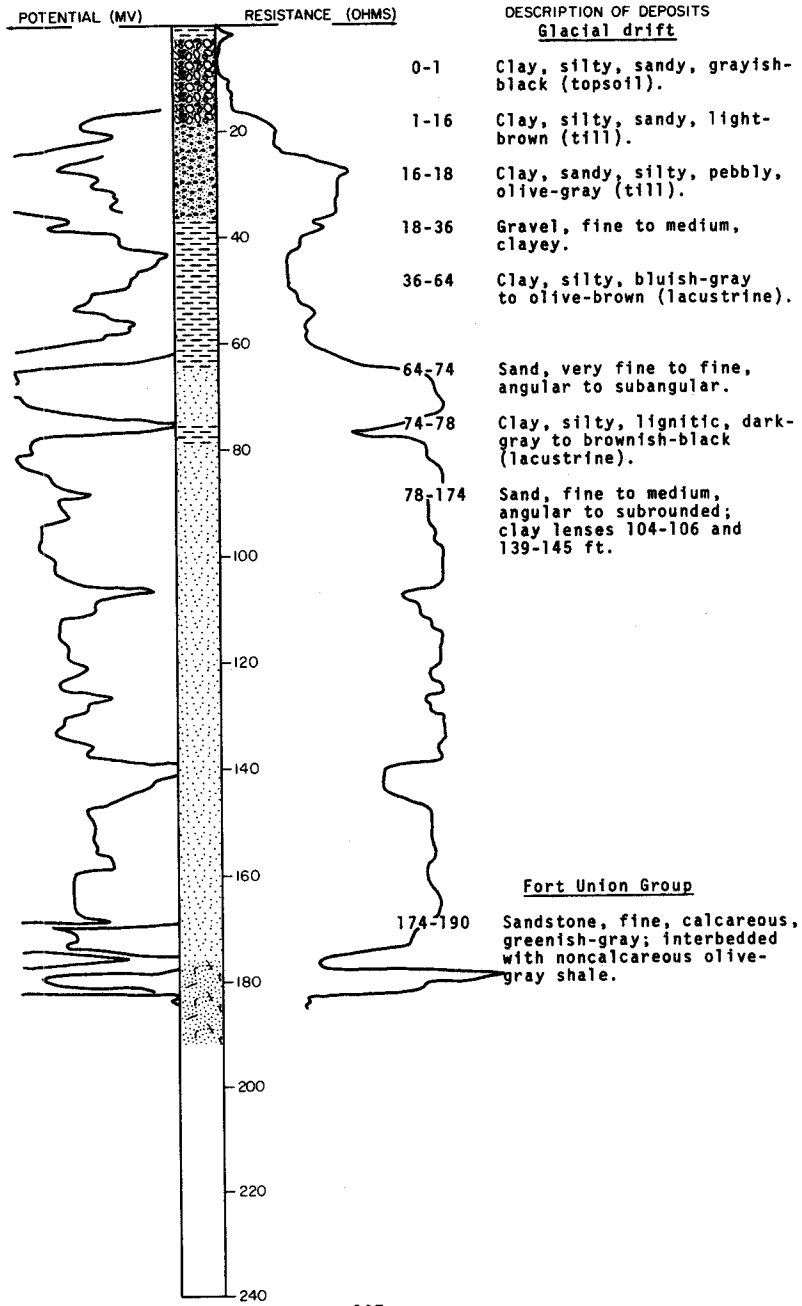
LOCATION: 143-81-4BDA

NDSWC 2695

DATE DRILLED: July 1967

ELEVATION: 1680
(FT, MSL)

DEPTH: 190
(FT)



143-81-4CBB
(Log from U.S. Bureau of Reclamation)

Elevation: 1662.7 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Clay, silty, brown; slightly plastic-----	4.4	4.4
	Sand, very fine, silty, loose, brown-----	10.6	15
	Clay, silty, gray to brown, very plastic--	2.5	17.5
	Sand, very fine, loose, gray-----	2.5	20
	Silt, gray, compact-----	2.3	22.3
	Sand, medium, some gravel, gray; small clay seam at 25 ft-----	7.5	29.8
	Sand, fine, lignitic, loose, gray-----	5.2	35
	Sand, medium, clean, loose, some gravel, gray-----	12.6	47.6
	Sand, fine to medium, gravelly, loose, gray; some lignite slack-----	52.1	99.7
	Sand and gravel, gray-----	1.5	101.2
	Clay, firm, gray; silt lenses throughout--	18.8	120

143-81-8ACB
(Log from U.S. Bureau of Reclamation)

Elevation: 1665 ft

Glacial drift:			
	Clay, very silty, gray, slightly plastic--	5	5
	Sand, very fine, silty, loose, gray-----	14.8	19.8
	Sand, fine to medium, gravelly from 25-30 ft, lignitic 30-36 ft, gray to brown----	20.5	40.3
	Sand and gravel, gray to brown; medium sand and fine to medium gravel-----	3.4	43.7
	Sand, fine, clayey, gray-----	1.3	45
	Sand and gravel, silty and lignitic, gray; fine sand and medium to coarse gravel---	25	70
	Sand, fine to medium, lignitic, gravelly, loose, gray-----	14.9	84.9
	Clay, firm, silty, gray-----	2	86.9

143-81-8CCC1
(Log from U.S. Bureau of Reclamation)

Elevation: 1668 ft

Glacial drift:			
	Sand, fine, silty, olive-brown; trace of clay-----	13	13
	Sand, fine, silty, olive-brown; silt decreases with depth-----	10	23
	Sand, fine, clayey, gray-----	7	30
	Sand, fine, gray; trace of silt-----	5	35
	Gravel, sandy, silty, loose-----	15	50
	Gravel, trace of coarse sand; boulder at 54 ft-----	13	63
	Boulder-----	1	64
	Sand, medium, loose, gray to brown-----	6	70

143-81-8CCC2
(Log from U.S. Bureau of Reclamation)

Elevation: 1666 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Clay, silty, buff-----	5	5
	Silt, sandy, buff-----	10	15
	Sand, fine to medium, silty, gray-----	9.1	24.1
	Sand, fine to medium, lignitic, loose, gray-----	14.6	38.7
	Sand, medium to coarse, gravelly, lignitic, loose, brown-----	11.3	50
	Sand and gravel, gray; medium sand, medium to coarse gravel-----	10	60
	Sand, fine, silty, loose, gray-----	10	70
	Sand and gravel, gray; sand coarse, gravel fine, thin lignitic layers at 73.6 ft and 93.5 ft-----	30	100
	Clay, silty, firm, gray-----	7.7	107.7

143-81-10DAD
NDSWC 3896

Elevation: 1770 ft

Glacial drift:			
	Topsoil, pebbly, dark-brownish-black-----	1	1
	Silt, clayey, sandy, pebbly, yellowish-gray to dusky-yellow (till)-----	9	10
	Clay, silty, sandy, pebbly, olive-brown (till)-----	36	46
	Clay, silty, sandy, pebbly, olive-gray (till)-----	16	62
Fort Union Group:			
	Shale, silty, micaceous, brittle, light- to medium-gray-----	18	80

143-81-11BBB
NDSWC 4106

Elevation: 1768 ft

Glacial drift:			
	Topsoil, sandy, black-----	1	1
	Sand, medium to coarse, subangular to subrounded, reddish-brown-----	25	26
Fort Union Group:			
	Shale, silty, sandy, hard, carbonaceous, dark-gray-----	35	61
	Shale, noncalcareous, hard, light-gray----	19	80

143-81-14C
(Log from U.S. Bureau of Reclamation)

Elevation: 1663 ft

Glacial drift:			
	Clay, brown; moderately plastic, sand lenses	5	5
	Clay, silty, gray, very plastic-----	10	15
	Silt, clayey, brown, slightly plastic-----	8	23
	Sand, fine to medium, loose, poorly graded, gray; clay lenses throughout-----	17	40

143-81-14C, Continued
(Log from U.S. Bureau of Reclamation)

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift, Continued:			
	Sand, medium, loose, poorly graded, gray; some gravel-----	8	48
	Sand, fine, silty, loose, gray-----	6	54
	Sand and gravel, buff; fine to medium sand and fine to medium gravel-----	7.7	61.7
Fort Union Group:			
	Shale, soft to firm, gray-----	10.2	71.9

143-81-15BBB
(Log from U.S. Bureau of Reclamation)

Elevation: 1713 ft

Glacial drift:			
	Silt, clayey, gray to brown-----	4.6	4.6
	Clay, very silty, sandy, gray to brown, slightly plastic-----	11.4	16
	Clay, plastic, gypsiferous, gray to brown, fine sand and silt lenses throughout----	20.5	36.5
Fort Union Group:			
	Shale, sandy, firm, gray-----	9.2	45.7

143-81-15CCC
(Log from U.S. Bureau of Reclamation)

Elevation: 1728 ft

Glacial drift:			
	Silt, clayey, gray-----	5	5
	Clay, silty, plastic, gray-brown-----	5	10
	Silt, loose, gray-----	2	12
	Gravel, medium, clayey, buff-----	1	13
	Clay, silty, sandy, gray-----	3	16
	Clay, firm, plastic, gray-brown; silt lenses throughout-----	24.6	40.6
Fort Union Group:			
	Shale, sandy, firm, plastic, gray-----	20.1	60.7

143-81-16CCC
(Log from U.S. Bureau of Reclamation)

Elevation: 1661 ft

Glacial drift:			
	Clay, silty, plastic, brown-----	4	4
	Silt, little clay, plastic, brown-----	10.7	14.7
	Sand, fine, loose, buff-----	10.3	25
	Sand, fine to medium, brown; some fine gravel-----	10	35
	Sand, fine, brown, lignite fragments at 42 ft-----	13	48
	Sand and gravel, medium, loose, brown-----	4.8	52.8
	Clay, silty, gravelly, gray-----	1.2	54.0
	Sand and gravel, coarse, silty-----	1.3	55.3
	Sand, fine, silty, gray; some lignite slack-----	8.1	63.4
	Sand, fine to medium, buff; some fine gravel-----	21.6	85

143-81-16CCC, Continued
(Log from U.S. Bureau of Reclamation)

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift, Continued:			
	Sand, very fine, gray; streaks of silt and lignite slack-----	5	90
	Sand, medium, gravelly, gray; streaks of clay-----	7.6	97.6
	Sand and gravel, silty, loose, gray; medium sand, fine to medium gravel-----	26.1	123.7
	Silt, gravelly, gray-----	1.3	125
	Clay, silty, firm, gray-----	20	145

143-81-16DBB
NDSWC 2694

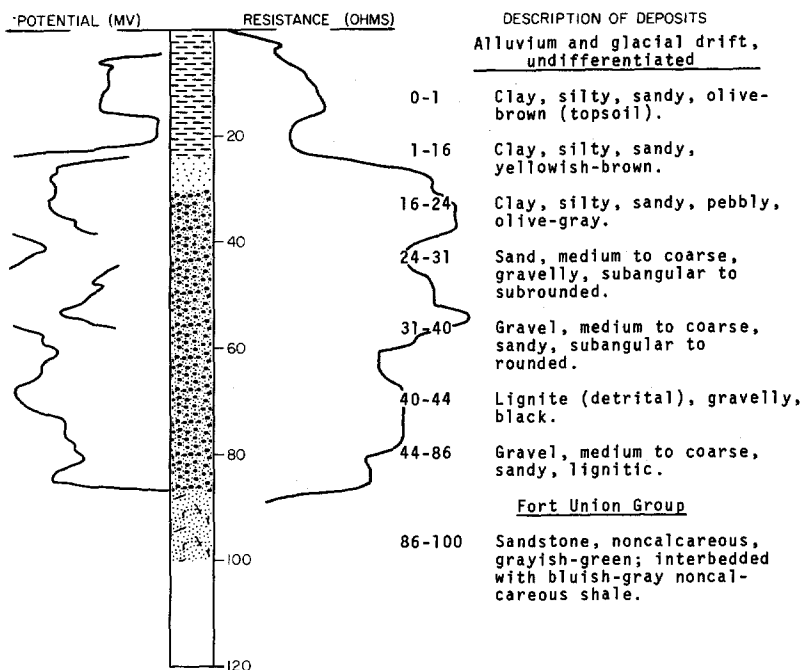
Elevation: 1661 ft

Alluvium and glacial drift, undifferentiated:			
	Clay, silty, sandy, moderate-yellowish-brown-----	14	14
	Clay, silty, sandy, calcareous, grayish-olive to olive-gray; scattered pebbles--	6	20
	Sand, fine to medium, gravelly, subangular to rounded-----	34	54
Fort Union Group:			
	Shale, noncalcareous, medium-light-gray to moderate-olive-brown; thin sandstone interbeds from 75 to 80 ft-----	26	80

LOCATION: 143-81-17ACC
 ELEVATION: 1660
 (FT, MSL)

NDSWC 2693

DATE DRILLED: July 1967
 DEPTH: 100
 (FT)



143-81-17DDD
 (Log from U.S. Bureau of Reclamation)

Elevation: 1661.2 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
<u>Glacial drift:</u>			
	Clay, silty, plastic-----	4.2	4.2
	Sand, silty, brown-----	11.4	15.6
	Sand, silty, gravelly, lignitic, gray----	23.9	39.5
	Silt, gray-----	7.7	47.2
	Sand and gravel, coarse; few cobbles-----	15.6	62.8
	Gravel, fine to coarse; cobbles and boulders-----	15.2	78
	Sand, medium, lignitic, gray; silt lenses-----	44.6	122.6
	Sand and gravel, coarse-----	1.3	123.9
	Gravel, coarse; cobbles-----	1.8	125.7

143-81-19ACA
(Log from U.S. Bureau of Reclamation)

Elevation: 1663 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Sand, very fine, silty, tan; some clay----	9.2	9.2
	Sand, very fine, gray-brown; some clay----	13.3	22.5
	Sand, fine to medium, gray-brown; lignite particles at 25-26 ft and 35-36 ft; fine gravel throughout-----	18.7	41.2
	Clay, silty, gravelly, plastic, gray-----	2.9	44.1
	Clay, very silty, gray; fine gravel and lignite throughout-----	10.9	55
	Sand, fine to medium, silty, lignitic, gray-----	5	60
	Sand and gravel, silty, buff to gray; medium sand, fine to medium gravel, lignite slack 68.2-70.8 ft-----	10.8	70.8
	Gravel, medium, sandy, buff-----	9.2	80
	Sand, and gravel, gray; fine to medium sand with medium gravel throughout, lignite particles increasing from 90-97.1 ft----	17.1	97.1
Fort Union Group:			
	Clay (shale), very silty, firm, gray-----	3.6	100.7

143-81-19DBD
(Log from U.S. Bureau of Reclamation)

Elevation: 1661 ft

Glacial drift:			
	Sand, very silty, light-brown-----	12.2	12.2
	Silt and sand, very fine silty sand with considerable clay-----	11.6	23.8
	Sand, very fine, gray-brown; some lignite slack-----	6.2	30
	Sand, medium, gray; considerable amounts of organic material and fine gravel-----	13.6	43.6
	Clay, silty, gray; medium to coarse gravel and boulders throughout-----	33.7	77.3
	Clay and gravel, gray-----	6.5	83.8
Fort Union Group(?)			
	Clay (shale), sandy, silty, gray-----	7	90.8

143-81-20BCA
(Log from U.S. Bureau of Reclamation)

Elevation: 1662 ft

Glacial drift:			
	Clay, sandy, slightly plastic, brown-----	5	5
	Sand, very fine, clayey, brown-----	17.6	22.6
	Sand, fine to medium, buff; some fine gravel	17.4	40
	Gravel, with fine to medium sand, buff----	12.2	52.2
	Sand, very fine, buff-----	8	60.2
	Sand and gravel, gray; medium sand, fine to medium gravel-----	8.8	69
	Sand, fine to medium, brown; some fine gravel-----	5.6	74.6
	Sand, fine to medium, gravelly, lignitic, buff-----	10.4	85
	Sand, fine to medium, silty, buff; some fine gravel-----	10.8	95.8
Fort Union Group(?)			
	Claystone, silty, firm, gray-----	9.2	105

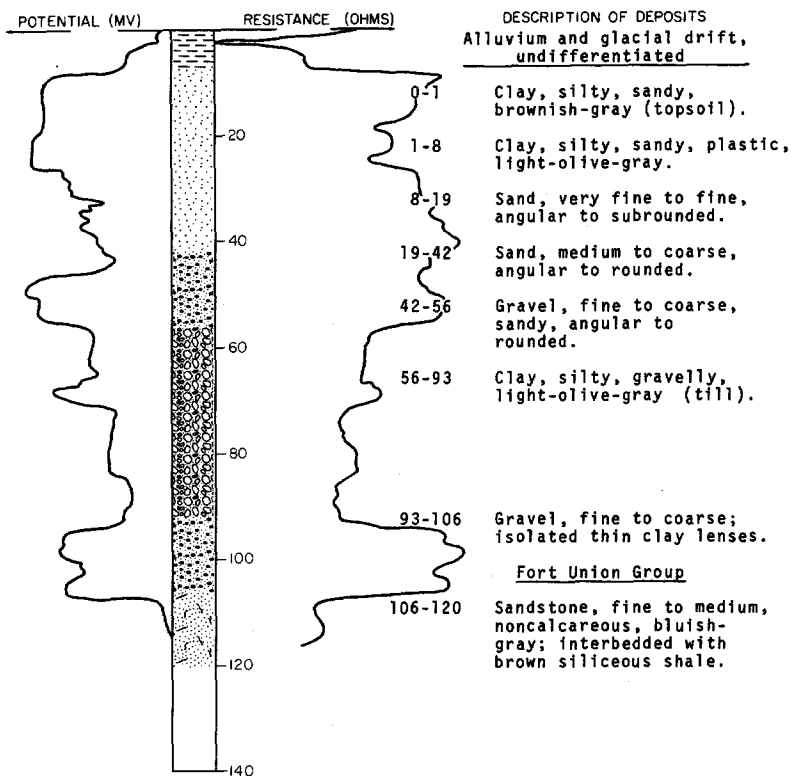
LOCATION: 143-81-20CCB

NDSWC 2808

DATE DRILLED: September 1967

ELEVATION: 1661
(FT, MSL)

DEPTH: 120
(FT)



143-81-20DCC
(Log from U.S. Bureau of Reclamation)

Elevation: 1658.8 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Clay, sandy, gray-----	4.6	4.6
	Sand, fine, clayey, brown-----	10.4	15
	Clay, silty, very plastic, gray-----	3.5	18.5
	Sand, fine, gravelly, brown-----	11.5	30
	Sand, fine to medium, gray; some fine gravel	18.6	48.6
	Silt, clayey, gray-----	1.4	50
	Sand, fine to medium, gray; silt lenses throughout-----	48	98
	Sand and gravel, brown; medium sand and medium gravel-----	15.7	113.7
	Clay, firm, gray-----	12.3	126

143-81-24DDA1
NDGS auger hole 51

Elevation: 1780 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Silt, sandy, mottled brown-----	1	1
	Sand, silty, pebbly-----	3	4
	Sand, coarse, gravelly-----	2	6
	No sample-----	11	17

143-81-24DDA2
NDSWC 4105

Elevation: 1780 ft

Glacial drift:			
	Topsoil, sandy, black-----	2	2
	Gravel, fine to medium, subrounded, black-	4	6
	Sand, medium to very coarse, subangular to		
	subrounded, dark-gray-----	14	20
	Gravel, fine to medium, subrounded-----	4	24
	Clay, plastic, dark-gray; scattered sand--	2	26
	Gravel, fine to medium, sandy, subangular		
	to subrounded; isolated clay lenses-----	14	40
Fort Union Group:			
	Shale, silty, sandy, carbonaceous, dark-gray	22	62
	Shale, silty, hard, noncalcareous, light-		
	gray-----	18	80

143-81-28BAB
(Log from U.S. Bureau of Reclamation)

Elevation: 1657.8 ft

Glacial drift:			
	Clay, silty, slightly plastic, brown-----	6.5	6.5
	Sand, silty, loose, brown-----	8.1	14.6
	Sand, fine, loose, gray-----	25	39.6
	Sand and gravel, brown; medium sand and		
	fine to medium gravel-----	4.1	43.7
	Clay, sandy, plastic, gray-----	1.3	45
	Boulder-----	1	46
	Sand and gravel, medium, silty, buff-----	4	50
	Clay, gravelly, plastic, gray; boulders---	6	56
	Sand, fine, clayey, brown-----	4	60
	Sand, fine, clayey, gray-----	7.4	67.4
Fort Union Group(?):			
	Clay (shale), silty, firm, plastic-----	2.6	70
	Sand, very fine, silty, gray-----	5.6	75.6
	Clay (shale), silty, firm, very plastic,		
	gray-----	10.4	86

143-81-29BBA1
(Log from U.S. Bureau of Reclamation)

Elevation: 1659 ft

Glacial drift:			
	Sand, very fine, silty, buff-----	10.8	10.8
	Sand, fine, clean, gray-brown-----	18.2	29
	Clay, silty, very plastic, blue-gray-----	1	30
	Sand and gravel, medium, brown; coarser		
	gravel and lignite slack below 35 ft----	14.8	44.8

143-81-29BBA1, Continued
(Log from U.S. Bureau of Reclamation)

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift, Continued:			
	Sand, fine, clean, gray-brown; gravel lenses-----	12.6	57.4
	Clay, silty, very plastic, gray-----	2.4	59.8
	Sand and gravel, medium, silty-----	10.2	70
	Sand and gravel, medium to coarse, silty, lignitic; silty boulder 94-95.8 ft-----	30.4	100.4
Fort Union Group:			
	Shale, firm, gray-----	.6	101

143-81-29BBA2
NDSWC 2806

Elevation: 1660.5 ft

Alluvium and glacial drift, undifferentiated:			
	Topsoil, silty, sandy, brownish-gray-----	1	1
	Clay, silty, sandy, calcareous, moderate-yellowish-brown-----	11	12
	Clay, silty, sandy, calcareous, moderate-yellowish-brown to dark-yellowish-brown-----	4	16
	Sand, very fine to fine, angular to rounded-----	6	22
	Sand, fine to medium, angular to subrounded-----	8	30
	Sand, medium to very coarse, gravelly, angular to subrounded-----	13	43
	Gravel, fine to coarse, sandy-----	15	58
	Clay, silty, lignitic, medium-dark-gray---	7	65
	Gravel, fine to coarse, sandy-----	9	74
	Clay, silty, lignitic, medium-gray to medium-dark-gray-----	5	79
	Gravel, coarse-----	25	104
Fort Union Group:			
	Sandstone, fine to medium, light-bluish-gray to greenish-gray; interbedded with siliceous brownish-gray shale-----	16	120

143-81-29BBA3
NDSWC 2809

Elevation: 1659.4 ft

Alluvium and glacial drift, undifferentiated:			
	Topsoil, silty, sandy, brownish-gray-----	1	1
	Clay, silty, sandy, calcareous, light-olive-gray-----	7	8
	Sand, very fine to fine, well-sorted, angular to subrounded-----	7	15
	Clay, silty, sandy, light-olive-gray-----	5	20
	Sand, medium to very coarse, angular to rounded-----	24	44
	Sand, clayey, silty-----	6	50
	Sand, medium to very coarse, angular to rounded-----	8	58
	Gravel, fine to coarse, sandy-----	23	81
Fort Union Group:			
	Sandstone, fine to medium, noncalcareous; interbedded with thin layers of grayish-brown siliceous shale-----	19	100

143-81-29BBB1
(Log from Schnell, Inc.)

Elevation: 1665 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil-----	2	2
	Sandy loam-----	11	13
	Clay-----	2	15
	Sand, fine, lignitic, gray-----	16	31
	Sand and gravel-----	13	44
	Gravel with boulders-----	2	46
	Sand, medium to coarse-----	3	49
	Clay, gray-----	1	50
	Gravel with boulders-----	12	62
	Sand, coarse, and gravel-----	14	76
	Gravel, medium, with boulders-----	16	92
	Sand, coarse, lignitic-----	13	105
	Clay-----	2	107

143-81-29BBB2
NDSWC 2810

Elevation: 1660 ft

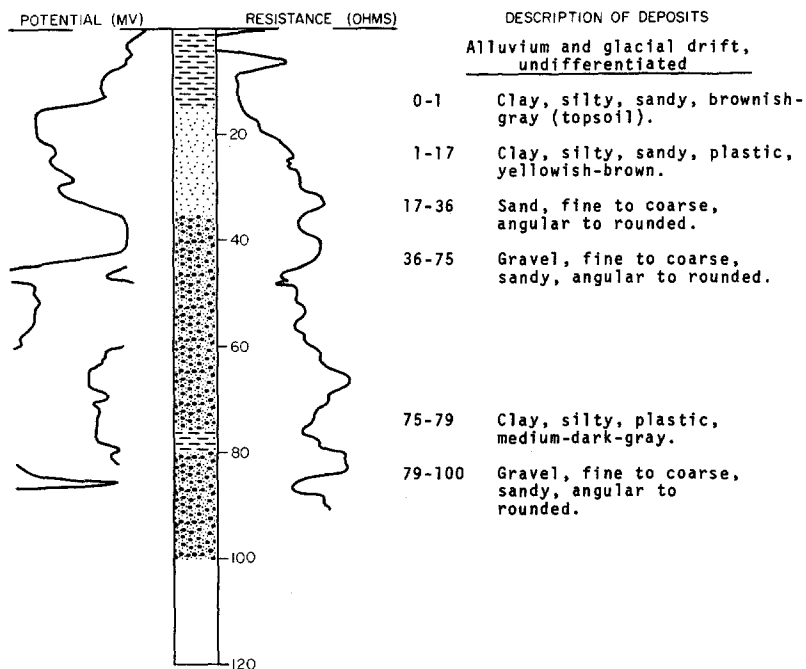
Alluvium and glacial drift, undifferentiated:			
	Topsoil, silty, sandy, brownish-gray-----	1	1
	Clay, silty, sandy, calcareous, light- olive-gray-----	8	9
	Clay, silty, sandy, calcareous, olive-gray	11	20
	Sand, fine to medium, angular to rounded; interbedded with clay-----	15	35
	Sandstone boulder, calcareous, greenish-gray	4.5	39.5
	Clay, silty, plastic, calcareous, medium- dark-gray; interbedded with gravel-----	20.5	60
	Gravel, fine to coarse, angular to rounded	40	100

LOCATION: 143-81-29BBD
 ELEVATION: 1661
 (FT, MSL)

NDSWC 2807

DATE DRILLED: September 1967

DEPTH: 100
 (FT)



143-81-32AAA
 (Log from U.S. Bureau of Reclamation)

Elevation: 1660.1 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Clay, silty, slightly plastic, gray-----	6.6	6.6
	Sand, fine, clean, lignitic, buff-----	13.4	20
	Sand, fine to medium, gray-----	15	35
	Sand, medium, gray; fine gravel and lignite slack throughout-----	55	90
	Sand and gravel, medium, gray-----	25	115
	Clay, silty, firm, gray-----	40	155

144-80-2BCB
NDSWC 4119

Elevation: 1885 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, rocky, dark-brown-----	1	1
	Clay, silty, sandy, pebbly, moderate-olive-brown; scattered gravel (till)-----	33	34
	Clay, silty, sandy, pebbly, olive-gray (till)-----	10	44
	Clay, silty, olive-gray; scattered sand and pebbles-----	31	75
	Clay, hard, calcareous, light-olive-gray--	12	87
Fort Union Group:			
	Siltstone, carbonaceous, gray-green to brownish-black; interbedded with sandstone-----	27	114
	Shale, silty, sandy, noncalcareous, variegated gray, green, and brown; interbedded with siltstone and very fine grained sandstone-----	26	140

144-80-4CCC
NDSWC 4111

Elevation: 1823 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, sandy, black-----	1	1
	Silt, clayey, sandy, dusky-yellow; scattered pebbles (till)-----	3	4
	Clay, silty to slightly sandy, laminated, moderate-olive-brown; few pebbles-----	28	32
	Sand, gravelly, subangular to subrounded, brown-----	5	37
	Clay, silty, sandy, lignitic, olive-gray (till)-----	24	61
	Clay, silty, olive-gray; contains numerous white calcareous laminations and black organic streaks-----	61	122
	Gravel, fine, sandy, subrounded-----	4	126
	Clay, silty, sandy, pebbly, olive-gray (till)-----	101	227
	Sand, very fine to fine, silty, subrounded, olive-gray; scattered lignite chips-----	37	264
	Clay, silty, sandy, olive-gray; contains black oily organic laminations-----	16	280
	Sand, very fine to medium; interbedded with silt and clay-----	68	348
	Sand, coarse to very coarse, gravelly, angular to subrounded, dark-brown-----	22	370
	Gravel, coarse, dark-brown; abundant cobbles-----	18	388
Fort Union Group(?):			
	Silt, micaceous, calcareous, olive-gray to brownish-gray-----	12	400

144-80-15DAD
NDSWC 3890

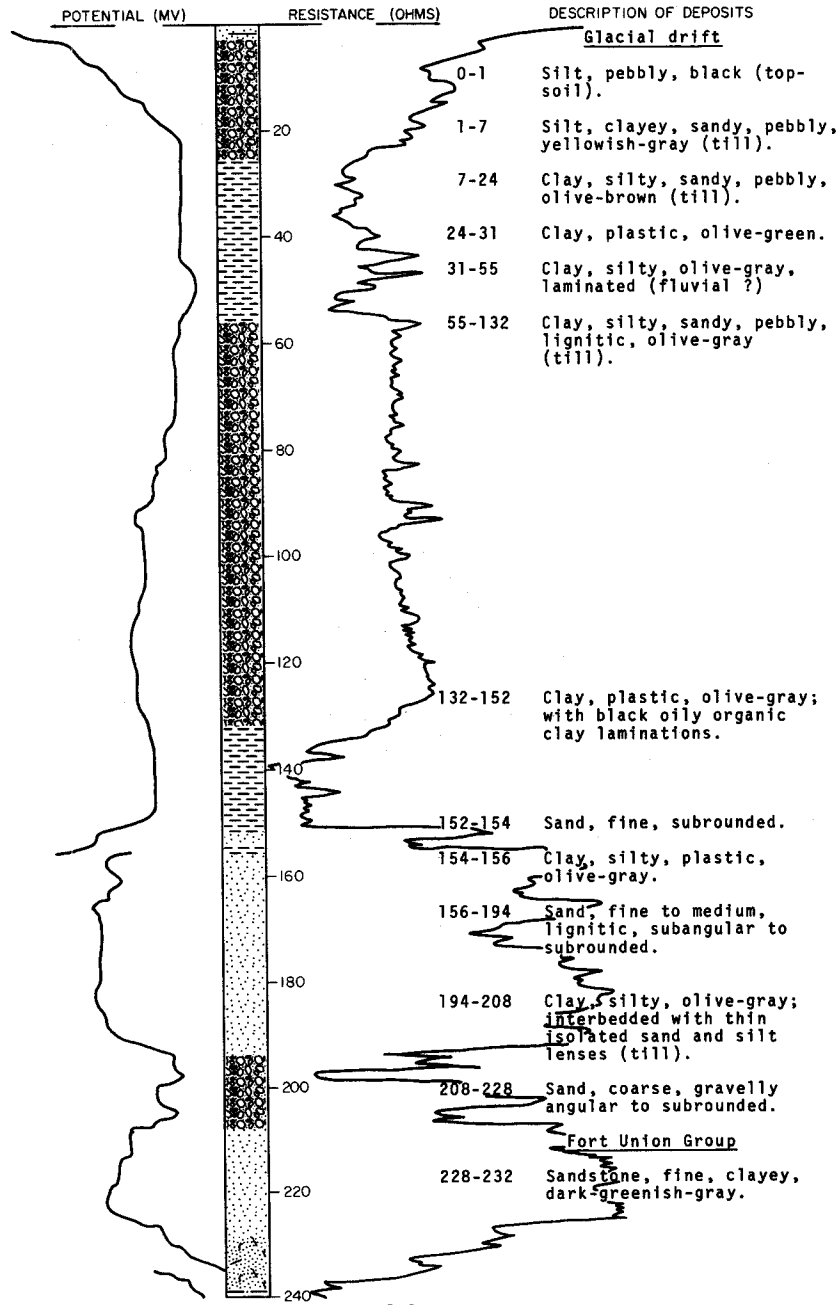
Elevation: 1795 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, black-----	2	2
	Gravel, fine, sandy; interbedded with moderate-yellowish-brown clayey till----	15	17
	Clay, silty, very sandy, plastic, olive-gray; scattered pebbles (till)-----	48	65
Fort Union Group:			
	Sand, very fine, clayey, carbonaceous, green-----	5	70
	Shale, silty, brittle, medium-light-gray--	10	80

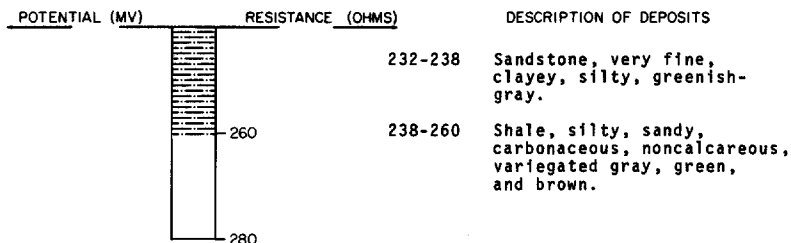
LOCATION: 144-80-18CCC
 ELEVATION: 1770
 (FT, MSL)

NDSWC 4109

DATE DRILLED: August 1970
 DEPTH: 260
 (FT)



LOCATION: 144-80-18CCC NDSWC 4109, Continued DATE DRILLED: August 1970
 ELEVATION: 1770 DEPTH: 260
 (FT, MSL) (FT)



144-80-19ABA
 NDSWC 4110

Elevation: 1765 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Sand, fine to coarse, subrounded, yellowish-gray; dry-----	4	4
	Clay, silty, sandy, dusky-yellow (till)---	7	11
	Sand, medium to coarse, subrounded, light-gray-----	4	15
	Clay, silty, sandy, pebbly, light-olive-gray (till)-----	12	27
	Clay, silty, sandy, pebbly, olive-gray; lensed with fine to medium lignitic sand (till)-----	28	55
	Clay, silty, olive-gray; contains light-gray laminations alternating with black organic material-----	117	172
	Gravel, fine to medium, sandy, angular to subrounded-----	100	272
Fort Union Group(?):			
	Shale, silty, hard, noncalcareous, medium-gray-----	28	300

144-80-26BBB1
 NDGS auger hole 49

Elevation: 1770 ft

Glacial drift:			
	Sand, coarse, gravelly-----	6.5	6.5

144-80-26BBB2
NDSWC 3891

Elevation: 1770 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Gravel, fine to coarse, sandy; cobbles and boulders-----	17	17
	Sand, coarse, gravelly, subrounded-----	6	23
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	24	47
	Gravel, fine to medium, sandy, angular to subrounded-----	4	51
Fort Union Group:			
	Shale, carbonaceous, medium-gray to brownish-gray; interbedded with silt and sand-----	29	80

144-80-26BCC
NDSWC 3892

Elevation: 1795 ft

Glacial drift:			
	Gravel, fine to medium, sandy, angular to subrounded-----	8	8
	Clay, silty, sandy, moderate-olive-brown; scattered pebbles (till)-----	16	24
	Clay, silty, sandy, olive-gray; scattered pebbles (till)-----	94	118
Fort Union Group:			
	Shale, silty, carbonaceous, brittle, medium- to dark-gray-----	22	140

144-80-26CCC
NDSWC 3893

Elevation: 1835 ft

Glacial drift:			
	Silt, clayey, sandy, yellowish-gray to dusky-yellow; scattered pebbles-----	8	8
	Clay, silty, dusky-yellow; scattered sand and pebbles (till)-----	24	32
	Clay, very sandy, silty, olive-gray; scattered pebbles (till)-----	37	69
	Clay, silty, olive-gray; interbedded with very fine to fine loose sand-----	26	95
	Gravel, fine to medium, subangular to subrounded-----	9	104
	Clay, silty, plastic, olive-gray to dark-olive-gray-----	4	108
	Clay, very sandy, plastic, olive-gray; scattered pebbles (till)-----	36	144
Fort Union Group:			
	Shale, very sandy, brittle, medium-gray to dark-greenish-gray-----	7	151
	Sand, very fine, clayey, light-olive-gray to light-greenish-gray-----	9	160

144-81-13CDC
NDSWC 3901

Elevation: 1865 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Clay, silty, sandy, gray-----	7	7
	Gravel, fine to medium, sandy; interbedded with silt and clay-----	7	14
	Clay, silty, sandy, olive-gray; scattered pebbles (till)-----	7	20
Fort Union Group:			
	Sand, very fine to fine, clayey, micaceous, greenish-gray-----	19	40

144-81-16DDD
NDSWC 3902

Elevation: 1740 ft

Glacial drift:			
	Topsoil, pebbly, dark-brown-----	1	1
	Clay, silty, sandy, dusky-yellow; scattered pebbles (till)-----	7	8
	Clay, silty, sandy, plastic, moderate-olive-brown; scattered pebbles (till)---	26	34
	Clay, silty, sandy, plastic, olive-gray; scattered pebbles (till)-----	4	38
Fort Union Group:			
	Sand, very fine to fine, clayey, micaceous, carbonaceous, noncalcareous, greenish-gray-----	22	60

144-81-25AAA
NDSWC 2864

Elevation: 1715 ft

Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Clay, silty, sandy, dark-gray to dark-greenish-gray-----	4	5
	Gravel, fine to coarse, angular to sub-rounded-----	4	9
	Clay, silty, sandy, calcareous, medium-gray-----	11	20
	Gravel, fine to coarse, sandy, angular to rounded-----	16	36
	Clay, silty, calcareous, olive-gray-----	29	65
	Clay, silty, sandy, calcareous, olive-gray to medium-dark-gray; scattered pebbles (till)-----	22	87
	Gravel, fine to coarse, sandy, angular to rounded-----	5	92
Fort Union Group:			
	Sandstone, clayey, silty, olive-gray-----	8	100

144-81-25ADA
 NDGS auger hole 64

Elevation: 1715 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Sand, silty-----	2.5	2.5
	Sand, medium to coarse, silty, gravelly---	12.5	15
	No sample-----	10	25

144-81-26CCB
 NDSWC 3900

Elevation: 1700 ft

Alluvium:			
	Clay, silt, and clayey sand, gray; interbedded-----	5	5
	Gravel, fine to medium; interbedded with clay and silt-----	7	12
Fort Union Group:			
	Shale, silty, sandy, micaceous, carbonaceous, noncalcareous, variegated gray, and green-----	28	40

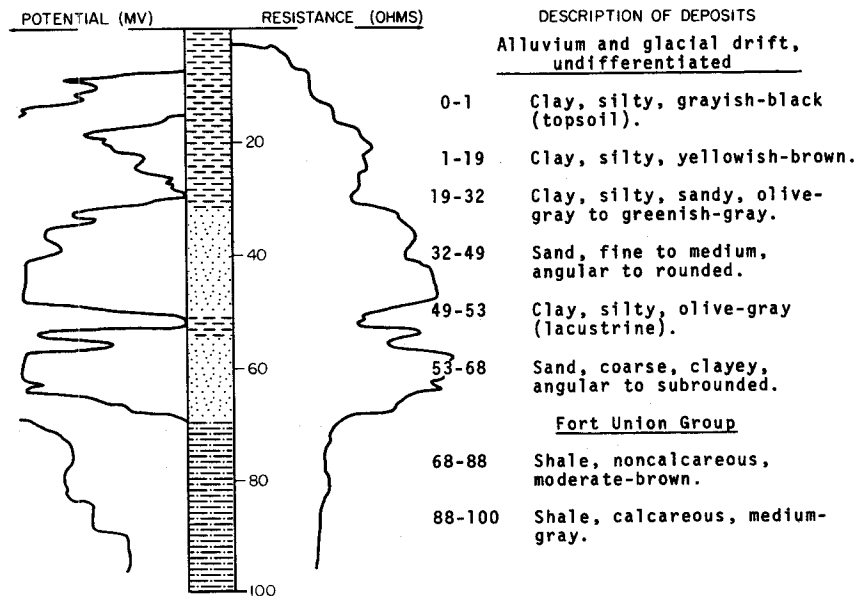
NDSWC 2696

LOCATION: 144-81-30ACC

DATE DRILLED: July 1967

ELEVATION: 1665
 (FT, MSL)

DEPTH: 100
 (FT)



144-81-35CBB
NDSWC 3899

Elevation: 1714 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Gravel, fine to medium, sandy, angular to subrounded; interbedded with moderate-olive-brown silt and clayey sand-----	16	16
	Clay, silty, plastic, moderate-olive-brown	8	24
	Gravel, fine to medium, subangular to subrounded-----	15	39
Fort Union Group:			
	Sand, fine, clayey, yellowish-green-----	3	42
	Sand, fine, micaceous, carbonaceous, noncalcareous, greenish-gray-----	9	51
	Shale, silty, sandy, carbonaceous, variegated gray, green, and brown-----	29	80

144-82-17AAD
NDSWC 2697

Elevation: 1670 ft

Alluvium and glacial drift, undifferentiated:			
	Clay, silty, sandy, calcareous, moderate-yellowish-brown-----	6	6
	Sand, fine to medium, lignitic-----	28	34
	Gravel, fine to medium, angular to subrounded-----	8	42
Fort Union Group:			
	Shale, noncalcareous, medium-light-gray---	18	60

144-83-13AAB
NDSWC 3903

Elevation: 1810 ft

Glacial drift:			
	Till-----	4	4
	Gravel, fine to very coarse, sandy; interbedded with soft, dusky-yellow silt and clay lenses; numerous cobbles and boulders-----	39	43
Fort Union Group:			
	Sand, very fine to fine, clayey, micaceous, carbonaceous, noncalcareous, greenish-gray to dark-greenish-gray-----	27	70

144-83-30DAA
NDSWC 2698

Elevation: 1680 ft

Alluvium and glacial drift, undifferentiated:			
	Topsoil, silty, clayey, brownish-black---	1	1
	Clay, silty, calcareous, moderate-olive-brown-----	11	12
	Clay, silty, calcareous, olive-gray; scattered pebbles-----	7	19
	Sand, fine to medium, angular to subrounded	20	39
	Clay, silty, sandy, calcareous, medium-dark-gray-----	3	42

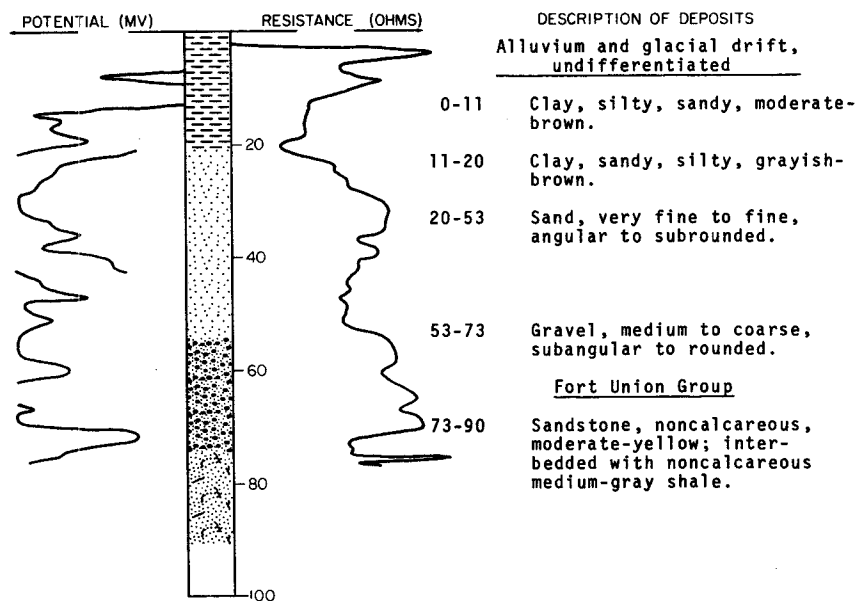
144-83-30DAA, Continued
NDSWC 2698

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Alluvium and glacial drift, undifferentiated, Continued:			
	Sand, coarse, gravelly, subangular to sub- rounded-----	24	66
Fort Union Group:			
	Shale, medium-light-gray; calcareous near top but becomes noncalcareous with depth	14	80

LOCATION: 144-84-10CCC
ELEVATION: 1675
(FT, MSL)

NDSWC 2699

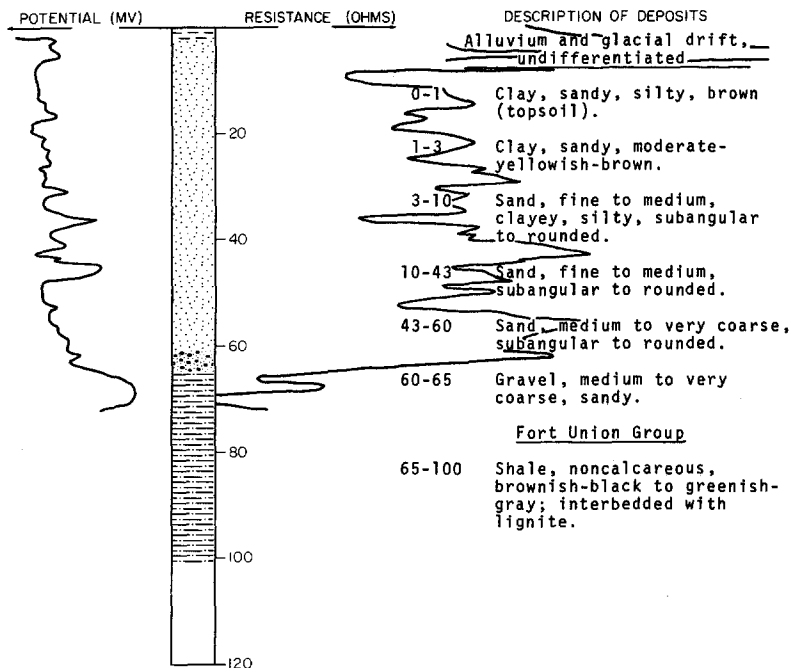
DATE DRILLED: July 1967
DEPTH: 90
(FT)



LOCATION: 144-84-24CBA
 ELEVATION: 1670
 (FT, MSL)

NDSWC 2911

DATE DRILLED: April 1968
 DEPTH: 100
 (FT)



145-79-688B
 NDSWC 2862

Elevation: 1868 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Gravel, fine to coarse, angular to sub-rounded-----	13	14
	Clay, silty, sandy, olive-gray to medium-gray (till)-----	51	65
	Clay, silty, plastic, olive-gray-----	29	94
Fort Union Group:			
	Sandstone, fine to medium, light-bluish-gray; interbedded with siliceous brownish-gray shale-----	26	120

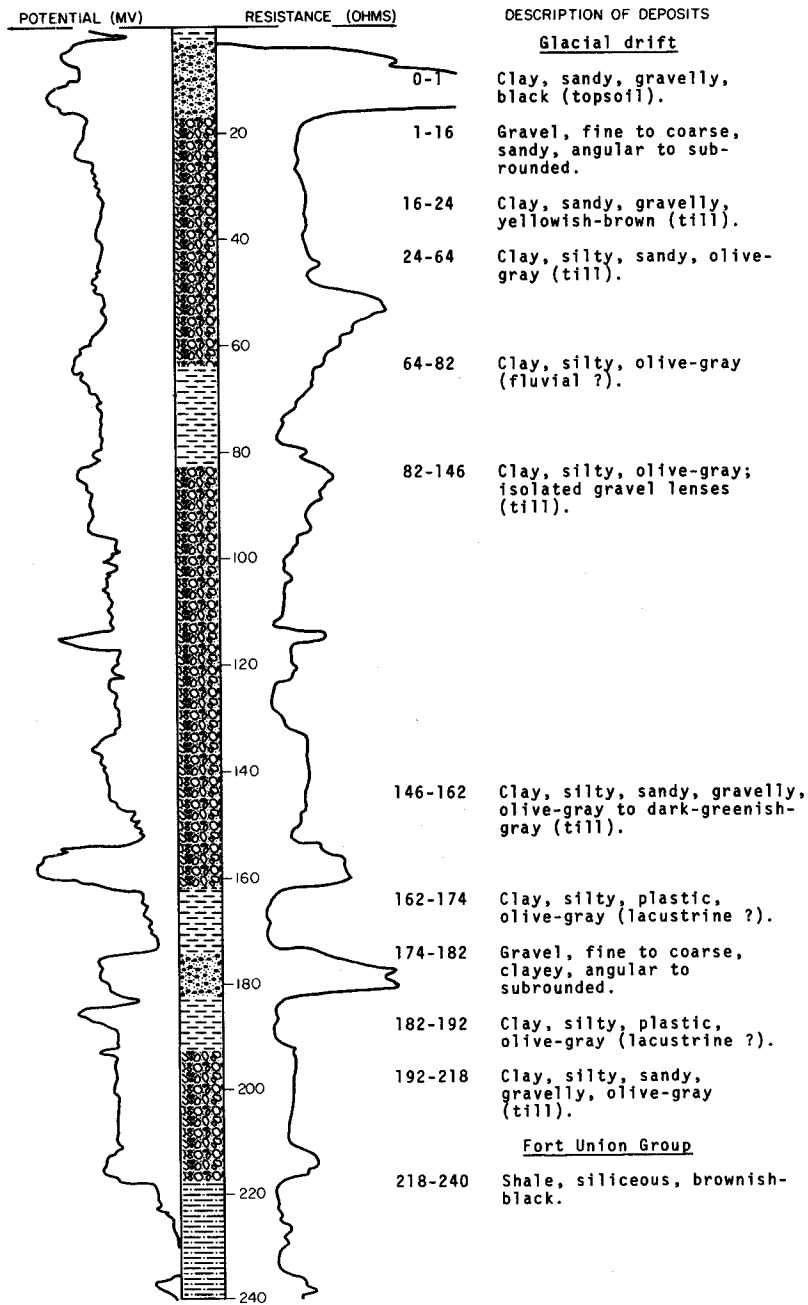
LOCATION: 145-79-14DDD

NDSWC 2865

DATE DRILLED: October 1967

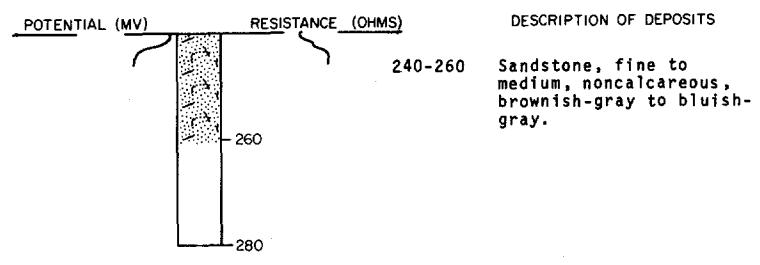
ELEVATION: 1885
(FT, MSL)

DEPTH: 260
(FT)



LOCATION: 145-79-14DDD NDSWC 2865, Continued
 ELEVATION: 1885 (FT, MSL)

DATE DRILLED: October 1967
 DEPTH: 260 (FT)



145-79-19CCC
 NDSWC 4115

Elevation: 1852 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, sandy, black-----	2	2
	Sand, fine, silty, yellowish-gray-----	4	6
	Silt, clayey, sandy, yellowish-gray; scattered pebbles (till)-----	8	14
	Clay, silty, sandy, moderate-olive-brown; scattered pebbles and iron-stained laminations-----	16	30
	Clay, silty, sandy, pebbly, lignitic, olive-gray (till)-----	42	72
	Clay, silty, olive-gray; laminated-----	35	107
	Gravel, medium, subrounded-----	4	111
	Clay, silty, sandy, pebbly, olive-gray (till)-----	48	159
Fort Union Group:			
	Siltstone, carbonaceous, noncalcareous, variegated gray and green; interbedded sandstone-----	21	180
	Siltstone, clayey, carbonaceous, dark-gray	20	200

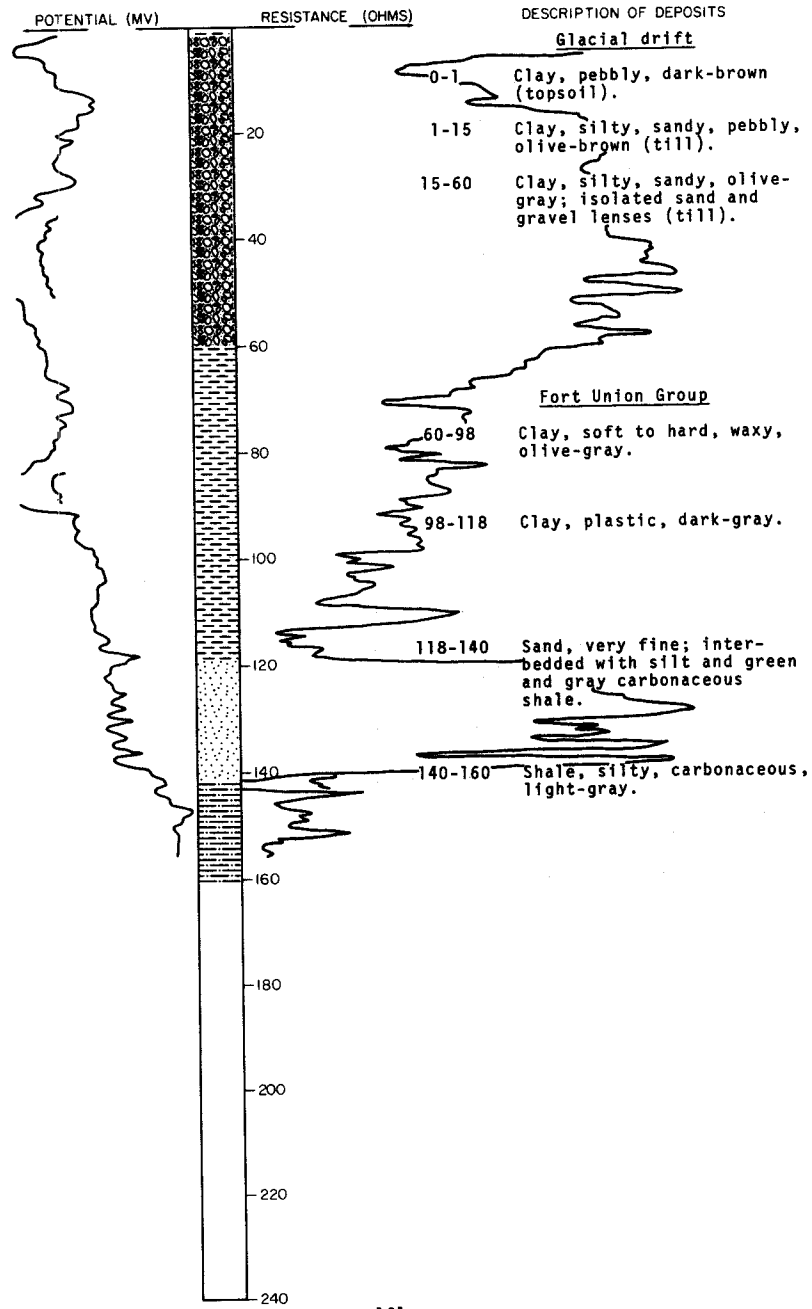
LOCATION: 145-79-20CBB

NDSWC 3889

DATE DRILLED: October 1969

ELEVATION: 1815
(FT, MSL)

DEPTH: 160
(FT)



145-79-28BBB
NDSWC 4114

Elevation: 1877 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, sandy, black-----	1	1
	Silt, clayey, sandy, yellowish-gray-----	2	3
	Clay, sandy, pebbly, dusky-yellow (till)--	7	10
	Sand, fine, brown-----	3	13
	Clay, silty, sandy, pebbly, moderate-olive-brown (till)-----	11	24
	Clay, silty, sandy, pebbly, olive-gray (till)-----	46	70
	Sand, fine to medium, subrounded-----	10	80
	Clay, silty, sandy, pebbly, olive-gray (till)-----	20	100
	Clay, silty, plastic, olive-gray to black; interbedded with silt-----	55	155
Fort Union Group:			
	Sandstone, very fine to fine, clayey, carbonaceous, greenish-gray-----	13	168
	Shale, silty, carbonaceous, noncalcareous, olive-gray; interbedded with siltstone--	12	180

145-79-28DAA
NDSWC 4112

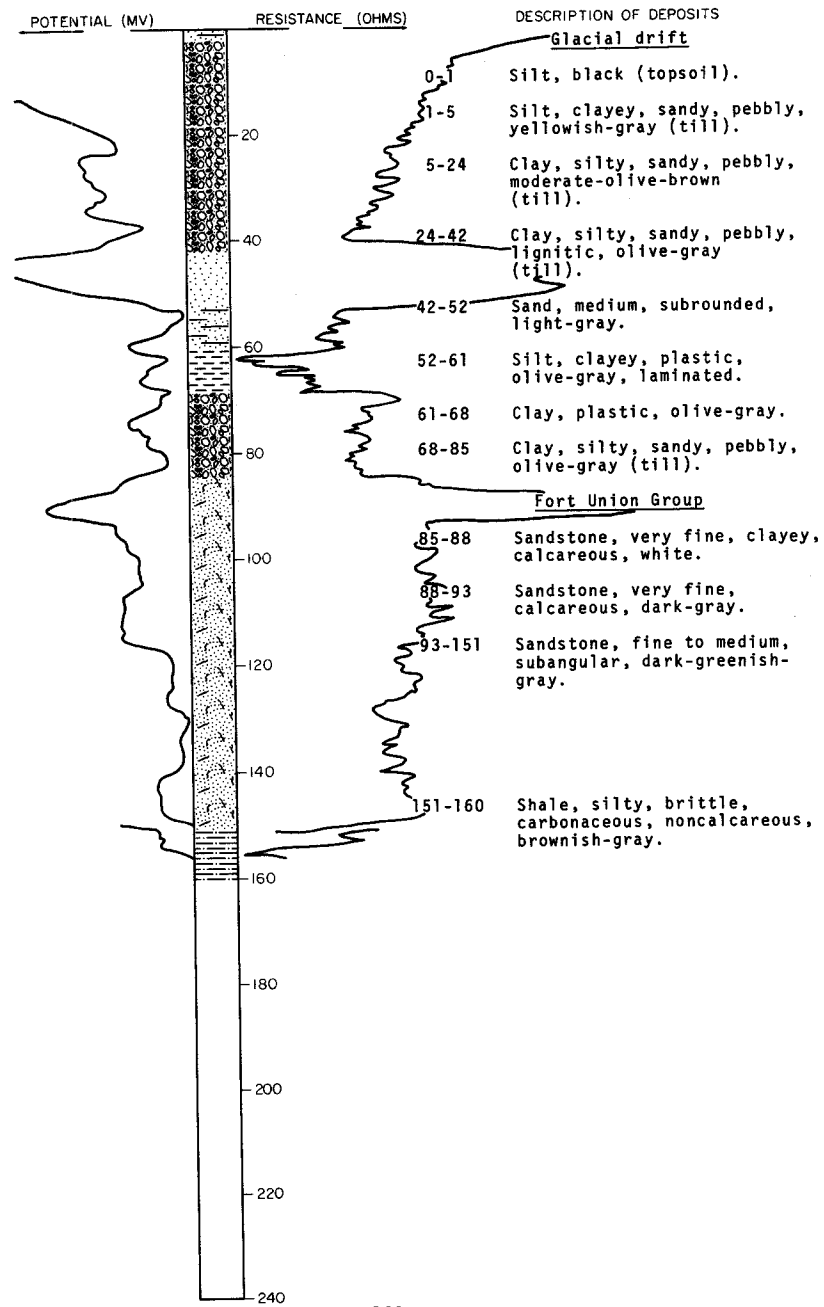
Elevation: 1854 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, pebbly, black-----	1	1
	Silt, clayey, sandy, yellowish-gray (till)	2	3
	Clay, silty, sandy, pebbly, moderate-olive-brown (till)-----	5	8
	Silt, sandy, laminated, dusky-yellow to moderate-olive-brown-----	9	17
	Clay, silty, sandy, rocky, moderate-olive-brown (till)-----	11	28
	Clay, silty, sandy, pebbly, lignitic, olive-gray; scattered cobbles (till)---	37	65
	Silt, clayey, light-olive-gray-----	9	74
	Clay, plastic, olive-gray-----	16	90
	Silt, clayey, olive-gray-----	18	108
Fort Union Group:			
	Shale, silty, sandy, carbonaceous, non-calcareous, medium-gray-----	20	128
	Sandstone, very fine to fine, calcareous, white to greenish-gray-----	12	140

LOCATION: 145-79-28DDD
 ELEVATION: 1858
 (FT, MSL)

NDSWC 4113

DATE DRILLED: August 1970
 DEPTH: 160
 (FT)



145-79-2988B
NDSWC 4118

Elevation: 1882 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, sandy, black-----	1	1
	Sand, fine, subrounded, yellowish-gray----	3	4
	Clay, silty, sandy, moderate olive-brown; scattered pebbles (till)-----	28	32
	Clay, silty, sandy, pebbly, olive-gray (till)-----	66	98
	Clay, silty, plastic, olive-gray; interbedded with silt-----	32	130
Fort Union Group:			
	Siltstone, carbonaceous, hard, noncalcar- eous, variegated gray and brown; interbedded with sandy shale-----	48	178
	Sandstone, very fine, calcareous, dark- gray-----	2	180
	Sandstone, micaceous, dark-greenish-gray--	20	200

145-79-31DCC
(Log from U.S. Bureau of Reclamation)

Elevation: 1843 ft

Glacial drift:			
	Topsoil-----	1	1
	Clay (glacial till), silty, sandy, pebbly, moist, stiff, brown to gray-----	22	23
	Clay, silty, moist, stiff, gray-----	7	30
	Sand, fine to medium, silty, loose, gray--	10	40

145-80-2AAB
NDGS auger hole 48

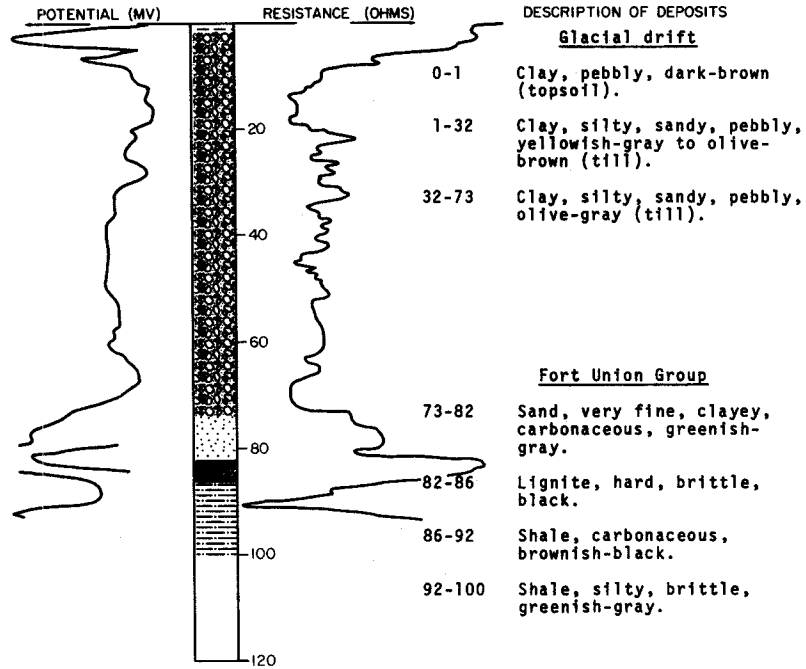
Elevation: 1852 ft

Glacial drift:			
	Sand, coarse, gravelly-----	30	30
	Sand, medium to coarse, silty-----	2	32
	Gravel, medium-----	8	40

LOCATION: 145-80-3BAB
 ELEVATION: 1885
 (FT, MSL)

NDSWC 3884

DATE DRILLED: October 1969
 DEPTH: 100
 (FT)



145-80-7DDD
 NDSWC 3886

Elevation: 1785 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, yellowish-gray-----	1	1
	Sand, medium to coarse, gravelly; interbedded with yellowish-gray silty and sandy clay-----	5	6
	Sand, medium, dark-gray; few clay lenses--	9	15
	Clay, plastic, dark-gray to variegated green and gray (fluvial deposits)-----	7	22
	Gravel, fine; interbedded with silt and medium sand-----	11	33
Fort Union Group:			
	Shale, hard, brittle, carbonaceous-----	4	37
	Lignite, hard, brittle, black-----	2	39
	Shale, hard, brittle, variegated gray, brown, and green; interbedded with green clayey fine sand-----	21	60

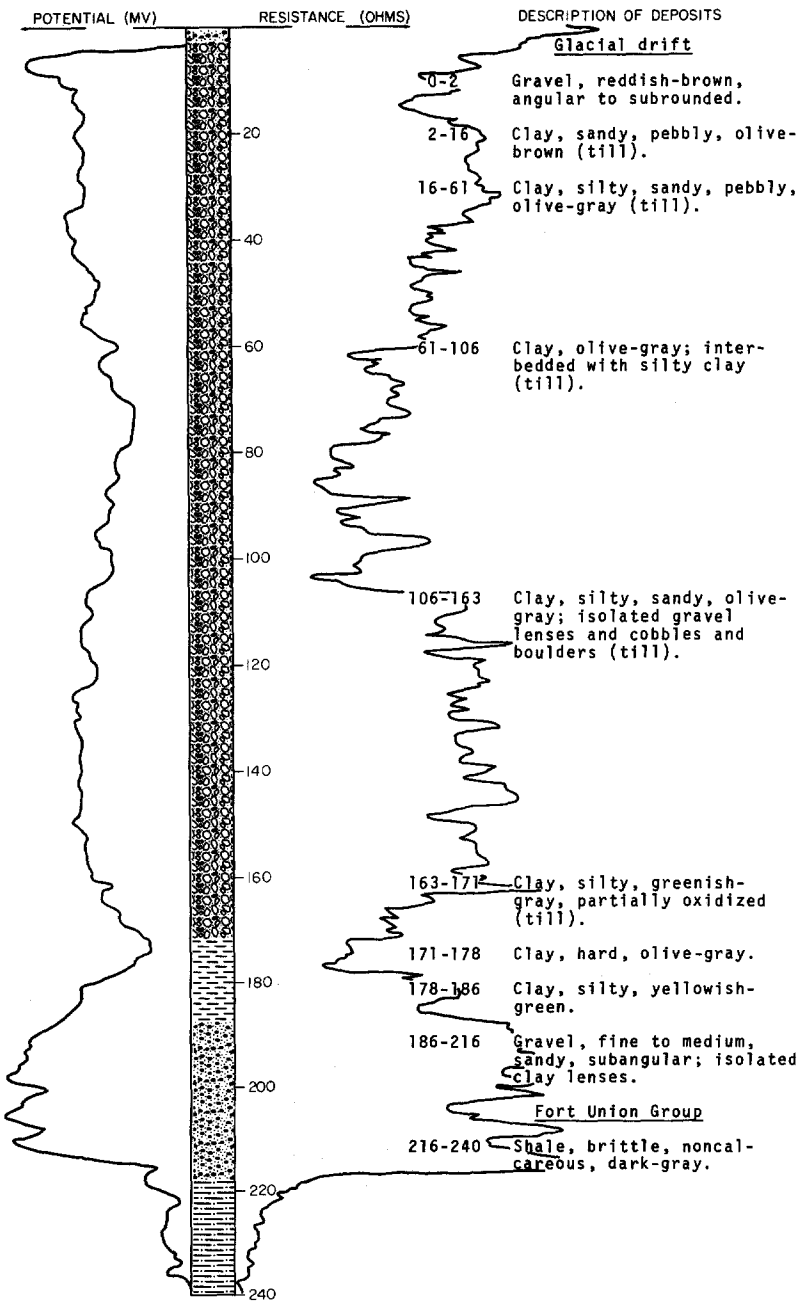
LOCATION: 145-80-10ABA

NDSWC 3885

DATE DRILLED: October 1969

ELEVATION: 1830
(FT, MSL)

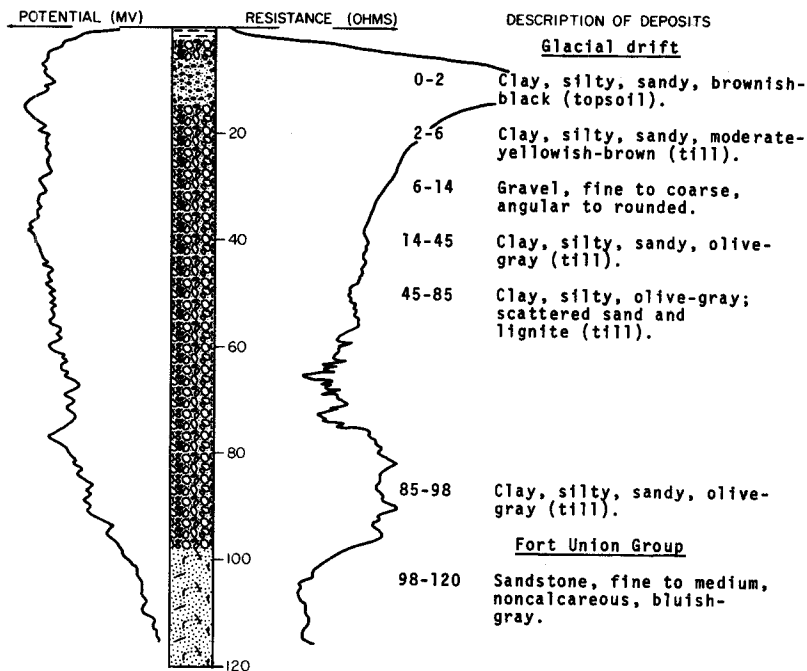
DEPTH: 240
(FT)



LOCATION: 145-80-11888
 ELEVATION: 1847
 (FT, MSL)

NDSWC 2861

DATE DRILLED: October 1967
 DEPTH: 120
 (FT)



145-80-14DDC
 NDSWC 3888

Elevation: 1828 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
<u>Glacial drift:</u>			
	Topsoil, silty, black-----	1	1
	Silt, clayey, sandy, yellowish-gray-----	3	4
	Clay, plastic, moderate-olive-brown-----	2	6
	Gravel, fine to medium, subrounded, brown--	5	11
	Clay, silty, plastic, moderate-olive-brown; scattered sand and pebbles (till)-----	6	17
	Clay, silty, plastic, olive-gray; scattered sand and pebbles (till)-----	7	24
	Clay, silty, plastic, olive-gray-----	12	36
	Clay, soft to hard, plastic, olive-gray----	22	58
	Clay, silty, olive-gray; interbedded with lenses of fine gravel (till)-----	37	95
	Sandstone boulder, hard, yellowish-green----	2	97
	Clay, silty, sandy, yellowish-green; interbedded with plastic olive-gray clay--	42	139
<u>Fort Union Group:</u>			
	Shale, silty, sandy, hard, medium-gray to brownish-gray-----	21	160

145-80-23DDD
NDSWC 4117

Elevation: 1855 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, sandy, black-----	1	1
	Silt, clayey, sandy, yellowish-gray; scattered pebbles (till)-----	3	4
	Clay, silty, sandy, moderate-olive-brown; scattered pebbles (till)-----	18	22
	Clay, silty, sandy, pebbly, olive-gray (till)-----	30	52
	Clay, silty, plastic, olive-gray; inter- bedded with silt; scattered sand and pebbles-----	74	126
	Clay, silty, sandy, pebbly, dark-olive- gray (till)-----	59	185
Fort Union Group:			
	Shale, silty, sandy, carbonaceous, noncalcareous, brown-----	15	200

145-80-27AAA
NDSWC 2863

Elevation: 1877 ft

Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Clay, silty, sandy, gravelly, moderate- yellowish-brown (till)-----	10	11
	Clay, silty, sandy, calcareous, olive- gray (till)-----	8	19
	Gravel, fine to coarse, angular to sub- rounded-----	6	25
	Clay, silty, sandy, olive-gray (till)-----	55	80
	Clay, silty, plastic, calcareous; olive- gray with greenish-gray laminae-----	45	125
	Clay, silty, sandy, calcareous, olive- gray (till)-----	42	167
Fort Union Group:			
	Shale, siliceous, brownish-gray-----	33	200

145-80-27BBA
NDSWC 4116

Elevation: 1850 ft

Glacial drift:			
	Topsoil, sandy, black-----	2	2
	Gravel, fine to coarse, sandy, angular to subrounded, reddish-brown-----	5	7
	Clay, silty, sandy, laminated, dusky- yellow to moderate-olive-brown (till)-----	18	25
	Clay, silty, plastic, light-olive-gray; interbedded with silt-----	18	43
	Silt, clayey, sandy, plastic, laminated, light-olive-gray-----	41	84
	Gravel, fine to medium, subangular to subrounded-----	2	86
Fort Union Group:			
	Sandstone, very fine to fine, silty, clayey, carbonaceous, calcareous, grayish-green---	34	120

145-80-29DCC
NDSWC 3887

Elevation: 1755 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Silt, clayey, yellowish-gray-----	3	3
	Gravel, fine, sandy, angular to subrounded, iron-stained-----	4	7
	Sand, fine to medium; interbedded with gravel and clay lenses-----	9	16
Fort Union Group:			
	Sand, very fine, clayey, yellowish-green----	4	20
	Sand, very fine, noncalcareous, greenish-gray-----	2	22
	Shale, silty, hard, brittle, medium-gray----	18	40

145-81-19BAA
NDSWC 3910

Elevation: 1865 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, black-----	1	1
	Silt, soft, light-yellowish-gray to dusky-yellow-----	5	6
	Clay, silty, sandy, soft, dark-brown-----	4	10
	Clay, silty, sandy, pebbly, dusky-yellow to moderate-olive-brown (till)-----	14	24
	Clay, silty, sandy, pebbly, olive-gray (till)	40	64
	Gravel, fine to medium, sandy, subangular to subrounded-----	9	73
	Silt, light-olive-gray to yellowish-green; gravel lens at 80 ft-----	8	81
Fort Union Group:			
	Shale, silty, sandy, micaceous, light-gray to light-greenish-gray-----	4	85
	Lignite, hard, brittle, black-----	4	89
	Shale, silty, carbonaceous, brownish-gray---	3	92
	Shale, sandy, micaceous, noncalcareous, dark-greenish-gray-----	10	102
	Sand, medium, loose, dark-greenish-gray; shale interbedded from 152-156 ft-----	66	168
	Shale, sandy, carbonaceous, dark-brownish-green-----	4	172
	Lignite, hard, brittle, black-----	4	176
	Shale, hard, brittle, noncalcareous, medium-bluish-gray-----	4	180

145-82-3ABB
NDSWC 2910

Elevation: 1935 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, sandy, brownish-black-----	2	2
	Clay, silty, sandy, moderate-yellowish-brown (till)-----	13	15
	Clay, silty, sandy, light-gray (till)-----	2	17
Fort Union Group:			
	Sandstone, fine to medium, calcareous, moderate-yellowish-brown-----	4	21
	Sandstone, clayey, silty, calcareous, medium-gray to medium-bluish-gray; interbedded with siltstone-----	19	40
	Sandstone, clayey, noncalcareous, medium-bluish-gray to brownish-gray; some thin lignite zones in bottom 15 ft-----	40	80

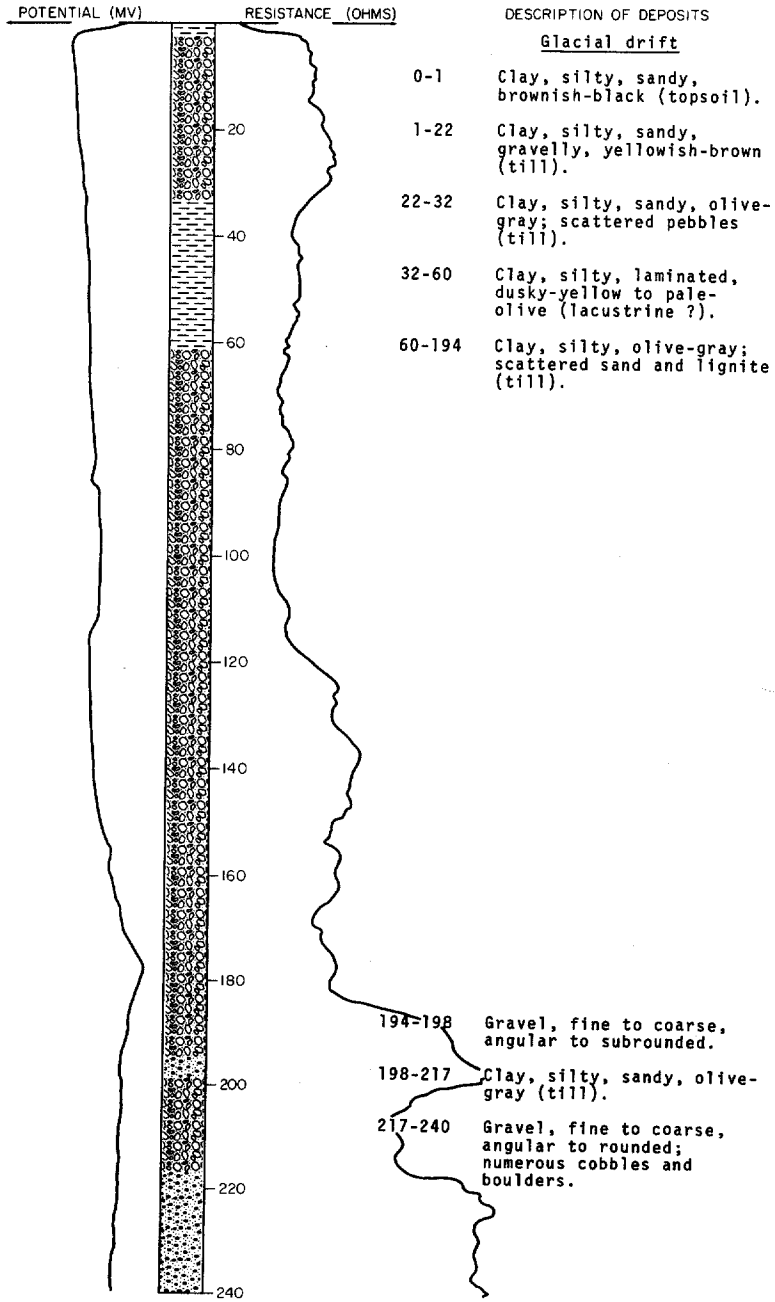
LOCATION: 145-82-7DAA

NDSWC 2858

DATE DRILLED: October 1967

ELEVATION: 1885
(FT, MSL)

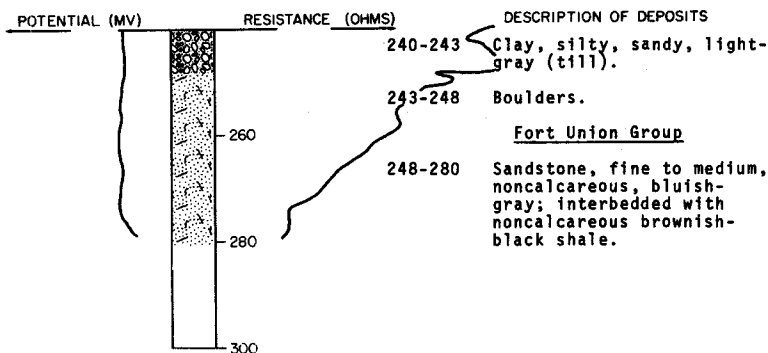
DEPTH: 280
(FT)



LOCATION: 145-82-7DAA
 ELEVATION: 1885
 (FT, MSL)

NDSWC 2858, Continued

DATE DRILLED: October 1967
 DEPTH: 280
 (FT)



145-82-10DCC
 NDSWC 3913

Elevation: 1871 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Clay, silty, sandy, dark-gray to brownish-black (till)-----	20	20
	Clay, silty, brownish-black; sandy and gravelly near base (till)-----	17	37
	Gravel, fine to medium-----	8	45
	Clay, silty, light-olive-gray to yellowish-green (till)-----	35	80
	Gravel, fine to medium, dark-brown-----	10	90
Fort Union Group:			
	Silt and very fine micaceous sand, carbonaceous, noncalcareous, brown to greenish-gray-----	10	100
	Silt; interbedded with sand and lignite-----	21	121
	Lignite, fractured, black; interbedded with multicolored silt-----	5	126
	Sand, very fine, clayey, greenish-gray-----	14	140

145-82-15AAA
NDSWC 3909

Elevation: 1895 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Clay, silty, yellowish-gray to dusky-yellow; scattered sand and pebbles (till)-	4	4
	Clay, silty, hard, dusky-yellow-----	8	12
	Clay, silty, moderate-olive-brown; scattered sand and pebbles (till)-----	9	21
	Gravel, fine to medium, iron-stained-----	2	23
	Clay, silty, light-olive-gray; scattered sand and pebbles (till)-----	9	32
Fort Union Group:			
	Shale, silty, hard, brittle, greenish-gray--	8	40
	Shale, silty, hard, brittle, medium-bluish-gray to greenish-gray-----	10	50
	Sand, fine, clayey, carbonaceous, greenish-gray-----	10	60

145-82-23BBB
NDSWC 3908

Elevation: 1830 ft

Glacial drift:			
	Clay, silty, yellowish-gray to dusky-yellow; scattered sand and pebbles (till)-	4	4
	Clay, silty, moderate-yellowish-brown; scattered sand and pebbles (till)-----	19	23
	Clay, silty, olive-gray; scattered sand, pebbles, and lignite fragments (till)-----	15	38
Fort Union Group:			
	Shale, silty, hard, brittle, noncalcareous, light- to medium-gray-----	13	51
	Lignite, hard, brittle, black-----	5	56
	Shale, silty, hard, brittle, noncalcareous, dark-bluish-gray-----	4	60

145-82-27AAA
NDSWC 3905

Elevation: 1890 ft

Glacial drift:			
	Clay, silty, sandy, dusky-yellow (till)-----	5	5
	Clay, silty, sandy, moderate-olive-brown; scattered pebbles (till)-----	8	13
	Gravel, fine to medium, sandy, reddish-brown-----	6	19
	Clay, silty, sandy, moderate-olive-brown; scattered pebbles (till)-----	17	36
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	10	46
	Shale boulder, silty, sandy, micaceous, medium-gray-----	6	52
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	8	60
Fort Union Group:			
	Sand, very fine, silty, hard, light-gray----	20	80

145-82-27BBB
NDSWC 3906

Elevation: 1875 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Clay, silty, sandy, yellowish-gray to light-brown; scattered pebbles (till)-----	4	4
	Clay, silty, sandy, reddish-brown to moderate-olive-brown; scattered pebbles (till)-----	19	23
Fort Union Group:			
	Sand, fine to medium, yellowish-green-----	13	36
	Sand, fine, clayey, grayish-green-----	19	55
	Shale, silty, micaceous, hard, brittle, very light gray-----	5	60

145-82-28ABB
NDSWC 3907

Elevation: 1865 ft

Glacial drift:			
	Topsoil, clayey, black-----	1	1
	Clay, plastic; gray with white streaks-----	2	3
	Gravel, fine to medium, sandy, iron-stained-----	11	14
	Sand, fine to medium, loose, micaceous, dark-greenish-gray; numerous small lignite fragments-----	17	31
Fort Union Group:			
	Sand, fine, clayey, micaceous, noncalcareous, greenish-gray-----	9	40

145-82-34DDC
NDSWC 3904

Elevation: 1950 ft

Glacial drift:			
	Topsoil, silty, black-----	1	1
	Silt, clayey, dusky-yellow-----	3	4
	Clay, hard, brittle, dusky-yellow-----	5	9
	Clay, plastic, dusky-yellow, iron-stained---	6	15
	Clay, silty, plastic, dusky-yellow-----	5	20
	Sand, medium to coarse; interbedded with fine gravel-----	13	33
	Clay, silty, sandy, olive-gray; scattered pebbles and gravel lenses (till)-----	82	115
Fort Union Group:			
	Sand, fine, micaceous, noncalcareous, greenish-gray-----	25	140

145-83-3AAA
NDSWC 4034

Elevation: 1915 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, sandy, black-----	1	1
	Silt, sandy, yellowish-gray-----	3	4
	Clay, silty, sandy, yellowish-gray to moderate-olive-brown; scattered pebbles (till)-----	31	35
	Sand, fine to medium, subrounded, reddish-brown; isolated gravel lenses-----	15	50
	Clay, silty, hard, dusky-yellow to moderate-olive-brown (bedrock boulder)----	28	78
	Silt, sandy, clayey, dusky-yellow-----	8	86
	Clay, silty, plastic, light-yellowish-gray to light-olive-gray; few sand interbeds---	38	124
	Clay, plastic, lignitic, fossiliferous, olive-gray; thin interbeds of silt and very fine to medium sand (fluvial-lacustrine)-----	132	256
	Gravel, fine to medium, sandy, angular to subrounded-----	13	269
	Clay, silty, sandy, pebbly, olive-gray; isolated gravel lenses (till)-----	13	282
	Gravel, fine, sandy, angular to subrounded; isolated lenses of detrital lignite-----	24	306
	Clay, silty, sandy, pebbly, olive-gray; isolated gravel lenses (till)-----	12	318
Fort Union Group:			
	Shale, hard, light-olive-gray; interbedded with very fine to fine greenish-gray micaceous calcareous sand-----	22	340

145-83-3ADD
NDSWC 3915

Elevation: 1895 ft

Glacial drift:			
	Clay, silty, sandy, yellowish-gray to moderate-olive-brown; scattered pebbles (till)-----	4	4
	Clay, silty, moderate-olive-brown; scattered sand and pebbles (till)-----	15	19
	Silt, clayey, light-greenish-gray-----	6	25
	Silt, sandy, clayey, moderate-olive-brown---	17	42
	Clay, silty, plastic, moderate-yellowish-brown-----	13	55
	Silt, sandy, clayey, carbonaceous, variegated green and gray-----	17	72
	Sand, fine, loose, lignitic, dark-brownish-gray-----	16	88
	Clay and clayey silt, plastic, olive-gray to dark-gray-----	22	110
	Clay, silty, sandy, olive-gray to black; few gravel lenses (till)-----	33	143
	Clay, stiff, dark-gray-----	12	155
Fort Union Group:			
	Shale, silty, light-gray to light-greenish-gray-----	6	161
	Shale, hard, brittle, green-----	6	167

145-83-3ADD, Continued
NDSWC 3915

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Fort Union Group, Continued:			
	Shale, silty, hard, brittle, light-olive-gray-----	4	171
	Sand, very fine, clayey, micaceous, carbonaceous, greenish-gray-----	11	182
	Shale, silty, carbonaceous, light-olive-gray-----	4	186
	Shale, hard, brittle, dark-gray, oily-----	6	192
	Sand, very fine; greenish-gray with black carbonaceous streaks-----	8	200

145-83-3DDD
NDSWC 3916

Elevation: 1900 ft

Glacial drift:			
	Silt, soft, yellowish-gray-----	5	5
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	9	14
	Clay, silty, moderate-olive-brown; scattered sand and pebbles (till)-----	14	28
	Gravel, fine to medium, angular to sub-rounded, iron-stained-----	3	31
	Clay, silty, moderate-olive-brown; scattered sand and pebbles (till)-----	8	39
Fort Union Group:			
	Shale, silty, hard, brittle, medium-gray----	5	44
	Silt, green and gray; with brown carbonaceous stains; interbedded with shale----	20	64
	Shale, hard, waxy, dark-green-----	6	70
	Sandstone, very fine, hard, calcareous, light-gray to white-----	4	74
	Shale, hard, brittle, dark-gray-----	6	80

145-83-8AAA
NDSWC 3917

Elevation: 1935 ft

Glacial drift:			
	Clay, silty, moderate-olive-brown; scattered sand and pebbles (till)-----	21	21
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	6	27
Fort Union Group:			
	Lignite, hard, fissile, black-----	7	34
	Shale, hard, waxy, dusky-green-----	7	41
	Shale, silty, sandy, carbonaceous, variegated gray and green-----	19	60

145-83-11BCC
NDSWC 2707

Elevation: 1900 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, clayey, grayish-black-----	1	1
	Clay, silty, calcareous, moderate-brown-----	15	16
	Clay, silty, calcareous, moderate-olive-brown, laminated (lacustrine)-----	15	31
	Clay, silty, calcareous, olive-gray to medium-dark-gray; scattered sand grains and pebbles (till)-----	11	42
Fort Union Group:			
	Shale, calcareous to noncalcareous, light-gray to medium-light-gray; interbedded with fine to medium sandstone-----	18	60

145-84-18BB
NDSWC 2705

Elevation: 1748 ft

Glacial drift:			
	Topsoil, silty, sandy, grayish-brown-----	1	1
	Clay, silty, sandy, calcareous, moderate-yellowish-orange; numerous reddish-brown laminations-----	13	14
	Clay, silty, sandy, lignitic, light-olive-gray to olive-brown; scattered pebbles (till)-----	10	24
	Sand, fine, well-sorted, subangular to rounded-----	4	28
	Clay, silty, calcareous, medium-dark-gray, laminated (lacustrine)-----	7	35
	Sand, medium, subangular to rounded-----	5	40
Fort Union Group:			
	Sandstone, noncalcareous, medium-light-gray; interbedded with pale-brown noncalcareous shale; lignite from 40.5 to 41.5 ft, 44 to 46 ft, and 52 to 53 ft--	20	60

145-84-4BAB
NDSWC 2708

Elevation: 1720 ft

Alluvium and glacial drift, undifferentiated:			
	Clay, silty, calcareous, light-olive-brown--	13	13
	Gravel, fine to medium, sandy, subangular to rounded-----	27	40
Fort Union Group:			
	Sandstone, noncalcareous, light-gray to medium-light-gray-----	20	60

145-84-9AAB
NDSWC 2703

Elevation: 1718 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Alluvium and glacial drift, undifferentiated:			
	Topsoil, silty, clayey, sandy, grayish-black	0.5	0.5
	Clay, silty, sandy, calcareous, moderate-yellowish-brown; gravel from 6-7 and 8-10 ft-----	11.5	12
	Gravel, medium to coarse, sandy, subangular to rounded-----	18	30
	Sand, medium to coarse, gravelly, silty, subangular to rounded-----	18	48
Fort Union Group:			
	Sandstone, medium, noncalcareous, medium-bluish-gray-----	32	80

145-84-11ABA
NDSWC 2704

Elevation: 1743 ft

Alluvium and glacial drift, undifferentiated:			
	Topsoil, silty, clayey, sandy, grayish-black	1	1
	Sand, medium to coarse, subangular to subrounded-----	21	22
	Clay, silty, sandy, calcareous, dark-yellowish-brown-----	5	27
	Gravel, medium, sandy, lignitic, subangular to subrounded-----	16	43
	Clay, sandy, silty, calcareous, medium-dark-gray to olive-gray; scattered pebbles and granules (till)-----	9	52
	Sand, medium to coarse, subangular to rounded-----	28	80
	Gravel, medium to coarse, sandy, subrounded to rounded-----	7	87
Fort Union Group:			
	Sandstone, medium, noncalcareous, medium-bluish-gray-----	33	120

145-84-14CDD
NDSWC 2701

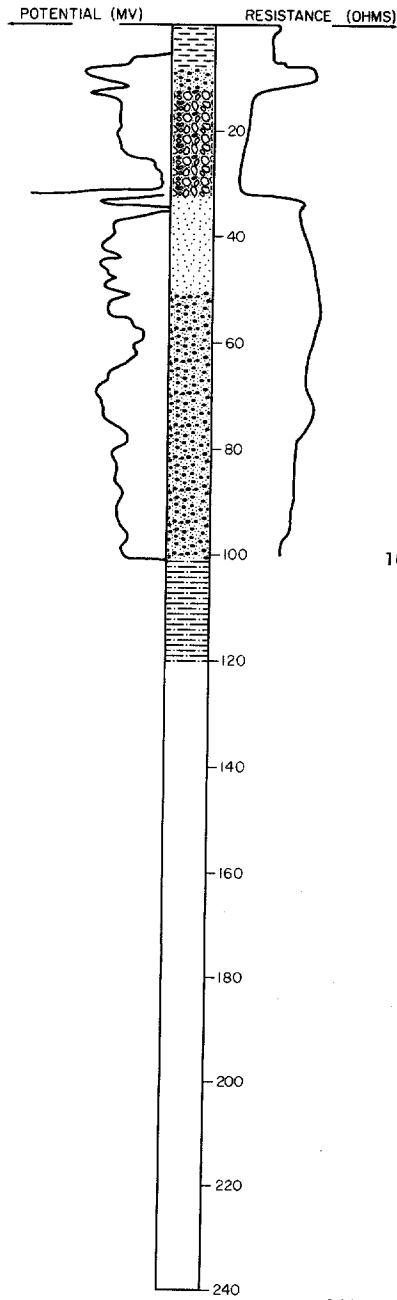
Elevation: 1726 ft

Alluvium and glacial drift, undifferentiated:			
	Topsoil, silty, clayey, grayish-black-----	1	1
	Clay, silty, sandy, calcareous, moderate-brown; scattered pebbles (till)-----	19	20
	Sand, medium to coarse, subangular to rounded-----	4	24
	Clay, silty, sandy, calcareous, moderate-yellowish-brown; scattered pebbles-----	2	26
	Sand, medium, angular to subrounded-----	7	33
	Clay, silty, sandy, calcareous, moderate-yellowish-brown, scattered pebbles-----	14	47
	Clay, silty, calcareous, dark-greenish-gray	6	53
	Sand, medium to coarse, lignitic, subangular to rounded-----	14	67
	Gravel, medium to coarse, lignitic, subangular to rounded-----	17	84
Fort Union Group:			
	Sandstone, noncalcareous, medium-light-gray-----	16	100

LOCATION: 145-84-15DDC
 ELEVATION: 1710
 (FT, MSL)

NDSWC 2702

DATE DRILLED: July 1967
 DEPTH: 120
 (FT)



DESCRIPTION OF DEPOSITS

Glacial drift

- 0-1 Clay, silty, grayish-black (topsoil).
- 1-8 Clay, silty, yellowish-brown; scattered sand.
- 8-11 Gravel, medium to coarse, clayey, sandy, subangular to rounded.
- 11-26 Clay, silty, sandy, yellowish-brown; scattered pebbles (till).
- 26-32 Clay, silty, sandy, grayish-brown; scattered pebbles (till).
- 32-50 Sand, medium to coarse, angular to subrounded.
- 50-100 Gravel, fine to medium, sandy, subangular to subrounded.

Fort Union Group

- 100-120 Shale, noncalcareous, medium-gray; interbedded with noncalcareous medium-gray sandstone.

