GROUND-WATER BASIC DATA

for

GRANT and SIOUX COUNTIES, NORTH DAKOTA

by

P. G. Randich

U. S. Geological Survey

COUNTY GROUND-WATER STUDIES 24 — PART II
North Dakota State Water Commission
Vernon Fahy, *State Engineer*

BULLETIN 67 — PART II
North Dakota Geological Survey
Edwin A. Noble, *State Geologist*

Prepared by the U. S. Geological Survey
in cooperation with the North Dakota Geological Survey,
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INTRODUCTION

The ground-water investigation in Grant and Sioux Counties (fig. 1) was made cooperatively by the U.S. Geological Survey (USGS), North Dakota State Water Commission (NDSWC), North Dakota Geological Survey (NDGS), and the Grant and Sioux Counties Water Management Districts. The results of the investigation will be published in three separate parts. Part 1 is an interpretive report describing the geology of the study area; part 2 is a compilation of the ground-water basic data; and part 3 is an interpretive report describing the ground-water resources. Part 2 (this report) makes available geologic and hydrologic data collected during the county investigations and functions as a reference for the other reports.

The stratigraphic nomenclature used in this report is that of the North Dakota Geological Survey and does not necessarily follow the usage of the U.S. Geological Survey.

The following table may be used to convert English units to SI (International System) units.

Multiply English units	By	To obtain SI units
Inches (in)	2.54	centimetres (cm)
	.0254	metres (m)
Feet (ft)	.3048	metres (m)
Miles (mi)	1.609	kilometres (km)
Square miles (mi^2)	2.590	square kilometres (km^2)
Acres	4,047	square metres (m^2)
	.4047	hectares (ha)
Gallons (gal)	3.785	litres
	3.785×10^{-3}	cubic metres (m^3)
Gallons per minute (gal/min)	.06309	litres per second (l/s)
	6.309×10^{-5}	cubic metres per second (m^3/s)
Cubic feet (ft^3)	28.32	cubic decimetres (dm^3)
	.02832	cubic metres (m^3)

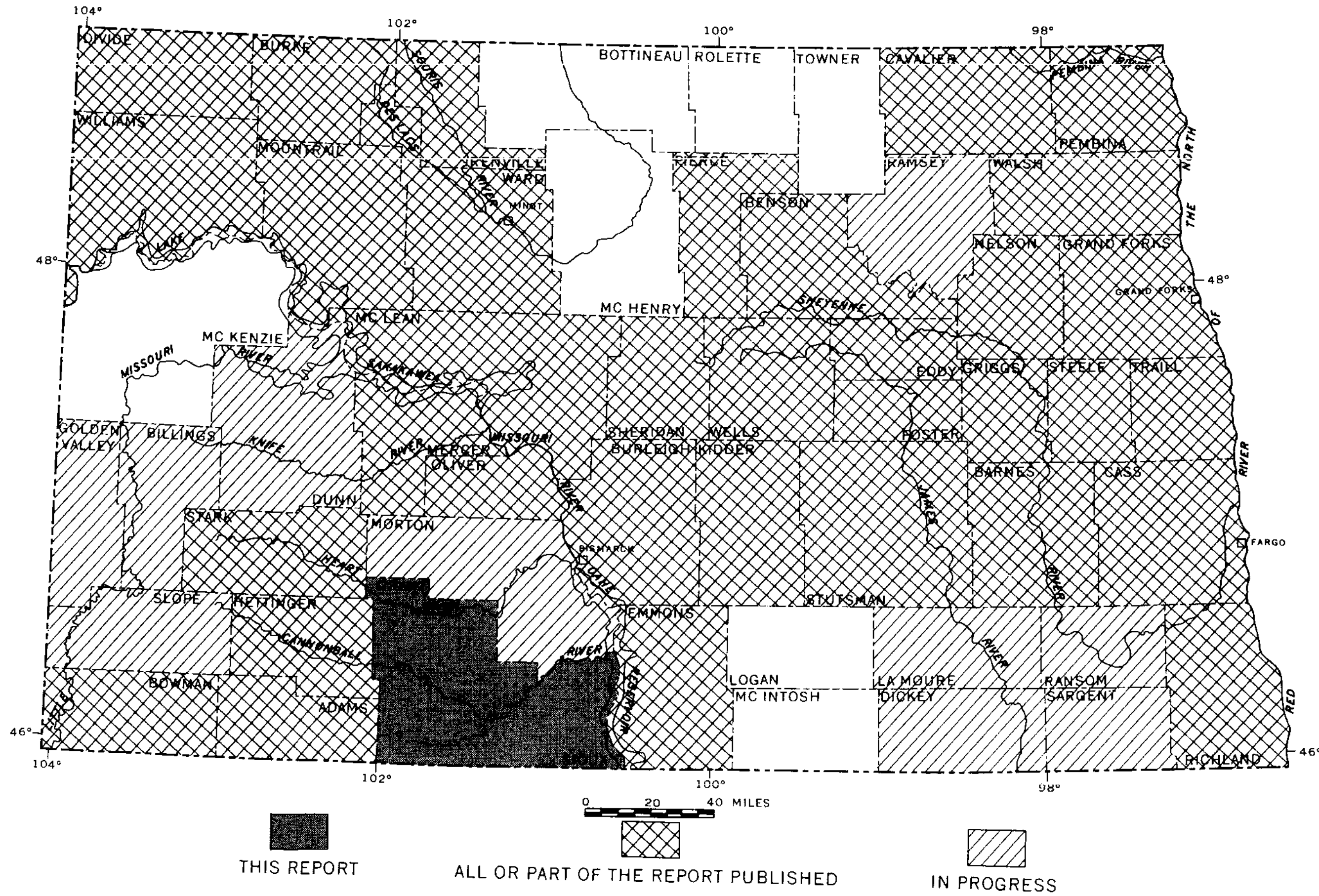

FIGURE 1.—County ground-water studies in North Dakota

Purpose

The purpose of the investigation was to provide detailed geologic and hydrologic information needed for the orderly development of water supplies for municipal, domestic, livestock, irrigation, industrial, and similar uses. Specifically, the objectives were to: (1) determine the location, extent, and nature of the major aquifers and confining beds; (2) evaluate the occurrence and movement of ground water, including the sources of recharge and discharge; (3) estimate the transmissivity of the aquifer and the potential yields of wells; (4) evaluate the quality of the ground water; and (5) estimate the water use.

Well- and Location-Numbering System

The wells and test holes in the tables are numbered according to a system of land survey in use by the U.S. Bureau of Land Management and the North Dakota district of the U.S. Geological Survey. The U.S. Bureau of Land Management 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 or 4-ha tract). For example, well 131-088-15DAA is in the NE¼NE¼SE¼ sec. 15, T. 131 N., R. 088 W. Consecutive terminal numerals are added if more than one well or test hole is recorded within a 10-acre tract. The location of each well and test hole in the tables is shown on plate 1 (in pocket).

The U.S. Geological Survey uses a station number that consists of 15 digits to identify wells nationally. The first seven digits denote the degrees, minutes, and seconds of north latitude. The next seven digits denote the degrees, minutes, and seconds of longitude. The final digit is a sequence number used to distinguish between wells within the same second of latitude and longitude. The U.S. Geological Survey station number may also be used to describe the location of other data-collection sites such as sample collection points on lakes and streams. Appendix A lists the conversion from the local well number to the U.S. Geological Survey station number.

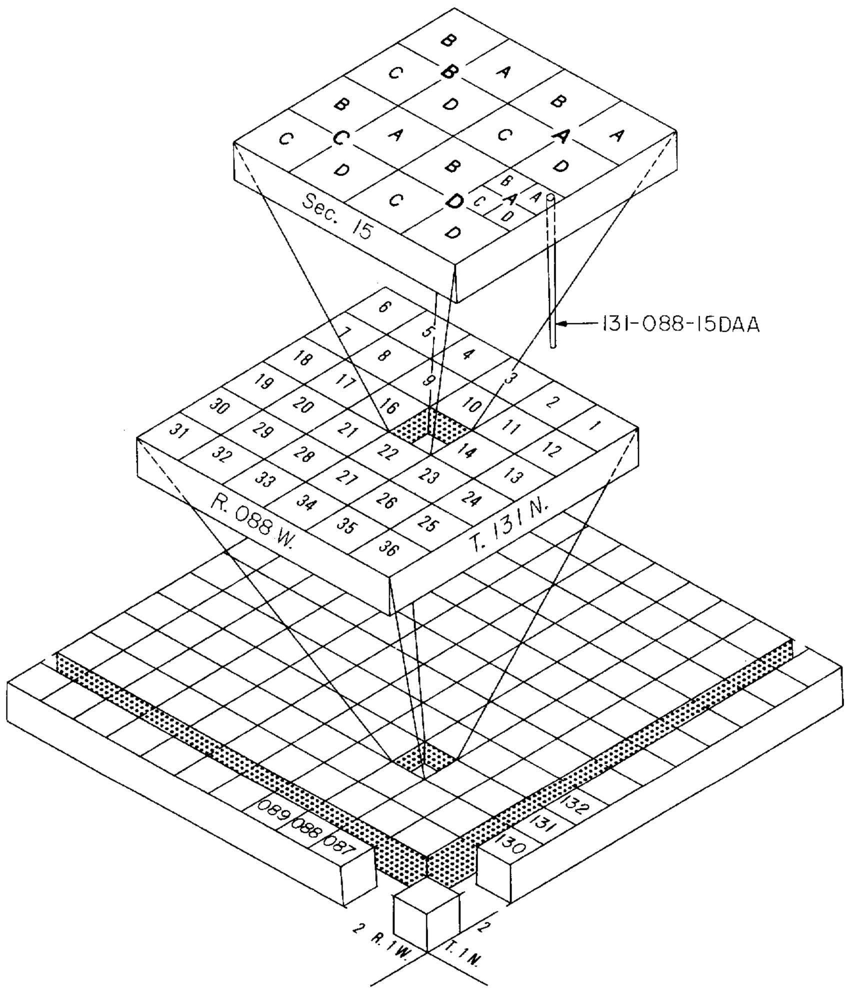

FIGURE 2.—System of numbering wells, springs, and test holes

Acknowledgments

The collection of data for this report was made possible by the cooperation of residents and officials of Grant and Sioux Counties, who furnished essential information on wells and permitted measurements to be made and samples to be taken. Particular recognition is due to the following personnel of the North Dakota State Water Commission: L. L. Froelich, C. E. Naplin, and Lewis Knutson for drilling and logging test holes and contributions to the understanding of the stratigraphy, G. O. Muri for chemical analyses of water samples, R. W. Schmid for hydrologic testing, and M. O. Lindvig for scheduling of drilling activities. Special recognition is given to C. G. Carlson of the North Dakota Geological Survey for his contributions in geologic mapping. Thanks are due Vernon Dahle Well Drilling, Dakota Well Drilling Co., M & R Drilling Co., Main & Ellison, Miller Well Drilling, Moe Drilling Co., Opp Well Drilling, Leonard Veitenheimer, Wetch Drilling, and Zachmeier Well Drilling for furnishing drillers' logs and other information.

EXPLANATION OF TABLES AND METHODS OF DATA COLLECTION

The data in this report were collected chiefly between 1971 and 1974 and are listed in tables 1-8. The points of collection are shown on plate 1. The data consist of the following: (1) Geologic and hydrologic records for 1,610 wells and test holes; (2) water-level measurements in 77 observation wells; (3) lithologic and geophysical logs of 257 test holes and wells; (4) 135 chemical analyses of ground water; (5) 15 chemical analyses of water from streams during low flow; (6) 13 chemical analyses of minor elements in water from wells; (7) 30 particle-size distribution graphs; and (8) 30 analyses of core samples for hydraulic parameters and heavy mineral content. The data are useful for evaluating geologic and ground-water conditions in Grant and Sioux Counties. For example, a person considering the construction of a new well can locate the proposed site on plate 1. Depth, water quality, lithology, and water level of nearby wells and test holes tapping the different aquifers can be determined from the tables. However, use of the data as a guide to conditions at different sites should be made with caution because of the lenticular character of the water-bearing rocks and varying water quality in some aquifers.

Records of Wells and Test Holes

Records of selected wells and test holes are given in table 1. Well depth is the depth of casing for open-bottom wells or the base of the well screen. Most test holes were converted to observation wells for periodic water-level measurements and water-quality sampling. At some sites two or three observation wells were drilled in order to obtain water levels and water samples from several aquifers. The observation wells were constructed of 1¼-inch (3.1-cm) plastic casing with 3- or 6-foot (1- or 2-m) screens or 2-inch (5.1-cm) steel casing with 6-, 12-, or 18-foot (2-, 4-, or 6-m) screens. The observation wells were developed by backwashing with the deflocculant trisodium phosphate and were pumped a minimum of 10 hours for development before collection of water samples for analysis.

Water Levels in Selected Wells

Table 2 gives monthly and intermittent water levels in selected wells, in feet below land surface, that tap the major aquifers in Grant and Sioux Counties. Water-level measurements were made beginning in the late fall of 1971 and extending through August 1974. Measurements will continue to be made in several wells as part of the statewide observation-well network to monitor changes in water levels as the ground-water resources of the area are developed.

Logs of Wells and Test Holes

Logs collected from water-well drillers and other sources and logs of test holes drilled as part of this project are included in table 3. Minor changes in word order have been made on some of the drillers' logs and logs from test holes drilled during a previous investigation (Maclay, 1952). Most test holes drilled during this project and some municipal, industrial, and private wells have geophysical logs in addition to a description of the materials penetrated. The geophysical logs are extremely useful for geologic correlation purposes. Grain-size determinations refer to the Wentworth (1922) size scale. The color descriptions were determined by comparing fresh samples with the Geological Society of America's rock color chart (1963).

Water Quality

The mineral constituents and physical properties of water are reported in the tables of analyses (tables 4-6). Water for samples was secured using the existing pumps from privately owned wells and with airlift from the NDSWC observation wells. Generally enough water to clear the well column and plumbing was pumped, then the sample was collected in a polyethylene bottle. For those metals considered unstable, a separate sample was filtered and acidified before transport to the laboratory. Most of the samples were analyzed by the North Dakota State Water Commission, Bismarck, N. Dak. The analyses of minor elements were made by the U.S. Geological Survey, Salt Lake City, Utah (table 6). Methods of analyses were generally those described by Brown and others (1970). The results are expressed in milligrams per litre (mg/l) or micrograms per litre (µg/l). A microgram per litre is one-thousandth of a milligram per litre.

Drinking standards were established for interstate carriers by the U.S. Public Health Service (1946). These standards were amended in 1956 and in 1962 the standards were again changed and published in the Federal Register, effective date April 5, 1962. These are generally accepted by the North Dakota State Department of Health as guidelines applicable to public water supplies. These standards are:

> *"Drinking water shall not contain impurities in concentrations which may be hazardous to the health of the consumers. It should not be excessively corrosive to the water supply system. Substances used in its treatment shall not remain in the water in concentrations greater than required by good practice. Substances which may have deleterious physiological effect, or for which physiological effects are not known, shall not be introduced into the system in a manner which would permit them to reach the consumer.*
>
> *"The following chemical substances should not be present in a water supply in excess of the listed concentrations where, in the judgment of the Reporting Agency and the Certifying Authority, other more suitable supplies are or can be made available.*

Substance	*Concentrations in mg/l*
Alkyl Benzene Sulfonate (ABS)	*0.5*
Arsenic (As)	*0.01*
Chloride (Cl)	*250.*
Copper (Cu)	*1.*
Carbon Chloroform Extract (CCE)	*0.2*
Cyanide (CN)	*0.01*
Fluoride (F)	*(See 5.23)*
Iron (Fe)	*0.3*
Manganese (Mn)	*0.05*
Nitrate[1] *(NO_3)*	*45.*
Phenols	*0.001*
Sulfate (SO_4)	*250.*
Total Dissolved Solids	*500.*
Zinc (Zn)	*5.*

[1]*In areas in which the nitrate content of water is known to be in excess of the listed concentration, the public should be warned of the potential dangers of using the water for infant feeding.*

"The presence of the following substances in excess of the concentrations listed shall constitute grounds for rejection of the supply:

Substance	*Concentrations in mg/l*
Arsenic (As)	*0.05*
Barium (Ba)	*1.0*
Cadmium (Cd)	*0.01*
Chromium (Hexavalent) (Cr^{+6})	*0.05*
Cyanide (CN)	*0.2*
Fluoride (F)	*(See 5.23)*
Lead (Pb)	*0.05*
Selenium (Se)	*0.01*
Silver (Ag)	*0.05*

"5.23 Fluoride.--When fluoride is naturally present in drinking water, the concentration should not average more than the appropriate upper limit shown in the following table. Presence of fluoride in average concentrations greater than two times the optimum values listed shall constitute ground for rejection of the supply.

"Where fluoridation (supplementation of fluoride in drinking water) is practiced, the average fluoride concentration shall be kept within the upper and lower control limits listed below.

Annual average of maximum daily air temperatures[1]	*Recommended control limits--Fluoride concentrations in mg/l*		
	Lower	*Optimum*	*Upper*
50.0 - 53.7	*0.9*	*1.2*	*1.7*
53.8 - 58.3	*0.8*	*1.1*	*1.5*
58.4 - 63.8	*0.8*	*1.0*	*1.8*
63.9 - 70.6	*0.7*	*0.9*	*1.2*
70.7 - 79.2	*0.7*	*0.8*	*1.0*
79.3 - 90.5	*0.6*	*0.7*	*0.8*

[1]*Based on [Fahrenheit] temperature data obtained for a minimum of five years."*

Mineral Constituents in Solution

Silica (SiO_2)

Weathering processes dissolve silica from practically all rocks. Silica affects the usefulness of water because it can contribute to the formation of scale in pipes, water heaters, and boilers in the presence of calcium and magnesium.

Iron (Fe)

Iron is a widespread constituent in rocks and is easily leached by ground water under reducing conditions or in acidic water. Water containing more than 30 μg/l of iron, after exposure to air, may become discolored. Reddish-brown stains on porcelain or enamelware and fixtures and on fabrics washed in the water result from the iron-imparted turbidity.

Manganese (Mn)

Manganese in concentrations as low as 200 μg/l may cause a dark-brown or black stain on fabrics and porcelain fixtures. Ground water that contains high concentrations of iron may also have considerable amounts of manganese.

Calcium and Magnesium (Ca and Mg)

Limestone and similar rocks are the principal source of calcium and magnesium in natural water. Calcium and magnesium cause water hardness and, with anions, can form scale on utensils and in water heaters, boilers, and pipes.

Sodium and Potassium (Na and K)

Sodium and potassium are present in many igneous and sedimentary rocks. Sodium dissolves readily and when brought into solution it tends to remain in solution. Potassium is dissolved with greater difficulty and exhibits a stronger tendency to be reincorporated into solid weathering products, especially clay minerals. In most natural water the concentration of potassium is much lower than the concentration of sodium. Water that contains a large proportion of sodium salts may be unsatisfactory for irrigation on certain types of poorly drained soils. The presence of several hundred milligrams per litre of sodium in water can make it unsuitable for use in sodium-restricted diets (North Dakota State Department of Health, 1962).

Bicarbonate and Carbonate (HCO_3 and CO_3)

Bicarbonate and carbonate ions are the major cause of alkalinity in most 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.

Alkalinity can be calculated from the analyses by using the formula:

$$\text{Alkalinity (As } CaCO_3) = 0.82\ (HCO_3) + 1.67\ (CO_3)$$

Sulfate (SO_4)

Metallic sulfide minerals in both sedimentary and igneous rocks, upon weathering or with bacterial action, are converted to sulfates. Sulfate may also be dissolved from beds of gypsum and deposits of sodium sulfate.

Chloride (Cl)

Chloride is present in all natural waters, but the concentrations usually are low. Important sources of chloride are sedimentary rocks that were deposited under marine conditions.

Fluoride (F)

Fluoride in the ground water is probably derived from solutions of fluorite, apatite, and hornblende minerals.

Nitrate (NO_3) as Nitrogen (N)

The occurrence of high nitrate concentrations in shallow ground water has been attributed to leaching in feedlots or to fertilizer from irrigated fields where nitrogen compounds have been applied. High nitrate content is undesirable in drinking water because of its bitter taste and it has been reported to cause methemoglobinemia in infants (Comly, 1945).

Boron (B)

Boron is a constituent of the mineral tourmaline and may be present in biotite and amphiboles. In small quantities boron is essential for plant growth. Excessive concentrations in soil and in irrigation water are harmful for some plants.

Dissolved solids

The concentration of dissolved solids is calculated from the weight of residue on evaporation at 180°C from a known quantity of water.

Hardness

Calcium and magnesium are the principal cause of hardness. Hardness exhibits the characteristic of requiring greater quantities of soap to produce a lather as the hardness increases. Hard water also can contribute to the formation of scale in boilers, water heaters, radiators, and pipes, with a resultant decrease in the rate of water flow and(or) heat transfer.

The hardness that is equivalent to the alkalinity is called carbonate hardness, and any excess is called noncarbonate hardness. The carbonate hardness is the quantity that will contribute scale on heating and the noncarbonate hardness is the quantity of hardness that will remain after precipitation of the carbonate hardness. As a general reference, the U.S. Geological Survey many times uses the following classification of water hardness.

Calcium and magnesium hardness, as $CaCO_3$ (milligrams per litre)	Hardness description
0-60	Soft
61-120	Moderately hard
121-180	Hard
More than 180	Very hard

Percent sodium and sodium-adsorption ratio (SAR)

The percent sodium is the percentage of sodium to all cations, with the cations in milliequivalents per litre. The displacement of calcium and magnesium by sodium in soils is slight unless the percent sodium is considerably higher than 50.

The term SAR (sodium-adsorption ratio) was introduced by the U.S. Salinity Laboratory Staff (1954). Their experiments show that the SAR relates to the degree water enters into cation-exchange reactions with soil. Sodium-adsorption ratio is expressed by the equation:

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

where the concentrations of the ions are expressed in milliequivalents per litre. The U.S. Salinity Laboratory Staff (1954) divided water into sixteen classes, depending upon the SAR and specific conductance. The classifications indicate the usefulness of water for irrigation of different crops on different types of soil.

Specific conductance (micromhos per centimetre at 25°C)

Specific conductance is a measure of the ability of water to conduct an electric current. Approximately 0.65 to 0.70 of the specific conductance (in micromhos) is an estimate of the amount of dissolved solids (mg/l) in water; however, this relation is not constant and will vary with the chemical composition of the water (Hem, 1970).

Hydrogen-ion concentration (pH)

Hydrogen-ion concentration (activity) is expressed in terms of pH units. The values of pH often are used as one measure of the solvent power of water.

The hydrogen-ion concentrations affect the corrosiveness of water. A pH of 7.0 indicates that the water is neutral, neither acidic nor basic. Readings progressively lower than 7.0 denote increasing acidity, and those progressively higher than 7.0 denote increasing alkalinity.

Temperature

Temperature is an important factor in evaluating the usefulness of water. This is evident for such a direct use as an industrial coolant. Temperature is also important, but perhaps not so evident, for its influence upon concentrations of dissolved gases and mineral matter in water. Water temperatures given in the tables are expressed in degrees Celsius (Centigrade). Degrees Celsius and the equivalent temperature in degress Fahrenheit are given in appendix B.

Particle-Size Distribution Graphs

Particle-size distribution curves were determined by the sieve and hydrometer method for 30 core samples representing five geohydrologic units. The diagrams in table 7 show the percentage of clay, silt, and sand in the samples.

Heavy Mineral Analyses

Heavy mineral analyses, hydrologic parameters, and statistical measure of textures from 30 cores from bedrock formations are in table 8. These analyses may be useful for correlation of geohydrologic units throughout the Williston basin and surrounding areas.

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TABLE 1.--Records of wells, test holes, and miscellaneous data collection sites

EXPLANATION

Local well number

129N087W10BBC, Location of well or data collection site. Refer to page 3 for additional information.

Owner

B.N.R.R. I-1-1, Burlington Northern Railway test hole I-1-1

NDSWC 4520, North Dakota State Water Commission test hole number 4520

N.P.R.R. 1-15, Northern Pacific Railway test hole 1-15

Well depth (feet)

Depth of well, in feet below land surface

SW, surface-water source

Water level (feet)

Water level, in feet below (+ above) land surface

F, well flows

Use of water

H, domestic
K, domestic and livestock
P, public supply
S, livestock
U, unused

Major aquifer

21, alluvium
51, buried glaciofluvial deposits

C, Cannonball Formation
FH, Fox Hills Formation
L, Ludlow Formation
HC, Hell Creek Formation
SB, Sentinel Butte Formation
TR, Tongue River Formation

Water-bearing material

Modifiers

2, fine grained
4, coarse grained
6, clayey
7, silty
8, sandy
9, gravelly
U, unconsolidated
V, semiconsolidated

Major lithology

1, lignite
F, shale
G, gravel
P, clay
R, sand and gravel
S, sand
V, sandstone
W, siltstone
Y, clayey gravel
Z, other

Specific conductance

Value shown is the field specific conductance measured at the well at the time of inventory, except for wells that have laboratory analyses available.

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 MEASURED	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	SPECIFIC CONDUCT-ANCE (µMHOS/CM @ 25°C)	TEM-PER-ATURE (°C)	ALTI-TUDE OF LSD (FT)
129N079W07BC	TRIBAL		36	--	24	--	--	--	K	--	--	--	--	--
129N079W07CBD	A.SILBERNAGEL		210	--	6	1960	80	--	K	FH	--	1600	--	--
129N079W21BAA	L.ALKIRE		70	--	4	1961	64	--	H	--	--	5800	--	--
129N079W22DD	F.OTIS		100	--	2	--	70	6-51	K	--	--	--	--	--
129N079W29BA	H.LABRENSZ		100	--	4	--	--	--	H	--	--	--	--	--
129N079W29CC	C.HAFF		150	--	2	--	--	--	K	--	--	--	--	--
129N080W11DD	T.THOMPSON		35	--	30	--	13	6-51	S	--	--	--	--	--
129N080W12BDD	A.SILBERNAGEL		250	--	6	1961	60	--	S	--	--	--	--	--
129N080W22DA	E.SANDLAND		175	--	6	--	100	6-51	K	--	--	--	--	--
129N080W22DD	W.SANDLAND		145	--	6	--	100	6-51	H	--	--	--	--	--
129N080W23CCD	J.HARRISON		60	--	24	1968	40	--	K	--	S	3100	--	--
129N080W23DDD	NDSWC 4521	300	142	138	1	1973	68	7-73	U	FH	S	1990	11.0	1927
129N080W24DA	L.ZIMMERMAN EST		80	--	6	--	--	--	K	--	--	--	--	--
129N080W35AA	K.HACH		36	--	24	--	20	6-51	K	--	--	--	--	--
129N081W01BAB	NDSWC 4520	260	104	98	1	1973	62	7-73	U	FH	S	2520	9.0	1840
129N081W10ABC	W.LUND		192	--	4	1952	60	--	K	--	S	2100	--	--
129N081W10ACB	W.LUND		70	--	4	1961	15	--	S	--	P	--	--	--
129N081W14DD	R.HEPPER		200	--	6	--	--	--	K	--	--	--	--	--
129N081W19BB	A.VOLLMUTH		140	--	4	--	22	6-51	K	--	--	--	--	--
129N081W20AA	R.HEPPER		220	--	6	--	--	--	K	--	--	--	--	--
129N081W20DD	A.SANDLAND		80	--	4	--	8	6-51	K	--	--	--	--	--
129N081W25DCC	D.SCHAEFFER		420	--	6	1954	395	--	K	FH	S	1890	--	--
129N081W25DCD	D.SCHAEFFER		325	--	6	1968	--	--	S	--	--	--	--	--
129N081W26DDC	RAINBURGER		140	--	4	--	--	--	K	--	--	--	--	--
129N081W27BA	N.SANDLAND		135	--	6	--	100	6-51	K	--	--	--	--	--
129N081W28AB	C.SANDLAND		80	--	4	--	--	--	K	--	--	--	--	--
129N081W33DD	A.HEINEN		107	--	6	--	30	6-51	K	--	--	--	--	--
129N081W34BAA	R.SANDLAND		225	--	6	1964	145	--	K	HC	--	1800	--	--
129N082W02DAD1	A.KRAFT		175	--	6	1971	70	12-71	S	--	S	2000	--	--
129N082W02DAD2	A.KRAFT		120	--	4	--	--	--	H	--	--	530	--	--
129N082W02DAD3	A.KRAFT		165	--	2	--	--	--	S	--	S	--	--	--
129N082W03AB	J.WALKER		170	--	--	--	--	--	K	--	--	--	--	--
129N082W06CAC	J.JOCHIM		150	--	4	--	--	--	S	--	--	--	--	--
129N082W06DAD	J.JOCHIM		110	--	6	1943	80	--	K	--	--	1700	--	--
129N082W07DA	L.SMESTAD		140	--	4	--	--	--	K	--	--	--	--	--
129N082W08AD	G.VOLK		140	--	4	--	--	--	K	--	--	--	--	--
129N082W11CC	J.DILLMEN		220	--	4	1922	--	--	K	HC	--	--	--	--
129N082W11DAD1	J.DILLMAN		180	--	--	--	--	--	S	HC	S	1700	6.0	--
129N082W11DAD2	J.DILLMAN		165	--	5	1971	47	12-71	H	--	--	1600	--	--

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 MEASURED	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	SPECIFIC CONDUCT-ANCE (μMHOS/CM @ 25°C)	TEM-PER-ATURE (°C)	ALTI-TUDE-OF LSD (FT)
129N082W12BB	P.FEIST		160	--	4	--	--	--	K	--	--	--	--	--
129N082W19BA	J.WALKER JR.		108	--	6	--	--	--	K	--	--	--	--	--
129N082W23CC	G.SCHAEFFER		130	--	4	--	--	--	--	--	--	--	--	--
129N082W27CC	W.FEIST		160	--	4	--	--	--	K	--	--	--	--	--
129N082W29BCC	E.VOLK		45	--	24	--	20	6-51	K	--	--	--	--	--
129N082W30DD	C.WINGERTER		170	--	4	--	--	--	K	--	--	--	--	--
129N082W31BA	J.OSTER		160	--	3	--	--	--	K	--	--	--	--	--
129N082W36DAA	P.HETTICK		160	--	4	--	--	--	K	--	--	--	--	--
129N083W01DBD	F.CERNEY		140	--	4	--	--	--	S	--	S	--	--	--
129N083W05AA	S.WALKER		180	--	8	--	--	--	K	--	--	--	--	--
129N083W12BAC1	F.CERNEY		140	130	4	1969	55	12-71	K	--	--	1400	--	--
129N083W12BAC2	F.CERNEY		90	--	4	--	--	--	S	--	S	1900	8.0	--
129N083W15AA	A.FRIED		200	--	4	1961	70	--	S	--	--	--	--	--
129N083W20DA	H.GIELE		160	--	3	--	--	--	K	--	--	--	--	--
129N083W25DA	G.SCHAEFFER		120	--	6	--	--	--	K	--	--	--	--	--
129N083W26DAA	A.FRIED		200	--	4	1963	70	--	K	HC	S	765	--	--
129N083W31BCA	C.GLINES		124	--	4	1965	40	5-65	S	HC	VS	--	--	--
129N084W02DD	O.WALKER		150	--	4	--	--	--	K	--	--	--	--	--
129N084W21CDA	E.WERRE		300	--	4	--	--	--	K	HC	S	1750	--	--
129N084W22ADD	L.MOSSET		160	150	6	1965	80	--	K	--	S	1600	--	--
129N084W24BCA	J.FEIST		186	--	4	1970	20	--	H	--	S	1250	7.5	--
129N084W24BCB	J.FEIST		185	--	4	--	--	--	K	--	S	--	--	--
129N085W09DBD	T.TISHMACK		154	134	6	1966	--	--	S	--	--	2100	--	--
129N085W09DD	A.TISHMACK		210	--	6	--	--	--	K	--	--	--	--	--
129N085W09DDA	T.TISHMACK		210	--	2	1920	140	--	H	--	--	2200	--	--
129N085W11CDC	O.JAMESON		110	--	4	1969	--	--	S	--	--	1650	9.0	--
129N085W14BAC	O.JAMESON		130	--	5	1934	--	--	H	--	--	1800	9.5	--
129N085W16BCC1	E.SCHWEHR		174	164	4	1969	25	--	H	--	--	2220	--	--
129N085W16BCC2	E.SCHWEHR		140	130	4	1969	60	--	S	--	--	1750	9.5	--
129N085W25CAA	W.SCHWEHR		200	--	4	--	--	--	S	--	--	950	10.0	--
129N085W26CC	W.LOHMAN		280	--	2	--	--	--	K	--	--	--	--	--
129N085W26CCC1	W.SCHWEHR		280	--	4	--	250	--	H	HC	--	2020	--	--
129N085W26CCC2	W.SCHWEHR		190	--	4	1970	70	--	S	--	--	1400	10.0	--
129N085W27DCD1	A.JACOBS		160	--	5	1947	--	--	H	--	--	2000	--	--
129N085W27DCD2	A.JACOBS		--	--	2	--	80	--	S	--	--	1500	10.0	--
129N085W28CC	H.MOSER		108	--	6	--	--	--	K	--	--	--	--	--
129N085W28CDD1	H.MOSER		140	--	4	1950	--	--	K	--	--	1700	--	--
129N085W28CDD2	H.MOSER		190	--	4	1968	93	9-71	H	--	--	2500	--	--
129N085W32DA	J.KNISPEL		180	--	6	--	--	--	K	--	--	--	--	--
129N085W33CBB	H.MOSER		190	--	4	1965	--	--	S	--	--	1550	10.5	--

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT)	WELL DEPTH (FT)	CASING DEPTH (FT)	CASING DIAM-ETER (IN)	DATE DRILLED (YEAR)	WATER LEVEL (FT)	DATE WATER LEVEL MEASURED	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	SPECIFIC CONDUCT-ANCE (µMHOS/CM @ 25°C)	TEM-PER-ATURE (°C)	ALTI-TUDE OF LSD (FT)
129N086W02ABB	H.HALVERSON		60	--	6	1948	--	--	S	--	--	2020	9.0	--
129N086W04CDD1	H.FUCHS		56	50	24	1967	26	--	H	HC	--	1320	--	--
129N086W04CDD2	H.FUCHS		50	46	24	1961	19	--	S	--	--	850	8.0	--
129N086W04CDD3	H.FUCHS		40	--	24	1924	--	--	S	--	--	700	8.5	--
129N086W06ABC1	F.FUCHS		70	64	24	1952	--	--	H	--	--	390	--	--
129N086W06ABC2	F.FUCHS		130	94	6	1962	90	--	S	--	--	1300	9.0	--
129N086W10ABD1	S.TERNES		140	--	6	1963	60	--	H	--	--	1550	--	--
129N086W10ABD2	S.TERNES		140	120	5	1970	73	8-71	S	--	--	--	--	--
129N086W13DBC	S.TERNES		170	150	6	1963	40	--	S	--	--	--	--	--
129N086W14CBC	H.GALL		180	--	6	1963	--	--	S	--	--	--	--	--
129N086W15BAA	H.GALL		130	--	4	1948	--	--	S	--	--	--	--	--
129N086W17ADC	L.OSWALD		200	--	6	--	--	--	S	--	--	--	--	--
129N086W17DD	L.OSWALD		145	--	4	--	--	--	K	--	--	--	--	--
129N086W17DDD	L.OSWALD		140	--	4	1947	--	--	H	--	--	2100	9.0	--
129N086W20CDD	C.BUEL		100	--	4	1949	45	--	H	--	--	1300	--	--
129N086W22BCB	H.GALL		160	--	6	1966	--	--	S	--	--	790	--	--
129N086W22CDA	P.KATUS		165	--	5	--	--	--	S	--	--	--	--	--
129N086W25BAA	J.KNISPLE		250	--	3	--	--	--	U	--	--	--	--	--
129N086W25BCC	D.OLSON		260	--	6	1933	--	--	S	--	--	1500	--	--
129N086W27AAA	P.KATUS		165	--	5	1961	--	--	H	--	--	975	--	--
129N086W29BAA	C.BUEL		100	--	3	1919	--	--	S	--	--	--	--	--
129N086W29DD	G.GALL		280	--	6	--	--	--	K	--	--	--	--	--
129N086W29DDD	W.GALL		250	210	5	1918	161	8-71	H	--	--	2300	--	--
129N086W32ABC	C.BUEL		200	160	4	1958	70	--	H	--	--	2050	--	--
129N086W32BAB	C.BUEL		151	131	5	1954	--	--	S	--	--	--	--	--
129N086W33ACC1	C.BUEL		245	205	4	1956	--	--	H	--	--	1800	9.0	--
129N086W33ACC2	C.BUEL		92	--	24	1928	--	--	S	--	--	2300	9.0	--
129N086W33BDD	C.BUEL		171	131	4	1933	--	--	S	--	--	--	--	--
129N086W36AB	M.VOLK		180	--	6	--	--	--	K	--	--	--	--	--
129N087W02BBD1	A.OLSON		75	--	6	1963	15	--	S	--	--	1550	9.5	--
129N087W02BBD2	A.OLSON		75	--	6	--	15	--	H	--	--	1290	--	--
129N087W03BAC	R.KATUS		80	--	4	1960	--	--	S	--	--	--	--	--
129N087W04ACD	R.KATUS		80	--	4	--	--	--	S	--	--	--	--	--
129N087W04DAB1	R.KATUS		80	--	4	1952	--	--	H	--	--	1950	--	--
129N087W04DAB2	R.KATUS		20	--	24	1953	10	--	S	--	--	1600	8.5	--
129N087W08AAA1	B.NEHL		90	--	4	1945	20	--	H	--	--	1700	--	--
129N087W08AAA2	B.NEHL		160	--	4	1971	--	--	S	--	--	--	--	--
129N087W08DD	B.NEHL		100	--	6	--	--	--	K	--	--	--	--	--
129N087W09ACC	B.NEHL		90	--	4	1958	--	--	S	--	--	1700	10.0	--
129N087W10BBB	NDSWC 8105	80	--	--	5	1971	--	--	U	HC	VV	--	--	2064

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129N087W10BBC	NDSWC 4490	700	361	343	2	1972	85	12-72	U	FH	V	2030	6.5	2060
129N087W13CC	D.SHERWOOD		110	--	6	--	--	--	K	--	--	--	--	--
129N087W21CC	O.DAHL		315	--	2	--	--	--	K	--	--	--	--	--
129N087W22ADA	A.GRONLUND		270	--	4	1961	--	--	S	--	--	--	--	--
129N087W23BC	E.SHERWOOD		140	--	6	--	--	--	K	--	--	--	--	--
129N087W26BCC	A.GRONLUND		244	224	4	1958	--	--	H	--	--	3000	--	--
129N087W33AAD	J.MC GREGOR		285	--	4	1959	250	--	H	--	--	2700	--	--
129N087W34BAC	J.MC GREGOR		270	--	4	1961	170	8-71	S	--	--	--	--	--
129N088W01DAA	C.DOBITZ		180	177	6	1961	40	--	S	--	--	780	9.0	--
129N088W05DDD1	NDSWC 4525	700	466	448	2	1973	117	7-73	U	HC	S	2120	12.0	2200
129N088W05DDD2	NDSWC 4525A		348	336	2	1973	63	7-73	U	HC	S	1710	11.0	2200
129N088W05DDD3	NDSWC 4525B		180	174	1	1973	62	7-73	U	C	S	1710	13.0	2200
129N088W11ABB	E.MAHER		90	--	4	1960	--	--	U	--	--	--	--	--
129N088W13BAA	E.MAHER		55	35	24	1961	--	--	S	--	--	1700	10.0	--
129N088W14BCB	E.MAHER		190	--	4	1959	--	--	S	--	--	3200	9.5	--
129N088W14DBB	E.MAHER		190	--	6	--	--	--	H	--	--	2450	--	--
129N088W19DCC	H.HEINTZ		230	215	4	1971	--	--	S	--	--	1100	9.5	--
129N088W20CAA	A.MAIER		300	--	6	1949	150	--	S	--	--	--	--	--
129N088W28BBD	A.MAIER		200	--	6	1951	--	--	S	--	--	--	--	--
129N088W28CA	A.MAIER		160	140	6	1972	80	--	S	C	S	--	--	--
129N088W28CDD	A.MAIER		165	--	6	1925	80	--	H	--	--	1550	9.5	--
129N088W31DD	E.DAHLEN		250	--	4	--	--	--	K	--	--	--	--	--
129N088W31DDA	H.HEINTZ		312	297	4	1968	--	--	H	C	--	2150	--	--
129N088W33BAA	A.MAIER		200	--	6	1966	100	--	S	--	--	2000	9.5	--
129N088W33DBB	A.MAIER		180	--	6	1968	--	--	S	C	--	--	--	--
129N089W02AA	L.GRIFFITH		100	--	6	--	--	--	K	--	--	--	--	--
129N089W02BBB1	C.DOBITZ		180	--	6	--	--	--	H	--	--	1700	--	--
129N089W02BBB2	C.DOBITZ		180	--	6	1970	40	--	H	--	--	1570	--	--
129N089W02BCB	C.DOBITZ		180	176	6	1961	49	8-71	S	--	--	--	--	--
129N089W02DDA	C.DOBITZ		180	176	6	1961	--	--	S	--	--	1300	9.5	--
129N089W03CDC	C.DOBITZ		180	--	6	1964	60	--	S	--	--	1500	9.0	--
129N089W05DDD	E.KNOKE		116	--	4	1928	40	--	H	--	--	1270	10.0	--
129N089W11DD	F.CANNES		500	--	6	--	250	6-51	K	--	--	--	--	--
129N089W17BAA	E.JOHNSON		175	--	5	1968	--	--	S	--	--	1100	10.0	--
129N089W17BCC	E.JOHNSON		256	242	5	1961	--	--	H	--	--	2100	--	--
129N089W18DDA	C.JOHNSON		245	--	4	1957	--	--	H	C	--	2730	--	--
129N089W20BCC1	C.JOHNSON		225	205	4	1949	--	--	H	C	--	2260	--	--
129N089W20BCC2	C.JOHNSON		250	230	4	1968	95	8-71	S	C	--	2900	9.5	--
129N089W20CDD	C.JOHNSON		180	160	4	1967	80	--	S	--	--	3100	9.5	--
129N089W22CC	B.WINKOWITSCH		180	--	6	--	--	--	K	--	--	--	--	--

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129N089W22CDC	C.JOHNSON		109	89	5	1965	--	--	S	--	--	--	--	--
129N089W23CC	G.DIX		120	--	6	--	--	--	K	--	--	--	--	--
129N089W23CCC1	G.DIX		360	340	2	1951	--	--	H	--	--	2150	9.5	--
129N089W23CCC2	G.DIX		355	313	4	1972	190	9-72	H	HC	S	--	--	--
129N089W23DAB	G.DIX		230	--	--	1938	--	--	S	--	--	--	--	--
129N089W24BBC	F.JAKES		460	300	4	1958	--	--	H	--	--	1550	--	--
129N089W24DDD1	H.HEINTZ		222	167	4	1966	--	--	S	C	--	2160	9.5	--
129N089W24DDD2	H.HEINTZ		210	--	4	--	--	--	H	C	--	2000	--	--
129N089W27ABC	G.DIX		300	--	4	1958	--	--	S	--	--	1700	9.0	--
129N089W27DAA	G.DIX		320	--	4	1961	--	--	S	--	--	--	--	--
129N089W30CDD1	V.BENSON		180	--	4	1920	54	--	H	--	--	2550	10.0	--
129N089W30CDD2	V.BENSON		135	--	4	1967	--	--	S	--	--	1000	9.0	--
129N089W31CC	T.NEIDERMAN		147	117	4	1972	60	--	S	C	V	--	--	--
129N090W01BBB	J.ELLISON		155	--	5	1959	--	--	S	--	--	1590	10.0	--
129N090W02CC	G.ROSO		300	--	6	--	--	--	K	--	--	--	--	--
129N090W02CCC	G.ROSO		180	--	5	1948	--	--	H	--	--	1750	9.0	--
129N090W04CC	R.ERICKSON		100	--	4	--	--	--	K	--	--	--	--	--
129N090W05ABB	H.PETERSON		260	--	4	1970	--	--	S	--	--	2200	--	--
129N090W05DDB	H.PETERSON		200	--	4	--	61	8-71	S	--	--	2300	9.5	--
129N090W06DDA	K.STROM		400	--	4	1958	--	--	H	--	--	2100	--	--
129N090W07CD	W.STROM		160	--	6	--	--	--	K	--	--	--	--	--
129N090W07CDD1	G.LARSON		20	--	4	1910	30	--	H	--	--	1250	10.0	--
129N090W07CDD2	G.LARSON		20	--	4	1934	20	--	S	--	--	1600	8.0	--
129N090W08DDA	H.PETERSON		260	--	4	1948	--	--	H	--	--	3100	10.0	--
129N090W09AB	J.HAY		140	--	6	--	100	6-51	K	--	--	--	--	--
129N090W09BCC	H.PETERSON		350	--	4	1963	--	--	H	--	--	1500	--	--
129N090W15ADC	M.WISE		207	180	4	1972	40	8-72	S	C	S	--	--	--
129N090W19CD	H.PLOUG		335	--	2	1937	100	--	K	HC	--	1910	--	--
129N090W19DCC	H.PLOOG		320	250	2	1940	210	--	H	--	--	1650	--	--
129N090W25DDD	A.GOODMANSON		65	--	4	1968	--	--	S	--	--	1670	--	--
129N090W29ACA	G.PETERSON		360	--	4	1929	80	--	H	HC	--	2050	9.5	--
129N090W29CBB	C.PETERSON		360	--	4	1930	--	--	H	--	--	1550	9.0	--
130N079W19BBB	USGS		72	--	--	1950	30	-50	U	--	S	--	--	--
130N079W19CCB	NDSWC 8081	170	150	144	1	1971	17	9-71	U	51	R	1900	7.0	1625
130N080W03ABB	NDSWC 8077	220	190	184	1	1971	27	9-71	U	51	R	1830	7.0	1640
130N080W08CB	J.HOMING		19	--	36	--	--	--	K	--	--	--	--	--
130N080W10BBA	L.LUGER		150	--	4	1963	--	--	H	--	S	3400	--	--
130N080W11AD	J.SCHNEIDER		18	--	18	--	14	6-51	K	--	--	--	--	--
130N080W14AA	F.LUGER		120	--	3	--	20	--	H	51	--	--	--	--
130N080W14AD	R.LUGER		20	--	12	--	16	6-51	K	16	--	--	--	--

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 MEASURED	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	SPECIFIC CONDUCT-ANCE (µMHOS/CM @ 25°C)	TEM-PER-ATURE (C)	ALTI-TUDE OF LSD (FT)
130N080W14CDD	NDSWC 8643	180	163	157	1	1973	28	7-73	U	51	G	1460	10.0	1636
130N080W23AAA	USGS		62	--	--	1950	17	-50	U	--	S	--	--	--
130N080W23ABB	USGS		117	--	--	1950	--	--	U	--	--	--	--	--
130N080W23ADA	USGS		47	--	--	1950	19	-50	U	--	S	--	--	--
130N080W23DAA1	H.SANDLAND		130	--	4	--	--	--	S	--	S	--	--	--
130N080W23DAA2	H.SANDLAND		40	--	24	--	25	--	H	--	--	1800	7.0	--
130N080W23DDD	NDSWC 8080	220	190	184	1	1971	26	9-71	U	51	R	2050	--	1640
130N080W24ACC	USGS		62	--	--	1950	30	-50	U	--	--	--	--	--
130N080W24BAB	USGS		82	--	--	1950	27	-50	U	--	S	--	--	--
130N080W24BBA	USGS		27	--	--	1950	--	--	U	--	--	--	--	--
130N080W24DDC	USGS		47	--	--	1950	--	--	U	--	S	--	--	--
130N080W26BAA	NDSWC 8082	100	--	--	5	1971	--	--	U	51	R	--	--	1645
130N080W35BBB	C.PUTNAM		27	--	24	1943	20	--	K	--	S	1900	8.5	--
130N081W31BBB1	S.MOSSET		60	--	4	--	--	--	S	--	P	--	--	--
130N081W31BBB2	S.MOSSET		225	--	4	1968	120	--	K	HC	S	1440	--	--
130N082W12DDB	P.KRAFT		250	--	5	--	185	--	K	HC	S	2000	--	--
130N082W12DDD	P.KRAFT		250	--	6	1964	--	--	S	--	--	--	--	--
130N082W13AAC	P.KRAFT		250	--	6	1961	--	--	S	--	--	--	--	--
130N082W14CCA	G.SCHAFFER		164	--	4	1965	90	6-65	S	HC	VS	--	--	--
130N082W34AA	SELFRIDGE		130	--	4	--	--	--	P	--	--	--	--	--
130N082W34ABD1	SELFRIDGE N.D.		145	--	8	1957	38	--	P	HC	2S	1040	--	--
130N082W34ABD2	G.WALKER		125	--	5	1924	--	--	H	--	2S	1700	--	--
130N082W36BBC	NDSWC 8083	680	498	480	2	1971	319	1-72	U	FH	V	--	--	2197
130N083W25CBC	B.BRAUN		220	200	4	--	--	--	K	HC	2S	2590	--	--
130N083W28DCD1	C.WALKER		274	--	4	1969	--	--	K	HC	S	--	--	--
130N083W28DCD2	C.WALKER		390	--	4	1969	--	--	K	HC	V	--	--	--
130N083W28DCD3	C.WALKER		200	--	4	1961	--	--	K	C	V	--	--	--
130N083W36AAA	NDSWC 4522	800	522	504	2	1973	432	7-73	U	FH	S	--	--	2247
130N083W36BDB	B.BRAUN		200	--	4	1961	180	--	S	--	S	--	--	--
130N084W13AAD	M.MEISEL		160	--	6	1943	--	--	K	HC	--	2030	--	--
130N084W31AAA1	NDSWC 4523	500	466	448	2	1973	178	7-73	U	HC	S	4260	13.5	2238
130N084W31AAA2	NDSWC 4523A	215	204	198	1	1973	166	7-73	U	HC	S	--	--	2238
130N084W34ADA	D.TEN BROEK		85	--	4	--	--	--	S	--	P	2600	7.0	--
130N084W36ABA	NDSWC 4489	700	417	399	2	1972	248	12-72	U	FH	S	2470	10.0	2148
130N085W04BBB	NDSWC 8096	60	--	--	5	1971	--	--	U	--	S	--	--	1944
130N085W09CCC	F.UMBER		170	--	4	1968	50	--	H	--	--	1990	--	--
130N085W17ADD	NDSWC 8097	40	--	--	5	1971	--	--	U	--	R	--	--	1909
130N085W17DAA	NDSWC 4488	500	245	219	2	1972	22	12-72	U	FH	V	2020	6.0	1910
130N085W20BA	G.TISHMACK		35	--	24	--	--	--	K	--	--	--	--	--

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 MEASURED	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	SPECIFIC CONDUCT-ANCE (µMHOS/CM @ 25°C)	TEM-PER-ATURE (°C)	ALTI-TUDE-OF LSD (FT)
130N085W23CCB	R.KNISPEL		121	--	4	1960	--	--	S	--	--	2700	--	--
130N085W26BDA	R.KNISPEL		126	--	4	1969	--	--	S	--	--	1700	11.0	--
130N085W27CCC	R.KNISPEL		63	--	4	1959	--	--	S	--	--	2800	8.5	--
130N085W28CC	R.KNISPEL		88	--	24	--	--	--	K	--	--	--	--	--
130N085W28CCC1	R.KNISPEL		190	--	2	1951	--	--	H	--	--	--	--	--
130N085W28CCC2	R.KNISPEL		70	--	2	1961	30	--	S	--	--	2550	--	--
130N085W28CCC3	R.KNISPEL		101	--	2	1961	50	--	S	--	--	2600	9.5	--
130N085W32AAD	J.KNISPEL		185	--	4	1949	--	--	H	--	--	1120	9.5	--
130N085W33BBD	J.KNISPEL		170	--	5	1961	--	--	S	--	--	2250	9.5	--
130N086W01CC	B.N.R.R. I-1-1		4860	--	8	--	--	--	U	--	--	--	--	1986
130N086W04BBC	C.HEIB		30	--	--	--	--	--	K	--	--	1500	7.5	--
130N086W06DDD1	D.WERNER		219	--	6	1969	90	--	K	--	S	2500	9.0	--
130N086W06DDD2	D.WERNER		30	--	24	1930	9	--	S	--	P	2100	8.0	--
130N086W07CAD1	J.WERNER		195	--	6	1968	100	--	S	--	S	2200	8.5	--
130N086W07CAD2	J.WERNER		28	--	24	--	12	11-71	S	--	--	500	8.0	--
130N086W07CAD3	J.WERNER		32	--	24	1952	13	--	H	--	--	725	--	--
130N086W08ADB	D.WERNER		216	--	6	1966	116	--	S	--	S	2200	9.5	--
130N086W08CAB	H.WERNER		220	--	4	1965	--	--	K	--	S	1900	9.0	--
130N086W08CC	G.F.WERNER		145	125	4	1972	50	--	S	--	S	--	--	--
130N086W18ABB	J.WERNER		180	--	6	1963	--	--	S	--	S	--	--	--
130N086W18DBD	J.WERNER		185	--	6	1968	50	--	S	--	S	--	--	--
130N086W22BBB1	CAMPBELL BROS.		60	--	6	--	--	--	H	--	--	750	--	--
130N086W22BBB2	CAMPBELL BROS.		60	--	36	--	--	--	S	--	--	1250	7.5	--
130N086W22BBB3	CAMPBELL BROS.		40	--	--	--	10	11-71	S	--	--	--	--	--
130N086W25BC	O.OLSON		240	--	6	--	--	--	K	--	--	--	--	--
130N086W25BCC1	D.OLSON		125	105	6	1960	--	--	S	--	--	800	--	--
130N086W25BCC2	D.OLSON		80	60	6	1955	20	--	S	--	--	--	--	--
130N086W26CBB	D.OLSON		160	--	6	1950	--	--	U	--	--	--	--	--
130N086W27DCC1	H.HALVORSON		200	--	3	--	--	--	S	--	--	1920	10.0	--
130N086W27DCC2	H.HALVORSON		185	--	4	1964	50	--	H	--	--	2000	--	--
130N086W28CCC1	NDSWC 4524	580	424	406	2	1973	140	7-73	U	FH	S	2130	11.0	2062
130N086W28CCC2	NDSWC 4524A		210	204	1	1973	136	7-73	U	HC	S	1830	11.0	2062
130N086W32DDA1	H.GALL		130	--	6	1971	70	--	H	--	--	1500	--	--
130N086W32DDA2	H.GALL		130	--	4	1961	--	--	S	--	--	--	--	--
130N086W33AB	F.HALVERSON		200	--	--	--	30	6-51	K	--	--	--	--	--
130N086W33BAB	H.HALVERSON		125	109	6	1961	90	--	S	--	--	1500	9.0	--
130N086W34BDD	H.HALVERSON		60	--	6	--	40	--	S	--	--	1600	9.5	--
130N086W36CDD	D.OLSON		120	100	6	1946	--	--	S	--	--	--	--	--
130N087W02DCD	D.WELLS		195	--	6	1962	147	--	S	--	--	1100	8.0	--
130N087W05BAD	K.HINDERER		127	--	24	--	--	--	K	--	--	1000	7.5	--

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130N087W07DBA1	H.MUNDERLOH		220	--	5	1963	--	--	K	--	--	1570	9.5	--
130N087W07DBA2	H.MUNDERLOH		110	--	5	1968	--	--	S	--	--	2000	8.5	--
130N087W08BAB	H.HINDERER		150	--	5	1960	--	--	S	--	--	--	--	--
130N087W09ACC	J.STRIEGEL		80	--	6	1967	50	--	U	--	S	450	7.5	--
130N087W09DBD	J.STRIEGEL		80	--	6	--	50	--	S	--	--	1700	7.5	--
130N087W12ABC	D.WERNER		209	--	6	1963	79	--	S	--	S	2800	8.0	--
130N087W14DBA1	D.WELLS		186	--	6	1963	--	--	K	--	S	1620	10.0	--
130N087W14DBA2	D.WELLS		145	--	6	1958	--	--	S	--	S	3200	9.0	--
130N087W22DAA	D.WELLS		195	--	6	1962	90	--	S	--	P	--	--	--
130N087W27BDC	S.STRIEGEL		125	--	6	1948	65	--	S	--	--	--	--	--
130N087W32CDA1	M.GREEN		200	--	4	1965	--	--	K	--	S	1380	8.0	--
130N087W32CDA2	M.GREEN		26	--	--	1915	--	--	S	--	S	--	--	--
130N087W34BCA1	S.STRIEGEL		50	--	6	--	30	--	K	--	--	700	--	--
130N087W34BCA2	S.STRIEGEL		50	--	6	1957	--	--	S	--	--	510	8.0	--
130N088W03BDD	C.DOBITZ		160	--	6	--	--	--	S	--	--	2500	9.0	--
130N088W04ABB1	E.SABIN		35	--	24	--	20	--	S	--	--	--	--	--
130N088W04ABB2	E.SABIN		220	120	8	1945	80	--	K	--	--	2700	8.0	--
130N088W05CBB	W.NIEDERMAN		110	--	4	1952	75	--	K	--	--	600	--	--
130N088W05DBA1	C.MISTELSKI		210	--	5	1947	110	--	K	--	S	1750	--	--
130N088W05DBA2	C.MISTELSKI		210	--	5	1947	110	--	S	--	S	1900	7.5	--
130N088W06CDB	W.NIEDERMAN		125	--	4	1961	75	--	S	--	P	--	--	--
130N088W06DAD	W.NIEDERMAN		50	8	24	1916	30	--	S	--	--	3600	7.5	--
130N088W07AAB	A.NIEDERMAN		115	--	4	1948	75	--	S	--	--	--	--	--
130N088W10ADD	C.DOBITZ		185	--	6	1969	--	--	S	--	--	950	9.5	--
130N088W11CAC	N.ROE		94	--	4	1972	20	--	S	C	S	--	--	--
130N088W13ACC	N.ROE		222	--	5	1971	132	11-71	S	--	S	--	--	--
130N088W14BCD1	N.ROE		168	--	5	1969	60	--	K	--	S	2000	8.5	--
130N088W14BCD2	N.ROE		42	21	48	1914	34	--	S	--	S	--	--	--
130N088W14BCD3	N.ROE		168	--	5	1965	--	--	S	--	S	--	--	--
130N088W14BDC	N.ROE		86	--	5	1970	--	--	S	--	S	--	--	--
130N088W19CAA	N.ROE		70	--	5	1954	30	--	S	--	S	--	--	--
130N088W21BAC	C.MISTELSKI		75	--	5	1967	25	--	S	--	P	--	--	--
130N088W22AAB1	W.JACOBS		20	--	--	1928	6	--	H	--	S	880	--	--
130N088W22AAB2	W.JACOBS		50	--	5	1966	9	--	S	--	S	650	7.5	--
130N088W22CDD	I.OLSON		350	--	6	--	150	--	K	HC	--	1680	8.5	--
130N088W23CB	B.N.R.R. 23-1		7350	--	--	1971	--	--	U	--	--	--	--	--
130N088W25CBA	S.STRIEGEL		125	--	6	--	85	--	S	--	--	--	--	--
130N088W32CBA	A.COLVILLE		200	--	5	1948	--	--	S	--	S	1400	8.5	--
130N088W32CBB	A.COLVILLE		200	100	5	1950	--	--	H	--	--	1430	10.0	--
130N088W35DB	B.N.R.R. C-35-1		5140	--	8	1970	--	--	U	--	--	--	--	2124

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 MEASURED	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	SPECIFIC CONDUCT-ANCE (µMHOS/CM @ 25°C)	TEM-PER-ATURE (°C)	ALTI-TUDE OF LSD (FT)
130N089W02ADC	A.CAMPBELL		200	--	6	1961	60	--	S	--	S	--	--	--
130N089W12CAA	W.NIEDERMAN		50	--	24	--	8	--	S	--	S	--	--	--
130N089W13CAB	W.NIEDERMAN		150	--	4	1948	120	--	S	--	S	--	--	--
130N089W29AAC	B.LOVELL		90	--	4	1962	--	--	S	--	--	--	--	--
130N089W29ACA	B.LOVELL		93	--	4	1952	43	--	H	--	--	1700	--	--
130N089W31BBB	A.GOODMANSON		260	--	4	1970	--	--	H	--	--	2300	--	--
130N089W32DDA	NDSWC 4492	860	543	525	2	1972	56	12-72	U	FH	V	2000	--	2165
130N089W33ADB	C.DOBITZ		180	176	6	1968	--	--	S	--	--	2500	9.5	--
130N089W33CCB	CEDAR CR. P.R.		SW	--	--	--	--	--	--	--	--	--	--	--
130N089W34DDD	C.DOBITZ		40	--	5	--	20	--	S	--	--	1500	8.5	--
130N090W02DCC	D.ELLISON		280	--	6	1964	--	--	S	--	--	2570	9.5	--
130N090W03CDD	M.ELLISON		280	--	5	1960	100	--	S	--	--	6000	9.0	--
130N090W04ADD	E.SUKO		40	18	5	--	16	--	S	--	--	890	8.0	--
130N090W04BBD	M.ELLISON		65	--	6	--	30	--	H	C	S	2510	--	--
130N090W07DDC1	M.JACKSON		110	--	6	1910	--	--	S	--	--	3000	10.0	--
130N090W07DDC2	M.JACKSON		170	--	2	1948	100	--	H	--	--	2850	--	--
130N090W08AAD	E.STRAUB		390	--	4	--	--	--	H	--	--	875	--	--
130N090W09ADA	E.BARTH		233	--	5	--	--	--	H	HC	Y	2280	--	--
130N090W09CAA1	M.MC PHERSON		100	--	2	1946	--	--	H	--	--	1650	--	--
130N090W09CAA2	M.MC PHERSON		105	80	4	1956	--	--	S	--	--	1150	--	--
130N090W09CAC	M.MC PHERSON		85	65	4	1970	16	--	S	--	--	--	--	--
130N090W10ABD1	A.BARTH		130	--	6	1949	--	--	S	--	--	1700	--	--
130N090W10ABD2	A.BARTH		230	--	4	1965	83	9-71	H	--	--	2290	9.5	--
130N090W10DDD	E.ELLISON		210	--	4	1970	--	--	H	C	V	3100	--	--
130N090W11CCC	E.ELLISON		160	--	4	1952	--	--	S	--	--	2700	10.0	--
130N090W11DDA	E.ELLISON		124	--	4	1949	41	9-71	U	--	--	--	--	--
130N090W12ABB	E.ELLISON		120	--	5	--	14	9-71	U	--	--	--	--	--
130N090W13CBC	E.ELLISON		120	--	5	1961	--	--	U	--	--	--	--	--
130N090W17AAA	E.SUKO		180	120	5	1958	22	--	S	--	--	440	10.0	--
130N090W17AAB	E.SUKO		160	100	4	1961	80	--	H	--	--	825	--	--
130N090W18BBA	A.HOHERZ		130	--	6	1910	--	--	S	--	--	--	--	--
130N090W18DBC	M.JACKSON		180	--	4	1955	--	--	S	--	--	3000	10.0	--
130N090W19AAA	W.ATKINSON		300	--	4	1953	--	--	S	--	--	2200	--	--
130N090W19CCD	D.WARFIELD		140	--	4	1960	--	--	S	--	--	--	--	--
130N090W19DAD	W.ATKINSON		180	--	5	1968	--	--	S	--	--	1400	12.0	--
130N090W20DAA	W.ATKINSON		100	--	4	1956	40	--	S	--	--	--	--	--
130N090W20DDA1	W.ATKINSON		65	--	4	1959	20	--	H	--	--	1600	--	--
130N090W20DDA2	W.ATKINSON		45	--	4	1959	18	9-71	S	--	--	--	--	--
130N090W21CDD	G.PETERSON		210	--	4	1959	80	--	H	--	--	1700	--	--
130N090W25CCC1	M.EVENSON		290	--	4	1961	--	--	H	--	--	2100	--	--

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130N090W25CCC2	M.EVENSON		120	--	5	--	90	--	S	--	--	3800	10.0	--
130N090W27CDA	J.JAHNEL		230	--	6	1961	--	--	S	--	--	1400	10.0	--
130N090W28CBB	J.DAILY		60	--	4	1969	--	--	H	--	--	1900	--	--
130N090W30BBD	D.WARFIELD		133	--	4	1946	--	--	H	--	--	2800	9.5	--
130N090W32BAD1	J.DALEY		135	130	4	1959	30	--	H	--	--	1950	--	--
130N090W32BAD2	J.DALEY		85	80	6	1912	--	--	S	--	--	1100	9.0	--
130N090W33CCB	J.JAHNEL		400	--	4	1961	200	--	H	--	--	1400	--	--
130N090W34DBB	M.EVENSON		120	--	5	--	--	--	U	--	--	--	--	--
130N090W35BAA	M.EVENSON		240	230	5	1959	150	--	S	--	--	1600	10.0	--
130N090W35DD	J.ELLISON		350	--	6	--	--	--	K	--	--	--	--	--
130N090W35DDD	J.ELLISON		255	--	4	1948	--	--	H	--	--	2310	--	--
130N090W36BCD	M.EVENSON		16	--	4	1960	16	--	U	--	--	--	--	--
131N080W02AD	A.SCHAF		50	25	4	1959	F	4-59	K	FH	V	2950	8.0	--
131N080W04BB	A.LEINGANG		150	--	2	--	--	--	K	--	--	--	--	--
131N080W06BCD	NDSWC 8075	171	--	--	5	1971	--	--	U	51	R	--	--	1660
131N080W06BDD1	L.KRAFT		30	--	24	1947	--	--	H	--	2S	1200	--	--
131N080W06BDD2	L.KRAFT		60	--	36	1947	--	--	S	--	S	2200	--	--
131N080W16DDD	NDSWC 8642	160	133	127	1	1973	19	7-73	U	51	G	--	--	1636
131N080W21AAC	J.RUNNING BEAR		240	--	--	1961	--	--	H	FH	V	1100	--	--
131N080W29CA	SIOUX TRIBAL 1		5906	--	5	1954	--	--	U	--	--	--	--	1720
131N080W33ADD	NDSWC 8078	180	160	154	1	1971	44	9-71	U	51	G	1320	7.0	1655
131N080W33BAA	NDSWC 8079	220	168	162	1	1971	47	9-71	U	51	R	1330	7.0	1665
131N081W01AA	F.SCHAF		60	--	2	--	--	--	S	--	--	--	--	--
131N081W01ABC	J.SCHAF		61	--	4	1965	30	--	K	--	S	2000	--	--
131N081W01DAD	NDSWC 8641	180	--	--	5	1973	--	--	U	--	--	--	--	1645
131N081W01DDA	NDSWC 8076	100	--	--	5	1971	--	--	U	51	R	--	--	1650
131N081W06AC	A.LEINGANG		57	--	24	--	28	6-51	S	--	--	--	--	--
131N081W12DB	P.BEEHLER		180	--	2	--	--	--	K	--	--	--	--	--
131N081W31DBC	P.HENDERSON		200	160	2	1959	120	--	H	HC	S	1730	--	--
131N081W33ACA	T.SCHMIDT		200	--	2	1947	50	--	K	HC	--	2420	--	--
131N082W18CDB	FROELICH RES.		LAKE	--	--	--	--	--	--	--	--	--	--	--
131N082W18DCD	NDSWC 4519	720	370	358	1	1973	236	7-73	U	FH	S	--	--	2019
131N082W21AA	W.WEIGEL		30	--	24	--	--	--	K	--	--	--	--	--
131N082W22BC	J.FROELICH		200	--	4	--	85	6-51	K	--	--	--	--	--
131N083W11BA	MCLAUGHLIN		60	--	4	--	--	--	K	--	--	--	--	--
131N083W11BAB	NDSWC 4413	160	--	--	5	1971	--	--	U	HC	V	--	--	1860
131N084W02AAA	NDSWC 4410	100	--	--	5	1971	--	--	U	HC	V	--	--	1802
131N084W03AAD	CANNONBALL 3UP		SW	--	--	--	--	--	--	--	--	--	--	--
131N084W08BCC	A.SCHAAF		80	--	24	--	40	--	K	--	S	1580	--	--
131N084W09DAA	USGS		67	--	--	1950	31	-50	U	--	S	--	--	--

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT)	WELL DEPTH (FT)	CASING DEPTH (FT)	CASING DIAM-ETER (IN)	DATE DRILLED (YEAR)	WATER LEVEL (FT)	DATE WATER LEVEL MEASURED	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	SPECIFIC CONDUCT-ANCE (μMHOS/CM @ 25°C)	TEM-PER-ATURE (°C)	ALTI-TUDE-OF LSD (FT)
131N084W09DBA	USGS		82	--	--	1950	30	-50	U	--	S	--	--	--
131N084W09DBB	USGS		27	--	--	1950	12	-50	U	--	S	--	--	--
131N084W17AAB	P.BRAUN		200	180	4	1959	47	--	K	--	--	950	--	--
131N084W17AAC	P.BRAUN		80	--	4	1967	20	--	S	--	S	1400	--	--
131N085W01BAC1	I.KOCH		285	--	5	1952	160	--	S	--	--	2500	--	--
131N085W01BAC2	I.KOCH		150	--	4	1961	120	--	K	--	--	3400	--	--
131N085W08DDD1	A.LEINTZ		394	--	6	--	75	--	H	HC	S	1740	--	--
131N085W08DDD2	A.LEINTZ		37	--	24	--	--	--	S	--	--	3500	8.5	--
131N085W09CCC	A.LEINTZ		156	30	--	1963	--	--	S	--	S	2050	8.0	--
131N085W13BCD	J.NAGEL		110	--	5	1949	--	--	K	--	--	2450	--	--
131N085W17AA	B.N.R.R. H-17-1		4890	--	8	1970	--	--	U	--	--	--	--	2093
131N085W18AAB1	F.DILLMAN		203	--	6	1963	--	--	S	--	--	2700	9.0	--
131N085W18AAB2	F.DILLMAN		150	--	6	--	--	--	K	--	--	500	--	--
131N085W23BB	N.P.R.R. 1		4750	--	8	1966	--	--	U	--	--	--	--	2004
131N085W26DBD	A.FERGEL		65	--	6	1946	20	--	H	--	S	2200	--	--
131N085W27ACC1	T.FERGEL		220	160	4	1962	--	--	K	--	S	2200	--	--
131N085W27ACC2	T.FERGEL		185	--	6	1951	60	--	S	--	--	4000	--	--
131N085W29BBD	J.VOIGT		80	--	6	1968	--	--	S	HC	V	--	--	--
131N085W32AAA	NDSWC 8094	100	--	--	5	1971	--	--	U	HC	F	--	--	1869
131N085W32CAC1	J.VOIGT		60	--	6	1948	--	--	S	--	S	2300	--	--
131N085W32CAC2	J.VOIGT		140	--	6	1971	11	--	H	--	S	2300	--	--
131N085W32DAA	NDSWC 8095	80	--	--	5	1971	--	--	U	51	R	--	--	1871
131N085W34BBB	F.FERGEL		180	140	4	1966	6	--	K	--	S	2200	--	--
131N086W04BBB	L.STEWART		112	86	4	1972	11	--	H	HC	S	--	--	--
131N086W04ADA	L.STEWART		--	--	--	--	F	-71	S	C	S	680	9.5	--
131N086W09BB	B.N.R.R. E-9-1		4946	--	8	1970	--	--	U	--	--	--	--	1997
131N086W14DAC	M.WEEKES		127	--	4	--	--	--	K	HC	--	--	--	--
131N086W18CAD1	E.FUCHS		150	--	4	1941	20	--	S	--	S	2000	8.5	--
131N086W18CAD2	E.FUCHS		36	--	24	1951	20	--	K	--	S	2200	11.0	--
131N086W18CC	E.FUCH		312	--	4	1972	F	--	K	HC	S	--	--	--
131N086W32ABA1	A.SCHADLER		235	--	4	1970	185	--	H	--	S	2250	10.0	--
131N086W32ABA2	A.SCHADLER		235	--	4	1968	185	--	S	--	S	2300	11.0	--
131N086W32CCC	E.OSWALD		190	--	6	--	40	--	K	--	--	2700	9.0	--
131N086W34DBB	D.WERNER		126	--	6	1956	66	--	S	--	--	--	--	--
131N087W01AAD	L.STEWART		80	--	4	1960	14	11-71	S	--	1	2300	7.5	--
131N087W02CAB	C.NELSON		258	--	6	1944	50	--	K	--	--	4000	--	--
131N087W03DD	B.N.R.R. A-3-1		5230	--	8	1970	--	--	U	--	--	--	--	2162
131N087W06BCB1	D.BRINKMAN		560	80	24	1950	--	--	K	HC	--	1770	--	--
131N087W06BCB2	D.BRINKMAN		80	--	24	1953	60	--	S	--	--	--	--	--

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131N087W06DDB	T.ASBRIDGE JR.		103	--	4	1967	46	--	K	C	S	--	--	--
131N087W11CDD	E.TIBKE		220	5	6	1951	40	--	S	--	--	2700	9.0	--
131N087W12DAA	E.TIBKE		140	--	2	--	--	--	K	--	1	700	--	--
131N087W12DAB	E.TIBKE		140	--	5	1966	40	--	S	--	1	750	9.0	--
131N087W13ACD	E.FUCHS		200	--	4	--	30	--	S	--	--	1570	8.0	--
131N087W15DDC	J.NELSON		150	--	6	1943	30	--	K	--	--	525	8.0	--
131N087W19ACC	A.SAUER		75	--	5	1956	--	--	S	--	--	--	--	--
131N087W22DDA1	T.KOENIG		60	--	24	1961	20	--	S	--	P	750	--	--
131N087W22DDA2	T.KOENIG		60	20	24	1922	40	--	H	--	--	1650	10.0	--
131N087W28BCD	A.SCHADLER		246	--	5	1950	105	--	K	C	S	1450	10.0	--
131N087W28CDD	E.SCHADLER		326	--	5	1957	--	--	S	C	V	2200	--	--
131N087W30BDC1	J.STRIEGEL		90	--	6	1970	55	--	S	--	S	--	--	--
131N087W30BDC2	J.STRIEGEL		90	20	30	1920	20	--	H	--	S	1250	--	--
131N087W31BDA	M.HINDERER		336	--	5	1966	180	--	S	--	--	--	--	--
131N087W31DD	B.N.R.R. B-31-1		5460	--	8	1970	--	--	U	--	--	--	--	2437
131N087W32CDC	K.HINDERER		327	--	6	--	--	--	S	C	V	897	7.5	--
131N087W33CBA	M.HINDERER		317	--	5	--	--	--	S	C	V	1120	7.0	--
131N087W35AA	B.N.R.R. D-35-1		5320	--	8	1970	--	--	U	--	--	--	--	2362
131N088W01AAD	D.BRINKMAN		560	--	6	1950	30	--	K	C	S	--	--	--
131N088W03BAA	C.HILLIUS		120	--	4	1952	50	--	S	--	S	--	--	--
131N088W04BBB	A.HETLE		190	--	5	1966	35	--	S	--	--	--	--	--
131N088W05AAB	A.HETLE	228	217	--	4	1972	43	--	S	TR	V	--	--	--
131N088W05ABD	A.HETLE		180	--	5	1966	20	--	S	--	--	--	--	--
131N088W05BBA	BOESHANS BROS.		145	--	4	--	10	--	K	--	--	1500	8.0	--
131N088W07ADC	A.CAMPBELL		110	--	6	1963	50	--	S	--	--	--	--	--
131N088W07DA	C.BUNCH		80	58	4	--	53	--	S	TR	VS	--	--	--
131N088W10DCD1	G.HAUGE		36	--	24	1967	11	--	S	--	--	4800	7.5	--
131N088W10DCD2	G.HAUGE		65	--	6	1965	35	--	S	--	--	4200	7.5	--
131N088W10DCD3	G.HAUGE		175	--	6	1960	100	--	H	--	S	2900	--	--
131N088W14BCA	A.HAUGE		50	20	32	1939	20	--	K	--	--	1200	--	--
131N088W14CAD	A.HAUGE		72	20	24	1956	15	--	S	--	--	--	--	--
131N088W15AAD	E.HAUGE		50	--	6	1967	15	--	S	--	P	--	--	--
131N088W15ADD	E.HAUGE		98	--	6	1950	40	--	K	--	--	1100	--	--
131N088W24DAA	A.HAUGE		26	--	24	--	--	--	K	--	S	1100	--	--
131N088W25CCC	A.HAUGE		221	--	4	1947	60	--	S	--	S	--	--	--
131N088W28CAB	E.SABIN		100	--	5	1965	14	--	S	--	--	--	--	--
131N088W30CBA1	A.CAMPBELL		72	--	6	1968	--	--	S	--	S	4200	7.5	--
131N088W30CBA2	A.CAMPBELL		38	--	24	1955	18	--	H	--	--	700	--	--
131N088W30CBA3	A.CAMPBELL		40	--	24	1951	18	--	S	--	--	3600	7.5	--
131N088W31CAA	C.MISTELSKI		309	--	5	1965	--	--	S	--	--	--	--	--

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131N088W32ACC	C.MISTELSKI		206	--	5	1965	80	--	S	--	S	--	--	--
131N088W33BDC	E.SABIN		120	--	5	1957	40	--	S	--	S	725	9.0	--
131N089W04BAC1	H.RAFTESETH		185	--	4	1942	40	--	H	--	P	1800	12.0	--
131N089W04BAC2	H.RAFTESETH		100	--	4	1915	40	--	S	--	P	1500	8.0	--
131N089W04BAC3	H.RAFTESETH		140	--	4	1944	40	--	S	--	P	1400	8.0	--
131N089W04CC	H.RAFTESETH		158	136	4	1964	100	--	S	TR	VS	--	--	--
131N089W05BAB	J.RAFTESETH		108	90	4	1969	42	11-69	K	TR	VS	--	--	--
131N089W05BAC1	J.RAFTESETH		95	--	2	1910	50	--	U	--	--	--	--	--
131N089W05BAC2	J.RAFTESETH		106	--	4	1969	30	--	K	--	S	1310	10.0	--
131N089W08AAC	R.SCHMITZ		158	--	6	1916	118	--	K	--	--	1360	8.0	--
131N089W08ADB	R.SCHMITZ		153	--	6	1971	83	--	S	--	S	--	--	--
131N089W10BAA	D.BRODEHL		79	--	4	--	35	--	K	--	S	2900	10.0	--
131N089W18AAA1	V.HEUPEL		40	--	2	1948	--	--	H	--	--	620	9.5	--
131N089W18AAA2	V.HEUPEL		45	--	--	--	--	--	S	--	--	620	7.5	--
131N089W24CAB	H.PAYNE		176	--	4	1961	158	8-61	S	C	V	--	--	--
131N089W26CCA	C.BUNCH		130	100	4	1968	80	10-68	S	TR	6S	--	--	--
131N089W30AAA	NDSWC 4526	840	809	791	2	1973	322	7-73	U	FH	S	2330	13.0	2395
131N089W36DBD	C.MISTELSKI		195	--	5	1961	130	--	S	--	S	--	--	--
131N090W02CBB	R.DIETZ		240	--	4	--	--	--	H	--	--	1500	--	--
131N090W04CAA	R.HINTZ		230	--	4	1964	156	8-71	H	TR	S	1040	--	--
131N090W04DDC1	B.DIETZ		210	--	6	1912	60	--	H	TR	V	581	8.8	--
131N090W04DDC2	B.DIETZ		160	--	2	1915	120	--	S	--	--	875	9.0	--
131N090W09AAB	B.DIETZ		220	--	4	1955	--	--	S	--	--	800	9.5	--
131N090W09BCC	R.HINTZ		130	110	4	1952	--	--	S	--	--	1100	9.0	--
131N090W10CAD	B.DIETZ		285	--	4	1931	--	--	S	--	--	1450	10.0	--
131N090W11CCD	B.BIRDSALL		140	--	6	1959	18	--	S	--	--	--	--	--
131N090W15DBC	R.GAUGLER		136	118	4	--	--	--	S	--	--	--	--	--
131N090W19BBA	W.STRAUB		215	--	--	1944	100	--	H	--	--	1050	--	--
131N090W22BDD	R.GAUGLER		127	103	6	1959	--	--	H	--	--	1290	--	--
131N090W28BAA1	C.GAUGLER		85	--	4	1950	30	--	S	--	--	780	10.0	--
131N090W28BAA2	C.GAUGLER		66	--	4	1971	16	--	H	--	--	1000	--	--
131N090W28BAA3	C.GAUGLER		70	--	4	1959	40	--	S	--	--	--	--	--
131N090W34AAA	H.GAUGLER		60	--	5	--	14	--	H	--	--	2250	8.5	--
132N079W28BAA	J.WETZSTEIN		210	--	4	--	--	--	K	FH	VS	--	--	--
132N079W28BCC	J.WETZSTEIN	350	312	--	4	--	201	--	S	FH	VS	--	--	--
132N080W16CCC	NDSWC 8640	80	--	--	5	1973	--	--	U	--	--	--	--	1675
132N080W23ADB	USGS		17	--	--	1950	--	--	U	--	--	--	--	--
132N080W23BAC	USGS		25	--	--	1950	--	--	U	--	--	--	--	--
132N080W27DDD	NDSWC 8074	300	--	--	5	1971	--	--	U	HC	F	--	--	1670
132N080W32BBD	USGS		31	--	--	1950	22	-50	U	--	S	--	--	--

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132N080W32CDB	USGS		17	--	--	1950	--	--	U	--	--	--	--	--
132N080W34AAC1	E.HORNING		135	--	6	1971	25	--	S	--	6S	--	--	--
132N080W34AAC2	E.HORNING		110	--	6	1954	20	--	H	--	--	2300	--	--
132N080W35ABB	NDSWC 8073	380	--	--	5	1971	--	--	U	FH	V	--	--	1660
132N081W04CB	A.SCHWENGLER		180	--	2	--	--	--	K	--	--	--	--	--
132N081W13CC	G.HENDERSON		150	--	2	--	--	--	K	--	--	--	--	--
132N081W27ACC	T.LEINGANG		40	--	6	1967	16	--	H	--	G	1990	--	--
132N081W29BBB	NDSWC 4418	210	--	--	5	1971	--	--	U	51	S	--	--	1698
132N081W30AAC	NDSWC 4419	300	--	--	5	1971	--	--	U	51	R	--	--	1702
132N081W30CDC	NDSWC 4421	90	--	--	5	1971	--	--	U	FH	V	--	--	1713
132N081W30DBB	NDSWC 4420	240	--	--	5	1971	--	--	U	51	R	--	--	1701
132N081W34AD	N.LEINGANG		24	--	24	--	--	--	K	--	--	--	--	--
132N081W36ADB	J.SCHAF		120	100	2	1956	80	--	S	--	S	--	--	--
132N081W36CC	J.LEINGANG		80	--	2	--	--	--	K	--	--	--	--	--
132N082W09DCB	L.KAHL		96	67	5	--	20	--	S	--	S	--	--	--
132N082W09DDC	L.KAHL		96	67	5	1957	9	--	S	--	S	1850	7.5	--
132N082W09DDD	NDSWC 4415	100	--	--	5	1971	--	--	U	FH	V	--	--	1738
132N082W10CBB	NDSWC 4416	200	--	--	5	1971	--	--	U	51	S	--	--	1754
132N082W10CBC	NDSWC 4417	280	128	122	1	1971	16	11-71	U	51	R	916	8.0	1741
132N082W10CDD	NDSWC 8084	100	--	--	5	1971	--	--	U	FH	V	--	--	1746
132N082W10DDB	P.HENDERSON		40	--	4	1952	--	--	S	--	--	--	--	--
132N082W19BDD	NDSWC 4414	240	64	58	1	1971	16	11-71	U	51	6S	662	8.0	1780
132N082W19CAC	J.KRAFT		380	--	2	1960	--	--	S	--	--	--	--	--
132N082W30ADB	J.KRAFT		400	--	2	1963	180	--	K	FH	V	1090	--	--
132N083W05CBB	W.TERNES		200	--	4	--	20	--	K	--	S	1140	--	--
132N083W08DCD	CANNONBALL 3DRP		SW	--	--	--	--	--	--	--	--	--	--	--
132N083W09CCC	H.DISRUD		190	--	4	1963	12	--	K	--	--	--	--	--
132N083W10DAD	NDSWC 8090	100	--	--	5	1971	--	--	U	HC	F	--	--	1844
132N083W11CBA1	D.PORT		296	--	--	--	36	--	--	HC	VS	--	--	--
132N083W11CBA2	D.PORT		20	--	--	--	--	--	U	21	--	--	--	--
132N083W19CDC	WEINHANDL BROS.		104	--	--	1956	25	--	H	51	G	1670	--	--
132N083W29BBB	WEINHANDL BROS.		400	--	4	1967	5	12-71	S	FH	V	1760	--	--
132N083W29CCC	NDSWC 8091	280	243	237	1	1971	19	9-71	U	51	R	1150	10.0	1799
132N083W30AAC	WEINHANDL BROS		300	--	4	1961	10	--	S	--	--	--	--	--
132N083W30BCB	NDSWC 4409	300	212	206	1	1971	26	11-71	U	51	6S	1530	8.0	1814
132N083W30DCC	CANNONBALL XRP		SW	--	--	--	--	--	--	--	--	--	--	--
132N083W31BAA	NDSWC 8092	240	--	--	5	1971	--	--	U	51	R	--	--	1793
132N083W31BBB	NDSWC 8093	280	--	--	5	1971	--	--	U	51	S	--	--	1811
132N083W31DBA	NDSWC 4411	270	138	132	1	1971	16	11-71	U	51	R	877	8.0	1794
132N083W32BAB	PORCUPINE COM.	182	169	144	6	1970	35	8-70	P	51	R	--	--	--