145-84-22DAD
(Log from U.S. Bureau of Reclamation)

Elevation: 1723.3 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Sand, fine, silty, light-gray; trace of clay 12-18 ft-----	21	21
	Gravel, medium to coarse, sandy-----	21	42
	Sand, fine to medium, grayish-brown; trace of silt and scattered gravel and cobbles--	18	60
	Sand, gravel, and cobbles-----	10	70
	Sand, clayey, gravelly-----	6	76
	Sand, gravel, and cobbles-----	9	85
	Limestone boulder-----	2.5	87.5
	Sand, gravel, and cobbles-----	2.5	90
Fort Union Group(?):			
	Sand and lignite, compact-----	3.5	93.5

145-84-23AAA
NDSWC 2700

Elevation: 1758 ft

Alluvium and glacial drift, undifferentiated:			
	Topsoil, silty, clayey, grayish-black-----	1	1
	Clay, silty, calcareous, light-olive-brown--	8	9
	Gravel, fine to medium, sandy, subangular to subrounded-----	11	20
	Clay, silty, sandy, medium-dark-gray; scattered pebbles (till)-----	11	31
	Gravel, medium to coarse, subangular to rounded-----	4	35
	Sand, coarse, well-sorted, subangular to rounded-----	22	57
	Gravel, medium to coarse, sandy, subrounded-Clay, calcareous, medium-dark-gray; scattered pebbles (till)-----	41	100
	Gravel, medium, sandy, subangular to sub-rounded; interbedded with clay-----	12	112
	Clay, dark-gray; scattered pebbles (till)---	4	116
Fort Union Group:			
	Sandstone, noncalcareous, light-gray to medium-light-gray; few interbeds of bluish-green clay-----	20	140

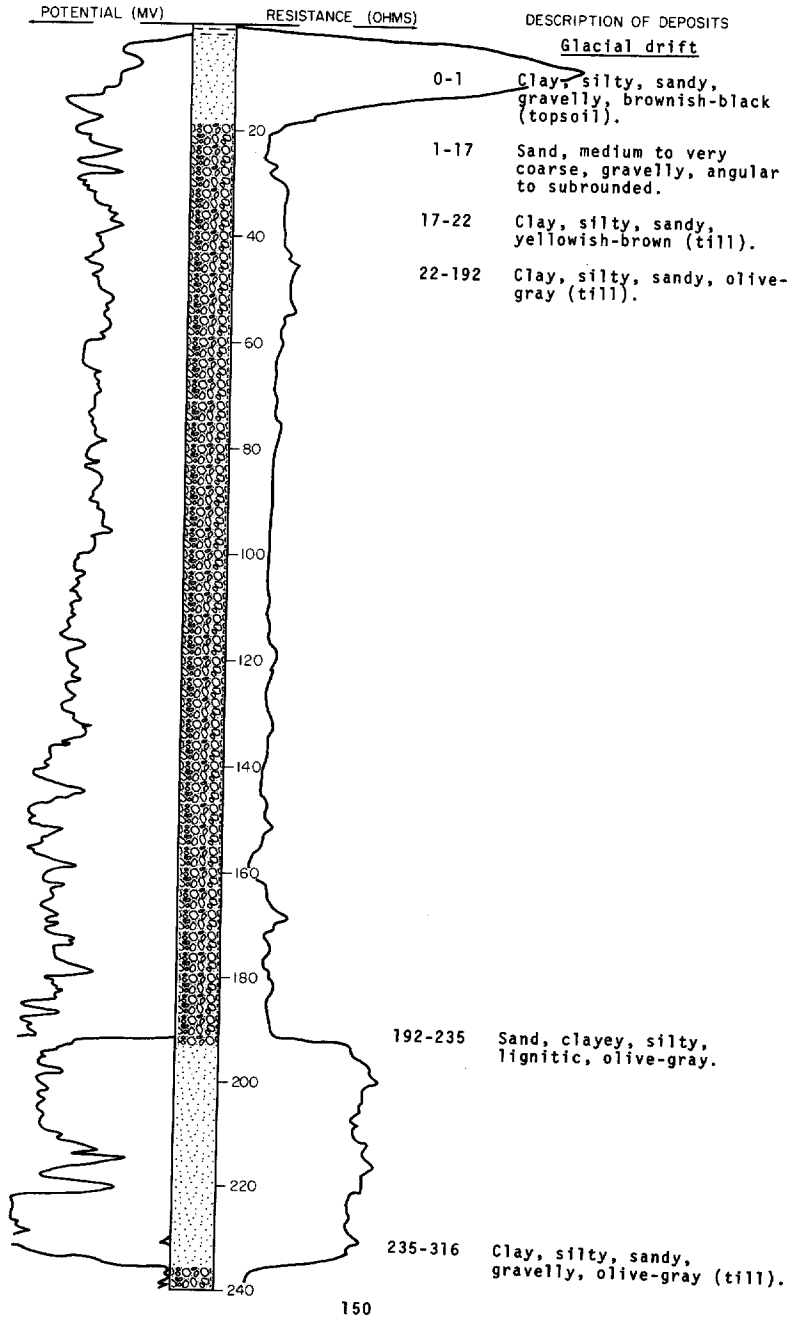
LOCATION: 146-79-12BBC

NDSWC 2867

DATE DRILLED: October 1967

ELEVATION: 1920
(FT, MSL)

DEPTH: 340
(FT)

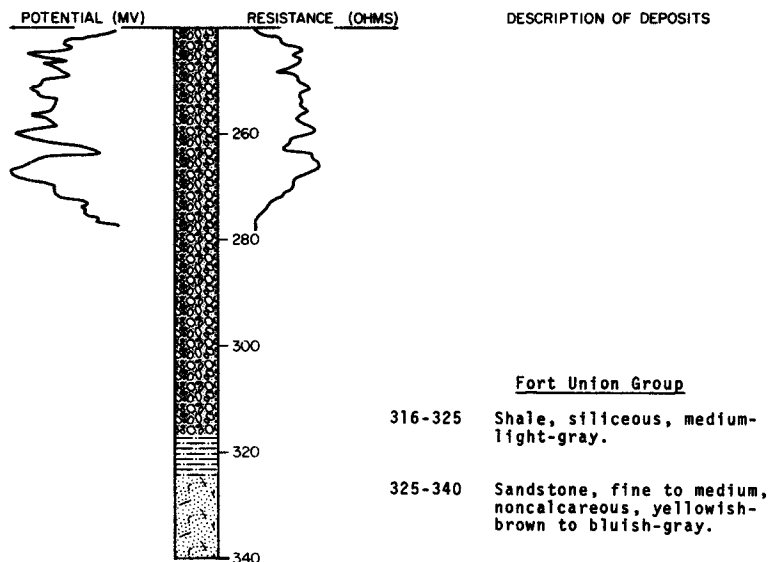


LOCATION: 146-79-12BBC
 ELEVATION: 1920
 (FT, MSL)

NDSWC 2867, Continued

DATE DRILLED: October 1967

DEPTH: 340
 (FT)



146-79-15ADD
 NDSWC 2866

Elevation: 1862 ft

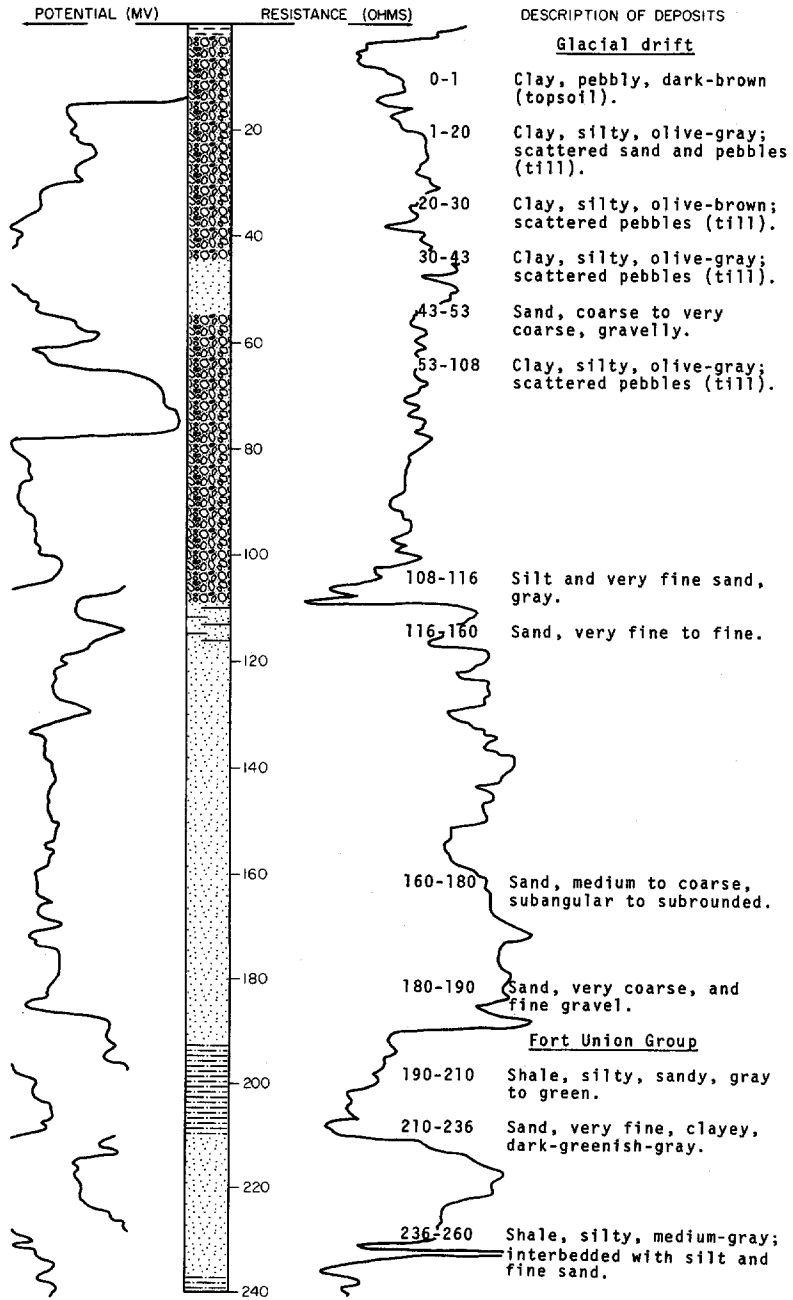
<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, sandy, gravelly, brownish-black-----	1	1
	Sand, coarse to very coarse, gravelly, angular to subrounded-----	24	25
	Clay, silty, sandy, calcareous, olive-gray to medium-dark-gray (till)-----	57	82
	Clay, silty, plastic, calcareous, olive-gray to medium-gray, laminated-----	28	110
	Clay, silty, sandy, calcareous, olive-gray (till)-----	10	120
	Clay, silty, plastic, olive-gray to medium-dark-gray-----	90	210
Fort Union Group:			
	Shale, siliceous, noncalcareous, medium-light-gray to medium-gray-----	11	221
	Sandstone, fine to medium, subangular to rounded, noncalcareous, light-bluish-gray-----	19	240

146-79-15DAA
 NDGS auger hole 44

Elevation: 1863 ft

Glacial drift:			
	Sand, gravelly, silty-----	25	25
	Clay (glacial till)-----	1	26

LOCATION: 146-79-34BBB NDSWC 3883 DATE DRILLED: October 1969
 ELEVATION: 1820 DEPTH: 820
 (FT, MSL) (FT)



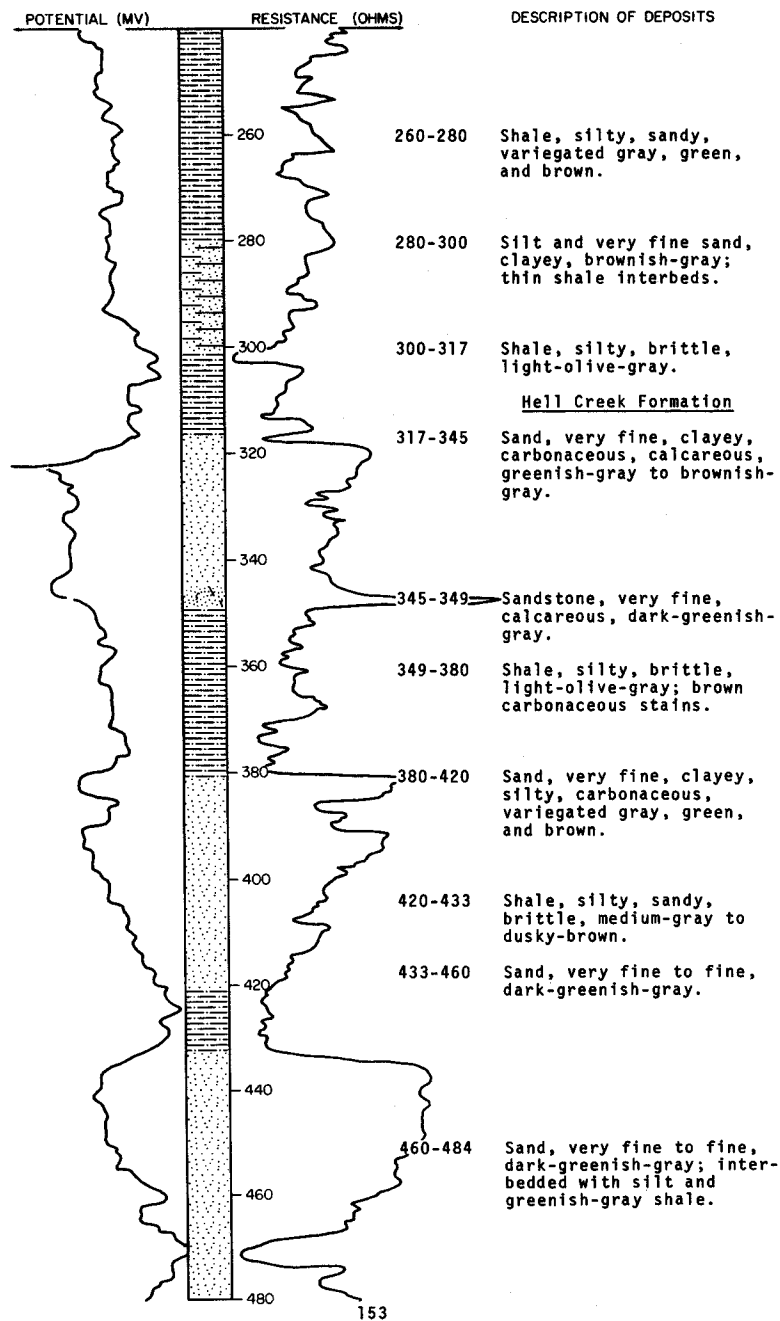
LOCATION: 146-79-348BB

NDSWC 3883, Continued

DATE DRILLED: October 1969

ELEVATION: 1820
(FT, MSL)

DEPTH: 820
(FT)



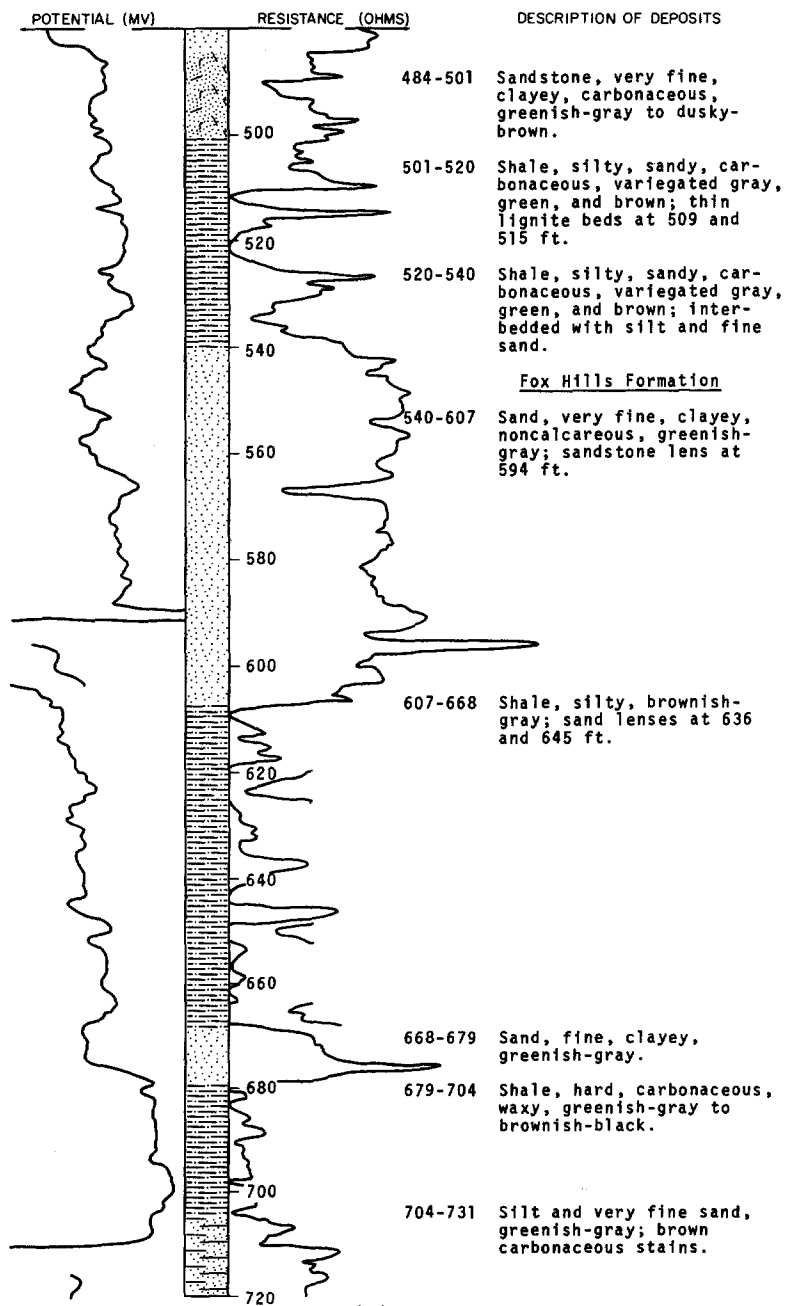
NDSWC 3883, Continued

LOCATION: 146-79-34888

DATE DRILLED: October 1969

ELEVATION: 1820
(FT, MSL)

DEPTH: 820
(FT)



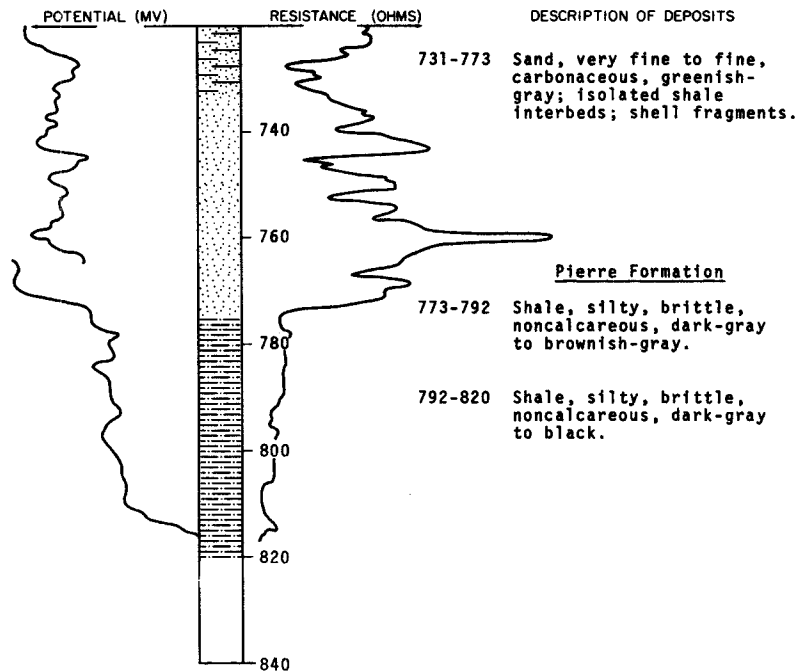
NDSWC 3883, Continued

LOCATION: 146-79-34888

DATE DRILLED: October 1969

ELEVATION: 1820
(FT, MSL)

DEPTH: 820
(FT)



146-80-4DBB

(Log from U.S. Bureau of Reclamation)

Elevation: 1835 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Clay, sandy, dark-gray-----	2.5	2.5
	Sand, silty, brown-----	7.5	10
	Clay, sandy, brown to dark-gray; silty sand zones 14.5-15.5 ft and 17-18 ft-----	9	19
	Sand and gravel-----	6	25
Fort Union Group:			
	Shale, sandy, dark-gray to medium-gray; numerous lignite inclusions-----	5	30
	Siltstone, sandy, hard, medium-gray-----	15	45
	Shale, sandy, hard, medium-gray-----	5	50

146-80-4DCD
NDGS auger hole 66

Elevation: 1835 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Silt, sandy-----	1	1
	Sand, silty, gravelly-----	12	13
	Gravel-----	2	15

146-80-9AAB2
(Log from U.S. Bureau of Reclamation)

Elevation: 1863 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Fort Union Group:			
	Clay (shale), silty, firm to hard; abundant carbonized plant fragments, gray-----	32.5	32.5
	Clay (shale), silty, bentonitic, gray; includes 2-inch thick lignite bed-----	2.5	35
	Silt (shale), clayey, firm to hard, gray---	6.2	41.2
	Sand, fine, clayey, micaceous, compact, gray-brown-----	14.6	55.8
	Sand, fine, micaceous, fairly clean, moderately compacted, gray-----	27.6	83.4
	Silt (shale) clayey, firm to hard, gray----	10.6	94
	Lignite, hard, brittle, black-----	3.7	97.7
	Clay (shale), bentonitic, gray-----	2.3	100

146-80-9AAB3
(Log from U.S. Bureau of Reclamation)

Elevation: 1844.5 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Topsoil-----	0.5	0.5
	Clay, sandy, brown; abundant organic material 0.5-2.5 ft-----	4.5	5
Glacial drift:			
	Sand, fine, silty, brown; trace of clay----	4.5	9.5
	Clay (glacial till), gravelly, gray-----	.5	10
Fort Union Group:			
	Clay, shale, and siltstone, interbedded, light-gray; lignite zone 24.8 to 25 ft----	18	28
	Sandstone, fine, silty, compact, light-gray-	22	50

146-80-9ABA
(Log from U.S. Bureau of Reclamation)

Elevation: 1834.3 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil (clay), silty, sandy-----	2.8	2.8
	Clay, sandy, soft to stiff, slightly plastic, brown-----	6.9	9.7
	Clay, sandy, soft, moderately plastic, gray-brown-----	2.3	12
	Sand, medium, slightly clayey, gravelly, gray-brown-----	16	28
	Sand, medium, clayey, gravelly, gray-brown--	7.5	35.5
	Silt, sandy, slightly clayey, soft, gray---	3.5	39
	Sand and gravel, fairly well graded from medium sand to fine gravel, clean, loose, gray-----	20.8	59.8

146-80-9ABA, Continued
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
Fort Union Group:			
	Silt (shale), clayey, firm, gray-----	4.1	63.9
	Lignite, hard, brittle, black-----	3.1	67
	Clay (shale), bentonitic, stiff, gray-brown-----	3	70

146-80-9ABB1
(Log from U.S. Bureau of Reclamation)

Elevation: 1828.2 ft

Glacial drift:			
	Clay, silty, soft, organic, very plastic, black-----	4	4
	Clay, silty, stiff, moderately plastic, gray-brown-----	10.8	14.8
	Clay, organic, soft to stiff, very plastic, black-----	1.7	16.5
	Clay, silty, sandy, organic, gray-brown; contains abundant pelecypod and gastropod shells-----	6.5	23
	Clay, very sandy, soft, gray-----	2.8	25.8
	Sand, fine to medium, clean, gray; clayey from 25.8-28 ft-----	10.2	36
	Sand, medium to coarse, loose, gray; trace of clay; grains are composed chiefly of shale-----	5	41
	Sand, medium to coarse, clean, gray-brown-----	9	50
	Sand and gravel, medium sand to fine gravel, gray-brown; trace of silt and clay-----	4	54
Fort Union Group:			
	Silt (shale), firm, clayey, gray-----	5	59
	Lignite, hard, brittle, black-----	1	60
	Clay (shale), bentonitic, firm to hard, gray-brown-----	5	65

146-80-9ABB2
(Log from U.S. Bureau of Reclamation)

Elevation: 1841.6 ft

Glacial drift:			
	Topsoil, silty, organic, black-----	2	2
	Clay, sandy, buff-----	4.3	6.3
Fort Union Group:			
	Clay (shale), silt lenses, firm, gray-brown-----	10.2	16.5
	Silt (shale), sandy, gray-brown, laminated; weakly indurated zones consist of compacted clayey sandy silt-----	8.5	25
	Sand, fine to medium, clayey, micaceous, moderately to well compacted, brown to gray-----	12.5	37.5
	Sand, fine to medium, micaceous, clean, loose, well compacted, gray-----	26.5	64
	Clay, (shale), bentonitic, firm to hard, gray-brown-----	1	65

146-80-9BAA
(Log from U.S. Bureau of Reclamation)

Elevation: 1887.5 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Sand, very fine, silty, clayey, buff-----	3.7	3.7
	Sand and gravel, silty, loose, gravel fine to medium, buff-----	2.3	6
	Sand, very fine, silty, loose, buff-----	3.5	9.5
Fort Union Group:			
	Clay (shale), firm to hard, gray-brown; contains several thin silt-clay zones-----	14.9	24.4
	Silt (shale), clayey, gray-brown-----	2	26.4
	Clay (shale), silty, bentonitic, very stiff, tan-----	1.1	27.5
	Lignite, hard, brittle, black-----	2.7	30.2
	Clay (shale), bentonitic, hard, greenish- gray; contains small lignite inclusions---	20	50.2
	Silt (shale), sandy, hard, light-gray; lignite from 49-50.8 ft and 59.8-60.4 ft--	19.8	70
	Sand, very fine, silty, micaceous, well compacted, gray to greenish-gray-----	43.5	113.5
	Clay (shale), silty, hard, gray; lignite 123.5-126.7 ft-----	16.5	130

146-80-9DBB
(Log from U.S. Bureau of Reclamation)

Elevation: 1836 ft

Glacial drift:			
	Topsoil-----	0.5	0.5
	Clay, sandy, brown-----	5.5	6
	Sand, fine, silty, brown-----	4.2	10.2
	Clay, sandy, brown to gray; bottom 2.5 ft is all clay-----	4.8	15
	Sand, fine, silty, brown to gray-----	25	40
	Gravel; trace of clay-----	1.5	41.5
	Clay, sandy; some gravel-----	1	42.5
Fort Union Group:			
	Clay, shale, and siltstone, interbedded, gray-----	17.5	60

146-80-16BBB
(Log from U.S. Bureau of Reclamation)

Elevation: 1843.9 ft

Glacial drift:			
	Topsoil, sandy, silty-----	2	2
	Sand, very fine to fine, silty, tan-----	10.5	12.5
Fort Union Group:			
	Shale, bentonitic, brown; trace of fine sand	3.5	16
	Siltstone, sandy, light-gray and tan; contains silt and clay laminae-----	4	20
	Shale, silty, moderately hard, light-gray to dark-gray; silt and sand laminae 33.8- 34.6 ft; lignite and lignitic shale 35-39 ft-----	20	40
	Siltstone, sandy; becoming clayey with depth; compact, light-gray-----	10.6	50.6
	Shale, silty, sandy, moderately hard, medium-gray-----	9.4	60

146-80-17DAB
(Log from U.S. Bureau of Reclamation)

Elevation: 1837.2 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, clayey sand, some organic material, slightly plastic, dark-gray-----	2.5	2.5
	Sand, fine, clayey, tan; contains shale fragments-----	19.5	22
Fort Union Group:			
	Shale, sandy, and siltstone, medium-gray to brown; sandy to plastic shale 22-26 ft, uncemented sandy siltstone 26-30 ft, silty shale 30-31 ft, lignite 25.3-25.4 ft	9	31
	Sandstone, fine, silty, light-gray to brown-----	29	60

146-80-17DCC
(Log from U.S. Bureau of Reclamation)

Elevation: 1846.1 ft

Glacial drift:			
	Topsoil, sandy clay, some organic material, dark-gray-----	1	1
	Clay, sandy, moderately hard-----	4	5
Fort Union Group:			
	Siltstone, sandy, brown to light-gray-----	1	6
	Shale, plastic, brown to light-gray-----	2	8
	Siltstone, sandy, brown to light-gray-----	3	11
	Shale, silty, brown to light-gray-----	3.7	14.7
	Siltstone, brown to light-gray-----	5.3	20
	Shale, silty, medium-gray-----	10.5	30.5
	Siltstone, medium-gray-----	4.5	35
	Shale, silty, medium-gray-----	25	60

146-80-19ABB
NDSWC 2860

Elevation: 1815 ft

Glacial drift:			
	Topsoil, silty, grayish-black-----	2	2
	Clay, silty, sandy, plastic, light-brownish-gray to dark-greenish-gray-----	8	10
	Clay, sandy, silty, calcareous, dark-greenish-gray-----	6	16
	Gravel, fine to coarse, sandy, angular to subrounded-----	12	28
Fort Union Group:			
	Sandstone, fine to medium, noncalcareous, light-gray to light-bluish-gray-----	22	50
	Shale, siliceous, noncalcareous, grayish-brown-----	10	60

146-80-20CAA
(Log from U.S. Bureau of Reclamation)

Elevation: 1852.5 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, sandy, dark-gray-----	1	1
	Sand, clayey, brown; scattered gravel-----	5.5	6.5
Fort Union Group:			
	Shale, silty, compact, medium-gray; silty sand laminae 9-10 ft and 14.2-14.4 ft-----	9.5	16
	Siltstone, sandy, moderately hard, light-gray to yellowish-brown-----	12.5	28.5
	Shale, moderately hard, medium- to dark-gray; becomes more silty from 31-40 ft, trace of fine sand and lignite from 39.7-40 ft-----	11.5	40
	Siltstone, sandy, compact, light-gray-----	4	44
	Shale, silty, moderately hard, medium-gray--	16	60

146-80-29BAB
(Log from U.S. Bureau of Reclamation)

Elevation: 1882.9 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, sandy, dark-gray-----	1	1
	Clay, sandy, tan; scattered gravel, cobbles, and boulders-----	5.5	6.5
	Clay (glacial till), sandy, brown; scattered gravel, cobbles, and boulders---	18	24.5
Fort Union Group:			
	Shale, moderately hard, brown; trace of very fine sand-----	.4	24.9
	Sandstone, very fine, compact, brown-----	12.6	37.5
	Shale, moderately hard, light-gray to dark-gray; cemented shalestone 43-43.1 ft, silty shale with higher sand content 45-55 ft, lignitic shale 56.5-57 ft and from 59.8-59.9 ft-----	23	60.5
	Siltstone, sandy, compact, light-gray; silty sandstone 64.5-64.9 ft and from 70-70.8 ft, silty shale from 73.7-75 ft---	15.8	76.3
	Shale and siltstone, interbedded, medium-gray; shale is moderately hard-----	8.7	85

146-80-29BCA
(Log from U.S. Bureau of Reclamation)

Elevation: 1863.5 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Clay, stiff, moist, gray-brown-----	13.5	13.5
	Silt and fine sand, buff-----	2.5	16
	Silt, clayey, buff-----	2	18
	Sand, medium and gravel, fine to medium, clayey, brown-----	1.3	19.3
	Clay (glacial till), silty, sandy, stiff, brown to gray; abundant pebbles and lignite fragments-----	17.3	36.6
	Sand, fine to coarse, silty, clayey, gravelly, brown-----	3.8	40.4
	Sand, fine, silty, clayey, brown-----	2.7	43.1

146-80-29BCA, Continued
(Log from U.S. Bureau of Reclamation)

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift, Continued:			
	Sand, fine and gravel, medium, silty, clayey, gray-brown-----	7.4	50.5
Fort Union Group:			
	Sand, very fine to fine, silty, micaceous, compacted, brown to gray; lignitic from 60.8-61 ft-----	10.3	60.8
	Clay (shale), bentonitic, hard, gray; includes a few small carbonized plant fragments-----	5.9	66.7
	Lignite, hard, brittle, black-----	2.3	69
	Clay (shale), bentonitic, hard, gray; includes a few small carbonized plant fragments-----	3.8	72.8
	Clay (shale), bentonitic, very stiff to hard, gray; siltstone concretion from 93-93.2 ft	22.7	95.5
	Lignite, brittle, black; shaly from 95.8-98.6 ft-----	3.1	98.6
	Clay (shale), bentonitic, gray-----	2.6	101.2

146-80-29BCB1
(Log from U.S. Bureau of Reclamation)

Elevation: 1812 ft

Glacial drift:			
	Topsoil-----	0.5	0.5
	Sand, fine, clayey, brown-----	4.5	5
	Sand, fine to medium, clayey, gray-brown----	7.1	12.1
	Sand, fine to medium and gravel, fine, clayey, gray-----	2.9	15
	Sand, fine to medium, clayey, gray-brown----	3.2	18.2
	Silt, sandy, gray; trace of clay and laminated-----	2.8	21
	Sand, fine to medium, clean, gray-----	4	25
	Sand, fine to medium, clayey, gray; trace of fine gravel-----	5.2	30.2
Fort Union Group:			
	Clay (shale), bentonitic, stiff, gray-----	4.8	35
	Clay (shale), organic, gray to black-----	1.5	36.5
	Lignite, hard, black-----	1.5	38
	Clay (shale), bentonitic, stiff, gray; very sandy and hard from 44-45 ft-----	7	45

146-80-29BCB2
(Log from U.S. Bureau of Reclamation)

Elevation: 1807.3 ft

Glacial drift:			
	Topsoil-----	0.5	0.5
	Sand and clay, gray; fine to medium clayey sand with included strata of sandy plastic clay; sand proportion increases with depth	19.8	20.3
	Sand, medium, clean, loose, gray-brown; 5-10 percent fine gravel-----	12.7	33
Fort Union Group:			
	Lignite, black; thin laminae of clay shale--	2.5	35.5
	Shale, silty, gray; grades from silty shale to bentonitic type clay shale-----	7.5	43

146-80-30AAC
(Log from U.S. Bureau of Reclamation)

Elevation: 1866.3 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, clayey, organic, brown-----	1	1
	Sand, fine to coarse, brown to gray; scattered gravel-----	6	7
	Sand, very fine, gray; some gravel and silt- Clay (glacial till), silty, sandy, brown from 20-31 ft, gray from 31 to 65 ft; scattered gravel-----	13	20
		45	65
Fort Union Group:			
	Clay shale, silty, compact, light- to medium-gray; contains lenses of silt throughout-----	7	72
	Siltstone, sandy, slightly clayey, gray-----	14.5	86.5
	Clay shale, silty, lignitic, compact, gray; lignitic clay shale from 86.5-89 ft-----	8	94.5
	Lignite-----	4.5	99
	Siltstone, sandy, clayey, gray-----	9	108

146-80-30AAD1
(Log from U.S. Bureau of Reclamation)

Elevation: 1849.9 ft

Glacial drift:			
	Topsoil, clay-----	1.5	1.5
	Clay (glacial till), silty, sandy, gray- brown; abundant pebbles and lignite fragments-----	23.5	25
	Clay (glacial till), silty, sandy, pebbly, stiff to hard, gray; silt, sand, and gravel lens from 40.6-42.4 ft-----	26	51
Fort Union Group:			
	Clay (shale), silty, bentonitic, stiff to hard, gray-----	5	56
	Sand, fine to medium, loose, gray; streaked with fine lignite fragments, includes clay lenses-----	14	70
	Sand, fine, micaceous, loose, gray; trace of clay-----	3.9	80.4
	Lignite-----	2.5	82.9
	Clay, sandy, stiff, gray-----	2.1	85
	Clay (shale), silty, stiff to hard, gray; includes zones of clayey silt-----	10	95

146-80-30AAD2
(Log from U.S. Bureau of Reclamation)

Elevation: 1809.5 ft

Glacial drift:			
	Topsoil, clay-----	1.5	1.5
	Clay, silty, stiff, gray-----	3.5	5
	Clay, silty, sandy, soft, very plastic, gray	5.5	10.5
	Sand, fine, very clayey, gray-----	3.5	14
	Sand, medium to coarse and fine loose gray gravel-----	2.5	16.5
Fort Union Group:			
	Sand, fine, micaceous, clayey, moderately compacted, gray-----	7.0	23.5

146-80-30AAD2, Continued
(Log from U.S. Bureau of Reclamation)

Geologic source	Material	Thickness (feet)	Depth (feet)
Fort Union Group, Continued:			
	Silt (shale), very clayey, well compacted, gray-----	1.4	24.9
	Silt (shale), clayey, well compacted, gray-----	2.6	27.5
	Clay (shale), silty, stiff, gray-----	2.5	30

146-80-35DDC
NDSWC 2912

Elevation: 1852 ft

Glacial drift:

	Topsoil, gravelly, sandy, silty, moderate-yellowish-brown-----	1	1
	Gravel, fine to coarse, sandy, angular to subrounded, moderate-yellowish-brown-----	25	26
	Gravel, fine to coarse, sandy; interbedded with clay lenses-----	10	36
	Clay, gravelly, sandy, silty, medium-dark-gray (till)-----	8	44
	Gravel, fine to coarse, sandy, clayey-----	8	52
	Clay, silty, sandy, gravelly, olive-gray to medium-gray (till)-----	73	125
	Clay, silty, sandy, calcareous, olive-gray to medium-dark-gray-----	15	140
	Clay, gravelly, sandy, olive-gray (till)----	13	153

Fort Union Group:

	Sandstone, fine to medium, medium-bluish-gray; calcareous near top but noncalcareous at bottom-----	27	180
--	---	----	-----

146-81-2CDD
NDSWC 3934

Elevation: 1952 ft

Glacial drift:

	Topsoil, pebbly, dark-yellowish-brown-----	1	1
	Sand, fine, clayey, silty, pebbly, yellowish-gray-----	3	4
	Clay, silty, sandy, pebbly, moderate-olive-brown (till)-----	14	18

Fort Union Group:

	Silt, clayey, dusky-yellow-green-----	15	33
	Sand, very fine to medium, micaceous, non-calcareous, dark-yellowish-green-----	46	79
	Lignite, brittle, black; interbedded with dark-green shale-----	5	84
	Silt, light-gray-----	18	102
	Shale, sandy, lignitic, black-----	8	110
	Sand, very fine to fine, clayey, carbonaceous, dusky-green-----	10	120
	Silt, soft, carbonaceous, dusky-brown-----	5	125
	Sand, fine, micaceous, lignitic, dusky-green-----	28	153
	Shale, silty, sandy, light- to medium-gray; numerous silt and sand interbeds-----	40	193
	Silt, soft, light-gray to light-olive-gray; carbonaceous streaks; thin interbeds of shale-----	24	217

146-81-2CDD, Continued
NDSWC 3934

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Fort Union Group, Continued:			
	Shale, silty, medium-gray-----	20	237
	Silt, light-bluish-gray-----	7	244
	Shale, silty, sandy, medium-gray; thin interbeds of sandstone and silt-----	36	280
	Sandstone, very fine, calcareous, dark- greenish-gray-----	11	291
	Shale, sandy, micaceous, carbonaceous, olive-black-----	22	313
	Shale, silty, sandy, noncalcareous, light- gray to medium-gray-----	83	396
Hell Creek Formation(?):			
	Sandstone-----	12	408
	Shale, silty, sandy, carbonaceous, varie- gated gray, green, and brown-----	9	417
	Sandstone-----	12	429
	Shale, silty, sandy, carbonaceous, variegated gray, green, and brown-----	48	477
	Silt, medium-gray-----	6	483
	Shale, silty, cohesive, medium-gray-----	12	495
	Sand, very fine, clayey, light-green-----	23	518
	Shale, hard, brittle, carbonaceous, noncalcareous, brownish-black-----	22	540

146-81-2DCC

H. Hanson Oil Syndicate - N.E. Hanson No. 1

Elevation: 1947 ft

Log available from the North Dakota Geological Survey.

146-81-10CAC

Samedan Oil Co. - Vaughn Hanson Oil Test No. 1

Elevation: 1985 ft

Log available from the North Dakota Geological Survey

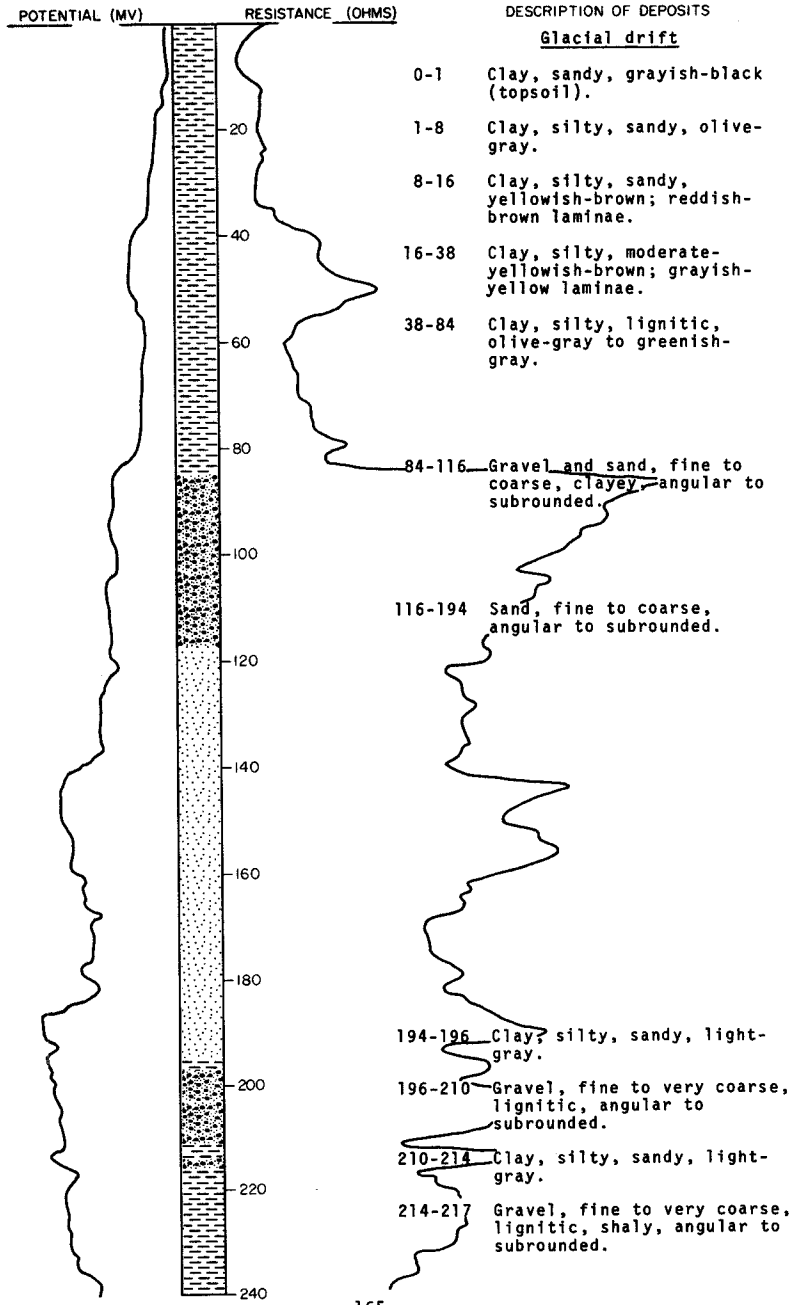
LOCATION: 146-81-18CDD

NDSWC 2859

DATE DRILLED: October 1967

ELEVATION: 1920
(FT, MSL)

DEPTH: 280
(FT)



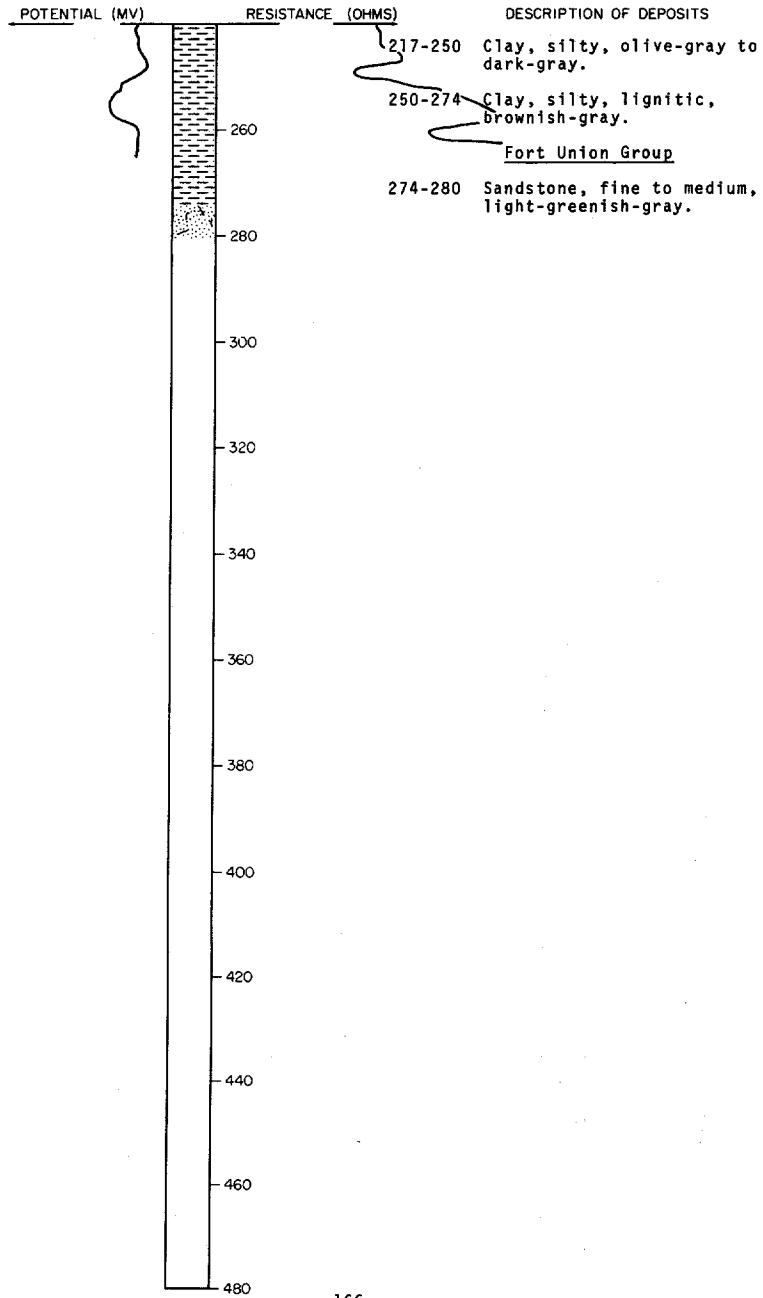
NDSWC 2859, Continued

LOCATION: 146-81-18CDD

DATE DRILLED: October 1967

ELEVATION: 1920
(FT, MSL)

DEPTH: 280
(FT)



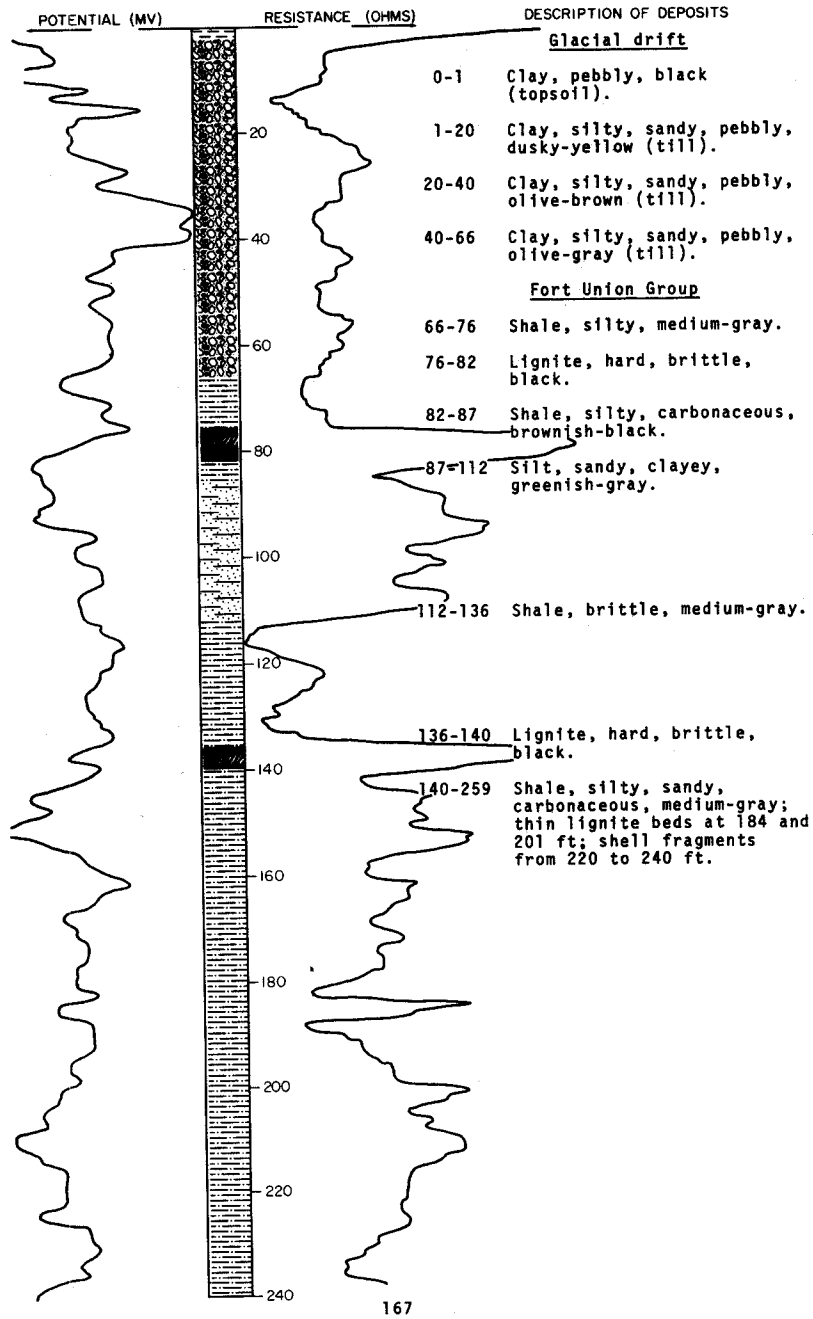
LOCATION: 146-82-5CCC

NDSWC 3922

DATE DRILLED: November 1969

ELEVATION: 2027
(FT, MSL)

DEPTH: 400
(FT)



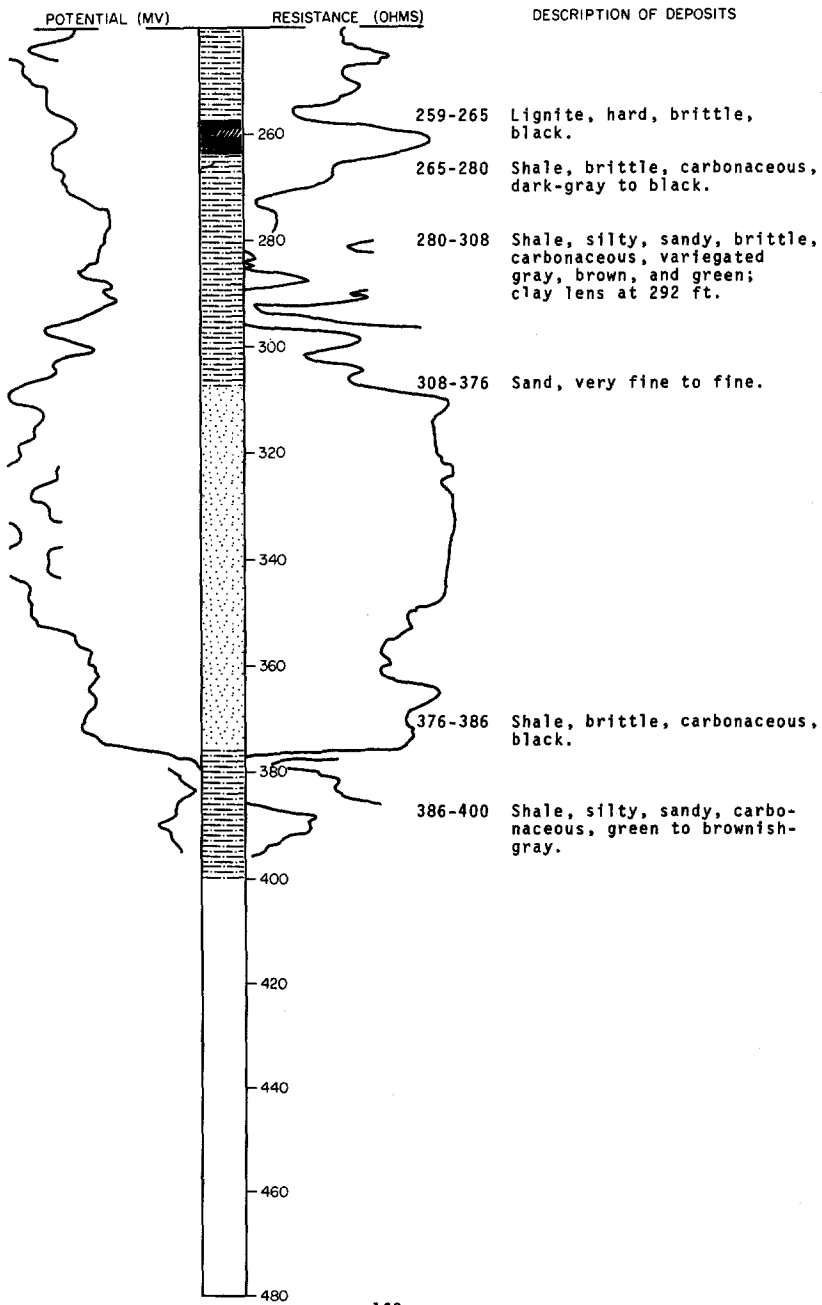
LOCATION: 146-82-5CCC

NDSWC 3922, Continued

DATE DRILLED: November 1969

ELEVATION: 2027
(FT, MSL)

DEPTH: 400
(FT)



146-82-20AAB
NDSWC 4039

Elevation: 2025 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Gravel, sandy, angular to subrounded, reddish-brown-----	6	6
	Clay, silty, sandy, pebbly, moderate-olive-brown (till)-----	13	19
	Sand, fine, clayey, silty, yellowish-green-----	27	46
Fort Union Group:			
	Sand, fine, clayey, micaceous, greenish-gray-----	3	49
	Shale, silty, hard, calcareous, medium-gray-----	11	60

146-82-21BBD
Underwood City Well 2
(Log from C. A. Simpson & Son)

Elevation: 2025 ft

Yellow clay-----	20	20
Sandy yellow clay-----	10	30
Soft sandy clay-----	5	35
Sandy brown clay-----	15	50
Hard sandy brown clay-----	13	63
Sandy yellow clay-----	12	75
Sandy gray shale-----	20	95
Gray shale-----	3	98
Mushy sandy shale-----	4	102
Brown shale-----	3	105
Coal-----	10	115

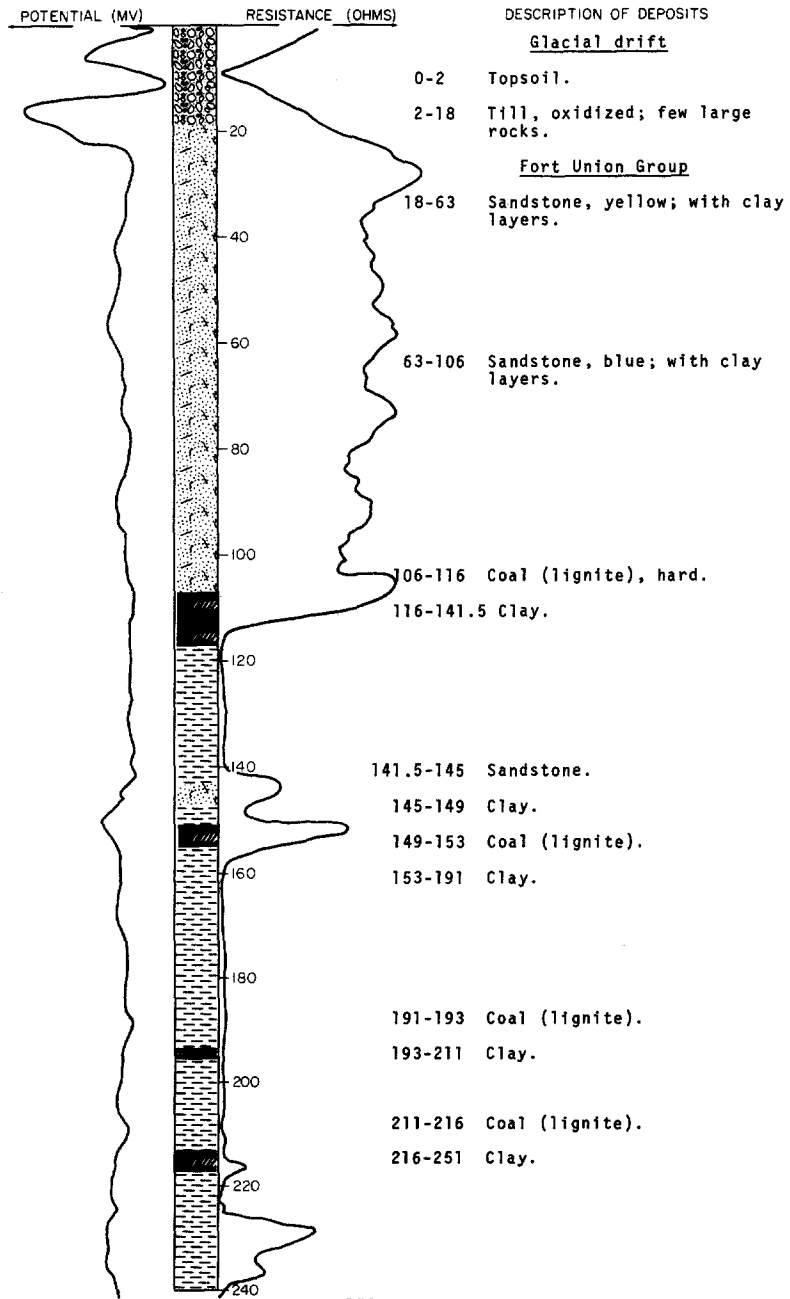
LOCATION: 146-82-21BDC

City of Underwood
Test hole 3

DATE DRILLED: March 1964

ELEVATION: 2045
(FT, MSL)

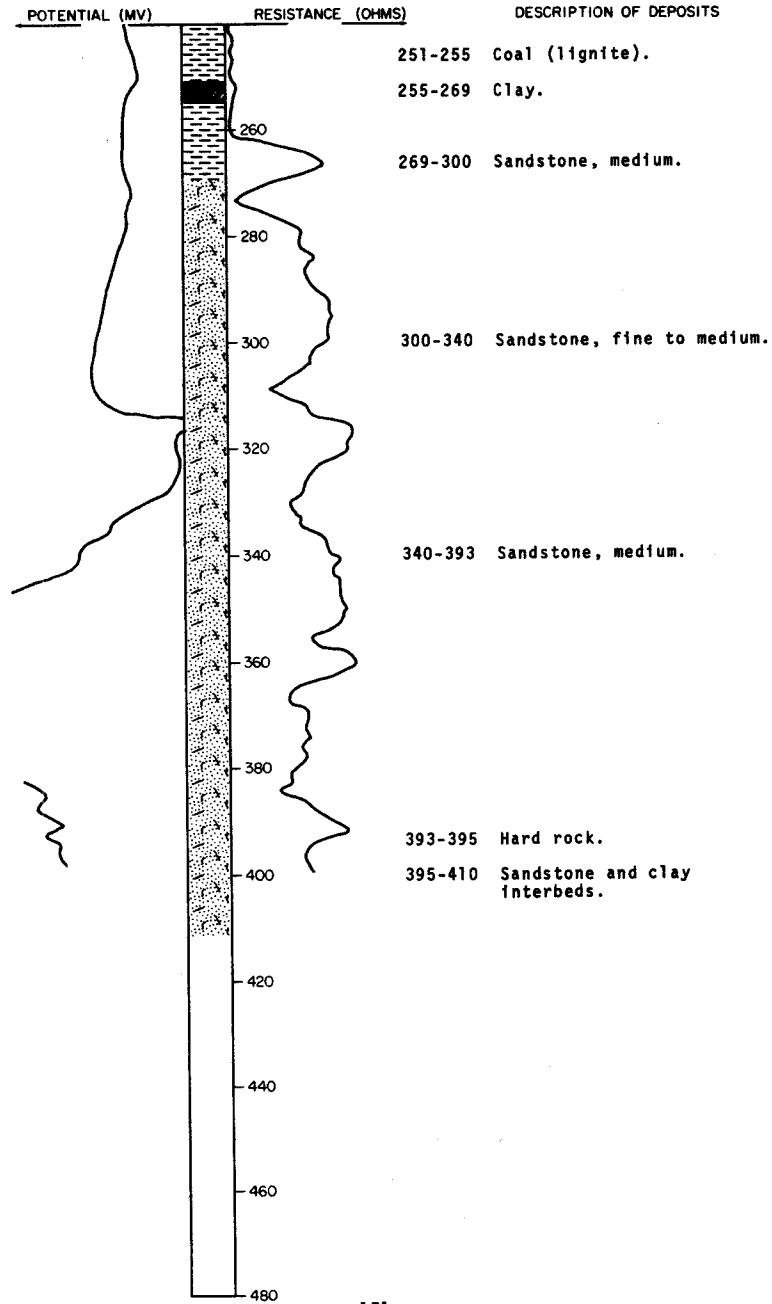
DEPTH: 410
(FT)



LOCATION: 146-82-21BDC
ELEVATION: 2045
(FT, MSL)

City of Underwood
Test hole 3
Continued

DATE DRILLED: March 1964
DEPTH: 410
(FT)



146-82-21BDD
Underwood City Well 5
(Log from Schnell, Inc.)

Elevation: 2026 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Clay, sandy-----	16	16
Fort Union Group(?):			
	Sandstone, yellow-----	49	65
	Sandstone, blue-----	38	103
	Coal-----	13	116
	Clay-----	19	135
	Coal-----	3	138
	Clay-----	26	164
	Coal-----	3	167
	Clay-----	57	224
	Coal-----	3	227
	Clay-----	29	256
	Coal-----	4	260
	Clay-----	9	269
	Sandstone, medium-----	21	290
	Sandstone, fine, with clay layers-----	40	330
	Sandstone, medium-----	25	355
	Sandstone, fine, with some clay-----	15	370
	Sandstone, medium-----	15	385

146-82-21CBB1
Underwood City Well 1
(Log from C. A. Simpson & Son)

Elevation: 2024 ft

	Hard clay-----	19	19
	Sandy yellow clay-----	49	68
	Sandy gray shale-----	17	85
	Shale-----	9	94
	Coal-----	6	100
	Shale-----	50	150

146-82-21CBB2
Underwood City Well 3
(Log from C. A. Simpson & Son)

Elevation: 2022 ft

	Topsoil-----	2	2
	Sand, gravel, and rocks-----	6	8
	Sandy yellow clay-----	39	47
	Sandy yellow clay with reddish streaks-----	28	75
	Sandy gray clay-----	12	87
	Coal-----	7	94
	Blue shale-----	5	99
	Gray shale-----	2	101

146-82-32CDA
H. Hanson Oil Syndicate - Ellen Samuelson No. 1

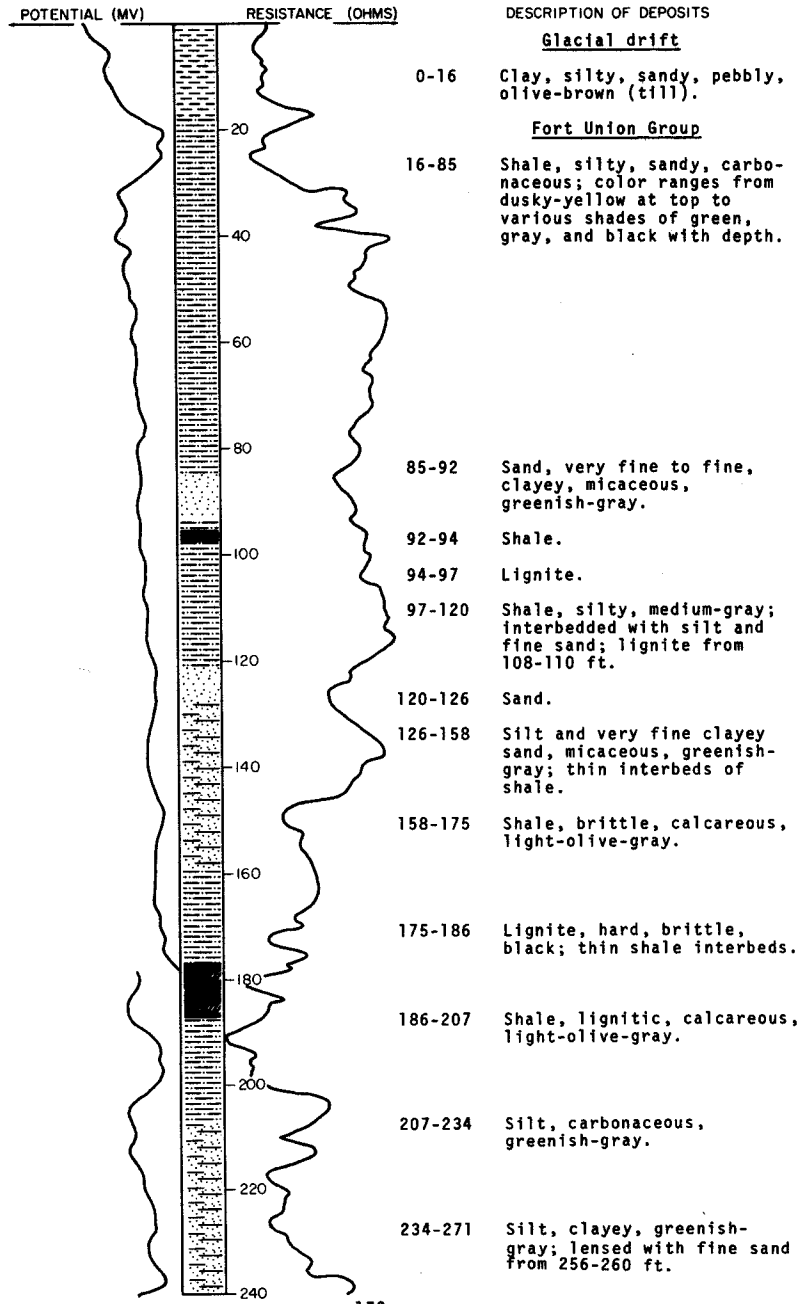
Elevation: 2011 ft

Log available from Rocky Mountain Oil Information Corp., Denver, Colo.

LOCATION: 146-82-32CDC
 ELEVATION: 2032
 (FT, MSL)

NDSWC 3914

DATE DRILLED: November 1969
 DEPTH: 520
 (FT)



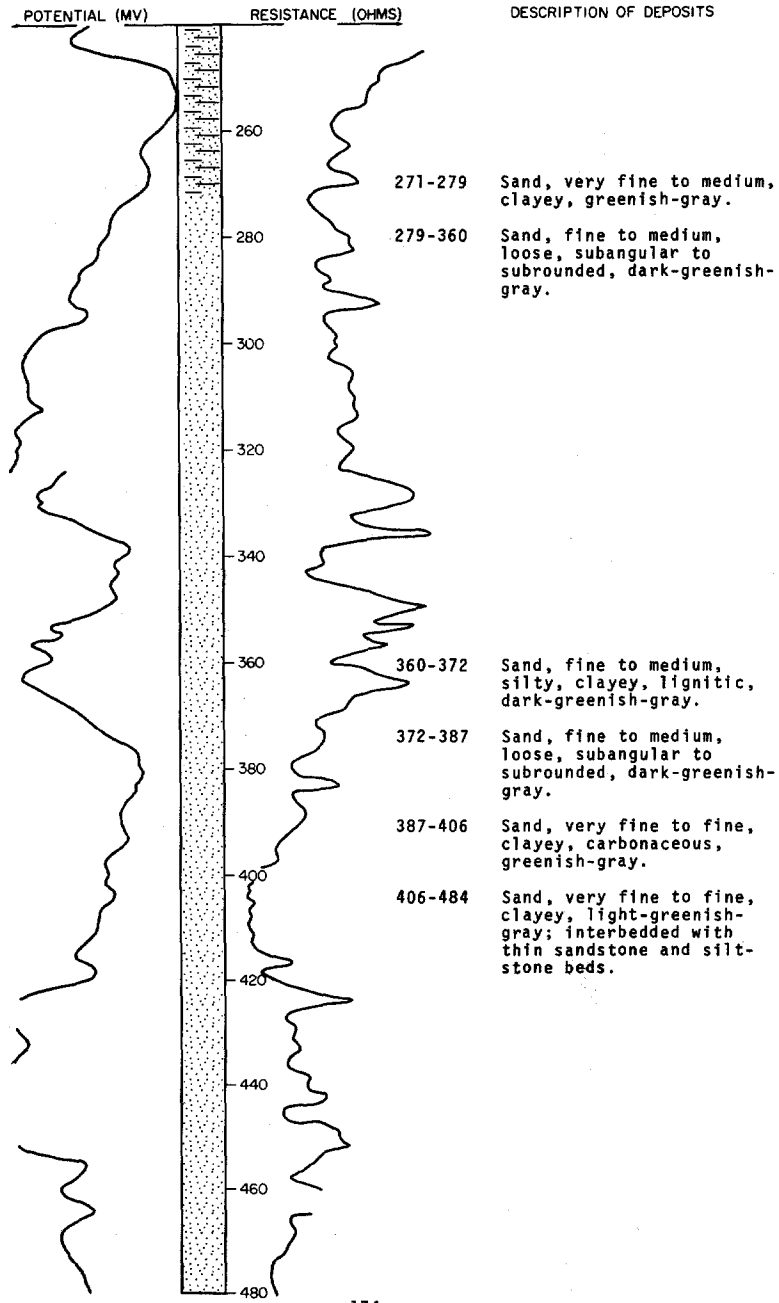
LOCATION: 146-82-32CDC

NDSWC 3914, Continued

DATE DRILLED: November 1969

ELEVATION: 2032
(FT, MSL)

DEPTH: 520
(FT)



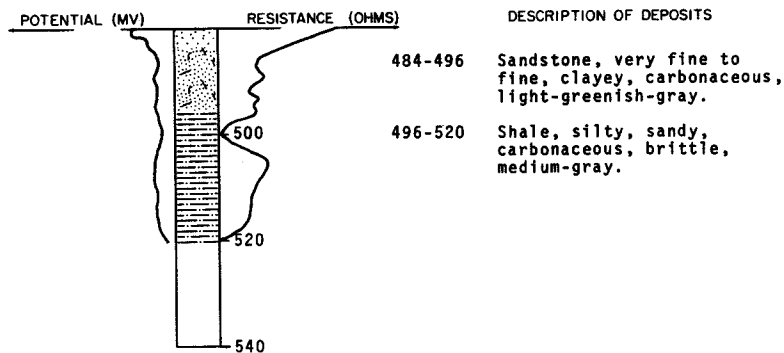
LOCATION: 146-82-32CDC

NDSWC 3914, Continued

DATE DRILLED: November 1969

ELEVATION: 2032
(FT, MSL)

DEPTH: 520
(FT)



146-82-33CDD
NDSWC 3912

Elevation: 1945 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, clayey, black-----	1	1
	Clay, silty, sandy, gravelly, dusky-yellow to moderate-olive-brown (till)-----	6	7
Fort Union Group:			
	Shale, silty, sandy, soft to hard, light-gray to light-greenish-gray-----	28	35
	Lignite, hard, brittle, black-----	11	46
	Shale, silty, hard, brittle, light-gray-----	14	60

146-82-34ADD
NDSWC 3911

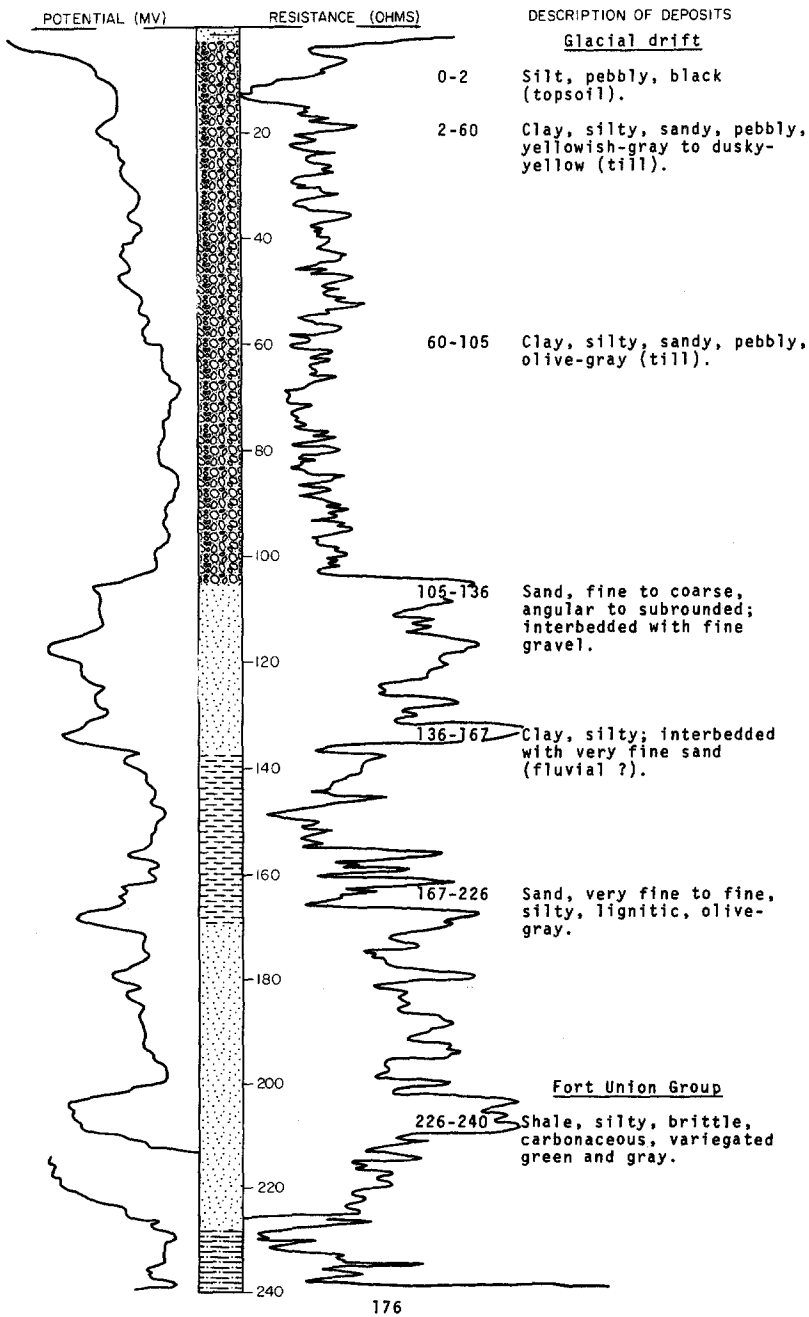
Elevation: 1925 ft

Glacial drift:			
	Clay, silty, dusky-brown; interbedded with very fine to fine sand-----	18	18
	Clay, stiff, calcareous, light-gray-----	3	21
	Gravel, fine to medium, sandy, iron-stained-----	21	42
	Sand, fine to coarse, lignitic-----	28	70
	Gravel, fine to medium, subrounded; scattered sand-----	14	84
Fort Union Group:			
	Shale, silty, carbonaceous, hard, brittle, noncalcareous, light-gray to bluish-gray--	16	100

LOCATION: 146-83-3AAA
ELEVATION: 1958
(FT, MSL)

NDSWC 4038

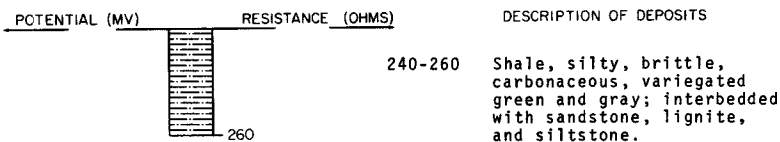
DATE DRILLED: July 1970
DEPTH: 260
(FT)



LOCATION: 146-83-3AAA
 ELEVATION: 1958
 (FT, MSL)

NDSWC 4038, Continued

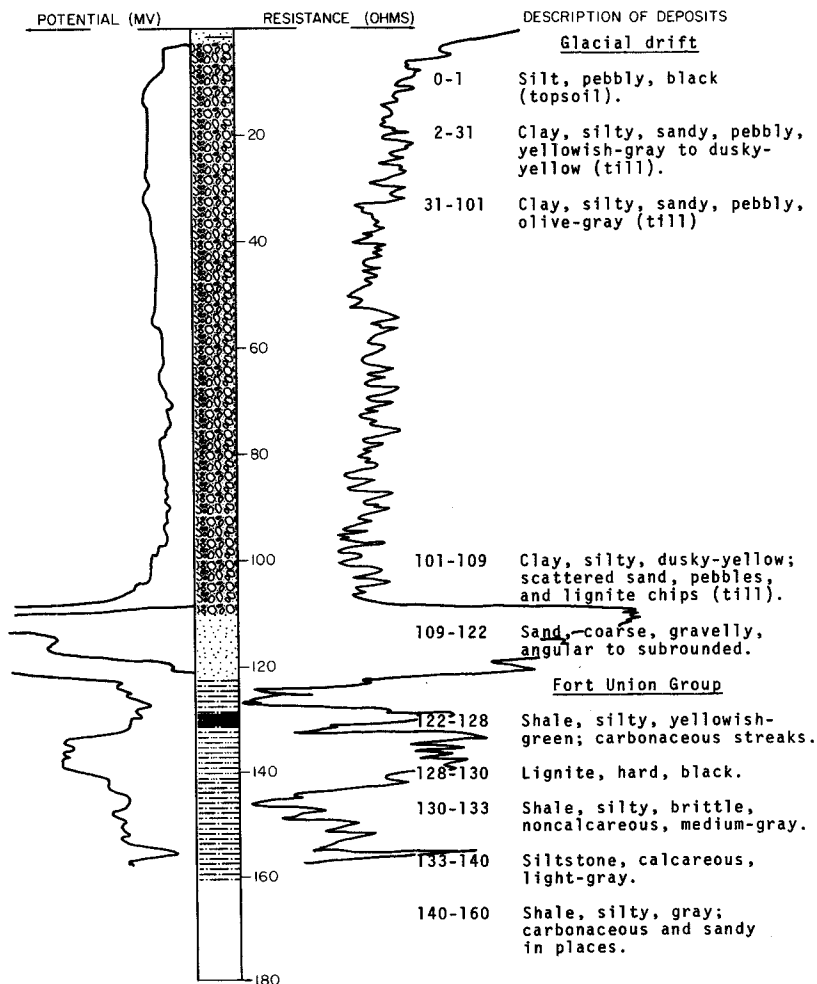
DATE DRILLED: July 1969
 DEPTH: 260
 (FT)



LOCATION: 146-83-8DDD
 ELEVATION: 1975
 (FT, MSL)

NDSWC 4037

DATE DRILLED: July 1970
 DEPTH: 160
 (FT)

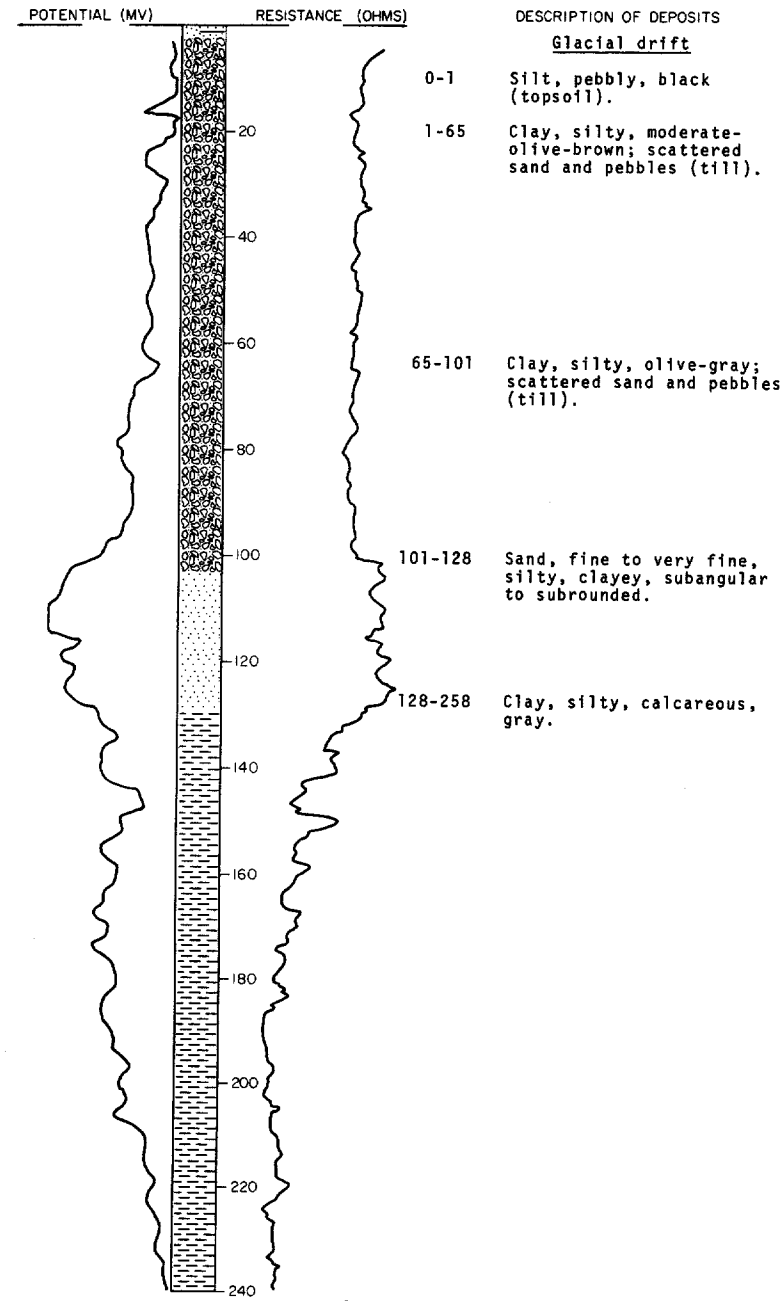


LOCATION: 146-83-15CCC
ELEVATION: 1958
(FT, MSL)

NDSWC 4036

DATE DRILLED: July 1970

DEPTH: 460
(FT)



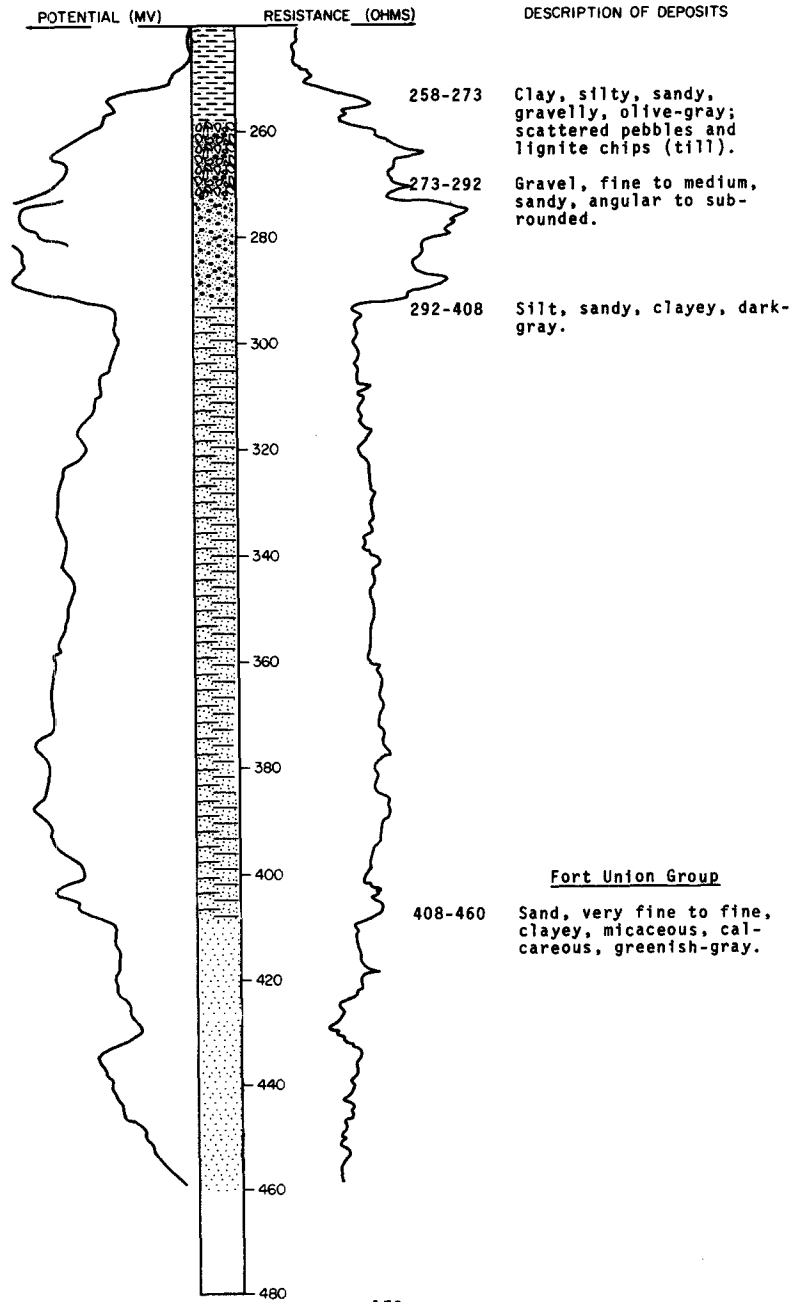
LOCATION: 146-83-15CCC

NDSWC 4036, Continued

DATE DRILLED: July 1970

ELEVATION: 1958
(FT, MSL)

DEPTH: 460
(FT)



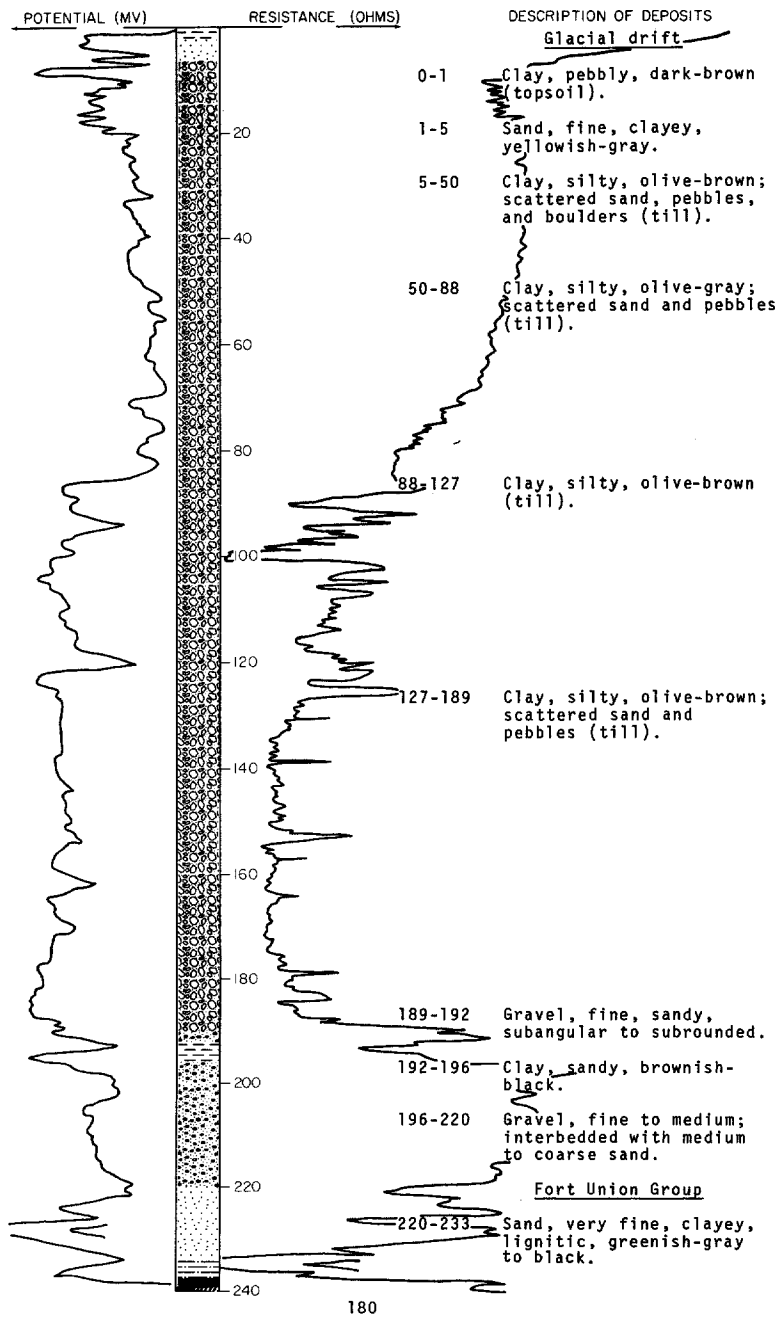
LOCATION: 146-83-19AAA

NDSWC 3919

DATE DRILLED: November 1969

ELEVATION: 1962
(FT, MSL)

DEPTH: 260
(FT)



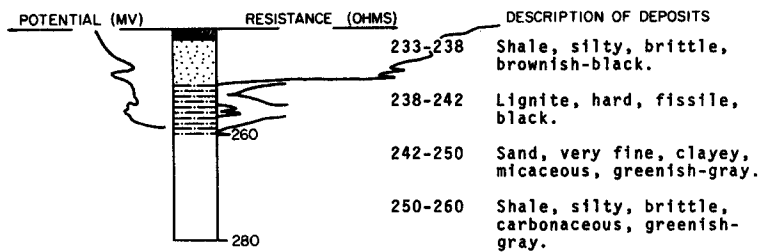
LOCATION: 146-83-19AAA

NDSWC 3919, Continued

DATE DRILLED: November 1969

ELEVATION: 1962
(FT, MSL)

DEPTH: 260
(FT)



146-83-24AAA
NDSWC 3921

Elevation: 2040 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, sandy, dusky-brown-----	1	1
	Sand, clayey, yellowish-gray-----	5	6
	Clay, silty, moderate-olive-brown; scattered sand and pebbles (till)-----	26	32
Fort Union Group:			
	Shale, silty, sandy, hard, brittle, variegated gray and green; interbedded with lignite-----	28	60

146-83-33BCC
NDSWC 3918

Elevation: 1904 ft

Glacial drift:			
	Alluvium, clay, silt, sand, and gravel-----	5	5
	Clay, silty, moderate-olive-brown; scattered sand and pebbles (till)-----	28	33
For Union Group:			
	Silt, clayey, light-gray-----	13	46
	Silt and very fine sand, clayey, yellowish- gray-----	11	57
	Silt, hard, shaly, light-gray-----	24	81
	Shale, silty, hard, brittle, medium-gray---	7	88
	Sandstone, very fine, calcareous, light- gray-----	6	94
	Shale, silty, hard, brittle, carbonaceous, medium-gray to dark-gray-----	6	100

Elevation: 1978 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, black-----	1	1
	Clay, silty, sandy, moderate-olive-brown; scattered pebbles and cobbles (till)-----	48	49
	Clay, silty, light-olive-gray-----	11	60
Fort Union Group:			
	Siltstone, micaceous, calcareous, dusky- yellow-----	8	68
	Shale, silty, noncalcareous, hard, medium- gray-----	3	71
	Lignite, hard, black-----	2	73
	Shale, silty, noncalcareous, hard, medium- gray-----	3	76
	Siltstone, calcareous, light-gray; inter- bedded with very fine grained sandstone---	14,	90
	Siltstone, clayey, sandy, calcareous, light-gray-----	31	121
	Shale, noncalcareous, dark-green-----	3	124
	Shale, silty, calcareous, medium-gray-----	16	140

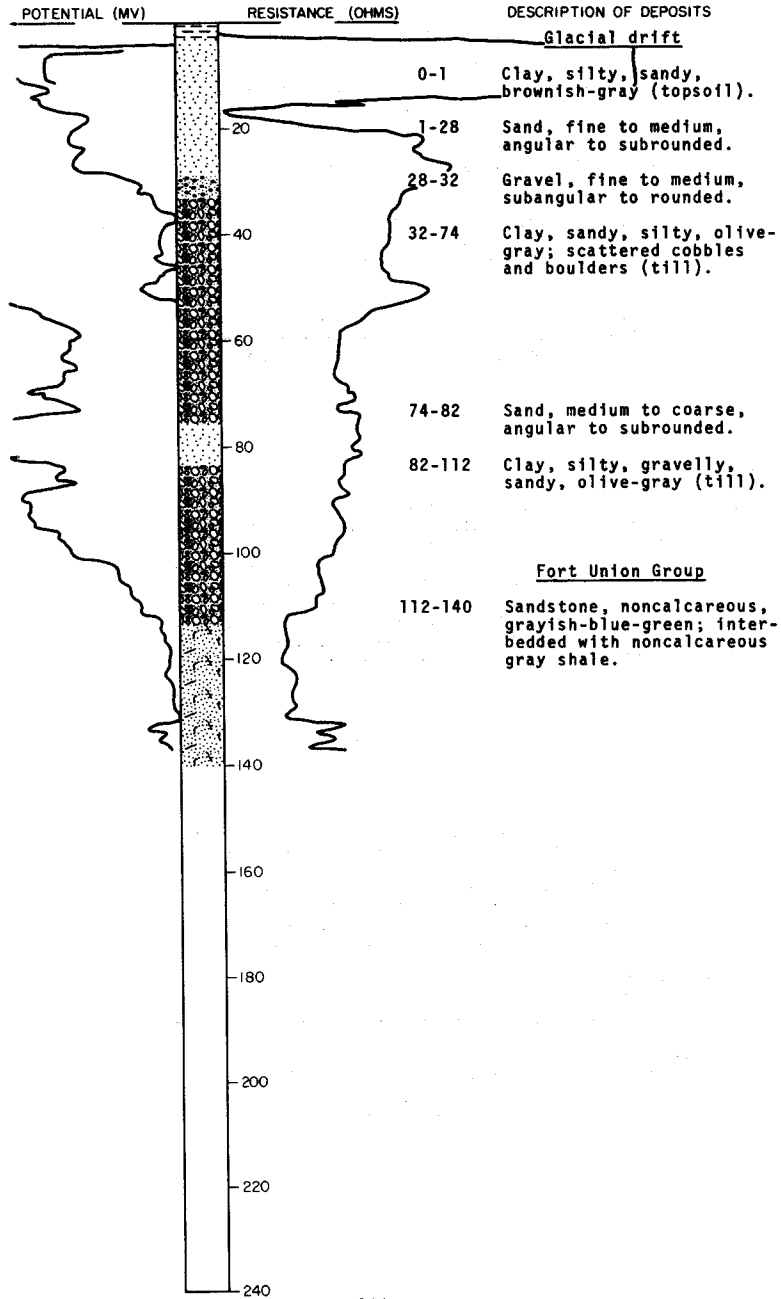
NDSMC 2713

LOCATION: 146-84-8DBD

DATE DRILLED: July 1967

ELEVATION: 1697
(FT, MSL)

DEPTH: 140
(FT)



146-84-17DAA
NDSWC 2712

Elevation: 1725 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium	and glacial drift, undifferentiated:		
	Topsoil, silty, sandy, dusky-brown-----	1	1
	Clay, silty, sandy, dusky-yellow; scattered pebbles-----	34	35
	Sand, very fine to fine, clayey, subangular to subrounded, moderately well sorted-----	24	59
	Sand, coarse to very coarse, angular to subrounded-----	15	74
	Clay, silty, sandy, olive-gray to medium- gray-----	3	77
	Sand, fine to medium, lignitic, subangular to subrounded, moderately well sorted-----	55	132
	Clay, silty, sandy, medium-gray to dark- gray; scattered pebbles (till)-----	24	156
Fort Union Group:			
	Shale, sandy, silty, noncalcareous, light- gray to medium-gray-----	16	172
	Shale, calcareous, dark-yellowish-brown----	8	180

146-84-20CCD
NDSWC 2711

Elevation: 1700 ft

Alluvium	and glacial drift, undifferentiated:		
	Topsoil, silty, clayey, brownish-black-----	1	1
	Clay, silty, sandy, calcareous, light- olive-brown-----	11	12
	Gravel, medium to coarse, sandy, subangular to subrounded-----	14	26
	Clay, silty, plastic, calcareous, olive- gray to medium-dark-gray; scattered pebbles-----	24	50

146-84-25CDD
NDSWC 3920

Elevation: 1810 ft

Colluvium:			
	Silt, loose, black-----	2	2
	Clay, grayish-white-----	2	4
	Gravel, fine to medium, angular to subangular-----	4	8
	Clay, soft, lignitic; interbedded with thin layers of silt, sand, and gravel, variegated-----	55	63
Glacial drift(?):			
	Gravel, fine to medium, sandy, angular to subrounded-----	9	72
Fort Union Group:			
	Shale, silty, sandy, hard to brittle, variegated green, gray, and black; interbedded with lignite-----	28	100

146-84-28ABA
NDSWC 2710

Elevation: 1750 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Alluvium and glacial drift, undifferentiated:			
	Topsoil, silty, sandy, gravelly, moderate-brown-----	1	1
	Gravel, fine to medium, sandy, subangular to subrounded-----	25	26
	Clay, silty, sandy, calcareous, olive-gray to medium-dark-gray; numerous pebbles-----	20	46
Fort Union Group:			
	Shale, sandy, noncalcareous, light-gray to medium-light-gray-----	4	50

146-84-28BBB
NDSWC 2709

Elevation: 1765 ft

Alluvium and glacial drift, undifferentiated:			
	Topsoil, silty, clayey, grayish-black-----	1	1
	Clay, silty, sandy, calcareous, dusky-yellow-----	23	24
	Gravel, medium to coarse, subangular to subrounded-----	2	26
	Clay, silty, sandy, light-olive-gray to grayish-olive; numerous limestone and shale pebbles-----	56	82
	Clay, silty, sandy, calcareous, olive-gray; scattered pebbles and boulders-----	4	86
Fort Union Group:			
	Shale, sandy, lignitic, noncalcareous, light-gray to medium-light-gray-----	14	100

146-84-29DDC
(Log from U.S. Bureau of Reclamation)

Elevation: 1692.5 ft

Glacial drift:			
	Silt, clayey, olive-brown; trace of sand----	6	6
	Clay, silty, gray; interbedded with fine sand, fine gravel lens from 15-16 ft-----	12	18
	Clay, soft, weathered-----	2	20
Fort Union Group:			
	Sand, fine, silt, and clay interbedded, light-gray; clay content increases with depth; carbonaceous clay from 33-34 ft-----	14	34
	Sand, fine, medium-gray-----	4.7	38.7
	Clay, dark-gray-----	.8	39.5
	Clay, carbonaceous-----	4.5	44
	Lignite-----	.3	44.3
	Clay, sandy, medium-gray-----	3.2	47.5
	No sample-----	2.5	50

146-84-35DDA
NDSWC 2706

Elevation: 1750 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Alluvium and glacial drift, undifferentiated:			
	Topsoil, silty, clayey, grayish-black-----	0.5	0.5
	Sand, fine to medium, clayey, subangular to subrounded, light-brown-----	15.5	16
	Clay, silty, calcareous, medium-dark-gray to grayish-olive-green, laminated----	19	35
	Sand, medium to coarse, gravelly, subangular to subrounded-----	11	46
	Clay, silty, light-olive-gray to olive-gray; scattered limestone and shale fragments (till)-----	10	56
	Gravel, medium to coarse, clayey and sandy, angular to subangular-----	7	63
	Clay, sandy, gravelly, olive-gray to medium-gray; scattered pebbles and cobbles (till)-----	11	74
Fort Union Group:			
	Sandstone and shale, indurated, noncalcareous, interbedded; some lignite-----	26	100

147-78-6BBB
NDSWC 3941

Elevation: 1906 ft

Glacial drift:			
	Topsoil, sandy, black-----	1	1
	Sand, fine to very coarse, subrounded; and coarse gravel-----	37	38
Fort Union Group:			
	Shale, silty, sandy, noncalcareous, light-medium-gray-----	42	80

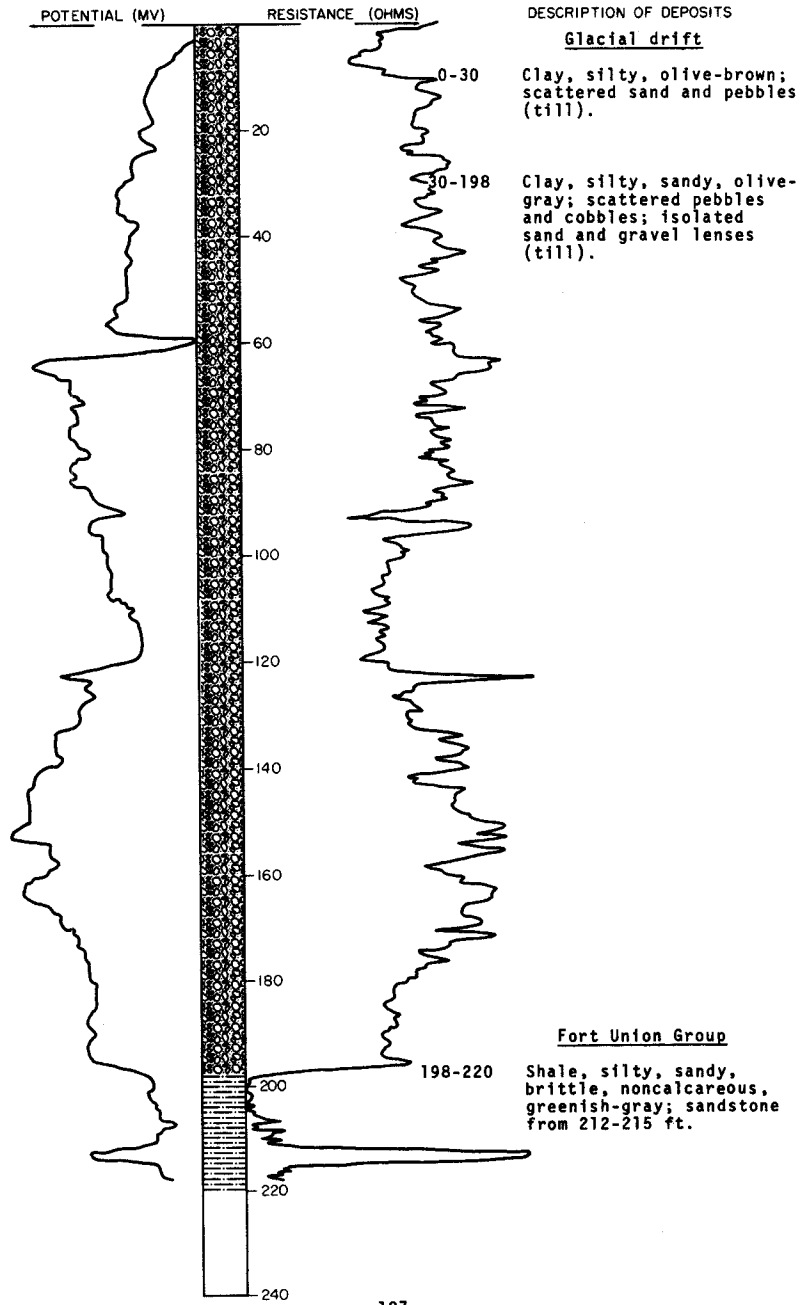
NDSWC 3938

LOCATION: 147-79-8888

DATE DRILLED: December 1969

ELEVATION: 1890
(FT, MSL)

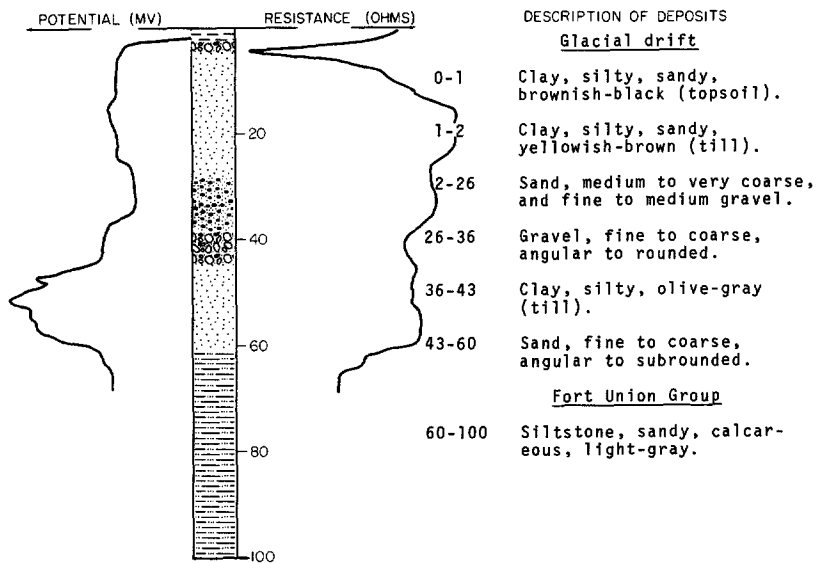
DEPTH: 220
(FT)



LOCATION: 147-79-11BCB
 ELEVATION: 1860
 (FT, MSL)

NDSWC 2788

DATE DRILLED: August 1967
 DEPTH: 100
 (FT)



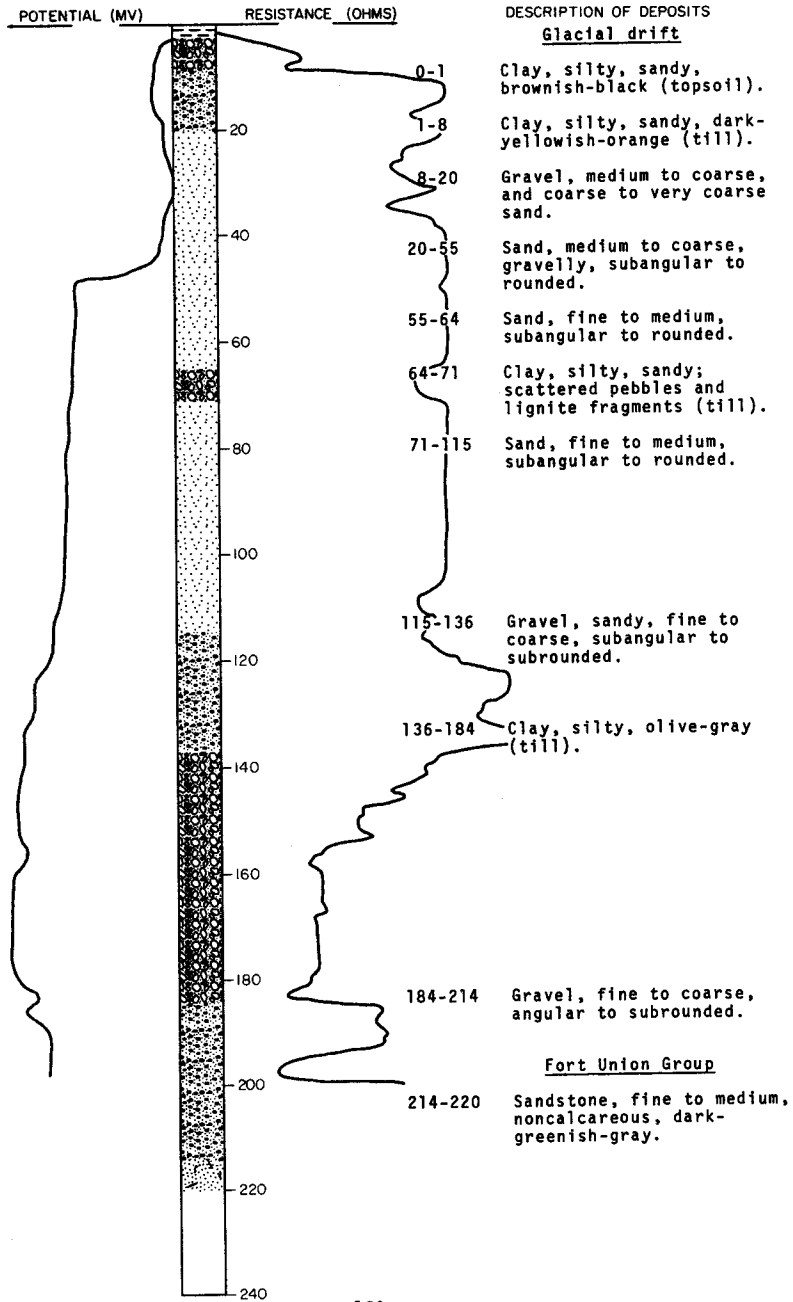
147-79-17AAA
 NDSWC 4092

Elevation: 1885 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
<u>Glacial drift:</u>			
	Topsoil, silty, pebbly, black-----	1	1
	Silt, clayey, sandy, yellowish-gray; scattered pebbles (till)-----	6	7
	Gravel, fine to medium, sandy, subangular to subrounded-----	5	12
	Clay, silty, sandy, pebbly, moderate-olive- brown (till)-----	23	35
	Clay, plastic, olive-gray; interbedded with silt-----	15	50
	Clay, silty, sandy, pebbly, lignitic, olive-gray (till)-----	53	103
	Sand, medium, subrounded, olive-gray; scattered lignite chips-----	6	109
	Clay, stiff, dark-gray-----	3	112
<u>Fort Union Group:</u>			
	Sandstone, very fine to fine, clayey, yellowish-green-----	8	120
	Sandstone, very fine to fine, clayey, greenish-gray; numerous carbonaceous streaks-----	25	145
	Siltstone, hard, noncalcareous, greenish- gray-----	15	160

NDSWC 2750
 LOCATION: 147-79-19BAA1, 2, and 3
 ELEVATION: 1825
 (FT, MSL)

DATE DRILLED: August 1967
 DEPTH: 220
 (FT)



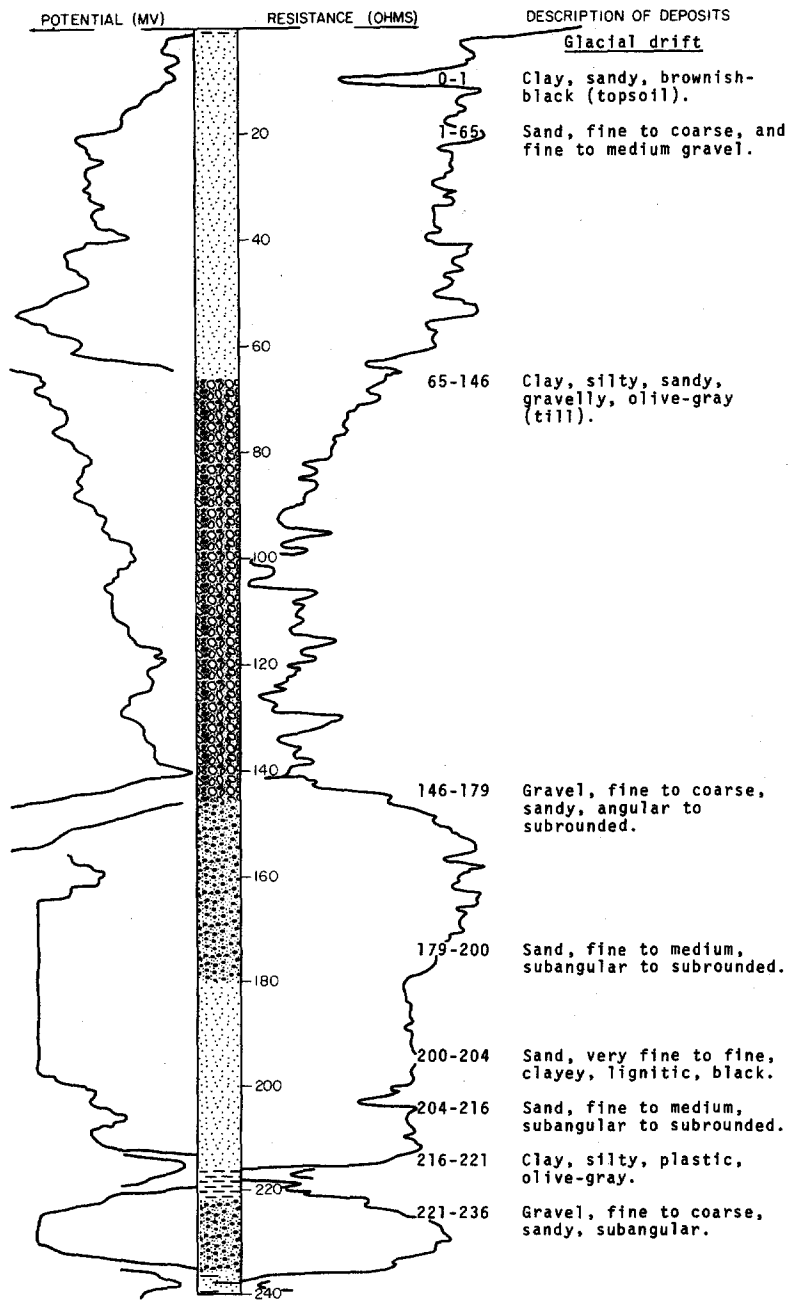
LOCATION: 147-79-25ADD1

NDSWC 3939

DATE DRILLED: December 1969

ELEVATION: 1905
(FT, MSL)

DEPTH: 320
(FT)

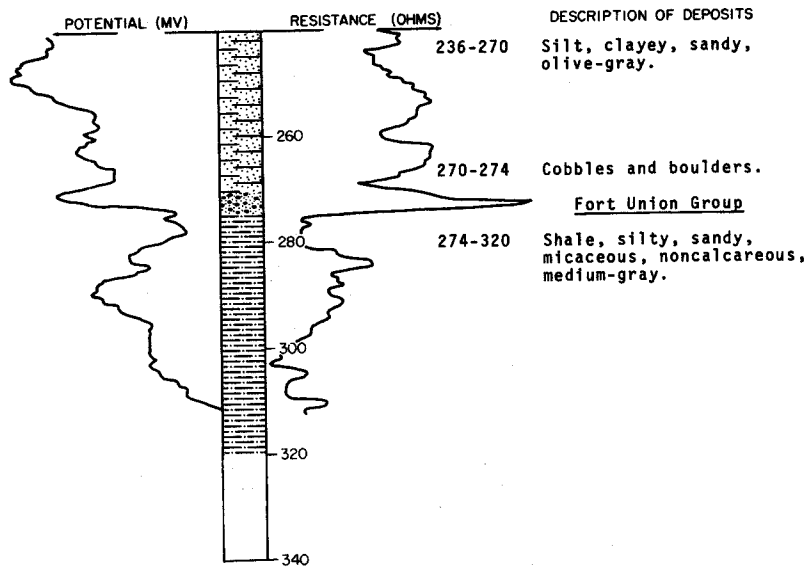


LOCATION: 147-79-25ADD1
 ELEVATION: 1905
 (FT, MSL)

NDSWC 3939, Continued

DATE DRILLED: December 1969

DEPTH: 320
 (FT)

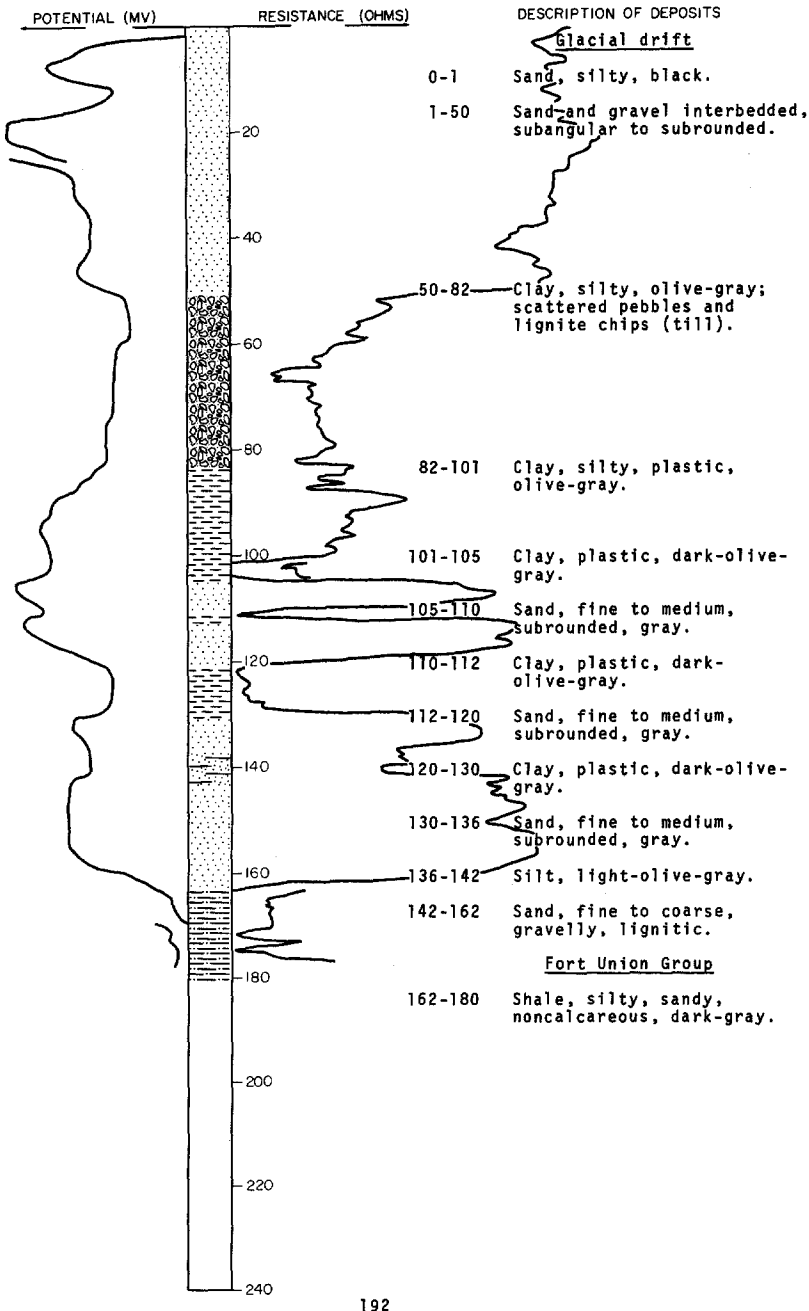


147-79-25ADD2
 NDSWC 3940

Elevation: 1905 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, sandy, brownish-black-----	1	1
	Sand, fine to very coarse, gravelly, angular to subrounded-----	59	60

LOCATION: 147-79-27AAA NDSWC 4093 DATE DRILLED: August 1970
 ELEVATION: 1855 DEPTH: 180
 (FT, MSL) (FT)



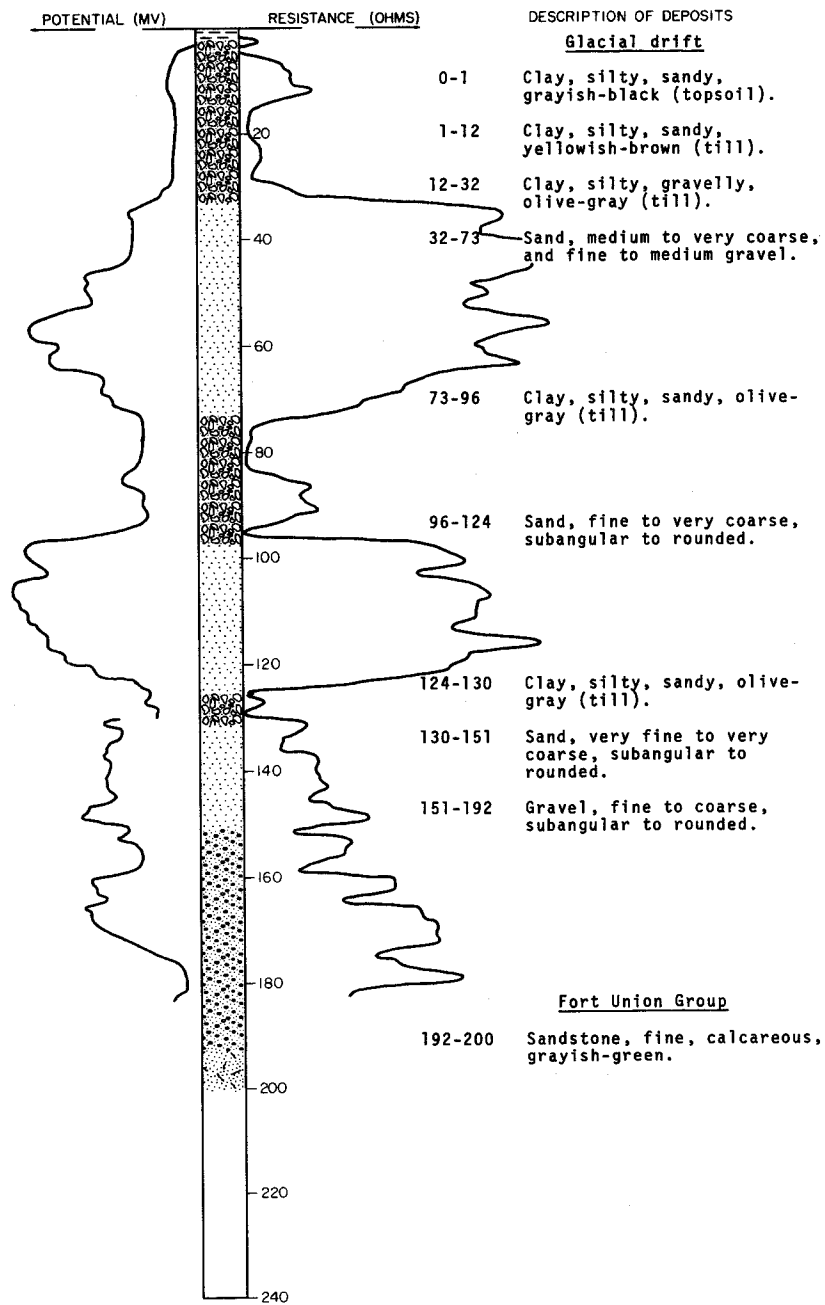
LOCATION: 147-79-27ADA1

NDSWC 2787

DATE DRILLED: August 1967

ELEVATION: 1837
(FT, MSL)

DEPTH: 200
(FT)



147-79-27ADA2
NDSWC 2787A

Elevation: 1837 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Clay, silty, sandy, gravelly, moderate-yellowish-brown (till)-----	13	14
	Clay, silty, sandy, calcareous, olive-gray (till)-----	18	32
	Sand and gravel; medium to very coarse subangular to rounded sand and fine to medium subangular to rounded gravel-----	28	60

147-79-27DDD
(Log from U.S. Bureau of Reclamation)

Elevation: 1869.8 ft

Glacial drift:			
	Clay (glacial till), silty, sandy, stiff, gray-brown; few small pebbles-----	44	44
	Sand, fine to medium and gravel fine, clean, gray-brown-----	21	65
	Sand, fine to medium, gray; trace of fine gravel and lignite fragments-----	26.2	91.2
	Sand, fine, silty, gray-----	4.6	95.8
	Sand, fine, gray; trace of gravel-----	12.4	108.2
	Clay (glacial till), silty, sandy, stiff, gray; few small pebbles-----	1.8	110
	Boulder-----	.8	110.8
	Sand, fine, and gravel, fine, brown-----	14.2	125
	Sand, fine, clean, loose, brown-----	11	136
	Sand, coarse, clean, loose, brown; some gravel; abundant lignite slack from 150-158 ft-----	22.2	158.2
	Clay (glacial till), silty, sandy, stiff, gray; few small pebbles-----	11.8	170
	Sand, fine, clean, loose, brown-----	12	182
	Lignite slack-----	2	184
	Sand, coarse, loose, brown; abundant lignite slack-----	11	195
	Silt, clayey, slightly plastic, gray; trace of fine sand-----	16	211
	Lignite slack-----	4.3	215.3
	Clay, sandy, stiff to firm, gray; silt laminae-----	10.7	226
Fort Union Group:			
	Clay, silty, firm to hard, gray-----	12	238