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132N083W33AAD	NDSWC 4412	360	136	130	1	1971	96	11-71	U	51	S	--	--	1880
132N083W34DDA	NDSWC 8089	320	--	--	5	1971	--	--	U	51	S	--	--	1860
132N083W35DDC1	NDSWC 8088	300	290	284	1	1971	60	9-71	U	51	R	1700	8.0	1822
132N083W35DDC2	NDSWC 8088A	100	93	87	1	1971	54	9-71	U	51	R	858	7.0	1822
132N083W36CCC	NDSWC 8087	320	--	--	5	1971	--	--	U	51	R	--	--	1823
132N084W01CCD	NDSWC 8648	100	--	--	5	1973	--	--	U	--	--	--	--	1886
132N084W01DAA	NDSWC 4406	340	68	62	1	1971	39	11-71	U	51	S	558	8.0	1864
132N084W01DDC	NDSWC 8645	300	--	--	5	1973	--	--	U	--	--	--	--	1876
132N084W06CCC	NDSWC 4398	240	170	164	1	1971	88	11-71	U	C	V	2390	9.0	2049
132N084W07BAB	G.SCHAEFBAUER		160	--	4	--	--	--	K	--	S	1400	--	--
132N084W07DD	B.N.R.R. F-7-1		4790	--	8	1970	--	--	U	--	--	--	--	2054
132N084W12AAA	NDSWC 8646	100	--	--	5	1973	--	--	U	--	--	--	--	1904
132N084W12BAA1	NDSWC 8647	325	--	--	5	1973	--	--	U	--	--	--	--	1873
132N084W12BAA2	NDSWC 8647A	100	81	78	1	1973	36	7-73	U	51	S	--	--	1873
132N084W12CCD	NDSWC 4407	330	216	210	1	1971	40	11-71	U	51	S	1610	8.0	1841
132N084W15DD	N.P.R.R. 1-15		4658	--	8	1966	--	--	U	--	--	--	--	1950
132N084W16DAA	NDSWC 4518	680	396	378	2	1973	146	7-73	U	FH	S	1770	10.0	1973
132N084W19DAD	H.KRAFT		94	--	2	--	29	--	K	--	2G	3000	--	--
132N084W20ACC	M.KOPP		80	80	2	--	60	--	K	--	S	1400	--	--
132N084W25BAB	NDSWC 4408	100	--	--	5	1971	--	--	U	HC	FV	--	--	1836
132N084W27AAA	R.TERNES		120	50	24	--	50	--	K	--	--	1700	--	--
132N084W31DAA	P.TISHMACK		160	--	4	--	27	--	K	--	S	1060	--	--
132N085W04DAC1	J.BRAUN		200	40	6	1971	162	--	K	--	S	--	--	--
132N085W04DAC2	J.BRAUN		167	--	2	--	130	--	K	--	S	950	--	--
132N085W10CCC1	M.MILLER		280	230	4	--	152	--	K	--	S	900	8.0	--
132N085W10CCC2	M.MILLER		180	--	24	1928	151	--	S	--	S	--	--	--
132N085W11DBC	A.HERSCH		265	--	4	--	60	--	S	--	--	--	--	--
132N085W12CCC1	A.HERSCH		290	--	4	--	80	--	K	--	2S	2230	--	--
132N085W12CCC2	A.HERSCH		260	--	5	--	50	--	S	--	2S	--	--	--
132N085W12CCC3	A.HERSCH		93	90	24	--	--	--	S	--	--	--	--	--
132N085W14DCC1	B.TERNES		260	190	3	1942	60	--	K	--	S	3000	--	--
132N085W14DCC2	B.TERNES		50	--	24	--	--	--	S	--	P	--	--	--
132N085W17BDB1	L.MILLER		68	--	24	1969	53	--	K	--	S	1150	--	--
132N085W17BDB2	L.MILLER		45	--	1	--	25	--	S	--	S	1650	8.0	--
132N085W19BCC	L.MILLER		80	70	--	1969	30	--	S	--	--	875	8.0	--
132N085W22AAA	L.TERNES		110	--	5	1956	15	--	K	--	S	1100	--	--
132N085W26DCA	L.KOCH JR.		190	--	6	1965	--	--	S	--	--	1230	--	--
132N085W26DDB	L.KOCH JR.		290	--	6	--	--	--	K	--	--	3500	--	--
132N085W27BB	B.N.R.R. G-27-1		5014	--	8	1970	--	--	U	--	--	--	--	2136
132N085W28BCB	A.RIEHL		180	--	6	1971	--	--	S	--	--	550	--	--

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 MEASURED	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	SPECIFIC CONDUCT-ANCE (μMHOS/CM @ 25°C)	TEM-PER-ATURE (°C)	ALTI-TUDE OF LSD (FT)
132N085W29ADA	A.RIEHL		210	180	6	--	--	--	H	--	--	475	--	--
132N085W30CBB1	H.SCHREINER		100	--	24	--	--	--	S	--	--	1520	--	--
132N085W30CBB2	H.SCHREINER		300	--	6	--	--	--	K	--	--	1200	--	--
132N086W03DBC	E.RIEHL		105	--	6	1965	50	--	S	--	--	850	8.0	--
132N086W04CAA1	E.BACHMEIER		140	--	8	--	--	--	H	--	--	1100	--	--
132N086W04CAA2	E.BACHMEIER		130	--	6	1971	105	--	S	--	--	1200	8.0	--
132N086W04DAC	E.RIEHL		135	102	6	1946	53	--	K	--	S	2400	--	--
132N086W07ACD	M.HARTMAN		80	--	6	1959	--	--	S	--	S	550	8.0	--
132N086W09DBD	E.RIEHL		125	--	6	1960	45	--	S	--	--	--	--	--
132N086W10CDA	M.NAGEL		32	--	24	--	6	--	K	--	--	2700	9.0	--
132N086W13CAB1	J.DEICHERT		180	160	6	1967	100	--	H	--	S	2900	--	--
132N086W13CAB2	J.DEICHERT		80	40	24	1956	20	--	S	--	--	2100	8.5	--
132N086W15CAC	M.GROSZ		180	--	6	1961	70	--	S	--	S	--	--	--
132N086W15DBD1	M.GROSZ		100	--	6	--	40	--	S	--	9S	925	8.0	--
132N086W15DBD2	M.GROSZ		35	--	24	--	15	--	K	--	--	950	7.5	--
132N086W15DBD3	M.GROSZ		25	--	6	--	10	--	S	--	--	1370	8.5	--
132N086W16AAA	E.BACHMEIER		140	--	6	1970	--	--	S	--	--	--	--	--
132N086W17ADD	M.GROSZ		200	--	6	1968	80	--	S	--	--	--	--	--
31 132N086W17DD	B.N.R.R. 17-1		5160	--	8	1970	--	--	U	--	--	--	--	2107
132N086W18AAC1	M.HARTMAN		70	--	24	1967	50	--	S	--	S	1800	8.5	--
132N086W18AAC2	M.HARTMAN		110	--	6	1959	60	--	H	--	--	930	--	--
132N086W18ACA	M.HARTMAN		70	--	24	1963	--	--	S	--	S	600	7.5	--
132N086W20BAD	W.WOODBURY		180	--	6	--	--	--	S	--	--	--	--	--
132N086W22AAC1	M.M.DEICHERT		210	--	6	1961	15	--	K	--	S	3000	--	--
132N086W22AAC2	M.M.DEICHERT		176	--	4	1962	--	--	S	--	S	2350	8.5	--
132N086W21BCB	W.WOODBURY		--	--	--	--	F	-71	S	TR	--	1180	9.5	--
132N086W24ABD1	O.DALLY		65	--	8	--	8	--	H	--	9S	--	--	--
132N086W24ABD2	O.DALLY		50	--	24	--	2	--	S	--	S	950	7.5	--
132N086W24ABD3	O.DALLY		50	--	8	--	12	--	H	--	S	1240	--	--
132N086W30BDD1	W.WOODBURY		60	--	24	--	42	--	H	--	S	1950	--	--
132N086W30BDD2	W.WOODBURY		50	--	24	--	--	--	S	--	--	2200	8.5	--
132N086W30BDD3	W.WOODBURY		30	--	24	--	20	--	S	--	--	1900	8.5	--
132N086W32DDD	L.STEWART		120	--	6	1951	20	--	K	--	--	1250	--	--
132N087W03DDB	V.STURAIN		112	85	4	1963	78	11-63	S	C	US	--	--	--
132N087W10ABD	J.HINTZ		235	--	4	1950	100	--	S	--	S	--	--	--
132N087W11AAA	J.HINTZ		110	--	5	1959	--	--	S	--	P	1020	9.0	--
132N087W14DDC	J.HINTZ		26	--	24	1946	13	--	S	--	P	--	--	--
132N087W20DDC	R.KAUFFMANN		190	--	5	1945	15	--	K	--	S	1500	10.0	--
132N087W23CBA1	E.WINGENBACH		90	--	5	1961	20	--	H	--	S	1400	--	--
132N087W23CBA2	E.WINGENBACH		60	20	42	--	33	11-71	S	--	P	1300	8.5	--
132N087W26BDB	J.WINGENBACH		170	--	2	1952	60	--	K	--	S	1650	--	--

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132N087W26CCB	NDSWC 8104	100	--	--	5	1971	--	--	U	HC	F	--	--	2007
132N087W27ABA	S.HARTMAN		170	--	4	1951	--	--	K	--	--	1550	--	--
132N087W27ADA	NDSWC 4491	700	180	168	2	1972	11	12-72	U	HC	V	1770	9.5	2010
132N087W27DAA	S.HARTMAN		135	--	4	1920	4	--	S	--	--	--	--	--
132N087W28AAD	S.HARTMAN		135	--	4	1962	6	--	S	--	--	1600	9.5	--
132N087W29AAA	R.BRINKMAN		180	--	2	--	--	--	K	--	--	1700	--	--
132N087W29AAB	R.BRINKMAN		200	--	4	1949	--	--	K	--	--	1520	--	--
132N087W34BAB	G.WELLS		150	--	4	1962	25	--	H	--	S	1600	--	--
132N087W34BAD	C.WELLS		150	--	2	1960	25	--	K	--	S	1600	10.0	--
132N088W03DBD	D.ZELLER		302	--	6	1961	--	--	S	--	--	--	--	--
132N088W04CBB	NDSWC 4528	1140	--	--	7	1973	--	--	U	--	--	--	--	2092
132N088W04CBC	R.ZACHER		90	--	3	1961	--	--	S	--	--	--	--	--
132N088W05DDD	R.ZACHER		54	--	18	1959	25	--	K	--	--	1900	10.0	--
132N088W11ACB1	R.HEHN		68	--	4	1941	18	10-71	K	--	1	2000	10.0	--
132N088W11ACB2	R.HEHN		68	--	2	1918	--	--	S	--	1	2000	7.0	--
132N088W11ACB3	R.HEHN		70	--	2	--	20	--	S	--	1	--	--	--
132N088W22DAC	G.FRIED		148	--	4	1948	15	--	K	C	S	4680	8.0	--
132N088W27DBA1	J.HILLIUS		260	--	4	1948	--	--	H	--	--	1500	--	--
132N088W27DBA2	J.HILLIUS		30	--	3	1955	10	--	S	--	--	2750	8.5	--
132N088W28DBB	L.HORST		38	--	24	1970	--	--	S	--	--	4000	8.0	--
132N088W29ADB	D.HILLIUS		200	--	5	1961	12	--	K	--	F	4200	9.0	--
132N088W30CBA	C.HILLIUS		33	--	24	1967	20	--	S	--	S	--	--	--
132N088W31DBD	BOESHANS BROS.		171	--	5	--	F	--	S	--	--	--	--	--
132N088W32ABA	H.RIVINIUS		160	--	2	1926	--	--	K	C	S	--	--	--
132N088W32DCD	A.HETLE		210	--	2	1938	--	--	K	--	--	1400	8.0	--
132N088W33ABD1	W.LINK		80	--	6	1929	30	--	S	--	--	3700	6.0	--
132N088W33ABD2	W.LINK		260	--	6	1948	90	--	H	--	--	1800	9.0	--
132N088W34CAD	F.LIEDTKE		172	--	4	1963	80	11-63	K	C	VS	--	--	--
132N088W34DAB1	C.HILLIUS		180	--	4	1947	60	--	H	--	S	1560	8.0	--
132N088W34DAB2	C.HILLIUS		75	--	2	--	20	--	S	--	S	2000	7.5	--
132N089W02CAB	H.ROSIN		290	--	4	1958	--	--	K	--	S	1500	10.0	--
132N089W04CCC1	H.MOREY		220	--	2	--	49	--	H	--	--	3000	9.0	--
132N089W04CCC2	H.MOREY		34	--	24	1968	14	--	S	--	--	5800	--	--
132N089W04CCC3	H.MOREY		111	--	4	1961	85	10-61	S	TR	V	--	--	--
132N089W06DDC	E.WUTZKE		150	125	4	--	60	--	S	TR	VS	--	--	--
132N089W08ABA	H.MOREY		130	--	6	--	60	--	S	--	--	2100	9.0	--
132N089W09DAB	R.HOCHHALTER		150	--	4	1961	30	--	K	--	--	2850	--	--
132N089W09DD	R.HOCHHALTER		170	--	4	1963	145	10-63	K	TR	VS	--	--	--
132N089W14CBA	H.KEIERLEBER		285	--	2	1920	60	--	K	C	--	1560	11.0	--
132N089W16BAA	E.WEGNER		139	--	4	1966	130	--	S	--	--	2260	9.0	--
132N089W14CBB	H.KEIERLEBER		240	--	8	1973	--	--	K	TR	--	--	--	2390

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132N089W16CDA	R.HOCHHALTER		87	--	3	--	--	--	S	--	--	2490	8.0	--
132N089W18ADD	H.STELTER		158	--	2	1923	58	--	H	--	--	2200	--	--
132N089W18BDC	H.STELTER		110	92	6	1964	30	--	S	--	--	1900	--	--
132N089W19CCC	M.CARLSON		120	99	3	1968	6	6-68	S	TR	VS	--	--	--
132N089W22CCC1	R.RIVINIUS		112	--	4	--	40	--	K	TR	V	1100	9.0	--
132N089W22CCC2	R.RIVINIUS		80	--	18	--	40	--	U	--	--	--	--	--
132N089W22DCC	R.RIVINIUS		70	--	24	1969	32	--	S	--	--	--	--	--
132N089W25AD	C.HILIUS	263	247	--	4	1972	36	--	K	TR	S	--	--	--
132N089W25CCA	A.OTTO		16	--	6	1958	6	--	S	--	--	1150	8.0	--
132N089W26ACD	A.OTTO		158	--	6	1964	100	--	K	--	--	1290	9.0	--
132N089W28DDC1	E.WEGNER		73	--	4	1963	43	--	H	--	--	1350	--	--
132N089W28DDC2	E.WEGNER		93	--	4	1960	68	--	S	--	--	1390	--	--
132N089W32BAA1	R.WEISHAAR		40	--	6	--	12	--	K	--	--	1250	7.0	--
132N089W32BAA2	R.WIESHAAR		132	--	4	1961	110	10-61	S	TR	V	--	--	--
132N090W02CCB	D.BIRDSALL		80	--	4	--	29	--	H	--	--	550	--	--
132N090W04CCB1	A.BRANDNER		200	--	4	--	70	--	H	--	--	1150	--	--
132N090W04CCB2	A.BRANDNER		200	--	8	1953	--	--	H	--	--	1380	--	--
132N090W06CCC	D.SEIDLER		120	--	4	--	50	--	S	--	--	5200	8.5	--
132N090W06DDA	D.HOFFMAN		250	--	4	1962	--	--	H	--	--	1120	9.5	--
132N090W07BBB	D.SEIDLER		120	--	4	1965	50	--	H	--	S	1500	--	--
132N090W08ADA	R.SCHWEINFORTH		200	--	4	1933	--	--	U	--	--	--	--	--
132N090W10BBA	R.GIETZEN		200	--	4	--	140	--	H	--	--	1390	--	--
132N090W13CCC	W.EISENBARTH		120	--	4	1967	75	9-71	H	--	--	2250	--	--
132N090W14AAB1	NDSWC 4527	640	314	308	2	1973	158	7-73	U	C	V	1890	--	2340
132N090W14AAB2	NDSWC 4527A		90	84	1	1973	12	7-73	U	TR	V	2620	--	2340
132N090W20CBB1	R.HOCHHALTER		60	--	6	--	--	--	H	--	--	1250	--	--
132N090W20CBB2	R.HOCHHALTER		80	70	6	1950	20	--	S	--	--	525	8.5	--
132N090W26ACC	W.LIEDTKE		160	--	4	1929	50	--	H	--	--	1700	--	--
132N090W30DDD1	B.BIRDSALL		100	--	3	--	--	--	H	--	--	490	--	--
132N090W30DDD2	B.BIRDSALL		100	80	6	1948	10	--	S	--	--	450	8.5	--
132N090W31CCD1	T.LIPPERT		150	--	6	--	20	--	H	TR	--	1290	--	--
132N090W31CCD2	T.LIPPERT		125	--	6	1958	20	--	S	--	--	--	--	--
132N090W34ABB1	F.LIEDTKE		54	--	4	1926	9	--	S	--	--	1100	9.5	--
132N090W34ABB2	F.LIEDTKE		172	--	4	1963	52	--	H	--	--	1120	--	--
133N079W02CBB	NDSWC 8635	180	--	--	5	1973	--	--	U	--	--	--	--	1680
133N079W06ACC	USGS		34	--	--	1950	--	--	U	--	--	--	--	--
133N079W06BCB	NDSWC 8068	80	--	--	5	1971	--	--	U	FH	V	--	--	1720
133N079W07DCD	NDSWC 8072	60	--	--	5	1971	--	--	U	HC	F	--	--	1790
133N079W07DD	M.STOLTZ		190	--	4	--	--	--	S	FH	V	--	--	--
133N079W08CAB	J.STOLTZ		190	--	2	--	150	--	S	--	9S	--	--	--

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133N079W08CAD	J.STOLTZ		220	--	2	1927	190	--	H	--	--	--	--	--
133N079W11BAA	NDSWC 8636	20	--	--	5	1973	--	--	U	--	--	--	--	1718
133N079W17BDC	P.THOMAS		180	--	4	1959	100	--	K	--	S	4200	--	--
133N079W27BD	ALLOT		--	--	24	1955	F	4-59	S	FH	V	2380	8.0	--
133N079W29AAB	T.FISCHER		90	--	4	1968	30	--	K	--	S	3200	--	--
133N079W29ABA	NDSWC 8639	160	113	107	1	1973	27	7-73	U	51	S	2630	10.0	1680
133N079W33DAC	O.GULLICKSON		190	--	6	1962	130	--	H	--	--	700	--	--
133N080W01DDD	NDSWC 8069	100	61	55	1	1971	59	1-72	U	51	R	--	--	1715
133N080W03BC	R.WHEELER		100	--	2	--	--	--	K	--	--	--	--	--
133N080W11CA	J.DILLMAN		165	--	2	--	--	--	S	--	--	--	--	--
133N080W12ACB	K.MAGILKE		150	--	2	--	--	--	S	--	--	--	--	--
133N080W12DDD	NDSWC 8070	160	134	128	1	1971	72	8-71	U	51	G	2210	7.0	1730
133N080W13BAB1	K.MAGILKE		190	--	2	--	150	--	H	--	--	3300	--	--
133N080W13BAB2	K.MAGILKE		160	--	2	--	--	--	S	--	--	--	--	--
133N080W13DDA	NDSWC 8071	160	150	144	1	1971	86	1-72	U	FH	Y	--	--	1760
133N080W14DCD	USGS		32	--	--	1950	18	-50	U	--	--	--	--	--
133N080W15DD	M.FROELICH		185	--	2	--	--	--	K	--	--	--	--	--
133N080W24CB	A.GIEGER		145	--	3	--	--	--	K	--	--	--	--	--
133N080W31CCD1	NDSWC 8644	300	180	168	1	1973	67	7-73	U	FH	V	687	8.5	1770
133N080W31CCD2	NDSWC 8644A	100	94	88	1	1973	66	--	U	51	S	--	--	1770
133N080W34DC	P.PFLEGER		160	--	2	--	--	--	S	--	--	--	--	--
133N081W04AA	L.GOLDSTEIN		160	--	2	--	--	--	K	--	--	--	--	--
133N081W13DCC1	W.BEMENT		120	--	4	--	--	--	K	--	P	750	--	--
133N081W13DCC2	W.BEMENT		90	--	2	--	--	--	S	--	--	--	--	--
133N081W24ABB	W.BEMENT		120	--	4	1965	--	--	S	--	S	--	--	--
133N081W35DCB	J.KARY		210	--	2	--	--	--	K	FH	V	2270	--	--
133N082W14CBA	USGS		23	--	--	1950	--	--	U	--	--	--	--	--
133N082W14CBB	USGS		22	--	--	1950	--	--	U	--	--	--	--	--
133N083W05DCC	NDSWC 8653	60	--	--	5	1973	--	--	U	--	--	--	--	1873
133N083W06CDD	E.BORNHOEFT		307	--	2	1925	--	--	K	FH	V	1330	--	--
133N083W07CCB1	NDSWC 4399	320	124	118	1	1971	26	11-71	U	51	S	1710	8.5	1885
133N083W07CCB2	F.FRAASE		120	--	2	1955	12	--	K	--	S	1450	--	--
133N083W08BBB	NDSWC 8652	300	--	--	5	1973	--	--	U	--	--	--	--	1867
133N083W12ADA1	NDSWC 8655	240	230	218	1	1973	+1	7-73	U	FH	S	2170	10.0	1764
133N083W12ADA2	NDSWC 8655A	100	84	78	1	1973	5	7-73	U	51	S	1590	8.0	1764
133N083W14BBB	NDSWC 8654	260	--	--	5	1973	--	--	U	--	--	--	--	1800
133N083W17CBB	NDSWC 4400	300	--	--	5	1971	--	--	U	51	S	--	--	1882
133N083W17DAA	NDSWC 4401	320	244	238	1	1971	29	11-71	U	51	S	1900	8.5	1842
133N083W19BBB	L.CHADWICK		160	--	2	--	35	--	K	--	--	2600	--	--
133N083W21AAA	NDSWC 4403	100	--	--	5	1971	--	--	U	FH	V	--	--	1854

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133N083W21ABB	NDSWC 4402	340	84	78	1	1971	21	11-71	U	51	S	2290	8.0	1857
133N083W26CC	L.KELSTROM NO.1		6800	--	9	1953	--	--	U	--	--	--	--	1983
133N083W28AAB	NDSWC 4404	360	98	92	1	1971	39	11-71	U	51	S	2210	8.0	1867
133N083W28DCD	NDSWC 4405	240	165	159	1	1971	65	11-71	U	51	S	1850	8.0	1872
133N083W32DAA	W.TERNES		160	--	4	--	--	--	S	--	--	1100	--	--
133N083W33DDC	NDSWC 8649	160	--	--	5	1973	--	--	U	--	--	--	--	1862
133N083W34CBC2	E.LA DUKE		310	150	4	1966	70	--	K	FH	S	1560	--	--
133N083W34CBC1	E.LA DUKE		213	--	--	--	--	--	U	HC	S	585	--	--
133N083W35CBB	E.LA DUKE		211	--	2	--	--	--	S	--	S	--	--	--
133N083W35DDA	E.LA DUKE		265	100	4	1961	20	--	S	--	--	--	--	--
133N084-02CAC	L.FRANK		50	--	24	1948	17	--	K	--	--	1600	--	--
133N084W01DCC	NDSWC 8650	220	99	93	1	1973	24	7-73	U	51	G	1170	8.0	1899
133N084W02CDD	L.RENKIN		319	290	4	1970	100	7-70	K	FH	4S	--	--	--
133N084W03DAD	NDSWC 8651	120	--	--	5	1973	--	--	U	--	--	--	--	1933
133N084W04DBB1	L.ZINS		150	--	2	1963	28	--	K	--	S	2150	--	--
133N084W04DBB2	L.ZINS		40	--	24	--	--	--	S	--	--	1650	--	--
133N084W22DCA1	W.SCHAFF		260	--	4	1969	160	--	H	--	S	3700	--	--
133N084W22DCA2	W.SCHAFF		117	--	36	--	100	--	S	--	S	4500	--	--
133N084W24DAA	E.SARDESON		170	--	2	1945	--	--	K	--	S	2800	--	--
133N084W27DAB	H.MATTHIESEN		264	--	4	--	--	--	K	--	S	2720	--	--
133N084W29BAA	B.VOLK		85	80	4	1961	71	--	K	--	S	1200	--	--
133N084W30AAA	NDSWC 4397	220	--	--	5	1971	--	--	U	C	V	--	--	2305
133N084W30DAD	B.VOLK		225	--	4	--	--	--	S	--	--	--	--	--
133N085W04ABD	W.CHRISTENSEN		190	30	4	1967	50	--	S	--	S	790	7.5	--
133N085W06CBB	J.MEYER		58	--	24	--	--	--	K	C	--	--	--	--
133N085W08BCC1	M.KLEIN		310	--	4	1965	--	--	S	--	--	2550	8.0	--
133N085W08BCC2	M.KLEIN		210	--	3	1955	--	--	H	--	--	2400	11.0	--
133N085W10DCA1	T.DELZER		20	--	12	1952	14	--	H	--	S	1660	12.0	--
133N085W10DCA2	T.DELZER		147	--	6	1957	--	--	S	--	S	850	9.0	--
133N085W12AAD	NDSWC 4487	760	522	510	2	1972	183	12-72	U	FH	V	2270	7.0	2020
133N085W17AAA	V.KUNTZ		100	80	6	1962	60	--	S	--	--	--	--	--
133N085W19CDD1	J.LEINTZ		180	30	6	1970	--	--	K	--	G	2150	--	--
133N085W19CDD2	J.LEINTZ		135	30	6	1965	--	--	S	--	G	--	--	--
133N085W20CDD1	V.KUNTZ		140	40	6	1943	40	--	S	--	S	1050	7.5	--
133N085W20CDD2	V.KUNTZ		200	140	6	1961	130	--	K	--	S	1400	8.5	--
133N085W20CDD3	V.KUNTZ		45	--	24	--	20	--	S	--	P	1500	7.5	--
133N085W21CCC	V.KUNTZ		145	--	6	--	40	--	S	--	S	--	--	--
133N085W25CDD1	P.BACHMEIER		191	160	2	1959	130	--	S	--	S	960	6.5	--
133N085W25CDD2	P.BACHMEIER		187	170	4	1947	137	--	K	--	S	960	--	--
133N085W26CCC	NDSWC 4396	193	192	186	1	1971	182	11-71	U	C	V	--	--	2324

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133N085W28CBB1	T.RIEHL		270	--	2	1956	--	--	K	--	S	--	--	--
133N085W28CBB2	T.RIEHL		28	--	24	1948	18	--	K	--	G	--	--	--
133N085W29BAA	RIEHL BROS.		200	--	4	1966	--	--	S	--	2S	1450	8.0	--
133N085W29DAD	E.RIEHL		200	125	4	1961	90	--	K	--	2S	1250	--	--
133N085W32CCC	M.DEICHERT		120	--	6	--	--	--	K	--	--	1400	7.0	--
133N085W35BCB	E.LOEB		110	--	6	--	--	--	S	--	S	900	7.5	--
133N086W06BBB	NDSWC 8103	260	--	--	5	1971	--	--	U	HC	V	--	--	2397
133N086W11DAA1	J.TRAXEL		40	--	2	1961	--	--	H	--	--	890	--	--
133N086W11DAA2	J.TRAXEL		50	--	4	--	--	--	S	--	--	1160	8.0	--
133N086W14CAD1	L.BACHMEIER		65	--	24	1970	23	8-71	H	--	--	590	--	--
133N086W14CAD2	L.BACHMEIER		50	--	24	1968	13	--	S	--	--	1070	7.5	--
133N086W20CAB	R.BRINKMAN		172	129	4	1972	45	--	S	TR	V	--	--	--
133N086W20CAC	R.BRINKMAN		160	--	6	--	--	--	K	--	--	1760	--	--
133N086W32CAC1	J.HINTZ		226	--	2	1949	218	--	K	--	P	1400	--	--
133N086W32CAC2	J.HINTZ		110	--	24	1928	98	--	S	--	P	1080	--	--
133N086W34DCB	M.HARTMAN		90	--	24	1968	50	--	S	--	--	1400	8.0	--
133N086W35CDC	E.BACHMEIER		140	--	6	1954	--	--	S	--	--	1150	8.0	--
133N087W03DDB	C.BROWN		43	--	4	1972	18	--	S	TR	S	--	--	--
133N087W06BCD	R.SCHMIDTGALL		60	--	24	1970	40	--	S	--	S	--	--	--
133N087W06BDB	R.SCHMIDTGALL		90	--	6	--	--	--	U	--	S	--	--	--
133N087W06CAB	R.SCHMIDTGALL		28	--	24	--	22	--	S	--	S	1140	7.5	--
133N087W08AA	H.JOHNSON	83	67	57	4	1963	57	7-63	K	TR	V	--	--	--
133N087W08AAA	H.JOHNSON		60	--	4	1964	--	--	H	--	S	770	--	--
133N087W08ADA	E.SCHMITZ		108	--	--	--	75	--	K	--	--	630	9.0	--
133N087W08BBA	J.MEIDINGER		60	--	18	--	--	--	K	--	--	580	8.5	--
133N087W08CCC	R.KAMRATH		121	--	4	1961	105	11-61	--	TR	V	--	--	--
133N087W09DAC	D.STREIGEL		70	--	6	1963	30	--	S	--	S	640	8.5	--
133N087W10BCC	D.STREIGEL		80	60	4	1972	30	--	H	TR	S	--	--	--
133N087W10BCD	D.STREIGEL		70	--	6	1961	30	--	K	--	S	780	--	--
133N087W11ADA1	E.JOHNSON		80	--	4	1950	--	--	K	--	S	570	--	--
133N087W11ADA2	E.JOHNSON		80	--	4	--	--	--	S	--	S	780	--	--
133N087W12BCB	E.JOHNSON		80	--	4	1965	--	--	S	--	--	630	8.5	--
133N087W14CAA	C.PAGEL		60	--	24	1956	12	--	K	--	--	510	--	--
133N087W19ADA1	D.HILLIUS		60	--	6	1951	--	--	H	--	--	1200	--	--
133N087W19ADA2	D.HILLIUS		39	--	18	1956	--	--	S	--	S	1500	8.0	--
133N087W19ADA3	D.HILLIUS		49	--	24	--	--	--	U	--	S	--	--	--
133N087W22AAC1	B.ZELLER		75	--	24	1951	--	--	K	--	--	2900	--	--
133N087W22AAC2	B.ZELLER		50	--	48	--	--	--	S	--	--	1830	8.5	--
133N087W28CAD	E.SCHOCH		50	--	24	1969	--	--	S	--	S	--	--	--
133N087W30AAD	D.ZELLER		145	--	6	1969	--	--	H	--	--	1500	--	--

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133N087W33ABD	E.SCHOCK		97	--	24	1969	60	--	K	--	S	2340	--	--
133N088W01CDD	R.SCHMIDTGALL		203	--	6	1960	170	--	S	--	S	1170	--	--
133N088W01DAB	R.SCHMIDTGALL		87	--	6	1958	47	--	U	--	S	--	8.0	--
133N088W02DDD	R.SCHMIDTGALL		183	--	6	1969	130	--	K	--	S	1610	--	--
133N088W05BCD	A.RIVINIUS		130	--	6	1969	120	--	S	--	--	1610	--	--
133N088W05BDB1	A.RIVINIUS		120	--	6	1965	110	--	K	--	--	2060	--	--
133N088W05BDB2	A.RIVINIUS		120	--	4	--	110	--	U	--	--	--	--	--
133N088W06ADD	W.RIVINIUS		180	--	4	--	--	--	K	--	--	2070	--	--
133N088W12AAD	A.GUNSCH		203	--	--	1956	--	--	K	TR	S	1000	9.0	--
133N088W14DAC1	H.FRIED		120	--	2	1956	60	--	K	TR	S	1610	--	--
133N088W14DAC2	H.FRIED		110	--	2	1910	100	--	U	--	--	--	--	--
133N088W15ACB	J.WOLF		210	--	4	1964	16	--	H	C	P	--	--	--
133N088W17CC	A.ANDE.RIVINIUS	162	75	--	4	1963	70	4-63	S	C	VS	--	--	--
133N088W20DAD	W.RIVINIUS		70	--	4	1965	40	--	S	--	--	1820	9.5	--
133N088W22AAB	J.ROLL		100	--	6	1969	20	--	S	--	P	--	--	--
133N088W23BBA	J.ROLL		52	--	6	1957	11	--	H	--	S	790	--	--
133N088W25DCC	D.ZELLER		60	--	6	1958	--	--	S	--	--	--	--	--
133N089W01CAA	G.BERGMEYER		120	--	6	1956	--	--	S	--	P	1170	8.5	--
133N089W01CCB1	G.BERGMEYER		110	--	4	1956	50	--	K	--	P	1640	--	--
133N089W01CCB2	G.BERGMEYER		100	--	6	1956	45	--	S	--	P	1890	--	--
133N089W01CCB3	G.BERGMEYER		20	--	40	--	10	8-71	S	--	S	--	--	--
133N089W03ADC	L.WEIKUM		400	--	6	--	160	8-71	K	--	--	820	--	--
133N089W04DAD	NDSWC 4484	1300	612	588	2	1972	130	12-72	U	HC	--	1990	7.5	2120
133N089W05AAA1	W.WEIKUM		210	--	2	--	--	--	S	--	--	1750	--	--
133N089W05AAA2	W.WEIKUM		35	--	24	1967	15	--	H	--	--	890	--	--
133N089W06ABA	A.SPRECKER		88	--	5	--	--	--	U	TR	Z	--	--	--
133N089W06BBD1	B.WRUCK		80	--	4	1963	--	--	K	--	--	1980	--	--
133N089W06BBD2	B.WRUCK		80	--	--	--	--	--	S	--	--	1210	--	--
133N089W07DC	R.SWINDLER		162	--	4	1963	95	4-63	S	TR	VS	--	--	--
133N089W07DCA	R.SWINDLER		30	--	4	1959	--	--	S	--	--	590	8.5	--
133N089W07DCD	R.SWINDLER		200	--	6	1956	30	--	H	--	--	1900	--	--
133N089W11CAD4	A.ESLINGER		71	--	4	1963	32	10-63	K	TR	VS	--	--	--
133N089W11CAD1	A.ESLINGER		30	--	24	1954	20	--	H	--	--	825	--	--
133N089W11CAD2	A.ESLINGER		60	--	24	1961	4	--	S	--	--	2300	8.0	--
133N089W11CAD3	A.ESLINGER		65	--	24	1965	30	--	S	--	--	800	8.8	--
133N089W14BCD1	H.RICKETTS		80	--	4	1965	40	--	K	--	S	830	--	--
133N089W14BCD2	H.RICKETTS		50	--	50	1909	20	--	U	--	S	2130	--	--
133N089W15AAA	H.RICKETTS	77	73	56	4	1970	1	8-71	S	TR	VS	--	--	--
133N089W15ABB	NDSWC SHEEPCRK1		240	200	4	1970	78	3-70	P	TR	VS	1910	--	--
133N089W15ABC	NDSWC SHEEPCRK2	260	232	--	4	1970	76	3-70	P	TR	VS	--	--	--

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133N089W19CC	SWINDLER NO.1		4425	--	8	1969	--	--	U	--	--	--	--	2426
133N089W20CC	R.SWINDLER		121	--	4	1964	50	4-64	K	TR	VS	--	--	--
133N089W23ABB1	E.TIETZ		40	--	--	1953	10	--	S	--	--	900	--	--
133N089W23ABB2	E.TIETZ		21	--	24	1953	6	--	H	--	--	1490	--	--
133N089W25DBB	W.ZELLER		50	--	5	1935	20	--	S	--	--	510	9.0	--
133N089W26ACC	L.ZIMMERLE		80	--	4	1910	30	--	K	--	--	680	--	--
133N089W26DBB	W.ZELLER		180	--	2	--	--	--	H	--	--	--	--	--
133N089W28DD	R.TIETZ	51	41	9	4	--	40	--	S	TR	VS	--	--	--
133N089W28DDD	R.TIETZ		60	25	4	1970	20	9-70	S	TR	VS	--	--	--
133N089W29ABB	R.SWINDLER		140	--	4	1955	--	--	S	--	--	--	--	--
133N089W30CAA	I.DANIELS		120	--	6	--	30	--	S	--	--	1800	9.0	--
133N089W31ABB	I.DANIELS		130	--	6	--	30	--	S	--	--	1820	8.5	--
133N089W31BCC	I.DANIELS		60	--	6	--	--	--	S	--	--	1690	9.0	--
133N089W32BDA1	I.DANIELS		60	--	4	--	14	--	S	--	--	1425	9.0	--
133N089W32BDA2	I.DANIELS		146	--	6	--	108	9-71	S	TR	V	2360	--	--
133N089W32BDA3	I.DANIELS		117	--	24	1968	34	--	H	--	--	--	--	--
133N089W34BAB1	E.WUTZKE		260	--	6	1969	--	--	K	--	S	1500	--	--
133N089W34BAB2	E.WUTZKE		275	--	2	--	--	--	S	--	--	1620	9.0	--
133N089W34BAB3	E.WUTZKE		183	--	4	1970	36	--	K	TR	S	--	--	--
133N089W34BBA	E.WUTZKE		281	252	4	--	200	--	K	TR	VS	--	--	--
133N090W01AC	BEIRWAGEN 1		2339	--	8	1964	--	--	U	--	--	--	--	2339
133N090W03CC	C.KYT		101	51	4	1961	35	9-61	K	TR	Z	--	--	--
133N090W03DAD	M.MICHELSON		120	--	5	1966	40	--	K	--	--	610	--	--
133N090W05BCD1	W.ROTH		80	--	4	1961	65	--	K	--	1	1050	--	--
133N090W05BCD2	W.ROTH		75	--	4	1968	65	--	S	--	1	1110	9.5	--
133N090W07ABB	A.ZIMBELMAN		80	--	4	1963	18	--	K	--	--	1590	--	--
133N090W08BDB	E.ZIMMERMAN		25	--	--	--	--	--	K	--	--	940	--	--
133N090W09BCA1	M.ROTH		33	--	24	1965	15	--	H	--	S	1600	--	--
133N090W09BCA2	M.ROTH		34	--	24	1955	15	--	H	--	S	1340	--	--
133N090W09BCA3	M.ROTH		38	--	24	1960	15	--	S	--	S	2300	--	--
133N090W10BBA	L.MICHELSON		35	--	24	1969	12	--	H	--	S	1770	--	--
133N090W10BBB3	L.MICKELSON		120	60	4	--	43	1-64	K	TR	VS	--	--	--
133N090W10BBB1	L.MICHELSON		25	--	24	1964	18	--	S	--	S	780	--	--
133N090W10BBB2	L.MICHELSON		25	--	36	1958	18	--	S	--	S	1190	7.5	--
133N090W12ABC	E.DANIALS	320	202	--	4	1971	157	--	H	TR	V	--	--	--
133N090W14CDD1	E.IVARIE		36	--	6	1915	--	--	S	--	--	--	--	--
133N090W14CDD2	E.IVARIE		56	--	24	1958	20	--	H	--	--	950	--	--
133N090W20BAA	R.SWINDLER		130	--	4	1956	--	--	S	--	--	--	--	--
133N090W22CCB	O.HECKENLAIBLE		100	--	6	1920	60	--	H	--	--	1520	--	--
133N090W22DAA	A.HEUPEL		120	--	3	1948	--	--	K	--	--	1370	--	--

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 MEASURED	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	SPECIFIC CONDUCT-ANCE (µMHOS/CM @ 25°C)	TEM-PER-ATURE (°C)	ALTI-TUDE OF LSD (FT)
133N090W23ABB	E.IVARIE		120	--	5	1952	--	--	S	--	--	1200	9.0	--
133N090W23DAD	E.IVARIE		96	--	4	1961	12	--	S	TR	V	1350	9.0	--
133N090W26DAA	W.FISCHER		6	--	2	--	F	--	S	--	--	--	--	--
133N090W28CBD	A.ACKERMAN		100	--	3	1920	--	--	H	--	--	--	--	--
133N090W30CDD1	E.ROTH		180	--	2	--	60	--	S	--	--	--	--	--
133N090W30CDD2	E.ROTH		100	--	5	1952	50	--	S	--	--	1900	9.0	--
133N090W30CDD3	E.ROTH		140	--	5	1947	46	9-71	H	--	--	2350	--	--
133N090W30DCA1	A.HOFFMAN		120	--	4	--	30	--	S	--	--	--	--	--
133N090W30DCA2	A.HOFFMAN		160	--	4	1968	17	--	H	--	--	2850	--	--
133N090W33DAB	D.SEIDLER		102	--	4	1963	68	10-63	S	TR	V	1680	8.5	--
134N079W23C	F.OTIS		50	--	2	1912	--	--	H	21	S	648	8.5	--
134N079W26CC1	CANNONBALL NDAK		250	--	5	1929	--	--	U	FH	P	--	--	--
134N079W26CC2	OAK GROVE SCH		96	--	4	1934	--	--	P	FH	S	476	12.0	--
134N079W28AAC	O.BACKHAUS		130	--	4	1963	--	--	S	--	--	--	--	--
134N079W29CC	C.HAFF		150	--	2	--	--	--	K	--	--	--	--	--
134N079W29DDD	NDSWC 8066	180	68	62	1	1971	41	9-71	U	51	R	--	--	1690
134N079W32ABB	NDSWC 8067	140	71	65	1	1971	56	9-71	U	51	R	--	--	1690
134N079W32ADA	NDSWC 8931	245	--	--	5	1973	--	--	--	51	S	--	--	1685
134N079W32ADD	NDSWC 8929	340	288	282	1	1973	77	10-73	U	51	R	1670	9.0	1690
134N079W32BAB	R.REIDINGER		155	135	4	1972	135	--	S	FH	V	--	--	--
134N079W32BBA	NDSWC 8930	200	--	--	5	1973	--	--	U	51	R	--	--	1700
134N079W32DAD	NDSWC 8637	220	--	--	5	1973	--	--	U	--	--	--	--	1705
134N079W32DDD	NDSWC 8928	100	--	--	5	1973	--	--	U	51	R	--	--	1750
134N079W33CAA	O.BACKHAUS		195	175	4	1972	154	5-72	H	FH	V	--	--	--
134N079W33DAA	O.BACKHAUS		85	--	2	1960	30	--	K	--	S	925	--	--
134N079W33DC	P.HAFF		80	--	3	--	--	--	K	--	--	--	--	--
134N079W34CBB	NDSWC 8634	140	--	--	5	1973	--	--	U	--	--	--	--	1670
134N080W30CCD	NPRR	76	72	--	6	1952	38	10-52	P	FH	V	--	--	--
134N080W31BBA1	SOLEN NDAK	84	67	--	--	1924	50	12-24	P	FH	V	--	--	--
134N080W31BBA2	SOLEN NDAK		168	--	--	1971	--	--	P	FH	V	--	--	--
134N080W35ADA	NDSWC 8638	40	--	--	--	1973	--	--	U	--	--	--	--	1675
134N081W31CD	J.RHONE		208	--	2	--	--	--	K	--	--	--	--	--
134N082W36CDC	NDSWC 8085	100	--	--	5	1971	--	--	U	FH	V	--	--	1678
134N082W36CAD	CANNONBALL-BRE.		SW	--	--	--	--	--	--	--	--	--	--	--
134N082W36DCD	NDSWC 8086	340	157	145	2	1971	34	9-71	U	FH	V	2670	12.0	1711
134N085W03BBD	R.MILLER		280	--	4	--	--	--	K	C	Z	--	--	--
134N085W03BCC	NDSWC 4517	100	--	--	5	1973	--	--	U	--	--	--	--	2175
134N085W04AAC	J.SCHICK		65	--	24	1969	20	--	K	--	--	1500	--	--
134N085W04CDD1	W.VOGEL		32	--	60	1920	8	--	K	--	--	1580	--	--
134N085W04CDD2	W.VOGEL		80	--	24	1968	35	--	K	--	--	1700	--	--

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 MEASURED	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	SPECIFIC CONDUCTANCE (µMHOS/CM @ 25°C	TEMPERATURE (°C)	ALTITUDE OF LSD (FT)
134N085W04CDD3	W.VOGEL		50	--	24	1968	9	7-71	U	--	--	--	--	--
134N085W05BCA1	F.BLOCK JR.		40	--	24	1960	20	--	K	--	--	1480	7.0	--
134N085W05BCA2	LARK DEPOT		24	--	18	1953	5	7-53	H	--	--	--	--	--
134N085W05DCC	R.VANDENBURG		85	--	6	1955	19	--	K	--	--	1600	--	--
134N085W06AAD	A.BLOCK		50	--	6	--	--	--	K	--	--	4040	8.0	--
134N085W06BCC	NDSWC 8098	120	--	--	5	1971	--	--	U	L	W	--	--	2087
134N085W06DAA	C.VANDENBURG		37	--	--	--	--	--	K	--	--	5040	--	--
134N085W08CDC1	L.MICHELSON		165	--	5	1966	35	--	S	--	S	730	9.5	--
134N085W08CDC2	L.MICHELSON		85	--	24	1961	35	--	S	--	S	--	--	--
134N085W10AAA1	R.MILLER		35	--	24	1946	18	--	K	--	S	960	--	--
134N085W10AAA2	R.MILLER		35	--	24	1968	18	--	S	--	S	--	--	--
134N085W13DCA1	C.ERICKSON		250	--	3	1964	170	--	K	--	G	2780	--	--
134N085W13DCA2	C.ERICKSON		60	--	30	1936	35	--	S	--	G	6380	8.0	--
134N085W16CBB	W.VOGEL		80	--	24	1969	--	--	S	--	--	--	--	--
134N085W16DDB	J.VETTER		96	--	4	1961	30	--	S	--	--	--	--	--
134N085W17BAD1	M.MICHELSON		72	--	24	1955	--	--	H	--	--	970	--	--
134N085W17BAD2	M.MICHELSON		70	--	24	1968	--	--	S	--	--	2230	--	--
134N085W20BDD1	H.VANDENBERG		315	--	6	1949	--	--	H	--	--	720	--	--
134N085W20BDD2	H.VANDENBERG		60	--	36	--	30	--	S	--	--	1290	8.5	--
134N085W21BAB1	NDSWC 4516	1060	733	721	2	1973	277	7-73	U	FH	S	--	--	2200
134N085W21BAB2	NDSWC 4516A	403	398	392	2	1973	227	7-73	U	HC	S	--	--	2202
134N085W21BAB3	NDSWC 4516B		205	199	1	1973	138	7-73	U	C	S	1010	10.5	2204
134N085W22AAC1	J.VETTER		86	--	4	1971	40	--	K	--	--	1180	--	--
134N085W22AAC2	J.VETTER		150	--	4	--	--	--	K	--	--	1690	--	--
134N085W22DCA	J.VETTER		120	--	4	1964	50	--	S	--	--	--	--	--
134N085W23DDD	C.ERICKSON		220	--	4	1965	40	--	S	--	G	--	--	--
134N085W31CDD	J.MEYER		50	--	24	1954	20	--	H	--	G	600	--	--
134N085W32BCC	R.VANDENBURG		68	--	24	1932	65	--	K	--	S	510	--	--
134N085W32DBA	R.VANDENBURG		48	--	24	1959	20	--	S	--	S	490	8.5	--
134N086W06BBC	L.ARNDT		16	--	--	--	7	7-71	S	--	--	--	--	--
134N086W10DDB1	P.HAYTER		48	--	24	1967	26	--	H	--	--	2600	--	--
134N086W10DDB2	P.HAYTER		72	--	24	1961	--	--	S	--	--	2980	7.5	--
134N086W11BCC	R.HARMON		60	--	24	--	--	--	S	--	--	690	7.5	--
134N086W18BBD	L.LANDGREBE		80	--	24	1961	40	--	S	--	S	--	10.0	--
134N086W18BCC	L.LANDGREBE		60	--	6	1951	30	--	K	--	--	760	--	--
134N086W18CCA	L.LANDGREBE		30	--	6	--	20	--	S	--	S	2980	8.0	--
134N086W20DCB1	C.MUTSEHELKNAUS		80	--	18	--	--	--	K	--	--	650	--	--
134N086W20DCB2	C.MUTSEHELKNAUS		80	--	18	--	--	--	S	--	--	--	--	--
134N086W30ABC1	D.LAVACHEK		29	--	24	1957	10	8-71	H	--	S	730	--	--
134N086W30ABC2	D.LAVACHEK		28	--	24	1957	7	8-71	S	--	S	--	--	--

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134N087W01ADA1	L.HAUCK		28	--	5	1963	8	--	S	--	P	540	--	--
134N087W01ADA2	L.HAUCK		23	--	5	1950	7	--	U	--	P	560	9.5	--
134N087W01ADA3	L.HAUCK		22	--	18	1951	6	--	S	--	P	1700	--	--
134N087W02CCC	G.MC DOWALL		70	--	24	1966	41	--	K	--	S	500	--	--
134N087W03CAA	G.MC DOWALL		19	--	6	1956	9	--	S	--	S	--	--	--
134N087W04DCA1	A.SCHEERER		18	--	75	1906	10	--	K	--	S	1510	--	--
134N087W04DCA2	A.SCHEERER		12	--	2	1940	10	--	S	--	--	2380	10.0	--
134N087W04DCA3	A.SCHEERER		12	--	60	1930	10	--	S	--	--	1890	10.0	--
134N087W08ABD1	H.SAUTER		32	--	18	1961	11	--	H	--	S	610	--	--
134N087W08ABD2	H.SAUTER		20	--	50	1906	15	--	S	--	S	1390	10.0	--
134N087W08ABD3	H.SAUTER		32	--	24	1961	9	--	S	--	S	1300	8.0	--
134N087W08BBD1	F.VOLL		60	--	6	1963	--	--	H	--	S	730	--	--
134N087W08BBD2	F.VOLL		35	--	24	1912	5	--	S	--	S	820	--	--
134N087W09CBB1	E.SAUTER		25	--	36	1910	12	--	H	--	S	2090	--	--
134N087W09CBB2	E.SAUTER		37	--	8	--	8	--	S	--	S	1590	7.5	--
134N087W09DCB	J.SCHEERER JR.		27	--	24	1927	15	--	H	--	S	840	--	--
134N087W10CDC1	E.DIEHL		18	--	4	1963	--	--	H	--	S	1290	--	--
134N087W10CDC2	E.DIEHL		300	--	24	1965	--	--	S	--	--	1570	8.0	--
134N087W10CDC3	E.DIEHL		18	--	4	1953	--	--	S	--	--	1880	8.5	--
134N087W11BBC1	T.DIEHL		18	--	6	1946	14	--	H	--	S	670	--	--
134N087W11BBC2	T.DIEHL		50	--	6	1956	43	--	S	--	P	--	--	--
134N087W11BBC3	T.DIEHL		64	--	6	1967	49	--	S	--	S	530	--	--
134N087W11BBC4	T.DIEHL		54	--	24	1963	29	--	S	--	S	--	--	--
134N087W12ADD	E.LUTZ		40	--	--	--	14	--	K	--	--	3100	--	--
134N087W13BDD1	CITY OF CARSON		72	62	10	1951	32	--	--	--	V	--	--	--
134N087W13BDD2	CITY OF CARSON		70	60	12	1955	32	--	--	TR	V	756	8.0	--
134N087W13BDD3	CITY OF CARSON		80	--	24	--	30	--	--	--	V	--	--	--
134N087W13BDD4	CITY OF CARSON		90	--	24	1967	26	--	--	--	V	--	--	--
134N087W14BCC1	R.DIEHL		20	--	6	1946	8	--	H	--	S	1720	--	--
134N087W14BCC2	R.DIEHL		25	--	6	1948	8	--	S	--	S	1810	--	--
134N087W14BCC3	R.DIEHL		25	--	24	--	12	--	S	--	S	1170	8.5	--
134N087W18ABD1	W.SOKOLOFSKY		34	--	24	1963	19	--	H	--	S	600	--	--
134N087W18ABD2	W.SOKOLOFSKY		50	--	4	--	30	--	S	--	--	600	8.0	--
134N087W21AAA1	O.HIRNING		30	--	6	--	20	--	H	--	S	700	--	--
134N087W21AAA2	O.HIRNING		30	--	24	1964	20	--	S	--	--	1310	--	--
134N087W21AAA3	O.HIRNING		30	--	24	--	20	--	S	--	--	1090	8.0	--
134N087W21DDA1	K.EDINGER		20	--	24	--	12	--	H	--	S	1100	--	--
134N087W21DDA2	K.EDINGER		40	--	4	1968	15	--	H	--	1	680	9.0	--
134N087W21DDA3	K.EDINGER		32	--	24	1969	12	--	S	--	1	1650	7.5	--
134N087W21DDA4	K.EDINGER		30	--	4	1956	15	--	S	--	1	2120	8.5	--

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134N087W22BAB	E.ZELLER		55	--	26	--	--	--	H	--	V	730	--	--
134N087W22BBD	E.ZELLER		40	--	2	1962	--	--	S	--	--	600	--	--
134N087W23DCC	A.MATTIS		87	--	24	1965	60	--	S	--	--	1080	8.5	--
134N087W26BBA1	A.MATTIS		327	--	4	1947	40	--	H	--	--	1100	--	--
134N087W26BBA2	A.MATTIS		65	--	6	--	--	--	S	--	--	1050	8.5	--
134N087W26CAD1	G.SCHRIOCK		65	--	24	1968	45	--	K	--	S	880	--	--
134N087W26CAD2	G.SCHRIOCK		62	--	24	1964	42	--	S	--	S	1350	--	--
134N087W26CAD3	G.SCHRIOCK		68	--	6	1914	48	--	U	--	S	--	--	--
134N087W29CCC	M.HULM		120	--	4	--	--	--	K	--	--	730	8.5	--
134N087W30DDD	A.HAFNAR		120	--	4	1966	--	--	K	--	--	820	--	--
134N087W32DDD	K.EDINGER		60	--	6	--	--	--	U	--	--	--	--	--
134N087W33ABC	L.LANDGREBE		80	--	24	1966	40	--	S	--	S	560	8.5	--
134N088W02AAA	D.REDMAN		50	--	4	1952	12	--	S	--	P	590	8.0	--
134N088W05ADC	T.SCHUTZ		70	--	5	1966	--	--	S	--	--	--	--	--
134N088W05BDD	A.RIVINIUS	222	220	202	4	1969	--	11-69	S	TR	VS	--	--	--
134N088W06BDD1	L.ULMER		42	--	24	1965	27	--	H	--	S	1440	--	--
134N088W06BDD2	L.ULMER		170	--	2	1910	--	--	S	--	--	1750	8.5	--
134N088W10BAB	M.OKKEN		93	63	4	1964	38	11-64	K	TR	VS	--	--	--
134N088W11BCB	D.REDMAN		14	--	24	--	8	8-71	U	--	--	--	--	--
134N088W12AAB1	E.STOLLER		42	--	30	1966	12	--	H	--	G	610	--	--
134N088W12AAB2	E.STOLLER		20	--	65	1911	15	--	S	--	G	2200	8.0	--
134N088W13DCB	ROTH BROS.		125	--	6	1970	90	--	S	--	S	970	9.0	--
134N088W14CCC	W.HOOVER		175	--	4	1951	--	--	K	--	--	530	9.0	--
134N088W19DAC	B.HAAS		120	85	4	1967	--	--	K	TR	VS	--	--	--
134N088W20BBB	M.OKKEN		100	--	6	--	20	--	H	--	--	1960	--	--
134N088W22DDD1	W.KELLER		90	--	4	1969	40	--	K	--	G	820	--	--
134N088W22DDD2	W.KELLER		110	--	3	--	50	--	U	--	G	--	--	--
134N088W23CCC	W.KELLER		66	--	4	1968	40	--	S	--	G	1000	8.5	--
134N088W24BAC1	R.BECKER		190	--	--	--	--	--	H	--	--	1650	--	--
134N088W24BAC2	R.BECKER		30	--	26	--	27	--	S	--	--	3500	--	--
134N088W24BCC1	ROTH BROS.		125	--	6	1967	--	--	H	--	S	1170	--	--
134N088W24BCC2	ROTH BROS		48	--	18	1948	30	--	S	--	S	1510	8.0	--
134N088W24BCC3	ROTH BROS		48	--	6	1948	30	--	S	--	--	1290	--	--
134N088W26BBA1	A.BAUER		45	--	18	1959	27	--	H	--	S	1240	--	--
134N088W26BBA2	A.BAUER		72	--	2	1945	--	--	S	--	--	1330	9.0	--
134N088W31ABC	R.RIVINIUS		140	--	4	1931	80	--	K	--	S	1580	9.0	--
134N088W32BBB	E.OTTMAR		141	106	4	1964	75	11-64	H	TR	VS	--	--	--
134N089W02BBB	E.FISCHER		30	--	26	1920	11	--	K	--	--	5440	8.0	--
134N089W02CBC1	E.FROEMMING		65	--	28	1958	45	--	H	--	--	2410	--	--
134N089W02CBC2	E.FROEMMING		240	--	2	1910	80	--	S	--	I	1540	--	--

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134N089W04BCD1	J.SCHOCK		157	--	6	1963	60	--	K	TR	V	1170	--	--
134N089W04BCD2	J.SCHOCK		100	--	4	--	30	--	U	--	--	--	--	--
134N089W05BAA	E.ZIMMERMAN		56	--	24	1969	20	--	K	TR	V	--	--	--
134N089W07DDD	R.ISZLER		18	--	24	1968	6	--	S	--	I	--	--	--
134N089W09AAB1	R.GIESE		80	--	36	--	65	--	K	--	P	1250	--	--
134N089W09AAB2	R.GIESE		90	--	24	1970	65	--	S	--	P	2430	8.5	--
134N089W10ACD	H.SYMANOSKI		100	--	5	1951	--	--	K	--	--	1650	--	--
134N089W10CDB	W.SCHILLING		140	--	4	1951	50	--	K	--	--	2550	--	--
134N089W12ABA	L.NICKLAUS		35	--	60	1891	6	--	K	--	I	1560	--	--
134N089W14CBA	A.ESLINGER		10	--	40	--	3	--	S	--	--	1630	--	--
134N089W14CBB1	A.ESLINGER		17	--	18	1946	8	--	H	--	S	1430	--	--
134N089W14CBB2	A.ESLINGER		12	--	40	--	6	7-71	U	--	--	2060	8.5	--
134N089W14CBB3	A.ESLINGER		30	--	18	1951	15	--	U	--	--	--	--	--
134N089W16DCC	L.NAGEL		45	--	6	1956	25	--	S	--	--	1380	8.5	--
134N089W17DDB	H.FREY		90	--	24	1968	60	--	H	--	--	1250	--	--
134N089W17DDB	O.WUTZKE		161	145	4	1967	110	5-69	K	TR	VS	--	--	--
134N089W18BBD	R.ISZLER		190	--	4	1956	155	--	K	--	--	1640	--	--
134N089W18CDD	M.GRUEBELE		65	--	4	1940	--	--	K	--	--	1830	8.5	--
134N089W19DD	R.BADER		252	194	4	1961	75	7-61	K	TR	VS	--	--	--
134N089W21ACB1	L.NAGEL		45	--	6	1946	23	--	H	--	--	2040	--	--
134N089W21ACB2	L.NAGEL		50	--	6	--	30	--	S	--	--	1850	8.0	--
134N089W22BDD	ELGIN CITY TEST	876	876	--	--	1968	--	--	U	HC	VS	2150	--	--
134N089W22CBA	R.KOEHLER		106	--	4	1961	30	--	K	--	S	1760	--	--
134N089W22DBB1	CITY OF ELGIN		867	840	4	1968	60	--	P	HC	S	--	--	--
134N089W22DBB2	CITY OF ELGIN		68	60	6	--	40	--	P	--	--	--	--	--
134N089W22DBB3	CITY OF ELGIN		68	60	3	1967	40	--	P	TR	--	700	--	--
134N089W22DBD	CITY OF ELGIN		68	50	6	1956	40	--	P	--	--	--	--	--
134N089W23CAB	R.RIVINIUS		180	--	--	1966	--	--	H	--	--	1930	--	--
134N089W23CCB	NDSWC 4493	500	393	381	2	1972	200	12-72	U	C	V	--	--	2450
134N089W23DCD	M.DITTUS		233	--	4	1963	125	--	H	TR	V	1500	--	--
134N089W24CAA1	M.MATTIS		31	--	4	--	11	--	H	--	--	2200	--	--
134N089W24CAA2	M.MATTIS		134	--	4	--	18	--	S	--	--	2730	7.5	--
134N089W27ABC1	CITY OF ELGIN		69	49	3	1969	40	--	P	TR	S	1610	--	--
134N089W27ABC2	CITY OF ELGIN		68	--	4	1959	40	--	P	--	--	--	--	--
134N089W27ACB	W.BOYER		180	--	4	1955	--	--	K	--	--	2370	--	--
134N089W28BCA1	O.WUTZKE		130	--	2	--	--	--	H	--	--	2190	--	--
134N089W28BCA2	O.WUTZKE		130	--	2	1946	--	--	S	--	--	2000	9.0	--
134N089W32BDD	W.OTTMAR		131	--	4	1962	120	--	S	TR	V	--	--	--
134N089W35AAC1	C.LEVORSEN		140	--	3	1954	122	--	S	--	S	1330	--	--
134N089W35AAC2	C.LEVORSEN		140	--	3	--	122	--	S	--	S	740	--	--

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134N089W35AAD	C.LEVORSEN		240	--	4	1968	100	8-71	K	C	VS	3310	--	--
134N090W04DCC1	G.ALT		160	--	3	--	140	--	K	--	--	1600	--	--
134N090W04DCC2	G.ALT		26	--	6	1951	23	--	U	--	P	659	--	--
134N090W06CAA	L.KRAUSE		373	--	3	1932	120	--	K	--	--	--	--	--
134N090W07BCD	A.KALLIS		200	--	6	1945	--	--	K	--	--	1790	--	--
134N090W13ACA1	E.ISZLER		42	--	24	1939	30	--	S	TR	P	4840	7.0	--
134N090W13ACA2	E.ISZLER		160	--	4	1968	100	--	S	TR	S	4820	--	--
134N090W13CBC	E.ISZLER		15	--	8	1961	4	--	U	--	1	--	--	--
134N090W14BAA	H.ISZLER		225	--	6	1961	--	--	K	--	--	1630	--	--
134N090W14DAA1	F.SCHOCK		215	--	4	1970	100	--	K	--	S	1880	--	--
134N090W14DAA2	F.SCHOCK		80	--	4	1960	--	--	U	--	S	--	--	--
134N090W18CBC	E.KALLIS		169	--	5	1945	168	--	K	--	S	1370	--	--
134N090W20CDA	E.WRUCK		162	--	6	--	--	--	K	--	--	1560	--	--
134N090W20DAD1	S.SCHRAM		150	--	4	1968	27	--	K	--	S	2110	--	--
134N090W20DAD2	S.SCHRAM		60	--	24	1963	35	--	U	--	--	--	--	--
134N090W22BCA1	G.ISZLER		160	--	4	1968	52	--	K	--	S	1240	--	--
134N090W22BCA2	G.ISZLER		75	--	18	1954	50	--	K	--	S	--	--	--
134N090W22BCA3	G.ISZLER		70	--	18	--	50	--	S	--	S	--	--	--
134N090W23ADA	G.WELLER		242	--	4	1963	120	--	S	TR	S	1850	9.5	--
134N090W24BCA	A.ALT		215	--	2	1923	135	--	S	--	S	--	--	--
134N090W24DBC	G.WELLER		140	--	2	--	110	--	S	--	--	2230	8.5	--
134N090W25AAA	E.HEIM		130	--	4	1960	--	--	S	--	S	--	--	--
134N090W25BCC1	E.HEIM		40	--	4	1945	25	--	H	--	1	1170	--	--
134N090W25BCC2	E.HEIM		40	--	24	1930	25	--	S	--	1	1150	8.5	--
134N090W25BCC3	E.HEIM		55	--	--	1971	35	--	U	--	1	--	--	--
134N090W26ADC	W.ALT		22	--	36	--	18	--	K	--	--	1460	--	--
134N090W26DAD1	A.BIERWAGEN		150	--	4	1950	50	--	K	--	P	1870	--	--
134N090W26DAD2	A.BIERWAGEN		13	--	42	1900	10	--	S	--	1	2250	--	--
134N090W27ADA	A.RUB		125	--	2	--	--	--	K	--	--	1590	--	--
134N090W29DAD	H.SPRECHER		63	--	4	1941	40	--	K	--	--	3200	--	--
134N090W30DAC	R.SPRECHER		60	--	4	1967	30	--	H	--	--	1690	--	--
134N090W33CCB1	V.FRIESZ		56	--	24	--	28	--	H	--	--	4270	--	--
134N090W33CCB2	V.FRIESZ		68	--	24	--	34	--	S	--	--	5450	7.5	--
134N090W35ACD	N.SCHULZ		260	--	4	1971	120	--	S	--	--	1510	--	--
134N090W35CDB	N.SCHULZ		120	--	4	1964	60	--	S	--	S	--	--	--
134N090W35DAC	NEW LEIPZIG NR1		560	520	8	--	200	--	P	C	S	2050	--	--
134N090W35DBD	NEW LEIPZIG NR3		431	--	8	1967	150	--	P	C	--	--	--	--
134N090W36CBC	NEW LEIPZIG	900	880	820	8	1967	297	7-67	P	FH	VS	2000	--	--
134N090W36CCB	NEW LEIPZIG		285	--	--	--	--	--	P	C	--	--	--	--

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135N085W04DCD1	A.WEEKS JR.		37	--	24	1961	--	--	H	--	--	2530	--	--
135N085W04DCD2	A.WEEKS JR.		50	--	24	1961	--	--	S	--	--	1830	7.0	--
135N085W04DCD3	A.WEEKS JR.		40	--	24	1932	--	--	S	--	--	--	--	--
135N085W04DCD4	A.WEEKS JR.		45	--	24	1958	--	--	S	--	--	1740	7.5	--
135N085W05CDD	C.DANZEISEN		65	--	24	1961	11	--	K	--	--	700	8.0	--
135N085W06BCD	H.WAGNER		45	--	24	1969	--	--	S	--	--	770	8.0	--
135N085W06BDA1	H.WAGNER		45	--	24	1961	--	--	H	--	--	1240	--	--
135N085W06BDA3	H.WAGNER		36	--	24	1957	--	--	H	--	--	2280	--	--
135N085W06BDA4	H.WAGNER		12	--	48	1945	8	--	U	--	--	--	--	--
135N085W06DCC	H.WAGNER		45	--	24	--	--	--	S	--	--	790	7.0	--
135N085W06BDA2	H.WAGNER		40	--	30	--	8	7-71	U	--	--		--	--
135N085W08BBB1	C.DANZEISEN		40	--	24	1910	--	--	K	--	--	4090	--	--
135N085W08BBB2	C.DANZEISEN		36	--	24	1939	20	--	S	--	--	3580	6.5	--
135N085W08CCD	C.WERNER		31	--	24	1958	7	--	K	--	--	3690	--	--
135N085W10ACA1	G.MYRON		50	--	24	1969	18	--	H	--	--	1800	8.0	--
135N085W10ACA2	G.MYRON		30	--	24	--	17	--	S	--	--	1580	--	--
135N085W12CBD	R.BAY		70	--	24	--	55	--	H	--	--	990	9.0	--
135N085W14DDB	T.SCHAFER		165	--	--	1958	--	--	K	--	--	790	--	--
135N085W14DDD	T.SCHAFER		85	--	--	1959	--	--	S	--	--	--	--	--
135N085W17CCB1	W.WERNER		38	--	24	1958	18	--	H	--	--	670	--	--
135N085W17CCB2	W.WERNER		38	--	24	1952	18	--	H	--	--	680	--	--
135N085W17CCB3	W.WERNER		48	--	24	1950	24	--	S	--	--	1630	7.5	--
135N085W18BAA1	J.HLAVINKA		43	--	24	1961	26	7-71	K	--	--	815	--	--
135N085W18BAA2	J.HLAVINKA		50	--	24	1951	--	--	S	--	--	1400	8.5	--
135N085W18DDB	W.WERNER		38	--	24	1948	18	--	S	--	--	790	8.0	--
135N085W19DD	J.LUNTZ		88	--	24	1972	40	--	K	TR	8P	--	--	--
135N085W19DDA	T.GRIMM		10	--	36	1960	1	7-71	S	--	--	--	--	--
135N085W20BBC1	M.WERNER		38	--	24	1958	18	--	K	--	--	620	--	--
135N085W20BBC2	M.WERNER		44	--	24	1972	18	--	K	TR	8P	--	--	--
135N085W20BCC	T.GRIMM		84	--	24	1950	60	--	K	--	--	900	--	--
135N085W29CCC	F.BAY		48	--	24	1959	--	--	S	--	--	--	--	--
135N085W31BCD	F.BLOCK JR.		50	--	24	1958	25	--	S	--	--	--	--	--
135N085W32BBB1	F.BAY		38	--	24	1957	--	--	H	--	--	1750	--	--
135N085W32BBB2	F.BAY		81	--	24	1962	--	--	S	--	--	1490	8.0	--
135N085W34BCA1	L.KRAUS		480	--	--	--	--	--	S	--	--	1260	--	--
135N085W34BCA2	L.KRAUS		45	--	36	--	33	--	K	--	--	1560	--	--
135N086W02AAC1	H.WITHROE		45	--	10	1966	35	--	H	--	--	830	--	--
135N086W02AAC2	H.WITHROE		--	--	24	1951	27	--	S	--	--	540	8.5	--
135N086W02AAC3	H.WITHROE		28	--	--	--	18	--	U	--	--	--	--	--
135N086W02BDC1	G.BRUINGTON		62	--	24	1962	--	--	K	--	G	620	--	--
135N086W02BDC2	G.BRUINGTON		42	--	24	1960	16	--	S	--	G	770	8.5	--

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135N086W02BDC3	G.BRUINGTON		34	--	24	1970	15	7-71	U	--	G	--	--	--
135N086W02CCD	J.BOCHERT		45	--	24	--	13	--	S	--	--	--	--	--
135N086W04ADA1	B.THEURER		64	--	6	1966	20	--	K	--	--	640	--	--
135N086W04ADA2	B.THEURER		40	--	24	--	30	--	S	--	--	810	8.5	--
135N086W04CCA	B.THEURER		96	--	--	1966	--	--	S	--	--	--	--	--
135N086W07DDD	NDSWC 8102	280	--	--	5	1971	--	--	U	C	F	--	--	2165
135N086W10CCC1	A.WAGNER		32	--	24	1961	14	7-71	H	--	--	710	--	--
135N086W10CCC2	A.WAGNER		44	--	24	1963	--	--	S	--	--	495	9.0	--
135N086W10DDA1	A.SCHRIOCK		45	--	24	1961	10	--	H	--	--	620	--	--
135N086W10DDA2	A.SCHRIOCK		45	--	24	1961	10	--	S	--	--	2400	--	--
135N086W11BBC1	J.BORCHERT		45	--	24	--	13	--	H	--	--	--	--	--
135N086W11BBC2	J.BORCHERT		45	--	24	--	13	--	S	--	--	2400	7.5	--
135N086W12BCA	E.BORCHERT		37	--	36	--	--	--	H	--	--	575	8.0	--
135N086W14ABC	A.SCHRIOCK		45	--	24	1964	13	--	U	--	--	--	--	--
135N086W14BBB	A.SCHRIOCK		35	--	24	1961	22	7-71	U	--	--	660	8.5	--
135N086W15DDD1	NDSWC 4515	1100	592	574	2	1973	316	7-73	U	HC	S	2360	11.5	2231
135N086W15DDD2	NDSWC 4515A		366	360	1	1973	218	6-73	U	C	V	--	--	2234
135N086W17BCC	G.STEINMATZ		45	--	24	1967	30	--	S	--	--	515	7.5	--
135N086W18ADD1	G.STEINMATZ		30	--	8	1955	16	--	H	--	--	1270	--	--
135N086W18ADD2	G.STEINMATZ		46	--	24	1969	12	--	S	--	--	4090	7.5	--
135N086W18ADD3	G.STEINMATZ		40	--	6	1958	25	--	S	--	--	4910	8.0	--
135N086W20DBD	P.EDINGER		40	--	24	1967	20	--	S	--	S	--	--	--
135N086W24ABB	E.BORCHERT		45	--	6	--	--	--	S	--	--	475	8.5	--
135N086W26BBB	NDSWC 4514	80	--	--	5	1973	--	--	U	--	--	--	--	2287
135N086W28BAC	L.ARNDT		50	--	24	1968	--	--	S	--	--	--	--	--
135N086W28DCA1	L.ARNDT		25	--	24	--	7	--	H	--	--	1420	--	--
135N086W28DCA2	L.ARNDT		--	--	--	--	--	--	S	--	--	920	8.0	--
135N086W28DCA3	L.ARNDT		18	--	6	--	6	--	S	--	--	--	--	--
135N086W28DCA4	L.ARNDT		--	--	--	--	--	--	S	--	--	930	9.5	--
135N086W28DCA5	L.ARNDT		11	--	--	--	4	7-71	U	--	--	--	--	--
135N086W29CCA1	P.EDINGER		52	--	24	1962	32	--	H	--	S	790	--	--
135N086W29CCA2	P.EDINGER		45	--	24	--	20	--	S	--	S	1060	8.5	--
135N086W29CCA3	P.EDINGER		30	--	24	1965	18	--	S	--	S	1040	--	--
135N086W29DCC	P.EDINGER		23	--	5	1959	10	--	S	--	S	450	8.0	--
135N086W31BAD	G.MC DOWALL		27	--	6	1959	10	--	S	--	S	450	9.0	--
135N086W31CBB	G.MC DOWALL		27	--	16	1906	11	--	S	--	S	--	--	--
135N086W32CAA	P.EDINGER		38	--	24	1963	18	--	S	--	S	590	7.5	--
135N086W35DCB1	D.CHRISTENSEN		93	--	2	1965	60	--	K	--	--	720	--	--
135N086W35DCB2	D.CHRISTENSEN		41	--	18	1959	21	--	U	--	--	--	--	--

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135N087W04BDB	W.STEINLY		64	--	24	1972	10	--	S	TR	8P	--	--	--
135N087W04BDC1	W.STEINLEY		235	--	4	1959	50	--	K	--	S	920	--	--
135N087W04BDC2	W.STEINLEY		40	--	24	--	4	--	S	--	S	1100	7.0	--
135N087W05DDB1	J.STEINLEY		100	--	6	1956	20	--	H	--	P	1780	--	--
135N087W05DDB2	J.STEINLEY		60	--	24	1962	30	--	S	--	P	1420	--	--
135N087W06AAC1	D.STROM		60	--	2	--	--	--	K	--	S	760	--	--
135N087W06AAC2	D.STROM		60	--	24	--	51	--	K	--	S	760	--	--
135N087W06AAC3	D.STROM		44	--	--	--	39	7-71	U	--	--	--	--	--
135N087W12AAD	M.LONIE		43	--	6	--	33	5-46	S	--	--	1870	8.0	2165
135N087W13BCB	G.STEINMATZ		45	--	24	1965	10	--	K	--	--	480	--	--
135N087W14ADA1	G.STEINMATZ		30	--	5	1961	19	7-71	U	--	--	--	--	--
135N087W14ADA2	G.STEINMATZ		40	--	24	1910	10	--	S	--	--	1575	7.0	--
135N087W18CBA	C.DIEHL		20	--	24	--	--	--	H	--	P	1200	--	--
135N087W19ADB1	A.LANDSVERK		40	--	6	1968	15	--	H	--	G	820	--	--
135N087W19ADB2	A.LANDSVERK		40	--	24	--	15	--	S	--	--	1860	7.5	--
135N087W21CCD	D.SOKOLOFSKY		45	--	24	1965	14	7-71	S	--	--	2310	--	--
135N087W27DDC1	C.HUBER		25	--	24	1965	20	--	H	--	S	1100	--	--
135N087W27DDC2	C.HUBER		30	--	24	1970	20	--	S	--	S	490	8.5	--
135N087W27DDC3	C.HUBER		23	--	24	1931	20	--	U	--	S	1800	--	--
135N087W32BBB1	L.VOLL		64	--	30	1924	52	--	K	--	6S	570	--	--
135N087W32BBB2	L.VOLL		60	--	24	1968	42	--	S	--	6S	870	8.5	--
135N088W02ACC1	V.HEGEL		55	--	4	1968	25	--	K	--	P	660	--	--
135N088W02ACC2	V.HEGEL		32	--	60	--	27	--	U	--	S	1030	8.5	--
135N088W03ABA	V.HEGEL		48	--	36	--	36	--	S	--	--	460	9.0	--
135N088W06CAB	P.DITTUS		75	--	3	1956	45	--	K	--	P	1790	8.0	--
135N088W08BAB	D.STERN		57	--	4	1950	37	--	K	--	S	1660	8.0	--
135N088W08CCD	A.SCHOCK		35	--	4	1966	20	--	S	--	--	1310	8.5	--
135N088W10BCA	J.FERDERER		120	--	4	1959	100	--	K	--	P	1650	--	--
135N088W11DDD1	R.SCHMIDTGALL		38	--	6	1956	--	--	H	--	--	640	--	--
135N088W11DDD2	R.SCHMIDTGALL		90	--	2	1908	60	--	U	--	--	--	--	--
135N088W11DDD3	R.SCHMIDTGALL		47	--	6	1957	35	8-71	U	--	--	--	--	--
135N088W13DBD1	G.BENTZ		19	--	8	1956	15	--	H	--	--	990	--	--
135N088W13DBD2	G.BENTZ		32	--	4	1965	20	--	S	--	--	810	7.5	--
135N088W13DBD3	G.BENTZ		15	--	36	--	12	--	S	--	--	890	9.0	--
135N088W13DBD4	G.BENTZ		80	--	4	1945	30	--	S	--	--	820	--	--
135N088W16DDC1	F.ULRICH		120	--	4	1961	80	--	K	--	--	1110	--	--
135N088W16DDC2	F.ULRICH		140	--	4	1950	130	--	S	--	--	850	9.0	--
135N088W17BCA	A.SCHOCK		35	--	4	1952	15	--	S	--	--	1850	8.0	--
135N088W18DBD1	A.SCHOCK		175	--	3	--	50	--	K	--	--	1730	--	--
135N088W18DBD2	A.SCHOCK		35	--	24	1964	12	--	U	--	P	1540	8.0	--

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT)	WELL DEPTH (FT)	CASING DEPTH (FT)	CASING DIAM- ETER (IN)	DATE DRILLED (YEAR)	WATER LEVEL (FT)	DATE WATER LEVEL MEASURED	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	SPECIFIC CONDUCT- ANCE (µMHOS/CM @ 25°C)	TEM- PER- ATURE (°C)	ALTI- TUDE- OF LSD (FT)
135N088W21ADC	F.BLEICH		165	--	4	1965	--	--	S	--	--	--	--	--
135N088W21DDC	F.BLEICH		230	--	2	--	--	--	K	--	--	1030	10.0	--
135N088W22ADC	A.ZIMMERMAN		140	--	4	1955	--	--	S	--	--	1200	9.0	--
135N088W22DAD	A.ZIMMERMAN		100	--	2	--	--	--	K	--	--	780	--	--
135N088W24AAA1	A.WILL		260	--	4	1970	140	--	K	--	S	1550	--	--
135N088W24AAA2	A.WILL		60	--	6	1945	--	--	H	--	S	630	9.0	--
135N088W24AAA3	A.WILL		270	--	3	1945	140	--	S	--	S	1540	9.5	--
135N088W24AAB	G.BENTZ		80	--	4	1968	28	--	S	--	--	1110	8.5	--
135N088W25CCD	D.REDMAN		120	--	4	1951	112	--	S	--	S	--	--	--
135N088W26BAA	E.KENNITZ		160	125	4	--	100	--	S	TR	VS	--	--	--
135N088W26BCA1	E.KEMNITZ		88	--	2	1911	--	--	K	--	--	2440	--	--
135N088W26BCA2	E.KEMNITZ		80	--	18	1917	47	--	S	--	S	3920	7.5	--
135N088W26DAD1	O.ZIMMERMAN		128	--	4	1954	98	--	K	--	--	2210	--	--
135N088W26DAD2	O.ZIMMERMAN		128	--	3	--	--	--	S	--	--	1350	9.0	--
135N088W28DAA	A.BLEICH		163	--	3	1931	--	--	U	--	--	--	--	--
135N088W28DAD	A.BLEICH		167	--	3	1951	--	--	K	--	--	860	--	--
135N088W33ABC	T.SCHUTZ		90	--	5	1966	--	--	S	--	--	--	--	--
135N088W33CDA1	T.SCHUTZ		65	--	5	1952	--	--	K	--	--	610	--	--
135N088W33CDA2	T.SCHUTZ		62	--	4	--	--	--	S	--	--	--	--	--
135N088W34DDD	A.WILL		55	--	24	1966	23	--	K	--	--	990	--	--
135N088W35DDD1	D.REDMAN		50	--	4	1969	12	--	K	--	S	1020	--	--
135N088W35DDD2	D.REDMAN		50	--	4	--	38	--	U	--	S	--	--	--
135N088W35DDD3	D.REDMAN		50	--	4	--	12	--	S	--	S	800	--	--
135N088W35DDD4	D.REDMAN		120	--	4	1932	100	--	U	--	--	--	--	--
135N088W36CCC	D.REDMAN		50	--	4	1956	12	--	S	--	--	--	--	--
135N089W01AAA	W.SICK		137	110	4	1970	81	7-70	K	TR	VS	--	--	--
135N089W01ACB1	W.SICK		103	--	2	1951	--	--	H	--	S	1700	--	--
135N089W01ACB2	W.SICK		134	--	4	1970	--	--	K	--	S	1400	--	--
135N089W01ACB3	W.SICK		103	--	2	--	--	--	S	--	S	1580	8.5	--
135N089W01ACB4	W.SICK		109	--	4	1954	--	--	S	--	P	1700	8.5	--
135N089W04BAB1	R.RAUSCHER		91	--	6	1959	--	--	K	--	S	1430	--	--
135N089W04BAB2	R.RAUSCHER		14	--	36	1961	6	--	S	--	S	3530	8.5	--
135N089W06AAA	V.DAHLE		92	--	4	1969	--	--	H	--	S	760	--	--
135N089W07BCD	A.FRIESZ		240	--	4	1962	--	--	K	--	--	1790	9.0	--
135N089W08DBD	R.SCHOCK		27	--	24	--	16	--	K	--	1	930	--	--
135N089W09DAA	R.SCHOCK		166	--	4	1969	--	--	K	--	--	1120	--	--
135N089W09DAD	R.SCHATZ		281	247	4	1972	97	--	K	TR	2S	--	--	--
135N089W10DCD	S.SPRENGER		27	--	4	1962	10	--	S	--	S	--	--	--
135N089W11CDC1	J.ESLINGER		200	--	4	--	--	--	H	--	--	1490	--	--
135N089W11CDC2	J.ESLINGER		70	--	30	1956	30	--	S	--	--	6000	7.5	--

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT)	WELL DEPTH (FT)	CASING DEPTH (FT)	CASING DIAM-ETER (IN)	DATE DRILLED (YEAR)	WATER LEVEL (FT)	DATE WATER LEVEL MEASURED	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	SPECIFIC CONDUCT-ANCE (μMHOS/CM @ 25°C)	TEM-PER-ATURE (°C)	ALTI-TUDE-OF LSD (FT)
135N089W11CDC3	J.ESLINGER		220	--	2	1925	--	--	S	--	--	1500	9.5	--
135N089W11DDB	J.ESLINGER		--	--	--	--	F	--	S	--	--	3920	--	--
135N089W12ADD1	E.TIBKE		42	--	6	--	28	--	H	--	--	1230	--	--
135N089W12ADD2	E.TIBKE		150	--	4	--	--	--	U	--	1	--	--	--
135N089W12BBA1	E.WILL		28	--	6	--	--	--	H	--	1	2380	--	--
135N089W12BBA2	E.WILL		80	--	4	1952	--	--	S	--	S	4220	7.5	--
135N089W14DCC	A.SPRENGER		180	--	6	1970	80	--	K	--	S	950	--	--
135N089W14DDC	A.SESENGER		161	80	4	1970	--	--	K	TR	7P	--	--	--
135N089W15BCB1	S.SPRENGER		100	--	5	1958	80	--	K	--	P	1080	--	--
135N089W15BCB2	S.SPRENGER		240	--	4	1931	220	--	S	--	--	1570	--	--
135N089W16CCC	A.WEIKUM		45	--	5	1946	4	8-71	U	--	P	--	--	--
135N089W17CBB	A.WEIKUM		30	--	24	1951	11	--	S	--	S	--	--	--
135N089W19BDD	W.WEIKUM		60	--	2	1946	--	--	K	--	--	760	--	--
135N089W20ACA1	A.WEIKUM		48	--	18	1957	20	--	H	--	S	1510	--	--
135N089W20ACA2	A.WEIKUM		70	--	24	1966	52	--	S	--	P	1010	--	--
135N089W20ACA3	A.WEIKUM		48	--	24	1961	12	--	S	--	P	--	--	--
135N089W20CAA	E.KLEIN		30	--	--	--	--	--	K	--	--	760	--	--
135N089W22ABA	F.SCHULZ	45	43	13	4	--	32	--	S	TR	V	--	--	--
135N089W22CBC	A.SPRENGER		50	--	24	1962	20	--	K	--	S	970	--	--
135N089W22CDD	NDSWC 4494	420	201	189	2	1972	90	12-72	U	TR	--	1350	7.5	2250
135N089W24AAB	A.WILL		262	225	4	1970	120	12-70	K	TR	VS	--	--	--
135N089W27BBD	H.SPRENGER		45	--	24	1969	16	--	K	--	--	1090	--	--
135N089W28ADA1	J.SELLNER		60	--	18	--	30	--	K	--	S	2320	--	--
135N089W28ADA2	J.SELLNER		60	--	6	1967	25	--	S	--	S	--	--	--
135N089W28ADA3	J.SELLNER		60	--	4	1966	25	--	S	--	S	--	--	--
135N089W29DDB1	KUNTZ BROS.		25	--	--	--	--	--	K	--	--	1240	--	--
135N089W29DDB2	KUNTZ BROS.		25	--	4	--	--	--	S	--	--	2640	8.0	--
135N089W31AAA	W.SELLNER		72	42	4	1961	38	8-61	S	TR	V	--	--	--
135N089W34CCC	R.HORST		50	--	4	1935	35	--	K	--	--	1410	--	--
135N089W35CDB1	A.FREDRICH		30	--	8	1957	24	--	H	--	S	560	--	--
135N089W35CDB2	A.FREDRICH		26	--	24	1933	20	--	S	--	S	550	8.5	--
135N089W35CDB3	A.FREDRICH		28	--	8	1952	22	--	S	--	S	590	8.0	--
135N090W02CCB1	C.FUCHS		54	--	24	1966	27	--	K	SB	S	2710	--	--
135N090W02CCB2	C.FUCHS		48	--	24	1966	24	--	S	--	--	1540	--	--
135N090W04BAB1	M.TIETS		13	--	30	--	7	8-71	K	--	S	1590	--	--
135N090W04BAB2	M.TIETZ		22	--	8	1948	12	--	U	--	1	--	--	--
135N090W04BAB3	M.TIETZ		15	--	8	1961	9	--	S	--	S	1630	--	--
135N090W04DCA1	C.SCHATZ		30	--	24	1962	9	--	H	--	S	3390	--	--
135N090W04DCA2	C.SCHATZ		27	--	24	1958	9	--	S	--	S	760	8.0	--
135N090W04DCA3	C.SCHATZ		14	--	40	--	6	--	S	--	S	--	--	--