147-79-30DDD
NDSWC 2786

Elevation: 1850 ft

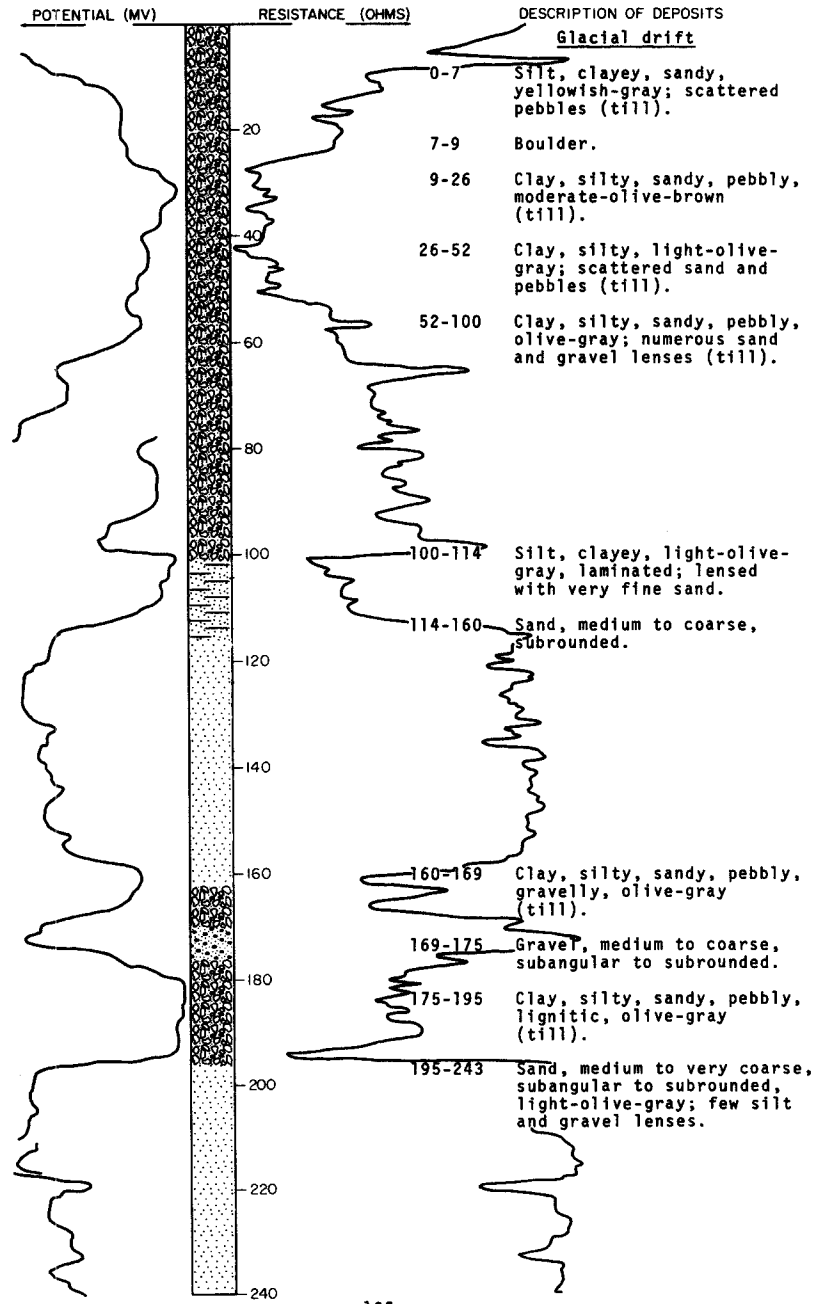
Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Clay, silty to very sandy, calcareous, moderate-yellowish-brown (till)-----	27	28
	Clay, silty to sandy, olive-gray to dark-greenish-gray (till)-----	93	121
	Gravel, medium to coarse, subangular to rounded; interbedded with clay lenses-----	4	125
	Clay, silty, sandy, calcareous, olive-gray (till)-----	62	187
Fort Union Group:			
	Siltstone, indurated, noncalcareous, medium-light-gray to medium-gray-----	13	200

LOCATION: 147-79-35BCC

DATE DRILLED: August 1970

ELEVATION: 1918
(FT, MSL)

DEPTH: 320
(FT)



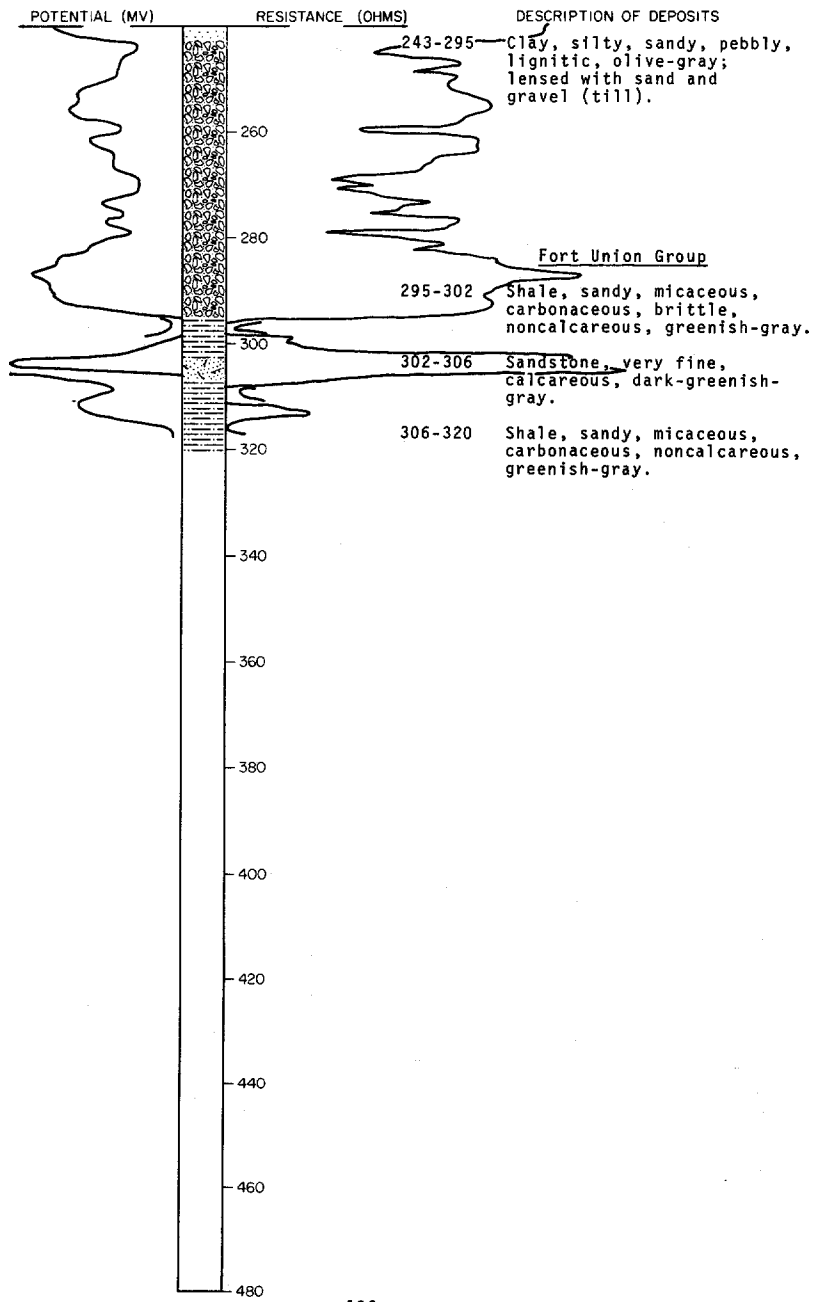
LOCATION: 147-79-35BCC

NDSWC 4094, Continued

DATE DRILLED: August 1970

ELEVATION: 1918
(FT, MSL)

DEPTH: 320
(FT)



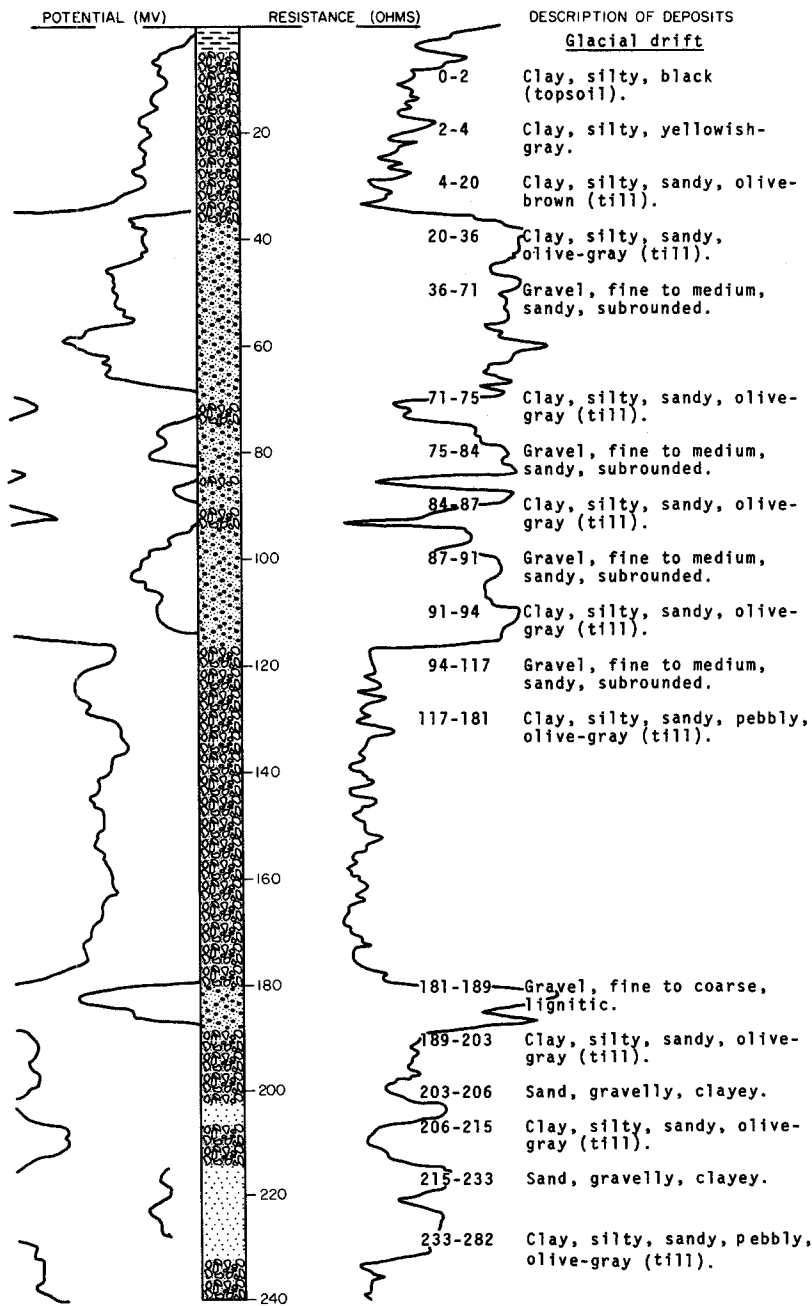
LOCATION: 147-80-1CCC2

NDSWC 3937

DATE DRILLED: December 1969

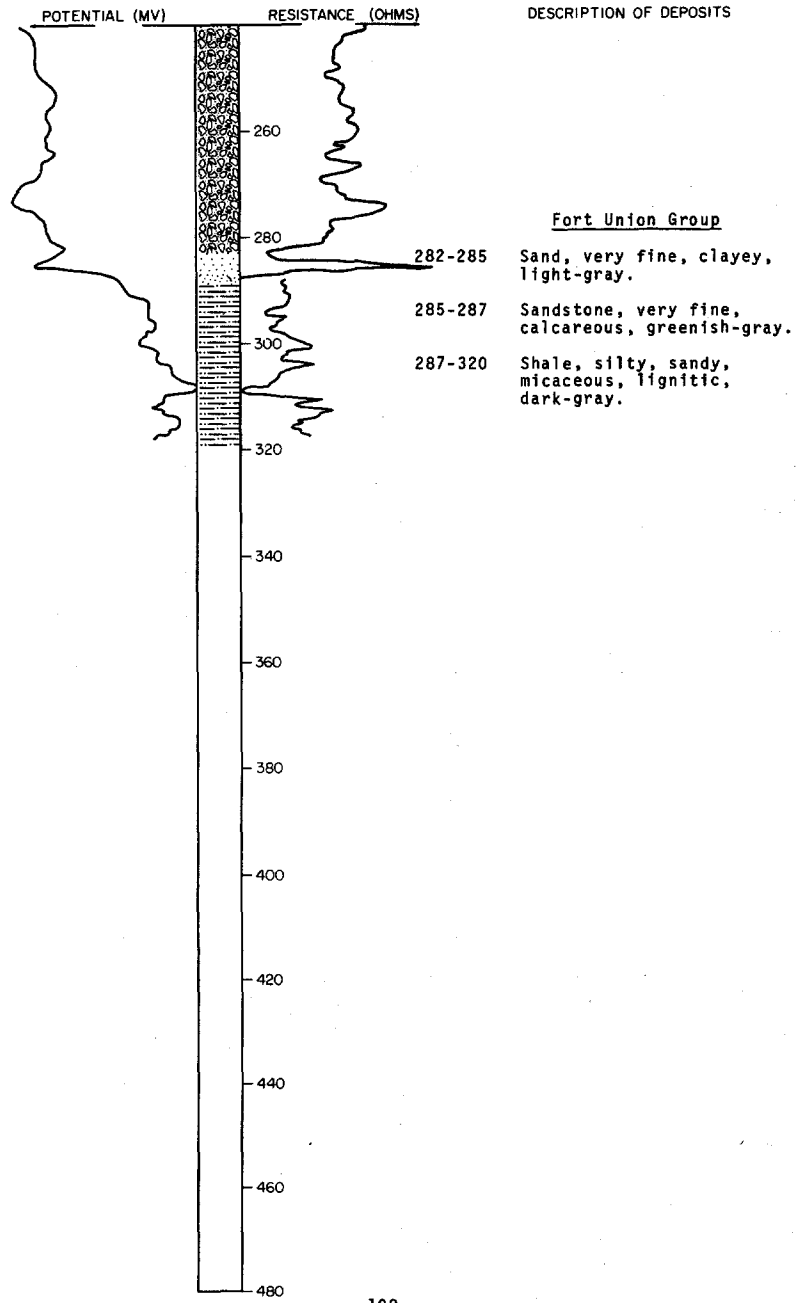
ELEVATION: 1880
(FT, MSL)

DEPTH: 320
(FT)



LOCATION: 147-80-1CCC2 NDSWC 3937, Continued
ELEVATION: 1880 (FT, MSL)

DATE DRILLED: December 1969
DEPTH: 320 (FT)



147-80-3BDC
NDSWC 4087

Elevation: 1860 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, sandy, black-----	1	1
	Sand, very fine to fine, silty, yellowish-gray-----	4	5
	Clay, silty, sandy, moderate-olive-brown; scattered pebbles (till)-----	17	22
	Clay, silty, sandy, olive-gray; scattered pebbles and lignite chips (till)-----	9	31
	Sand, medium to very coarse, gravelly, subangular to subrounded-----	15	46
	Gravel, fine to medium, subrounded-----	20	66
	Clay, sandy, olive-gray; scattered lignite chips (till)-----	15	81
	Clay, silty, sandy, pebbly, olive-gray (till)-----	17	98
	Gravel, fine to medium, subrounded-----	7	105
	Clay, silty, olive-gray-----	6	111
	Gravel, fine to medium, subrounded-----	7	118
	Clay, silty, olive-gray-----	5	123
	Clay, silty, sandy, pebbly, lignitic, dark-brownish-gray (till)-----	45	168
Fort Union Group:			
	Shale, silty, brittle, dark-gray-----	20	188
	Sandstone, very fine, clayey, greenish-gray-----	6	194
	Shale, silty, sandy, brittle, dark-gray-----	6	200

147-80-3CCC
NDSWC 2730

Elevation: 1875 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, sandy, clayey, moderate-brown-----	1	1
	Gravel and sand; medium to coarse subangular to rounded gravel; coarse to very coarse subangular to rounded sand-----	18	19
	Clay, silty, sandy, olive-gray (till)-----	5	24
	Gravel and sand; medium to coarse subangular to rounded gravel; coarse to very coarse subangular to rounded sand-----	29	53
	Clay, sandy, gravelly, olive-gray (till)-----	28	81
	Sand, fine to medium, angular to subrounded-----	15	96
	Clay, very silty, calcareous, olive-gray-----	4	100
	Gravel, medium to coarse, subangular to subrounded-----	12	112
	Clay, silty, olive-gray to dark-greenish-gray (till)-----	38	150
	Sand, fine to medium, clayey, subrounded to rounded-----	2	152
	Clay, silty, olive-gray to medium-dark-gray; abundant sand grains (till)-----	2	154
Fort Union Group:			
	Sandstone, fine to medium, noncalcareous, medium-bluish-gray-----	26	180

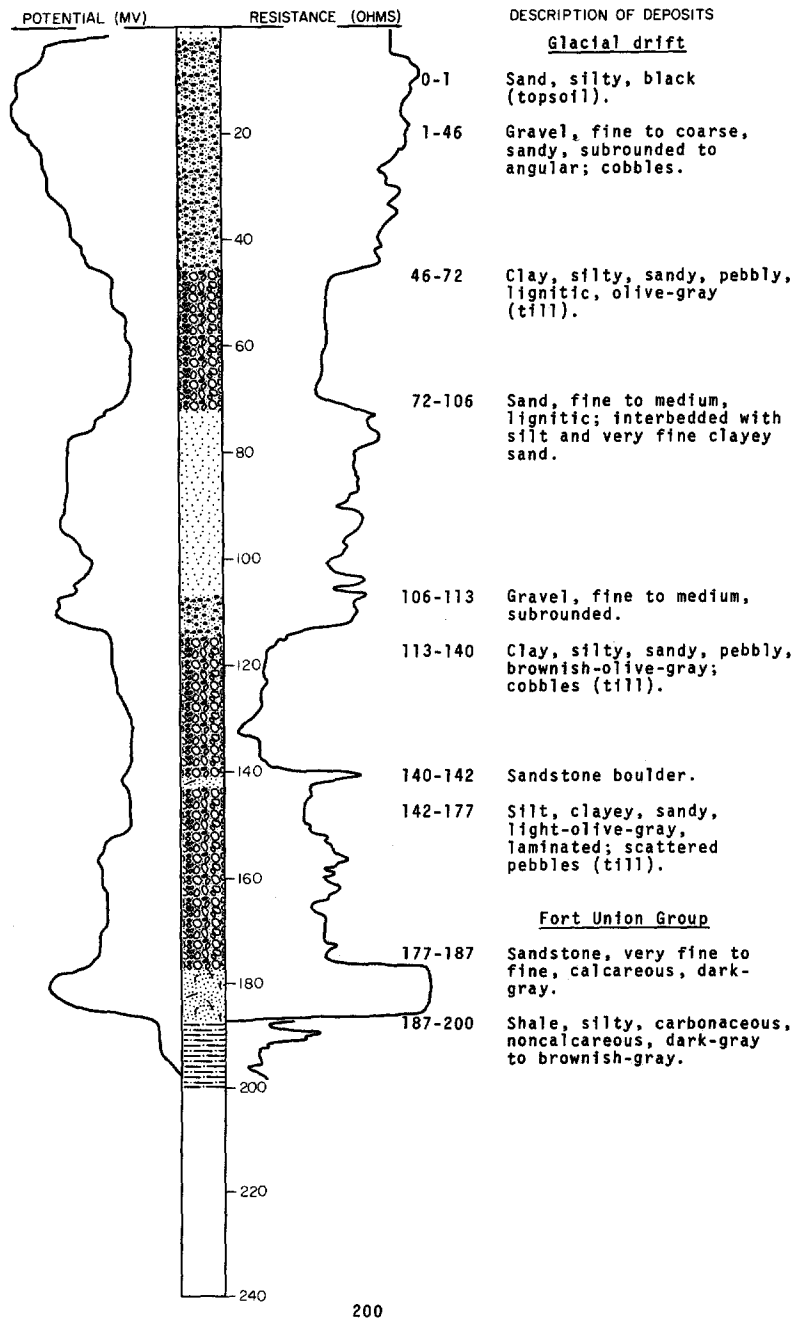
LOCATION: 147-80-488B

NDSWC 4086

DATE DRILLED: August 1970

ELEVATION: 1869
(FT, MSL)

DEPTH: 200
(FT)



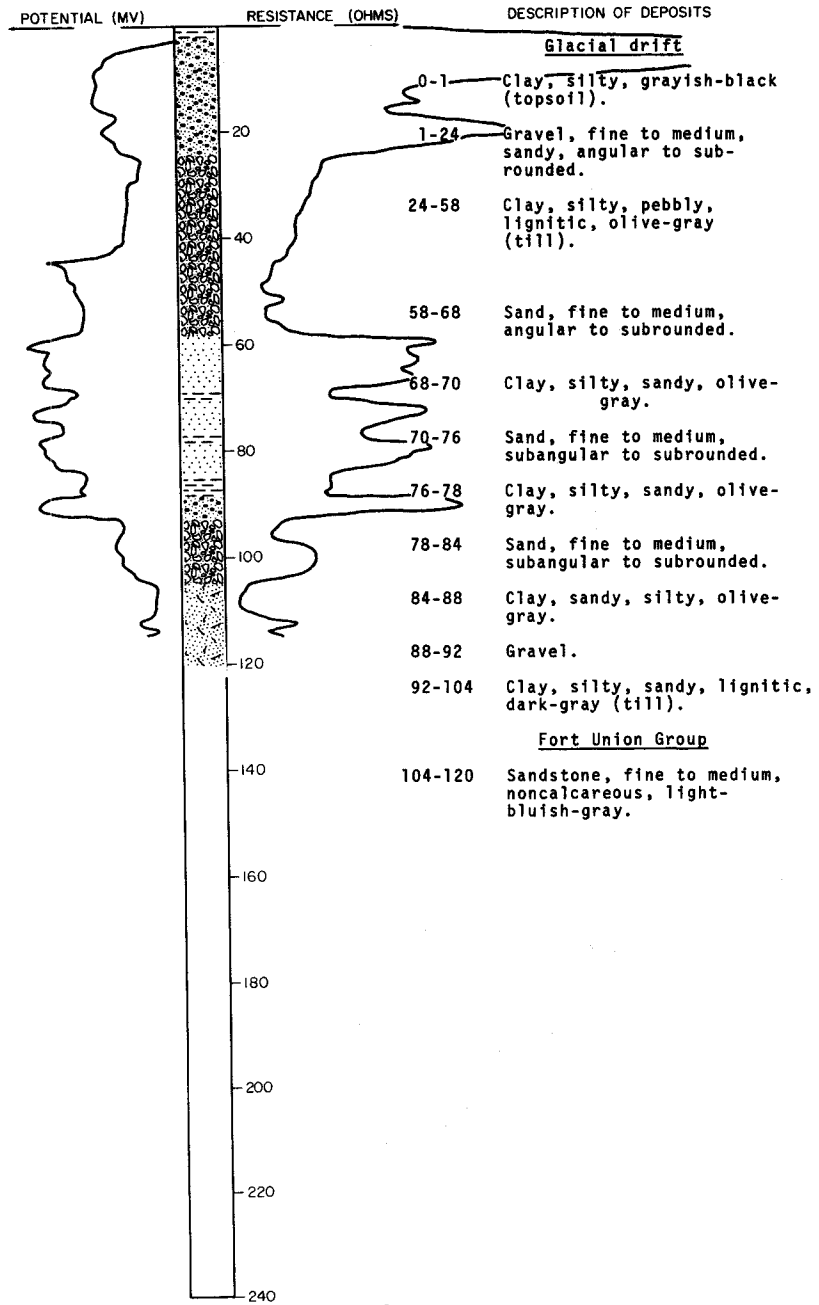
LOCATION: 147-80-5BCC

NDSWC 2732

DATE DRILLED: August 1967

ELEVATION: 1868
(FT, MSL)

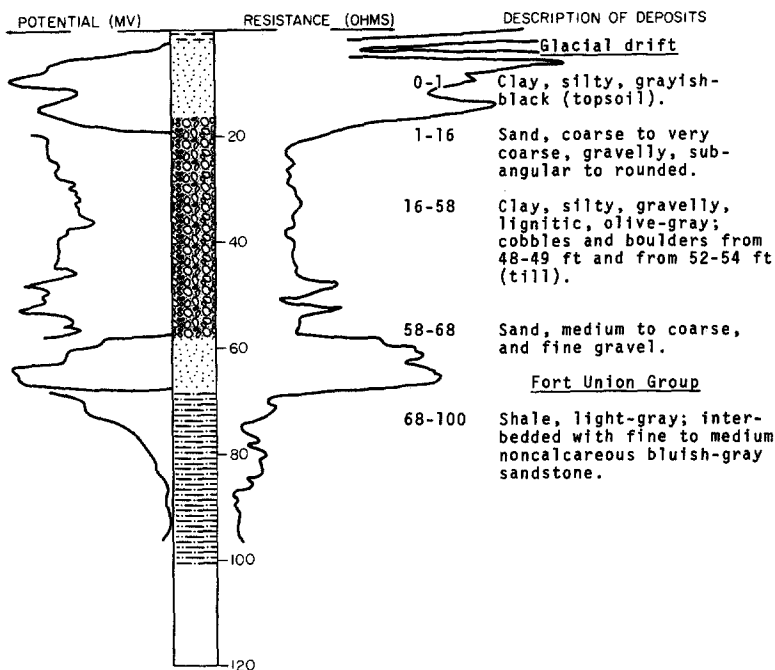
DEPTH: 120
(FT)



LOCATION: 147-80-7CCC
 ELEVATION: 1848
 (FT, MSL)

NDSWC 2728

DATE DRILLED: August 1967
 DEPTH: 100
 (FT)



147-80-9BCC
 NDSWC 2731

Elevation: 1845 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, clayey, brownish-black-----	1	1
	Clay, silty, sandy, calcareous, moderate-yellowish-brown-----	2	3
	Gravel and sand; fine subangular to rounded gravel; coarse to very coarse sand-----	25	28
	Clay, silty, sandy, olive-gray; scattered pebbles (till)-----	32	60
	Clay, sandy, lignitic, olive-gray; scattered pebbles (till)-----	10	70
	Sand and gravel; coarse to very coarse subangular to rounded sand; medium to coarse angular to subrounded gravel-----	15	85
	Clay, silty, calcareous, olive-gray to medium-dark-gray-----	11	96
Fort Union Group:			
	Sandstone, fine to medium, noncalcareous, medium-bluish-gray-----	24	120

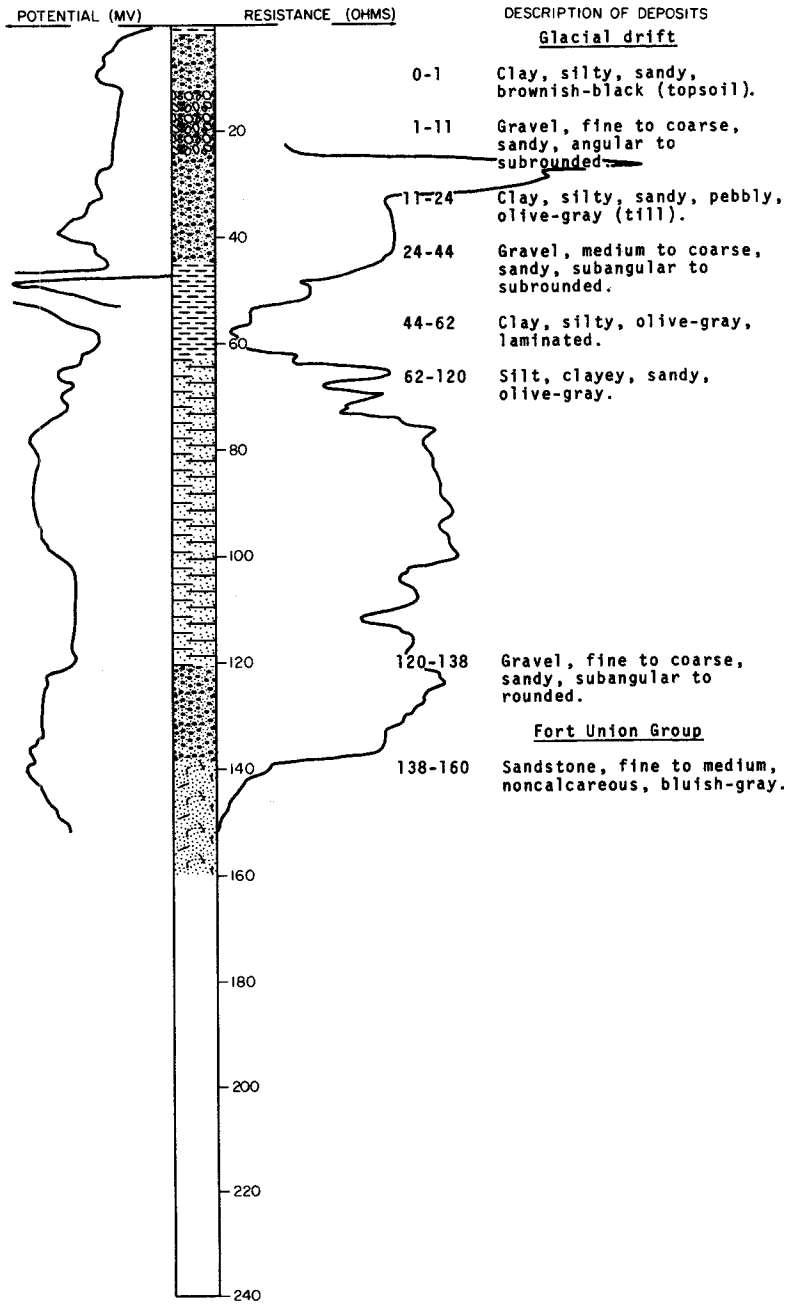
LOCATION: 147-80-13CCC

NDSWC 2749

DATE DRILLED: August 1967

ELEVATION: 1855
(FT, MSL)

DEPTH: 160
(FT)



147-80-17BCB
NDSWC 2729

Elevation: 1835 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, brownish-black-----	0.5	0.5
	Sand and gravel; coarse to very coarse subangular to rounded light-brown to moderate-yellowish-brown sand; fine subangular to rounded gravel-----	17.5	18
	Gravel and sand; medium to coarse subangular to rounded gravel; very coarse sand-----	10	28
	Clay, sandy, silty, gravelly, calcareous, olive-gray; very sandy from 38-52 ft; scattered cobbles, boulders, and lignite fragments (till)-----	40	68
	Clay, silty, calcareous, olive-gray; boulders from 84-88 ft-----	37	105
Fort Union Group:			
	Sandstone and shale, interbedded; fine to medium noncalcareous light-bluish-gray to medium-bluish-gray sandstone; indurated noncalcareous dusky-brown shale-----	15	120

147-80-19ADD1
(Log from U.S. Bureau of Reclamation)

Elevation: 1836.4 ft

Glacial drift:			
	Clay (glacial till), silty, sandy, brown----	5	5
	Clay (glacial till), sandy, stiff, brown to gray; scattered gravel-----	16.7	21.7
	Sand, fine, loose, gray; trace of silt-----	18.3	40

147-80-19ADD2
City of Turtle Lake test hole
(Log from C. A. Simpson & Son)

Elevation: 1828 ft

Glacial drift:			
	Topsoil-----	1.5	1.5
	Clay, gravelly, yellow-----	1.5	3
	Clay, sandy, yellow-----	11	14
	Clay, gray-----	15	29
	Clay, very sandy, gray-----	15	44
	Clay, sandy, light-gray-----	26	70

147-80-19ADD3
City of Turtle Lake test hole
(Log from C. A. Simpson & Son)

Elevation: 1835 ft

Glacial drift:			
	Topsoil-----	1	1
	Clay, light-gray-----	6	7
	Clay, yellow; rocks-----	10	17
	Clay, sandy, gray; rocks-----	10	27
	Sand, clayey-----	9	36
	Clay, gravelly, blue-----	4	40
	Sand and gravel, clayey-----	2	42
	Sand and gravel-----	6	48
	Sand, lignitic, slightly clayey-----	6	54
	Clay, very sandy, light-gray-----	11	65

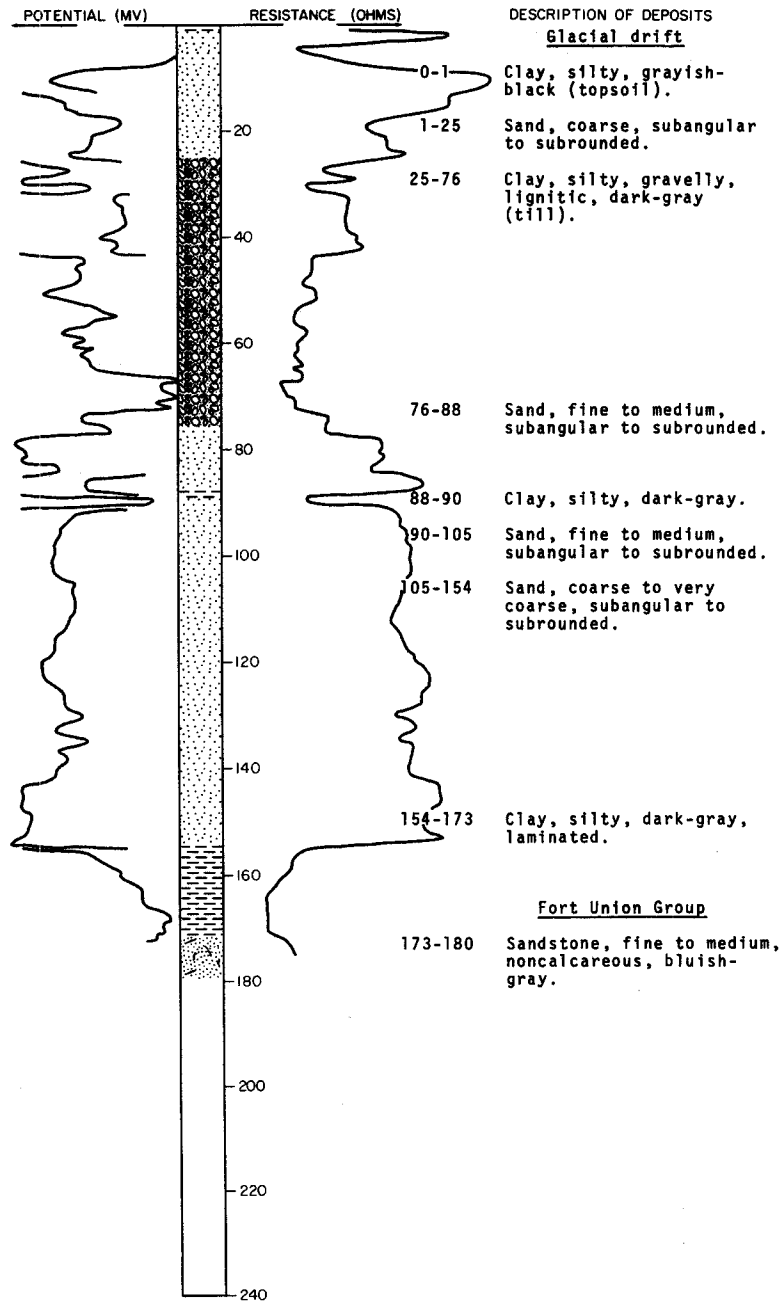
LOCATION: 147-80-19BCC

NDSWC 2723

DATE DRILLED: August 1967

ELEVATION: 1843
(FT, MSL)

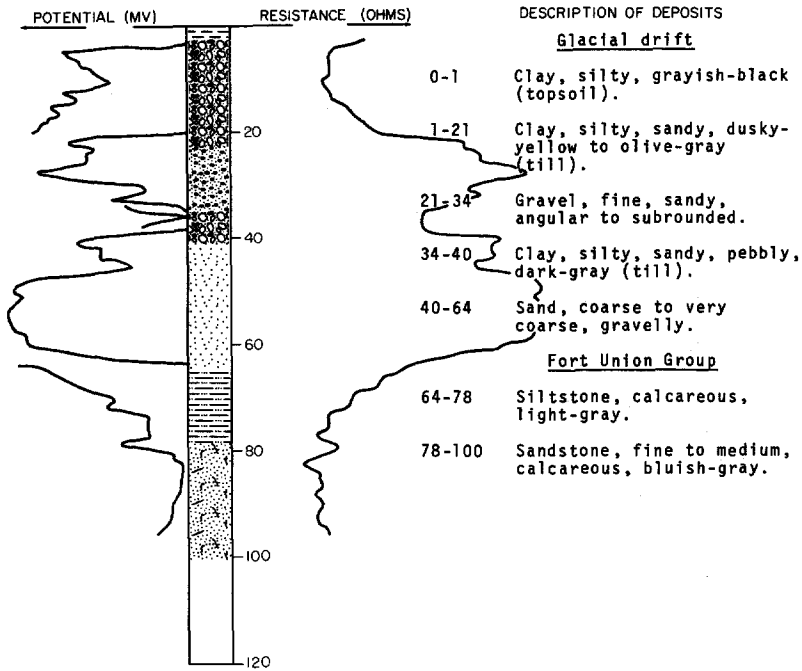
DEPTH: 180
(FT)



LOCATION: 147-80-19DAA
 ELEVATION: 1840
 (FT, MSL)

NDSWC 2722

DATE DRILLED: July 1967
 DEPTH: 100
 (FT)



147-80-20BBB
 (Log from U.S. Bureau of Reclamation)

Elevation: 1852 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
<u>Glacial drift:</u>			
	Topsoil-----	0.8	0.8
	Clay (glacial till), silty, sandy, pebbly, stiff, gray-brown-----	26.2	27
	Sand, fine to coarse, loose, gray-brown; trace of clay-----	11	38
	Sand, fine, clean, gray-----	7	45
	Clay, very plastic, gray; includes few thin silt streaks; very sandy from 62.5-64 ft--	19	64
	Clay (glacial till), sandy, pebbly, stiff, gray-----	6	70
	Sand, medium to coarse, clayey, gray-brown--	5.5	75.5
<u>Fort Union Group:</u>			
	Sand, fine, slightly clayey, micaceous, well compacted, gray-----	9.5	85

147-80-20CAA
 City of Turtle Lake test hole
 (Log from C. A. Simpson & Son)

Elevation: 1860 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, black-----	3	3
	Clay, gray-----	5	8
	Clay, yellow; rock-----	8	16
	Clay, sandy, gray-----	13	29
	Sand, clayey, hard, gray-----	8	37
	Sand and gravel, clayey-----	1	38
	Sand, fine, clayey-----	6	44
	Clay, sandy, gray-----	4	48
	Clay or shale, gray-----	13	61

147-80-20CDD
 City of Turtle Lake test hole
 (Log from C. A. Simpson & Son)

Elevation: 1858 ft

Glacial drift:			
	Topsoil, black-----	2.5	2.5
	Clay, gray-----	11.5	14
	Clay, yellow; with few rocks-----	14	28
	Clay, very sandy, gray-----	24	52
	Clay, gray; contains white pebbles and lignite flakes-----	17	69
Fort Union Group:			
	Shale, gray and sandy gray shale-----	12	81

147-80-22BBC
 NDSWC 3936

Elevation: 1835 ft

Glacial drift:			
	Clay, silty, sandy, yellowish-gray; scattered pebbles (till)-----	7	7
	Clay, silty, sandy, pebbly, moderate-olive-brown (till)-----	13	20
	Sand, medium to coarse, loose, iron-stained--	3	23
	Silt, clayey, calcareous, light-olive-gray--	3	26
	Sand, medium to coarse-----	6	32
	Silt, clayey, sandy, olive-gray-----	27	59
	Clay, plastic, olive-gray-----	3	62
	Sand, fine to medium, light-olive-gray-----	7	69
	Clay, stiff, olive-gray-----	14	83
	Sand, medium to very coarse, gravelly-----	57	140
Fort Union Group:			
	Sand, very fine, clayey, micaceous, noncalcareous, medium-bluish-gray-----	17	157
	Shale, hard, brittle, medium-dark-gray-----	23	180

147-80-28CBC
 Turtle Lake City Well 3
 (Log from Layne-Minnesota Co.)

Elevation: 1880 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Clay-----	30	30
	Sand and gravel-----	6	36
	Sand, gravel, and clay-----	4	40
Fort Union Group(?):			
	Clay and lignite-----	37	77
	Clay and streaks of lignite-----	40	117
	Sand-----	5	122
	Clay and lignite streaks-----	85	207
	Shale, hard, white-----	1	208
	Clay and lignite streaks-----	28	236
	Clay and streaks of gravel-----	101	337
	Sand-----	3	340
	Shale, hard-----	2	342
	Sand with hard streaks-----	10	352
	Clay-----	41	393
	Sand-----	10	403
	Clay, soft-----	4	407
	Sand-----	10	417
	Clay, soft-----	1	418
	Shale, hard-----	4	422
	Clay, sandy-----	18	440
	Clay and some gravel-----	5	445

147-80-28DAB
 (Log from U.S. Bureau of Reclamation)

Elevation: 1851 ft

Glacial drift:			
	Sand, very fine, clayey, buff-----	5	5
	Clay (glacial till), very sandy, buff-----	8	13
	Sand, medium to coarse, and fine to medium clayey gravel-----	7	20
	Sand, fine, loose, gray-brown-----	3.5	23.5
	Clay (glacial till), silty, sandy, stiff, gray; scattered small pebbles-----	11.5	35

147-80-28DDB
 (Log from U.S. Bureau of Reclamation)

Elevation: 1848 ft

Glacial drift:			
	Topsoil-----	1	1
	Sand, fine, silty, gray-----	2	3
	Sand, medium to coarse, silty, gravelly, brown and buff-----	10.5	13.5
	Clay (glacial till), silty, stiff, gray; trace of silt; scattered pebbles and lignite fragments-----	9.5	23
	Sand, very fine, silty, gray-----	.7	23.7
	Clay (glacial till), silty, stiff, gray; trace of silt; scattered pebbles and lignite fragments-----	16.3	40

147-80-33DCC
(Log from U.S. Bureau of Reclamation)

Elevation: 1840 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Clay (glacial till), sandy, brown-----	5	5
	Clay (glacial till), sandy, gray-----	4.5	9.5
	Sand, fine, slightly clayey, gray-----	1.7	11.2
	Sand, fine, loose, brown-----	8.8	20
	Silt, compacted, laminated, gray; slightly clayey below 22 ft-----	10	30

147-80-33DDD
NDSWC 3935

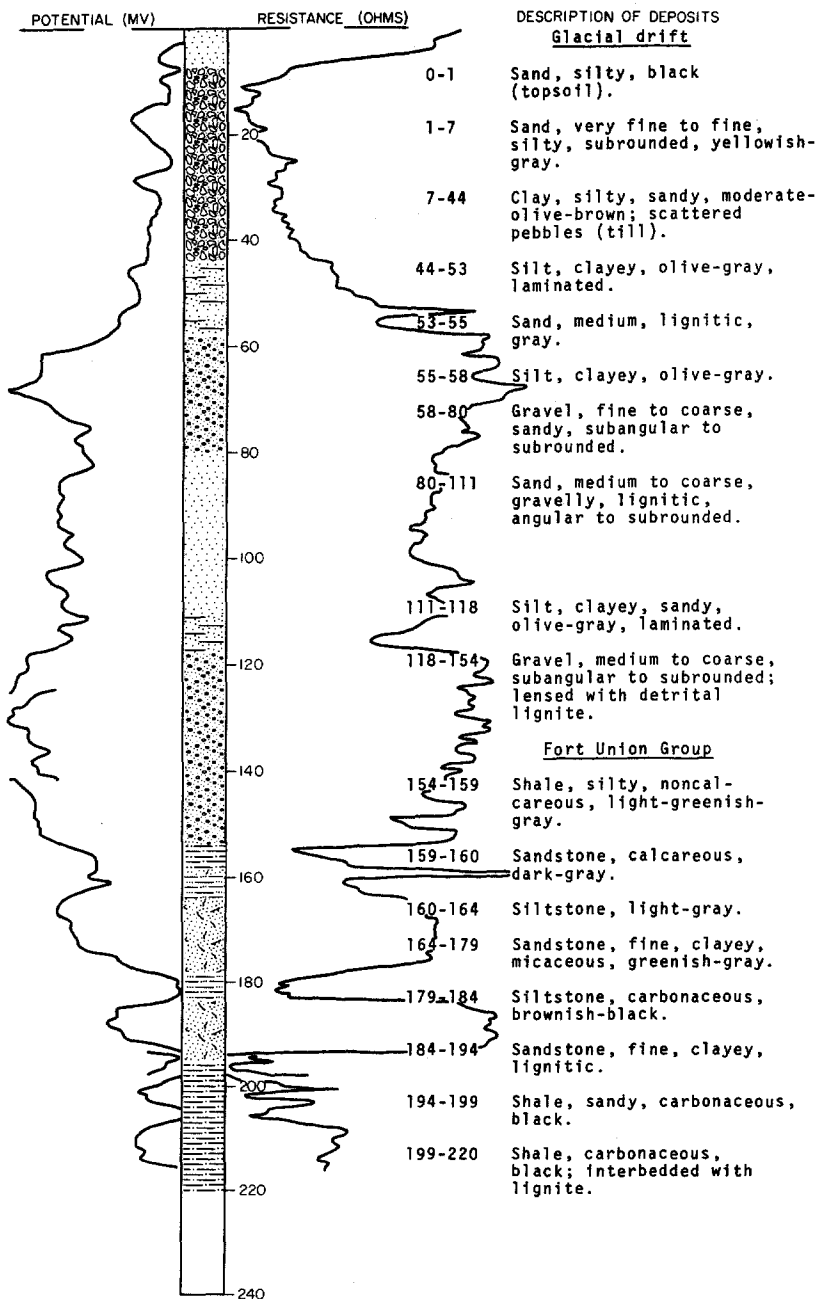
Elevation: 1827 ft

Alluvium:			
	Topsoil, silty, black-----	1	1
	Clay, silty, pinkish-gray; interbedded with fine to medium sand-----	9	10
Glacial drift:			
	Sand, fine to coarse, dark-gray-----	8	18
	Sand, coarse, light-brown-----	7	25
Fort Union Group:			
	Silt, shaly, light-gray-----	3	28
	Lignite, hard, black-----	3	31
	Shale, silty, soft, micaceous, white to light-gray-----	9	40

LOCATION: 147-81-7DDD
 ELEVATION: 1912
 (FT, MSL)

NDSWC 4098

DATE DRILLED: August 1970
 DEPTH: 220
 (FT)



147-81-10ADD
NDSWC 2727

Elevation: 1864 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, sandy, silty, brownish-black-----	1	1
	Sand and gravel; coarse to very coarse angular to subrounded sand; fine angular to subrounded gravel-----	9	10
	Clay, silty, dark-greenish-gray; upper 3-4 ft is moderate-yellowish-brown (till)-	6	16
	Sand, very fine to fine, clayey, subangular to rounded-----	3	19
	Clay, silty, olive-gray; scattered shale and limestone fragments (till)-----	10	29
	Sand, clayey, lignitic; scattered pebbles---	26	55
Fort Union Group:			
	Sandstone and shale interbedded; fine indurated noncalcareous light-bluish-gray sandstone; indurated noncalcareous brownish-black shale-----	25	80

147-81-11CCC
(Log from U.S. Bureau of Reclamation)

Elevation: 1852 ft

Glacial drift:			
	Sand and gravel, dry; trace of clay-----	26.5	26.5
Fort Union Group(?):			
	Sand, fine, compact, gray; trace of clay----	3.5	30

147-81-14ACC
(Log from U.S. Bureau of Reclamation)

Elevation: 1851 ft

Glacial drift:			
	Sand and gravel, poorly graded; maximum size recovered 1½ inches-----	30	30

147-81-14BBB
(Log from U.S. Bureau of Reclamation)

Elevation: 1839.8 ft

Glacial drift:			
	Topsoil-----	1	1
	Sand, fine to medium, and gravel fine to coarse, clean, loose, brown-----	8.4	9.4
Fort Union Group:			
	Sand, medium, clayey, well compacted, greenish-gray-----	1.1	10.5
	Shale, soft, very plastic, gray-----	17.5	28
	Lignite, black; clayey gradations of very organic shale and shaly lignite-----	2	30

147-81-15BAD
(Log from U.S. Bureau of Reclamation)

Elevation: 1847.3 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil-----	1	1
	Sand, fine to coarse, and gravel, medium, clean, loose, gray-brown-----	10.5	11.5
	Clay (glacial till), silty, sandy, stiff, gray-brown; soft wet clay from 21-24 ft---	12.9	24.4
	Sand, fine to medium, clean, loose, gray; contains thin streaks of pulverized lignite-----	7.6	32

147-81-15DDD
NDSWC 2725

Elevation: 1830 ft

Glacial drift:			
	Topsoil, silty, sandy, dark-yellowish- brown-----	0.5	0.5
	Gravel and sand; coarse subangular to subrounded gravel; coarse to very coarse angular to subangular sand-----	19.5	20
	Clay, silty, dark-greenish-gray, laminated; lignitic in lower part of section-----	8	28
Fort Union Group:			
	Sandstone and shale interbedded; fine to medium noncalcareous greenish-gray sand- stone; noncalcareous dark-gray shale-----	22	50

147-81-16DAD
(Log from U.S. Bureau of Reclamation)

Elevation: 1847 ft

Glacial drift:			
	Topsoil-----	1	1
	Silt, sandy, organic; chiefly topsoil-----	2	3
	Sand, fine, dry, buff; trace of fine gravel-	5	8
	Sand, fine, loose, buff to gray; trace of silt-----	7	15
	Clay, sandy, gravelly, moderately plastic, gray-----	25	40

147-81-18DBC
(Log from U.S. Bureau of Reclamation)

Elevation: 1860.3 ft

Glacial drift:			
	Topsoil-----	2	2
	Silt and clay, sandy, organic, slightly plastic, gray-----	3	5
	Sand, fine, clean, loose, gray-brown-----	5	10
	Sand, fine, slightly clayey, gray-brown----	11	21
	Sand, fine, clean, loose, buff, iron-oxide stained-----	4.5	25.5
	Sand, fine, silty, slightly clayey, gray---	9.5	35

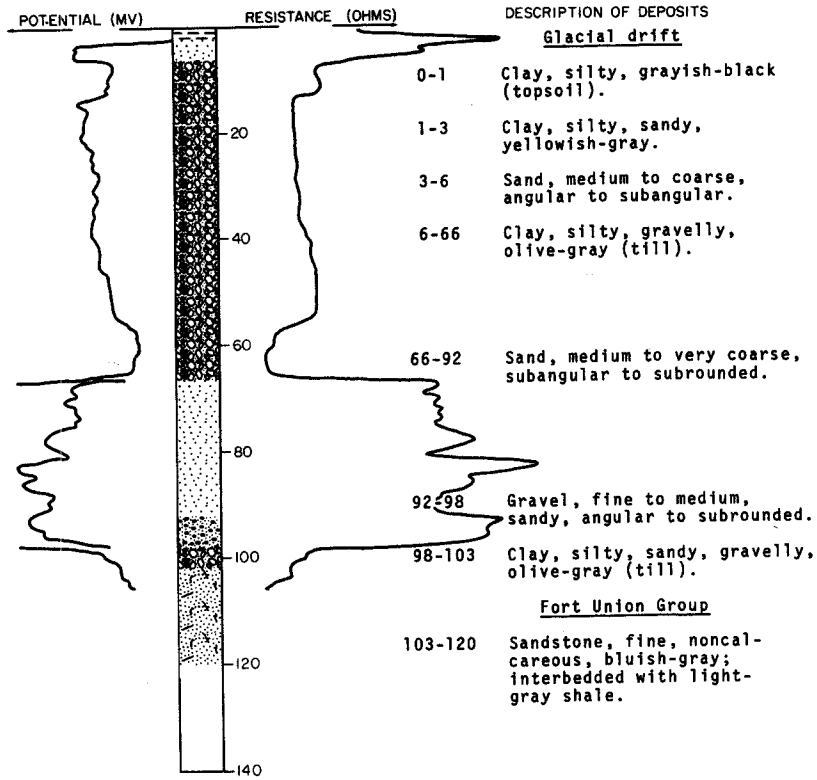
NDSWC 2718

LOCATION: 147-81-19AAA

DATE DRILLED: July 1967

ELEVATION: 1837
(FT, MSL)

DEPTH: 120
(FT)



147-81-21AAA
NDSWC 2726

Elevation: 1847 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, clayey and silty, grayish-black---	1	1
	Clay, silty, grayish-orange; scattered sand and pebbles (till)-----	26	27
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	13	40
Fort Union Group:			
	Sandstone, fine to medium, noncalcareous, light-bluish-gray to medium-bluish-gray---	22	62
	Shale, sandy, noncalcareous, dusky-brown---	18	80

147-81-23AAA
NDSWC 2724

Elevation: 1829 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Sand, coarse to very coarse, gravelly, subangular to subrounded, moderate-reddish-orange-----	29	29
	Clay, silty, sandy, pebbly, olive-gray to medium-dark-gray (till)-----	12	41
	Gravel and sand; fine to medium gravel; coarse to very coarse sand; lignitic-----	9	50
Fort Union Group:			
	Lignite, hard, black-----	9	59
	Sandstone, fine to medium, noncalcareous, light-gray to greenish-gray-----	11	70

147-81-24BAA
(Log from U.S. Bureau of Reclamation)

Elevation: 1834.3 ft

Glacial drift:			
	Topsoil-----	1	1
	Sand, fine to medium, loose, brown-----	5	6
	Sand, medium to coarse, and 15 to 20 percent medium gravel, clean, loose, brown; trace of lignite slack-----	11	17
	Gravel, fine and sand coarse, clean, loose, gray; trace of lignite slack-----	20.5	37.5
	Silt, sandy, clayey, moderately compacted, gray; laminated in silt and sandy silt zones; contains zones of soft plastic clay-----	16.3	53.8
	Sand, medium to coarse, gravelly, clean, loose, gray-----	21.2	75

147-81-24DCC
City of Turtle Lake test hole
(Log from C. A. Simpson & Son)

Elevation: 1824 ft

Glacial drift:			
	No sample-----	8	8
	Sand, clayey-----	17	25
	Sand, fine, and gravel-----	8	33
	Sand, very fine, clayey, gray; contains lignite particles-----	14	47
	Clay or shale, blue-----	6	53

147-81-25DCB
City of Turtle Lake supply well
(Log from Moe's Well Drilling)

Elevation: 1830 ft

Glacial drift:			
	Topsoil-----	1	1
	Gravel, fine to medium, and sand-----	44	45
	Coal, soft-----	.9	45.9
	Till(?), brown-----	3.1	49
	Till(?), gray-----	11	60

Elevation: 1878 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, clayey, dark-gray-----	1	1
	Clay, silty, sandy, dusky-yellow; moderate-reddish-brown, limonitic laminations-----	5	6
	Sand, medium to coarse, subangular to subrounded-----	2.5	8.5
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	69.5	78
	Sand, fine to medium, subangular to subrounded-----	10	88
	Clay, silty, sandy, olive-gray to dark-gray; scattered pebbles and lignite fragments (till)-----	8	96
	Gravel, coarse, clayey, sandy, angular to subrounded-----	4	100
Fort Union Group:			
	Siltstone, noncalcareous, light-gray to medium-light-gray-----	28	128
	Sandstone, fine to medium, noncalcareous, light-greenish-gray; numerous thin lignite interbeds-----	12	140

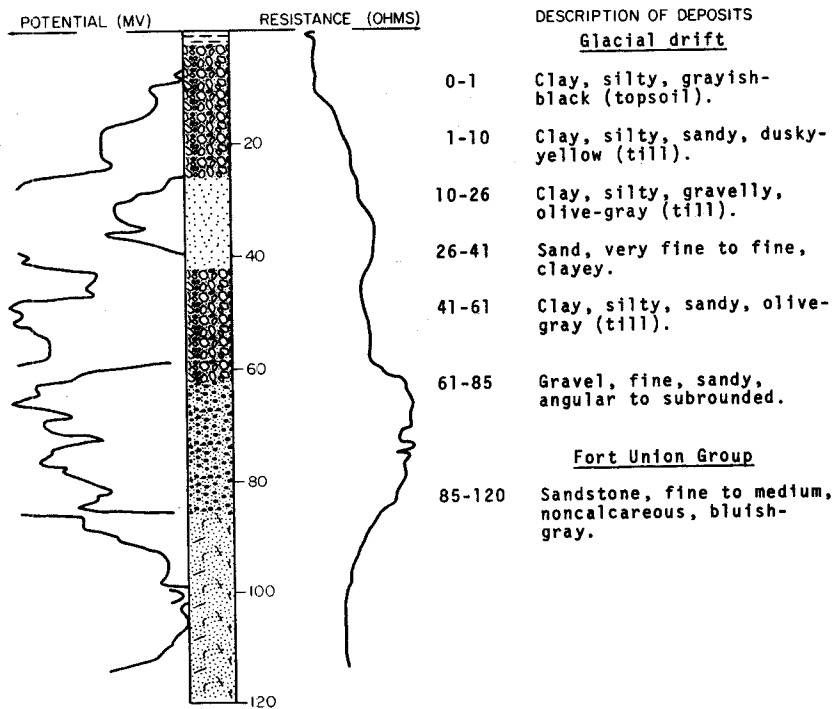
NDSWC 2719

LOCATION: 147-81-28ADD

DATE DRILLED: July 1967

ELEVATION: 1838
(FT, MSL)

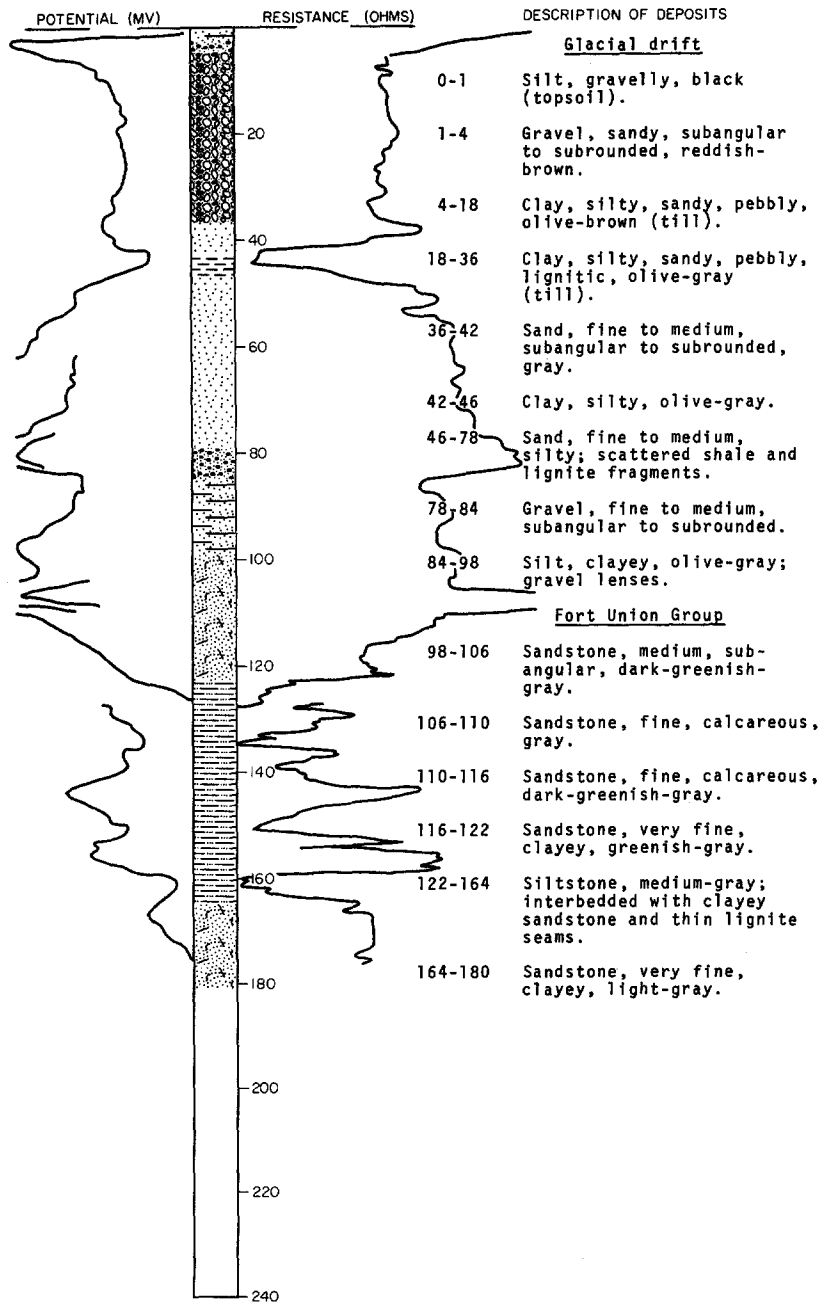
DEPTH: 120
(FT)



LOCATION: 147-81-30ADD
 ELEVATION: 1863
 (FT, MSL)

NDSWC 4097

DATE DRILLED: August 1970
 DEPTH: 180
 (FT)



147-81-30CDD
NDSWC 3929

Elevation: 1897 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, black-----	1	1
	Clay, silty, gravelly, dusky-yellow-----	3	4
	Clay, silty, sandy, pebbly, stiff, olive-gray (till)-----	58	62
Fort Union Group:			
	Sand, very fine to fine, clayey, lignitic, dark-greenish-gray to brownish-black-----	23	85
	Shale, silty, sandy, carbonaceous, hard, brittle, greenish-gray to black-----	15	100

147-81-32BBB
NDSWC 2717

Elevation: 1905 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, clayey, grayish-black-----	1	1
	Clay, silty, sandy, light-olive-gray; scattered gravel (till)-----	18	19
	Clay, silty, sandy, olive-gray; scattered cobbles and boulders (till)-----	17.5	36.5
	Sand, fine to medium, angular to subrounded-----	6.5	43
	Clay, silty, sandy, olive-gray (till)-----	9	52
Fort Union Group:			
	Shale, noncalcareous, medium-bluish-gray; lignitic in upper part-----	28	80

147-81-35ABB
NDSWC 2720

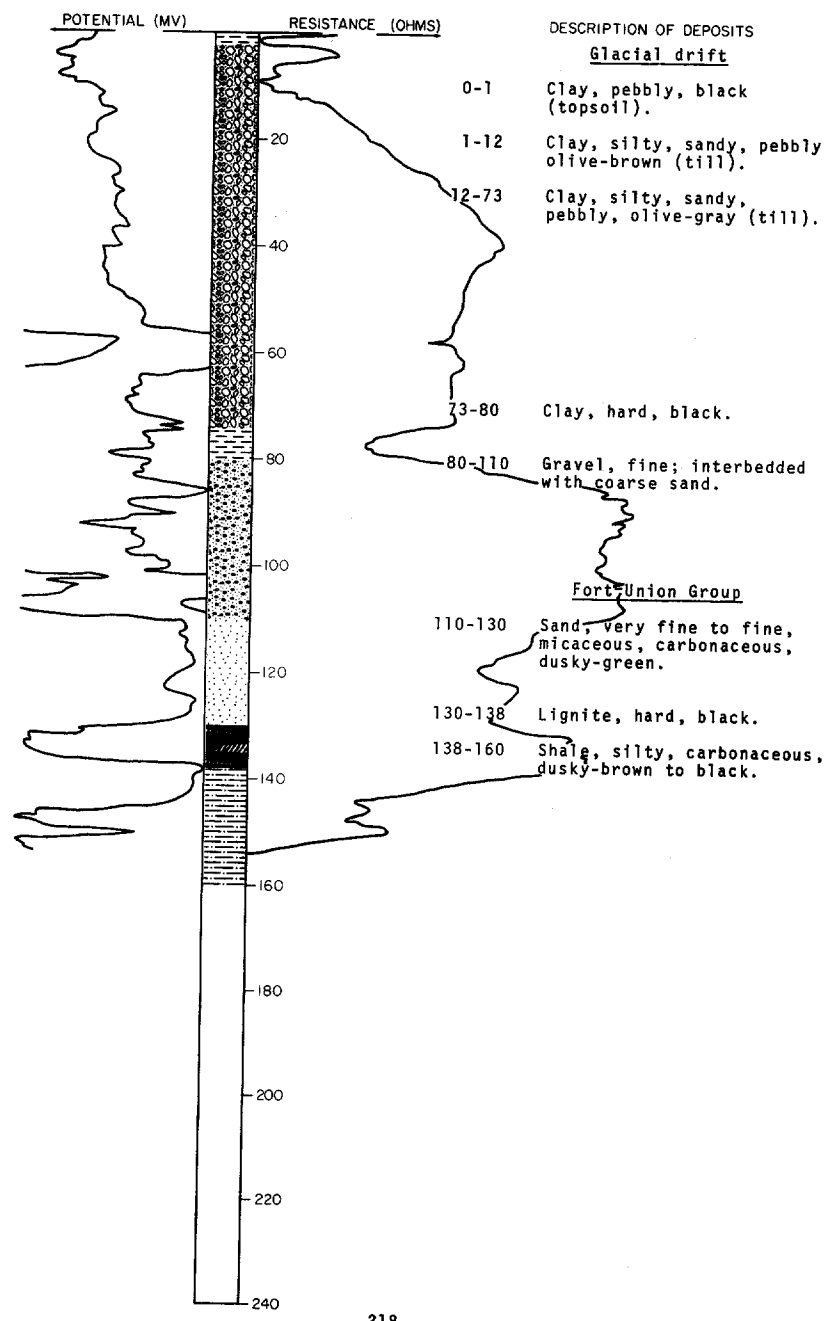
Elevation: 1852 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, clayey, grayish-black-----	0.5	0.5
	Clay, silty, sandy, dusky-yellow, scattered pebbles-----	3.5	4
	Sand and gravel; coarse to very coarse subangular to rounded sand; fine angular to subrounded gravel-----	17	21
Fort Union Group:			
	Siltstone, calcareous, light-brownish-gray--	9	30
	Sandstone, fine to medium, noncalcareous, medium-bluish-gray to light-bluish-gray---	30	60

LOCATION: 147-82-11888
 ELEVATION: 1841
 (FT, MSL)

NDSWC 3927

DATE DRILLED: November 1969
 DEPTH: 160
 (FT)



147-82-11CCC
NDSWC 3928

Elevation: 1855 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Sand, medium to very coarse, gravelly, iron-stained-----	17	17
	Clay, silty, sandy, pebbly, olive-gray (till)-----	66	83
	Clay, carbonaceous, hard, dark-gray to black-----	11	94
	Sand, fine to coarse, dark-gray; scattered lignite fragments-----	18	112
Fort Union Group:			
	Shale, sandy, hard, brittle, dark-greenish-gray to brownish-gray; interbedded with greenish-gray very fine to fine sand-----	28	140

147-82-15DDD
NDSWC 3926

Elevation: 1927 ft

Glacial drift:			
	Silt, clayey, sandy, yellowish-gray (till)--	5	5
	Clay, silty, soft, yellowish-gray to moderate olive-brown; scattered sand and pebbles (till)-----	16	21
	Clay, silty, sandy, moderate-olive-brown; scattered pebbles (till)-----	23	44
Fort Union Group:			
	Shale, silty, sandy, hard, light- to medium-gray-----	18	62
	Silt and sand, very fine, light-gray to pale-yellowish-green-----	14	76
	Shale, hard, waxy, dusky-green-----	5	81
	Shale, silty, sandy, hard, brittle, light-gray to pale-green; interbedded with thin sandstone and clay beds-----	19	100

147-82-18DCC2
NDSWC 2716

Elevation: 1885 ft

Glacial drift:			
	Topsoil, silty, clayey, grayish-black-----	1	1
	Clay, silty, moderate-brown to greenish-gray (till)-----	15	16
Fort Union Group:			
	Shale and siltstone interbedded; medium-bluish-gray to dusky-blue; calcareous in upper part-----	12	28
	Sandstone, fine; noncalcareous, grayish-blue-green; interbedded with shale-----	32	60

147-82-27DDA
NDSWC 4095

Elevation: 2012 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, black-----	1	1
	Silt, clayey, sandy, yellowish-gray; scattered pebbles (till)-----	6	7
	Clay, silty, sandy, pebbly, moderate- olive-brown (till)-----	4	11
	Clay, stiff, greenish-brown-----	5	16
	Sand, fine to medium, shaly, subrounded-----	3	19
	Silt, clayey, sandy, reddish-yellow, laminated-----	19	38
	Sand, gravelly; interbedded with clay-----	11	49
Fort Union Group:			
	Shale, silty, hard, noncalcareous, gray; interbedded with noncalcareous light- gray siltstone, fine-grained greenish- gray clayey sandstone, and lignite-----	51	100

147-82-35BBC
NDSWC 4096

Elevation: 2000 ft

Glacial drift:			
	Clay, silty, yellowish-gray-----	3	3
	Clay, silty, sandy, pebbly, moderate- olive-brown; isolated gravel lenses (till)	10	13
	Clay, silty, sandy, pebbly, lignitic, olive-gray (till)-----	14	27
Fort Union Group:			
	Lignite, hard, black-----	2	29
	Siltstone, light-gray-----	3	32
	Limestone, dark-gray-----	3	35
	Siltstone, lignitic, medium-gray-----	18	53
	Shale, silty, hard, green-----	5	58
	Shale, silty, hard, medium-gray-----	8	66
	Lignite, hard, black-----	4	70
	Shale, silty, light-gray; interbedded with very fine grained clayey sandstone and lignite-----	30	100

147-83-3CAC
(Log from Erck Well Drilling, Inc.)

Elevation: 1860 ft

Glacial drift:			
	Clay, yellow-----	20	20
	Clay, three percent sand, yellow-----	10	30
	Clay, yellow-----	20	50
	Clay, five percent sand, yellow-----	10	60
	Clay, yellow to gray-----	20	80
	Gravel-----	4	84

147-83-4BAA
(Log from U.S. Corps of Engineers)

Elevation: 1827.5 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Clay, sandy, gray to brown-----	24.2	24.2
	Sand, fine, silty, loose, gray; trace of gravel-----	5.8	30
	Sand, clayey, compact to loose, dark-brown--	6	36
	Sand, fine, silty, brown-----	4.8	40.8
	Sand, fine, gravelly, loose, brown-----	1.8	42.6
	Sand, silty, gravelly-----	1.2	43.8
	Sand, fine, loose, dark-gray; scattered lignite fragments-----	5.7	49.5
	Gravel, sandy, loose, gray; scattered lignite fragments-----	14.5	64
	Clay, sandy, dark-gray; 5 percent gravel----	62.4	126.4
	Gravel, sandy, loose, gray; few thin clay lenses-----	5.0	131.4
	Clay, sandy, dark-gray; 5 percent gravel----	5.9	137.3
	Gravel, medium, sandy, gray-----	5.7	143
	Gravel, silty, sandy, gray-----	2.5	145.5
	Gravel, sandy, loose, gray-----	33.9	179.4
Fort Union Group:			
	Silt, sandy, friable, bluish-gray-----	2.1	181.5
	Clay, plastic, dark-brown; lignitic and carbonaceous-----	3	184.5

147-83-4BAD
(Log from U.S. Corps of Engineers)

Elevation: 1787.2

Glacial drift:			
	Silt, sandy, friable, dark-brown-----	0.8	0.8
	Clay, sandy, friable, brownish-gray; scattered lignite fragments-----	31.6	32.4
	Sand, fine, silty, loose, light-brown; scattered gravel and lignite fragments----	2.6	35
	Sand, fine, loose, light-brown; scattered gravel and lignite fragments-----	10.6	45.6
	Sand, fine to coarse, loose, grayish-brown--	2.8	48.4
	Sand, coarse, loose, brown; scattered lignite fragments-----	1.6	50
	Sand, coarse, silty, brown; scattered lignite fragments-----	1.8	51.8
	Gravel, medium, sandy, loose, brown; scattered lignite fragments and cobbles---	1.8	53.6
	Sand, fine, silty, loose, brown; scattered lignite fragments-----	2.2	55.8
	Clay, sandy, dark-gray; scattered lignite fragments-----	10.2	66
	Sand, fine, silty, loose, dark-gray; scattered lignite fragments-----	2	68
	Clay, sandy, dark-gray; scattered lignite fragments-----	5.6	73.6
	Gravel, silty, sandy, cemented, gray; scattered cobbles and lignite fragments---	4.4	78
	Gravel, sandy, loose, gray; scattered cobbles and lignite fragments-----	2.4	80.4
Fort Union Group:			
	Silt, sandy, firm, gray-----	2.4	82.8
	Sand, fine, silty, soft, dark-bluish-gray; scattered lignite fragments-----	4.2	87

147-83-4BDD1
(Log from U.S. Corps of Engineers)

Elevation: 1847.6 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Clay, sandy, friable, dark-brown; scattered gravel-----	1.6	1.6
	Clay, sandy, friable, brownish-gray; scattered lignite and gravel-----	27	28.6
	Clay, sandy, dark-gray; scattered gravel and lignite-----	20.6	49.2
Fort Union Group:			
	Clay, plastic, gray-----	.3	49.5
	Lignite, hard, black-----	3.5	53
	Clay, gray-----	4	57

147-83-4BDD2
(Log from U.S. Corps of Engineers)

Elevation: 1850.7 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Clay, sandy, friable to subfirm, brownish-gray; scattered lignite and scoria fragments-----	33	33
	Silt, sandy, loose, brown; scattered lignite and cobbles-----	3.6	36.6
	Sand, clayey, brown-----	1	37.6
	Clay, sandy, dark-gray; scattered lignite fragments-----	19	56.6
	Gravel, silty, sandy, loose, dark-gray; scattered lignite fragments-----	2	58.6
	Sand, coarse, silty, loose, dark-gray; scattered lignite and gravel-----	2.4	61
Fort Union Group:			
	Clay, plastic, bluish-gray-----	1.2	62.2
	Lignite, hard, black-----	3	65.2
	Silt, sandy, compact, gray-----	.8	66

147-83-4CAA
(Log from U.S. Corps of Engineers)

Elevation: 1872.5 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Clay, sandy, dark-brown-----	2.6	2.6
	Clay (till), sandy, light-brown; scattered gravel-----	3.4	6
	Clay (till), sandy, subfirm, brown; trace of lignite float; scattered gravel-----	6	12
	Clay (till), sandy, stiff, brown; trace of iron oxide and scattered gravel-----	10.5	22.5
	Clay (till), sandy, plastic, brown; scattered gravel-----	7.5	30
	Clay (till), sandy, plastic, brown; trace of lignite and scattered gravel-----	6.7	36.7
	Clay (till), sandy, gray; trace of lignite and scattered gravel, sand streaks, and boulders near bottom-----	29.6	66.3
Fort Union Group:			
	Clay, plastic, gray; slightly weathered-----	1.5	67.8
	No sample-----	.7	68.5
	Clay, subfirm, gray; slightly weathered, few limestone nodules and silty streaks-----	4.3	72.8
	Clay, plastic, gray-----	.6	73.4
	Limestone, argillaceous, hard, light-gray-----	1	74.4

147-83-4CAA, Continued
(Log from U.S. Corps of Engineers)

Geologic source	Material	Thickness (feet)	Depth (feet)
Fort Union Group, Continued:			
	Clay, plastic, calcareous, light-gray-----	0.7	75.1
	Limestone, argillaceous, hard, light-gray---	.3	75.4
	Clay, plastic, gray; few calcareous streaks-----	2.9	78.3
	Lignite, hard, black-----	.4	78.7
	Clay, plastic, dark-gray; carbonaceous streaks-----	1.2	79.9
	No sample-----	1.3	81.2
	Clay, plastic, dark-gray; carbonaceous streaks-----	.4	81.6
	Lignite, hard, black-----	1.6	83.2
	Clay, subfirm, dark-gray; carbonaceous streaks-----	.5	83.7
	Clay, silty, light-gray to dark-gray-----	4.9	88.6
	Clay, plastic, dark-gray-----	.7	89.3
	No sample-----	.7	90

147-83-5D
(Log from U.S. Corps of Engineers)

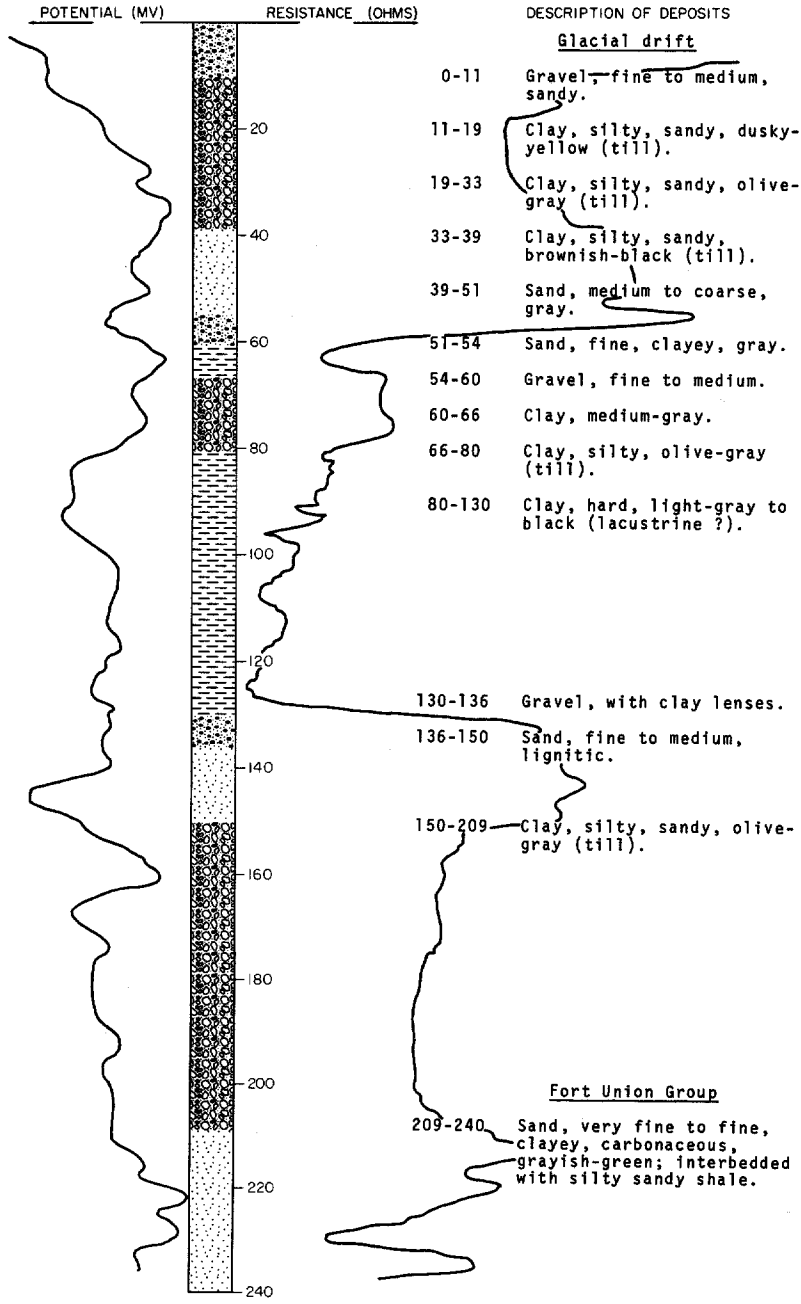
Elevation: 1813.8 ft

Glacial drift:			
	Clay, sandy, friable, dark-grayish-brown----	3.8	3.8
	Sand, fine, loose, grayish-brown-----	4.4	8.2
	Clay, sandy, brownish-gray; scattered lignite fragments-----	2.4	10.6
	Sand, fine, loose, light-brown-----	1.9	12.5
	Clay, sandy, brownish-gray; scattered lignite fragments-----	26.5	39
	Sand, coarse, loose, dark-gray-----	7.2	46.2
	Clay, sandy, dark-gray-----	20.2	66.4
	Sand, coarse, loose, brownish-gray-----	5.6	72
	Sand, fine, loose, dark-gray-----	29.6	101.6
	Clay, plastic, dark-gray-----	.8	102.4
	Sand, fine, silty, loose, dark-gray-----	3.6	106
	Clay, plastic, dark-gray-----	.8	106.8
	Sand, fine, silty, loose, dark-gray-----	17.7	124.5
	Silt, loose, dark-gray; scattered lignite fragments-----	6	130.5
	Sand, silty, loose, dark-gray; scattered lignite fragments-----	3.3	133.8
	Clay, plastic, dark-gray-----	1.6	135.4
	Sand, fine, silty, loose, dark-gray; scattered lignite and gravel-----	23.6	159
	Clay, plastic, dark-gray-----	1.8	160.8
	Sand, fine, silty, loose, dark-gray; thin interbeds of plastic clay-----	7.2	168
	Clay, dark-gray-----	2	170
	Clay, plastic, dark-gray-----	1	171
	Sand, fine, silty, loose, dark-gray; carbonaceous streaks-----	30	201
	Clay, plastic, dark-gray-----	1.6	202.6
	Sand, coarse, loose, brownish-gray-----	11.4	214
	Gravel, silty, sandy, loose, brownish-gray--	5	219
Fort Union Group:			
	Clay, dark-gray; slightly carbonaceous-----	1	220
	Clay, plastic, dark-gray-----	1	221
	Clay, dark-gray-----	2.3	223.3
	Clay, plastic, dark-brownish-gray; slightly carbonaceous, silt streaks-----	1.7	225

LOCATION: 147-83-11CCC2
 ELEVATION: 1860
 (FT, MSL)

NDSWC 3924

DATE DRILLED: November 1969
 DEPTH: 240
 (FT)



147-83-13DDD
NDSWC 3925

Elevation: 1881 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Sand, medium to very coarse, gravelly, iron-stained-----	17	17
	Clay, silty, sandy, moderate-olive-brown; scattered pebbles-----	5	22
Fort Union Group:			
	Shale, hard, brittle, light- to medium-gray-----	12	34
	Silt and very fine sand, shaly, carbonaceous, variegated gray, green, and brown-----	26	60

147-83-14BCC
NDSWC 4041

Elevation: 1860 ft

Glacial drift:			
	Topsoil, silty, black-----	1	1
	Silt, yellowish-gray-----	3	4
	Clay, silty, sandy, pebbly, moderate-olive-brown (till)-----	26	30
	Sand, medium to coarse, subangular to subrounded, dark-gray-----	9	39
	Silt, light-olive-gray-----	10	49
	Clay, silty, plastic, light-olive-gray-----	5	54
	Clay, plastic, black-----	12	66
	Clay, silty, plastic, gray to green-----	26	92
	Clay, stiff, olive-gray-----	29	121
	Clay, stiff, black-----	19	140
	Gravel, fine to medium, angular to subrounded; scattered sand and cobbles-----	18	158
	Clay, silty, sandy, pebbly, dark-olive-gray (till)-----	32	190
Fort Union Group:			
	Shale, silty, carbonaceous, calcareous, light-gray; interbedded with siltstone----	21	211
	Sandstone, very fine to fine, micaceous, calcareous, greenish-gray; interbedded with light-gray siltstone-----	39	250
	Shale, silty, hard, medium-gray to black; lignite from 254-256 ft-----	10	260

147-83-15CDD2
NDSWC 2-983

Elevation: 1870 ft

Glacial drift:			
	Topsoil, black-----	2	2
	Clay, silty, yellowish-black-----	3	5
	Clay, silty, yellow (till)-----	14	19
	Clay, silty, olive-gray; lignite fragments (till)-----	12.5	31.5

147-83-15CDD3
NDSWC 4042

Elevation: 1865 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, sandy, black-----	2	2
	Sand, very fine to fine, silty, yellowish-gray-----	8	10
	Clay, silty, sandy, moderate-olive-brown; scattered pebbles (till)-----	32	42
	Sand, medium to very coarse, gravelly, angular to subrounded-----	14	56
Fort Union Group:			
	Clay, calcareous, dark-olive-gray-----	12	68
	Shale, silty, variegated gray to yellowish-green; interbedded with siltstone-----	17	85
	Shale, silty, hard, medium-gray-----	5	90
	Shale, silty, medium-gray; interbedded with siltstone and clay; lignite from 110-113 ft, 121-123 ft, and 130-132 ft-----	50	140

147-83-15DCC
NDSWC 1-983

Elevation: 1875 ft

Glacial drift:			
	Topsoil, black-----	1	1
	Gravel, fine to medium, clayey; scattered cobbles-----	4	5
	Clay, silty, yellow (till)-----	13	18
	Clay, silty, olive-gray; lignite fragments (till)-----	28	46
	Clay, silty, bluish-black-----	12	58
	Clay, silty, olive-gray-----	5	63
	Clay, silty, olive-gray-----	21	84

147-83-22ACB
NDSWC 3-983

Elevation: 1875 ft

Glacial drift:			
	Topsoil, black-----	2	2
	Gravel, fine to medium, and coarse sand; trace of clay-----	6	8
	Clay, silty, yellow (till)-----	5	13
	Clay, silty, olive-gray; lignite fragments (till)-----	8	21

147-83-22DBB1
NDSWC 4-983

Elevation: 1881 ft

Glacial drift:			
	Topsoil, black-----	1	1
	Sand, fine-----	4	5
	Clay, silty, yellow (till)-----	4	9
	Sand, fine-----	2	11
	Clay, silty, yellow (till)-----	11	22
	Clay, silty, olive-gray; scattered lignite (till)-----	9.5	31.5

147-83-22DBB2
NDSWC 11-983

Elevation: 1881 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Silt, clayey, dusky-brown (topsoil)-----	1	1
	Clay, silty, plastic, calcareous, dusky- yellow to yellowish-gray; scattered sand and pebbles (till)-----	7	8
	Gravel, fine to medium, and coarse sand-----	4	12
	Clay, silty, plastic, calcareous, dusky- yellow to light-olive-brown; scattered sand and pebbles (till)-----	10	22
	Clay, silty, plastic, calcareous, olive- gray; scattered sand and pebbles (till)---	9.5	31.5

147-83-22DBB3
NDSWC 7-983

Elevation: 1881 ft

Glacial drift:			
	Silt, clayey, sandy, dusky-brown (topsoil)--	1	1
	Sand, medium to coarse, gravelly, silty, clayey, dusky-yellow-----	2	3
	Clay, silty, plastic, calcareous, dusky- yellow; scattered sand and pebbles (till)-	12	15
	Clay, silty, plastic, calcareous, moderate- olive-brown to olive-gray; scattered sand and pebbles (till)-----	27	42

147-83-22DBC1
NDSWC 12-983

Elevation: 1881 ft

Glacial drift:			
	Silt, clayey, dusky-brown (topsoil)-----	1	1
	Clay, silty, plastic, calcareous, dusky- yellow; scattered sand and pebbles (till)-	4	5
	Gravel, fine to medium, and medium to coarse sand-----	4	9
	Sand, fine to coarse-----	7	16
	Gravel, fine to coarse-----	8	24
	Clay, silty, plastic, calcareous, olive- gray; scattered sand and pebbles (till)---	7.5	31.5

147-83-22DBC2
NDSWC 10-983

Elevation: 1880 ft

Glacial drift:			
	Silt, clayey, sandy, dusky-brown (topsoil)--	1	1
	Clay, silty, plastic, calcareous, dusky- yellow; scattered sand and pebbles (till)-	2	3
	Sand, medium to coarse; scattered gravel----	6	9
	Sand, fine to medium; lignite pebbles-----	6	15
	Gravel, fine to medium, and coarse sand-----	5	20
	Clay, silty, plastic, calcareous, olive- gray; scattered sand and pebbles (till)---	11.5	31.5

147-83-22DBC3
NDSWC 9-983

Elevation: 1880 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Silt, clayey, dusky-brown (topsoil)-----	1	1
	Clay, silty, plastic, calcareous, dusky- yellow; scattered sand and pebbles (till)-	7	8
	Gravel, fine to medium-----	2	10
	Sand, fine to medium; lignite pebbles-----	7	17
	Gravel, fine to medium-----	4	21
	Clay, silty, plastic, calcareous, olive- gray; scattered sand and pebbles (till)---	10.5	31.5

147-83-22DBC4
NDSWC 8-983

Elevation: 1880 ft

Glacial drift:			
	Silt, clayey, sandy, dusky-brown (topsoil)--	1	1
	Clay, silty, plastic, calcareous, dusky- yellow; scattered sand and pebbles (till)-	3	4
	Gravel, fine to coarse-----	4	8
	Sand, fine to medium-----	4	12
	Clay, silty, plastic, calcareous, moderate- olive-brown to olive-gray; scattered sand and pebbles (till)-----	9	21

147-83-22DBC5
NDSWC 5-983

Elevation: 1880 ft

Glacial drift:			
	Silt, clayey, sandy, dusky-brown (topsoil)--	1	1
	Sand, fine to coarse, gravelly-----	5	6
	Sand, fine to coarse, gravelly, lignitic----	11	17
	Sand, gravel, and cobbles-----	4	21

147-83-22DBC6
NDSWC 6-983

Elevation: 1880 ft

Glacial drift:			
	Silt, clayey, sandy, dusky-brown (topsoil)--	1	1
	Clay, silty, sandy, plastic to brittle, calcareous (till)-----	4	5
	Sand, fine to medium, lignitic-----	10	15
	Gravel, fine to medium, sandy-----	3	18
	Clay, silty, plastic, slightly calcareous, olive-gray (till)-----	39	57
	Clay, silty, plastic, calcareous, dusky- yellow-green to grayish-yellow-green (lacustrine)-----	17	74
	Clay, silty, plastic, calcareous, dark- olive-gray (lacustrine)-----	25	99
	Clay, silty, brittle, slightly calcareous, olive-brown; contains lenses of fine to coarse sand and fine gravel-----	4	103
	Clay, silty, plastic, slightly calcareous, moderate-olive-brown to olive-gray; scattered sand and pebbles (till)-----	12	115

147-83-22DBC6, Continued
NDSWC 6-983

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift, Continued:			
	Clay, silty, sandy, gravelly, slightly calcareous, olive-gray (till)-----	9	124
Fort Union Group:			
	Clay, silty, plastic, noncalcareous, light-olive-gray to pale-yellowish-brown-----	3	127
	Lignite, very brittle, black; interbedded with pale-yellowish-brown silty clay-----	3	130
	Clay, silty, and very fine sand, brittle, noncalcareous, pale-yellowish-brown-----	5	135
	Clay, silty, brittle, noncalcareous, light-olive-gray-----	15	150
	Clay, silty, and very fine sand, brittle, noncalcareous, dark-olive-gray to medium-bluish-gray-----	18	168

147-83-22DBC7
NDSWC 14-983

Elevation: 1880 ft

Glacial drift:			
	Silt, clayey, sandy, dusky-brown (topsoil)--	1	1
	Clay, silty, plastic, calcareous, dusky-yellow; scattered sand and pebbles (till)-	3	4
	Gravel, fine to medium, and coarse sand-----	7	11
	Gravel, fine to medium, and fine to coarse sand-----	10	21
	Clay, silty, plastic, calcareous, olive-gray; scattered sand and pebbles (till)---	10.5	31.5

147-83-22DBD1
NDSWC 15-983

Elevation: 1880 ft

Glacial drift:			
	Silt, clayey, dusky-brown (topsoil)-----	1	1
	Clay, silty, plastic, calcareous, dusky-yellow; scattered sand-----	2	3
	Sand, fine to coarse; scattered gravel-----	9	12
	Gravel, fine to coarse-----	7	19
	Clay, silty, plastic, calcareous, olive-gray; scattered sand and pebbles (till)---	2	21

147-83-22DBD2
NDSWC 16-983

Elevation: 1880 ft

Glacial drift:			
	Silt, clayey, dusky-brown (topsoil)-----	1	1
	Clay, silty, plastic, calcareous, dusky-yellow to yellowish-gray; scattered sand and pebbles (till)-----	4	5
	Sand, medium to coarse-----	8	13
	Clay, silty, plastic, calcareous, olive-gray; scattered sand and pebbles (till)---	8	21

147-83-22DCB
NDSWC 13-983

Elevation: 1883 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Silt, clayey, dusky-brown (topsoil)-----	1	1
	Clay, silty, slightly plastic, calcareous, yellowish-gray to dusky-yellow; scattered sand and pebbles (till)-----	1	2
	Gravel, fine to medium, and medium to coarse sand-----	6	8
	Sand, medium to coarse-----	8	16
	Gravel, fine to coarse-----	5	21
	Clay, silty, plastic, calcareous, olive-gray; scattered sand and pebbles (till)---	10.5	31.5

147-83-25AAA
NDSWC 4040

Elevation: 1901 ft

Glacial drift:			
	Topsoil, sandy, black-----	1	1
	Sand, fine to medium, dark-reddish-brown---	3	4
	Clay, silty, sandy, pebbly, dusky-yellow to moderate-olive-brown (till)-----	5	9
Fort Union Group:			
	Shale, silty, grayish-yellow-----	4	13
	Sandstone, micaceous, calcareous, pale-yellowish-green-----	12	25
	Shale, silty, brittle, light-gray-----	2	27
	Lignite, hard, black-----	4	31
	Shale, silty, hard, light-gray-----	2	33
	Shale, hard, grayish-green-----	3	36
	Shale, silty, calcareous, medium-light-gray-----	20	56
	Shale, carbonaceous, black-----	4	60

147-83-25CBB
NDSWC 2715

Elevation: 1937 ft

Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Clay, silty, sandy, dusky-yellow to moderate-yellowish-brown (till)-----	39	40
	Clay, silty, sandy, olive-gray (till)-----	46	86
	Gravel, fine to medium, clayey, sandy, angular to subrounded-----	5	91
	Boulder-----	2	93
	Clay, silty, sandy, medium-bluish-gray, laminated-----	22	115
Fort Union Group:			
	Sandstone and shale interbedded; fine to medium noncalcareous medium-bluish-gray sandstone; noncalcareous dark-yellowish-brown shale; lignitic at top of section-----	25	140

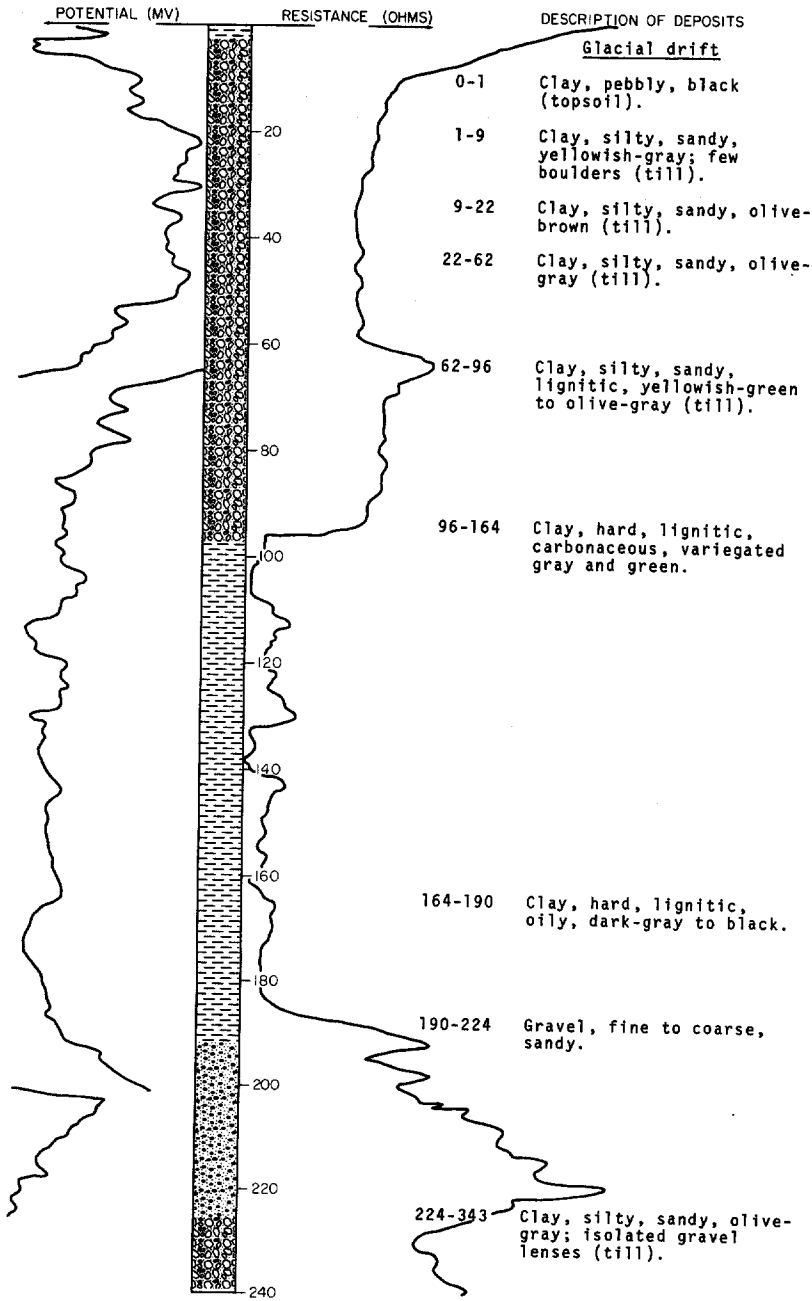
Elevation: 1905 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, clayey, grayish-black-----	1	1
	Clay, silty, sandy, grayish-orange; scattered pebbles (till)-----	74	75
	Gravel, fine to medium, clayey, angular to subrounded-----	22	97
	Clay, silty, calcareous, dusky-yellow, laminated (lacustrine)-----	12	109
	Sandstone boulder-----	5	114
	Clay, silty, calcareous, light-olive-gray (lacustrine)-----	46	160
Fort Union Group:			
	Sandstone and shale interbedded; fine noncalcareous pale-olive sandstone, lignitic noncalcareous medium-bluish- gray to grayish-blue shale-----	40	200

LOCATION: 147-83-34ABB
ELEVATION: 1880
(FT, MSL)

NDSWC 3923

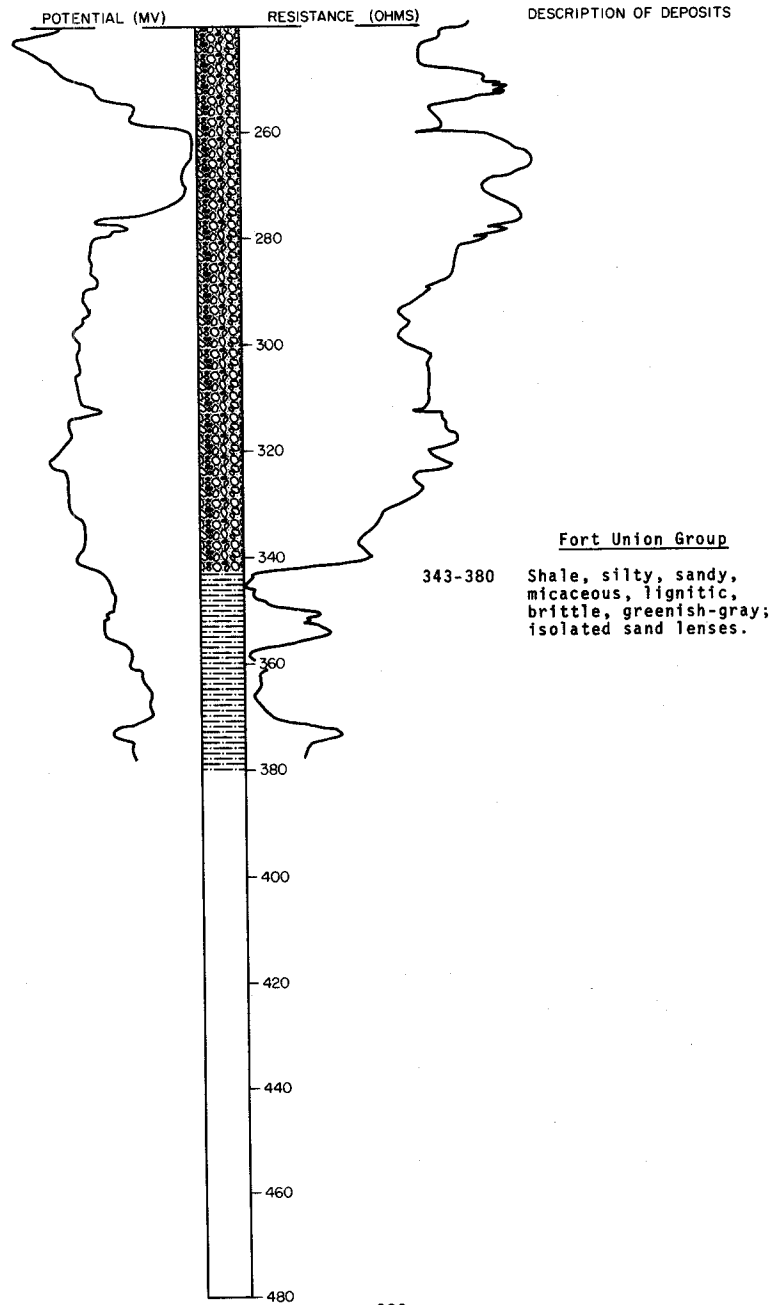
DATE DRILLED: November 1969
DEPTH: 380
(FT)



LOCATION: 147-83-34ABB
ELEVATION: 1880
(FT, MSL)

NDSWC 3923, Continued

DATE DRILLED: November 1969
DEPTH: 380
(FT)



147-84-34ADB
(Log from U.S. Corps of Engineers)

Elevation: 1948 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Silt, dense, friable, calcareous, light-brown-----	7	7
	Sand, clayey, silty, dense, light-brown; scattered gravel and cobbles-----	17	24
Fort Union Group:			
	Shale, silty, soft, light-tan to light-gray-brown; few cemented calcareous siltstone lenses from 0.3-1 ft thick-----	10.5	34.5
	Shale, silty, soft, light-tan to gray; few cemented calcareous siltstone lenses from 0.2-4 ft thick-----	46.5	81
	Sandstone, fine, silty, friable, light-gray-brown to gray-green; thin, bedded; bottom 3 ft very hard-----	67	148
	Shale, silty, sandy, soft, green-gray; occasional silt and sand beds up to 2 ft thick, and few thin lignite seams-----	94	242
	Lignite-----	7.5	249.5
	Shale, silty, sandy, soft, green-gray; occasional silt and sand beds and few lignite seams-----	14.7	264.2

147-87-3CCA
(Log from Harrer, 1961)

Elevation: 2014 ft

Topsoil-----	5	5
Clay, light to dark brown-----	49	54
Clay, light gray-----	3	57
Lignite-----	3	60
Clay, gray, sandy-----	61	121
Lignite-----	2	123
Clay, light to dark gray-----	79	202
Clay and lignite-----	3	205
Clay, dark-----	9	214
Sandstone-----	5	219
Clay, gray-----	4	223
Clay and lignite-----	37	260
Sand, dark, and water-----	15	275

147-87-3CDB
(Log from Dingman and Gordon, 1954)

Elevation: 2,014 ft

Topsoil-----	2	2
Clay, yellow-----	25	27
Lignite (no sample)-----	1	28
Clay, blue-----	22	50
Lignite-----	2	52
Clay, gray (no sample)-----	86	138
Sandstone, hard (no sample)-----	4	142
Silt-----	44	186
Lignite-----	7	193
Clay, sandy-----	14	207
Clay and lignite-----	6	213
Clay, sandy, gray-----	3	216

147-87-3CDB, Continued
(Log from Dingman and Gordon, 1954)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, medium, gray-----	22	238
	Lignite-----	7	245
	Clay, sandy, gray, with thin layers of lignite-----	33	278
	Sandstone-----	2	280
	Sand, gray-----	22	302
	Lignite-----	6	308
	Clay, sandy, gray-----	44	352
	Sandstone, hard (no sample)-----	4	356
	Sand-----	47	403
	Clay, gray-----	19	422
	Sandstone (no sample)-----	2	424
	Clay, gray-----	13	437
	Lignite-----	9	446
	Clay, gray-----	21	467
	Sandstone, medium-grained (no sample)-----	1	468
	Clay, gray-----	32	500

Dry hole.

147-87-4ABC
(Log from Harrer, 1961)

Elevation: 2022

	Topsoil-----	5	5
	Clay, brown-----	18	23
	Clay, with lignite-----	21	44
	Clay, gray-----	31	75
	Lignite-----	4	79
	Lignite and clay-----	5	84
	Clay, dark gray-----	8	92
	Clay and lignite-----	20	112
	Clay, gray to dark-----	60	172
	Lignite, clay, water-----	5	177
	Clay, gray-----	13	190

147-87-9BAD
(Log from Harrer, 1961)

Elevation: 1973 ft

	Topsoil-----	5	5
	Clay, yellow and gray-----	47	52
	Lignite-----	8	60
	Clay, gray-----	63	123
	Lignite-----	5	128
	Clay, light and dark gray-----	36	164
	Lignite-----	4	168
	Clay, light gray-----	22	190
	Lignite-----	2	192
	Clay, light and dark gray-----	43	235
	Lignite-----	4	239
	Clay, light gray-----	14	253
	Lignite-----	4	257
	Clay, light gray-----	7	264
	Sand and water-----	3	267
	Lignite-----	2	269
	Clay-----	2	271

147-87-12BAB
(Log from Dingman and Gordon, 1954)

Elevation: 1970 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Sand-----	23	23
	Clay, sandy, brown-----	7	30
	Clay, blue-----	51	81
	Clay, gray-----	34	115
	Lignite-----	5	120
	Clay, gray-----	6	126
	Clay, sandy, gray-----	34	160
	Sand, gray-----	89	249
	Sandstone (no sample)-----	4	253
	Sand, medium, gray-----	3	256
	No sample-----	176	432
	Sandstone, hard (no sample)-----	2	434
	Sand, medium, gray-----	36	470
	Clay, gray (no sample)-----	10	480

147-87-13BCB
(Log from Harrer, 1961)

Elevation: 1965 ft

	Clay, yellow-----	65	65
	Clay, gray-----	30	95
	Shale, gray-----	35	130
	Lignite-----	2	132
	Shale and sand, gray-----	18	150
	Clay, gray-----	115	265
	Clay, hard-----	10	275
	Sand and water-----	5	280
	Sand and clay, light gray-----	10	290

147-87-13BCD
(Log from Dingman and Gordon, 1954)

Elevation: 1955 ft

	Till-----	30	30
	Clay, gray-----	30	60
	Gravel-----	44	104
	Lignite-----	3	107
	No sample-----	7	114
	Clay, gray-----	26	140
	Clay, gray-----	2	142
	Lignite-----	6	148
	Clay, gray-----	28	176
	Lignite-----	9	185
	Silt-----	11	196
	Sand, fine-----	12	208
	Sandstone, medium-grained (no sample)-----	4	212
	No sample-----	63	275

147-88-1ABD
(Log from Dingman and Gordon, 1954)

Elevation: 2020 ft

	Topsoil-----	5	5
	Clay-----	19	24
	Clay, sandy-----	8	32
	Lignite-----	6	38
	Clay-----	3	41

147-88-1ABD, Continued
(Log from Dingman and Gordon, 1954)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand-----	25	66
	Clay, sandy-----	6	72
	Sand-----	5	77
	Clay, sandy-----	13	90
	Lignite-----	11	101
	Clay, sandy-----	11	112
	Clay-----	56	168
	Lignite-----	19	187
	Clay-----	18	205
	Sandstone-----	7	212
	Clay-----	32	244
	Lignite-----	5	249
	Clay-----	8	257
	Sandstone-----	1	258
	Clay-----	3	261
	Lignite-----	4	265
	Clay-----	25	290
	Clay, sandy-----	8	298
	Lignite-----	7	305
	Clay-----	20	325
	Sand-----	21	346
	Lignite-----	9	355
	Clay-----	29	384
	Lignite-----	4	388
	Clay-----	6	394
	Sand-----	9	403
	Clay-----	21	424
	Lignite-----	7	431
	Clay-----	26	457
	Sand-----	23	480
	Clay-----	20	500

147-88-1ACB
(Log from Dingman and Gordon, 1954)

Elevation: 2010 ft

	Topsoil-----	2	2
	Clay-----	13	15
	Clay, sandy-----	21	36
	Clay-----	5	41
	Lignite-----	6	47
	Sandstone-----	2	49
	Clay-----	9	58
	Sandstone-----	2	60
	Clay, sandy-----	5	65
	Clay-----	53	118
	Lignite with thin layers of clay-----	22	140
	Clay-----	15	155
	Clay, sandy-----	6	161
	Clay-----	4	165
	Sandstone-----	1	166
	Clay-----	25	191
	Lignite-----	4	195
	Clay-----	9	204
	Sandstone-----	1	205
	Clay-----	5	210
	Clay, sandy-----	20	230
	Clay-----	34	264
	Clay, sandy-----	6	270
	Sand-----	20	290
	Lignite-----	6	296
	Clay-----	11	307
	Lignite-----	4	311

147-88-1ACB, Continued
(Log from Dingman and Gordon, 1954)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay-----	66	377
	Lignite-----	9	386
	Clay-----	17	403
	Clay, sandy-----	9	412
	Clay-----	36	448
	Sandstone-----	4	452
	Clay-----	31	483
	Sandstone-----	1	484
	Clay-----	16	500

147-88-1BDD
(Log from Harrer, 1961)

Elevation: 2000 ft

	Topsoil-----	5	5
	Clay, brown-----	11	16
	Lignite-----	2	18
	Clay, gray-----	5	23
	Rock-----	2	25
	Clay, blue-----	5	30
	Lignite-----	5	35
	Clay, dark gray-----	45	80
	Lignite and water-----	7	87
	Clay, gray-----	13	100

147-88-1CCD
(Log from Harrer, 1961)

Elevation: 1995 ft

	Loam, sandy-----	2	2
	Clay, yellow-----	18	20
	Lignite, loose, powdery-----	5	25
	Clay-----	45	70
	Lignite-----	7	77
	Clay-----	53	130
	Lignite-----	1	131
	Clay-----	9	140
	Lignite-----	4	144
	Clay-----	26	170
	Sand, gray, and water-----	5	175
	Clay-----	6	181

147-88-3ABA2
(Log from Dingman and Gordon, 1954)

Elevation: 2,052 ft

	Topsoil-----	4	4
	Clay, sandy, dense-----	8	12
	Sand-----	3	15
	Clay, carbonaceous, yellow, gray, green-----	46	61
	Sand-----	1	62
	Clay, sandy-----	6	68
	Clay, green-----	13	81
	Lignite-----	4	85
	Clay, sandy, dense-----	12	97
	Lignite-----	5	102
	Clay, sandy, dense-----	29	131
	Sand-----	1	132
	Clay, sandy-----	15	147
	Lignite-----	9	156

147-88-3ABA2, Continued
(Log from Dingman and Gordon, 1954)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay, sandy, dense-----	44	200
	Clay, brown, with thin layers of lignite----	10	210
	Clay, silty and sandy, dense-----	31	241
	Lignite-----	4	245
	Clay, sandy-----	10	255
	Sand-----	4	259
	Clay, with thin layers of sand-----	42	301
	Lignite-----	5	306
	Clay-----	11	317
	Lignite-----	3	320
	Clay-----	16	336
	Clay, sandy-----	11	347
	Lignite-----	7	354
	Clay-----	11	365
	Lignite-----	27	392
	Clay-----	13	405

Dry hole.