LOCAL WELL NUMBER	OWNER	DRILLED DEPTH (FT)	WELL DEPTH (FT)	CASING DEPTH (FT)	CASING DIAM-ETER (IN)	DATE DRILLED (YEAR)	WATER LEVEL (FT)	DATE WATER LEVEL MEASURED	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	SPECIFIC CONDUCT-ANCE (µMHOS/CM @ 25°C	TEM-PER-ATURE (°C)	ALTI-TUDE-OF LSD (FT)
135N090W04DCA4	C.SCHATZ		27	--	24	1958	9	--	S	--	S	2300	7.5	--
135N090W04DCA5	C.SCHATZ		14	--	40	--	6	--	S	--	S	2490	--	--
135N090W05AAA	M.TIETZ		55	--	24	1958	35	--	S	--	P	1490	8.5	--
135N090W06BAD	O.IMHOFF		90	--	--	--	--	--	H	--	--	910	--	--
135N090W06DDA	USGS		257	--	6	1966	--	--	U	TR	V	--	--	2395
135N090W10AAB1	W.ZIMMERMAN		47	--	18	1955	6	--	H	--	--	4900	--	--
135N090W10AAB2	W.ZIMMERMAN		47	--	18	1955	6	--	S	--	--	800	8.0	--
135N090W12DBB1	F.LOOCK		230	--	2	1930	--	--	K	--	--	1970	--	--
135N090W12DBB2	F.LOOCK		100	--	6	1968	60	--	S	--	S	3180	--	--
135N090W15BCB	O.HAASE		120	--	4	--	--	--	U	--	--	--	--	--
135N090W15CDC1	E.MILLER		250	--	6	1970	--	--	K	--	S	1810	--	--
135N090W15CDC2	E.MILLER		96	--	24	1930	82	--	U	--	--	5100	--	--
135N090W18DDD1	J.HAASE		110	--	4	1970	--	--	K	--	--	2020	--	--
135N090W18DDD2	J.HAASE		110	--	6	1969	--	--	S	--	--	2350	8.5	--
135N090W21BAA1	C.ROTH		96	--	3	1949	32	--	K	--	P	2140	--	--
135N090W21BAA2	C.ROTH		108	--	3	1950	20	--	S	--	P	--	--	--
135N090W23BBB1	NDSWC 4509	1080	1047	1029	2	1973	271	7-73	U	FH	S	2250	10.0	2362
135N090W23BBB2	NDSWC 4509		283	277	1	1973	155	7-73	U	TR	S	--	--	2366
135N090W24CAC1	S.KAUTZ		30	--	6	1941	15	--	H	--	S	1130	--	--
135N090W24CAC2	S.KAUTZ		39	--	6	1960	19	--	S	--	S	1050	8.0	--
135N090W24CAC3	S.KAUTZ		16	--	30	1941	8	--	S	--	S	5750	9.0	--
135N090W28DBD1	G.BAESLER		20	--	42	1910	8	--	H	--	--	1400	--	--
135N090W28DBD2	G.BAESLER		14	--	24	1966	--	--	S	--	--	2460	10.0	--
135N090W28DBD3	G.BAESLER		40	--	42	1910	--	--	S	--	--	1340	6.5	--
135N090W31DDA	H.RUFF		160	--	6	1956	80	--	K	--	S	1360	--	--
135N090W32DCC	A.HAASE		298	--	6	1961	--	--	S	--	--	--	--	--
135N090W33DAC	A.HAASE		87	--	20	1951	67	--	K	--	G	2870	8.5	--
135N090W34ADB	E.BAESLER		136	--	6	1968	96	--	K	--	S	2200	9.0	--
135N090W34ADC	E.BAESLER		20	--	8	1964	8	--	S	--	1	3640	8.0	--
135N090W34BBB1	R.BAESLER		54	--	8	1950	42	--	H	--	S	1530	--	--
135N090W34BBB2	R.BAESLER		54	--	12	1961	12	--	S	--	S	450	--	--
135N090W35AA	J.PAHL	188	182	142	4	1963	100	11-63	K	TR	VS	--	--	--
136N085W04CBA1	W.BAHR		65	--	4	1945	45	--	K	--	--	2020	--	--
136N085W04CBA2	W.BAHR		68	--	2	1962	53	--	S	--	--	1910	9.0	--
136N085W04CBA3	W.BAHR		68	--	2	1962	53	--	U	--	--	--	--	--
136N085W05ABB	NDSWC 8101	200	138	132	1	1971	18	1-72	U	51	R	2280	7.5	1840
136N085W05ABD	MUDDY CRK NLARK		SW	--	--	--	--	--	--	--	--	--	--	--
136N085W08AAD	C.STRIEGEL		45	--	24	1955	33	--	K	--	--	1730	--	--
136N085W08CDB	C.MORTENSON		32	--	24	1963	--	--	K	--	--	1050	--	--

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136N085W08DDD	NDSWC 8099	160	98	92	1	1971	21	11-71	U	51	R	1250	8.5	1830
136N085W09BCC	HEART R. LARK		SW	--	--	--	--	--	--	--	--	--	--	--
136N085W09BCD	NDSWC 8100	220	178	172	1	1971	16	11-71	U	51	R'	2580	7.5	1820
136N085W15CBC	L.DAWSON		12	--	6	1951	--	--	K	--	--	1210	--	--
136N085W16BCD	K.DAVENPORT		81	65	4	1963	35	10-63	K	C	VS	--	--	--
136N085W17BAC	A.WEEKS JR.		50	--	24	1961	--	--	S	--	--	--	--	--
136N085W25AAA	W.ARMAN		160	117	4	1971	27	8-71	S	Ç	Z	--	--	--
136N085W25DAA1	O.WRIGHT		65	--	6	1960	--	--	H	--	--	1000	--	--
136N085W25DAA2	O.WRIGHT		42	--	24	1916	38	--	S	--	--	1100	8.5	--
136N085W27DDB	A.SHAFER		184	--	4	1971	161	9-71	S	C	VS	--	--	--
136N085W30AAA	W.DAWSON		50	--	24	1966	30	--	S	--	--	580	--	--
136N085W32BBB	W.BAHR		60	--	24	1934	--	--	S	--	--	--	--	--
136N086W06ADA1	R.FELAND		200	--	5	1921	40	--	K	--	--	1950	--	--
136N086W06ADA2	R.FELAND		180	--	2	1961	140	--	S	--	--	2010	7.0	--
136N086W07BAA	R.FELAND		70	--	2	1961	--	--	U	--	--	--	--	--
136N086W10CDC	HEART RIVER BL TSCHIDA		SW	--	--	--	--	--	-	--	--	--	--	--
136N086W17BCD1	G.DAHNERS		125	--	2	1947	60	--	H	--	--	2090	--	--
136N086W17BCD2	G.DAHNERS		65	--	24	1966	16	--	S	--	--	1840	--	--
136N086W18AAA	R.FELAND		125	--	2	1947	60	--	K	--	--	2250	--	--
136N086W20ADB1	H.STEINLEY		18	--	24	--	11	--	S	--	--	1090	--	--
136N086W20ADB2	H.STEINLEY		30	--	--	--	--	--	H	--	--	1240	8.0	--
136N086W25BAD1	W.DAWSON		12	--	48	--	--	--	K	51	G	1640	--	--
136N086W25BAD2	W.DAWSON		50	--	24	1964	20	--	K	--	--	960	--	--
136N086W26BBD	C.JOHNSON		56	--	40	--	19	--	K	--	--	845	8.5	--
136N086W26CBC	R.GRIMM		38	--	24	--	--	--	K	--	--	990	7.5	--
136N086W29ABC1	L.HANDEGARD		20	--	36	1940	8	--	K	--	--	580	--	--
136N086W29ABC2	L.HANDEGARD		20	--	48	1942	16	--	U	--	--	--	--	--
136N086W29ABC3	L.HANDEGARD		25	--	48	--	16	--	U	--	--	1520	9.0	--
136N086W29ABC4	L.HANDEGARD		230	--	4	1938	25	--	U	--	--	--	--	--
136N086W30CDD1	E.PFLIIGER		40	--	24	1952	15	--	H	--	--	1760	--	--
136N086W30CDD2	E.PFLIIGER		45	--	24	1961	20	--	S	--	--	--	--	--
136N086W30CDD3	E.PFLIIGER		45	--	24	1959	20	--	S	--	--	2000	9.0	--
136N086W30CDD4	E.PFLIIGER		60	--	24	1969	25	--	S	--	--	--	--	--
136N086W34AAD	K.ELVIK		36	--	50	--	29	--	K	--	--	1660	8.5	--
136N087W04BBD1	R.ERHARDT		80	--	2	1952	--	--	H	--	--	2000	--	--
136N087W04BBD2	R.ERHARDT		80	--	24	1965	--	--	S	--	--	1990	--	--
136N087W04BBD3	R.ERHARDT		80	--	24	1970	--	--	S	--	--	2230	--	--
136N087W06BAC	J.EMTER		33	--	24	--	13	--	U	--	--	770	8.0	--
136N087W07DDD	NDSWC 4512	240	--	--	5	1973	--	--	U	--	--	--	--	2130
136N087W08BAB	P.ERHARDT		120	--	2	1946	--	--	K	--	--	3740	--	--
136N087W10AAB	R.BAHM		25	--	48	1963	18	--	H	--	--	1890	--	--

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136N087W10BCC	N.WEINBERGER		62	--	24	1925	20	--	U	--	--	--	--	--
136N087W12ADB1	G.KUETHER		38	--	24	--	--	--	H	--	--	2430	--	--
136N087W12ADB2	G.KUETHER		38	--	24	--	--	--	S	--	--	1930	7.5	--
136N087W12ADB3	G.KUETHER		38	--	24	1970	--	--	S	--	--	1860	--	--
136N087W14BAD	N.WEINBERGER		50	--	24	1965	14	--	S	--	--	--	--	--
136N087W15DDB	N.WEINBERGER		82	--	2	1950	--	--	S	--	--	--	--	--
136N087W20CCB	T.RHODENBAUGH		15	--	--	1961	12	--	S	--	--	2340	7.5	--
136N087W20DDD	R.BAHN		25	--	48	--	--	--	U	--	--	--	--	--
136N087W21DAC1	G.GAPPERT		90	--	2	--	--	--	U	--	--	--	--	--
136N087W21DAC2	G.GAPPERT		280	--	2	--	--	--	K	--	--	2040	--	--
136N087W22BDB1	N.WEINBERGER		62	--	24	1907	52	--	K	--	--	2240	8.5	--
136N087W22BDB2	N.WEINBERGER		102	--	24	1965	--	--	S	--	--	2350	8.5	--
136N087W22DCB1	N.WEINBERGER		98	--	24	1970	6	7-71	H	--	--	--	--	--
136N087W22DCB2	N.WEINBERGER		48	--	24	1956	15	--	S	--	--	2920	8.5	--
136N087W25DCA1	O.SKRETTEBERG		25	--	16	1945	22	--	H	--	--	1275	--	--
136N087W25DCA2	O.SKRETTEBERG		15	--	--	1961	--	--	S	--	--	1300	8.0	--
136N087W25DCA3	O.SKRETTEBERG		--	--	24	1970	--	--	S	--	--	1510	8.0	--
136N087W26BAC	R.LIVERMORE		28	--	36	1968	19	--	S	--	--	--	--	--
136N087W27CDB	J.HEINZ		30	--	16	--	20	--	K	--	--	2390	--	--
136N087W28DAB	G.WEINBERGER		14	--	24	--	DRY	7-71	U	--	--	--	--	--
136N087W32DBA1	S.BAY		90	--	4	1952	--	--	K	--	--	1740	--	--
136N087W32DBA2	S.BAY		90	--	26	--	--	--	S	--	--	1350	8.5	--
136N087W32DBA3	S.BAY		90	--	24	1969	--	--	S	--	--	1700	8.0	--
136N087W33BBD	R.BAY		95	--	24	--	35	7-71	U	--	--	480	8.5	--
136N087W36AAB1	M.SKRETTEBERG		225	--	4	1964	15	--	K	C	V	2300	--	--
136N087W36AAB2	M.SKRETTEBERG		160	--	2	1960	50	--	U	--	--	--	--	--
136N087W36ABD	NDSWC 4486	1000	428	410	2	1972	F	12-72	U	HC	--	2450	7.5	1900
136N088W01BCC	C.MEIER		48	--	24	1964	--	--	K	--	--	1430	--	--
136N088W11CAA	P.BARTH		55	--	20	--	49	7-71	U	--	--	--	--	--
136N088W12DCC	A.DOLL		90	--	2	1923	--	--	K	--	--	735	--	--
136N088W13AAA	NDSWC 4513	780	732	714	2	1973	244	7-73	U	HC	S	2270	12.0	2191
136N088W13BAA	A.DOLL		85	--	2	1953	--	--	S	--	--	800	9.0	--
136N088W26ABA1	V.METZ		24	--	24	1961	20	8-71	H	--	--	1950	--	--
136N088W26ABA2	V.METZ		18	--	4	--	8	--	S	--	--	1440	--	--
136N088W26BDC1	A.ULRICH		40	--	4	1966	20	--	H	--	G	3430	--	--
136N088W26BDC2	A.ULRICH		52	--	4	1956	42	--	S	--	P	--	--	--
136N088W26BDC3	A.ULRICH		12	--	18	1961	10	--	S	--	G	1100	8.0	--
136N088W32DBD1	A.BENTZ		121	--	4	1948	100	--	K	--	S	1130	--	--

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 MEASURED	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	SPECIFIC CONDUCT-ANCE (µMHOS/CM @ 25°C)	TEM-PER-ATURE (°C)	ALTI-TUDE-OF LSD (FT)
136N088W32DBD2	A.BENTZ		89	--	24	--	78	--	S	--	S	980	9.0	--
136N088W34DCA	J.BAKOS		34	--	36	1909	30	--	K	--	S	400	8.0	--
136N089W03ABC	T.NEWMAN		135	114	2	1963	80	7-63	K	TR	VS	--	--	--
136N089W04BDD1	C.KOEHLER		230	--	3	--	--	--	H	--	--	1250	--	--
136N089W04BDD2	C.KOEHLER		210	--	3	--	--	--	S	--	--	1290	8.5	--
136N089W06ADB1	F.KOEHLER		118	--	4	1966	68	--	K	--	S	1720	--	--
136N089W06ADB2	F.KOEHLER		128	--	2	1949	78	--	U	--	S	--	--	--
136N089W10AAA1	J.GARLAND		105	87	4	1972	45	--	H	TR	S	--	--	--
136N089W10AAA2	J.GARLAND	86	84	75	4	1972	39	--	H	TR	4S	--	--	--
136N089W11BD	H.HINTZ		87	--	4	1968	30	6-68	H	TR	V	--	--	--
136N089W12CBC	A.MILLNER		105	--	4	--	--	--	H	TR	S	--	--	--
136N089W12CCB	ND GAME - FISH	101	91	--	4	1963	80	5-63	P	TR	VS	--	--	--
136N089W13ACC	U.S.B.R.		84	--	--	1945	10	10-45	U	TR	VS	--	--	2023
136N089W13BAC	N.D.GAME-FISH	113	95	--	4	1972	25	--	P	TR	V	--	--	--
136N089W13BDD	LAKE TSCHIDA		LAKE	--	--	--	--	--	--	--	--	--	--	--
136N089W18AAD	C.SCHULZ		80	--	4	1958	60	-58	K	TR	V	--	--	--
136N089W18DCD1	H.BLUMHARDT		110	--	4	1960	60	--	K	--	S	2330	--	--
136N089W18DCD2	H.BLUMHARDT		105	--	4	1946	55	--	S	--	S	2080	9.0	--
136N089W20BCB	J.HEUPEL JR.		108	58	4	1963	68	--	K	TR	S	1650	--	--
136N089W21BDD	K.SCHATZ		65	--	4	1964	--	--	S	--	S	--	--	--
136N089W21CDA1	K.SCHATZ		32	--	24	1964	17	--	H	--	S	570	--	--
136N089W21CDA2	K.SCHATZ		28	--	24	1957	13	--	S	--	S	580	7.5	--
136N089W21CDA3	K.SCHATZ		70	--	24	1967	48	--	S	--	S	1330	--	--
136N089W21CDA4	K.SCHATZ		70	--	24	1970	48	--	S	--	S	1900	--	--
136N089W21CDD	K.SCHATZ		8	--	36	1961	2	7-71	U	--	S	--	--	--
136N089W26BCA1	F.STECKLER		117	--	4	1968	97	--	H	--	--	1600	--	--
136N089W26BCA2	F.STECKLER		140	--	3	--	--	--	S	--	--	1690	9.0	--
136N089W26DCA1	A.STECKLER EST.		120	--	6	1964	90	--	K	--	P	1900	--	--
136N089W26DCA2	A.STECKLER EST.		135	--	2	--	90	--	S	--	--	1700	9.0	--
136N089W30BAB	E.SCHATZ		200	--	6	1969	140	--	K	--	--	1900	--	--
136N089W33DBA1	A.SCHOCK		70	--	6	1961	--	--	H	--	S	3220	--	--
136N089W33DBA2	A.SCHOCK		150	--	6	1951	--	--	S	--	S	1600	8.5	--
136N090W02BDD	T.HARING		55	--	24	--	50	--	K	--	S	450	--	--
136N090W06BBA	B.HERTZ	890	210	--	4	--	80	--	S	TR	VS	--	--	--
136N090W08BDB1	E.ROTH		45	--	18	1959	27	--	H	--	--	1350	--	--
136N090W08BDB2	E.ROTH		25	--	48	--	15	--	S	--	--	3400	7.5	--
136N090W08BDB3	E.ROTH		45	--	18	1959	25	--	S	--	--	2090	--	--
136N090W14BAA	J.VERWORN		45	--	24	1972	36	--	K	TR	Z	--	--	--
136N090W17CAB	G.SEIBLER		24	--	24	1950	20	--	H	--	1	920	--	--
136N090W20BAC	C.ZIMMERMAN		218	--	2	1956	--	--	K	--	--	1640	--	--

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 MEASURED	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	SPECIFIC CONDUCT-ANCE (µMHOS/CM @ 25°C)	TEM-PER-ATURE (°C)	ALTI-TUDE OF LSD (FT)
136N090W24AAC	H.BLUMHARDT		100	--	2	1946	50	--	S	--	S	--	--	--
136N090W27DBC	J.ZIMMERMAN		32	--	16	1966	20	--	S	--	P	4440	8.0	--
136N090W28AAB	F.FRIESZ		35	--	36	--	32	--	S	--	--	1290	--	--
136N090W30AAC	C.ACHTENBERG		42	--	24	1967	--	--	K	--	--	970	--	--
136N090W32ABD1	R.ACHTENBERG		16	--	48	1910	12	--	H	--	S	1270	--	--
136N090W32ABD2	R.ACHTENBERG		58	--	24	1959	25	--	S	--	S	1200	8.5	--
136N090W33DAC	F.FRIESZ		28	--	24	1959	3	--	S	--	S	--	--	--
136N090W34BBA1	F.FRIESZ		30	--	45	--	21	--	S	--	S	1250	9.0	--
136N090W34BBA2	F.FRIESZ		29	--	24	1959	4	--	S	--	S	2740	10.0	--
136N090W34BBB	F.FRIESZ		29	--	24	1959	8	--	H	--	S	2470	9.0	--
137N088W06BDA1	J.THOMAS		35	--	24	1958	8	7-71	K	--	P	2240	--	--
137N088W06BDA2	J.THOMAS		28	--	24	--	--	--	U	--	--	--	--	--
137N088W06BDA3	J.THOMAS		28	--	24	--	--	--	U	--	--	--	--	--
137N088W06CBA	J.THOMAS		44	--	75	--	28	--	U	--	--	--	--	--
137N088W10ADA	P.WOLF		230	--	2	1952	--	--	K	--	--	1000	--	--
137N088W10ADB	P.WOLF	222	201	--	4	1972	183	--	K	TR	S	--	--	--
137N088W11CCB	M.STECKLER		40	--	24	1967	--	--	S	--	--	1210	8.5	--
137N088W12CCD	T.GLASSER		220	--	2	1950	80	--	K	--	P	1170	--	--
137N088W14DAA	A.GLASSER		134	--	2	1964	124	--	K	--	G	1240	--	--
137N088W14DD	T.GLASSER		210	190	2	1972	170	9-72	S	TR	S	--	--	--
137N088W17CCC	N.THOMAS		180	--	2	--	--	--	K	--	1	600	--	--
137N088W20CC	J.THARNAS	112	100	90	4	1963	80	11-63	K	TR	Z	--	--	--
137N088W21DDC	NDSWC 4485	1200	923	905	2	1972	124	12-72	U	FH	V	2800	9.0	2110
137N088W22BCA1	A.HELLMAN		65	--	4	--	--	--	H	--	--	1230	--	--
137N088W22BCA2	A.HELLMAN		65	--	4	1953	--	--	S	--	--	1690	8.5	--
137N088W22CBD1	L.VEITENHEIMER		70	--	4	1967	40	7-71	H	--	S	500	--	--
137N088W22CBD2	L.VEITENHEIMER		75	--	2	1950	40	--	S	--	S	--	--	--
137N088W22CBD3	L.VEITENHEIMER		55	--	2	1957	40	--	S	--	S	--	--	--
137N088W24BDD1	J.GLASSER		104	--	24	1962	86	--	K	--	S	1190	--	--
137N088W24BDD2	J.GLASSER		104	--	2	1955	86	--	S	--	S	--	--	--
137N088W26BB	J.HERZ		90	70	4	1972	60	9-72	S	TR	S	--	--	--
137N088W26BBA	ST.JOSEPH'S PAR		--	--	4	--	--	--	H	--	--	520	--	--
137N088W26BCB1	M.SCHAFF		60	--	18	1958	40	--	K	--	S	960	--	--
137N088W26BCB2	M.SCHAFF		60	--	2	1941	40	--	S	--	S	680	8.5	--
137N088W28CBA1	W.VEITENHEIMER		18	--	72	--	10	--	S	--	S	850	7.5	--
137N088W28CBA2	W.VEITENHEIMER		18	--	24	1970	5	--	S	--	1	590	7.0	--
137N088W31DDD	M.FITTERER		200	--	4	1961	--	--	S	--	S	1790	9.0	--
137N088W32AAC	M.GLASSER		30	--	--	--	--	--	K	--	--	1290	--	--
137N088W32CBA1	M.FITTERER		56	--	16	1951	39	--	K	--	--	760	--	--
137N088W32CBA2	M.FITTERER		40	--	24	1951	24	--	S	--	S	2370	--	--

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 MEASURED	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	SPECIFIC CONDUCT-ANCE (μMHOS/CM @ 25°C)	TEM-PER-ATURE (°C)	ALTI-TUDE OF LSD (FT)
137N088W34BCB1	M.GLASSER		80	--	3	1959	--	--	U	--	S	--	--	--
137N088W34BCB2	M.GLASSER		103	--	3	1954	--	--	U	--	S	--	--	--
137N088W36CBD	M.SCHAFF		110	--	24	1959	92	--	S	--	S	--	--	--
137N089W02AAB	T.HEINLE		31	--	24	1969	23	--	S	--	1	--	--	--
137N089W02ABA1	T.HEINLE		350	--	6	1961	190	--	H	--	--	1800	--	--
137N089W02ABA2	T.HEINLE		32	--	24	1953	29	--	S	--	1	990	7.5	--
137N089W02ABA3	T.HEINLE		44	--	24	--	22	7-71	U	--	1	--	--	--
137N089W02ABA4	T.HEINLE		33	--	52	--	29	--	K	--	1	2170	7.0	--
137N089W02ABA5	T.HEINLE		29	--	6	1970	25	--	S	--	1	2410	8.0	--
137N089W03CCB1	E.MILLER		28	--	24	1961	7	7-71	K	--	S	460	--	--
137N089W03CCB2	E.MILLER		13	--	24	1958	8	7-71	U	--	S	--	--	--
137N089W08ACB1	A.STAIGER		375	--	2	--	--	--	K	--	--	1800	--	--
137N089W08ACB2	A.STAIGER		75	--	24	1957	--	--	S	--	P	6970	7.5	--
137N089W09ABA1	NDSWC 4511	1060	1026	1008	2	1973	264	6-73	U	HC	S	2480	12.0	2305
137N089W09ABA2	NDSWC 4511		366	360	1	1973	233	7-73	U	TR	S	--	--	2305
137N089W10BCA	USGS CONS.DIV.		390	--	--	1966	--	--	U	TR	VS	--	--	2415
137N089W12CDB	T.KOBILANSKY		110	--	24	1961	80	--	S	--	S	--	--	--
137N089W13ACA	A.WEISHAAR		210	--	6	1965	50	--	U	--	--	--	--	--
137N089W13BAB1	T.KOBILANSKY		80	--	4	1970	40	--	K	--	S	1800	--	--
137N089W13BAB2	T.KOBILANSKY		210	--	2	1946	150	--	S	--	S	1730	9.0	--
137N089W13BAB3	T.KOBILANSKY		60	--	18	1960	30	--	S	--	S	1980	--	--
137N089W13BAB4	T.KOBILANSKY		13	--	24	1920	6	--	S	--	P	4390	7.0	--
137N089W13CCC	V.HORNER		51	--	24	1971	24	7-71	U	--	S	--	--	--
137N089W14DBD	V.HORNER		260	--	1	1961	--	--	S	--	P	1420	9.5	--
137N089W17CDB	D.MILLER		60	--	24	1962	--	--	K	--	--	1670	--	--
137N089W19BBD	L.DITTUS		6	--	40	1968	+1	7-71	K	--	--	1100	10.0	--
137N089W20ACC1	R.ROTH		33	--	24	--	19	7-71	K	--	--	--	--	--
137N089W20ACC2	R.ROTH		7	--	24	1956	5	7-71	U	--	--	--	--	--
137N089W20ACC3	R.ROTH		12	--	--	--	6	--	U	--	--	--	--	--
137N089W21DAB1	F.JAHRAUS		29	--	24	1960	9	7-71	K	--	--	4250	--	--
137N089W21DAB2	F.JAHRAUS		9	--	42	1954	6	7-71	U	--	--	--	--	--
137N089W23DCC	N.SCHMAUTZ		21	--	24	1961	6	7-71	S	--	--	--	--	--
137N089W24AAB	A.WEISHAAR		180	--	5	1952	110	--	S	--	--	1130	--	--
137N089W24BBB1	V.HORNER		48	--	60	--	37	--	H	--	S	900	8.0	--
137N089W24BBB2	V.HORNER		38	--	72	--	25	--	S	--	S	1020	7.5	--
137N089W24DDD	M.THOMAS		40	--	55	--	--	--	K	--	--	990	7.5	--
137N089W26BAA1	N.SCHMAUTZ		280	--	2	--	--	--	K	--	--	1200	--	--
137N089W26BAA2	N.SCHMAUTZ		34	--	24	1956	27	7-71	U	--	--	--	--	--
137N089W35DCA	R.KITZAN		260	--	2	--	--	--	K	--	--	1230	--	--
137N090W08AAC	W.STAIGER		325	--	--	1930	--	--	K	--	--	1790	--	--

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 MEASURED	USE OF WATER	MAJOR AQUIFER	WATER BEARING MATERIAL	SPECIFIC CONDUCT-ANCE (µMHOS/CM @ 25°C)	TEM-PER-ATURE (°C)	ALTI-TUDE-OF LSD (FT)
137N090W09BBA	A.STAIGER		300	--	--	--	--	--	K	--	--	1730	--	--
137N090W14DCC	S.TIBOR		115	--	4	1958	--	--	K	--	--	950	--	--
137N090W15BDC	T.KUNTZ		50	--	36	1966	25	--	K	--	P	1280	--	--
137N090W16DAA	T.KUNTZ		375	--	4	1968	--	--	S	--	--	1600	--	--
137N090W21DAB	UNK.		5	--	4	--	F	5-73	S	--	--	--	--	--
137N090W24BDD1	C.SAYLER		23	--	36	1970	8	7-71	K	--	G	--	--	--
137N090W24BDD2	C.SAYLER		70	--	24	1962	16	--	K	--	S	3780	--	--
137N090W24BDD3	C.SAYLER		16	--	30	1941	12	--	S	--	G	2500	6.5	--
137N090W25DBB1	E.SCHATZ		180	--	2	--	140	--	S	--	I	1520	--	--
137N090W25DBB2	E.SCHATZ		85	--	4	1966	60	--	H	--	I	5450	--	--
137N090W29ABB	USGS		521	--	--	1966	F	--	U	C	V	--	--	2125
137N090W30AAC	NDSWC 4510	500	453	441	2	1973	+68	8-73	U	C	S	2830	10.5	2100
137N090W31CDC	E.KLEIN		170	--	4	1959	--	--	K	--	--	1540	--	--
137N090W33DD	W.BUCHLI		500	--	2	1964	--	--	S	TR	VS	--	--	--

TABLE 2.--Water levels in selected wells

EXPLANATION

Water levels shown have been adjusted to feet below or (+) above land surface

MP, measuring point   lsd, land surface datum

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

129-080-23DDD MP is top of 1¼-inch plastic pipe 1.85 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Dec. 3, 1973..	93.29	June 25........	92.84	Aug. 26........	92.90
Feb. 26, 1974..	92.50				

129-081-01BAB MP is top of 1¼-inch plastic pipe 2.00 ft above lsd.

July 5, 1973..	63.03	Aug. 15........	62.04	Feb. 26, 1974..	61.50
16........	60.62	Oct. 10........	61.83	June 25........	61.92
Aug. 1........	62.02	Dec. 3........	61.79	Aug. 26........	61.98

129-087-10BBC MP is top of 2-inch steel pipe 3.00 ft above lsd.

Nov. 30, 1972..	107.00	July 10........	107.67	Dec. 3........	107.49
Dec. 12........	106.85	31........	107.67	Feb. 26, 1974..	107.43
Apr. 10, 1973..	107.45	Aug. 22........	107.01	June 27........	107.68
May 1........	107.45	Oct. 4........	107.71	Aug. 28........	107.78

129-088-05DDD1 MP is top of 2-inch steel pipe 3.00 ft above lsd.

Aug. 22, 1973..	55.50	Dec. 3........	55.74	June 27........	55.64
Oct. 4........	57.68	Feb. 27, 1974..	55.67	Aug. 28........	55.80

129-088-05DDD2 MP is top of 2-inch steel pipe 3.00 ft above lsd.

July 12, 1973..	54.31	Oct. 4........	54.56	June 27........	54.51
31........	54.18	Dec. 3........	54.42	Aug. 28........	54.74
Aug. 22........	53.97	Feb. 27, 1974..	54.22		

129-088-05DDD3 MP is top of 1¼-inch plastic pipe 1.47 ft above lsd.

July 12, 1973..	59.45	Oct. 4........	59.12	June 27........	59.22
31........	60.22	Dec. 3........	59.02	Aug. 28........	59.33
Aug. 22........	59.51	Feb. 27, 1974..	58.92		

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

130-079-19CCB MP is top of 1¼-inch plastic pipe 3.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Sept. 9, 1971..	17.37	Aug. 9........	13.66	Apr. 19........	19.05
Oct. 7........	20.40	Sept. 13........	18.20	July 5........	19.77
Nov. 4........	22.44	Nov. 16........	23.33	17........	20.89
Jan. 5, 1972..	25.99	Feb. 21, 1973..	24.65	Aug. 16........	22.31
Feb. 9........	24.88	Mar. 27........	20.91	Oct. 9........	25.51
Mar. 15........	21.43	Apr. 5........	20.17	Dec. 3........	24.35
Apr. 19........	18.07	6........	20.16	Feb. 26, 1974..	20.50
May 16........	15.62	10........	19.82	June 25........	18.90
June 20........	12.27	12........	19.73	Aug. 26........	22.58
July 12........	12.30	16........	19.38		

130-080-03ABB MP is top of 1¼-inch plastic pipe 2.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Sept. 9, 1971..	26.82	Aug. 9........	23.75	May 4........	28.80
Oct. 7........	29.33	Sept. 13........	27.10	July 5........	32.18
Nov. 4........	31.28	Nov. 16........	33.48	17........	33.11
Jan. 5, 1972..	34.51	Dec. 12........	35.04	Aug. 16........	33.17
Feb. 9........	34.98	Feb. 21, 1973..	33.71	Oct. 9........	36.63
Mar. 15........	31.92	Mar. 27........	30.92	Dec. 3........	32.62
Apr. 19........	28.26	Apr. 10........	29.87	Feb. 26, 1974..	30.08
May 16........	26.41	19........	29.20	Aug. 26........	30.51
June 20........	23.22	23........	29.20		
July 12........	22.83	27........	28.90		

130-080-14CDD MP is top of 1¼-inch plastic pipe 2.10 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
May 18, 1973..	27.63	Aug. 15........	29.32	June 25........	27.25
July 5........	28.16	Oct. 9........	32.59	Aug. 26........	30.25
17........	28.94	Dec. 3........	31.44		
Aug. 1........	29.31	Feb. 26, 1974..	28.88		

130-080-23DDD MP is top of 1¼-inch plastic pipe 3.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Sept. 9, 1971..	25.95	Aug. 9........	22.37	Apr. 16........	28.15
Oct. 7........	28.90	Sept. 13........	26.59	19........	27.83
Nov. 4........	30.93	Nov. 16........	33.56	July 5........	28.34
Jan. 5, 1972..	34.35	Dec. 12........	35.56	16........	29.55
Feb. 9........	35.99	Feb. 21, 1973..	33.17	Aug. 16........	29.57
Mar. 15........	30.37	Mar. 27........	29.57	Oct. 4........	33.70
Apr. 19........	26.80	Apr. 5........	28.86	Dec. 3........	31.97
May 16........	24.54	6........	28.80	Feb. 26, 1974..	29.11
June 20........	21.20	10........	28.57	June 25........	27.56
July 12........	21.10	12........	28.43	Aug. 26........	31.04

130-082-36BBC MP is top of 2-inch steel pipe 4.10 ft above lsd.

Sept. 9, 1971..	317.00	Oct. 4, 1973..	320.00	Measurement discontinued
Jan. 6, 1972..	319.37			

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

130-083-36AAA MP is top of 2-inch steel pipe 3.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
July 10, 1973..	432.29	Oct. 10........	432.17	June 26........	432.10
18........	432.31	Dec. 3........	432.15	Aug. 27........	432.20
Aug. 15........	431.24	Feb. 26, 1974..	431.99		

130-084-31AAA1 MP is top of 2-inch steel pipe 3.00 ft above lsd.

July 11, 1973..	178.35	Oct. 9........	171.76	June 26........	173.89
19........	177.24	Dec. 3........	172.22	Aug. 27........	175.18
Aug. 15........	176.42	Feb. 26, 1974..	174.27		

130-084-31AAA2 MP is top of 1¼-inch plastic pipe 1.95 ft above lsd.

July 11, 1973..	165.67	Oct. 9........	165.56	June 26........	165.37
19........	165.72	Dec. 13........	165.57	Aug. 27........	166.55
Aug. 1........	165.73	Feb. 26, 1974..	165.60		

130-084-36ABA MP is top of 2-inch steel pipe 3.00 ft above lsd.

Nov. 17, 1972..	248.00	Aug. 15........	240.22	June 26........	240.75
Dec. 12........	248.50	Oct. 9........	240.58	Aug. 27........	240.97
Apr. 10, 1973..	240.60	Dec. 3........	240.79		
July 10........	241.20	Feb. 26, 1974..	240.67		

130-085-17DAA1 MP is top of 2-inch steel pipe 6.00 ft above lsd.

Oct. 20, 1972..	22.00	July 19........	21.91	Feb. 26, 1974..	21.92
Dec. 12........	22.08	Aug. 21........	21.99	June 26........	22.19
Apr. 10, 1973..	21.89	Oct. 9........	22.16	Aug. 27........	22.45
July 10........	21.83	Dec. 3........	22.02		

130-086-28CCC1 MP is top of 2-inch steel pipe 3.00 ft above lsd.

July 11, 1973..	140.10	Oct. 9........	139.89	June 26........	139.84
31........	140.05	Dec. 3........	139.89	Aug. 27........	140.13
Aug. 21........	139.40	Feb. 26, 1974..	139.75		

130-086-28CCC2 MP is top of 1¼-inch plastic pipe 2.00 ft above lsd.

July 11, 1973..	136.12	Oct. 9........	136.05	June 26........	136.05
31........	136.19	Dec. 3........	136.07	Aug. 27........	136.30
Aug. 21........	136.00	Feb. 26, 1974..	135.92		

130-089-32DDA MP is top of 2-inch steel pipe 4.00 ft above lsd.

Nov. 7, 1972..	57.00	July 31........	55.70	Feb. 27, 1974..	55.66
Dec. 12........	55.70	Aug. 21........	55.56	June 27........	55.93
Apr. 10, 1973..	55.49	Oct. 4........	55.95	Aug. 28........	56.11
July 12........	55.71	Dec. 3........	55.80		

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

131-080-16DDD MP is top of 1¼-inch plastic pipe 1.83 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
May 18, 1973..	18.84	Aug. 16........	19.38	June 25........	18.57
July 5........	18.80	Oct. 9........	19.87	Aug. 26........	19.37
19........	19.17	Dec. 3........	20.21		
Aug. 1........	19.10	Feb. 26, 1974..	19.79		

131-080-33ADD MP is top of 1¼-inch plastic pipe 3.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Sept. 9, 1971..	44.40	Aug. 9........	41.75	July 5........	46.37
Oct. 7........	46.62	Sept. 13........	44.53	17........	47.17
Nov. 4........	48.59	Nov. 16........	50.15	Aug. 16........	46.06
Jan. 5, 1972..	51.27	Feb. 21, 1973..	50.55	Oct. 9........	50.15
Feb. 9........	50.85	Mar. 27........	48.17	Dec. 3........	49.46
Mar. 15........	49.26	Apr. 10........	47.25	Feb. 26, 1974..	47.27
Apr. 19........	45.90	19........	46.72	June 25........	45.91
May 16........	44.31	23........	46.53	Aug. 26........	48.19
June 20........	41.45	27........	46.33		
July 12........	41.02	May 4........	46.28		

131-080-33BAA MP is top of 1¼-inch plastic pipe 3.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Sept. 9, 1971..	46.92	Sept. 13........	46.69	July 5........	48.07
Oct. 7........	48.39	Nov. 16........	50.58	17........	48.58
Nov. 4........	49.66	Feb. 21, 1973..	51.09	Aug. 16........	48.94
Feb. 9, 1972..	53.46	Mar. 27........	49.54	Oct. 9........	50.56
Apr. 19........	48.19	Apr. 10........	48.90	Dec. 3........	50.24
May 16........	47.10	19........	48.43	Feb. 26, 1974..	48.63
June 20........	45.08	23........	48.34	June 25........	47.62
July 12........	44.60	27........	48.22	Aug. 26........	49.10
Aug. 9........	44.94	May 4........	48.06		

131-082-18DCD MP is top of 1¼-inch plastic pipe 1.70 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
July 5, 1973..	236.09	Aug. 15........	236.93	June 26........	236.52
18........	236.56	Oct. 9........	236.68	Aug. 26........	236.78
Aug. 1........	236.50	Dec. 6........	236.65		
14........	236.68	Mar. 1, 1974..	236.36		

131-089-30AAA MP is top of 2-inch steel pipe 3.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
July 12, 1973..	321.98	Oct. 4........	321.90	June 27........	321.86
31........	320.17	Dec. 3........	321.70	Aug. 28........	322.05
Aug. 23........	321.83	Feb. 27, 1974..	321.62		

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

132-082-10CBC MP is top of 1¼-inch plastic pipe 2.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Nov. 30, 1971..	16.26	Aug. 10........	15.79	Aug. 15........	16.20
Dec. 23........	16.29	Sept. 13........	15.82	Oct. 3........	15.97
Jan. 5, 1972..	16.21	Nov. 16........	15.83	Dec. 6........	15.91
Feb. 10........	16.22	Feb. 21, 1973..	15.82	Mar. 1, 1974..	15.78
Mar. 15........	16.29	Mar. 27........	15.65	May 1........	15.68
Apr. 20........	16.16	Apr. 11........	15.69	June 24........	15.91
May 16........	15.89	July 5........	15.87	Aug. 26........	16.06
June 20........	15.75	18........	16.03		
July 11........	15.83	Aug. 1........	16.04		

132-082-19BDD MP is top of 1¼-inch plastic pipe 2.00 ft above lsd.

Nov. 30, 1971..	16.04	Aug. 10........	14.88	Dec. 6........	15.17
Feb. 10, 1972..	16.11	July 10, 1973..	14.96	Aug. 27, 1974..	14.44
Apr. 25........	15.45	Aug. 15........	15.16		

132-083-29CCC MP is top of 1¼-inch plastic pipe 1.40 ft above lsd.

Sept. 9, 1971..	16.34	June 20........	15.75	July 20........	16.14
Oct. 6........	16.35	July 11........	15.85	Aug. 1........	16.49
Nov. 30........	16.34	Aug. 10........	15.83	17........	15.63
Dec. 23........	16.29	Sept. 14........	16.00	Oct. 5........	16.14
Feb. 10, 1972..	16.13	Nov. 16........	15.93	Dec. 6........	16.16
Mar. 22........	16.20	Feb. 21, 1973..	15.80	Feb. 28, 1974..	16.00
Apr. 20........	16.07	Apr. 11........	15.69	June 26........	16.13
May 16........	15.71	July 10........	16.10	Aug. 27........	16.32

132-083-30BCB MP is top of 1¼-inch plastic pipe 1.40 ft above lsd.

Nov. 30, 1971..	25.70	July 11........	25.28	Aug. 1........	25.77
Dec. 23........	25.64	Aug. 10........	25.31	17........	25.67
Jan. 5, 1972..	25.63	Sept. 14........	25.40	Oct. 5........	25.81
Feb. 10........	25.68	Nov. 16........	25.31	Dec. 6........	25.70
Mar. 22........	25.52	Feb. 21, 1973..	25.20	Feb. 28, 1974..	25.63
Apr. 20........	25.43	Apr. 11........	25.06	June 26........	25.87
May 16........	25.10	July 10........	25.72	Aug. 27........	25.95
June 20........	25.14	27........	25.80		

132-083-31DBA MP is top of 1¼-inch plastic pipe 2.00 ft above lsd.

Nov. 30, 1971..	15.77	July 11........	14.91	Aug. 17........	15.69
Dec. 23........	15.76	Aug. 10........	15.04	Oct. 5........	15.52
Jan. 5, 1972..	15.78	Sept. 14........	15.22	Dec. 6........	15.55
Feb. 10........	15.79	Nov. 16........	15.27	Feb. 28, 1974..	15.29
Mar. 22........	15.35	Feb. 21, 1973..	15.04	June 26........	15.57
Apr. 20........	15.26	Apr. 11........	14.98	Aug. 27........	15.84
May 16........	14.83	July 10........	15.40		
June 20........	14.73	27........	15.45		

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

132-083-33AAD MP is top of 1¼-inch plastic pipe 1.40 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Nov. 30, 1971	95.76	Sept. 14	95.54	Oct. 5	95.26
Feb. 10, 1972	95.73	Nov. 16	95.39	Dec. 6	95.28
Apr. 20	95.69	Apr. 11, 1973	95.22	Mar. 1, 1974	95.04
May 16	95.44	July 10	95.33	June 26	95.15
June 28	95.42	20	94.02	Aug. 27	95.21
July 11	95.54	Aug. 1	95.39		
Aug. 10	95.49	17	94.83		

132-083-35DDC1 MP is top of 1¼-inch plastic pipe 2.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Sept. 9, 1971	59.59	Mar. 27	61.63	Nov. 16	59.08
Oct. 6	59.62	Apr. 20	61.46	Feb. 21, 1973	59.94
Nov. 22	61.52	May 16	61.27	Apr. 11	59.97
30	61.58	June 20	60.90	July 10	59.93
Dec. 23	61.50	July 11	61.09	20	60.04
Jan. 5, 1972	61.48	Aug. 10	53.24	Aug. 27, 1974	60.74
Feb. 10	61.52	Sept. 14	57.48		

132-083-35DDC2 MP is top of 1¼-inch plastic pipe 0.20 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Sept. 9, 1971	54.13	May 16	53.82	July 20	53.03
Oct. 6	54.19	June 20	53.68	Aug. 17	53.00
Nov. 22	54.10	July 11	53.64	Oct. 5	52.90
30	54.13	Aug. 10	53.57	Dec. 6	52.83
Dec. 23	54.08	Sept. 14	53.49	Mar. 1, 1974	53.30
Jan. 5, 1972	54.05	Nov. 16	53.22	June 26	52.76
Feb. 10	54.12	Feb. 21, 1973	53.03	Aug. 27	52.84
Mar. 22	54.28	Apr. 11	52.89		
Apr. 20	54.09	July 10	53.01		

132-084-01DAA MP is top of 1¼-inch plastic pipe 1.40 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Nov. 30, 1971	38.50	July 11	38.51	Aug. 25	38.04
Dec. 23	38.79	Aug. 10	38.34	Oct. 5	36.99
Jan. 6, 1972	38.72	Sept. 14	38.51	Dec. 6	37.09
Feb. 10	38.85	Nov. 16	38.28	Feb. 28, 1974	37.05
Mar. 22	38.88	Feb. 21, 1973	38.25	June 26	37.03
Apr. 20	38.76	Apr. 11	38.00	Aug. 27	37.27
May 16	38.62	July 10	38.14		
June 20	38.59	27	38.62		

132-084-06CCC MP is top of 1¼-inch plastic pipe 3.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Nov. 30, 1971	87.62	July 12	87.54	July 20	87.40
Jan. 5, 1972	87.37	Aug. 10	87.41	Aug. 25	87.64
Feb. 10	87.79	Sept. 14	87.50	Oct. 5	87.23
Mar. 22	87.67	Nov. 16	87.40	Dec. 6	87.89
Apr. 20	87.60	Feb. 21, 1973	87.55	Feb. 28, 1974	87.67
May 16	87.33	Apr. 11	87.21	June 26	87.14
June 20	87.50	July 10	87.30	Aug. 27	87.31

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

132-084-12BAA2 MP is top of 1¼-inch plastic pipe 1.90 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
May 17, 1973..	35.85	Aug. 25........	37.01	Feb. 28, 1974..	36.51
July 10........	36.18	Oct. 5........	36.29	June 26........	36.61
27........	36.13	Dec. 6........	36.52	Aug. 27........	36.93

132-084-12CCD MP is top of 1¼-inch plastic pipe 2.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Nov. 30, 1971..	40.20	June 20........	39.87	July 10........	40.10
Dec. 23........	40.12	July 11........	40.05	27........	40.14
Jan. 5, 1972..	40.11	Aug. 10........	40.23	Aug. 25........	40.23
Feb. 10........	40.10	Sept. 14........	40.24	Oct. 5........	40.02
Mar. 22........	40.22	Nov. 16........	40.08	Dec. 6........	39.99
Apr. 20........	40.04	Feb. 21, 1973..	39.99	Feb. 28, 1974..	39.91
May 16........	39.83	Apr. 11........	39.85	Aug. 27........	40.22

132-084-16DAA MP is top of 2-inch steel pipe 3.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
July 10, 1973..	145.72	Aug. 17........	146.02	Feb. 28, 1974..	146.24
13........	145.70	Oct. 5........	146.35	June 26........	146.30
20........	146.53	Dec. 6........	146.36	Aug. 27........	146.65

132-087-27ADA MP is top of 2-inch steel pipe 2.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Nov. 2, 1972..	11.00	July 10........	10.74	Dec. 6........	10.89
Dec. 12........	10.54	Aug. 1........	10.71	Feb. 27, 1974..	10.81
Apr. 11, 1973..	10.36	28........	10.85	June 27........	11.07
May 1........	10.29	Oct. 4........	10.97	Aug. 28........	11.28

132-090-14AAB1 MP is top of 2-inch steel pipe 3.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
July 12, 1973..	157.62	Aug. 1........	157.68	Well destroyed.	

132-090-14AAB2 MP is top of 1¼-inch plastic pipe 2.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
July 12, 1973..	12.89	Oct. 4........	13.39	June 27........	13.50
Aug. 1........	12.98	Dec. 3........	13.48	Aug. 28........	14.02
16........	13.20	Feb. 27, 1974..	13.73		

133-079-29ABA MP is top of 1¼-inch plastic pipe 1.50 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
May 18, 1973..	26.92	Oct. 9........	27.10	June 25........	27.03
July 5........	26.98	Dec. 3........	27.10	Aug. 26........	27.13
17........	27.06	Feb. 26, 1974..	26.88		
Aug. 16........	27.27	May 1........	26.97		

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

133-080-01DDD MP is top of 1¼-inch plastic pipe 2.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Aug. 10, 1971..	50.90	June 20........	58.90	Aug. 16........	58.47
Sept. 8........	56.76	July 12........	58.97	Dec. 3........	58.63
Oct. 7........	56.96	Aug. 9........	58.87	May 1, 1974..	58.47
Jan. 6, 1972..	59.00	Sept. 13........	58.81	June 25........	58.65
Feb. 9........	59.09	Nov. 16........	58.53	Aug. 26........	58.63
Apr. 19........	59.10	July 5, 1973..	58.35		
May 16........	58.80	17........	58.44		

133-080-12DDD MP is top of 1¼-inch plastic pipe 2.00 ft above lsd.

Aug. 12, 1971..	72.03	Jan. 6, 1972..	72.08	May 16........	72.14
Sept. 9........	72.24	Feb. 9........	72.32	Well destroyed.	
Oct. 7........	72.18	Mar. 15........	72.07		
Nov. 30........	72.31	Apr. 19........	72.44		

133-080-13DDA MP is top of 1¼-inch plastic pipe 3.00 ft above lsd.

Aug. 12, 1971..	85.42	June 20........	83.60	Aug. 16........	83.52
Sept. 9........	83.84	July 12........	83.89	Oct. 3........	83.76
Oct. 7........	83.87	Aug. 9........	83.82	Dec. 3........	83.75
Nov. 30........	84.05	Sept. 13........	83.90	Feb. 26, 1974..	83.41
Jan. 6, 1972..	85.69	Nov. 16........	83.77	May 1........	83.45
Feb. 9........	83.40	Mar. 27, 1973..	83.51	June 25........	83.73
Mar. 15........	83.62	Apr. 10........	83.90	Aug. 26........	83.72
Apr. 19........	84.06	July 5........	83.54		
May 16........	83.63	17........	83.64		

133-080-31CCD1 MP is top of 1¼-inch plastic pipe 1.70 ft above lsd.

May 18, 1973..	66.75	Oct. 3........	66.82	June 25........	67.00
July 5........	66.84	Dec. 3........	66.95	Aug. 26........	66.99
18........	67.03	Feb. 26, 1974..	66.80		
Aug. 16........	67.13	May 1........	66.84		

133-080-31CCD2 MP is top of 1¼-inch plastic pipe 1.60 ft above lsd.

May 18, 1973..	65.25	Aug. 16........	65.60	May 1........	65.40
July 5........	65.42	Oct. 3........	65.54	June 25........	65.60
18........	65.68	Dec. 3........	65.54	Aug. 26........	65.63
Aug. 1........	65.61	Feb. 26, 1974..	65.36		

133-083-07CCB1 MP is top of 1¼-inch plastic pipe 2.00 ft above lsd.

Nov. 11, 1971..	25.20	June 20........	24.51	July 26........	25.30
30........	26.05	July 12........	24.78	Aug. 25........	25.65
Dec. 23........	26.07	Aug. 10........	24.83	Oct. 5........	25.71
Jan. 5, 1972..	26.10	Sept. 14........	25.09	Dec. 6........	25.60
Feb. 10........	26.20	Nov. 16........	25.13	Feb. 28, 1974..	25.54
Mar. 22........	25.84	Feb. 21, 1973..	25.03	June 25........	25.46
Apr. 20........	25.43	Apr. 11........	24.79	Aug. 27........	26.20
May 16........	24.80	July 10........	25.23		

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

133-083-12ADA1 MP is top of 1¼-inch plastic pipe 1.50 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
May 17, 1973..	+0.27	Aug. 25........	0.12	June 25, 1974..	0.27
July 5........	+ .13	Oct. 5........	.26	Aug. 26........	.40
26........	.07	Dec. 6........	Frozen		

133-083-12ADA2 MP is top of 1¼-inch plastic pipe 1.90 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
May 17, 1973..	4.50	Aug. 25........	5.12	Feb. 28, 1974..	4.80
July 5........	4.68	Oct. 5........	5.04	June 25........	5.15
26........	4.83	Dec. 6........	5.08	Aug. 26........	5.26

133-083-17DAA MP is top of 1¼-inch plastic pipe 2.10 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Nov. 30, 1971..	28.77	July 11........	28.65	Aug. 1........	28.79
Dec. 23........	28.71	Aug. 10........	28.58	25........	28.97
Jan. 5, 1972..	28.71	Sept. 14........	28.75	Oct. 5........	28.75
Feb. 10........	28.69	Nov. 16........	28.66	Dec. 6........	28.68
Mar. 22........	28.83	Feb. 21, 1973..	28.60	Feb. 28, 1974..	28.60
Apr. 20........	28.71	Apr. 11........	28.52	June 26........	28.65
May 16........	28.43	July 10........	28.84	Aug. 27........	28.90
June 20........	28.52	26........	28.80		

133-083-21ABB MP is top of 1¼-inch plastic pipe 1.90 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Nov. 30, 1971..	21.20	July 11........	20.65	Aug. 1........	20.64
Dec. 23........	21.24	Aug. 10........	20.64	25........	20.81
Jan. 5, 1972..	21.23	Sept. 14........	20.71	Oct. 5........	20.70
Feb. 10........	21.17	Nov. 16........	20.73	Dec. 6........	20.74
Mar. 22........	21.26	Feb. 21, 1973..	20.71	Feb. 28, 1974..	20.73
Apr. 20........	21.03	Apr. 11........	20.49	June 26........	20.70
May 16........	20.71	July 10........	20.64	Aug. 27........	20.95
June 20........	20.57	27........	20.67		

133-083-28AAB MP is top of 1¼-inch plastic pipe 2.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Nov. 30, 1971..	39.12	Aug. 10........	38.81	Aug. 25........	38.53
Dec. 23........	39.02	Sept. 14........	38.87	Oct. 5........	38.35
Feb. 10, 1972..	39.28	Nov. 16........	38.75	Dec. 6........	38.37
Apr. 20........	39.04	Apr. 11, 1973..	38.54	Feb. 28, 1974..	38.26
May 16........	38.96	July 10........	38.58	June 26........	38.17
June 20........	38.97	26........	38.52	Aug. 27........	38.27
July 11........	38.93	Aug. 1........	38.49		

133-083-28DCD MP is top of 1¼-inch plastic pipe 2.58 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Nov. 30, 1971..	64.99	Aug. 10........	64.92	Aug. 25........	64.90
Feb. 10, 1972..	65.58	Sept. 14........	64.96	Oct. 5........	64.64
Apr. 20........	64.90	Nov. 16........	64.80	Dec. 6........	64.54
May 16........	64.69	Apr. 11, 1973..	64.66	Feb. 28, 1974..	64.40
June 20........	64.88	July 10........	64.95	June 26........	64.51
July 11........	64.91	27........	64.95	Aug. 27........	64.60

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

133-084-01DCC MP is top of 1¼-inch plastic pipe 1.75 ft above lsd.

Date		Water level	Date		Water level	Date		Water level
May	18, 1973..	23.52	Aug.	25........	24.36	June	25........	24.12
July	10........	24.11	Oct.	5........	24.46	Aug.	27........	25.23
	26........	24.26	Dec.	6........	24.28			
Aug.	1........	24.22	Feb.	28, 1974..	24.28			

133-085-12AAD MP is top of 2-inch steel pipe 4.00 ft above lsd.

Oct.	17, 1972..	183.00	July	10........	179.90	Dec.	6........	180.17
Dec.	12........	182.50		19........	180.18	Feb.	28, 1974..	180.05
Feb.	21, 1973..	180.30	Aug.	21........	180.34	June	26........	180.12
Apr.	11........	180.10	Oct.	9........	180.13	Aug.	27........	180.43

133-085-26CCC MP is top of 1¼-inch plastic pipe 1.40 ft above lsd.

Nov.	30, 1971..	183.28	July	12........	171.79	Aug.	1........	167.58
Jan.	5, 1972..	182.00	Aug.	10........	169.48		28........	166.41
Feb.	10........	181.26	Sept.	14........	167.15	Oct.	9........	166.13
Mar.	22........	175.03	Nov.	16........	168.46	Dec.	6........	166.93
Apr.	20........	174.67	Apr.	11, 1973..	166.31	Feb.	28, 1974..	166.37
May	16........	174.63	July	10........	167.83	June	26........	163.85
June	20........	172.40		20........	167.54	Aug.	27........	166.10

133-089-04DAD MP is top of 2-inch steel pipe 2.00 ft above lsd.

Nov.	8, 1972..	129.48	June	27........	129.76	Dec.	4........	130.74
Dec.	12........	129.50	Aug.	1........	129.99	Feb.	27, 1974..	131.24
Apr.	11, 1973..	129.52		23........	130.18	June	27........	132.21
May	2........	129.64	Oct.	4........	130.46	Aug.	28........	132.85

134-079-32ADD MP is top of 1¼-inch plastic pipe 1.50 ft above lsd.

Oct.	23, 1973..	77.08	Feb.	26, 1974..	77.18	June	25........	77.35
Dec.	3........	77.19	May	1........	77.27	Aug.	26........	77.35

134-082-36DCD MP is top of 2-inch steel pipe 1.00 ft above lsd.

Sept.	9, 1971..	34.29	June	20........	33.11	Aug.	13........	34.47
Oct.	6........	34.32	July	11........	33.55		14........	34.37
Nov.	4........	34.02	Aug.	10........	33.85	Oct.	3........	33.46
	30........	34.28	Sept.	13........	34.10	Dec.	3........	34.37
Dec.	23........	34.23	Nov.	16........	34.20	Feb.	26, 1974..	33.94
Jan.	5, 1972..	34.20	Feb.	21, 1973..	33.59	May	1........	34.01
Feb.	10........	33.89	Mar.	27........	33.39	June	25........	35.39
Mar.	15........	33.31	Apr.	6........	33.49	Aug.	26........	34.75
Apr.	20........	33.42	July	5........	34.04			
May	16........	33.07		18........	34.30			

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

134-085-21BAB1   MP is top of 2-inch steel pipe 3.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
July 9, 1973..	276.86	Oct. 4........	275.69	June 26........	275.53
24........	276.81	Dec. 6........	275.64	Aug. 27........	275.80
Aug. 20........	276.44	Feb. 28, 1974..	275.44		

134-085-21BAB2   MP is top of 2-inch steel pipe 3.00 ft above lsd.

July 9, 1973..	227.34	Oct. 4........	227.49	June 26........	227.09
24........	227.32	Dec. 6........	227.35	Aug. 27........	227.42
Aug. 20........	227.05	Feb. 28, 1974..	227.16		

134-085-21BAB3   MP is top of 1¼-inch plastic pipe 2.00 ft above lsd.

July 9, 1973..	138.30	Oct. 4........	138.48	June 26........	138.29
24........	138.30	Dec. 6........	138.50	Aug. 27........	138.60
Aug. 20........	138.43	Feb. 28, 1974..	138.30		

134-089-23CCB   MP is top of 2-inch steel pipe 2.00 ft above lsd.

Nov. 16, 1972..	200.00	Aug. 23........	199.72	Feb. 27, 1974..	199.33
Dec. 12........	200.20	Oct. 4........	199.59	June 27........	199.59
Apr. 11, 1973..	199.18	Dec. 4........	199.36	Aug. 28........	198.14

135-086-15DDD1   MP is top of 2-inch steel pipe 3.00 ft above lsd.

June 6, 1973..	316.58	Oct. 4........	316.60	June 27........	316.33
July 7........	316.38	Dec. 4........	316.39	Aug. 28........	316.56
Aug. 28........	316.27	Feb. 27, 1974..	316.25		

135-086-15DDD2   MP is top of 1¼-inch plastic pipe 2.00 ft above lsd.

Aug. 28, 1973..	78.67	Dec. 4........	61.78	June 27........	63.68
Oct. 4........	69.50	Feb. 27, 1974..	62.88	Aug. 28........	63.90

135-089-22CDD   MP is top of 2-inch steel pipe 5.00 ft above lsd.

Dec. 12, 1972..	90.15	Aug. 24........	92.77	June 27........	93.18
Apr. 11, 1973..	92.63	Oct. 4........	92.70	Aug. 28........	92.92
June 27........	92.84	Dec. 4........	92.72		
July 24........	92.84	Feb. 27, 1974..	92.58		

135-090-23BBB1   MP is top of 2-inch steel pipe 3.00 ft above lsd.

June 27, 1973..	270.55	Oct. 4........	270.98	June 27........	270.91
July 25........	270.68	Dec. 4........	270.78	Aug. 28........	271.15
Aug. 24........	270.55	Feb. 27, 1974..	270.70		

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

135-090-23BBB2 MP is top of 1¼-inch plastic pipe 2.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
June 27, 1973..	154.42	Oct. 4........	154.55	June 27........	154.34
July 25........	154.60	Dec. 4........	154.38	Aug. 28........	154.50
Aug. 24........	154.50	Feb. 27, 1974..	154.28		

136-085-05ABB MP is top of 1¼-inch plastic pipe 1.20 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Sept. 9, 1971..	17.59	July 20........	17.45	Aug. 28........	18.16
Oct. 6........	17.76	Aug. 10........	17.65	Oct. 2........	18.48
Nov. 4........	17.91	Sept. 14........	17.92	Dec. 4........	18.59
Jan. 6, 1972..	17.98	Feb. 21, 1973..	17.62	Feb. 28, 1974..	17.82
Feb. 10........	17.97	Apr. 11........	17.49	June 26........	18.70
Mar. 22........	16.66	June 27........	18.21	Aug. 28........	18.64
Apr. 26........	16.85	July 25........	18.18		
May 17........	16.77	Aug. 1........	18.16		

136-085-08DDD MP is top of 1¼-inch plastic pipe 1.40 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Sept. 9, 1971..	19.53	May 17........	18.65	July 25........	19.99
Oct. 6........	20.43	July 20........	18.60	Aug. 1........	19.98
Nov. 4........	21.00	Aug. 10........	18.07	28........	20.88
Dec. 23........	21.17	Sept. 14........	19.23	Oct. 2........	21.53
Jan. 6, 1972..	21.05	Nov. 20........	21.13	Dec. 4........	21.93
Feb. 10........	20.82	Feb. 21, 1973..	19.43	Feb. 28, 1974..	20.58
Mar. 22........	18.50	Apr. 11........	19.50	June 26........	21.74
Apr. 26........	18.60	June 27........	20.99	Aug. 28........	20.49

136-085-09BCD MP is top of 1¼-inch plastic pipe 1.10 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Sept. 9, 1971..	15.33	May 17........	13.77	July 25........	15.64
Oct. 6........	15.82	July 20........	14.74	Aug. 1........	15.61
Nov. 4........	16.13	Aug. 10........	14.80	28........	16.09
Dec. 23........	16.11	Sept. 14........	15.29	Oct. 2........	16.43
Jan. 6, 1972..	15.98	Nov. 20........	16.36	Dec. 4........	16.55
Feb. 10........	15.08	Feb. 21, 1973..	14.52	Feb. 28, 1974..	15.08
Mar. 22........	12.92	Apr. 11........	14.82	June 26........	16.51
Apr. 26........	14.04	June 27........	16.06	Aug. 28........	15.94

136-087-36ABD MP is top of 2-inch steel pipe 2.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Dec. 12, 1972..	+13.40	Aug. 28........	+14.00	Feb. 27, 1974..	+13.0
Apr. 11, 1973..	+13.50	Oct. 4........	+14.50	June 27........	+14.50
June 27........	+13.50	Dec. 4........	+12.2	Aug. 28........	+14.0

136-088-13AAA MP is top of 2-inch steel pipe 3.50 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
June 27, 1973..	244.08	Aug. 29........	244.03	Well buried under road bed.	
July 25........	244.11				

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

137-088-21DDC MP is top of 2-inch steel pipe 3.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
Oct. 11, 1972..	125.00	June 27........	123.17	Dec. 4........	123.81
Dec. 12........	124.00	July 25........	122.90	Feb. 27, 1974..	124.40
Apr. 11, 1973..	123.65	Aug. 24........	123.25	June 27........	124.23
May 14........	123.88	Oct. 4........	123.70	Aug. 28........	123.30

137-089-09ABA1 MP is top of 2-inch steel pipe 3.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
June 27, 1973..	263.89	Dec. 4........	263.44	Aug. 28........	263.65
Aug. 29........	262.94	Feb. 28, 1974..	263.48		
Oct. 4........	263.63	June 27........	263.44		

137-089-09ABA2 MP is top of 1¼-inch plastic pipe 1.50 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
June 27, 1973..	232.52	Aug. 29........	232.32	Feb. 28, 1974..	232.49
July 26........	232.66	Oct. 4........	232.52	June 27........	232.42
Aug. 1........	232.63	Dec. 4........	232.39	Aug. 28........	232.68

137-090-30AAC MP is top of 2-inch steel pipe 4.00 ft above lsd.

Date	Water level	Date	Water level	Date	Water level
June 27, 1973..	+40.5	Oct. 4........	+71.0	June 27, 1974..	+71.0
July 9........	+64.0	Nov. 16........	+67.0		
Aug. 24........	+68.0	Dec. 4........	+67.0		

TABLE 3.--Logs of wells and test holes

EXPLANATION

Potential given in millivolts (MV)

Resistance in ohms.

Electric logs are uncalibrated.

Depths shown are in feet below land surface.

Gamma logs (T.C. 8) (Time Constant 8)

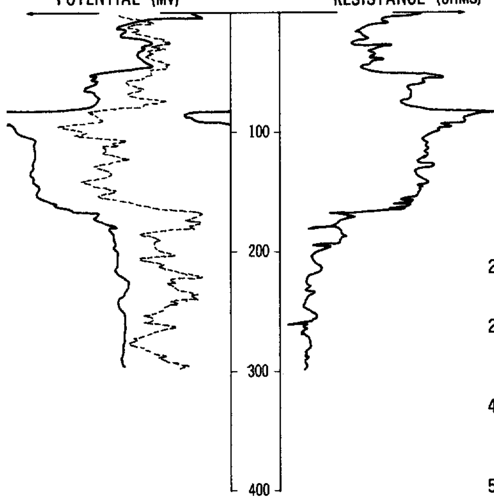
NDSWC 4521

LOCATION: 129-080-23DDD

ALTITUDE: 1890 (FT, MSL)

DATE DRILLED: June 1973

DEPTH: 300 (FT)



	DESCRIPTION OF DEPOSITS
	Glacial drift
0-1	Topsoil, dark-brown, sandy.
1-3	Till, dusky-yellow, very silty, sandy, oxidized.
	Fox Hills Formation
3-22	Siltstone, yellowish-green, sandy, oxidized.
22-27	Siltstone, light-gray, tight, bentonitic.
27-43	Sandstone, grayish-green, very fine to fine, silty, friable.
43-50	Siltstone, medium-gray, bentonitic; carbonaceous streaks.
50-81	Sandstone, dark-grayish-green, very fine to medium; interbedded with thin lenses of carbonaceous clay.
81-91	Sandstone, grayish-green, fine, indurated.
91-162	Sandstone, dark-green, fine to medium, friable; carbonaceous streaks.
	Pierre Formation
162-300	Shale, dark-grayish-black; interbedded with thin lenses of yellowish-white bentonitic clay.

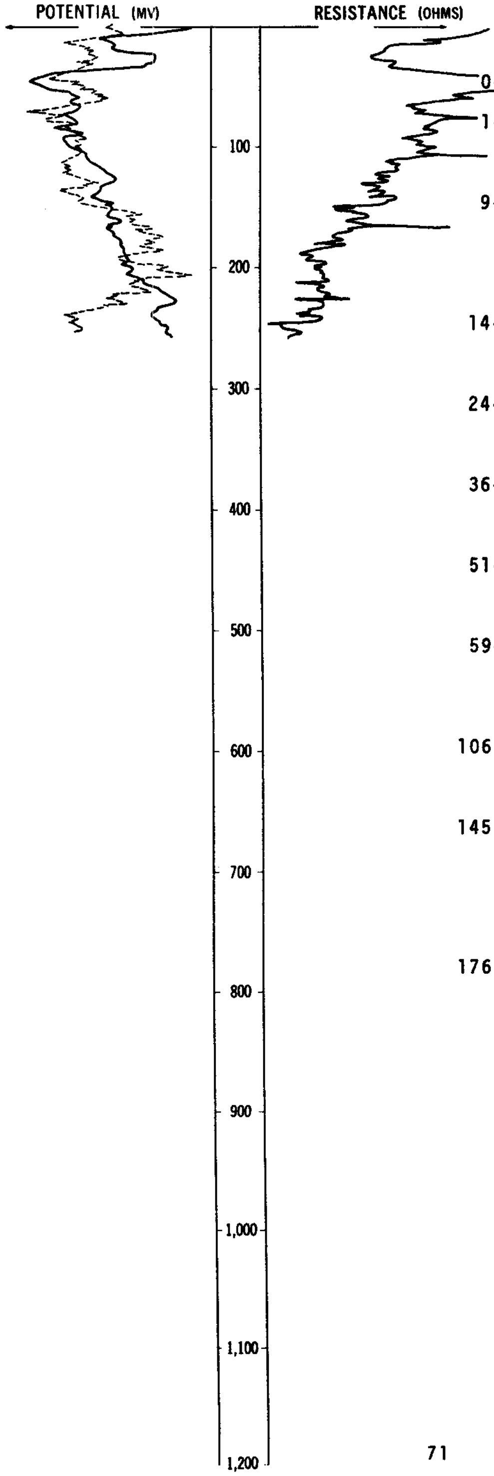
LOCATION: 129-081-01BAB

DATE DRILLED: June 1973

ALTITUDE: 1840 (FT, MSL)

DEPTH: 260 (FT)

Gamma log ------ (T.C. 8)



DESCRIPTION OF DEPOSITS

	Glacial drift
0-1	Topsoil, dark-brown, sandy.
1-9	Sand, yellowish-brown, medium, subangular to subrounded, oxidized.
9-14	Gravel, dark-reddish-brown, fine to medium, sandy; iron-stained surfaces.
	Fox Hills Formation
14-24	Siltstone, medium-grayish-brown, bentonitic; carbonaceous streaks.
24-36	Sandstone, light-green, very fine, clayey, friable, fossiliferous.
36-51	Sandstone, dark-green, fine to medium, subangular, indurated.
51-59	Sandstone, dark-greenish-brown, fine to medium, carbonaceous.
59-106	Sandstone, grayish-green, fine, clayey, fossiliferous; abundant limonitic concretions.
106-145	Sandstone, greenish-gray, very fine to fine, silty; carbonaceous streaks.
145-176	Siltstone, dark-grayish-brown, clayey, carbonaceous; some thin lenses of sandstone.
	Pierre Formation
176-260	Shale, grayish-black, tight, siliceous; some lenses of bentonitic clay.

129-083-31BCA
(Log from Dakota Well Drilling Co.)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil	2	2
	Silt, light-brown	6	8
	Clay, gray	17	25
	Clay, gray, sandy	3	28
	Clay, yellowish-gray	2	30
	Clay, dark-gray	31	61
	Sandstone, cemented	1	62
	Clay, gray	22	84
	Clay, dark-bluish-gray	11	95
	Clay, grayish-black	6	101
	Clay, gray, sandy	13	114
	Clay, bluish-gray	1	115
	Sand, water-bearing	9	124

129-087-10BBB
NDSWC 8105

Altitude: 2064 ft

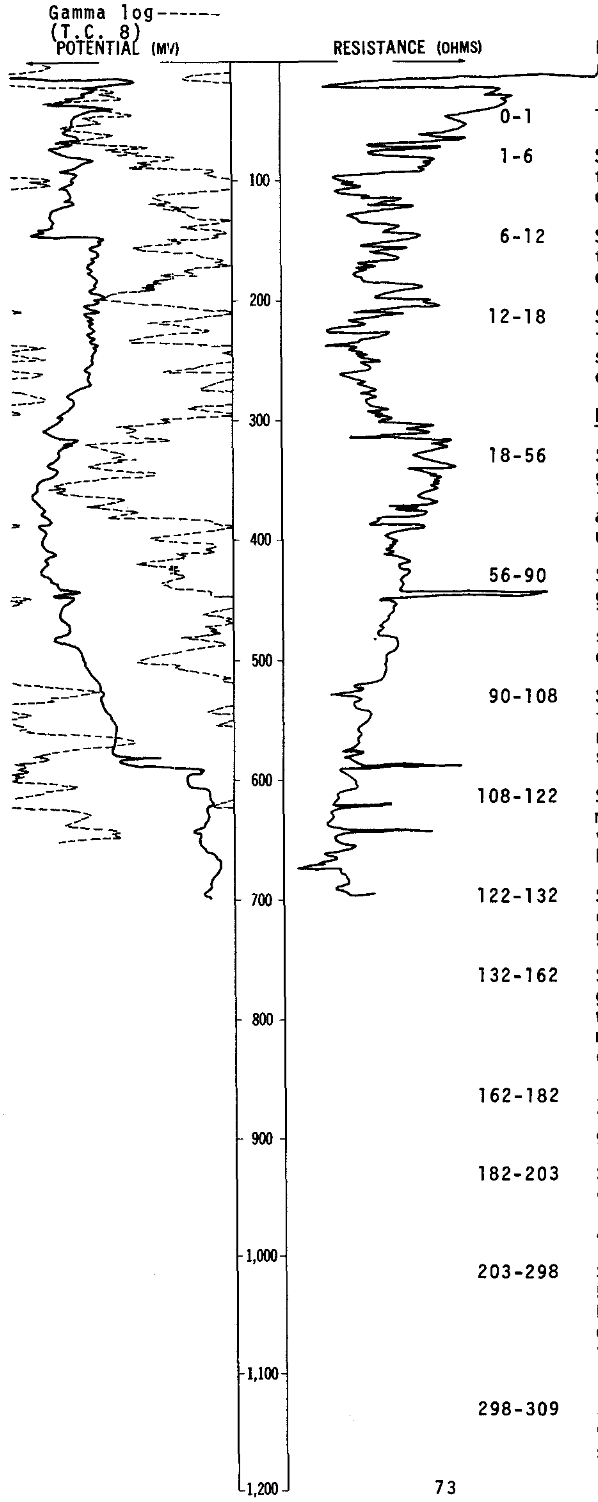
Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Topsoil, brownish-black, sandy to silty	1	1
	Clay, dark-yellowish-brown, very silty, sandy, oxidized	11	12
	Sand, fine to coarse, silty to clayey, subangular to subrounded, oxidized; mostly quartz and siliceous rocks	4	16
	Gravel, fine to coarse, poorly sorted, angular to subrounded, oxidized; mostly siliceous rocks; some sandstone and siltstone	3	19
Hell Creek Formation:			
	Sandstone, medium-bluish-gray, fine-grained, micaceous, calcareous	26	45
	Shale, medium-gray; interbedded with thin lenses of medium-dark-gray siltstone; some small brownish concretions	17	62
	Shale, light-brownish-gray, silty, well-indurated	12	74
	Shale, medium-bluish-gray, very sandy, slightly silty	6	80

LOCATION: 129-087-10BBC

DATE DRILLED: October 1972

ALTITUDE: 2060
(FT, MSL)

DEPTH: 700
(FT)



DESCRIPTION OF DEPOSITS

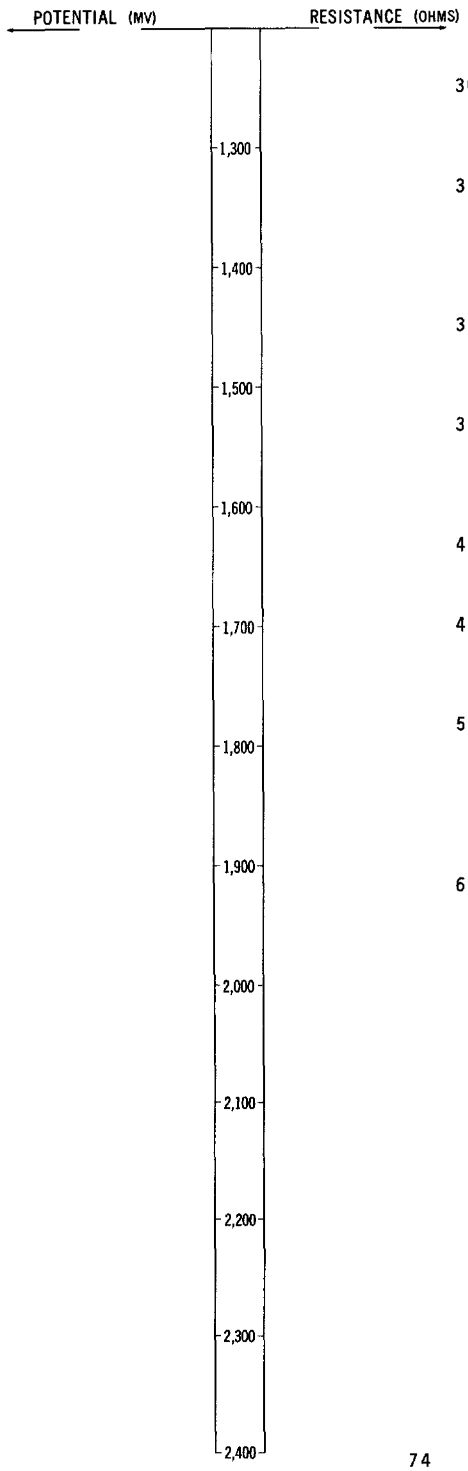
	Alluvium
0-1	Topsoil, dark-brown, sandy.
1-6	Sand, reddish-brown, very fine to fine, subrounded, oxidized.
6-12	Sand, reddish-brown, fine to medium, subrounded, oxidized.
12-18	Sand, reddish-brown, medium to coarse, gravelly, subangular to subrounded, oxidized; fossil fragments.
	Hell Creek Formation
18-56	Sandstone, dark-greenish-gray, fine to medium; interbedded with siltstone and clay; generally unconsolidated.
56-90	Siltstone, light-greenish-gray; interbedded with lenses of very fine sandstone and carbonaceous or chalky shale.
90-108	Shale, dark-brown to black, fairly tight, very carbonaceous; thin streaks of siltstone and sandstone.
108-122	Siltstone, banded, moderately carbonaceous; variegated greens and browns.
122-132	Shale, bentonitic and carbonaceous; variegated grays, greens, and browns.
132-162	Siltstone, light-olive to greenish-gray; interbedded with lenses of fine to medium sandstone and carbonaceous shale.
162-182	Shale, silty, carbonaceous; variegated browns and greens.
182-203	Sandstone, dark-greenish-gray, very fine to fine; thin lenses of carbonaceous and chalky clay.
203-298	Siltstone; variegated green, brown, and black; interbedded with lenses of carbonaceous shale and fossiliferous sandstone; indurated in places.
298-309	Sandstone, light-greenish-gray, very fine to fine, silty.

LOCATION: 129-087-10BBC

DATE DRILLED: October 1972

ALTITUDE: 2060
(FT, MSL)

DEPTH: 700
(FT)



DESCRIPTION OF DEPOSITS

Hell Creek Formation, Continued

309-311	Shale, black, hard, carbonaceous.

Fox Hills Formation

311-368	Sandstone, dark-green, very fine to medium, subangular, quartzose, micaceous; interbedded with thin lenses of carbonaceous silty clay.
368-396	Sandstone, brownish-green, fine to medium; interbedded with thin lenses of carbonaceous shale.
396-440	Siltstone, dark-greenish-gray, slightly carbonaceous; interbedded with thin lenses of clay and sandstone.
440-443	Sandstone, dark-gray, very fine, indurated, pyritiferous.
443-514	Siltstone, brownish-green, bentonitic, carbonaceous; interbedded with lenses of very fine sandstone.
514-637	Shale, dark-grayish to greenish-brown, very silty, bentonitic, carbonaceous; occasional fossiliferous limestone lenses.

Pierre Formation

637-700	Shale, dark-brownish-black, fissile, very tight, gypsiferous.

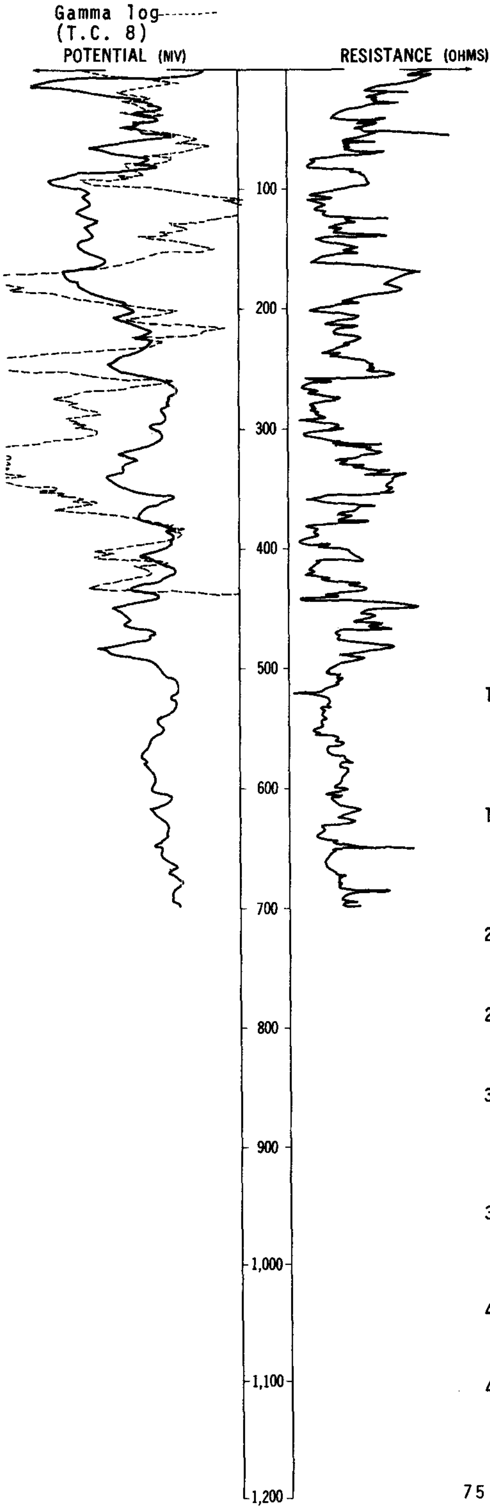
NDSWC 4525

LOCATION: 129-088-05DDD1

DATE DRILLED: June 1973

ALTITUDE: 2200
(FT, MSL)

DEPTH: 700
(FT)



DESCRIPTION OF DEPOSITS

Alluvium

0-13 Gravel, fine to coarse, sandy, subangular to rounded; some cobbles; occasional thin lenses of silt and clay.

Cannonball Formation

13-70 Siltstone; variegated gray, green, brown, and black; abundant indurated concretions; interbedded with thin lenses of lignite and bentonitic clay.

70-81 Shale, dark-brownish-black, tight, carbonaceous.

81-98 Sandstone, grayish-green, fine, friable, fossiliferous.

98-163 Shale, greenish-gray, bentonitic; interbedded with lenses of siltstone and sandstone; carbonaceous streaks.

163-188 Sandstone, dark-grayish-green, fine to medium; carbonaceous streaks.

Hell Creek Formation

188-242 Shale, bentonitic, carbonaceous; variegated gray, green, and brown; interbedded with siltstone and sandstone.

242-257 Sandstone, dark-green, fine to medium, semiconsolidated, micaceous.

257-310 Shale, grayish-green, very bentonitic; interbedded with siltstone.

310-354 Sandstone, greenish-gray, very fine to medium, silty; carbonaceous streaks; some indurated fossiliferous layers.

354-443 Siltstone, grayish-green, sandy, bentonitic; interbedded with carbonaceous shale.

443-466 Sandstone, dark-green, fine to medium, subangular, semiconsolidated.

466-516 Siltstone, clayey, very sandy, bentonitic; variegated gray, brown, and green.

NDSWC 4525, Continued

LOCATION: 129-088-05DDD1

ALTITUDE: 2200
(FT, MSL)

DATE DRILLED: June 1973

DEPTH: 700
(FT)

POTENTIAL (MV) RESISTANCE (OHMS)

DESCRIPTION OF DEPOSITS

Fox Hills Formation

516-556	Shale, grayish-green to brown, silty, bentonitic, very carbonaceous.
556-630	Siltstone, medium-gray; interbedded with thin lenses of shale and sandstone.
630-670	Shale, medium-gray; occasional concretions; interbedded with siltstone.
670-700	Siltstone, grayish-green; interbedded with thin lenses of sandstone and carbonaceous shale.

129-088-05DDD2
NDSWC 4525A

Altitude: 2200 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Gravel, fine to coarse, sandy, subangular to rounded; some cobbles; occasional thin lenses of silt and clay--------------	13	13
Cannonball Formation:			
	Siltstone; variegated gray, green, brown, and black; abundant indurated concretions; interbedded with thin lenses of lignite and bentonitic clay---------------	57	70
	Shale, dark-brownish-black, tight, carbonaceous------------------------------	11	81
	Sandstone, grayish-green, fine, friable, fossiliferous----------------------------	17	98
	Shale, greenish-gray, bentonitic; interbedded with lenses of siltstone and sandstone; carbonaceous streaks---------------	65	163
	Sandstone, dark-grayish-green, fine to medium; carbonaceous streaks--------------	25	188
Hell Creek Formation:			
	Shale, bentonitic, carbonaceous; variegated gray, green, and brown; interbedded with siltstone and sandstone-------------------	54	242
	Sandstone, dark-green, fine to medium, semiconsolidated, micaceous---------------	15	257
	Shale, grayish-green, very bentonitic; interbedded with siltstone----------------	53	310
	Sandstone, greenish-gray, very fine to medium, silty; some indurated fossiliferous layers; carbonaceous streaks------	38	348

129-088-05DDD3
NDSWC 4525B

Altitude: 2200 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Gravel, fine to coarse, sandy, subangular to rounded; some cobbles; occasional thin lenses of silt and clay------------------	13	13
Cannonball Formation:			
	Siltstone; variegated gray, green, brown, and black; abundant indurated concretions; interbedded with thin lenses of lignite and bentonitic clay----------------------	57	70
	Shale, dark-brownish-black, tight, carbonaceous-----------------------------	11	81
	Sandstone, grayish-green, fine, friable, fossiliferous----------------------------	17	98
	Shale, greenish-gray, bentonitic; interbedded with lenses of siltstone and sandstone; carbonaceous streaks-----------	65	163
	Sandstone, dark-grayish-green, fine to medium; carbonaceous streaks-------------	17	180

129-088-28CA
(Log from Main & Ellison)

Altitude:

Material	Thickness (feet)	Depth (feet)
Sand, brown--------------------------------	20	20
Shale, gray--------------------------------	10	30
Lignite------------------------------------	2	32
Shale, gray--------------------------------	8	40
Rock---------------------------------------	1	41
Shale, gray--------------------------------	34	75
Lignite------------------------------------	2	77
Shale, gray--------------------------------	66	143
Sand, water-bearing------------------------	17	160

129-089-23CCC2
(Log from Main & Ellison)

Altitude:

Material	Thickness (feet)	Depth (feet)
Sand, brown--------------------------------	52	52
Shale, gray--------------------------------	43	95
Rock---------------------------------------	2	97
Shale, gray--------------------------------	63	160
Sand, water-bearing------------------------	15	175
Shale, gray--------------------------------	110	285
Rock---------------------------------------	1	286
Shale, gray--------------------------------	24	310
Sand, water-bearing------------------------	45	355

129-089-31CC
(Log from Main & Ellison)

Altitude:

Material	Thickness (feet)	Depth (feet)
Sand, brown--------------------------------	25	25
Shale, gray, silty-------------------------	10	35
Rock---------------------------------------	1	36
Shale, gray--------------------------------	39	75
Rock---------------------------------------	2	77
Shale, gray, silty-------------------------	53	130
Sand, water-bearing------------------------	17	147

129-090-15ADC
(Log from Main & Ellison)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, brown	18	18
	Rock	1	19
	Shale, gray	16	35
	Rock	2	37
	Shale, gray	29	68
	Sand, water-bearing	7	75
	Shale, gray	20	95
	Rock	2	97
	Shale, gray	68	165
	Rock	4	169
	Sand, water-bearing	38	207

130-079-19BBB
FY-6
(Log from Maclay, 1952)

Altitude:

Recent deposits:			
	Silt, light-brown, clayey; contains very fine sand	12	12
	Sand, very fine to fine	13	25
	Clay, brown, silty	5	30
	Sand, very fine to fine, silty	10	40
	Clay, brown, silty	17	57
	Clay, gray to dark-gray	15	72

Remarks: Water level estimated at 30 ft below land surface.