147-88-3ABC
(Log from Dingman and Gordon, 1954)

Elevation: 2,038 ft

	Topsoil-----	3	3
	Clay, sandy-----	9	12
	Gravel and sand-----	6	18
	Gravel, containing pebbles of lignite, sandstone, etc.-----	7	25
	Gravel and sand-----	8	33
	Sand-----	19	52
	Sandstone-----	5	57
	Clay-----	8	65
	Lignite-----	6	71
	Clay-----	29	100
	Clay, sandy-----	28	128
	Sandstone-----	11	139
	Clay-----	28	167
	Lignite-----	11	178
	Clay-----	6	184
	Lignite-----	4	188
	Clay-----	20	208
	Lignite-----	4	212
	Clay-----	21	233
	Lignite-----	4	237
	Clay-----	5	242
	Clay-----	2	244
	Sandstone-----		266
	Clay-----	22	266
	Lignite-----	3	269
	Clay-----	20	289
	Lignite-----	7	296
	Clay-----	40	336
	Lignite-----	6	342
	Clay-----	12	354
	Lignite-----	5	359
	Clay-----	20	379
	Lignite-----	4	383
	Clay-----	11	394
	Lignite-----	7	401
	Clay-----	7	408
	Clay, sandy-----	8	416
	Lignite-----	4	420
	Clay-----	20	440
	Sand-----	10	450
	Clay-----	50	500

147-88-7BDD
(Log from Harrer, 1961)

Elevation: 1875 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil-----	3	3
	Clay, brown, sandy-----	47	50
	Clay, dark, sandy-----	25	75
	Gravel-----	4	79
	Clay, gray to dark, sandy-----	11	90
	Sandstone-----	4	94
	Clay, gravel, and water-----	6	100
	Lignite-----	12	112
	Clay, gray-----	6	118
	Lignite-----	4	122
	Clay, gray-----	8	130
	Lignite and clay-----	2	132

147-88-11BAA1
(Log from Dingman and Gordon, 1954)

Elevation: 1996.2 ft

	Clay, silty, gray-----	15	15
	Sand-----	20	35
	Lignite-----	2	37
	Clay, gray-----	8	45
	Lignite-----	6	51
	Clay, gray-----	29	80
	Lignite-----	10	90
	Clay, gray-----	56	146
	Lignite-----	26	172
	Clay, gray-----	18	190
	Lignite-----	5	195
	Clay, gray-----	3	198
	Limestone-----	9	207
	Clay, gray-----	11	218
	Lignite-----	5	223
	Clay, gray-----	2	225
	Sand and clay-----	7	232
	Lignite-----	5	237
	Clay, silty, brown-----	3	240
	Sand and clay, gray-----	15	255
	Sand-----	5	260
	Lignite-----	5	265
	Sand and clay, gray-----	5	270
	Sand-----	43	313
	Lignite-----	6	319
	Sand-----	16	335
	Lignite-----	5	340
	Clay, gray-----	35	375
	Sand and clay, gray-----	15	390
	Sand-----	10	400

Dry hole.

147-88-11BAA2
(Log from Harrer, 1961)

Elevation: 1996 ft

	Topsoil-----	3	3
	Clinkers-----	7	10
	Clay, dark-----	10	20
	Clay, gray-----	20	40
	Clay, dark-----	5	45

147-88-11BAA2, Continued
(Log from Harrer, 1961)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Rock-----	2	47
	Clay, dark-----	17	64
	Lignite-----	11	75
	Clay, gray-----	6	81
	Lignite-----	6	87
	Clay, dark-----	13	100
	Clay, sandy, gray-----	9	109
	Rock-----	8	117
	Lignite and clay-----	2	119
	Clay, dark-----	34	153
	Lignite-----	5	158
	Clay, gray-----	14	172
	Lignite-----	2	174
	Clay, sandy, dark-----	28	202
	Lignite-----	2	204
	Clay-----	21	225
	Sandstone-----	20	245

147-88-11BAB
(Log from Dingman and Gordon, 1954)

Elevation: 1961 ft

	Topsoil-----	3	3
	Clay, gray and yellow-----	14	17
	Lignite-----	3	20
	Clay, gray-----	5	25
	Lignite-----	7	32
	Clay, gray-----	15	47
	Lignite-----	8	55
	Clay, sandy, gray-----	35	90
	Sand-----	2	92
	Clay, gray-----	21	113
	Lignite-----	15	128
	Clay, gray, with thin layers of lignite-----	19	147
	Sand-----	2	149
	Clay, gray, with thin layers of lignite-----	68	217
	Clay, sandy, gray-----	18	235
	Lignite-----	3	238
	Clay, gray-----	7	245
	Sand-----	14	259
	Clay, sandy, gray-----	25	284
	Lignite-----	6	290
	Clay, gray-----	19	309
	Lignite-----	5	314
	Clay, gray-----	31	345
	Sand-----	25	370
	Lignite-----	10	380
	Clay, silty and sandy, dense-----	82	462
	Sand-----	3	465
	Clay, silty-----	35	500

147-88-11BDC1
(Log from Dingman and Gordon, 1954)

Elevation: 1895 ft

	Scoria-----	21	21
	Clay-----	43	64
	Lignite-----	6	70
	Sand-----	8	78
	Clay, gray-----	37	115
	Sand-----	11	126

147-88-11BDC1, Continued
(Log from Dingman and Gordon, 1954)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay, gray-----	6	132
	Lignite-----	3	135
	Clay, sandy-----	15	150
	Sand-----	10	160
	Clay, gray-----	35	195

147-88-11BDC2
(Log from Dingman and Gordon, 1954)

Elevation: 1879 ft

	Soil-----	18	18
	Lignite-----	9	27
	Clay-----	11	38
	Lignite-----	3	41
	Clay-----	8	49
	Lignite-----	2	51
	Clay, sandy-----	7	58
	Limestone-----	7	65
	Clay, sandy-----	5	70
	Lignite-----	4	74
	Clay, gray-----	14	88
	Clay, white-----	7	95
	Clay, silty, gray-----	9	104
	Lignite-----	6	110
	Clay, sandy-----	13	123
	Lignite-----	5	128
	Clay, green-----	12	140
	Sandstone, soft-----	1	141
	Clay-----	7	148
	Clay, sandy-----	9	157
	Lignite-----	3	160
	Clay-----	15	175
	Sand-----	32	207
	Lignite-----	7	214
	Clay, sandy-----	21	235
	Lignite-----	3	238
	Clay-----	15	253
	Clay, sandy-----	5	258
	Lignite-----	4	262
	Clay-----	17	279
	Lignite-----	3	282
	Clay-----	10	292
	Lignite-----	5	297
	Clay-----	35	332
	Clay, sandy-----	17	349
	Sandstone-----	2	351
	Clay, silty-----	64	415
	Silt and sand-----	49	464
	Lignite-----	6	470
	Clay-----	30	500

147-88-12BAD
(Log from Dingman and Gordon, 1954)

Elevation: 1961.7 ft

	Clay, silty, brown-----	15	15
	Sand-----	10	25
	Clay, gray and brown-----	7	32
	Lignite-----	10	42
	Clay, gray-----	3	45

147-88-12BAD, Continued
(Log from Dingman and Gordon, 1954)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand and clay, gray and brown-----	50	95
	Lignite-----	8	103
	Clay, silty, gray-----	2	105
	Lignite-----	10	115
	Sand-----	5	120
	Clay, silty, gray-----	10	130
	Sand-----	5	135
	Clay, brown and gray-----	29	164
	Lignite-----	5	169
	Clay, gray-----	11	180
	Lignite-----	5	185
	Clay, green-----	5	190
	Sand-----	15	205
	Clay, carbonaceous, sandy, gray, brown-----	20	225
	Sand-----	45	270
	Lignite-----	10	280
	Clay, silty, brown-----	7	287
	Lignite-----	1	288
	Sand and clay, silty-----	12	300
	Lignite-----	5	305
	Clay, gray-----	13	318
	Lignite-----	1	319
	Sand and clay, silty-----	16	335
	Lignite-----	5	340
	Clay, gray-----	5	345
	Lignite-----	10	355
	Clay, silty, gray-----	20	375
	Sand and clay, gray-----	4	379
	Limestone and lignite-----	1	380
	Sand and clay, gray-----	10	390
	Sand-----	5	395
	Clay, gray-----	25	420
	Limestone-----	3	423
	Clay, gray-----	47	470
	Sand-----	30	500

147-88-12CAB
(Log from Dingman and Gordon, 1954)

Elevation: 1950 ft

	Topsoil-----	3	3
	Clay, yellow-----	21	24
	Gravel-----	8	32
	Lignite-----	1	33
	Clay, gray-----	22	55
	Sand-----	8	63
	Clay, gray-----	15	78
	Lignite-----	8	86
	Clay, gray-----	3	89
	Lignite-----	6	95
	Clay, gray-----	64	159
	Lignite-----	1	160
	Clay, gray-----	8	168
	Lignite-----	3	171
	Clay, sandy, green-----	21	192
	Sand-----	1	193
	Clay, gray-----	10	203
	Lignite and carbonaceous clay-----	13	216
	Sand-----	37	253
	Lignite-----	8	261
	Clay, gray-----	3	264
	Sand-----	6	270
	Clay, gray-----	3	273

147-88-12CAB, Continued
(Log from Dingman and Gordon, 1954)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Lignite-----	9	282
	Clay, gray-----	18	300
	Lignite-----	8	308
	Clay, gray-----	30	338
	Lignite-----	13	351
	Clay, gray-----	34	385
	Clay, sandy, gray-----	20	405
	Clay, gray-----	23	428
	Sand-----	10	438
	Clay, silty-----	52	490
	Lignite-----	4	494
	Clay-----	6	500

147-88-12CBB
(Log from Dingman and Gordon, 1954)

Elevation: 1950 ft

	Topsoil-----	2	2
	Clay, yellow, and gravel-----	3	5
	Lignite-----	3	8
	Clay, gray-----	12	20
	Lignite-----	9	29
	Clay, gray-----	20	49
	Sand-----	23	72
	Lignite-----	16	88
	Clay, gray-----	3	91
	Lignite-----	14	105
	Clay, gray-----	17	122

147-88-16ADA
(Log from Harrer, 1961)

Elevation: 1925 ft

	Topsoil-----	2	2
	Clay-----	13	15
	Lignite-----	7	22
	Clay-----	3	25
	Lignite-----	7	32
	Clay-----	77	109
	Rock-----	1	110
	Clay, sandy-----	75	185
	Lignite-----	3	188
	Clay-----	8	196

147-89-3DA
(Log from Harrer, 1961)

Elevation: 1955 ft

	Topsoil-----	5	5
	Clay, dark-----	13	18
	Clay, yellow-----	8	26
	Lignite-----	11	37
	Clay, gray-----	10	47
	Lignite and clay-----	42	89
	Clay, dark-----	44	133
	Clay, sand, dark; water at 148 ft-----	15	148
	Clay, gray-----	4	152

148-79-11DDD
NDSWC 3942

Elevation: 1986 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, pebbly, black-----	1	1
	Sand, clayey, silty, yellowish-gray-----	7	8
	Clay, silty, sandy, moderate-olive-brown; scattered pebbles (till)-----	32	40
	Clay, silty, olive-gray; scattered sand and pebbles; numerous cobbles and boulders and lignitic sand lenses (till)-----	62	102
	Silt, sandy, olive-gray; scattered pebbles--	31	133
	Gravel, fine to medium-----	7	140
Fort Union Group:			
	Shale, silty, sandy, hard, brittle, noncalcareous, gray-----	40	180

148-79-16CCC
NDSWC 4091

Elevation: 2020 ft

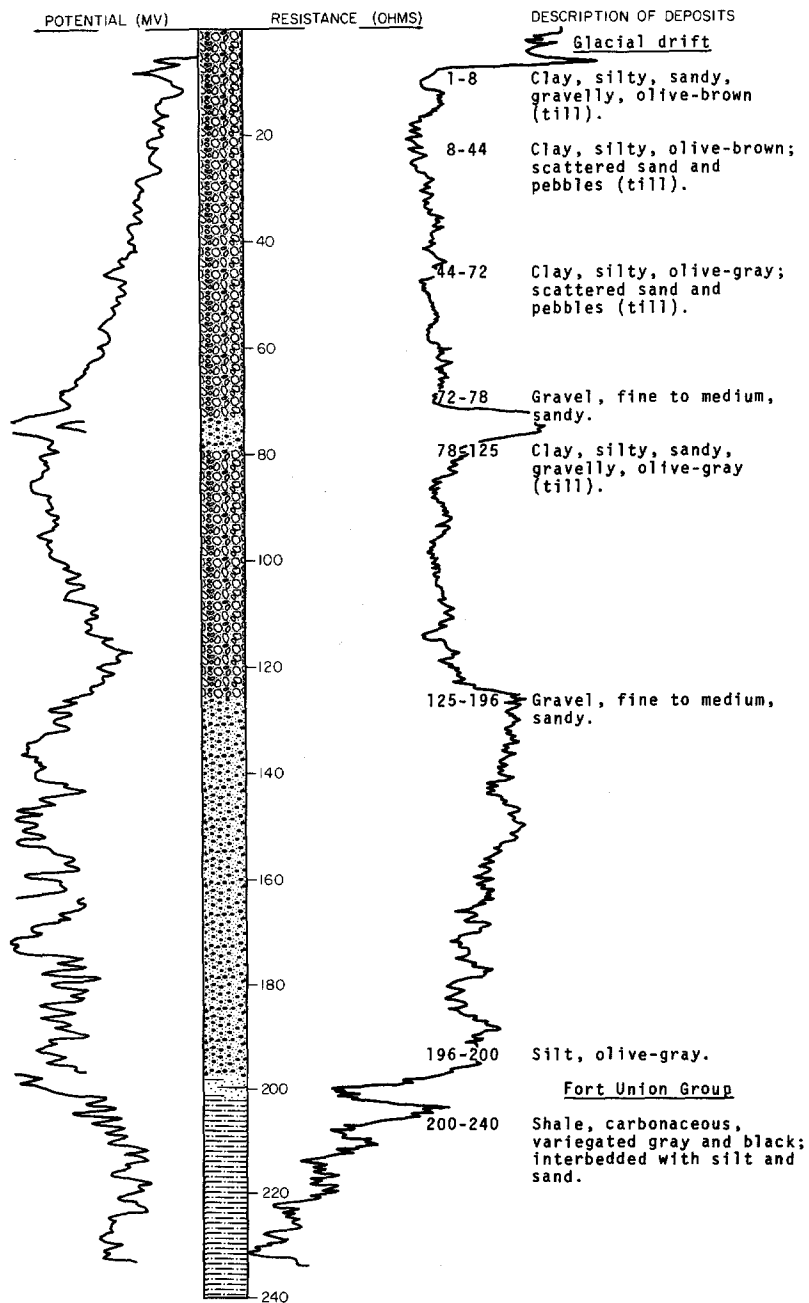
Glacial drift:			
	Topsoil, silty, black-----	1	1
	Silt, clayey, sandy, yellowish-gray; scattered pebbles (till)-----	5	6
	Clay, silty, sandy, pebbly, moderate-olive-brown (till)-----	54	60
	Clay, silty, sandy, pebbly, lignitic, olive-gray; scattered cobbles (till)-----	70	130
	Gravel, fine to coarse, subangular to subrounded-----	6	136
	Clay, silty, sandy, pebbly, lignitic, olive-gray; scattered pebbles (till)-----	12	148
Fort Union Group:			
	Sandstone, fine, clayey, micaceous, pale-yellowish-green-----	6	154
	Siltstone, sandy, hard, light-gray-----	4	158
	Sandstone, fine, clayey, greenish-gray-----	11	169
	Siltstone, hard, noncalcareous, medium-light-gray, laminated-----	11	180

LOCATION: 148-79-19CCC

DATE DRILLED: December 1969

ELEVATION: 1970
(FT, MSL)

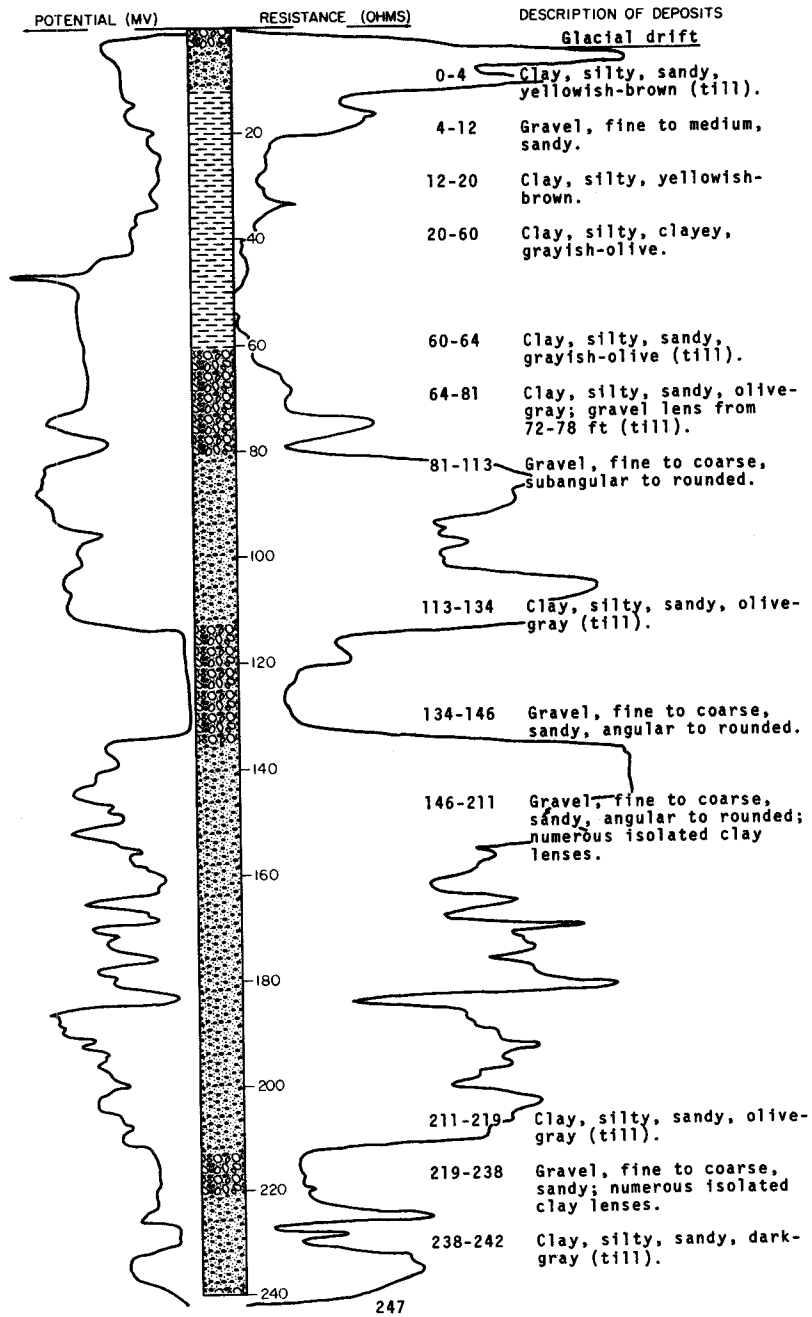
DEPTH: 240
(FT)



LOCATION: 148-79-27ADD1 and 2
 ELEVATION: 1905
 (FT, MSL)

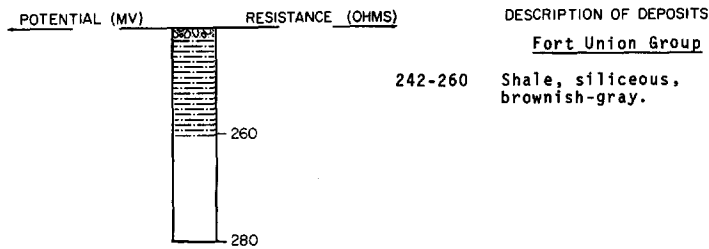
NDSWC 2789

DATE DRILLED: August 1967
 DEPTH: 260
 (FT)



NDSWC 2789, Continued
 LOCATION: 148-79-27ADD1 and 2
 ELEVATION: 1905
 (FT, MSL)

DATE DRILLED: August 1967
 DEPTH: 260
 (FT)



148-79-31DDD
 NDSWC 4090

Elevation: 1944 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
<u>Glacial drift:</u>			
	Topsoil, pebbly, silty, black-----	1	1
	Silt, sandy, clayey, yellowish-gray; scattered pebbles (till)-----	4	5
	Clay, silty, sandy, pebbly, moderate- olive-brown (till)-----	19	24
	Clay, silty, sandy, pebbly, olive-gray (till)-----	15	39
	Gravel, fine to medium, subangular-----	4	43
	Clay, silty, sandy, pebbly, olive-gray (till)-----	33	76
	Clay, silty, sandy, pebbly, lignitic (till)-----	40	116
	Clay, silty, sandy, pebbly, olive-gray; isolated lenses of clay and silt (till)---	36	152
	Gravel, fine to medium, subangular to subrounded-----	2	154
	Silt, clayey, sandy, olive-gray, laminated--	24	178
	Clay, stiff, olive-gray-----	4	182
	Sand, very fine to fine, silty, lignitic, dark-gray-----	20	202
	Clay, silty, sandy, pebbly, olive-gray (till)-----	21	223
<u>Fort Union Group:</u>			
	Shale, silty, hard, noncalcareous, medium- gray-----	17	240

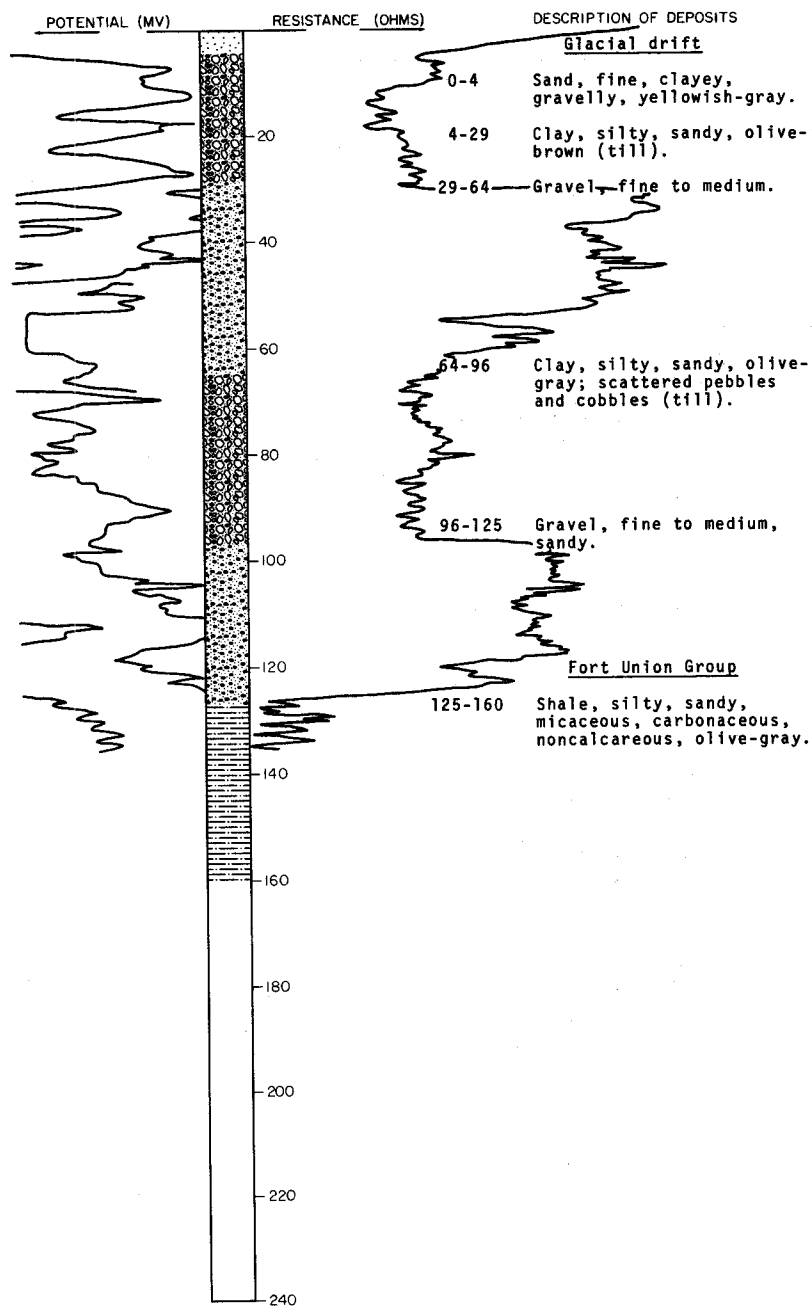
LOCATION: 148-79-32AAA

NDSWC 3945

DATE DRILLED: December 1969

ELEVATION: 1952
(FT, MSL)

DEPTH: 160
(FT)



148-80-3DAA
NDSWC 2791

Elevation: 2018 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Clay, silty, sandy, moderate-yellowish-orange (till)-----	49	50
	Clay, silty, sandy, olive-gray (till)-----	70	120
Fort Union Group:			
	Sandstone, fine to medium, noncalcareous, moderate-yellowish-brown-----	14	134
	Shale, siliceous, medium-light-gray to light-bluish-gray-----	6	140

148-80-12ADD
NDSWC 2790

Elevation: 1970 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, brownish-black-----	1	1
	Sand and gravel; medium to very coarse subangular to rounded sand; fine to medium angular to subrounded gravel-----	27	28
	Clay, silty, sandy, olive-gray (till)-----	4	32
	Gravel and sand; fine to coarse subangular to rounded gravel; coarse to very coarse sand; numerous clay lenses-----	8.5	40.5
	Clay, silty, sandy, olive-gray; gravelly near base (till)-----	44.5	85
Fort Union Group:			
	Sandstone, fine to medium, indurated, noncalcareous, medium-bluish-gray-----	35	120

148-80-15DDD
NDSWC 3947

Elevation: 1960 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, pebbly, black-----	1	1
	Sand, fine, clayey, yellowish-gray-----	7	8
	Clay, silty, dusky-brown; scattered sand and pebbles (till)-----	25	33
	Clay, silty, sandy, olive-gray; scattered pebbles (till)-----	48	81
Fort Union Group:			
	Shale, silty, hard, brittle, noncalcareous, moderate-yellowish-brown-----	3	84
	Silt, soft to hard, moderate-yellowish-brown	15	99
	Silt, soft to hard, medium-gray-----	5	104
	Lignite, shaly, hard, black-----	5	109
	Sand, fine, clayey, micaceous, noncalcareous, greenish-gray-----	11	120

148-80-17CAB1
NDSWC 4084

Elevation: 1910 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Sand, fine to medium, subrounded, yellowish-gray-----	6	6
	Clay, sandy, gravelly, yellowish-gray-----	14	20
	Clay, silty, sandy, pebbly, moderate-olive-brown (till)-----	26	46
	Gravel, fine to coarse, yellowish-brown-----	15	61
	Clay, silty, sandy, pebbly, olive-gray (till)-----	43	104
	Gravel, fine to medium, subangular to subrounded-----	9	113
	Clay, plastic, olive-gray-----	4	117
	Gravel, fine to medium, subangular to subrounded; about 50 percent detrital lignite-----	9	126
Fort Union Group:			
	Siltstone, hard, calcareous, light-gray-----	5	131
	Sandstone, very fine, micaceous, calcareous, light-gray-----	6	137
	Shale, silty, sandy, lignitic, medium-gray to black-----	23	160

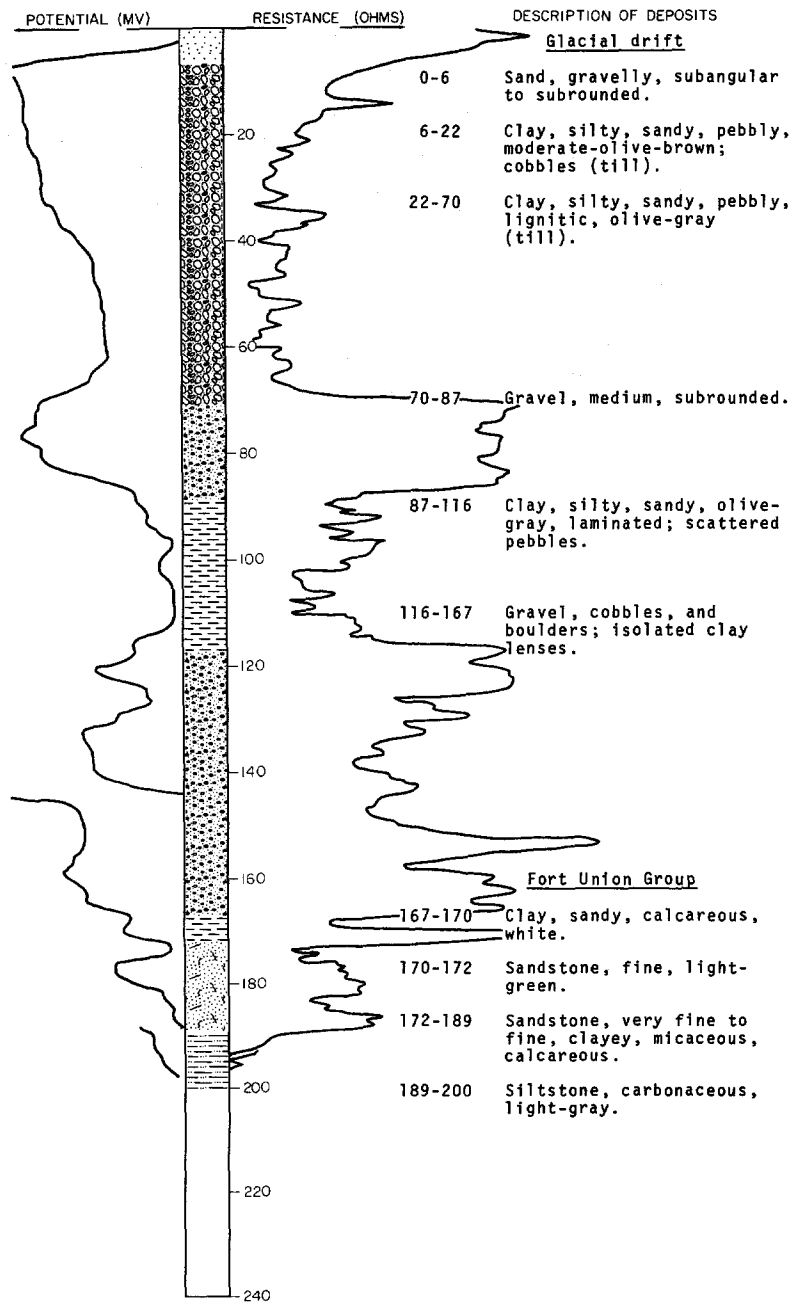
LOCATION: 148-80-17CAB2

NDSWC 4085

DATE DRILLED: August 1970

ELEVATION: 1910
(FT, MSL)

DEPTH: 200
(FT)



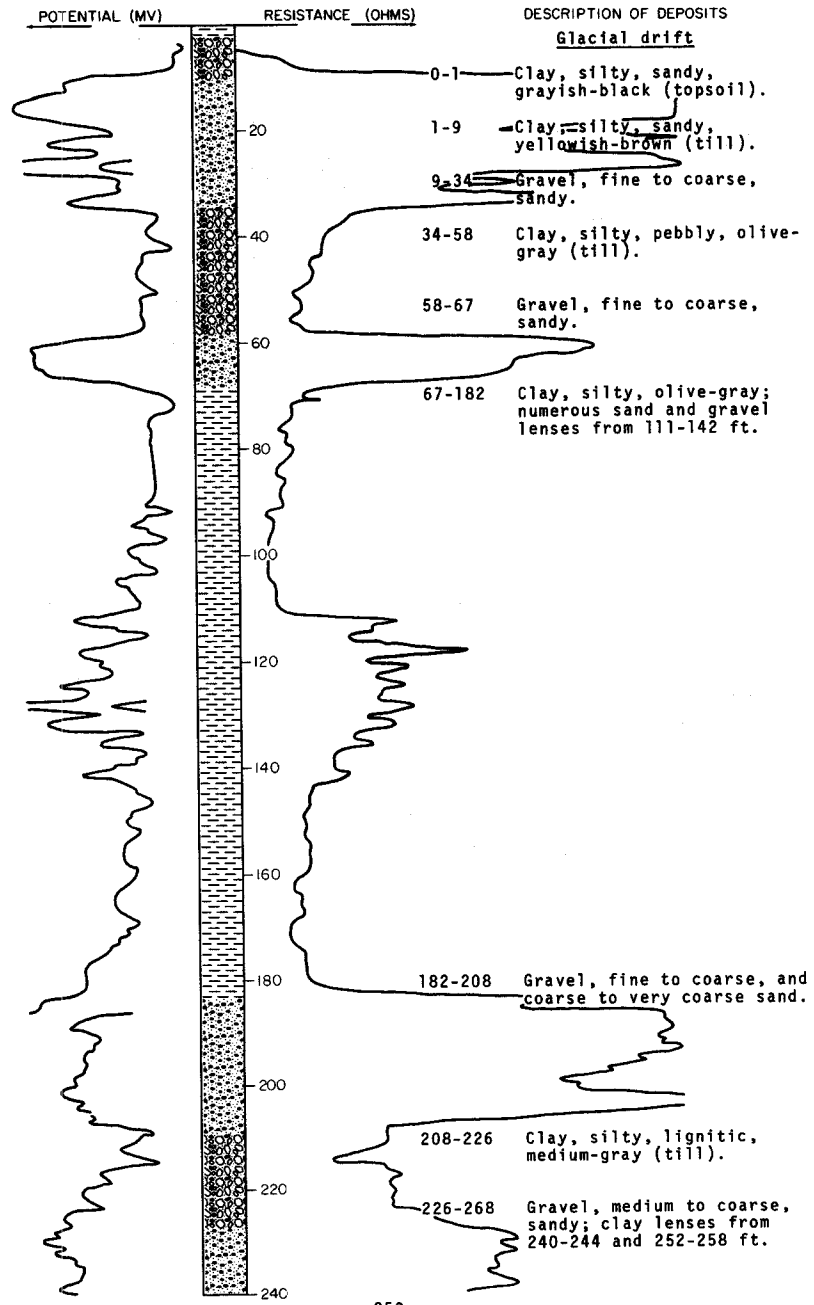
LOCATION: 148-80-19CCC1

NDSWC 2745

DATE DRILLED: August 1967

ELEVATION: 1862
(FT, MSL)

DEPTH: 300
(FT)



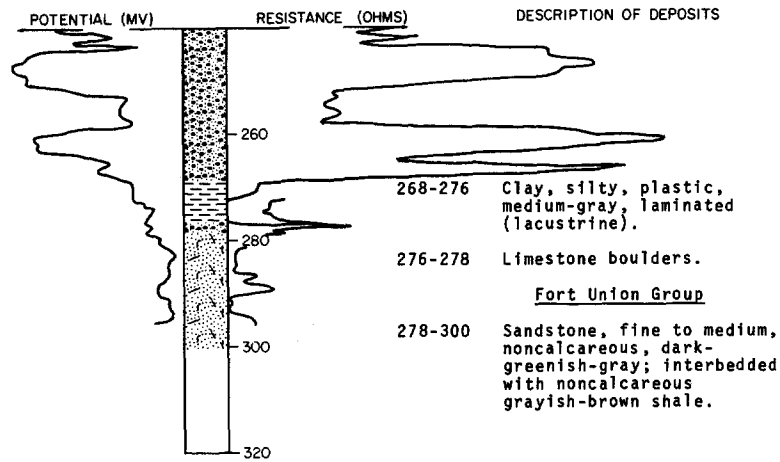
LOCATION: 148-80-19CCC1

NDSWC 2745, Continued

DATE DRILLED: August 1967

ELEVATION: 1862
(FT, MSL)

DEPTH: 300
(FT)



148-80-19CCC2
NDSWC 2746

Elevation: 1862 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, clayey, grayish-black-----	1	1
	Clay, silty, moderate-yellowish-brown (till)-----	8	9
	Gravel and sand; fine to coarse angular to subrounded gravel; medium to very coarse angular to subrounded sand-----	20	29
	Clay, silty, olive-gray (till)-----	11	40

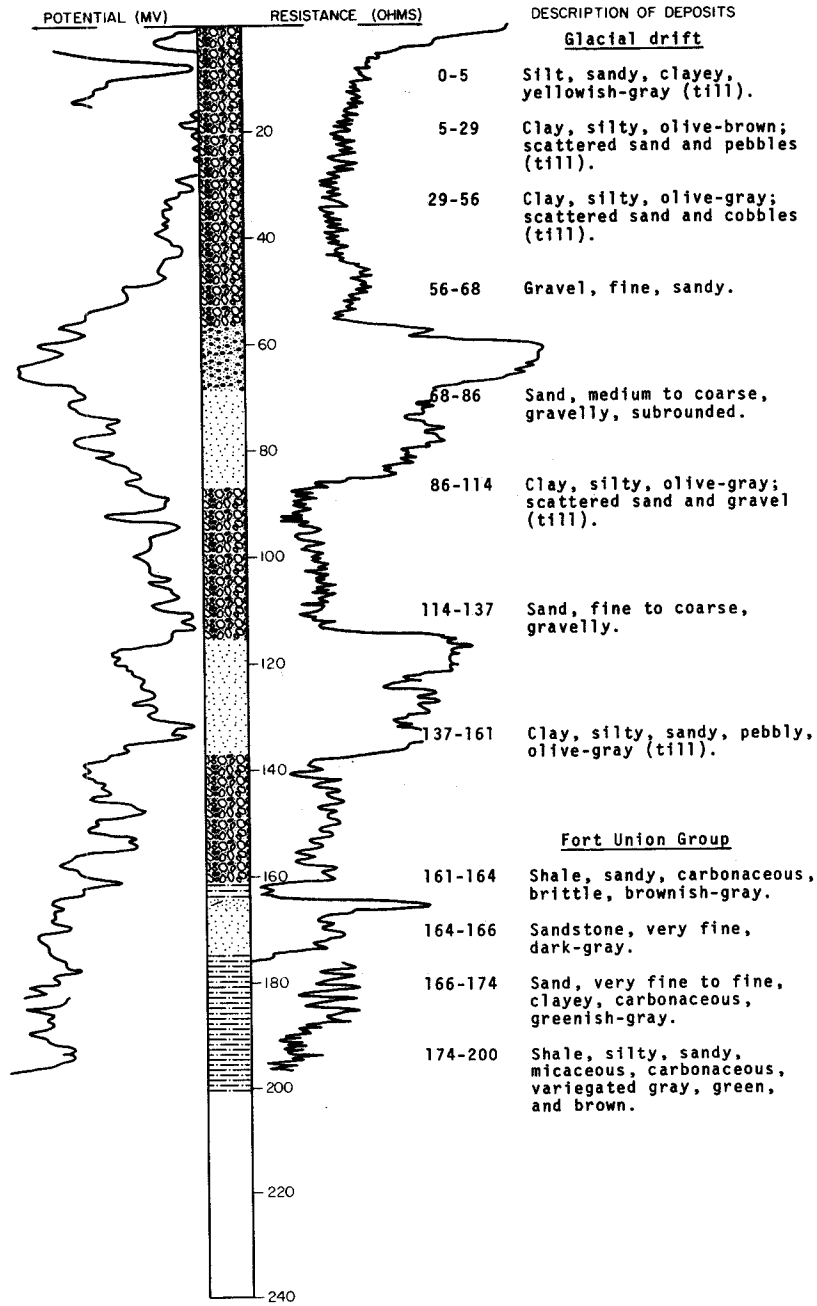
LOCATION: 148-80-21CCC

NDSWC 3948

DATE DRILLED: December 1969

ELEVATION: 1901
(FT, MSL)

DEPTH: 200
(FT)



148-80-28DCD
(Log from U.S. Air Force)

Elevation: 1895.1 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Clay, silty, sandy, trace of gravel, very stiff, brown-----	20	20
	Clay, silty, trace of sand, gravel, and lignite, very stiff, brown-----	10	30
	Sand, silt, and clay, gravelly, trace of lignite, very dense, brown-----	9.5	39.5
	Sand, fine to coarse, gravelly, silty, very dense, brown-----	14	53.5
	Clay, silty, trace of sand and gravel, very stiff to hard, dark gray-----	43	96.5
	Sand, fine to medium, silty, trace of gravel, very dense, gray-----	3.5	100

148-80-31AAA1 and 2
NDSWC 2747

Elevation: 1860 ft

Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Clay, silty, sandy, moderate-yellowish-brown-----	4	5
	Gravel and sand; fine to coarse angular to rounded gravel; medium to very coarse angular to subrounded sand-----	31	36
	Clay, silty, olive-gray; scattered pebbles (till)-----	20	56
	Sand, medium to very coarse, angular to rounded-----	18	74
	Gravel, fine to coarse, sandy, angular to rounded-----	14	88
	Clay, silty, olive-gray; scattered sand and lignite (till)-----	107	195
	Gravel and sand; fine to coarse angular to subrounded gravel; coarse to very coarse angular to subrounded sand; few thin clay lenses-----	23	218
	Clay, silty, medium-light-gray to medium-gray-----	10	228
	Granite boulders-----	4	232
	Clay, silty, olive-gray to medium-light-gray; scattered sand and lignite (till)---	8	240
Fort Union Group:			
	Sandstone and shale interbedded; fine to medium noncalcareous sandstone; noncalcareous grayish-brown shale-----	20	260

148-80-33CBC1
NDSWC 1-958

Elevation: 1859 ft

Glacial drift:			
	Sand, fine-----	1	1
	Gravel, fine to medium, sandy-----	9	10
	Gravel, very coarse, sandy-----	12	22
	Gravel, fine to medium, and sand-----	29	51
	Clay, silty, olive-gray (till)-----	.5	51.5

148-80-33CBC2
NDSWC 2-958

Elevation: 1849.8 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Sand, fine-----	1	1
	Gravel, fine to medium, and sand-----	9	10
	Gravel, fine to medium, sandy-----	12	22
	Sand, fine to medium, gravelly-----	4	26
	Gravel, fine to medium, sandy-----	15	41
	Sand, fine-----	8	49

148-80-33CBC3
NDSWC 5768

Elevation: 1877 ft

Glacial drift:			
	Topsoil, sandy, pebbly, brownish-black-----	1	1
	Gravel, fine to coarse, sandy, angular to rounded; about 30 percent shale-----	21	22
	Sand, fine to coarse, gravelly, subangular to rounded-----	29	51
	Clay, silty, sandy, pebbly, olive-gray (till)-----	29	80

148-80-33CBC4
NDSWC 5769

Elevation: 1860 ft

Glacial drift:			
	Topsoil, sandy, pebbly, brownish-black-----	1	1
	Gravel, fine to coarse, sandy, angular to rounded; scattered cobbles-----	20	21
	Sand, fine to very coarse, gravelly-----	28	49
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles (till)-----	39	88
	Sand, very fine to coarse, lignitic, subangular to rounded-----	4	92
	Clay, silty, olive-gray, laminated (glaciofluvial)-----	14	106
	Clay, silty, sandy, pebbly, olive-gray; cobbles and boulders from 111-113 ft (till)-----	41	147
	Gravel, fine to coarse, sandy, clayey, angular to rounded; about 50 percent shale-----	8	155
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles and boulders (till)-----	45	200
	Boulders, granite and dolomite-----	6	206
Fort Union Group:			
	Siltstone, clayey, sandy, micaceous, medium-gray, laminated-----	14	220

148-80-33CBD
(Log from Schnell, Inc.)

Elevation: 1864 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil-----	1	1
	Sand-----	4	5
	Gravel, coarse, dry-----	23	28
	Sand-----	3	31
	Gravel-----	35	66
	Clay-----	4	70

148-80-33CCA1
NDSWC 4-958

Elevation: 1868 ft

Glacial drift:			
	Topsoil, black-----	1	1
	Gravel, fine to medium, and fine to medium sand-----	18	19
	Gravel, fine to medium, sandy-----	4	23
	Sand, fine to coarse-----	7	30
	Gravel, fine to coarse, and sand-----	23	53

148-80-33CCA2
NDSWC 5767

Elevation: 1875 ft

Glacial drift:			
	Topsoil, sandy, silty, pebbly, brownish-black-----	1	1
	Gravel, fine to coarse, sandy, angular to rounded; about 30 percent shale-----	19	20
	Sand, very fine to very coarse, gravelly, subangular to rounded; about 20 percent shale-----	16	36
	Gravel, fine to coarse, sandy, angular to rounded; scattered cobbles-----	14	50
	Clay, silty, sandy, pebbly, olive-gray (till)-----	30	80

148-80-33CCB
NDSWC 5766

Elevation: 1880 ft

Glacial drift:			
	Topsoil, sandy, pebbly, silty, brownish-black-----	1	1
	Sand, fine to coarse, gravelly, angular to subrounded; about 20 percent shale-----	53	54
	Clay, silty, sandy, pebbly, olive-gray (till)-----	26	80

148-80-33CCC
NDSWC 3-958

Elevation: 1869 ft

Glacial drift:			
	Clay, silty, black-----	1	1
	Gravel, fine, sandy-----	8	9
	Sand, fine to coarse, gravelly-----	20	29
	Gravel, fine to medium, sandy-----	8	37
	Sand, fine to coarse, gravelly-----	13	50
	Clay, silty, olive-gray (till)-----	.5	50.5

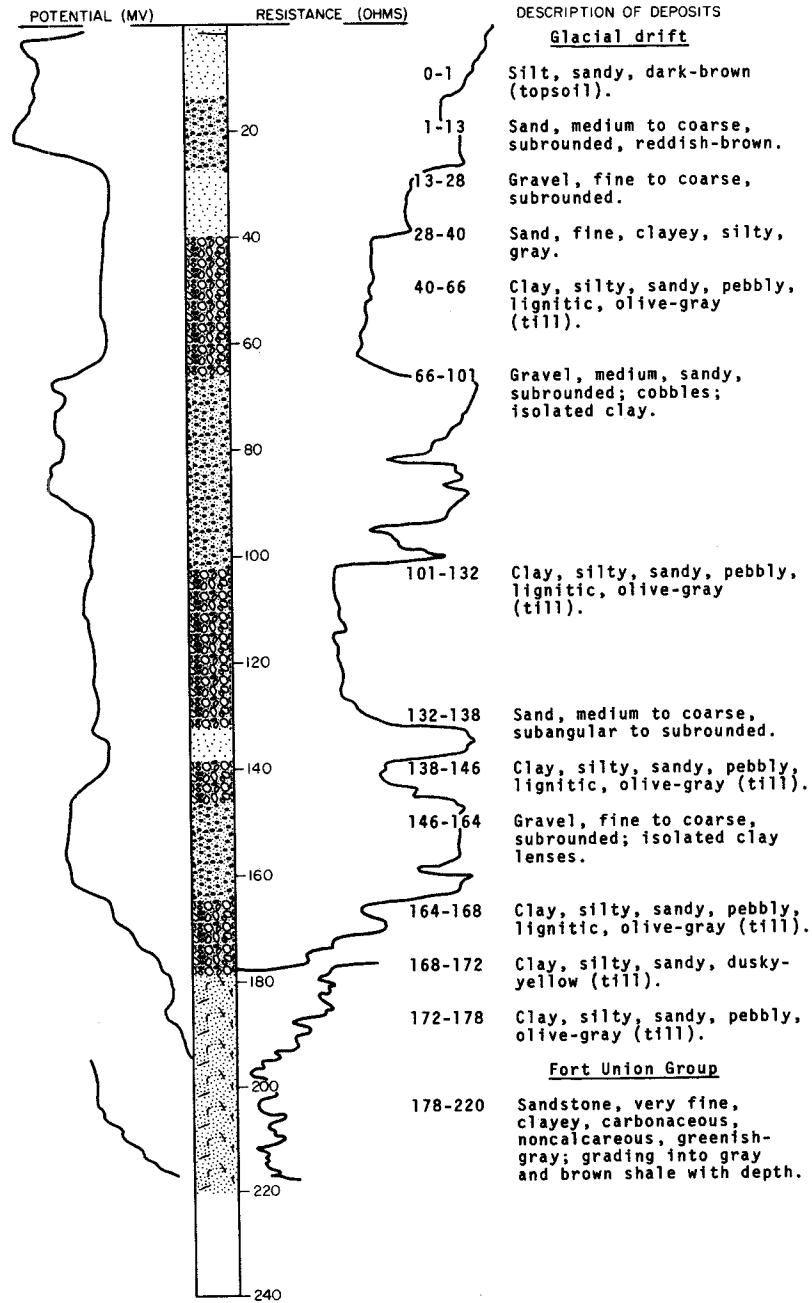
LOCATION: 148-80-34DAA

NDSWC 4089

DATE DRILLED: August 1970

ELEVATION: 1850
(FT, MSL)

DEPTH: 220
(FT)



148-80-34DCC
NDSWC 4088

Elevation: 1860 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, sandy, pebbly, black-----	1	1
	Clay, silty, sandy, pebbly, yellowish-gray to moderate-olive-brown; isolated gravel lenses (till)-----	24	25
	Gravel, fine to medium, sandy, subrounded---	12	37
	Clay, silty, olive-gray; scattered sand, pebbles, and lignite fragments (till)-----	29	66
	Gravel, fine to coarse, subangular to subrounded; isolated clay lenses-----	14	80
	Sand, very fine to medium, silty, lignitic--	20	100
	Sand, fine to coarse, silty; isolated gravel and detrital lignite lenses-----	63	163
	Clay, silty, sandy, pebbly, lignitic, olive-gray (till)-----	27	190
	Sand, medium, subrounded, dark-gray; scattered gravel-size lignite fragments---	8	198
	Gravel, coarse, subrounded; abundant cobbles and boulders-----	16	214
	Clay, silty-----	5	219
	Gravel, coarse, subrounded; abundant cobbles and boulders; numerous clay lenses	21	240
	Clay, silty, olive-gray, laminated-----	26	266
	Sand, very fine to medium, lignitic, subrounded, medium-gray-----	34	300
	Silt, clayey, olive-gray-----	11	311
	Sand, very fine to fine, lignitic, medium-gray-----	11	322
	Sand, medium, lignitic, medium-gray-----	13	335
Fort Union Group:			
	Sandstone, very fine to fine, hard, calcareous, light-gray-----	3	338
	Shale, silty, hard, carbonaceous, noncalcareous, medium- to dark-gray-----	15	353
	Sandstone, very fine to fine, hard, calcareous, light-gray-----	3	356
	Shale, silty, sandy, hard, carbonaceous, noncalcareous, medium- to dark-gray-----	4	360

148-80-35BBC
NDSWC 2748

Elevation: 1858 ft

Glacial drift:			
	Topsoil, silty, sandy, brownish-black-----	1	1
	Gravel and sand; fine to coarse angular to subrounded gravel; coarse to very coarse angular to subrounded sand-----	43	44
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	29	73
	Clay, silty, light-olive-gray, laminated; scattered sand lenses-----	31	104
Fort Union Group:			
	Sandstone, fine to medium, noncalcareous; light-olive-gray to medium-bluish-gray in lower part of section-----	12	120

148-81-2AAA
NDSWC 3950

Elevation: 1950 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, sandy, black-----	1	1
	Silt, sandy, soft, moderate-yellow-----	4	5
	Clay, silty, light-olive-brown; scattered sand and pebbles (till)-----	13	18
Fort Union Group:			
	Shale, silty, hard, brittle, dark-greenish-yellow-----	7	25
	Silt and fine sand, clayey, soft, lignitic, dark-greenish-yellow-----	16	41
	Silt, soft, micaceous, medium-gray-----	6	47
	Shale, silty, hard, brittle, carbonaceous, noncalcareous, variegated gray, brown, and black-----	14	61
	Lignite, hard, black-----	7	68
	Silt, soft, brownish-black-----	2	70
	Shale, hard, brittle, brownish-black-----	6	76
	Shale, silty, very light gray-----	4	80

148-81-3AAB
NDSWC 2804

Elevation: 1885 ft

Glacial drift:			
	Topsoil, silty, sandy, brownish-black-----	1	1
	Gravel and sand; fine to coarse angular to rounded gravel; medium to very coarse subangular to rounded sand-----	44	45
Fort Union Group:			
	Shale, siliceous, dusky-brown to light-bluish-gray-----	15	60

148-81-6BCC
NDSWC 3952

Elevation: 1875 ft

Glacial drift:			
	Sand, very fine, silty, black-----	5	5
	Clay, silty, sandy, yellowish-gray; thin lenses of fine gravel (till)-----	5	10
	Clay, silty, dusky-yellow (till)-----	8	18
	Clay, olive-gray-----	20	38
	Sand, very fine, clayey, light-olive-gray to olive-gray; lensed with sand and gravel	54	92
	Gravel, fine to coarse, angular to subrounded-----	14	106
Fort Union Group:			
	Clay, stiff, dark-olive-gray-----	5	111
	Lignite, hard, black; interbedded with clayey sand and shale-----	8	119
	Shale, silty, soft to hard, dark-gray; interbedded with light-blue clay-----	21	140

148-81-12ADD
NDSWC 3949

Elevation: 1890 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Silt, clayey, black-----	5	5
	Clay, light-gray-----	5	10
	Clay, silty, soft, moderate-olive-brown----	18	28
	Gravel, fine to medium, sandy-----	13	41
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	14	55
	Silt, clayey, light-olive-gray to olive-gray-----	9	64
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	7	71
Fort Union Group:			
	Shale, silty, sandy, hard, brittle, variegated gray and brown-----	13	84
	Sandstone, micaceous, calcareous, greenish-gray-----	4	88
	Shale, silty, hard, brittle, carbonaceous, brownish-black-----	12	100

148-81-14CDD
NDSWC 5-C-6

Elevation: 1860 ft

Glacial drift:			
	Gravel, fine to medium-----	17	17
	Till, olive-gray-----	77	94
	Till, olive-gray; gravel lenses-----	10	104
	Till, olive-gray-----	32	136
	Gravel, fine to medium-----	5	141
Fort Union Group:			
	Sandstone, indurated-----	2.5	143.5

148-81-15DDB
NDSWC 3-C-6

Elevation: 1858.4 ft

Glacial drift:			
	Topsoil, black-----	1	1
	Gravel, fine to coarse-----	11	12
	Sand, fine to coarse-----	16	28
	Till, olive-gray-----	28	56
	Gravel, fine to coarse, clayey-----	17	73
	Clay, silty, olive-gray-----	4	77
	Gravel, fine to medium-----	4	81
	Clay, silty, olive-gray-----	4	85
	Till, olive-gray-----	10	95

148-81-15DDD1
(Log from U.S. Air Force)

Elevation: 1862 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Sand, silty, medium dense, brown-----	4	4
	Sand, medium to coarse, trace of silt, medium dense to dense, brown-----	9	13
	Sand, fine to medium, silty, trace of gravel, dense, brown-black-----	6	19
	Clay and lignite, shale fragments, soft, gray black-----	4.5	23.5
	Sand, fine to medium, clayey, dense, gray--- Clay, silty, trace of sand and gravel, stiff to very stiff, brown to gray-----	3.5	27
	Clay, silty, trace of sand and lignite, very stiff to hard, gray-----	16.5	43.5
	Sand, fine to medium, silty, trace of lignite, dense to very dense, gray-----	10.8	54.3
	Sand, fine, silty, dense, gray; interbedded with silt lenses 65-66.5 ft-----	9.7	64
	Sand, medium to coarse, gravelly, clayey, dense, dark gray-----	5	69
	Clay, very stiff, gray-----	6	75
	Sand, fine, trace of silt and lignite, very dense, gray-----	1	76
	Sand, fine and silt, trace of clay and gravel, very dense, gray-----	8	84
	Clay and silt, trace of sand and gravel, very hard, dark gray-----	6	90
	Silt, sandy, clayey, very dense, dark-gray--	3	93
		7.5	100.5

148-81-15DDD2
NDSWC 2-C-6

Elevation: 1855 ft

Glacial drift:			
	Topsoil, black-----	2	2
	Gravel, medium-----	8	10
	Gravel, medium, sandy-----	19	29
	Clay, silty, olive-gray-----	4	33
	Till, olive-gray-----	64	97
	Gravel, fine to medium-----	1	98
	Till, olive-gray-----	36	134
	Gravel, fine to medium-----	1	135
Fort Union Group:			
	Sand, dark-yellowish-orange-----	7	142
	Sand, medium-bluish-gray-----	5	147

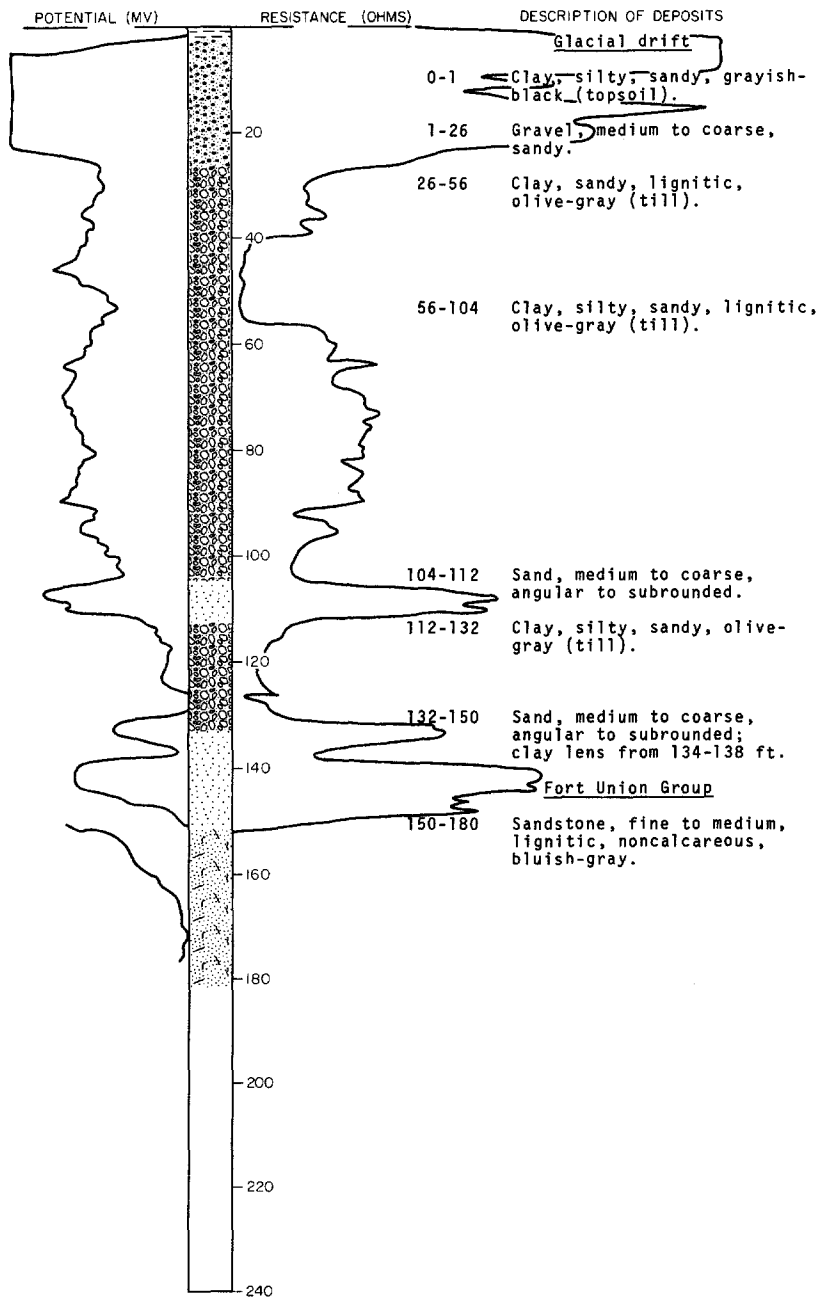
LOCATION: 148-81-16DDD

NDSWC 2743

DATE DRILLED: August 1967

ELEVATION: 1850
(FT, MSL)

DEPTH: 180
(FT)



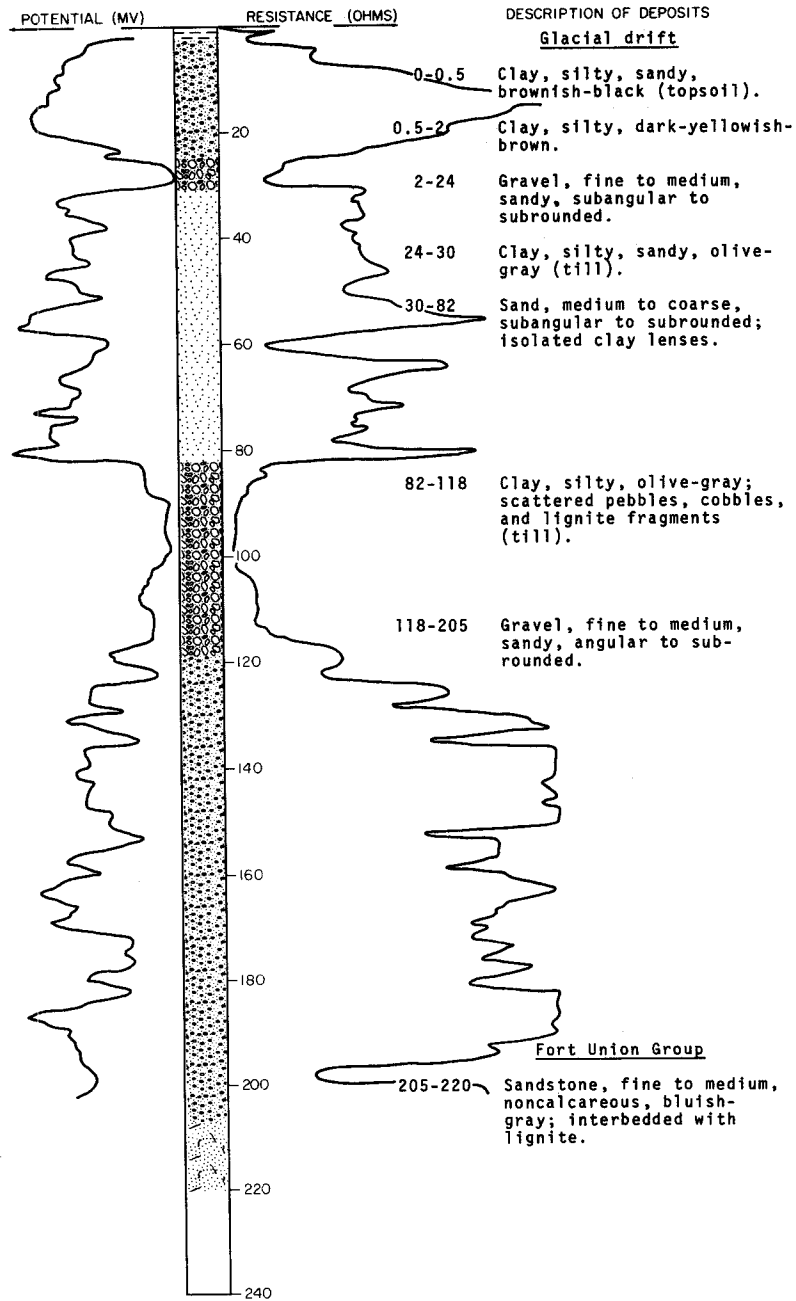
LOCATION: 148-81-18DCD1

NDSWC 2740

DATE DRILLED: August 1967

ELEVATION: 1856
(FT, MSL)

DEPTH: 220
(FT)



Elevation: 1856 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, moderate-yellowish-brown-----	0.5	0.5
	Clay, silty, sandy, moderate-yellowish-brown-----	11.5	12
	Gravel, medium to coarse, subangular to subrounded-----	12	24
	Clay, silty, lignitic, olive-gray; scattered sand (till)-----	12	36
	Sand, medium to coarse, subangular to subrounded-----	4	40
	Clay, silty, lignitic, olive-gray; scattered sand (till)-----	20	60

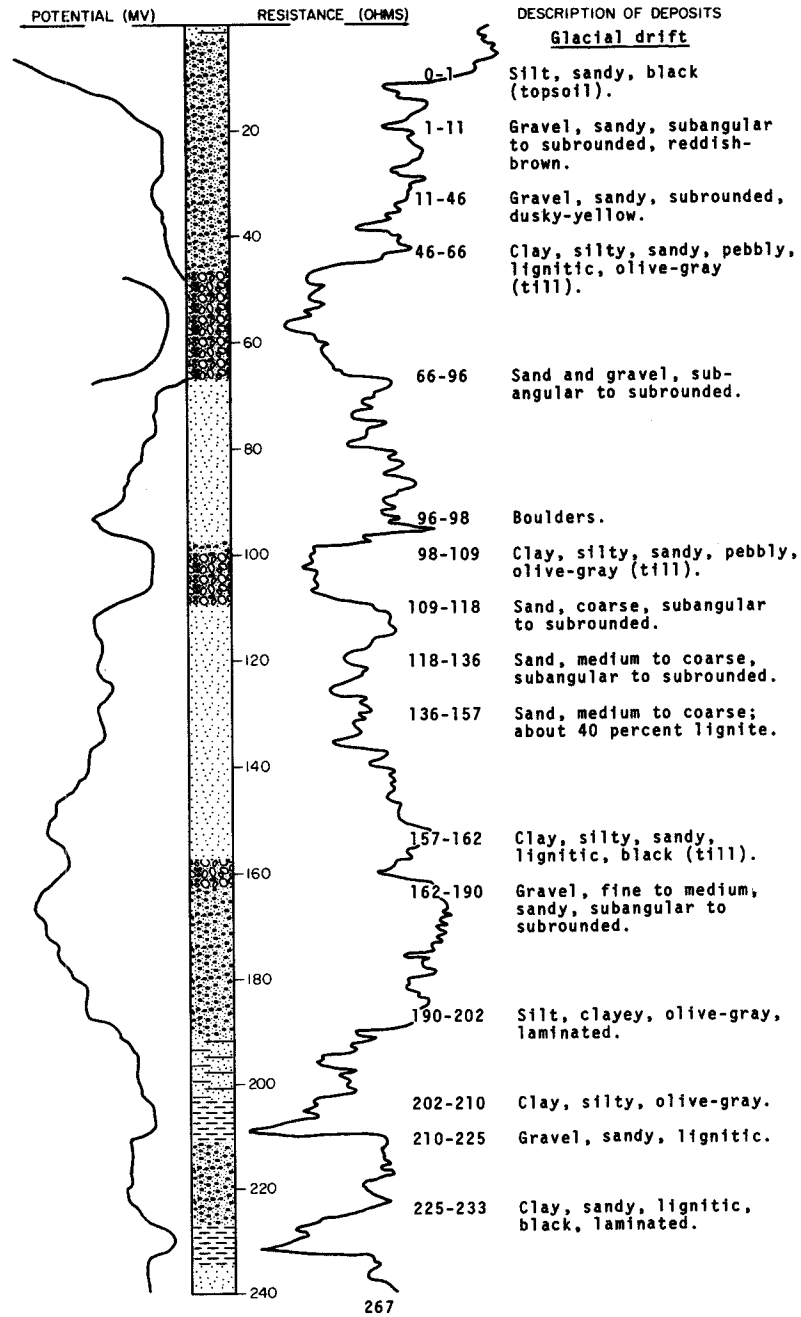
NDSWC 4101

LOCATION: 148-81-20ADC

DATE DRILLED: August 1970

ELEVATION: 1840
(FT, MSL)

DEPTH: 320
(FT)



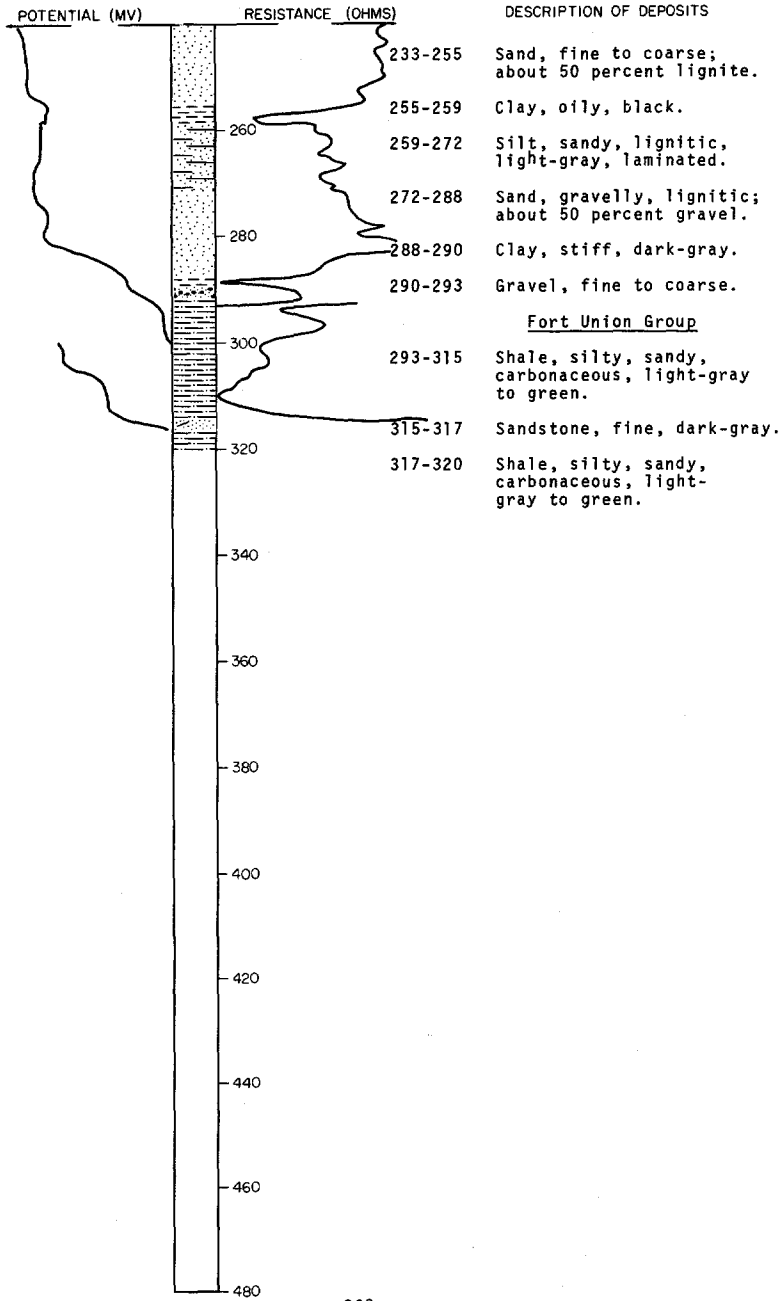
NDSWC 4101, Continued

LOCATION: 148-81-20ADC

DATE DRILLED: August 1970

ELEVATION: 1840
(FT, MSL)

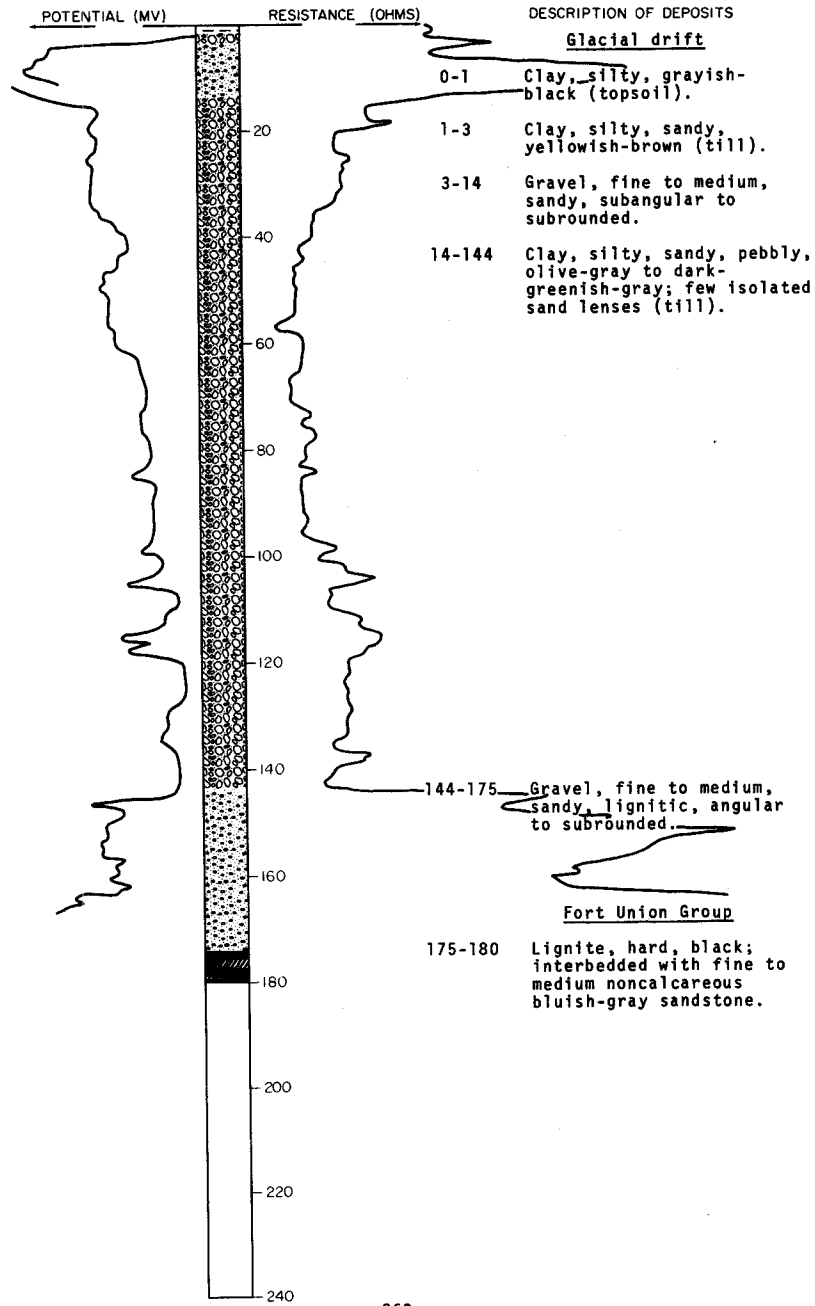
DEPTH: 320
(FT)



LOCATION: 148-81-20BAA
ELEVATION: 1844
(FT, MSL)

NDSWC 2742

DATE DRILLED: August 1967
DEPTH: 180
(FT)



148-81-20CAA
NDSWC 5765

Elevation: 1850 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, sandy, silty, pebbly, brown-----	1	1
	Clay, sandy, silty, pebbly, moderate-yellowish-brown; abundant cobbles (till)--	2	3
	Sand, very fine to very coarse, gravelly, subangular to rounded; about 30 percent shale-----	37	40
	Clay, silty, sandy, pebbly, lignitic, olive-gray; abundant cobbles (till)-----	37	77
	Sand, very fine to medium, clayey, subangular-----	3	80
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles (till)-----	42	122
	Clay, silty, sandy, olive-gray; scattered lignite fragments-----	15	137
	Sand, very fine to very coarse, silty, subangular to rounded; thin isolated clay lenses-----	5	142
	Gravel, fine to coarse, sandy, subangular to rounded; scattered cobbles and boulders; about 30 percent shale-----	21	163
	Clay, silty, sandy, pebbly, lignitic, olive-gray (till)-----	3	166
	Gravel, fine to coarse, sandy, clayey, subangular to rounded-----	17	183
	Sand, very fine to coarse, lignitic, subangular to rounded; interbedded with silt and sandy clay-----	26	209
	Clay, silty, sandy, lignitic, olive-gray, laminated-----	18	227
Fort Union Group:			
	Siltstone, clayey, sandy, hard, noncal-careous, medium-gray to medium-bluish-gray-----	13	240

148-81-20CCA
NDSWC 5762

Elevation: 1847 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; abundant cobbles (till)--	2	3
	Gravel, fine to coarse, sandy, subangular to rounded; abundant cobbles; about 30 percent shale-----	7	10
	Sand, very fine to very coarse, gravelly, lignitic, subangular to rounded-----	18	28
	Gravel, fine to coarse, sandy, lignitic, angular to well-rounded; scattered cobbles and boulders; about 30 percent shale and siltstone-----	11	39
	Sand, fine to very coarse, subangular to rounded; scattered lignite chips; 20 percent shale-----	7	46
	Clay, silty, sandy, pebbly, olive-gray; gravelly near base (till)-----	25	71
	Sand, very fine to very coarse, subangular to rounded; isolated clay lenses; about 20 percent shale and lignite-----	31	102

148-81-20CCA, Continued
NDSWC 5762

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Clay, silty, sandy, pebbly, olive-gray (till)-----	7	109
	Gravel, fine to coarse, lignitic, angular to rounded; scattered cobbles-----	16	125
	Clay, sandy, silty, pebbly, olive-gray; scattered lignite fragments and isolated sand lenses (till)-----	16	141
	Sand, very fine to very coarse, gravelly, subangular to subrounded; scattered lignite fragments-----	5	146
	Gravel, fine to coarse, sandy, subangular to well-rounded; scattered cobbles and boulders; 30 percent shale-----	22	168
	Clay, silty, sandy, olive-gray; scattered cobbles and isolated sand lenses (till)---	12	180

148-81-20CCD1
NDSWC 5761

Elevation: 1860 ft

Glacial drift:			
	Topsoil, silty, pebbly, sandy, brownish-black-----	1	1
	Sand, very fine to very coarse, gravelly, subangular to subrounded-----	40	41
	Gravel, fine to coarse, sandy, angular to rounded; scattered cobbles and boulders; about 30 percent shale and siltstone-----	27	68
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles and boulders (till)-----	13	81
	Sand, very fine to very coarse, subangular to subrounded; gravelly in lower 10 ft of section; about 30 percent shale and lignite-----	29	110
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles (till)-----	9	119
	Sand, very fine to very coarse, gravelly, subangular to rounded; interbedded with silty sandy clay; about 30 percent shale and lignite-----	12	131
	Clay, sandy, silty, pebbly, olive-gray (till)-----	25	156
	Sand, very fine to very coarse, subangular to rounded-----	6	162
	Gravel, fine to coarse, sandy, lignitic, angular to rounded; scattered cobbles and boulders; about 30 percent shale and siltstone-----	26	188
	Sand, very fine to very coarse, gravelly, lignitic, subangular to subrounded; isolated clay lenses-----	15	203
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles and boulders (till)-----	17	220
	Sand, very fine to very coarse, lignitic, subangular to rounded; interbedded with silty sandy clay-----	15	235
	Clay, silty, sandy, olive-gray, laminated; isolated lignitic sand lenses-----	14	249
Fort Union Group:			
	Siltstone, sandy, clayey, hard, micaceous, noncalcareous, medium-gray-----	31	280

148-81-20CCD2, 3, and 4
NDSWC 5763

Elevation: 1850 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, pebbly, black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	7	8
	Sand, very fine to very coarse, gravelly, subangular to rounded; about 10 percent shale and lignite-----	48	56
	Clay, silty, sandy, pebbly, olive-gray (till)-----	4	60
	Sand, fine to coarse, clayey, lignitic, subangular to rounded-----	6	66
	Clay, silty, sandy, pebbly, olive-gray (till)-----	5	71
	Sand, very fine to medium, subangular to rounded; isolated silty clay lenses; about 30 percent shale and lignite-----	7	78
	Clay, silty, sandy, pebbly, olive-gray (till)-----	4	82
	Sand, very fine to coarse, lignitic, subangular to rounded; isolated clay lenses-----	27	109
	Clay, sandy, silty, pebbly, olive-gray-----	2	111
	Sand, very fine to coarse, clayey, subangular to rounded-----	6	117
	Clay, silty, sandy, lignitic, olive-gray, laminated; isolated sand lenses-----	32	149
	Gravel, fine to coarse, sandy, subangular to rounded; isolated clay lenses; about 30 percent shale, siltstone, and lignite--	36	185
	Sand, very fine to coarse, gravelly, lignitic; subangular to rounded; isolated clay lenses-----	9	194
	Clay, silty, sandy, pebbly, olive-gray (till)-----	18	212
	Sand, fine to coarse, clayey, gravelly, lignitic, subangular to rounded-----	7	219
	Clay, sandy, silty, pebbly, olive-gray; abundant cobbles (till)-----	11	230
Fort Union Group:			
	Siltstone, clayey, sandy, hard, noncalcareous, medium-gray to brownish-gray-----	10	240

148-81-20CDC1, 2, and 3
NDSWC 5764

Elevation: 1854 ft

Glacial drift:			
	Topsoil, sandy, pebbly, silty, brownish-black-----	1	1
	Clay, sandy, silty, pebbly, moderate-yellowish-brown (till)-----	2	3
	Sand, very fine to very coarse, gravelly, subangular to rounded; about 10 percent shale and lignite-----	42	45
	Gravel, fine to coarse, sandy, subangular to rounded-----	13	58
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles (till)-----	19	77

148-81-20CDC1, 2, and 3, Continued
NDSWC 5764

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Sand, very fine to very coarse, gravelly, subangular to rounded; about 30 percent shale and lignite-----	34	111
	Clay, sandy, silty, pebbly, olive-gray (till)-----	4	115
	Gravel, fine to coarse, sandy, clayey, subangular to subrounded-----	4	119
	Clay, sandy, silty, pebbly, lignitic, olive-gray; isolated sand lenses (till)---	30	149
	Gravel, fine to coarse, sandy, subangular to subrounded; isolated clay lenses and scattered cobbles and boulders; about 30 percent shale and siltstone-----	35	184
	Sand, very fine to coarse, gravelly, subangular to rounded; isolated clay lenses; about 30 percent shale and siltstone-----	12	196
	Clay, sandy, silty, pebbly, lignitic, olive-gray; isolated sand lenses (till)---	17	213
	Gravel, fine to coarse, clayey, sandy, angular to rounded-----	9	222
	Clay, silty, sandy, pebbly, lignitic, olive-gray (till)-----	14	236
Fort Union Group:			
	Siltstone, clayey, sandy, hard, noncalcareous, medium-gray; few small concretions-----	24	260

148-81-22AAB
NDSWC 1-C-6

Elevation: 1850 ft

Glacial drift:			
	Gravel, fine to coarse-----	11	11
	Sand, fine to coarse, gravelly, lignitic----	12	23
	Clay, lignitic, olive-gray (till)-----	21	44
	Sand, fine to coarse, gravelly-----	10	54
	Clay, lignitic, olive-gray (till)-----	4	58
	Sand, fine to coarse; clay lenses and scattered lignite fragments-----	24	82
	Gravel, fine to medium-----	7	89
	Clay, olive-gray (till)-----	3	92
	Gravel, fine to medium-----	2	94
	Clay, lignitic, olive-gray (till)-----	6	100

148-81-22AAD
NDSWC 6-C-6

Elevation: 1850 ft

Glacial drift:			
	Topsoil, black-----	1	1
	Gravel, coarse-----	10	11
	Sand, fine to medium-----	9	20
	Clay, silty-----	1	21
	Sand, fine to medium-----	18	39
	Till, olive-gray-----	24	63
	Sand, medium to coarse-----	9	72
	Clay, silty, olive-gray-----	4	76
	Gravel, medium to coarse-----	5	81
	Till, olive-gray-----	13	94

148-81-22BAB
NDSWC 4-C-6

Elevation: 1848 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Sand, fine to medium-----	31	31
	Till, olive-gray-----	10	41
	Sand, fine to medium-----	5	46
	Gravel, fine to coarse-----	6	52
	Till, olive-gray-----	19	71
	Sand-----	3	74
	Till, olive-gray-----	6	80
	Sand, fine to medium-----	14	94
	Till, olive-gray-----	11	105

148-81-24BBB
NDSWC 2744

Elevation: 1864 ft

Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Sand and gravel; coarse to very coarse angular to subrounded sand; fine to coarse angular to subrounded gravel-----	15	16
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	64	80
	Clay, silty, light-olive-gray to greenish- gray; scattered sand (till)-----	30	110
	Clay, very silty, greenish-gray to medium- light-gray; laminated in places (till)----	55	165
	Clay, plastic, light-gray to medium- light-gray; sandy from 172-176 ft (lacustrine)-----	47	212
Fort Union Group:			
	Shale, noncalcareous, grayish-brown-----	18	230

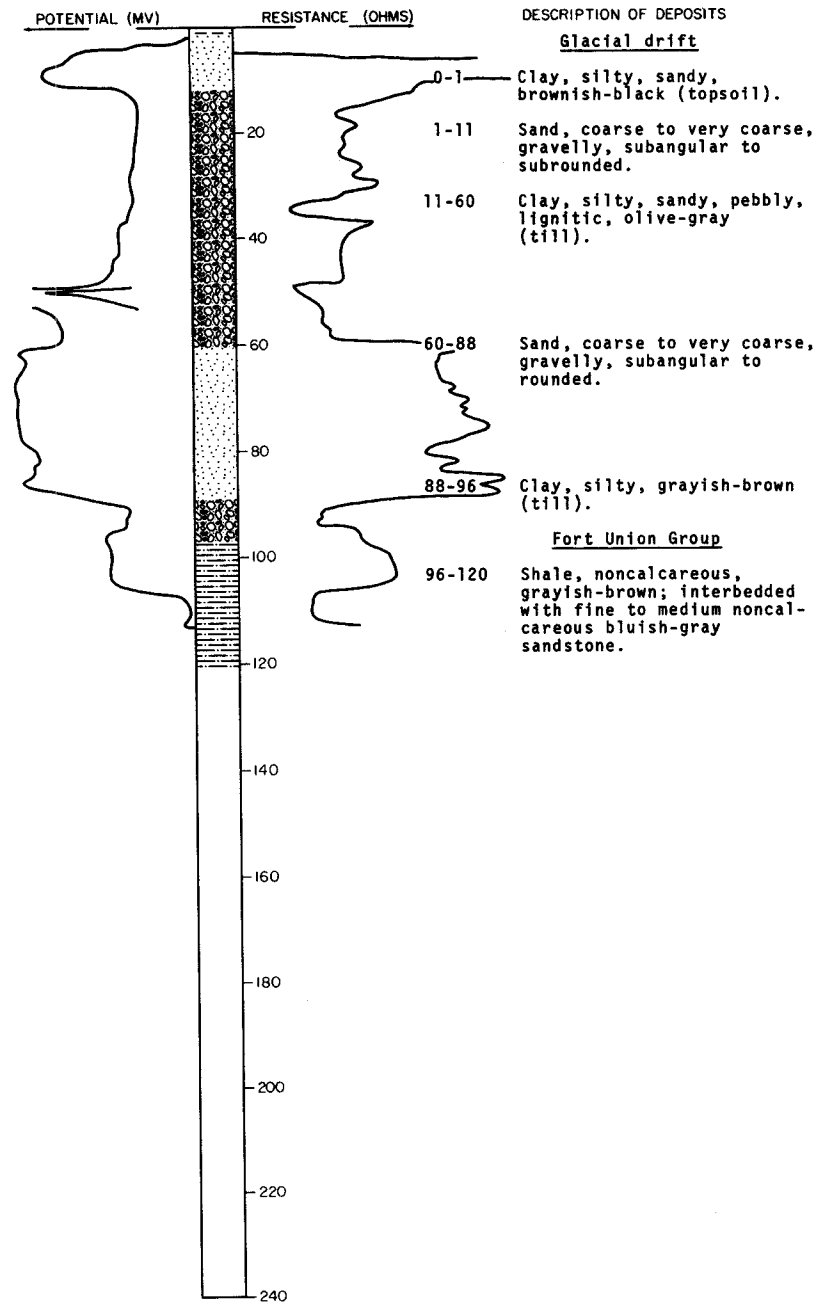
LOCATION: 148-81-26DBC

NDSWC 2735

DATE DRILLED: August 1967

ELEVATION: 1860
(FT, MSL)

DEPTH: 120
(FT)



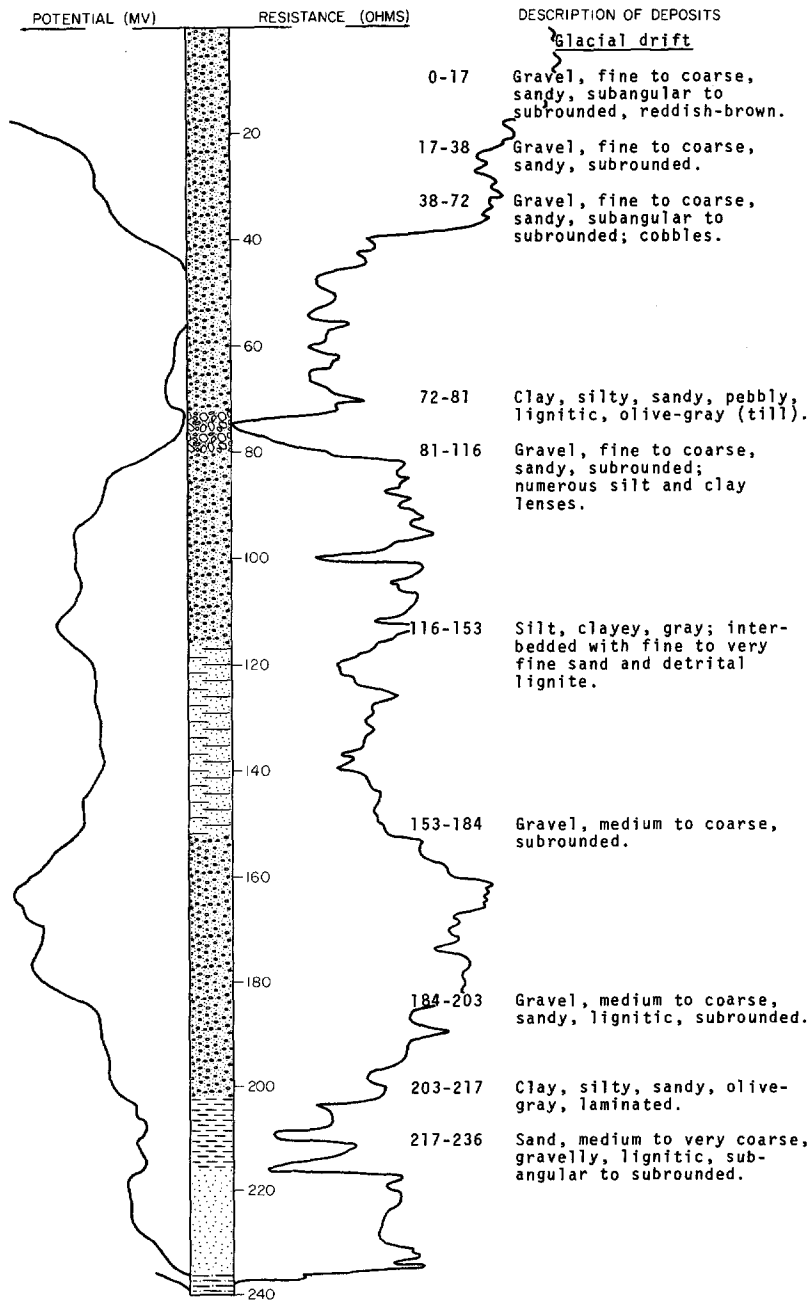
LOCATION: 148-81-29BAA

NDSWC 4100

DATE DRILLED: August 1970

ELEVATION: 1856
(FT, MSL)

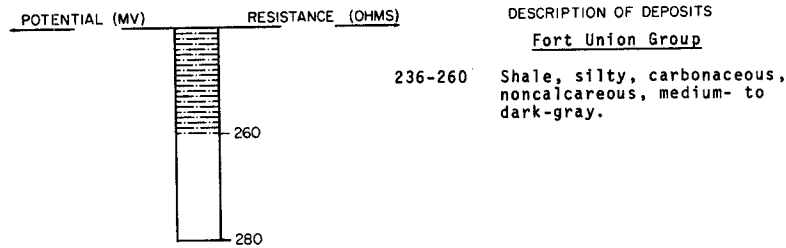
DEPTH: 260
(FT)



LOCATION: 148-81-29BAA
 ELEVATION: 1856
 (FT, MSL)

NDSWC 4100, Continued

DATE DRILLED: August 1970
 DEPTH: 260
 (FT)



148-81-29CAA
 NDSWC 4099

Elevation: 1858 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
<u>Glacial drift:</u>			
	Gravel, fine to coarse, sandy, subangular to subrounded, moderate-reddish-brown-----	12	12
	Gravel, medium to coarse; abundant cobbles--	22	34
	Gravel, medium to coarse; interbedded with sand, silt, and detrital lignite-----	14	48
	Clay, silty, sandy, pebbly, lignitic, olive-gray; isolated sand lenses (till)---	21	69
<u>Fort Union Group:</u>			
	Siltstone, clayey, noncalcareous, medium-gray-----	9	78
	Sandstone, fine, clayey, carbonaceous, greenish-gray, laminated-----	14	92
	Shale, silty, carbonaceous, brittle, medium- to dark-gray-----	8	100
	Sandstone, very fine to fine, clayey, carbonaceous, greenish-gray-----	20	120

148-81-29CCC
 NDSWC 3930

Elevation: 1860 ft

<u>Glacial drift:</u>			
	Silt, clayey, sandy, cohesive, yellowish-gray; scattered pebbles (till)-----	7	7
	Clay, silty, sandy, moderate-olive-brown; scattered pebbles (till)-----	9	16
	Clay, silty, sandy, olive-gray; scattered pebbles (till)-----	21	37
	Gravel-----	5	42
	Clay, silty, sandy, olive-gray; scattered pebbles (till)-----	7	49
	Gravel-----	5	54
	Clay, silty, sandy, olive-gray; scattered pebbles (till)-----	2	56
<u>Fort Union Group:</u>			
	Shale, hard, carbonaceous, dark-gray-----	1	57
	Shale, lignitic, black-----	9	66
	Shale, silty, medium-gray-----	14	80

148-81-31888
NDSWC 2738

Elevation: 1860 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, brownish-black-----	1	1
	Gravel, sandy, clayey, angular to subrounded-----	2	3
	Clay, silty, moderate-yellowish-brown; scattered sand (till)-----	11	14
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	31	45
	Sand, fine to medium, subangular to rounded; few lignite fragments-----	5	50
	Clay, silty, olive-gray; scattered sand and lignite fragments (till)-----	12	62
Fort Union Group:			
	Shale, noncalcareous, medium-gray-----	18	80

148-81-33CDD
NDSWC 2737

Elevation: 1847 ft

Glacial drift:			
	Topsoil, silty, clayey, grayish-black-----	1	1
	Sand and gravel; medium to very coarse angular to subrounded sand; fine angular to subrounded gravel-----	33	34
	Gravel and sand; fine to coarse subangular to subrounded gravel; coarse to very coarse subangular to subrounded sand-----	6	40
	Clay, silty, olive-gray; scattered gravel; lignite float from 47-49 ft (till)-----	22	62
	Clay, calcareous, dark-gray (lacustrine)-----	5	67
Fort Union Group:			
	Sandstone, fine to medium, noncalcareous, light-bluish-gray to medium-bluish-gray; few lenses of brownish-black shale-----	13	80

148-81-34DDD
NDSWC 2736

Elevation: 1845 ft

Glacial drift:			
	Topsoil, silty, clayey, grayish-black-----	1	1
	Sand, fine to very coarse, angular to subrounded; gravelly near bottom of section; upper 12-15 ft oxidized-----	19	20
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	30	50
	Clay, silty, olive-gray to medium-dark-gray; scattered sand; lignite float from 58-59 ft and from 68-72 ft (till)-----	26	76
Fort Union Group:			
	Shale and sandstone interbedded; noncalcareous grayish-brown shale; fine to medium noncalcareous medium-bluish-gray sandstone-----	24	100

Elevation: 1846 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, sandy, brownish-black-----	1	1
	Sand, coarse to very coarse, gravelly, subangular to subrounded-----	10	11
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	37	48
	Sand, medium to coarse, angular to rounded; becomes gravelly near base of section-----	23	71
	Clay, silty, olive-gray to medium-dark-gray; scattered sand (till)-----	24	95
	Sand, very fine to fine, subangular to subrounded, dusky-blue-green-----	9	104
Fort Union Group:			
	Sandstone and shale interbedded; fine to medium noncalcareous light-bluish-gray to medium-bluish-gray sandstone; calcareous to noncalcareous brownish-gray shale-----	16	120

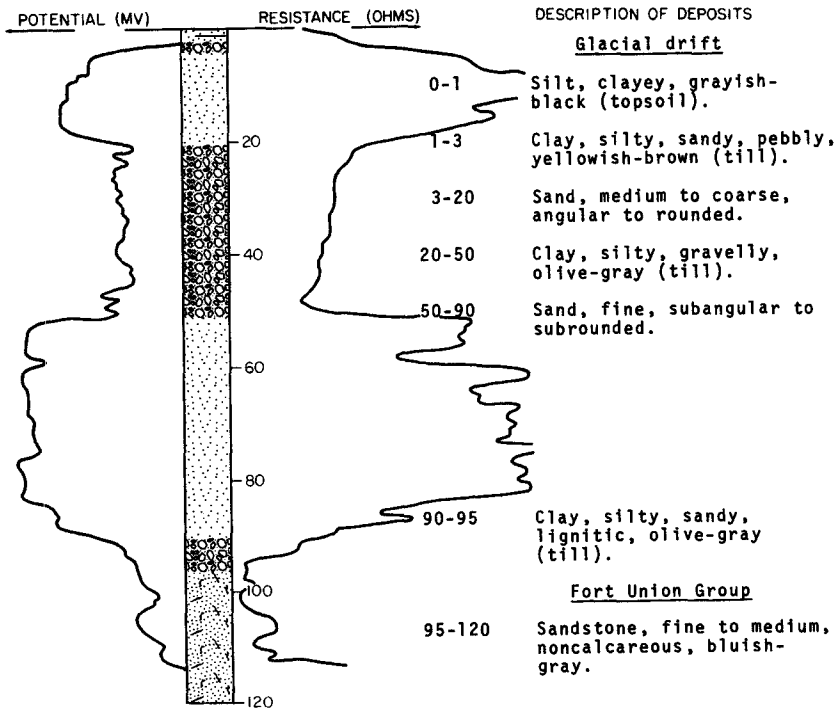
NDSWC 2733

LOCATION: 148-81-36DDD

DATE DRILLED: August 1967

ELEVATION: 1850
(FT, MSL)

DEPTH: 120
(FT)



148-82-11888
NDSWC 3953

Elevation: 1882 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, sandy, black-----	1	1
	Gravel, fine to coarse, sandy, iron-stained; scattered cobbles-----	10	11
	Clay, silty, sandy, olive-gray; scattered sand and gravel (till)-----	32	43
	Clay, silty, soft, olive-gray; scattered sand and pebbles (till)-----	42	85
	Clay, silty, sandy, soft, olive-gray; scattered pebbles (till)-----	19	104
Fort Union Group:			
	Sand, very fine to fine, silty, greenish-gray-----	43	147
	Shale, silty, hard, brittle, carbonaceous---	8	155
	Sand, very fine to fine, silty, greenish-gray-----	5	160

148-82-1288C
(Log from U.S. Air Force)

Elevation: 1910.9 ft

	Clay, silty, trace of sand and gravel, very stiff, brown-----	8	8
	Clay, silty, trace of sand, gravel, and lignite, very stiff to hard, brown-gray---	19	27
	Clay, silty, trace of sand, gravel, and lignite, very stiff, gray; occasional cobbles and boulders; gravel 65.5-66.5 ft-	42	69
	Clay, silty, trace of sand and gravel, very stiff, dark gray-----	10	79
	Sand, fine to coarse, gravelly, clayey, dense; interbedded clay lenses-----	7.5	86.5
	Clay, silty, trace of sand, gravel, and lignite, stiff to very stiff, dark gray-brown-----	13.5	100

148-82-1388B
NDSWC 3932

Elevation: 1845 ft

Glacial drift:			
	Gravel, fine to medium, angular to sub-rounded; interbedded with fine to coarse sand-----	26	26
	Clay, silty, medium-gray-----	5	31
	Gravel, fine to medium; interbedded with fine to coarse sand-----	16	47
	Clay, silty, pebbly, soft, olive-gray; scattered sand (till)-----	32	79
	Clay, silty, soft, olive-gray; lensed with sand and fine gravel (till)-----	41	120
	Silt, clayey, sandy, olive-gray-----	43	163
	Sand, fine to medium, light-olive-gray-----	23	186
	Gravel, fine, sandy-----	8	194
	Sand, fine to medium, silty, light-olive-gray	22	216
	Sand, very fine to fine, clayey, black-----	4	220
	Clay, sandy, black-----	9	229
	Gravel, medium to coarse, subangular to subrounded-----	21	250
Fort Union Group:			
	Shale, silty, sandy, hard, brittle, carbonaceous, medium-gray-----	30	280

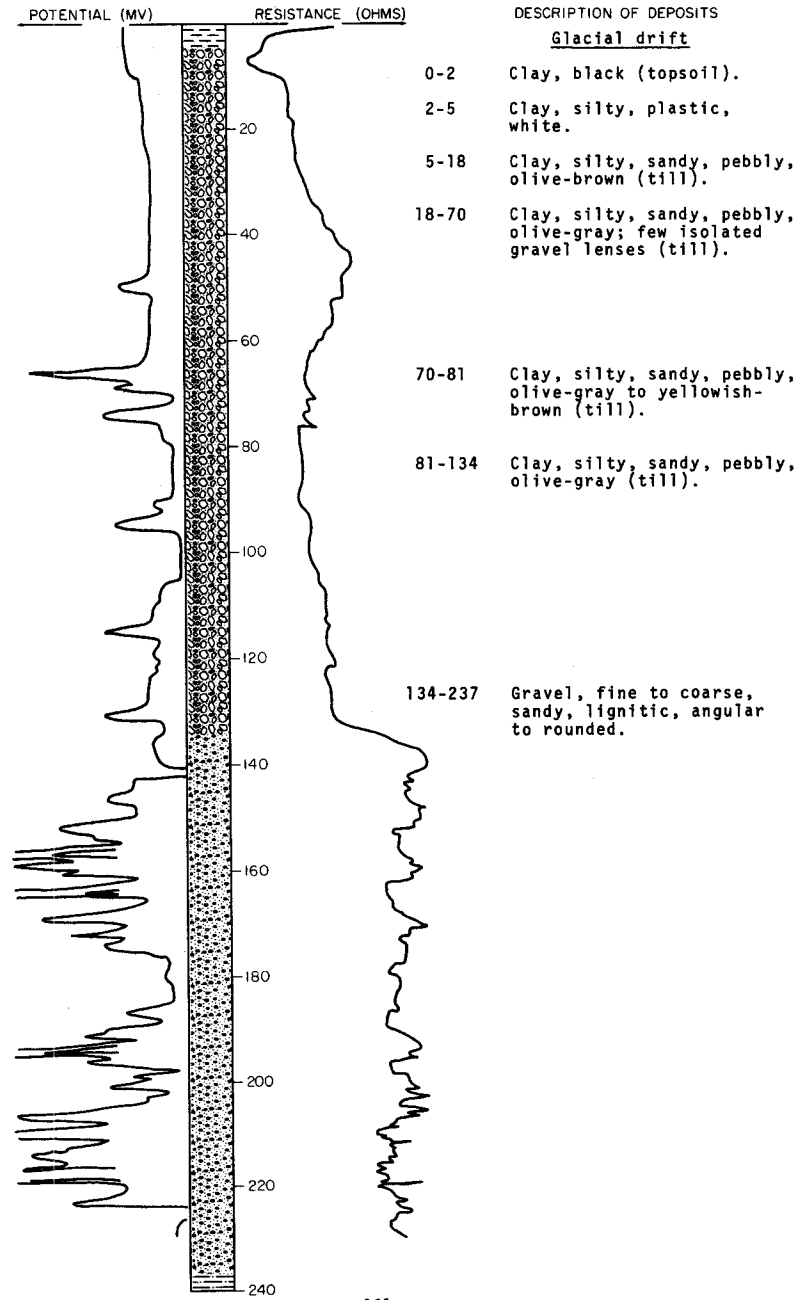
LOCATION: 148-82-15BBB

NDSWC 3933

DATE DRILLED: November 1969

ELEVATION: 1860
(FT, MSL)

DEPTH: 250
(FT)



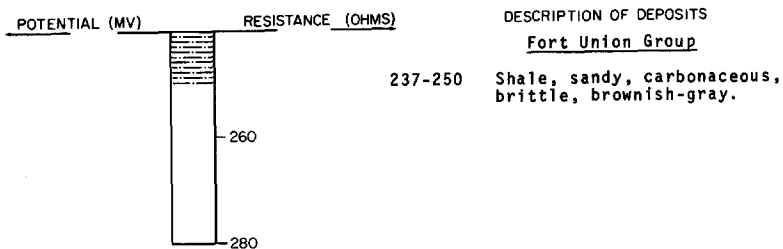
NDSWC 3933, Continued

LOCATION: 148-82-158BB

DATE DRILLED: November 1969

ELEVATION: 1860
(FT, MSL)

DEPTH: 250
(FT)



148-82-218BB
NDSWC 4102

Elevation: 1870 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, pebbly, silty, black-----	1	1
	Silt, clayey, sandy, yellowish-gray; scattered pebbles (till)-----	4	5
	Clay, silty, sandy, pebbly, moderate-olive- gray (till)-----	24	29
	Clay, silty, sandy, pebbly, lignitic, olive-gray (till)-----	51	80
	Gravel, fine to medium, sandy, subangular to subrounded-----	17	97
	Silt, clayey, olive-gray-----	7	104
	Sand, medium, subrounded, medium-gray-----	4	108
	Clay, stiff, dark-gray-----	6	114
	Clay, silty, sandy, pebbly, lignitic, olive-gray (till)-----	12	126
	Gravel, fine to medium, subangular to subrounded-----	5	131
	Clay, silty, sandy, pebbly, lignitic, olive-gray; isolated gravel lenses-----	28	159
	Sand, very fine to coarse, silty, subangular; mostly shale and lignite-----	21	180
	Gravel, fine to coarse, angular to subrounded-----	15	195
Fort Union Group:			
	Sandstone, fine, grayish-green-----	9	204
	Sandstone, very fine, silty, hard, light-gray to grayish-green-----	16	220

Elevation: 1880 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Silt, sandy, clayey, pebbly, yellowish-gray; with iron stains (till)-----	6	6
	Clay, silty, sandy, pebbly, moderate-olive-brown (till)-----	22	28
	Clay, silty, sandy, olive-gray; scattered pebbles (till)-----	34	62
	Sand, coarse to very coarse, and fine gravel-----	14	76
	Clay, stiff, dark-gray to black-----	6	82
	Sand, fine, lignitic, dark-gray-----	12	94
	Clay, silty, stiff, olive-gray-----	28	122
	Gravel, fine to medium, sandy, subangular to rounded-----	20	142
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	22	164
	Gravel, fine to coarse, sandy, subangular to rounded-----	33	197
	Sand, medium to coarse, subangular to subrounded-----	14	211
	Gravel, fine to coarse, sandy, subangular to rounded-----	18	229
	Sand, medium to coarse, gravelly, lignitic--	27	256
	Gravel, medium to coarse-----	10	266
Fort Union Group:			
	Sand, very fine to fine, clayey, micaceous, light-greenish-gray to greenish-gray-----	14	280
	Shale, silty, sandy, hard, brittle, micaceous, light-gray-----	20	300

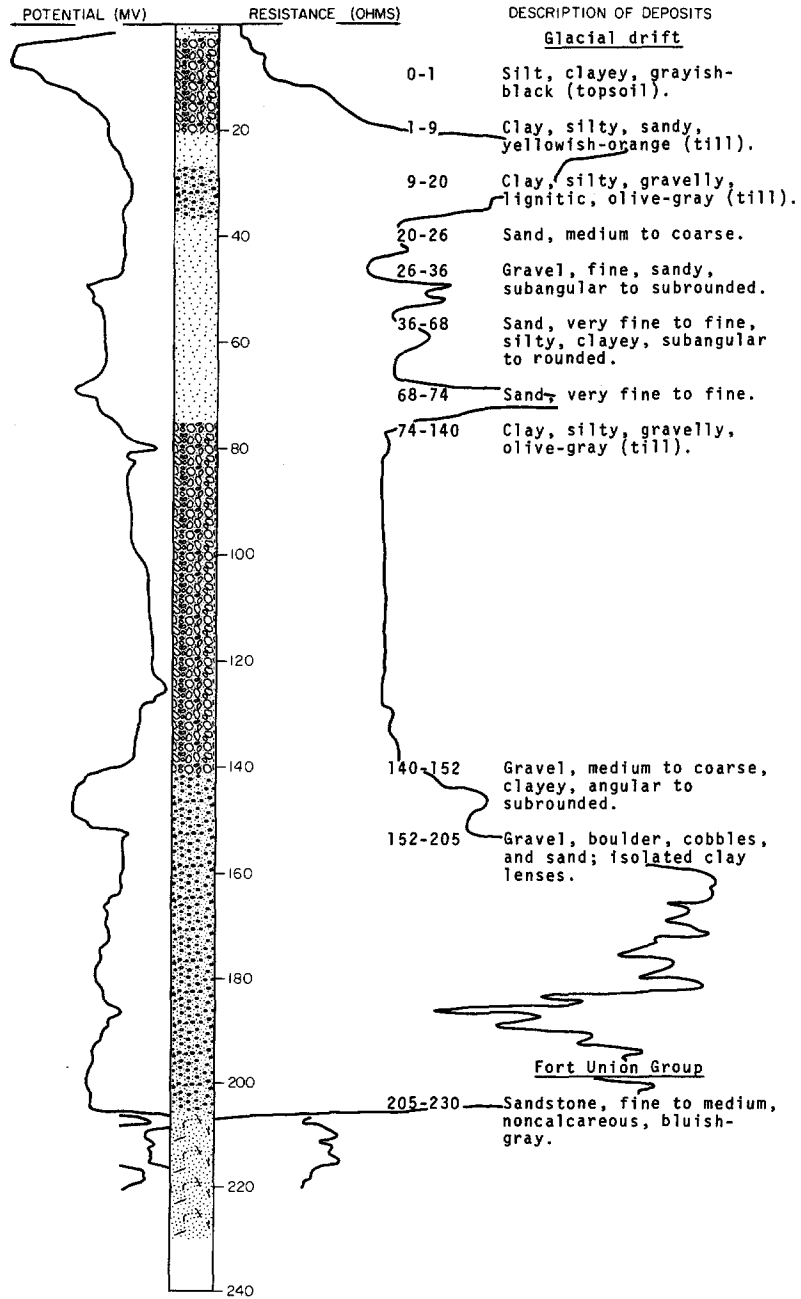
LOCATION: 148-82-24ABB

NDSWC 2739

DATE DRILLED: August 1967

ELEVATION: 1880
(FT, MSL)

DEPTH: 230
(FT)



148-82-34AAA
NDSWC 4103

Elevation: 1893 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, black-----	1	1
	Silt, clayey, sandy, yellowish-gray; scattered pebbles (till)-----	4	5
	Clay, silty, sandy, pebbly, dusky-yellow to moderate-olive-brown (till)-----	19	24
	Clay, silty, sandy, pebbly, lignitic, moderate-olive-brown to olive-gray (till)-	26	50
	Sand, medium, subangular to subrounded, light-olive-gray-----	9	59
	Clay, plastic, dark-olive-gray-----	11	70
Fort Union Group:			
	Lignite, hard, black-----	2	72
	Sandstone, very fine to fine, micaceous, carbonaceous, greenish-gray-----	68	140

148-82-36CCB
(Log from U.S. Air Force)

Elevation: 1890.5 ft

	Clay and silt, sandy, trace of lignite, stiff, brown-----	8	8
	Clay, silty, sandy, trace of gravel and lignite, stiff to very stiff, brown-----	11	19
	Clay and silt, trace of sand, very stiff, gray-----	12	31
	Sand, fine, silty, clayey, trace of lignite, very dense, gray-----	3	34
	Clay, silty, trace of sand, gravel, and lignite, very stiff, dark-gray-----	24.5	58.5
	Sand, fine, silty, thin lignite lenses, trace of clay, dense, brown to dark- gray-----	13.5	72
	Lignite, soft to hard, black-----	8.5	80.5
	Silt, clayey, very dense, gray-----	2.5	83
	Shale, silty, moderately soft, gray-brown to black-----	5.5	88.5
	Lignite, fissile, hard, black; interbedded sand and shale-----	4	92.5
	Sand, fine, silty, trace of lignite, very dense, light-gray-----	7.5	100

148-83-2DDD
NDSWC 5593

Elevation: 1845 ft

Glacial drift:			
	Topsoil, silty, sandy, clayey, grayish- black-----	1	1
	Clay, silty, grayish-black to black; fill---	2	3
	Clay, silty, dusky-yellow to dark-yellowish- brown; scattered sand and pebbles (till)--	17	20
	Clay, silty, sandy, pebbly, olive-gray (till)-----	5	25
	Gravel, fine to very coarse, sandy-----	18	43
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	47	90

148-83-2DDD, Continued
NDSWC 5593

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift, Continued:			
	Gravel, fine to coarse, sandy, angular to rounded-----	6	96
Fort Union Group:			
	Sandstone, very fine to fine, silty, clayey, noncalcareous; medium-bluish-gray with brownish-gray laminae-----	24	120

148-83-5CCB
(Log from U.S. Air Force)

Elevation: 1942.1 ft

	Clay, silty, sandy, stiff, brown-----	13	13
	Clay, silty, trace of sand and gravel, stiff, brown-gray-----	10.5	23.5
	Clay, silty, trace of sand, gravel, and lignite, very stiff, dark gray-----	10.5	34
	Clay, silty, trace of sand, gravel, and lignite, very stiff, dark gray-----	61.5	95.5
	Silt, trace of fine sand and lignite, very dense, gray-----	2.5	98
	Silt and clay, very dense, gray-----	2	100

148-83-9DDD
NDSWC 5594

Elevation: 1894 ft

Glacial drift:			
	Topsoil, silty, clayey, sandy, pebbly, dark-yellowish-brown-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	67	68
	Clay, silty, olive-gray to medium-dark-gray; scattered sand and pebbles (till)---	38	106
	Gravel, fine to coarse, sandy, angular to subrounded-----	3	109
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	22	131
Fort Union Group:			
	Sandstone, very fine to fine, silty, clayey, lignitic, noncalcareous, medium-bluish-gray-----	9	140

148-83-18BBC
NDSWC 5794

Elevation: 1950 ft

Glacial drift:			
	Topsoil, silty, clayey, sandy, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; scattered pebbles (till)-	29	30
Fort Union Group:			
	Shale, sandy, hard, calcareous, light-gray to brownish-gray; interbedded with siltstone-----	18	48

148-83-18BBC, Continued
NDSWC 5794

Geologic source	Material	Thickness (feet)	Depth (feet)
Fort Union Group, Continued:			
	Shale, clayey, sandy, hard, calcareous, medium-gray to brownish-gray; interbedded with siltstone-----	12	60

148-83-18CBB
NDSWC 5793

Elevation: 1945 ft

Glacial drift:			
	Topsoil, silty, clayey, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; scattered cobbles (till)-	23	24
	Sand, fine to medium, lignitic, sub-angular to subrounded-----	4	28
Fort Union Group:			
	Siltstone, clayey, hard, noncalcareous, medium-gray; interbedded with shale and lignite-----	32	60

148-83-19CCC
NDSWC 5792

Elevation: 1870 ft

Glacial drift:			
	Topsoil, silty, clayey, sandy, brownish-black-----	2	2
	Gravel, fine to coarse, sandy, silty, clayey, angular to subrounded-----	6	8
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles (till)-----	15	23
Fort Union Group:			
	Shale, clayey, hard, calcareous, medium-gray; interbedded with siltstone-----	17	40

148-83-20DDA
(Log from U.S. Corps of Engineers)

Elevation: 1864.1 ft

Glacial drift:			
	Silt (till), sandy, friable, dark-brown; scattered medium gravel-----	4	4
	Clay (till), sandy, brownish-gray; trace of lignite and clinker; scattered fine to very coarse gravel-----	13	17
	Clay (till), sandy, brownish-gray; trace of lignite; scattered fine to very coarse sand-----	14	31
	Clay (till), sandy, dark-gray; trace of lignite; scattered fine to coarse gravel--	20	51
	Sand, fine, loose, rusty brown to gray; trace of fine gravel and lignite-----	6	57
	Sand, fine, loose, brownish gray; trace of lignite and gravel-----	4.2	61.2

148-83-20DDA, Continued
(Log from U.S. Corps of Engineers)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Gravel, sandy, silty, loose, brownish-gray; trace of lignite-----	2.6	63.8
	Clay (till), sandy, dark gray; scattered lignite fragments and fine to coarse gravel-----	5.2	69
	Sand, coarse, loose, dark gray; trace of gravel-----	3.2	72.2
Fort Union Group:			
	Clay, subfirm, light bluish gray; few carbonaceous streaks and limestone nodules-----	1.4	73.6
	Clay, plastic, light bluish gray; few carbonaceous streaks and limestone nodules-----	3.4	77
	Lignite, hard, black-----	1	78
	Clay, subfirm, light bluish gray; few silt and carbonaceous streaks and limestone nodules-----	9	87

148-83-21CCC
(Log from U.S. Corps of Engineers)

Elevation: 1877.2 ft

Glacial drift:			
	Silt, dark brown-----	0.6	0.6
	Clay (till), stiff, calcareous, light-brown; trace of lignite; scattered gravel-----	3	3.6
	Clay (till), sandy, calcareous, brown; trace of lignite; scattered gravel-----	16.4	20
	Clay (till), sandy, calcareous, brown; scattered gravel-----	20	40
	Clay (till), sandy, calcareous, brown; trace of lignite, scattered gravel-----	5.4	45.4
	Clay, plastic, dark grayish brown; carbonaceous streaks and gypsum crystals--	8	53.4
	Clay, brown-----	.9	54.3
	Sand, silty, gravelly, loose, brown-----	2.3	56.6
	Sand, silty, friable, brown; some gravel----	.7	57.3
	Gravel, coarse to very coarse, silty, sandy, compact, brown-----	3	60.3
	Sand, silty, gravelly, loose, light-brown---	1.9	62.2
	Sand, silty, loose, light brown; 8 percent gravel-----	1.2	63.4
	Gravel, coarse, sandy, silty, loose-----	.9	64.3
	Silt, sandy, friable, light brown-----	1.1	65.4
	Sand, fine, silty, loose, light gray to brown-----	2.7	68.1
	Sand, fine, loose, light brown; trace of lignite, slightly silty-----	1.9	70
	Silt, sandy, light grayish brown-----	1.3	71.3
	Sand, fine, silty, loose, light brown; trace of lignite; scattered fine gravel-----	1.5	72.8
	Sand, gravelly, silty, loose, dark brown----	1.7	74.5
	Sand, fine, loose, brownish gray; scattered fine gravel-----	.6	75.1
	Gravel, fine, sandy, loose, grayish brown---	.9	76
	Gravel, fine to very coarse, loose, grayish-brown-----	4	80
	Sand, coarse, gravelly, loose, gray; trace of lignite-----	3.5	83.5
	Sand, fine, loose, dark gray; trace of fine gravel and lignite-----	1.7	85.2
	Clay (till), sandy, dark gray; few lignite fragments and scattered coarse gravel-----	3.4	88.6

148-83-21CCC, Continued
(Log from U.S. Corps of Engineers)

Geologic source	Material	Thickness (feet)	Depth (feet)
Fort Union Group:			
	Clay, plastic, dark gray; few lignite fragments-----	1.4	90
	Clay, stiff, dark gray; few lignite fragments-----	1.4	91.4
	Clay, silty, friable, blue gray; few carbonaceous streaks and limestone nodules-----	4.1	95.5

148-83-28BBB
(Log from U.S. Corps of Engineers)

Elevation: 1860.9 ft

Glacial drift:			
	Silt, sandy, friable, dark brown-----	2.4	2.4
	Clay, sandy, brownish gray-----	45.6	48
	Sand, fine, silty, loose, grayish brown----	5.2	53.2
	Gravel, silty, sandy, loose, brown-----	3.4	56.6
	Sand, fine, loose, gray brown-----	1.4	58
	Sand, gravelly, loose, brownish gray; scattered lignite fragments-----	5	63
	Sand, coarse, gravelly, loose, gray-----	1.8	64.8
	Clay, sandy, dark gray-----	2.4	67.2
Fort Union Group:			
	Clay, subfirm, dark brown-----	.8	68
	Clay, plastic, dark bluish gray-----	3.2	71.2
	Silt, sandy, friable, bluish gray-----	5.3	76.5
	Limestone, hard, gray-----	.9	77.4
	Silt, sandy, friable, bluish gray-----	4.2	81.6
	Clay, plastic, dark bluish gray-----	2.4	84

148-83-28BCA
(Log from U.S. Corps of Engineers)

Elevation: 1861.5 ft

	Alluvium: -----	3.8	3.8
Glacial drift:			
	Clay, lean, brown-----	1.3	5.1
	Clay, sandy, brown; scattered lignite and scoria; 5 percent gravel-----	41.9	47
	Sand, silty, loose, light gray; 1 percent gravel-----	1.6	48.6
	Sand, loose, light gray-----	3	51.6
	Silt, sandy, loose, light gray-----	1.8	53.4
	Silt, sandy, gravelly, loose, light gray; 15 percent gravel-----	1.4	54.8
	Gravel, silty, sandy, loose, brownish gray--	1.6	56.4
	Sand, silty, gravelly, loose, light brown---	1.8	58.2
	Gravel, silty, sandy, loose, brown-----	4.3	62.5
Fort Union Group:			
	Clay, soft, gray; weathered to a depth of 1 ft; scattered lignite fragments near base-----	9.6	72.1
	Lignite, hard, black-----	1.4	73.5
	Clay, soft, gray-----	1.5	75
	Gravel-----	.5	75.5
	Silt, sandy, gray-----	2.3	77.8

148-83-28BCA, Continued
(Log from U.S. Corps of Engineers)

Geologic source	Material	Thickness (feet)	Depth (feet)
Fort Union Group, Continued:			
	Clay, subfirm, gray-----	4.1	81.9
	Clay, plastic, gray-----	2.1	84
	Lignite, hard, black-----	2.2	86.2
	Silt, sandy, friable, gray; thin clay streaks-----	2.8	89
	Clay, plastic, gray; streaks of silt and sand-----	2.3	91.3
	Clay and interbedded sandy silt, gray-----	3.9	95.2
	Clay, plastic, gray; occasional hard limestone streaks-----	8.6	103.8
	Lignite, hard, black-----	2.8	106.6
	Clay and interbedded silt and sand, grayish brown-----	1.7	108.3
	Clay, plastic, gray; carbonaceous streaks---	9.5	117.8
	Lignite, hard, black-----	.6	118.4
	Clay, plastic, greenish gray to brownish gray; scattered limestone concretions and carbonaceous streaks-----	11.6	130
	Clay, subfirm, gray; streaks of silt and sand-----	3.3	133.3
	Clay, plastic, gray-----	1.7	135
	Silt, sandy, gray; clay lenses and carbonaceous streaks-----	4.7	139.7
	Sandstone, hard, gray-----	1.3	141
	Clay, subfirm, gray to brown-----	1	142
	Clay and silt, interbedded, gray-----	6.8	148.8
	Clay, plastic, gray to dark brown-----	6.6	155.4
	Lignite, hard, black-----	3.8	159.2
	Silt, friable, dark brown; carbonaceous streaks-----	3.9	163.1
	Lignite, hard, black-----	2.7	165.8
	Clay, plastic, dark brownish gray-----	1.7	167.5
	Lignite, hard, black-----	1.1	168.6
	Clay, plastic, dark brownish gray-----	2.1	170.7
	Lignite, hard, black-----	1.4	172.1
	Silt, brown, carbonaceous-----	3.2	175.3
	Clay, plastic, dark brown, carbonaceous-----	.6	175.9
	Lignite, fractured, black-----	1.3	177.2
	Clay, gray, carbonaceous; silt lenses-----	5.1	182.3
	Clay, plastic, greenish-gray; carbonaceous---	3.4	185.7
	Silt, sandy, friable, gray-----	10.5	196.2
	Sandstone, hard, brown to yellow-----	.4	196.6
	Lignite, hard, black-----	3.4	200
	Clay, plastic, gray to brown; carbonaceous streaks and lenses of nonplastic clay-----	6.1	206.1
	Limestone, hard, gray-----	.2	206.3
	Clay, plastic, gray; carbonaceous and silty streaks-----	1.7	208
	Clay, gray-----	1.9	209.9
	Clay, plastic, gray, green, and brown; lignitic silt streaks-----	20.1	230
	Silt, sandy, friable, brown, carbonaceous---	.5	230.5
	Clay, subfirm, dark brown; scattered lignite fragments-----	.8	231.3
	Silt, sandy, brown; carbonaceous streaks-----	4.7	236
	Sand, very fine, silty, brown; carbonaceous streaks-----	4	240
	Clay, plastic, gray; silt streaks-----	.6	240.6
	Silt, sandy, gray; interbedded with very fine silty sand and thin clay layers-----	9.4	250
	Silt, friable, gray, carbonaceous-----	1.3	251.3
	Sand, silty, gray-----	12.6	263.9

148-83-28BCD1
(Log from U.S. Corps of Engineers)

Elevation: 1841

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Silt, dark brown-----	0.5	0.5
	Clay, sandy, plastic, brown to gray; scattered lignite and scoria fragments----	33	33.5
	Sand, loose, grayish brown; scattered lignite fragments-----	4.9	38.4
	Sand, coarse, silty, loose, grayish brown; scattered lignite fragments-----	3.2	41.6
	Sand, coarse, loose, gray-----	3.8	45.4
	Clay, sandy, dark gray; 5 percent gravel----	7.6	53
	Clay, bluish gray; scattered lignite fragments-----	4.8	57.8
	Lignite "float," hard, black-----	1.6	59.4
	Sand, coarse, loose, gray; abundant lignite fragments-----	.6	60
Fort Union Group:			
	Lignite, hard, black-----	1.5	61.5
	Clay, friable, bluish gray; scattered lignite fragments-----	3	64.5

148-83-28BCD2
(Log from U.S. Corps of Engineers)

Elevation: 1845.9 ft

Glacial drift:			
	No sample-----	6.3	6.3
	Clay, sandy, friable, brown; scattered lignite and scoria fragments-----	27.1	33.4
	Sand, fine, silty, loose, dark brown; scattered lignite fragments-----	1.1	34.5
	Sand, fine, loose, dark brown to light brown-----	10.1	44.6
	Sand, fine, silty, compact, gray-----	1.6	46.2
	Sand, silty, gravelly, loose, dark brown; scattered lignite fragments-----	.8	47
	Clay, gray-----	1.4	48.4
	Clay, sandy, gray; scattered lignite fragments-----	3.7	52.1
Fort Union Group:			
	Clay, brownish gray-----	1.9	54
	Lignite, hard, black-----	2.1	56.1
	Clay, sandy, gray-----	1.9	58
	Clay, subfirm, gray-----	1.6	59.6
	Clay, sandy, subfirm, gray; carbonaceous streaks-----	1.6	61.2
	No sample-----	3.4	64.6
	Clay, sandy, subfirm, light gray; carbonaceous streaks-----	2.3	66.9
	Clay, plastic, dark gray-----	1.3	68.2
	No sample-----	2.9	71.1
	Clay, plastic, gray-----	.1	71.2
	Lignite, hard, black-----	1.1	72.3
	Clay, plastic, gray-----	1.2	73.5
	Silt, sandy, friable, gray-----	.4	73.9
	Sand, fine, silty, gray; carbonaceous streaks-----	1.8	75.7
	Clay, sandy, friable, gray-----	1	76.7
	Sand, silty, gray-----	.2	76.9
	Clay, plastic, dark gray-----	2.8	79.7
	No sample-----	.3	80

148-83-28CBA
(Log from U.S. Corps of Engineers)

Elevation: 1835.2 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Clay, sandy, brown; scattered lignite fragments-----	29.2	29.2
	Sand, fine, loose, gray-----	4.6	33.8
	Sand, gravelly, loose, brown-----	4.2	38
	Sand, coarse, gravelly, gray-----	5.5	43.5
	Gravel, fine, sandy, gray-----	1.5	45
	Sand, clayey, plastic, dark gray-----	12	57
	Clay, sandy, dark gray-----	10	67
	Sand, silty, loose, dark gray-----	2.2	69.2
	Silt, sandy, loose, dark gray-----	1.3	70.5
	Gravel, silty, sandy, loose, gray-----	27.7	98.2
	Sand, fine, silty, loose, dark gray-----	9.4	107.6
	Gravel, sandy, loose, gray-----	3.4	111
	Sand, fine, silty, loose, dark gray; scattered lignite fragments-----	5.5	116.5
	Sand, gravelly, loose, gray-----	1.5	118
	Silt, sandy, loose, dark gray; scattered lignite fragments-----	5	123
	Sand, fine, silty, loose, gray-----	9	132
	Lignite "float" dark brown-----	.4	132.4
	Sand, coarse, loose, brownish gray-----	.8	133.2
Fort Union Group:			
	Lignite, hard, dark brown-----	2.2	135.4
	Silt, sandy, loose, brownish gray-----	6	141.4
	Clay, plastic, dark brown; very carbonaceous-----	2.6	144
	Lignite, hard, black-----	.4	144.4
	Clay, plastic, gray-----	.6	145
	Silt, sandy, loose, brownish gray-----	6	151
	Lignite, hard, black-----	.7	151.7
	Silt, sandy, friable, gray-----	1.3	153
	Clay, subfirm, gray-----	2.3	155.3

148-83-28CBD
(Log from U.S. Corps of Engineers)

Elevation: 1832 ft

Alluvium:	Sandy, silty, brown-----	0.5	0.5
Glacial drift:			
	Clay, plastic, light brown; scattered lignite and scoria fragments-----	3.1	3.6
	Clay, sandy, gravelly, brown; scattered lignite and scoria fragments-----	1.8	5.4
	Clay, sandy, brown, scattered lignite and scoria fragments-----	23.8	29.2
	Clay, plastic, dark gray; scattered lignite and scoria fragments-----	46.8	76
	Sand, clayey, loose, dark gray-----	5	76.5
	Clay, plastic, dark gray; scattered lignite fragments-----	6	82.5
	Sand, silty, gravelly, loose, brown to gray-----	5.1	87.6
	Sand, silty, gray-----	1.8	89.4
	Gravel, silty, sandy, brownish gray-----	1.6	91
	Sand, silty, gravelly, loose, brownish gray-----	13.4	104.4
	Sand, silty, loose, gray-----	1.2	105.6

148-83-28CBD, Continued
(Log from U.S. Corps of Engineers)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Sand, silty, gravelly, loose, dark gray-----	2	107.6
	Silt, friable, dark gray-----	1	108.6
	Sand, gravelly, loose, brown-----	1.8	110.4
	Sand, silty, loose, gray-----	4.6	115
	Sand, silty, gravelly, loose, gray-----	1	116
	Silt, sandy, loose, dark gray-----	3.2	119.2
	Sand, silty, gravelly, gray-----	6.5	125.7
	Sand, silty, loose, gray-----	3.5	129.2
	Sand, loose, gray-----	2.4	131.6
	Sand, gravelly, loose, gray-----	1.4	133
	Sand, silty, dark gray-----	1.6	134.6
	Sand, loose, dark gray-----	9.6	144.2
	Silt, loose, dark gray-----	4.5	148.7
	Silt, sandy, loose, dark gray-----	3.2	151.9
	Sand, loose, dark gray-----	4.3	156.2
	Sand, silty, loose, dark gray-----	1.5	157.7
	Sand, fine, loose, dark gray; trace of lignite and scoria-----	7.8	165.5
	Gravel, sandy, loose, gray; few cobbles-----	11.7	177.2
Fort Union Group:			
	Clay, plastic, dark gray, carbonaceous-----	5.3	182.5

148-83-28CCA
(Log from U.S. Corps of Engineers)

Elevation: 1783.4 ft

Glacial drift:			
	Clay, sandy, soft, gray-----	5.4	5.4
	Sand, silty, gravelly-----	1.6	7
	Clay, plastic, greenish gray-----	1.2	8.2
	Clay, soft, gray to black-----	4.4	12.6
	Clay, plastic, dark gray; scattered lignite fragments-----	21.6	34.2
	Sand, loose, dark gray-----	6.9	41.1
	Gravel, sandy, loose, brownish gray-----	4.5	45.6
	Sand, gravelly, loose, brownish gray-----	1.8	47.4
	Clay, plastic, dark gray; scattered lignite fragments-----	10.2	57.6
	Sand, fine, silty, dark gray-----	1.8	59.4
	Sand, coarse, loose, dark gray-----	2.7	62.1
	Sand, silty, loose, dark gray-----	1.5	63.6
	Sand, loose, dark gray-----	3	66.6
	Sand, gravelly, loose, dark gray-----	12.4	79
	Sand, silty, loose, dark gray; scattered lignite fragments-----	1.6	80.6
	Sand, gravelly, loose, dark gray-----	1	81.6
	Sand, loose, dark gray-----	1.5	83.1
	Sand, silty, loose, dark gray-----	1.5	84.6
	Sand, silty, gravelly, loose, dark gray-----	3.4	88
	Sand, silty, loose, dark gray-----	4	92
	Sand, silty, gravelly, loose, dark gray; scattered lignite fragments-----	4.6	96.6
	Gravel, silty, sandy, loose, dark gray-----	3.4	100
	Sand, loose, dark gray-----	2.8	102.8
	Sand, coarse, loose, dark gray-----	2.8	105.6
	Sand, fine, loose, dark gray-----	2.8	108.4
	Gravel, sandy, loose, gray-----	3.6	112
	Sand, clayey, loose, bluish gray-----	1.1	113.1
	Silt, loose, bluish gray; scattered lignite fragments-----	3	116.1
	Silt, sandy, loose, bluish gray-----	1.5	117.6
	Clay, gray; scattered lignite fragments-----	4.5	122.1

148-83-28CCA, Continued
(Log from U.S. Corps of Engineers)

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift, Continued:			
	Clay, sandy, gray-----	1.5	123.6
	Sand, silty, loose, gray-----	2.8	126.4
	Silt, sandy, gray; abundant lignite fragments-----	3.6	130
	Sand, fine, silty, loose, gray; scattered lignite fragments-----	8.6	138.6
	Clay, sandy, dark gray; scattered lignite fragments-----	1.4	140
	Sand, fine, loose, gray; scattered lignite fragments-----	3.1	143.1
	Sand, silty, loose, gray; scattered lignite fragments-----	1.5	144.6
	Silt, loose, gray; scattered lignite fragments-----	1.5	146.1
	Sand, fine, loose, gray; scattered lignite fragments-----	21	167.1
	Sand, fine, silty, loose, gray; scattered lignite fragments-----	1.5	168.6
	Sand, fine, loose, gray-----	1.9	170.5
	Gravel, silty, sandy, loose, brownish gray-----	3.9	174.4
	Clay, plastic, subfirm, dark brown-----	4.6	179

148-83-28CDC
(Log from U.S. Corps of Engineers)

Elevation: 1808.7 ft

Glacial drift:			
	Clay, dark brown-----	2.6	2.6
	Clay, plastic, dark brown to grayish brown--	5.4	8
	Clay, sandy, grayish brown; scattered scoria and lignite fragments-----	2	10
	Clay, gravelly, grayish brown; scattered scoria and lignite fragments-----	33.5	43.5
	Sand, fine, loose, dark gray; scattered lignite fragments-----	2.1	45.6
	Sand, fine, silty, loose, dark gray-----	1.5	47.1
	Sand, fine, loose, dark gray-----	3.9	51
	Gravel, fine, sandy, gray; lignite fragments up to 2-inch diameter-----	3.6	54.6
	Sand, fine, loose, gray; abundant lignite fragments-----	1.5	56.1
	Sand, silty, loose, gray-----	1.5	57.6
	Sand, fine, loose, gray-----	3.4	61
	Clay, gravelly, dark gray-----	20	81
	Sand, fine, loose, dark gray; scattered lignite fragments-----	6.6	87.6
	Sand, fine, gravelly, loose, brownish gray; scattered lignite fragments-----	7.4	95
	Gravel, sandy, loose, gray; scattered lignite fragments-----	8	103
	Sand, fine, loose, dark gray; scattered lignite fragments; clay lens 110.4- 111 ft-----	23.6	126.6
	Sand, gravelly, loose, dark gray-----	1.4	128
	Gravel, sandy, loose, gray; few cobbles-----	9	137
	Silt, loose, dark gray-----	2	139
	Clay, sandy, dark gray; scattered lignite fragments-----	4	143
	Silt, soft, dark gray-----	1.6	144.6
	Clay, dark gray-----	1.2	145.8

148-83-28CDC, Continued
(Log from U.S. Corps of Engineers)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Gravel, sandy, gray-----	7.6	153.4
	Sand, fine, loose, gray; abundant lignite fragments-----	1.7	155.1
	Sand, coarse, loose, gray-----	1.5	156.6
	Sand, gravelly, loose, gray; scattered lignite fragments-----	4.5	161.1
	Sand, coarse, loose, gray-----	1.5	162.6
	Clay, sandy, gray-----	1.4	164
	Sand, coarse, gray-----	3.1	167.1
	Sand, clayey, gray-----	1.5	168.6
	Sand, coarse, loose, gray-----	2.2	170.8
	Sand, gravelly, loose, gray-----	.8	171.6
	Sand, fine, loose, grayish brown-----	8.4	180
	Sand, fine to coarse, brownish gray-----	12	192
	Lignite float, black-----	1.6	193.6
	Sand, fine, loose, brownish gray; scattered lignite fragments-----	39.9	233.5
	Sand, gravelly, loose, gray-----	1.1	234.6
	Gravel, sandy, loose, gray-----	11.6	246.2
	Gravel, clayey, sandy, gray-----	2.2	248.4
	Sand, silty, loose, dark gray; scattered lignite fragments-----	4.2	252.6
	Sand, fine, loose, gray; scattered lignite fragments-----	40.4	293
	Sand, coarse, loose-----	6	299
	Clay, plastic, dark gray-----	2	301
	Sand, gravelly, loose, grayish brown-----	1.4	302.4
	Sand, coarse, gravelly, dark gray-----	6.2	308.6
	Sand, coarse, loose, dark gray-----	4.5	313.1
	Sand, coarse, gravelly, loose, dark gray-----	1.5	314.6
	Sand, coarse, loose, dark gray-----	3.9	318.5
	Sand, fine, loose, brownish gray-----	1.5	320
	Sand, coarse, loose, brownish gray-----	4.3	324.3
	Silt, sandy, loose, brownish gray-----	4	328.3
Fort Union Group:			
	Sand, silty, greenish gray; streaks of clay-----	1.7	330
	Silt, sandy, greenish gray; streaks of clay-----	2.4	332.4

148-83-29CBB
(Log from U.S. Corps of Engineers)

Elevation: 1832.7 ft

Glacial drift:			
	Clay, plastic, brownish gray-----	3.6	3.6
	Clay, sandy, brownish gray; scattered lignite and scoria fragments-----	17	20.6
	Sand, gravelly, loose, brown-----	4.9	25.5
	Sand, fine, loose, dark brownish gray-----	3	28.5
	Sand, fine, silty, loose, gray-----	6	34.5
	Sand, coarse, silty, gravelly, loose, brownish gray-----	4.5	39
	Sand, coarse, gravelly, loose, gray-----	4.5	43.5
	Gravel, sandy, loose, brown-----	3.5	47
	Clay, sandy, dark gray-----	4.2	51.2
Fort Union Group:			
	Limestone, hard, bluish gray-----	3	54.2
	Lignite, hard, black-----	4.8	59

148-83-33BAB
(Log from U.S. Corps of Engineers)

Elevation: 1829.1 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Clay, sandy, grayish brown-----	5	5
	Clay, sandy, brownish gray; scattered lignite fragments-----	13	18
	Clay, sandy, plastic, brownish gray; scattered lignite fragments-----	12	30
	Clay, sandy, plastic, brown; scattered lignite fragments-----	5	35
	Clay, sandy, plastic, gray; scattered lignite fragments-----	6.7	41.7
	Silt, sandy, gray-----	3.3	45
	Clay, gray; scattered lignite fragments-----	6.6	51.6
	Clay, sandy, gray; scattered lignite fragments-----	19.6	71.2
	Sand, fine, silty, loose, gray-----	4.8	76
	Sand, fine, loose, gray; abundant lignite fragments (50-60 percent)-----	4	80
	Sand, coarse, loose, gray; scattered lignite and scoria fragments-----	6.1	86.1
	Sand, fine, gray-----	3.6	89.7
	Silt, sandy-----	1.1	90.8
	Clay, sandy, gray; scattered lignite fragments-----	14.4	105.2
	Sand, coarse, gravelly, loose, grayish brown-----	11.8	117
	Clay, gray-----	1.7	118.7
	Sand, fine, loose, gray-----	1.3	120
	Sand, coarse, gravelly, loose, dark brown; scattered scoria fragments-----	3	123
	Sand, coarse, loose, gray; scattered scoria fragments-----	12.7	135.7
	Sand, fine, silty, gray; scattered lignite fragments-----	1.4	137.1
	Sand, fine, gray-----	1.5	138.6
	Sand, fine, silty, gray; scattered lignite fragments-----	8.6	147.2
	Clay, gray-----	1.3	148.5
	Gravel, sandy, loose, brown-----	6	154.5

148-83-33BAC
(Log from U.S. Corps of Engineers)

Elevation: 1830.1 ft

Glacial drift:			
	Silt, sandy, friable, dark brown-----	1	1
	Clay, sandy, plastic, gray to dark gray; scattered lignite fragments-----	56.4	57.4
	Clay, plastic, dark gray-----	5.8	63.2
	Clay, sandy, dark gray; scattered lignite fragments-----	34.8	98
	Sand, silty, loose, dark gray-----	1.4	99.4
	Clay, sandy, dark gray-----	13.1	112.5
	Sand, coarse, loose, gray-----	9.3	121.8
	Sand, gravelly, loose, gray-----	4.6	126.4
	Clay, dark gray-----	1.4	127.8
	Clay, sandy, plastic, dark gray-----	1.8	129.6
	Sand, fine, silty, loose, dark gray-----	2.8	132.4
	Sand, coarse, gravelly, loose, brownish gray-----	12.2	144.6
	Clay, sandy, dark gray; scattered lignite fragments-----	11.4	156

148-83-33BAC, Continued
(Log from U.S. Corps of Engineers)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Gravel, silty, sandy, loose, brownish gray--	3.4	159.4
	Silt, sandy, compact, dark gray-----	5.2	164.6
	Gravel, fine, sandy, loose, brownish gray---	2.6	167.2
	Silt, sandy, loose, dark gray; scattered lignite fragments-----	3.8	171

148-83-33BDB
(Log from U.S. Corps of Engineers)

Elevation: 1792.8 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Silt, sandy, friable, dark brown-----	3.6	3.6
	Clay, sandy, plastic, brownish gray-----	8.4	12
	Sand, coarse, loose, brownish gray-----	1.6	13.6
	Clay, sandy, soft, brownish gray; 2 to 5 percent gravel; scattered lignite fragments	37.4	51
	Sand, fine, loose, dark gray-----	.9	51.8
	Clay, sandy, dark gray; 4 percent gravel---	2.6	54.4
	Sand, coarse, loose, dark gray-----	5.6	60
	Sand, silty, loose, dark gray-----	2.6	62.6
	Clay, sandy, gravelly, dark gray-----	1	63.6
	Clay, sandy, dark gray; 2 percent gravel---	16.4	80
	Sand, fine, loose, dark gray; scattered lignite fragments-----	5.2	85.2
	Sand, silty, gravelly (sand coarse, gravel fine), loose, gray-----	4.2	89.4
	Clay, dark gray-----	1.2	90.6
	Silt, sandy, loose, dark gray; scattered lignite fragments-----	5.4	96
	Gravel, sandy, loose, gray-----	12	108
	Gravel, silty, sandy, loose, gray-----	6	114
	Silt, sandy, gravelly, compact, dark gray---	1.6	115.6
	Sand, silty, loose, dark gray-----	1.6	117.2
	Clay, dark gray-----	1.4	118.6
	Silt, sandy, compact, dark gray-----	1.4	120
	Sand, clayey, loose, dark gray-----	4.5	124.5
	Silt, compact, dark gray-----	2.3	126.8
	Sand, fine, silty, loose, dark gray-----	3.6	130.4
	Sand, fine, loose, dark gray; scattered lignite fragments-----	11.2	141.6
	Gravel, silty, sandy, loose, gray; scattered lignite fragments-----	4.4	146
	Silt, sandy, loose, dark gray; scattered lignite fragments-----	11	157
	Gravel, silty, sandy, loose, gray-----	8	165
	Silt, sandy, compact, bluish gray-----	2	167
	Gravel, sandy, loose, brownish gray; scattered cobbles-----	11.5	178.5
	Sand, silty, gravelly, loose, dark brown; scattered lignite fragments and cobbles---	6	184.5
	Gravel, sandy, loose, gray brown; scattered lignite fragments and cobbles-----	4.9	189.4
	Sand, fine, gravelly, loose, brown; scattered lignite-----	5	194.4
	Sand, fine, loose, dark gray; scattered lignite fragments-----	13.6	208
	Sand, fine, silty, loose, dark gray; abundant lignite fragments-----	4.6	212.6
	Sand, loose, gray; scattered lignite fragments-----	4.9	217.5
	Sand, coarse, loose, dark gray; scattered lignite fragments-----	4.5	222

148-83-33BDB, Continued
(Log from U.S. Corps of Engineers)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Sand, silty, loose, dark gray-----	5.6	227.6
	Sand, loose, gray; scattered lignite fragments and gravel-----	10.9	238.5
	Sand, coarse, loose, gray-----	15	253.5
	No sample - core washed out - believed to be sand-----	31.5	285
	Sand and gravel, clayey-----	4.1	289.1
	Clay, sandy, gray-----	.5	289.6

148-83-33CAA
(Log from U.S. Corps of Engineers)

Elevation: 1836.6 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Clay, sandy, dark brown-----	1	1
	Clay, light brown, calcareous-----	2.6	3.6
	Clay, sandy, brownish gray, slightly calcareous; scattered lignite fragments---	8.9	12.5
	Clay, gray, slightly calcareous; scattered lignite fragments-----	1.6	14.1
	Clay, plastic, gray-----	1.5	15.6
	Clay, sandy, brown, slightly calcareous; scattered lignite fragments-----	31.2	46.8
	Clay, sandy, gravelly, brown-----	3	49.8
	Gravel, medium to coarse, loose, brown-----	3.2	53
	Clay, sandy, compact, dark gray; scattered lignite fragments-----	2.2	55.2
	Sand, clayey, compact, dark gray; scattered lignite fragments-----	3.6	58.8
	Sand, silty, compact, gray; scattered lignite fragments-----	3.8	62.6
	Gravel, silty, compact, brownish gray-----	2.8	65.4
	Sand, silty, compact, gray-----	6	71.4
	Gravel, coarse, loose, brown-----	4.2	75.6
	Gravel, silty, sandy, compact, brownish gray-----	1.8	77.4
	Clay, sandy, gray; scattered lignite fragments-----	24.3	101.7
	Sand, compact, brown; scattered lignite fragments-----	2.5	104.2
	Sand, fine, silty, compact, gravel-----	3.2	107.4
	Gravel, sandy, loose, brownish gray-----	4.6	112
	Silt, sandy, soft, gray-----	1.5	113.5
	Clay, plastic, gray-----	3.1	116.6
	Silt, soft, light gray-----	1.4	118
	Sand, silty-----	5.6	123.6
	Sand, silty, gravelly, loose, brownish gray-----	9	132.6
	Gravel, sandy, loose, brownish gray-----	4.2	136.8
	Sand, silty, gravelly, brownish gray; scattered lignite fragments-----	1.8	138.6
	Gravel, sandy, loose, brownish gray-----	4.2	142.8
	Lignite "float," hard, black-----	1.4	144.2
	Sand, silty, gravelly, compact, brownish gray-----	3.3	147.5
	Gravel, coarse, clayey, compact, brownish gray-----	2.5	150
	Gravel, loose, brown-----	3.4	153.4
	Sand, gravelly, loose, brownish gray-----	2	155.4
	Silt, sandy, friable, light gray-----	1.9	157.3
	Sand, fine, light gray-----	1.4	158.7
	Limestone boulder, hard, dark gray-----	.3	159

148-83-33CAA, Continued
(Log from U.S. Corps of Engineers)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Sand, very fine, silty, compact, dark brown-	3.6	162.6
	Limestone boulder, hard, dark gray-----	.2	162.8
	Sand, silty, compact, brown; scattered		
	lignite fragments-----	1.2	164
	Gravel, medium to coarse, loose, brown-----	2.7	166.7
	Gravel, sandy, loose, brown-----	2.1	168.8
	Sandstone boulder, hard, light gray-----	.4	169.2
	Silt, gravelly, light gray; scattered		
	lignite fragments-----	1.1	170.3
	Sand, very fine to fine, silty, compact,		
	gray; scattered lignite fragments-----	2.2	172.5
	Silt, sandy, soft, light gray-----	1.1	173.6
	Sand, silty, compact, gray; scattered		
	lignite fragments-----	4.8	178.4
	Silt, sandy, soft, light gray-----	1.3	179.7
	Sand, fine, silty, compact, dark gray-----	5.1	184.8
	Sand, medium, loose, gray; abundant		
	lignite fragments-----	4	188.8
	Gravel, medium to coarse, loose, brownish		
	gray-----	13.4	202.2
Fort Union Group:			
	Sand, silty, soft, light gray-----	6.3	208.5

148-83-33CAD
(Log from U.S. Corps of Engineers)

Elevation: 1815.7 ft

Glacial drift:			
	Silt, sandy, friable, dark brown-----	0.8	0.8
	Clay, sandy, friable, brownish gray;		
	scattered lignite fragments-----	31.8	32.6
	Gravel, sandy, loose, gray-----	2.5	35.1
	Sand, coarse, gravelly, loose, gray-----	1.1	36.2
	Sand, fine, silty, loose, dark gray;		
	scattered lignite fragments-----	14.2	50.4
	Sand, coarse, loose, gray; scattered		
	lignite fragments-----	1.4	51.8
	Sand, fine, loose, gray; scattered lignite		
	fragments-----	1.6	53.4
	Sand, coarse, gravelly, loose, gray-----	5.7	59.1
	Sand, silty, loose, gray; scattered lignite		
	fragments-----	1.5	60.6
	Clay, sandy, dark gray; scattered lignite		
	fragments-----	25.8	86.4
	Sand, fine, loose, gray; scattered lignite		
	fragments-----	1.6	88
	Sand, coarse, gravelly, loose, brownish		
	gray-----	1.6	89.6
	Gravel, sandy, loose, brownish gray-----	2.4	92
	Sand, fine, silty, loose, dark gray;		
	scattered lignite fragments-----	4.8	96.8
	Silt, sandy, compact, dark gray; scattered		
	lignite fragments-----	1.4	98.2
	Sand, fine, silty, loose, dark gray;		
	scattered lignite-----	1.3	99.5
	Sand, coarse, gravelly, loose, brownish-		
	gray; abundant lignite fragments-----	2.5	102
	Sand, fine, silty, loose, dark gray;		
	scattered lignite fragments-----	2.1	104.1
	Sand, fine, loose, dark gray-----	3	107.1
	Sand, fine, silty, loose, dark gray-----	1.5	108.6

148-83-33CAD, Continued
(Log from U.S. Corps of Engineers)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Gravel, sandy, loose, brownish gray-----	3.4	112
	Sand, fine, silty, loose, dark gray; scattered lignite fragments-----	13.2	125.2
	Sand, fine, loose, dark gray; scattered lignite fragments-----	1.4	126.6
	Sand, coarse, gravelly, loose, brownish gray; scattered lignite fragments-----	2	128.6
	Sand, fine, loose, gray; scattered lignite fragments-----	2.4	131
	Sand, fine, loose, gray; scattered lignite fragments-----	1.6	132.6
	Gravel, sandy, loose, brownish gray; scattered lignite fragments and cobbles---	6.2	138.8
	Gravel, sandy, compact, gray-----	1.2	140
	Gravel, sandy, loose, gray; scattered lignite and cobbles-----	5.6	145.6
	Sand, fine, silty, loose, dark gray; scattered lignite and gravel-----	3.2	148.8
	Sand, fine, loose, gray-----	1.6	150.4
	Clay, compact, dark gray-----	1.8	152.2
	Silt, compact, gray; scattered lignite fragments-----	1.6	153.8
	Sand, fine, silty, loose, gray; scattered lignite fragments-----	4.8	158.6
	Gravel, sandy, loose, gray-----	1.1	159.7
	Clay, sandy, subfirm, dark gray; abundant lignite fragments-----	4.4	164.1
	Sand, fine, silty, compact, greenish gray; scattered lignite fragments-----	10.5	174.6
	Sand, fine, silty, loose, grayish brown; scattered lignite fragments-----	4	178.6
Fort Union Group:			
	Clay, plastic, dark gray; scattered lignite fragments-----	5.9	184.5

148-84-1CCB
NDSWC 5582

Elevation: 1960 ft

Glacial drift:			
	Topsoil, silty, clayey, sandy, grayish- black-----	1	1
	Clay, silty, moderate-yellowish-brown; scattered sand and pebbles (till)-----	49	50
Fort Union Group:			
	Lignite, brittle, black-----	3	53
	Siltstone, clayey, noncalcareous, dark- greenish-gray-----	7	60

148-84-4CCD
(Log from U.S. Air Force)

Elevation: 1964.9 ft

Glacial drift:			
	Clay, silty, sandy, trace of gravel and lignite, very stiff, dark brown and gray-----	37	37
	Silt and very fine sand, dense, gray-----	5.5	42.5

148-84-4CCD, Continued
(Log from U.S. Air Force)

Geologic source	Material	Thickness (feet)	Depth (feet)
Fort Union Group:			
	Lignite, brittle, black-----	4	46.5
	Clay, trace of silt, hard to very hard, gray; occasional silt lenses-----	10.5	57
	Interbedded lignite and shale; lignite, hard, black; shale, silty, soft, gray-----	11	68
	Shale, silty, soft to moderately soft, gray-----	4	72
	Lignite, hard, black; interbedded shale seams-----	8.5	80.5
	Shale, silty, soft, gray; lenses of lignite-----	19.5	100

148-84-6BBA
NDSWC 4059

Elevation: 1932 ft

Glacial drift:			
	Topsoil, pebbly, sandy, black-----	1	1
	Clay, silty, sandy, pebbly, yellowish-gray (till)-----	20	21
	Clay, silty, sandy, pebbly, dark-olive-gray (till)-----	4	25
	Clay, silty, sandy, pebbly, moderate-olive-brown (till)-----	4	29
	Gravel, fine, angular to subrounded, moderate-reddish-brown-----	7	36
	Clay, silty, sandy, pebbly, lignitic, olive-gray; scattered cobbles (till)-----	36	72
	Sand, very fine to fine, subrounded, olive-gray-----	4	76
	Silt, clayey, sandy, olive-gray, laminated-----	7	83
	Sand, medium, subangular to subrounded-----	19	102
	Sand, coarse, gravelly, subangular to subrounded-----	42	144
	Silt, clayey, sandy, olive-gray, laminated-----	18	162
	Gravel, fine to medium, sandy, angular to subrounded; isolated silt and clay lenses-----	20	182
Fort Union Group:			
	Shale, silty, hard, medium-gray-----	12	194
	Lignite, hard, black-----	2	196
	Shale, hard, carbonaceous, brownish-black---	4	200

148-84-6CAD
NDSWC 4057

Elevation: 1945 ft

Glacial drift:			
	Topsoil, pebbly, sandy, black-----	2	2
	Sand, medium to coarse, subrounded, moderate-reddish-brown-----	5	7
	Clay, silty, sandy, yellowish-gray (till)---	7	14
	Sand, medium to coarse, gravelly, moderate-reddish-brown-----	5	19
	Clay, silty, sandy, pebbly, moderate-olive-brown (till)-----	24	43
	Sand, medium, lignitic, medium-gray-----	5	48
	Clay, silty, sandy, pebbly, lignitic, olive-gray (till)-----	38	86
	Sand, fine to coarse, angular to subrounded; scattered gravel-size lignite fragments---	9	95

148-84-6CAD, Continued
NDSWC 4057

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Fort Union Group:			
	Shale, silty, hard, carbonaceous, brownish-gray; interbedded with greenish-gray silt-----	25	120

148-84-6DCB
NDSWC 4058

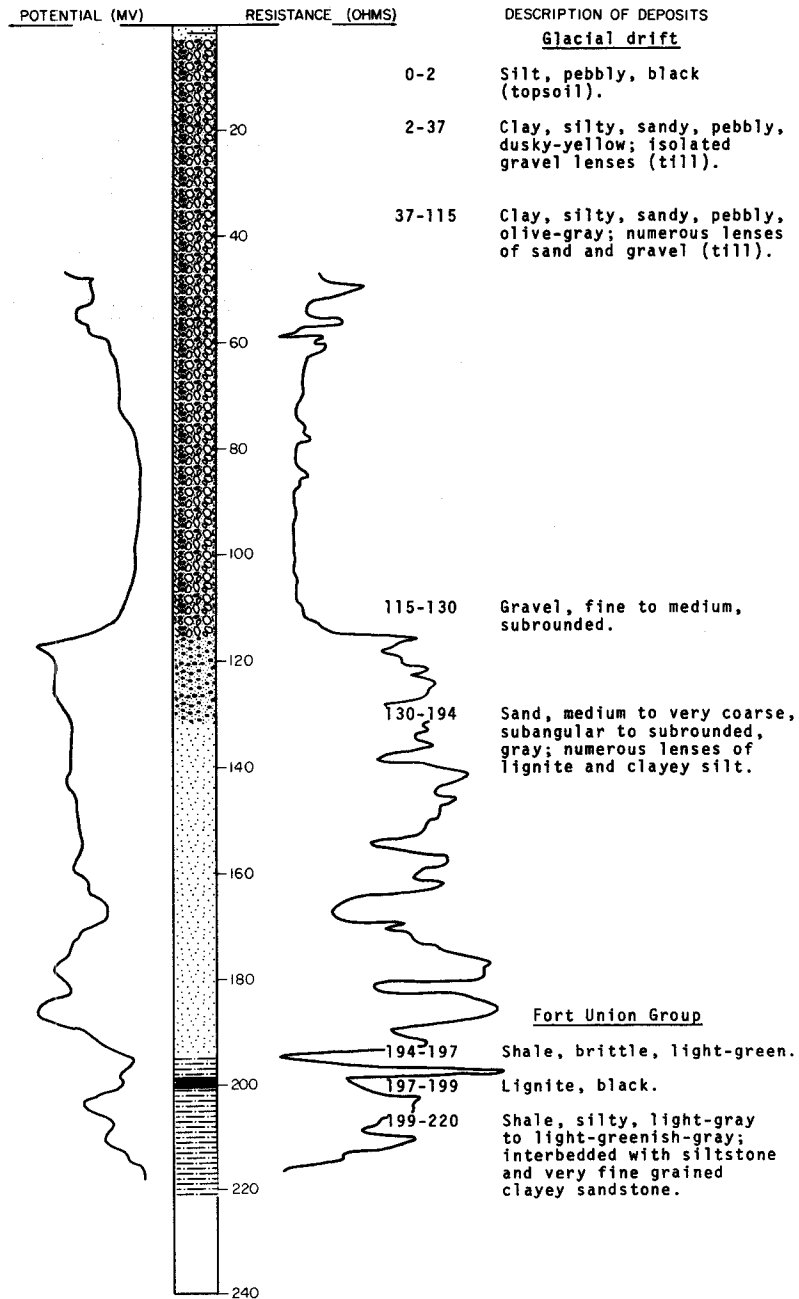
Elevation: 1819 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, black-----	1	1
	Gravel, sandy, subrounded, moderate-reddish-brown-----	3	4
	Clay, silty, sandy, pebbly, yellowish-gray (till)-----	7	11
	Clay, silty, sandy, pebbly, olive-gray (till)-----	11	22
	Sand, medium to coarse, gravelly, subangular to subrounded-----	10	32
	Clay, silty, sandy, pebbly, lignitic, olive-gray (till)-----	9	41
	Gravel, fine to medium, sandy-----	6	47
	Clay, silty, sandy, pebbly, lignitic, olive-gray (till)-----	5	52
	Gravel, fine to coarse, sandy; isolated silt and clay lenses and large blocks of lignite-----	37	89
	Clay, silty, sandy, pebbly, lignitic, olive-gray; sand lens from 92-95 ft-----	8	97
	Gravel, medium to coarse, sandy, lignitic-----	11	108
	Clay, silty, olive-gray, laminated-----	4	112
	Sand, medium to coarse; gravel-size lignite fragments-----	19	131
Fort Union Group:			
	Sand, very fine, clayey, subangular, calcareous, light-greenish-gray; carbonaceous spots-----	20	151
	Shale, silty, brittle, lignitic, medium-gray-----	9	160

LOCATION: 148-84-7AAB
 ELEVATION: 1930
 (FT, MSL)

NDSWC 4056

DATE DRILLED: July 1970
 DEPTH: 220
 (FT)



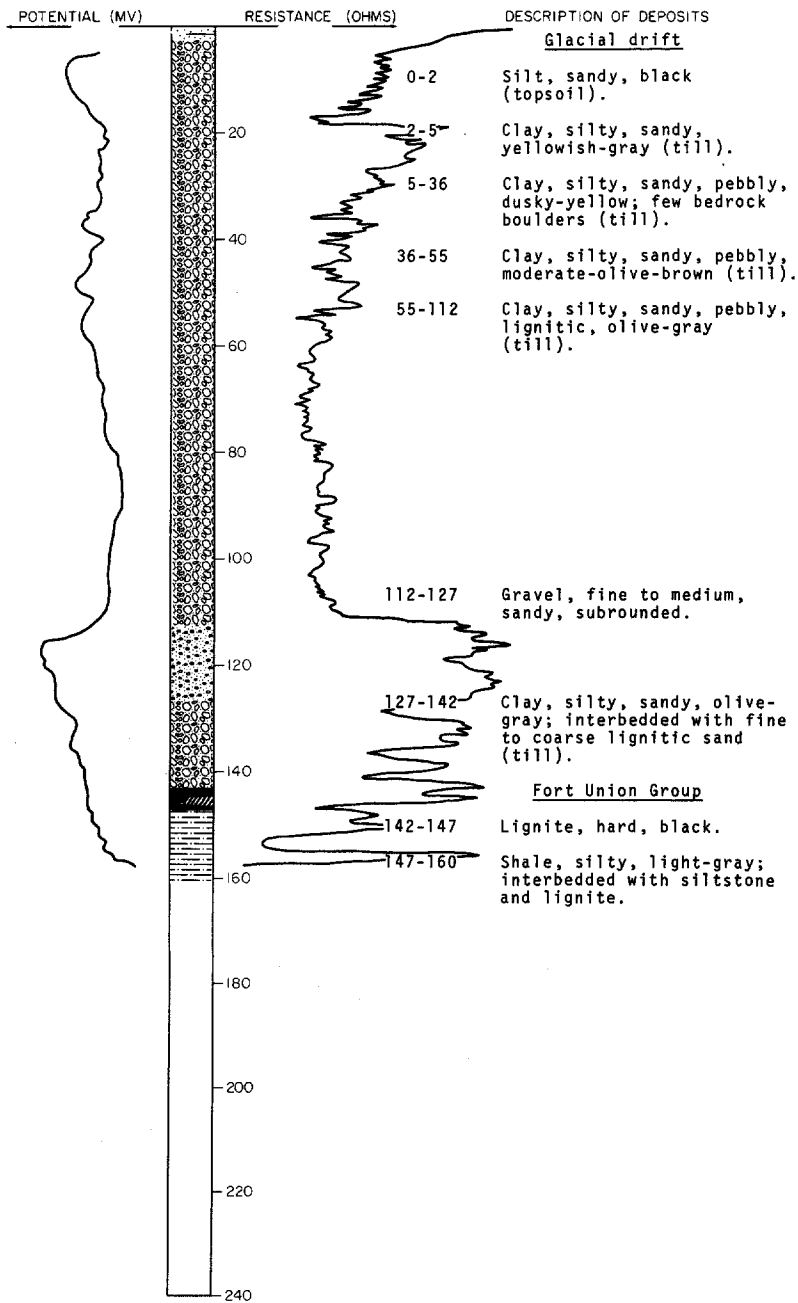
LOCATION: 148-84-7AAD

NDSWC 4055

DATE DRILLED: July 1970

ELEVATION: 1932
(FT, MSL)

DEPTH: 160
(FT)



148-84-7DAB
NDSWC 4054

Elevation: 1920 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, sandy, black-----	1	1
	Gravel, fine to coarse, sandy, subangular to subrounded; scattered cobbles-----	5	6
	Clay, silty, sandy, pebbly, yellowish-gray (till)-----	12	18
Fort Union Group:			
	Lignite, hard, black-----	2	20
	Shale, silty, medium-gray; contains thin interbeds of lignite-----	40	60

148-84-7DDA
City of Garrison Well 4

Elevation: 1910 ft

Topsoil-----	5	5
Gravel, coarse, and clay-----	15	20
Clay, brown, and gravel-----	15	35
Clay, gray, and gravel, coarse-----	5	40
Clay, hard, gray, and gravel, coarse-----	45	85
Lignite-----	3	88
Sand, fine-----	2	90
Lignite, sand, and clay-----	5	95
Lignite and brown clay-----	15	110
Lignite and sandy clay-----	20	130
Clay, gray-----	5	135
Clay, gray, sandy-----	10	145
Lignite and gray clay-----	10	155
Clay, light gray-----	10	165
Slate-----	8	173
Clay, gray-----	17	190
Lignite-----	5	195
Lignite and gray clay-----	15	210
Clay, gray and brown-----	10	220
Sand, fine-----	40	260

148-84-8BBB
NDSWC 4051

Elevation: 1935 ft

Glacial drift:			
	Topsoil, pebbly, sandy, black-----	1	1
	Clay, silty, sandy, pebbly, pale-yellowish-brown; isolated lenses of fine to medium sand (till)-----	101	102
	Gravel, fine to medium, sandy, angular to subangular-----	8	110
	Clay, silty, sandy, pebbly, olive-gray (till)-----	14	124
Fort Union Group:			
	Siltstone, calcareous, very light gray; interbedded with fine-grained sandstone---	7	131
	Lignite, hard, black-----	6	137
	Siltstone, calcareous, light-gray; interbedded with very fine clayey sand-----	23	160

148-84-88BD
NDSWC 4052

Elevation: 1935 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, black-----	1	1
	Silt, clayey, sandy, yellowish-gray; scattered pebbles (till)-----	22	23
	Clay, silty, sandy, pebbly, moderate-olive- brown (till)-----	10	33
	Clay, silty, sandy, pebbly, olive-gray; gravelly from 50-60 ft (till)-----	75	108
	Gravel, fine, sandy, subangular-----	11	119
	Silt, clayey, sandy, light-olive-gray-----	31	150
Fort Union Group:			
	Shale, silty, calcareous, light-greenish- gray-----	2	152
	Lignite, hard, black-----	3	155
	Shale, silty, hard, medium-gray-----	17	172
	Lignite, hard, black-----	3	175
	Shale, silty, hard, medium-gray-----	5	180

148-84-88CB
NDSWC 4050

Elevation: 1936 ft

Glacial drift:			
	Topsoil, pebbly, sandy, black-----	1	1
	Clay, sandy, yellowish-gray; isolated lenses of fine to medium sand (till)-----	31	32
	Gravel, fine, sandy, angular, moderate- reddish-brown-----	5	37
	Clay, silty, sandy, pebbly, olive-gray (till)-----	82	119
	Sand, very fine to very coarse, subrounded; numerous lenses of fine to medium gravel, clay, silt, clayey sand, and detrital lignite-----	78	197
Fort Union Group:			
	Sandstone, very fine, silty, micaceous, calcareous, very light gray-----	23	220

148-84-88CC
City of Garrison Well 2

Elevation: 1940 ft

	Fill and topsoil-----	2	2
	Clay, yellow-----	33	35
	Clay, very sandy, yellow-----	5	40
	Clay, soft, gravelly, gray-----	10	50
	Clay, slightly sandy, gray-----	79	129
	Sand and gravel-----	1	130
	Sand, fine, with gravel, coal, and some clay	5	135
	Sand, coal, and little clay-----	24	159

148-84-8CBA
City of Garrison Well 3

Elevation: 1942 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Topsoil and yellow clay-----	5	5
	Clay, yellow-----	5	10
	Clay, hard, yellow-----	5	15
	Clay, yellow-----	6	21
	Sand-----	2	23
	Clay, yellow-----	2	25
	Clay, sandy, blue gray-----	5	30
	Clay, blue gray-----	13	43
	Sand, fine, gray-----	13	56
	Shale, hard-----	2	58
	Clay, gray-----	2	60
	Sand and clay, hard-----	5	65
	Clay, gray-----	10	75
	Clay, gray, and coal-----	5	80
	Clay, gray-----	45	125
	Sand, hard-----	5	130
	Limestone, coal, and fine sand-----	5	135
	Coal, sand, and gravel-----	5	140
	Coal, sand, and gravel; trace of clay-----	5	145
	Sand, fine; bottom 3 ft clayey-----	15	160
	Clay, gray-----	15	175
	Clay with coal layers-----	10	185
	Clay-----	15	200

148-84-8CBC
NDSWC 4053

Elevation: 1905 ft

Glacial drift:

	Clay, sandy, pebbly, moderate-yellow (land fill)-----	5	5
	Clay, silty, sandy, pebbly, yellowish-gray (till)-----	9	14

Fort Union Group:

	Shale, silty, very light gray-----	6	20
	Clay, sandy, carbonaceous, brownish-black-----	4	24
	Lignite, hard, brittle, black-----	6	30
	Clay, sandy, carbonaceous, lignitic, black-----	4	34
	Shale, silty, hard, medium-gray-----	20	54
	Shale, hard, noncalcareous, dark-gray-----	9	63
	Shale, silty, medium-gray; interbedded with light-gray calcareous siltstone-----	20	83
	Sandstone, very fine, clayey, calcareous, light-greenish-gray-----	18	101
	Siltstone, hard, medium-gray to grayish-green; interbedded with silty shale-----	41	142
	Lignite, hard, black-----	3	145
	Shale, hard, medium-gray-----	21	166
	Shale, silty, hard, light-gray-----	21	187
	Lignite, hard, black-----	5	192
	Shale, hard, carbonaceous, black-----	4	196
	Shale, silty, calcareous, light-gray to light-greenish-gray-----	5	201
	Siltstone, light-gray-----	5	206
	Sand, very fine to fine, subangular, dark-gray; indurated from 229-233 ft-----	56	262
	Shale, sandy, calcareous, brittle, light-brownish-gray-----	7	269
	Sand, very fine to fine, subangular, dark-gray-----	6	275
	Shale, silty, hard, dark-gray-----	10	285
	Shale, silty, lignitic, hard, dark-gray-----	15	300

148-84-9DDD
NDSWC 5581

Elevation: 1880 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, clayey, sandy, grayish-black-----	1	1
	Clay, silty, lignitic, pebbly, moderate-yellowish-brown; scattered sand (till)----	31	32
	Clay, silty, pebbly, olive-gray; scattered sand (till)-----	22	54
Fort Union Group:			
	Siltstone, clayey, sandy, indurated, noncalcareous, dark-greenish-gray-----	6	60

148-84-11CCC
NDSWC 5790

Elevation: 1940 ft

Glacial drift:			
	Topsoil, silty, clayey, sandy, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; scattered cobbles and lignite fragments (till)-----	57	58
	Sand, very fine to very coarse, gravelly, lignitic, subangular to subrounded-----	4	62
	Clay, silty, sandy, pebbly, dark-yellowish-brown (till)-----	8	70
	Clay, silty, sandy, pebbly, olive-gray (till)-----	4	74
Fort Union Group:			
	Siltstone, clayey, sandy, hard, calcareous, light-gray; few thin lignite interbeds----	26	100

148-84-12BBC
NDSWC 5805

Elevation: 1945 ft

Glacial drift:			
	Topsoil, silty, sandy, pebbly, brownish-black-----	1	1
	Clay, silty, gravelly, sandy, pebbly, moderate-yellowish-brown (till)-----	18	19
	Gravel, fine to coarse, sandy, angular to subrounded-----	2	21
	Clay, silty, sandy, pebbly, dark-yellowish-brown; abundant cobbles (till)-----	14	35
Fort Union Group:			
	Lignite, brittle, black-----	1	36
	Shale, clayey, hard, calcareous, medium-gray-----	14	50

148-84-12CBC
NDSWC 5804

Elevation: 1965 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, clayey, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; scattered cobbles (till)-	52	53
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles (till)-----	5	58
Fort Union Group:			
	Lignite, hard, black; interbedded with medium-bluish-gray shale-----	6	64
	Siltstone, clayey, calcareous, hard, medium-gray; interbedded with shale-----	16	80

148-84-13BBB
NDSWC 5803

Elevation: 1950 ft

Glacial drift:			
	Topsoil, silty, sandy, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; scattered cobbles (till)-	34	35
Fort Union Group:			
	Siltstone, clayey, hard, moderate-yellowish-brown; interbedded with shale-----	14	49
	Siltstone, clayey, hard, calcareous, medium-gray; interbedded with shale and lignite-----	11	60

148-84-13BCB
NDSWC 5818

Elevation: 1945 ft

Glacial drift:			
	Topsoil, silty, sandy, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	29	30
	Gravel, fine to coarse, sandy, angular to rounded-----	7	37
Fort Union Group:			
	Shale, clayey, hard, calcareous, dark-yellowish-brown; thinly interbedded with siltstone and lignite-----	18	55
	Shale, clayey, hard, calcareous, medium-gray; thinly interbedded with siltstone and lignite-----	5	60

148-84-13BCC
NDSWC 5802

Elevation: 1930 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, pebbly, clayey, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; scattered cobbles (till)-	26	27
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles; gravel from 45-47 ft-----	20	47
Fort Union Group:			
	Siltstone, clayey, hard, calcareous, medium-gray-----	13	60

148-84-13CBC
NDSWC 5819

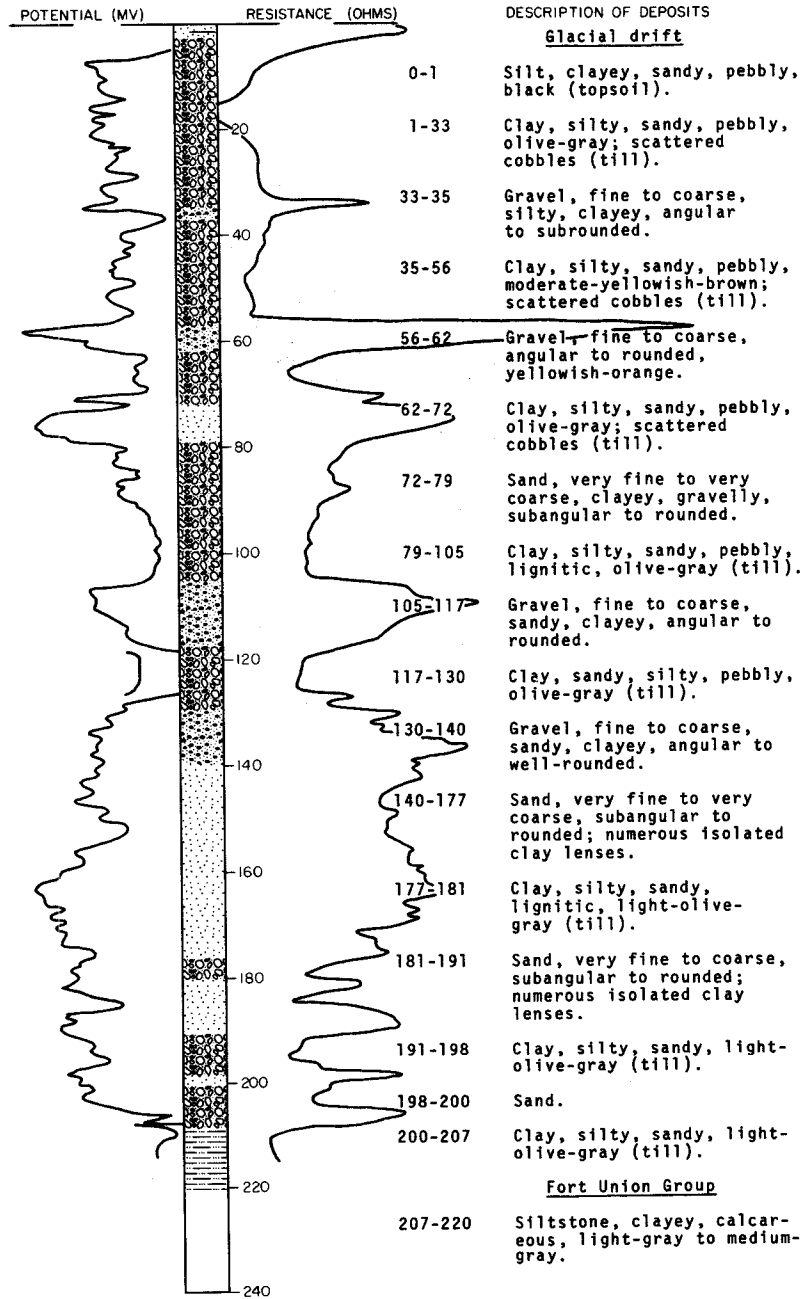
Elevation: 1930 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, clayey, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	19	20
Fort Union Group:			
	Shale, clayey, hard, dusky-yellow; interbedded with siltstone-----	15	35
	Shale, clayey, hard, calcareous, medium-gray; interbedded with siltstone-----	5	40

LOCATION: 148-84-14BBC
 ELEVATION: 1932
 (FT, MSL)

NDSWC 5789

DATE DRILLED: September 1970
 DEPTH: 220
 (FT)



148-84-14BCC
NDSWC 5788

Elevation: 1929 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	43	44
	Clay, silty, sandy, pebbly, olive-gray; gravelly in bottom 5 ft (till)-----	11	55
	Clay, sandy, silty, pebbly, light-gray (till)-----	5	60
	Clay, silty, sandy, pebbly, gravelly, olive-gray; scattered cobbles (till)-----	40	100
	Clay, silty, sandy, pebbly, olive-gray; isolated gravel lenses (till)-----	19	119
	Clay, silty, sandy, pebbly, olive-gray (till)-----	12	131
	Gravel, fine to coarse, sandy, angular to rounded; about 20 percent shale, siltstone, and lignite-----	12	143
	Clay, silty, sandy, pebbly, olive-gray (till)-----	12	155
Fort Union Group:			
	Siltstone, clayey, hard, calcareous, medium-gray; thin lignite interbeds-----	25	180

148-84-14CCB
NDSWC 5787

Elevation: 1940 ft

Glacial drift:			
	Topsoil, silty, clayey, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; scattered cobbles and isolated gravel lenses (till)-----	71	72
	Gravel, fine to coarse, sandy, angular to rounded; about 10 percent shale and siltstone-----	4	76
	Clay, silty, sandy, pebbly, olive-gray; scattered lignite fragments (till)-----	4	80
Fort Union Group:			
	Lignite, brittle, black-----	6	86
	Siltstone, clayey, hard, calcareous, medium-gray-----	14	100

148-84-14CCD
NDSWC 5800

Elevation: 1910 ft

Glacial drift:			
	Topsoil, silty, sandy, pebbly, brownish-black	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; scattered cobbles (till)-	29	30
	Gravel, fine to coarse, sandy, angular to rounded-----	6	36
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles and isolated sand lenses (till)-----	10	46

148-84-14CCD, Continued
NDSWC 5800

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift, Continued:			
	Sand, very fine to very coarse, angular to rounded; about 40 percent lignite and shale-----	6	52
	Clay, silty, sandy, pebbly, olive-gray; isolated sand lenses (till)-----	8	60
	Sand, very fine to very coarse, lignitic; subangular to subrounded-----	4	64
	Clay, sandy, silty, pebbly, lignitic, light-olive-gray (till)-----	6	70
	Sand, very fine to very coarse, lignitic, subangular to rounded-----	3	73
	Clay, silty, sandy, pebbly, light-olive-gray; isolated sand lenses (till)-----	9	82
	Sand, fine to medium, subrounded-----	2	84
	Clay, silty, sandy, pebbly, light-olive-gray (till)-----	10	94
	Gravel, fine to coarse, angular to subrounded-----	2	96
Fort Union Group:			
	Siltstone, clayey, sandy, hard, calcareous, medium-gray-----	24	120

148-84-14CDC1
NDSWC 5798

Elevation: 1895 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, pebbly, brownish-black-----	1	1
	Gravel, fine to coarse, sandy, clayey, angular to rounded-----	15	16
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles (till)-----	19	35
	Clay, gravelly, silty, sandy, pebbly, olive-gray (till)-----	7	42
	Clay, silty, sandy, pebbly, olive-gray; isolated lenses of lignitic gravelly sand (till)-----	24	66
	Clay, sandy, silty, lignitic, pebbly, olive-gray (till)-----	29	95
	Gravel, fine to coarse, lignitic, angular to subrounded-----	3	98
	Clay, silty, sandy, pebbly, olive-gray (till)-----	8	106
	Clay, silty, sandy, lignitic, olive-gray, laminated-----	33	139
	Sand, very fine to very coarse, gravelly, subangular to rounded-----	8	147
Fort Union Group:			
	Siltstone, clayey, sandy, hard, calcareous, medium-gray; interbedded with light-gray clayey shale-----	33	180

148-84-14CDC2
NDSWC 5799

Elevation: 1900 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, sandy, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	21	22
	Gravel, fine to coarse, sandy, angular to rounded-----	3	25
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles (till)-----	24	49
	Clay, silty, sandy, pebbly, light-olive-gray (till)-----	1	50
	Sand, very fine to very coarse, subangular to rounded; about 50 percent lignite and shale-----	14	64
	Clay, silty, sandy, pebbly, light-olive-gray; numerous thin interbeds of sand (till)-----	36	100
	Sand, fine to very coarse, gravelly, subangular to rounded-----	20	120
	Clay, silty, sandy, pebbly, gravelly, olive-gray (till)-----	8	128
	Gravel, fine to coarse, sandy, angular to rounded-----	2	130
Fort Union Group:			
	Siltstone, clayey, calcareous, medium-gray; interbedded with sandstone-----	10	140

148-84-14CDC3
NDSWC 5821

Elevation: 1891 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, clayey, pebbly, brownish-black-----	1	1
	Sand, fine to very coarse, gravelly, silty, clayey, subangular-----	9	10
	Clay, sandy, silty, pebbly, moderate-yellowish-brown; scattered cobbles (till)-----	8	18
	Gravel, fine to coarse, clayey, sandy, angular to rounded-----	5	23
	Clay, silty, sandy, pebbly, olive-gray; scattered lignite chips (till)-----	28	51
	Clay, silty, sandy, pebbly, light-olive-gray; isolated sand lenses and scattered lignite chips (till)-----	11	62
	Sand, fine to medium, silty, clayey, lignitic, subangular to rounded-----	8	70
	Clay, silty, sandy, lignitic, light-olive-gray (till)-----	11	81
	Sand, very fine to medium, silty, clayey, lignitic, subangular to rounded-----	5	86
	Clay, silty, sandy, pebbly, light-olive-gray (till)-----	7	93
	Gravel, fine to coarse, sandy, lignitic, angular to well rounded; scattered cobbles; about 20 percent shale and siltstone-----	10	103
Fort Union Group:			
	Siltstone, clayey, hard, calcareous, medium-gray to brownish-gray; interbedded with clayey shale-----	17	120

148-84-14CDD1
NDSWC 5797

Elevation: 1910 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	26	27
	Gravel, fine to coarse, sandy, clayey, angular to rounded-----	7	34
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles (till)-----	6	40
	Clay, silty, sandy, pebbly, light-olive-gray; isolated sand lenses and scattered cobbles (till)-----	42	82
	Gravel, fine to coarse, sandy, clayey, angular to rounded; about 20 percent shale and siltstone-----	7	89
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles (till)-----	9	98
	Gravel, fine to coarse, sandy, angular to rounded; isolated thin clay lenses; about 30 percent shale and siltstone-----	15	113
Fort Union Group:			
	Siltstone, clayey, hard, calcareous, greenish-gray to light-gray-----	27	140

148-84-14CDD2
NDSWC 5820

Elevation: 1908 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, clayey, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; scattered cobbles (till)-----	23	24
	Clay, silty, sandy, pebbly, olive-gray (till)-----	5	29
	Gravel, fine to coarse, sandy, silty, clayey, angular to rounded-----	7	36
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles (till)-----	11	47
	Sand, fine to very coarse, silty, lignitic, angular to rounded-----	3	50
	Clay, sandy, silty, pebbly, light-olive-gray, scattered cobbles and isolated gravelly sand lenses (till)-----	32	82
	Sand, very fine to coarse, lignitic, angular to rounded-----	5	87
	Clay, silty, sandy, pebbly, light-olive-gray (till)-----	2	89
	Gravel, fine to coarse, sandy, angular to well-rounded-----	3	92
	Clay, sandy, silty, pebbly, light-olive-gray (till)-----	21	113
	Sand, gravel, cobbles, and boulders, clayey (till)-----	5	118
	Clay, sandy, silty, olive-gray (till)-----	3	121
Fort Union Group:			
	Shale, clayey, hard, calcareous, medium-bluish-gray; interbedded with siltstone---	19	140

148-84-14DDC
NDSWC 5801

Elevation: 1915 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	31	32
	Gravel, fine to coarse, sandy, angular to rounded-----	3	35
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	14	49
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles (till)-----	23	72
	Sand, very fine to fine, subangular to rounded; about 20 percent shale and limestone and 20 percent lignite-----	10	82
Fort Union Group:			
	Siltstone, clayey, hard, calcareous, medium-gray; interbedded with sandy shale-----	18	100

148-84-14DDD
NDSWC 5796

Elevation: 1920 ft

Glacial drift:			
	Topsoil, silty, sandy, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	27	28
	Clay, silty, sandy, pebbly, olive-gray; scattered lignite fragments (till)-----	14	42
Fort Union Group:			
	Lignite, brittle, black-----	8	50
	Shale, clayey, hard, noncalcareous, greenish-gray-----	10	60

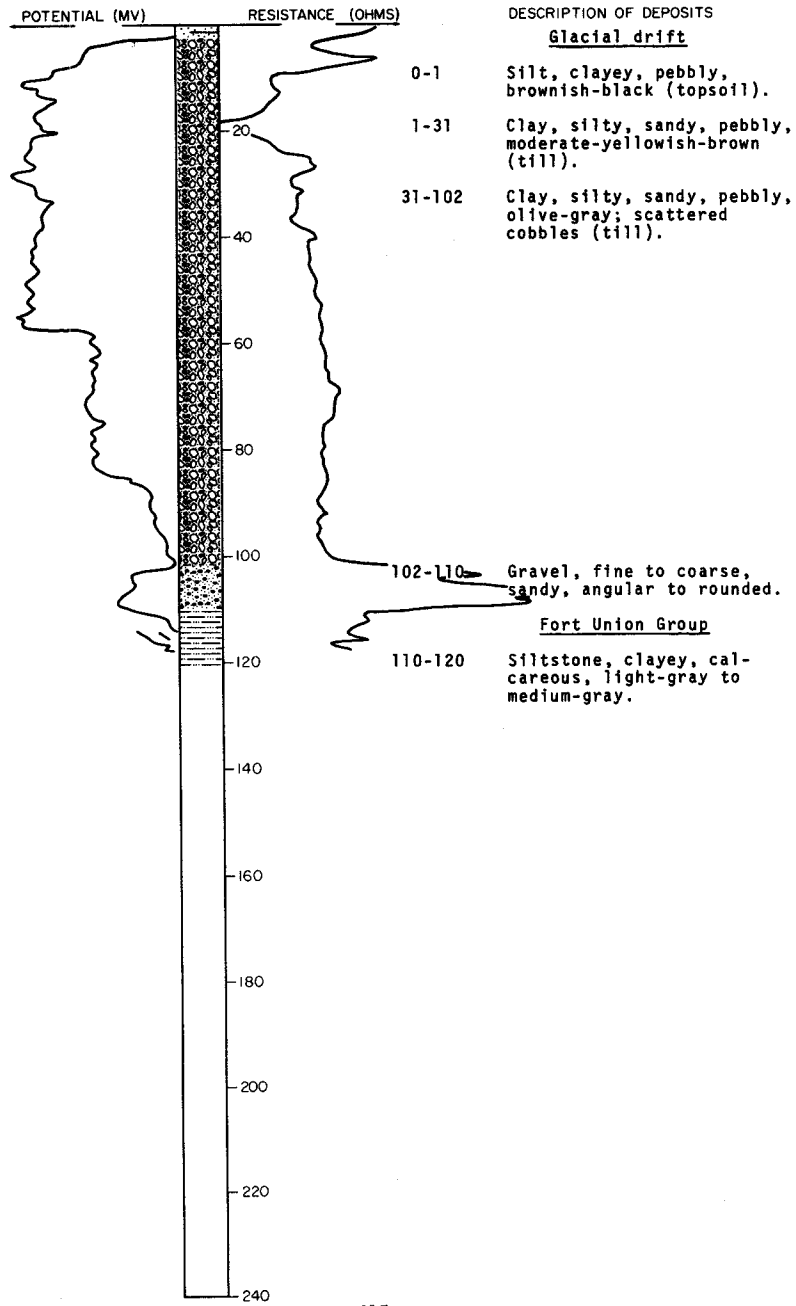
NDSWC 5822

LOCATION: 148-84-16AAD

DATE DRILLED: September 1970

ELEVATION: 1904
(FT, MSL)

DEPTH: 120
(FT)



148-84-16BBA
NDSWC 4066

Elevation: 1930 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, pebbly, black-----	1	1
	Clay, silty, sandy, pebbly, lignitic, moderate-olive-brown; isolated thin sand lenses (till)-----	33	34
	Clay, silty, sandy, pebbly, lignitic, olive-gray; isolated lenses of sand and gravel (till)-----	20	54
	Sand, medium to coarse, lignitic, sub-angular to subrounded-----	11	65
	Clay, silty, sandy, pebbly, lignitic (till)-	14	79
	Gravel, fine to coarse, sandy, angular to subangular; isolated lenses of silt and detrital lignite-----	14	93
	Clay, silty, sandy, pebbly, lignitic, olive-gray (till)-----	12	105
	Sand, fine to coarse, subangular to subrounded; abundant gravel-size lignite fragments-----	8	113
	Clay, silty, sandy, pebbly, lignitic, olive-gray; scattered cobbles and boulders (till)-----	70	183
Fort Union Group:			
	Shale, silty, sandy, lignitic, hard, carbonaceous, light-gray to black-----	17	200

148-84-17AAA
NDSWC 4065

Elevation: 1924 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, pebbly, black-----	1	1
	Silt, clayey, sandy, yellowish-gray; scattered pebbles (till)-----	8	9
	Sand, very fine to fine, subrounded-----	7	16
	Clay, silty, sandy, pebbly, lignitic, moderate-olive-brown (till)-----	13	29
	Sand, fine to medium, subrounded, light-olive-gray-----	6	35
	Clay, silty, sandy, pebbly, lignitic, olive-gray; isolated sand lenses (till)---	35	70
	Sand, medium, lignitic, subrounded-----	11	81
	Clay, silty, sandy, pebbly, lignitic, olive-gray; isolated sand and gravel lenses (till)-----	34	115
	Silt, light-gray to olive-gray; interbedded with clayey sand-----	14	129
	Gravel, fine to medium, sandy; isolated silt lenses-----	34	163
	Silt, clayey, sandy, olive-gray; isolated lignitic sand lenses-----	17	180
	Gravel, fine to medium, sandy, moderate-brown; isolated silt lenses-----	18	198
Fort Union Group:			
	Shale, hard, light-gray to light-greenish-gray-----	7	205
	Siltstone, hard, calcareous, light-gray-----	5	210
	Sandstone, very fine, clayey, carbonaceous, brownish-gray-----	5	215
	Lignite, hard, black-----	5	220

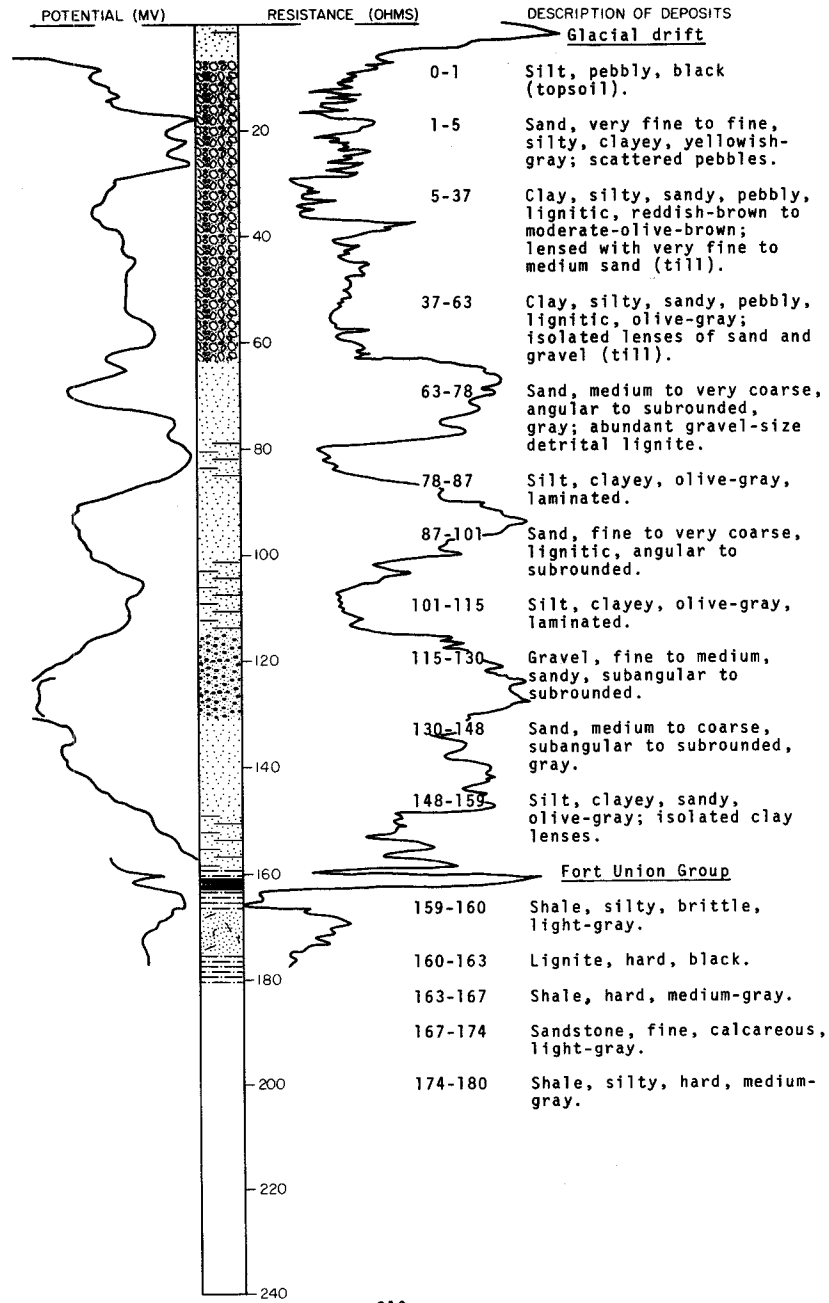
LOCATION: 148-84-17AAB

NDSWC 4064

DATE DRILLED: July 1970

ELEVATION: 1922
(FT, MSL)

DEPTH: 180
(FT)

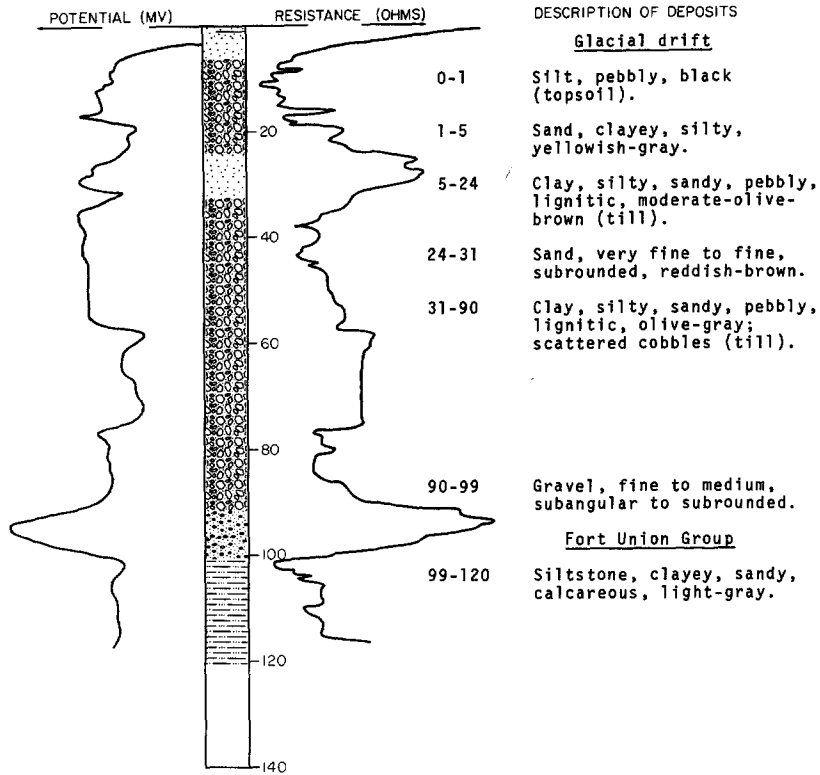


LOCATION: 148-84-17ABA
 ELEVATION: 1930
 (FT, MSL)

NDSWC 4063

DATE DRILLED: July 1970

DEPTH: 120
 (FT)



148-84-21AAA
 NDSWC 5780

Elevation: 1890 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
<u>Glacial drift:</u>			
	Topsoil, silty, clayey, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, dark-yellowish-brown (till)-----	14	15
	Clay, silty, sandy, pebbly, olive-gray (till)-----	73	88
<u>Fort Union Group:</u>			
	Siltstone, clayey, hard, calcareous, light-gray to medium-gray; few thin lignite interbeds-----	32	120

148-84-21ABB
NDSWC 5779

Elevation: 1866 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, pebbly, black-----	1	1
	Clay, silty, sandy, pebbly, dark-yellowish-brown (till)-----	30	31
	Clay, silty, sandy, pebbly, olive-gray (till)-----	7	38
	Sand, fine to coarse, gravelly, lignitic, subangular to rounded; isolated silty clay lenses-----	21	59
Fort Union Group:			
	Siltstone, clayey, hard, noncalcareous, medium-gray to greenish-gray-----	21	80

148-84-21BAB
NDSWC 5778

Elevation: 1920 ft

Glacial drift:			
	Topsoil, silty, sandy, pebbly, black-----	1	1
	Clay, silty, sandy, pebbly, dark-yellowish-brown (till)-----	28	29
	Gravel, fine to coarse, silty, sandy, angular to rounded; about 20 percent shale and siltstone-----	30	59
Fort Union Group:			
	Siltstone, clayey, hard, noncalcareous, light-greenish-gray-----	21	80

148-84-21BBA
NDSWC 5777

Elevation: 1905 ft

Glacial drift:			
	Topsoil, silty, sandy, pebbly, black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	24	25
	Sand, fine to coarse, lignitic, gravelly, subangular-----	8	33
Fort Union Group:			
	Siltstone, hard, noncalcareous, light-greenish-gray-----	7	40

148-84-22AAA
NDSWC 5781

Elevation: 1915 ft

Glacial drift:			
	Topsoil, sandy, silty, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	32	33
	Gravel, fine to coarse, sandy, silty, angular to subrounded-----	6	39
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles (till)-----	20	59

148-84-22AAA, Continued
NDSWC 5781

Geologic source	Material	Thickness (feet)	Depth (feet)
Fort Union Group:	Siltstone, clayey, hard, calcareous, light-gray-----	21	80

148-84-22ACC
NDSWC 5783

Elevation: 1870 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:	Topsoil, silty, clayey, pebbly, black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	39	40
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles (till)-----	73	113
	Gravel, fine to coarse, clayey, sandy, angular to subrounded-----	3	116
Fort Union Group:	Siltstone, clayey, hard, light-gray to greenish-gray; few thin lignite interbeds; calcareous in upper part-----	24	140

148-84-22ACD
NDSWC 5784

Elevation: 1870 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:	Topsoil, silty, sandy, pebbly, brownish-black-----	1	1
	Clay, sandy, pebbly, moderate-yellowish-brown (till)-----	30	31
	Clay, silty, sandy, pebbly, olive-gray (till)-----	3	34
	Gravel, fine to coarse, angular to subrounded-----	2	36
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles and isolated gravel lenses (till)-----	49	85
Fort Union Group:	Siltstone, clayey, hard, calcareous, light-gray; few thin lignite interbeds-----	15	100

148-84-22ADA
NDSWC 5786

Elevation: 1890 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:	Topsoil, silty, sandy, pebbly, brownish-gray-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	10	11
	Gravel, fine to coarse, sandy, clayey, angular to rounded; about 20 percent shale, siltstone, and lignite-----	9	20
Fort Union Group:	Siltstone, clayey, hard, calcareous, moderate-yellowish-brown-----	12	32
	Sandstone, fine, clayey, micaceous, subangular, calcareous, medium-bluish-gray---	8	40

148-84-22BDD
NDSWC 5785

Elevation: 1880 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; scattered cobbles (till)-	26	27
	Clay, silty, sandy, pebbly, olive-gray (till)-----	4	31
Fort Union Group:			
	Siltstone, clayey, calcareous, light-gray to medium-gray; few thin lignite interbeds-----	29	60

148-84-23CBB
NDSWC 5782

Elevation: 1870 ft

Glacial drift:			
	Gravel, fine to coarse, sandy, angular to rounded; numerous cobbles and boulders; about 20 percent shale, siltstone, and lignite-----	16	16
Fort Union Group:			
	Siltstone, clayey, hard, noncalcareous; dusky-yellow in upper part grading to medium-gray; few thin lignite interbeds---	16	32

148-84-24AAA
NDSWC 5791

Elevation: 1952 ft

Glacial drift:			
	Topsoil, silty, sandy, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	32	33
Fort Union Group:			
	Shale, clayey, hard, calcareous, medium-gray-----	5	38
	Lignite, brittle, black-----	4	42
	Shale, clayey, hard, calcareous, medium-gray to light-gray-----	18	60

148-84-25ABB
NDSWC 5795

Elevation: 1870 ft

Glacial drift:			
	Topsoil, silty, clayey, sandy, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	23	24
Fort Union Group:			
	Lignite, black-----	2	26
	Shale, sandy, clayey, hard, noncalcareous, medium-gray-----	4	30

148-84-31DBD
(Log from U.S. Corps of Engineers)

Elevation: 1882 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Clay, silty, stiff, brown; lignite streaks and occasional fine gravel-----	15.2	15.2
Fort Union Group:			
	Shale, soft, thin bedded, gray-----	3.8	19
	Silt, stiff, calcareous, tan-----	14	33
	Clay, silty, stiff, calcareous, brown-----	4.2	37.2
	Shale, soft, thin bedded, gray-----	4	41.2
	Silt, clayey, stiff, tan-----	1.8	43
	Coal, hard-----	3.5	46.5
	Shale, soft, thin bedded, light gray-----	10.2	56.7
	Shale, silty, soft, thin bedded, light gray-----	5.3	62
	Coal, moderately hard-----	6.2	68.2
	Shale, soft, thin bedded, gray-green-----	8.1	76.3
	Sandstone, silty, soft, massive, gray-green-----	5.4	81.7
	Shale, silty, soft, thin bedded, gray-green-----	17.3	99
	Sandstone, fine, silty, soft, massive, green-gray-----	5.9	104.9
	Coal, moderately hard, wet-----	.3	105.2
	Shale, soft, calcareous, thin bedded, green-gray-----	7.8	113
	Concretion, hard, calcareous, gray-----	.3	113.3
	Shale, silty, soft, calcareous, thin bedded, green-gray-----	10.7	124
	Coal, moderately hard, wet-----	.4	124.4
	Sandstone, fine, silty, soft, massive, gray-----	11.9	136.3
	Shale, silty, soft, thin bedded, gray; trace of lignite-----	3.7	140

148-85-15ACC
(Log from U.S. Air Force)

Elevation: 1957.4 ft

Glacial drift:			
	Clay, silty, trace of sand, gravel, and lignite, hard, gray-brown-----	9	9
Fort Union Group:			
	Shale, moderately soft, yellow-brown to gray-----	11.5	20.5
	Silt, dense, light brown-----	3	23.5
	Shale, slightly bentonitic, moderately soft, gray; occasional lignite inclusions-----	10	33.5
	Shale, interbedded with silt, soft, gray; lignite lenses-----	26	59.5
	Lignite, hard, brittle, black-----	2.5	62
	Shale, silty, moderately soft to moderately hard, dark gray-----	12.5	74.5
	Silt, dense, gray-----	3	77.5
	Shale, silty, moderately hard, green-gray-----	10.5	88
	Sand, fine, silty, dense, dark gray-----	3.5	91.5
	Shale, silty, moderately hard, brown-gray; occasional lignite seams-----	6.5	98
	Silt and clay interbedded, dense, gray-----	3	101

148-85-16ACA
NDSWC 5580

Elevation: 1875 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Alluvium and fill:			
	Topsoil, silty, clayey, grayish-black-----	0.5	0.5
	Clay, gravelly, moderate-yellowish-brown----	4.5	5
Fort Union Group:			
	Siltstone, clayey, indurated, calcareous, moderate-yellowish-brown-----	7	12
	Sandstone, very fine, clayey, silty, moderate-yellowish-brown to medium-bluish-gray-----	8	20

148-85-18DAA
NDSWC 5579

Elevation: 1870 ft

Alluvium:			
	Topsoil, silty, clayey, sandy, brownish-black-----	1	1
	Clay, silty, dark-yellowish-brown to medium-gray-----	11	12
Fort Union Group:			
	Siltstone, clayey, indurated, noncalcareous, dark-yellowish-brown-----	28	40

148-85-23CDC
(Log from Bandy Drilling Co.)

Elevation: 1945 ft

Topsoil-----	1	1
Yellow clay and pebbles-----	19	20
Coal streaks-----	8	28
Shale-----	3	31
Hard rock-----	3	34
Blue shale-----	55	89
Coal-----	3	92
Blue shale-----	42	134
Coal-----	3	137
Gray shale-----	6	143
Coal-----	5	148
Gray shale-----	133	281
Hard rock-----	8	289
Blue shale-----	113	402
Coal-----	9	411
Blue shale-----	27	438
Sandy shale-----	51	489
Sandstone-----	25	514
Blue shale-----	62	576
Sandstone-----	7	583
Gray shale-----	93	676
Hard rock-----	10	686
Sandstone-----	57	743
Blue shale-----	64	807
Sandstone-----	24	831
Blue shale-----	56	887
Sandstone-----	26	913
Blue shale-----	26	939
Sandstone-----	28	967

148-85-23CDC, Continued
(Log from Bandy Drilling Co.)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Hard rock-----	2	969
	Sandstone-----	41	1010
	Blue shale-----	28	1038
	Sandstone-----	38	1076
	Blue shale-----	26	1102
	Sandstone-----	54	1156
	Blue shale-----	89	1245
	Sandstone-----	22	1267
	Coarse sandstone-----	27	1294
	Blue shale-----	29	1323

148-85-28AAA
NDSWC 2835

Elevation: 1932 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, grayish-black-----	1	1
	Clay, silty, sandy, moderate-yellowish-brown; scattered pebbles (till)-----	24	25
Fort Union Group:			
	Shale, siliceous, moderate-brown-----	6	31
	Sandstone, fine to medium, clayey, noncalcareous, bluish-gray-----	49	80

148-85-29CCC
NDSWC 2834

Elevation: 1890 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Clay, silty, sandy, moderate-yellowish-brown to dusky-yellow; scattered pebbles (till)-----	34	35
	Sand, medium to coarse, lignitic, clayey, angular to subrounded-----	5	40
	Clay-----	6	46
	Sand and lignite float interbedded; fine to coarse sand-----	10	56
	Clay, silty, sandy, moderate-yellowish-brown to dusky-yellow (till)-----	8	64
	Clay, very silty, sandy, moderate-yellowish-brown to dusky-yellow; sand lenses from 64-66 ft and from 68-71 ft-----	8	72
	Clay, silty, sandy, moderate-yellowish-brown (till)-----	64	136
Fort Union Group:			
	Shale, siliceous, medium-light-gray to medium-gray-----	24	160

148-85-31DBD1
(Log from Schnell, Inc.)

Elevation: 1889 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, sandy, brown-----	1	1
	Sand, fine to medium, very clayey, moderate olive brown-----	8	9
	Sand, fine to medium, very clayey, moderate olive brown; scattered pebbles and lignite fragments-----	11	20
	Clay (till), sandy, gravelly, calcareous, moderate olive brown to light olive gray; lignite fragments-----	22	42
	Gravel-----	3	45
	Clay (till), sandy, gravelly, calcareous, moderate olive brown to light olive gray; some carbonaceous zones-----	29	74
	Clay (till), silty, sandy, gravelly, calcareous, olive gray; scattered lignite fragments; sand lenses in upper part of interval-----	86	160
	Sand, very fine to fine, silty, calcareous, dark greenish gray-----	22	182
	Gravel, fine to coarse, sandy-----	30	212
Fort Union Group(?):			
	Shale, clayey, moderately soft, calcareous to noncalcareous near bottom, light gray to olive gray-----	8	220

148-85-31DBD2
(Log from Schnell, Inc.)

Elevation: 1889 ft

Glacial drift:			
	Till, brown; boulders-----	20	20
	Till, brown; numerous lignitic sand lenses--	22	42
	Sand-----	3	45
	Till, brown-----	29	74
	Till, gray; numerous sand lenses-----	36	110
	Till, gray-----	51	161
	Sand-----	7	168
	Till, gray-----	12	180
	Gravel, coarse-----	18	198
	Lignite, float-----	2	200
	Gravel, coarse-----	11	211
Fort Union Group(?):			
	Clay-----	2	213

148-86-11DCD
(Log from U.S. Air Force)

Elevation: 2022.7 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Clay, silty, sandy, trace of gravel, stiff to very stiff, brown-----	20	20
	Sand, fine, silty, trace of clay, dense, brown-----	12.5	32.5
	Sand, fine, silty, trace of clay and gravel, dense, light brown; gravel and boulders at 37 ft; boulder at 48 ft-----	17.5	50
	Sand, fine, silty, dense, light gray-brown-----	3	53
	Clay, silty, very stiff to hard, gray-brown-----	5	58
	Clay, silty, very stiff to hard, dark gray-----	10.5	68.5
	Clay and silt, dense, gray-----	2.5	71
	Silt and fine sand, very dense, gray-----	14.5	85.5
	Lignite, crumbly, black-brown, interbedded with brown silt-----	2.5	88
	Silt, sandy, very dense, gray-----	11	99
	Shale, soft, light gray-----	1.5	100.5
	Lignite, moderately hard, brittle, black----	1.5	102

148-86-20AAA
NDSWC 4043

Elevation: 1967 ft

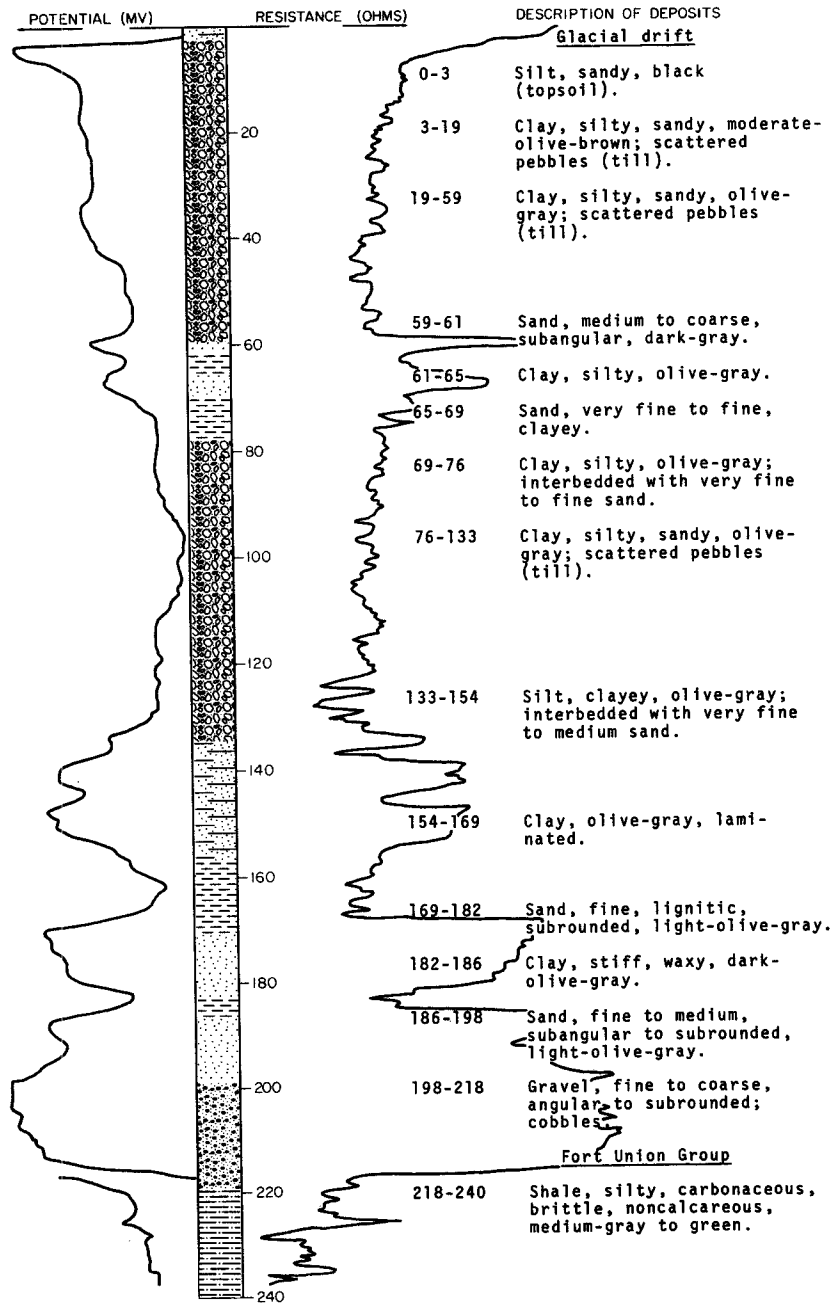
Glacial drift:			
	Topsoil, sandy, black-----	2	2
	Clay, silty, sandy, dusky-yellow; scattered pebbles (till)-----	8	10
	Clay, silty, sandy, moderate-olive-brown; scattered pebbles (till)-----	9	19
Fort Union Group:			
	Sand, fine, clayey, micaceous, yellowish-green; interbedded with pale-yellow silty shale-----	19	38

LOCATION: 148-86-20DAA

DATE DRILLED: July 1970

ELEVATION: 1917
(FT, MSL)

DEPTH: 240
(FT)



148-86-29AAA1
 NDSWC 5568

Elevation: 1900 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, clayey, grayish-black-----	1	1
	Clay, silty, pebbly, moderate-yellowish-brown; scattered sand (till)-----	49	50
	Clay, silty, pebbly, lignitic, olive-gray; scattered sand (till)-----	62	112
	Gravel, fine to very coarse, sandy, angular to rounded; boulders-----	15	127
	Clay, silty, sandy, pebbly, olive-gray (till)-----	2	129
	Gravel, cobbles, and boulders-----	3	132
	Clay, silty, pebbly, lignitic, olive-gray; scattered sand-----	3	135
	Gravel, cobbles, and boulders. Abandoned hole at 140 ft-----	5	140

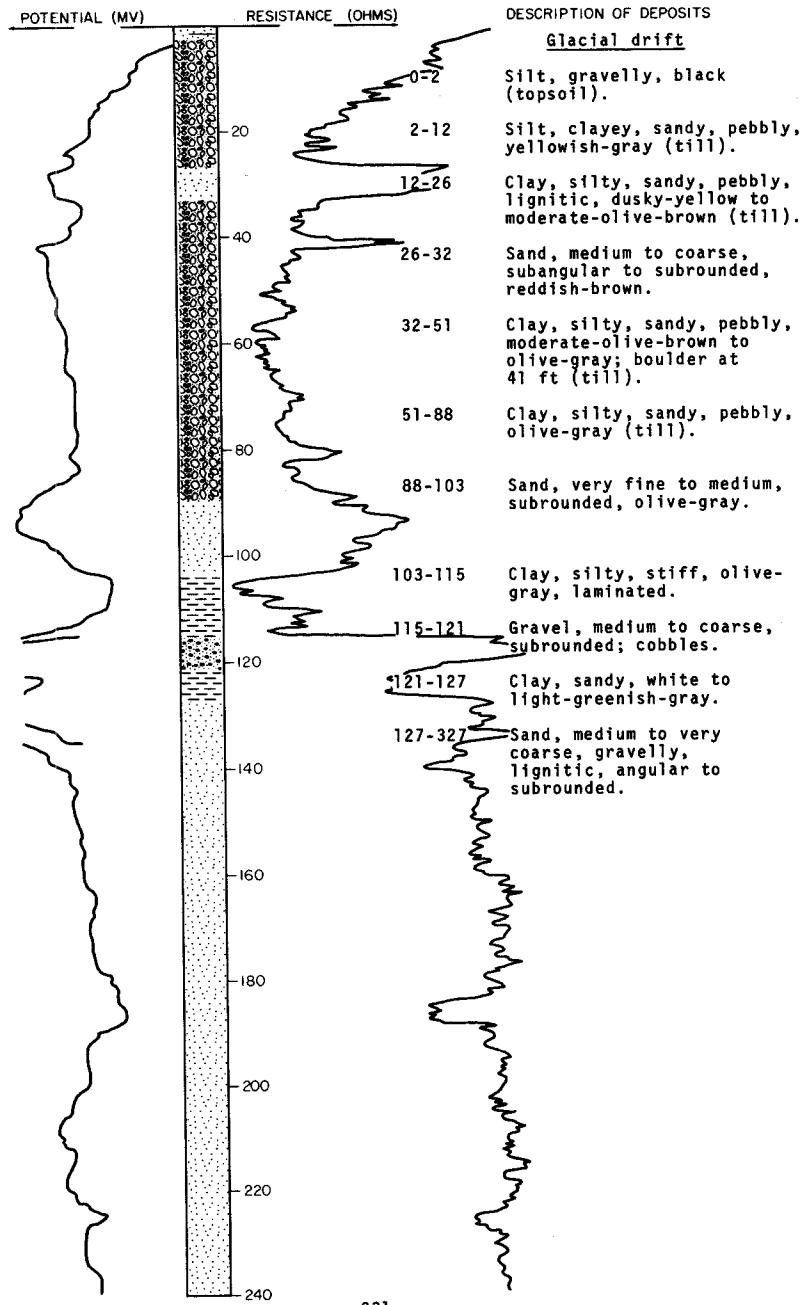
LOCATION: 148-86-29AAA2

NDSWC 4044

DATE DRILLED: July 1970

ELEVATION: 1902
(FT, MSL)

DEPTH: 360
(FT)



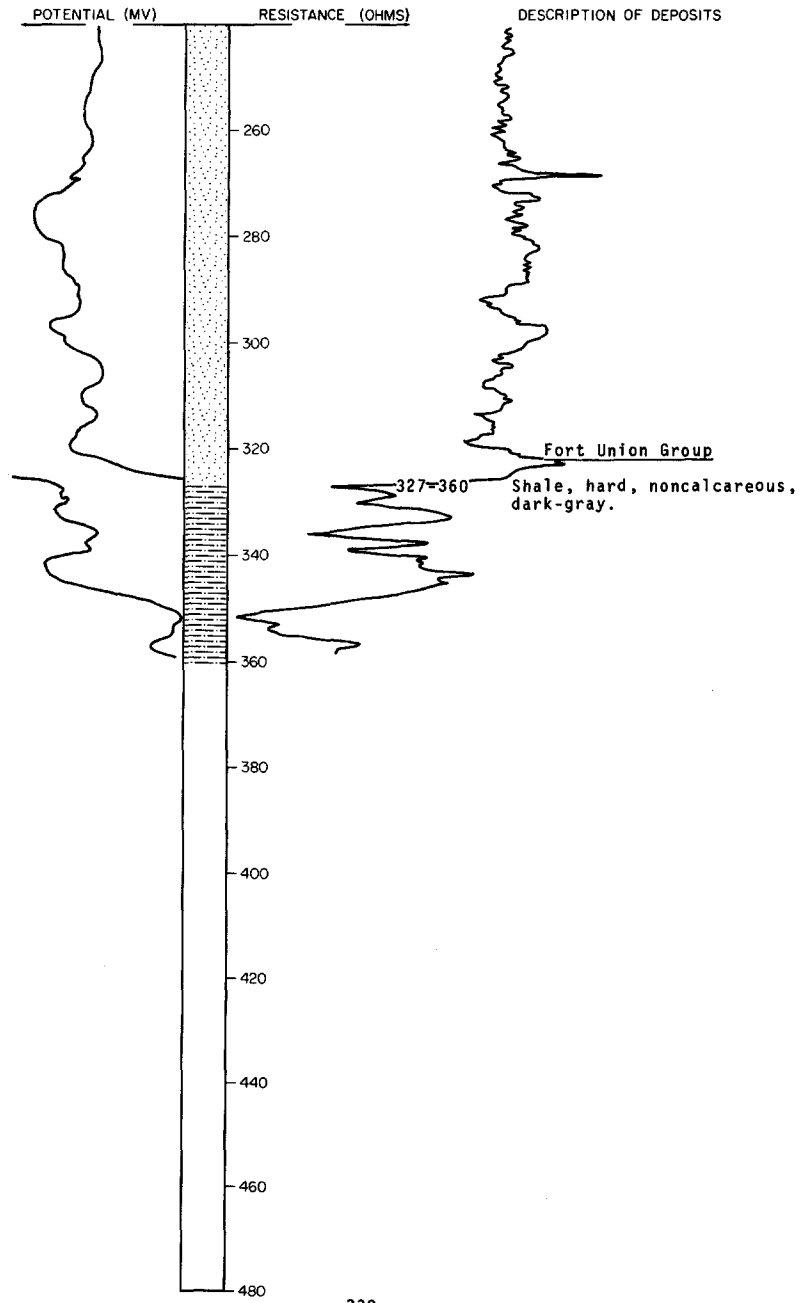
NDSWC 4044, Continued

LOCATION: 148-86-29AAA2

DATE DRILLED: July 1970

ELEVATION: 1902
(FT, MSL)

DEPTH: 360
(FT)



148-86-29DAA
NDSWC 5569

Elevation: 1935 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, clayey, grayish-black-----	1	1
	Clay, silty, pebbly, moderate-yellowish-brown; scattered sand (till)-----	42	43
	Clay, silty, sandy, pebbly, lignitic, calcareous, olive-gray (till)-----	27	70
	Gravel and cobbles-----	9	79
	Clay, silty, sandy, pebbly, lignitic, olive-gray (till)-----	8	87
	Limestone boulder, hard, gray-----	2	89
	Clay, silty, pebbly, olive-gray; scattered sand and boulders (till)-----	18	107
	Clay, silty, sandy, pebbly, lignitic, dark-yellowish-brown (till)-----	13	120
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	4	124
Fort Union Group:			
	Siltstone, clayey, indurated, noncalcareous, medium-gray-----	11	135
	Shale, clayey, sandy, noncalcareous, dark-greenish-gray-----	5	140

148-86-36ADD
(Log from Mann Drilling Co.)