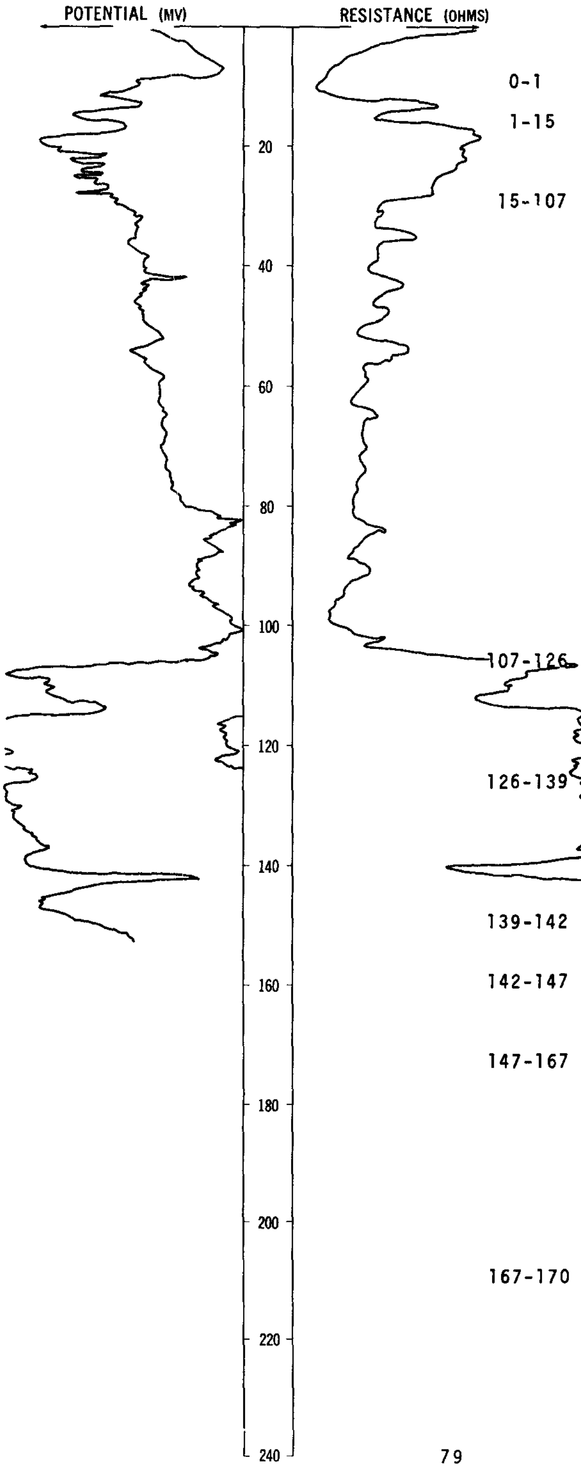
NDSWC 8081

LOCATION: 130-079-19CCB

DATE DRILLED: August 1971

ALTITUDE: 1625
(FT, MSL)

DEPTH: 170
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, brownish-black.
1-15	Clay, moderate-yellowish-brown, silty, calcareous, oxidized.
15-107	Clay, medium-gray; very silty and lignitic 80-107 ft.
107-126	Sand, fine to medium; about 50 percent quartz, 20 percent granitics, 20 percent lignite, and 10 percent sandstone.
126-139	Sand, medium to very coarse, subangular to rounded; about 50 percent quartz, 10 percent each of lignite, carbonates, igneous, scoria, and shale.
139-142	Clay, olive-gray, silty to sandy.
142-147	Sand, fine to coarse; about 25 percent fine to medium gravel.
147-167	Gravel, fine to very coarse, subangular to well-rounded; about 10 percent coarse sand; about 50 percent quartz, 30 percent carbonates, and 20 percent lignite, shale, sandstone, and granitics.

Pierre Formation

167-170	Shale, grayish-black, siliceous, indurated.

NDSWC 8077

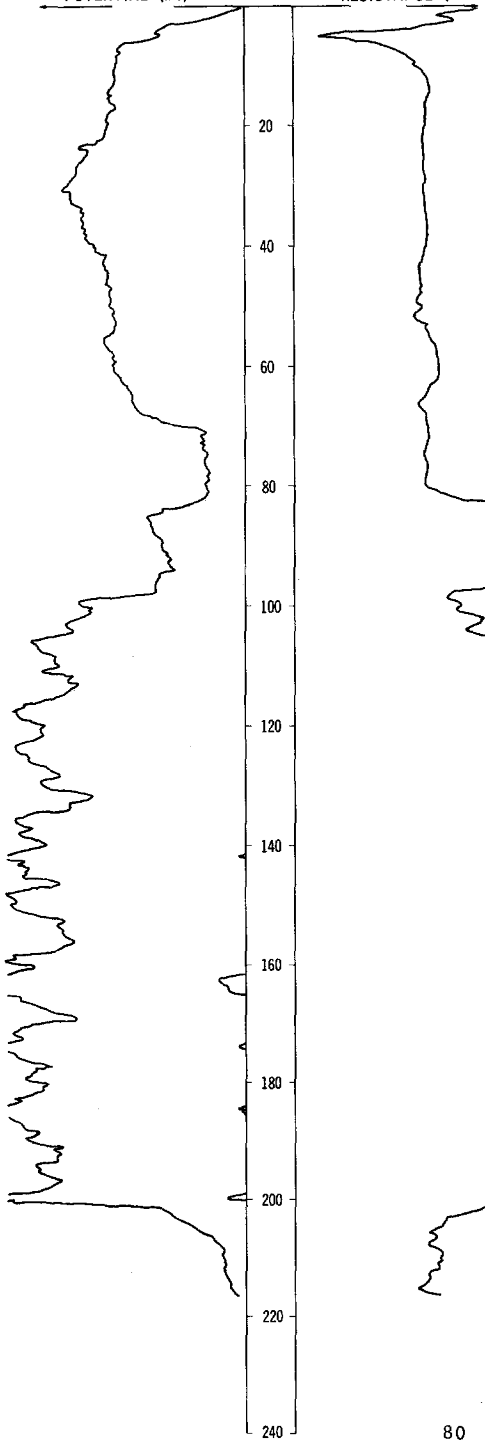
LOCATION: 130-080-03ABB

ALTITUDE: 1640
(FT, MSL)

DATE DRILLED: August 1972

DEPTH: 220
(FT)

POTENTIAL (MV) RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, brownish-black.
1-4	Sand, fine to medium, silty, oxidized.
4-43	Clay, moderate-yellowish-brown, silty, oxidized.
43-84	Clay, olive-gray, silty.
84-88	Sand, fine to medium, silty.
88-95	Clay, olive-gray, very silty; interbedded with thin lenses of fine sand.
95-97	Gravel, coarse, subangular to rounded; mostly granitics and detrital lignite.
97-115	Clay, olive-gray, silty to sandy.
115-170	Sand, fine to coarse, subangular to rounded; mostly granitics; abundant lignite in places; interbedded with thin lenses of silty clay.
170-198	Sand, medium to coarse, subrounded to rounded; about 50 percent quartz, 20 percent detrital lignite and shale, and 20 percent granitics and carbonates.
198-200	Boulder, dolomite.

Pierre Formation

200-220	Shale, grayish-black, siliceous, indurated.

130-080-14CDD
NDSWC 8643

Altitude: 1636 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Clay, moderate-yellowish-brown, oxidized----	15	15
Glacial drift:			
	Gravel, fine to coarse, sandy, subangular to rounded, oxidized------------------------	7	22
	Clay, moderate-yellowish-brown to dusky-yellow, very silty, oxidized-------------	24	46
	Clay, olive-gray, very silty, calcareous----	49	95
	Sand, fine to coarse, subangular to sub-rounded; abundant detrital lignite; interbedded with thin lenses of clay------	50	145
	Gravel, fine to coarse, mostly medium; about 40 percent sand; subangular to rounded; consists of about 15 percent granitics, 20 percent carbonates, 20 percent detrital shale; 30 percent brownish silicates, and 15 percent sandstone and siltstone---------------------------------	20	165
	Gravel, cobbles, and boulders, fine to very coarse; gravel is very angular; similar composition to overlying gravel; very difficult drilling-----------------------	15	180

130-080-23AAA
FY-2
(Log from Maclay, 1952)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
Recent deposits:			
	Soil---------------------------------------	2	2
	Silt, light-brown, clayey; contains very fine sand-------------------------------	4	6
	Sand, medium to coarse; contains fine to coarse gravel----------------------------	16	22
	Sand, very coarse, well-rounded, well-sorted; contains fine to coarse gravel----	10	32
	Clay, gray; contains coarse sand------------	10	42
	Clay, gray----------------------------------	20	62

Remarks: Water level 17.1 ft below land surface.

130-080-23ABB
FY-1
(Log from Maclay, 1952)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
Recent deposits:			
	Soil---------------------------------------	2	2
	Clay, light-brown, silty--------------------	13	15
	Gravel, fine to medium; contains medium to coarse sand------------------------------	5	20
	Clay, light-brown to brown, silty-----------	17	37
	Clay, gray to dark-gray---------------------	53	90
	Sand, very fine to fine, silty; contains lignite fragments------------------------	17	107
	Clay, olive-gray; contains lignite fragments	10	117

Remarks: Dry hole.

130-080-23ADA
DS-12
(Log from Maclay, 1952)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
Recent deposits:			
	Clay, light-gray, silty	7	7
	Silt, light-brown, clayey; contains very fine sand	5	12
	Sand, fine to medium; contains fine to coarse gravel	5	17
	Sand, fine to medium	15	32
	Clay, brown, silty	15	47

Remarks: Water level 19.2 ft below land surface.

130-080-23DDD
NDSWC 8080

Altitude: 1640 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, sandy	1	1
	Clay, moderate-yellowish-brown, silty, oxidized; about 25 percent fine sand	27	28
	Clay, moderate-yellowish-brown, silty, oxidized	27	55
	Clay, medium-gray, silty; some lignite fragments	37	92
	Clay, olive-gray, very silty to slightly sandy	18	110
	Sand, fine to medium, silty; abundant detrital lignite	11	121
	Clay, olive-gray, silty to sandy, calcareous; abundant detrital lignite	17	138
	Gravel, fine; about 50 percent medium to coarse silty sand	5	143
	Gravel, coarse; abundant cobbles	12	155
	Sand, fine to coarse	4	159
	Gravel, fine to coarse; about 25 percent medium sand	12	171
	Clay, olive-gray, very silty to sandy	6	177
	Gravel, fine to coarse; sandy; abundant detrital lignite	21	198
	Gravel, coarse, subrounded to rounded	9	207
Pierre Formation:			
	Shale, grayish-black, siliceous, indurated	13	220

130-080-24ACC
FY-5
(Log from Maclay, 1952)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
Recent deposits:			
	Sand, medium to coarse; contains fine to coarse gravel	22	22
	Clay, light-brown, silty	10	32
	Clay, gray	8	40
	Clay, dark-gray	22	62

Remarks: Water level estimated at 30 ft below land surface.

130-080-24BAB
FY-3
(Log from Maclay, 1952)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
Recent deposits:			
	Soil	1	1
	Silt, light-brown, clayey; contains very fine sand	6	7
	Clay, light-brown to brown, silty	15	22
	Sand, fine to medium, silty	10	32
	Clay, gray to dark-gray	50	82

Remarks: Water level estimated at 27 ft below land surface.

130-080-24BBA
FY-4
(Log from Maclay, 1952)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
Recent deposits:			
	Soil	1	1
	Silt, light-brown, clayey; contains very fine sand	6	7
	Sand, medium to coarse; contains fine to coarse gravel	4	11
	Clay, brown	16	27

Remarks: Dry hole.

130-080-24DDC
DS-13
(Log from Maclay, 1952)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
Recent deposits:			
	Silt, light-brown, clayey; contains very fine sand	7	7
	Sand, brown, fine to medium	10	17
	Sand, medium; contains fine to coarse sand	3	20
	Sand, brown, medium to coarse	7	27
	Clay, gray, silty	10	37
	Clay, gray	10	47

Remarks: Dry hole.

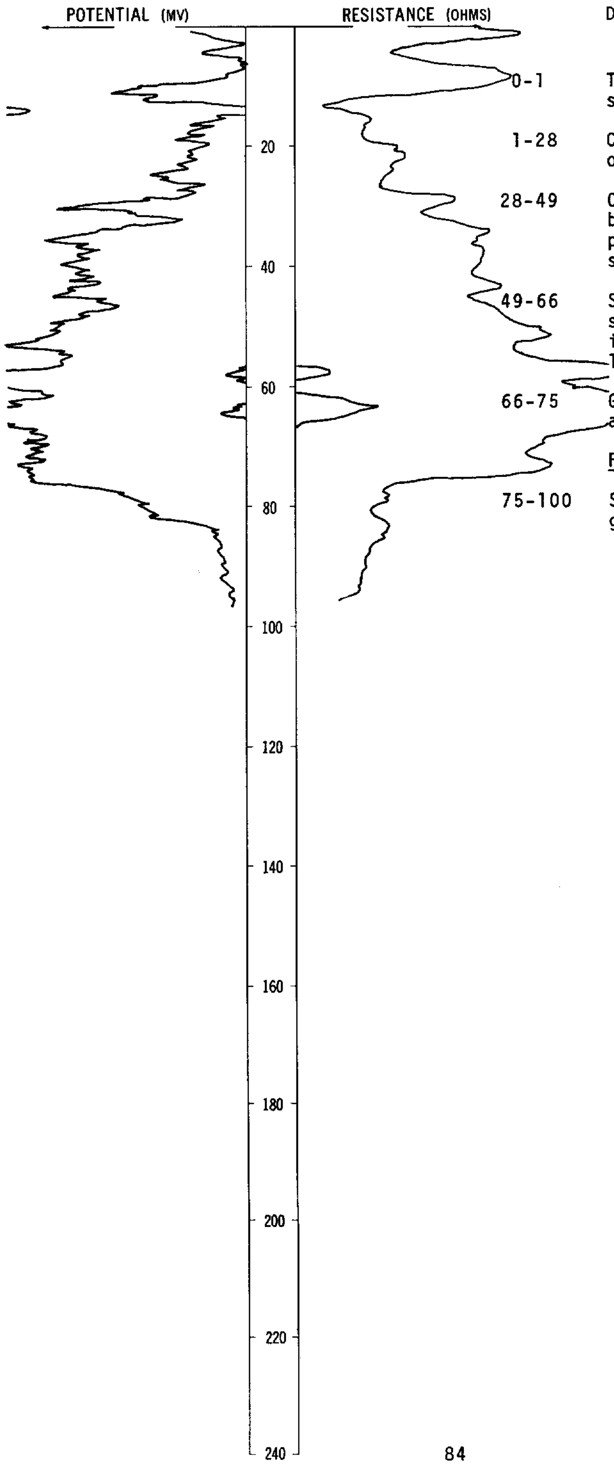
NDSWC 8082

LOCATION: 130-080-26BAA

ALTITUDE: 1645
(FT, MSL)

DATE DRILLED: August 1971

DEPTH: 100
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, brownish-black, silty.
1-28	Clay, medium-brown, silty, oxidized.
28-49	Clay, moderate-yellowish-brown, silty; about 40 percent very fine to fine sand.
49-66	Sand, very fine to medium, subangular to rounded; interbedded with thin lenses of silty clay.
66-75	Gravel, fine to coarse, angular; mostly sandstone.

Fox Hills Formation

75-100	Siltstone, dusky-bluish-green, sandy.

130-082-14CCA
(Log from Dakota Well Drilling Co.)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil	3	3
	Silt, brown	12	15
	Sand, brown, silty	7	22
	Clay, gray	8	30
	Clay, gray, soft	10	40
	Clay, gray; interbedded with black sand	5	45
	Lignite	1	46
	Clay, brown, sandy	6	52
	Clay, gray, soft	7	59
	Clay, gray, hard	6	65
	Lignite	1	66
	Clay, gray	4	70
	Clay, greenish-gray	4	74
	Clay, gray, hard	6.5	80.5
	Sandstone	.5	81
	Clay, light-gray, hard	8	89
	Clay, gray, hard	30	119
	Clay, gray, soft	38	157
	Sand, water-bearing; capped with 0.5 ft of sandstone	6.5	163.5

130-082-36BBC
NDSWC 8083

Altitude: 2197 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Topsoil, brownish-black, silty	1	1
	Clay, moderate-yellowish-brown, silty, oxidized	5	6
Cannonball Formation:			
	Shale, light-olive-brown, silty, lignitic	5	11
	Shale, moderate-olive-brown, silty; about 30 percent very fine to fine sand	9	20
	Shale, brownish-black, lignitic; interbedded with very fine sand	15	35
	Shale, medium-gray, silty; interbedded with thin lenses of fine sand	11	46
	Shale, dark-greenish-gray, silty; carbonaceous streaks; some interbedded very fine sand	19	65
	Siltstone, greenish-black; carbonaceous streaks	10	75
	Sandstone, dusky-bluish-green, medium, semiconsolidated; some interbedded carbonaceous shale	6	81
	Sandstone, dark-greenish-gray, micaceous, semiconsolidated	12	93
Hell Creek Formation:			
	Siltstone, medium-dark-gray	15	108
	Shale, light-gray, silty	6	114
	Sandstone, dark-greenish-gray, fine to medium, micaceous, semiconsolidated	14	128
	Siltstone, medium-dark-gray, partially indurated	6	134
	Sandstone, dark-bluish-gray, fine to medium	6	140
	Sandstone, medium-dark-gray, semiconsolidated; some carbonaceous streaks	15	155
	Shale, brownish-black, carbonaceous; about 30 percent fine to medium sand	9	164
	Shale, brownish-black, silty, partially indurated	7	171
	Sandstone, brownish-gray, fine, semiconsolidated; carbonaceous streaks	20	191
	Sandstone, medium-bluish-green, unconsolidated; interbedded with lenses of shale	11	202
	Siltstone, gray; interbedded with lenses of carbonaceous shale	13	215
	Sandstone, medium-greenish-brown, very fine to fine, partially indurated	7	222
	Shale, brownish-blue-gray, carbonaceous; about 30 percent fine sand	10	232
	Shale, medium-brownish-gray; about 25 percent very fine to medium sand	10	242
	Siltstone, brownish-black; interbedded with thin seams of lignite	24	266
	Sandstone, medium-bluish-gray, glauconitic, semiconsolidated; carbonaceous streaks	14	280
	Shale, dark-greenish-gray; interbedded with lenses of siltstone	7	287
	Shale, dark-brownish-green; interbedded with thin lenses of siltstone	5	292
	Shale, dark-gray, silty to sandy	9	301
	Shale, dark-brownish-gray, carbonaceous; occasional thin lenses of lignite	6	307
	Shale, medium-gray, silty to sandy	6	313

130-082-36BBC, Continued
NDSWC 8083

Altitude: 2197 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Hell Creek Formation, Continued:			
	Shale, medium-bluish-green; about 25 percent fine sand	12	325
	Shale, dark-greenish-gray; about 25 percent fine glauconitic sand	5	330
	Shale, medium-bluish-gray; about 10 percent very fine sand	10	340
	Shale, dark-brownish-gray; interbedded with peat	6	346
	Shale, dark-bluish-gray; interbedded with lenses of very fine sand	4	350
	Shale, chocolate-brown, silty, very carbonaceous	17	367
	Shale, medium-gray, bentonitic; about 25 percent fine to medium sand	21	388
Fox Hills Formation:			
	Siltstone, medium- to light-gray; interbedded with thin lenses of fine sandstone	12	400
	Sandstone, medium-dark-gray, very fine to fine, micaceous	34	434
	Siltstone, medium-gray, clayey	29	463
	Sandstone, medium-greenish-gray, fine to medium	27	490
	Sandstone, dark-greenish-gray, fine to medium; interbedded with thin lenses of limestone	20	510
	Sandstone, dark-greenish-gray, fine to medium, semiconsolidated	40	550
	Sandstone, dark-greenish-gray, fine, clayey	42	592
	Sandstone, dark-greenish-gray, fine to medium, cemented	1	593
	Siltstone, dark-greenish-gray, partially indurated	22	615
	Sandstone, dark-greenish-gray, cemented	1	616
	Siltstone, medium-greenish-gray; interbedded with fine sandstone; carbonaceous at 625 ft	21	637
	Siltstone, dark-greenish-gray; interbedded with thin lenses of carbonaceous sand	25	662
Pierre Formation:			
	Shale, grayish-black, siliceous, indurated	18	680

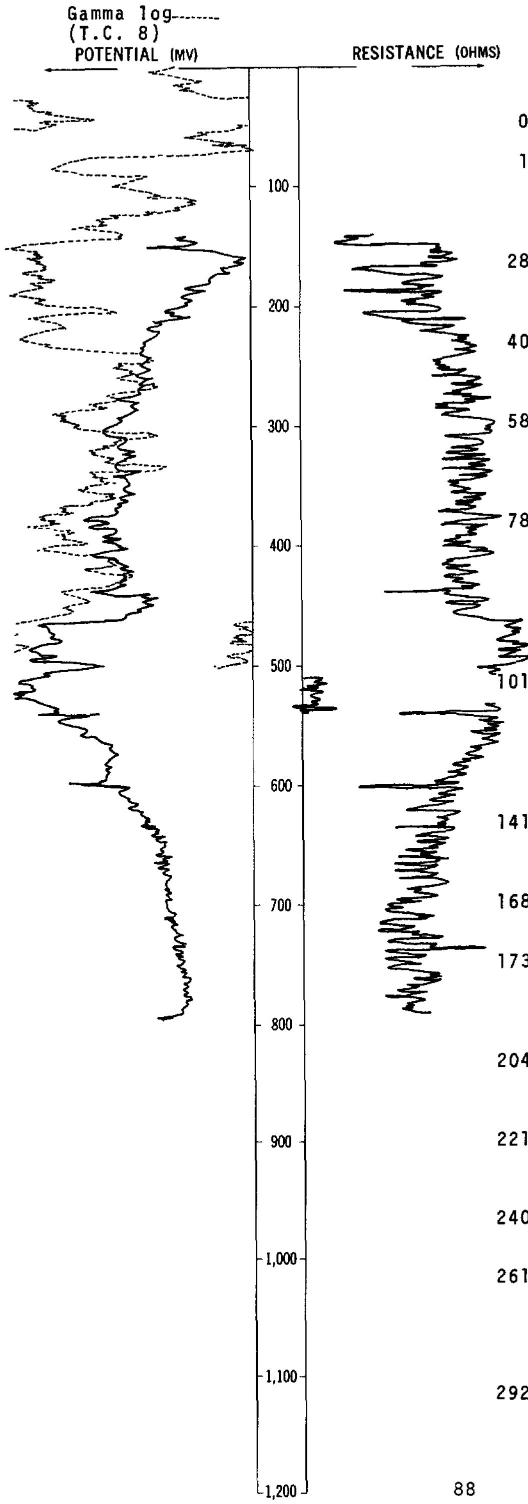
NDSWC 4522

LOCATION: 130-083-36AAA

DATE DRILLED: June 1973

ALTITUDE: 2247 (FT, MSL)

DEPTH: 800 (FT)



DESCRIPTION OF DEPOSITS

	Cannonball Formation
0-1	Topsoil, dark-brown, sandy.
1-28	Sandstone, yellowish-gray, very fine to fine, clayey, oxidized; limonitic nodules.
28-40	Claystone, yellowish-brown, silty, carbonaceous, oxidized.
40-58	Sandstone, grayish-green, fine, friable; thin lenses of carbonaceous shale.
58-78	Siltstone; variegated gray, green, and brown; interbedded with carbonaceous shale.
78-101	Sandstone, light-greenish-gray, very fine to fine; interbedded with thin lenses of carbonaceous siltstone; some fossil fragments and iron concretions.
101-141	Shale, silty, bentonitic; variegated gray, green, and brown; carbonaceous streaks.
	Hell Creek Formation
141-168	Sandstone, greenish-gray, fine to medium; carbonaceous and bentonitic streaks.
168-173	Shale, medium-gray, very bentonitic.
173-204	Sandstone, greenish-gray, very fine to fine; interbedded with carbonaceous shale and lignite.
204-221	Shale, dark-gray and brown, tight, bentonitic; some large concretions.
221-240	Sandstone, brownish-green, very fine to fine, clayey, very carbonaceous.
240-261	Shale, dark-gray, very carbonaceous.
261-292	Siltstone, very bentonitic; variegated gray, green, and brown; interbedded with thin lenses of sandstone and shale.
292-345	Sandstone, grayish-green, very fine to fine; interbedded with lenses of carbonaceous shale.

LOCATION: 130-083-36AAA

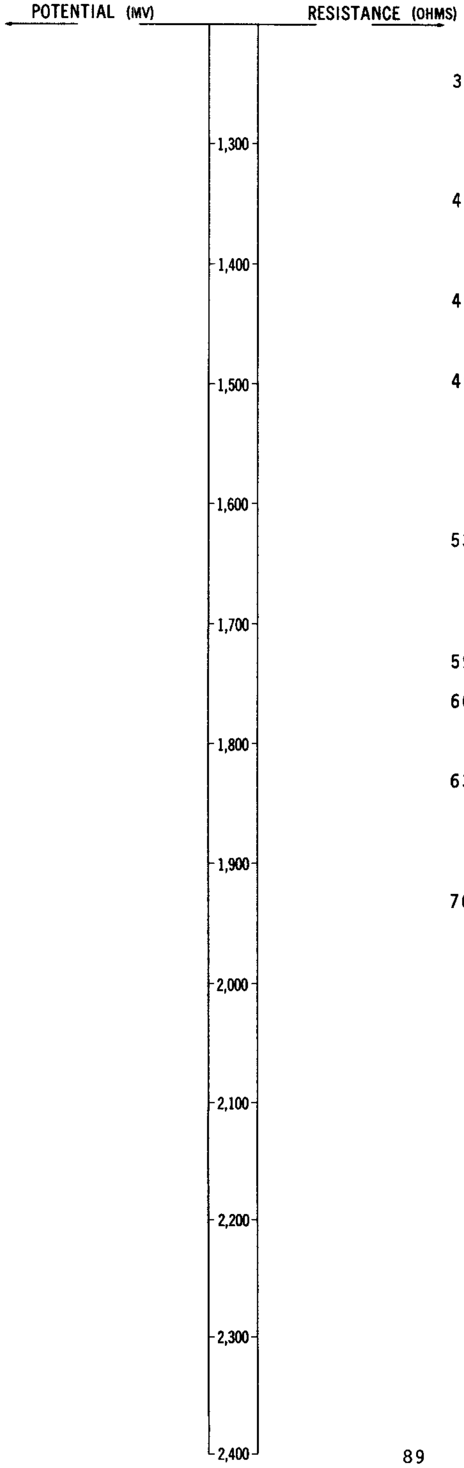
DATE DRILLED: June 1973

ALTITUDE: 2247
(FT, MSL)

DEPTH: 800
(FT)

POTENTIAL (MV)

RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

<u>Hell Creek Formation, Continued</u>

345-410	Siltstone, greenish-gray, bentonitic; interbedded with thin lenses of sandstone and carbonaceous shale.
410-440	Shale, dark-brownish-gray, carbonaceous.

<u>Fox Hills Formation</u>

440-462	Shale, dark-gray, tight; interbedded with thin lenses of bentonitic clay.
462-530	Sandstone, dark-green, very fine to medium, subangular; fossiliferous in the upper part; occasional thin lenses of bentonitic or carbonaceous clay.
530-598	Sandstone, grayish-green, very fine to fine, bentonitic; very silty 560-598 ft; occasional indurated concretions.
598-600	Clay, light-gray, bentonitic.
600-633	Siltstone, brownish-green; interbedded with lenses of sandstone.
633-705	Shale, dark-brownish-black, interbedded with siltstone and very fine sandstone.

<u>Pierre Formation</u>

705-800	Shale, grayish-black, siliceous; some bentonite seams.

LOCATION: 130-084-31AAA1

DATE DRILLED: June 1973

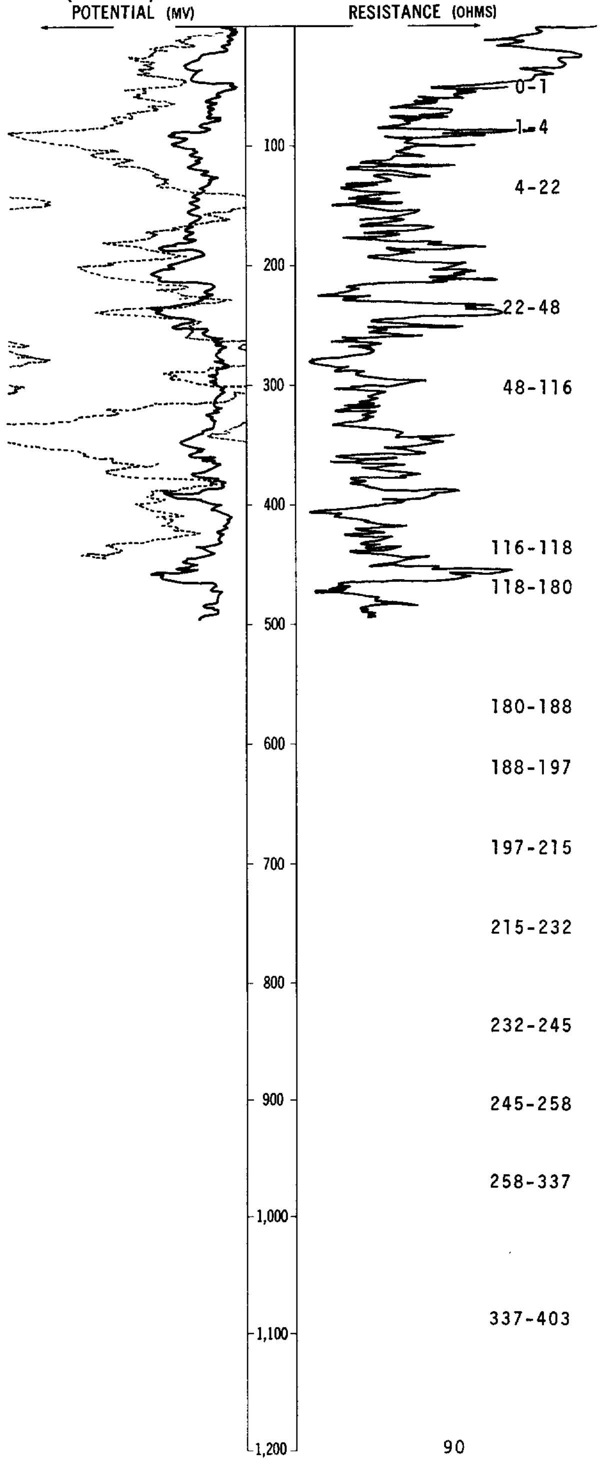
ALTITUDE: 2238
(FT, MSL)

DEPTH: 500
(FT)

Gamma log········
(T.C. 8)

POTENTIAL (MV)

RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

Cannonball Formation

0-1	Topsoil, dark-brown, sandy.
1-4	Sand, yellowish-brown, fine, oxidized.
4-22	Siltstone, light-yellowish-brown, oxidized; abundant limonite stains; interbedded with thin lenses of shale and sandstone.
22-48	Sandstone, reddish-brown, fine to medium, subangular, iron-stained, oxidized.
48-116	Siltstone; variegated gray, green, brown, and black; interbedded with lenses of shale and sandstone; lignite 52-53 ft.

Hell Creek Formation

116-118	Lignite, black, hard.
118-180	Shale, very bentonitic; variegated gray, green, and brown; interbedded with lenses of sandstone and siltstone.
180-188	Sandstone, greenish-gray, very fine, silty, friable.
188-197	Shale, light-green, bentonitic; interbedded with lenses of siltstone.
197-215	Sandstone, dark-grayish-green, medium, subangular; carbonaceous streaks.
215-232	Shale, tight, very bentonitic, moderately carbonaceous; variegated gray, green, and brown.
232-245	Sandstone, greenish-gray, fine, friable; carbonaceous streaks.
245-258	Siltstone, light-greenish-gray; interbedded with thin lenses of sandstone.
258-337	Shale, very bentonitic; variegated gray, green, brown, and black; occasionally carbonaceous; interbedded with thin lenses of siltstone.
337-403	Siltstone, light-greenish-gray, very bentonitic; interbedded with lenses of sandstone and thin lenses of carbonaceous shale.

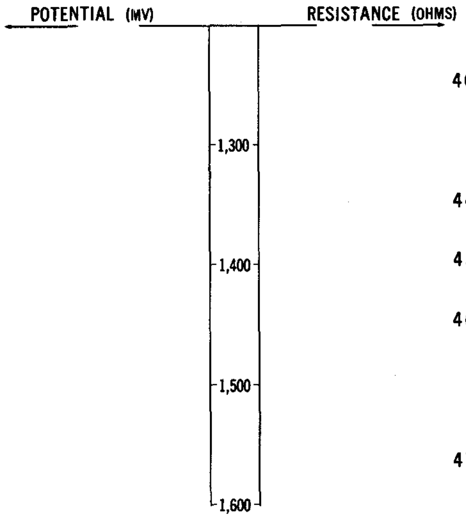
NDSWC 4523, Continued

LOCATION: 130-084-31AAA1

DATE DRILLED: June 1973

ALTITUDE: 2238 (FT, MSL)

DEPTH: 500 (FT)



DESCRIPTION OF DEPOSITS

Hell Creek Formation, Continued

403-442 Shale, very bentonitic and carbonaceous; variegated gray, green, and brown; interbedded with lenses of siltstone.

442-452 Siltstone, light-green, sandy, friable.

452-465 Sandstone, greenish-gray, fine, friable.

465-476 Shale, medium-gray; interbedded with lenses of light-gray bentonitic clay.

Fox Hills Formation

476-500 Shale, very carbonaceous; variegated dark-gray, green, and brown; interbedded with thin lenses of siltstone and sandstone.

130-084-31AAA2
NDSWC 4523A

Altitude: 2238 ft

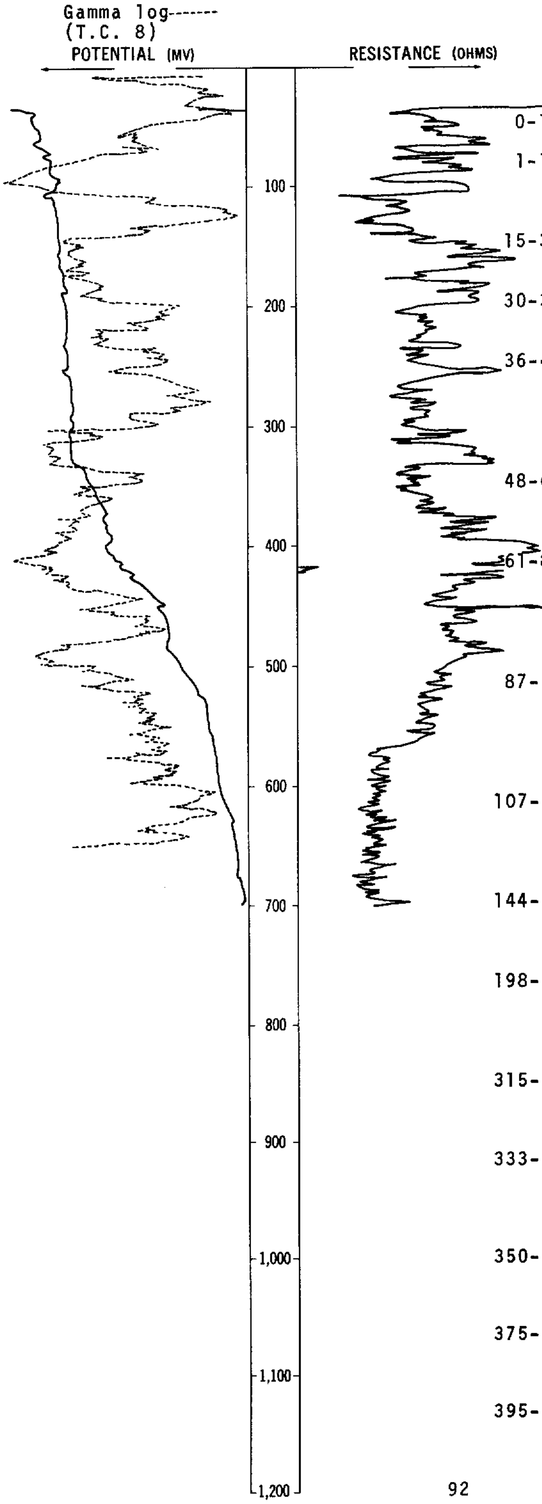
Geologic source	Material	Thickness (feet)	Depth (feet)
Cannonball Formation:			
	Topsoil, dark-brown, sandy------------------	1	1
	Sand, yellowish-brown, fine, oxidized-------	3	4
	Siltstone, light-yellowish-brown, oxidized; abundant limonite stains; interbedded with thin lenses of shale and sandstone--------	18	22
	Sandstone, reddish-brown, fine to medium, subangular, iron-stained, oxidized--------	26	48
	Siltstone; variegated gray, green, brown, and black; interbedded with lenses of shale and sandstone; lignite 52-53 ft-----	68	116
Hell Creek Formation:			
	Lignite, black, hard------------------------	2	118
	Shale, very bentonitic; variegated gray, green, and brown; interbedded with lenses of sandstone and siltstone----------------	62	180
	Sandstone, greenish-gray, very fine, silty, friable------------------------------------	8	188
	Shale, light-green, bentonitic; interbedded with lenses of siltstone------------------	9	197
	Sandstone, dark-grayish-green, medium, subangular; carbonaceous streaks----------	18	215

LOCATION: 130-084-36ABA

DATE DRILLED: October 1972

ALTITUDE: 2148 (FT, MSL)

DEPTH: 700 (FT)



DESCRIPTION OF DEPOSITS

<u>Cannonball Formation</u>

0-1	Topsoil, dark-brown, silty.
1-15	Sandstone, moderate-yellowish-brown, very fine to medium, oxidized.
15-30	Shale, dark-gray, silty, slightly carbonaceous.
30-36	Sandstone, light-greenish-gray, very fine.
36-48	Shale, dark-green; interbedded with thin lenses of carbonaceous shale.

<u>Hell Creek Formation</u>

48-61	Sandstone, greenish-gray, very fine to fine, silty to clayey.
61-87	Siltstone; variegated greens, grays, and browns; interbedded with thin lenses of carbonaceous shale and sandstone.
87-107	Sandstone, grayish-green, fine to medium; some thin lenses of carbonaceous shale; occasional concretions and fossils.
107-144	Shale, brownish-gray, carbonaceous; bentonitic in places; occasionally sandy.
144-198	Sandstone, light-grayish-green, very fine to medium, partially indurated.
198-315	Shale; variegated greens, browns, and grays; interbedded with lenses of siltstone and sandstone.
315-333	Sandstone, dark-green, fine to medium, subangular, quartzose.
333-350	Shale, medium-grayish-brown, silty, carbonaceous.

<u>Fox Hills Formation</u>

350-375	Siltstone, brownish-green, interbedded with carbonaceous shale and sandstone.
375-395	Sandstone, greenish-gray, very fine, silty, calcareous.
395-422	Sandstone, dark-green, fine to medium, subangular to subrounded, partially indurated.

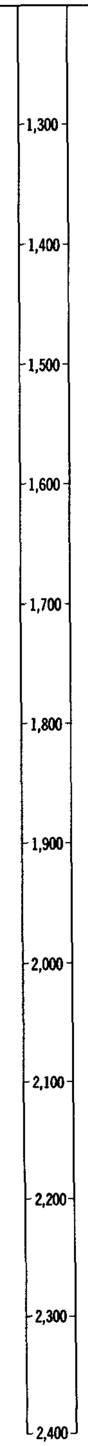
LOCATION: 130-084-36ABA

DATE DRILLED: October 1972

ALTITUDE: 2148
(FT, MSL)

DEPTH: 700
(FT)

POTENTIAL (MV) RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

Fox Hills Formation, Continued

422-429	Shale, brownish-green, sandy, carbonaceous, fossiliferous.
429-438	Sandstone, dark-green, fine to medium, slightly indurated, fossiliferous.
438-451	Shale, dark-brownish-green, sandy, carbonaceous.
451-453	Sandstone, dark-gray, fine, indurated.
453-459	Sandstone, dark-green, fine to medium, partially indurated, fossiliferous.
459-475	Shale, dark-grayish-green, silty, bentonitic, carbonaceous.
475-545	Sandstone, dark-grayish-green, very fine to fine; clayey 525-545 ft; carbonaceous streaks.
545-565	Siltstone, dark-greenish-brown, sandy, carbonaceous.
565-622	Shale, dark-gray, very silty.

Pierre Formation

622-700	Shale, black, very hard, fissile, siliceous.

130-085-04BBB
NDSWC 8096

Altitude: 1944 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Sand, fine to very coarse, silty, subangular to subrounded, oxidized-------------------	38	38
Hell Creek Formation:			
	Shale, greenish-gray to brownish-gray, clayey to silty, moderately indurated-----	22	60

130-085-17ADD
NDSWC 8097

Altitude: 1909 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Clay, dark-yellowish-brown, very silty------	10	10
	Sand, fine to very coarse, subangular, oxidized----------------------------------	2	12
	Gravel, fine to coarse, sandy, angular to rounded, poorly sorted; about 50 percent brownish siliceous rock, 30 percent localized sandstone and siltstone, and 20 percent detrital shale-----------------	12	24
Hell Creek Formation:			
	Shale, medium-bluish-gray to dark-greenish-gray, sandy-------------------------------	16	40

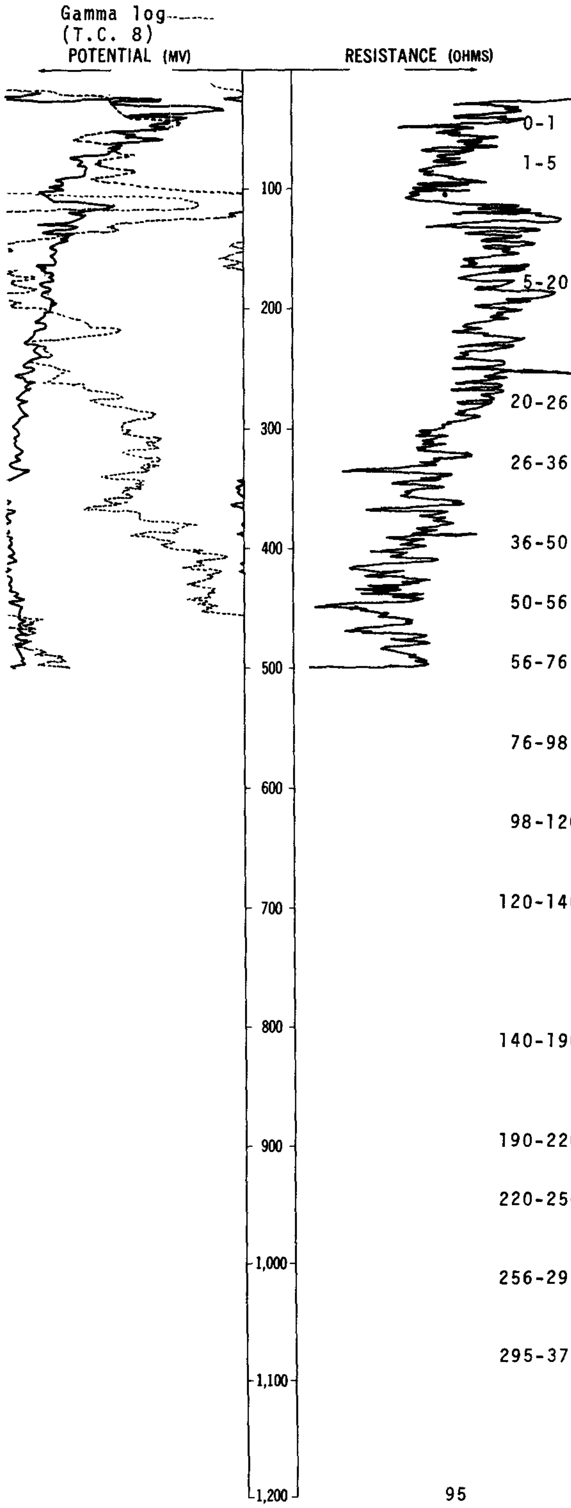
NDSWC 4488

LOCATION: 130-085-17DAA

DATE DRILLED: October 1972

ALTITUDE: 1910 (FT, MSL)

DEPTH: 500 (FT)



DESCRIPTION OF DEPOSITS

	<u>Alluvium</u>
0-1	Topsoil, dark-brown, sandy.
1-5	Gravel, fine to coarse, sandy, subangular to subrounded, oxidized; an assortment of local bedrock and glacial derivatives.
5-20	Sand, medium to coarse, gravelly, subangular to subrounded, oxidized.
	<u>Hell Creek Formation</u>
20-26	Sandstone, grayish-green, very fine.
26-36	Siltstone, grayish-green, slightly bentonitic, carbonaceous.
36-50	Shale, dark-brown, silty, carbonaceous.
50-56	Sandstone, greenish-gray, fine, consolidated, hard.
56-76	Siltstone, greenish-gray; carbonaceous streaks; siderite concretions.
76-98	Sandstone, greenish-gray, fine, clayey, crumbly; carbonaceous streaks.
98-120	Claystone, yellowish-tan to light-gray, hard; carbonaceous stains.
120-140	Siltstone; variegated greens and browns; interbedded with thin lenses of sand and bentonitic clay.
	<u>Fox Hills Formation</u>
140-190	Sandstone, greenish-gray, very fine to fine; interbedded with lenses of dark-green fine to medium sand.
190-220	Siltstone, light-grayish-green; carbonaceous streaks.
220-256	Sandstone, medium-green, fine to medium, subangular, cemented.
256-295	Sandstone, dark-green, very fine to fine, mottled; carbonaceous stains.
295-375	Siltstone; variegated greens, grays, and browns; interbedded with very fine sandstone and thin lenses of shale.

NDSWC 4488, Continued

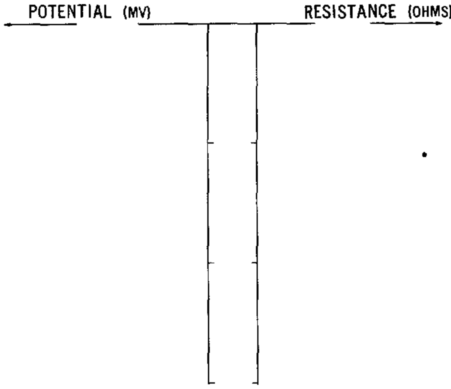
LOCATION: 130-085-17DAA

DATE DRILLED: October 1972

ALTITUDE: 1910
(FT, MSL)

DEPTH: 500
(FT)

POTENTIAL (MV) RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

Fox Hills Formation, Continued

375-400 Shale, dark-greenish-gray, silty.

400-455 Shale, bluish-gray, silty, bentonitic.

Pierre Formation

455-500 Shale, dark-gray, very tight, siliceous; some selenite crystals.

130-086-08CC
(Log from Main & Ellison)

Altitude:

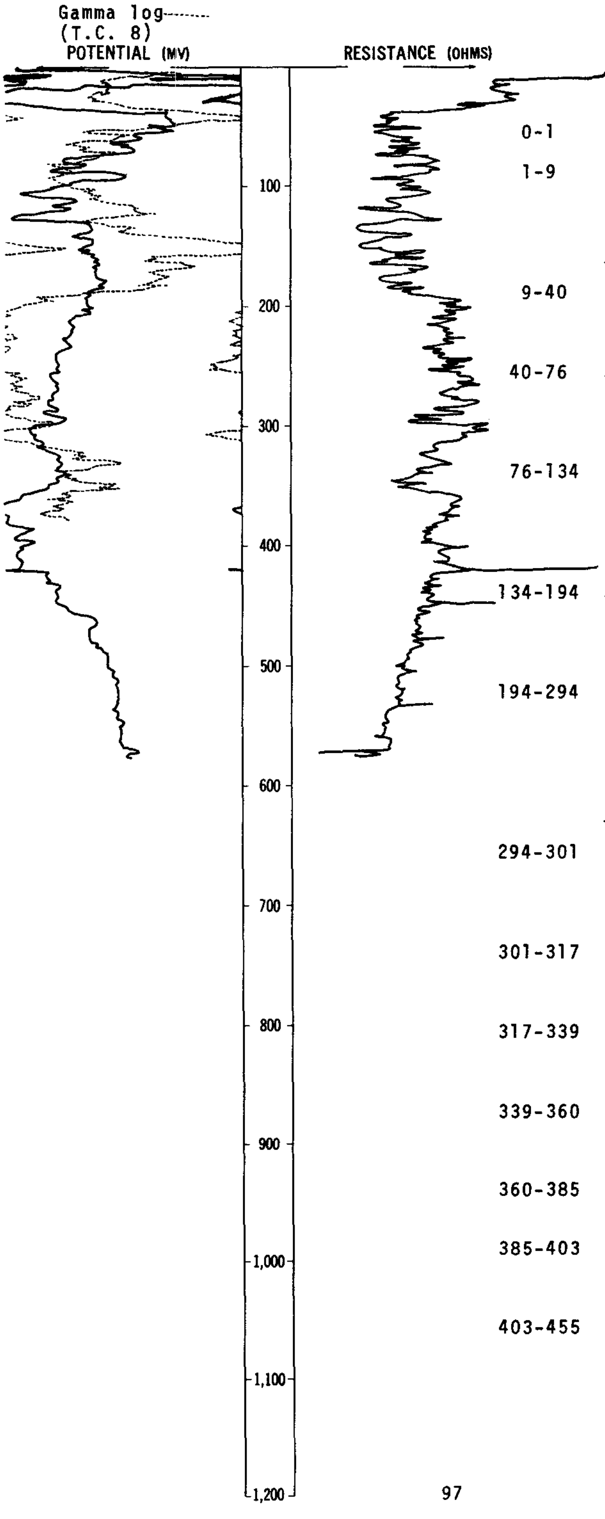
Geologic source	Material	Thickness (feet)	Depth (feet)
	Shale, yellowish-gray------------------------	20	20
	Shale, gray----------------------------------	15	35
	Sand---	5	40
	Lignite--------------------------------------	1	41
	Shale, gray----------------------------------	24	65
	Shale, dark-gray-----------------------------	13	78
	Sand---	5	83
	Shale, gray----------------------------------	27	110
	Sand, water-bearing--------------------------	35	145

LOCATION: 130-086-28CCC1

DATE DRILLED: June 1973

ALTITUDE: 2062
(FT, MSL)

DEPTH: 580
(FT)



DESCRIPTION OF DEPOSITS

Alluvium

0-1	Topsoil, dark-brown, sandy.
1-9	Sand, reddish-brown, fine to medium, subangular to rounded, oxidized.

Hell Creek Formation

9-40	Sandstone, yellowish-green, fine to medium, semiconsolidated, oxidized.
40-76	Shale, carbonaceous; variegated gray, green, and black; interbedded with siltstone and sandstone.
76-134	Sandstone, dark-greenish-gray, very fine to medium; interbedded with thin lenses of bentonitic siltstone and lignitic shale.
134-194	Shale, carbonaceous; variegated gray, green, and brown; interbedded with siltstone and sandstone.
194-294	Sandstone, grayish-green, very fine to fine, semiconsolidated; some thin lenses of bentonitic siltstone and carbonaceous shale.

Fox Hills Formation

294-301	Shale, tight, very bentonitic; variegated gray, green, and brown; carbonaceous streaks.
301-317	Sandstone, dark-green, fine to medium, semiconsolidated.
317-339	Sandstone, greenish-gray, very fine to fine, silty, friable.
339-360	Shale, silty, bentonitic; variegated gray, green, and brown; some concretions.
360-385	Sandstone, dark-green, medium, loose, very fossiliferous.
385-403	Sandstone, grayish-green, fine to medium, silty, semiconsolidated, friable.
403-455	Sandstone, dark-grayish-green, medium; lower part of section very silty; cemented 420-424 and 449-452 ft.

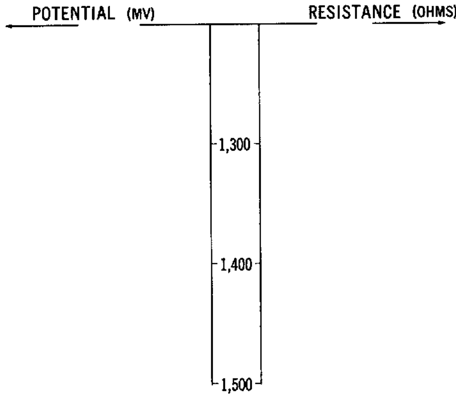
NDSWC 4524, Continued

LOCATION: 130-086-28CCC1

DATE DRILLED: June 1973

ALTITUDE: 2062
(FT, MSL)

DEPTH: 580
(FT)



DESCRIPTION OF DEPOSITS

Fox Hills Formation, Continued

455-490	Sandstone, greenish-gray, very fine, clayey, friable; carbonaceous streaks.
490-540	Siltstone, tight; variegated gray, green, and brown; carbonaceous mottling.

Pierre Formation

540-580	Shale, dark-grayish-black, very tight, siliceous; bentonite layers.

130-086-28CCC2
NDSWC 4524A

Altitude: 2062 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Topsoil, dark-brown, sandy------------------	1	1
	Sand, reddish-brown, fine to medium, subangular to rounded, oxidized----------	8	9
Hell Creek Formation:			
	Sandstone, yellowish-green, fine to medium, semiconsolidated, oxidized----------------	31	40
	Shale, carbonaceous; variegated gray, green, and black; interbedded with siltstone and sandstone----------------------	36	76
	Sandstone, dark-greenish-gray, very fine to medium; interbedded with thin lenses of bentonitic siltstone and lignitic shale---	58	134
	Shale, carbonaceous; variegated gray, green, and brown; interbedded with siltstone and sandstone--------------------------------	60	194
	Sandstone, grayish-green, very fine to fine, semiconsolidated; some very thin lenses of bentonitic siltstone and carbonaceous shale------------------------------------	16	210

130-088-11CAC
(Log from Main & Ellison)

Altitude:

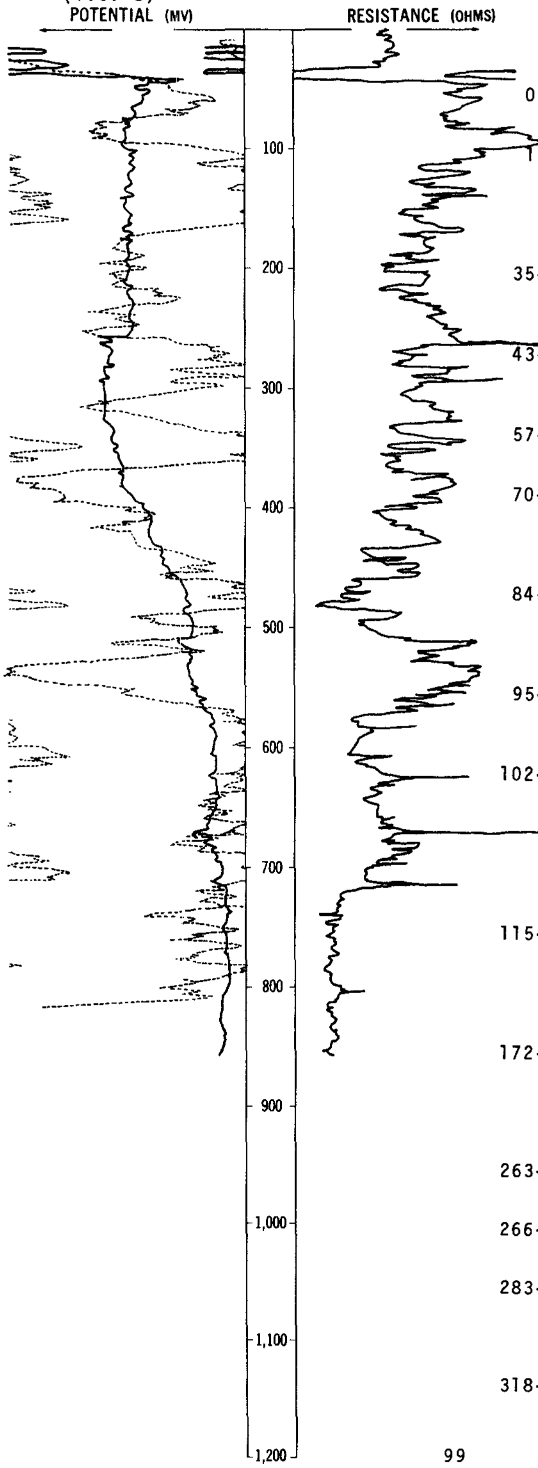
	Sand, brown--------------------------------	25	25
	Shale, gray--------------------------------	15	40
	Lignite------------------------------------	1	41
	Shale, gray--------------------------------	44	85
	Sand, water-bearing------------------------	9	94

LOCATION: 130-089-32DDA

DATE DRILLED: November 1972

ALTITUDE: 2165
(FT, MSL)

DEPTH: 860
(FT)



DESCRIPTION OF DEPOSITS

	Alluvium
0-1	Topsoil, dark-yellowish-brown, sandy.
1-35	Sand, olive-brown, very fine to medium, gravelly, iron-stained, oxidized.
	Cannonball Formation
35-43	Sandstone, brownish-green, fine to medium, soft; carbonaceous streaks.
43-57	Shale, brownish-gray to green, silty, carbonaceous; thin lenses of sandstone.
57-70	Siltstone, medium-brownish-gray; carbonaceous streaks.
70-84	Shale, crumbly; variegated browns and grays; interbedded with thin lenses of siltstone and lignite.
84-95	Sandstone, light-greenish-gray, very fine to fine; carbonaceous streaks; fossil fragments.
95-102	Sandstone, brownish-green, fine; small flow from this interval.
102-115	Siltstone; variegated grays, greens, and browns; interbedded with lenses of bentonitic shale and lignite.
	Ludlow Formation
115-172	Shale, dark-brown, carbonaceous; interbedded with thin lenses of siltstone.
	Hell Creek Formation
172-263	Sandstone, light-greenish-gray, very fine to fine; interbedded with thin lenses of carbonaceous shale.
263-266	Sandstone, dark-gray, very fine, indurated.
266-283	Shale, dark-brownish-green, silty, carbonaceous.
283-318	Siltstone, greenish-gray; slightly bentonitic; occasional indurated stringers.
318-330	Sandstone, greenish-gray, fine to medium; green and brown streaks; slightly indurated.

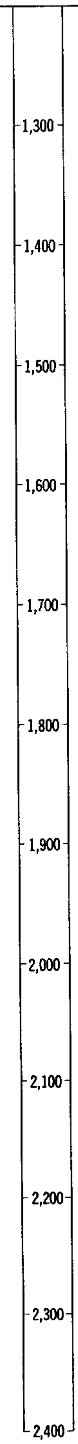
LOCATION: 130-089-32DDA

DATE DRILLED: November 1972

ALTITUDE: 2165 (FT, MSL)

DEPTH: 860 (FT)

POTENTIAL (MV) RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

Hell Creek Formation, Continued

330-340	Shale, dark-brown, highly carbonaceous.
340-370	Shale; variegated greens, grays, and browns; interbedded with light-gray bentonitic clay.
370-398	Sandstone, greenish-gray, very fine to medium; carbonaceous streaks; fossil fragments.
398-409	Shale, medium-brownish-gray, carbonaceous; interbedded with thin layers of bentonitic clay.
409-435	Sandstone, very fine to fine, carbonaceous; variegated greens and browns; becoming dark green and fossiliferous with depth.
435-460	Shale, medium-dark-brown, carbonaceous; interbedded with dark-green sandstone; slightly indurated.
460-484	Shale, brownish-green, silty; carbonaceous and bentonitic streaks.
484-493	Siltstone, greenish-gray, very sandy, carbonaceous.
493-509	Siltstone, olive-gray, clayey; interbedded with thin lenses of carbonaceous clay.

Fox Hills Formation

509-518	Sandstone, greenish-gray, very fine to medium; carbonaceous streaks.
518-522	Siltstone, brownish-green, sandy.
522-570	Sandstone, grayish-green, very fine to medium; occasional thin lenses of carbonaceous shale.
570-720	Siltstone, dark-gray; occasional concretions; interbedded with thin lenses of very fine clayey tight sandstone.
720-780	Shale, medium-dark-gray, very silty; interbedded with thin lenses of brownish-black and white bentonitic clay.

Pierre Formation

780-860	Shale, dark-grayish-black, fissile, siliceous, hard, selenite layers.

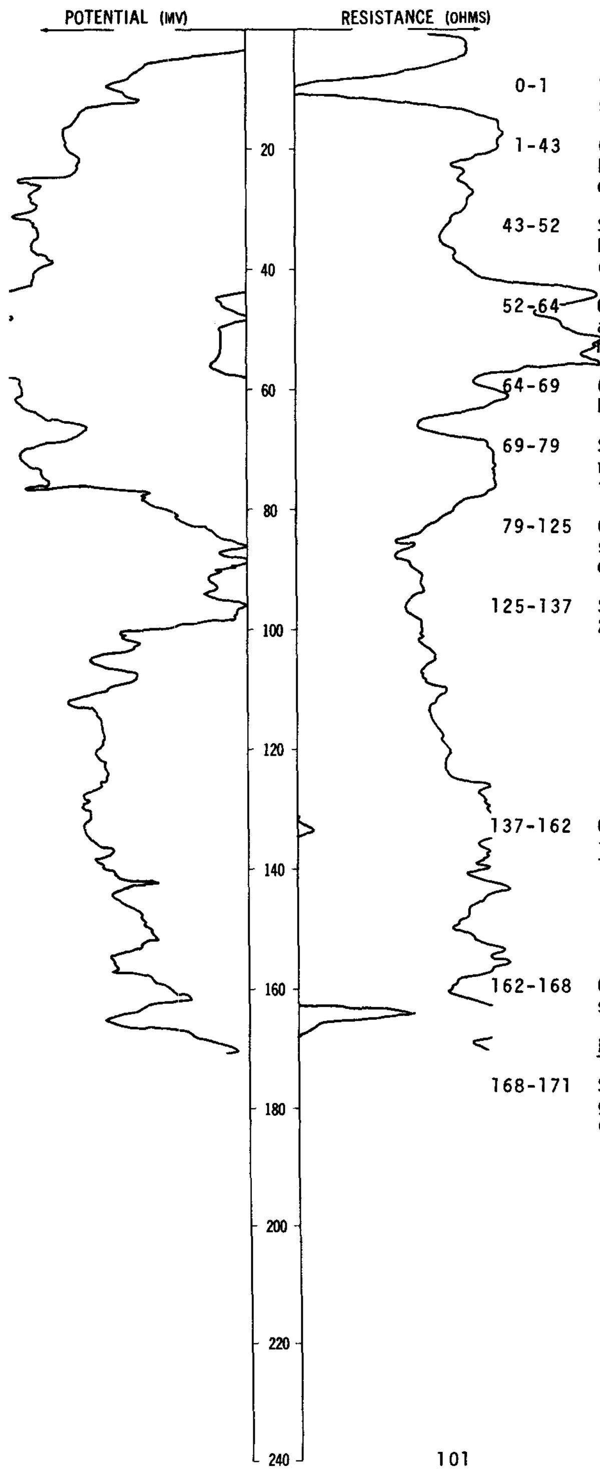
NDSWC 8075

LOCATION: 131-080-06BCD

DATE DRILLED: August 1971

ALTITUDE: 1660
(FT, MSL)

DEPTH: 171
(FT)



DESCRIPTION OF DEPOSITS

<u>Glacial drift</u>

0-1	Topsoil, brownish-black, sandy.
1-43	Clay, moderate-yellowish-brown, silty to very sandy, oxidized.
43-52	Sand, fine to medium; interbedded with lenses of silty clay.
52-64	Gravel, fine to coarse, angular; about 25 percent medium sand.
64-69	Clay, moderate-yellowish-brown, silty to sandy.
69-79	Sand, fine to medium, subrounded to rounded; predominantly quartz.
79-125	Clay, dark-greenish-gray, silty to sandy; thin lenses of carbonaceous material.
125-137	Sand, fine to medium; about 25 percent silty clay.
137-162	Clay, olive-gray, very silty to sandy; abundant detrital lignite.
162-168	Gravel, fine to coarse, sandy, angular to subrounded.

<u>Fox Hills Formation</u>

168-171	Sandstone, dark-greenish-gray, fine to medium, cemented.

131-080-16DDD
NDSWC 8642

Altitude: 1636 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Clay, very silty, oxidized; moderate yellowish brown with olive-gray mottling--	40	40
	Clay, olive-gray, very silty, calcareous----	24	64
Glacial drift:			
	Sand, fine to very coarse, gravelly, subrounded; detrital lignite--------------	3	67
	Clay, olive-gray, very silty----------------	27	94
	Sand, fine to medium, silty, clayey, subangular to subrounded; detrital lignite---	2	96
	Clay, olive-gray, very silty, sandy---------	10	106
	Sand, very fine to coarse, very clayey, subangular to subrounded; some detrital lignite----------------------------------	18	124
	Gravel and cobbles, fine to coarse, angular; consists mostly of brownish silicates, carbonates, detrital shale, and granitics-	10	134
	Clay, olive-gray, very sandy, silty---------	4	138
	Gravel, fine to coarse, angular to subrounded; about 10 percent sand; consists of about 30 percent silicates, 30 percent sandstone, 20 percent siltstone, and 20 percent detrital shale, carbonates, and granitics---------------------------------	10	148
Pierre Formation:			
	Shale, grayish-black to black, siliceous, indurated, noncalcareous------------------	12	160

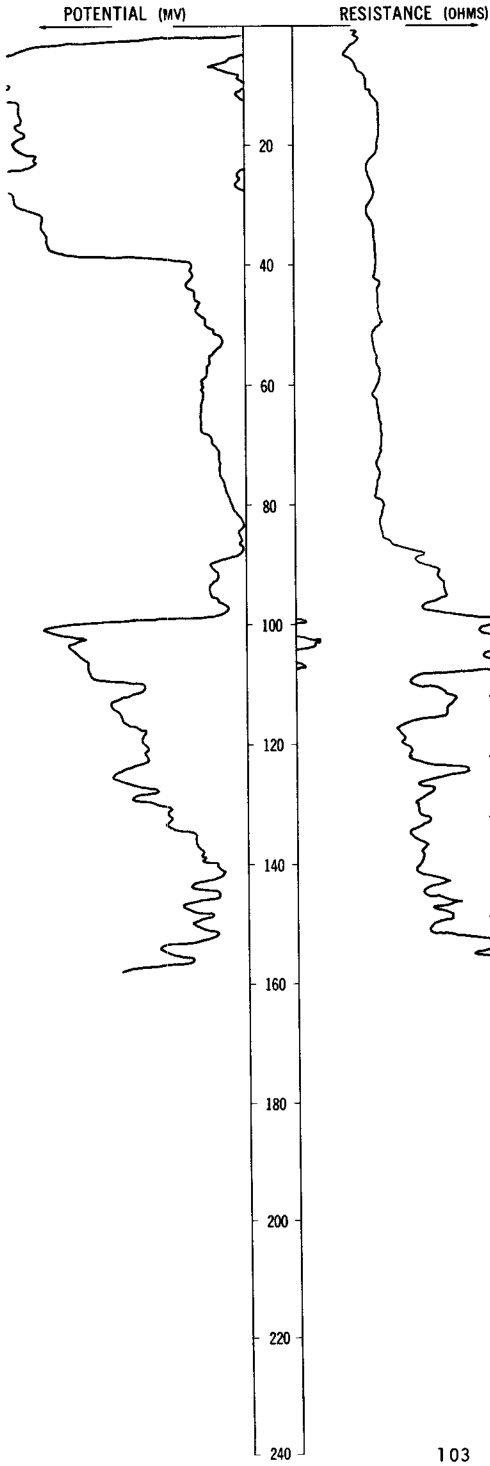
NDSWC 8078

LOCATION: 131-080-33ADD

DATE DRILLED: August 1971

ALTITUDE: 1655
(FT, MSL)

DEPTH: 180
(FT)



DESCRIPTION OF DEPOSITS

<u>Glacial drift</u>

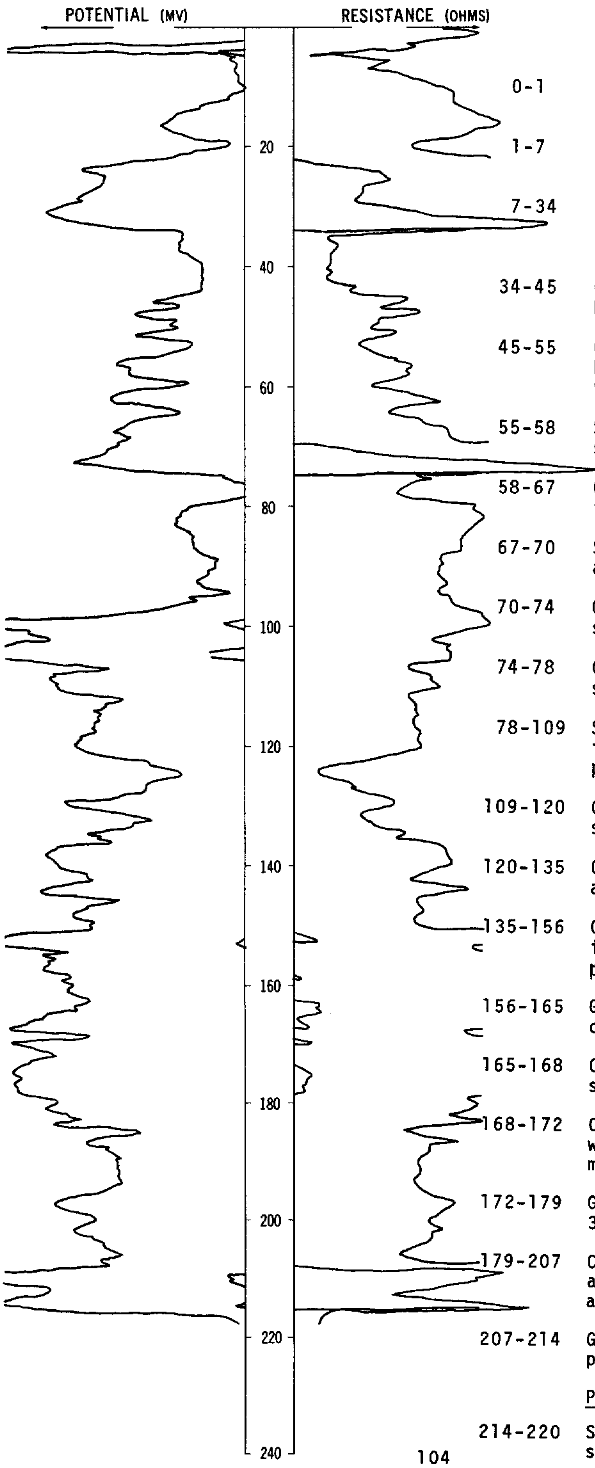
0-1	Topsoil, yellowish-brown, clayey.
1-40	Clay, moderate-yellowish-brown, silty.
40-86	Clay, medium-gray, silty; some detrital lignite.
86-98	Clay, medium-dark-gray, silty; interbedded with about 50 percent fine to medium sand.
98-108	Gravel, fine to coarse, angular to subrounded.
108-116	Clay, olive-gray, silty to sandy.
116-132	Clay, medium-dark-gray, silty.
132-155	Till, olive-gray, silty; interbedded with about 50 percent fine to medium sand.
155-180	Gravel, fine to very coarse, angular; about 50 percent cobbles and boulders.

LOCATION: 131-080-33BAA

ALTITUDE: 1665 (FT, MSL)

DATE DRILLED: August 1971

DEPTH: 220 (FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, brownish-black, sandy.
1-7	Sand, very fine to medium, clayey.
7-34	Clay, moderate-yellowish-brown; interbedded with thin lenses of fine silty sand.
34-45	Clay, moderate-yellowish-brown, silty to sandy.
45-55	Clay, medium-gray; interbedded with thin lenses of very fine sand.
55-58	Sand, very fine to medium, subangular to rounded.
58-67	Clay, grayish-black, silty to sandy.
67-70	Sand, fine to medium; abundant detrital lignite.
70-74	Gravel, coarse; mostly sandstone.
74-78	Clay, olive-gray, silty to sandy.
78-109	Sand, very fine to medium; interbedded with about 40 percent silty clay.
109-120	Clay, medium-dark-gray, sandy, lignitic.
120-135	Clay, olive-gray, very silty; abundant detrital lignite.
135-156	Clay, medium-dark-gray; interbedded with about 25 percent fine sand.
156-165	Gravel, fine to very coarse; cobbles.
165-168	Clay, olive-gray, silty to sandy.
168-172	Clay, olive-gray; interbedded with about 40 percent fine to medium sand.
172-179	Gravel, fine to coarse; about 30 percent coarse sand.
179-207	Clay, medium-brownish-gray; about 25 percent fine sand; abundant detrital lignite.
207-214	Gravel, coarse, angular; predominantly sandstone.

Pierre Formation

214-220	Shale, grayish-black, siliceous, indurated.

131-081-01DAD
NDSWC 8641

Altitude: 1645 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Clay, dark-yellowish-brown, very silty, sandy, oxidized	6	6
	Sand, light-brown, fine to medium, clayey, subrounded, oxidized	9	15
	Clay, olive-gray, very silty, sandy	4	19
Glacial drift:			
	Sand, fine to very coarse, subangular to subrounded; some detrital lignite; about 30 percent fine to medium gravel; medium dark-gray silty sandy clay	113	158
Fox Hills Formation:			
	Sandstone, greenish-gray, fine, cemented, glauconitic, micaceous	22	180

131-081-01DDA
NDSWC 8076

Altitude: 1650 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black	1	1
	Clay, moderate-yellowish-brown, silty to sandy, oxidized	10	11
	Sand, fine to medium, subrounded to rounded; predominantly quartz	4	15
	Gravel, medium to coarse	4	19
	Sand, fine to medium, subangular to rounded	18	37
Fox Hills Formation:			
	Sandstone, medium-bluish-green, silty to clayey	13	50
	Shale, grayish-black, carbonaceous	24	74
Pierre Formation(?):			
	Shale, grayish-black, siliceous, indurated	26	100

NDSWC 4519

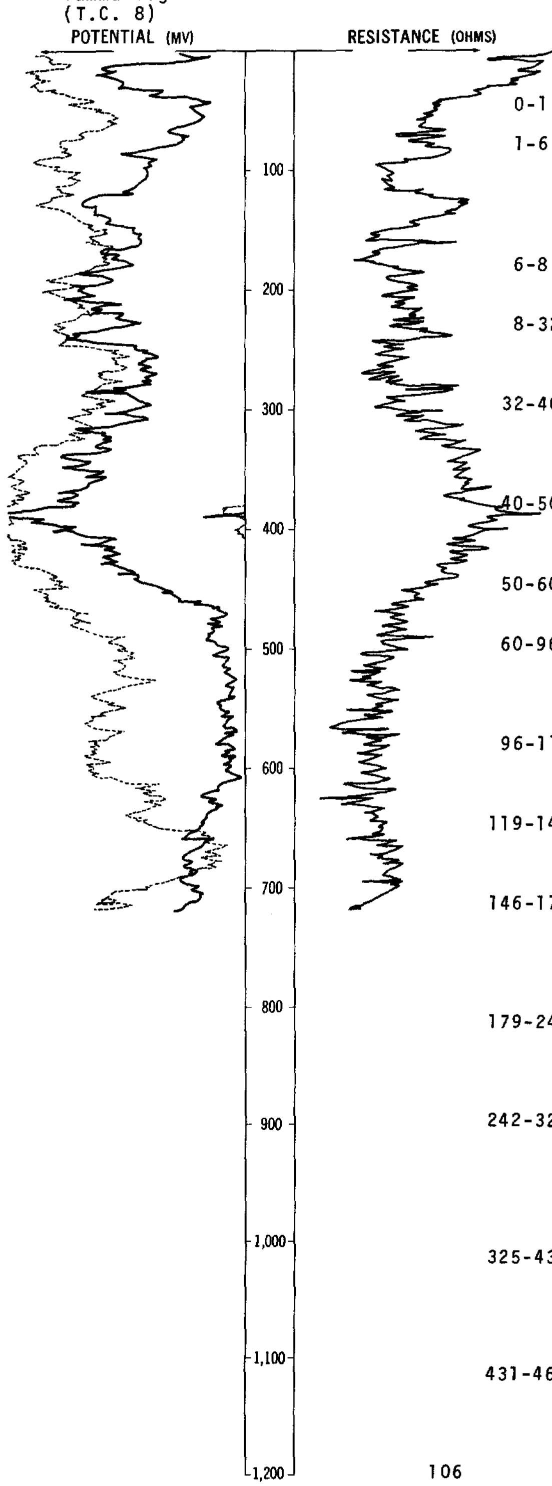
LOCATION: 131-082-18DCD

DATE DRILLED: June 1973

ALTITUDE: 2019 (FT, MSL)

DEPTH: 720 (FT)

Gamma log-------- (T.C. 8)



DESCRIPTION OF DEPOSITS

	Alluvium
0-1	Topsoil, dark-brown, sandy.
1-6	Sand, yellowish-gray, very fine to medium, subangular, oxidized.
	Hell Creek Formation
6-8	Siltstone, dusky-yellow, clayey, oxidized.
8-32	Sandstone, grayish- to yellowish-green, fine to medium, dry, oxidized.
32-40	Siltstone, olive-gray, sandy; interbedded with very thin lenses of carbonaceous shale.
40-50	Siltstone, medium-gray, sandy; interbedded with thin lenses of bentonitic clay.
50-60	Shale, dark-brownish-black, carbonaceous.
60-96	Siltstone, greenish-gray; interbedded with bentonitic clay, carbonaceous shale, and sandstone.
96-119	Shale, greenish-gray, bentonitic; carbonaceous streaks.
119-146	Sandstone, greenish-gray, fine to medium, friable; carbonaceous streaks.
146-179	Shale, carbonaceous; variegated gray, green, and brown; interbedded with thin lenses of indurated siltstone and sandstone.
179-242	Siltstone; variegated gray, green, and brown; interbedded with lenses of sandstone.
242-325	Shale, carbonaceous; variegated gray, green, and brown; interbedded with lenses of siltstone and sandstone.
	Fox Hills Formation
325-431	Sandstone, dark-green, fine to medium, semiconsolidated; very fossiliferous; occasionally silty to clayey; carbonaceous streaks.
431-462	Sandstone, dark-green, very fine to fine, silty, friable; interbedded with thin lenses of carbonaceous shale.

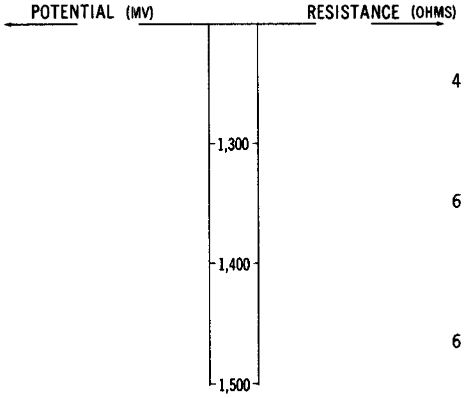
NDSWC 4519, Continued

LOCATION: 131-082-18DCD

DATE DRILLED: June 1973

ALTITUDE: 2019
(FT, MSL)

DEPTH: 720
(FT)



DESCRIPTION OF DEPOSITS

Fox Hills Formation, Continued

462-603 Siltstone, dark-greenish-brown, bentonitic; interbedded with lenses of very fine to fine carbonaceous sandstone.

603-651 Shale, dark-brown, very silty; interbedded with thin lenses of sandstone containing microfossils.

Pierre Formation

651-720 Shale, dark-grayish-black, brittle, tight; bentonitic streaks.

131-083-11BAB
NDSWC 4413

Altitude: 1860 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Gravel, fine to coarse, subangular to subrounded, oxidized; mostly silicates and concretion fragments; some sandstone, shale, granitics, and carbonates----------	19	19
	Sand, fine to coarse, subrounded, oxidized--	10	29
	Silt, dusky-yellow, clayey to sandy, oxidized----------------------------------	14	43
	Silt, olive-gray, clayey--------------------	30	73
	Clay, dark-gray, smooth, tight--------------	12	85
Hell Creek Formation:			
	Sandstone, yellowish-green, fine, semi-consolidated, oxidized; carbonaceous streaks-----------------------------------	28	113
	Sandstone, grayish-green, very fine to fine; interbedded with lenses of siltstone and carbonaceous shale-------------------------	26	139
	Siltstone, greenish-gray, sandy, indurated, brittle-----------------------------------	21	160

131-084-02AAA
NDSWC 4410

Altitude: 1802 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Topsoil, dark-brown, sandy	1	1
	Sand, medium to very coarse, subrounded, oxidized; with fine gravel	8	9
Hell Creek Formation:			
	Shale, medium-dark-gray; interbedded with lenses of bentonitic clay	10	19
	Sandstone, grayish-green, fine, slightly clayey, friable	4	23
	Shale, olive-gray, silty, highly bentonitic	16	39
	Shale, dark-brown to greenish-gray, silty; highly carbonaceous in places	24	63
	Sandstone, dark-greenish-gray, semiconsolidated; interbedded with grayish-green indurated sandstone	19	82
	Shale, medium-greenish-gray, micaceous; interbedded with lenses of siltstone	18	100

131-084-09DAA
DS-11
(Log from Maclay, 1952)

Altitude:

Recent deposits:			
	Clay, light-brown, silty	10	10
	Silt, light-brown, clayey; contains very fine sand	7	17
	Sand, reddish-brown, fine to medium; contains fine to coarse gravel	15	32
	Sand, gray, medium, silty	25	57
Cretaceous--Hell Creek Formation:			
	Sand, dark-gray, fine, silty	10	67

Remarks: Water level 30.5 ft below land surface.

131-084-09DBA
DS-10
(Log from Maclay, 1952)

Altitude:

Recent deposits:			
	Clay, light-brown, silty	12	12
	Silt, brown, clayey; contains very fine sand	8	20
	Sand, very fine to fine; contains fine to coarse gravel	7	27
	Sand, medium to coarse	25	52
Cretaceous--Hell Creek Formation:			
	Sand, fine to medium, silty	23	75
	Clay, gray, silty	7	82

Remarks: Water level estimated at 30 ft below land surface.

131-084-09DBB
DS-9
(Log from Maclay, 1952)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
Recent deposits:			
	Silt, light-brown, clayey; contains very fine sand	3	3
	Sand, very fine to fine, silty; contains fine to coarse gravel	5	8
	Sand, fine, silty	6	14
	Sand, red, fine to medium, silty	8	22
	Sand, gray, medium to coarse, silty	4	26
	Clay, gray, silty	1	27

Remarks: Water level 11.6 ft below land surface.

131-085-29BBD
(Log from Miller Well Drilling)

Altitude:

	Sand, brown, oxidized	40	40
	Clay	20	60
	Sand, water-bearing	20	80

131-085-32AAA
NDSWC 8094

Altitude: 1869 ft

Alluvium:			
	Topsoil, brownish-black, silty to sandy	1	1
	Clay, dark-yellowish-brown, very silty, oxidized	14	15
	Clay, olive-gray; interbedded with thin lenses of fine gravel	8	23
Hell Creek Formation:			
	Shale, greenish- to medium-gray sandy	27	50
	Shale, dark-yellowish-brown, moderately indurated	23	73
	Shale, medium-bluish-gray, sandy, moderately indurated	7	80
	Shale, dark-brown, carbonaceous	6	86
	Shale, medium-bluish-gray, silty	14	100

131-085-32DAA
NDSWC 8095

Altitude: 1870 ft

Alluvium:			
	Topsoil, brown, silty to sandy	1	1
	Clay, dark-yellowish-brown, silty, very sandy, oxidized	15	16
	Sand, fine to coarse, subangular to subrounded, oxidized; interbedded with thin lenses of silty clay	2	18
	Gravel, fine to coarse, sandy, poorly sorted, angular to rounded	2	20
Hell Creek Formation:			
	Shale, medium-bluish to dark-greenish-gray, sandy, moderately indurated	30	50
	Shale, medium-bluish-gray, silty to sandy; some carbonaceous streaks	30	80

131-086-04BBB
(Log from Opp Well Drilling)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil, brown, sandy	1	1
	Sand, gray	3.5	4.5
	Sand and gravel	1	5.5
	Sand, yellowish-gray	4.5	10
	Gravel, clay	2	12
	Sand, yellow	2	14
	Sand and gravel	2	16
	Gravel, clean, water-bearing	7	23
	Clay, gray	1	24
	Gravel, coarse, water-bearing	5	29
	Sandstone, dark-blue, hard	6	35
	Clay, blue, hard	9	44
	Clay, green, sandy	6	50
	Sand, green, dry	18	68
	Clay, blue	10	78
	Clay, black	4	82
	Sand, blue	7	89
	Sand, blue, water-bearing	6	95
	Clay, black, sandy, hard	6	101
	Sand, blue, water-bearing	11	112

131-086-18CC
(Log from Main & Ellison)

Altitude:

	Sand, brown	18	18
	Lignite	2	20
	Sand, water-bearing	10	30
	Shale, gray	10	40
	Lignite	1	41
	Shale	14	55
	Lignite	1	56
	Shale	24	80
	Rock	1	81
	Shale, gray	6	87
	Shale, gray	28	115
	Sand, water-bearing	22	137
	Shale, gray	8	145
	Sand, water-bearing	5	150
	Rock	1	151
	Shale, gray	29	180
	Shale, grayish-brown	20	200
	Shale, gray	75	275
	Sand, water-bearing	37	312

131-088-05AAB
(Log from Opp Well Drilling)

Altitude:

	Topsoil, black	1	1
	Sand, light-gray	8	9
	Clay, gray	11	20
	Sand, gray, some water (1 gal/min)	3	23
	Clay, blue	12	35
	Sand, blue, some water (3 gal/min)	3	38
	Clay, blue	132	170
	Clay, dark-gray, sandy	42	212
	Sand, blue, some water	5	217
	Sandstone, very hard	4	221
	Sandstone, blue (water-bearing)	7	228

131-088-07DA
(Log from Moe Drilling Co.)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, yellowish-brown, oxidized	4	4
	Clay, brown, oxidized	5	9
	Clay, gray	29.5	38.5
	Lignite	.5	39
	Sand, gray	18.5	57.5
	Rock	.5	58
	Sand, gray	12	70
	Clay, brown	10	80

131-089-04CC
(Log from Moe Drilling Co.)

Altitude:

	Sand, oxidized	26	26
	Rock	1	27
	Clay, brown, oxidized	2	29
	Clay, gray	2	31
	Lignite	2	33
	Clay, gray	9	42
	Lignite	1	43
	Clay, gray	25	68
	Rock	1	69
	Sand, gray, very fine	81	150
	Lignite	1	151
	Sand, gray, coarse	4	155
	Clay, gray	3	158

131-089-05BAB
(Log from Moe Drilling Co.)

Altitude:

	Clay, gray	5	5
	Lignite	2	7
	Clay, yellowish-brown	18	25
	Clay, green	51	76
	Sand, gray	30	106
	Clay, gray	2	108

131-089-24CAB
(Log from Moe Drilling Co.)

Altitude:

	Sand, brown	15	15
	Shale, indurated	1	16
	Clay, yellow	31	47
	Clay, gray	13	60
	Clay, brown	33	93
	Sand, gray, coarse	25	118
	Clay, green	2	120
	Sand and shale	15	135
	Shale	.5	135.5
	Sand and shale	40.5	176
	Sandstone, cemented	--	176

131-089-26CCA
(Log from Moe Drilling Co.)