Elevation: 1875 ft

Glacial drift:			
	Till, brown-----	72	72
	Till, gray-----	68	140
	Sand, fine to medium-----	24	164

148-87-1CCC
NDSWC 5567

Elevation: 2003 ft

Glacial drift:			
	Topsoil, silty, clayey, sandy, grayish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; scattered cobbles and boulders (till)-----	13	14
	Gravel, fine to coarse, sandy, angular to subrounded-----	10	24
	Clay, silty, sandy, pebbly, lignitic, moderate-yellowish-brown (till)-----	6	30
	Clay, silty, sandy, pebbly, lignitic, olive-gray (till)-----	7	37
	Sand, very fine to medium, angular to rounded-----	7	44
	Clay, silty, sandy, pebbly, medium-dark-gray (till)-----	20	64
	Sand, very fine to medium, subangular to rounded-----	4	68
	Clay, silty, sandy, pebbly, olive-gray (till)-----	6	74
	Sand, very fine to fine; lensed with silty sandy clay-----	25	99

148-87-1CCC, Continued
NDSWC 5567

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift, Continued:			
	Clay, silty, pebbly, sandy, lignitic, olive-gray (till)-----	56	155
Fort Union Group:			
	Lignite, brittle, black-----	5	160
	Sandstone, fine, clayey, noncalcareous, bluish-gray to greenish-gray-----	20	180

148-87-6DCC
NDSWC 2839

Elevation: 1960 ft

Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Clay, silty, sandy, moderate-yellowish-brown; scattered pebbles-----	5	6
	Gravel, fine to medium, clayey, angular to subrounded-----	3	9
	Clay, silty, sandy, moderate-yellowish-brown (till)-----	11	20
	Clay, silty, olive-gray to dark-greenish-gray (till)-----	46	66
	Sand, fine to coarse, clayey, angular to subrounded-----	6	72
	Clay, silty, sandy, olive-gray to dark-greenish-gray; scattered cobbles, boulders, and gravel (till)-----	94	166
	Clay, silty, olive-gray to medium-dark-gray; numerous cobbles, pebbles, and lignite fragments (till)-----	62	228
Fort Union Group:			
	Shale, siliceous, brownish-gray to medium-gray-----	12	240

148-87-7AAA1
NDGS auger hole 38

Elevation: 1966 ft

Glacial drift:			
	Till, silty, moderate-olive-brown-----	12.5	12.5
	Sand, medium-----	6.5	19

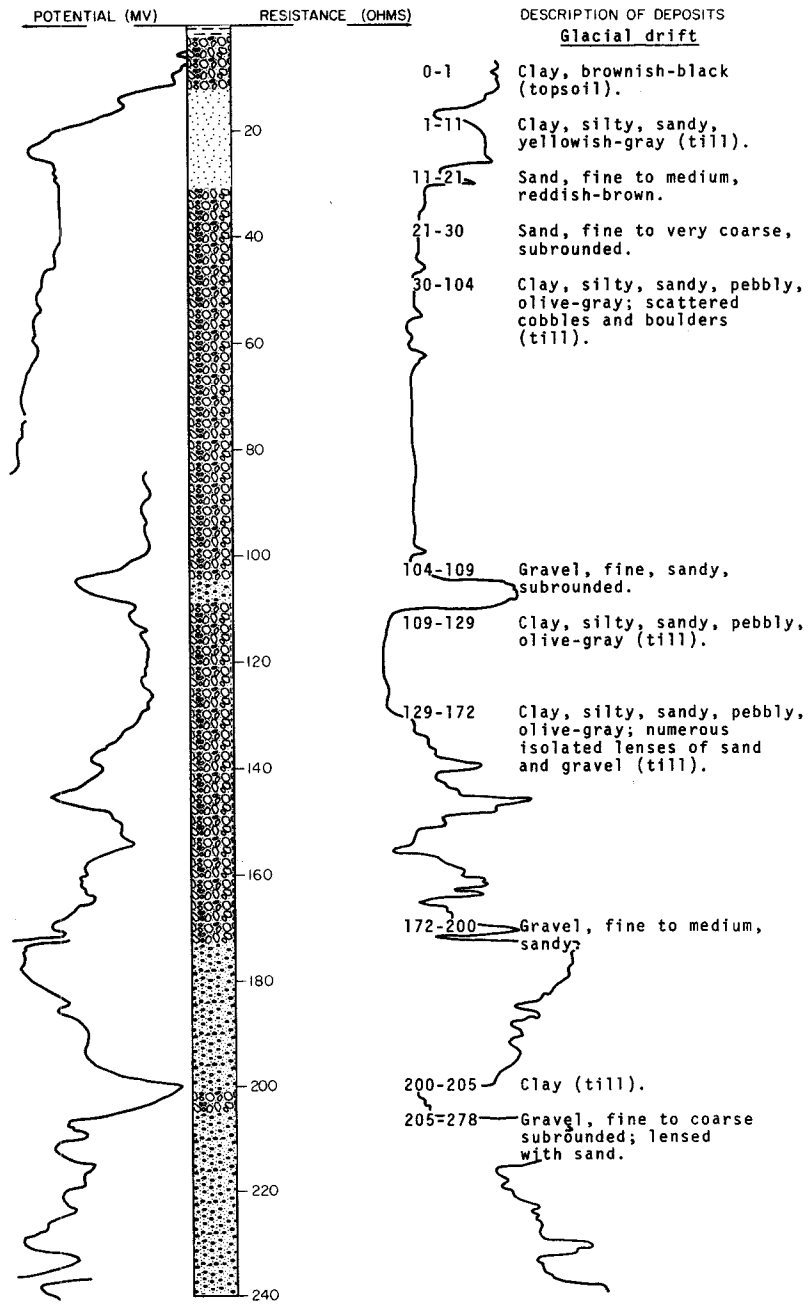
LOCATION: 148-87-7AAA2

NDSWC 3626

DATE DRILLED: August 1968

ELEVATION: 1966
(FT, MSL)

DEPTH: 420
(FT)



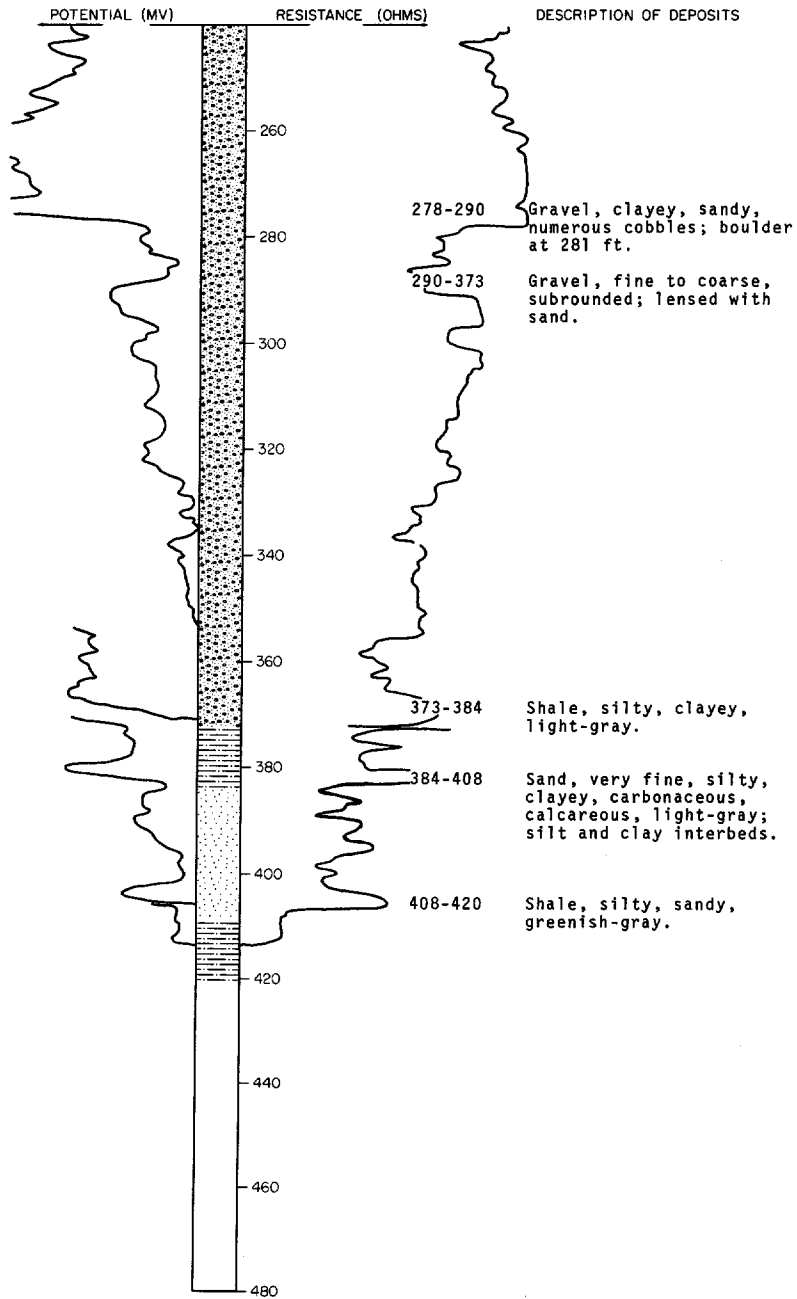
LOCATION: 148-87-7AAA2

NDSWC 3626, Continued

DATE DRILLED: August 1968

ELEVATION: 1966
(FT, MSL)

DEPTH: 420
(FT)



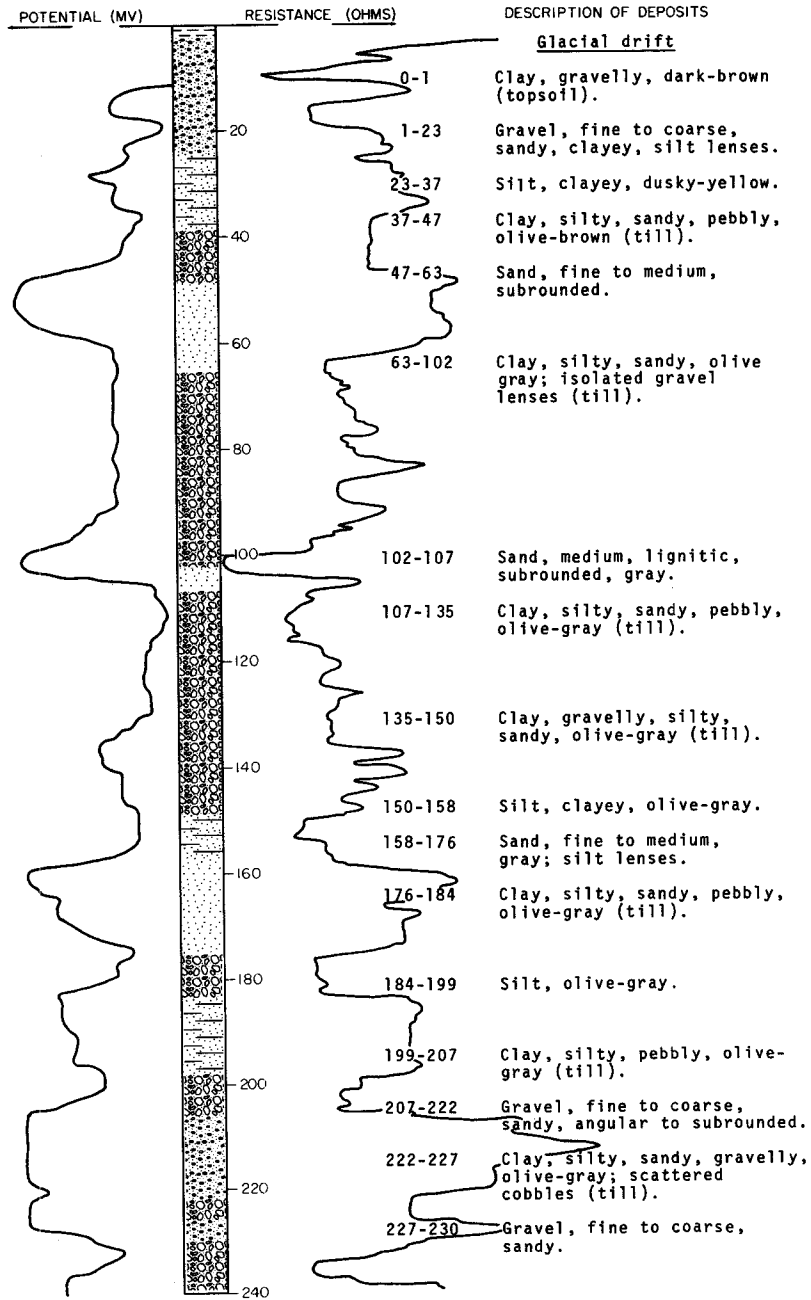
LOCATION: 148-87-13888

NDSWC 3619

DATE DRILLED: July 1968

ELEVATION: 1954
(FT, MSL)

DEPTH: 370
(FT)



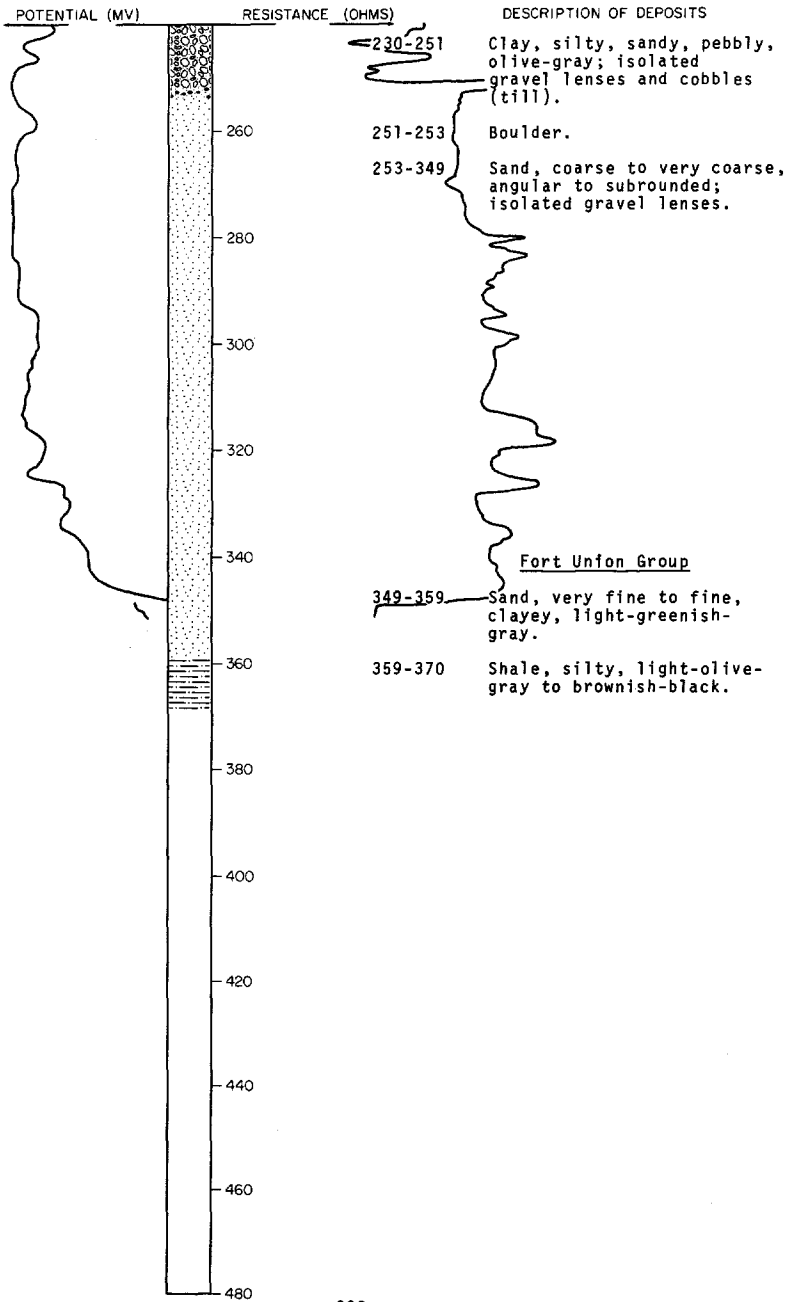
LOCATION: 148-87-13888

NDSWC 3619, Continued

DATE DRILLED: July 1968

ELEVATION: 1954
(FT, MSL)

DEPTH: 370
(FT)



148-87-13DDD
NDSWC 5565

Elevation: 1955 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, clayey, sandy, grayish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; shale boulder at 55 ft (till)-----	63	64
	Gravel-----	6	70
	Clay, silty, sandy, gravelly, dark-yellowish-brown to olive-gray (till)-----	26	96
	Sand, gravelly-----	6	102
	Clay, silty, sandy, gravelly, olive-gray (till)-----	7	109
	Sand, clayey-----	9	118
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles and boulders (till)-----	57	175
	Gravel, fine to very coarse, sandy, angular to rounded-----	15	190
	Clay, silty, sandy, gravelly, olive-gray (till)-----	10	200
	Gravel, clayey, sandy-----	55	255
	Sand, fine to very coarse; and fine to medium gravel-----	135	390
Fort Union Group:			
	Shale, clayey, sandy, calcareous, light-gray with brownish-gray laminae-----	30	420

148-87-15DCC
NDSWC 5564

Elevation: 1930 ft

Glacial drift:			
	Topsoil, silty, clayey, grayish-black-----	1	1
	Clay, sandy, pebbly, moderate-yellowish-brown (till)-----	12	13
	Clay, silty, moderate-yellowish-brown-----	7	20
Fort Union Group:			
	Shale, clayey, silty, calcareous, medium-gray to dark-gray-----	9	29

148-87-16AAA
(Log from U.S. Air Force)

Elevation: 1954.3 ft

Glacial drift:			
	Clay, silty, stiff to very stiff, dark brown; trace of sand, gravel, and lignite-----	14	14
Fort Union Group:			
	Shale, silty, soft, gray-brown-----	18	32
	Lignite, brittle, black-----	1.5	33.5
	Shale, silty, soft to moderately soft, light gray-----	18	51.5
	Lignite, hard, brittle, black-----	2.2	53.7
	Shale, silty, moderately soft, gray to dark gray-----	10.3	64
	Shale, moderately hard, fossiliferous, dark gray; thin lignite inclusions-----	6.5	70.5

148-87-16AAA, Continued
(Log from U.S. Air Force)

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Fort Union Group, Continued:			
	Sand, fine, silty, thinly interbedded with lignite laminae, very dense, gray-----	3.5	74
	Shale, silty, soft, dark gray-----	3	77
	Shale, silty, lignitic, moderately hard, light to dark gray-----	12.5	89.5
	Limestone, fractured, very hard, gray-----	3.5	93
	Shale, silty, moderately soft, dark gray----	3.5	96.5
	Silt, sandy, very dense, gray-----	6.3	102.8

148-87-24CCC
NDSWC 5566

Elevation: 1929 ft

Glacial drift:			
	Topsoil, silty, clayey, sandy, grayish-black-----	1	1
	Gravel, fine to coarse, sandy, clayey, silty, angular to subrounded-----	5	6
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	4	10
Fort Union Group:			
	Sandstone, fine, clayey, calcareous-----	11	21
	Shale, silty, medium-light-gray to medium-gray-----	19	40

148-87-27CCC
NDSWC 3620

Elevation: 1972 ft

Glacial drift:			
	Topsoil, pebbly, black-----	1	1
	Clay, silty, sandy, yellowish-gray; scattered pebbles (till)-----	4	5
Fort Union Group:			
	Shale, silty, soft, yellowish-green to dusky-yellow-----	4	9
	Lignite, fractured, black-----	1	10
	Shale, brittle, yellowish-green to light olive-gray-----	7	17
	Sand, fine, loose to slightly clayey, yellow-----	3	20

148-87-35BBC
NDSWC 5563

Elevation: 1945 ft

Alluvium:			
	Topsoil, silty, clayey, sandy, brownish-black-----	1	1
Fort Union Group:			
	Shale, sandy, moderate-yellowish-brown; few thin lignite interbeds-----	19	20
	Sandstone, very fine, clayey, silty, micaceous, lignitic, noncalcareous, medium-bluish-gray-----	20	40

148-88-1AAA
(Log from Harrer, 1961)

Elevation: 1976 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay, sandy-----	17	17
	Sand, silty-----	14	31
	Clay, sandy-----	41	72
	Sand, silty, and clay, sandy; thin bedded---	77	149
	Clay, lean to sandy-----	29	178
	Sand, fine to medium, silty-----	54.5	232.5

148-88-1BBB
(Log from Harrer, 1961)

Elevation: 2050 ft

	Clay, sandy-----	4	4
	Sand, medium, silty-----	2	6
	Sand, medium, gravelly-----	7	13
	Sand and clay-----	205	218

148-88-1CB
(Log from Harrer, 1961)

Elevation: 1992 ft

	Soil, black-----	2	2
	Sand, brown-----	81	83
	Sand, gray-----	89	172
	Quicksand-----	15	187
	Clay, brown-----	8	195
	Gravel and water-----	2	197

148-88-2DDA
(Log from Grimshaw Drilling Co.)

Elevation: 1976 ft

Glacial drift:			
	Clay, sandy-----	20	20
	Sandstone, shale, and clay-----	57	77
	Shale, sandy clay, and coal-----	114	191
	Gravel, hard, cemented, boulders-----	19	210
	Sand, fine-----	2	212
	Sand, gravel, and rocks-----	19	231
	Sand, clayey-----	3	234
	Clay, sandy, bouldery-----	7	241

148-88-2DDB
(Log from Farstad and McGregor Drilling Co.)

Elevation: 1983 ft

Glacial drift:			
	Clay, sandy-----	20	20
	Sand and sandstone-----	57	77
	Clay shale and sandy clay-----	53	130
	Sandy clay and fine sand-----	61	191
	Gravel, hard, cemented; abundant rocks and boulders-----	19	210
	Sand, fine-----	5	215
	Sand, gravel, and rocks-----	16	231
	Sand and some clay-----	3	234
	Clay, sand, and boulders-----	7	241

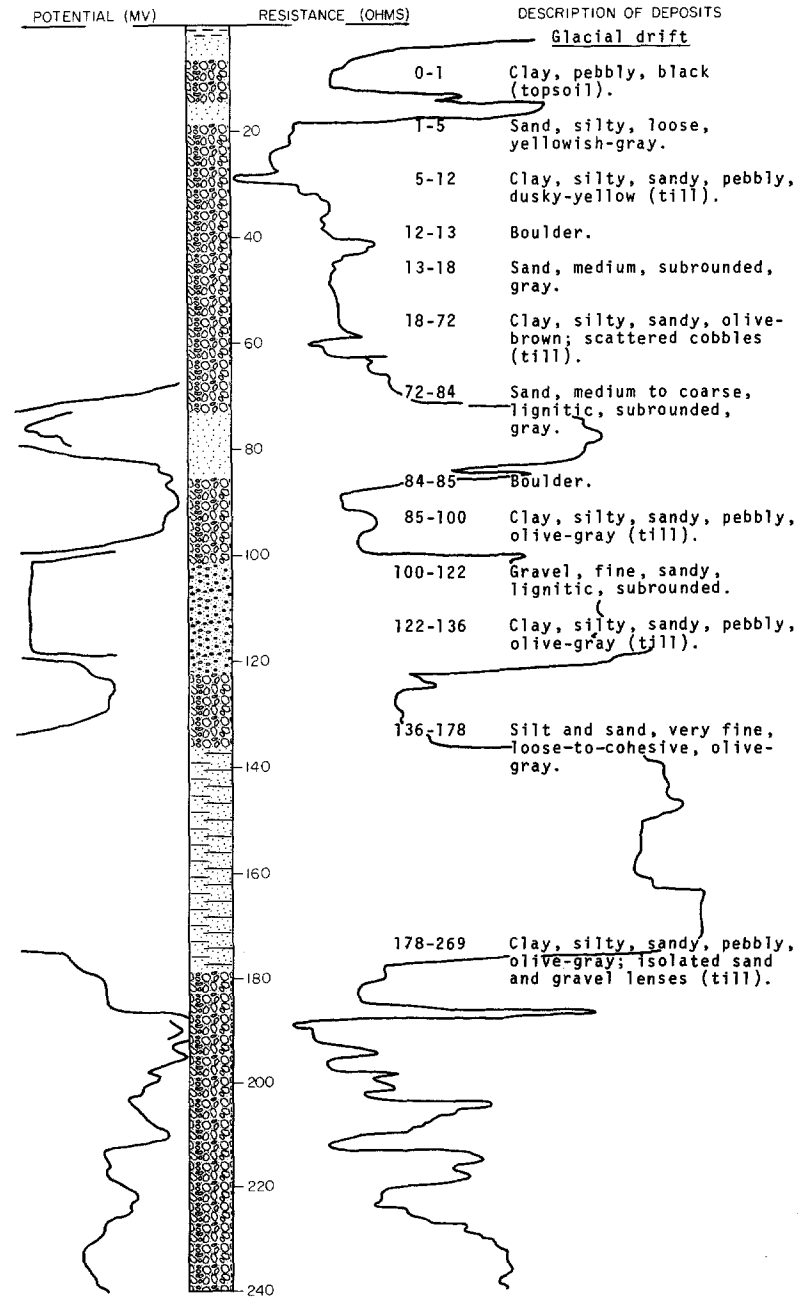
LOCATION: 148-88-5ABA

NDSWC 3624

DATE DRILLED: July 1968

ELEVATION: 2036
(FT, MSL)

DEPTH: 320
(FT)

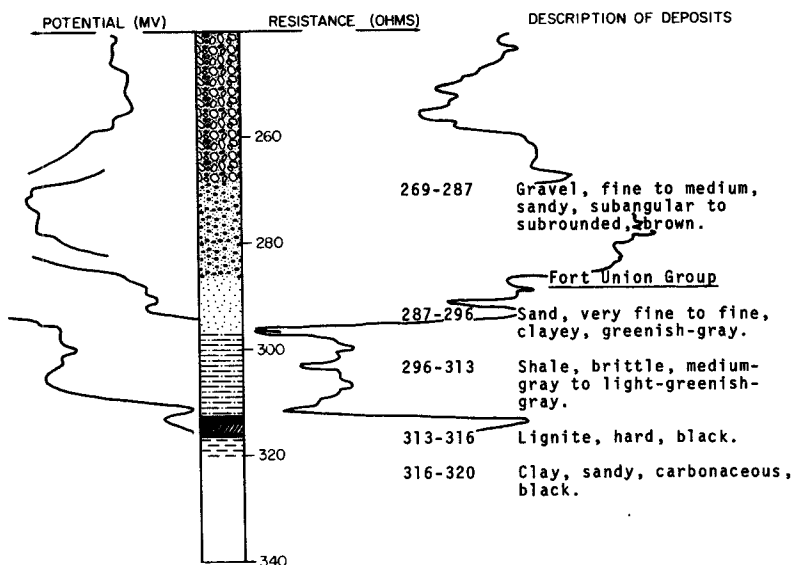


LOCATION: 148-88-5ABA
 ELEVATION: 2036
 (FT, MSL)

NDSWC 3624, Continued

DATE DRILLED: July 1968

DEPTH: 320
 (FT)



148-88-7DCC
 (Log from Harrer, 1961)

Elevation: 2120 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Silt, sandy-----	2	2
	Clay, sandy-----	26	28
Fort Union Group:			
	Lignite-----	1.5	29.5
	Clay, fat-----	3.5	33

148-88-7DDD
 (Log from Harrer, 1961)

Elevation: 2105 ft

	Silt, fine, sandy-----	3.5	3.5
	Clay, fat-----	1.5	5
	Clay, sandy-----	15	20
	Clay, fat-----	6	26

148-88-8CAC
 (Log from Harrer, 1961)

Elevation: 2080 ft

	Sand and gravel-----	10	10
	Clay, brown-----	38	48
	Clay, blue-----	30	78

148-88-8DDC
(Log from Dingman and Gordon, 1954)

Elevation: 2035 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil-----	3	3
	Clay, yellow-----	20	23
	Lignite and gray clay-----	5	28
	Clay, sandy, dense, gray-----	10	38
	Sand-----	12	50
	Clay, gray-----	8	58
	Lignite-----	10	68
	Clay, gray-----	36	104
	Lignite-----	3	107
	Clay, gray-----	11	118
	Lignite-----	12	130
	Clay, gray-----	25	155
	Sand-----	35	190
	Lignite-----	4	194
	Clay, gray-----	1	195

148-88-10AAA
(Log from Harrer, 1961)

Elevation: 2018 ft

	Topsoil-----	5	5
	Clay, brown, sandy-----	35	40
	Lignite-----	12	52
	Clay, dark-----	18	70
	Clay, gray-----	14	84
	Lignite and water-----	6	90
	Clay, gray-----	15	105

148-88-10CDD
NDSWC 3621

Elevation: 2005 ft

Glacial drift:			
	Topsoil, clayey, black-----	2	2
	Silt, sandy, clayey, few sand and gravel interbeds-----	16	18
	Clay, silty, sandy, pebbly, moderate- olive-brown (till)-----	7	25
Fort Union Group:			
	Shale, hard and brittle, light- to medium- gray-----	5	30
	Lignite, hard, fractured, black-----	3	33
	Shale, hard and brittle, carbonaceous, medium-gray to dark-gray-----	7	40

148-88-10DDD
(Log from Harrer, 1961)

Elevation: 2030 ft

	Topsoil-----	2	2
	Clay, yellow-----	8	10
	Clay, gray-----	5	15
	Sand, yellow-----	20	35
	Clay, brown and gray-----	18	53
	Clay, carbonaceous-----	4	57
	Sandstone-----	1	58
	Clays, gray and brown-----	52	110

148-88-10DDD, Continued
(Log from Harrer, 1961)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Lignite-----	10	120
	Clay, gray-----	35	155
	Lignite-----	3	158
	Clay and sandstone, gray-----	24	182
	Sand, medium, blue-----	18	200

148-88-11AAA
NDSWC 5562

Elevation: 1995 ft

Glacial drift:			
	Material	Thickness (feet)	Depth (feet)
	Topsoil, silty, clayey, grayish-black-----	1	1
	Clay, silty, sandy, moderate-yellowish-brown to dark-yellowish-brown; scattered gravel (till)-----	49	50
	Clay, silty, pebbly, olive-gray; scattered sand and boulders; sand lenses from 64-67 and 93-98 ft (till)-----	78	128
	Clay, silty, calcareous, medium-gray, laminated-----	6	134
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	20	154
	Clay, silty, sandy, lignitic, calcareous, olive-gray, laminated-----	4	158
	Sandstone boulder-----	3	161
	Clay, silty, sandy, olive-gray to dark-greenish-gray, laminated (till)-----	21	182
Fort Union Group:			
	Shale, siliceous, silty, clayey, noncalcareous, medium-gray to brownish-gray-----	18	200

148-88-11CCC
(Log from Harrer, 1961)

Elevation: 2040 ft

	Topsoil-----	5	5
	Clay, sandy, brown-----	14	19
	Gravel-----	15	34
	Lignite-----	20	54
	Clay, sandy, dark-----	32	86
	Clay-----	9	95
	Lignite and water-----	2	97
	Clay-----	8	105

148-88-11DBB
(Log from Frank Spartz Drilling Co.)

Elevation: 2028 ft

	Topsoil-----	4	4
	Clay, brown-----	56	60
	Sand and gravel, with rocks and coal-----	22	82
	Clay, blue and gray-----	20	102
	Clay and dirty sand-----	4	106
	Clay, gray-----	24	130
	Sand, dirty-----	1	131
	Clay, gray-----	19	150

148-88-12CCD1
(Log from Frank Spartz Drilling Co.)

Elevation: 2015 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Topsoil-----	5	5
	Clay, yellow-----	7	12
	Clay, gray and black-----	8	20
	Coal and water-----	6	26
	Clay, gray-----	11	37

148-88-12CCD2
(Log from Frank Spartz Drilling Co.)

Elevation: 2017 ft

	Topsoil-----	4	4
	Clay, yellow-----	6	10
	Clay-----	10	20
	Clay, gray-----	5	25
	Coal and water-----	4	29
	Clay, gray-----	8	37

148-88-12CDC1
(Log from Frank Spartz Drilling Co.)

Elevation: 2015 ft

	Topsoil-----	4	4
	Clay, yellow-----	6	10
	Clay, brown-----	14	24
	Coal and water-----	5	29
	Clay, gray-----	5	34

148-88-12CDC2
(Log from Frank Spartz Drilling Co.)

Elevation: 2017 ft

	Topsoil-----	4	4
	Clay, yellow-----	16	20
	Coal and water-----	6	26
	Clay, gray-----	11	37

148-88-12CDD
(Log from Frank Spartz Drilling Co.)

Elevation: 2024 ft

	Topsoil-----	4	4
	Clay, yellow-----	12	16
	Coal dust-----	9	25
	Clay, yellow-----	15	40
	Clay, gray-----	9	49
	Coal and water-----	2	51
	Clay, gray-----	9	60

148-88-13BCB
(Log from Dingman and Gordon, 1954)

Elevation: 2025 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Topsoil-----	3	3
	Clay, yellow, and gravel-----	11	14
	Lignite-----	3	17
	Clay, yellow-----	13	30
	Clay, gray-----	24	54
	Lignite-----	8	62
	Clay, gray-----	13	75
	Sand-----	73	148
	Lignite-----	2	150
	Clay, gray-----	7	157
	Lignite-----	3	160
	Clay, gray-----	10	170

148-88-15CCB
(Log from Harrer, 1961)

Elevation: 2062 ft

	Topsoil-----	5	5
	Clay, yellow-----	23	28
	Clay, dark gray-----	4	32
	Clay, dark brown-----	14	46
	Clay, dark gray-----	12	58
	Lignite-----	6	64
	Clay, gray-----	5	69
	Lignite-----	16	85
	Clay, dark-----	24	109
	Clay, dark gray-----	40	149
	Sandstone, gray, and water-----	1	150

148-88-16DAA
(Log from Dingman and Gordon, 1954)

Elevation: 2050 ft

	Topsoil-----	1	1
	Clay, yellow-----	13	14
	Clay, yellow, with pebbles-----	6	20
	Clay, sandy, gray-----	5	25
	Lignite-----	1	26
	Clay, gray-----	23	49
	Lignite-----	9	58
	Clay, gray-----	20	78
	Lignite-----	10	88
	Lignite and clay-----	4	92
	Lignite-----	3	95
	Clay, sandy-----	8	103
	Sand-----	57	160

148-88-18CBA
(Log from Harrer, 1961)

Elevation: 2152 ft

	Clay, brown-----	14	14
	Sand-----	10	24
	Shale-----	2.5	26.5
	Clay, brown-----	4.5	31
	Rock-----	3	34
	Sandstone-----	10	44

148-88-18CBA, Continued
(Log from Harrer, 1961)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Lignite-----	2	46
	Shale, sandy, blue-----	19	65
	Lignite-----	20	85
	Shale, sandy, blue-----	30	115
	Shale, gray-----	10	125
	Lignite-----	5	130
	Shale, gray-----	17	147
	Lignite-----	3	150
	Shale, sandy, blue-----	9	159
	Rock-----	2.5	161.5
	Sandstone, blue-----	3.5	165
	Rock-----	4.5	169.5
	Sandstone, blue, and water-----	15.5	185
	Shale, gray-----	10	195
	Lignite-----	1	196
	Shale, tan-----	2	198
	Shale, gray-----	2	200

148-88-21DBC
(Log from Harrer, 1961)

Elevation: 2155 ft

	Soil, black-----	5	5
	Clay, yellow-----	47	52
	Lignite-----	10	62
	Clay and sandstone, gray-----	86	148
	Lignite-----	6	154
	Clay, gray-----	74	228
	Lignite and water-----	6	234
	Clay, gray-----	1	235

148-88-26BAD
(Log from Dingman and Gordon, 1954)

Elevation: 2111 ft

	Soil-----	2	2
	Clay, yellow and brown-----	16	18
	Sand with thin lignite bed-----	12	30
	Clay, gray-----	5	35
	Sand-----	20	55
	Clay, sandy, gray-----	5	60
	Lignite-----	6	66
	Clay, brown, gray, and green-----	14	80
	Sand-----	51	131
	Lignite-----	4	135
	Clay, gray-----	22	157
	Sand-----	8	165
	Clay, gray-----	25	190
	Lignite-----	7	197
	Clay, gray-----	9	206
	Sand-----	1	207
	Clay, gray and green-----	16	223
	Sand-----	1	224
	Clay, gray-----	26	250
	Lignite with thin layers of clay-----	13	263
	Clay, gray-----	15	278
	Lignite-----	2	280
	Clay, gray-----	5	285
	Lignite-----	9	294
	Clay, sandy, gray-----	53	347

148-88-26BAD, Continued
(Log from Dingman and Gordon, 1954)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Lignite-----	3	350
	Clay, silty and sandy, gray-----	34	384
	Lignite-----	2	386
	Clay, gray-----	44	430
	Lignite-----	5	435

148-88-28DD
(Log from Harrer, 1961)

Elevation: 2076 ft

	Soil, black-----	5	5
	Clay, yellow-----	27	32
	Clay, blue-----	6	38
	Sandstone-----	2	40
	Clay, blue-----	68	108
	Sandstone and water-----	9	117
	Clay, blue-----	4	121

148-88-35ACA
(Log from Dingman and Gordon, 1954)

Elevation: 2062 ft

	Topsoil-----	5	5
	Gravel-----	3	8
	Clay, brown and yellow-----	10	18
	Lignite-----	3	21
	Clay, sandy, dense, gray-----	52	73
	Lignite-----	3	76
	Clay, gray-----	11	87
	Sand-----	2	89
	Clay, gray-----	14	103
	Lignite-----	7	110
	Clay, gray-----	18	128
	Lignite-----	9	137
	Clay, gray-----	31	168
	Sand-----	1	169
	Clay, gray-----	44	213
	Lignite-----	8	221
	Clay, gray-----	15	236
	Lignite-----	8	244
	Sand-----	6	250
	Lignite-----	1	251
	Sand-----	2	253
	Clay, gray-----	42	295
	Lignite-----	2	297
	Clay, gray-----	10	307
	Sand-----	1	308
	Clay, gray-----	22	330
	Sand-----	1	331
	Clay, gray-----	29	360
	Sand-----	1	361
	Clay, gray-----	19	380
	Lignite-----	5	385
	Clay, gray-----	65	450
	Clay, gray, with thin lignite beds-----	30	480
	Clay, gray-----	25	505

148-88-35DDD1
(Log from Harrer, 1961)

Elevation: 2022 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Topsoil-----	5	5
	Clay, brown-----	26	31
	Clay, blue-----	9	40
	Lignite-----	3	43
	Clay, gray-----	3	46

148-88-35DDD2
(Log from Harrer, 1961)

Elevation: 2022 ft

	Topsoil-----	3	3
	Clay, yellow-----	22	25
	Clay, gray-----	14	39
	Lignite-----	4	43
	Clay, gray-----	12	55
	Lignite-----	7	62
	Clay, gray-----	27	89
	Sandstone-----	2	91
	Clay, gray-----	22	113
	Lignite-----	5	118
	Clay, gray-----	26	144
	Sandstone-----	1	145
	Clay, gray-----	12	157
	Sandstone-----	2	159
	Clay, sandy-----	16	175
	Clay, gray-----	15	190
	Lignite-----	8	198
	Clay, gray-----	7	205
	Lignite-----	4	209
	Clay, gray-----	6	215
	Lignite-----	3	218
	Clay, gray-----	50	268
	Lignite-----	4	272
	Clay, sandy, gray-----	8	280
	Lignite-----	4	284
	Clay, gray-----	66	350
	Lignite-----	5	355
	Clay and sandstone, gray-----	40	395
	Lignite-----	5	400
	Sand, fine-----	25	425
	Lignite-----	2	427
	Clay, gray-----	30	457
	Sandstone-----	3	460
	Clay, gray-----	40	500

148-88-36CCC
(Log from Harrer, 1961)

Elevation: 2017 ft

	Loam, sandy-----	2	2
	Clay, yellow-----	8	10
	Clay, blue-----	40	50
	Lignite and a little water-----	1	51
	Clay, blue-----	29	80
	Rock-----	1	81
	Sand and water-----	3	84
	Clay, gray-----	14	98

148-89-4CDD
(Log from R. F. Jahnke)

Elevation: 2106 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Drift clay-----	25	25
	Clay with cobbles and boulders-----	2	27
	Drift clay, sandy, yellow-----	23	50
	Drift clay, very sandy, yellow-----	20	70
	Clay, sticky, yellow-----	10	80
	Gravel, clayey-----	2	82
	Clay, yellow-----	8	90
	Clay, blue-----	7	97
	Sandstone-----	10	107
	Clay, blue, and boulders-----	5	112
	Slush coal-----	1	113
	Clay or shale, blue-----	15	128
	Lignite-----	2	130
	Clay or shale, blue-----	60	190
	Sandstone, soft, water-----	7	197
	Clay or shale, blue-----	8	205

148-89-7DDD
(Log from Dingman and Gordon, 1954)

Elevation: 2103.3 ft

	Topsoil-----	3	3
	Clay, brown, and gravel-----	12	15
	No sample-----	45	60
	Sand and clay-----	10	70
	No sample-----	20	90
	Lignite (no sample)-----	5	95
	No sample-----	34	129
	Lignite (no sample)-----	4	133
	No sample-----	67	200
	Lignite (no sample)-----	25	225
	Sand (no sample)-----	34	259

148-89-11AA
(Log from Dingman and Gordon, 1954)

Elevation: 2127.3 ft

	Silt-----	5	5
	Sand and gravel-----	10	15
	Clay, sandy, and gravel-----	15	30
	Sand and gravel-----	5	35
	Clay, gray-----	15	50
	Lignite-----	5	55
	Sand-----	10	65
	Lignite-----	5	70
	Sand-----	10	80
	Lignite-----	5	85
	Sand and gravel-----	15	100
	Lignite-----	5	105
	Clay, sandy-----	15	120
	Clay, gray, with thin layers of lignite-----	15	135
	Clay, silty, gray-----	20	155
	Lignite-----	10	165
	Sand-----	45	210
	Clay, sandy, gray-----	15	225
	Sand-----	5	230
	Lignite and clay-----	10	240
	Clay, sandy-----	5	245
	Lignite-----	15	260

148-89-11AA, Continued
(Log from Dingman and Gordon, 1954)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Lignite with thin layers of clay-----	15	275
	Clay, gray-----	10	285
	Lignite-----	5	290
	Clay, gray-----	5	295
	Lignite-----	5	300
	Sand-----	50	350
	Lignite-----	5	355
	Clay, gray-----	10	365
	Clay and sand-----	10	375
	Lignite-----	5	380
	Lignite with green clay-----	10	390
	Clay, gray-green, with thin layers of lignite-----	10	400

148-89-12BDD
(Log from Harrer, 1961)

Elevation: 2120 ft

	Topsoil-----	2	2
	Clay, yellow-----	10	12
	Clay, gray-----	18	30
	Clay, sandy-----	20	50
	Clay, blue-----	47	97
	Sand and water-----	6	103
	Clay-----	13	116

148-89-12DB
(Log from Harrer, 1961)

Elevation: 2118 ft

	Topsoil-----	2	2
	Clay, yellow-----	18	20
	Sand-----	20	40
	Lignite-----	4	44
	Clay, gray-----	91	135
	Sand-----	44	179
	Lignite-----	1	180
	Clay, gray-----	5	185
	Lignite-----	10	195
	Clay, gray-----	39	234
	Sandstone-----	.5	234.5
	Clay, gray-----	39.5	274
	Lignite-----	11	285

148-89-12DCC
(Log from Harrer, 1961)

Elevation: 2134 ft

	Sand, medium, silty-----	4.5	4.5
	Clay, sandy-----	12	16.5
	Clay, lean-----	1.5	18
	Clay, fat-----	3	21
	Lignite-----	3	24

148-89-18BCD
(Log from Harrer, 1961)

Elevation: 2038 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Topsoil-----	3	3
	Clay, yellow, sandy-----	64	67
	Clay, blue, sandy-----	18	85
	Sand, fine; water-----	6	91
	Sand and coarse gravel-----	5	96
	Clay, gray, sandy-----	9	105
	Gravel-----	2	107
	Rock-----	3	110
	Gravel and water-----	5	115

148-89-20BAC
(Log from Harrer, 1961)

Elevation: 2060 ft

	Topsoil-----	2	2
	Sand, yellow-----	8	10
	Sand and gravel, red-----	10	20
	Clay, sandy, yellow-----	60	80
	Lignite-----	1	81
	Clay, sandy, gray-----	39	120
	Rock-----	1	121
	Clay, sandy, brown-----	11	132
	Lignite-----	2	134
	Sand, blue-----	4	138
	Shale, sandy, gray-----	27	165
	Shale, sandy, light gray-----	43	208
	Rock-----	2	210
	Sand and mud, gray-----	10	220
	Sand, blue, and water-----	20	240

148-89-20BAD
(Log from Harrer, 1961)

Elevation:

	Soil, black-----	3	3
	Clay, yellow; some gravel-----	16	19
	Gravel-----	21	40
	Sandstone-----	9	49
	Gravel-----	44	93
	Clay, yellow-----	3	96
	Sandstone-----	16	112
	Lignite, water-----	10	122

148-89-20CBB
NDSWC 5552

Elevation: 2018 ft

Glacial drift:

	Topsoil, silty, sandy, grayish-black-----	1	1
	Clay, silty, pebbly, moderate-yellowish-brown (till)-----	23	24
	Sand, fine to very coarse, silty, subangular to rounded-----	5	29
	Gravel, fine to very coarse, sandy, angular to subrounded-----	4	33
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	21	54

148-89-20CBB, Continued
NDSWC 5552

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Clay, sandy, silty, moderate-yellowish-brown-----	6	60
	Sand, fine to coarse, clayey, silty, gravelly-----	15	75
Fort Union Group:			
	Sandstone, fine, clayey, silty, micaceous---	25	100

148-89-22CDA
(Log from Harrer, 1961)

Elevation: 2082 ft

Topsoil-----	5	5
Sand, yellow-----	3	8
Rock-----	5	13
Sand, yellow-----	12	25
Sand, blue-----	12	37
Clay, gray-----	5	42
Lignite stringers-----	2	44
Clay, dark-----	10	54
Sand rock-----	4	58
Lignite-----	2	60
Clay, sandy, dark-----	70	130
Sand, dark, and water-----	20	150

148-89-22DAB
(Log from Dingman and Gordon, 1954)

Elevation: 2065 ft

Topsoil-----	2	2
Clay, yellow and brown-----	10	12
Sand-----	3	15
Clay, sandy, brown-----	11	26
Sand-----	8	34
Clay, gray-----	11	45
Lignite-----	4	49
Clay, gray-----	9	58
Lignite-----	7	65
Clay, sandy, gray-----	8	73
Sand with streaks of lignite-----	14	87
Sand-----	70	157
Clay, gray, with thin layers of sand-----	3	160
Clay, gray and green, with thin lignite beds-----	8	168
Lignite with thin beds of clay-----	37	205
Clay, gray-----	38	243
Sand-----	52	295

148-89-27CDC
(Log from Harrer, 1961)

Elevation: 1953 ft

Topsoil-----	5	5
Clay, yellow-----	25	30
Clay, brown, sandy-----	10	40
Gravel and rock-----	5	45
Clay, dark, and gravel-----	4	49
Lignite-----	5	54
Clay and rock, gray-----	51	105

148-89-28ACB
(Log from Dingman and Gordon, 1954)

Elevation: 1998 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Topsoil-----	8	8
	Lignite-----	1	9
	Clay, baked-----	1	10
	Clay-----	3	13
	Sand-----	27	40
	Clay-----	7	47
	Sand-----	5	52
	Sandstone-----	1	53
	Clay-----	3	56
	Sand-----	15	71
	Lignite-----	3	74
	Sand-----	10	84
	Lignite with thin layers of clay-----	10	94
	Sandstone-----	1	95
	Clay-----	13	108
	Lignite-----	2	110
	Clay-----	14	124
	Clay, silty-----	6	130
	Clay, sandy-----	25	155
	Sandstone-----	1	156
	Clay, sandy-----	16	172
	Clay-----	34	206
	Lignite-----	7	213
	Clay-----	19	232
	Sandstone-----	1	233
	Clay-----	20	253
	Lignite-----	2	255
	Clay-----	49	304
	Lignite-----	3	307
	Clay, sandy-----	11	318
	Sand, fine-----	19	337
	Clay, sandy-----	9	346
	Lignite-----	2	348
	Clay-----	40	388
	Lignite-----	3	391
	Clay-----	14	405

148-89-30ADA
(Log from Harrer, 1961)

Elevation: 2000 ft

	Topsoil-----	2	2
	Clay, sandy-----	26	28
	Lignite, soft-----	2	30
	Clay-----	27	57
	Lignite and water-----	4	61
	Clay-----	17	78

148-89-36CAA3
(Log from Harrer, 1961)

Elevation: 1929 ft

	Soil, black-----	2	2
	Clay, brown, sandy-----	10	12
	Lignite-----	1	13
	Sand, brown-----	42	55
	Clay, blue-----	33	88
	Lignite-----	4	92

148-89-36CAA3, Continued
(Log from Harrer, 1961)

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Sand, blue-----	7	99
	Lignite and water-----	5	104
	Sand, blue-----	11	115
	Clay, brown-----	32	147

148-90-1ABA
Empire State Oil Co. - Youngbear - Sanderson No. 1

Elevation: 2052 ft

Log available from Rocky Mountain Oil Information Corp., Denver, Colo.

148-90-1BAD
(Log from Harrer, 1961)

Elevation: 2085 ft

	Soil, black-----	2	2
	Clay, yellow; some sand and gravel-----	13	15
	Clay, yellow, sandy-----	60	75
	Sandstone and water-----	15	90

148-90-1CAC
(Log from Harrer, 1961)

Elevation: 2080 ft

	Topsoil-----	2	2
	Clay, sandy-----	13	15
	Sand, yellow-----	102	117
	Sand, blue-----	13	130

148-90-2DB
(Log from Harrer, 1961)

Elevation: 2123 ft

	Topsoil-----	5	5
	Sand, yellow-----	7	12
	Sand, gray-----	43	55
	Clay, gray-----	50	105
	Sand, blue-----	55	160

148-90-5AAD
(Log from Harrer, 1961)

Elevation: 1989 ft

	Soil, black-----	5	5
	Clay, yellow-----	11	16
	Clay and gravel, yellow-----	36	52
	Clay, yellow, sandy-----	6	58
	Clay, blue-----	14	72
	Gravel, clay, yellow-----	46	118
	Sandstone-----	6	124
	Clay, blue-----	41	165
	Sandstone, water-----	29	194

148-90-6DDD
NDSWC 5576

Elevation: 2015 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, clayey, grayish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	28	29
Fort Union Group:			
	Sandstone, very fine, clayey, silty, lignitic, moderate-yellowish-brown-----	40	69
	Siltstone, sandy, noncalcareous, medium-bluish-gray to medium-gray-----	11	80

148-90-8BB
(Log from Dingman and Gordon, 1954)

Elevation: 2107.6 ft

Silt, sandy-----	9	9
Clay, sandy, brown; contains gravel-----	16	25
Sand-----	55	80
Clay, gray-----	7	87
Lignite-----	1	88
Clay, gray-----	18	106
Lignite-----	5	111
Clay and sand-----	24	135
Sand-----	20	155
Clay, gray-----	7	162
Lignite-----	5	167
Clay, gray-----	23	190
Sand-----	5	195
Clay, gray-----	7	202
Lignite-----	3	205
Clay, gray to brown-----	10	215
Clay, gray-----	25	240
Sand-----	15	255
Clay, gray-----	15	270
Clay, sandy, gray-----	15	285
Sand and clay, gray-----	65	350
Sand-----	36	386
Lignite-----	4	390
Clay, gray and brown, with thin lignite beds-----	15	405

148-90-9DBA
(Log from Harrer, 1961)

Elevation: 2125 ft

Topsoil-----	2	2
Sand, yellow-----	36	38
Sandstone-----	2	40
Sand, yellow-----	45	85
Clay, blue-----	3	88
Sand, blue; a little water-----	2	90
Clay, sandy, blue-----	75	165
Clay, blue-----	5	170
Sand, blue, and water-----	15	185

148-90-10CDA
(Log from Dingman and Gordon, 1954)

Elevation: 2075.7 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Sand and gravel-----	11	11
	Clay, gray-----	9	20
	Clay, sandy, gray-----	5	25
	Sandy clay (no sample)-----	5	30
	Sand-----	15	45
	Sand (no sample)-----	15	60
	Sand-----	86	146
	Lignite-----	1	147
	Clay, gray-----	6	153

148-90-12DDB
(Log from Harrer, 1961)

Elevation: 2065 ft

	Topsoil-----	1	1
	Clay, sand rock, and sand-----	100	101
	Shale, blue, sandy-----	23	124
	Lignite-----	4	128
	Sandstone-----	23	151
	Shale, blue, sandy-----	3	154

148-90-13BBC
(Log from R. F. Jahnke)

Elevation: 2057 ft

	Topsoil, black-----	1	1
	Sand, clay, and gravel, dry-----	4	5
	Cobbles with sand, gravel, and clay-----	13	18
	Sandstone, yellow; interbedded with clay-----	14	32
	Rock-----	10.5	42.5
	Sandstone, soft, yellow; zone of dark sand from 57-60 ft-----	17.8	60.3
	Sandstone, soft, gray-----	13.7	74

148-90-13DDC
(Log from Harrer, 1961)

Elevation: 2050 ft

	Topsoil-----	2	2
	Gravel-----	4	6
	Clay with pebbles, yellow-----	26	32
	Clay, gray-----	16	48
	Rock-----	1.5	49.5
	Clay, blue-----	25.5	75
	Clay, green-----	8	83
	Lignite-----	12	95
	Clay, gray-----	10	105
	Sand, fine-----	15	120
	Clay, green-----	5	125
	Clay, gray-----	25	150
	Sand, medium-----	25	175
	Sandstone-----	1	176
	Sand, medium-----	34	210
	Lignite-----	15	225

148-90-22BCC
(Log from Dingman and Gordon, 1954)

Elevation: 1926.8 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Topsoil-----	3	3
	Sand-----	7	10
	Sand with gravel-----	25	35
	Clay, gray and brown, with lignite bed-----	5	40
	Clay, brown-----	5	45
	Clay, gray, and sand-----	25	70
	Sand-----	5	75
	Lignite-----	5	80
	Clay, gray-----	36	116
	Lignite-----	4	120
	Sand-----	5	125
	Lignite-----	7	132
	Clay, gray and brown-----	3	135
	Sand and clay, gray-----	12	147
	Lignite-----	5	152
	Sand and clay, gray-----	11	163
	Lignite-----	2	165
	Clay, gray and green-----	13	178
	Lignite-----	2	180
	Sand and clay, gray-----	15	195
	Sand-----	75	270

148-90-23AAA
(Log from Harrer, 1961)

Elevation: 2076 ft

	Topsoil-----	5	5
	Clay, sandy, yellow-----	50	55
	Rock-----	6	61
	Clay, dark gray-----	84	145
	Lignite-----	2	147
	Clay, dark gray-----	33	180
	Lignite-----	2	182
	Clay, dark-----	28	210
	Lignite-----	2	212
	Clay, dark gray-----	20	232
	Lignite-----	3	235
	Clay, dark gray-----	12	247
	Lignite-----	4	251
	Clay, dark gray-----	49	300

148-90-23ABC
(Log from Dingman and Gordon, 1954)

Elevation: 2020 ft

	Topsoil-----	3	3
	Sand-----	4	7
	Sand and gravel-----	11	18
	Sand-----	27	45
	Clay, gray-----	42	87
	Sand-----	2	89
	Clay, gray-----	45	134
	Lignite-----	3	137
	Clay, gray-----	9	146
	Sand-----	26	172
	Lignite-----	3	175

148-90-23DDC
(Log from Dingman and Gordon, 1954)

Elevation: 1985 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Topsoil-----	2	2
	Sand-----	47	49
	Lignite-----	1	50
	Clay, gray and green-----	28	78
	Sand-----	2	80
	Clay, silty, gray-----	45	125
	Lignite-----	3	128
	Clay, gray-----	10	138
	Sand-----	43	181
	Lignite-----	34	215
	Sand-----	40	255
	Clay, gray-----	10	265
	Sand-----	12	277
	Clay-----	5	282
	Lignite-----	9	291
	Sand-----	1	292

148-90-24DCC
(Log from Dingman and Gordon, 1954)

Elevation: 2102 ft

	Sand-----	13	13
	Clay, gray-----	17	30
	Sand-----	3	33
	Lignite-----	1	34
	Clay, gray-----	6	40
	Lignite-----	2	42
	Clay, gray-----	5	47
	Lignite-----	1	48
	Clay, gray-----	25	73
	Lignite-----	2	75
	Clay, gray-----	17	92
	Sand-----	3	95
	Clay, sandy, dense-----	63	158
	Lignite-----	5	163
	Clay, gray-----	7	170
	Clay, sandy-----	13	183
	Sand-----	2	185
	Clay, sandy to dense-----	17	202
	Lignite-----	2	204
	Clay, gray-----	21	225
	Lignite-----	3	228
	Clay, sandy to dense, gray, green, and brown-----	93	321
	Lignite-----	3	324
	Clay, gray-----	26	350
	Sand-----	15	365
	Lignite-----	2	367
	Clay, gray-----	22	389
	Sand-----	2	391

148-90-25BC
(Log from Bandy Drilling Co.)

Elevation: 1920 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Surface soil-----	10	10
	Clay, yellow-----	13	23
	Shale, blue-----	22	45
	Coal-----	4	49
	Sandstone-----	25	74
	Shale, blue-----	20	94
	Coal-----	5	99
	Shale, blue, coal streaks-----	119	218
	Sandstone-----	18	236
	Shale, blue-----	82	318
	Shale, sandy-----	39	357
	Rock-----	2	359
	Sandstone-----	25	384
	Rock-----	2	386
	Sandstone-----	65	451
	Shale, gray-----	87	538
	Shale, sandy-----	21	559
	Shale, blue-----	120	679
	Shale, sandy-----	39	718
	Shale, blue-----	52	770
	Sandstone-----	24	794
	Shale, blue-----	22	816
	Sandstone-----	20	836
	Shale, blue-----	34	870
	Sandstone-----	73	943
	Shale, blue-----	17	960
	Sandstone-----	24	984
	Shale, blue-----	46	1030
	Sandstone-----	19	1049
	Shale, blue-----	27	1076
	Sandstone-----	42	1118
	Rock-----	3	1121
	Sandstone-----	17	1138
	Shale, blue-----	35	1173
	Sandstone-----	21	1194
	Shale, blue-----	38	1232
	Sandstone-----	34	1266
	Shale, blue-----	10	1276
	Sandstone-----	18	1294
	Shale, blue-----	16	1310

148-90-26ABB1
(Log from R. F. Jahnke)

Elevation: 1927 ft

	Clay and small stones-----	6	6
	Yellow sandy formations-----	12	18
	Clay, blue-----	3	21
	Slush coal-----	4	25
	Clay or shale, blue-----	45	70
	Clay, light blue-----	13	83
	Clay, dark-----	23	106
	Lignite, hard-----	2.5	108.5
	Clay, dark blue-----	8.5	117

148-90-26ABB2
(Log from R. F. Jahnke)

Elevation: 1930 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay, brown-----	4	4
	Clay, dark brown-----	2	6
	Clay, sandy, yellow-----	11	17
	Clay, sandy, dark yellow-----	6	23
	Sand-----	2	25
	Clay, dark gray-----	7	32
	Lignite-----	2	34
	Clay or shale, sticky, blue-----	16	50
	Clay or shale, sticky, gray-----	34	84
	Clay, sticky, light gray-----	4	88
	Clay, sticky, dark gray-----	22	110
	Lignite, hard-----	2	112
	Clay or shale, sticky, dark gray-----	14	126
	Sandy clay or sandstone, soft, gray-----	16	142

149-78-4CBB
NDSWC 2795

Elevation: 2015 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Gravel, fine to coarse, angular to rounded-----	5	6
	Clay, silty, sandy, medium-dark-gray (till)-----	54	60

149-78-9DDD
NDSWC 3943

Elevation: 2015 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Sand, clayey, silty, pebbly, yellowish-gray-----	5	5
	Clay, silty, sandy, pebbly, stiff, olive-gray (till)-----	11	16
	Sand, medium to coarse, gravelly, sub-angular-----	6	22
	Clay, silty, sandy, pebbly, stiff, olive-gray (till)-----	134	156
Fort Union Group(?):			
	Silt, clayey, sandy, micaceous, dusky-yellow to yellowish-green-----	21	177
	Sandstone, very fine, calcareous, medium-gray-----	1	178
	Silt, clayey, sandy, light-gray to dark-gray-----	16	194
	Shale, silty, sandy, noncalcareous, variegated gray and brown-----	26	220

149-78-23BBB
NDSWC 2794

Elevation: 2000 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Clay, silty, sandy, moderate-yellowish-brown (till)-----	11	12
	Clay, silty, sandy, gravelly, calcareous, olive-gray (till)-----	28	40

149-78-33CCD
NDSWC 2793

Elevation: 1980 ft

Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Clay, silty, moderate-yellowish-brown (till)-----	12	13
	Clay, silty, sandy, gravelly, olive-gray (till)-----	62	75
	Clay, very silty, sandy, gravelly, olive-gray (till)-----	225	300
Fort Union Group:			
	Sandstone, fine to medium, noncalcareous; brownish-gray with medium-bluish-gray zones-----	20	320

149-79-8ADA
NDSWC 5612

Elevation: 1980 ft

Glacial drift:			
	Topsoil, silty, sandy, clayey-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; scattered boulders (till)-----	24	25
	Clay, silty, sandy, pebbly, olive-gray; scattered boulders (till)-----	131	156
	Clay, silty, sandy, pebbly, olive-gray; lensed with sand and gravel (till)-----	10	166
	Clay, silty, calcareous, olive-gray to medium-dark-gray; scattered sand, gravel, and boulders (till)-----	10	176
	Gravel, fine to very coarse, sandy, angular to subrounded-----	4	180
	Clay, silty, sandy, pebbly, calcareous, olive-gray; lensed with gravel (till)-----	31	211
Fort Union Group:			
	Siltstone, clayey, sandy, noncalcareous, medium-gray to medium-bluish-gray-----	29	240

149-79-25DCC
NDSWC 2792

Elevation: 2000 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, clayey, grayish-black-----	1	1
	Clay, very silty, calcareous, plastic, moderate-yellowish-brown (lacustrine)-----	24	25
	Clay, silty, calcareous, plastic, medium-dark-gray to olive-gray; few sand grains (lacustrine)-----	17	42
	Clay, silty, sandy, olive-gray; scattered pebbles (till)-----	58	100

149-79-26CDC
NDSWC 5614

Elevation: 1970 ft

Glacial drift:			
	Topsoil, silty, clayey, sandy, black-----	1	1
	Gravel, fine to very coarse, sandy, angular to subrounded-----	49	50
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	58	108
Fort Union Group:			
	Siltstone, clayey, sandy, noncalcareous, medium-light-gray-----	12	120

149-80-3CDD
NDSWC 2802

Elevation: 1960 ft

Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Gravel, fine to coarse, sandy, angular to rounded-----	43	44
Fort Union Group:			
	Shale, claystone, and lignite interbedded; siliceous indurated dusky-brown shale; indurated noncalcareous light-gray to light-bluish-gray claystone; soft to indurated black to brownish-black lignite-----	16	60

149-80-4DAA
(Log from U.S. Air Force)

Elevation: 2006 ft

	Clay and silt, sandy, trace of gravel and lignite, very stiff to hard, brown; scattered boulders or cobbles-----	18	18
	Clay, silty, trace of sand and gravel, hard, brown-----	6	24
	Sand, fine to medium, silty, clayey, trace of gravel, dense, brown; boulder at 25.8 ft-----	6	30
	Sand, fine to coarse, gravelly, silty, trace of clay, dense, brown-----	8	38
	Silt, clayey, trace of sand and gravel, dense, brown-----	2.5	40.5

149-80-4DAA, Continued
(Log from U.S. Air Force)

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Clay, silty, trace of sand, gravel, and lignite, stiff to very stiff, gray; lenses of fine sand and silt-----	35.5	76
	Sand, fine, silty, trace of lignite, very dense, gray-----	5	81
	Clay, silty, trace of sand and lignite, stiff to very stiff, dark brown-gray-----	4	85
	Silt, sandy, thin clay and lignite laminae, very dense, gray-----	9	94
	Interbedded sand and lignite; sand fine, silty, very dense, gray; lignite, brittle and black-----	6	100

149-80-6CBC
NDSWC 5600

Elevation: 1990 ft

Glacial drift:			
	Topsoil, silty, clayey, sandy, grayish-black-----	1	1
	Gravel, fine to coarse, sandy, angular to subrounded-----	9	10
	Silt, sandy, dark-yellowish-brown to dark-gray-----	29	39
Fort Union Group:			
	Siltstone, sandy, clayey, lignitic, medium-bluish-gray to medium-gray-----	21	60

149-80-13ADA
NDSWC 5611

Elevation: 1950 ft

Glacial drift:			
	Topsoil, silty, clayey, gravelly, boulders--	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; scattered boulders (till)-----	4	5
	Gravel, fine to coarse, sandy; scattered cobbles and boulders-----	11	16
	Clay, silty, olive-gray; scattered sand and gravel (till)-----	79	95
Fort Union Group:			
	Siltstone, clayey, sandy, lignitic, noncalcareous, medium-gray to medium-bluish-gray-----	25	120

149-80-16DDD2
NDSWC 5599

Elevation: 1958 ft

Glacial drift:			
	Topsoil, silty, clayey, sandy, gravelly-----	1	1
	Gravel, fine to coarse, sandy, angular to rounded-----	56	57
	Clay, silty, olive-gray; scattered sand and gravel (till)-----	38	95

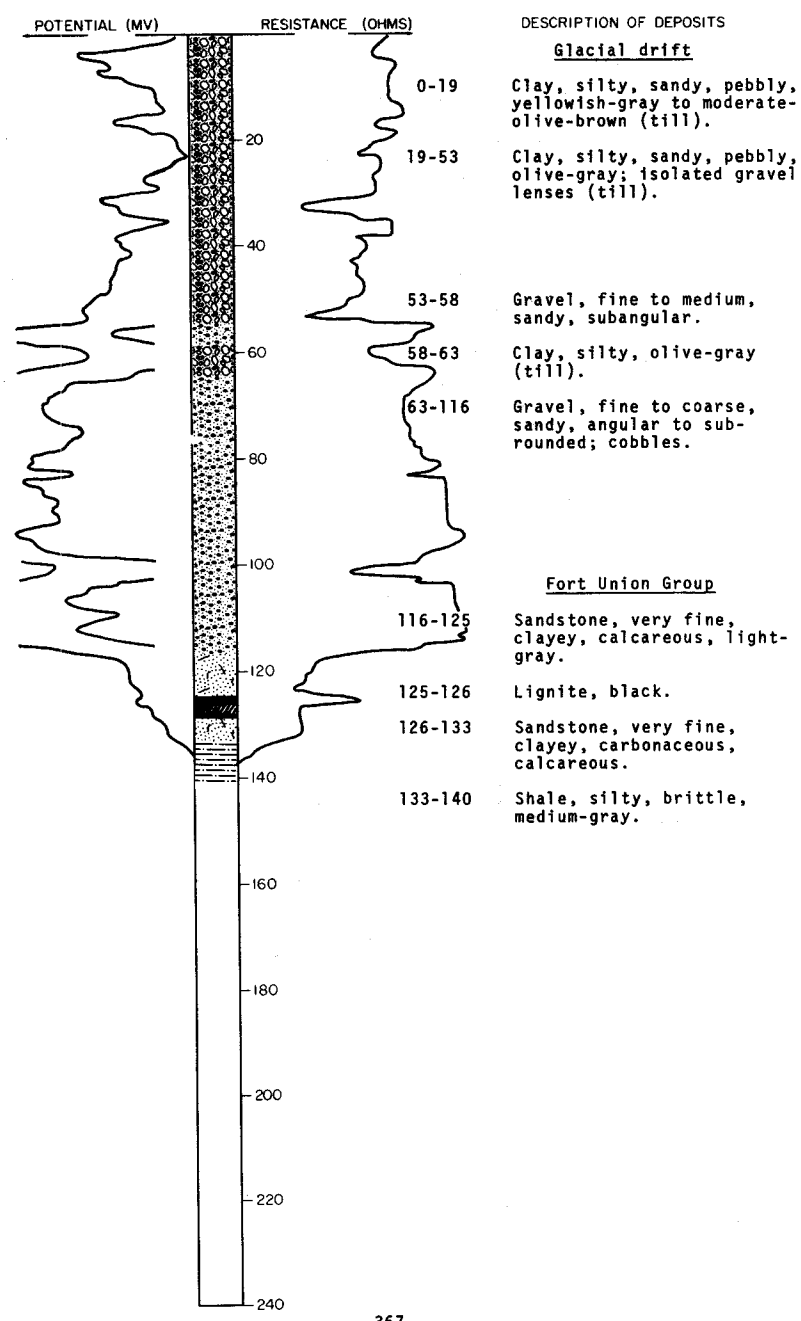
149-80-16DDD2, Continued
NDSWC 5599

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Fort Union Group:	Sandstone, very fine to fine, clayey, silty, lignitic, medium-bluish-gray-----	5	100
	149-80-19AAA NDSWC 2803		
Elevation:	1912 ft		
Glacial drift:	Topsoil, silty, sandy, grayish-black-----	1	1
	Sand, medium to very coarse, subangular to rounded; becomes gravelly toward bottom of section-----	46	47
Fort Union Group:	Shale and sandstone interbedded; siliceous light-brownish-gray shale; fine noncalcareous light-bluish-gray sandstone-----	13	60
	149-80-20AAA NDSWC 5598		
Elevation:	1930 ft		
Glacial drift:	Topsoil, silty, sandy, pebbly, clayey-----	1	1
	Gravel, fine to coarse, sandy, angular to rounded-----	49	50
	Clay, silty, olive-gray; scattered sand and gravel (till)-----	22	72
Fort Union Group:	Siltstone, clayey, sandy, lignitic, noncalcareous, brownish-gray-----	8	80
	149-80-23CCD NDSWC 4082		
Elevation:	1920 ft		
Glacial drift:	Topsoil, sandy, black-----	1	1
	Sand, fine to coarse, gravelly, subangular to subrounded, reddish-brown-----	17	18
	Clay, silty, sandy, pebbly, olive-gray (till)-----	22	40
Fort Union Group:	Sand, very fine; numerous thin interbeds of silt, clay, and lignite-----	88	128
	Shale, silty, hard, dark-gray to brownish-gray-----	13	141
	Lignite, hard, black-----	7	148
	Shale, silty, hard, dark-gray-----	12	160

LOCATION: 149-80-26AAB
 ELEVATION: 1980
 (FT, MSL)

NDSWC 4083

DATE DRILLED: August 1970
 DEPTH: 140
 (FT)



149-80-26ABA
NDSWC 5613

Elevation: 1930 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, clayey, sandy, gravelly, grayish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; scattered boulders (till)-----	19	20
	Clay, silty, pebbly, olive-gray; scattered sand and boulders (till)-----	20	40
	Gravel, fine to coarse, sandy, angular to subrounded-----	6	46
	Clay, silty, olive-gray; scattered sand, gravel, and boulders (till)-----	9	55
	Gravel, fine to very coarse, sandy, angular to subrounded; boulders-----	5	60
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	8	68
	Gravel, fine to very coarse, sandy, angular to subrounded; boulders-----	17	85
	Clay, silty, olive-gray; scattered sand, gravel, and boulders (till)-----	27	112
	Gravel, fine to very coarse, sandy, angular to subrounded-----	24	136
	Clay, silty, sandy, gravelly, olive-gray (till)-----	10	146
	Gravel, fine to very coarse, sandy, angular to rounded-----	34	180

Abandoned hole.

149-80-28CBB
NDSWC 5597

Elevation: 1935 ft

Glacial drift:			
	Topsoil, silty, clayey, sandy, grayish-black-----	1	1
	Gravel, fine to coarse, sandy, silty, angular to subrounded-----	6	7
	Clay, silty, sandy, pebbly, olive-gray (till)-----	8	15
	Clay, silty, olive-gray to medium-dark-gray; scattered sand and pebbles (till)---	110	125
	Gravel, fine to coarse, sandy, angular to subrounded-----	7	132
Fort Union Group:			
	Siltstone, sandy, clayey, lignitic, noncalcareous, brownish-gray-----	8	140

149-80-31BBD
NDSWC 5596

Elevation: 1895 ft

Glacial drift:			
	Topsoil, silty, sandy, pebbly, clayey, grayish-black-----	1	1
	Gravel, fine to coarse, sandy-----	44	45
Fort Union Group:			
	Siltstone, sandy, clayey, noncalcareous, medium-gray-----	15	60

149-80-34CBB
(Log from U.S. Air Force)

Elevation: 1971 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Clay, silty, sandy, trace of gravel and lignite, stiff to very stiff, gray-brown--	43	43
	Clay, silty, trace of sand, gravel, and lignite, stiff to very stiff, dark gray---	58	101

149-81-5BBC
(Log from U.S. Air Force)

Elevation: 1988 ft

	Clay, silty, trace of sand, gravel, and lignite, very stiff to hard, brown to gray-brown; gravel and boulders 10-12 ft--	44.5	44.5
	Clay and silt, sandy, trace of gravel, very stiff, brown-gray-----	6.5	51
	Silt, trace of clay, very dense, brown-----	5	56
	Clay, silty, trace of sand and gravel, very stiff, dark gray-----	25.5	81.5

149-81-23BB
(Log from U.S. Air Force)

Elevation: 1957.9 ft

Glacial drift:			
	Clay, silty, trace of sand, gravel, and lignite, stiff, gray-brown-----	18	18
	Sand, fine to coarse, gravelly, silty, very dense, brown-----	15	33
	Sand, fine to medium, very dense, gray-----	2	35
	Sand, fine to medium, gravelly, dense, brown-----	5	40
	Clay, silty, trace of sand and gravel, stiff to very stiff, gray-brown; boulders from 41-42 ft-----	19.5	59.5
	Clay, silty, trace of sand and gravel, very stiff to hard, gray-brown-----	9	68.5
	Sand, fine to coarse, silty, lignitic, dense, gray-----	8.5	77
	Clay and silt, fine to medium, dense, gray-brown-----	1	78
	Sand, fine to medium, dense, gray-brown-----	4.5	82.5
Fort Union Group:			
	Lignite, crumbly, soft, black-----	1.5	84
	Shale, silty, soft, gray-----	1.5	85.5
	Lignite, crumbly, soft, black-----	2.5	88
	Silt, clayey, lignitic, dense, light gray-brown-----	5.5	93.5
	Sand, fine, clayey, lignitic, dense, light gray-----	5	98.5

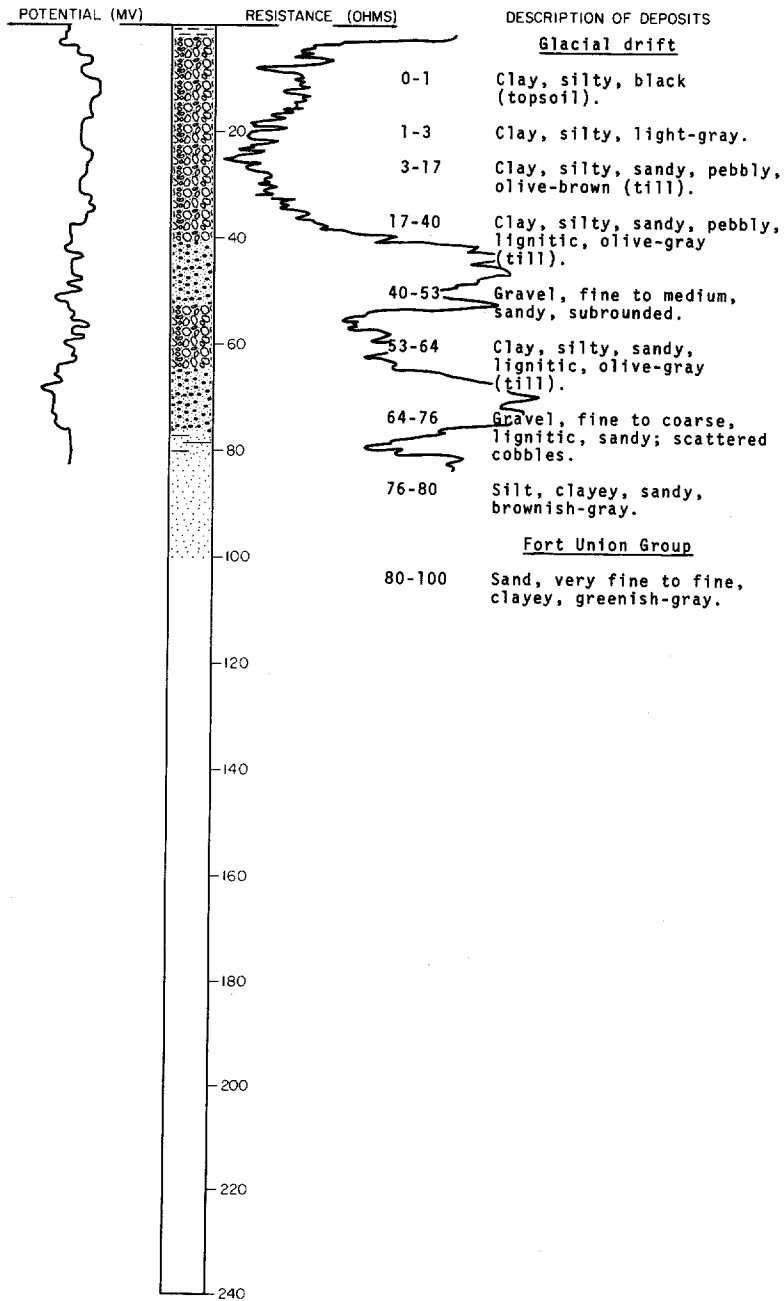
LOCATION: 149-81-25CCD

NDSWC 3951

DATE DRILLED: December 1969

ELEVATION: 1900
(FT, MSL)

DEPTH: 100
(FT)



149-81-29BAA
NDSWC 5595

Elevation: 1910 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, clayey, sandy, black-----	1	1
	Clay, silty, plastic, carbonaceous, black to grayish-black-----	24	25
	Clay, silty, sandy, pebbly, olive-gray to medium-dark-gray (till)-----	22	47
	Gravel, fine to coarse, sandy, angular to subrounded-----	5	52
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	19	71
Fort Union Group:			
	Siltstone, sandy, clayey, lignitic, noncal- careous, medium-bluish-gray to grayish- brown-----	12	83
	Sand, fine to medium, lignitic, loose, medium-bluish-gray to dark-greenish-gray--	29	112
	Siltstone, clayey, sandy, noncalcareous, medium-dark-gray to brownish-gray-----	28	140

149-82-6CDD
NDSWC 5589

Elevation: 2020 ft

Glacial drift:			
	Topsoil, silty, clayey, sandy, grayish- black-----	1	1
	Clay, silty, plastic, calcareous, carbo- naceous, grayish-black to black-----	5	6
	Clay, silty, pale-olive to moderate- yellowish-brown; scattered sand and pebbles (till)-----	13	19
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	5	24
	Granite boulder-----	2	26
	Clay, silty, olive-gray to medium-dark- gray; scattered sand and pebbles (till)---	32	58
	Gravel, fine to medium, sandy; lensed with clay-----	21	79
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	21	100
	Gravel, fine to medium, sandy, angular to subrounded-----	5	105
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	50	155
Fort Union Group:			
	Siltstone, clayey, lignitic, noncalcareous, dark-greenish-gray to brownish-gray-----	25	180

149-82-10CCC
NDSWC 4075

Elevation: 1962 ft

Glacial drift:			
	Topsoil, gravelly, dark-brown-----	1	1
	Silt, clayey, sandy, yellowish-gray (till)--	5	6
	Clay, silty, sandy, pebbly, moderate- olive-brown (till)-----	37	43

149-82-10CCC, Continued
NDSWC 4075

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Gravel, fine to coarse, sandy, angular to subrounded, reddish-brown; numerous cobbles-----	12	55
Fort Union Group:			
	Siltstone, calcareous, light-gray-----	11	66
	Lignite, hard, black-----	5	71
	Shale, silty, brittle, carbonaceous, dark-gray-----	3	74
	Siltstone, calcareous, light-gray-----	6	80

149-82-12AAA
NDSWC 5591

Elevation: 1940 ft

Glacial drift:			
	Topsoil, silty, clayey, sandy, grayish-black-----	1	1
	Clay, silty, sandy, pebbly, dark-yellowish-brown (till)-----	17	18
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	7	25
	Gravel, fine to coarse, sandy, angular to subrounded-----	4	29
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	11	40
	Sand, very fine to very coarse, gravelly; lensed with clay near base-----	29	69
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	29	98
Fort Union Group:			
	Siltstone, clayey, noncalcareous, brownish-gray to pale-brown-----	42	140

149-82-12BAB1
NDSWC 2833

Elevation: 1895 ft

Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Clay, silty, sandy, gravelly, moderate-yellowish-brown-----	2	3
	Sand and gravel; fine to very coarse angular to rounded sand; fine to medium angular to subrounded gravel-----	13	16
	Gravel and sand; fine to coarse angular to subrounded gravel; coarse to very coarse angular to subrounded sand-----	10	26
	Clay, silty, very sandy, olive-gray to dark-greenish-gray-----	4	30
	Sand, medium to coarse, gravelly, angular to rounded; clay lens 38-40 ft-----	26	56
	Clay, silty, sandy, olive-gray to medium-gray; thin interbeds of fine to medium sand (till)-----	16	72
	Clay, silty, olive-gray to medium-gray; scattered lignite fragments (till)-----	39	111
	Sand, fine to coarse, clayey, angular to subrounded-----	12	123

149-82-12BAB1, Continued
NDSWC 2833

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift, Continued:			
	Clay, silty, sandy, olive-gray to medium-gray (till)-----	13	136
	Clay, silty, sandy, gravelly, olive-gray to medium-gray (till)-----	26	162
	Sand, gravelly, lignitic-----	6	168
	Clay, silty, sandy, gravelly, olive-gray (till)-----	2	170
Fort Union Group:			
	Shale, siliceous, noncalcareous, light-brownish-gray to medium-light-gray-----	50	220

149-82-12BAB2
NDSWC 5607

Elevation: 1895 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, clayey, brownish-black-----	1	1
	Sand, fine to very coarse, gravelly-----	26	27
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	8	35
	Sand, very fine to very coarse, gravelly-----	39	74
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	6	80

149-82-12BBB
NDSWC 5590

Elevation: 1930 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, clayey, grayish-black-----	1	1
	Gravel, fine to coarse, sandy, angular to subrounded-----	12	13
	Clay, silty, olive-gray; scattered sand and gravel (till)-----	23	36
	Sand, fine to very coarse, gravelly, angular to subrounded-----	38	74
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	18	92
	Gravel, fine to coarse, sandy, angular to rounded-----	5	97
Fort Union Group:			
	Sandstone, very fine to fine, clayey, silty, lignitic, noncalcareous, medium-bluish-gray-----	43	140

149-82-15AAA
NDSWC 5592

Elevation: 1902 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, clayey, sandy, black-----	2	2
	Clay, silty, dusky-yellow to moderate-yellowish-brown; scattered sand and pebbles (till)-----	27	29

149-82-15AAA, Continued
NDSWC 5592

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift, Continued:			
	Gravel, fine to coarse, sandy, angular to subrounded-----	48	77
	Clay, silty, sandy, lignitic, olive-gray (till)-----	39	116
	Sand, very fine to very coarse, gravelly, angular to subrounded-----	12	128
Fort Union Group:			
	Sandstone, very fine to fine, silty, clayey, lignitic, bluish-gray to medium-gray-----	32	160

149-82-27BBB
(Log from U.S. Air Force)

Elevation: 1954.4 ft

Glacial drift:			
	Clay, silty, sandy, trace of lignite, very stiff to hard, light brown-gray-----	19.5	19.5
	Clay, silty, trace of sand and lignite, very stiff to hard, brown-gray-----	20	39.5
	Clay, silty, trace of sand, gravel, and lignite, stiff to very stiff, dark gray---	21.5	61
Fort Union Group:			
	Sandstone, fine-grained, fractured, hard, gray-----	4	65
	Clay and silt, dense, light brown-gray-----	2	67
	Shale, silty, moderately soft, light to dark gray-----	20	87
	Sand, fine, very dense, gray, slightly cemented-----	9.5	96.5
	Shale, lignitic, moderately hard, black-brown-----	1.8	98.3
	Sand, fine, silty, very dense, brown-----	1.7	100

149-82-27DDD
NDSWC 4074

Elevation: 1899 ft

Glacial drift:			
	Topsoil, clayey, black-----	1	1
	Clay, silty, sandy, pebbly, yellowish-gray (till)-----	11	12
	Clay, silty, sandy, pebbly, olive-gray (till)-----	7	19
	Sand, medium to coarse, subangular to subrounded-----	11	30
	Clay, silty, sandy, pebbly, olive-gray (till)-----	8	38
Fort Union Group:			
	Shale, silty, lignitic, hard, carbonaceous, medium- to dark-gray-----	22	60

149-82-34CCC
NDSWC 4073

Elevation: 1890 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, pebbly, yellowish-brown-----	1	1
	Silt, clayey, sandy, yellowish-gray; scattered pebbles (till)-----	4	5
	Clay, silty, sandy, pebbly, moderate-olive- brown, numerous cobbles (till)-----	21	26
	Clay, silty, sandy, pebbly, dark-olive- brown (till)-----	26	52
	Sand, medium to coarse, gravelly, subangular to subrounded-----	9	61
	Clay, silty, greenish-olive-gray; scattered sand and pebbles (till)-----	9	70
Fort Union Group:			
	Sandstone, very fine to fine, clayey, silty, calcareous, light-green-----	36	106
	Lignite, black-----	5	111
	Shale; interbedded with lignite-----	9	120

149-82-36ABA
NDSWC 2805

Elevation: 1850 ft

Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Clay, silty, sandy, medium-light-gray to greenish-gray-----	13	14
	Sand and gravel; fine to very coarse sub- angular to rounded sand; fine to coarse subangular to rounded gravel-----	51	65
	Clay, silty, sandy, olive-gray to medium- dark-gray (till)-----	43	108
Fort Union Group:			
	Shale, siliceous, dusky-brown-----	32	140

149-83-15BBC
(Log from U.S. Air Force)

Elevation: 2005.3 ft

Glacial drift:			
	Clay, silty, trace of sand, gravel, and lignite, very stiff to hard, brown-----	30	30
	Clay, silty, trace of sand and gravel, occasional lignite fragments, very stiff to hard, brown-----	23	53
	Clay, silty, trace of sand, gravel, and lignite, very stiff to hard, gray-----	47	100

149-84-2DBD

Elevation: 1955 ft

	Clay, yellow-----	12	12
	Sand, coarse-----	77	89
	Clay, blue-----	1	90
	Coal-----	.5	90.5
	Clay, blue-----	.5	91
	Coal-----	5	96
	Clay, blue-----	7	103
	Coal-----	5	108

149-84-6DDD
NDSWC 2837

Elevation: 2020 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, brownish-black-----	1	1
	Gravel, fine to coarse, angular to subrounded-----	27	28
Fort Union Group:			
	Clay, silty, sandy, calcareous, medium-dark-gray-----	6	34
	Shale, siliceous, light-gray to light-blue-gray; lignitic toward bottom-----	26	60

149-84-11DDD
NDSWC 5584

Elevation: 1961 ft

Glacial drift:			
	Topsoil, silty, clayey, sandy, black-----	1	1
	Clay, silty, sandy, moderate-yellowish-brown (till)-----	23	24
	Clay, silty, sandy, medium-dark-gray; scattered gravel (till)-----	34	58
	Clay, silty, calcareous, moderate-yellowish-brown-----	6	64
Fort Union Group:			
	Lignite, brittle, black-----	5	69
	Clay, silty, calcareous, medium-light-gray to medium-gray-----	9	78
	Sand, fine, clayey, medium gray-----	22	100

149-84-15BBB
(Log from U.S. Air Force)

Elevation: 2008.2 ft

Glacial drift:			
	Clay, silty, sandy, trace of gravel and lignite, stiff to very stiff, brown-gray--	26.5	26.5
	Clay, silty, trace of sand, gravel, and lignite, stiff to very stiff, dark gray---	26.2	52.7
Fort Union Group:			
	Lignite, hard, brittle, black-----	2.8	55.5
	Lignite, crumbly, black-----	3.5	59
	Sand, fine, silty, trace of clay, dense, gray; occasional shale lenses-----	12.5	71.5
	Shale, silty, moderately hard, blue-gray; occasional sand lenses-----	9.5	81
	Sand, fine, silty, very dense, gray-----	10.5	91.5
	Shale, silty, moderately hard, gray-----	7	98.5
	Clay, silty, hard, black-brown-----	2	100.5

149-84-25ABB
NDSWC 5583

Elevation: 1935 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, clayey, sandy, grayish-black-----	1	1
	Clay, silty, sandy, pebbly, lignitic, moderate-yellowish-brown (till)-----	13	14
	Sand, very fine to coarse, angular to subrounded-----	6	20
	Clay, silty, sandy, pebbly, lignitic, olive-gray; few thin sand lenses (till)---	24	44
	Gravel, fine to coarse, sandy, angular to rounded-----	5	49
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	10	59
	Gravel, fine to coarse, sandy, angular to rounded-----	4	63
	Clay, silty, lignitic, olive-gray; scattered sand and pebbles (till)-----	16	79
Fort Union Group:			
	Siltstone, clayey, noncalcareous, dark-greenish-gray-----	21	100

149-84-29CDD
NDSWC 5806

Elevation: 1980 ft

Glacial drift:			
	Topsoil, silty, sandy, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; scattered cobbles (till)-	34	35
Fort Union Group:			
	Lignite, black-----	1	36
	Shale, clayey, hard, calcareous, medium-bluish-gray-----	24	60

149-84-29DCD
NDSWC 5807

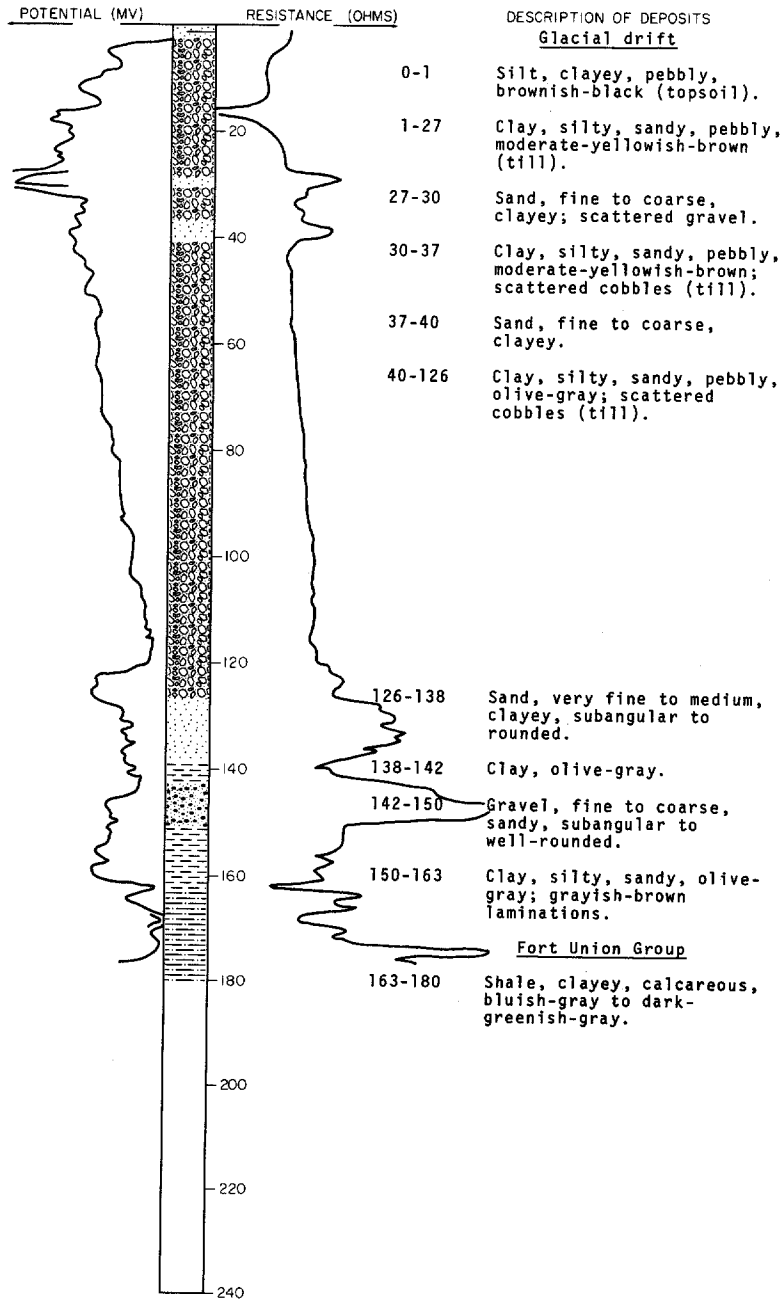
Elevation: 1955 ft

Glacial drift:			
	Topsoil, silty, sandy, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	9	10
Fort Union Group:			
	Shale, clayey, hard, moderate-yellowish-brown-----	11	21
	Shale, clayey, hard, calcareous, medium-bluish-gray-----	4	25
	Lignite, brittle, black-----	5	30

LOCATION: 149-84-31AAA
 ELEVATION: 1960
 (FT, MSL)

NDSWC 5809

DATE DRILLED: September 1970
 DEPTH: 180
 (FT)



149-84-31AAB
NDSWC 5810

Elevation: 1955 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, clayey, sandy, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; scattered cobbles (till)-	25	26
	Clay, silty, sandy, pebbly, olive-gray (till)-----	64	90
Fort Union Group:			
	Lignite, brittle, black-----	7	92
	Shale, clayey, hard, calcareous, medium-bluish-gray; interbedded with siltstone---	28	120

149-84-31ADA
NDSWC 5814

Elevation: 1940 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, pebbly, brownish-black-----	1	1
	Gravel, fine to coarse, sandy, clayey, angular to rounded-----	4	5
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	7	12
	Clay, silty, sandy, pebbly, olive-gray; scattered pebbles (till)-----	28	40
	Clay, silty, sandy, pebbly, gravelly, olive-gray (till)-----	10	50
Fort Union Group:			
	Siltstone, clayey, hard, calcareous, medium-gray to greenish-gray; interbedded with shale-----	30	80

149-84-31ADD
NDSWC 5812

Elevation: 1950 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, pebbly, brownish-black-----	1	1
	Gravel, fine to coarse, sandy, angular to rounded-----	2	3
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; scattered cobbles (till)-	24	27
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles and lignite fragments (till)-----	43	70
	Gravel, fine to coarse, angular to rounded--	2	72
Fort Union Group:			
	Siltstone, hard, calcareous, medium- to light-gray; interbedded with shale-----	28	100

149-84-32888
NDSWC 5811

Elevation: 1965 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, clayey, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; scattered cobbles (till)-	27	28
	Clay, silty, sandy, pebbly, olive-gray (till)-----	7	35
	Clay, silty, plastic, moderate-yellowish-brown to dark-yellowish-brown (till)-----	10	45
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles (till)-----	29	74
	Sand, very fine to coarse, subangular to rounded-----	5	79
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles (till)-----	36	115
	Gravel, fine to coarse, sandy, angular to well-rounded; about 20 percent shale and siltstone-----	4	119
Fort Union Group:			
	Shale, clayey, hard, calcareous, medium-gray to bluish-gray-----	21	140

149-84-32CBC
NDSWC 5813

Elevation: 1965 ft

Glacial drift:			
	Topsoil, silty, pebbly, sandy, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; scattered cobbles (till)-	44	45
	Clay, silty, sandy, pebbly, lignitic, olive-gray; scattered cobbles (till)-----	44	89
Fort Union Group:			
	Shale, hard, calcareous, medium-gray to light-gray; interbedded with siltstone----	11	100

149-84-32DAA
NDSWC 5817

Elevation: 1940 ft

Glacial drift:			
	Topsoil, silty, clayey, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; scattered cobbles (till)-	23	24
	Sand, very fine to fine, silty, subangular--	2	26
	Clay, silty, sandy, pebbly, dark-yellowish-brown (till)-----	15	41
	Clay, silty, sandy, pebbly, lignitic, olive-gray; scattered cobbles (till)-----	59	100
	Clay, silty, sandy, pebbly, light-olive-gray; isolated sand lenses (till)-----	14	114
	Gravel, fine to coarse, sandy, angular to well-rounded; about 20 percent shale, siltstone and lignite-----	5	119

149-84-32DAA, Continued
NDSWC 5817

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift, Continued:			
	Clay, silty, sandy, pebbly, lignitic, olive-gray (till)-----	4	123
	Gravel, fine to coarse, sandy, angular to well-rounded; about 20 percent shale, siltstone, and lignite-----	1	124
	Clay, silty, sandy, pebbly, olive-gray (till)-----	3	127
	Gravel, fine to coarse, sandy, angular to well-rounded; about 20 percent shale, siltstone, and lignite-----	7	134
	Clay, silty, sandy, plastic, olive-gray, laminated-----	34	168
Fort Union Group:			
	Siltstone, clayey, hard, calcareous, medium-bluish-gray to light-gray; interbedded with shale-----	32	200

149-84-32DDD
NDSWC 4062

Elevation: 1975 ft

Glacial drift:			
	Topsoil, clayey, black-----	3	3
	Gravel, fine to medium, sandy, angular to subrounded-----	2	5
	Silt, clayey, light-olive-gray; scattered sand and pebbles (till)-----	20	25
	Clay, silty, sandy, pebbly, lignitic, olive-gray; thin isolated lenses of sand and gravel (till)-----	38	63
Fort Union Group:			
	Shale, silty, sandy, hard, micaceous, calcareous, light-gray-----	17	80

149-84-33ABB
NDSWC 5816

Elevation: 1970 ft

Glacial drift:			
	Topsoil, silty, clayey, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	29	30
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles (till)-----	26	56
Fort Union Group:			
	Siltstone, clayey, hard, calcareous, medium-gray; interbedded with shale-----	24	80

149-84-33BAB
NDSWC 5815

Elevation: 1952 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, clayey, pebbly, brownish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; scattered cobbles (till)-	27	28
	Clay, silty, sandy, pebbly, olive-gray; scattered cobbles (till)-----	16	44
	Sand, very fine to coarse, subangular to rounded; about 20 percent shale and lignite-----	14	58
	Clay, silty, sandy, pebbly, light-olive-gray; scattered lignite fragments (till)--	40	98
Fort Union Group:			
	Siltstone, clayey, hard, calcareous, medium-gray; interbedded with shale-----	22	120

149-84-33BBB
NDSWC 5808

Elevation: 1955 ft

Glacial drift:			
	Topsoil, silty, sandy, pebbly, brownish-black-----	1	1
	Gravel, fine to coarse, sandy, subrounded---	5	6
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	2	8
	Clay, silty, sandy, pebbly, olive-gray (till)-----	2	10
Fort Union Group:			
	Lignite, brittle, black-----	2	12
	Shale, clayey, hard, calcareous, medium-bluish-gray; thin interbeds of lignite----	8	20

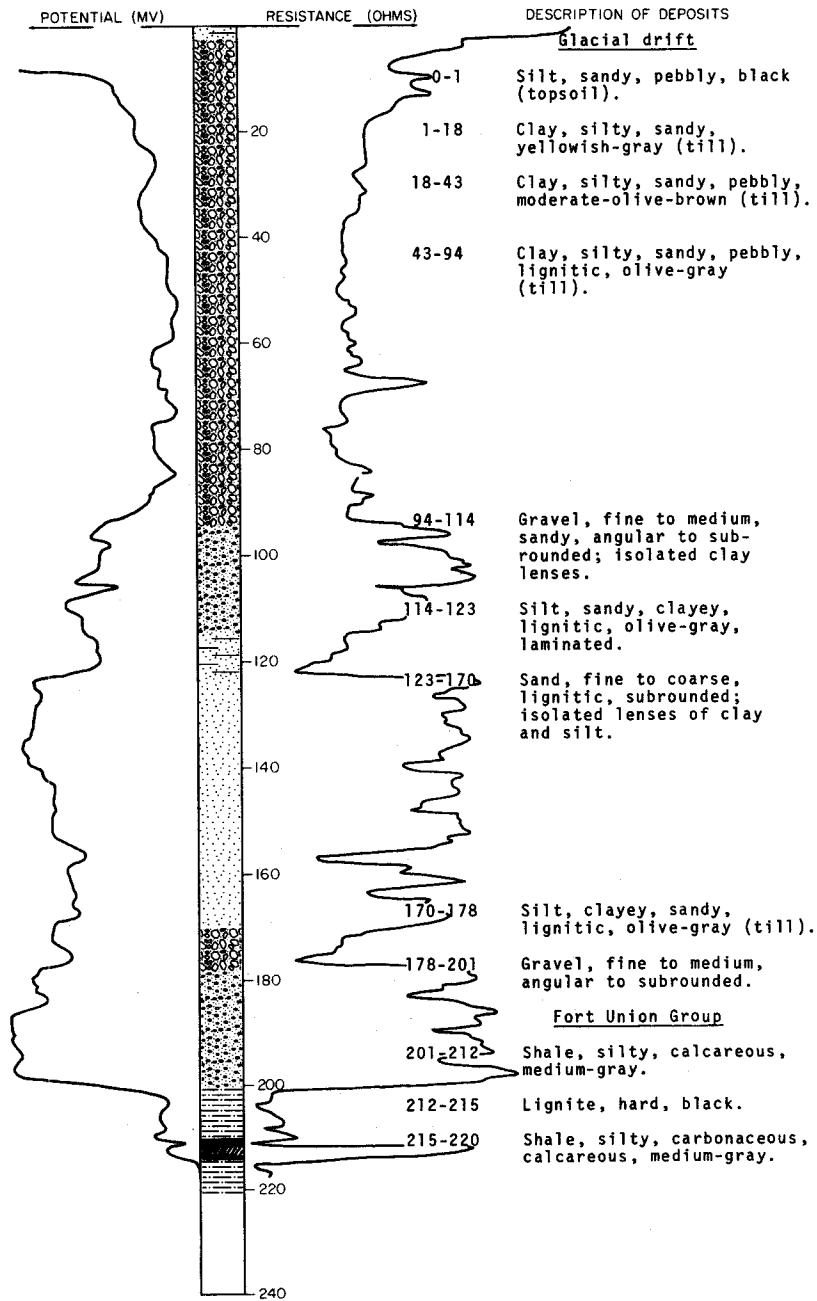
LOCATION: 149-84-33CCC

NDSWC 4061

DATE DRILLED: July 1970

ELEVATION: 1890
(FT, MSL)

DEPTH: 220
(FT)



149-84-33DCD
NDSWC 4060

Elevation: 1920 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, sandy, black-----	2	2
	Clay, silty, sandy, yellowish-gray; scattered pebbles (till)-----	6	8
	Sand, very fine to fine, subrounded, pale-red-----	7	15
	Clay, silty, sandy, pebbly, moderate- olive-brown (till)-----	5	20
	Clay, silty, sandy, pebbly, lignitic, olive-gray; gravel lenses from 49-51 ft and from 66-68 ft-----	48	68
Fort Union Group:			
	Lignite, hard, black-----	6	74
	Shale, silty, hard, grayish-green-----	6	80

149-85-5CDC
NDSWC 2838

Elevation: 2035 ft

Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Gravel, fine to coarse, clayey, angular to subrounded, dark-yellowish-orange-----	4	5
	Clay, silty, sandy, gravelly, dusky-yellow (till)-----	10	15
	Clay, silty, sandy, olive-gray to medium- gray (till)-----	19	34
	Sand, fine to medium, clayey, subangular to rounded-----	18	52
Fort Union Group:			
	Shale, siliceous, light-gray to light- bluish-gray-----	28	80

149-85-14CDD
(Log from U.S. Air Force)

Elevation: 2022.0 ft

Glacial drift:			
	Clay, silty, sandy, trace of gravel, very stiff, brown; occasional cobbles and boulders-----	20	20
	Clay, silty, trace of sand, gravel, and lignite, very stiff, gray-brown-----	8	28
	Silt and clay, sandy, trace of gravel, dense, brown-gray-----	4	32
	Clay, silty, trace of sand, gravel, and lignite, very stiff to hard, brown-gray---	12	44
	Clay, silty, trace of sand, gravel, and lignite, very stiff to hard, dark gray----	25	69
Fort Union Group:			
	Silt, clayey, trace of sand, very dense, gray; lignite 69.5-70.5 ft, lignite seams 88-94 ft-----	31	100

149-86-3CBC
(Log from U.S. Air Force)

Elevation: 2098.7 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Clay, silty, sandy, trace of gravel, stiff, brown-----	8	8
	Clay and silt, trace of sand, gravel, and lignite, very stiff, brown-----	6	14
	Clay, silty, trace of sand, gravel, and lignite, very stiff, brown-----	10	24
	Clay, silty, trace of sand and gravel, stiff to very stiff, gray-----	9.5	33.5
	Silt, sandy, clayey, very dense, dark gray--	3	36.5
	Sand, fine, silty, very dense, gray; lignite fragments 45-46.5 ft-----	12	48.5
	Clay, silty, sandy, trace of gravel and lignite, very stiff, dark gray-----	9	57.5
	Sand, fine, silty, trace of clay and gravel, dense, gray-----	5.5	63
	Clay, silty, sandy, trace of gravel and lignite, very stiff to hard, dark gray----	11	74
	Clay, silty, trace of sand, gravel, and lignite, hard, dark gray; gravel, cobbles, and boulders 80-82 ft-----	26	100

149-86-15ABB
NDSWC 3618

Elevation: 2105 ft

Glacial drift:			
	Topsoil, pebbly, black-----	1	1
	Clay, silty, sandy, pebbly, yellowish-gray (till)-----	4	5
	Clay, silty, sandy, pebbly, moderate-olive-brown; few thin gravel lenses (till)-----	23	28
Fort Union Group:			
	Shale, silty and brittle, medium-gray to greenish-gray-----	32	60

149-86-32AAA
NDSWC 5570

Elevation: 2050 ft

Glacial drift:			
	Topsoil, silty, clayey, sandy, grayish-black-----	1	1
	Gravel, fine to coarse, and medium to very coarse subangular to rounded sand-----	19	20
	Sand, very fine to coarse, angular to subangular-----	31	51
Fort Union Group:			
	Sandstone, fine, calcareous, medium-gray to light-gray-----	9	60

149-86-33ADA
(Log from U.S. Air Force)

Elevation: 2073.2 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Sand, clayey, medium dense, yellow-brown----	5	5
	Clay, silty, trace of sand and lignite, very stiff to hard, brown-----	16.5	21.5
	Silt, sandy, clayey, very dense, yellow- brown-----	9.5	31
	Clay and silt, hard, yellow-brown-----	8	39
	Silt, sandy, very dense, gray-----	4.5	43.5
	Clay, silty, lignitic, very hard, light gray to gray-black-----	10.5	54
	Silt, clayey, trace of sand and lignite, very dense, dark green-gray-----	8.5	62.5
	Sand, fine, silty, very dense, gray-----	4.5	67
	Shale, moderately soft, dark gray; occasional thin silt seams-----	16	83
	Sand, fine, silty, very dense, gray-----	11.5	94.5
	Shale, silty, moderately soft, gray-----	6	100.5

149-87-6DCC
NDSWC 3616

Elevation: 2085 ft

Glacial drift:			
	Silt, loose, dry, yellowish-gray-----	3	3
	Silt, clayey, yellowish-gray; scattered sand and fine gravel-----	7	10
	Clay, silty, sandy, moderate-olive-brown----	12	22
	Clay, silty, plastic, light-olive-gray-----	18	40
	Clay, silty, sandy, dusky-yellow; scattered gravel (till)-----	15	55
Fort Union Group:			
	Sandstone, very fine, calcareous, light- greenish-gray-----	3	58
	Shale, sandy, brittle, medium-gray-----	3	61
	Lignite, hard, black-----	4	65
	Shale, soft to hard, oily, black-----	3	68
	Sand, very fine, clayey, olive-gray-----	4	72
	Shale, hard, medium-gray to greenish-gray---	8	80

149-87-20BBB
NDSWC 5571

Elevation: 2070 ft

Glacial drift:			
	Topsoil, silty, clayey, sandy, grayish-black	1	1
	Clay, silty, sandy, pebbly, moderate- yellowish-brown (till)-----	25	26
Fort Union Group:			
	Shale, clayey, silty, sandy, calcareous, dark-yellowish-brown-----	9	35
	Lignite, brittle, black-----	7	42
	Sand, very fine, clayey, silty, lignitic, noncalcareous-----	18	60

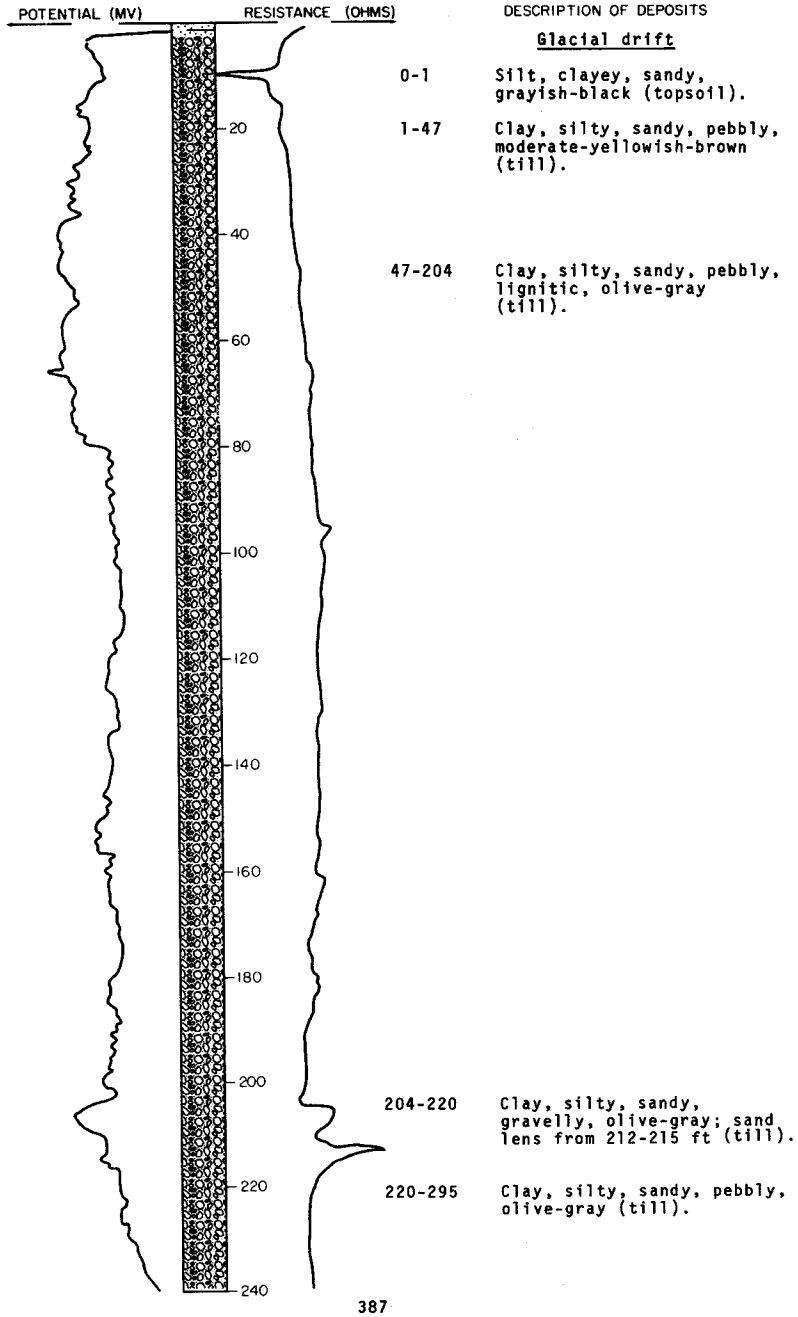
LOCATION: 149-87-30ADD

NDSWC 5561

DATE DRILLED: October 1969

ELEVATION: 2000
(FT, MSL)

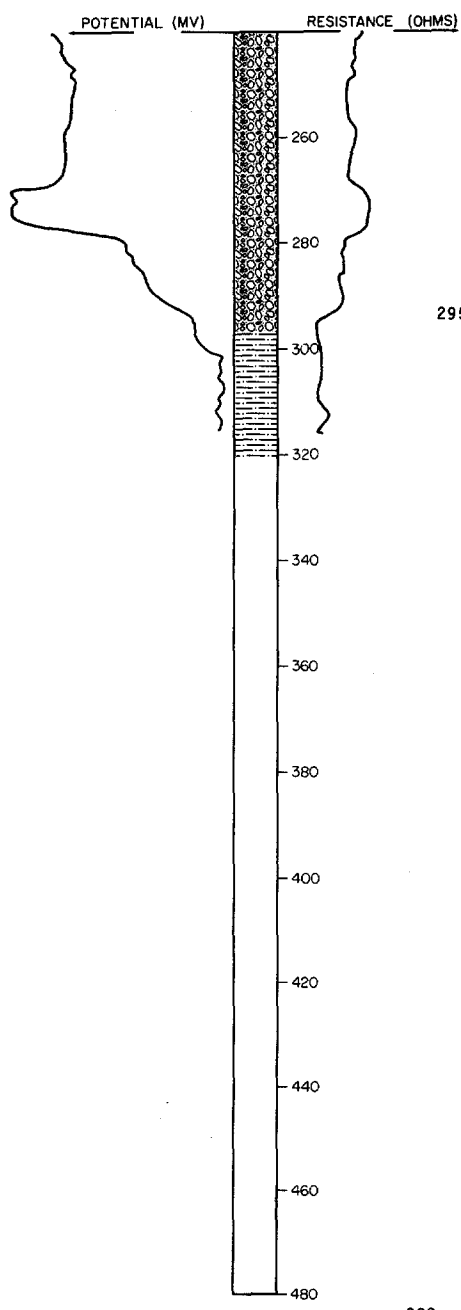
DEPTH: 320
(FT)



LOCATION: 149-87-30ADD
ELEVATION: 2000
(FT, MSL)

NDSWC 5561, Continued

DATE DRILLED: October 1969
DEPTH: 320
(FT)



DESCRIPTION OF DEPOSITS

Fort Union Group

295-320 Shale, clayey, silty, sandy, calcareous, medium-gray.

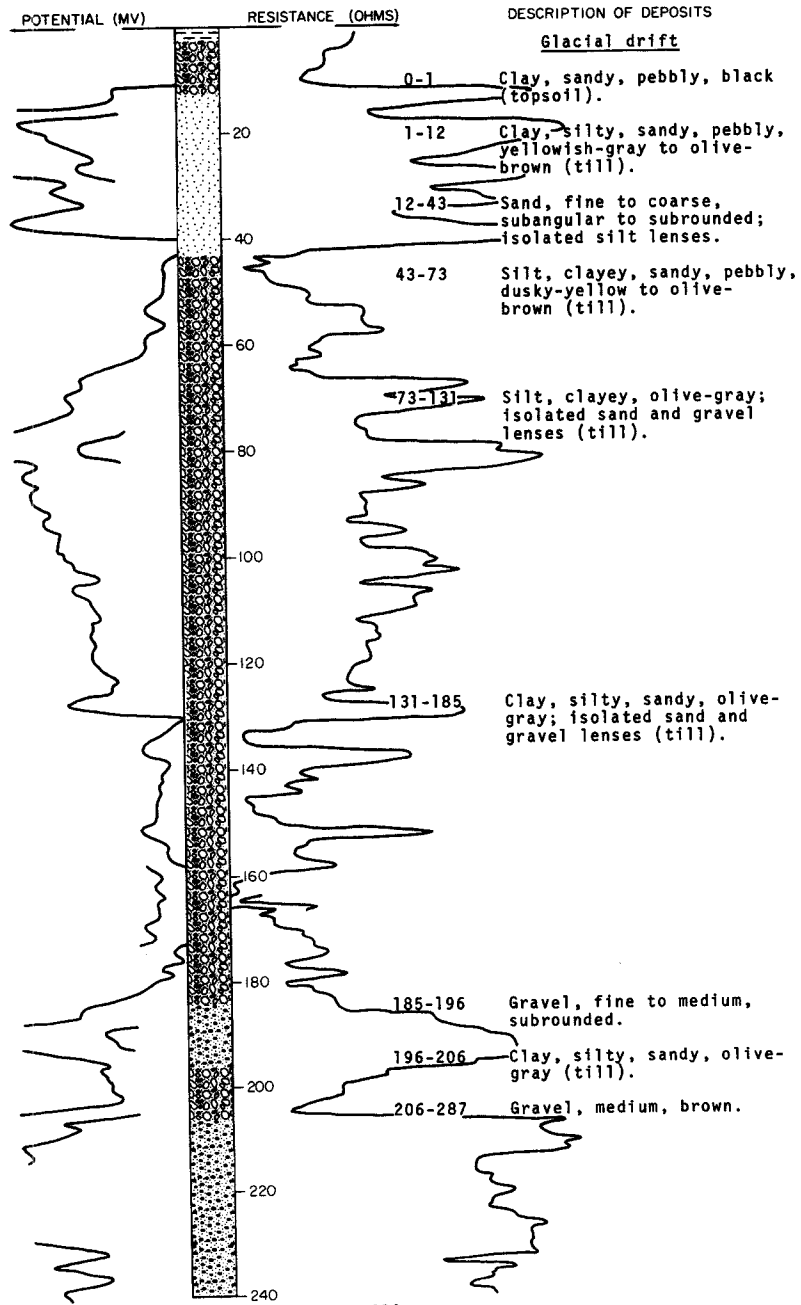
LOCATION: 149-87-32CCC

NDSWC 3622

DATE DRILLED: July 1968

ELEVATION: 2002
(FT, MSL)

DEPTH: 440
(FT)



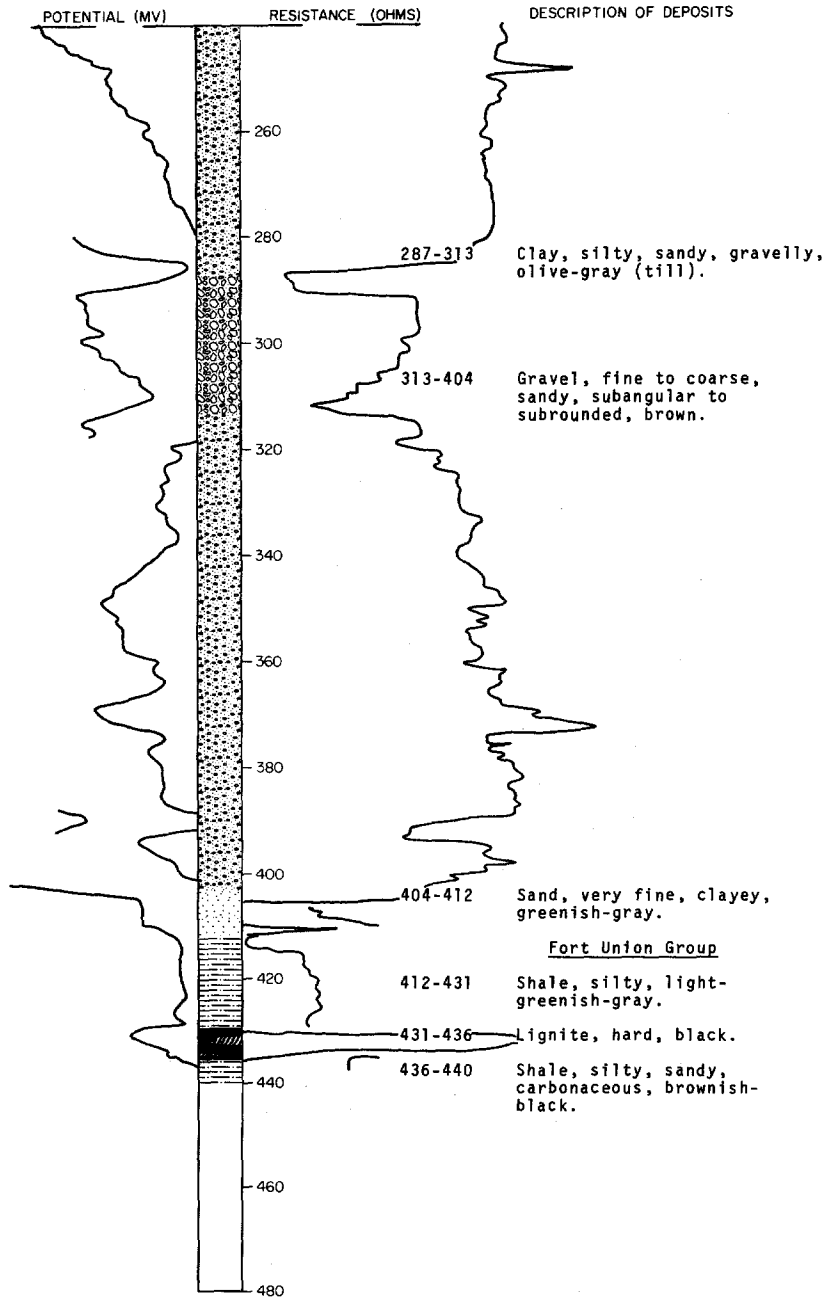
LOCATION: 149-87-32CCC

NDSWC 3622, Continued

DATE DRILLED: July 1968

ELEVATION: 2002
(FT, MSL)

DEPTH: 440
(FT)



149-87-34ABB
(Log from U.S. Air Force)

Elevation: 1991.7 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Clay, very silty, sandy, trace of lignite and gravel, stiff to very stiff, brown; occasional silt seams-----	18	18
	Silt, sandy, clayey, dense, brown-----	5.5	23.5
	Clay and silt, sandy, trace of gravel and lignite, very stiff, brown-----	6.5	30
	Silt, clay and sand, dense, brown-----	4	34
	Clay, silty, sandy, very stiff, brown; occasional sand lenses and silt seams-----	9	43
	Silt, clayey, sandy, very dense, gray-----	10.5	53.5
	Clay, silty, occasional thin lens of fine sand, very stiff to hard, gray-----	10	63.5
	Silt, clayey, trace of fine sand, very dense, gray-----	10.5	74
	Sand, fine, silty, trace of lignite, very dense, gray-----	20	94
	Clay, silty, sandy, trace of gravel and lignite, very stiff, gray-----	6.5	100.5

149-88-1CDD
(Log from U.S. Air Force)

Elevation: 2065 ft

Glacial drift:			
	Clay, silty, trace of sand and gravel, stiff, brown-----	5.5	5.5
	Clay and silt, trace of sand and gravel, stiff, brown and gray-----	17.5	23
	Clay, silty, trace of sand and gravel, very stiff, brown and gray-----	11	34
	Clay, silty, trace of sand and gravel, very stiff to hard, gray-----	34	68
	Sand, fine, silty, very dense, gray and brown-----	8	76
	Sand, fine and clay, interbedded, silty, very dense, gray-----	4	80
	Silt and clay, trace of sand, very dense, gray-----	8	88
	Sand, fine to medium, silty, trace of clay and gravel, dense, gray-----	12	100

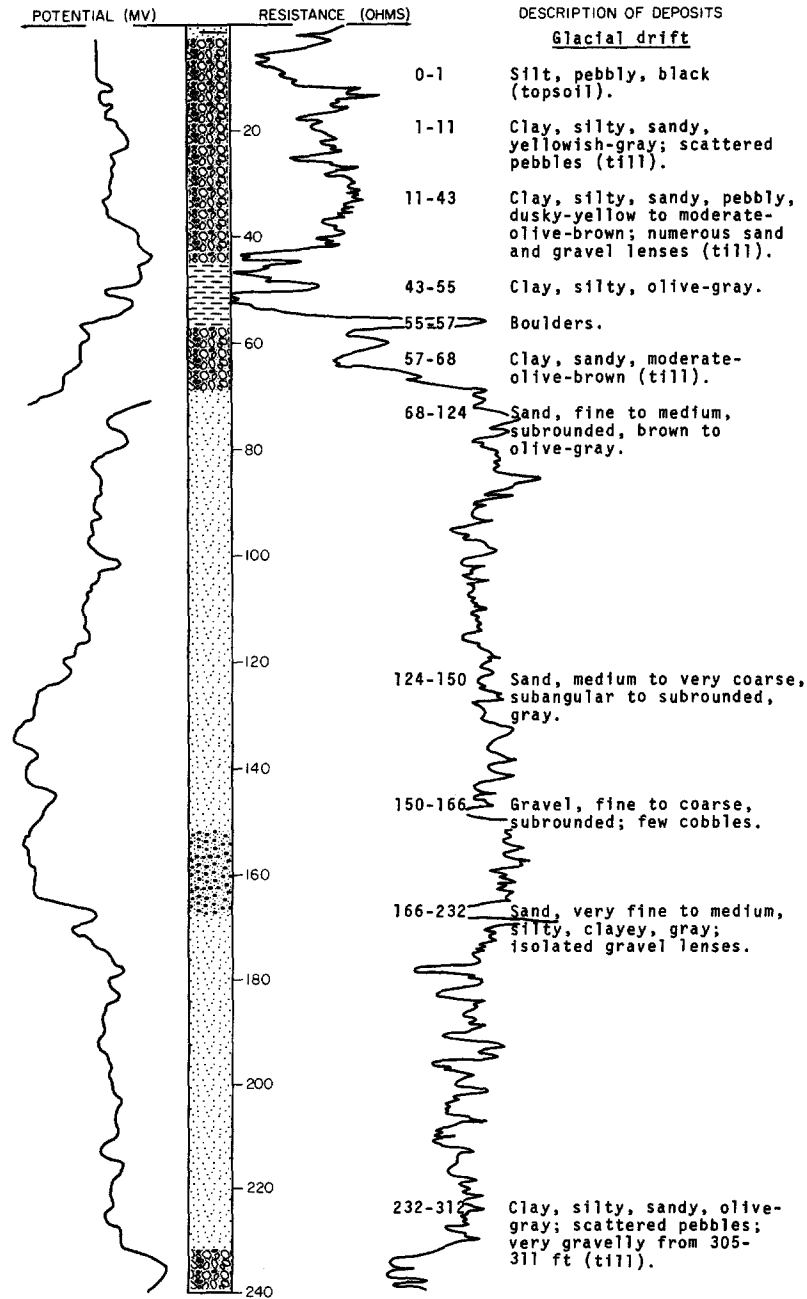
LOCATION: 149-88-19BCC

NDSWC 4046

DATE DRILLED: July 1970

ELEVATION: 1968
(FT, MSL)

DEPTH: 340
(FT)

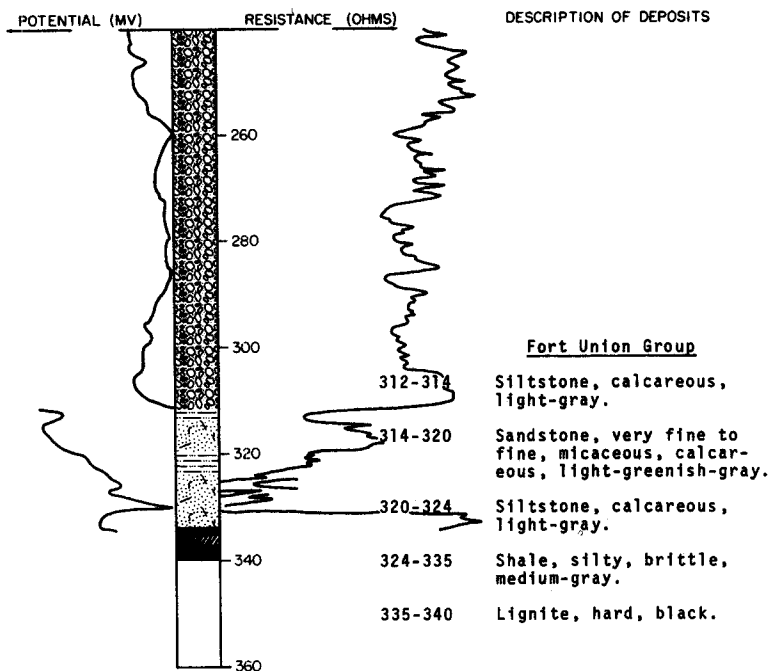


LOCATION: 149-88-198CC
 ELEVATION: 1968
 (FT, MSL)

NDSWC 4046, Continued

DATE DRILLED: July 1970

DEPTH: 340
 (FT)



149-88-27888
 NDSWC 3625

Elevation: 1955 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, pebbly, black-----	1	1
	Silt, clayey, pebbly, yellowish-gray (till)-----	4	5
	Clay, silty, sandy, dusky-yellow to moderate-olive-brown; few sand lenses (till)-----	22	27
	Clay, silty, sandy, moderate-olive-brown to light-olive-gray; few pebbles and sand lenses (till)-----	10	37
	Clay, silty, plastic, olive-gray-----	5	42
Fort Union Group:			
	Shale, silty, light-yellowish-green; sandy streaks-----	18	60

149-88-27CCC
(Log from U.S. Air Force)

Elevation: 2005 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Clay, silty, sandy, trace of gravel and lignite, very stiff to hard, dark brown---	24	24
	Clay, silty, trace of sand and gravel, hard, brown; occasional sand seams-----	13	37
	Sand, fine, silty, very dense, brown-----	26	63
	Silt and fine sand, very dense, brown-----	5	68
	Clay and silt, sandy, hard, brown-----	6	74
	Clay, silty, sandy, trace of gravel and lignite, very stiff to hard, brown and gray-----	29	103

149-88-32AAC
(Log from R. F. Jahnke)

Elevation: 2042 ft

	Clay, yellow-----	35	35
	Clay, blue-----	23.5	58.5
	Gravel and boulders-----	2.5	61
	Clay, sandy, yellow-----	7	68
	Clay, sandy or sandstone, hard-----	4	72
	Sandstone and gravel, interbedded-----	11	83
	Sandstone, yellow-----	13	96
	Gravel and clay-----	14	110
	Clay, sandy, yellow-----	70	180
	Clay, blue-----	30	210
	Sand, fine, with clay lenses-----	50	260
	Sand, coarse-----	6	266
	Sand, coarse, and gravel-----	4	270
	Sand, fine, and coal-----	5	275

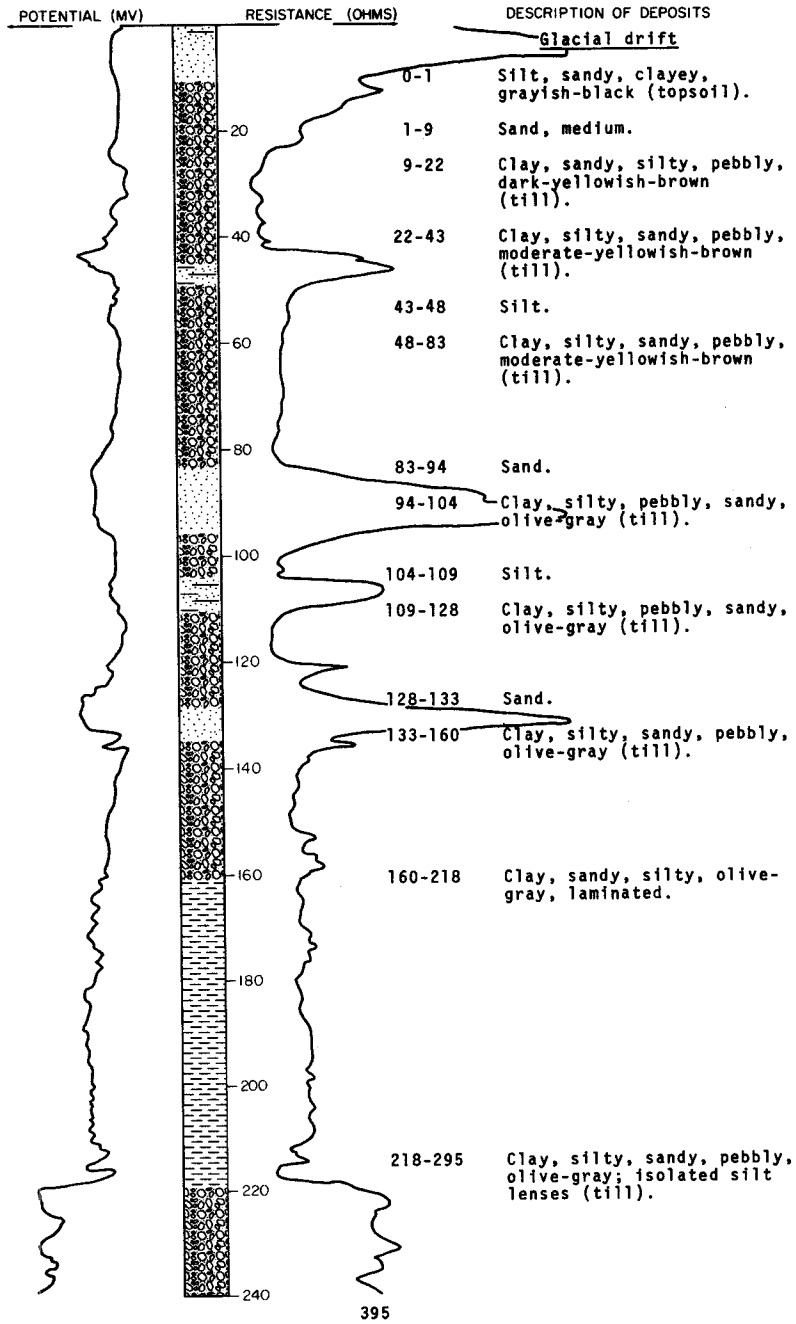
LOCATION: 149-88-35ABB

NDSWC 5560

DATE DRILLED: October 1969

ELEVATION: 2025
(FT, MSL)

DEPTH: 400
(FT)

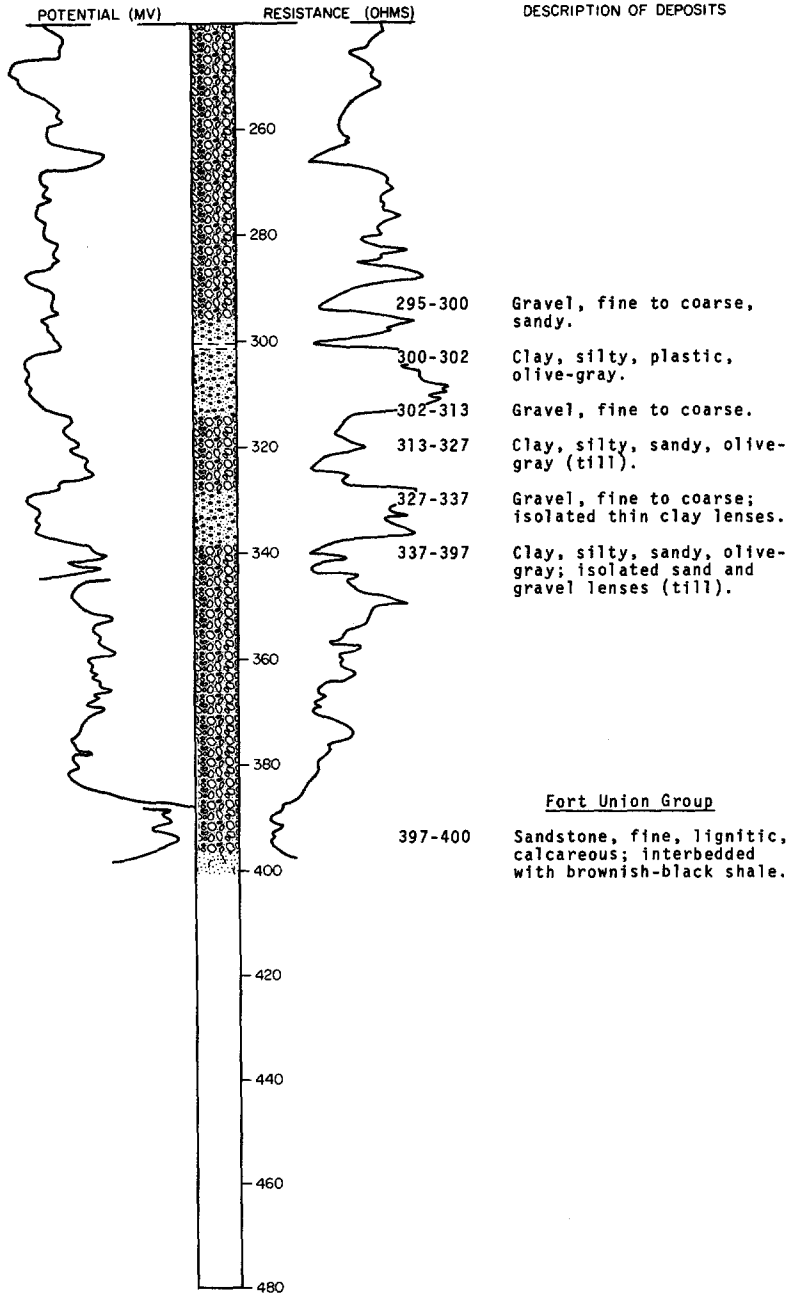


LOCATION: 149-88-35ABB

DATE DRILLED: October 1969

ELEVATION: 2025
(FT, MSL)

DEPTH: 400
(FT)



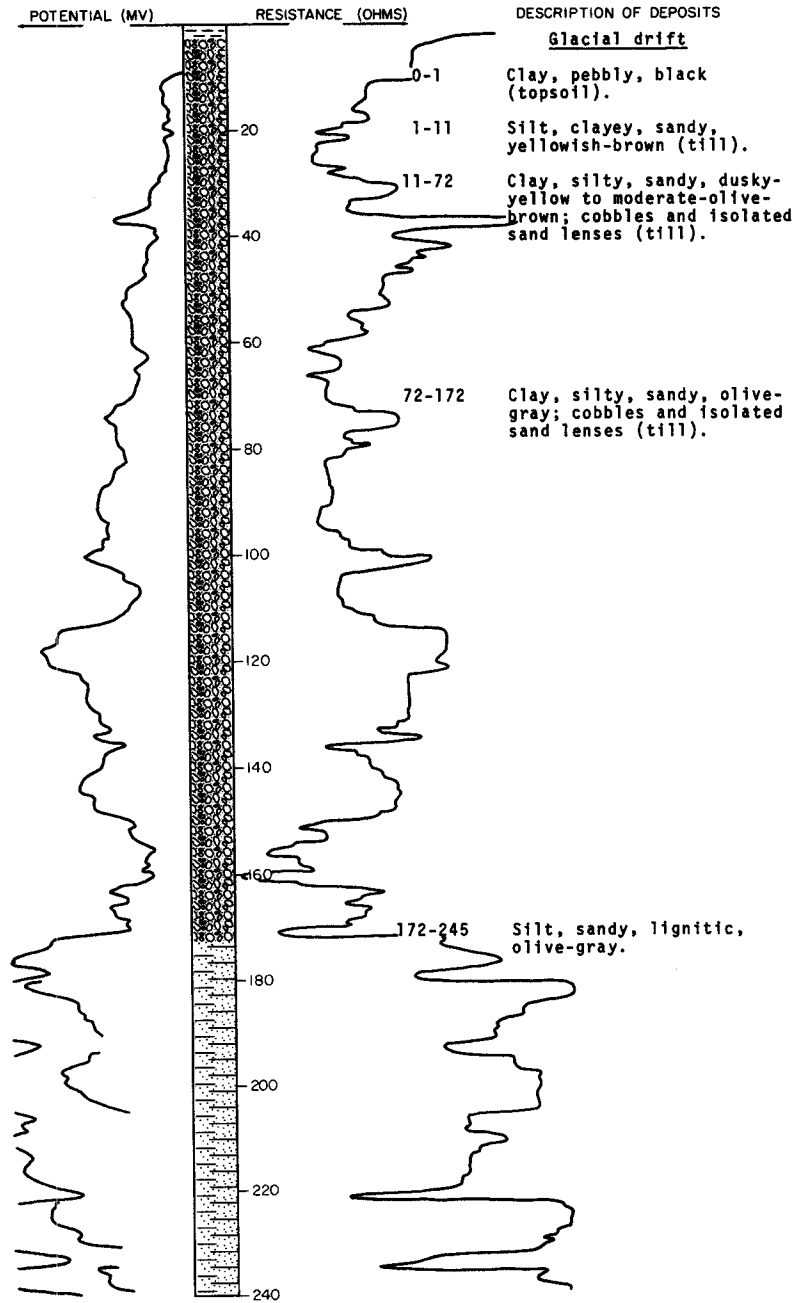
LOCATION: 149-88-36AAA

NDSWC 3623

DATE DRILLED: July 1968

ELEVATION: 1986
(FT, MSL)

DEPTH: 300
(FT)



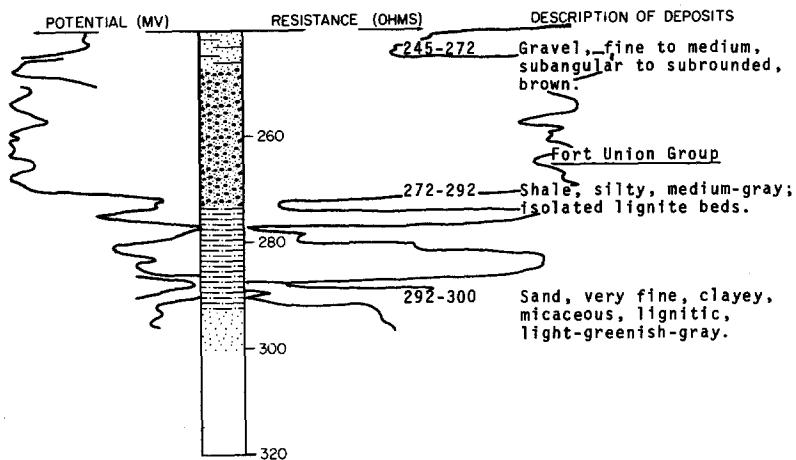
LOCATION: 149-88-36AAA

NDSWC 3623, Continued

DATE DRILLED: July 1968

ELEVATION: 1986
(FT, MSL)

DEPTH: 300
(FT)



149-89-2BBB
NDSWC 5556

Elevation: 1942 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, sandy, clayey, black-----	1	1
	Clay, silty, moderate-yellowish-brown; scattered sand and pebbles (till)-----	46	47
	Clay, very silty, olive-gray to medium-gray, laminated-----	44	91
	Clay, silty, sandy, grayish-purple, laminated, fossiliferous-----	8	99
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	129	228
	Gravel, fine to coarse, and fine to very coarse angular to rounded sand-----	42	270
	Clay, silty, sandy, gravelly, olive-gray; gravel lens from 279-280 ft (till)-----	21	291
Fort Union Group:			
	Sandstone, fine, calcareous, micaceous-----	2	293
	Shale, clayey, calcareous, medium-gray; thin sandstone interbeds-----	12	305

149-89-2DAD
NDSWC 2842

Elevation: 1881 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, gravelly, grayish-black-----	1	1
	Gravel, fine to medium, sandy, clayey, angular to subrounded-----	3	4
	Clay, silty, sandy, plastic, moderate-yellowish-brown to dusky-yellow-----	10	14
	Clay, silty, sandy, calcareous, plastic, olive-gray to dark-greenish-gray-----	54	68
	Sand, fine to coarse-----	12	80
	Clay, silty, calcareous, plastic, olive-gray to dark-greenish-gray-----	36	116
	Clay, silty, sandy, olive-gray to dark-greenish-gray; gravelly from 181-189 ft and from 221-261 ft (till)-----	150	266
	Gravel, fine to coarse, clayey; abundant lignite fragments-----	7	273
	Clay, silty, sandy, olive-gray; thin gravel lenses (till)-----	22	295
	Sand, fine to medium, clayey, light-bluish-gray-----	5	300
	Clay, silty, sandy, gravelly, olive-gray (till)-----	34	334
	Granite boulder-----	2	336
Fort Union Group:			
	Sandstone, noncalcareous, light-bluish-gray; becomes clayey near bottom-----	24	360

149-89-4CDC
(Log from R. F. Jahnke)

Elevation: 1906 ft

Glacial drift:			
	Clay, yellow-----	14	14
	Sand and gravel-----	2	16
	Clay with rocks-----	12	28
	Rock-----	1	29
	Clay, blue-----	26	55
	Clay, sandy-----	5	60
	Sand, fine-----	10	70
	Sand, very fine and slush coal-----	15	85
	Sand, coarse-----	10.5	95.5
Fort Union Group(?):			
	Clay, blue-----	2	97.5
	Limerock, dark-----	3	100.5
	Clay, dark gray-----	.5	101
	Clay, sandy, hard-----	2	103
	Sand, fine, dark-----	1	104
	Clay, sticky, dark-----	6	110

149-89-8CBC
NDSWC 3612

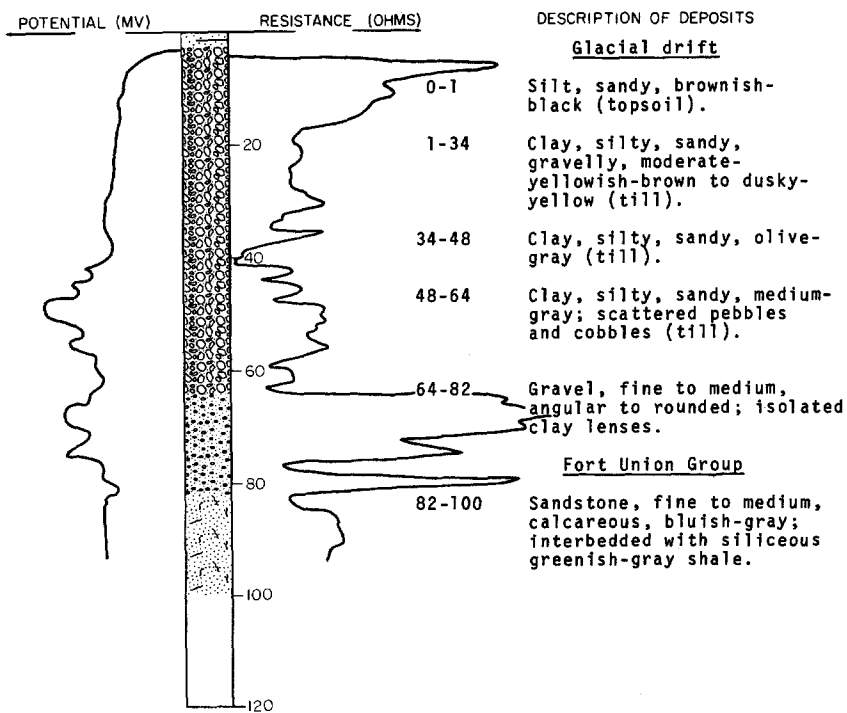
Elevation: 1862 ft

Glacial drift:			
	Topsoil, gravelly, black-----	2	2
	Sand, fine to coarse, clayey, subangular-----	4	6
	Gravel, fine to medium, subrounded-----	7	13

149-89-8C8C, Continued
NDSWC 3612

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Fort Union Group:			
	Clay, silty, sandy, soft, micaceous, yellowish-gray to dusky-yellow-----	7	20
	Sand, very fine to fine, micaceous, yellowish-green-----	10	30
	Clay, silty, moderate-olive-brown-----	2	32
	Sand, very fine to fine, clayey, micaceous, lignitic, light-greenish-gray-----	35	67
	Shale, silty, brittle, light-greenish-gray--	13	80

LOCATION: 149-89-9BAB NDSWC 2841 DATE DRILLED: September 1967
 ELEVATION: 1902 DEPTH: 100
 (FT, MSL) (FT)



149-89-10AAA
NDSWC 3613

Elevation: 1885 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, sandy, black-----	1	1
	Gravel, fine to medium, sandy, oily, subangular to subrounded-----	7	8
	Silt, clayey, sandy, light-olive-gray-----	8	16
	Sand, fine to medium, subrounded, light-gray-----	7	23
	Clay, carbonaceous, plastic to slightly brittle, olive-gray to olive-black-----	98	121
	Clay, silty to very sandy, olive-gray; few gravel lenses (till)-----	56	177
	Gravel, fine to medium, subrounded-----	9	186
	Clay, silty, sandy, olive-gray (till)-----	18	204
	Gravel, fine to coarse, sandy, subangular to subrounded-----	12	216
Fort Union Group:			
	Shale, sandy, hard and brittle, light-olive-gray-----	13	229
	Silt, olive-gray-----	6	235
	Sand, very fine to fine, micaceous, greenish-gray-----	5	240
	Sandstone, fine, calcareous-----	6	246
	Sand, very fine to fine, micaceous, greenish-gray-----	14	260

149-89-10BBC
NDGS auger hole 41

Elevation: 1880 ft

Glacial drift:			
	Till, silty, olive-gray-----	13	13
	Sand, very fine to fine, silty-----	17	30
Fort Union Group:			
	Sandstone, fine, clayey, noncalcareous-----	5	35

149-89-11CBB
(Log from R. F. Jahnke)

Elevation: 1942 ft

	Clay, yellow-----	40	40
	Clay, blue-----	20	60
	Clay, yellow-----	30	90
	Clay, dark yellow-----	8	98
	Clay, dark, with sand and coal lenses-----	32	130
	Clay, gray, with sand and coal-----	10	140
	Clay, sticky, dark; sand lenses-----	17	157
	Clay, blue-----	13	170

149-89-13AAA
NDSWC 4067

Elevation: 1963 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, pebbly, sandy, black-----	2	2
	Clay, silty, sandy, dusky-yellow; scattered pebbles and isolated sand lenses (till)---	20	22
	Silt, clayey, light-olive-gray to light-greenish-gray-----	22	44
	Clay, silty, plastic, light-olive-gray to light-greenish-gray-----	12	56
	Clay, plastic; greenish-gray to dark-greenish-gray with black streaks-----	16	72
	Silt, clayey, light-greenish-gray to greenish-gray; interbedded with clayey fine sand-----	30	102
	Clay, silty, greenish-gray-----	16	118
	Clay, silty, yellowish-gray to light-olive-gray-----	32	150
	Clay, sandy, bluish-white with black spots--	7	157
	Gravel, fine to medium, sandy, subangular to subrounded-----	6	163
	Clay, silty, sandy, pebbly, olive-gray (till)-----	8	171
	Sand, medium to coarse, subangular to subrounded; numerous gravel-size lignite fragments-----	7	178
	Clay, silty, sandy, pebbly, olive-gray; isolated thin sand and gravel lenses (till)-----	10	188
	Sand, fine to very coarse; isolated gravel and clay lenses-----	41	229
	Clay, silty, sandy, pebbly, lignitic, olive-gray (till)-----	63	292
	Clay, silty, sandy, pebbly, brownish-gray; isolated thin gravel lenses (till)-----	31	323
	Clay, sandy, pebbly, lignitic; numerous lenses of sand and fine gravel (till)-----	77	400
Fort Union Group:			
	Shale, silty, hard, light- to medium-gray---	6	406
	Sandstone, very fine, clayey, micaceous, calcareous, greenish-gray-----	6	412
	Shale, silty, lignitic, hard, dark-gray-----	8	420

149-89-13DAA
NDSWC 4049

Elevation: 1960 ft

Glacial drift:			
	Topsoil, sandy, black-----	2	2
	Clay, sandy, yellowish-gray-----	2	4
	Clay, silty, dusky-yellow-----	5	9
	Sand, very fine to fine, subrounded, yellowish-gray-----	6	15
	Clay, plastic, dusky-yellow; heavy limonite stains-----	6	21
	Sand, very fine to fine, subangular to subrounded, light-brown-----	9	30
	Sand, fine to medium, pale-yellowish-brown--	8	38
	Clay, silty, plastic, dark-gray to black; organic material-----	26	64
	Sand, medium to fine, subangular to subrounded, light-brownish-gray-----	12	76

149-89-13DAA, Continued
NDSWC 4049

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Silt, clayey, light-greenish-gray-----	24	100
	Clay, plastic, yellowish-green to olive-gray-----	48	148
	Clay, silty, plastic, dark-gray to olive-black-----	43	191
	Gravel, fine to coarse, sandy, subangular to subrounded-----	25	216
	Clay, sandy, olive-gray; black organic streaks-----	14	230
	Clay, silty, sandy, pebbly, olive-gray; numerous cobbles and lenses of gravel (till)-----	137	367
Fort Union Group:			
	Siltstone, clayey, sandy, calcareous, bluish-white-----	2	369
	Lignite, hard, black-----	3	372
	Sand, very fine, clayey, noncalcareous, medium- to dark-gray-----	13	385
	Lignite, hard, black-----	1	386
	Shale, silty, brittle, noncalcareous, medium-dark-gray-----	14	400

149-89-15AAA
NDSWC 5555

Elevation: 1930 ft

Glacial drift:			
	Topsoil, silty, clayey, sandy, grayish-black-----	1	1
	Clay, silty, moderate-yellowish-brown; scattered sand and pebbles (till)-----	21	22
	Clay, silty, plastic, calcareous, moderate-yellowish-brown-----	33	55
	Clay, very silty, plastic, calcareous, laminated, olive-gray-----	52	107
	Clay, silty, moderate-yellowish-brown; scattered sand and pebbles (till)-----	13	120
	Clay, silty, olive-gray; scattered sand and pebbles and thin lenses of detrital lignite (till)-----	20	140
	Sand, gravelly; clay lenses-----	21	161
	Clay, silty, olive-gray; scattered sand and pebbles (till)-----	81	242
	Gravel, fine to coarse, sandy, angular to rounded-----	14	256
	Clay, silty, sandy, olive-gray (till)-----	13	269
	Gravel and boulders, clayey-----	5	274
Fort Union Formation:			
	Sandstone, fine, clayey, silty, lignitic, micaceous, noncalcareous, medium-gray to light-olive-gray-----	26	300

149-89-15DDC
NDSWC 5574

Elevation: 1945 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, clayey, grayish-black-----	1	1
	Clay, silty, lignitic, moderate-yellowish-brown; scattered sand and pebbles (till)---	28	29
	Clay, silty, pebbly, sandy, olive-gray (till)-----	3	32
	Clay, sandy, silty, olive-gray-----	22	54
	Clay, silty, pebbly, sandy, olive-gray; thin lenses of lignitic gravel (till)-----	82	136
	Sandstone boulder-----	4	140
	Gravel, fine to coarse, sandy, angular to rounded-----	3	143
	Clay, silty, sandy, gravelly, olive-gray (till)-----	3	146
	Gravel, fine to coarse, sandy, angular to rounded-----	16	162
Fort Union Group:			
	Sandstone, fine, lignitic, calcareous-----	3	165

149-89-15DDD
NDSWC 5573

Elevation: 1950 ft

Glacial drift:			
	Topsoil, silty, clayey, grayish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	39	40
Abandoned hole due to loss of circulation at 30 ft.			

149-89-18ADB
(Log from R. F. Jahnke)

Elevation: 1935 ft

	Topsoil-----	4	4
	Clay, yellow-----	22	26
	Clay, blue-----	2	28
	Sand or soft sandstone, soft, dark-----	2	30
	Clay, sandy, yellow-----	15	45
	Clay, blue-----	40	85
	Clay, soft, blue, with fine sand and coal---	3	88
	Clay, sandy, soft-----	7	95
	Clay, dark, gravelly-----	5	100
	Clay, sandy, yellow-----	10	110
	Sand, coarse, and gravel-----	2	112

149-89-19ADA
(Log from R. F. Jahnke)

Elevation: 1982 ft

Glacial drift:			
	Soil-----	2	2
	Clay, gray-----	2	4
	Clay, yellow; contains rocks and gravel----	38	42
	Sandstone, hard-----	8	50

149-89-19ADA, Continued
(Log from R. F. Jahnke)

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift, Continued:			
	Sand and gravel-----	6	56
	Rock, hard-----	7	63
	Sand, loose-----	2	65
Fort Union Group:			
	Clay, sandy, hard, yellow; or sandstone----	17	82
	Clay, sticky, gray-----	8	90
	Clay, dark, mixed with fine coal-----	6	96
	Clay, light gray-----	21	117
	Clay, sandy, gray-----	24	141
	Sandstone, soft-----	9	150
	Sandstone, gray; interbedded with shale----	17	167

149-89-20CCB
NDSWC 5554

Elevation: 1930 ft

Fort Union Group:			
	Topsoil, silty, clayey, sandy, grayish-black-----	1	1
	Sandstone, clayey, silty, calcareous, moderate-yellowish-brown to medium-bluish-gray-----	28	29
	Shale, clayey, silty, noncalcareous, greenish-gray to medium-gray; streaked with lignite-----	11	40

149-89-23CCC
(Log from R. F. Jahnke)

Elevation: 2017 ft

Glacial drift:			
	Clay, sandy, dry-----	3	3
	Clay, yellow, moist-----	12	15
	Clay, yellow; dry, mixed with slack coal----	15	30
	Clay, sandy, boulders-----	50	80
Fort Union Group:			
	Sandstone, blue, dry-----	50	130
	Sandstone, hard-----	10	140
	Sandstone, soft-----	7	147

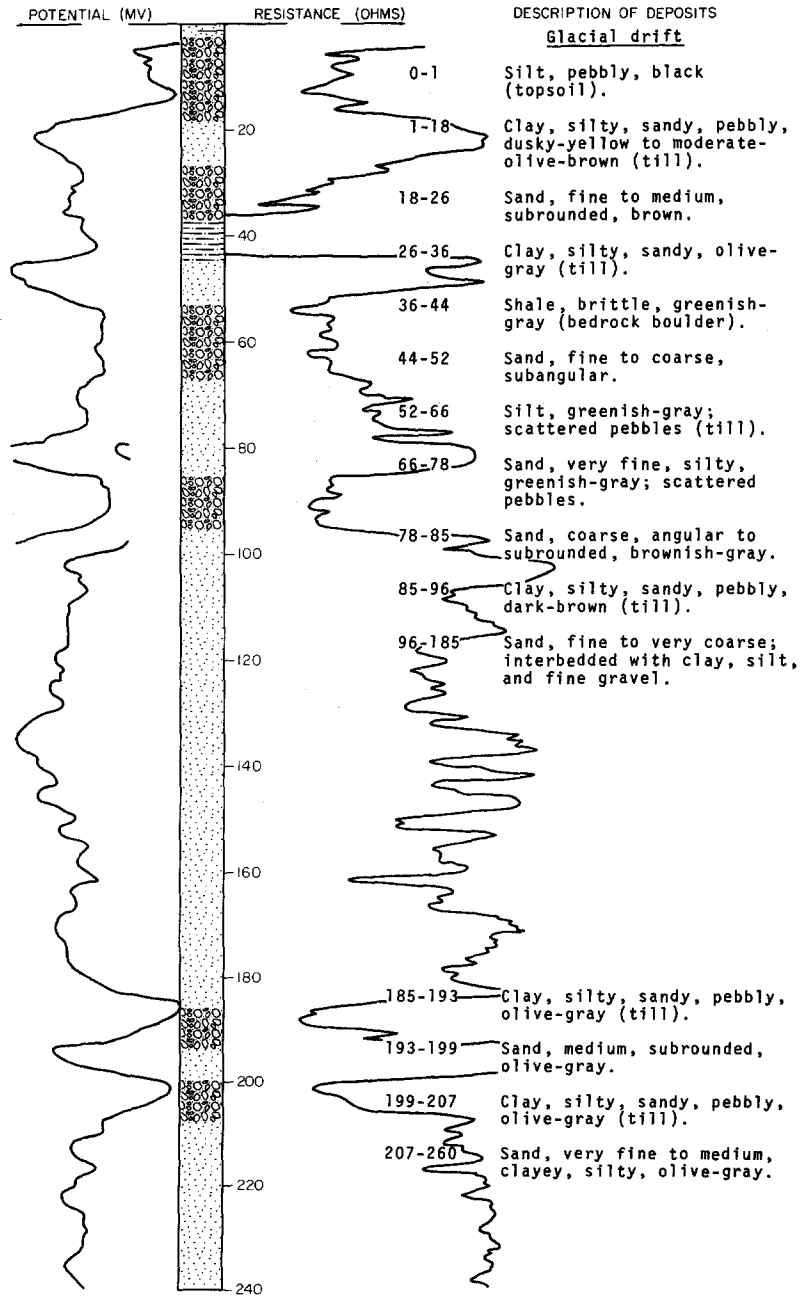
NDSWC 4048

LOCATION: 149-89-24AAA

DATE DRILLED: July 1970

ELEVATION: 1957
(FT, MSL)

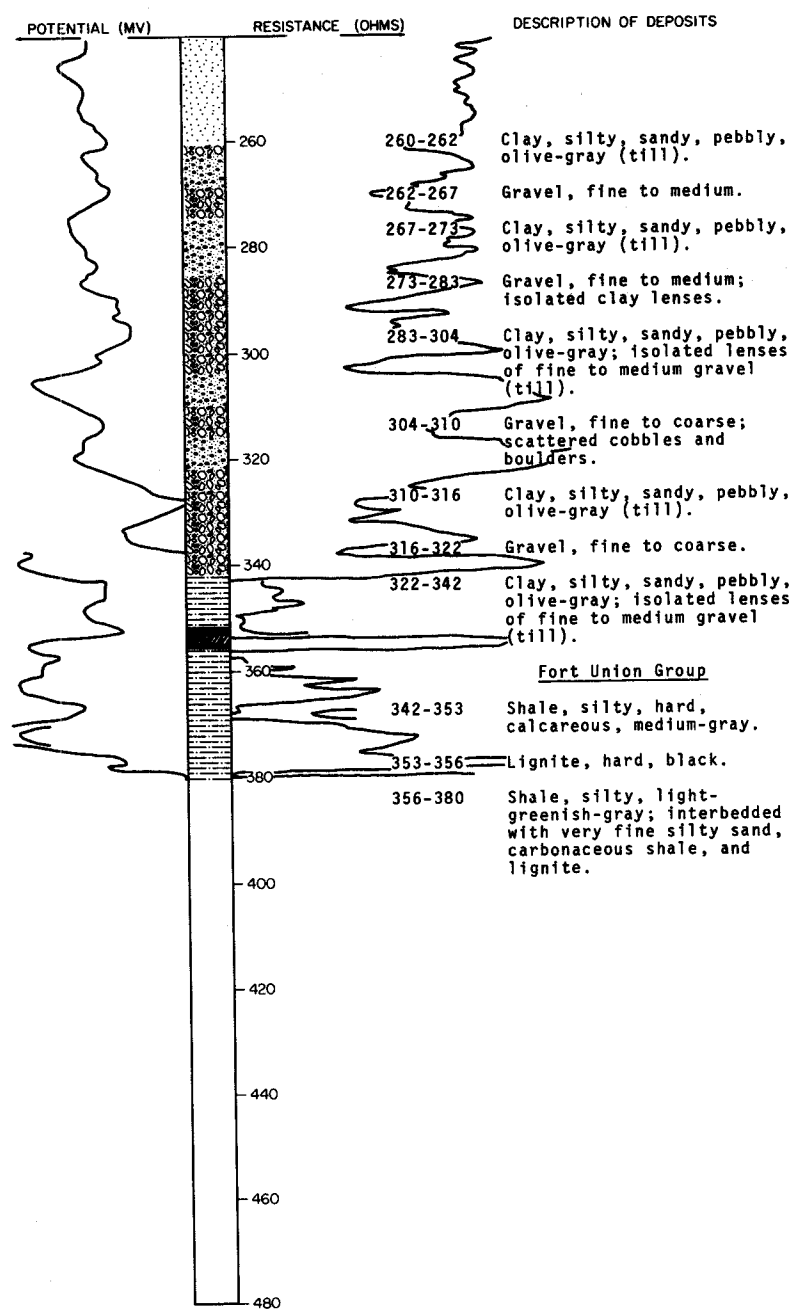
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(FT)



LOCATION: 149-89-24AAA
 ELEVATION: 1957
 (FT, MSL)

NDSWC 4048, Continued

DATE DRILLED: July 1970
 DEPTH: 380
 (FT)



Elevation: 1980 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, clayey, grayish-black-----	1	1
	Clay, silty, sandy, pebbly, dark-yellowish-brown (till)-----	39	40
	Clay, silty, pebbly, lignitic, olive-gray (till)-----	38	78
	Clay, sandy, silty, gravelly, moderate-yellowish-brown to dusky-yellow; occasional boulders (till)-----	32	110
	Clay, silty, sandy, pebbly, olive-gray; lignitic gravel lenses from 166-309 ft (till)-----	199	309
Fort Union Group:			
	Shale, clayey, silty, lignitic, calcareous, medium-gray, laminated-----	11	320

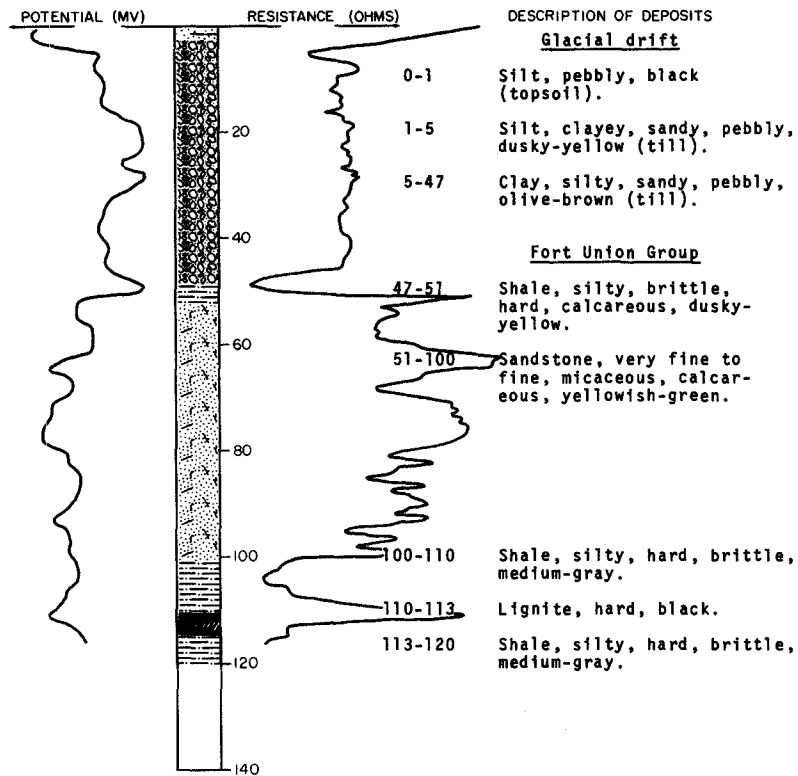
NDSWC 4047

LOCATION: 149-89-25ADD

DATE DRILLED: July 1970

ELEVATION: 1996
(FT, MSL)

DEPTH: 120
(FT)



149-89-368882
NDSWC 2840

Elevation: 2036 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, brownish-black-----	1	1
	Clay, silty, sandy, gravelly, moderate-yellowish-brown to dusky-yellow; scattered cobbles (till)-----	19	20
	Clay, silty, sandy, dusky-yellow (till)-----	20	40
Fort Union Group:			
	Sandstone, fine to medium, calcareous, moderate-yellowish-brown to dusky-yellow-----	36	76
	Shale, siliceous, clayey, noncalcareous, light-gray to light-bluish-gray-----	24	100

149-90-1AAA
NDSWC 4070

Elevation: 1975 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, pebbly, black-----	1	1
	Gravel, sandy, clayey, reddish-brown-----	3	4
	Clay, sandy, pebbly, yellowish-gray (till)--	6	10
	Clay, silty, sandy, pebbly, moderate- olive-brown (till)-----	30	40
	Clay, stiff, light-olive-gray-----	6	46
	Silt, clayey, light-olive-gray to dark- olive-gray; interbedded with clay and fine sand; contains till balls and lignite fragments-----	89	135
	Clay, silty, sandy, pebbly, dark-olive- gray; isolated thin gravel lenses (till)--	25	160
	Cobbles and boulders (boulder pavement?)----	6	166
Fort Union Group:			
	Sandstone, very fine to fine, clayey, micaceous, calcareous, greenish-gray-----	34	200

149-90-4DDD
(Log from Harrer, 1961)

Elevation: 1900 ft

	Soil and top-----	5	5
	Clay, dark, sandy-----	20	25
	Clay, brown, sandy-----	43	68
	Clay, dark-----	3	71
	Lignite and clay-----	6	77
	Clay, blue-----	18	95
	Lignite and clay-----	10	105
	Clay, dark, sandy-----	15	120
	Sand and rock-----	2	122
	Clay, dark, sandy-----	46	168
	Sand and rock-----	2	170

149-90-5AB
Calvert Drilling, Inc. - G. S. Wolf No. 1

Elevation: 1980 ft

Log available from Rocky Mountain Oil Information Corp.,
Denver, Colo.

149-90-5DCC
(Log from Harrer, 1961)

Elevation: 1902 ft

	Topsoil-----	2	2
	Clay, yellow-----	13	15
	Lost circulation-----	45	60
	Sand, gray-----	38	98
	Sand, medium and sandstone-----	6	104
	Sand-----	16	120

149-90-11ADA1
(Log from Dingman and Gordon, 1954)

Elevation: 1995 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Topsoil-----	2	2
	Clay, yellow, with small rocks-----	8	10
	Clay, sandy, yellow-----	33	43
	Sandstone-----	2	45
	Clay, sandy, gray-----	28	73
	Lignite-----	2	75
	Clay, gray-----	15	90
	Clay, sandy, gray-----	5	95
	Clay, very sandy, gray-----	10	105
	Clay, gray-----	31	136
	Sand, medium, gray-----	59	195
	Sand, coarse, gray-----	20	215
	Lignite and gray, sandy clay-----	5	220
	Lignite-----	10	230
	Clay, gray-----	15	245

149-90-11ADA2
(Log from Farstad and McGregor Drilling Co.)

Elevation: 1995 ft

	Topsoil-----	6	6
	Sand, brown-----	10	16
	Sandstone, yellow-----	26	42
	Rock-----	5	47
	Sand, brown-----	3	50
	Sandstone, brown-----	24	74
	Coal-----	6	80
	Clay, gray-----	34	114
	Clay, sandy, blue-----	8	122
	Clay, brown-----	12	134
	Coal-----	2	136
	Clay, gray-----	28	164
	Clay, sandy, blue-----	12	176
	Sand-----	34	210

149-90-11DBC
(Log from Farstad and McGregor Drilling Co.)

Elevation: 1923 ft

	Topsoil-----	3	3
	Sand, yellow-----	42	45
	Rock-----	4	49
	Clay, gray-----	76	125
	Rock-----	6	131
	Clay, gray-----	44	175
	Coal-----	6	181
	Clay, sandy, gray-----	19	200
	Rock-----	4	204
	Clay, sandy, gray-----	18	222
	Sand and coal-----	15	237

149-90-24CDA
(Log from Harrer, 1961)

Elevation: 1935 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Topsoil-----	2	2
	Gravel and sand-----	8	10
	Sand-----	30	40
	Clay, gray-----	49	89
	Sand-----	41	130
	Clay, gray, sandy-----	20	150
	Clay and lignite-----	20	170
	Clay, gray-----	3	173
	Lignite and water-----	2	175

149-90-28DDD
NDSWC 5575

Elevation: 1900 ft

Glacial drift:

	Topsoil, silty, sandy, pebbly, grayish-black-----	1	1
	Clay, silty, pebbly, lignitic, sandy, moderate-yellowish-brown (till)-----	45	46

Fort Union Group:

	Sandstone, fine, silty, clayey, dusky-yellow to moderate-yellowish-brown-----	8	54
	Sandstone, fine, clayey, silty, lignitic, noncalcareous, medium-bluish-gray-----	6	60

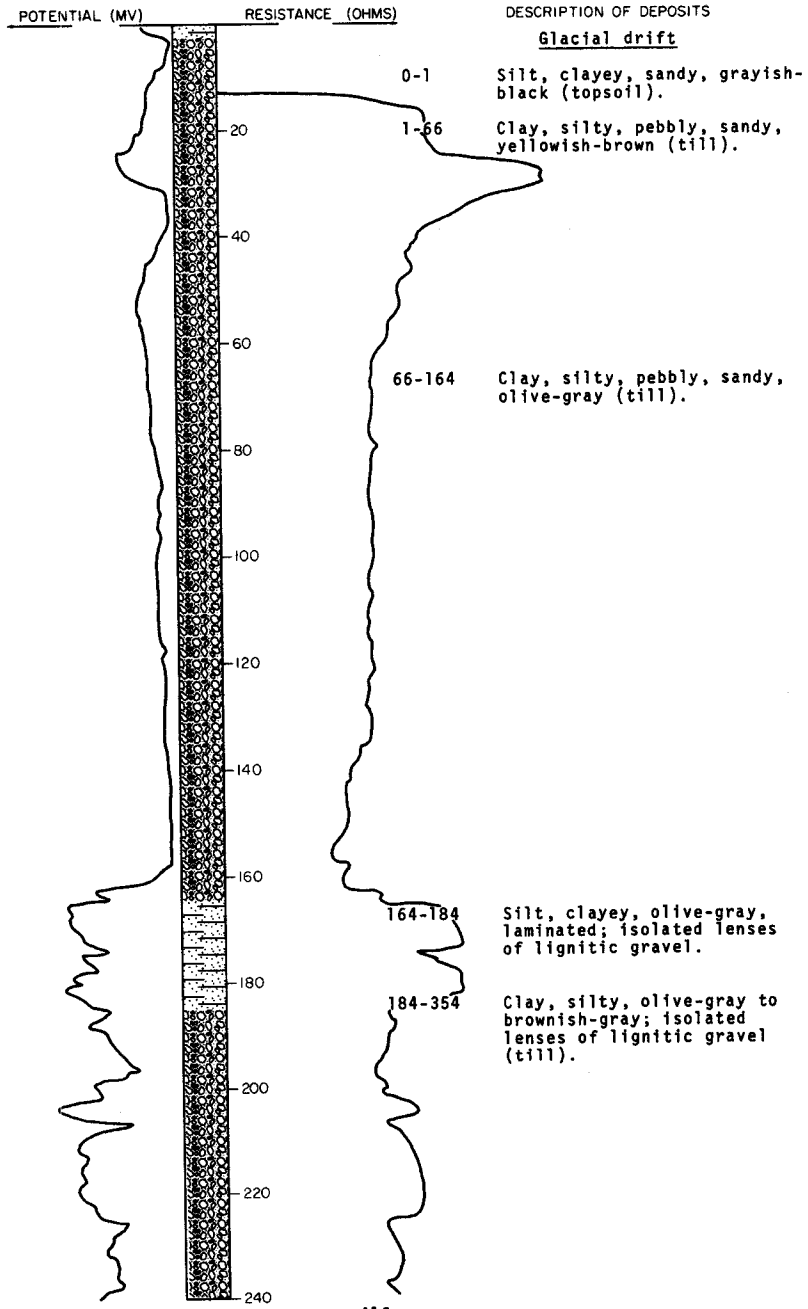
LOCATION: 149-90-34CCC

NDSWC 5553

DATE DRILLED: October 1969

ELEVATION: 1946
(FT, MSL)

DEPTH: 380
(FT)

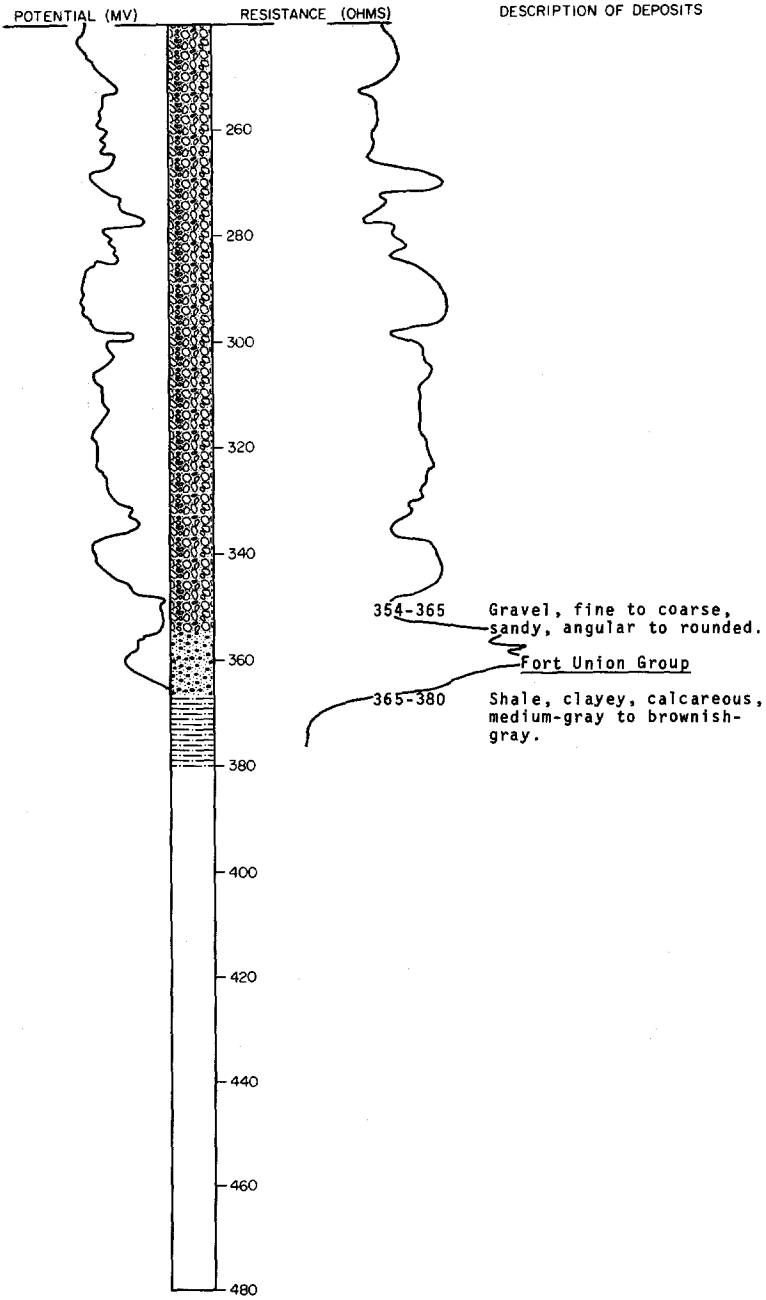


LOCATION: 149-90-34CCC

DATE DRILLED: October 1969

ELEVATION: 1946
(FT, MSL)

DEPTH: 380
(FT)



149-90-35ABC
(Log from Harrer, 1961)

Elevation: 1998 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
	Soil, black-----	2	2
	Clay and rock, yellow, sandy-----	18	20
	Clay, brown-----	16	36
	Clay, blue-----	8	44
	Lignite-----	6	50
	Clay, blue-----	20	70
	Clay, gray-----	20	90
	Clay and rock, brown-----	110	200
	Sand (salt & pepper), water-----	11	211
	Lignite-----	3	214
	Clay and sand, brown-----	11	225

150-78-10CD
NDSWC 2796

Elevation: 1625 ft

Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Clay, silty, plastic, moderate-yellowish-brown (lacustrine)-----	7	8
	Clay, silty, olive-gray to medium-gray; numerous thin sand lenses (till)-----	96	104
	Clay, silty, sandy, olive-gray to dark-greenish-gray (till)-----	6	110
	Clay, silty, sandy, gravelly, olive-gray to dark-greenish-gray (till)-----	10	120
	Sand and gravel, clayey; coarse to very coarse angular to subrounded sand; fine to medium, angular to subrounded gravel; few thin clay interbeds-----	40	160
	Clay, silty, sandy, olive-gray (till)-----	7	167
Fort Union Group:			
	Shale and sandstone interbedded; siliceous grayish-brown shale; fine to medium noncalcareous medium-bluish-gray sandstone-----	33	200

150-78-5BCC
NDSWC 5605

Elevation: 1735 ft

Glacial drift:			
	Topsoil, silty, clayey, sandy, brownish-black-----	1	1
	Clay, silty, pebbly, sandy, moderate-yellowish-brown (till)-----	11	12
	Clay, silty, pebbly, sandy, olive-gray (till)-----	9	21
	Gravel, fine to medium, and medium to very coarse sand, angular to subrounded-----	5	26
	Clay, silty, pebbly, sandy, olive-gray (till)-----	2	28
	Sand, fine to very coarse, angular to subrounded-----	4	32
	Clay, silty, pebbly, sandy, olive-gray (till)-----	39	71
Fort Union Group:			
	Siltstone, sandy, clayey, noncalcareous, medium-light-gray to medium-gray-----	49	120

150-78-7ABA
NDSWC 2797

Elevation: 1765 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, sandy, brownish-black-----	1	1
	Clay, silty, moderate-yellowish-brown (till)-----	43	44
	Clay, silty, sandy, olive-gray; scattered pebbles (till)-----	42	86
	Gravel, fine to coarse-----	4	90
	Clay, silty, sandy, olive-gray (till)-----	10	100
	Gravel, fine to coarse-----	2	102
	Clay, silty, sandy, calcareous, olive-gray; scattered pebbles (till)-----	30	132

Fort Union Group:

	Sandstone and shale interbedded; fine to medium noncalcareous light-bluish-gray to medium-bluish-gray sandstone; siliceous grayish-brown shale-----	28	160
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150-78-12DAB
NDSWC 5606

Elevation: 1625 ft

Glacial drift:			
	Topsoil, silty, clayey, grayish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	7	8
	Clay, silty, pebbly, sandy, olive-gray to dark-gray (till)-----	8	16

Fort Union Group:

	Siltstone, sandy, clayey, noncalcareous, medium-gray to medium-bluish-gray-----	24	40
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150-78-28CBB
NDSWC 3944

Elevation: 2050 ft

Glacial drift:			
	Topsoil, sandy, pebbly, dusky-brown-----	1	1
	Sand, clayey, yellowish-gray-----	3	4
	Clay, silty, sandy, pebbly, moderate-olive-brown (till)-----	16	20
	Clay, silty, sandy, pebbly, olive-gray; lensed with sand (till)-----	124	144

Fort Union Group:

	Silt and very fine to fine clayey sand, micaceous, noncalcareous, dusky-brown to dark-greenish-yellow-----	42	186
	Shale, silty, hard, brittle, noncalcareous, light-gray to medium-gray-----	14	200

150-79-14BDD
I. J. Wilhite Co. - A. Tarasenko No. 1

Elevation: 2079 ft

Log available from Rocky Mountain Oil Information Corp., Denver, Colo.

150-79-14CCD
NDSWC 5604

Elevation: 2020 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, clayey, sandy, gravelly-----	1	1
	Clay, silty, sandy, gravelly, dusky-yellow to moderate-yellowish-brown (till)-----	14	15
	Clay, silty, pebbly, sandy, plastic, calcareous, olive-gray (till)-----	81	96
	Gravel, fine to coarse, sandy, angular to subrounded-----	3	99
	Clay, silty, pebbly, sandy, olive-gray (till)-----	77	176
	Sand, very fine to medium, clayey, silty, subangular to rounded-----	4	180
	Clay, silty, pebbly, sandy, olive-gray (till)-----	46	226
	Sand, clayey-----	10	236
	Clay, silty, pebbly, olive-gray (till)-----	4	240
	Gravel and sand-----	8	248
	Clay, silty, pebbly, sandy, olive-gray (till)-----	71	319
Fort Union Group:			
	Siltstone, clayey, noncalcareous, medium-light-gray to medium-bluish-gray-----	21	340

150-79-15ADD1
NDSWC 4078

Elevation: 2280 ft

Glacial drift:			
	Topsoil, pebbly, dark-brown-----	1	1
	Clay, silty, sandy, pebbly, yellowish-gray; abundant cobbles and boulders and isolated thin gravel lenses (till)-----	39	40
Fort Union Group:			
	Sandstone, pale-yellowish-green; interbedded with siltstone and silty micaceous claystone-----	20	60
	Shale, silty, sandy, carbonaceous, variegated gray, green, brown, and black-----	20	80
	Shale, silty, sandy, variegated gray, green, brown, and black; interbedded with lignite-----	20	100
	No sample due to loss of circulation-----	100	200

150-79-15ADD2
NDSWC 4079

Elevation: 2291 ft

Glacial drift:			
	Topsoil, pebbly, reddish-brown-----	1	1
	Silt, clayey, sandy, yellowish-gray; scattered pebbles (till)-----	19	20
	Clay, silty, sandy, moderate-olive-brown; scattered pebbles and cobbles and isolated sand lenses (till)-----	48	68
	Sand, fine to medium, subrounded, yellowish-gray-----	32	100

150-79-15ADD2, Continued
NDSWC 4079

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Fort Union Group (Ice shove block):			
	Siltstone, hard, fractured, dark-gray with dark-yellowish-orange stains-----	31	131
	Lignite, hard, fractured, black-----	7	138
	Shale, sandy, carbonaceous, dusky-green-----	18	156
	Siltstone, hard, medium-dark-gray-----	15	171
	Lignite, hard, black-----	4	175
	Sandstone, very fine, clayey, silty, micaceous, light-greenish-gray-----	18	193
	Shale; interbedded with siltstone and clayey very fine sandstone; variegated gray, green, brown, and black-----	85	278
	Sandstone, fine, subangular to subrounded, calcareous, dark-greenish-gray-----	11	289
	Claystone; interbedded with siltstone and clayey very fine sandstone; variegated gray, green, brown, and black-----	21	310
Glacial drift:			
	Gravel, fine to coarse, subangular to subrounded; numerous cobbles-----	2	312
	Clay, sandy, dusky-yellow (till)-----	3	315
	Sand, medium to very coarse; numerous lenses of dusky-yellow sandy clay-----	40	355
Fort Union Group:			
	Claystone; interbedded with siltstone; carbonaceous, variegated gray and green---	28	383
	Lignite, hard, black-----	6	389
	Sandstone, very fine to fine, clayey, greenish-gray to dark-greenish-gray; carbonaceous stains-----	17	406
	Siltstone, hard, light- to medium-gray-----	12	418
	Lignite, black-----	5	423
	Shale, hard, carbonaceous, black-----	4	427
	Sand, very fine to fine, lignitic, dark-gray to dark-greenish-gray-----	13	440
	Siltstone, hard, light-gray; thinly interbedded with bluish-white bentonitic clay-----	60	500

150-79-29ADD1
(Log from U.S. Air Force)

Elevation: 2029.3 ft

Glacial drift:			
	Sand, silty, clayey, dark brown-----	1.5	1.5
	Sand, fine to medium, silty, trace of gravel, very dense, brown-----	6.5	8
	Sand, fine to medium, gravelly, very dense, brown-----	6	14
	Sand, fine to coarse, gravelly, silty, dense, brown-----	21	35
	Sand and gravel, fine to coarse, silty, medium dense to dense, brown-----	11	46
	Sand, fine to coarse, gravelly, very dense, brown-----	40	86
	Sand, fine, silty, trace of gravel, dense, gray-----	3	89
	Gravel, fine to medium, sandy, silty, very dense, gray-----	8	97
	Sand, medium to coarse, trace of silt and gravel, very dense, gray-----	3	100

150-79-29ADD2
NDSWC 2798

Elevation: 2028 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Sand and gravel; medium to very coarse subangular to rounded sand; fine to coarse angular to subrounded gravel-----	35	36
	Clay, silty, olive-gray-----	4	40
	Gravel, fine to coarse, subangular to rounded; cobbles and boulders abundant throughout section; few clayey zones-----	87	127
	Clay, silty, yellowish-brown; scattered sand and lignite fragments (till)-----	13	140
	Clay, silty, olive-gray to medium-gray; scattered sand and lignite fragments (till)-----	50	190
Fort Union Group:			
	Sandstone and shale interbedded; fine to medium indurated noncalcareous medium-bluish-gray sandstone; indurated noncalcareous grayish-brown shale-----	30	220

150-79-31ABB
NDSWC 5610

Elevation: 1998 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, gravelly, grayish-black-----	0.5	0.5
	Clay, silty, sandy, gravelly, dusky-yellow to moderate-yellowish-brown (till)-----	32.5	33
	Clay, silty, sandy, pebbly, olive-gray; core sample from 40-41.5 ft (till)-----	48	81
	Gravel, fine to coarse, sandy, angular to rounded-----	7	88
	Clay, silty, pebbly, sandy, lignitic, olive-gray (till)-----	32	120
Fort Union Group:			
	Siltstone, clayey, sandy, noncalcareous, medium-gray to medium-bluish-gray-----	20	140

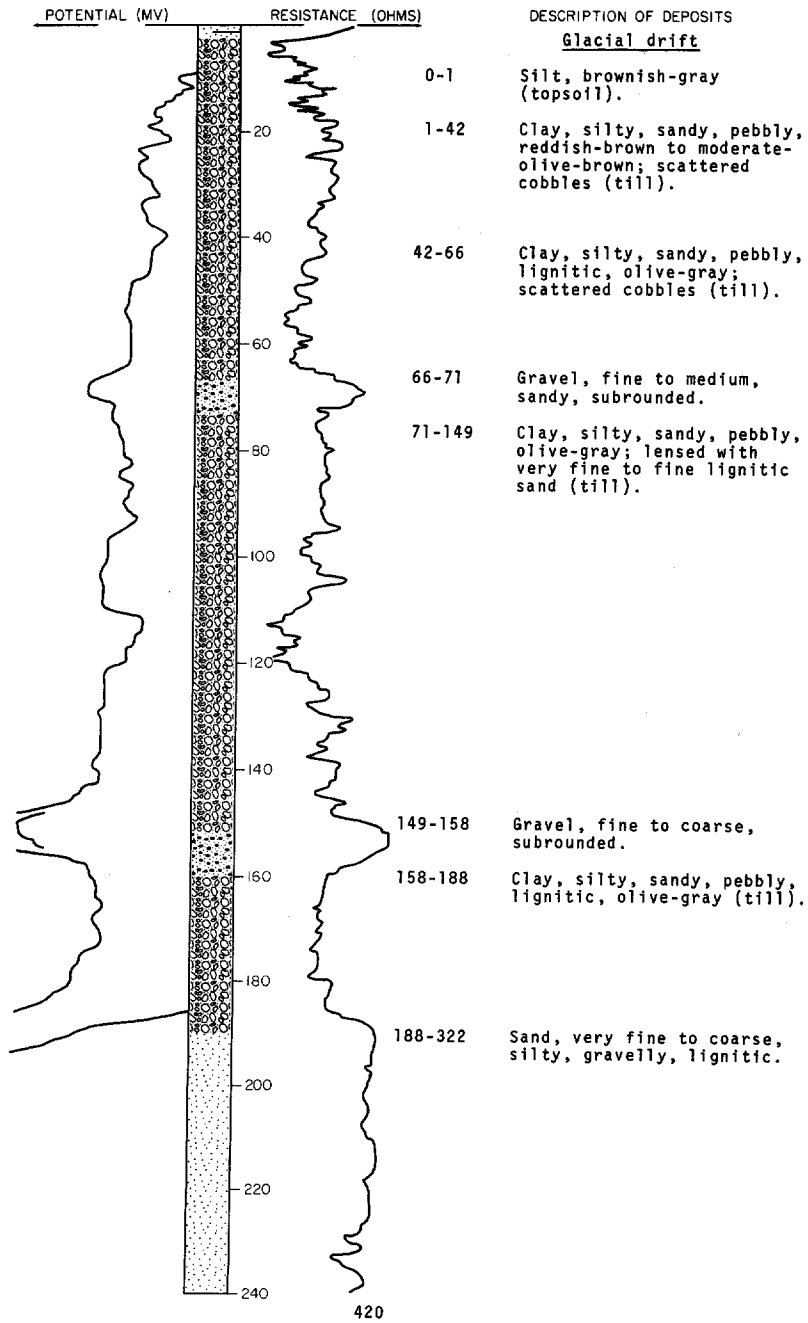
LOCATION: 150-80-2DCC

NDSWC 4080

DATE DRILLED: August 1970

ELEVATION: 2015
(FT, MSL)

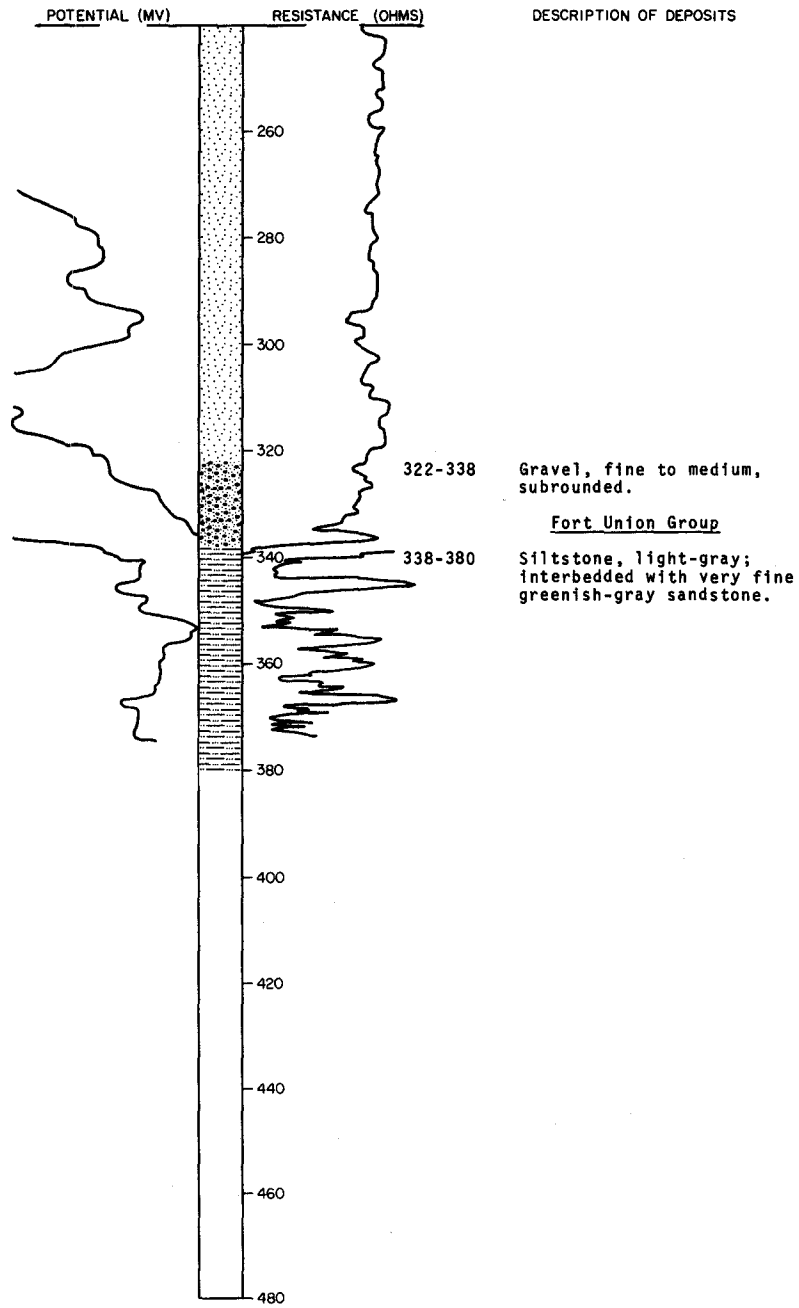
DEPTH: 380
(FT)



LOCATION: 150-80-2DCC
ELEVATION: 2015
(FT, MSL)

NDSWC 4080, Continued

DATE DRILLED: August 1970
DEPTH: 380
(FT)



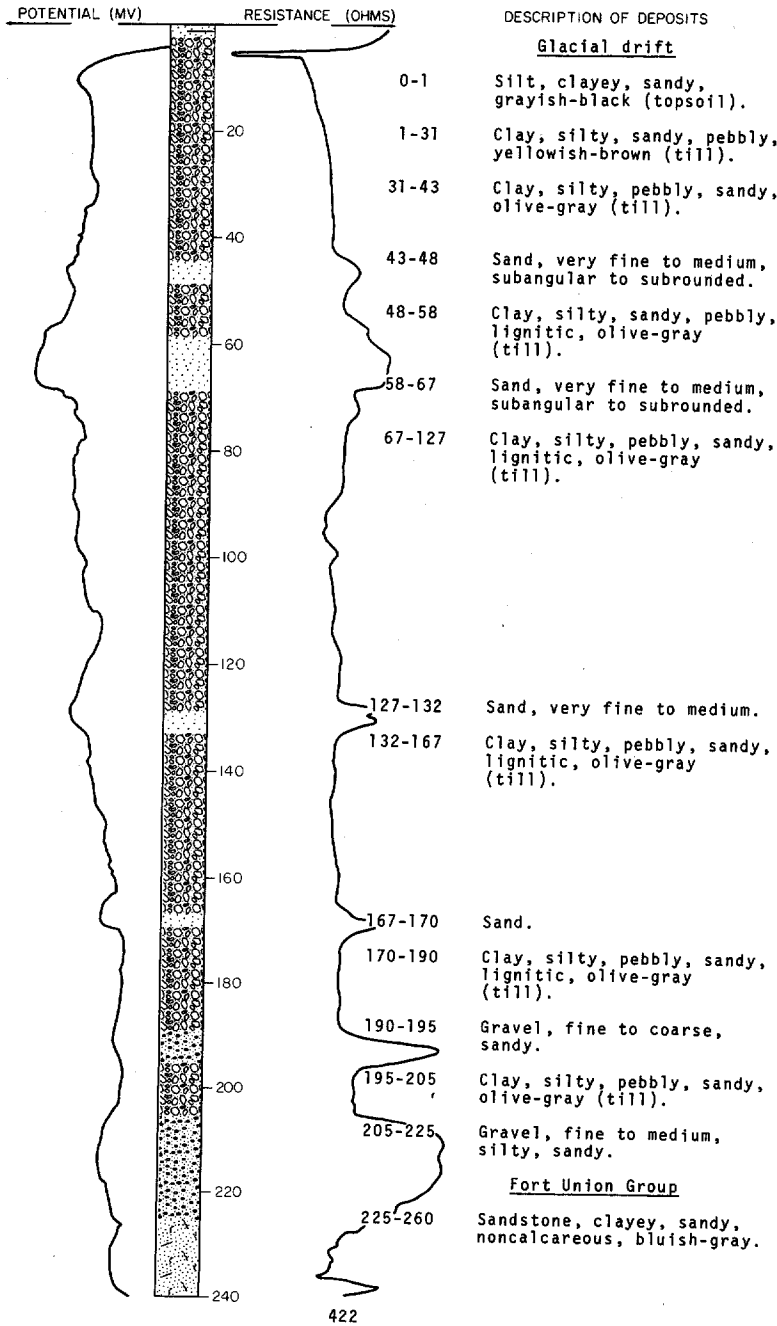
LOCATION: 150-80-3DDC

NDSWC 5603

DATE DRILLED: November 1969

ELEVATION: 2035
(FT, MSL)

DEPTH: 260
(FT)

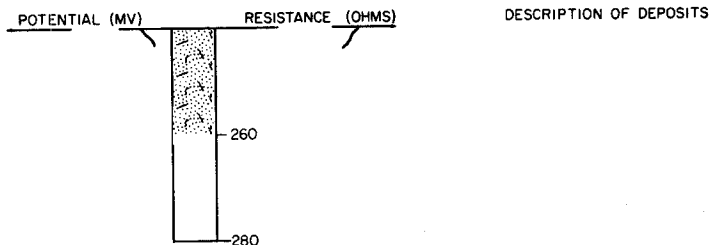


LOCATION: 150-80-3DDC
 ELEVATION: 2035
 (FT, MSL)

NDSWC 5603, Continued

DATE DRILLED: November 1969

DEPTH: 260
 (FT)



150-80-7BBB
 NDSWC 5602

Elevation: 2080 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, clayey, sandy, pebbly, brown-----	1	1
	Clay, silty, sandy, pebbly, dusky-yellow to moderate-yellowish-brown (till)-----	3	4
	Gravel, fine to coarse, angular to sub-rounded-----	5	9
	Clay, silty, sandy, pebbly, moderate-yellowish-brown (till)-----	11	20
Fort Union Group:			
	Clay, silty, sandy, moderate-yellowish-brown to dark-yellowish-brown-----	51	71
	Clay, very silty, carbonaceous, noncalcareous, grayish-brown to moderate-brown-----	6	77
	Siltstone, clayey, sandy, medium-light-gray to medium-bluish-gray; thin sand lenses at 78 ft and 113 ft-----	43	120

150-80-9BBD
(Log from U.S. Air Force)

Elevation: 2063.1 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Sand, fine to coarse, clayey, dense, brown-----	9	9
	Clay, silty, sandy, trace of gravel, very stiff to hard, brown-----	12	21
	Silt and clay, trace of sand and gravel, dense, gray-----	7	28
	Clay, silty, trace of sand and gravel, stiff, dark gray-----	26	54
Fort Union Group:			
	Clay, silty, trace of sand, stiff, brown---	4.5	58.5
	Clay, silty, medium to stiff, brown-----	4	62.5
	Clay, silty, hard, light gray-brown-----	12.5	75
	Clay, silty, very stiff-----	3	78
	Clay, silty, very hard to hard, gray-----	9	87
	Lignite, fibrous, friable, soft-----	3.5	90.5
	Sand, fine, interbedded with shale, dense, light brown-gray; frequent lignite seams--	9.8	100.3

150-80-10ABB
NDSWC 2799

Elevation: 2030 ft

Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Clay, silty, moderate-yellowish-brown; scattered sand (till)-----	24	25
	Clay, silty, olive-gray; scattered sand (till)-----	95	120

150-80-14BBC
Cardinal Petroleum Co. - National
Bulk Carriers - C. Ecklund No. 1

Elevation: 1994 ft

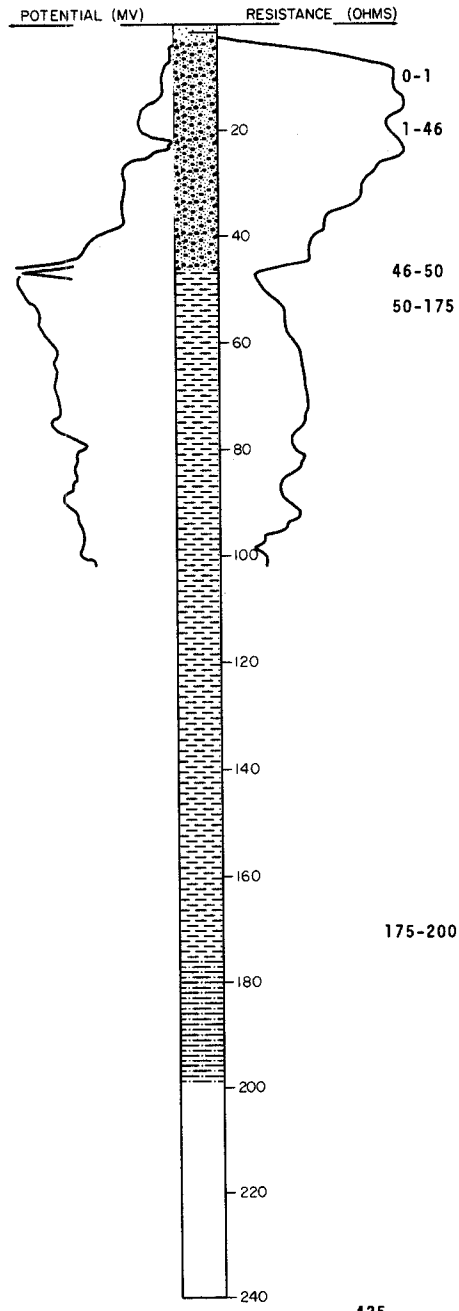
Log available from Rocky Mountain Oil Information Corp.,
Denver, Colo.

LOCATION: 150-80-16CCB
ELEVATION: 2030
(FT, MSL)

NDSWC 2800

DATE DRILLED: September 1967

DEPTH: 200
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1 Silt, sandy, grayish-black (topsoil).

1-46 Gravel, fine to coarse, and coarse to very coarse sand.

46-50 Clay, silty, light-gray.

50-175 Clay, silty, plastic, bluish-gray to yellowish-gray; contains numerous pelecypod and gastropod shells and brownish-black organic material (lacustrine?).

Fort Union Group

175-200 Shale, siliceous, grayish-brown; interbedded with very fine noncalcareous bluish-gray sandstone.

150-80-21AAA
NDSWC 4081

Elevation: 1985 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, pebbly, sandy, dark-brown-----	1	1
	Clay, yellowish-gray to dusky-yellow; thinly interbedded with silt and clayey sand; scattered pebbles (till)-----	28	29
	Gravel, fine to very coarse, sandy, angular to subrounded; numerous cobbles and boulders-----	35	64
	Shale, hard, light-greenish-gray (bedrock erratic)-----	5	69
	Clay, variegated gray and green; thinly interbedded with silt, sand, and detrital lignite; abundant black organic material--	91	160
	Gravel, fine to coarse, angular to subrounded-----	9	169
Fort Union Group:			
	Sandstone, very fine, calcareous, light-gray to light-greenish-gray; interbedded with siltstone-----	21	190

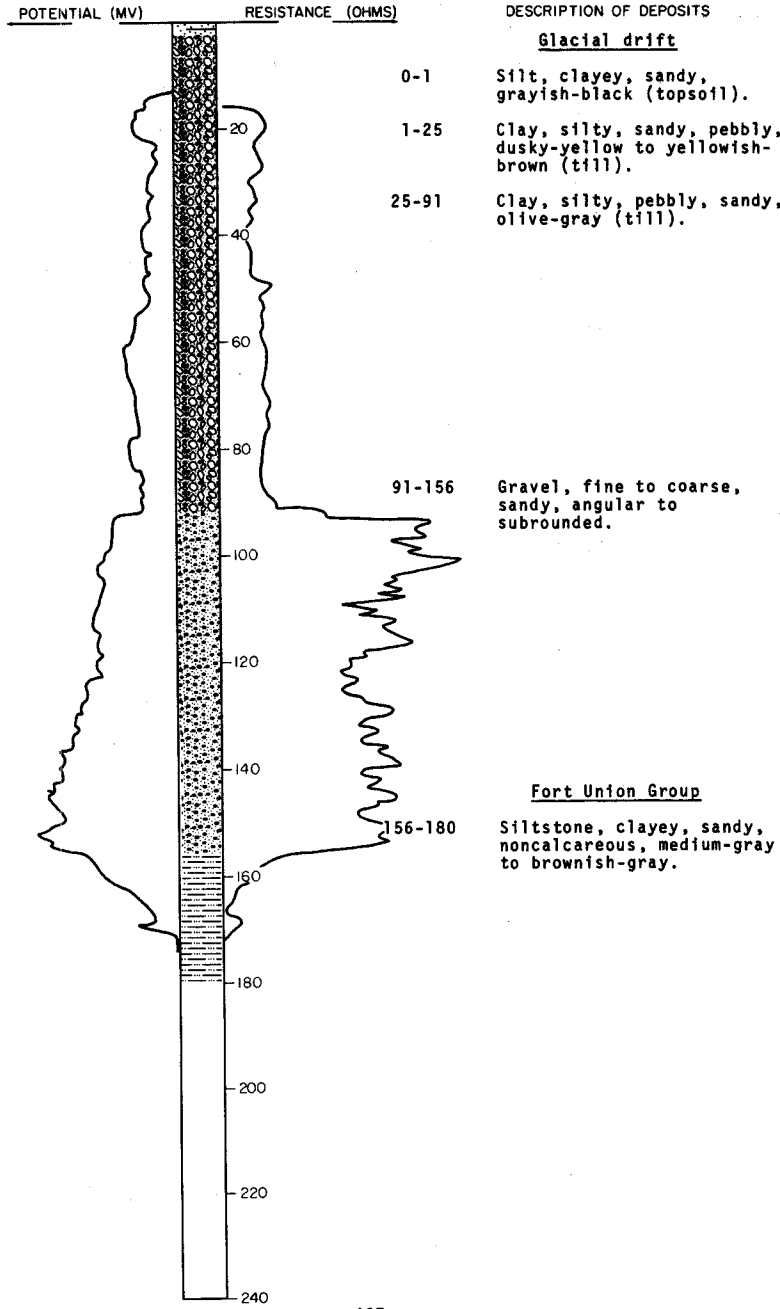
LOCATION: 150-80-25DCD

NDSWC 5609

DATE DRILLED: December 1969

ELEVATION: 1940
(FT, MSL)

DEPTH: 180
(FT)



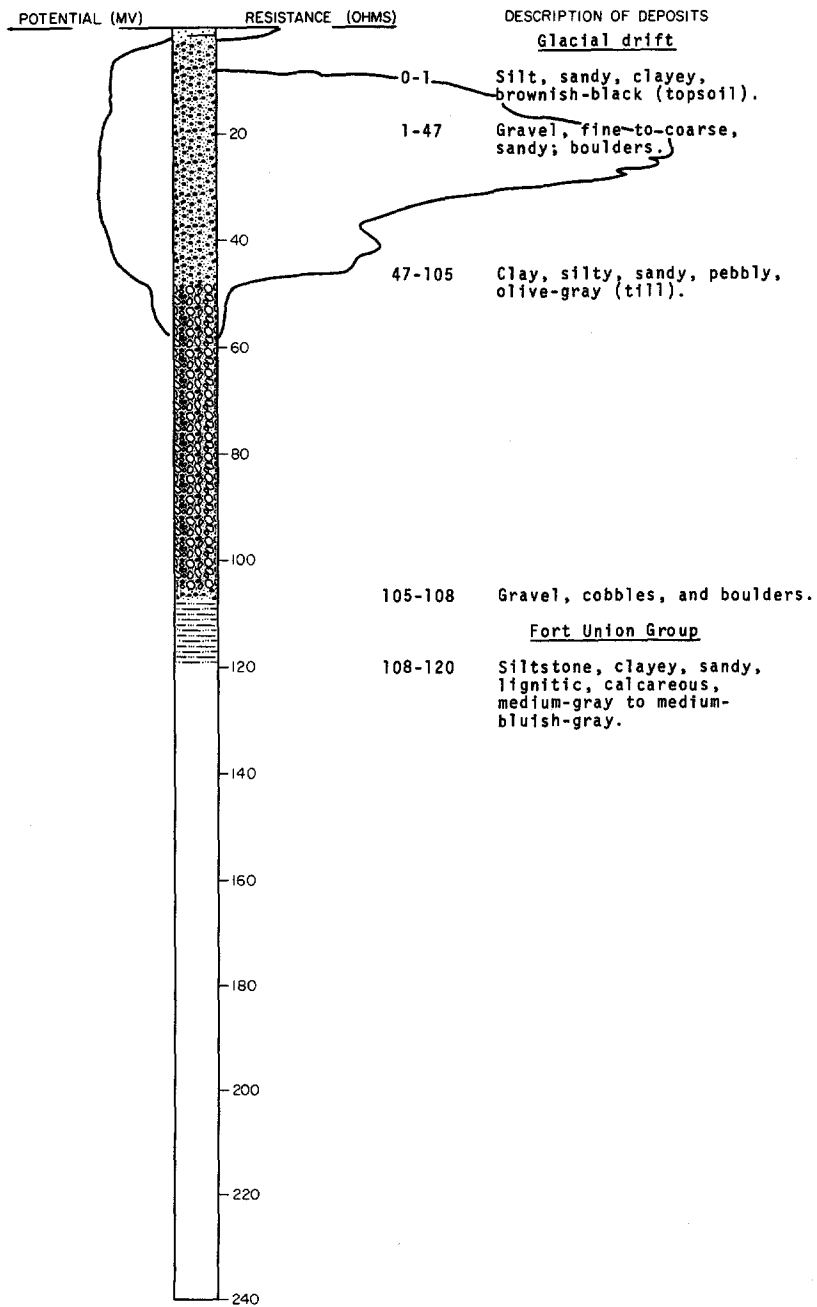
LOCATION: 150-80-27DDD

NDSWC 5608

DATE DRILLED: December 1969

ELEVATION: 1985
(FT, MSL)

DEPTH: 120
(FT)



150-80-28CCB
Stanolind Oil and Gas Co. - McLean County No. 1

Elevation: 2081 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
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Log available from the North Dakota Geological Survey,
Grand Forks, N. Dak.