Altitude:

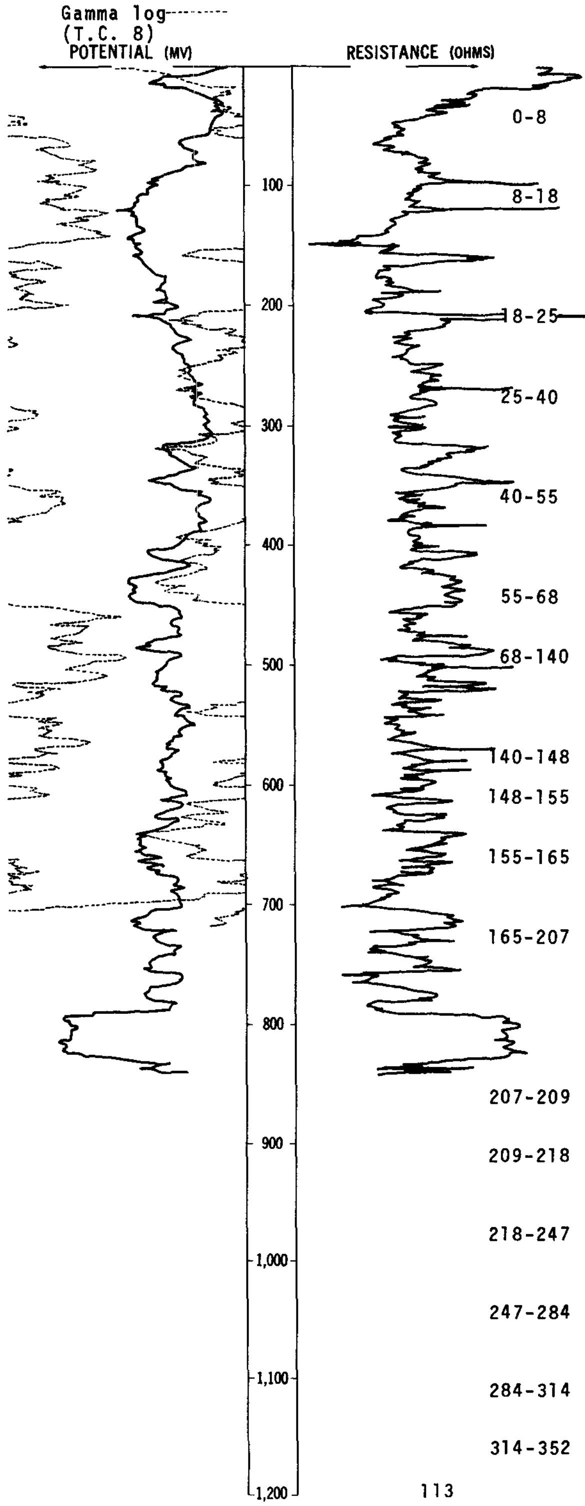
Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, yellowish-brown, oxidized-------------	1	1
	Sand, yellowish, oxidized-------------------	52	53
	Rock, red-----------------------------------	1	54
	Sand, gray----------------------------------	21	75
	Sand, gray, very fine-----------------------	20	95
	Clay, brown---------------------------------	10	105
	Clay, gray, sandy----------------------------	25	130

LOCATION: 131-089-30AAA

DATE DRILLED: June 1973

ALTITUDE: 2395
(FT, MSL)

DEPTH: 840
(FT)



DESCRIPTION OF DEPOSITS

Alluvium

0-8	Sand, reddish-brown, fine to medium, subangular to subrounded, oxidized.
8-18	Sand, yellowish-gray, fine to medium, gravelly, oxidized.

Tongue River Formation

18-25	Sandstone, medium-gray, very fine to fine, silty; carbonaceous streaks.
25-40	Siltstone, medium-dark-gray, interbedded with thin lenses of carbonaceous shale and sandstone.
40-55	Shale, dark-bluish-gray, silty, bentonitic.

Ludlow Formation

55-68	Shale, dark-brown, very silty, carbonaceous.
68-140	Siltstone, dark-brownish-gray, carbonaceous; interbedded with lenses of bentonitic clay.
140-148	Shale, black, lignitic.
148-155	Siltstone, light-brownish-green; carbonaceous streaks.
155-165	Sandstone, gray to brownish-green, very fine to medium; carbonaceous streaks.
165-207	Siltstone, clayey; variegated gray, green, and brown; interbedded with very thin lenses of sandstone.

Cannonball Formation

207-209	Sandstone, dark-greenish-gray, fine, indurated.
209-218	Sandstone, dark-brownish-green, fine to medium, friable, carbonaceous.
218-247	Siltstone; variegated gray, green, and brown; carbonaceous stains.
247-284	Sandstone, light-green, very fine to fine, clayey, silty.
284-314	Shale, greenish-brown, silty, carbonaceous.
314-352	Sandstone, dark-green, very fine to medium, silty, clayey, carbonaceous mottling.

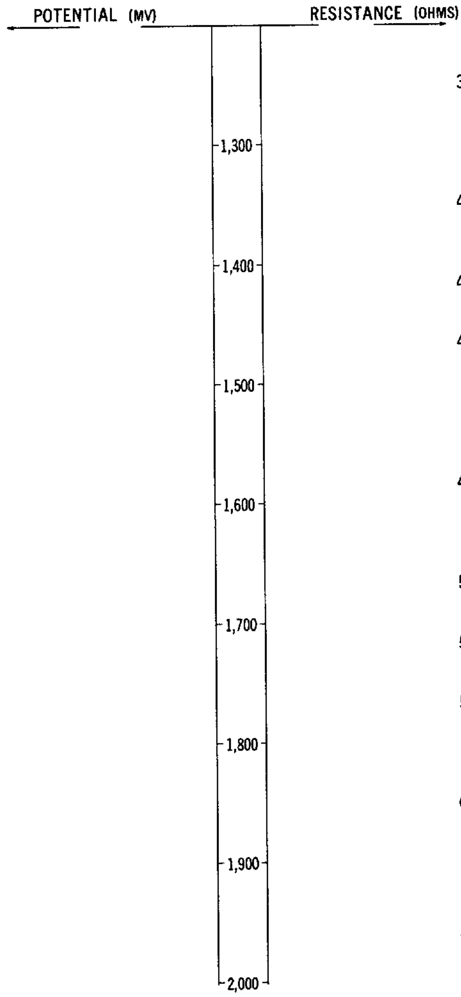
NDSWC 4526, Continued

LOCATION: 131-089-30AAA

ALTITUDE: 2395
(FT, MSL)

DATE DRILLED: June 1973

DEPTH: 840
(FT)



DESCRIPTION OF DEPOSITS

	Cannonball Formation, Continued
352-403	Shale; variegated gray, green, and brown; interbedded with thin lenses of sandstone and bentonitic clay.
403-410	Sandstone, greenish-gray, very fine, friable; carbonaceous streaks.
410-422	Shale, light-green, very silty.
422-450	Sandstone, greenish-gray, very fine to medium, semiconsolidated, friable; carbonaceous stains.
	Ludlow Formation(?)
450-520	Shale, brownish-black, silty, lignitic.
	Hell Creek Formation
520-541	Sandstone, gray to brownish-green, very fine.
541-562	Shale, dark-brown, silty, carbonaceous.
562-638	Sandstone, greenish-gray, very fine; interbedded with thin lenses of bentonitic and carbonaceous shale.
638-788	Sandstone, very fine to fine; variegated gray, green, and brown; interbedded with lenses of siltstone.
	Fox Hills Formation
788-827	Sandstone, grayish-green, fine to medium, subangular, semiconsolidated; abundant biotite flakes.
827-840	Shale, brownish-green, silty, carbonaceous.

132-079-28BAA
(Log from Wetch Drilling)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil	1	1
	Shale, bluish-gray	179	180
	Limestone	2	182
	Sand, bluish-gray, fine	28	210

132-079-28BCC
(Log from Wetch Drilling)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil	1	1
	Clay, brown	23	24
	Sand, brown	18	42
	Granite	6	48
	Sand, rusty-brown, hard	22	70
	Clay, bluish-gray	110	180
	Sand, bluish-gray, water-bearing	1	181
	Clay, bluish-gray	9	190
	Sand, greenish-gray, water-bearing	2	192
	Clay, bluish-gray	118	310
	Sand, greenish-gray	2	312
	Clay, bluish-gray	38	350

132-080-16CCC
NDSWC 8640

Altitude: 1675 ft

Alluvium:			
	Sand, very fine to very coarse, silty, gravelly, oxidized	13	13
	Clay, olive-gray, very silty, sandy	19	32
Glacial drift:			
	Sand, light-gray, fine to very coarse, subrounded; detrital lignite	6	38
	Clay, olive-gray, very silty	25	63
Fox Hills Formation:			
	Sandstone, greenish-gray, fine to medium, micaceous; cemented 63-66 ft	17	80

132-080-23ADB
DS-6
(Log from Maclay, 1952)

Altitude:

Recent deposits:			
	Clay, light-brown to brown, silty	9	9
	Clay, brown	8	17

Remarks: Dry hole.

132-080-23BAC
DS-5
(Log from Maclay, 1952)

Altitude:

Recent deposits:			
	Clay, light-brown to brown, silty	9	9
	Clay, brown, sandy	6	15
	Clay, gray	10	25

Remarks: Dry hole.

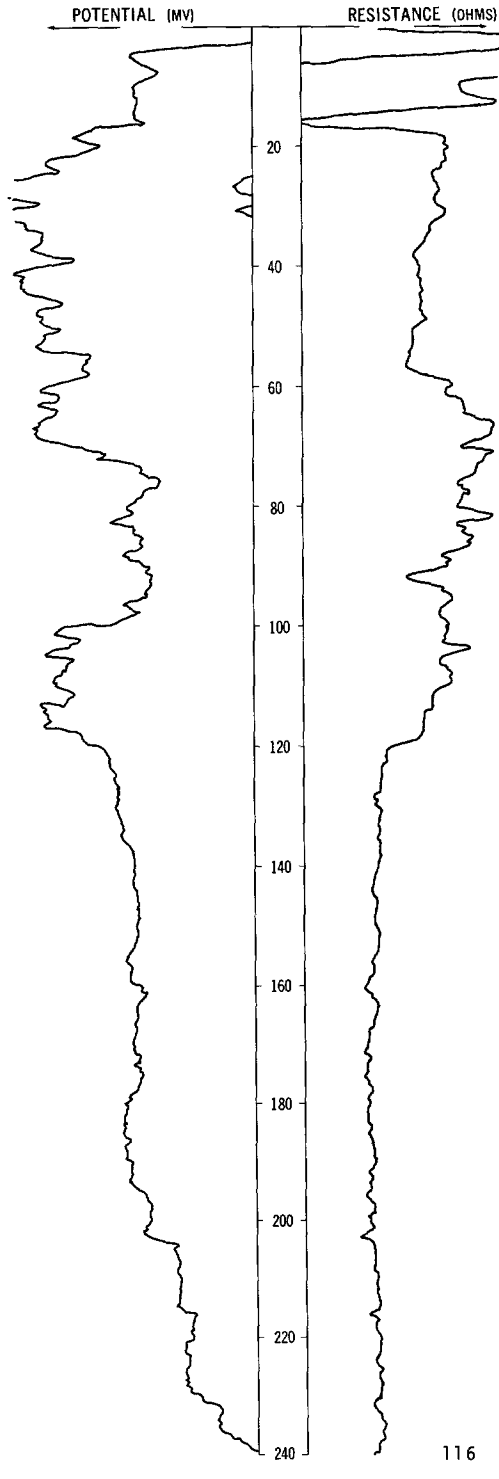
NDSWC 8074

LOCATION: 132-080-27DDD

DATE DRILLED: August 1971

ALTITUDE: 1670 (FT, MSL)

DEPTH: 300 (FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, brownish-black.
1-5	Sand, very fine to coarse, silty, subrounded to rounded.
5-34	Clay, moderate-yellowish-brown, oxidized.
34-58	Clay, olive-gray, silty.
58-87	Clay, olive-gray, very silty; interbedded with about 40 percent fine to medium sand.
87-104	Clay, olive-gray, silty to sandy.
104-120	Till, olive-gray, silty to sandy; abundant detrital lignite.

Hell Creek Formation(?)

120-196	Shale, dark-gray, partially indurated; bentonitic in places.
196-238	Shale, grayish-black, carbonaceous.
238-266	Shale, dark-grayish-black, slightly sandy, bentonitic.

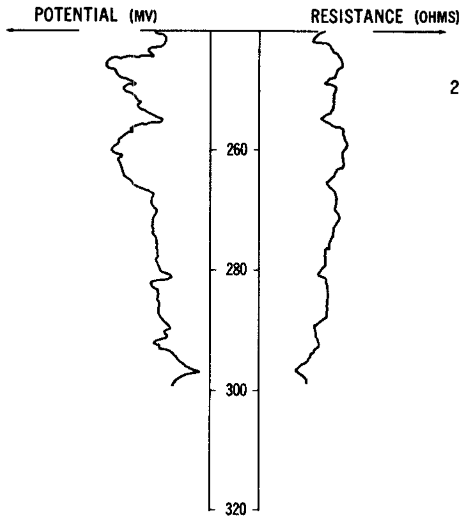
NDSWC 8074, Continued

LOCATION: 132-080-27DDD

DATE DRILLED: August 1971

ALTITUDE: 1670 (FT, MSL)

DEPTH: 300 (FT)



DESCRIPTION OF DEPOSITS

Hell Creek Formation(?), Continued

266-300 Shale, dark-gray, partially indurated; bentonitic in places.

132-080-32BBD
DS-8
(Log from Maclay, 1952)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
Recent deposits:			
	Soil--	1	1
	Clay, reddish-brown, silty------------------	16	17
	Clay, dark-brown, silty; contains very fine sand--------------------------------	7	24
	Sand, gray, very fine to fine; contains fine gravel------------------------------	6	30
Cretaceous--Fox Hills Formation:			
	Sand, red, fine to medium-------------------	1	31

Remarks: Water level 22.0 ft below land surface.

132-080-32CDB
DS-7
(Log from Maclay, 1952)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
Recent deposits:			
	Soil--	1	1
	Silt, light-brown, clayey-------------------	15	16
Cretaceous--Fox Hills Formation:			
	Sand, red, fine to medium-------------------	1	17

Remarks: Dry hole.

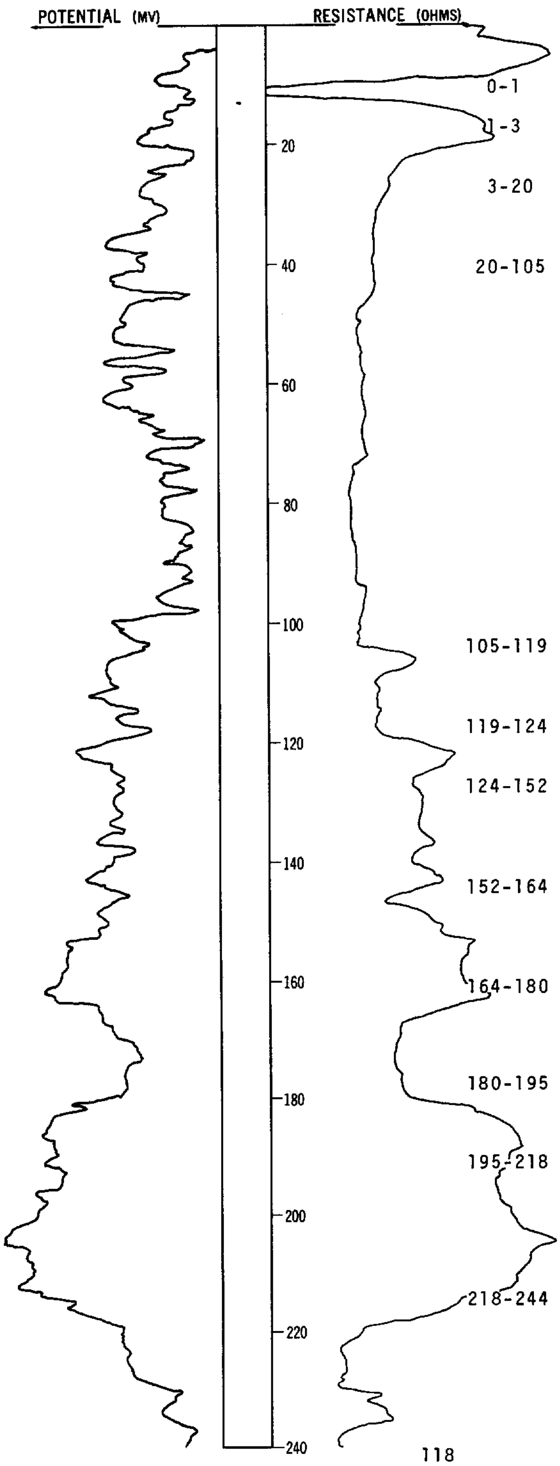
NDSWC 8073

LOCATION: 132-080-35ABB

DATE DRILLED: August 1971

ALTITUDE: 1660
(FT, MSL)

DEPTH: 380
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1 Topsoil, brown, sandy.

1-3 Clay, moderate-yellowish-brown, silty, oxidized.

3-20 Sand, very fine to medium, silty; some carbonaceous material.

20-105 Clay, olive-gray, silty, cohesive.

105-119 Clay, medium-dark-gray, very silty; abundant detrital lignite in places.

119-124 Sand, very fine to medium, silty, clayey.

124-152 Clay, medium-dark-gray, silty; abundant detrital lignite; interbedded with thin lenses of fine sand.

152-164 Sand, medium to coarse, rounded to subrounded; about 25 percent fine to medium gravel.

164-180 Silt, olive-gray; carbonaceous streaks.

180-195 Clay, olive-gray; carbonaceous; about 40 percent very fine to medium sand.

195-218 Clay, brown to bluish-green, carbonaceous; interbedded with lenses of fine to medium sand.

Fox Hills Formation

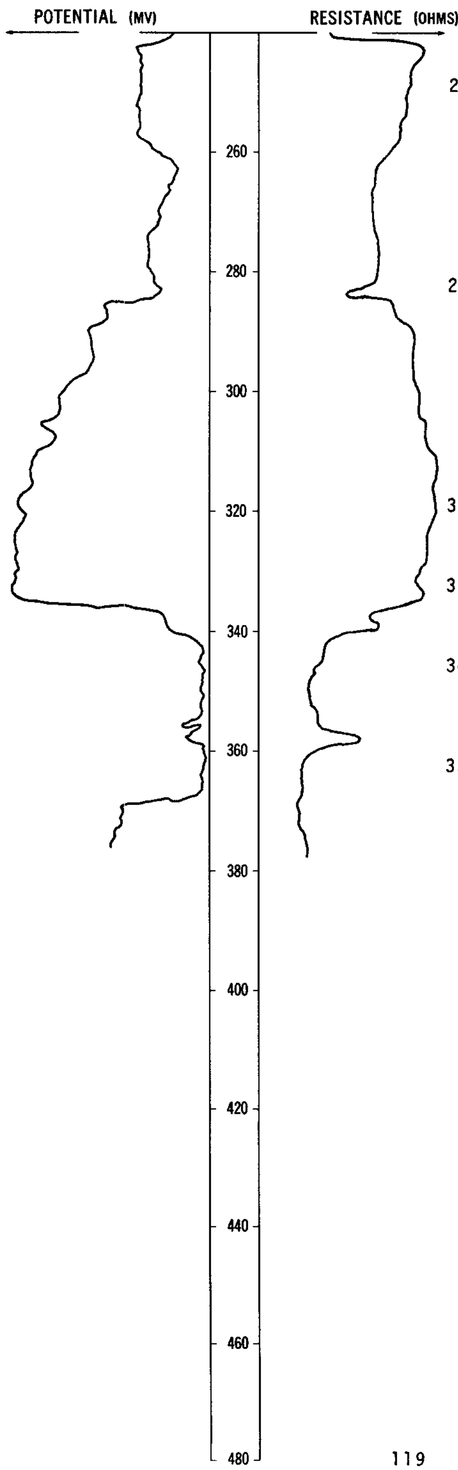
218-244 Sandstone, medium-bluish-green, medium, glauconitic.

LOCATION: 132-080-35ABB

ALTITUDE: 1660
(FT, MSL)

DATE DRILLED: August 1971

DEPTH: 380
(FT)



DESCRIPTION OF DEPOSITS

Fox Hills Formation, Continued

244-284	Sand, medium-bluish-green, fine to medium; about 40 percent silty clay; carbonaceous streaks.
284-320	Sand, medium-bluish-green, fine to medium; interbedded with thin lenses of fine-grained sandstone.
320-335	Sand, fine to medium; abundant mica and biotite.
335-341	Clay, pale-yellowish-brown; interbedded with lenses of volcanic ash.
341-357	Shale, brownish-gray, bentonitic.

Pierre Formation

357-380	Shale, grayish-black, siliceous, indurated.

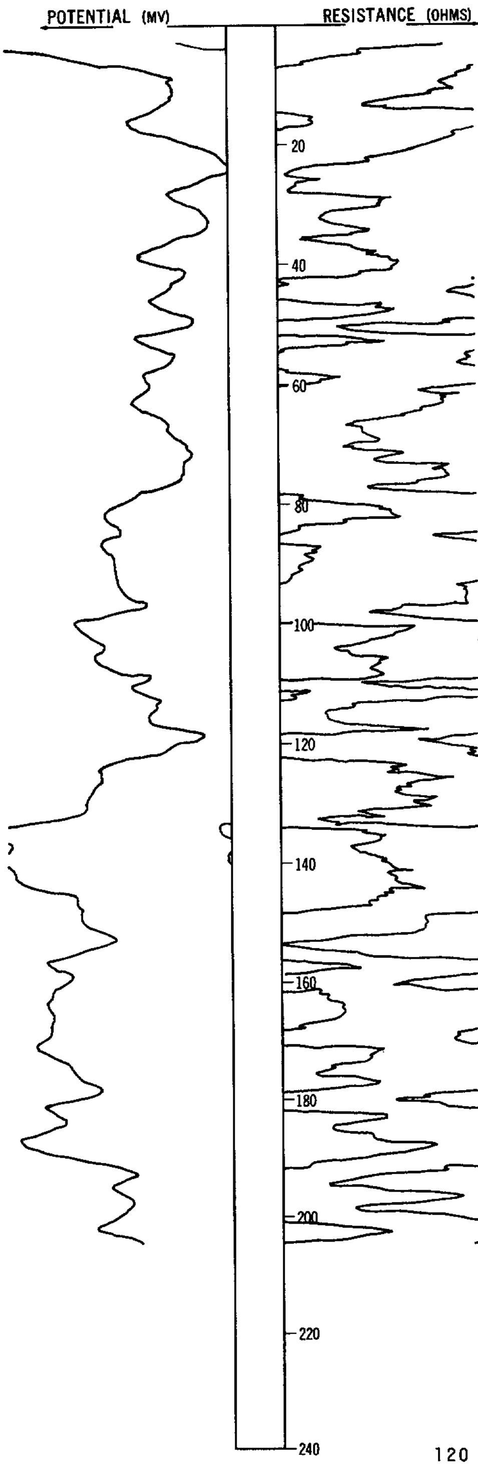
NDSWC 4418

LOCATION: 132-081-29BBB

ALTITUDE: 1698
(FT, MSL)

DATE DRILLED: November 1971

DEPTH: 210
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, dark-brown, sandy.
1-9	Sand, very fine, silty, oxidized.
9-15	Sand, fine to medium, gravelly, oxidized.
15-23	Gravel, fine to coarse; some cobbles.
23-42	Silt, medium-gray, sandy, lignitic.
42-66	Silt, dark-gray; interbedded with lenses of fine sand.
66-78	Clay, dark-olive-gray, silty.
78-99	Silt, medium-gray, clayey, sandy.
99-110	Sand, medium, well-sorted, subrounded; predominantly quartz and detrital lignite.
110-119	Silt, medium-gray, clayey to sandy, lignitic.
119-123	Clay, dark-gray, tight.
123-134	Silt, olive-gray, clayey.
134-149	Sand, fine to medium, well-sorted, subrounded, lignitic.
149-156	Clay, olive-gray to dark-greenish-gray.
156-192	Sand, fine to very coarse; interbedded with lenses of milticolored silty clay.

Fox Hills Formation

192-207	Shale, dark-greenish-gray, soft; abundant white chalky clay.
207-210	Sandstone, dark-greenish-gray, very fine, pyritiferous, indurated.

132-081-30AAC
NDSWC 4419

Altitude: 1702 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, dark-brown, sandy	1	1
	Sand, very fine to fine, silty, oxidized	12	13
	Gravel, fine to coarse, subrounded, oxidized; some cobbles	23	36
	Sand, very fine to medium; interbedded with lenses of silty clay	33	69
	Silt, medium-dark-gray; interbedded with thin lenses of coarse sand; abundant detrital lignite	52	121
	Clay, dark-olive-gray, silty, tight	19	140
	Silt, dark-gray; lamination of carbonaceous material; abundant detrital lignite	47	187
	Sand, coarse, well-sorted, subrounded; predominantly quartz and light-colored carbonates	9	196
	Sand, fine to medium; interbedded with lenses of silty clay; abundant detrital lignite	37	233
	Gravel, fine to very coarse, sandy, poorly sorted, subrounded; mostly carbonates, silicates, and granitics	35	268
Fox Hills Formation:			
	Siltstone, dark-greenish-gray; interbedded with shale; very tight	11	279
	Shale, dark-greenish-gray, silty, bentonitic, moderately carbonaceous	21	300

132-081-30CDC
NDSWC 4421

Altitude: 1713 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Topsoil, dark-brown, sandy	2	2
	Sand, very fine to fine, subangular to subrounded, oxidized	11	13
	Silt, dusky-yellow to olive-brown, clayey, oxidized	5	18
	Gravel, fine to coarse, sandy, subangular, oxidized; mostly silicates and concretion fragments	4	22
	Clay, yellowish-olive-gray, smooth, cohesive	2	24
Fox Hills Formation:			
	Sandstone, greenish-gray, very fine; interbedded with carbonaceous shale and bentonitic clay	16	40
	Sandstone, dark-greenish-gray, fine to medium; indurated, fossiliferous; interbedded with lenses of cemented fine sandstone	50	90

132-081-30DBB
NDSWC 4420

Altitude: 1701 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, dark-brown, sandy------------------	1	1
	Sand, very fine to fine, silty, oxidized----	4	5
	Sand, very fine to medium, clayey, oxidized----------------------------------	9	14
	Gravel, fine to medium, sandy, subrounded; some cobbles; mostly silicates with some carbonates and granitics------------------	13	27
	Sand, very fine to medium; interbedded with occasional lenses of silty clay; some fine detrital lignite---------------------	48	75
	Silt, medium-gray; interbedded with thin lenses of clay and fine sand-------------	49	124
	Clay, light-olive-gray, partially oxidized; interbedded with lenses of fine silty sand------------------------------------	22	146
	Sand, very fine to medium; interbedded with lenses of silty clay; some detrital lignite---------------------------------	44	190
	Clay, dark-greenish-gray, silty to sandy; some fine gravel-------------------------	26	216
Fox Hills Formation:			
	Sandstone, dark-greenish-gray, very fine to fine, partially fossiliferous; interbedded with carbonaceous shale------------	15	231
	Shale, dark-brownish-gray, silty, indurated, carbonaceous-----------------------------	9	240

132-082-09DDD
NDSWC 4415

Altitude: 1738 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Topsoil, dark-brown, sandy------------------	1	1
	Sand, fine to coarse, subrounded, oxidized--	9	10
Hell Creek Formation:			
	Sandstone, medium-grayish-brown, very fine, moderately carbonaceous; contains iron concretions------------------------------	20	30
	Siltstone, light-gray; carbonaceous streaks; some iron concretions---------------------	13	43
	Shale, light-gray; interbedded with lenses of siltstone; occasional iron concretions-	31	74
Fox Hills Formation:			
	Sandstone, dark-greenish-gray, fine to medium, semiconsolidated------------------	6	80
	Shale, medium-dark-gray, carbonaceous-------	8	88
	Sandstone, grayish-green, very fine to fine, friable, highly fossiliferous-------	12	100

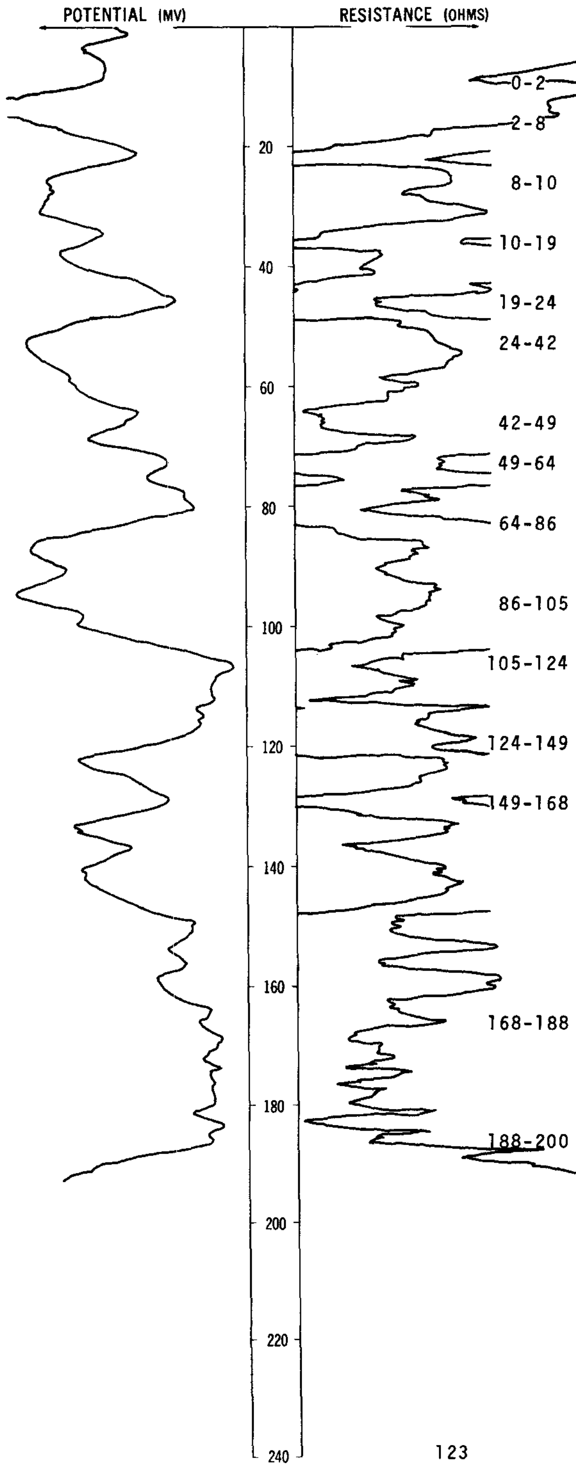
NDSWC 4416

LOCATION: 132-082-10CBB

DATE DRILLED: November 1971

ALTITUDE: 1754
(FT, MSL)

DEPTH: 200
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-2	Topsoil, dark-brown, sandy.
2-8	Sand, very fine to fine, silty, oxidized.
8-10	Silt, dusky-yellow, clayey, oxidized.
10-19	Sand, medium to coarse, oxidized.
19-24	Clay, olive-gray, silty.
24-42	Sand, fine to very coarse; interbedded with lenses of clay and fine gravel.
42-49	Clay, olive-gray, silty.
49-64	Sand, fine to medium; abundant detrital lignite.
64-86	Clay, medium-gray, silty; interbedded with lenses of fine to medium sand.
86-105	Sand, fine to medium, subrounded.
105-124	Clay, dark-gray, silty; interbedded with lenses of fine sand.
124-149	Sand, medium to very coarse, well-sorted, clean.
149-168	Clay, dark-olive-gray, silty to sandy.

Fox Hills Formation

168-188	Shale, medium-brownish-gray, carbonaceous; interbedded with siltstone.
188-200	Sandstone, dark-greenish-gray, fine-grained, fossiliferous; some iron concretions.

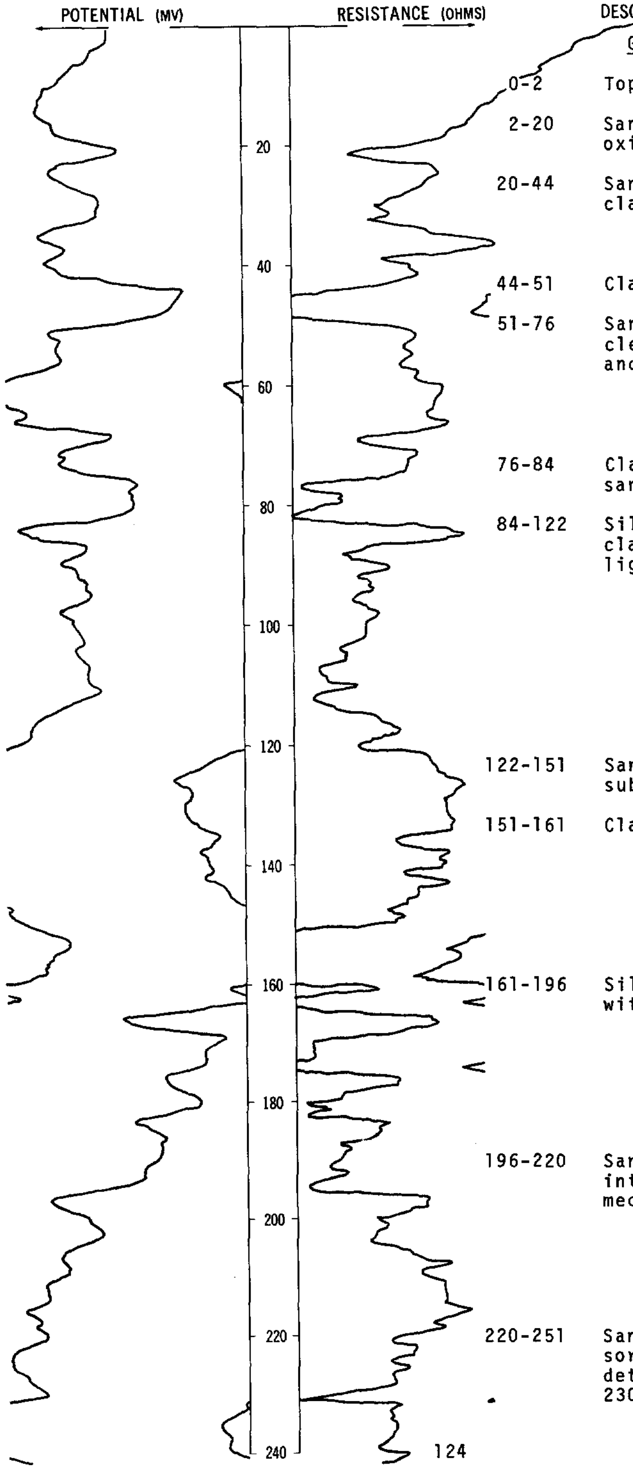
NDSWC 4417

LOCATION: 132-082-10CBC

ALTITUDE: 1741
(FT, MSL)

DATE DRILLED: November 1971

DEPTH: 280
(FT)



DESCRIPTION OF DEPOSITS

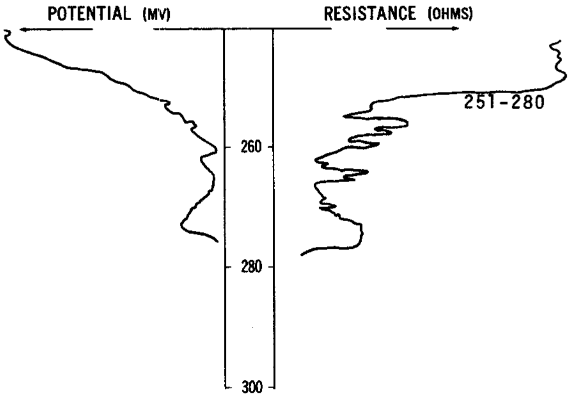
	Glacial drift
0-2	Topsoil, dark-brown, sandy.
2-20	Sand, very fine to medium, oxidized.
20-44	Sand, very fine to medium, clayey; detrital lignite.
44-51	Clay, olive-gray, smooth.
51-76	Sand, fine to medium, clean; detrital lignite and wood fragments.
76-84	Clay, olive-gray, silty to sandy.
84-122	Silt, light-olive-gray, clayey, sandy; detrital lignite.
122-151	Sand, fine to medium, subrounded.
151-161	Clay, dark-olive-gray, silty.
161-196	Silt, olive-gray; interbedded with lenses of coarse sand.
196-220	Sand, medium to coarse; interbedded with lenses of medium gravel.
220-251	Sand, medium, uniform, well-sorted, subrounded; abundant detrital lignite; clay lens 230-231 ft.

LOCATION: 132-082-10CBC

DATE DRILLED: November 1971

ALTITUDE: 1741
(FT, MSL)

DEPTH: 280
(FT)



DESCRIPTION OF DEPOSITS

Fox Hills Formation

Sandstone, grayish-green, very fine to fine; slightly carbonaceous; some fossil fragments.

132-082-10CDD
NDSWC 8084

Altitude: 1746 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Topsoil, brownish-gray, sandy---------------	1	1
	Clay, moderate-yellowish-brown, silty to sandy, laminated-------------------------	6	7
	Sand, fine to coarse, silty----------------	9	16
	Silt, medium-gray; about 40 percent detrital lignite and fine sand--------------------	15	31
Hell Creek Formation:			
	Clay, dark-brownish-gray, silty to sandy----	14	45
	Shale, brownish-gray; interbedded with sandstone--------------------------------	10	55
	Sandstone, dark-greenish- to yellowish-gray, clayey, limonitic------------------------	10	65
	Shale, brownish-gray, sandy, carbonaceous---	9	74
	Sandstone, dark-bluish-gray, fine to medium-	6	80
	Shale, dark-brown, very carbonaceous--------	2	82
	Clay, dark-bluish-gray; about 25 percent very fine sand---------------------------	4	86
Fox Hills Formation:			
	Sandstone, dark-greenish-gray, fine to medium, glauconitic-----------------------	14	100

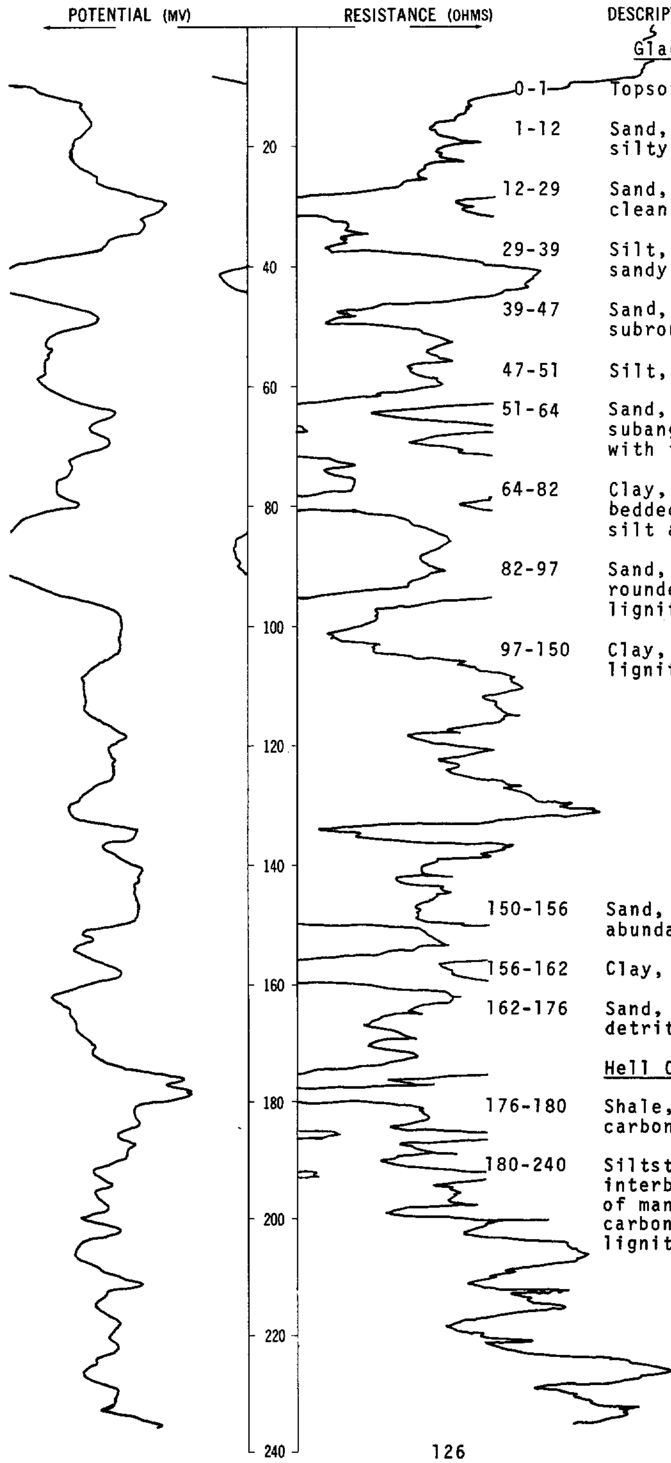
NDSWC 4414

LOCATION: 132-082-19BDD

ALTITUDE: 1780 (FT, MSL)

DATE DRILLED: November 1971

DEPTH: 240 (FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1	Topsoil, dark-brown, sandy.
1-12	Sand, very fine to fine, silty, oxidized.
12-29	Sand, medium to very coarse, clean, partially oxidized.
29-39	Silt, medium-gray, clayey; sandy in places.
39-47	Sand, coarse, well-sorted, subrounded, clean.
47-51	Silt, olive-gray, clayey.
51-64	Sand, coarse to very coarse, subangular to subrounded; with fine to medium gravel.
64-82	Clay, olive-gray; interbedded with thin lenses of silt and fine sand.
82-97	Sand, fine to coarse, subrounded; abundant detrital lignite.
97-150	Clay, olive-gray, silty, lignitic.
150-156	Sand, fine to coarse; abundant detrital lignite.
156-162	Clay, medium-gray, silty.
162-176	Sand, medium, silty, abundant detrital lignite.

Hell Creek Formation

176-180	Shale, dark-brownish-gray, carbonaceous.
180-240	Siltstone, greenish-gray; interbedded with thin lenses of manganosiderite and carbonaceous shale; very lignitic 220-240 ft.

132-083-10DAD
NDSWC 8090

Altitude: 1844 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, very sandy	0.5	0.5
	Sand, fine to very coarse, subangular, oxidized; mostly quartz; some carbonates, detrital lignite, and shale	15.5	16
Hell Creek Formation:			
	Shale, moderate-yellowish-brown, very sandy, oxidized	4	20
	Shale, medium-bluish-gray, very sandy, micaceous	14	34
	Shale, dark-brown, silty, moderately well indurated	8	42
	Shale, medium-bluish-gray, very sandy, moderately indurated	27	69
	Shale, moderate-brown, well-indurated	5	74
	Shale, medium-bluish-gray, sandy, micaceous, moderately indurated	26	100

132-083-11CBA1
(Log from M & R Drilling Co.)

Altitude:

	Topsoil	4	4
	Sand, brown, fine	2	6
	Clay, gray	8	14
	Sand and gravel, brown	16	30
	Sand, bluish-gray; with streaks of clay	10	40
	Sandstone, soft	1	41
	Sand, brownish-gray, gravelly	15	56
	Shale, brown	4	60
	Shale, brownish-gray, sandy	10	70
	Shale, yellowish-brown, sandy	9	79
	Shale, gray, sandy	1	80
	Sand, bluish-gray, sandy	24	104
	Shale, gray	36	140
	Shale, gray, sandy	23	163
	Sandstone	1	164
	Sand, bluish-black	2	166
	Shale, bluish-gray, sandy	4	170
	Shale, bluish-gray; with thin lens of sandstone	75	245
	Sandstone, cemented	1	246
	Sand, bluish-gray	4	250
	Sand; lost circulation	46	296

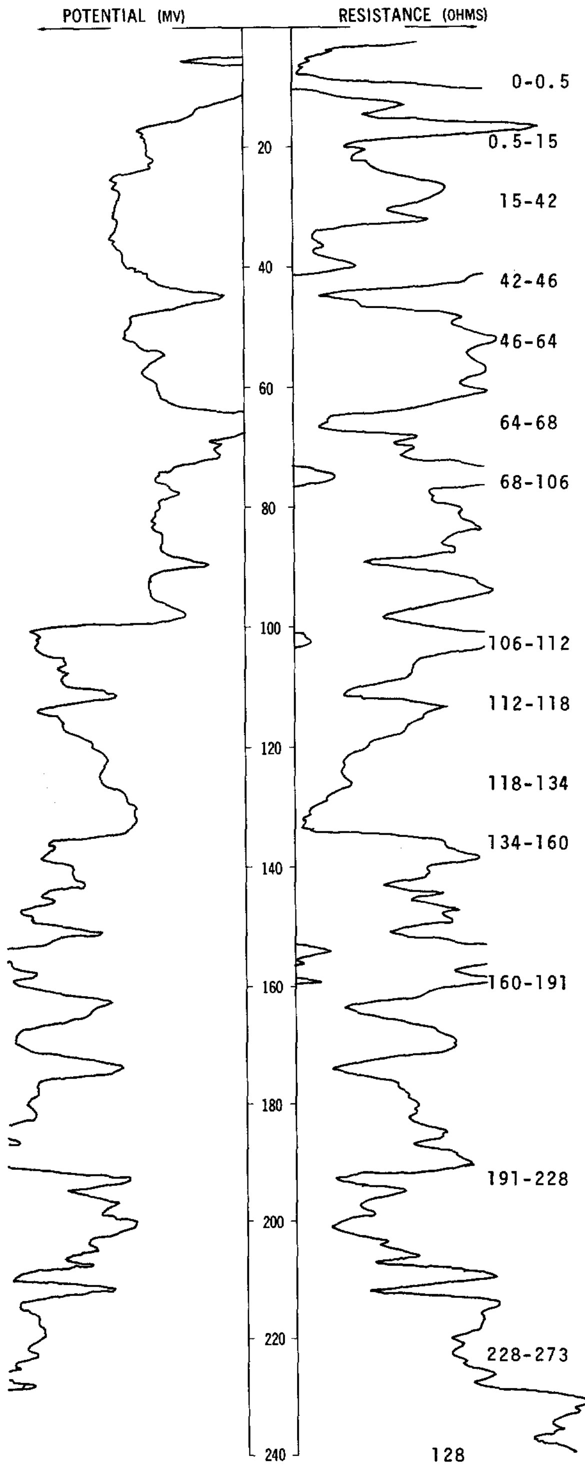
NDSWC 8091

LOCATION: 132-083-29CCC

ALTITUDE: 1799
(FT, MSL)

DATE DRILLED: August 1971

DEPTH: 280
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

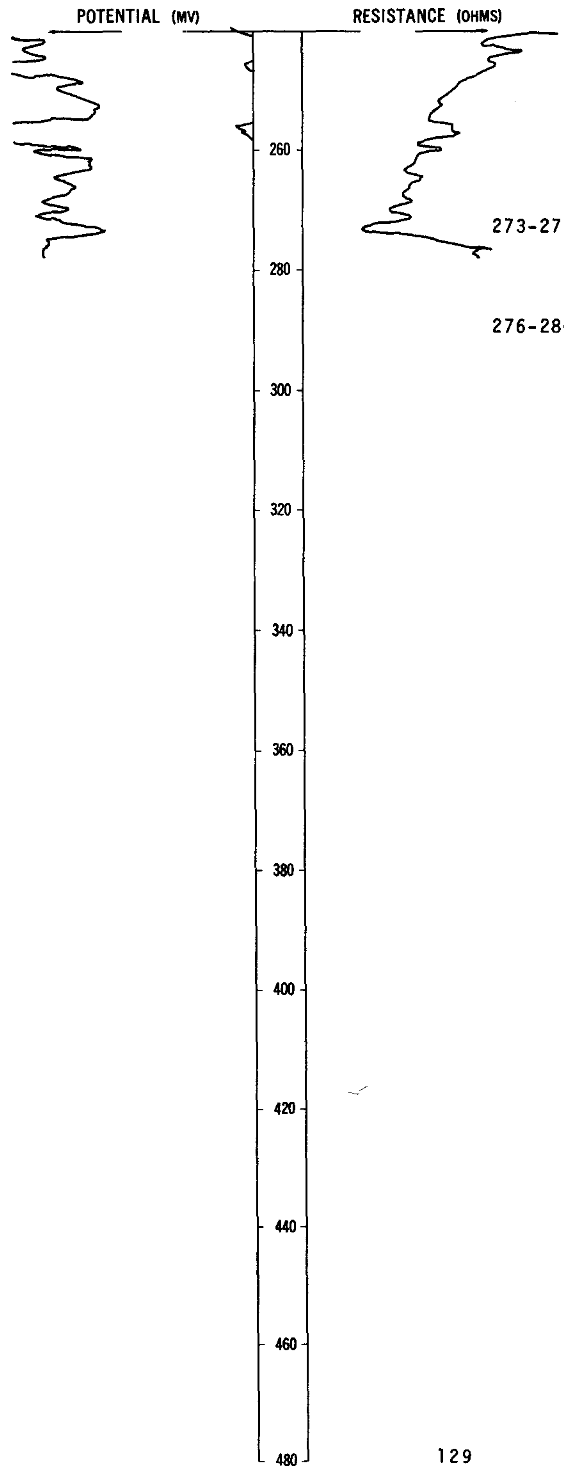
0-0.5	Topsoil, dark-brown, very sandy.
0.5-15	Clay, medium-light-gray, very silty.
15-42	Sand, very fine to very coarse; mostly quartz; some carbonates and lignite.
42-46	Clay, medium-gray, very silty.
46-64	Sand, very fine to medium, silty, subangular to subrounded.
64-68	Clay, medium-dark-gray, very silty.
68-106	Sand, very fine to medium; interbedded with thin lenses of silty clay.
106-112	Clay, olive-gray, very silty.
112-118	Sand, very fine to medium, well-sorted, subangular to subrounded.
118-134	Clay, olive-gray, silty to sandy.
134-160	Sand, very fine to very coarse; interbedded with thin lenses of clay.
160-191	Sand, fine to medium; numerous clay lenses.
191-228	Clay, medium-dark-gray; interbedded with lenses of fine sand.
228-273	Sand, fine to medium, gravelly, angular, moderately well sorted.

LOCATION: 132-083-29CCC

DATE DRILLED: August 1971

ALTITUDE: 1799
(FT, MSL)

DEPTH: 280
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift, Continued

273-276 Gravel, coarse; abundant cobbles and boulders.

Fox Hills Formation

276-280 Sandstone, very fine, glauconitic, micaceous, calcareous.

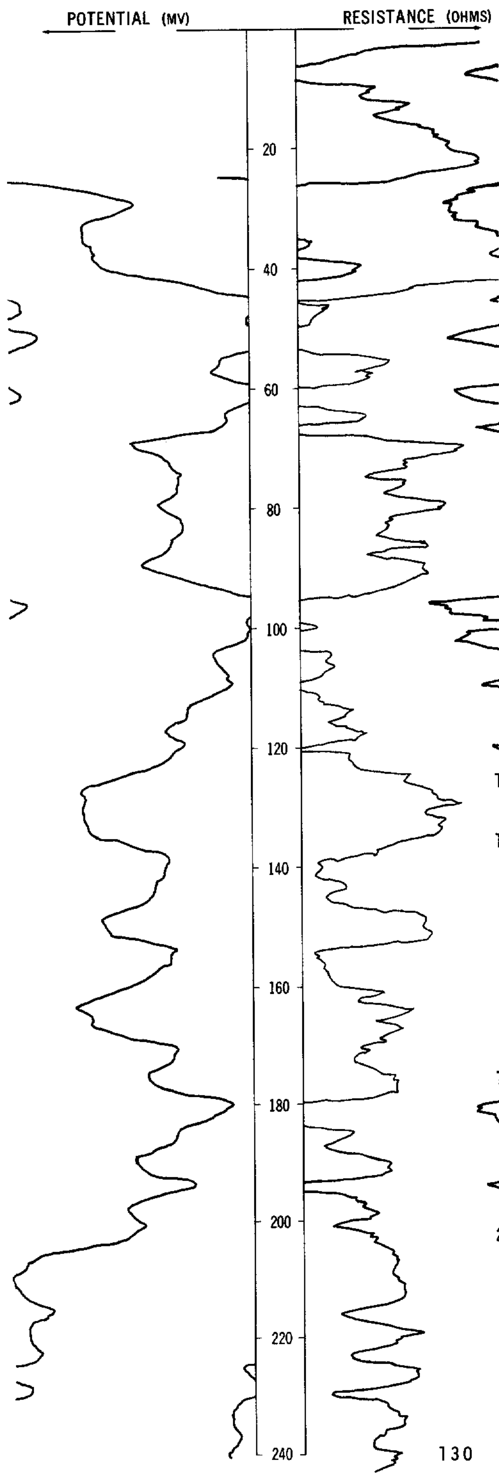
NDSWC 4409

LOCATION: 132-083-30BCB

ALTITUDE: 1814
(FT, MSL)

DATE DRILLED: November 1971

DEPTH: 300
(FT)



DEPTH (FT)	DESCRIPTION OF DEPOSITS
	Glacial drift
0-1	Topsoil, dark-brown, sandy.
1-6	Clay, dark-yellowish-brown, silty, sandy, oxidized.
6-20	Sand, coarse, and fine gravel; dry.
20-32	Silt, light-olive-gray, sandy.
32-44	Sand, medium to very coarse, subrounded; some fine gravel.
44-68	Clay, light-olive-gray; interbedded with silt and fine sand.
68-95	Sand, fine to coarse, subrounded, clean; some fine gravel.
95-124	Clay, light-olive-gray, silty; interbedded with lenses of detrital lignite and sand.
124-138	Sand, medium to coarse, well-sorted, clean.
138-179	Sand, light-olive-gray, very fine to fine; interbedded with silt.
179-206	Clay, olive-gray; interbedded with silt.
206-268	Sand, very fine to very coarse; with lenses of fine to medium gravel; occasional lenses of silty clay.

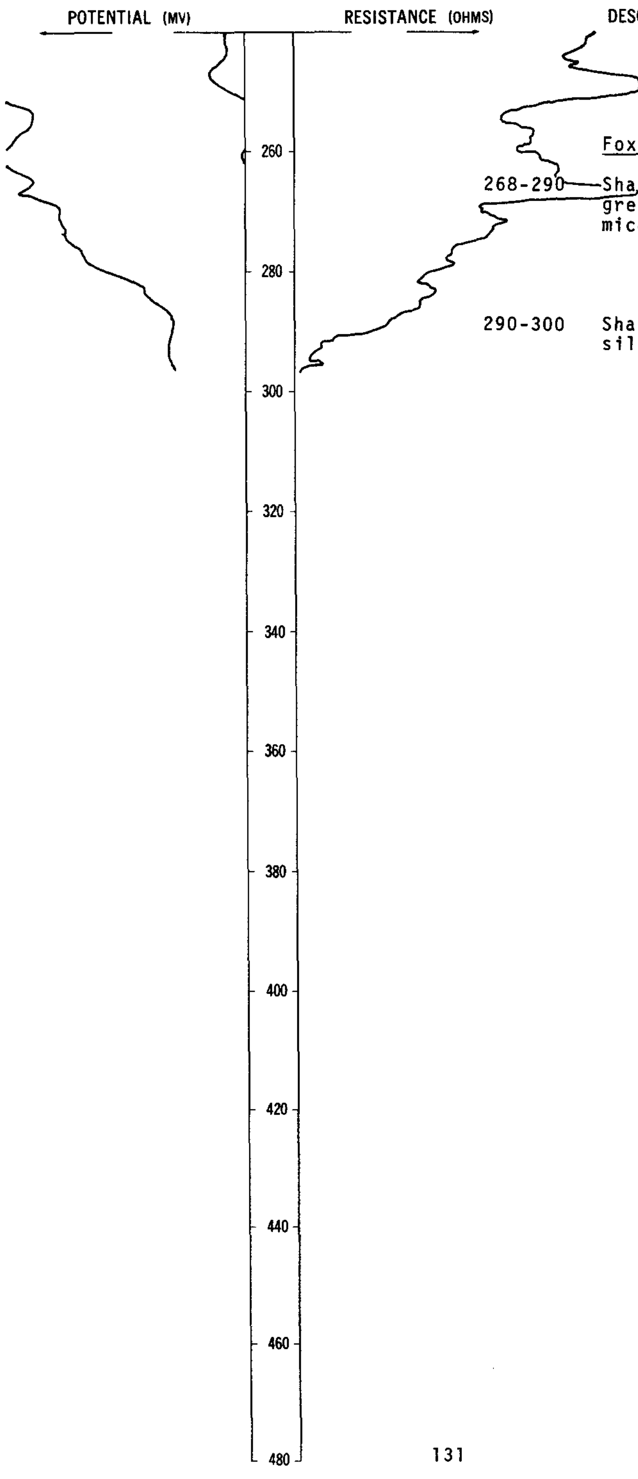
NDSWC 4409, Continued

LOCATION: 132-083-30BCB

DATE DRILLED: November 1971

ALTITUDE: 1814
(FT, MSL)

DEPTH: 300
(FT)



DESCRIPTION OF DEPOSITS

Fox Hills Formation

268-290 Shale, dark-brownish to greenish-gray, very sandy, micaceous.

290-300 Shale, medium-dark-gray, silty, indurated.

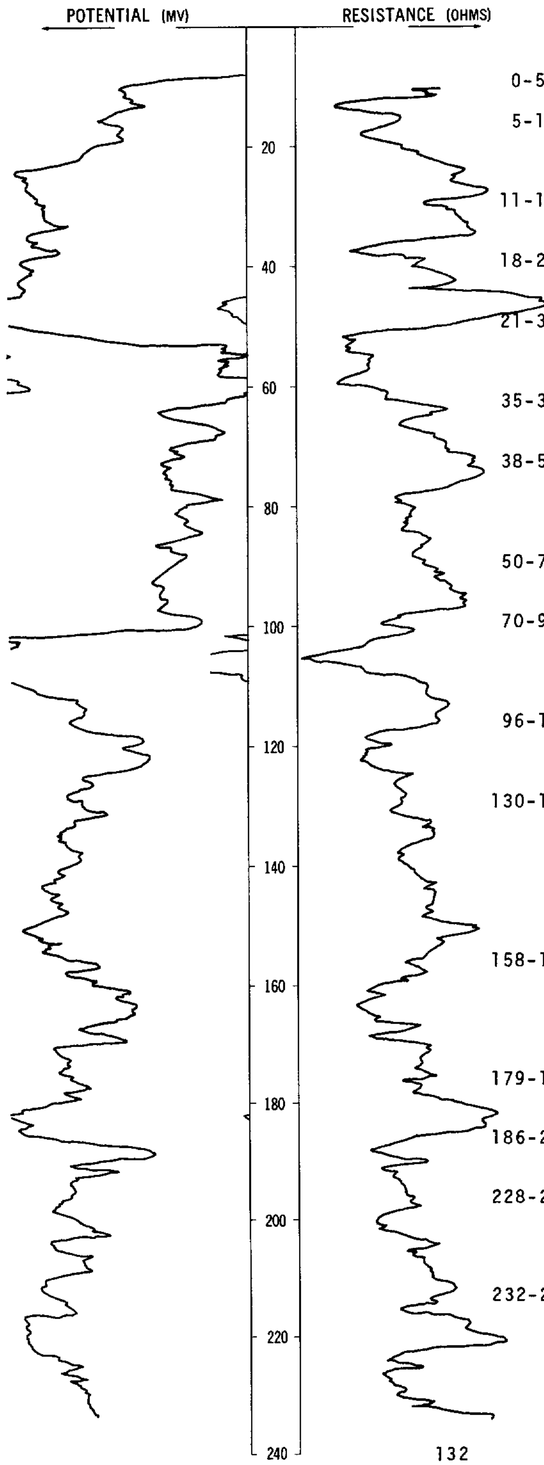
NDSWC 8092

LOCATION: 132-083-31BAA

ALTITUDE: 1793
(FT, MSL)

DATE DRILLED: August 1971

DEPTH: 240
(FT)



DESCRIPTION OF DEPOSITS

	Glacial drift
0-5	Roadfill.
5-11	Sand, fine to medium, silty to clayey, subangular.
11-18	Clay, moderate-yellowish-brown, very silty.
18-21	Clay, olive-gray, very silty.
21-35	Sand, very fine to fine, silty, subangular to subrounded.
35-38	Clay, olive-gray, very silty.
38-50	Sand, very fine to fine, subangular to subrounded; occasional thin lens of clay.
50-70	Clay, medium-dark-gray, very silty.
70-96	Sand, very fine to fine; numerous lenses of silty clay; abundant detrital lignite.
96-130	Clay, medium-dark-gray, very silty.
130-158	Clay, medium-dark-gray; interbedded with lenses of sandy gravel; abundant detrital lignite.
158-179	Clay, olive-gray; about 40 percent sand and gravel.
179-186	Sand, fine to medium; abundant detrital lignite.
186-228	Clay, olive-gray, silty to sandy.
228-232	Gravel, coarse; abundant cobbles and boulders.
	Fox Hills Formation
232-240	Sandstone, dark-greenish-gray, very fine, glauconitic, calcareous.

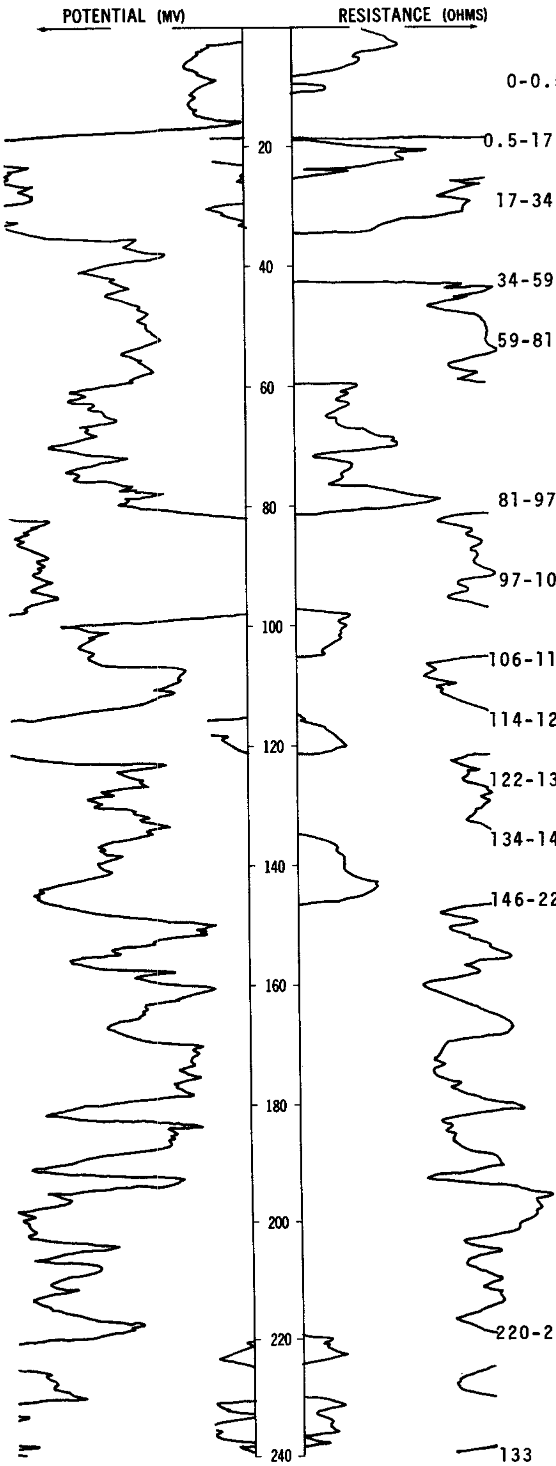
NDSWC 8093

LOCATION: 132-083-31BBB

DATE DRILLED: August 1971

ALTITUDE: 1811
(FT, MSL)

DEPTH: 280
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-0.5	Topsoil, dark-brown, very sandy.
0.5-17	Clay, olive-gray to yellowish-brown, very silty.
17-34	Sand, fine to very coarse, gravelly, subangular to subrounded.
34-59	Clay, medium-gray, very silty.
59-81	Sand, very fine to fine; interbedded with numerous thin lenses of silty clay.
81-97	Clay, medium-dark-gray, very silty to sandy.
97-106	Sand, very fine to fine, silty, subangular, lignitic.
106-114	Clay, medium-dark-gray, very silty.
114-122	Sand, fine, silty, subangular to subrounded.
122-134	Clay, olive-gray, very silty.
134-146	Sand, fine to medium, silty.
146-220	Clay, light-olive-gray, very silty to sandy.
220-250	Clay, olive-gray, very silty; interbedded with thin lenses of fine gravel.

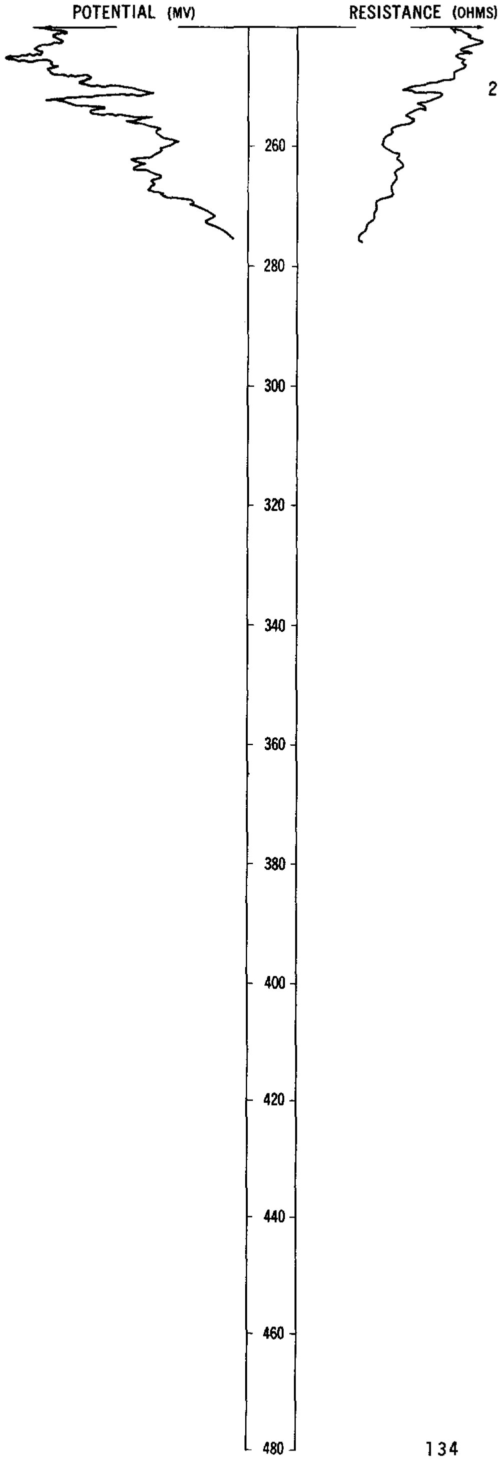
LOCATION: 132-083-31BBB

DATE DRILLED: August 1971

ALTITUDE: 1811
(FT, MSL)

DEPTH: 280
(FT)

POTENTIAL (MV) RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

Fox Hills Formation

250-280 Shale, medium-bluish-gray; interbedded with glauconitic sand.

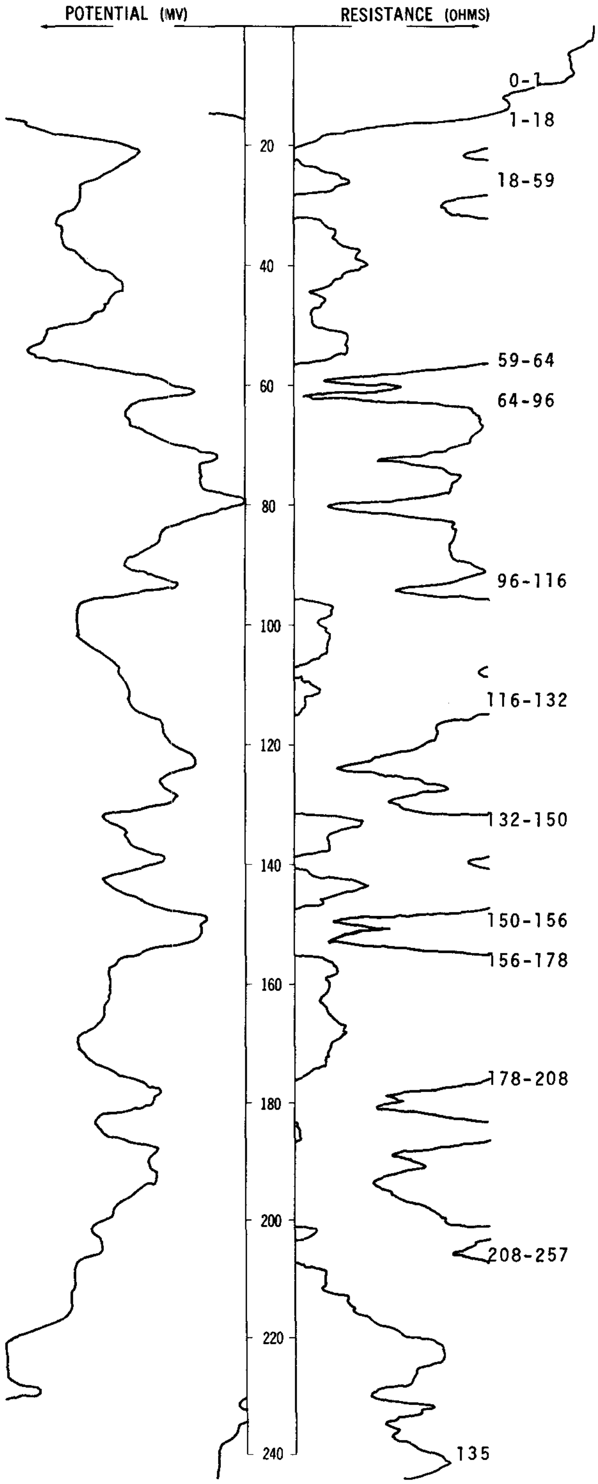
NDSWC 4411

LOCATION: 132-083-31DBA

DATE DRILLED: November 1971

ALTITUDE: 1794
(FT, MSL)

DEPTH: 270
(FT)



DESCRIPTION OF DEPOSITS

<u>Glacial drift</u>

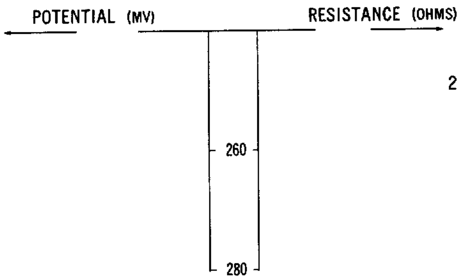
0-1	Topsoil, dark-brown, sandy.
1-18	Sand, medium to very coarse, oxidized; some fine gravel.
18-59	Sand, medium, silty; occasional lenses of fine gravel; some detrital lignite.
59-64	Clay, dark-gray, silty.
64-96	Sand, very fine to medium; interbedded with thin lenses of silty clay; abundant detrital lignite.
96-116	Sand, medium, generally well sorted, clean.
116-132	Silt, light-olive-gray, clayey; some lenses of fine sand.
132-150	Sand, medium to coarse; abundant detrital lignite.
150-156	Clay, olive-gray, smooth.
156-178	Sand, medium to coarse, well-sorted, clean.
178-208	Clay, olive-gray, silty; interbedded with lenses of fine to medium sand.
208-257	Gravel, fine to very coarse, subangular; some sand; abundant cobbles; mostly granitics and silicates; some carbonates and sandstone.

LOCATION: 132-083-31DBA

ALTITUDE: 1794
(FT, MSL)

DATE DRILLED: November 1971

DEPTH: 270
(FT)



DESCRIPTION OF DEPOSITS

Fox Hills Formation

257-270 Sandstone, grayish-green, fine, fossiliferous; thin carbonaceous streaks.

132-083-32BAB
(Log from U.S. Public Health Service)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sandy loam----------------------------------	2	2
	Light yellow sand---------------------------	22	24
	Sand and gravel-----------------------------	6	30
	Sand, with some gravel----------------------	5	35
	Sandy clay----------------------------------	40	75
	Clay and sand-------------------------------	15	90
	Clay with light gravel----------------------	40	130
	Sandy loam----------------------------------	10	140
	Sand and gravel-----------------------------	32	172
	Sandy loam with clay------------------------	10	182

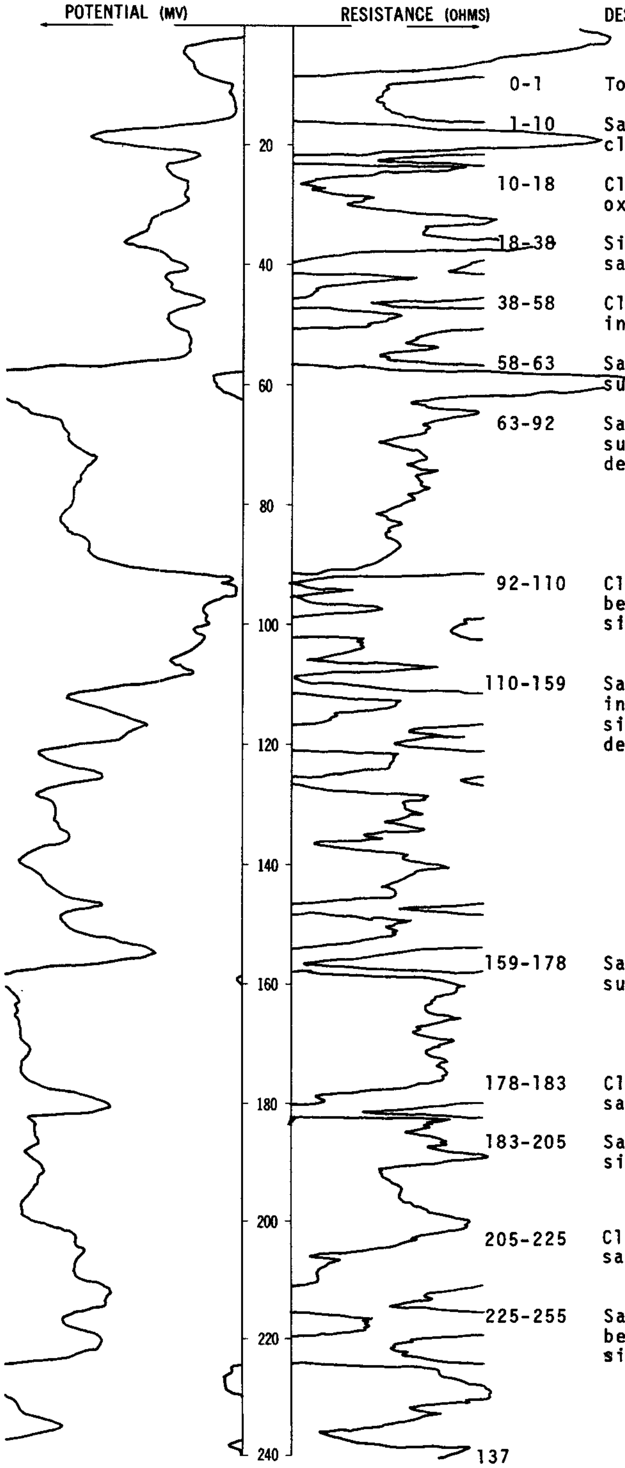
NDSWC 4412

LOCATION: 132-083-33AAD

ALTITUDE: 1880 (FT, MSL)

DATE DRILLED: November 1971

DEPTH: 360 (FT)



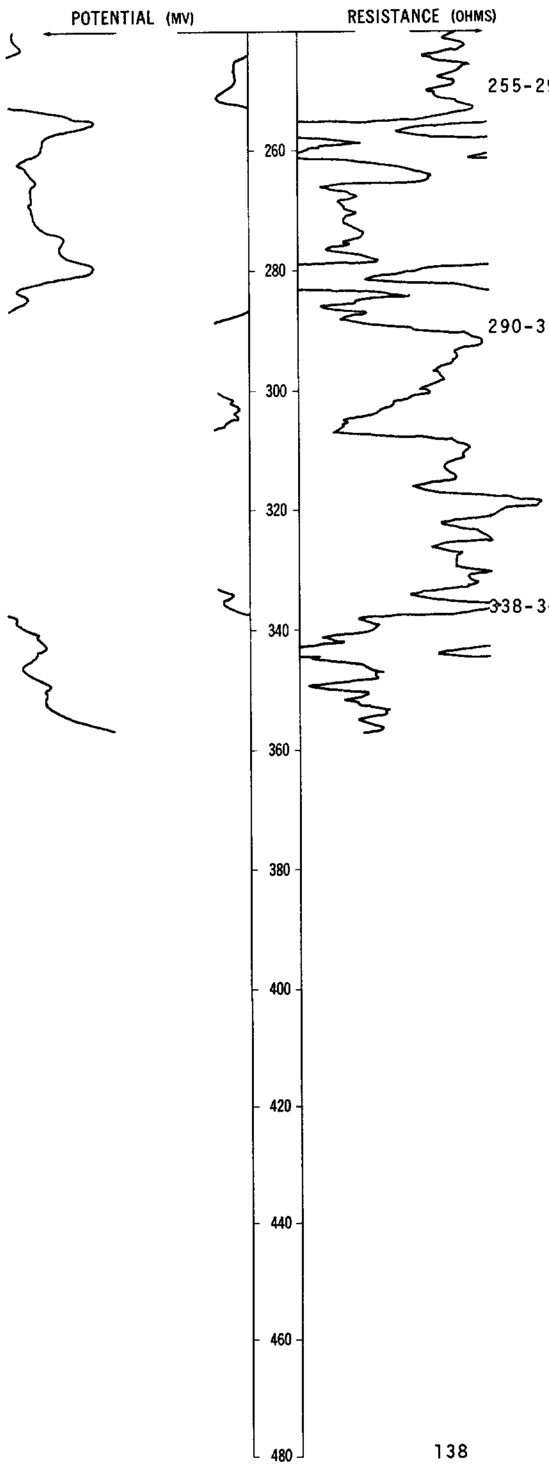
DEPTH (FT)	DESCRIPTION OF DEPOSITS
	Glacial drift
0-1	Topsoil, dark-brown, sandy.
1-10	Sand, very fine to fine, clayey, oxidized.
10-18	Clay, dusky-yellow, silty, oxidized.
18-38	Silt, dusky-yellow, clayey, sandy, oxidized.
38-58	Clay, light-olive-gray; interbedded with fine sand.
58-63	Sand, coarse, well-sorted, subrounded, clean.
63-92	Sand, fine to medium, subrounded; abundant detrital lignite.
92-110	Clay, medium-gray; interbedded with thin lenses of silt.
110-159	Sand, very fine to medium; interbedded with lenses of silty clay; abundant detrital lignite.
159-178	Sand, fine to coarse, subrounded.
178-183	Clay, light-gray, silty to sandy.
183-205	Sand, fine to coarse, silty, subrounded.
205-225	Clay, olive-gray, smooth; sand lens at 216 ft.
225-255	Sand, fine to coarse; interbedded with thin lenses of silty clay.

LOCATION: 132-083-33AAD

DATE DRILLED: November 1971

ALTITUDE: 1880 (FT, MSL)

DEPTH: 360 (FT)



DESCRIPTION OF DEPOSITS

Glacial drift, Continued

255-290 Clay, medium- to dark-gray; interbedded with lenses of very fine to fine sand.

290-338 Sand, medium to very coarse; interbedded with lenses of fine gravel.

Fox Hills Formation

338-360 Sandstone, grayish-green, very fine to fine; fossiliferous; some very thin limestone lenses.

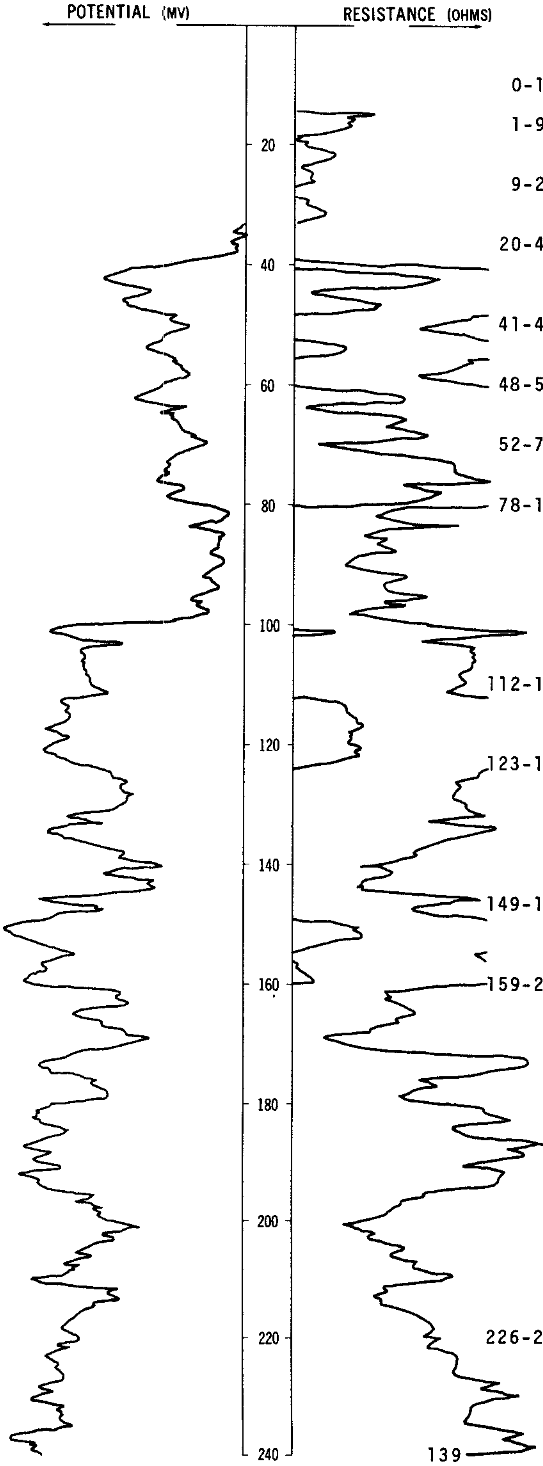
NDSWC 8089

LOCATION: 132-083-34DDA

DATE DRILLED: August 1971

ALTITUDE: 1860
(FT, MSL)

DEPTH: 320
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

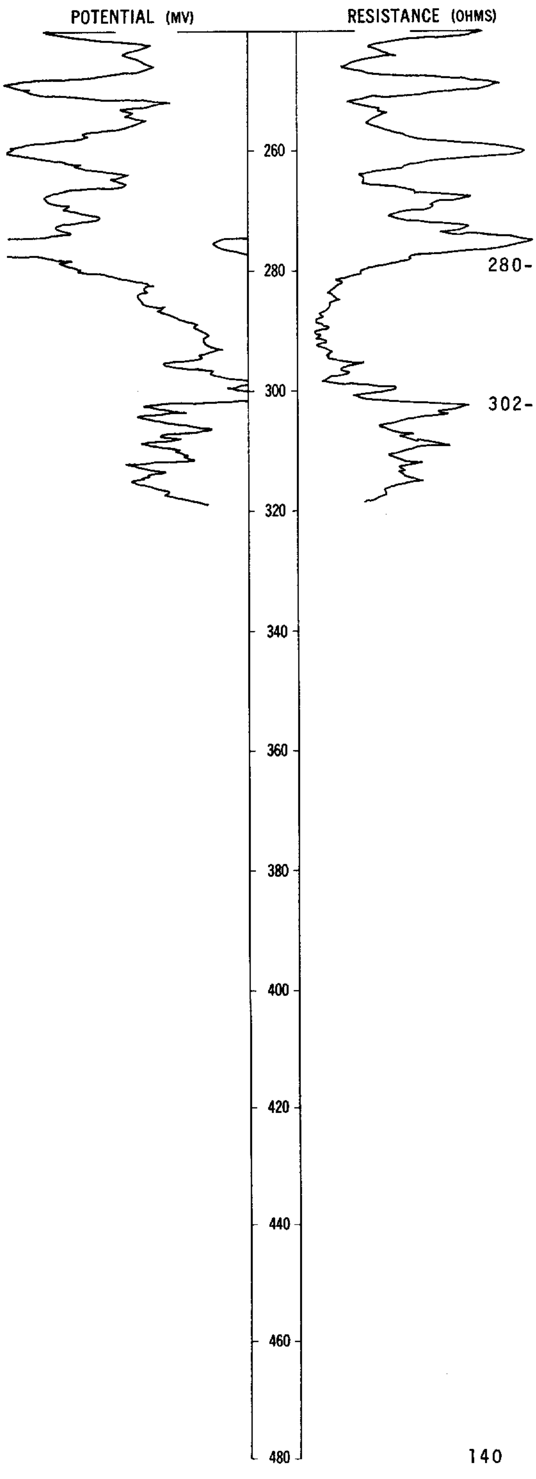
0-1	Topsoil, brown, very sandy.
1-9	Clay, dark-yellowish-brown, very silty.
9-20	Clay, olive-gray, very silty.
20-41	Clay, silty; olive-gray with yellowish-brown streaks.
41-48	Sand, very fine to fine, silty, subangular.
48-52	Clay, medium-dark-gray, very silty.
52-78	Sand, very fine to fine, well-sorted, subangular.
78-112	Clay, olive-gray, very silty.
112-123	Sand, very fine to medium, subangular to subrounded; some lenses of clay.
123-149	Clay, olive-gray, very silty; abundant detrital lignite.
149-159	Sand, very fine to medium; occasional thin lenses of silty clay.
159-226	Clay, medium-dark-gray, very silty; occasional lenses of fine sand.
226-280	Clay, medium-dark-gray; numerous thin lenses of fine gravel; abundant detrital lignite.

LOCATION: 132-083-34DDA

DATE DRILLED: August 1971

ALTITUDE: 1860
(FT, MSL)

DEPTH: 320
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift, Continued

280-302 Clay, medium-dark-gray, very silty.

Fox Hills Formation

302-320 Shale, dark-greenish-gray; interbedded with lenses of glauconitic sandstone and siltstone.

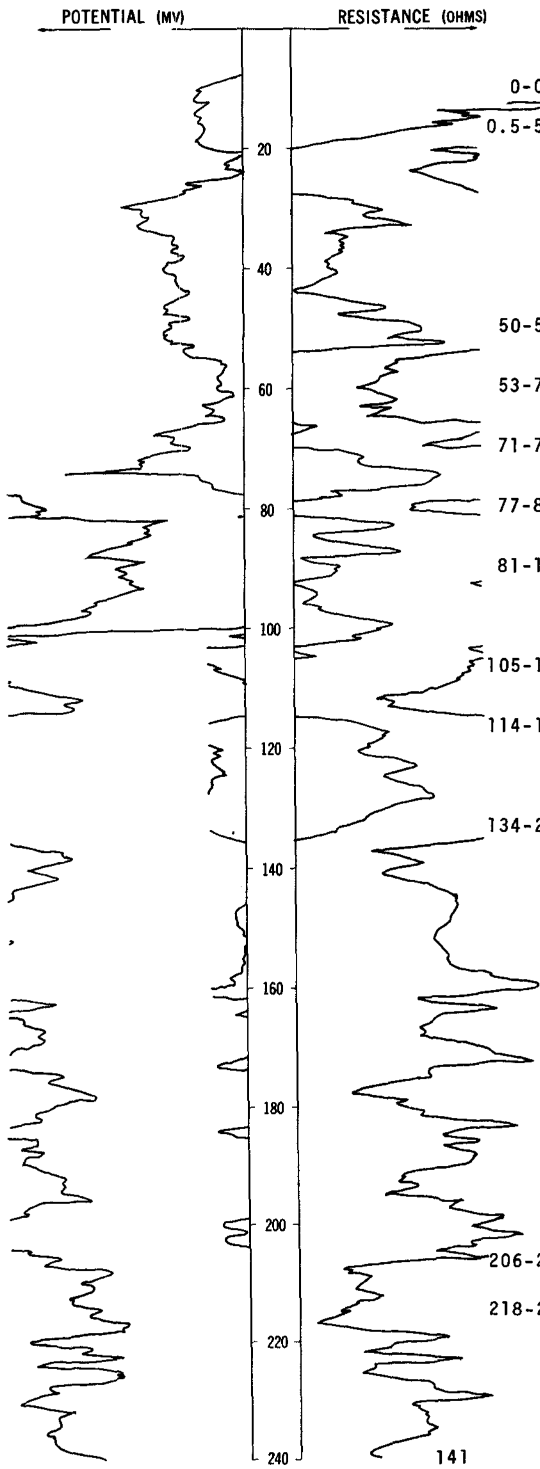
NDSWC 8088

LOCATION: 132-083-35DDC1

DATE DRILLED: August 1971

ALTITUDE: 1822
(FT, MSL)

DEPTH: 300
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

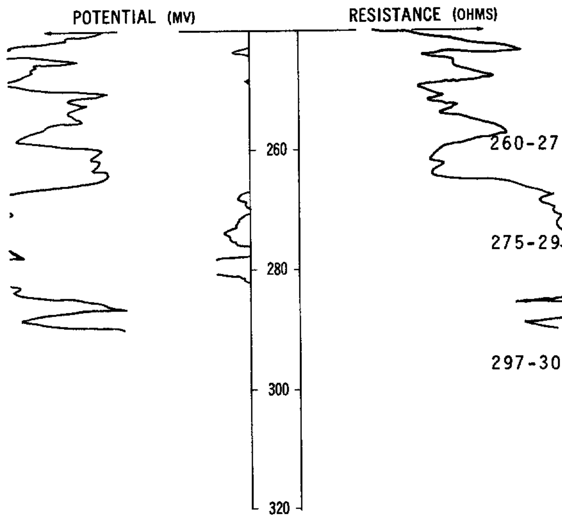
0-0.5	Topsoil, brown, sandy.
0.5-50	Sand, very fine to medium, silty to clayey.
50-53	Sand, fine to very coarse, gravelly, subangular.
53-71	Clay, light-olive-gray, very silty.
71-77	Sand, very fine to fine, well-sorted.
77-81	Clay, medium-gray, very silty.
81-105	Sand, very fine to medium, subangular to subrounded.
105-114	Clay, medium-dark-gray, silty to sandy.
114-134	Sand, very fine to fine, silty.
134-206	Clay, medium-dark-gray, very silty; with some lenses of fine sand.
206-218	Clay, olive-gray, silty.
218-260	Clay, medium-dark-gray, very silty; interbedded with lenses of medium sand.