150-80-29CCC
NDSWC 5601

Elevation: 2045 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, clayey, sandy, pebbly, brown	1	1
	Gravel, fine to coarse, and fine to very coarse angular to rounded sand-----	30	31
	Clay, silty, pebbly, sandy, olive-gray (till)-----	29	60
	Siltstone boulder, hard-----	3	63
	Clay, silty, olive-gray; scattered sand (till)-----	77	140
	Gravel-----	2	142
	Clay, very silty, medium-gray to light-olive-gray, laminated; scattered sand-----	20	162
Fort Union Group:			
	Siltstone, clayey, sandy, noncalcareous, greenish-gray to brownish-gray-----	98	260

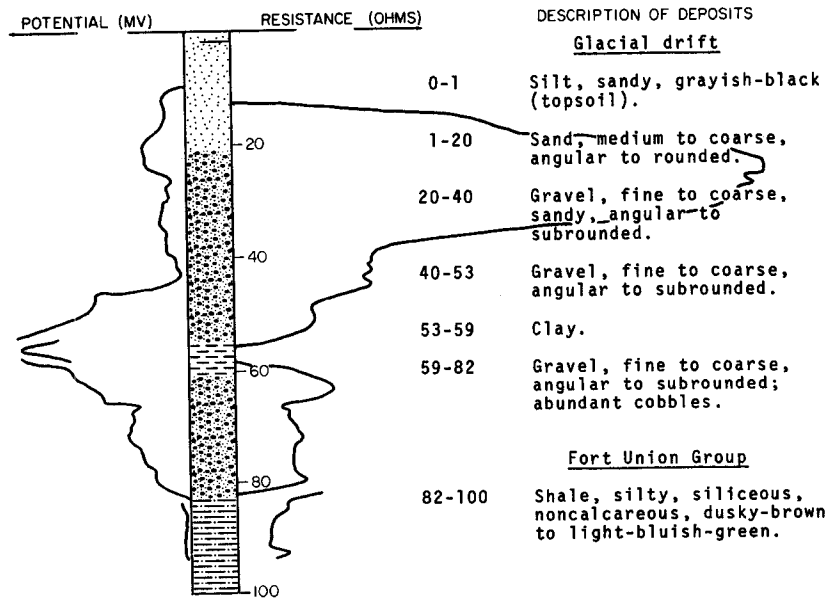
NDSWC 2801

LOCATION: 150-80-35ABB

DATE DRILLED: September 1967

ELEVATION: 1985
(FT, MSL)

DEPTH: 100
(FT)



150-81-15BAA
(Log from U.S. Air Force)

Elevation: 2103.7 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Clay, silty, sandy, trace of gravel and lignite, very stiff, gray-brown-----	18	18
	Clay, silty, trace of sand, gravel, and lignite, very stiff to hard, gray-brown---	13	31
	Clay and silt, trace of sand, gravel, and lignite, gray-brown-----	9	40
	Clay, silty, trace of sand, gravel, and lignite, very stiff to hard, dark gray----	49	89
	Clay and silt, trace of sand, gravel, and lignite, very stiff to hard, brown-gray---	11.5	100.5

150-81-27AAA
NDSWC 2832

Elevation: 2068 ft

Glacial drift:			
	Topsoil, silty, sandy, brownish-black-----	1	1
	Gravel and sand; fine to coarse angular to subrounded gravel; coarse to very coarse angular to subrounded moderate-yellowish-brown sand-----	15	16
	Clay, gravelly, silty, sandy, moderate-yellowish-brown (till)-----	8	24
	Clay, silty, sandy, gravelly, olive-gray (till)-----	30	54
	Clay, silty, sandy, moderate-yellowish-brown to dusky-yellow (till)-----	17	71
	Limestone boulders-----	3	74
Fort Union Group:			
	Shale, siliceous, brownish-gray to dark-greenish-gray-----	26	100

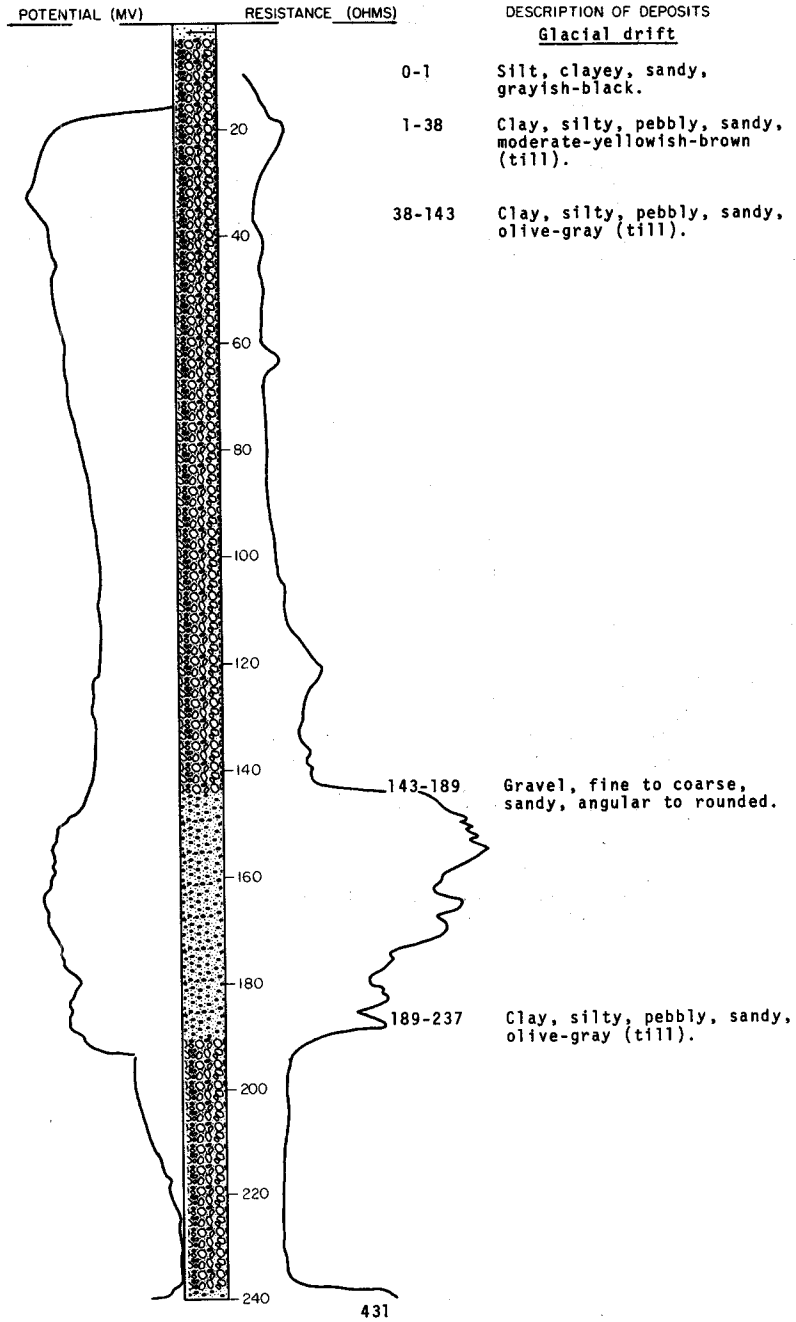
NDSWC 5588

LOCATION: 150-82-10CCD

DATE DRILLED: November 1969

ELEVATION: 2050
(FT, MSL)

DEPTH: 300
(FT)



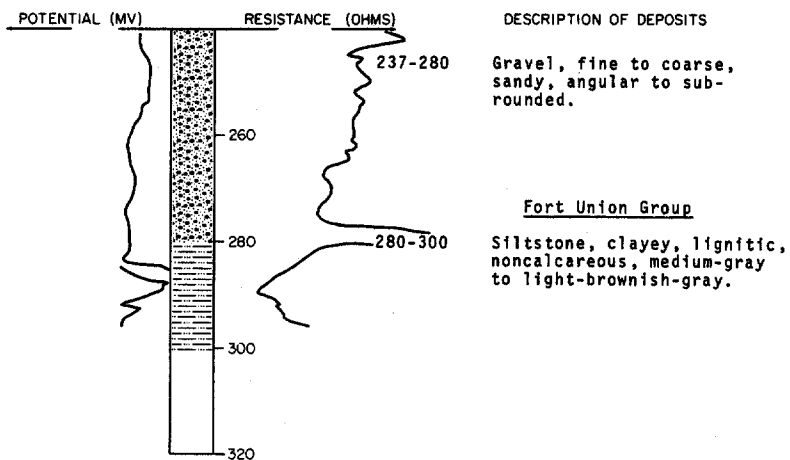
NDSWC 5588, Continued

LOCATION: 150-82-10CCD

DATE DRILLED: November 1969

ELEVATION: 2050
(FT, MSL)

DEPTH: 300
(FT)



150-82-13BAA
NDSWC 5586

Elevation: 2023 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, gravelly, black-----	1	1
	Clay, silty, sandy, calcareous, moderate-yellowish-brown to greenish-gray-----	4	5
	Clay, silty, sandy, gravelly, moderate-yellowish-brown to greenish-gray (till)---	15	20
	Clay, silty, sandy, gravelly, olive-black (till)-----	77	97
Fort Union Group:			
	Clay, silty, calcareous, light-olive-gray; interbedded with lignite-----	23	120

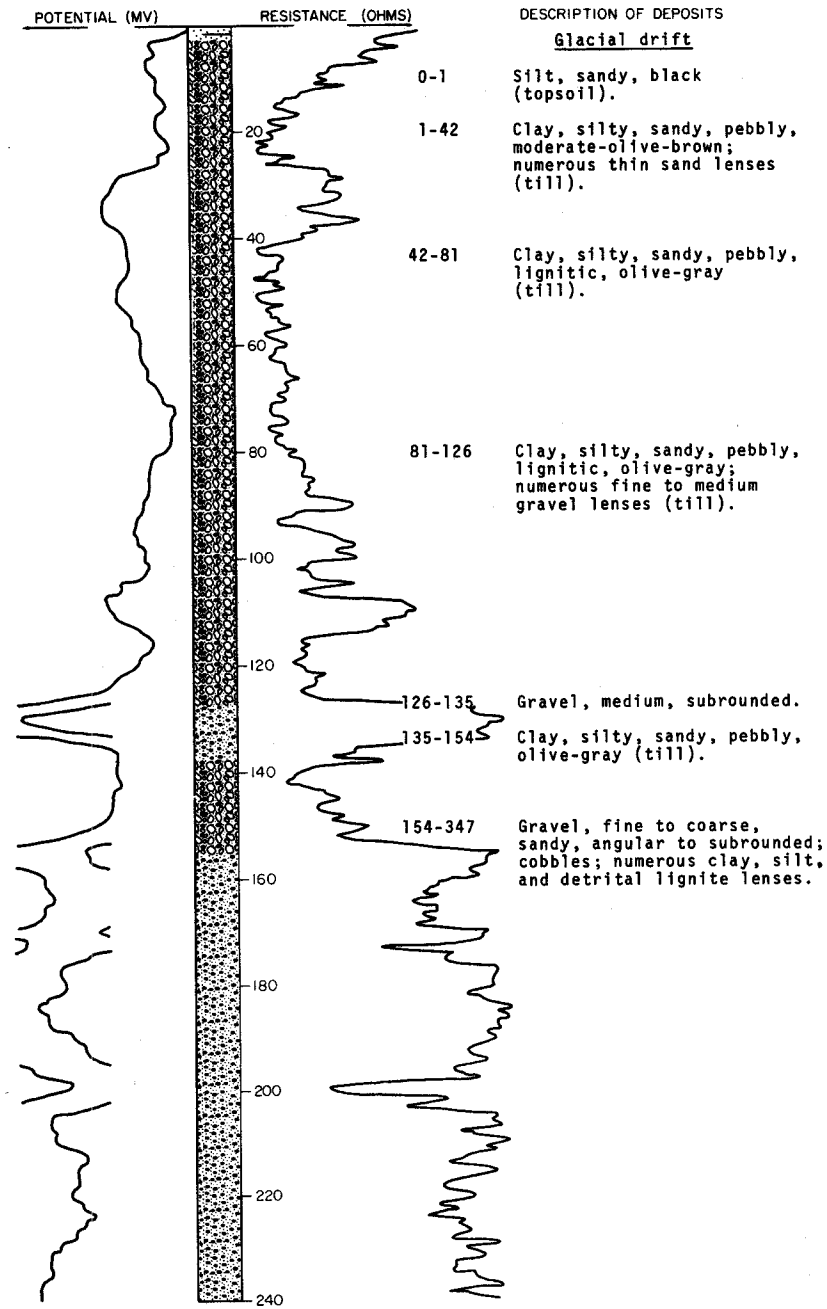
LOCATION: 150-82-15DDD

NDSWC 4077

DATE DRILLED: July 1970

ELEVATION: 2011
(FT, MSL)

DEPTH: 380
(FT)



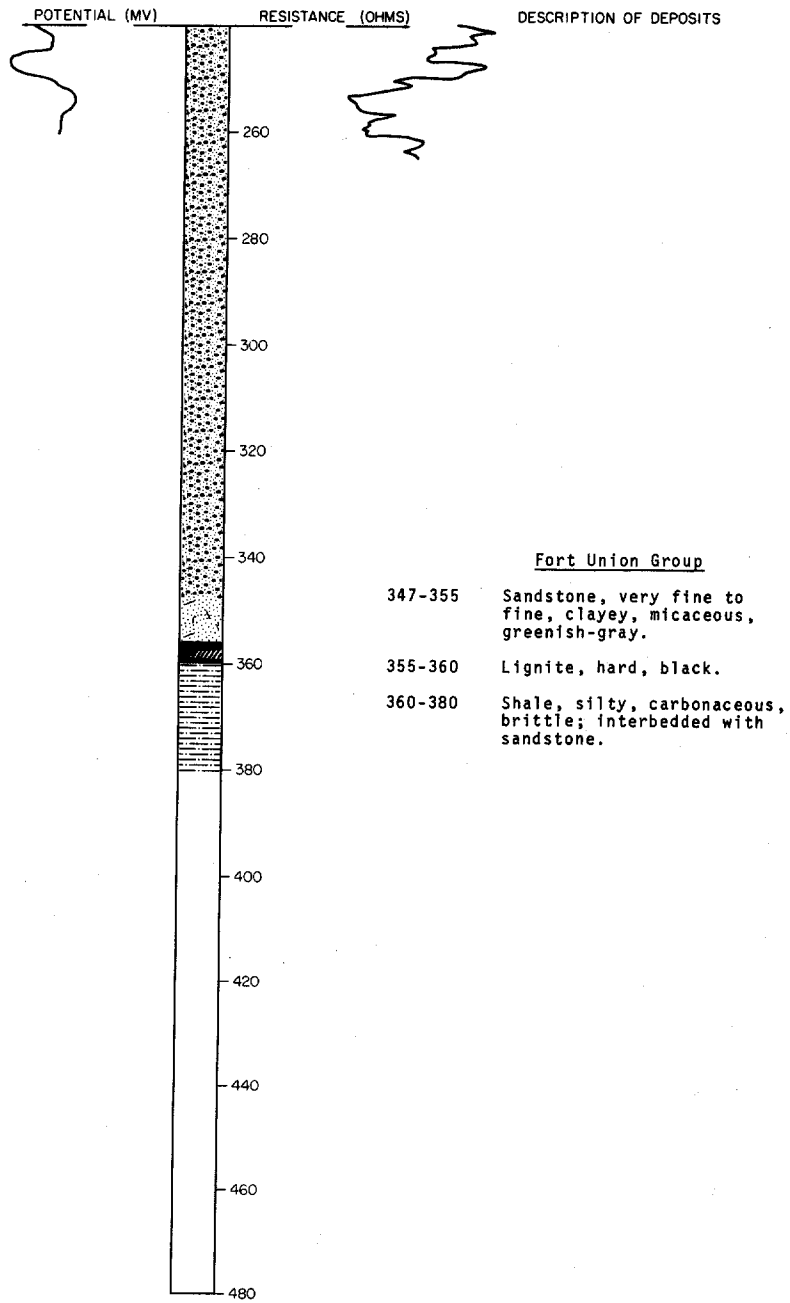
LOCATION: 150-82-15DDD

NDSWC 4077, Continued

DATE DRILLED: July 1970

ELEVATION: 2011
(FT, MSL)

DEPTH: 380
(FT)



150-82-16CCC
NDSWC 5585

Elevation: 2049 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, black-----	1	1
	Sand, fine to very coarse, gravelly, sub- angular to subrounded-----	4	5
	Clay, silty, sandy, gravelly, moderate- yellowish-brown (till)-----	7	12
	Sand, fine to very coarse, gravelly, sub- angular to subrounded-----	9	21
	Clay, silty, sandy, olive-gray (till)-----	5	26
	Sand, fine to very coarse, gravelly, sub- angular to rounded-----	50	76
	Clay, silty, sandy, olive-gray (till)-----	4	80
Fort Union Group:			
	Clay, silty, noncalcareous, medium-light- gray; interbedded with lignite-----	20	100

150-82-26DDD
NDSWC 5587

Elevation: 1948 ft

Glacial drift:			
	Topsoil, silty, clayey, sandy, grayish- black-----	0.5	0.5
	Gravel, fine to coarse, sandy, angular to subrounded-----	45.5	46
	Clay, silty, pebbly, sandy, olive-gray; lensed with gravel (till)-----	31	77
	Clay, silty, pebbly, sandy, olive-gray to medium-dark-gray (till)-----	54	131
Fort Union Group:			
	Shale, silty, noncalcareous, brownish-gray to medium-dark-gray; few thin lignite seams-----	9	140

150-82-28BBB
NDSWC 4076

Elevation: 2081 ft

Glacial drift:			
	Topsoil, pebbly, silty, black-----	1	1
	Silt, clayey, sandy, yellowish-gray; scattered pebbles (till)-----	8	9
	Boulder-----	1	10
	Clay, silty, sandy, pebbly, moderate-olive- brown (till)-----	12	22
	Clay, silty, sandy, pebbly, olive-gray (till)-----	37	59
	Gravel, fine to coarse, sandy, angular to subrounded-----	9	68
	Clay, silty, sandy, pebbly, olive-gray (till)-----	104	172
Fort Union Group:			
	Shale, silty, carbonaceous, laminated, calcareous, light-gray to light-olive-gray	12	184

150-82-288BB, Continued
NDSWC 4076

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Fort Union Group, Continued:			
	Shale, silty, carbonaceous, calcareous, light-gray; interbedded with greenish-gray siltstone and very fine sandstone-----	16	200
	Lignite, hard, black-----	2	202
	Sandstone, very fine to fine, greenish-gray-----	10	212
	Lignite, hard, black-----	4	216
	Shale, silty, variegated light-gray and green; interbedded with siltstone, very fine sandstone, and lignite-----	84	300

150-82-29DCD
(Log from U.S. Air Force)

Elevation: 2113.1 ft

	Clay, silty and sandy, trace of lignite, very stiff, gray-brown-----	15.5	15.5
	Clay, silty, trace of sand, gravel, and lignite, stiff to very stiff, gray-brown--	19	34.5
	Clay, silty, trace of sand, gravel, and lignite, very stiff to hard, dark gray-brown-----	25	59.5
	Sand, silty, clayey, dense, gray-----	3	62.5
	Clay, silty, sandy, very stiff, dark gray; occasional sand lenses-----	5.5	68
	Clay, silty, trace of sand and gravel, very stiff, dark gray-----	8	76
	Clay, silty, trace of sand, gravel, and lignite, very stiff, dark gray-----	26.3	102.3

150-83-4DAA
NDSWC 1378
(Log from Armstrong, 1963)

Elevation: 2155 ft

Glacial drift:			
	Soil, black-----	3	3
	Till; clay, yellow to light brown, a few pebbles-----	40	43
	Till; clay, gray, fine gravel, shale pebbles-----	69	112
	Gravel, fine to medium-----	3	115
Fort Union Group:			
	Clay, sandy, gray-----	11	126

150-83-9ABB
(Log from Schnell, Inc.)

Elevation: 2117 ft

Glacial drift:			
	Topsoil, black-----	2	2
	Till, yellow-----	17	19
	Till, gray-----	64	83
	Gravel, coarse, white, boulders-----	15	98
Fort Union Group:			
	Clay-----	2	100

150-83-9ACC
 NDSWC 1367
 (Log from Armstrong, 1963)

Elevation:

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Soil, black-----	5	5
	Till; clay, sandy, and pebbly, yellow to brown, oxidized-----	17	22
	Till; clay, gray, fine gravel, shale pebbles-----	69	91
	Gravel, fine to medium-----	1	92
	Till; clay, gray, fine gravel, shale pebbles-----	37	129
	Lignite-----	2	131
Fort Union Group:			
	Shale, gray-----	5	136

150-83-9BAA
 NDSWC 1380
 (Log from Armstrong, 1963)

Elevation: 2142 ft

Glacial drift:			
	Soil, black-----	1	1
	Gravel, fine-----	7	8
	Till; clay, yellow, fine gravel-----	9	17
	Till; clay, gray, fine to medium gravel, shale pebbles-----	87	104
	Gravel, fine to medium, slightly indurated--	11	115
Fort Union Group:			
	Clay, sandy, gray, lignite-----	11	126

150-83-9CCC
 NDSWC 1368
 (Log from Armstrong, 1963)

Elevation: 2076 ft

Glacial drift:			
	Soil, black-----	2	2
	Till; clay, light-yellow gray, oxidized----	5	7
	Till; clay, grayish-brown, fine to medium gravel, oxidized-----	14	21
	Till; clay, gray, fine to medium gravel, shale pebbles-----	42	63
	Till; clay, gray, fine gravel, shale pebbles-----	21	84
	Till; clay, light-yellowish-gray, fine to medium gravel, shale pebbles, oxidized----	10	94
Fort Union Group:			
	Lignite-----	2	96
	Shale, gray-----	9	105

150-83-9DCB1
(Log from Armstrong, 1963)

Elevation: 2095 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Clay, gravelly, yellow and rocks (till)-----	48	48
	Clay, sandy, blue and rocks (till)-----	39	87
	Rock-----	2	89
Fort Union Group:			
	Clay or shale, gray with some coal-----	23	112
	Clay, yellow-----	5	117
	Clay, gray with coal slack layers-----	83.5	200.5
	Rock layer, hard-----	2.5	203
	Shale, slightly sandy, gray-----	29	232
	Shale, light-gray-----	9	241
	Shale, brown, hard with coal particles-----	7	248
	Shale, gray-----	26	274
	Shale, brown-----	4	278
	Shale, light-green-----	4	282
	Shale, slightly sandy, gray-----	14	296
	Hard layer-----	1	297
	Shale, gray with coal and hard layers-----	12	309
	Coal-----	6	315
	Shale, gray with few hard layers-----	60	375
	Coal-----	3	378
	Shale, gray-----	11	389
	Shale, brown, rather hard-----	5	394
	Shale, gray-----	24	418
	Coal-----	3	421
	Shale, gray-----	14	435
	Coal-----	6	441
	Shale, gray-----	13	454
	Shale, slightly sandy, gray-----	9	463
	Shale, gray-----	29	492
	Shale, sandy, gray-----	8	500

150-83-9DCB2
NDSWC 1381
(Log from Armstrong, 1963)

Elevation: 2095 ft

Glacial drift:			
	Soil, black-----	3	3
	Till; clay, light yellowish-gray to yellow, a few coarse sand grains-----	18	21
	Till; clay, gray, fine gravel, shale pebbles-----	35	56
	Gravel, fine to medium-----	2	58
	Till; clay, gray, fine gravel, shale pebbles-----	10	68
	Till; clay, brownish-gray, fine gravel, shale pebbles-----	18	86
Fort Union Group:			
	Clay, sandy, gray-----	8	94

150-83-10AAA
NDSWC 1377
(Log from Armstrong, 1963)

Elevation: 2106 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Soil, black-----	4	4
	Till; clay, yellowish-gray, fine gravel-----	18	22
	Till; clay, dense, gray, fine to medium gravel-----	24	46
	Clay, light-gray-----	9	55
	Till; clay, gray, fine to medium gravel-----	19	74
Fort Union Group:			
	Clay, sandy, gray-----	10	84

150-83-15AAA
NDSWC 1376
(Log from Armstrong, 1963)

Elevation: 2106 ft

Glacial drift:			
	Soil, black-----	2	2
	Till; clay, yellowish-gray, fine to medium gravel-----	29	31
	Till; clay, gray, fine gravel, shale pebbles-----	10	41
	Till; clay, yellowish-gray, fine gravel, shale pebbles-----	6	47
	Clay, sandy, light-gray-----	6	53
	Till; clay, gray, fine gravel to cobbles-----	44	97
Fort Union Group:			
	Clay, sandy, gray-----	8	105

150-83-16AC
Log of Minneapolis, St. Paul & Sault Ste. Marie Railway well at Max
(Log from Simpson, 1929)

Elevation:			
	Surface deposits-----	50	50
	Soft blue-gray shale-----	85	135
	Coal; little water-----	8	143
	Blue-gray shale-----	107	250
	Coal; little water-----	9	259
	Shale-----	41	300
	Fine gray sandy shale-----	100	400
	Coal-----	10	410
	Shale, some light streaks-----	160	570
	Soft gray sandstone-----	1	571
	Shale-----	129	700
	Fine gray shaly sandstone and shale-----	20	720
	Shaly sandstone-----	45	765
	"Flint rock," hard and very heavy-----	3	768
	Shale, blue streaked with light-----	297	1065
	"Flint rock," coarse, gray, sandy-----	2	1067
	Shale, with "flint rock" layers-----	23	1090
	Sandy clayey shale-----	100	1190
	Blue-gray shale-----	290	1480
	"Slate"-----	298	1778
	Shale-----	124	1902
	"Slate"-----	68	1970
	Shale-----	342	2312
	Not specified-----	188	2500

The only water reported by the driller was "a small vein" at 140 and another at 250 feet. The thick beds of shale in the lower part of the hole are probably all of Pierre age.

150-83-16BAC
(Log from Armstrong, 1963)

Elevation:

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Clay, brown-----	2	2
	Clay, gravelly, yellow-----	3	5
	Sand and gravel, clayey-----	6	11
	Clay, blue, some sandy-----	80	91
	Clay and boulders-----	2	93
	Clay, very gravelly-----	24	117
	Clay, gravelly-----	9	126
Fort Union Group:			
	Shale, gray with coal flakes-----	25	151

150-83-16CCC
NDSWC 1373
(Log from Armstrong, 1963)

Elevation: 2066 ft

Glacial drift:			
	Soil, black-----	1	1
	Till; clay, yellow, slightly oxidized, fine gravel-----	39	40
	Till; clay, brownish-gray, fine gravel, shale pebbles-----	67	107
Fort Union Group:			
	Clay, sandy, gray-----	8.5	115.5

150-83-17CCD
NDSWC 1372
(Log from Armstrong, 1963)

Elevation: 2031 ft

Glacial drift:			
	Soil, black-----	5	5
	Till; clay, yellowish-gray, fine to coarse gravel-----	11	16
	Till; clay, gray, fine to medium gravel-----	26	42
	Gravel, coarse-----	1	43
	Till; clay, gray, fine to medium gravel-----	56	99
Fort Union Group:			
	Clay, sandy, gray-----	16.5	115.5

150-83-18AAA
NDSWC 1369
(Log from Armstrong, 1963)

Elevation: 2065 ft

Glacial drift:			
	Soil, black-----	3	3
	Till; clay, yellow, medium to coarse sand and a few pebbles, oxidized-----	19	22
	Till; clay, gray, fine to medium gravel, shale pebbles, lignite fragments-----	68	90
	Till; clay, light-brown, coarse sand and pebbles-----	30	120
	Gravel, fine to medium, silty, lignite fragments-----	6	126

150-83-18AAA, Continued
 NDSWC 1369
 (Log from Armstrong, 1963)

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Till; clay, gray, fine gravel, shale pebbles-----	11	137
	Sand, indurated lenses interbedded with till	8	145
	Till; clay, gray, fine gravel, shale pebbles-----	2	147
	Gravel, fine, large concentration of shale granules, lignite fragments-----	9	156
	Till; clay, gray, fine gravel, shale pebbles, lignite fragments-----	16	172
	Sand, indurated lens-----	2	174
	Till; clay, gray, fine gravel, shale pebbles and lignite fragments-----	9	183
	Till; clay, gray, fine gravel consisting largely of shale granules, lignite fragments-----	5	188
	Till; clay, gray, fine gravel, shale pebbles, and lignite fragments-----	23	211
	Till; clay, sandy, fine gravel, shale and lignite fragments-----	9	220

150-83-18BBB
 NDSWC 1370
 (Log from Armstrong, 1963)

Elevation: 2101 ft

Glacial drift:			
	Soil, black-----	1	1
	Till; clay, yellowish-gray-----	8	9
	Till; clay, yellowish, fine to medium gravel-----	24	33
	Till; clay, gray, fine to coarse gravel-----	75	108
	Sand, coarse, fine gravel and lignite-----	15	123
	Till; clay, gray, lignite fragments-----	5	128
Fort Union Group:			
	Shale, clay, sandy, gray-----	8	136
	Lignite (core)-----	10	146

150-83-21DAD
 (Log from U.S. Air Force)

Elevation: 2081.8 ft

	Clay, silty, sandy, trace of gravel and lignite, stiff to very stiff, brown-----	18	18
	Clay, silty, trace of sand, gravel, and lignite, very stiff, brown; cobbles at 27 ft-----	12	30
	Clay, silty, trace of sand, gravel, and lignite, very stiff to hard, brown; cobbles and gravel at 34 ft and 41.5 ft---	24	54
	Clay, silty, trace of sand, gravel, and lignite, very stiff to hard, dark gray; boulders and cobbles 76-77 ft-----	31	85
	Clay, silty, trace of sand and gravel, very stiff, gray-brown; boulders and cobbles at 91 ft-----	15.5	100.5

150-83-28BBB
 NDSWC 1374
 (Log from Armstrong, 1963)

Elevation: 2026 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Soil, black-----	3	3
	Till; clay, yellowish-gray, fine to medium gravel-----	41	44
	Till; clay, gray, fine to medium gravel-----	40	84
	Till; clay, brownish-gray, fine to medium gravel-----	37	121
Fort Union Group:			
	Clay, sandy, gray-----	5	126

150-83-33BBB
 NDSWC 1375
 (Log from Armstrong, 1963)

Elevation: 2130 ft

Glacial drift:			
	Soil, black-----	3	3
	Till; clay, yellowish-gray, fine to medium gravel, slightly oxidized-----	7	10
	Till; clay, yellow, fine to medium gravel, slightly oxidized-----	12	22
	Till; clay, gray, a little fine to coarse gravel, shale pebbles-----	62	84
	Till; clay, light-brown, a little fine to medium gravel, slightly oxidized-----	18	102
	Sand, coarse, and fine gravel, consisting of shale granules-----	3	105
	Till; clay, gray, fine gravel and shale pebbles-----	32	137
Fort Union Group:			
	Clay, sandy, gray-----	10	147

150-84-6ABB
 NDSWC 5578

Elevation: 2125 ft

Glacial drift:			
	Topsoil, silty, clayey, sandy, grayish-black	1	1
	Sand, very fine to medium, subangular-----	5	6
	Clay, silty, sandy, dusky-yellow to moderate-yellowish-brown (till)-----	14	20
	Clay, silty, pebbly, sandy, olive-gray (till)-----	100	120
Fort Union Group:			
	Sandstone, silty, clayey, lignitic, noncalcareous, medium-bluish-gray-----	20	140

150-84-12CCC
 NDSWC 1371
 (Log from Armstrong, 1963)

Elevation: 2071 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Soil, black-----	1	1
	Till; clay, gray, small amount of sand-----	6	7
	Till; clay, light-yellowish-brown, fine to medium gravel-----	11	18
	Till; clay, gray, fine to medium gravel, shale pebbles-----	67	85
Fort Union Group:			
	Clay, grayish- to greenish-brown, fine to medium sand-----	20	105

150-84-22CCB
 (Log from U.S. Air Force)

Elevation: 2028.5 ft

	Clay, silty, medium to stiff, gray-brown----	12.5	12.5
	Clay, silty, sandy, trace of gravel and lignite, very stiff, gray-brown-----	37	49.5
	Clay, silty, trace of sand, gravel, and lignite, very stiff, dark gray-----	50.5	100

150-84-33CCA
 (Log from R. F. Jahnke)

Elevation:

	Topsoil-----	2	2
	Clay, yellow-----	37	39
	Gravel-----	1	40
	Clay, gray-----	43	83
	Coal-----	7	90

150-84-35CCC2
 (Log from R. F. Jahnke)

Elevation: 1994 ft

	Gravel-----	41	41
	Clay, blue-----	55	96
	Sand-----	2	98
	Coal-----	.5	98.5
	Sand-----	22.5	121
	Coal-----	3.5	124.5

150-85-1DDD
 NDSWC 2836

Elevation: 2058 ft

Glacial drift:			
	Toposil, silty, grayish-black-----	1	1
	Clay, silty, sandy, dusky-yellow (till)-----	11	12
	Clay, silty, sandy, olive-gray; scattered gravel (till)-----	14	26
	Sand, fine to medium, clayey-----	2	28

150-85-1DDD, Continued
NDSWC 2836

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Fort Union Group:	Shale, siliceous, light-gray to light-bluish-gray-----	32	60

150-85-23BAB
(Log from U.S. Air Force)

Elevation: 2070.7 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:	Clay, silty, sandy, trace of gravel and lignite, stiff, brown; silt lenses 2.5-5.5 ft-----	19	19
	Clay, silty, trace of sand, gravel, and lignite, very stiff, gray-brown-----	9.5	28.5
	Sand, fine, silty, loose to medium dense, trace of lignite, brown to gray-----	13	41.5
	Clay, silty, trace of sand, gravel, and lignite, stiff to very stiff, gray-brown--	8	49.5
	Sand and gravel, clayey, dense, trace of lignite, brown-----	3	52.5
	Clay, silty, trace of sand, gravel, and lignite, very stiff to hard, gray-brown; thin lenses of sand between 74 and 78.5 ft-----	26	78.5
	Silt and clay, dense, gray-----	4.5	83
Fort Union Group:	Shale, silty, soft to moderately soft, gray-----	18.3	101.3

150-86-21DDC
NDSWC 3617

Elevation: 2120 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:	Earthfill, clayey, yellowish-gray-----	3	3
	Gravel, fine to medium, sandy, poorly sorted, subrounded-----	15	18
Fort Union Group:	Silt, carbonaceous, light-gray; interbedded with sandy shale, silty shale, and lignite-----	42	60

150-87-2DCC
NDSWC 2848

Elevation: 2168 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:	Topsoil, silty, sandy, brownish-black-----	1	1
Fort Union Group:	Sandstone, fine to medium, calcareous-----	39	40

150-87-3BAB
NDSWC 5577

Elevation: 2150 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, clayey, sandy, gravelly, grayish-black-----	1	1
	Clay, silty, sandy, pebbly, moderate-yellowish-brown; scattered cobbles and boulders (till)-----	9	10
Fort Union Group:			
	Sandstone, very fine, lignitic, calcareous, moderate-yellowish-brown to dark-yellowish-brown; grades to uncemented sand below 18 ft-----	40	50

150-87-21AAA
NDSWC 2847

Elevation: 2135 ft

Glacial drift:			
	Topsoil, silty, sandy, brownish-black-----	1	1
	Gravel, fine to medium, clayey, sandy-----	3	4
	Clay, silty, sandy, gravelly, moderate-yellowish-brown (till)-----	46	50
	Clay, silty, sandy, gravelly, olive-gray to dark-greenish-gray (till)-----	40	90
	Clay, silty, olive-gray to dark-greenish-gray; sandy from 140-166 ft (till)-----	76	166
	Sand, clayey-----	6	172
Fort Union Group:			
	Shale, siliceous, light-gray to light-bluish-gray-----	9	181
	Shale, siliceous, brownish-gray to grayish-blue-green-----	19	200

150-87-27BBB
(Log from U.S. Air Force)

Elevation: 2133.3 ft

	Sand and clay, dark brown-----	2.5	2.5
	Clay, silty, trace of sand, gravel, and lignite, stiff to very stiff, gray-brown--	15.5	18
	Clay, silty, trace of sand, gravel, and lignite, medium to stiff, dark gray-brown-----	26.5	44.5
	Clay, silty, trace of sand, gravel, and lignite, very stiff to hard, gray-brown--	34.5	79
	Shale, soft, gray-brown-----	8	87
	Sand, fine, silty, very dense, light gray-brown-----	7	94
	Shale, silty, stiff, brown-gray-----	6.5	100.5

150-87-32CBB
NDSWC 2845

Elevation: 2105 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Gravel, fine to coarse, clayey; scattered cobbles and boulders-----	5	6
	Clay, sandy, silty, gravelly, moderate-yellowish-brown to dusky-yellow (till)----	18	24
Fort Union Group:			
	Sandstone, fine to medium, calcareous, light-greenish-gray-----	4	28
	Shale, noncalcareous, pale-brown to light-bluish-gray; becomes sandy toward bottom-----	12	40

150-87-33BAA
NDSWC 2846

Elevation: 2125 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Gravel, fine to medium, sandy, clayey, angular to subrounded-----	4	5
	Clay, silty, sandy, gravelly, moderate-yellowish-brown (till)-----	10	15
	Sand, fine to medium, clayey, angular to subrounded-----	5	20
Fort Union Group:			
	Sandstone, fine to medium, clayey, calcareous, moderate-yellowish-brown-----	18	38
	Sandstone, very fine to medium, noncalcareous-----	2	40
	Shale, siliceous, light-gray to light-bluish-gray-----	20	60

150-88-1DDD
(Log from U.S. Air Force)

Elevation: 2169.2 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Clay and silt, sandy, trace of gravel, stiff to very stiff, brown; sand lenses from 1-3.5 ft-----	19.5	19.5
Fort Union Group:			
	Sand, fine, silty, very dense, light-brown--	29	48.5
	Sand, fine, very dense, brown; iron-stained concretions 50.5-51.5 ft-----	35.5	84
	Sand and interbedded shale; sand, fine, dark brown; shale, silty, moderately soft, brown-----	9	93
	Sand, fine, silty, very dense, dark brown---	9.5	102.5

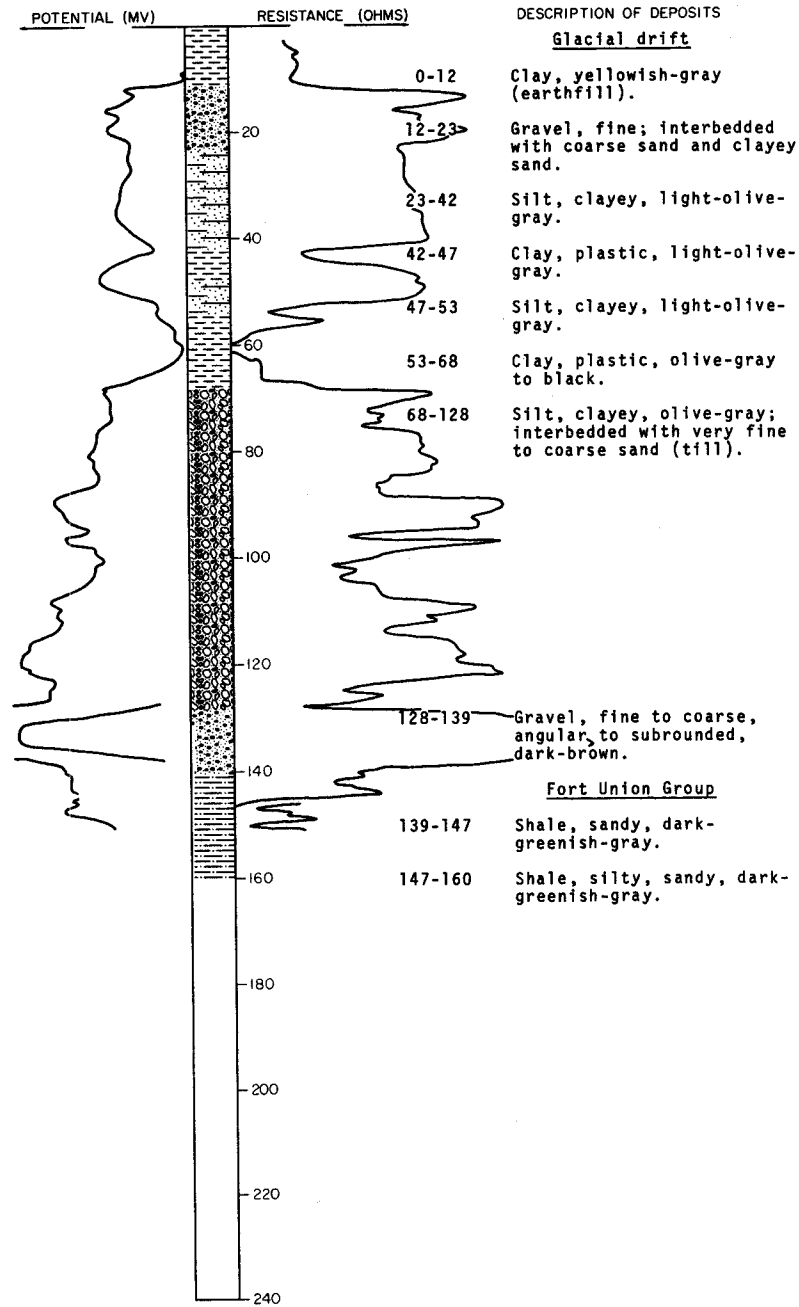
LOCATION: 150-88-16CCD

NDSWC 3614

DATE DRILLED: July 1968

ELEVATION: 1990
(FT, MSL)

DEPTH: 160
(FT)



150-88-18ADD1
(Log from R. F. Jahnke)

Elevation: 2031 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil, black-----	2.5	2.5
	Clay, yellow-----	2.5	5
	Clay, sandy, yellow-----	3	8
	Clay, multicolored-----	17	25
	Clay, yellow-----	10	35
	Clay, dark yellow-----	5	40
	Clay, dark yellow; sand lenses-----	5	45
	Sand, yellow-----	5	50
	Clay, dark yellow-----	3.5	53.5
	Lignite-----	10	63.5
	Clay, gray-----	1.5	65

150-88-24CCC
NDSWC 2844

Elevation: 2083 ft

Glacial drift:			
	Topsoil, silty, sandy, grayish-black-----	1	1
	Gravel, fine to medium, clayey, angular to subrounded-----	3	4
	Clay, silty, sandy, moderate-yellowish-brown to dusky-yellow; scattered gravel and cobbles (till)-----	36	40
Fort Union Group:			
	Shale, sandy, calcareous, light-olive- to pale-brown-----	13	53
	Lignite, soft to hard, black-----	7	60
	Shale, siliceous, light-gray to light-bluish-gray-----	20	80

150-88-28DDD
NDSWC 3615

Elevation: 1990 ft

Glacial drift:			
	Topsoil, clayey, black-----	2	2
	Clay, silty, dusky-yellow-----	3	5
	Gravel, fine to medium, subangular to subrounded; few sand lenses-----	12	17
	Clay, plastic, moderate-olive-brown-----	3	20
	Gravel, fine to medium; few sand lenses-----	4	24
	Clay, silty, moderate-olive-brown to light-olive-gray-----	7	31
	Silt, sandy, clayey, light-olive-gray-----	16	47
Fort Union Group:			
	Shale, dark-greenish-gray-----	5	52
	Shale, silty, micaceous, brittle, light-olive-gray-----	14	66
	Sand, very fine, olive-gray-----	14	80

150-88-29CDC
NDSWC 2843

Elevation: 1940 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, silty, sandy, brownish-black-----	1	1
	Sand, fine to very coarse, gravelly, angular to subrounded-----	7	8
	Clay, silty, calcareous, plastic, medium-gray to greenish-gray (lacustrine)-----	52	60
	Sand, fine to medium, clayey, subangular to rounded-----	5	65
	Clay, very silty, sandy, medium-gray to greenish-gray (till)-----	75	140
	Gravel, fine to medium, clayey, angular to subrounded-----	4	144
Fort Union Group:			
	Shale and sandstone, interbedded; slightly calcareous light-bluish-gray shale; fine to medium calcareous light-gray sandstone-----	16	160
	Sandstone, fine to medium, calcareous, light-gray to medium-light-gray-----	9	169
	Shale, calcareous, light-gray to light-bluish-gray-----	11	180

150-89-9CCC
(Log from R. F. Jahnke)

Elevation: 2132 ft

	Topsoil, gravelly, black-----	1.5	1.5
	Clay, gravelly, gray-----	4.5	6
	Clay, yellow-----	12	18
	Clay, sandy, yellow-----	4	22
	Rock-----	1	23
	Clay, sandy, yellow-----	43.5	66.5
	Rock-----	3	69.5
	Sand, yellow-----	20	89.5
	Rock-----	1.5	91
	Clay, sandy, yellow-----	9	100
	Clay or shale, sticky, blue-----	26	126
	Coal-----	8	134
	Clay or shale, sticky, gray-----	30	164
	Clay, sandy, gray-----	14	178
	Sandstone, hard-----	8	186
	Rock-----	2.5	188.5
	Clay, sandy, blue-----	20.5	209
	Clay, light gray-----	1	210
	Clay or shale, sticky, dark gray-----	2	212
	Coal, brown-----	1	213
	Lignite, black-----	3	216
	Clay, brown-----	2	218
	Clay and shale, dark gray-----	13	231
	Clay, sandy or soft sandstone, gray-----	23	254

150-89-19CDD
(Log from R. F. Jahnke)

Elevation: 2053 ft

	Clay, yellow-----	12	12
	Sand, yellow-----	10	22
	Rock-----	1	23
	Sandstone, yellow; gray sand interbeds-----	26	49

150-89-19CDD, Continued
(Log from R. F. Jahnke)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay, dark gray-----	6	55
	Lignite, soft-----	3.5	58.5
	Clay, dark gray-----	5.5	64
	Clay, sticky, gray-----	5	69
	Lignite-----	2.5	71.5
	Clay, gray-----	4	75.5

150-89-22DDA
(Log from R. F. Jahnke)

Elevation: 1976 ft

	Drift clay-----	9.5	9.5
	Clay, yellow-----	10.5	20
	Clay, gray-----	8	28
	Clay, sticky, blue-----	23.5	51.5
	Lignite-----	8.5	60
	Clay, gray to brown-----	11	71

150-89-25CBB
(Log from R. F. Jahnke)

Elevation: 1959 ft

Glacial drift:

	Clay, yellow-----	36	36
	Clay, blue-----	11	47
	Clay, sticky, blue-----	4	51
	Clay, soft, gray-----	4	55
	Clay, sandy-----	5	60
	Clay, hard, gravelly-----	4	64
	Clay, soft-----	4	68
	Sand, dirty-----	4	72
	Clay, sandy, some coarse sand-----	6	78
	Sand, coarse, and gravel, clay lenses-----	4	82

Fort Union Group:

	Clay, yellow-----	1	83
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150-89-26AAA
NDSWC 5558

Elevation: 1965 ft

Glacial drift:

	Topsoil, silty, sandy, pebbly, grayish-black-----	1	1
	Clay, silty, sandy, pebbly, dark-yellowish-brown; scattered gravel and boulders (till)-----	19	20
	Sand, fine to medium, silty, angular to subrounded-----	14	34
	Clay, silty, pebbly, sandy, dark-yellowish-brown (till)-----	26	60
	Clay, silty, pebbly, sandy, calcareous, olive-gray (till)-----	7	67
	Sand, fine to coarse, subangular to rounded-----	3	70
	Clay, silty, pebbly, sandy, olive-gray (till)-----	6	76

Fort Union Group:

	Sandstone, very fine to fine, silty, clayey, micaceous, lignitic, noncalcareous, medium-gray-----	24	100
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150-89-26BCC
(Log from R. F. Jahnke)

Elevation: 1944 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift:			
	Topsoil, sandy, clayey-----	3	3
	Sand, gravel, and stones-----	5	8
	Clay, soft, blue-----	12	20
	Clay, hard, gray-----	17	37
	Clay, sticky, gray-----	7	44
Fort Union Group(?):			
	Coal-----	1	45
	Clay, dark brown-----	1	46
	Coal-----	3	49
	Clay, gray-----	3	52

150-89-31BCC
NDSWC 4069

Elevation: 1965 ft

Glacial drift:			
	Topsoil, pebbly, sandy, black-----	3	3
	Clay, silty, sandy, pebbly, yellowish-gray; isolated sand lenses (till)-----	26	29
	Clay, silty, sandy, moderate-olive-brown; scattered pebbles (till)-----	22	51
	Clay, silty, sandy, pebbly, olive-gray; thinly interbedded with clay and silt (till)-----	39	90
	Clay, sandy, pebbly, lignitic, olive-gray---	51	141
	Sand, medium to coarse, subangular to subrounded, gray; abundant gravel-size lignite fragments-----	29	170
	Sand, medium to coarse, subangular to subrounded, gray; abundant gravel-size lignite fragments; thinly interbedded with clayey silt-----	25	195
	Clay; interbedded with silt and sand; olive-gray-----	10	205
	Gravel, fine to medium, subrounded-----	5	210
	Clay, silty, sandy, pebbly, olive-gray; isolated thin gravel lenses (till)-----	14	224
	Gravel, fine to coarse, sandy, subangular to subrounded; abundant cobbles-----	30	254
	Gravel, fine to coarse, subangular to subrounded; abundant cobbles; about 50 percent detrital lignite-----	43	297
	Gravel, coarse; abundant cobbles and boulders-----	13	310
Fort Union Group:			
	Siltstone, hard, calcareous, very light gray-----	11	321
	Sandstone, very fine to fine, clayey, micaceous, carbonaceous, calcareous, greenish-gray-----	24	345
	Siltstone, hard, calcareous, light- to medium-gray-----	7	352
	Shale, hard, medium-gray-----	8	360

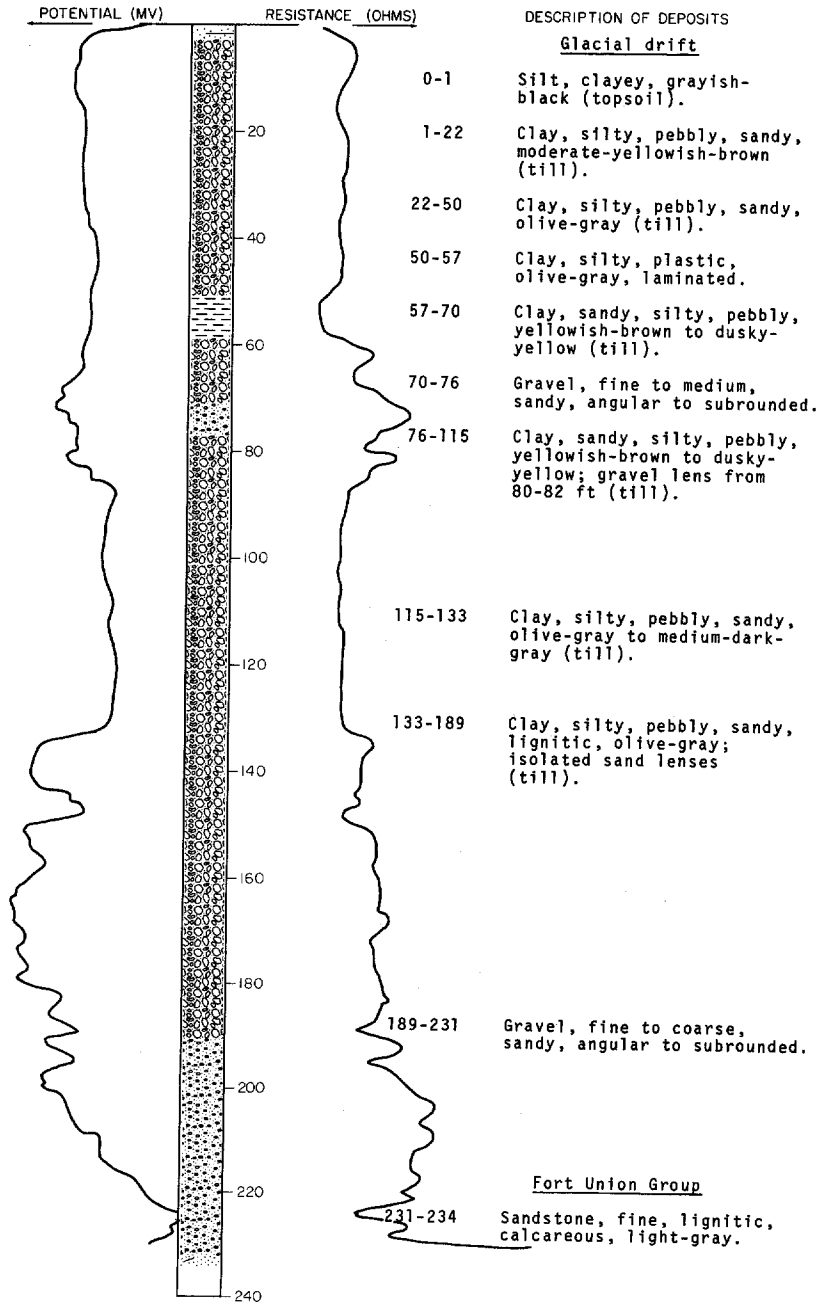
LOCATION: 150-89-32DAA

NDSWC 5557

DATE DRILLED: October 1969

ELEVATION: 1972
(FT, MSL)

DEPTH: 234
(FT)



150-89-33BCC
(Log from R. F. Jahnke)

Elevation: 1979 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Clay, yellow and gray-----	24	24
	Rocks and boulders with clay lenses-----	5	29
	Clay, dark gray-----	8	37
	Rock-----	5	42
	Clay, sandy, yellow-----	51	93
	Clay, sticky, dark gray-----	4	97
	Clay, gray; rocky-----	17	114
	Sandstone or hardpan-----	10	124
	Clay, hard-----	17	141
	Silt and clay, soft-----	3	144
	Clay, sandy and slack coal-----	4	148
	Clay, sticky-----	10	158
	Clay, sticky, lenses of silt and slack coal-----	10	168
	Sand, muddy-----	12	180
	Clay, hard, with sand lenses-----	10	190
	Sand, muddy-----	10	200
	Sand, fine to coarse-----	20	220
	Sand, coarse, gravelly-----	12	232

150-89-34AAA
NDSWC 5572

Elevation: 1933 ft

Glacial drift:			
	Topsoil, silty, clayey, sandy, grayish-black-----	1	1
	Clay, silty, pebbly, sandy, moderate-yellowish-brown (till)-----	17	18
	Clay, silty, pebbly, sandy, olive-gray (till)-----	27	40
Fort Union Group:			
	Shale, clayey, silty, noncalcareous, dark-greenish-gray-----	20	60

150-89-34DDD
(Log from R. F. Jahnke)

Elevation: 1937 ft

	Earthfill-----	3	3
	Clay, sandy, gray-----	3	6
	Clay, yellow-----	18	24
	Clay, dark yellow-----	16	40
	Silt-----	2	42
	Clay or shale, sticky, gray-----	39	81
	Sand, clayey-----	27	108
	Clay, dark gray, rocky-----	23	131
	Sand and slack coal-----	4	135

150-90-12BBB1
(Log from Harrer, 1961)

Elevation: 2188 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Topsoil-----	2	2
	Sand and gravel, yellow-----	18	20
	Clay, yellow-----	15	35
	Clay, gray-----	8	43
	Sand and sandstone, yellow-----	64	107
	Sand and hard sandstone-----	59	166
	Lignite-----	4	170
	Clay, gray-----	10	180

150-90-12DAA
(Log from R. F. Jahnke)

Elevation: 2167 ft

Glacial drift:			
	Topsoil-----	3	3
	Clay, gravelly, yellow-----	15.5	18.5
Fort Union Group:			
	Clay, sandy, yellow-----	54.5	73
	Sandstone, hard-----	1	74
	Sandstone, soft, yellow-----	4	78
	Sandstone, hard, yellow-----	1	79
	Sandstone or sandy shale, soft-----	21	100
	Clay, sandy, dark-----	3	103
	Shale, hard, dark-----	3	106
	Sand-----	1	107

150-90-13ACA
(Log from Dingman and Gordon, 1954)

Elevation: 2104 ft

	Gravel and boulders-----	6	6
	Clay, yellow-----	12	18
	Clay, blue-----	5	23
	Clay, sandy, yellow-----	32	55
	Clay, very sandy, gray-----	13	68
	Sand-----	14	82
	Sandstone-----	3	85
	Clay, blue, with sand-----	25	110
	Lignite-----	3	113
	Sand, fine, gray-----	15	128
	Lignite-----	4	132
	Clay, gray-----	23	155
	Sand, medium, gray-----	10	165
	Sand, fine, gray-----	60	225
	Lignite-----	5	230
	Clay, sandy, gray-----	13	243
	Lignite-----	3	246
	Clay, sandy, gray-----	27	273
	Clay, gray-----	7	280
	Clay, sandy, gray-----	12	292
	Sand, fine, gray-----	13	305

150-90-13ADA
(Log from Farstad and McGregor Drilling Co.)

Elevation: 2085 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil-----	3.5	3.5
	Sand, brown-----	28.5	32
	Sandstone-----	83	115
	Sand, blue-----	7	122
	Coal-----	6	128
	Clay-----	13	141

150-90-13ADD
(Log from Harrer, 1961)

Elevation: 2077 ft

	Silt, sandy-----	3	3
	Sand, clayey, gravelly-----	3	6
	Sand, fine, silty-----	4.5	10.5

150-90-16CBB
(Log from Dingman and Gordon, 1954)

Elevation: 2042.5 ft

	Topsoil-----	3	3
	Clay, silty, yellow, with pebbles-----	54	57
	Gravel-----	4	61
	Clay, sandy, yellow-----	4	65
	Clay, sandy, brown, with lignite-----	6	71
	Clay, sandy, gray-----	12	83
	Clay, gray-----	17	100
	Lignite-----	20	120
	Sand-----	65	185
	Lignite-----	2	187
	Sand-----	73	260
	Lignite-----	7	267
	Sand-----	60	327
	Lignite-----	2	329
	Sand-----	14	343
	Lignite-----	3	346
	Clay, gray-----	59	405

150-90-16CCC
NDSWC 3611

Elevation: 2037 ft

Glacial drift:

	Topsoil-----	2	2
	Gravel, sandy, poorly sorted, rusty-----	4	6
	Clay, sandy, dusky-yellow-----	4	10
	Sand, fine to medium, subrounded, light-gray-----	7	17
	Clay, silty, sandy, pebbly, olive-brown (till)-----	19	36
	Clay, silty, sandy, pebbly, olive-gray (till)-----	37	73
	Silt, sandy, dusky-yellow-----	12	85
	Silt, sandy, olive-gray-----	3	88
	Clay, silty, sandy, pebbly, olive-gray; numerous lignite fragments (till)-----	15	103
	Clay, silty, lignitic, olive-gray; numerous interbeds of fine to medium sand and silt (till)-----	117	220

150-90-16CCC, Continued
NDSWC 3611

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
Glacial drift, Continued:			
	Sand, medium, lignitic; thin silt and clay interbeds and fine gravel-----	55	275
	Clay, silty, sandy, gravelly, olive-gray (till)-----	6	281
	Sand, medium, subrounded-----	51	332
	Clay, plastic, olive-gray-----	3	335
	Gravel, fine to coarse, sandy; few cobbles--	23	358
Fort Union Group:			
	Shale, silty, micaceous, brittle, dark-greenish-gray; few sand interbeds-----	24	382
	Lignite-----	2	384
	Shale, silty, micaceous, brittle, dark-greenish-gray-----	16	400

150-90-17CCC
NDSWC 4072

Elevation: 1990 ft

Glacial drift:			
	Topsoil, silty, pebbly, brownish-black-----	2	2
	Clay, sandy, yellowish-gray to moderate-olive-brown; thinly interbedded with silt (till)-----	70	72
	Gravel, fine, sandy, subangular to subrounded-----	9	81
	Silt, clayey, sandy, reddish-brown, laminated-----	15	96
	Silt, clayey, sandy, olive-gray, laminated-----	14	110
	Clay, silty, plastic, olive-gray-----	16	126
	Sand, fine to medium, silty, lignitic, subangular to subrounded, olive-gray-----	44	170
	Gravel, medium to coarse, angular to rounded; isolated lenses of detrital lignite-----	70	240
	Gravel, medium to coarse, sandy, lignitic, angular to rounded; contains detrital till-----	54	294
Fort Union Group(?):			
	Lignite(?) no samples, lost circulation-----	12	306
	Silt(?) no samples; lost circulation-----	14	320

150-90-19AAC
(Log from Farstad and McGregor Drilling Co.)

Elevation: 1855 ft

	Gravel and rocks-----	10	10
	Sand, brown-----	65	75
	Sand-----	5	80

150-90-21BC
(Log from U.S. Corps of Engineers)

Elevation: 2025.7 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Clay, sandy, gravelly-----	75	75
	Clay, sandy, dark gray; scattered gravel and lignite fragments-----	100	175
	Sand, fine, silty, loose, dark gray; scattered gravel and lignite fragments----	70.6	245.6
	Clay, sandy-----	1.8	247.4
	Sand, fine, silty, loose, gray-----	15.6	263
	Rock-----	3.5	266.5
	Sand, fine, silty-----	3.5	270
	Sand, fine-----	1.5	271.5
	Sand, fine, silty-----	1.5	273
	Clay, sandy, dark gray; scattered gravel and lignite fragments-----	15	288
	Sand, fine, silty, gray; scattered lignite fragments-----	5	293
	Sand, medium-----	3	296
	Sand, medium to coarse, loose, brownish-gray; scattered gravel and lignite fragments-----	2	298
	Sand, medium, loose, brownish-gray; scattered gravel and lignite fragments----	7.5	305.5
	Gravel, coarse-----	1	306.5
	Gravel, sandy-----	5.5	312

150-90-21CBB
(Log from Harrer, 1961)

Elevation: 2018 ft

Sand, fine-----	5	5
Gravel-----	2	7
Clay, sandy-----	15	22
Sand and clay-----	122	144
Lignite (float)-----	1.5	145.5
Sand, fine-----	6	151.5
Lignite-----	1.5	153
Sand-----	24	177
Lignite (float)-----	3.5	180.5
Sand, coarse-----	1	181.5
Lignite (float)-----	1	182.5
Sand, coarse-----	3.5	186
Lignite-----	1.5	187.5
Sand and clay-----	30	217.5
Lignite (float)-----	1.6	219.1
Sand, coarse to fine-----	10	229.1
Lignite-----	.5	229.6
Sand, coarse to fine-----	16	245.6

150-90-22CCC
(Log from Dingman and Gordon, 1954)

Elevation: 2045.1 ft

Topsoil-----	4	4
Clay, brown-----	38	42
Sand and lignite-----	15	57
Clay, silty, brown-----	4	61
Clay, gray-----	34	95
Sand-----	105	200
Lignite-----	4	204
Sand-----	66	270

150-90-22CCC, Continued
(Log from Dingman and Gordon, 1954)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Gravel-----	15	285
	Sand-----	15	300
	Gravel-----	30	330

150-90-24DDD
(Log from Harrer, 1961)

Elevation: 2030 ft

	Clay, gravel, sand-----	2	2
	Clay, sandy-----	9	11
	Clay, gravelly-----	9	20
	Clay, sandy-----	2	22
	Sand, fine-----	8	30
	Sand, fine, clayey-----	6	36
	Sand, clayey-----	2	38
	Clay, fat-----	2.5	40.5

150-90-25DAA1
(Log from Dingman and Gordon, 1954)

Elevation: 2005.2 ft

	Soil-----	3	3
	Gravel-----	9	12
	Sand and small amount of lignite-----	10	22
	Clay, brown and gray, with pebbles-----	23	45
	Sand-----	29	74
	Clay, brown and gray, and sand-----	30	104
	Sand-----	156	260

150-90-25DAA3
NDSWC 4068

Elevation: 2003 ft

Glacial drift:

	Topsoil, sandy, pebbly, black-----	1	1
	Clay, silty, sandy, pebbly, dusky-yellow (till)-----	11	12

Fort Union Group:

	Shale, sandy, brittle, dusky-yellow to pale-yellowish-green-----	12	24
	Sand, very fine to fine, clayey, micaceous, subangular, pale-yellowish-green-----	6	30
	Shale, sandy, pale-yellowish-green; interbedded with very fine to fine sand-----	12	42
	Sand, very fine to fine, pale-yellowish-green; interbedded with siltstone and claystone; lost circulation at 120 ft-----	92	134
	Siltstone(?) no samples; lost circulation-----	87	221
	Sandstone, fine, clayey, lignitic, dark-greenish-gray-----	33	254
	Shale, silty, hard, light-gray-----	6	260
	Lignite, hard, black-----	6	266
	Sand, fine, clayey, carbonaceous, black-----	8	274
	Siltstone, hard, medium-gray-----	12	286
	Lignite, hard, black-----	3	289
	Siltstone, hard, medium-gray-----	11	300

150-90-25DAD
(Log from Farstad and McGregor Drilling Co.)

Elevation: 2002 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Topsoil-----	5	5
	Gravel-----	3	8
	Sand, brown-----	16	24
	Sandstone, brown-----	98	122
	Sand, brown-----	7	129
	Coal-----	6	135
	Clay, brown-----	12	147
	Clay, gray-----	5	152
	Clay, brown-----	8	160
	Clay, gray-----	9	169
	Coal-----	1	170
	Clay, brown-----	14	184
	Sand, blue-----	23	207

150-90-28DDC
(Log from Dingman and Gordon, 1954)

Elevation: 2004.8 ft

	Topsoil and gravel-----	10	10
	Clay, brown, gray, and tan-----	20	30
	Sand-----	15	45
	Clay and sand-----	15	60
	Sand-----	28	88
	Clay, brown-----	7	95
	Sand-----	25	120
	Lignite-----	3	123
	Sand-----	12	135
	Clay, gray and brown-----	13	148
	Lignite-----	2	150
	Sand-----	115	265

150-90-29ADA
(Log from Harrer, 1961)

Elevation: 2025 ft

	Soil, black-----	2	2
	Clay, sandy, brown-----	38	40
	Sandstone, brown-----	35	75
	Clay, blue-----	50	125
	Clay, brown-----	15	140
	Lignite and water-----	2	142
	Sand, blue-----	8	150
	Clay, brown-----	19	169

150-90-32ACB1
(Log from Harrer, 1961)

Elevation: 2012 ft

	Topsoil-----	5	5
	Clay, yellow-----	20	25
	Clay, dark-----	10	35
	Lignite, clay, water-----	5	40
	Clay, gray-----	5	45

150-90-32CDC
(Log from Harrer, 1961)

Elevation: 2042 ft

<u>Geologic source</u>	<u>Material</u>	<u>Thickness (feet)</u>	<u>Depth (feet)</u>
	Soil, black-----	2	2
	Sandstone-----	15	17
	Clay, yellow-----	11	28
	Clay, brown-----	12	40
	Clay, blue-----	3	43
	Lignite-----	5	48
	Clay, brown-----	34	82
	Rock-----	2	84
	Clay and sand, brown-----	33	117
	Rock-----	5	122
	Sandstone, brown-----	18	140
	Rock-----	6	146
	Clay and sand, brown-----	48	194
	Lignite-----	10	204
	Clay, gray-----	6	210

150-90-32DC
(Log from Harrer, 1961)

Elevation: 2000 ft

	Topsoil and clay-----	20	20
	Clay, sandy, gray-----	25	45
	Lignite-----	6	51
	Clay, gray-----	16	67
	Lignite-----	3	70
	Clay, gray-----	142	212
	Lignite-----	3	215
	Clay, gray-----	7	222
	Lignite-----	8	230
	Clay and sandstone-----	76	306
	Lignite-----	2	308
	Clay, gray-----	24	332
	Lignite-----	6	338
	Clay, sandy-----	106	444
	Lignite-----	16	460
	Clay, gray-----	30	490
	Lignite-----	4	494
	Clay, gray-----	6	500

150-90-33DCA
(Log from Farstad and McGregor Drilling Co.)

Elevation: 1986 ft

Fort Union Group(?):			
	Topsoil-----	3	3
	Sand, yellow-----	167	170
	Sand-----	15	185

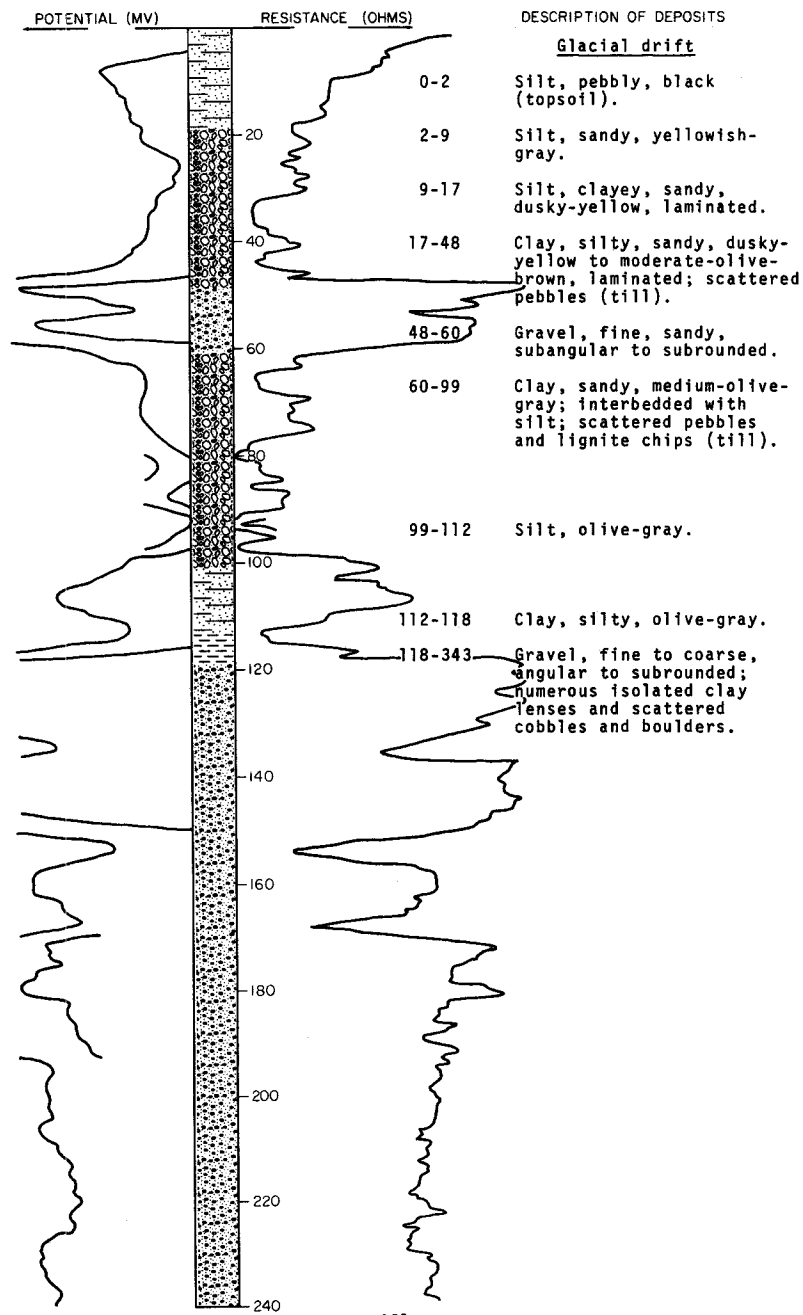
LOCATION: 150-90-36AAA

NDSWC 4071

DATE DRILLED: July 1970

ELEVATION: 1997
(FT, MSL)

DEPTH: 380
(FT)



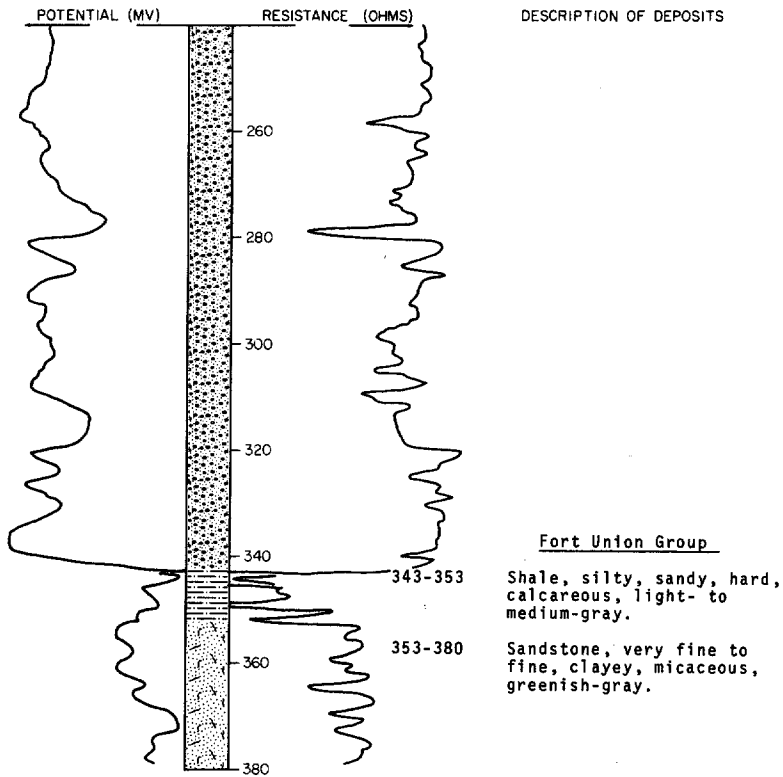
LOCATION: 150-90-36AAA

NDSWC 4071, Continued

DATE DRILLED: July 1970

ELEVATION: 1997
(FT, MSL)

DEPTH: 380
(FT)



150-90-36ADD
(Log from Harrer, 1961)

Elevation: 1977 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay, sandy-----	30	30
	Sand, fine-----	4	34
	Clay, fat-----	14	48
	Sand and gravel-----	3	51
	Sand and clay-----	25	76
	Limestone-----	3	79
	Sand and silt, clayey-----	119	198
	Gravel, sandy-----	3	201
	Sand, fine-----	6	207
	Clay, fat-----	3	210
	Sand, fine-----	5	215
	Gravel, coarse-----	7	222
	Sand, fine-----	3	225

TABLE 4.--Chemical analyses of selected water samples

(Analyses are in milligrams per liter, except as otherwise noted)

LOCAL NUMBER	MAJOR AQUIFER/	DEPTH OF WELL (FT.)	DATE OF SAMPLE	SILICA (SiO ₂) (MG/L)	TOTAL IRON (TPT) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MAG) (MG/L)	POSSPHORUS (P) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	CARBONATE (CO ₃) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO ₃) (MG/L)	BORON (B) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180°C) (MG/L)	HARDNESS (CAL-CHEM) (MG/L)	NON-CALCIUM HARDNESS (MG/L)	SODIUM AD-SORPTION RATIO	PERCENT SODIUM	SPECIFIC UPTAKE (MCMC-NMDS)	PH	TEMPERATURE (DEG C)	
143N080000AAA	QGS1	78	07-05-70	25	1000	194	49	209	7.0	432	0	787	7.7	.6	300	1500	488	334	3.5	40	1950	7.8	.7	
143N08001ACCB1	K3PH	530	07-01-68	8.6	380	4.6	1.6	598	2.3	1170	0	4.2	249	.6	0	2700	1420	18	0	61	98	2370	8.1	12.5
143N0800170DD	TLFU	220	07-01-68	9.8	2400	5.4	3.5	454	2.4	932	7	180	17	.7	0	470	1140	28	0	37	97	1780	8.3	8.5
143N08003AADD	TLFU	210	07-02-68	4.4	240	5.1	2.1	366	2.5	747	15	185	1.6	.5	0	340	936	21	0	35	97	1460	8.3	10.5
143N0800350AD	TLFU	92	04-23-68	18	130	109	27	4.1	3.7	428	0	46	.8	.1	0	401	385	34	1	2	759	7.7	7.0	
143N0800368CC	TLFU	110	07-02-68	8.7	--	56	15	1.2	3.2	241	0	10	2.4	.0	6.1	206	203	4	0	1	393	6.1	8.5	
143N0800368CB	TLFU	102	04-23-68	9.3	150	76	17	1.5	3.7	271	0	41	3.0	.1	0	100	291	261	39	0	1	488	7.9	7.5
143N081U028CC2	QGS1	34	11-08-69	29	1800	82	19	19	4.3	330	--	45	--	2	--	367	285	7	--	13	583	8.1	4.4	
143N081U028CC1	QGS2	258	11-08-69	33	150	63	8.9	443	4.5	1180	8	91	--	8	--	1250	144	--	16	87	2080	8.3	4.9	
143N081U040DA	QGS1	160	07-24-67	24	1100	61	23	323	6.8	911	0	117	69	1.1	0	480	1070	246	0	8.9	73	1690	8.0	--
143N081U040DC	QGS1	35	07-03-68	18	--	98	26	41	6.6	378	--	137	3.9	.2	2.5	100	503	353	43	9	20	789	7.8	7.5
143N081U1028B	QGS1	31	08-24-67	23	5100	57	31	236	6.7	813	0	168	21	.2	1.5	1400	945	354	0	5.5	59	1900	8.0	9.0
143N081U2028C	QGS1	55	08-11-67	19	3700	48	46	195	7.7	682	0	211	16	.2	2.0	110	856	359	0	4.5	53	1350	8.3	7.5
143N081U240DA	K3HC	350	07-03-68	8.1	80	4.8	1.9	635	2.4	1220	0	3.5	27.7	.7	1.0	2800	1540	20	0	62	98	2480	8.2	10.5
143N081U240DA2	QGS1	38	08-24-70	20	1000	73	25	721	5.3	903	--	1100	67.7	.4	0	570	2410	287	--	19	84	3300	7.9	7.5
143N081U2988A2	QGS1	90	09-08-67	23	80	72	51	249	7.3	680	0	349	20	.1	1.0	150	1080	390	0	5.5	58	1640	8.0	9.0
143N081U2988A3	QGS1	80	09-12-67	27	740	50	18	408	6.8	882	0	323	28	.1	1.0	350	1240	199	0	13	81	1910	8.1	7.0
143N081U2988B1	QGS1	107	10-05-67	--	1900	82	40	233	7.1	644	--	279	20	--	4.6	--	371	--	--	5.3	57	1620	7.9	9.0
143N081U2988B1	QGS1	107	10-03-67	23	1500	73	48	231	7.1	662	0	279	20	.7	2.9	240	992	378	--	5.2	56	1610	7.8	9.0
143N081U2988B1	QGS1	107	07-10-67	21	1100	86	47	226	7.2	749	0	258	15	.2	4.0	80	1020	408	0	4.9	54	1510	7.6	7.5
143N081U2988B1	QGS1	107	10-07-67	24	2600	82	41	231	7.1	672	--	285	19	.7	3.9	150	1000	375	--	5.2	57	1610	7.9	7.5
143N081U2988B1	QGS1	107	10-05-67	24	3300	3.3	42	223	6.8	593	--	279	20	.1	3.0	200	812	278	--	5.8	72	1390	8.2	7.5
143N081U2988B1	QGS1	107	10-04-67	--	2000	84	43	226	7.0	694	--	282	20	--	3.7	--	387	--	--	5.0	55	1540	7.9	7.5
143N081U2988B2	QGS1	90	09-12-67	24	2300	68	41	215	6.9	637	0	233	12	.1	4.0	894	332	0	--	5.8	58	1390	8.1	7.5
143N081U2988D	QGS1	90	09-11-67	23	2300	85	53	251	6.8	688	0	370	29	.1	2.0	110	1130	429	0	5.3	55	1480	8.0	7.0
144N080001DD0	TLFU	310	06-26-68	18	300	4.5	2.7	469	2.0	1180	18	4.2	31	.4	0	2200	1130	22	0	43	98	1720	8.3	9.0
144N080001ACC	QGS2	353	08-20-70	20	480	78	35	323	7.8	910	--	222	47	.5	4.9	370	1150	329	--	7.8	67	1830	7.9	9.0
144N080019ABA	QGS2	258	08-20-70	22	2900	70	30	359	7.3	873	--	338	20	.6	3.3	560	1180	297	--	9.0	72	1910	7.9	8.0
144N0800224DD	TLFU	220	06-27-68	22	260	4.8	1.9	508	2.2	1140	18	10	117	.5	1.0	2100	1210	20	0	49	98	2030	8.3	10.0
144N0800288CB1	QGS1	47	06-26-68	24	--	91	26	331	11	789	0	361	37	.2	23	540	1260	336	0	7.8	67	1910	7.9	7.5
144N081U040AA	TLFU	90	06-19-68	13	80	9.7	2.9	216	2.9	536	0	69	3.7	.2	1.0	390	574	36	0	16	92	924	8.0	8.5
144N081U230AA	QGS1	18	05-09-68	34	740	70	57	418	13	1010	0	475	34	.0	0	590	1550	408	0	9.0	68	2280	8.1	7.5
144N082U01ACC	TLFU	113	06-17-68	19	50	105	52	48	4.5	594	0	109	3.2	.1	32	150	651	475	21	1.0	18	1000	7.7	8.5
144N082U02DCC	TLFU	113	06-17-68	19	4800	107	34	158	8.4	740	--	232	3.9	.2	--	290	946	491	--	3.1	61	1620	7.6	8.5
144N082U03ABC	TLFU	175	06-18-68	19	2900	28	9.7	710	6.9	1140	0	715	6.8	.4	0	680	2060	110	0	29	93	2910	7.9	10.0
144N082U17AAD	QGS1	41	07-25-67	19	2700	52	31	546	6.4	1010	0	602	6.3	.9	1.5	260	1760	259	0	15	82	2530	8.0	--
144N083U038DD	TLFU	265	06-19-68	16	280	4.9	1.5	588	2.2	1130	10	378	6.9	.6	2.0	680	1990	18	0	60	98	2350	8.4	7.5
144N083U040CB1	TLFU	150	06-19-68	18	980	42	14	351	6.3	944	0	113	29	.4	4.6	480	1030	163	0	12	82	1610	7.8	9.0
144N083U040CB1	TLFU	30	06-18-68	12	--	124	85	104	4.8	439	0	471	14	.2	48	50	1120	659	299	1.8	25	1510	7.8	7.0
144N083U050AA	QGS1	61	07-25-67	22	2800	89	54	123	7.4	553	0	242	12	.8	.5	180	819	440	0	2.5	37	1230	7.8	7.5
144N084U002CAD	TLFU	210	05-01-68	8.2	2500	13	9	793	3.4	1780	24	170	45	.7	0	350	1970	36	0	5.7	98	2950	8.4	9.0
144N084U040CDD1	QGS1	92	05-02-68	28	4200	90	27	267	5.8	862	0	215	6.3	.3	3.0	390	1040	338	0	6.3	63	1560	7.9	7.5
144N084U10CCC	QGS1	71	07-26-67	22	3500	104	37	175	9.4	459	0	230	13	.9	2.5	110	909	410	0	3.8	67	1380	7.8	7.5
144N084U248CD1	QR21	22	05-01-68	16	700	156	49	81	4.9	787	0	110	8.3	.2	3.0	--	835	593	0	1.4	23	1270	7.9	7.0
144N084U248CB1	QR51	62	08-20-69	13	580	7.8	2.1	604	2.4	1380	--	14	153	1.4	1.0	940	1530	28	--	50	98	2430	8.2	10.5
145N079U202CC	K3PH	605	04-18-68	12	820	5.2	2.4	572	2.4	975	--	6.7	348	3.7	0	3500	1480	23	0	32	98	2440	8.1	8.5
145N079U230DA	K3HC	510	06-20-68	10	190	5.6	2.7	478	2.1	910	13	22	193	.4	9.4	2600	1200	17	0	51	98	1980	8.4	7.5
145N079U230CA	QGS1	16	04-18-68	23	150	202	62	28	1.5	639	--	179	67	.1	52	50	957	759	235	4.4	7	1430	7.7	37.0
145N079U258DD	K3HC	431	04-18-68	11	640	7.7	1.7	519	2.2	1040	0	86	169	.5	3.0	2900	1330	26	0	44	97	2060	8.2	7.5
145N079U258DD	TLFU	112	08-20-70	17	4600	27	6.9	504	3.9	1010	--	361	4.3	.2	1.0	1200	1440	96	--	22	92	2140	7.9	7.0
145N080U02AAB	QGS1	38	08-05-68	25	260	122	43	11	3.7	313	0	233	5.4	.2	0</									

LOCAL NUMBER	MAJOR AQUIFER/	DEPTH OF WELL (FT.)	DATE OF SAMPLE	SILICA (SI02) (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 (RESI-DUE AT 180°C) (MG/L)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	SODIUM AD-SOMP-TION PERCENT	SPECIFIC CONDUCTANCE (MICROMHMS)	PH	TEMPERATURE (DEG C)		
1490804M1500C	0G51	101	07-27-67	25	3400	49	11	344	4.4	781	0	263	14	.4	.0	150	1130	148	0	12	81	1650	8.2	10.0	
1490804M23AAA	0G51	60	07-26-67	22	4900	53	31	81	3.4	433	0	63	2.9	.3	.0	--	456	299	0	2.2	40	40	754	8.0	11.0
149079H06ACC2	K3FH	580	07-22-69	11	--	4.8	19.7	587	2.4	954	0	9.1	355	4.0	.0	2000	1370	15	0	64	99	2490	7.9	10.5	
149079H06ACC1	K3FH	530	06-20-68	11	120	4.4	2.2	613	2.4	1000	0	3.2	335	.5	.4	3100	1500	20	0	60	98	2590	8.2	10.0	
149079H15A00	0G51	23	10-13-67	24	240	82	18	7.7	3.5	249	0	57	1.9	.6	16	150	341	280	50	2	6	529	8.0	7.5	
1490803J300C	0G51	46	05-03-68	24	1800	110	41	28	4.4	336	0	218	5.4	.2	.0	--	613	443	167	6	12	876	8.1	6.5	
1490801W1R00C	0G52	187	10-04-67	26	900	107	51	58	7.3	546	0	144	.9	.0	.0	200	631	479	31	1.2	21	1020	7.9	7.0	
1490802W05CC	TLFU	324	05-18-70	12	--	12	3.4	441	3.1	888	43	181	1.1	1.3	1.0	560	1180	64	--	29	95	1770	8.6	7.2	
1490802W10B0	TLFU	95	04-23-68	18	3800	245	80	--	9.5	608	0	308	199	.3	108	880	1400	942	443	1.4	18	2050	7.7	8.5	
1490802W1100C	TLFU	395	03-26-64	--	4300	--	--	--	--	502	52	52	7.0	--	.0	--	--	24	--	--	--	1190	8.0	--	
1490802W11B00	--	385	05-20-64	--	400	6.0	4.0	308	5.0	528	67	91	.0	.4	.0	--	--	10	--	4.2	95	1210	8.9	--	
1490802W11C01	TLFU	82	04-23-69	17	20	74	24	20	3.7	741	0	27	11	.1	19	--	349	290	10	1.5	15	905	7.9	9.0	
1490802W12C0C	TLFU	311	05-18-70	4.6	--	4.0	1.0	385	2.0	781	39	142	1.6	1.7	1.0	630	1000	14	--	45	98	1950	8.6	9.0	
1490802W19A00	0G52	80	11-10-69	27	--	89	32	20	3.5	376	--	45	17	--	--	--	417	393	45	5	11	701	7.9	4.5	
1490803M15CC	0G52	284	07-08-70	28	80	33	10	829	6.4	1230	--	464	17	.6	.9	630	1730	125	--	24	91	2620	7.9	9.0	
1490804W08B0	0G51	28	08-23-67	17	5100	34	56	404	7.3	584	0	633	95	.0	2.5	1100	1470	314	0	9.9	73	2170	8.2	8.5	
1490804M170AA	0G51	121	08-23-67	21	10000	514	157	394	17	474	0	2310	12	.0	.0	740	3780	1930	1540	3.9	31	3990	7.7	9.5	
149078W0608B	0G51	39	05-19-70	28	780	107	36	46	5.7	458	--	132	2.2	.6	1.0	300	617	414	38	1.0	19	901	7.8	7.0	
149079W1100A	0G51	34	08-29-67	23	2100	78	29	43	5.3	394	0	74	4.0	.2	.0	140	476	315	0	1.1	23	710	7.9	7.0	
149079W190AA1	0G51	39	08-14-67	24	3900	116	31	122	10	484	0	291	12	.3	2.0	230	850	418	22	2.6	38	1210	7.9	7.5	
149079W190AA2	0G51	121	08-19-67	25	3600	90	30	207	6.4	584	0	313	15	.3	.5	350	969	347	0	4.8	56	1410	7.8	7.5	
149079W25A001	0G51	168	05-18-70	29	120	103	26	52	6.5	434	--	117	2.8	.5	1.0	240	570	364	--	1.2	23	872	7.9	7.0	
149079W25A002	0G51	39	05-18-70	29	30	66	20	5.6	2.9	282	--	33	1.5	.4	1.0	--	305	248	17	--	2	5	480	8.1	7.0
149079W27AAA	0G51	44	08-12-70	24	12000	75	20	38	4.0	334	--	84	2.6	.1	--	180	424	271	--	1.0	23	653	7.9	8.0	
149079W27ADA1	0G52	177	08-29-67	28	130	62	20	282	6.5	697	0	267	6.6	.3	3.0	780	1030	235	0	8.0	71	1490	8.0	9.0	
149079W27ADA2	0G52	36	08-29-67	27	700	85	26	27	4.8	379	0	56	2.4	.2	.0	100	432	320	10	.7	15	652	7.9	7.5	
149080W01CC2	0G51	34	12-03-69	30	240	71	25	72	6.0	324	--	175	--	.1	--	--	520	281	15	1.9	35	808	7.9	4.5	
149080W01CC1	0G51	51	08-16-67	24	3000	47	14	164	8.2	343	0	254	3.8	.0	.0	70	445	177	0	5.4	64	1020	8.0	8.5	
149080W09CC	0G51	25	05-06-68	25	--	28	8.8	103	5.4	305	0	68	5.7	.2	1.0	--	388	106	0	4.3	64	595	7.9	6.5	
149080W13CC	0G51	130	08-10-67	28	1400	69	20	222	7.3	605	0	239	8.6	.3	.5	390	898	255	0	6.0	65	1310	7.9	7.5	
149080W19A003	0G51	58	04-09-68	28	2200	107	25	70	5.6	502	--	124	3.4	.2	1.0	240	621	370	--	1.6	29	928	7.8	6.5	
149080W19BCC	0G52	151	08-18-67	25	2200	80	29	178	8.3	560	0	241	4.2	.2	.0	240	619	320	0	4.3	54	1150	8.0	9.0	
149080W190AA	0G51	60	08-18-67	25	1400	107	34	131	8.2	535	0	238	4.3	.2	3.0	240	782	410	0	2.8	61	1200	7.9	7.5	
149080W22B0C	0G51	131	12-03-69	27	720	110	42	199	8.5	404	--	525	6.2	.6	2.5	340	1130	444	115	4.1	49	1580	7.8	4.5	
149080W25CC	K39C	445	04-26-68	10	200	--	1.0	591	2.6	1130	0	--	3.4	268	1.2	1.0	2800	1460	19	0	59	98	2400	8.2	10.0
149080W3000	0G51	25	12-02-69	26	120	137	47	147	9.5	444	--	505	--	.5	1.0	150	1080	595	171	--	37	1490	7.9	4.5	
149080W197000	0G51	139	08-24-70	24	180	63	25	397	6.4	761	--	447	4.5	.2	.4	1100	1260	261	--	11	76	1990	7.8	7.5	
149080W19AAA	0G51	99	08-15-67	20	340	23	6.4	417	5.9	990	0	221	4.7	.2	.0	540	1140	84	0	2.0	91	1780	8.0	7.5	
149080W123AAA	0G51	50	08-18-67	56	440	61	17	26	3.3	284	0	37	3.0	.1	.0	140	277	220	0	8.7	20	494	8.0	7.5	
149080W1500C	0G51	45	03-14-69	35	2400	69	29	342	13	822	--	346	7.2	.3	.5	900	1260	290	--	8.7	71	1830	7.9	6.5	
149080W1250C8	0G51	45	03-14-69	35	1600	66	25	359	13	858	0	363	9.6	.3	.4	300	1320	310	0	8.9	71	1900	7.9	7.0	
149080W128A00	0G51	81	08-22-67	25	5000	57	26	385	7.9	988	0	324	4.0	.1	4.9	750	1330	250	0	1.1	74	1910	7.9	7.5	
149080W130A00	0G51	18	08-24-70	23	4300	146	45	56	5.3	958	--	187	2.2	.3	.1	120	753	551	93	1.0	18	1100	7.8	7.0	
149080W137A08	0G51	14	08-22-67	19	1600	51	19	165	4.6	509	0	126	4.0	.2	.0	240	473	205	0	5.0	63	1000	8.1	7.5	
149080W211B0B	0G51	104	12-02-69	27	--	16	23	387	6.7	620	15	415	1.3	.2	2.5	970	1200	135	--	14	85	1800	8.5	4.5	
149080M14BCC	0G52	261	07-09-70	23	4600	47	51	539	8.0	1110	--	583	14	.4	--	680	1560	326	--	13	78	2640	8.1	10.0	
149080M220B0C5	0G51	21	12-05-64	22	190	104	29	14	8.2	409	0	66	4.4	.2	.0	210	441	360	45	.3	7	721	8.0	--	
149080M220B0C4	0G51	20	12-09-66	24	20	114	30	14	9.9	406	0	100	5.8	.2	.0	330	488	408	76	.3	7	775	7.9	--	
149080M220B0C8	0G51	19	07-18-69	21	--	94	23	14	5.9	335	0	88	3.7	.1	.0	--	423	331	56	.4	8	664	7.9	8.5	
149080M220B0C6	0G51	19	12-08-66	23	1100	129	34	21	6.4	397	0	161	12	.7	.0	120	578	463	138	.4	9	889	7.9	--	
149080M230CC	TLFU	500	11-10-64	11	--	6.8	1.2	435	1.5	800	27	3.2	197	.8	.2	1600	1130	22	0	4.0	98	1850	8.6	12.5	
149080M34A0B	0G52	204	11-20-69	31	4200	57	42	457	6.1	919	6	561	--	.2	19	--	1980	315	--	11	75	2330	8.3	7.0	
149080M35CC	TLFU	--	71	12-13-67	24	280	72	28	7.1	332	0	38	3.2	.3	2.0	100	347	295	23	--	6	555	8.0	7.5	
149080M34A0B	TLFU	243	04-09-63	--	--	255	120	--	--	1250	0	974	9.2	.3	.0	--	0	1120	96	--	--	--	6.0	--	
149080M370A0B	TLFU	380	10-14-66	15	--	7.4	3.5	640	4.1	1150	15	434	8.4	.2	.3	3700	1740	33	0	48	97	2550	8.3	8.5	
149080M128A0	TLFU	465	05-09-67	7.3	--	7.3	1.0	732	3.5	1110	98	286	154	.7	1.0	1700	1860	22	0	68	98	2920	8.7	8.5	
149079W27A001	0G52	197	08-30-67	27	60	85	40	49	6.8	349	0	182	2.4	.1	.0	290	565	376	90	1.1	22	846	7.8	9.0	
149079W27A002	0G51	97	08-30-67	26	70	62	45	29	5.7	232	0	164	2.1	.2	0	140	338	131	--	1.5	11	679	8.0	7.5	
149079W23AAA</																									

LOCAL NUMBER	MAJOR AQUIFER/	DEPTH OF WELL (FT.)	DATE OF SAMPLE	SILICA (SI02) (MG/L)	TOTAL IRON (FE) (MG/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) (MG/L)	DISSOLVED SILICES (RESIDUE AT 180°C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	SODIUM ADSORPTION RATIO	PERCENT SODIUM	SPECIFIC CONDUCTANCE (MICRO-MHRS)	PH	TEMPERATURE (DEG C)	
149087W248C		41	09-16-66	15	200	212	277	375	13	645	0	1090	227	.2	447	---	3220	1670	1160	4.0	33	4020	7.8	4.5	
149087W27ADA	TLFU	135	09-16-66	11	7800	4.0	1.0	561	7.5	1190	27	216	7.0	.6	1.2	40	1900	14	0	65	98	2290	8.5	6.0	
149087W27DDA	TLFU	228	09-16-66	12	440	7.2	1.7	750	7.5	1800	50	44	4.1	.8	1.2	140	2300	25	0	65	98	2810	8.5	10.0	
149088W02DDA	QC52	232	03-05-67	26	10000	20	33	228	6.3	844	0	130	46.0	.3	---	390	910	312	0	5.6	72	1450	7.7	7.5	
149088W02QDA	QC52	232	06-09-65	---	300	---	---	282	---	908	0	138	1.0	---	200	---	916	275	0	7.4	---	1420	7.9	---	
149088W02QDB	QC52	215	05-05-67	29	1900	81	28	244	6.1	800	33	128	3.4	.3	---	350	939	314	0	6.0	62	1470	8.3	9.0	
149089W029AC	K3FH	1281	11-16-67	11	70	3.8	9	645	2.5	1180	19	5	252	4.6	1.1	2800	---	13	0	77	99	2500	8.5	15.5	
149089W026ABB2	TLFU	126	10-13-66	8.7	---	8.7	4.5	770	4.1	994	35	835	2.6	2.2	---	500	2200	35	0	57	98	3140	8.5	9.0	
149089W026CDC	QC51	40	05-19-70	28	---	74	13	6.3	2.8	301	---	35	5	1.1	---	150	335	200	13	2.2	5	508	7.9	7.0	
149089W03CDD	QC51	38	08-18-69	26	1100	71	13	8.2	2.9	256	---	45	9	.4	---	---	294	232	22	2	7	478	7.7	7.0	
149089W046CBC	QC31	41	12-03-69	12	520	99	43	21	3.4	445	---	103	5	.2	---	---	495	426	61	4	9	805	7.8	6.5	
149089W160DD1	QC31	87	11-24-69	27	---	60	20	20	2.4	245	---	88	---	1.0	1.0	240	790	423	3	2.7	39	1220	7.9	6.5	
149089W19AAA	QC51	38	05-07-67	22	2000	107	38	127	7.5	512	0	267	2.3	1.1	6.0	240	790	423	3	2.7	39	1220	7.9	6.5	
149089W24ABA	QC52	82	12-03-69	26	---	106	36	136	7.7	432	---	355	---	1.2	3.0	410	874	415	61	2.9	42	1270	7.7	---	
149089W123BB	TLFU	82	04-02-62	---	---	---	---	---	---	---	---	---	---	---	---	---	---	412	---	5	---	919	---	---	
149089W125CCD	QC51	50	05-19-70	27	340	175	70	144	9.0	518	---	621	3.6	.2	---	410	1370	724	299	2.3	30	1740	7.7	6.0	
149089W128AB1	QC51	55	09-25-67	26	3100	80	30	50	5.2	328	0	153	1.5	1.1	1.0	---	505	323	4	1.2	25	770	7.9	7.5	
149089W128BB	QC51	73	11-19-69	26	5300	88	28	105	6.4	397	---	251	---	2	---	---	684	334	6	2.5	40	1070	7.9	6.3	
149089W215AAA	QC51	74	11-21-69	28	680	34	36	719	9.3	946	9	1040	1.3	.2	1.0	---	2280	243	---	20	86	3260	8.3	6.3	
149089W236ABA	QC51	38	09-03-67	25	1600	96	44	177	8.2	973	---	407	2.4	.1	1.0	340	993	420	32	3.8	47	1420	7.9	6.0	
149089W020BD	---	81	08-09-66	17	540	12	2.9	467	3.4	771	13	351	6.7	.3	---	5	470	1230	42	0	31	96	1890	8.4	7.0
149089W030CC	TLFU	240	08-09-66	8.5	420	8.8	3.4	895	3.5	1080	20	953	37	4.6	2.6	370	2400	34	0	65	98	3590	8.5	9.0	
149089W12AB8	TLFU	97	08-09-66	14	95000	40	17	493	5.4	806	0	593	8.2	.2	1.4	230	1440	168	0	17	86	2230	8.2	7.0	
149089W130CC	TLFU	150	06-08-66	24	14000	53	27	463	6.4	800	0	529	8.1	.3	1.0	---	250	1480	244	0	12	79	2080	7.8	9.0
149089W133AB	QC52	58	05-19-70	21	4200	168	39	166	10	649	---	1470	29	1.1	2.5	340	3120	129	13	71	4050	7.9	6		
149089W08ABB	QC51	45	08-03-66	17	190	79	29	4.8	4.0	400	0	13	5	1.1	---	2	30	371	318	0	2	4	395	7.7	9.0
149089W19CDD	TLFU	30	08-04-66	12	2200	141	27	342	11	526	0	1020	9.2	0	2.2	600	1890	710	279	5.9	52	2380	7.5	7.0	
149089W25DDC2	TLFU	92	04-25-62	---	1900	---	---	---	---	642	0	442	6.0	---	0	---	---	170	---	---	---	2030	7.4	---	
149089W030CD	---	85	07-28-66	31	260	237	95	578	17	785	---	1570	26	1.1	2.3	600	3350	983	340	8.0	56	3540	7.8	6.5	
149089W020CC2	TLFU	100	09-13-66	21	200	75	42	30	6.1	406	0	69	3.8	.3	2.1	210	439	359	26	1.7	15	742	8.2	7.0	
149089W030CC	TLFU	87	09-13-66	18	60	58	39	119	7.4	439	7	192	2.3	.3	1.0	760	651	305	0	3.0	45	1010	8.3	9.0	
149089W04895	TLFU	220	09-13-66	9.2	750	3.2	7	537	2.6	848	16	458	3.4	.6	4.4	820	1450	11	0	73	99	2220	8.4	10.0	
149089W090AD	TLFU	140	09-14-66	15	1100	59	45	214	8.5	570	0	307	6.7	1.1	4.6	430	806	333	0	5.1	38	1390	8.2	6.0	
149089W132CC	QC52	358	07-28-66	26	500	96	33	307	9.1	632	0	620	5.1	5	1.0	430	1620	452	0	6.3	59	2000	8.0	---	
149089W02888	QC52	263	10-03-69	31	400	64	32	693	8.5	928	---	1040	18	0	---	---	2250	290	---	18	83	3240	8.1	6.0	
149089W108BC	QC51	18	05-14-68	23	3600	246	191	731	8.8	798	0	2280	4.3	0	5	340	3810	1400	745	6.5	53	4450	8.0	8.5	
149089W1188B1	QC51	21	06-01-67	23	40	104	29	41	3.9	406	0	77	35	2	5.0	100	499	380	48	9	19	863	7.8	11.0	
149089W123CC	TLFU	142	10-13-66	20	---	178	121	81	76.4	646	27	445	4.8	.2	4.3	440	1320	940	365	9	12	1750	8.3	10.0	
149089W24AAA	QC52	172	07-14-70	26	3600	54	37	390	5.9	672	---	543	7.0	1.3	7	270	1380	287	---	10	74	2030	7.4	7.5	
149089W3688B1	TLFU	130	05-04-67	17	40	56	32	83	6.1	453	0	78	2.0	.4	0	390	453	270	0	2.2	39	811	7.3	8.5	
149090W11ADA2	TLFU	199	10-12-66	8.4	---	2.3	1.3	510	2.3	855	35	316	3.2	.8	2	660	1340	11	0	6.7	99	2010	8.7	11.0	
150078W10AAB	TLFU	117	04-26-68	12	800	6.2	3.3	416	2.4	628	0	393	20	0	6	2.5	2100	1180	34	0	31	96	1750	8.2	7.0
150080W020CC	QC52	324	08-05-70	26	3300	133	42	84	7.7	525	---	275	2.9	.6	---	120	834	504	74	1.6	26	1200	7.8	---	
150080W25DDC	QC52	142	05-20-70	28	760	113	40	44	5.4	439	---	186	2.3	.2	1.0	40	664	445	85	9	17	961	7.7	6.5	
150080W270DD	QC51	48	05-20-70	22	2100	77	26	20	3.1	321	---	70	1.7	1.1	2.2	40	298	35	5	13	606	8.0	7.5		
150080W35AB8	QC51	79	05-20-70	25	60	84	24	8.5	3.2	336	---	51	1.1	1	---	70	352	308	32	2	6	583	8.1	7.0	
150080W131CAC	K3HC	618	04-08-67	13	420	7.8	1.0	654	2.5	1220	0	253	127	2.7	1.0	2300	1630	25	0	59	98	2640	8.0	7.5	
150080W096CCD	QC11	22	10-04-64	7.2	17000	46	10	2.7	11	195	0	5.8	5.2	1	1	120	194	154	0	1	3	328	7.8	7.0	
150080W130DD	QC52	276	08-09-70	26	580	46	14	537	6.5	718	---	345	1.4	.4	1.0	390	1120	171	---	12	81	1750	8.0	6.5	
150080W1988C	TLFU	250	05-11-66	17	560	35	20	1040	7.0	1920	0	1190	6.5	1.1	4.7	760	2760	171	0	35	93	4260	8.2	7.0	
150083W01AAC	---	12	09-25-58	---	280	141	130	7.0	4.5	234	24	43	0	.2	---	8	200	---	---	---	2	---	8.1	---	
150083W050CC	QC51	127	06-10-66	16	180	265	163	140	10	864	0</														

LOCAL NUMBER	MAJOR EQUIPER/	DEPTH OF WELL (FT.)	DATE OF SAMPLE	SILICA (SI02) (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) (MG/L)	MARONESS (CA, MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	SODIUM AD-SOFTION RATIO	PERCENT SODIUM	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH	TEMPERATURE (DEG C)
150H08W338CB	TLFU	100	08-01-66	21	180	21	11	395	5.5	612	0	356	4.1	.1	1.0	210	1050	99	0	16	88	1570	7.9	10.0
150H08W36AAA	QS51	33	08-02-66	21	210	76	28	28	7.7	366	0	25	1.0	.0	2.8	---	352	305	5	.2	5	578	7.9	8.9
150H08W04CCC	---	38	07-27-66	19	80	171	92	20	2.2	556	0	109	67	-1	275	80	1080	804	350	.3	5	1560	7.8	6.0
150H08W2WCC	---	26	07-27-66	24	80	225	105	57	1.7	468	0	693	22	.2	49	60	1490	995	461	.8	11	1010	7.8	6.5
150H08W184DD1	TLFU	38	10-11-66	18	80	1.6	.7	375	1.4	442	33	408	12	.2	.2	550	1070	7	0	20	99	1630	8.5	7.5
150H08W26BCC	TLFU	45	10-11-66	9.6	220	10	5.8	812	4.3	1020	25	947	12	1.0	.3	410	2340	49	0	16	97	3350	8.5	6.5
150H08W318CC	QS52	278	07-21-70	27	960	99	52	307	7.5	782	---	363	5.9	.5	---	630	1350	463	---	6.2	59	1980	7.9	7.5
150H08W32DAA	QS52	224	10-24-69	31	640	91	33	209	7.0	593	---	378	---	.4	3.0	---	783	365	---	6.8	55	1490	8.0	4.2
150H08W21C80	QS52	246	10-12-66	27	---	98	61	291	6.7	666	20	407	4.8	.5	.6	560	1220	495	0	4.5	50	1730	8.4	---
150H08W25DAA2	TLFU	225	10-13-66	18	---	100	91	213	5.5	639	26	368	3.0	.3	.2	610	1130	461	0	4.3	50	1630	8.4	---
150H08W36AAA	QS52	299	07-28-70	24	200	66	34	450	7.4	806	---	617	8.8	.6	---	750	1520	304	---	11	76	2310	7.9	10.0
SURFACE-WATER SAMPLES																								
144H08W230DD	Painted Woods Creek	0	04-23-70	16	820	42	21	139	8.1	268	0	265	1.8	.2	0	520	614	193	0	4.4	60	950	7.6	---
147H079W208CB	Pelican Lake	0	08-28-69	3	10000	9	5.7	8859	338	5020	3990	7264	1180	3.4	6	17000	24619	46	0	56	98	28000	9.7	27
147H079W278BC	Brush Lake	5	07-10-68	12	440	15	77	1859	27	520	31	240	13	.2	2.7	630	333	355	0	3.5	47	1240	8.7	12
147H079W278CC	Brush Lake	15	07-10-68	12	200	15	77	159	25	564	13	236	13	.2	2.2	630	836	356	0	3.7	47	1250	8.4	12
147H079W308BB	Peterson Lake	0	07-11-68	.1	200	4	23	4600	136	3600	1750	3800	426	.5	0	8800	12310	106	0	194	97	15000	9.6	26.5
147H080W108CD	Lake Margaret	1	07-11-69	.8	220	9.6	96	79	14	414	58	167	7.2	.2	0	440	631	419	0	1.7	28	1050	9.0	22.5
147H080W208BA	Lake Brekken	0	07-11-68	1.2	5400	6.4	31	28252	428	3470	3950	50349	937	94	0	12000	85462	142	0	1020	99	59600	9.5	---
147H080W23CAC	Turtle Lake	2	07-09-68	12	0	12	79	1240	92	1370	246	1530	47	.1	0	3300	3750	356	0	29	85	5170	9.2	20.0
148H079W25A081	Postal Lake	0	07-11-68	2.8	120	5.3	279	691	112	1020	217	1560	30	.1	0	2000	3340	1160	0	8.8	54	4200	9.2	20.0
148H079W25A082	Postal Lake	10	07-11-68	2.9	140	9.8	276	688	110	1020	223	1560	30	.1	0	2000	3310	1160	0	8.8	54	4200	9.2	---
148H079W36AAC	Pelican Lake	2	07-11-68	4.6	120	8.4	77	1460	126	1650	426	1470	103	.2	1	4900	4400	339	0	34	86	5900	9.4	20.5
148H080W178AB1	Crooked Lake	12	07-09-68	9.7	240	27	104	120	34	594	13	252	14	.2	1	50	897	495	0	2.3	33	1300	8.4	20.0
148H080W178AB2	Crooked Lake	1	07-09-68	9.9	320	26	104	120	34	589	17	248	15	.2	0	400	905	495	0	2.3	33	1300	8.4	20.0
148H080W34CCD	Nelson Lake	0	07-11-68	13	460	24	262	1240	147	712	38	3230	75	0	0	4000	5000	1140	492	16	67	6300	8.6	24.0
148H080W29AAD	Lake Wettle	2	07-10-68	6.3	30	6.6	98	530	91	950	146	633	26	.1	0	2800	1970	419	0	11	68	2770	9.2	21.0
150H080W35DAC1	Strawberry Lake	5	07-10-68	9.3	80	36	24	19	3.9	232	0	42	1.8	.1	0	0	244	190	0	.6	18	419	8.1	20.0
150H080W35DAC2	Strawberry Lake	15	07-10-68	9.3	70	36	24	19	3.9	232	0	39	1.5	.1	0	0	228	190	0	.6	18	424	8.2	20.0
150H080W36ACC1	Camp Lake	5	07-10-68	2.6	30	24	29	25	3.2	185	6.0	70	1.2	.1	0	340	228	178	17	.8	23	422	8.6	19.5
150H080W36ACC2	Camp Lake	10	07-10-68	2.4	30	25	28	25	3.4	173	16	70	1.1	.1	0	340	238	178	10	.8	23	421	9.0	---

1/ See table 1 for explanation.

2/ Duplicate sample. Collected after more than 4 hours of pumping.