LOCATION: 132-083-35DDC1

ALTITUDE: 1822
(FT, MSL)

DATE DRILLED: August 1971

DEPTH: 300
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift, Continued

260-275	Clay, medium-dark-gray, very silty; interbedded with thin lenses of sandy gravel.
275-297	Gravel, fine to coarse, sandy, subangular to angular; some cobbles.

Fox Hills Formation

297-300	Sandstone, medium-bluish-gray to dark-greenish-gray, fine, cemented, calcareous.

132-083-35DDC2
NDSWC 8088A

Altitude: 1822 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, sandy	0.5	0.5
	Sand, very fine to medium, silty, subangular to subrounded	49.5	50
	Sand, fine to very coarse, gravelly, subangular	3	53
	Clay, light-olive-gray, very silty	18	71
	Sand, very fine to fine, well-sorted, subangular to subrounded	6	77
	Clay, medium-gray, very silty	4	81
	Sand, very fine to medium, well-sorted, subangular to subrounded; mostly quartz; some carbonates and detrital lignite	19	100

132-083-36CCC
NDSWC 8087

Altitude: 1823 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, sandy---------------	0.5	0.5
	Clay, medium-gray, very silty---------------	7.5	8
	Sand, very fine to fine, well-sorted, subangular--------------------------------	12	20
	Sand, fine to coarse, gravelly, subangular to rounded-------------------------------	5	25
	Sand, fine, silty, very clayey-------------	18	43
	Sand, very fine to fine, well-sorted, subangular to subrounded------------------	8	51
	Clay, medium-dark-gray, very silty----------	13	64
	Clay, medium-dark-gray, very silty; interbedded with thin lenses of fine sand------	16	80
	Sand, very fine to fine, silty to clayey, subangular to subrounded------------------	21	101
	Clay, medium-dark-gray, very silty----------	4	105
	Sand, fine, silty to clayey, subangular to subrounded; abundant detrital lignite-----	7	112
	Clay, medium-dark-gray, very silty to sandy-	6	118
	Sand, very fine to fine; interbedded with thin lenses of silty clay; abundant detrital lignite-------------------------	21	139
	Lignite, sandy, detrital--------------------	2	141
	Clay, medium-dark-gray, silty; interbedded with thin lenses of fine sand------------	51	192
	Sand, fine to very coarse, gravelly; about 40 percent carbonates, 40 percent quartzites, 10 percent lignite, shale, and siltstone, and 10 percent granitics---	26	218
	Clay, medium-gray, silty to sandy-----------	10	228
	Clay, light-olive-gray, very silty; interbedded with thin lenses of fine sand------	46	274
	Gravel, fine to coarse, sandy, poorly sorted, angular to rounded----------------	8	282
	Till, olive-gray, silty to sandy------------	16	298
Fox Hills Formation:			
	Sandstone, greenish-gray, fine, consolidated, calcareous, glauconitic-------------------	2	300
	Shale, medium- to dark-greenish-gray; interbedded with thin lenses of fine glauconitic sandstone---------------------	20	320

132-084-01CCD
NDSWC 8648

Altitude: 1886 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Till, yellowish-brown, very silty to sandy, oxidized---------------------------------	7	7
	Sand, dark-yellowish-brown, fine to coarse, silty, oxidized; interbedded with thin lenses of clay---------------------------	13	20
	Clay, dusky-yellow, very silty, oxidized----	5	25
	Sand, yellowish-brown, very fine to medium, silty, oxidized-------------------------	7	32
	Clay, moderate-yellowish-brown, very silty, oxidized---------------------------------	18	50
	Sand, fine to very coarse, gravelly, oxidized---------------------------------	7	57
	Till, dark-yellowish-brown, silty, oxidized; interbedded with lenses of sand----------	23	80
Hell Creek Formation:			
	Siltstone, medium-dark-gray, sandy, clayey, moderately indurated---------------------	20	100

132-084-01DAA
NDSWC 4406

Altitude: 1864 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, dark-brown, sandy	2	2
	Clay, dark-brown, silty; some sandy streaks; high organic content in places	14	16
	Clay, moderate-yellowish-brown, silty, oxidized	4	20
	Silt, dusky-yellow, clayey, oxidized	8	28
	Clay, moderate-olive-brown, very cohesive	4	32
	Sand, fine to medium, subrounded; interbedded with lenses of silt and detrital lignite	23	55
	Sand, coarse to very coarse; some fine gravel; lower part interbedded with lenses of silty clay	29	84
	Silt, light-olive-gray, clayey; interbedded with thin lenses of fine sand	19	103
	Sand, fine to medium, subrounded, clean; some detrital lignite	21	124
	Clay, olive-gray; interbedded with lenses of silt and sand	17	141
	Silt, light-olive-gray; interbedded with lenses of clay and fine sand	47	188
	Sand, fine to medium; interbedded with thin lenses of silty clay	30	218
	Clay, olive-gray; interbedded with lenses of silt and fine sand	48	266
	Sand, fine to very coarse, subangular to subrounded; some fine gravel; occasional cobbles	38	304
	Clay, dark-gray, very silty	10	314
	Gravel, fine, sandy, subangular; mostly quartz, silicates, concretion fragments, and sandstones	5	319
	Clay, grayish-white, sandy, chalky	3	322
Fox Hills Formation:			
	Sandstone, dark-greenish-gray, very fine, cemented	2	324
	Sandstone, grayish-green, fine, clayey, semiconsolidated, fossiliferous; carbonaceous seams	16	340

132-084-01DDC
NDSWC 8645

Altitude: 1876 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Clay, moderate-yellowish-brown, very silty, oxidized----------------------------------	16	16
Glacial drift:			
	Sand, brown, fine to very coarse, gravelly, subrounded, oxidized----------------------	6	22
	Clay, olive-gray, very silty; interbedded with thin lenses of sand------------------	20	42
	Sand, fine to very coarse, gravelly, subrounded; some detrital lignite---------	12	54
	Clay, olive-gray, very silty----------------	6	60
	Sand, very fine to medium, subangular to subrounded; interbedded with thin lenses of clay----------------------------------	14	74
	Clay, very silty; medium dark gray with light-olive-gray mottling-----------------	26	100
	Sand, very fine to medium, silty, subangular to subrounded; some detrital lignite; interbedded with thin lenses of clay------	15	115
	Clay, olive-gray, very silty----------------	23	138
	Clay, olive-gray; interbedded with thin lenses of sand and detrital lignite-------	67	205
	Gravel, fine to medium, silty, clayey; about 40 percent sand---------------------	20	225
	Till, olive-gray, sandy---------------------	26	251
	Till, olive-gray; interbedded with lenses of sand-----------------------------------	25	276
Fox Hills Formation:			
	Sandstone, dark-greenish-gray, fine, micaceous, glauconitic--------------------	24	300

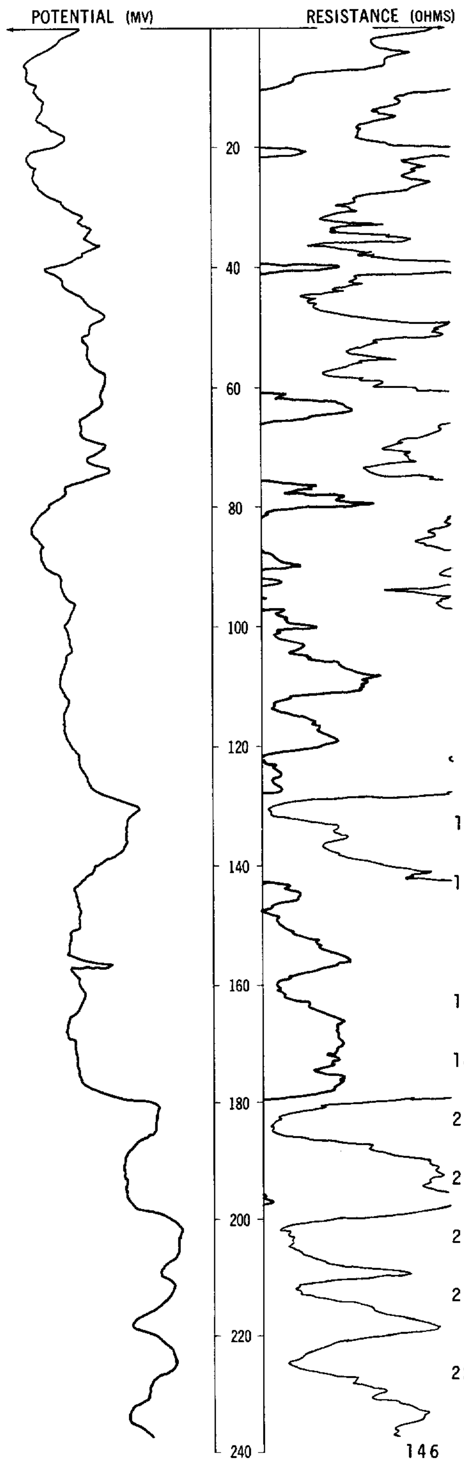
NDSWC 4398

LOCATION: 132-084-06CCC

DATE DRILLED: November 1971

ALTITUDE: 2049
(FT, MSL)

DEPTH: 240
(FT)



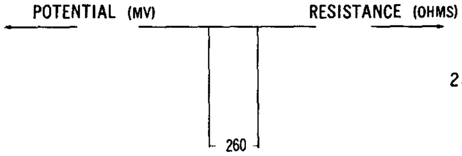
DESCRIPTION OF DEPOSITS

	Glacial drift
0-1	Topsoil, black, sandy.
1-11	Sand, very fine to coarse, gravelly; interbedded with lenses of silty clay; oxidized.
	Ludlow Formation
11-18	Sandstone, yellowish-green, very fine, friable, oxidized.
18-21	Shale, dark-brownish-gray, silty, carbonaceous.
21-23	Lignite, fractured.
23-31	Shale, medium-gray, sandy, crumbly, carbonaceous.
31-40	Shale, dark-brown, silty; interbedded with thin lignite seams.
40-85	Siltstone, grayish-green; interbedded with very fine sandstone; occasional carbonaceous streaks and iron concretions.
	Cannonball Formation
85-130	Sandstone, grayish-green, very fine to fine; interbedded with thin seams of carbonaceous shale.
130-143	Siltstone, very light gray, bentonitic.
143-181	Sandstone, light-greenish-gray, very fine to medium, semiconsolidated, uniform.
	Ludlow Formation
181-189	Shale, dark-brown, fissile, very carbonaceous.
189-202	Sandstone, grayish-green, very fine.
202-210	Shale, brownish-black, very carbonaceous.
210-211	Concretion, sandstone, limonitic.
211-218	Shale, brownish-black, carbonaceous.
218-222	Lignite, solid.
	Hell Creek Formation
222-234	Siltstone, greenish-brown; interbedded with very fine crumbly sandstone.

LOCATION: 132-084-06CCC DATE DRILLED: November 1971

ALTITUDE: 2049 DEPTH: 240
(FT, MSL) (FT)

POTENTIAL (MV) RESISTANCE (OHMS) DESCRIPTION OF DEPOSITS



Hell Creek Formation, Continued

234-240 Sandstone, grayish-green, very fine to fine, friable.

132-084-12AAA
NDSWC 8646

Altitude: 1904 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Silt, dusky-yellow, sandy, gravelly, oxidized	12	12
	Clay, moderate-yellowish-brown, very silty, oxidized	4	16
	Clay, dark-yellowish-brown, sandy, silty, partially oxidized	40	56
Hell Creek Formation:			
	Siltstone, medium- to brownish-gray, clayey, sandy; interbedded with thin lenses of carbonaceous shale	10	66
	Sandstone, medium-bluish-gray, fine	6	72
	Siltstone, medium-bluish-gray, sandy, indurated	28	100

132-084-12BAA1
NDSWC 8647

Altitude: 1873 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Topsoil, brownish-black, silty	1	1
	Silt, moderate-yellowish-brown; interbedded with lenses of sand	45	46
Glacial drift:			
	Sand, very fine to medium, silty; some detrital lignite	6	52
	Clay, olive-gray, very silty; interbedded with thin lenses of sand	12	64
	Sand, fine to very coarse, subangular to rounded; about 15 percent fine to coarse gravel; some detrital lignite	24	88
	Clay, olive-gray, very silty; interbedded with lenses of sand	114	202
	Sand, fine to coarse, clayey, silty, subangular to rounded; detrital lignite	12	214
	Clay, very silty, slightly sandy; olive gray with light-gray streaks	28	242
	Sand, fine to medium, clayey; predominantly reworked local bedrock material	10	252
	Clay, olive-gray, silty	8	260
	Silt, very sandy; medium dark gray with greenish-gray mottling; clayey in places	48	308
	Till, medium-dark-gray, very silty, sandy	14	322
Fox Hills Formation:			
	Sandstone, greenish-gray, fine, cemented, micaceous	3	325

132-084-12BAA2
NDSWC 8647A

Altitude: 1873 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Topsoil, brownish-black, silty	1	1
	Silt, yellowish-brown, clayey	39	40
Glacial drift:			
	Clay, yellowish-brown, silty, sandy	9	49
	Sand, fine to medium; abundant detrital lignite	4	53
	Clay, olive-gray, silty, sandy	4	57
	Sand, fine to medium	3	60
	Clay, olive-gray, silty to sandy	4	64
	Sand, fine to medium	7	71
	Sand, fine to coarse; about 10 percent gravel	19	90
	Clay, olive-gray, silty	10	100

132-084-12CCD
NDSWC 4407

Altitude: 1841 ft

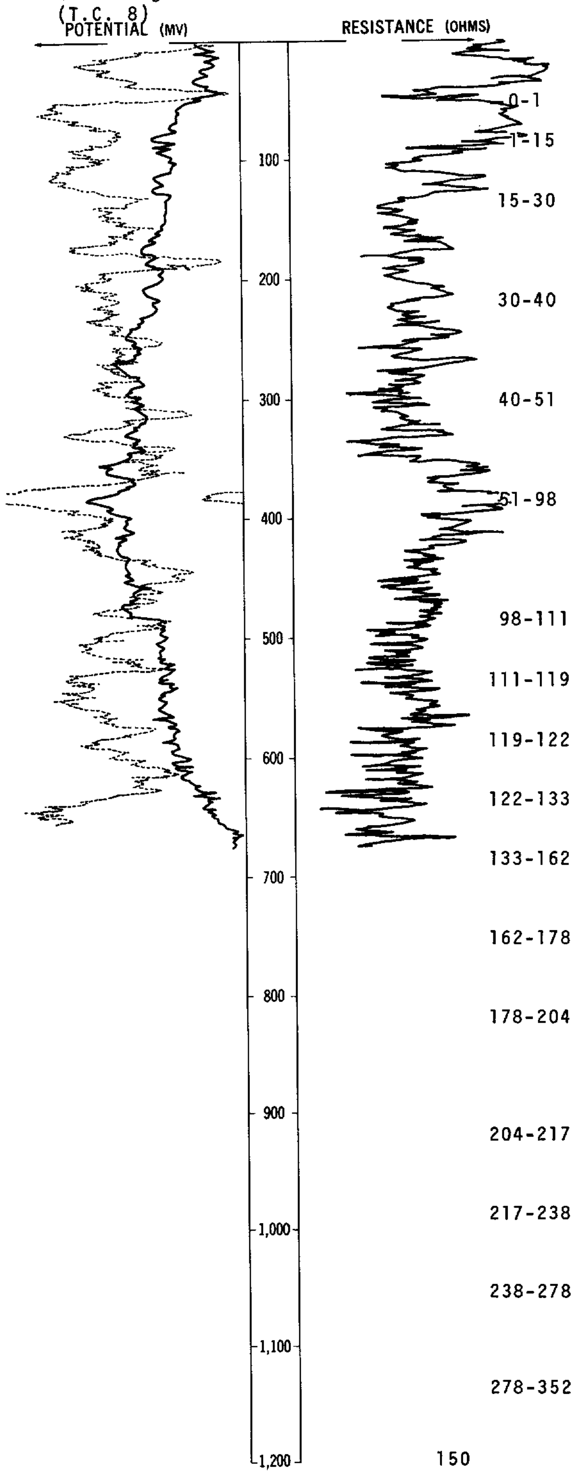
Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, dark-brown, sandy	1	1
	Sand, dark-yellowish-brown, clayey, carbonaceous, oxidized	4	5
	Silt, dark-yellowish-gray, clayey, sandy, leached	11	16
	Clay, yellowish-gray, smooth	6	22
	Silt, dusky-yellow, crumbly, oxidized	6	28
	Clay, light-olive-gray, silty	6	34
	Sand, fine to very coarse, subangular to subrounded; some fine gravel; detrital lignite	35	69
	Clay, light-olive-gray, silty	15	84
	Sand, very fine to fine, subrounded; abundant detrital lignite	17	101
	Clay, dark-olive-gray, silty; some sand streaks	22	123
	Sand, very fine to medium, subrounded; abundant detrital lignite	47	170
	Clay, olive-gray; interbedded with very thin lenses of silty sand	14	184
	Sand, very fine to fine, subrounded; silty in places; interbedded with thin lenses of detrital lignite	35	219
	Silt, dark-gray, clayey to sandy	18	237
	Clay, dark-gray, smooth	8	245
	Sand, very fine to very coarse; interbedded with thin lenses of clay and gravel	38	283
	Sand, medium to very coarse, gravelly, subangular; mostly quartz and silicates, some carbonates, granitics, and sandstones	42	325
Fox Hills Formation:			
	Sandstone, grayish-green, fine, clayey, friable	4	329
	Sandstone, dark-greenish-gray, very fine, cemented	1	330

LOCATION: 132-084-16DAA

ALTITUDE: 1973
(FT, MSL)

DATE DRILLED: May 1973

DEPTH: 680
(FT)



DESCRIPTION OF DEPOSITS

Hell Creek Formation

0-1	Topsoil, dark-brown, sandy.
1-15	Shale, dusky-yellow, silty, oxidized.
15-30	Sandstone, grayish-green, fine to medium, friable, oxidized; thin indurated layers.
30-40	Sandstone, dark-greenish-gray, fine to medium, clayey, friable; carbonaceous streaks.
40-51	Shale, greenish-gray; interbedded with thin lenses of bentonitic clay and carbonaceous shale.
51-98	Sandstone, grayish-green, very fine to medium, semiconsolidated; occasional thin lenses of black silty shale.
98-111	Shale, grayish-green, silty, bentonitic.
111-119	Sandstone, grayish-green, fine to medium, soft.
119-122	Shale, dark-brown, carbonaceous.
122-133	Sandstone, greenish-brown, fine, friable, carbonaceous.
133-162	Siltstone, tight, bentonitic; variegated gray, green, and brown; carbonaceous streaks.
162-178	Sandstone, grayish-green, fine, soft; carbonaceous streaks.
178-204	Siltstone; variegated gray, green, and brown; interbedded with thin lenses of bentonitic clay and carbonaceous shale.
204-217	Sandstone, greenish-gray, very fine to fine, subangular, friable.
217-238	Siltstone, grayish-green; interbedded with lenses of carbonaceous shale.
238-278	Siltstone, greenish-gray, bentonitic; interbedded with lenses of sandstone and shale.
278-352	Shale, grayish-green, carbonaceous; interbedded with lenses of siltstone and lignite.

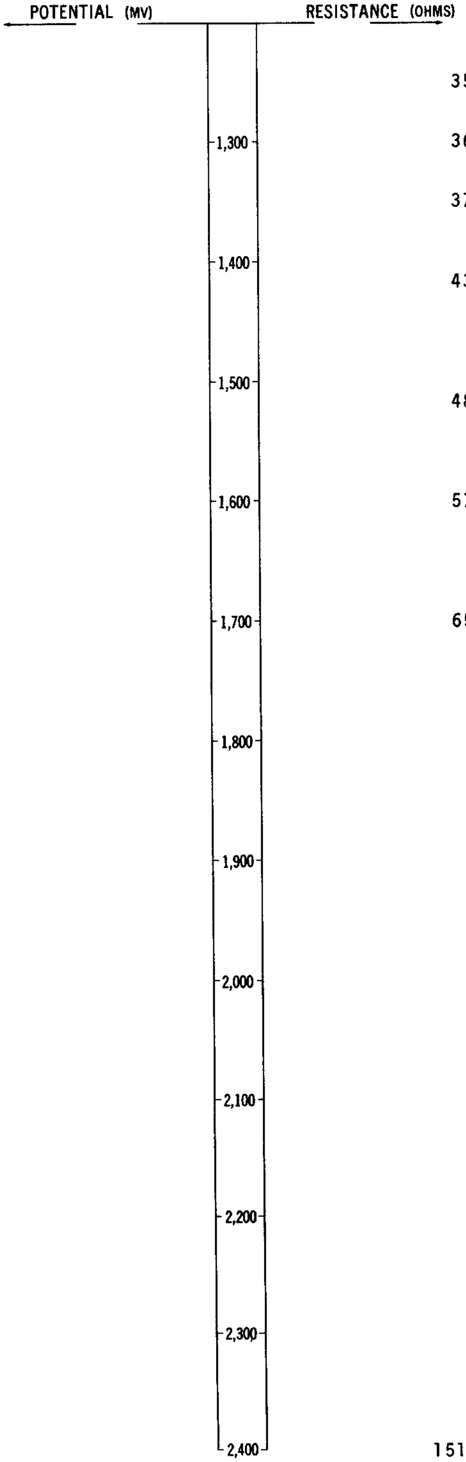
LOCATION: 132-084-16DAA

DATE DRILLED: May 1973

ALTITUDE: 1973
(FT, MSL)

DEPTH: 680
(FT)

POTENTIAL (MV) RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

	Fox Hills Formation
352-365	Sandstone, dark-green, fine to medium.
365-375	Siltstone, light-green, clayey.
375-438	Sandstone, dark-green, fine to medium, friable; fossil fragments.
438-487	Sandstone, grayish-green, very fine to medium; fossil fragments; interbedded with lenses of carbonaceous shale.
487-575	Siltstone, grayish-green; fossil fragments; thin indurated lenses; carbonaceous streaks.
575-659	Shale, dark-gray, very silty, tight; ferruginous concretions.
	Pierre Formation
659-680	Shale, dark-grayish-black, hard, siliceous.

132-084-25BAB
NDSWC 4408

Altitude: 1836 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Topsoil, dark-brown, sandy	2	2
	Sand, fine to medium, clayey, oxidized	3	5
	Clay, brown, silty to sandy, oxidized	8	13
Hell Creek Formation:			
	Shale, yellowish-olive-brown, silty, oxidized	11	24
	Sandstone, grayish-green, fine, semiconsolidated	6	30
	Shale, medium-brownish-gray, silty, highly bentonitic, slightly carbonaceous	16	46
	Sandstone, dark-greenish-gray, very fine to fine, semiconsolidated, fossiliferous	17	63
	Sandstone, grayish-green, fine, friable	9	72
	Shale, yellowish-dark-brown, silty, carbonaceous	10	82
	Sandstone, grayish-green, fine, clayey, friable	11	93
	Shale, dark-brownish-black, fissile; interbedded with thin lenses of claystone	7	100

132-087-03DDB
(Log from Opp Well Drilling)

Altitude:

	Clay, sandy	12	12
	Gravel	3	15
	Sand, gray, fine	5	20
	Clay, black, sandy	20	40
	Clay, grayish-black, sandy	20	60
	Sand, gray, clayey	12	72
	Sand, grayish-blue, fine	13	85
	Sand, grayish-blue, medium	27	112

132-087-26CCB
NDSWC 8104

Altitude: 2007 ft

Alluvium:			
	Topsoil, brownish-black, very sandy	1	1
	Clay, dark-yellowish-brown, very silty, sandy, oxidized	15	16
	Gravel, fine to coarse, sandy, poorly sorted, angular to subrounded	5	21
Hell Creek Formation:			
	Shale, medium-gray; some brownish concretions	34	55
	Shale, greenish-gray, indurated, bentonitic	12	67
	Shale, medium-dark-gray; interbedded with thin lenses of carbonaceous brown shale	24	91
	Limestone	1	92
	Shale, medium-dark-gray	8	100

LOCATION: 132-087-27ADA

DATE DRILLED: November 1972

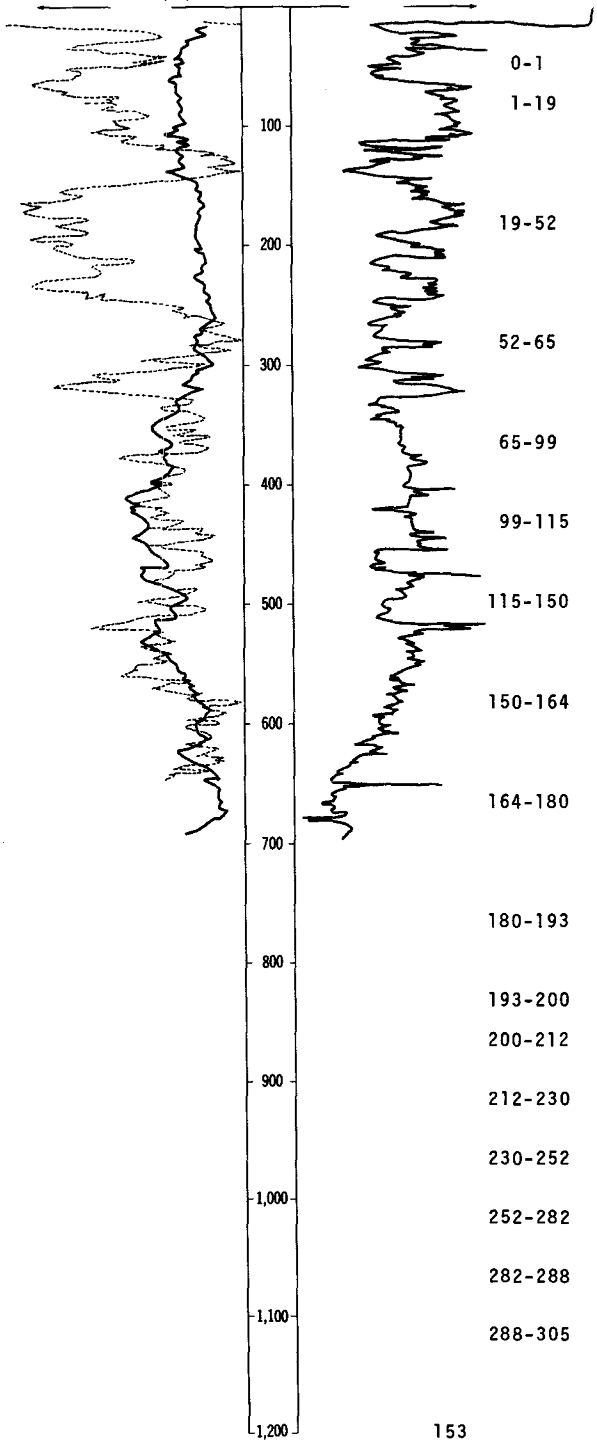
ALTITUDE: 2010
(FT, MSL)

DEPTH: 700
(FT)

Gamma log--------
(T.C. 8)

POTENTIAL (MV)

RESISTANCE (OHMS)



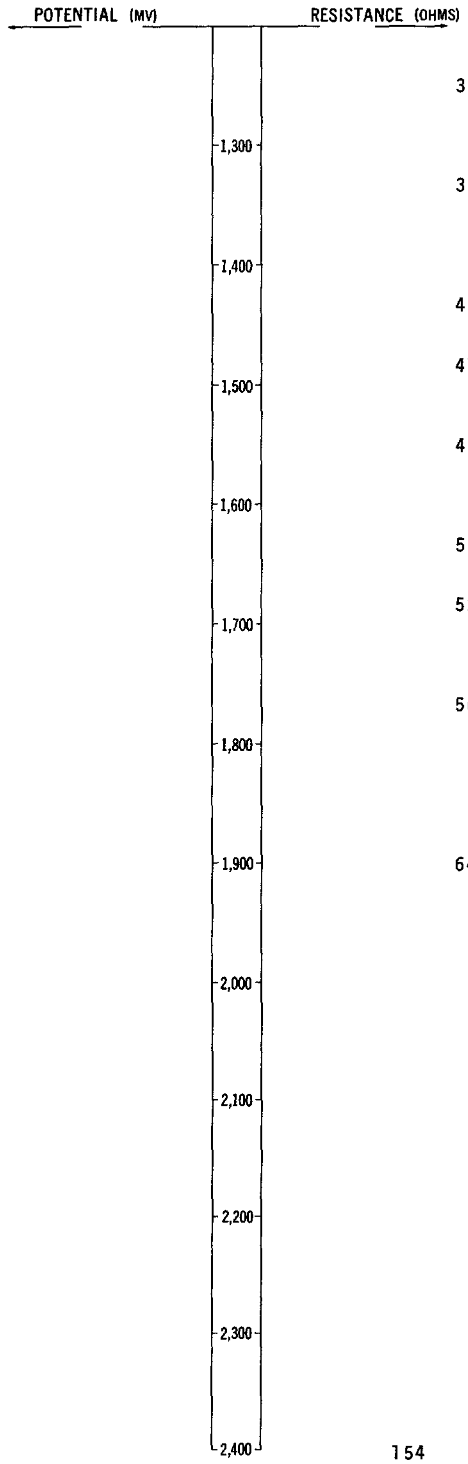
	DESCRIPTION OF DEPOSITS
	Alluvium
0-1	Topsoil, dark-brown, sandy.
1-19	Sand, reddish-brown, very fine to medium, subrounded, oxidized.
	Hell Creek Formation
19-52	Siltstone; variegated grays, browns, and greens; interbedded with lenses of carbonaceous or bentonitic shale.
52-65	Siltstone, light-olive-gray; carbonaceous stains; interbedded with very fine sandstone.
65-99	Sandstone, light-greenish-gray, very fine to fine, mottled; carbonaceous stains.
99-115	Sandstone, brownish-green, very fine to fine, very carbonaceous.
115-150	Shale, very silty, bentonitic, carbonaceous; variegated grays, greens, and browns.
150-164	Sandstone, grayish-green, very fine to fine, slightly indurated; carbonaceous streaks.
164-180	Sandstone, grayish-green, very fine to medium, partially indurated; interbedded with thin lenses of carbonaceous shale.
180-193	Sandstone, dark-green, very fine to fine, generally unconsolidated.
193-200	Shale, grayish-brown, silty.
200-212	Sandstone, dark-green, very fine to fine.
212-230	Shale, grayish-brown, silty, chunky.
230-252	Sandstone, medium-green, very fine to fine, crumbly.
252-282	Shale, grayish-brown, silty, bentonitic, carbonaceous.
282-288	Sandstone, medium-green, very fine to fine, banded.
288-305	Shale, grayish-brown, silty, tight, carbonaceous.

LOCATION: 132-087-27ADA

DATE DRILLED: November 1972

ALTITUDE: 2010
(FT, MSL)

DEPTH: 700
(FT)



DESCRIPTION OF DEPOSITS

Fox Hills Formation

305-327	Sandstone, dark-green, fine to medium, subangular, glauconitic, fossiliferous, partially indurated.
327-458	Siltstone; variegated green, brown, and gray; interbedded with thin lenses of fossiliferous sandstone; carbonaceous streaks.
458-476	Shale, dark-brownish-black, hard, fissile, carbonaceous.
476-478	Sandstone, dark-gray, very fine, indurated; $CaCO_3$ cement.
478-518	Siltstone, dark-greenish-gray; interbedded with thin lenses of bentonitic clay and sandstone.
518-522	Limestone, dark-bluish-gray, indurated, calcareous.
522-562	Siltstone, dark-greenish-gray; interbedded with thin lenses of carbonaceous shale and medium sandstone.
562-645	Siltstone, medium-brownish-gray; interbedded with thin lenses of very fine sandstone and tight bentonitic clay.

Pierre Formation

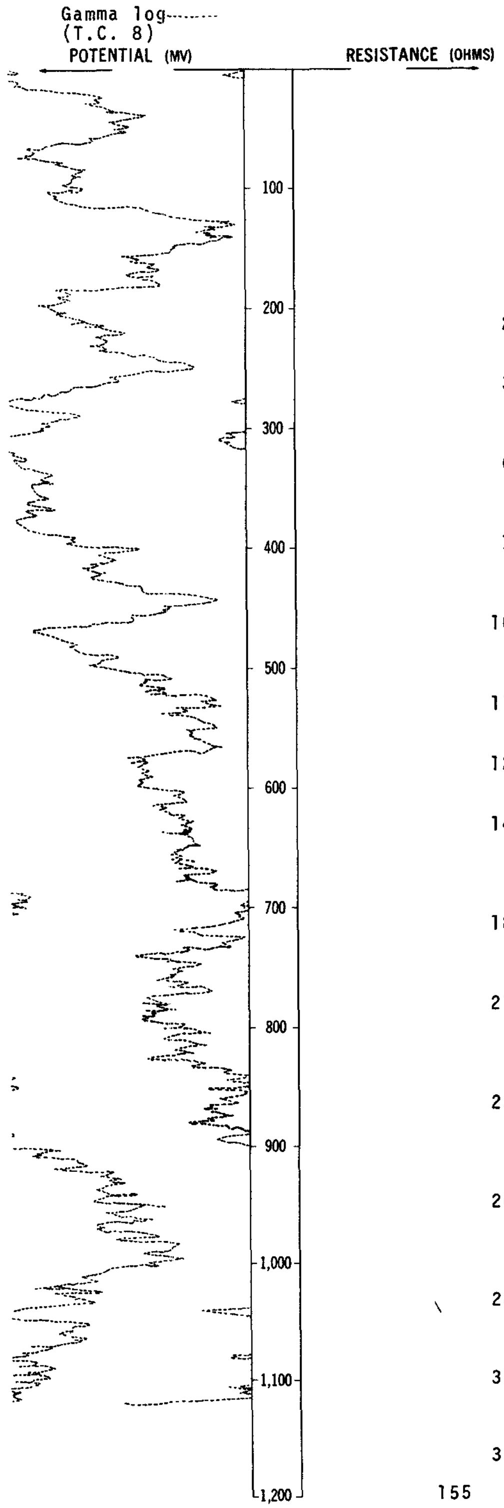
645-700	Shale, bluish-black, brittle, fissile, mottled, gypsiferous.

LOCATION: 132-088-04CBB

DATE DRILLED: June 1973

ALTITUDE: 2092
(FT, MSL)

DEPTH: 1140
(FT)



DESCRIPTION OF DEPOSITS

	Alluvium
0-1	Topsoil, dark-brown, sandy.
1-20	Sand, fine to coarse; interbedded with lenses of fine to medium subrounded gravel; mostly silicates with some carbonates and granitics.
	Cannonball Formation
20-30	Sandstone, gray, very fine, clayey; carbonaceous streaks.
30-61	Shale, silty, slightly bentonitic; variegated gray and black.
61-75	Sandstone, olive-gray to grayish-green, fine, subangular, carbonaceous.
75-102	Sandstone, medium-greenish-gray, very fine to fine; some bentonitic clay.
102-115	Sandstone, light-olive-gray, fine, well-sorted, subangular, carbonaceous.
115-125	Shale, silty to sandy, bentonitic; variegated grays.
125-145	Shale, brown to black, silty, very carbonaceous.
145-183	Shale, carbonaceous, slightly bentonitic; variegated gray, brown, and black; interbedded with siltstone.
183-215	Sandstone, grayish-green, very fine to fine, friable; carbonaceous streaks.
215-238	Siltstone, greenish-gray, sandy; interbedded with carbonaceous and bentonitic shales.
238-260	Shale; variegated gray, green, and brown; interbedded with thin lenses of bentonitic clay.
260-282	Sandstone, light-olive-gray, very fine to medium, semiconsolidated; carbonaceous streaks.
282-303	Siltstone, medium-gray, carbonaceous; some thin bentonitic lenses.
303-319	Sandstone, gray, medium, well-sorted, subangular, friable.
319-385	Sandstone, greenish-gray, very fine to medium, friable; carbonaceous streaks.

NDSWC 4528, Continued

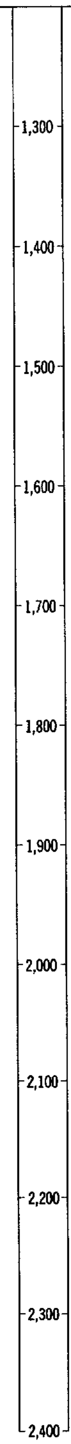
LOCATION: 132-088-04CBB

DATE DRILLED: June 1973

ALTITUDE: 2092
(FT, MSL)

DEPTH: 1140
(FT)

POTENTIAL (MV) RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

Cannonball Formation, Continued

385-397	Siltstone, olive-gray, sandy, carbonaceous.

Hell Creek Formation

397-435	Siltstone, light-green, clayey, soft; carbonaceous streaks.
435-460	Shale, tight, lignitic; variegated gray, green, and brown.
460-500	Sandstone, greenish-gray, fine to medium, semiconsolidated; carbonaceous streaks.
500-520	Siltstone, light-green, moderately soft; carbonaceous streaks.
520-570	Shale, silty, banded, slightly bentonitic; variegated gray, green, and brown; carbonaceous streaks.
570-600	Sandstone, grayish-green, fine, well-sorted, subangular, slightly carbonaceous.
600-685	Siltstone, grayish-green; generally soft and chunky; interbedded with very fine to fine sandstone; occasional carbonaceous clay streaks.
685-715	Shale, grayish-green; some thin lenses of siltstone; banded with carbonaceous material.

Fox Hills Formation

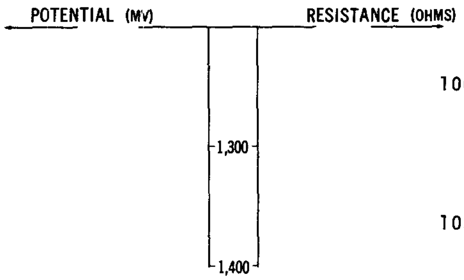
715-723	Sandstone, dark-green, fine to medium, subangular; abundant fossil fragments.
723-732	Shale, dark-brown, hard, tight.
732-835	Sandstone, light- to dark-green, very fine to fine, silty to clayey, semiconsolidated; occasional fossil fragments and carbonaceous zones.
835-900	Siltstone, greenish-gray, clayey, crumbly; some carbonaceous zones.
900-1002	Shale, very bentonitic; variegated gray, green, and brown; interbedded with thin lenses of silty sand.

LOCATION: 132-088-04CBB

ALTITUDE: 2092
(FT, MSL)

DATE DRILLED: June 1973

DEPTH: 1140
(FT)



DESCRIPTION OF DEPOSITS

Fox Hills Formation, Continued

1002-1050 Shale, dark-brown, very carbonaceous; interbedded with lenses of siltstone and sandstone; very sticky.

Pierre Formation

1050-1140 Shale, dark-grayish-black, hard, brittle, siliceous; interbedded with thin lenses of bentonitic clay.

132-088-34CAD
(Log from Opp Well Drilling)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay, sandy	6	6
	Sand, yellowish-brown, oxidized	5	11
	Clay, dark-gray	4	15
	Sand, dark-gray	3	18
	Clay, dark-gray	2	20
	Clay, gray, sandy	10	30
	Sand, dark-gray, fine	12	42
	Clay, gray, sandy	10	52
	Clay, dark-gray	20	72
	Lignite, dry	1	73
	Clay, dark-gray	41	114
	Sandstone	1	115
	Clay, gray; interbedded sand	17	132
	Clay, gray; interbedded with thin lignite seams	31	163
	Sand, gray, water-bearing	9	172

132-089-04CCC3
(Log from Moe Drilling Co.)

Altitude:

	Sand	24	24
	Sand, clayey	21	45
	Sand, green	15	60
	Sand, water-bearing	15	75
	Lignite	2	77
	Sand, green	34	111

132-089-06DDC
(Log from Moe Drilling Co.)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, yellowish-brown, oxidized-------------	8	8
	Lignite, loose-------------------------------	3	11
	Clay, white, bentonitic----------------------	61	72
	Rock---	1	73
	Clay, gray-----------------------------------	10	83
	Sand, gray, coarse---------------------------	66	149
	Sandstone, fossiliferous---------------------	.5	149.5
	Sandstone, cemented--------------------------	.5	150

132-089-09DD
(Log from Opp Well Drilling)

Altitude:

	Clay, gray-----------------------------------	9	9
	Lignite, loose-------------------------------	2	11
	Clay, dark-gray------------------------------	24	35
	Clay, gray; interbedded with thin lignite seams--	23	58
	Lignite, dry---------------------------------	7	65
	Clay, dark-gray------------------------------	24	89
	Sandstone, bluish-gray-----------------------	3	92
	Clay, gray, sandy----------------------------	21	113
	Sandstone, very hard-------------------------	1	114
	Clay, bluish-gray, sandy---------------------	20	134
	Clay, blunt-gray, very sandy-----------------	11	145
	Sand, bluish-gray, fine----------------------	10	155
	Sand, bluish-gray, medium--------------------	8	163
	Lignite--------------------------------------	1	164
	Clay, gray, sandy----------------------------	6	170

132-089-19CCC
(Log from Moe Drilling Co.)

Altitude:

	Sand, yellowish-brown, oxidized-------------	9	9
	Lignite, loose-------------------------------	2	11
	Clay, yellowish-brown, oxidized-------------	5	16
	Clay, green----------------------------------	20	36
	Clay, gray-----------------------------------	6	42
	Sand, gray-----------------------------------	7	49
	Clay, grayish-green--------------------------	49	98
	Sand, gray-----------------------------------	22	120

132-089-25AD
(Log from Opp Well Drilling)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil, brown, sandy	1	1
	Sand, gray	23	24
	Shale, brown, clayey	2	26
	Sandstone, gray	2	28
	Shale, brown, clayey	4	32
	Sand, gray	6	38
	Sand, blue, water-bearing	18	56
	Clay, grayish-black	44	100
	Clay, dark-blue	84	184
	Rock, very hard	1	185
	Clay, blue	14	199
	Sand, blue, clayey	11	210
	Rock, very hard	1	211
	Sandstone, blue, clayey	6	217
	Sand, blue, clayey	2	219
	Clay, light-brown	11	230
	Clay, dark-blue, sandy	16	246
	Sandstone, hard	.5	246.5
	Sand, blue, water-bearing	2.5	249
	Sandstone, hard	1.5	251.5
	Sand, blue, water-bearing	8.5	260
	Clay, blue	3	263

132-089-32BAA2
(Log from Moe Drilling Co.)

Altitude:

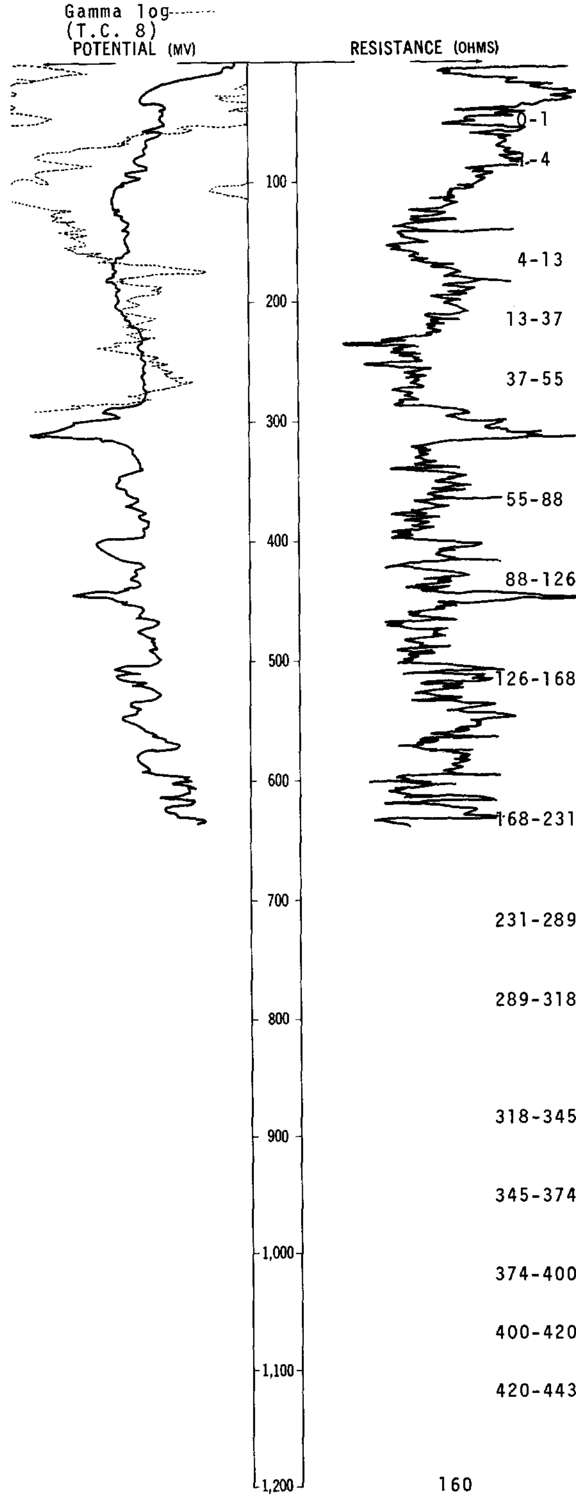
	Sandstone	15	15
	Clay	11	26
	Lignite	1	27
	Clay	8	35
	Sand, brown	10	45
	Lignite	1	46
	Clay	10	56
	Clay, white	3	59
	Lignite	1	60
	Clay, green	10	70
	Clay, gray	29	99
	Lignite	1	100
	Clay	15	115
	Sand, water-bearing	5	120

LOCATION: 132-090-14AAB1

DATE DRILLED: June 1973

ALTITUDE: 2340
(FT, MSL)

DEPTH: 640
(FT)



DESCRIPTION OF DEPOSITS

Alluvium

0-1	Topsoil, dark-brown, sandy.
1-4	Sand, medium, gravelly, oxidized.

Tongue River Formation

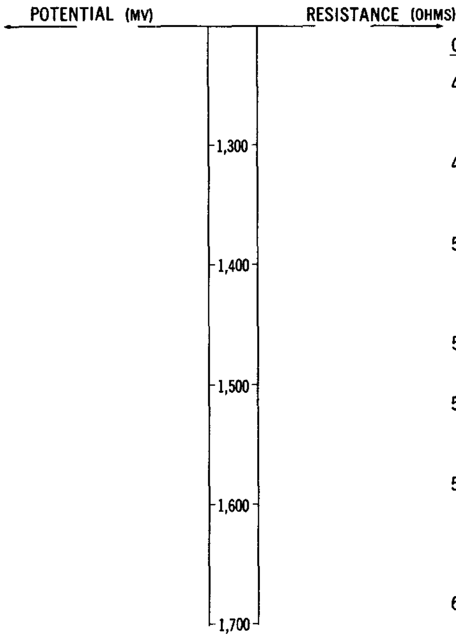
4-13	Shale, yellowish-gray, silty, bentonitic, oxidized.
13-37	Sandstone, very light gray, very fine to fine.
37-55	Shale, very carbonaceous, bentonitic; variegated gray, brown, and black; interbedded with thin lenses of siltstone.
55-88	Sandstone, very light gray, fine to medium, semiconsolidated; carbonaceous streaks.
88-126	Siltstone, carbonaceous, moderately bentonitic; variegated gray, green, and brown.
126-168	Shale, dark-grayish-brown; very carbonaceous in places; interbedded with thin lenses of very fine sandstone.

Cannonball-Ludlow Formations

168-231	Siltstone, clayey, bentonitic; variegated gray, brown, and black; carbonaceous streaks.
231-289	Shale, medium- to dark-gray, bentonitic, carbonaceous.
289-318	Sandstone, brownish-gray, very fine to medium, carbonaceous; interbedded with thin lenses of light-gray shale.
318-345	Shale, silty; variegated gray, green, and brown; carbonaceous streaks.
345-374	Siltstone, grayish-green to brown, clayey; carbonaceous mottling.
374-400	Shale, dark-greenish-brown, bentonitic, carbonaceous.
400-420	Sandstone, greenish-gray, very fine to medium.
420-443	Shale, grayish-brown, lignitic, bentonitic; interbedded with thin lenses of sandstone.

LOCATION: 132-090-14AAB1 DATE DRILLED: June 1973

ALTITUDE: 2340 DEPTH: 640
(FT, MSL) (FT)



DESCRIPTION OF DEPOSITS

Cannonball-Ludlow Formations, Continued

443-450	Sandstone, dark-grayish-green, fine to medium, indurated.
450-507	Siltstone, medium-grayish-green; some shale layers; carbonaceous streaks.
507-562	Sandstone, gray to brownish-green, very fine to fine; interbedded with lenses of bentonitic shale.
562-576	Shale, dark-brown, silty, very carbonaceous.
576-598	Sandstone, brownish-green, very fine, silty; some carbonaceous streaks.
598-623	Shale, dark-grayish-brown, bentonitic, carbonaceous; interbedded with thin lenses of sandstone and siltstone.
623-634	Sandstone, light-greenish-gray, very fine.
634-640	Shale, dark-brown, carbonaceous.

132-090-14AAB2
NDSWC 4527A

Altitude: 2340 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Topsoil, dark-brown, sandy------------------	1	1
	Sand, medium, gravelly, oxidized------------	3	4
Tongue River Formation:			
	Shale, yellowish-gray, silty, bentonitic, oxidized------------------------------------	9	13
	Sandstone, very light gray, very fine to fine--	24	37
	Shale, very carbonaceous, bentonitic; variegated gray, brown, and black; interbedded with thin lenses of siltstone------	18	55
	Sandstone, very light gray, fine to medium, semiconsolidated; carbonaceous streaks----	33	88
	Siltstone, carbonaceous, moderately bentonitic; variegated gray, green, and brown--	2	90

133-079-02CBB
NDSWC 8635

Altitude: 1680 ft

Geologic source	Material	Thickness (feet)	Depth (fe t)
Alluvium:			
	Clay, moderate-yellowish-brown, very silty to sandy, oxidized	5	5
	Sand, fine to coarse, silty; interbedded with thin lenses of light-brown clay	25	30
	Silt, yellowish-brown, clayey, oxidized	14	44
	Sand, fine to coarse, silty, subangular; abundant detrital lignite	14	58
	Clay, very silty, calcareous; olive gray with light-gray mottling	23	81
Glacial drift:			
	Gravel, fine to coarse, sandy, subangular to subrounded; brownish stained surfaces	2	83
	Till, olive-gray, silty to sandy	44	127
	Gravel and boulders; predominantly sandstone from the Fox Hills Formation	9	136
Fox Hills Formation:			
	Sandstone, greenish-gray, fine to medium, relatively unconsolidated, micaceous	20	156
	Siltstone, siliceous, moderately indurated; medium dark gray with light-gray mottling	24	180

133-079-06ACC
DS-1
(Log from Maclay, 1952)

Altitude:

Recent deposits:			
	Soil	1	1
	Clay, light-brown to brown, silty	33	34

Remarks: Dry hole.

133-079-06BCB
NDSWC 8068

Altitude: 1720 ft

Glacial drift:			
	Topsoil, brownish-black	1	1
	Clay, moderate-yellowish-brown, oxidized	5	6
	Gravel, fine to coarse, oxidized; about 30 percent medium sand; about 40 percent quartz, 20 percent granitics, 20 percent shale, and 20 percent carbonates	12	18
Fox Hills Formation:			
	Shale, moderate-yellowish-brown, oxidized; interbedded with thin lenses of siltstone and sandstone	27	45
	Sandstone, reddish-brown, medium, intermittently cemented, oxidized	25	70
	Sandstone, greenish-gray, medium, glauconitic; interbedded with thin lenses of siltstone and shale	10	80

133-079-07DCD
NDSWC 8072

Altitude: 1790 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black	1	1
	Sand, very fine to medium, silty	4	5
	Clay, moderate-yellowish-brown, oxidized	25	30
Hell Creek Formation:			
	Shale, moderate-yellowish-brown, fractured, oxidized	15	45
	Shale, olive-gray, indurated	15	60

133-079-11BAA
NDSWC 8636

Altitude: 1718 ft

Alluvium:			
	Sand, light-brown, silty to clayey, subangular, oxidized	8	8
Fox Hills Formation:			
	Sandstone, moderate-yellowish-brown, fine to medium, semiconsolidated, oxidized	12	20

133-079-29ABA
NDSWC 8639

Altitude: 1680 ft

	Clay, sandy (roadfill)	5	5
Alluvium:			
	Clay, moderate-yellowish-brown, very silty, oxidized	33	38
	Clay, olive-gray, very silty	35	73
Glacial drift:			
	Gravel, fine to coarse, sandy, subangular; some cobbles	3	76
	Clay, olive-gray, very silty	12	88
	Sand, fine to very coarse, subangular to rounded; detrital lignite; interbedded with thin lenses of clay	5	93
	Clay, olive-gray, very silty	2	95
	Gravel, medium to coarse, some cobbles; about 30 percent fine to coarse sand; mostly locally derived silicates and sandstone	10	105
	Sand, fine to very coarse, gravelly, subangular to rounded; detrital lignite	10	115
	Gravel, fine to coarse, sandy; some cobbles; mostly locally derived silicates and sandstone	25	140
Fox Hills Formation:			
	Shale, grayish-black, siliceous, cohesive	20	160

133-080-01DDD
NDSWC 8069

Altitude: 1715 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown	1	1
	Clay, moderate-yellowish-brown, oxidized	11	12
	Sand, fine to medium, silty, angular	6	18
	Clay, moderate-yellowish-brown, oxidized	15	33
	Clay, medium-gray, silty	7	40
	Clay, olive-gray, silty to very sandy	16	56
	Gravel, fine to coarse, angular	4	60
	Gravel, fine to very coarse; about 40 percent medium to coarse sand; about 50 percent quartz, 20 percent granitics, 20 percent shales and sandstones, and 10 percent detrital lignite and carbonates; clayey from 70 to 85 ft	25	85
Fox Hills Formation:			
	Sandstone, dusky-blue-green, medium, cemented	1	86
	Sandstone, dusky-blue-green; interbedded with siltstone and shale	14	100

133-080-12DDD
NDSWC 8070

Altitude: 1730 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black	1	1
	Clay, light-olive-gray, silty	13	14
	Clay, olive-gray; interbedded with lenses of fine to medium sand	6	20
	Clay, olive-gray, very silty	24	44
	Clay, dark-gray; some concretions	33	77
	Clay, olive-gray; interbedded with lenses of very fine to fine sand; abundant detrital lignite	41	118
	Gravel, fine to medium, subangular to rounded; about 30 percent fine to coarse sand	4	122
	Clay, olive-gray, silty to sandy	4	126
	Gravel, fine to coarse, subangular to rounded; about 25 percent medium to coarse sand; about 50 percent granitics and quartz, 25 percent carbonates, and 25 percent detrital lignite and shale	29	155
Fox Hills Formation:			
	Sandstone, medium-bluish-green, medium; interbedded with siltstone and shale	5	160

133-080-13DDA
NDSWC 8071

Altitude: 1760 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black	1	1
	Clay, yellowish-gray, sandy	16	17
	Sand, fine to medium, silty to clayey	8	25
	Clay, yellowish-gray, sandy; limonitic traces	6	31
	Clay, dark-yellowish-brown, silty; fossil fragments	13	44
	Clay, olive-gray, very silty, lignitic; some limonitic streaks	53	97
Fox Hills Formation:			
	Sandstone, dark-yellowish-green, medium, cemented	3	100
	Shale, greenish-gray; interbedded with lenses of unconsolidated medium sand	22	122
	Sandstone, dark-greenish-gray, fine to medium, fractured	1	123
	Sandstone, dark-greenish-gray, medium, mostly unconsolidated; interbedded with thin lenses of shale; abundant biotite	37	160

133-080-14DCD
DS-2
(Log from Maclay, 1952)

Altitude:

Recent deposits:			
	Soil	1	1
	Silt, light-brown, clayey; contains very fine sand	3	4
	Clay, olive-gray	24	28
	Clay, silty; contains very fine sand	4	32

Remarks: Water level 18.4 ft below land surface.

133-080-31CCD1
NDSWC 8644

Altitude: 1770 ft

Alluvium:			
	Sand, brown, fine to coarse, clayey, silty, subrounded, oxidized	8	8
	Clay, moderate-yellowish-brown, very silty, oxidized; olive-gray mottling	10	18
Glacial drift:			
	Gravel and cobbles, yellowish-brown, fine to coarse, clayey, oxidized	9	27
	Silt, moderate-yellowish-brown to dusky-yellow, clayey, oxidized; interbedded with lenses of sand	15	42
	Sand, yellowish-brown, fine to coarse, angular to subrounded, oxidized	4	46
	Silt, dark-yellowish-brown, sandy, oxidized	12	58
	Till, olive-gray, silty, sandy	17	75

133-080-31CCD1, Continued
NDSWC 8644

Altitude: 1770 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift, Continued:			
	Sand, medium-gray, very fine to medium, subangular to subrounded; predominantly local sandstones and some detrital lignite; about 15 percent carbonate and igneous rocks; occasional thin lenses of clay	41	116
Fox Hills Formation:			
	Sandstone, bluish-gray to greenish-gray, very fine to medium, clayey, semiconsolidated, glauconitic	40	156
	Siltstone, medium- to light-gray; about 40 percent sand and 60 percent clayey silt; interbedded with very thin lenses of limestone	12	168
	Sandstone, bluish- to greenish-gray, semiconsolidated to consolidated, glauconitic, micaceous; clayey in parts	42	210
	Siltstone, medium-gray, clayey; about 40 percent sand; some sandstone concretions	60	270
Pierre Formation:			
	Shale, grayish-black, siliceous, indurated	30	300

133-080-31CCD2
NDSWC 8644A

Altitude: 1770 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Sand, brown, fine to coarse, clayey	8	8
	Clay, llowish-brown, silty	14	22
Glacial drift:			
	Gravel, fine to coarse; some cobbles	7	29
	Clay, yellowish-brown, silty	11	40
	Sand, fine to medium	5	45
	Clay, yellowish-brown, silty; interbedded with thin lenses of sand	13	58
	Till, olive-gray, silty	22	80
	Sand, fine to medium; detrital lignite; interbedded with thin lenses of clay	20	100

133-082-14CBA
DS-4
(Log from Maclay, 1952)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
Recent deposits:			
	Silt, light-brown, clayey; contains very fine sand	5	5
	Silt, light-brown to brown, clayey	8	13
	Sand, red, very fine to fine, silty; contains fine to coarse gravel	10	23

Remarks: Dry hole.

133-082-14CBB
DS-3
(Log from Maclay, 1952)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
Recent deposits:			
	Silt, light-brown, clayey; contains very fine sand----------------------------------	4	4
	Clay, light-brown to brown, silty-----------	18	22

Remarks: Dry hole.

133-083-05DCC
NDSWC 8653

Altitude: 1873 ft

Alluvium:			
	Sand, brown, fine, silty--------------------	2	2
	Clay, dark-yellowish-gray, very silty-------	48	50
Hell Creek Formation:			
	Sandstone, medium-bluish-gray, fine, clayey; interbedded with thin lenses of carbonaceous shale-----------------------------	10	60

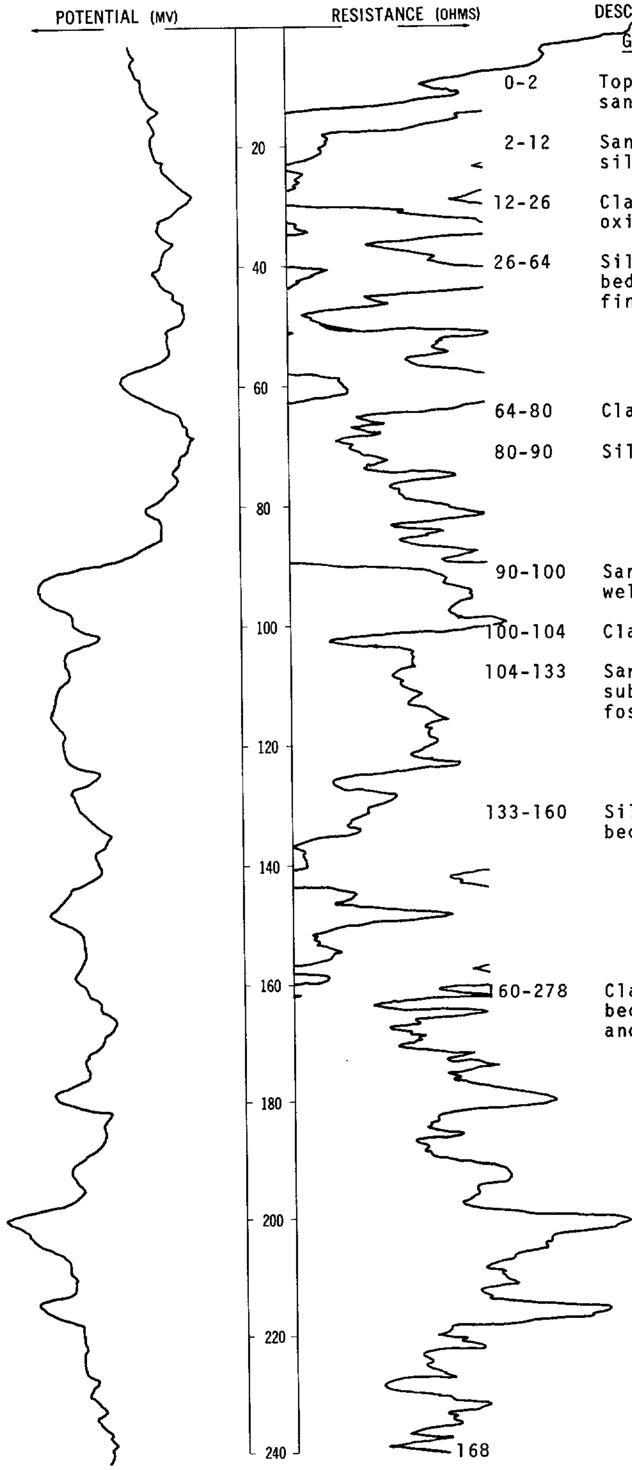
NDSWC 4399

LOCATION: 133-083-07CCB1

DATE DRILLED: November 1971

ALTITUDE: 1885
(FT, MSL)

DEPTH: 320
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

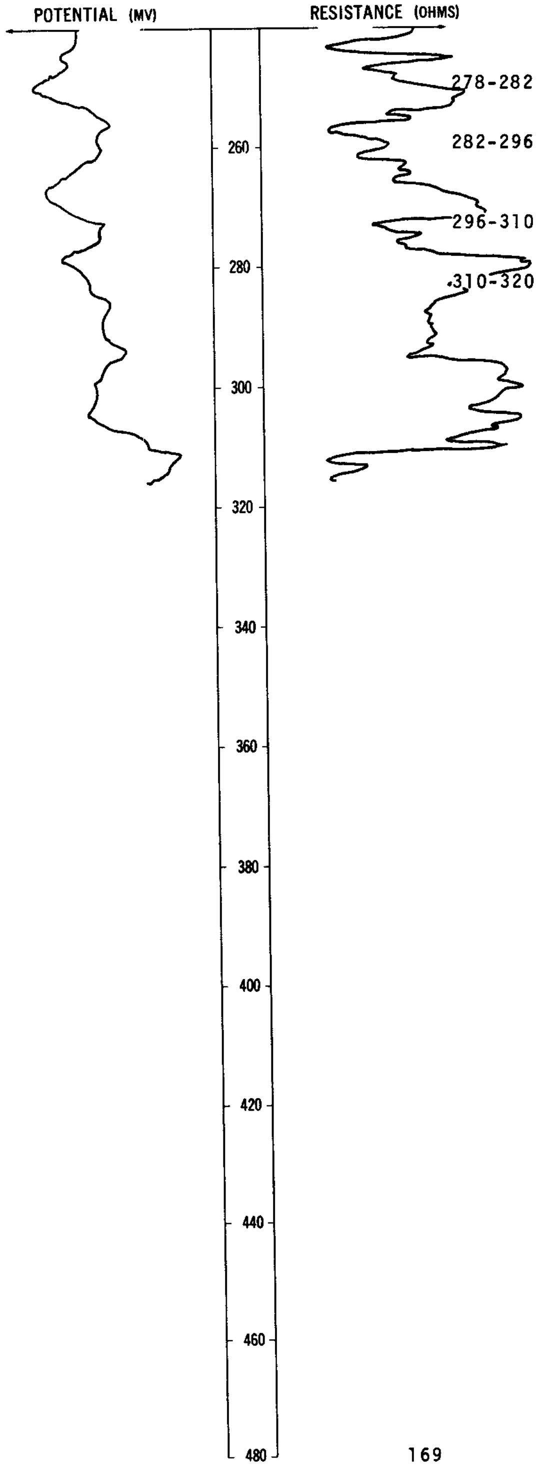
0-2	Topsoil, dark-brownish-black, sandy.
2-12	Sand, very fine to fine, silty to clayey, oxidized.
12-26	Clay, dusky-yellow, oxidized.
26-64	Silt, olive-gray; interbedded with thin lenses of fine sand.
64-80	Clay, olive-gray, silty.
80-90	Silt, olive-gray, clayey.
90-100	Sand, fine to medium, well-sorted, lignitic.
100-104	Clay, olive-gray, silty.
104-133	Sand, fine to medium, subrounded, lignitic; fossil fragments.
133-160	Silt, olive-gray; interbedded with clay.
160-278	Clay, olive-gray; interbedded with lenses of silt and fine sand.

LOCATION: 133-083-07CCB1

ALTITUDE: 1885
(FT, MSL)

DATE DRILLED: November 1971

DEPTH: 320
(FT)



DESCRIPTION OF DEPOSITS

Fox Hills Formation

278-282	Sandstone, greenish-gray, very fine.
282-296	Sandstone, light-greenish-gray, very fine, semiconsolidated.
296-310	Sandstone, grayish-green, very fine to fine, soft.
310-320	Sandstone, grayish-green; interbedded with carbonaceous shale.

133-083-08BBB
NDSWC 8652

Altitude: 1867 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Topsoil, brownish-black, silty, sandy---------	1	1
	Clay, dark-yellowish-brown, very silty; light-gray mottling-----------------------	24	25
	Clay, olive-gray, very silty----------------	22	47
Glacial drift:			
	Sand, fine to medium, subangular; interbedded with thin lenses of clay-----------	5	52
	Gravel, fine to coarse, silty to clayey, subangular; about 25 percent sand---------	6	58
	Clay, olive-gray, very silty; interbedded with thin lenses of sand------------------	24	82
	Sand, medium-gray, very fine to medium, clayey; abundant detrital lignite---------	5	87
	Clay, olive-gray, very silty; interbedded with thin lenses of sand; some detrital lignite------------------------------------	85	172
	Till, medium-dark-gray, silty, very sandy---	114	286
	Sand, very fine to medium, silty, subrounded-------------------------------	7	293
Fox Hills Formation:			
	Sandstone, greenish-gray, clayey, micaceous, slightly glauconitic----------------------	7	300

133-083-12ADA1
NDSWC 8655

Altitude: 1764 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Clay, light-olive-gray, very silty----------	2	2
	Sand, fine to very coarse, subangular; abundant detrital lignite; interbedded with thin lenses of clay-----------------	86	88
	Clay, olive-gray, very silty----------------	7	95
	Sand, very fine to medium, clayey-----------	10	105
	Clay, olive-gray, very silty, sandy---------	15	120
	Sand, fine to very coarse, subangular to subrounded; about 40 percent fine gravel--	12	132
	Till, medium-dark-gray, very sandy, silty---	66	198
Fox Hills Formation:			
	Sandstone, greenish-gray, fine to medium, clayey, semiconsolidated, glauconitic-----	42	240

133-083-12ADA2
NDSWC 8655A

Altitude: 1764 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Clay, light-olive-gray, very silty----------	2	2
	Sand, fine to very coarse, slightly clayey, subangular; abundant detrital lignite-----	86	88
	Clay, olive-gray, very silty----------------	7	95
	Sand, very fine to medium, clayey-----------	5	100

133-083-14BBB
NDSWC 8654

Altitude: 1800 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Sand, very fine to coarse, silty, clayey, oxidized	8	8
	Clay, yellowish-brown, very silty	18	26
Glacial drift:			
	Sand, very fine to medium, subrounded	10	36
	Clay, olive-gray, very silty	16	52
	Sand, fine to very coarse, subrounded; interbedded with lenses of clay	18	70
	Clay, olive-gray, very silty	156	226
	Till, olive-gray, silty, sandy	20	246
Fox Hills Formation:			
	Sandstone, greenish-gray, very fine to medium, clayey	14	260

133-083-17CBB
NDSWC 4400

Altitude: 1882 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, yellowish-brown, sandy	1	1
	Sand, very fine, clayey, carbonaceous, oxidized	4	5
	Sand, fine to medium, subrounded, oxidized; occasional clay layers	33	38
	Clay, olive-gray, silty	9	47
	Sand, medium to coarse, poorly sorted, iron-stained; some fine gravel	5	52
	Clay, olive-black, smooth	7	59
	Sand, fine to coarse, subrounded; some fine gravel size detrital lignite	11	70
	Clay, light-olive-gray, silty	5	75
	Sand, medium to coarse, subrounded, clean	14	89
	Sand, very fine to medium; interbedded with lenses of silty clay	47	136
	Silt, olive-gray; interbedded with lenses of sandy clay	68	204
	Clay, olive-gray; carbonaceous in places; interbedded with lenses of silty sand	36	240
Fox Hills Formation(?):			
	Siltstone, greenish-gray to dark-brown; generally unconsolidated and soft; interbedded with sandstone	60	300

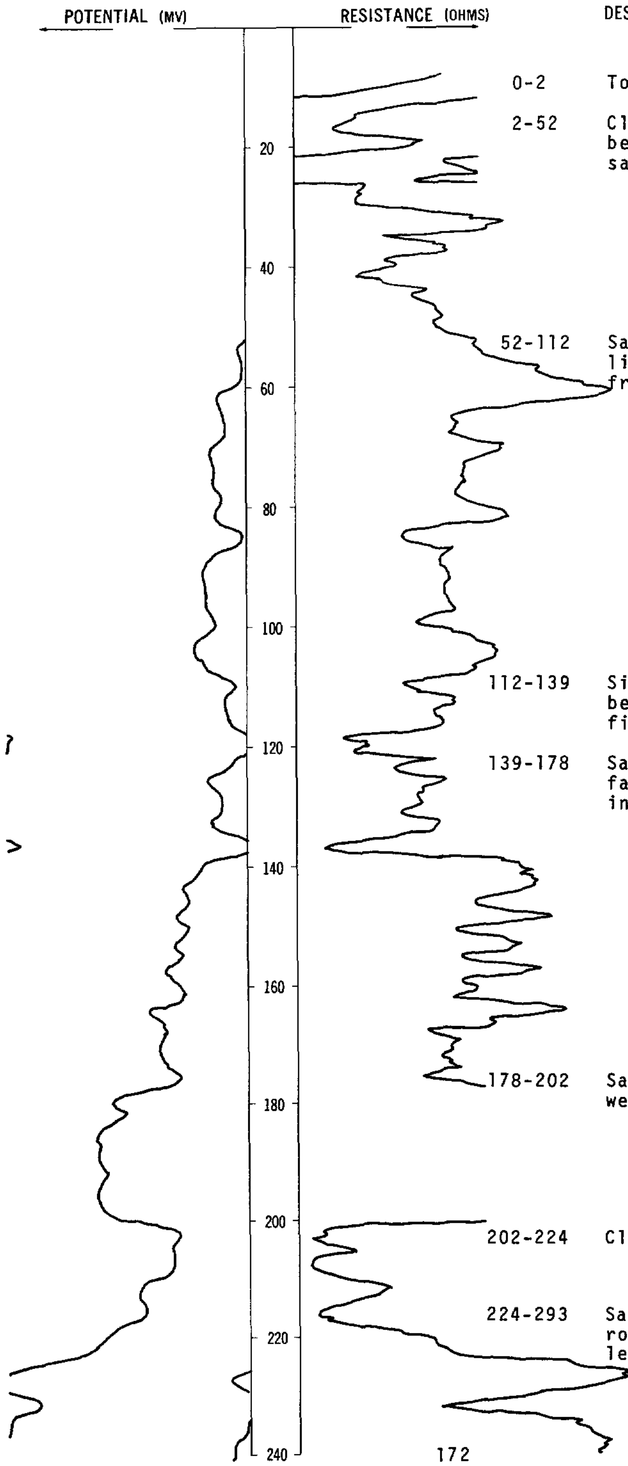
NDSWC 4401

LOCATION: 133-083-17DAA

DATE DRILLED: November 1971

ALTITUDE: 1842
(FT, MSL)

DEPTH: 320
(FT)



DESCRIPTION OF DEPOSITS

Alluvium(?)

0-2 Topsoil, black, silty.

2-52 Clay, medium-gray; interbedded with lenses of fine sand and fine gravel.

Glacial drift

52-112 Sand, very fine to medium, lignitic; some fossil fragments.

112-139 Silt, olive-gray; interbedded with very fine to fine sand.

139-178 Sand, very fine to medium, fairly clean, lignitic; interbedded with silt.

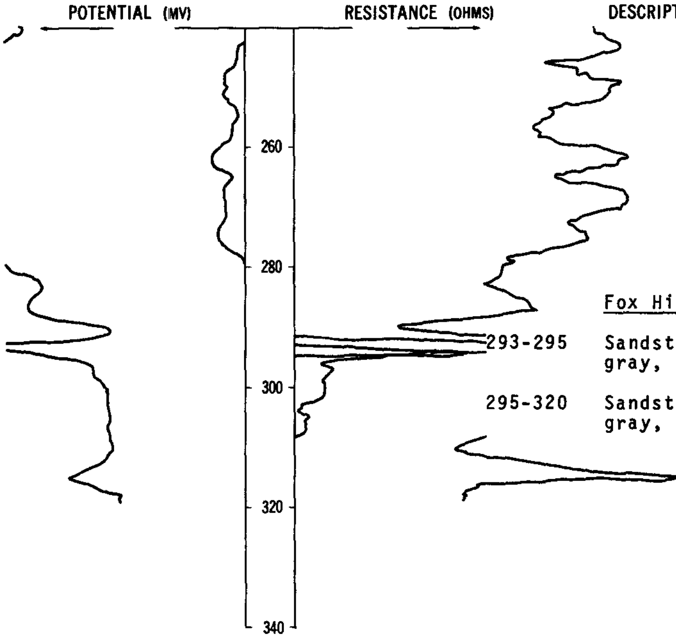
178-202 Sand, medium, uniform, well-sorted, subrounded.

202-224 Clay, dark-olive-gray, silty.

224-293 Sand, fine to medium, subrounded, lignitic; clay lens at 232 ft.

LOCATION: 133-083-17DAA DATE DRILLED: November 1971

ALTITUDE: 1842 (FT, MSL) DEPTH: 320 (FT)



DESCRIPTION OF DEPOSITS

Fox Hills Formation

293-295 Sandstone, dark-greenish-gray, very fine, indurated.

295-320 Sandstone, light-greenish-gray, very fine, friable.

133-083-21AAA
NDSWC 4403

Altitude: 1854 ft

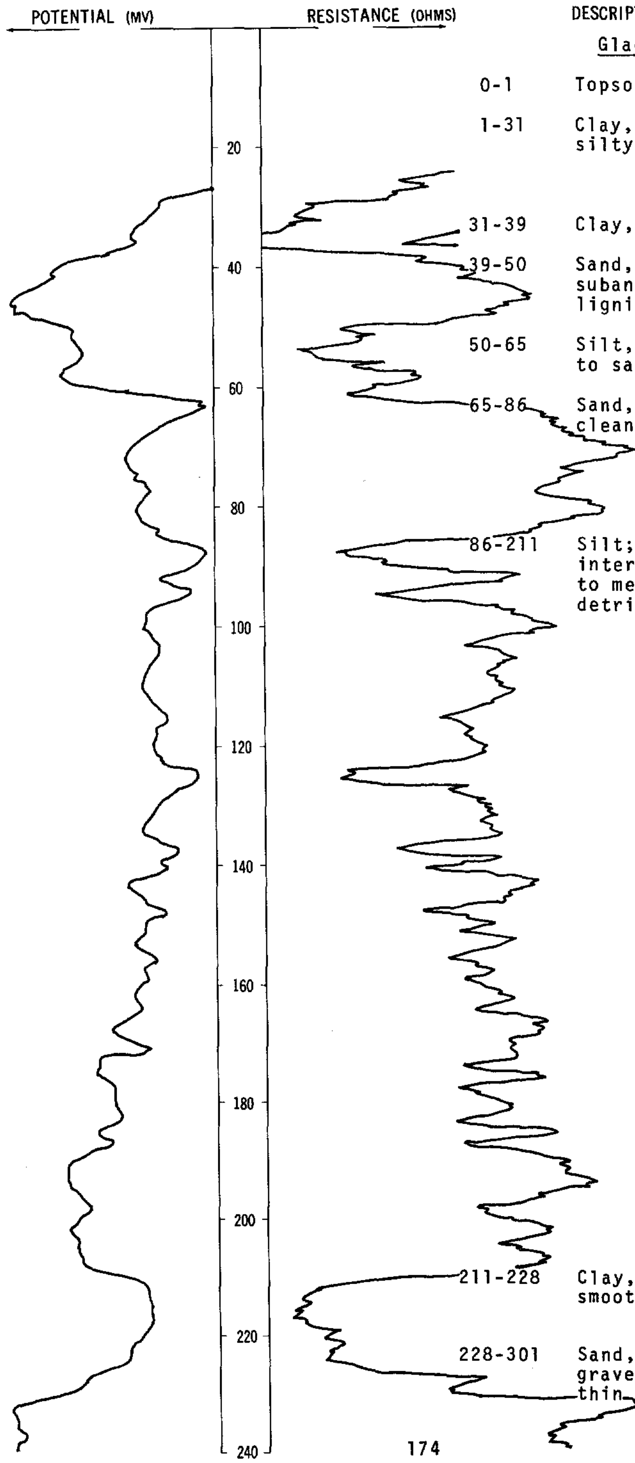
Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-brown, sandy	1	1
	Sand, medium to coarse, clean, oxidized	10	11
Hell Creek Formation:			
	Shale, olive-brown, silty, oxidized; limonitic stains	7	18
	Sandstone, dark-greenish-gray, very fine, clayey, semiconsolidated	11	29
	Sandstone, dark-brown, very fine, semiconsolidated; carbonaceous streaks	5	34
	Sandstone, grayish-green, very fine to fine, semiconsolidated	7	41
	Shale, light-olive-gray, silty, bentonitic	5	46
	Shale, dark-brown, hard, brittle, carbonaceous	8	54
Fox Hills Formation(?):			
	Sandstone, grayish-green, very fine, clayey, friable, chalky	27	81
	Shale, greenish-brown, silty, brittle, carbonaceous	19	100

LOCATION: 133-083-21ABB

DATE DRILLED: November 1971

ALTITUDE: 1857
(FT, MSL)

DEPTH: 340
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

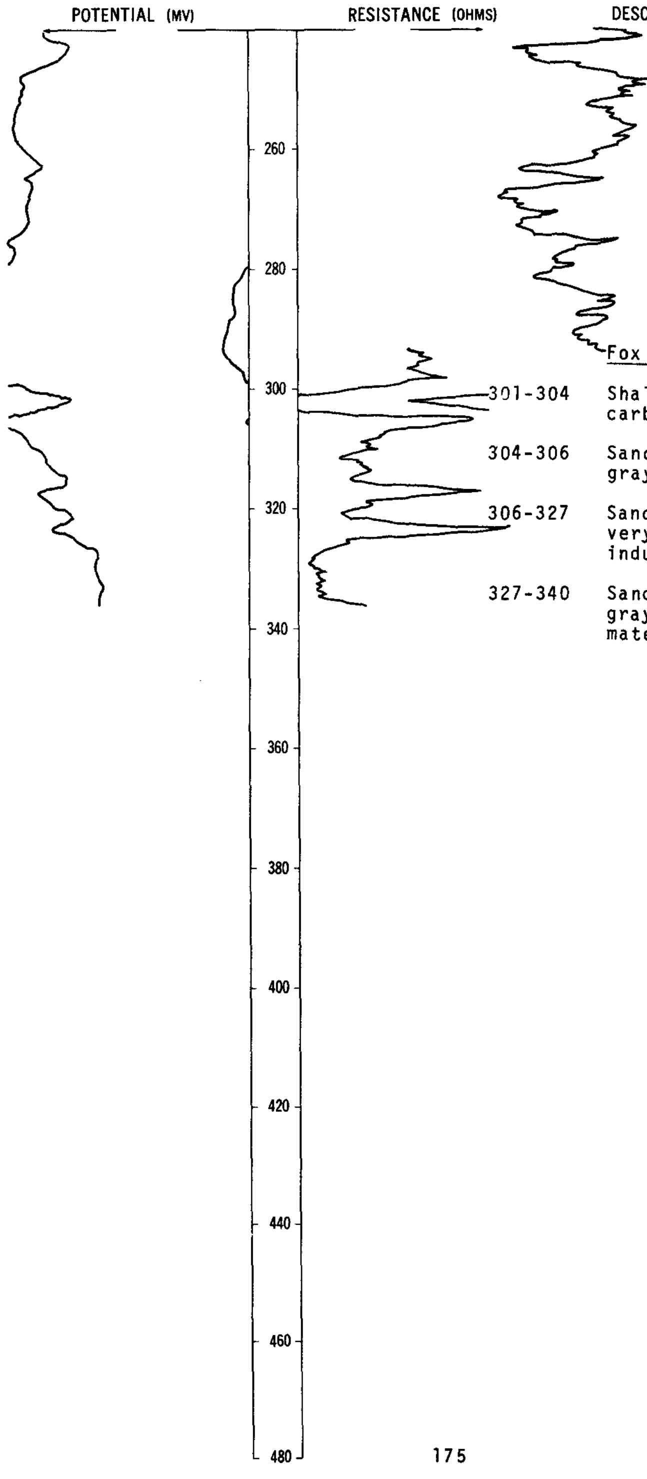
0-1	Topsoil, dark-brown, sandy.
1-31	Clay, medium-olive-brown, silty, sandy, oxidized.
31-39	Clay, olive-gray, silty.
39-50	Sand, fine to medium, subangular to subrounded, lignitic.
50-65	Silt, olive-gray, clayey to sandy.
65-86	Sand, medium to coarse, clean.
86-211	Silt; variegated grays; interbedded with very fine to medium sand; some detrital lignite.
211-228	Clay, dark-olive-gray, smooth.
228-301	Sand, very fine to medium, gravelly; interbedded with thin lenses of silty clay.

LOCATION: 133-083-21ABB

DATE DRILLED: November 1971

ALTITUDE: 1857
(FT, MSL)

DEPTH: 340
(FT)



DESCRIPTION OF DEPOSITS

Fox Hills Formation

301-304	Shale, dark-brown, silty, carbonaceous.
304-306	Sandstone, dark-greenish-gray, very fine, cemented.
306-327	Sandstone, grayish-green, very fine to fine; thin indurated layers.
327-340	Sandstone, light-greenish-gray, very fine; volcanic material.

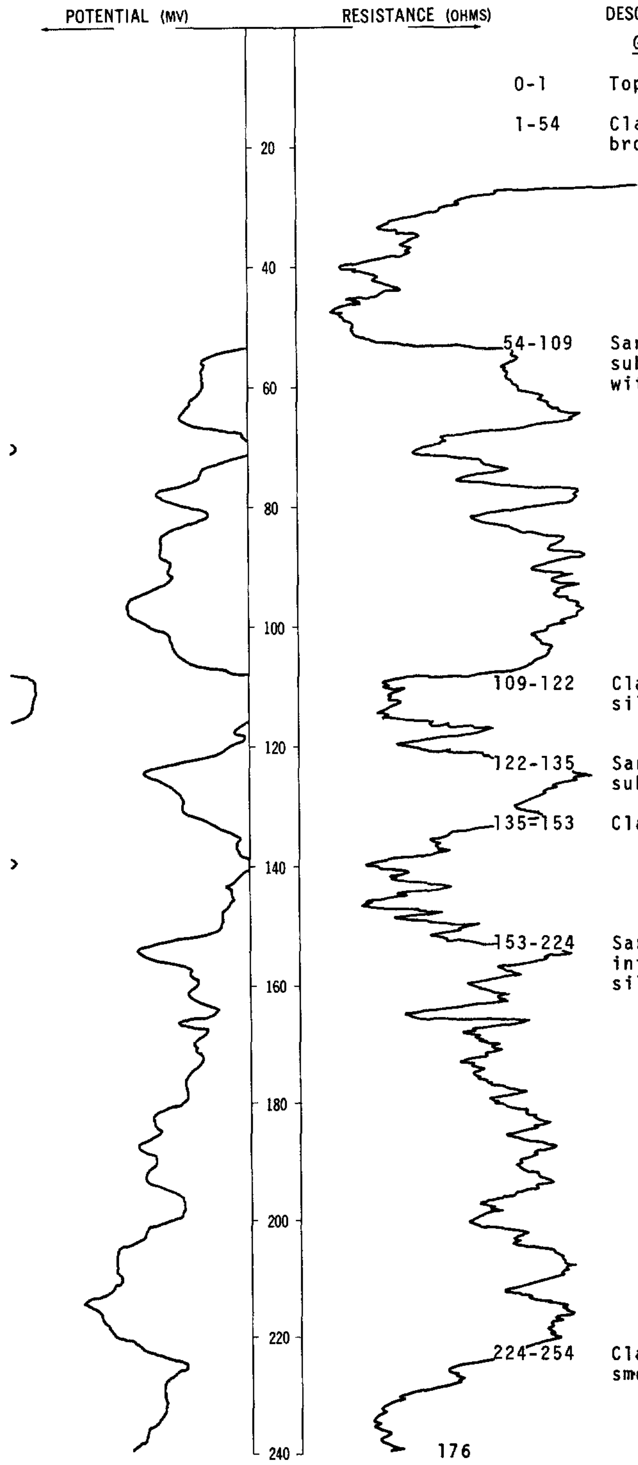
NDSWC 4404

LOCATION: 133-083-28AAB

ALTITUDE: 1867
(FT, MSL)

DATE DRILLED: November 1971

DEPTH: 360
(FT)



DESCRIPTION OF DEPOSITS

Glacial drift

0-1 Topsoil, dark-brown, sandy.

1-54 Clay, moderate-yellowish-brown, silty, oxidized.

54-109 Sand, very fine to coarse, subrounded; interbedded with lenses of silty clay.

109-122 Clay, light-olive-gray, silty.

122-135 Sand, medium, well-sorted, subrounded, clean.

135-153 Clay, olive-gray, smooth.

153-224 Sand, very fine to coarse; interbedded with lenses of silty clay.

224-254 Clay, dark-olive-gray, smooth, very cohesive.

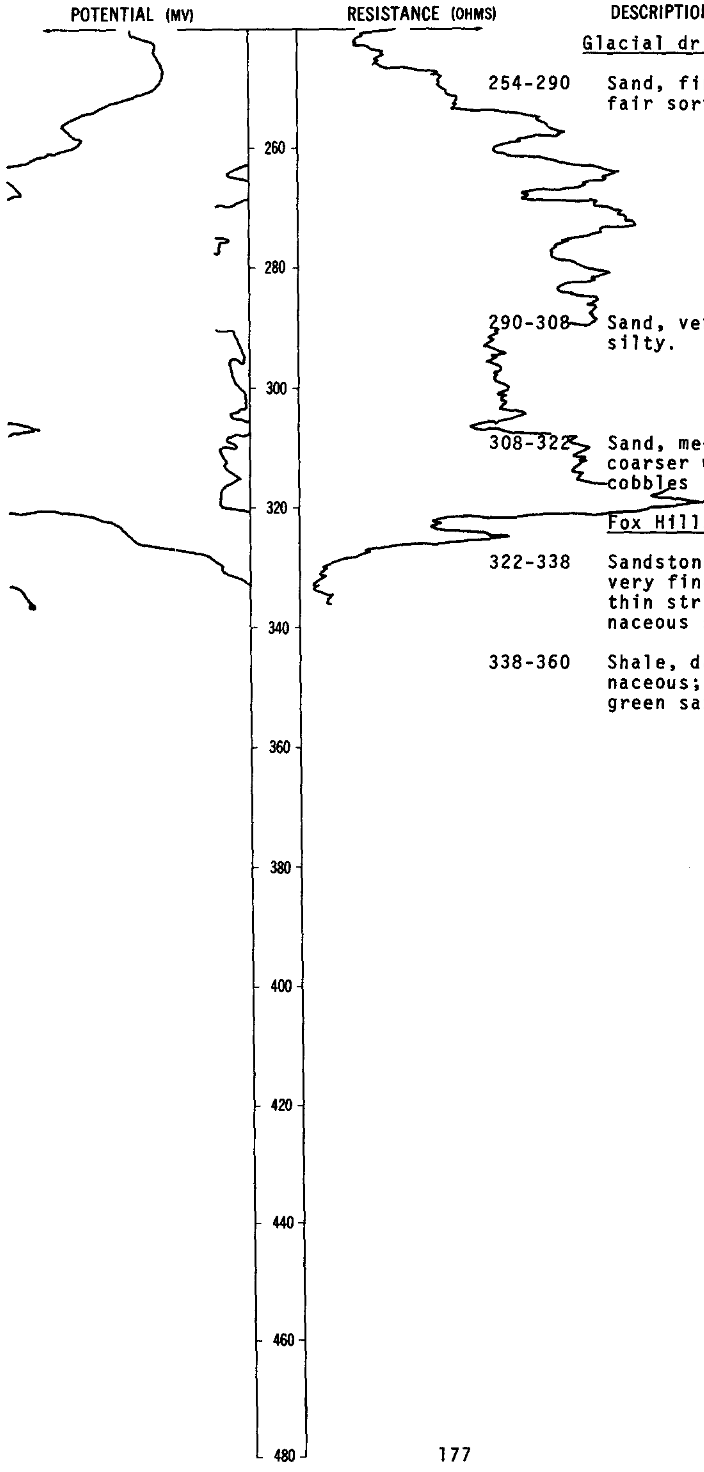
LOCATION: 133-083-28AAB

DATE DRILLED: November 1971

ALTITUDE: 1867
(FT, MSL)

DEPTH: 360
(FT)

POTENTIAL (MV) RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

Glacial drift, Continued

254-290 Sand, fine to medium; fair sorting.

290-308 Sand, very fine to fine, silty.

308-322 Sand, medium; becomes coarser with depth; some cobbles in lower part.

Fox Hills Formation

322-338 Sandstone, grayish-green, very fine to fine; some thin stringers of carbonaceous shale.

338-360 Shale, dark-brown, carbonaceous; interbedded with green sandstone.

133-083-28DCD
NDSWC 4405

Altitude: 1872 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, dark-brown, sandy	2	2
	Clay, dark-brown, oxidized, carbonaceous	6	8
	Clay, light-olive-gray, silty	10	18
	Silt, dusky-yellow, clayey, oxidized	5	23
	Clay, yellowish-gray, silty	9	32
	Silt, dusky-yellow, clayey	4	36
	Clay, light-olive-gray, silty, tight	9	45
	Sand, very fine to fine, subrounded	6	51
	Clay, olive-gray, very silty	6	57
	Sand, very fine to coarse, silty; abundant detrital lignite	29	86
	Clay, light-olive-gray; interbedded with lenses of silt and very fine to fine sand	71	157
	Sand, fine to medium, subangular to subrounded, clean	23	180
	Clay, dark-gray, smooth, tight	10	190
	Sand, fine to medium, subangular; pre-Pleistocene(?)	6	196
Fox Hills Formation:			
	Sandstone, grayish-green, fine, fossiliferous; interbedded with thin lenses of carbonaceous shale and lignite	44	240

133-083-33DDC
NDSWC 8649

Altitude: 1862 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brown, silty, sandy	1	1
	Clay, moderate-yellowish-brown, very silty, oxidized	36	37
	Sand, very fine to coarse, clayey, silty, subrounded; some detrital lignite	11	48
	Clay, olive-gray, very silty	5	53
	Sand, fine to coarse, subrounded; some detrital lignite; interbedded with thin lenses of clay	8	61
	Clay, olive-gray, very silty	19	80
	Clay, olive-gray; interbedded with lenses of sand	15	95
	Till, dark-gray, silty to sandy	27	122
Hell Creek Formation:			
	Sandstone, light-greenish-gray, fine; interbedded with carbonaceous shale; some siderite concretions	38	160

133-083-34CBC2
(Log from Miller Well Drilling)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, yellowish-brown, oxidized	32	32
	Clay, yellowish-brown	163	195
	Sand, water-bearing	18	213
	Clay, brownish-green	57	270
	Sand, bluish-gray, water-bearing	40	310

133-084-01DCC
NDSWC 8650

Altitude: 1899 ft

Alluvium:			
	Sand, light-brown, very fine to coarse, silty, subangular, oxidized	12	12
Glacial drift:			
	Clay, olive-gray, very silty	24	36
	Gravel, fine to coarse, angular to subrounded; about 30 percent fine to coarse sand; interbedded with thin lenses of clay	9	45
	Gravel, medium to very coarse; cobbles and boulders	2	47
	Clay, olive-gray, very silty	9	56
	Sand, fine to coarse; mostly medium; interbedded with numerous thin lenses of clay; abundant detrital lignite; about 15 percent gravel	44	100
	Gravel and cobbles, sandy	4	104
	Clay, medium-dark-gray, very silty, sandy	12	116
	Sand, very fine to medium, very clayey, silty, subangular	8	124
	Clay, medium-dark-gray, very silty; interbedded with thin lenses of sand	44	168
	Till, olive-gray, very sandy	42	210
Fox Hills Formation:			
	Sandstone, medium-bluish-gray, fine, consolidated, micaceous	10	220

133-084-02CDD
(Log from Moe Drilling Co.)

Altitude:

	Sandstone, brownish-gray	15	15
	Clay, gray	50	65
	Sand, gray, silty	60	125
	Clay, gray	33	158
	Sand, greenish-gray	3	161
	Sand, gray, silty	24	185
	Sand, gray, clayey	37	222
	Clay, gray	63	285
	Sand, gray, very coarse	33	318
	Sandstone, hard	1	319

133-084-03DAD
NDSWC 8651

Altitude: 1933 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Sand, light-brown, silty, clayey, subangular, oxidized	15	15
	Clay, medium-gray, very silty	17	32
Glacial drift:			
	Sand, fine to coarse, subrounded, oxidized; some detrital lignite	10	42
	Gravel, fine to coarse, angular to well-rounded; about 15 percent sand; about 50 percent brownish silicates, 30 percent locally derived sandstone, 15 percent carbonates, and 5 percent granitics	14	56
	Clay; olive gray with dark-yellowish-brown mottling	7	63
	Gravel, fine to coarse; about 30 percent sand; interbedded with lenses of clay	21	84
	Clay, olive-gray, silty to sandy	6	90
	Gravel and cobbles, sandy, clayey; abundant detrital lignite	7	97
Hell Creek Formation:			
	Sandstone, bluish-gray, fine to medium, clayey; interbedded with thin lenses of carbonaceous shale	23	120

133-084-30AAA
NDSWC 4397

Altitude: 2305 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, dark-brown, sandy	1	1
	Sand, fine to medium, subangular to subrounded, oxidized	24	25
	Clay, medium-gray, smooth	2	27
	Gravel, fine to medium, sandy, oxidized	5	32
Ludlow Formation:			
	Sandstone, dark-gray, fine, semiconsolidated	9	41
	Shale, medium-dark-gray, silty, fissile	30	71
	Sandstone, dark-grayish-green, very fine to fine, semiconsolidated	14	85
	Shale, dark-grayish-green and brown, silty; thin carbonaceous zones	57	142
Cannonball Formation:			
	Sandstone, dark-green, very fine to fine; interbedded with carbonaceous shale	21	163
	Siltstone, grayish-green; interbedded with sandy shale	57	220

LOCATION: 133-085-12AAD

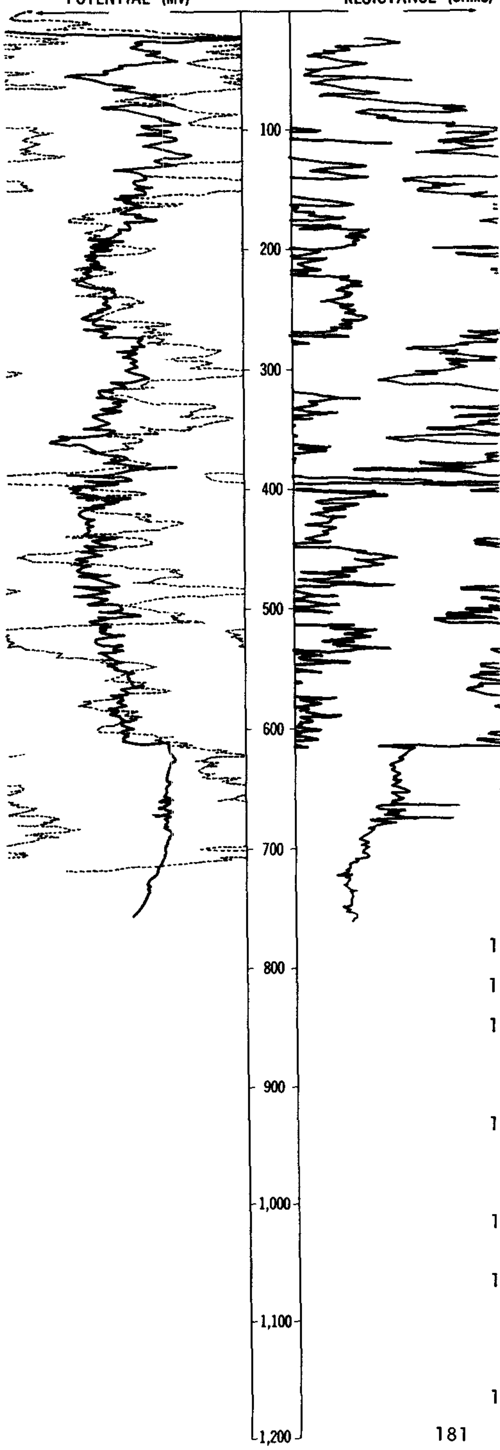
DATE DRILLED: October 1972

ALTITUDE: 2020
(FT, MSL)

DEPTH: 760
(FT)

Gamma log--------
(T.C. 8)

POTENTIAL (MV) RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

Alluvium

0-1 Topsoil, dark-brown, silty.

1-16 Silt, yellowish-gray-brown, sandy, oxidized.

Cannonball-Ludlow Formations, undifferentiated

16-32 Shale, dark-brown, silty to sandy, carbonaceous; interbedded with thin lenses of lignite.

32-34 Lignite.

34-52 Shale, dark-brownish-gray; interbedded with thin lenses of siltstone and lignite.

52-54 Lignite.

54-60 Sandstone, very fine, silty, semiconsolidated; dark brown with gray streaks.

60-66 Shale, brownish-black, carbonaceous.

66-80 Sandstone, brownish-green to greenish-gray, very fine to fine; concretions and carbonaceous streaks.

80-86 Shale, brownish-gray, carbonaceous.

86-98 Siltstone, dark-brown, clayey, carbonaceous.

98-113 Shale, brownish-green; interbedded with thin lenses of bentonitic clay and indurated sandstone.

113-115 Lignite.

115-118 Sandstone, dark-brown, fine.

118-125 Shale, brownish-black, hard, carbonaceous.

Hell Creek Formation

125-141 Sandstone, greenish-gray, very fine to fine; some thin lenses of carbonaceous clay.

141-154 Shale, dark-brown, brittle, carbonaceous.

154-195 Sandstone, light-green, very fine to medium; some gray chalky and carbonaceous streaks; occasional fossil fragments.

195-204 Shale, brown, brittle.

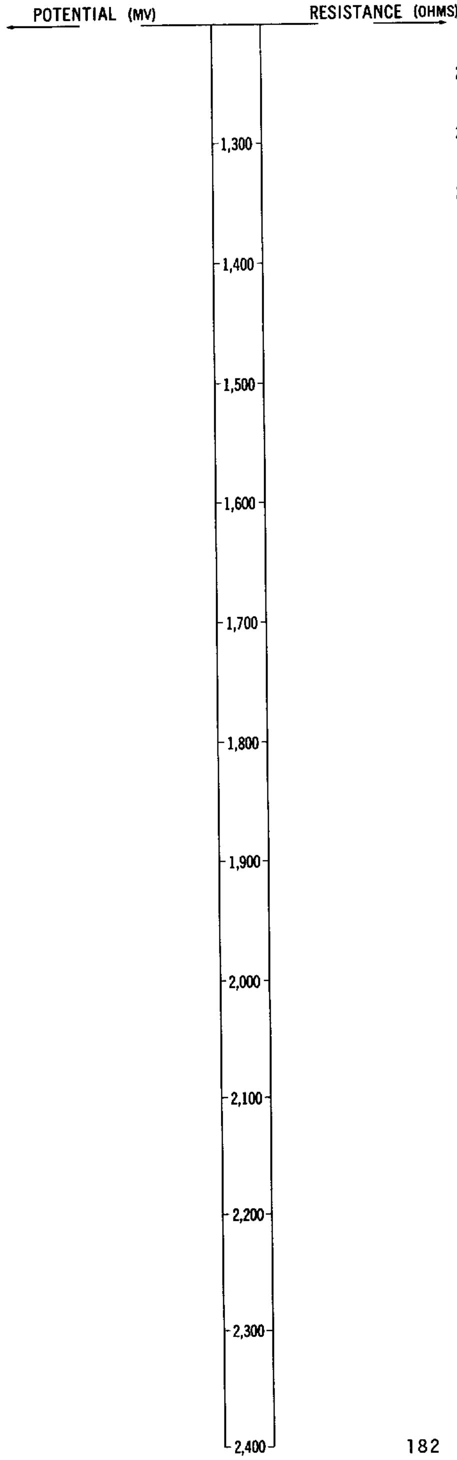
LOCATION: 133-085-12AAD

ALTITUDE: 2020
(FT, MSL)

DATE DRILLED: October 1972

DEPTH: 760
(FT)

POTENTIAL (MV) RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

Hell Creek Formation, Continued

204-208	Sandstone, medium-green, very fine to fine.
208-219	Siltstone, medium-green, semiconsolidated.
219-236	Sandstone, medium-green, very fine to medium, semiconsolidated, fossiliferous.
236-248	Siltstone, light-green, soft.
248-259	Sandstone, medium-green, very fine to medium, silty, fossiliferous.
259-350	Shale, dark-brown to greenish-gray; interbedded with lenses of siltstone and sandstone.
350-384	Siltstone, grayish-green, semiconsolidated.

Fox Hills Formation

384-414	Sandstone, grayish-green, fine to medium, subangular; fossil fragments.
414-439	Siltstone, grayish-green, semiconsolidated.
439-448	Shale, grayish-green, silty.
448-467	Sandstone, medium-green, very fine to fine, subangular, semiconsolidated.
467-510	Siltstone, grayish-green; interbedded with lenses of sandstone and shale.
510-536	Sandstone, medium-dark-green, fine to medium, fossil fragments.
536-570	Siltstone, light-greenish-gray; interbedded with thin lenses of sandstone and carbonaceous shale.
570-578	Sandstone, grayish-green, very fine to fine, semiconsolidated.
578-615	Siltstone, medium-green; interbedded with lenses of sandstone.
615-660	Shale, dark-gray, cohesive, plastic.

Pierre Formation

660-760	Shale, grayish-black, hard, tight, siliceous.

133-085-26CCC
NDSWC 4396

Altitude: 2324 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Topsoil, dark-brown, sandy	1	1
	Clay, dark-yellowish-brown; interbedded with thin lenses of fine sand; some carbonaceous streaks	10	11
Cannonball Formation:			
	Sandstone, yellowish-gray, very fine to fine, oxidized; indurated in places	10	21
	Sandstone, yellowish-olive-brown, friable, oxidized; interbedded with thin lenses of shale	34	55
	Shale, dark-brownish-gray; interbedded with lenses of soft friable sandstone; slightly carbonaceous in places	27	82
	Sandstone, dark-grayish-brown, very fine to fine, friable, carbonaceous	37	119
Ludlow Formation:			
	Shale, dark-gray, silty, brittle	15	134
	Sandstone, dark-green, fine; with brown iron stains	4	138
	Shale, dark-greenish-gray and brown, silty, carbonaceous	17	155
	Sandstone, tan to light-brown, very fine, silty, slightly carbonaceous	9	164
	Sandstone, dark-brown, very fine, clayey, highly carbonaceous	6	170
Cannonball Formation:			
	Sandstone, dark-greenish-brown, very fine to fine; carbonaceous streaks	14	184
	Sandstone, light-greenish-gray, fine to medium, subrounded, semiconsolidated	9	193

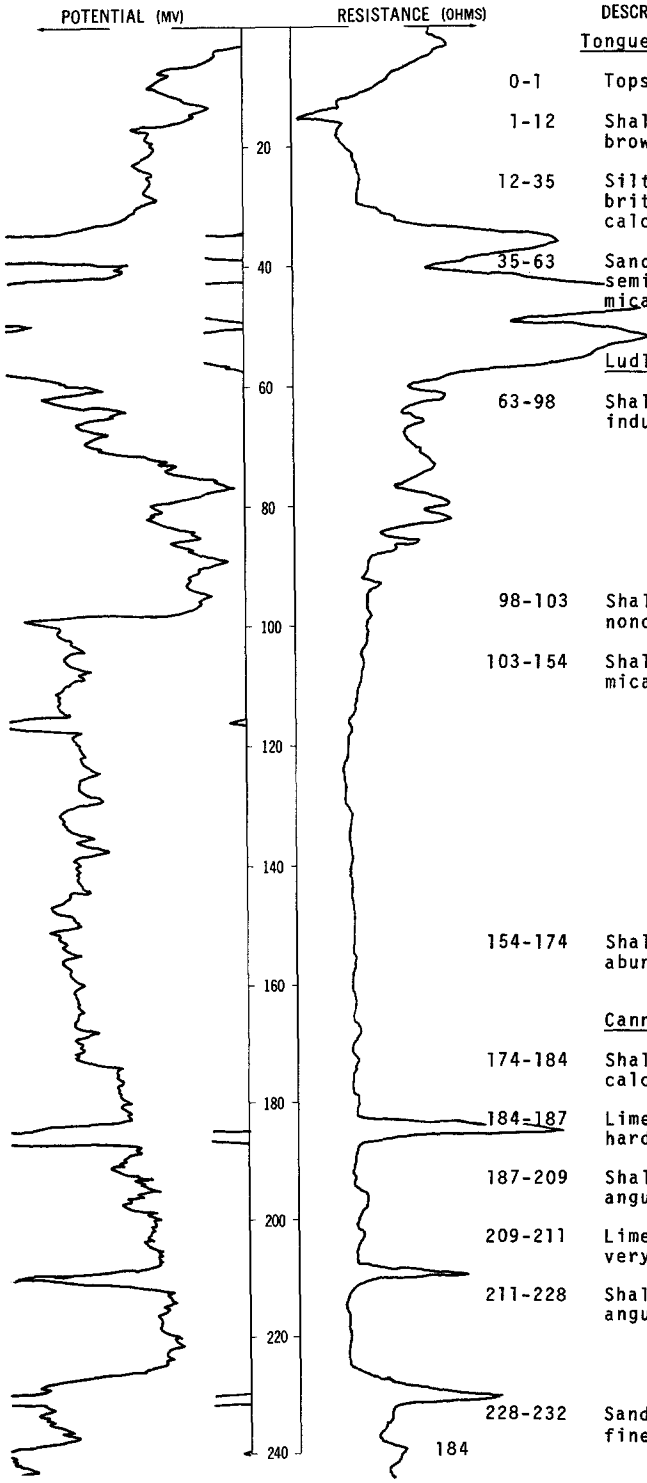
NDSWC 8103

LOCATION: 133-086-06BBB

ALTITUDE: 2397 (FT, MSL)

DATE DRILLED: September 1971

DEPTH: 260 (FT)



DESCRIPTION OF DEPOSITS

Tongue River Formation

0-1	Topsoil, grayish-black.
1-12	Shale, pale-yellowish-brown, sandy, oxidized.
12-35	Siltstone, dusky-yellow, brittle, indurated, calcareous.
35-63	Sandstone, pale-brown, semiconsolidated, micaceous.

Ludlow Formation

63-98	Shale, medium-gray, sandy, indurated, calcareous.
98-103	Shale, medium-dark-gray, noncalcareous.
103-154	Shale, medium-dark-gray, micaceous.
154-174	Shale, medium-dark-gray; abundant angular quartz.

Cannonball Formation

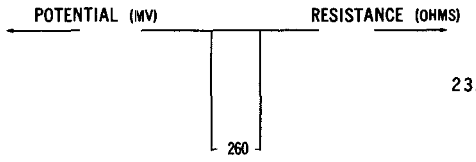
174-184	Shale, medium-light-gray, calcareous.
184-187	Limestone, greenish-gray, hard.
187-209	Shale, medium-gray; abundant angular quartz.
209-211	Limestone, medium-dark-gray, very hard.
211-228	Shale, medium-gray; some angular quartz.
228-232	Sandstone, greenish-gray, fine, cemented, micaceous.

LOCATION: 133-086-06BBB

DATE DRILLED: September 1971

ALTITUDE: 2397
(FT, MSL)

DEPTH: 260
(FT)



DESCRIPTION OF DEPOSITS

Cannonball Formation, Continued

232-260 Shale, dark-greenish-gray; interbedded with thin lenses of medium sand; carbonaceous streaks.

133-086-20CAB
(Log from Opp Well Drilling)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil, brown, sandy	2	2
	Sand, gray	1	3
	Gravel, dry	1	4
	Sand, light-yellow	14	18
	Rock, very hard, brittle	3	21
	Sandstone, gray (1 gal/min)	29	50
	Sand, dark	8	58
	Clay, blue	19	77
	Sandstone, hard	2	79
	Clay, dark-gray	60	139
	Rock, very hard, brittle	3	142
	Sandstone, gray (8 gal/min)	13	155
	Clay, gray, sandy, hard	17	172

133-087-03DDB
(Log from Opp Well Drilling)

Altitude:

Sand, brownish-black	2	2
Clay, dark-gray	18	20
Sand, gray	17	37
Sand, blue, water-bearing	6	43

133-087-08AA
(Log from Opp Well Drilling)

Altitude:

Sand, gray	15	15
Sand, yellowish-brown	5	20
Sand, gray, dry	27	47
Sandstone	1	48
Sand, gray	9	57
Lignite (produces 15 gal/min)	2	59
Sand, bluish-gray, medium	4	63
Sand, bluish-gray, very fine	9	72
Sandstone	1	73
Sand, bluish-gray	1	74
Sandstone	1	75
Sand, bluish-gray, fine	7	82
Sandstone, very hard	1	83

133-087-08CCC
(Log from Moe Drilling Co.)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sandstone	15	15
	Clay	3	18
	Lignite	7	25
	Clay	5	30
	Sandstone	9	39
	Rock	.5	39.5
	Sandstone	22.5	62
	Rock	3	65
	Sand	5	70
	Rock, siliceous	3	73
	Rock	14	87
	Sand	6	93
	Clay	12	105
	Sand, water-bearing	14	119
	Clay	2	121

133-087-10BCC
(Log from Opp Well Drilling)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, yellow	8	8
	Gravel, sandy	20	28
	Sand, yellow	24	52
	Sandstone, gray, soft	3	55
	Sand, blue, medium to coarse	22	77
	Lignite	2	79
	Sand, blue, medium to coarse	1	80

133-088-17CC
(Log from Moe Drilling Co.)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sandstone, unconsolidated	52	52
	Quartzite, pseudo	1	53
	Sand, gray, fine	5	58
	Sandstone, cemented	1	59
	Sand, gray	8	67
	Sandstone, gray	.5	67.5
	Sand, gray	.5	68
	Sandstone, cemented	1	69
	Sand, gray, fine	91	160
	Sandstone, cemented	1	161
	Clay, gray	1.5	162.5

NDSWC 4484

LOCATION: 133-089-04DAD

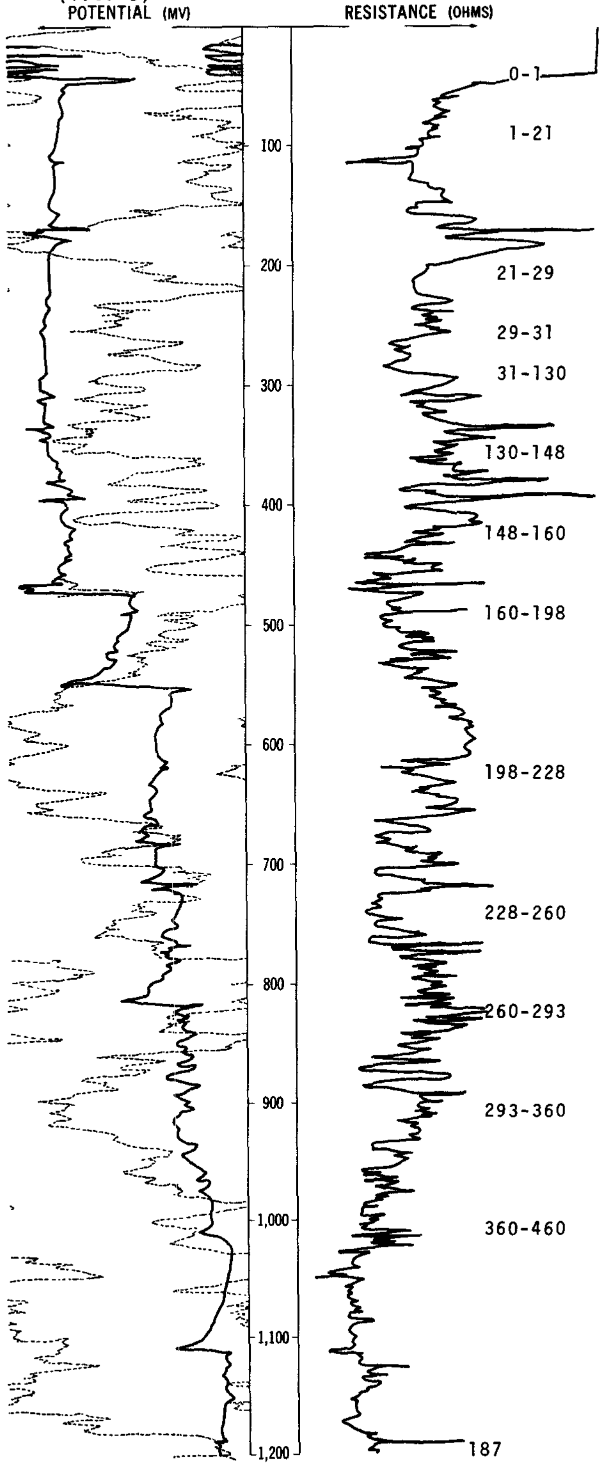
DATE DRILLED: October 1972

ALTITUDE: 2120
(FT, MSL)

DEPTH: 1300
(FT)

Gamma log--------
(T.C. 8)
POTENTIAL (MV)

RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

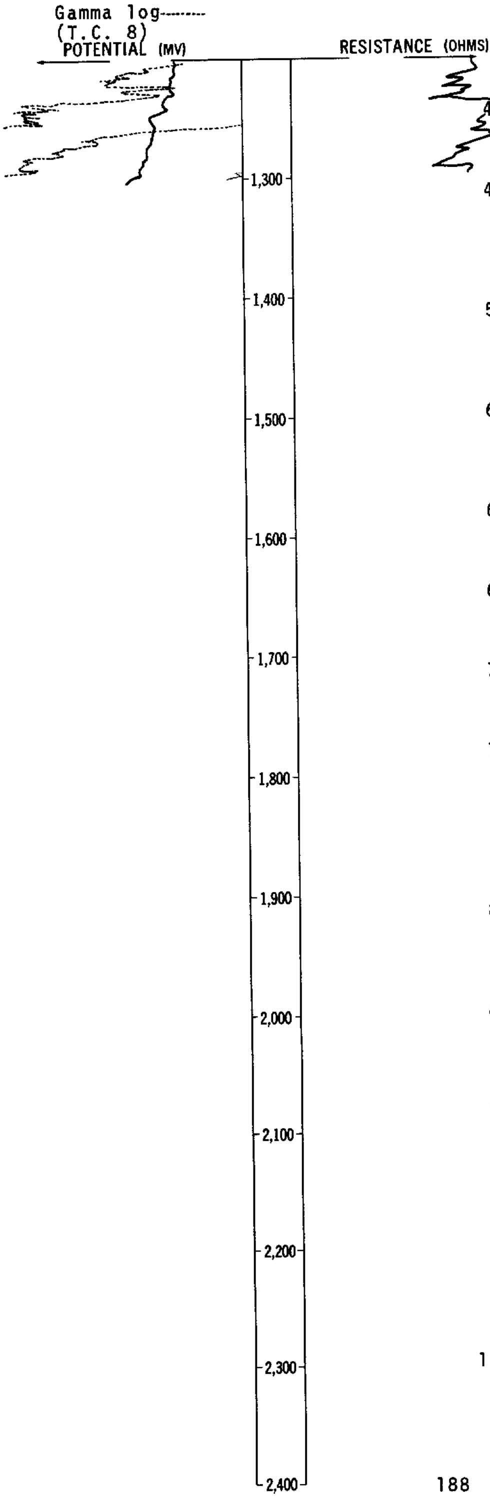
	Alluvium
0-1	Topsoil, dark-yellowish-grown, sandy.
1-21	Sand, reddish-brown, fine to coarse, gravelly, oxidized; detrital lignite, wood fragments, and clam shells.
	Tongue River Formation
21-29	Shale, light- to medium-gray, very silty to sandy.
29-31	Lignite.
31-130	Shale, very silty to sandy; variegated light- and medium-grays; indurated in places.
130-148	Sandstone, dark-brownish-green, very fine and fine, soft, carbonaceous.
148-160	Shale, dark-gray to dark-brown, smooth, tight, carbonaceous.
160-198	Sandstone, brownish- to greenish-gray, very fine to medium; indurated 172-174 ft; predominantly micaceous quartz; some fossils (basal Tongue River aquifer).
198-228	Siltstone, medium-brownish-gray; partially indurated; interbedded with lenses of very fine sandstone.
	Cannonball Formation
228-260	Sandstone, brownish- and greenish-grays, very fine to fine, clayey, semiconsolidated.
260-293	Shale, medium-brownish-gray, moderately fissile, carbonaceous; interbedded with silt and sand.
293-360	Sandstone, greenish- to brownish-gray, very fine to fine, very silty to clayey; indurated concretions; thin lignite and fossil seams.
360-460	Shale; variegated grays, greens, and browns; interbedded with layers of calcareous clays and limestone; lignite intervals 362-364, 378-379, 426-428, and 432-433 ft.

LOCATION: 133-089-04DAD

ALTITUDE: 2120
(FT, MSL)

DATE DRILLED: October 1972

DEPTH: 1300
(FT)



DESCRIPTION OF DEPOSITS

	Ludlow Formation
460-486	Shale, brownish-black, smooth, highly carbonaceous; lignite 470-472 ft.
486-548	Shale, dark-gray to brownish-gray, very silty; lignite 489-491 ft.
	Hell Creek Formation
548-615	Sandstone, greenish-gray, very fine to medium, partially cemented; numerous carbonaceous streaks.
615-663	Sandstone, light-greenish-gray, very fine to medium; interbedded with silts and clays; numerous concretions.
663-680	Siltstone, medium-green to brownish-gray, sandy; carbonaceous streaks.
680-700	Sandstone, greenish-gray, very fine to fine, silty to clayey.
700-780	Siltstone, greenish- to brownish-gray, sandy; carbonaceous streaks.
780-856	Shale, dark-greenish-gray to brownish-black; interbedded with dark-green glauconitic fossiliferous sandstone.
	Fox Hills Formation
856-890	Siltstone, sandy; variegated greens and browns; interbedded with lignite 855-856 and 864-866 ft.
890-935	Sandstone, dark-greenish-gray, very fine to fine, glauconitic, fossiliferous, partially cemented.
935-985	Sandstone, dark-grayish-green, very fine to medium; interbedded with shale and bentonitic clay.
985-992	Shale, dark-greenish-gray, silty.
992-1030	Siltstone, dark-grayish-green; interbedded with lenses of sandstone and limestone.
1030-1050	Shale, green to brownish-gray, silty.

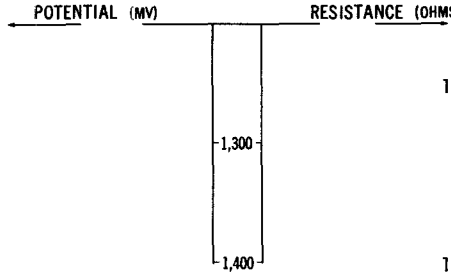
LOCATION: 133-089-04DAD

DATE DRILLED: October 1972

ALTITUDE: 2120 (FT, MSL)

DEPTH: 1300 (FT)

POTENTIAL (MV) RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

Fox Hills Formation, Continued

1050-1181 Shale, dark-green to brownish-gray; interbedded with lenses of siltstone, sandstone, and limestone; occasional bentonitic zones; some concretions.

Pierre Formation

1181-1300 Shale, dark-grayish-black, siliceous, bentonitic; occasional fossils.

133-089-06ABA
(Log from Moe Drilling Co.)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, yellowish-brown------------------------	61	61
	Clay, gray------------------------------------	5	66
	Sandstone-------------------------------------	1	67
	Sand, gray------------------------------------	1	68
	Lignite---------------------------------------	11	79
	Clay, gray------------------------------------	4	83
	Sand, gray------------------------------------	5	88

133-089-07DC
(Log from Moe Drilling Co.)

Altitude:

Sandstone, yellowish-brown------------------	10	10
Clay, gray------------------------------------	13	23
Sand, yellowish-brown------------------------	2	25
Clay, gray------------------------------------	10	35
Sand, gray------------------------------------	3	38
Lignite---------------------------------------	8	46
Clay, gray------------------------------------	18	64
Sand, gray------------------------------------	23	87
Sandstone, cemented--------------------------	1	88
Sand, gray, clayey---------------------------	32	120
Lignite---------------------------------------	2	122
Clay, gray------------------------------------	3	125
Sand, greenish-gray--------------------------	37	162

133-089-11CAD4
(Log from Moe Drilling Co.)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, yellowish-brown------------------------	15	15
	Gravel---------------------------------------	2	17
	Sandstone, unconsolidated--------------------	18	35
	Sand, water saturated------------------------	1	36
	Clay, gray-----------------------------------	.5	36.5
	Sandstone, cemented--------------------------	.5	37
	Clay, gray-----------------------------------	13	50
	Sand, water saturated------------------------	21	71

133-089-15AAA
(Log from Moe Drilling Co.)

Altitude:

	Sandstone, yellowish-brown-------------------	14	14
	Sandstone, hard------------------------------	1	15
	Sandstone, yellowish-brown-------------------	21	36
	Sandstone, bluish-gray-----------------------	1.5	37.5
	Sand, yellowish-brown------------------------	18.5	56
	Sandstone, hard------------------------------	1	57
	Sand, gray-----------------------------------	18	75
	Clay, brown----------------------------------	2	77

133-089-15ABB
NDSWC Sheep Creek Well 1
(Log from Moe Drilling Co.)

Altitude:

	Sand, yellowish-brown------------------------	13	13
	Clay, yellowish-brown, sandy-----------------	3	16
	Sandstone, yellowish-brown-------------------	2	18
	Clay, yellowish-brown, sandy-----------------	11	29
	Clay, brownish-black-------------------------	5	34
	Clay, greenish-gray, silty-------------------	2	36
	Clay, gray-----------------------------------	22	58
	Clay, gray, silty----------------------------	3	61
	Clay, gray, bentonitic-----------------------	40	101
	Clay, gray, silty----------------------------	2	103
	Clay, gray-----------------------------------	41	144
	Sand, gray, clayey---------------------------	10	154
	Clay, gray-----------------------------------	8	162
	Clay, gray, silty to sandy-------------------	30	192
	Sand, gray, fine-----------------------------	23	215
	Sand, gray, fine to medium-------------------	9	224
	Sand, gray, fossiliferous--------------------	12	236
	Clay, brownish-gray--------------------------	4	240

.133-089-15ABC
NDSWC Sheep Creek Well 2

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
Tongue River Formation:			
	Sand, yellowish-brown	17	17
	Shale, gray	1	18
	Sand, yellowish-gray	16	34
	Sand, bluish-gray, very fine	4	38
	Clay, greenish-gray, silty	16	54
	Sandstone, white	1	55
	Clay, gray, silty	9	64
	Clay, gray	28	92
	Sandstone, greenish-gray	2	94
	Clay, gray	14	108
	Sandstone, light-gray	1	109
	Clay, gray	49	158
	Sand, bluish-gray	8	166
	Sand, bluish-gray, silty	8	174
	Clay, gray, silty	18	192
	Sand, grayish-blue, clayey	14	206
	Sand, grayish-green, very light	10	216
	Sand, greenish-gray, water-bearing	16	232
Cannonball-Ludlow Formations, undifferentiated:			
	Clay, gray, silty	28	260

133-089-20CC
(Log from Moe Drilling Co.)

Altitude:

Material	Thickness (feet)	Depth (feet)
Sandstone, yellowish-brown	3	3
Clay, yellowish-brown	4	7
Sandstone, unconsolidated	23	30
Clay, gray	6	36
Sandstone, cemented	2	38
Clay, gray	1	39
Lignite	1	40
Sand, gray	48	88
Sandstone, cemented	1	89
Sand, gray	5	94
Sandstone, cemented	1	95
Sand, gray	11	106
Sandstone, cemented	1	107
Sand, gray	7	114
Clay, gray	7	121

133-089-28DD
(Log from Moe Drilling Co.)

Altitude:

Material	Thickness (feet)	Depth (feet)
Sandstone, yellowish-brown	6	6
Clay, yellowish-brown	5	11
Sand, yellowish-brown	11	22
Sandstone	1	23
Sand, gray	16	39
Sand, white, massive	12	51

133-089-28DDD
(Log from Moe Drilling Co.)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sandstone, yellowish-brown	6	6
	Clay, yellowish-brown, sandy	12	18
	Sand, yellowish-brown	3	21
	Sand, bluish-gray	5	26
	Sand, grayish-white	20	46
	Sand, grayish-white, clayey	14	60

133-089-34BBA
(Log from Moe Drilling Co.)

Altitude:

	Sand, yellowish-brown	36	36
	Sand, bluish-gray	18	54
	Clay, brown	6	60
	Clay, gray, silty	182	242
	Sand, gray	14	256
	Sandstone, greenish-gray	1	257
	Sand, green	21	278
	Clay, gray	3	281

133-090-03CC
(Log from Moe Drilling Co.)

Altitude:

	Sandstone, yellowish-brown	26	26
	Sand, yellowish-brown	14	40
	Sand, bluish-gray	3	43
	Lignite	2	45
	Clay, bluish-gray	3	48
	Sand, gray	2	50
	Clay, gray	12	62
	Quartzite, pseudo	1	63
	Clay, gray, sandy	7	70
	Clay, greenish-gray	9	79
	Lignite	10	89
	Clay, gray	12	101

133-090-10BBB3
(Log from Moe Drilling Co.)

Altitude:

	Sandstone, yellowish-brown	43	43
	Sand, gray	11.5	54.5
	Sandstone, cemented	1.5	56
	Lignite	.5	56.5
	Clay, gray	10.5	67
	Lignite	1	68
	Clay, gray	1	69
	Sandstone, cemented	.5	69.5
	Clay, gray	2.5	72
	Sand, gray	3	75
	Clay, gray	25	100
	Sand, gray	10	110
	Clay, greenish-gray	10	120

133-090-12ABC
(Log from Moe Drilling Co.)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sandstone, yellowish-brown, unconsolidated--	18	18
	Sandstone, cemented------------------------	1	19
	Sandstone, unconsolidated------------------	11	30
	Sandstone, cemented------------------------	3	33
	Sandstone, unconsolidated------------------	16	49
	Sandstone, reddish, cemented---------------	.5	49.5
	Sandstone, unconsolidated------------------	35.5	85
	Quartzite, pseudo--------------------------	1	86
	Sandstone, unconsolidated------------------	1	87
	Sandstone, cemented------------------------	2	89
	Sandstone, unconsolidated------------------	31	120
	Sand, gray---------------------------------	2	122
	Sandstone, cemented------------------------	3	125
	Sand---------------------------------------	24	149
	Lignite------------------------------------	8	157
	Sand, gray, clayey-------------------------	59	216
	Sand, greenish-gray------------------------	49	265
	Clay, brown--------------------------------	28	293
	Lignite------------------------------------	1	294
	Clay, brown--------------------------------	22	316
	Sandstone, cemented------------------------	.5	316.5
	Clay, gray---------------------------------	3.5	320

133-090-23DAD
(Log from Moe Drilling Co.)

Altitude:

	Sandstone, yellowish-brown-----------------	3	3
	Sandstone, cemented------------------------	1	4
	Gravel-------------------------------------	1	5
	Sand, gray---------------------------------	9	24
	Sandstone, gray, cemented------------------	1	25
	Sand---------------------------------------	4	29
	Sandstone, gray, cemented------------------	.5	29.5
	Sand, gray, medium-------------------------	40.5	70
	Sand, gray, coarse-------------------------	25	95
	Clay, gray---------------------------------	1	96

133-090-33DAB
(Log from Moe Drilling Co.)

Altitude:

	Sandstone, yellowish-brown-----------------	16	16
	Clay, gray---------------------------------	7	23
	Lignite------------------------------------	3	26
	Clay, gray---------------------------------	7	33
	Lignite------------------------------------	1	34
	Clay, greenish-gray------------------------	2	36
	Lignite------------------------------------	1	37
	Sand, greenish-gray, very fine-------------	31.5	68.5
	Sandstone, cemented------------------------	.5	69
	Sand, gray---------------------------------	21	90
	Lignite------------------------------------	7	97
	Clay, greenish-gray------------------------	4	101

134-079-26CC1
Cannonball, N. Dak.

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay, yellow	54	54
	Clay, bluish-gray	95	149
	Shale, bluish-gray	13	162
	Clay, bluish-gray	34	196
	Shale, bluish-gray	24	220
	Clay, bluish-gray	30	250

134-079-29DDD
NDSWC 8066

Altitude: 1690 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black	2	2
	Sand, fine to medium	3	5
	Clay, light-olive-brown, very silty	20	25
	Clay, olive-brown, very silty to sandy	9	34
	Sand, very fine to medium, clayey	4	38
	Clay, moderate-yellowish-brown	6	44
	Silt, olive-gray, clayey	5	49
	Gravel, fine to coarse; oxidized; about 30 percent coarse sand	20	69
	Till, medium-gray, silty to sandy	55	124
Fox Hills Formation:			
	Sandstone, medium-bluish-green, medium; interbedded with thin lenses of siltstone and carbonaceous shale	10	134
	Shale, greenish-black	26	160
	Siltstone, dark-greenish-black	6	166
Pierre Formation:			
	Shale, grayish-black, siliceous, indurated	14	180

134-079-32ABB
NDSWC 8067

Altitude: 1690 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black	1	1
	Clay, moderate-yellowish-brown, silty, oxidized	10	11
	Sand, fine to medium, silty to clayey	7	18
	Silt, moderate-yellowish-brown, clayey, oxidized	17	35
	Clay, olive-gray, silty	4	39
	Sand, very fine to medium, silty to clayey	21	60
	Clay, olive-gray, silty to sandy, calcareous	10	70
	Gravel, fine to coarse, poorly sorted; about 30 percent medium to coarse sand	5	75
	Sand, fine to medium; about 50 percent detrital lignite, 30 percent quartz, 10 percent granitics, and 10 percent carbonates and shale	5	80
	Till, olive-gray, sandy	22	102
	Sand, fine to medium; predominantly redeposited Fox Hills sandstone	23	125
Fox Hills Formation:			
	Sandstone, medium-bluish-green, medium; interbedded with lenses of siltstone and shale	15	140

134-079-32ADA
NDSWC 8931

Altitude: 1685 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty	1	1
	Clay, dusky-brown, silty to sandy	43	44
	Clay, yellowish-gray; mottled with streaks of light gray; interbedded with lenses of silt	24	68
	Gravel, fine to medium, subrounded; predominantly carbonates, granitics, and shale	2	70
	Sand, very fine to medium, subangular to rounded; predominantly quartz; some detrital lignite	4	74
	Till, olive-gray, silty	86	160
	Till, medium-gray, sandy	16	176
	Gravel, fine to medium, subangular to rounded; about 30 percent sand	7	183
	Till, medium-dark-gray, silty	17	200
	Sand, fine to coarse; predominantly quartz; abundant detrital lignite; interbedded with thin lenses of fine gravel	24	224
Pierre Formation:			
	Shale, dark-grayish-black, siliceous; with streaks of bentonite	21	245

134-079-32ADD
NDSWC 8929

Altitude: 1690 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Clay, dusky-yellow, silty, very sandy, oxidized	25	25
	Clay, moderate-yellowish-brown, oxidized; about 40 percent silt; interbedded with thin lenses of sand	40	65
	Till, olive-gray, silty	55	120
	Till, light- to medium-gray, very silty; about 20 percent clay and 20 percent very fine sand; some detrital lignite	55	175
	Clay, medium-gray, very silty	28	203
	Sand, very fine to fine; abundant detrital lignite; interbedded with thin lenses of silt	20	223
	Silt, medium-gray; about 30 percent sand and 10 percent clay; abundant detrital lignite	11	234
	Sand, very fine to fine, subangular to subrounded; abundant detrital lignite; interbedded with thin lenses of silt	8	242
	Silt, medium-gray; about 20 percent very fine sand and 10 percent clay	10	252
	Sand, very fine to very coarse, subangular to subrounded; interbedded with thin lenses of clay; some detrital lignite	16	268
	Silt, medium-gray, sandy	12	280
	Sand, fine to very coarse, subangular to rounded; about 40 percent fine gravel	24	304
	Cobbles and boulders, gravelly; some clay	4	308
Pierre Formation:			
	Shale, dark-grayish-black, siliceous	32	340

134-079-32BAB
(Log from Zachmeier Well Drilling)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil, black	1	1
	Clay, yellow, silty	11	12
	Clay, brown, silty	53	65
	Rock, shale(?)	2	67
	Clay, gray	45	112
	Rock, hard	1	113
	Clay, gray	22	135
	Sand, water-bearing	20	155

134-079-32BBA
NDSWC 8930

Altitude: 1700 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, silty	1	1
	Clay, yellowish-gray, cohesive, oxidized	11	12
	Clay, yellowish-brown, silty, oxidized; interbedded with thin lenses of sand	48	60
	Clay, medium-gray, silty to sandy	11	71
	Sand, fine to medium, partially oxidized	9	80
	Sand, medium to coarse, oxidized	4	84
	Gravel, fine to coarse; about 10 percent sand; particle surfaces are oxidized	10	94
	Sand, fine to medium, subangular to rounded; predominantly quartz, some carbonates and granitics; abundant detrital lignite	11	105
	Clay, medium-gray, silty; interbedded with thin lenses of sand	18	123
	Boulder, granite	1	124
	Clay, medium-gray, silty, sandy	16	140
	Till, olive-gray, sandy	39	179
	Cobbles and boulders; some sand and gravel; clayey	21	200

134-079-32DAD
NDSWC 8637

Altitude: 1705 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Clay, moderate-yellowish-brown, very silty to sandy, oxidized	15	15
	Clay, moderate-yellowish-brown, very silty, crumbly, oxidized	21	36
	Sand, light-brown, clayey, gravelly, subrounded, oxidized; some detrital lignite	2	38
	Till, olive-gray, silty to sandy	62	100
	Till, olive-gray, very sandy to gravelly	40	140
	Till, olive-gray, sandy	50	190
	Sand, fine to coarse, gravelly, subangular to subrounded; some detrital lignite	8	198
Fox Hills Formation:			
	Sandstone, greenish-gray, fine to medium, slightly clayey, loose to semiconsolidated	4	202
	Siltstone, medium-dark-gray, siliceous, moderately indurated	6	208
	Sandstone, dark-greenish-gray, fine to medium, slightly clayey, micaceous	12	220

134-079-32DDD
NDSWC 8928

Altitude: 1750 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Clay, moderate-yellowish-brown, very silty, oxidized	15	15
	Sand, fine to very coarse, subangular to rounded, oxidized	20	35
Fox Hills Formation:			
	Sandstone, dark-yellowish-brown, fine; occasional reddish-brown concretions	65	100

134-079-33CAA
(Log from Zachmeier Well Drilling)

Altitude:

Topsoil, black	1	1
Clay, yellow, silty	9	10
Clay, brown, silty	65	75
Sand, fine, silty	10	85
Clay, gray, silty	87	172
Lignite	3	175
Sand, coarse, water-bearing	20	195

134-079-34CBB
NDSWC 8634

Altitude: 1670 ft

Alluvium:			
	Sand, fine to coarse, subrounded, oxidized	22	22
	Clay, dark-yellowish-brown, very silty; interbedded with thin lenses of sand	5	27
	Sand, medium to coarse, subrounded	9	36
	Clay, olive-gray, very silty; interbedded with lenses of sand	12	48
Glacial drift:			
	Till, olive-gray, silty to sandy	67	115
Fox Hills Formation:			
	Sandstone, greenish-gray, fine to medium, semiconsolidated, glauconitic, micaceous	25	140

134-080-30CCD
(Log from Northern Pacific Railway)

Altitude:

Topsoil	9	9
Gravel and boulders	9	18
Gravel, dry	14	32
Sand, yellowish-brown, dry	3	35
Rock	6	41
Gravel and boulders	5	46
Shale, yellowish-brown, sandy	5	51
Sand, gray, water-bearing	3	54
Shale, gray	17	71
Sandstone, water-bearing	5	76

134-080-31BBA1
Solen, N. Dak.

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil-------------------------------------	2	2
	Sand, yellowish-brown-----------------------	32	34
	Sand, yellowish-brown; some boulders--------	10	44
	Rock--	1.5	45.5
	Sand, yellowish-gray------------------------	19.5	65
	Sandstone, bluish-green, water-bearing------	19	84

134-080-35ADA
NDSWC 8638

Altitude: 1675 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Topsoil, dark-brown, sandy------------------	1	1
	Silt, dark-yellowish-brown, sandy, clayey---	9	10
	Sand, light-brown, fine to coarse, silty, clayey, subangular to subrounded, oxidized	17	27
Fox Hills Formation:			
	Sandstone, dark-yellowish-brown, fine to medium, oxidized; cemented 27-30 ft-------	13	40

134-082-36CDC
NDSWC 8085

Altitude: 1678 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Topsoil, brownish-black, sandy--------------	1	1
	Sand, fine to coarse, silty-----------------	7	8
	Gravel, fine to coarse, sandy---------------	8	16
Hell Creek Formation:			
	Siltstone, light-gray, slightly indurated---	56	72
Fox Hills Formation:			
	Sandstone, dark-greenish-gray, fine to medium, glauconitic; interbedded with dark-gray siltstone-----------------------	23	95
	Sandstone, dark-greenish-gray, medium; occasional carbonaceous streaks-----------	5	100

134-082-36DCD
NDSWC 8086

Altitude: 1711 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Topsoil, dark-gray, silty-------------------	1	1
	Clay, dark-yellowish-brown, silty, very sandy, oxidized--------------------------	7	8
Hell Creek Formation:			
	Shale, moderate-yellowish-brown, oxidized---	20	28
	Sandstone, light-gray, fine-----------------	2	30
	Shale, dark-yellowish-brown, indurated, partially oxidized-----------------------	9	39
	Shale, medium-dark-gray, very sandy---------	6	45
	Shale, medium-light-gray, moderately indurated---------------------------------	17	62

134-082-36DCD, Continued
NDSWC 8086

Altitude: 1711 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Hell Creek Formation, Continued:			
	Shale, medium-bluish-gray, very sandy-------	5	67
	Shale, medium-gray, semiconsolidated, bentonitic---------------------------------	19	86
Fox Hills Formation:			
	Sandstone, dark-greenish-gray, glauconitic; interbedded with thin lenses of brownish-gray shale--------------------------------	32	118
	Sandstone, dark-greenish-gray, glauconitic, cemented----------------------------------	3	121
	Sandstone, dark-greenish-gray, very fine to fine, semiconsolidated to unconsolidated--	42	163
	Sandstone, dark-greenish-gray, fine, cemented----------------------------------	4	167
	Sandstone, medium-bluish-gray, glauconitic; interbedded with thin lenses of shale-----	14	181
	Shale, dark-greenish to brownish-gray, sandy------------------------------------	40	221
	Shale, gray to medium-light-gray; with thin layers of marlstone----------------------	8	229
	Shale, dark-greenish-gray; with thin lenses of sandstone; occasional carbonaceous zones------------------------------------	61	290
Pierre Formation:			
	Shale, grayish-black, siliceous, indurated; some bentonitic layers--------------------	50	340

134-085-03BCC
NDSWC 4517

Altitude: 2175 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Topsoil, brownish-black, sandy--------------	2	2
	Clay, dusky-yellow, silty, sandy, oxidized--	10	12
	Sand, dark-brown, fine to coarse, gravelly, oxidized; abundant silicates--------------	10	22
Tongue River Formation:			
	Siltstone, dark-gray, clayey; carbonaceous streaks----------------------------------	6	28
	Sandstone, dark-gray, very fine-------------	1	29
	Sandstone, greenish-gray, very fine to fine, crumbly----------------------------------	17	46
	Shale, greenish-gray, soft; carbonaceous streaks----------------------------------	14	60
	Sandstone, grayish-green, very fine to fine, clayey, friable--------------------------	22	82
	Siltstone, brownish-gray, clayey, carbonaceous-----------------------------	10	92
Ludlow Formation:			
	Shale, brownish-black, tight, very carbonaceous----------------------------------	8	100

134-085-06BCC
NDSWC 8098

Altitude: 2087 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Topsoil, brownish-black, very silty---------	1	1
	Clay, dark-yellowish-brown, very silty, oxidized; thinly bedded with fine gravel--	11	12
	Clay, medium-dark-gray, very silty----------	4	16
Ludlow Formation:			
	Siltstone, light-brownish-gray, siliceous---	24	40
	Shale, medium-dark-gray; abundant quartz crystals-----------------------------------	29	69
	Sandstone, dark-gray, very fine, calcareous, cemented----------------------------------	2	71
	Shale, medium-bluish-gray, very sandy-------	29	100
	Shale, medium-brown, partially indurated----	20	120

LOCATION: 134-085-21BAB1

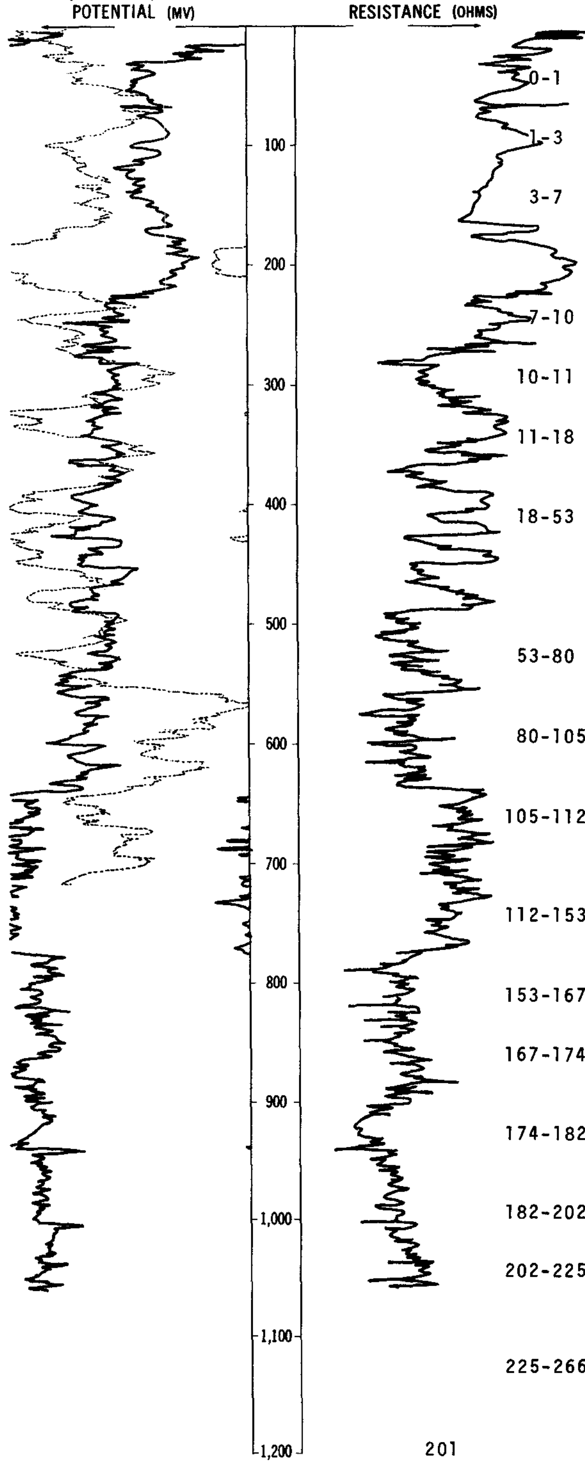
DATE DRILLED: May 1973

ALTITUDE: 2200
(FT, MSL)

DEPTH: 1060
(FT)

Gamma log.........
(T.C. 8)

POTENTIAL (MV) RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

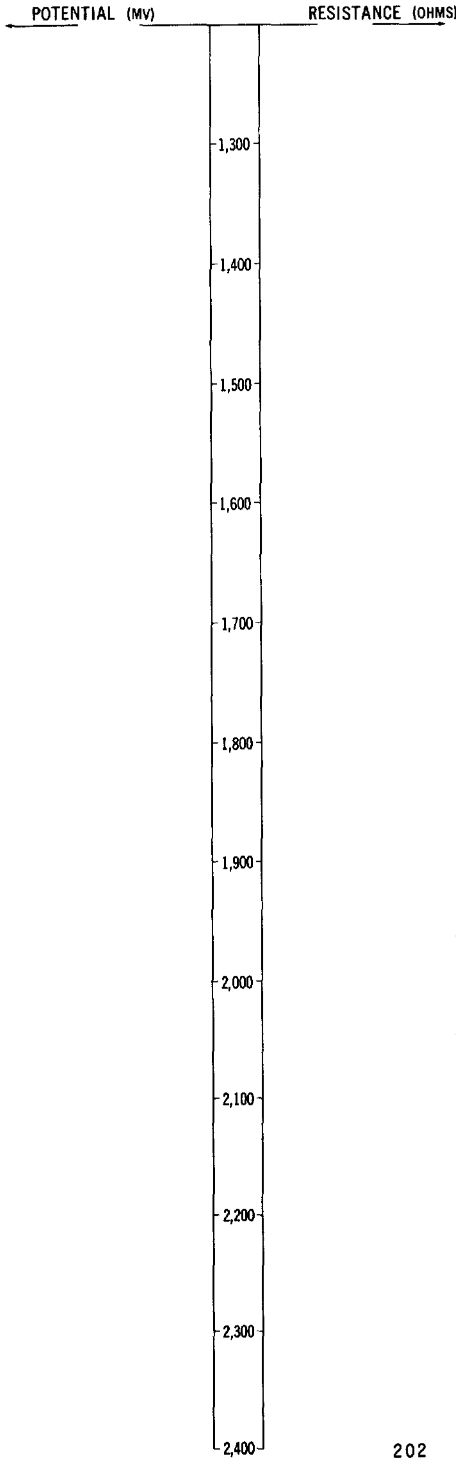
	Alluvium
0-1	Topsoil, dark-yellowish-brown, sandy.
1-3	Sand, yellowish-brown, fine to medium, clayey, oxidized.
3-7	Gravel, fine to medium, sandy, subangular; iron-stained surfaces.
	Tongue River Formation
7-10	Siltstone, dusky-yellow, sandy, oxidized.
10-11	Sandstone, medium-gray, very fine, indurated.
11-18	Sandstone, dusky-yellow, very fine, clayey, friable, oxidized.
18-53	Sandstone, medium-gray, very fine to fine; interbedded with thin lenses of silty clay.
	Cannonball Formation
53-80	Shale, dark-gray, tight; indurated limestone 67-68 ft.
80-105	Sandstone, light-olive-gray, very fine to fine, friable; some carbonaceous clay.
105-112	Sandstone, olive-gray, very fine to fine; interbedded with black carbonaceous shale.
112-153	Siltstone, brownish-gray; interbedded with lenses of carbonaceous shale.
153-167	Shale, black, hard, carbonaceous.
167-174	Sandstone, brownish-green, fine, friable; carbonaceous streaks.
174-182	Shale, greenish-gray; interbedded with lenses of silty bentonitic clay.
182-202	Sandstone, light-green, fine, clayey.
202-225	Sandstone, brownish-green, very fine to fine, friable; interbedded with thin lenses of carbonaceous clay.
225-266	Siltstone; variegated gray, green, and brown; interbedded with thin lenses of sandy shale; cemented concretion 246-247 ft.

LOCATION: 134-085-21BAB1

DATE DRILLED: May 1973

ALTITUDE: 2200 (FT, MSL)

DEPTH: 1060 (FT)



DESCRIPTION OF DEPOSITS

	Ludlow Formation
266-385	Shale, brownish-gray, tight; interbedded with lenses of siltstone, sandstone, and lignite.
	Hell Creek Formation
385-488	Sandstone, grayish-green, very fine to fine; carbonaceous streaks; interbedded with clayey siltstone.
488-512	Shale, brownish-green, silty, carbonaceous.
512-556	Siltstone, greenish-gray to brownish-green; interbedded with thin lenses of sandy shale.
556-586	Shale, dark-brownish-green, tight, carbonaceous.
586-638	Siltstone; variegated gray, green, and brown; interbedded with thin lenses of carbonaceous shale.
	Fox Hills Formation
638-770	Sandstone, light-green, very fine to medium; semiconsolidated; interbedded with thin lenses of silty carbonaceous shale.
770-902	Siltstone, grayish-green; interbedded with thin lenses of bentonitic clay.
902-1001	Shale, silty, hard; variegated gray and brown.
1001-1034	Shale, dark-gray, tight, bentonitic.
	Pierre Formation
1034-1060	Shale, grayish-black, tight, siliceous.

134-085-21BAB2
NDSWC 4516A

Altitude: 2202 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Alluvium:			
	Topsoil, dark-yellowish-brown, sandy	1	1
	Sand, yellowish-brown, fine to medium, clayey, oxidized	2	3
	Gravel, fine to medium, sandy, subangular; iron-stained surfaces	4	7
Tongue River Formation:			
	Siltstone, dusky-yellow, sandy, oxidized	3	10
	Sandstone, medium-gray, very fine, indurated	1	11
	Sandstone, dusky-yellow, very fine, clayey, friable, oxidized	7	18
	Sandstone, medium-gray, very fine to fine; interbedded with thin lenses of silty clay	35	53
Cannonball Formation:			
	Shale, dark-gray, tight; indurated limestone 67-68 ft	27	80
	Sandstone, light-olive-gray, very fine to fine, friable; some carbonaceous clay	25	105
	Sandstone, olive-gray, very fine to fine; interbedded with black carbonaceous shale	7	112
	Siltstone, brownish-gray; interbedded with lenses of carbonaceous shale	41	153
	Shale, black, hard, carbonaceous	14	167
	Sandstone, brownish-green, fine, friable; carbonaceous streaks	7	174
	Shale, greenish-gray; interbedded with lenses of silty bentonitic clay	8	182
	Sandstone, light-green, fine, clayey	20	202
	Sandstone, brownish-green, very fine to fine, friable; interbedded with thin lenses of carbonaceous clay	23	225
	Siltstone, variegated gray, green, and brown; interbedded with thin lenses of sandy shale; cemented concretion 246-247 ft	41	266
Ludlow Formation:			
	Shale, brownish-gray, tight; interbedded with lenses of siltstone, sandstone, and lignite	119	385
Hell Creek Formation:			
	Sandstone, grayish-green, very fine to fine; carbonaceous streaks; interbedded with clayey siltstone	18	403

134-085-21BAB3
NDSWC 4516B

Altitude: 2200 ft

Alluvium:			
	Topsoil, dark-yellowish-brown, sandy	1	1
	Sand, yellowish-brown, fine to medium, clayey, oxidized	2	3
	Gravel, fine to medium, sandy, subangular; iron-stained surfaces	4	7
Tongue River Formation:			
	Siltstone, dusky-yellow, sandy, oxidized	3	10
	Sandstone, medium-gray, very fine, indurated	1	11

134-085-21BAB3, Continued
NDSWC 4516B

Altitude: 2200 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Tongue River Formation, Continued:			
	Sandstone, dusky-yellow, very fine, clayey, friable, oxidized	7	18
	Sandstone, medium-gray, very fine to fine; interbedded with thin lenses of silty clay	35	53
Cannonball Formation:			
	Shale, dark-gray, tight; indurated limestone 67-68 ft	27	80
	Sandstone, light-olive-gray, very fine to fine, friable; some carbonaceous clay	25	105
	Sandstone, olive-gray, very fine to fine; interbedded with black carbonaceous shale	7	112
	Siltstone, brownish-gray; interbedded with lenses of carbonaceous shale	41	153
	Shale, black, hard, carbonaceous	14	167
	Sandstone, brownish-green, fine, friable; carbonaceous streaks	7	174
	Shale, greenish-gray; interbedded with lenses of silty bentonitic clay	8	182
	Sandstone, light-green, fine, clayey	20	202
	Sandstone, brownish-green, very fine to fine, friable; interbedded with thin lenses of carbonaceous clay	3	205

134-088-05BDD
(Log from Moe Drilling Co.)

Altitude:

Material	Thickness (feet)	Depth (feet)
Sandstone, yellowish-brown	1	1
Clay, yellowish-brown	24	25
Clay, gray	9	34
Sandstone, gray	2	36
Clay, gray	23	59
Lignite	4	63
Sand, gray	5	68
Clay, light-brown	40	108
Sand, grayish-blue, clayey	49	157
Clay, gray	4	161
Lignite	1	162
Sand, gray, fine	50	212
Sandstone	1	213
Sand, gray, fine	2	215
Sandstone, grayish-white	1	216
Sand, gray, fine	6	222

134-088-10BAB
(Log from Moe Drilling Co.)

Altitude:

Material	Thickness (feet)	Depth (feet)
Sandstone, yellowish-brown	2	2
Clay, yellowish-brown	4	6
Clay, gray	4	10
Lignite	2	12
Clay, brown	2	14
Lignite	1	15
Clay, brown	2	17
Lignite	1	18
Clay, grayish-white	12	30
Sand, gray, very fine	53	83
Clay, gray	10	93

134-088-19DAC
(Log from Moe Drilling Co.)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sandstone	3	3
	Clay, gray	5	8
	Lignite	6	14
	Clay, gray	15	29
	Sand, gray	9	38
	Clay, gray	16	54
	Sand, silty	32	86
	Sand, gray	32	118
	Clay, gray	2	120

134-088-32BBB
(Log from Moe Drilling Co.)

Altitude:

	Sandstone, yellowish-brown	7	7
	Clay, yellowish-brown	5	12
	Sand, yellowish-brown	10	22
	Clay, gray	23	45
	Sandstone, cemented	1	46
	Clay, greenish-gray	9	55
	Sand, gray	3	58
	Clay, greenish-gray	22	80
	Sandstone, cemented	1	81
	Clay, gray	7	88
	Lignite	4	92
	Sand	16	108
	Sandstone, semiconsolidated	33	141

134-089-04BCD1
(Log from Moe Drilling Co.)

Altitude:

	Sand, yellowish-brown	21	21
	Lignite	3	24
	Clay, gray	15	39
	Sand	2	41
	Lignite	4	45
	Sand	12	57
	Sandstone, cemented	.5	57.5
	Sand	20	77.5
	Sandstone, cemented	1.5	79
	Sand	19	98
	Sandstone, cemented	2.5	100.5
	Sand	9.5	110
	Sand	47	157

134-089-17DDB2
(Log from Moe Drilling Co.)

Altitude:

	Sandstone, yellowish-brown	1	1
	Clay, yellowish-brown	2	3
	Clay, gray	1	4
	Lignite	1	5
	Clay, yellowish-brown	12	17
	Shale, indurated, hard	1	18
	Clay, gray	7	25
	Lignite	4	29

134-089-17DDB2, Continued
(Log from Moe Drilling Co.)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay, gray	22	51
	Lignite	3	54
	Clay, greenish-gray	18	72
	Sandstone, gray	1	73
	Lignite	10	83
	Clay, gray	7	90
	Sand, gray	6	96
	Clay, gray	32	128
	Sand, gray	3	131
	Clay, gray	9	140
	Sand, gray, fine	15	155
	Clay, greenish-gray	6	161

134-089-19DD
(Log from Moe Drilling Co.)

Altitude:

Clay	15	15
Lignite	1	16
Clay	19	35
Lignite	1	36
Clay, gray	33	69
Lignite	1.5	70.5
Clay, gray	2.5	73
Sand, dry	5	78
Clay, gray	27	105
Clay, brown	3	108
Lignite	1	109
Clay, greenish-gray	14	123
Clay, brown	2	125
Sandstone, grayish-white	2.5	127.5
Clay, gray	19.5	147
Lignite	1	148
Clay, gray	8	156
Lignite	1	157
Clay, gray	8	165
Lignite	2	167
Clay, grayish-white	31	198
Lignite	7	205
Sand, greenish-gray, coarse	47	252

134-089-22BDD
City of Elgin test
(Log from Moe Drilling Co.)

Altitude:

Sand, yellowish-brown	3	3
Gravel, oxidized	2	5
Clay, yellowish-brown, sandy	30	35
Sand, bluish-gray, fine to medium	10	45
Sandstone, friable	1	46
Clay, gray	39	85
Lignite	3	88
Clay, gray	46	134
Lignite	4	138
Clay, gray	1	139
Sandstone, cemented	1	140
Clay, gray, sandy	18	158
Sand, gray	21	179
Sandstone, cemented	1	180

134-089-22BDD, Continued
City of Elgin test
(Log from Moe Drilling Co.)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay, gray	32	212
	Sandstone, friable	1	213
	Clay, gray	175	388
	Sandstone, friable	1	389
	Clay, gray, silty	33	422
	Clay, gray	94	516
	Lignite	3	519
	Clay, gray	52	571
	Lignite	2	573
	Clay, gray	42	615
	Sand, grayish-white	69	684
	Sandstone, gray, friable	3	687
	Sand, grayish-white, very fine	24	711
	Sandstone, gray, cemented	2	713
	Clay, gray, sandy	48	761
	Sandstone, gray, cemented	8	769
	Clay, gray, sandy	20	789
	Sand, gray, fine	41	830
	Sand, coarse	43	873
	Clay, gray	3	876
	Sandstone, cemented, very hard	--	876

134-089-23CCB
NDSWC 4493

Altitude: 2450 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Colluvium:			
	Topsoil, dark-brown, sandy	1	1
	Sand, yellowish-brown, very fine to coarse, gravelly, oxidized	17	18
Tongue River Formation:			
	Sandstone, yellowish-green, very fine to fine, subangular, limonitic, oxidized	20	38
	Sandstone, grayish-green, fine, micaceous	8	46
	Shale, dark-gray, very silty, carbonaceous	6	52
	Lignite	2	54
	Shale, greenish-gray, silty, bentonitic; occasional carbonaceous streaks	40	94
	Sandstone, grayish-green, very fine to medium; carbonaceous streaks; interbedded with thin lenses of siltstone and carbonaceous clays; occasional limonitic concretions	108	202
	Siltstone; variegated browns, grays, and greens; interbedded with lenses of carbonaceous clay	36	238
Ludlow Formation:			
	Shale, grayish-brown and green, silty, very tight; carbonaceous in parts	94	332
Cannonball Formation:			
	Sandstone, grayish-green, very fine to fine; carbonaceous streaks, sandstone concretions	19	351
	Shale, brown, silty, very carbonaceous	6	357
	Sandstone, white to light-green, very fine, silty, chalky	15	372
	Siltstone, dark-brownish-green, sandy, tight, carbonaceous	12	384

134-089-23CCB, Continued
NDSWC 4493

Altitude: 2450 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Cannonball Formation, Continued:			
	Sandstone, dark-green, fine to medium, subangular, glauconitic, indurated	12	396
	Sandstone, grayish-green, very fine to fine, clayey, indurated	8	404
Ludlow Formation:			
	Shale, grayish-green, very silty, bentonitic; carbonaceous streaks; occasional concretions	39	443
	Shale, brownish-gray, silty, tight, very carbonaceous	23	466
	Shale, dark-greenish-brown, carbonaceous; interbedded with thin lenses of siltstone and very fine to fine sandstone	34	500

134-089-23DCD
(Log from Moe Drilling Co.)

Altitude:

Material	Thickness (feet)	Depth (feet)
Sandstone, unconsolidated	43	43
Lignite	2	45
Sandstone	2	47
Clay, gray	15	62
Sand, brownish-gray	1	63
Clay, gray	38	101
Clay, brown	5	106
Lignite	2	108
Clay, brown	9	117
Sandstone, cemented	1	118
Clay, gray	7	125
Sand, gray	31	156
Sandstone, cemented	.5	156.5
Clay, brown	6.5	163
Sand, gray	11	174
Sandstone, cemented	.5	174.5
Sand, gray	38.5	213
Lignite	1	214
Sand, gray, coarse	19	233

134-089-32BDD
(Log from Moe Drilling Co.)

Altitude:

Material	Thickness (feet)	Depth (feet)
Sandstone	25	25
Clay, green	4	29
Clay, gray	3	32
Lignite	7	39
Clay, white	2	41
Sand, green, clayey	4	45
Sand, gray	6	51
Rock	.5	51.5
Sand, gray	4.5	56
Clay, brown	11	67
Sand, gray, dry	12	79
Lignite	1.5	80.5
Sand, gray, dry	7.5	88
Clay	3	91
Lignite	2	93
Clay	3	96

134-089-32BDD, Continued
(Log from Moe Drilling Co.)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, gray	5	111
	Sandstone	.5	111.5
	Sand	6.5	118
	Rock	1.5	119.5
	Sand	11.5	131

134-089-35AAD
(Log from Moe Drilling Co.)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, yellowish-brown	13	13
	Lignite	2	15
	Clay, gray	8	23
	Clay, yellowish-brown	8	31
	Clay, gray	24	55
	Lignite	3	58
	Clay, grayish-brown	25	83
	Sand, gray, dry	72	155
	Clay, greenish-gray	8	163
	Sand, green	12	175
	Sandstone, friable	1	176
	Sand, green	14	190
	Sandstone, friable	1	191
	Sand, green	44	235
	Clay, grayish-brown	5	240

134-090-23ADA
(Log from Moe Drilling Co.)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sandstone, yellowish-brown	6	6
	Sandstone, yellowish-brown, cemented	1	7
	Sandstone, unconsolidated	11	18
	Lignite	3	21
	Clay	1	22
	Sand	9	31
	Lignite	2	33
	Sand	7	40
	Clay	15	55
	Sand	3	58
	Sandstone, cemented	1	59
	Sand	13	72
	Lignite	3	75
	Sand	30	105
	Lignite	4	109
	Clay	55	164
	Sandstone, cemented	1	165
	Clay, gray	16	181
	Lignite	2	183
	Shale, indurated	13	196
	Sandstone, cemented	2.5	198.5
	Sand, very fine to fine	43.5	242

134-090-36CBC
City of New Leipzig
(Log from Moe Drilling Co.)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Gravel	8	8
	Clay, yellowish-brown	8	16
	Lignite	1	17
	Clay, yellowish-brown	5	22
	Lignite	1	23
	Clay, yellowish-brown	20	43
	Clay, gray	9	52
	Lignite	2	54
	Clay, gray	50	104
	Sandstone	1	105
	Clay, gray	30	135
	Lignite	2	137
	Clay, gray	2	139
	Sandstone	1	140
	Clay, gray	23	163
	Lignite	2	165
	Sand, gray	2	167
	Lignite	1	168
	Clay, brownish-gray	15	183
	Sand, greenish-gray	35	218
	Sandstone	1	219
	Sand, greenish-gray	10	229
	Sandstone, gray	1	230
	Sand, greenish-gray	13	243
	Clay, gray	95	338
	Sandstone, gray, cemented	3	341
	Clay, gray	18	359
	Sandstone, cemented	1	360
	Clay, gray	58	418
	Clay, gray, silty	24	442
	Clay, brown	88	530
	Sandstone, greenish-gray, cemented	2	532
	Clay, brownish-gray, silty	110	642
	Sandstone, grayish-white	2	644
	Clay, brown	6	650
	Sand, gray	9	659
	Lignite	1	660
	Clay, gray	32	692
	Sandstone, cemented	1	693
	Clay, gray	37	730
	Clay, gray, silty	12	742
	Sandstone	1	743
	Clay, gray	11	754
	Sand, gray	9	763
	Clay, brown	32	795
	Sandstone, cemented	2	797
	Clay, gray, silty	12	809
	Clay, gray	17	826
	Sandstone, cemented	1	827
	Sand, gray, medium to coarse	63	890
	Clay, gray	10	900

135-085-19DD
(Log from Opp Well Drilling)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil, black	2	2
	Sand and gravel	2	4
	Rock	1	5
	Clay, brownish-yellow	15	20
	Clay, bluish-gray	30	50
	Clay, dark-gray	20	70
	Clay, bluish-gray, very sandy, water-bearing	18	88

135-085-20BBC2
(Log from Opp Well Drilling)

Altitude:

	Topsoil, black	1	1
	Sand, yellow	24	25
	Sand, blue	15	40
	Clay, sandy	4	44

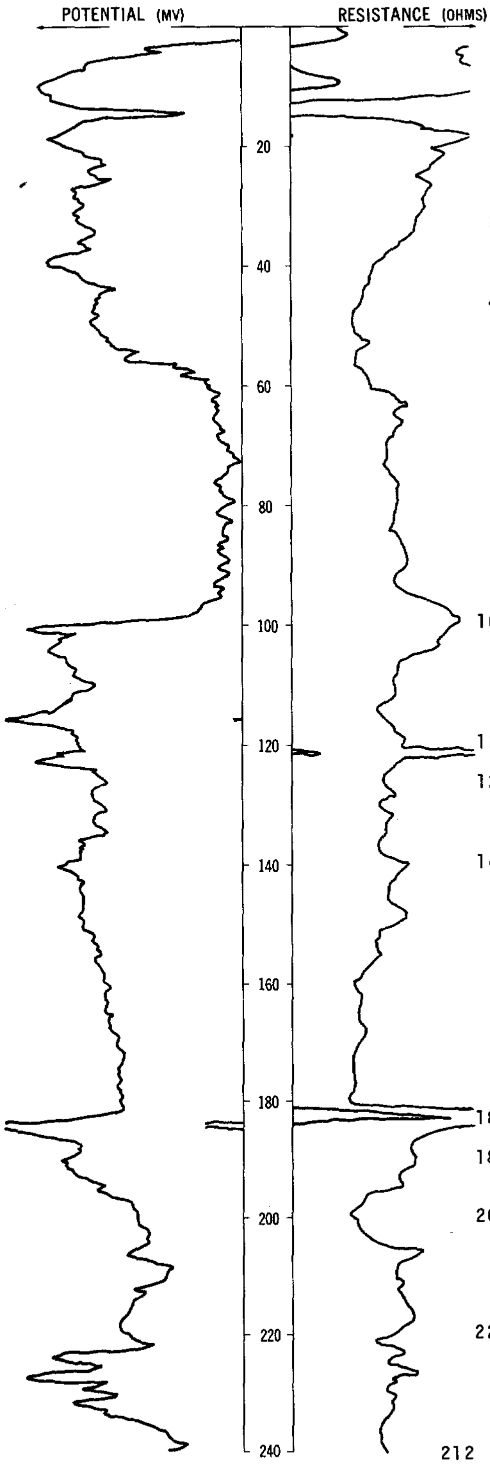
NDSWC 8102

LOCATION: 135-086-07DDD

ALTITUDE: 2165 (FT, MSL)

DATE DRILLED: August 1971

DEPTH: 280 (FT)



DESCRIPTION OF DEPOSITS

Tongue River Formation

0-1	Topsoil, brownish-black, very sandy.
1-20	Sandstone, brownish-gray, very fine to fine, angular to subangular.
20-47	Shale, medium-bluish-gray; interbedded with thin seams of lignite.
47-100	Shale, medium-gray; occasional iron concretions.
100-121	Shale, medium-light-gray, calcareous.
121-122	Limestone, light-gray, hard.
122-140	Shale, light-brownish-gray, sandy; some ironstone concretions.
140-183	Shale, medium-gray, well-indurated.

Ludlow Formation

183-184	Limestone, light-greenish-gray.
184-200	Shale, medium-gray; abundant quartz grains.
200-228	Shale, medium-dark-gray, moderately indurated; numerous quartz fragments.
228-242	Shale, brownish-gray, slightly carbonaceous.

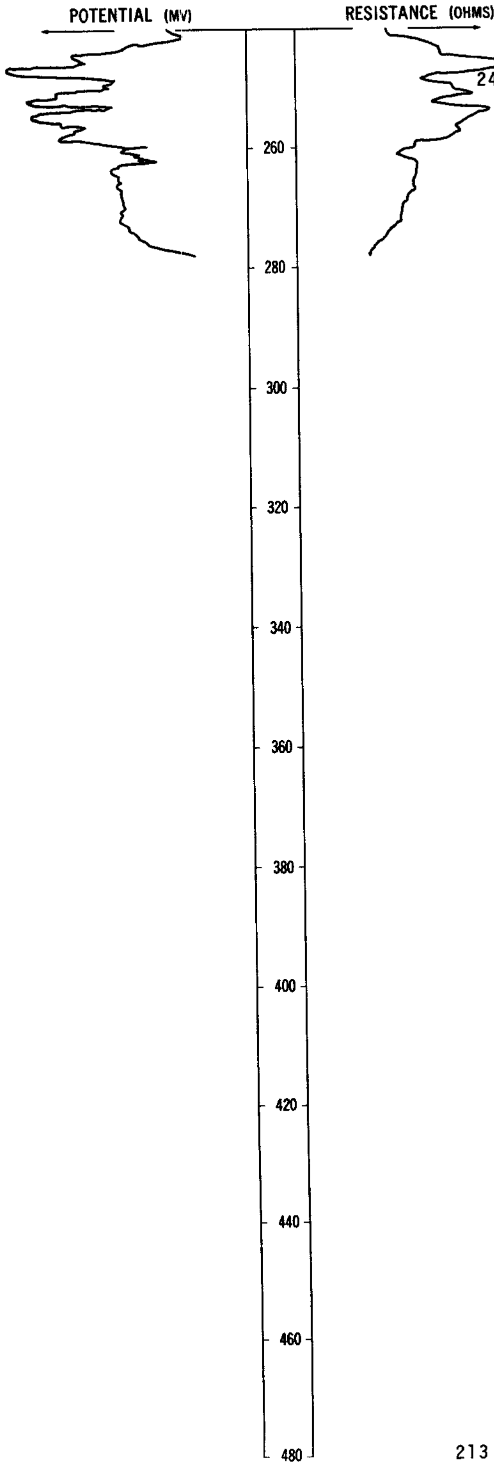
NDSWC 8102, Continued

LOCATION: 135-086-07DDD

DATE DRILLED: August 1971

ALTITUDE: 2165
(FT, MSL)

DEPTH: 280
(FT)



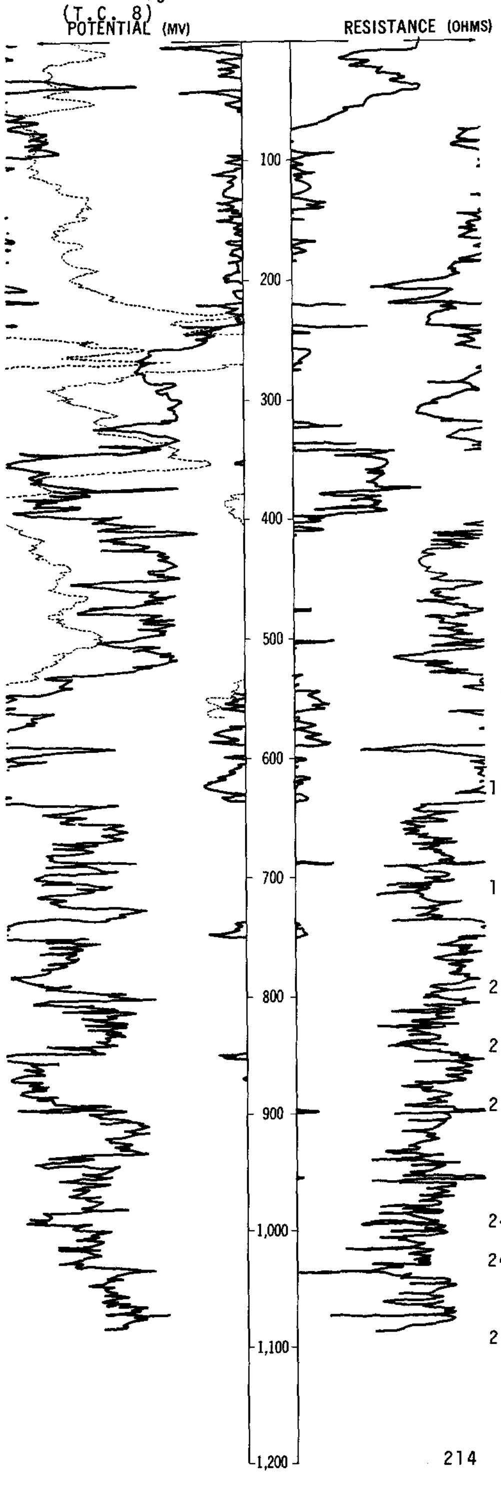
DESCRIPTION OF DEPOSITS

<u>Cannonball Formation</u>

242-280 Shale, dark-greenish-gray, very sandy; interbedded with brown carbonaceous shale.

LOCATION: 135-086-15DDD1 DATE DRILLED: May 1973

ALTITUDE: 2231 (FT, MSL) DEPTH: 1100 (FT)



DESCRIPTION OF DEPOSITS

Tongue River Formation

0-1	Topsoil, dark-brown, sandy.
1-8	Sandstone, yellowish-gray, fine to medium, unconsolidated, oxidized, dry.
8-16	Sandstone, yellowish-gray, fine to medium, indurated, oxidized.
16-29	Sandstone, brownish-gray, fine, iron-stained, oxidized.
29-43	Sandstone, dark-green, fine to medium, partially indurated; thin basal lignite.
43-49	Limestone, bluish-gray, indurated.
49-62	Sandstone, dark-greenish-gray, fine to medium, semiconsolidated.
62-82	Sandstone, dark-gray, very fine to fine, silty, clayey.
82-101	Shale, dark-gray, silty, tight.

Cannonball Formation

101-152	Siltstone; variegated gray, brown, and black; interbedded with thin lenses of carbonaceous shale.
152-208	Siltstone, light-gray; interbedded with thin lenses of bentonitic shale and sandstone.
208-225	Shale, dark-green, tight; interbedded with siltstone.
225-227	Sandstone, dark-gray, very fine, indurated.
227-244	Shale, greenish-gray, very bentonitic; interbedded with lenses of siltstone.

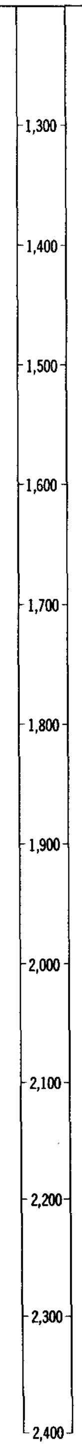
Ludlow Formation

244-245	Claystone, black, indurated.
245-264	Siltstone, dark-brown, sandy; interbedded with carbonaceous shale.
264-292	Sandstone, brownish-green, very fine to fine, friable; carbonaceous streaks.

LOCATION: 135-086-15DDD1 DATE DRILLED: May 1973

ALTITUDE: 2231 (FT, MSL) DEPTH: 1100 (FT)

POTENTIAL (MV) RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

	<u>Ludlow Formation, Continued</u>
292-302	Siltstone, brown; interbedded with carbonaceous clay.
302-320	Shale, dark-brown, soft, very carbonaceous.
	<u>Cannonball Formation</u>
320-350	Siltstone, grayish-brown; interbedded with thin lenses of carbonaceous shale and sandstone.
350-403	Sandstone, dark-green, very fine to medium; occasional thin lenses of shale.
	<u>Ludlow Formation</u>
403-536	Shale; variegated gray, green, and brown; interbedded with thin lenses of siltstone, sandstone, and lignite.
	<u>Hell Creek Formation</u>
536-643	Sandstone, grayish-green, very fine to fine; interbedded with lenses of carbonaceous shale.
643-742	Siltstone, grayish-green; interbedded with thin lenses of carbonaceous shale and sandstone.
742-756	Sandstone, dark-green, fine to medium, indurated.
756-801	Sandstone, grayish-green, very fine to fine, clayey; carbonaceous streaks.
801-842	Siltstone; variegated gray, green, and brown; interbedded with carbonaceous shale.
	<u>Fox Hills Formation</u>
842-897	Sandstone, dark-green, very fine to medium, friable; interbedded with thin lenses of silty shale.
897-940	Shale; variegated gray, green, and brown; interbedded with thin lenses of sandy siltstone.
940-1039	Siltstone, brownish-green; interbedded with lenses of shale and sandstone.
1039-1100	Shale, very silty, tight, bentonitic; variegated gray, green, and brown.

135-086-15DDD2
NDSWC 4515A

Altitude: 2234 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Tongue River Formation:			
	Topsoil, dark-brown, sandy	1	1
	Sandstone, yellowish-gray, fine to medium, unconsolidated, dry, oxidized	7	8
	Sandstone, yellowish-gray, fine to medium, indurated, oxidized	8	16
	Sandstone, brownish-gray, fine, iron-stained, oxidized	13	29
	Sandstone, dark-green, fine to medium, partially indurated; thin basal lignite	14	43
	Limestone, bluish-gray, indurated	6	49
	Sandstone, dark-greenish-gray, fine to medium, semiconsolidated	13	62
	Sandstone, dark-gray, very fine to fine, silty, clayey	20	82
	Shale, dark-gray, silty, tight	19	101
Cannonball Formation:			
	Siltstone; variegated gray, brown, and black; interbedded with thin lenses of carbonaceous shale	51	152
	Siltstone, light-gray; interbedded with thin lenses of bentonitic shale and sandstone	56	208
	Shale, dark-green, tight; interbedded with siltstone	17	225
	Sandstone, dark-gray, very fine, indurated	2	227
	Shale, greenish-gray, very bentonitic; interbedded with lenses of siltstone	17	244
Ludlow Formation:			
	Claystone, black, indurated	1	245
	Siltstone, dark-brown, sandy; interbedded with carbonaceous shale	19	264
	Sandstone, brownish-green, very fine to fine, friable; carbonaceous streaks	28	292
	Siltstone, brown; interbedded with carbonaceous clay	10	302
	Shale, dark-brown, soft, very carbonaceous	18	320
Cannonball Formation:			
	Siltstone, grayish-brown; interbedded with thin lenses of carbonaceous shale and sandstone	30	350
	Sandstone, dark-green, very fine to medium; occasional thin lenses of shale	16	366

135-086-26BBB
NDSWC 4514

Altitude: 2287 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Tongue River Formation:			
	Topsoil, brown, sandy	2	2
	Sandstone, yellowish-brown, medium, subangular, oxidized	22	24
	Sandstone, yellowish-green, fine to medium, subangular, dry, oxidized	41	65
	Lignite, fractured; lost circulation	5	70
	Sandstone, greenish-gray, fine to medium, soft	10	80

135-087-04BDB
(Log from Opp Well Drilling)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil, brown	3	3
	Clay, gray, and sand, water-bearing	61	64

135-088-26BAA
(Log from Moe Drilling Co.)

Altitude:

	Sand, yellowish-brown	1	1
	Clay, yellowish-brown	24	25
	Clay, greenish-gray	28	53
	Sand, gray, fossiliferous	23	76
	Clay, greenish-gray	7	83
	Sand, gray, clayey	52	135
	Sand, coarse, fossiliferous	25	160

135-089-01AAA
(Log from Moe Drilling Co.)

Altitude:

	Sandstone, yellowish-brown	6	6
	Clay, yellowish-brown	25	31
	Clay, gray	60	91
	Sand, bluish-gray	44	135
	Clay, gray	2	137

135-089-09DAD
(Log from Moe Drilling Co.)

Altitude:

	Sand, yellow	16	16
	Clay, yellow	3.5	19.5
	Sandstone, gray, soft	1.25	20.75
	Clay, gray, sandy (0.5 gal/min)	22.25	43
	Clay, gray	6	49
	Lignite (1 gal/min)	5	54
	Clay, gray	53	107
	Lignite	1	108
	Clay, gray	55	163
	Sand, gray, fine	118	281

135-089-14DDC
(Log from Moe Drilling Co.)

Altitude:

	Sandstone, yellowish-brown	19	19
	Clay, gray	16	35
	Lignite	1	36
	Clay, grayish-green	36	72
	Sand, silty	6	78
	Clay, gray	9	87
	Sand, silty	2	89
	Sandstone, cemented	1	90
	Clay, brownish-gray	32	122
	Clay, brown, silty	39	161

135-089-22ABA
(Log from Moe Drilling Co.)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, yellowish-brown	3	3
	Gravel, oxidized	1	4
	Sand, yellowish-brown	26	30
	Sandstone	1	31
	Sand, bluish-gray	12	43
	Sandstone, cemented	2	45

135-089-22CDD
NDSWC 4494

Altitude: 2250 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Tongue River Formation:			
	Sandstone, yellowish-gray, very fine to medium, dry, oxidized; limonitic iron stains	30	30
	Shale, brownish-gray, silty, crumbly, carbonaceous	7	37
	Lignite, fractured	6	43
	Shale, greenish-brown, very silty, crumbly; thin seams of lignite	10	53
	Shale, brownish-black, carbonaceous; interbedded with lenses of lignite	15	68
	Shale, brownish-gray, silty, bentonitic	14	82
	Sandstone, grayish-green, very fine to fine, silty, crumbly; carbonaceous streaks	24	106
	Siltstone, olive- to medium-gray; interbedded with lenses of carbonaceous clay and very fine sandstone	39	145
	Shale, brownish-black, carbonaceous	11	156
	Sandstone, grayish-white, fine, subangular; quartz	6	162
	Shale, brownish-green, sandy, lignitic, carbonaceous	4	166
	Sandstone, grayish-white to light-green, very fine; interbedded with volcanic ash	19	185
	Sandstone, greenish-gray to dark-green, fine to medium, subangular, indurated	30	215
	Sandstone, brownish-green, very fine to fine, silty, clayey, crumbly, carbonaceous	25	240
	Siltstone, greenish-gray, sandy; interbedded with lenses of carbonaceous clay	56	296
	Shale, bluish- greenish-gray, silty, interbedded with lenses of volcanic clays, and silts; concretions	72	368
	Shale, dark-bluish-gray; interbedded with lenses of bentonitic silt and clay	40	408
	Sandstone, greenish-gray, fine, silty; carbonaceous streaks	12	420

135-089-24AAB
(Log from Moe Drilling Co.)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, yellowish-brown	34	34
	Lignite	4	38
	Clay, gray	8	46
	Lignite	2	48
	Clay, gray	28	76

135-089-24AAB, Continued
(Log from Moe Drilling Co.)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Lignite	3	79
	Clay, gray	104	183
	Sand, gray	9	192
	Clay, gray	12	204
	Sand, gray	52	256
	Clay, gray; interbedded with thin sand lenses	6	262

135-089-31AAA
(Log from Moe Drilling Co.)

Altitude:

	Sand, brown	9	9
	Sand, yellow	20	29
	Clay, yellow	6	35
	Sand, yellow	10	45
	Sand, blue	10	55
	Sandstone, indurated	1.5	56.5
	Sand, blue	15.5	72

135-090-06DDA
(Log from U.S. Geological Survey Conservation Division)

Altitude: 2395 ft

	Claystone, olive-gray, sandy	5	5
	Claystone, olive-gray, silty	5	10
	Claystone and siltstone, brown and gray; lignite stringer at 13.3-13.4 ft	5	15
	Sandstone, light-gray, fine-grained	5	20
	Claystone, shale, and sandstone, gray	5	25
	Claystone, tan and gray; shale, silty, carbonaceous	5.2	30.2
	Shale and claystone, silty	5	35.2
	Sandstone and siltstone; carbonaceous at 38.3 ft	5	40.2
	Shale, medium-gray	5	45.2
	Shale, medium-gray	5	50.2
	Shale, medium-gray, silty; lignite at 54.4-55.2 ft	5	55.2
	Shale, medium-gray	.5	55.7
	Hole caving; fishtailed to 60 ft and set 10 ft of surface pipe	4.3	60
	Sandstone, gray, fine-grained	5	65
	Sandstone, light-gray, fine-grained	35.2	100.2
	Sandstone, tan, fine-grained	14.8	115
	Sandstone, light-gray; hole making water	5.2	120.2
	No sample	.6	120.8
	No sample	4.3	125.1
	Sandstone and lignite stringer	3.3	128.4
	No sample; hole reamed; surface casing set	2.85	131.25
	Claystone, greenish-gray, silty	3	134.25
	Claystone; lignite stringer at 136.75 ft	2.9	137.15
	Sandstone and clay	3.75	140.9
	Shale and siltstone, gray; fossil shells at 148.5 ft	12	152.9
	Shale, siltstone, and sandstone	2.8	155.7
	Claystone, shale, and lignite; loss 3.5 ft in clay below lignite. Lignite at 165.65-168.70 ft	17.2	172.9

135-090-06DDA, Continued
(Log from U.S. Geological Survey Conservation Division)

Altitude: 2395 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
	Shale, gray	2.4	175.3
	Shale, gray	8	183.3
	Shale and claystone; gastropods in upper 5 ft	19.5	202.8
	Siltstone, gray	8.4	211.2
	Siltstone and sandstone	12.5	223.7
	Siltstone and sandstone	13.2	236.9
	Siltstone and sandstone	20.5	257.4

NDSWC 4509

LOCATION: 135-090-23BBB1

DATE DRILLED: May 1973

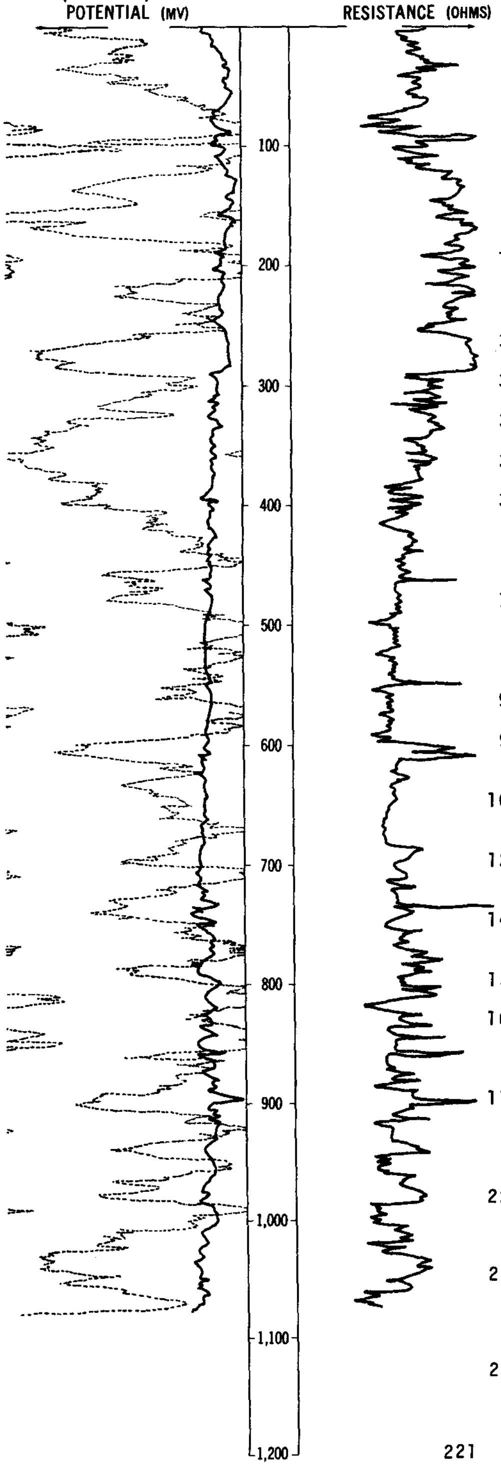
ALTITUDE: 2362 (FT, MSL)

DEPTH: 1080 (FT)

Gamma log--------
(T.C. 8)

POTENTIAL (MV)

RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

	Tongue River Formation
0-1	Topsoil, dark-brown, silty.
1-4	Silt, dusky-yellow, sandy, oxidized.
4-16	Siltstone, yellowish-gray, sandy, oxidized; carbonaceous streaks.
16-32	Shale, pale-yellowish-gray, very silty; with brown carbonaceous streaks.
32-34	Lignite, black, fissile.
34-36	Claystone, brown, tight.
36-37	Lignite, black, fissile.
37-39	Claystone, brown, tight.
39-76	Shale, medium-dark-gray, silty; interbedded with thin lenses of bentonitic clay.
76-93	Shale, light-greenish-gray, tight, brittle, bentonitic; occasional thin seams of lignite.
93-98	Lignite, black, hard.
98-105	Shale, black, hard, carbonaceous.
105-123	Shale, medium-light-gray, silty, bentonitic.
123-141	Siltstone, light-grayish-green, clayey, chalky.
141-156	Siltstone, medium-dark-brown, carbonaceous.
156-161	Lignite, black, solid.
161-177	Siltstone, light-grayish-green, sandy; with brown carbonaceous streaks.
177-220	Siltstone, brownish-gray, clayey, very carbonaceous; fossiliferous sandstone at 185 ft.
220-229	Sandstone, light-greenish-gray, very fine, moderately soft.
229-260	Siltstone; variegated gray, green, and brown; interbedded with thin lenses of claystone and sandstone.
260-290	Sandstone, gray, very fine, well-sorted, subangular, uniform, slightly carbonaceous.

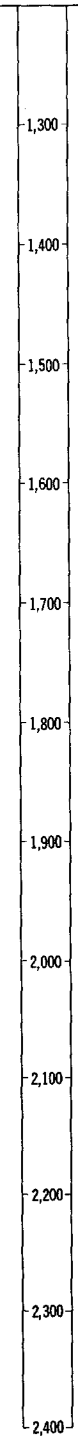
LOCATION: 135-090-23BBB1

ALTITUDE: 2362
(FT, MSL)

DATE DRILLED: May 1973

DEPTH: 1080
(FT)

POTENTIAL (MV) RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

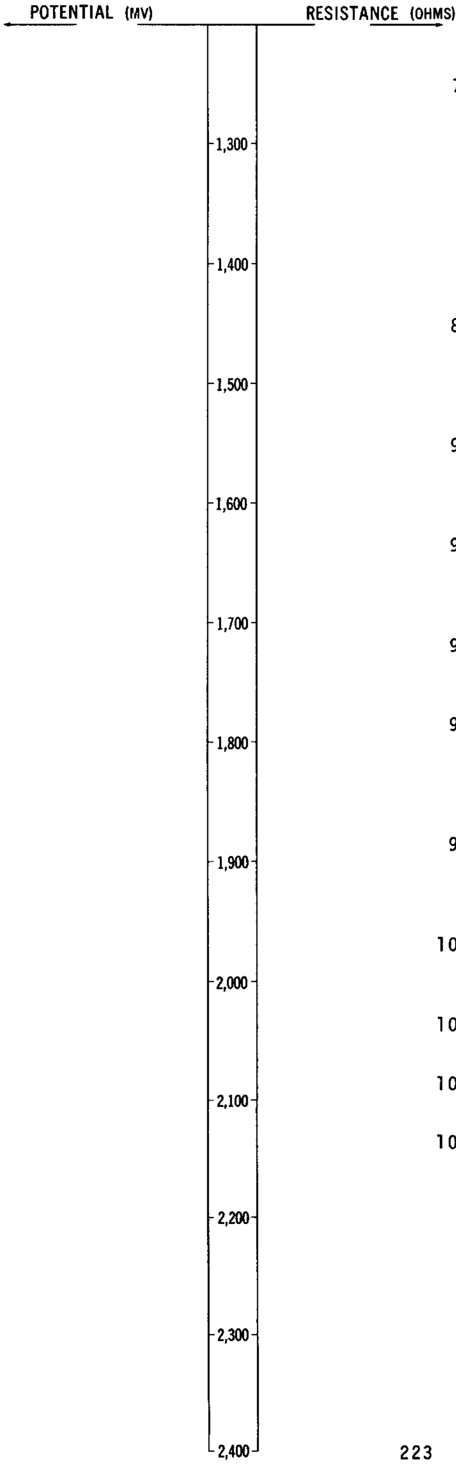
	Cannonball Formation
290-329	Siltstone; variegated gray, green, and brown; carbonaceous; interbedded with thin lenses of shale and sandstone.
329-347	Siltstone, medium-greenish-brown, carbonaceous; interbedded with thin lenses of very fine sandstone.
347-382	Siltstone; variegated gray, green, and brown; interbedded with thin lenses of shale and sandstone.
382-420	Shale, greenish-brown, slightly carbonaceous; interbedded with thin lenses of siltstone and sandstone.
420-444	Siltstone, brown, very carbonaceous.
444-458	Shale, brownish-black, tight, very carbonaceous.
458-467	Sandstone, olive- to brownish-gray, silty; indurated at 462 ft.
	Ludlow Formation
467-597	Shale, dark-brownish-gray, tight, very sticky, carbonaceous.
	Cannonball Formation
597-612	Sandstone, green, very fine to fine, slightly indurated; some fossil fragments.
612-686	Siltstone, brownish-green, slightly carbonaceous; interbedded with thin lenses of claystone and sandstone.
	Hell Creek Formation
686-745	Sandstone, light-grayish-green, very fine; carbonaceous streaks; occasional thin lenses of indurated siltstone; manganosiderite concretions.
745-757	Shale, silty, tight; variegated gray, green, and brown.

LOCATION: 135-090-23BBB1

DATE DRILLED: May 1973

ALTITUDE (FT, MSL): 2362

DEPTH (FT): 1080



DESCRIPTION OF DEPOSITS

Hell Creek Formation, Continued

757-812	Sandstone, very fine; variegated green and brown; interbedded with thin lenses of shale and lignite.
812-889	Siltstone, dark-greenish-brown; interbedded with carbonaceous shale and lenses of very fine indurated sandstone.
889-910	Sandstone, light-greenish-gray, very fine to fine; some carbonaceous streaks; some very hard indurated layers.
910-937	Shale, dark-greenish-brown, very silty; interbedded with some lenses of indurated sandstone.
937-946	Sandstone, light-grayish-green, very fine, micaceous; carbonaceous streaks.
946-962	Shale, silty, tight; variegated gray, green, and brown.
962-986	Sandstone, greenish-gray, very fine to fine, slightly carbonaceous.

Fox Hills Formation

986-1005	Shale, dark-greenish-black; interbedded with lenses of siltstone and sandstone.
1005-1020	Sandstone, dark-green, fine to medium, slightly indurated; fossil fragments.
1020-1024	Shale, dark-green, smooth, tight.
1024-1052	Sandstone, dark-green, fine to medium, friable.
1052-1080	Sandstone, dark-green, fine to medium; interbedded with siltstone and shale; some indurated layers containing fossils.

135-090-23BBB2
NDSWC 4509A

Altitude: 2366 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Tongue River Formation:			
	Topsoil, dark-brown, silty	1	1
	Silt, dusky-yellow, sandy, oxidized	3	4
	Siltstone, yellowish-gray, sandy, oxidized; carbonaceous streaks	12	16
	Shale, pale-yellowish-gray, very silty; brown carbonaceous streaks	16	32
	Lignite, black, fissile	2	34
	Claystone, brown, tight	2	36
	Lignite, black, fissile	1	37
	Claystone, brown, tight	2	39
	Shale, medium-dark-gray, silty; interbedded with thin lenses of bentonitic clay	37	76
	Shale, light-greenish-gray, tight, bentonitic; occasional thin seams of lignite	17	93
	Lignite, black, hard	5	98
	Shale, black, hard, carbonaceous	7	105
	Shale, medium-light-gray, silty, bentonitic	18	123
	Siltstone, light-grayish-green, clayey, chalky	18	141
	Siltstone, medium-dark-brown, carbonaceous	15	156
	Lignite, black, solid	5	161
	Siltstone, light-grayish-green, sandy; brown carbonaceous streaks	16	177
	Siltstone, brownish-gray, clayey, very carbonaceous; fossiliferous sandstone at 185 ft	43	220
	Sandstone, light-greenish-gray, very fine, moderately soft	9	229
	Siltstone; variegated gray, green, and brown; interbedded with thin lenses of claystone and sandstone	31	260
	Sandstone, gray, very fine, well-sorted, uniform, subangular, slightly carbonaceous	23	283

135-090-35AA
(Log from Moe Drilling Co.)

Altitude:

Material	Thickness (feet)	Depth (feet)
Sandstone, unconsolidated	6	6
Quartzite, pseudo	1	7
Sandstone, unconsolidated	15	22
Lignite	4	26
Sand, gray	11	37
Clay, gray	22	59
Lignite	3	62
Sand, gray	10	72
Clay, gray	6	78
Lignite	4	82
Clay, gray	23	105
Lignite	5	110
Sand	61	171
Sandstone, cemented	1	172
Sand	1	173
Lignite	3	176
Clay, gray	12	188

136-085-05ABB
NDSWC 8101

Altitude: 1840 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, grayish-black, sandy	1	1
	Clay, moderate-yellowish-brown, very silty, sandy, oxidized	6	7
	Sand, very fine to medium, silty, very clayey, subangular to subrounded; mostly quartz	19	26
	Clay, olive-gray, very silty, calcareous	43	69
	Sand, very fine to coarse, subangular to subrounded; interbedded with thin lenses of silty clay	16	85
	Gravel, fine to coarse, sandy, angular to well-rounded	5	90
	Clay, olive-gray, very silty; occasional thin lenses of fine sand	19	109
	Sand, fine to medium; occasional lenses of clay; mostly quartz and detrital lignite	11	120
	Gravel, fine to coarse; interbedded with thin lenses of sand and clay	20	140
	Sand, very fine to medium, subangular to subrounded; mostly quartz and detrital lignite	7	147
	Clay, medium-dark-gray, very silty; interbedded with thin lenses of fine gravel	30	177
Ludlow Formation:			
	Sandstone, medium-gray, very fine, cemented, micaceous, calcareous	3	180
	Shale, medium-gray, very silty, moderately indurated	20	200

136-085-08DDD
NDSWC 8099

Altitude: 1830 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Glacial drift:			
	Topsoil, brownish-black, sandy	1	1
	Clay, dusky-yellow, very silty, oxidized	3	4
	Sand, very fine to very coarse, subangular to subrounded	7	11
	Gravel, fine to coarse, sandy, poorly sorted, angular to subangular	9	20
	Sand, fine to very coarse, subangular to subrounded; mostly quartz and iron-stained siliceous rocks	21	41
	Sand, fine to very coarse; interbedded with lenses of silty clay	16	57
	Gravel, medium to coarse; abundant cobbles and boulders	4	61
	Sand, very fine to medium, subangular to rounded; predominantly quartz, detrital lignite, and shale	37	98
	Clay, medium-gray, silty; interbedded with lenses of medium sand	28	126
Ludlow Formation:			
	Limestone, medium- to greenish-gray, very hard, highly calcareous	2	128
	Shale, medium-gray, very silty, moderately indurated; occasional quartz grains	32	160

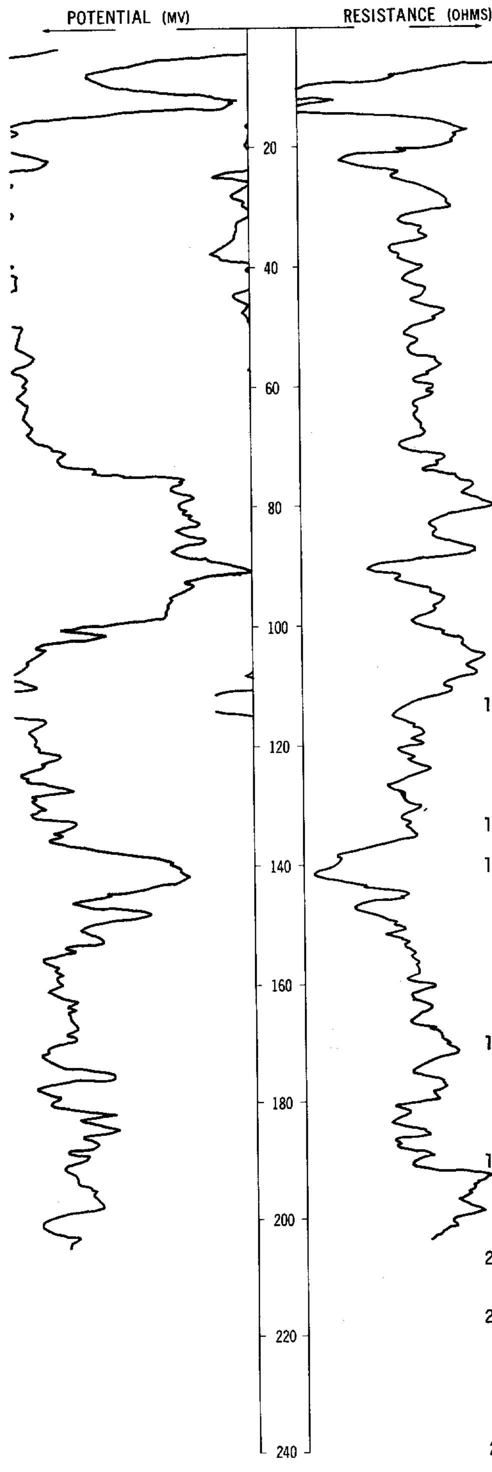
NDSWC 8100

LOCATION: 136-085-09BCD

ALTITUDE: 1820
(FT, MSL)

DATE DRILLED: August 1971

DEPTH: 220
(FT)



DESCRIPTION OF DEPOSITS

	Glacial drift
0-1	Topsoil, brownish-black, sandy.
1-11	Clay, moderate-yellowish-brown, very silty.
11-21	Sand, fine to coarse, oxidized.
21-31	Clay, olive-gray, very silty, gravelly.
31-40	Gravel, fine to coarse, sandy.
40-78	Sand, fine to very coarse; interbedded with lenses of clay.
78-88	Sand, fine to very coarse; about 40 percent silty clay.
88-91	Gravel, fine to coarse, sandy; mostly detrital lignite.
91-115	Sand, fine to coarse, gravelly; abundant detrital lignite.
115-136	Sand, very fine to medium; numerous thin lenses of silty clay.
136-144	Clay, olive-gray, very silty.
144-172	Sand, fine to coarse; occasional thin lenses of silty clay.
172-190	Gravel, fine to coarse; about 30 percent sand.
190-206	Gravel, coarse; abundant cobbles and boulders.
	Ludlow Formation
206-210	Shale, medium-gray, very sandy.
210-220	Shale, moderate-brownish-gray, moderately indurated.

136-085-16BCD
(Log from Opp Well Drilling)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay, yellowish-brown, sandy----------------	20	20
	Boulder-------------------------------------	2	22
	Gravel and sand-----------------------------	8	30
	Cobbles and boulders------------------------	2	32
	Clay, gray, sandy---------------------------	8	40
	Sand, bluish-gray, dry----------------------	3	43
	Sand, bluish-gray, fine---------------------	5	48
	Sand, bluish-gray, medium-------------------	7	55
	Sand, gray----------------------------------	23	78
	Clay, gray, sandy---------------------------	3	81

136-085-25AAA
(Log from M & R Drilling Co.)

Altitude:

	Clay, yellowish-brown-----------------------	7	7
	Sand, brown---------------------------------	4	11
	Sand and gravel-----------------------------	5	16
	Clay, yellowish-brown-----------------------	1	17
	Sand and gravel-----------------------------	23	40
	Sand, brownish-black to gray----------------	45	85
	Shale, gray, sandy--------------------------	5	90
	Shale, gray---------------------------------	5	95
	Sand, brownish-black to gray, lignitic------	61	156
	Lignite-------------------------------------	1	157
	Shale, brown--------------------------------	3	160

136-085-27DDB
(Log from M & R Drilling Co.)

Altitude:

	Clay, yellowish-brown-----------------------	3	3
	Shale, yellowish-gray, sandy----------------	31	34
	Shale, gray---------------------------------	54	88
	Shale, gray, sandy--------------------------	7	95
	Shale, dark-gray----------------------------	4	99
	Sandstone, light-bluish-gray----------------	2	101
	Shale, gray---------------------------------	5	106
	Shale, gray, sandy--------------------------	22	128
	Sand, bluish-gray---------------------------	12	140
	Shale, gray---------------------------------	11	151
	Sand, light-bluish-gray---------------------	9	160
	Sandstone, bluish-gray----------------------	3	163
	Sand, bluish-gray---------------------------	13	176
	Shale, gray---------------------------------	8	184

136-087-07DDD
NDSWC 4512

Altitude: 2130 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Tongue River Formation:			
	Topsoil, dark-yellowish-brown, sandy	2	2
	Sand, very fine to fine, silty, oxidized	2	4
	Sandstone, yellowish-gray, very fine to fine, clayey, oxidized	12	16
	Lignite, black, fractured	1	17
	Claystone, light-olive-gray, silty	9	26
	Sandstone, greenish-gray, very fine to fine, clayey, semiconsolidated	26	52
	Sandstone, dark-greenish-gray, very fine to fine, clayey, friable	24	76
	Sandstone, dark-greenish-gray, very fine, clayey	31	107
	Shale, dark-brownish-gray, silty, bentonitic; carbonaceous streaks	28	135
	Shale, dark-gray, bentonitic; interbedded with lenses of siltstone and sandstone	100	235
	Sandstone, greenish-gray, very fine, cemented	1	236
	Shale, dark-gray, silty, tight; carbonaceous streaks	4	240

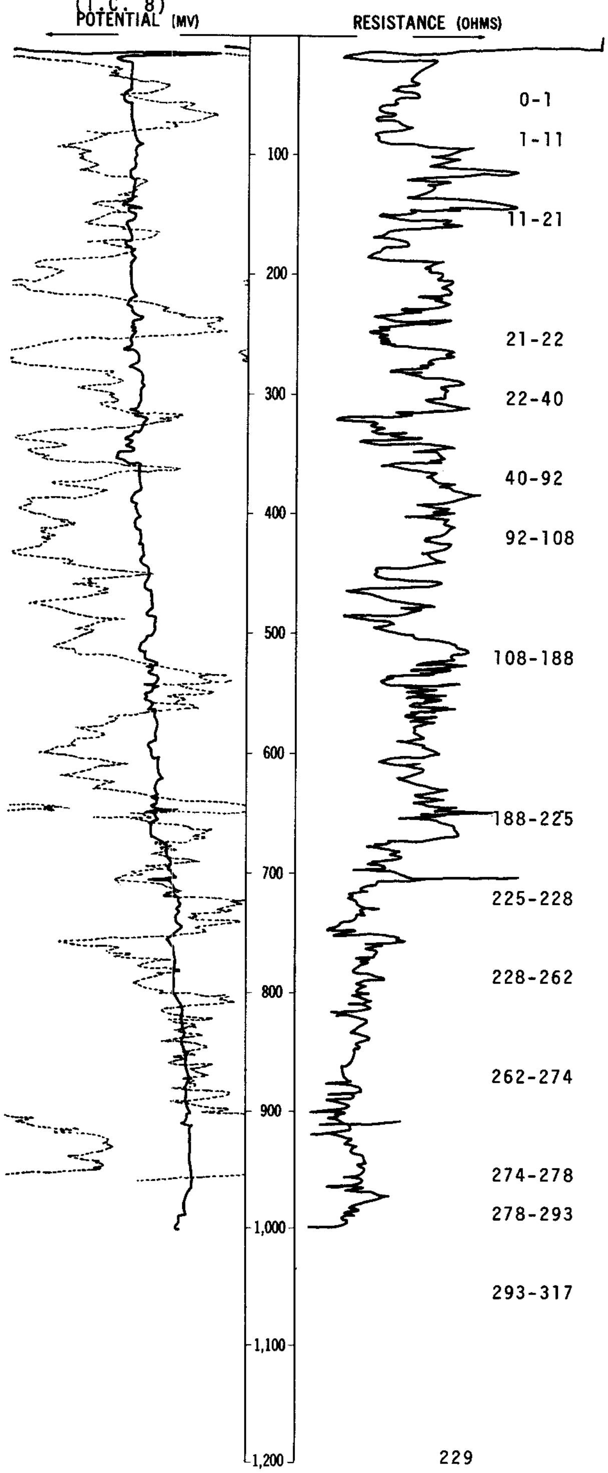
NDSWC 4486

LOCATION: 136-087-36ABD

ALTITUDE: 1900
(FT, MSL)

DATE DRILLED: October 1972

DEPTH: 1000
(FT)



DESCRIPTION OF DEPOSITS

<u>Alluvium</u>

0-1	Topsoil, dark-brown, sandy.
1-11	Sand, reddish-brown, fine to coarse, subrounded, oxidized.
11-21	Sand, gray, fine to coarse, subrounded; predominantly quartz.

<u>Ludlow Formation</u>

21-22	Sandstone, dark-gray, fine, indurated.
22-40	Sandstone, dark-bluish-gray, very fine to medium, clayey.
40-92	Shale, dark-brown, silty, carbonaceous.
92-108	Siltstone, dark-brown; interbedded with thin lenses of carbonaceous shale; some sandstone concretions.
108-188	Shale, dark-brown, carbonaceous; interbedded with lenses of siltstone and sandstone; bentonitic in places.

<u>Cannonball Formation</u>

188-225	Sandstone, light-greenish-gray, very fine to fine, clayey.
225-228	Lignite.

<u>Ludlow Formation</u>

228-262	Shale, dark-brown, silty, carbonaceous.

<u>Hell Creek Formation</u>

262-274	Sandstone, greenish-gray, fine to medium, subangular, semiconsolidated, quartzose.
274-278	Lignite.
278-293	Siltstone, dark-green; interbedded with lenses of carbonaceous shale.
293-317	Siltstone, medium- to dark-gray; interbedded with very fine to fine partially cemented sandstone; carbonaceous streaks.

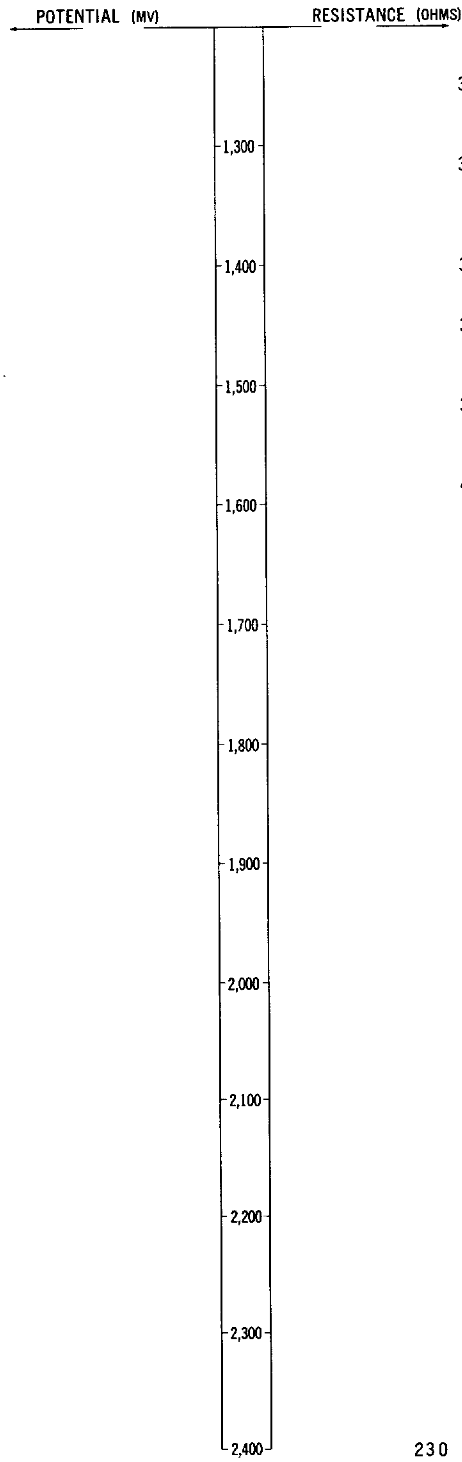
NDSWC 4486, Continued

LOCATION: 136-087-36ABD

DATE DRILLED: October 1972

ALTITUDE: 1900
(FT, MSL)

DEPTH: 1000
(FT)



DESCRIPTION OF DEPOSITS

Hell Creek Formation, Continued

317-332	Shale, dark-brownish-green, carbonaceous; interbedded with siltstone and sandstone.
332-362	Sandstone, dark-brownish-green, fine to medium, subangular, semiconsolidated, quartzose.
362-366	Shale, dark-brown, carbonaceous.
366-386	Sandstone, grayish-green, very fine to fine; some intervals with clay.
386-445	Sandstone, greenish-gray, fine to medium, subangular, partially cemented.
445-525	Sandstone, dark-grayish-green, fine to medium; interbedded with some carbonaceous siltstone.
525-565	Shale, brownish-gray, silty; interbedded with thin lenses of bentonitic shale and fossiliferous sandstone.

Fox Hills Formation

565-645	Sandstone, light-green, very fine to fine, calcareous; carbonaceous streaks.
645-648	Shale, black, hard, carbonaceous.
648-650	Limestone, dark-yellowish-gray, indurated.
650-702	Siltstone, sandy; variegated greens and browns; some thin lenses of carbonaceous shale.
702-705	Sandstone, dark-green, very fine, indurated, pyritiferous.
705-755	Shale, dark-brownish-green, carbonaceous.
755-760	Lignite.
760-802	Siltstone, sandy, bentonitic; variegated greens and grays; carbonaceous streaks.
802-912	Shale, dark-greenish-brown, silty, tight, bentonitic.

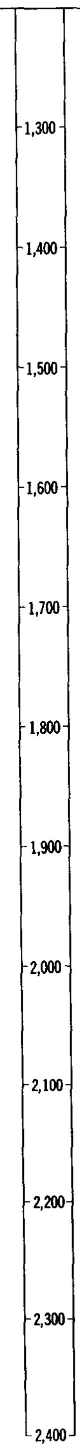
LOCATION: 136-087-36ABD

DATE DRILLED: October 1972

ALTITUDE: 1900
(FT, MSL)

DEPTH: 1000
(FT)

POTENTIAL (MV) RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

Pierre Formation

912-1000 Shale, grayish-black, hard, very tight, brittle, siliceous.

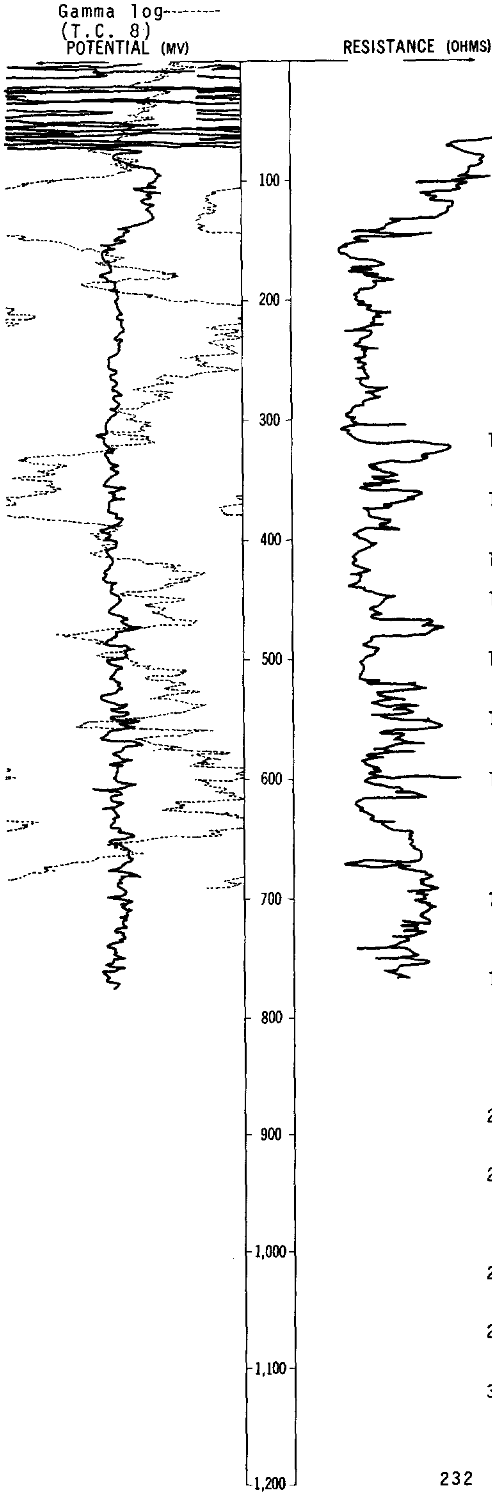
NDSWC 4513

LOCATION: 136-088-13AAA

DATE DRILLED: May 1973

ALTITUDE: 2191 (FT, MSL)

DEPTH: 780 (FT)



DESCRIPTION OF DEPOSITS

Tongue River Formation

0-1	Topsoil, dark-yellowish-brown, sandy.
1-55	Sandstone, yellowish-gray, fine to medium, oxidized; interbedded with lenses of clayey siltstone.
55-97	Sandstone, yellowish-gray, fine to medium, friable, oxidized.
97-105	Sandstone, yellowish-green, fine, clayey, friable, oxidized.
105-107	Claystone, dark-gray, sandy, indurated.
107-110	Sandstone, dark-gray, very fine, indurated.
110-111	Shale, dark-gray, fissile.
111-118	Sandstone, greenish-gray, fine, silty, friable.
118-125	Siltstone, medium-gray, clayey, bentonitic.
125-141	Sandstone, greenish-gray, fine, friable, indurated.
141-160	Sandstone, medium-gray, very fine to fine; interbedded with lenses of carbonaceous clayey siltstone.
160-174	Shale, grayish-brown, very silty; carbonaceous streaks.
174-200	Shale, grayish-brown, carbonaceous; interbedded with lenses of siltstone and sandstone.

Ludlow Formation

200-216	Shale, medium-gray, tight, bentonitic.
216-280	Shale, silty, bentonitic; variegated gray, green, and brown; occasional carbonaceous streaks.
280-297	Sandstone, gray, very fine, clayey, friable.
297-327	Shale, dark-brownish-gray, tight, very carbonaceous.
327-344	Sandstone, light-olive-gray, very fine, very silty, partially indurated; carbonaceous streaks.

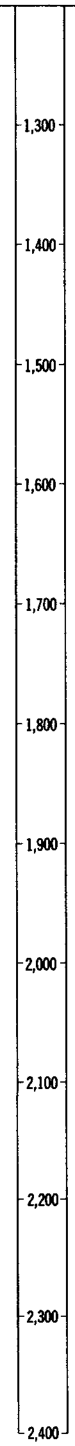
LOCATION: 136-088-13AAA

DATE DRILLED: May 1973

ALTITUDE: 2191 (FT, MSL)

DEPTH: 780 (FT)

POTENTIAL (MV)   RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

Ludlow Formation, Continued

344-367	Siltstone, greenish-gray, bentonitic; interbedded with thin lenses of carbonaceous clay and sandstone.
367-382	Sandstone, greenish-gray, very fine to fine, clayey, friable; carbonaceous streaks.
382-390	Shale, medium-gray, hard, bentonitic.
390-399	Sandstone, gray, very fine, clayey, friable.
399-454	Shale, dark-grayish-brown, silty, tight, very carbonaceous.
454-463	Siltstone, grayish-brown, clayey, carbonaceous.
463-475	Shale, dark-brown, hard, very carbonaceous.
475-490	Sandstone, dark-green, friable; interbedded with carbonaceous siltstone and lignitic shale.
490-528	Shale, dark-grayish-brown, tight, very carbonaceous.

Cannonball Formation

528-592	Sandstone, greenish-gray, very fine to fine; interbedded with carbonaceous shale.
592-614	Shale, grayish-brown, silty, tight, carbonaceous.
614-624	Sandstone, dark-greenish-gray, fine to medium, clayey; macerated shell fragments.

Ludlow Formation

624-650	Shale, greenish-brown, silty, carbonaceous.

Hell Creek Formation

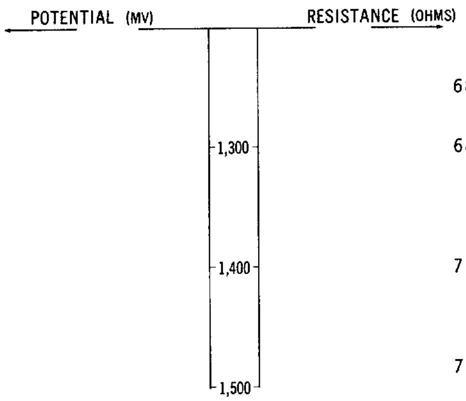
650-677	Sandstone, light-greenish-gray, very fine; interbedded with thin lenses of siltstone, carbonaceous shale, and a basal lignite.
677-681	Shale, dark-brown, tight, carbonaceous.
681-682	Lignite, black, massive.

LOCATION: 136-088-13AAA

DATE DRILLED: May 1973

ALTITUDE: 2191
(FT, MSL)

DEPTH: 780
(FT)



DESCRIPTION OF DEPOSITS

Hell Creek Formation, Continued

682-684	Siltstone, brown, soft, carbonaceous.
684-729	Sandstone, dark-green, fine to medium, semiconsolidated; interbedded with thin streaks of clay.
729-766	Sandstone, dark-green, fine; interbedded with lenses of carbonaceous shale.
766-780	Siltstone, brownish-green; interbedded with thin lenses of shale and sandstone.

136-089-03ABC
(Log from Opp Well Drilling)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay, gray	18	18
	Fossiliferous sandstone	1	19
	Clay, bluish-gray	4	23
	Lignite	3	26
	Clay, bluish-gray	7	33
	Sand, gray, fine	19	52
	Clay, bluish-gray	10	62
	Sand, gray, fine	20	82
	Sand, yellowish-brown, dry	5	87
	Sand, yellowish-gray	11	98
	Sandstone, cemented	2	100
	Sand, bluish-gray, fine	20	120
	Sand, bluish-gray, coarse	6	126
	Lignite	3	129
	Sand, bluish-gray, fine	6	135

136-089-10AAA1
(Log from Vernon Dahle Well Drilling)

Altitude:

Material	Thickness (feet)	Depth (feet)
Shale, blue	10	10
Sand, gray, fine	30	40
Sand, gray	21	61
Lignite	2	63
Sand, blue, water-bearing	18	81
Clay, light-gray	9	90
Clay	15	105

136-089-10AAA2
(Log from Vernon Dahle Well Drilling)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay, yellow	21	21
	Sand, gray, coarse	23	44
	Lignite	2	46
	Sand, gray, coarse	19	65
	Clay, yellow	3	68
	Sand, gray	16	84
	Sand, blue, coarse, water-bearing	2	86

136-089-12CCB
North Dakota Game and Fish Dept.
(Log from Opp Well Drilling)

Altitude:

	Clay, gray, sandy	10	10
	Sand, gray, silty	27	37
	Clay, bluish-gray	3	40
	Sand, yellowish-brown	10	50
	Sand, gray, very fine, lignitic	25	75
	Sand, gray, very fine	15	90
	Clay, bluish-gray, sandy	1	91
	Sandstone, cemented	2	93
	Sand, bluish-gray, medium, well-sorted	8	101

136-089-13ACC
(Log from U.S. Bureau of Reclamation)

Altitude:

	Silt, brown, sandy	20	20
	Sand, yellow, very fine	4	24
	Sand, gray, fine	6	30
	Sand, blue	12	42
	Sandstone, light-gray, very fine, soft, friable; interbedded with some dark-gray shale	41.5	83.5

136-089-13BAC
North Dakota Game and Fish Dept.
(Log from Opp Well Drilling)

Altitude:

	Sand, yellow	15	15
	Sand, gray	10	25
	Sand, brown	10	35
	Sand, gray (some water)	10	45
	Sandstone, gray	15	60
	Sand, very fine (some water)	15	75
	Sand, gray	7	82
	Sand, blue	11.5	93.5
	Sandstone	2.5	96
	Sand, brown	4	100
	Sandstone, bluish-gray (water-bearing)	13	113

136-089-20BCB
(Log from Moe Drilling Co.)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sandstone, unconsolidated	9	9
	Sandstone, cemented	1	10
	Sandstone, unconsolidated	7	17
	Clay, grayish-black	2	19
	Lignite	3	22
	Clay, greenish-gray	36	58
	Sand	3	61
	Clay, gray	3	64
	Sand, gray	32	96
	Clay, brown	12	108

136-090-06BBA
(Log from Moe Drilling Co.)

Altitude:

	Sand, yellowish-brown, medium to coarse	3	3
	Clay, gray	72	75
	Sand, gray	91	166
	Lignite	5	171
	Sand, gray	34	205
	Clay, gray	40	245
	Sand, gray, very fine	32	277
	Sandstone, gray	1	278
	Clay, gray, silty	12	290
	Sandstone, grayish-white	1	291
	Sand, gray, very fine	11	302
	Sandstone, soft	1	303
	Clay, gray	77	380
	Sandstone	1	381
	Clay, gray	99	470
	Sand, gray, medium to coarse	15	485
	Clay, gray	30	515
	Sand, greenish-gray, clayey	27	542
	Sandstone, cemented	1	543
	Clay, gray	41	584
	Sandstone	1	585
	Clay, gray, silty	75	660
	Clay, gray; interbedded with thin layers of lignite	20	680
	Clay, grayish-brown	70	750
	Sand, gray	140	890

Note. Tests of water levels below land surface from varying depths are:

Depth (feet)	Static water level (feet)
840	105
600	50
300	32

136-090-14BAA
(Log from Opp Well Drilling)

Altitude:

	Sand, yellow	4	4
	Clay, gray	16	20
	Clay, blue	18	38
	Lignite	2	40
	Clay, gray	5	45

137-088-10ADB
(Log from Opp Well Drilling)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Topsoil, brown	1	1
	Clay, yellowish-gray	18	19
	Lignite	2	21
	Clay, gray	4	25
	Sand, gray, coarse	39	64
	Rock, siliceous	.5	64.5
	Sand, gray, coarse	15.5	80
	Sand, blue (some water)	2	82
	Clay, blue	11	93
	Lignite, hard (1 gal/min)	3	96
	Clay, blue	34	130
	Sand, blue, silty	5	135
	Sand, blue, dry	25	160
	Sand, blue (1 gal/min)	24	184
	Sand, blue, dry	9	193
	Sand, blue, water-bearing	19	212
	Lignite, hard	5	217
	Clay, white, bentonitic	5	222

137-088-14DD
(Log from Leonard Veitenheimer)

Altitude:

	Clay	12	12
	Clay, red	6	18
	Clay	52	70
	Lignite	8	78
	Clay, blue	12	90
	Clay	65	155
	Lignite	7	162
	Clay	18	180
	Sand, quartz	30	210

137-088-20CC
(Log from Opp Well Drilling)

Altitude:

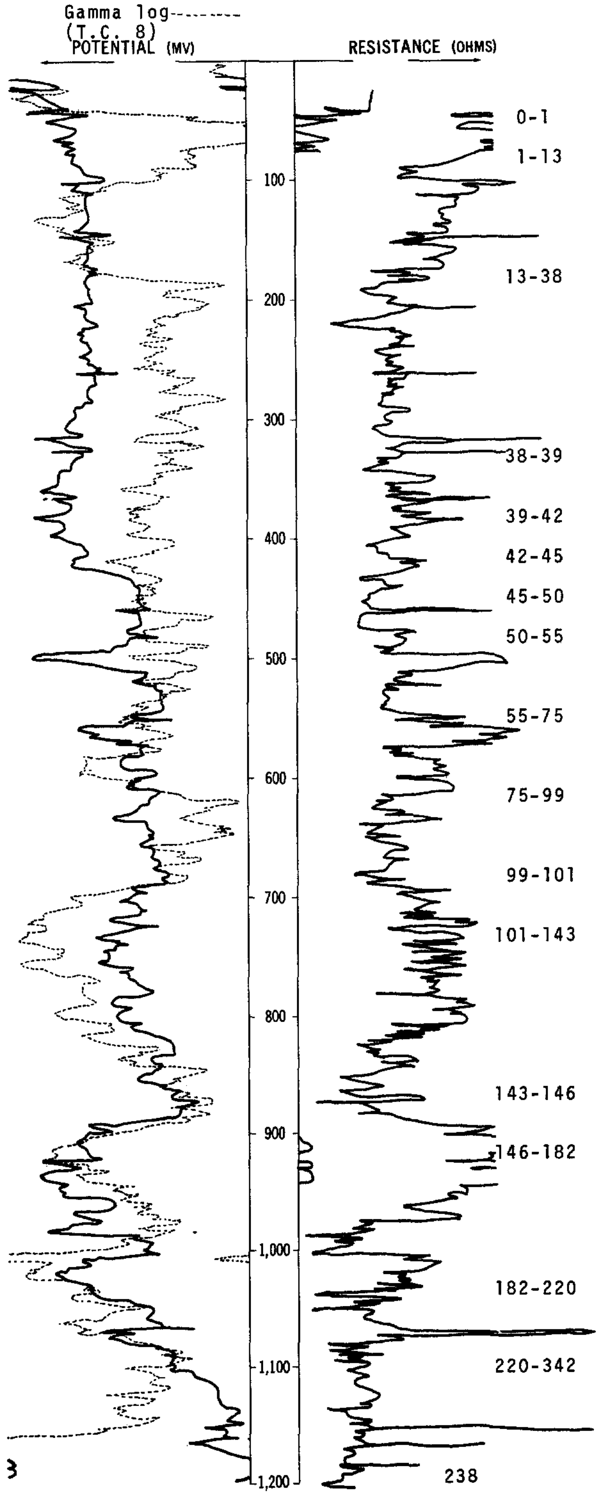
	Sand, bluish-gray	20	20
	Sandstone	1	21
	Sand, bluish-gray	19	40
	Lignite, dry	4	44
	Sand, bluish-gray	41	85
	Sandstone	3	88
	Sand, bluish-gray	5	93
	Lignite (water-bearing)	4	97
	Clay, bluish-gray	8	105
	Sand, bluish-gray	7	112

LOCATION: 137-088-21DDC

ALTITUDE: 2110
(FT, MSL)

DATE DRILLED: October 1972

DEPTH: 1200
(FT)



	DESCRIPTION OF DEPOSITS
	Alluvium
0-1	Topsoil, dark-brown, sandy.
1-13	Sand, reddish-brown, fine to coarse, subrounded, oxidized.
	Glacial drift
13-38	Gravel, reddish-brown, subangular to angular, oxidized; mostly locally derived silicates with some scoria, limestone, and granitics.
	Tongue River Formation
38-39	Sandstone, medium-bluish-gray, fine, clayey.
39-42	Lignite, fractured.
42-45	Clay, brownish-gray, smooth.
45-50	Lignite, hard.
50-55	Clay, light-green to greenish-gray, smooth; carbonaceous streaks.
55-75	Siltstone, olive-gray to grayish-green, clayey, very sandy, bentonitic.
75-99	Shale, light- to medium-gray, silty, bentonitic; carbonaceous streaks.
99-101	Sandstone, dark-greenish-gray, very fine, indurated.
101-143	Sandstone, olive-gray to grayish-green, very fine to fine, calcareous; predominantly quartz with some pyrite and fossil fragments; carbonaceous streaks.
143-146	Sandstone, dark-gray, indurated.
146-182	Sandstone, grayish- to dark-green; interbedded with carbonaceous shales.
	Ludlow-Cannonball Formations, undifferentiated
182-220	Shale, dark-brownish-gray, silty, slightly sandy, brittle.
220-342	Siltstone, grayish-green; interbedded with thin lenses of soft carbonaceous shale and limestone.

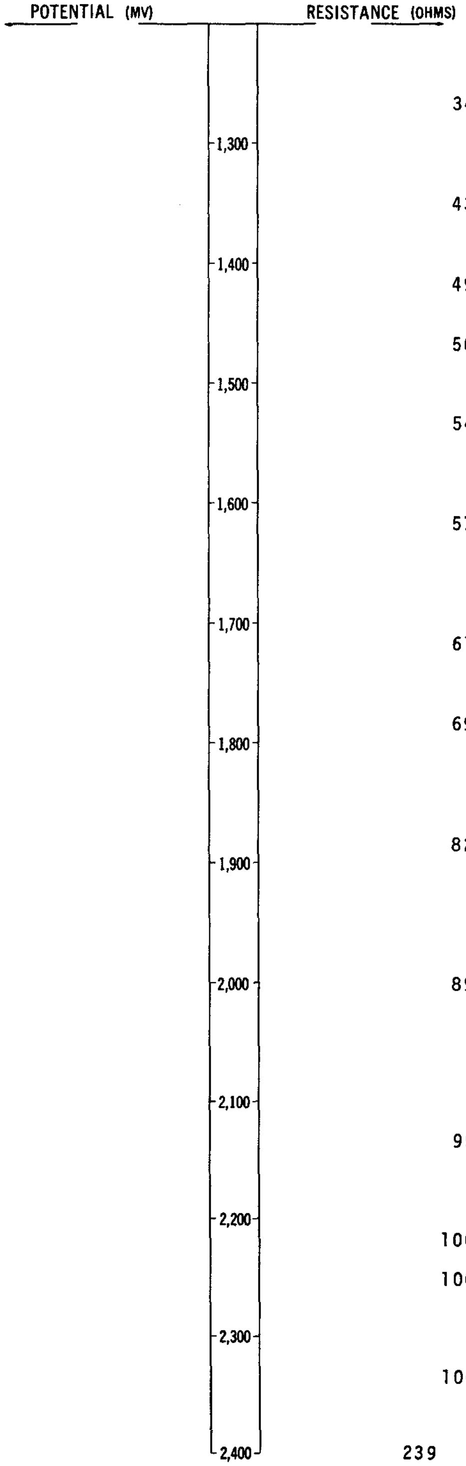
LOCATION: 137-088-21DDC

DATE DRILLED: October 1972

ALTITUDE: 2110
(FT, MSL)

DEPTH: 1200
(FT)

POTENTIAL (MV) RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

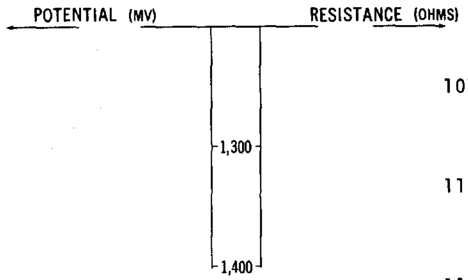
	<u>Ludlow-Cannonball Formations, undifferentiated, Continued</u>
342-430	Siltstone, dark-brownish-green; interbedded with thin lenses of fossiliferous sandstone.
430-492	Siltstone, light-grayish-green; with thin lenses of claystone or concretions.
492-508	Sandstone, grayish-green, very fine to fine, indurated.
508-540	Siltstone, gray to brownish-green; interbedded with bentonitic shales.
540-570	Sandstone, grayish-green, very fine to fine; interbedded with siltstone and shale.
570-610	Siltstone, grayish-green; interbedded with very fine to fine sandstone.
	<u>Hell Creek Formation</u>
610-690	Siltstone, grayish-green; interbedded with carbonaceous shale.
690-820	Sandstone, dark-green, fine to medium; predominantly quartz and about 15 percent black heavy minerals; indurated in places.
820-890	Shale, dark-greenish-gray; interbedded with thin lenses of siltstone and sandstone.
	<u>Fox Hills Formation</u>
890-955	Sandstone, dark-greenish-gray, very fine to medium, moderately indurated; predominantly quartz; about 10 percent glauconite and 10 percent black heavy minerals.
955-1002	Siltstone, dark-grayish-green; interbedded with carbonaceous clays; some thin lenses of sandstone.
1002-1008	Lignite, hard.
1008-1067	Sandstone, grayish-green, very fine to fine; interbedded with thin lenses of carbonaceous shale.
1067-1071	Limestone, yellowish-gray, indurated.

LOCATION: 137-088-21DDC

DATE DRILLED: October 1972

ALTITUDE: 2110
(FT, MSL)

DEPTH: 1200
(FT)



DESCRIPTION OF DEPOSITS

Fox Hills Formation, Continued

1071-1135	Siltstone, dark-green; interbedded with carbonaceous shale and bentonitic clay.
1135-1170	Shale, dark-gray, tight, bentonitic.

Pierre Formation

1170-1200	Shale, dark-grayish-black, hard, very tight, siliceous.

137-088-26BB
(Log from Leonard Veitenheimer)

Altitude:

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sand, blue----------------------------------	5	5
	Sand--	55	60
	Lignite-------------------------------------	8	68
	Sand, quartz--------------------------------	22	90

NDSWC 4511

LOCATION: 137-089-09ABA1

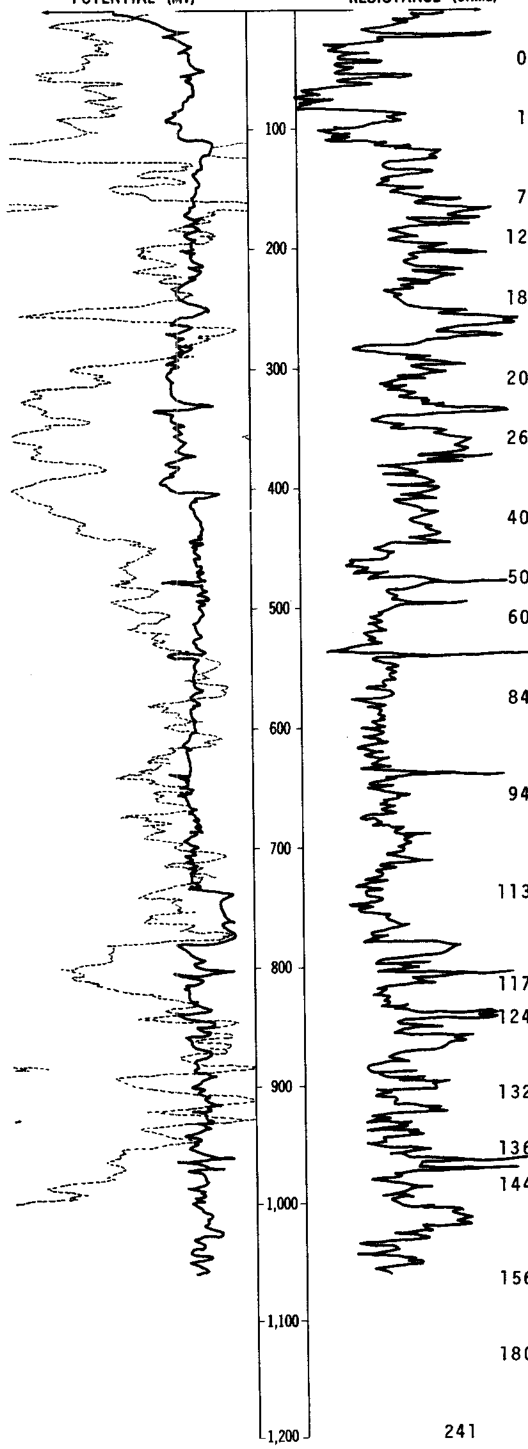
ALTITUDE: 2305
(FT, MSL)

DATE DRILLED: May 1973

DEPTH: 1060
(FT)

Gamma log--------
(T.C. 8)
POTENTIAL (MV)

RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

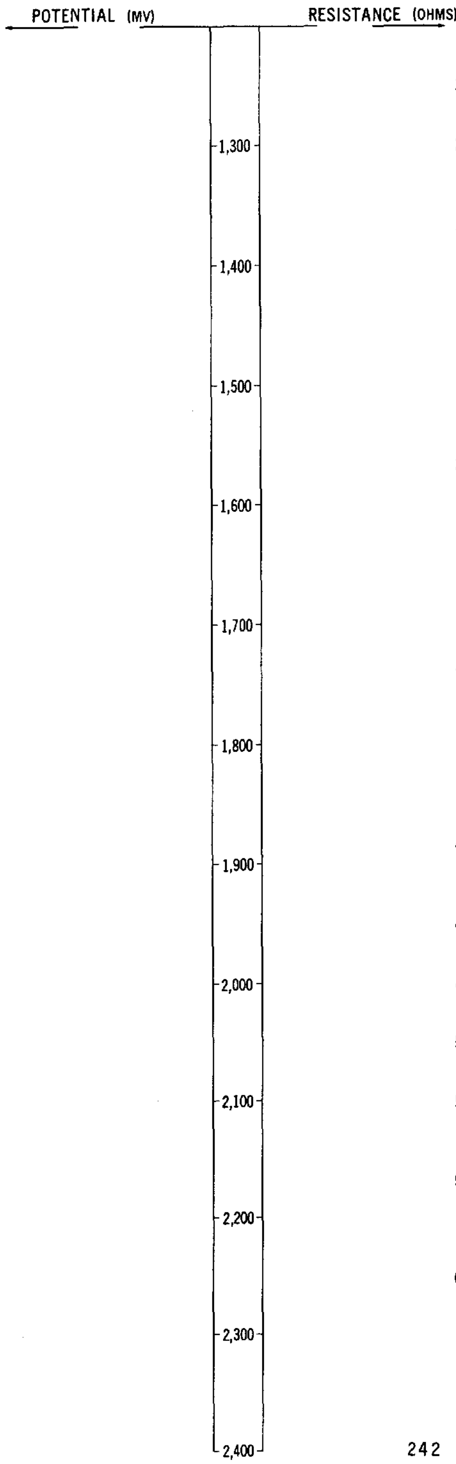
	Sentinel Butte Formation
0-1	Topsoil, dark-yellowish-brown, silty.
1-7	Claystone, yellowish-gray, silty, oxidized; limonite stains.
7-12	Lignite, black, fractured.
12-18	Claystone, light-olive-gray, very silty.
18-20	Siltstone, reddish-brown, indurated; ferruginous silica matrix cement.
20-26	Claystone, light-green, silty, sandy.
26-40	Shale, light- to medium-gray, silty, sandy, very bentonitic.
40-50	Sandstone, brownish-green, very fine, friable.
50-60	Shale, brown, lignitic.
60-84	Siltstone, light-greenish-gray, very clayey; carbonaceous streaks.
84-94	Sandstone, greenish-gray, very fine to fine, silty, friable; carbonaceous streaks.
94-113	Siltstone, brownish-gray; interbedded with thin lenses of bentonitic and carbonaceous shale.
113-117	Sandstone, dark-brown, very fine, carbonaceous.
	Tongue River Formation
117-124	Lignite, black, solid.
124-132	Shale, dark-gray; with thin lenses of light-gray bentonitic clay.
132-136	Sandstone, greenish-gray, very fine, clayey, friable.
136-144	Shale, black, carbonaceous.
144-156	Sandstone, brownish-gray, very fine; interbedded with thin lenses of lignitic shale.
156-180	Siltstone, greenish-gray; interbedded with bentonitic clay.
180-201	Shale, greenish-gray, bentonitic; interbedded with sandy siltstone.

LOCATION: 137-089-09ABA1

ALTITUDE: 2305
(FT, MSL)

DATE DRILLED: May 1973

DEPTH: 1060
(FT)



DESCRIPTION OF DEPOSITS

Tongue River Formation, Continued

201-202	Sandstone, dark-gray, very fine, indurated.
202-211	Sandstone, greenish-gray, very fine to fine, semiconsolidated, friable.
211-231	Sandstone, dark-greenish-gray, fine; interbedded with thin lenses of very hard indurated clayey sandstone.
231-248	Shale, grayish-blue, bentonitic; interbedded with thin lenses of siltstone and fossiliferous sandstone.
248-256	Sandstone, brown, very fine, carbonaceous.
256-276	Siltstone, light-gray to dark-brown, very bentonitic; carbonaceous streaks.
276-292	Shale, dark-grayish-brown, very carbonaceous.
292-445	Sandstone, greenish-gray, very fine to fine, friable; some indurated fossiliferous layers; interbedded with occasional thin lenses of clayey siltstone.

Ludlow Formation

445-475	Shale, greenish-gray; interbedded with lenses of carbonaceous siltstone.
475-477	Sandstone, greenish-gray, very fine to fine, indurated.
477-535	Shale, greenish-gray, silty; carbonaceous streaks.
535-537	Sandstone, dark-gray, very fine, indurated.
537-572	Siltstone, greenish-gray, bentonitic; some limonitic concretions.
572-633	Shale, dark-brown, carbonaceous.

Cannonball Formation

633-698	Sandstone, greenish-gray, very fine to fine; interbedded with thin lenses of carbonaceous shale; indurated in places.

NDSWC 4511, Continued

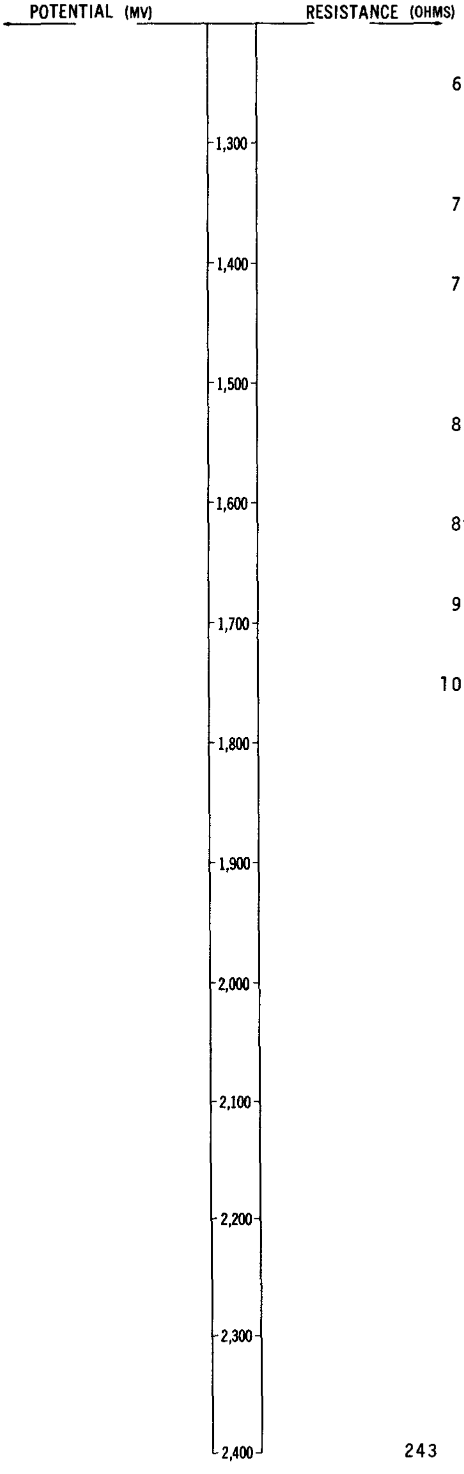
LOCATION: 137-089-09ABA1

DATE DRILLED: May 1973

ALTITUDE: 2305
(FT, MSL)

DEPTH: 1060
(FT)

POTENTIAL (MV) RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

	Ludlow Formation
698-752	Shale, greenish-gray to brown, carbonaceous; interbedded with thin lenses of siltstone and sandstone.
752-778	Siltstone, greenish-gray; interbedded with thin lenses of shale.
778-821	Sandstone, light-green, very fine, silty; occasional carbonaceous shale streaks.
	Hell Creek Formation
821-890	Siltstone; variegated gray, green, and brown; interbedded with carbonaceous shale.
890-998	Siltstone, grayish-green; interbedded with lenses of sandstone.
998-1018	Sandstone, grayish-green, very fine to fine, semiconsolidated.
1018-1060	Sandstone, grayish-green, very fine to fine, semiconsolidated; interbedded with thin lenses of carbonaceous shale.

137-089-09ABA2
NDSWC 4511A

Altitude: 2305 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Sentinel Butte Formation:			
	Topsoil, dark-yellowish-brown, silty--------	1	1
	Claystone, yellowish-gray, silty, oxidized; limonite stains----------------	6	7
	Lignite, black, fractured------------------	5	12
	Claystone, light-olive-gray, very silty-----	6	18
	Siltstone, reddish-brown, indurated; iron silica matrix cement---------------------	2	20
	Claystone, light-green, silty, sandy--------	6	26
	Shale, light- to medium-gray, silty, sandy, very bentonitic--------------------------	14	40
	Sandstone, brownish-green, very fine, friable------------------------------------	10	50
	Shale, brown, lignitic---------------------	10	60
	Siltstone, light-greenish-gray, very clayey; carbonaceous streaks---------------------	24	84
	Sandstone, greenish-gray, very fine to fine, silty, friable; carbonaceous streaks------	10	94
	Siltstone, brownish-gray; interbedded with thin lenses of bentonitic and carbonaceous shale-----------------------------------	19	113
	Sandstone, dark-brown, very fine, carbonaceous----------------------------------	4	117
Tongue River Formation:			
	Lignite, black, solid----------------------	7	124
	Shale, dark-gray; with thin lenses of light-gray bentonitic clay---------------------	8	132
	Sandstone, greenish-gray, very fine, clayey, friable--------------------------	4	136
	Shale, black, carbonaceous-----------------	8	144
	Sandstone, brownish-green, very fine; interbedded with thin lenses of lignitic clay-------------------------------------	12	156
	Siltstone, greenish-gray; interbedded with bentonitic clay--------------------------	24	180
	Shale, greenish-gray, bentonitic; interbedded with sandy siltstone--------------	21	201
	Sandstone, dark-gray, very fine, indurated--	1	202
	Sandstone, greenish-gray, very fine to fine, semiconsolidated, friable-----------	9	211
	Sandstone, dark-greenish-gray, fine; interbedded with thin lenses of very hard indurated clayey sandstone---------------	20	231
	Shale, grayish-green, bentonitic; interbedded with thin lenses of siltstone and fossiliferous sandstone------------------	17	248
	Sandstone, brown, very fine, carbonaceous---	8	256
	Siltstone, light-gray to dark-brown, very bentonitic; carbonaceous streaks----------	20	276
	Shale, dark-grayish-brown, very carbonaceous	16	292
	Sandstone, greenish-gray, very fine to fine, friable; some indurated fossiliferous layers; interbedded with occasional thin lenses of clayey siltstone--------------------------------	74	366

137-089-10BCA
Drill Hole 10
(Log from U.S. Geological Survey Conservation Division)

Altitude: 2415 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Sentinel Butte Formation:			
	Loam, dark-yellow, brown, dry above, to clayey siltstone, light-olive-gray	5	5
	Siltstone, micaceous, pale-yellowish-brown	5	10
	Siltstone, micaceous, yellow-gray	5	15
	Siltstone, very pale orange	1.5	16.5
	Claystone, pale-yellowish-brown, carbonaceous, silty	2	18.5
	Siltstone, micaceous, grayish-orange-yellow	6.5	25
	Claystone, light-olive to olive-gray, silty; a coal seam about 2 inches thick at about the 27.5 ft depth	13	38
	Siltstone, carbonaceous in part, yellowish-gray	7	45
	Siltstone, very light to light-gray; locally iron stained to grayish orange	5	50
	Siltstone to very fine sandstone, light-olive-gray	5	55
	Siltstone, olive-gray, coaly, clayey	1.8	56.8
	Shale, carbonaceous	3.2	60
	Lignite	3.5	63.5
	Claystone, medium-light-gray	4.4	67.9
	Lignite	.1	68
	Silty claystone, olive-gray	.9	68.9
	Lignite, clayey, lignite below, black	1	69.9
	Claystone, olive-gray, coaly	.7	70.6
	Claystone, light-olive-gray, silty	1.4	72
	Siltstone, light-olive-gray, clayey	8	80
	Siltstone, medium-light-gray, very slightly clayey	5	85
	Siltstone, olive-gray, clayey	5	90
	Siltstone, light-gray, light-olive-gray	11	101
	Sandstone, light-olive-gray, very fine	4	105
	Sandstone, light-olive-gray, fine	5	110
	Claystone, light-olive-gray, silty	.8	110.8
	Claystone, dark-greenish-gray, silty	7.2	118
	Claystone, olive-gray, silty	1.3	119.3
	Lignite	3.4	122.7
	Claystone, light-olive-gray, silty	2.3	125
	Siltstone, clayey, laminated in part, light-gray, thin lignite at 130 and 131.3 ft	11	136
	Claystone, medium-light-gray, silty, carbonaceous at base	6	142
	Claystone, light-olive-gray, silty	3.5	145.5
	Claystone, yellowish-gray, hard calcareous shale	.2	145.7
	Siltstone, light-olive-gray, clayey	2.4	148.1
	Sandstone, light-olive-gray, silty, very fine	.7	148.8
	Siltstone, light-olive-gray, clayey	.2	149
	Claystone, light-olive-gray, silty	.6	149.6
	Siltstone, light-olive-gray, slightly clayey	4.9	154.5
	Siltstone, laminated, light-olive-gray, slightly clayey	2.6	157.1
	Lignite, attrital, pure	2.75	159.85
	Siltstone, yellowish-gray	.15	160
	Sandstone, very light gray, very fine	6.5	166.5
	Siltstone, light-gray, slightly clayey	9	175.5
	Sandstone, unconsolidated, light-gray, very fine	2	177.5
	Claystone, light-gray, silty	7.2	184.7

137-089-10BCA, Continued
Drill hole 10
(Log from U.S. Geological Survey Conservation Division)

Altitude: 2415 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Tongue River Formation:			
	Siltstone, light-gray, pure to clayey	2.3	187
	Sandstone, unconsolidated, light-gray, very fine	1	188
	Siltstone, light-gray	1.5	189.5
	Sandstone, unconsolidated, light-gray, very fine	2.5	192
	Siltstone, friable, light-gray	1	193
	Sandstone, very light gray, calcareous, moderately hard, very fine	1	194
	Sandstone, light-olive-gray, very fine	11.6	205.6
	Siltstone, light-olive-gray, clayey	4.3	209.9
	Shale, dusky-yellowish-brown, carbonaceous	.1	210
	Claystone, dark-yellowish-brown, silty, grading to black below and coaly in lowest 0.2 ft	2.2	212.2
	Lignite, hard, attrital	.7	212.9
	Claystone, olive-gray, silty	1.1	214
	Sandstone, silty, very fine, poorly consolidated, light-olive-gray	4	218
	Mudstone, light-olive-gray	3	221
	Siltstone, cross-bedded, very light gray	1.1	222.1
	Sandstone, light-olive-gray, very fine	.5	222.6
	Siltstone, medium-light-gray to light-gray, very slightly clayey, laminated, cross-bedded, micaceous	.9	223.5
	Siltstone, light-gray, cross-bedded, slightly laminated below	.6	224.1
	Sandstone, light-gray, very fine, cross-bedded	2.9	227
	Siltstone to very fine sandstone, light-gray, slightly clayey, slightly laminated, micaceous	3.3	230.3
	Claystone, light-olive-gray, silty	.3	230.6
	Claystone, olive-black, silty	.1	230.7
	Lignite	8.7	239.4
	Claystone, light-olive-gray, silty	.4	239.8
	Siltstone, light-gray, slightly clayey	7.7	247.5
	Claystone, light-olive-gray, silty	.8	248.3
	Lignite, attrital	.2	248.5
	Claystone, olive-gray, silty	.08	248.58
	Claystone, dusky-yellowish-brown, coaly	.18	248.76
	Claystone, light-olive-gray	.18	248.94
	Claystone, olive-black, coaly	.09	249.03
	Claystone, olive-gray, silty, moist, top 1.7 ft to light-bluish-gray and light-gray	7.07	256.1
	Siltstone, light-gray, clayey, laminated	5.6	261.7
	Claystone, light-gray, silty	.7	262.4
	Lignite, attrital	.6	263
	Claystone, olive-gray, silty	2	265
	Lignite, top 0.1 ft clayey	.5	265.5
	Claystone, light-olive-gray, silty, top 0.1 ft has coaly seams	.4	265.9
	Lignite, impure	.2	266.1
	Claystone, very light gray, silty	.2	266.3
	Siltstone, light-olive-gray, very slightly clayey	3.6	269.9
	Claystone, olive-gray, laminated, silty	.2	270.1
	Claystone, greenish-gray, silty	.7	270.8
	Siltstone, light-olive-gray, clayey	.5	271.3
	Siltstone, light-olive-gray	2.2	273.5
	Sandstone, very fine, light-olive-gray, unconsolidated	9	282.5

137-089-10BCA, Continued
Drill hole 10
(Log from U.S. Geological Survey Conservation Division)

Altitude: 2415 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Tongue River Formation, Continued:			
	Claystone, light-olive-gray, silty----------	.5	283
	Claystone, greenish-gray, silty. A FeS_2 concretion 0.08 ft in diameter at top and a few scattered mollusk shells at 285.6 ft depth----------------------------	2.9	285.9
	Claystone, olive-gray above to brownish-black below, carbonaceous-----------------	.3	286.2
	Lignite-------------------------------------	.2	286.4
	Siltstone, grayish-brown above to dusky-brown below, carbonaceous, 0.12 ft. FeS_2 concretion at top------------------------	.3	286.7
	Claystone, black, silty---------------------	.7	287.4
	Lignite-------------------------------------	.2	287.6
	Claystone, dark-yellowish-brown, silty------	.1	287.7
	Siltstone, dark-yellowish-brown, laminated, clayey--------------------------------	.5	288.2
	Claystone, light-olive-gray, silty, olive gray in lower half-----------------------	3.05	291.25
	Claystone, dusky-yellowish-brown, silty-----	.05	291.3
	Lignite-------------------------------------	2.7	294
	Claystone, dark-greenish-gray, silty--------	7.8	301.8
	Siltstone, light-olive-gray, laminated, very slightly clayey---------------------	4.7	306.5
	Claystone, silty, siltier below, light-gray-	.8	307.3
	Siltstone, light-gray, laminated, slightly clayey----------------------------------	3.6	310.9
	Claystone, very light gray, silty-----------	1.2	312.1
	Siltstone, light-gray, laminated, clayey----	2.1	314.2
	Claystone, olive-gray, silty, moist. A 0.01 ft coal seam at base-----------------	.5	314.7
	Siltstone, light-gray, clayey, laminated----	1.1	315.8
	Claystone, olive-gray, silty----------------	.3	316.1
	Siltstone, light-gray, clayey---------------	.3	316.4
	Sandstone, medium-gray, very fine-----------	.2	316.6
	Claystone, olive-gray, silty----------------	.5	317.1
	Sandstone, medium-gray, fine to medium------	3.4	320.5
	Claystone, olive-gray, silty, wet, mollusk shells at base-------------------	1.2	321.7
	Abundant fragmented small pelecypods (1/4 in. or 0.02 ft across) in clay matrix, olive gray-------------------------------	.1	321.8
	Claystone, with scattered mollusk shells, olive-gray, silty, light gray, dry---------	1.6	323.4
	Sandstone, medium-gray, very fine, very light-gray-------------------------------	.2	323.6
	Siltstone, light-gray, clayey, laminated----	1.1	324.7
	Sandstone, with scattered mollusk shells, light-gray, very fine---------------------	.4	325.1
	Siltstone, scattered mollusk shells, light-gray, clayey-----------------------------	.5	325.6
	Sandstone, very light gray, hard, calcareous cemented, very fine, laminated and slightly cross bedded---------------------	.8	326.4
	Siltstone, light-gray, laminated, clayey----	.4	326.8
	Claystone, light-gray, silty, calcareous-cemented, harder in 327.4 to 327.7 ft interval----------------------------------	4.1	330.9
	Siltstone, light-gray, clayey---------------	.8	331.7
	Claystone, very light gray, silty. Small FeS_2 concretion at 332.2 ft depth---------	.7	332.4
	Siltstone, light-gray, laminated, very clayey. A 0.04 ft FeS_2 concretion at base--------------------------------------	2.1	334.5

137-089-10BCA, Continued
Drill hole 10
(Log from U.S. Geological Survey Conservation Division)

Altitude: 2415 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
Tongue River Formation, Continued:			
	Claystone, light-gray, silty	4.0	338.5
	Siltstone, light-gray, clayey, slightly laminated	.4	338.9
	Claystone, very light gray, very silty	.4	339.3
	Siltstone, medium-gray	.1	339.4
	Claystone, olive-gray, laminated, very silty	3	342.4
	Concretion, medium-light-gray, hard, a aphanitic, calcareous	.6	343
	(Core ground up). Claystone, olive-gray, slightly silty. Approximately 1 ft dark to dusky-yellow-brown in lower part	13	356
	(Driller's report). Sandstone or siltstone, medium-gray, very fine	1	357
	(Footage approximate). Claystone, olive-gray, silty, with scattered shells 357.25 to 357.4 ft depth	.4	357.4
	Coquina of mollusk shells in a matrix of silty claystone, dusky-yellowish-brown	.9	258.3
	Claystone, dark to dusky-yellow-brown, silty, siltier lowest 0.1 ft	.6	358.9
	Lignite, attrital. At 359.13 ft is 0.03 ft FeS_2 layer and at 360.15 ft are 0.08 ft irregular FeS_2 veinlets in the lignite	5.9	364.8
	Claystone, olive-gray, silty	4.3	369.1
	Siltstone, light-olive-gray, clayey	.2	369.3
	Claystone, olive-gray, silty	.1	369.4
	Lignite	.4	369.8
	Claystone, dusky-yellowish-brown, silty	1.2	371.0
	Lignite	.6	371.6
	Claystone, olive- to light-olive-gray, very silty, carbonaceous	.5	372.1
	Siltstone, light-olive-gray, clayey, with a small number of coal seams	.3	372.4
	Sandstone, or siltstone, light-gray, very fine	8.1	380.5
	Siltstone, with minor number of coal seams 0.01 ft thick. A FeS_2 concretion 0.06 ft thick at base. Dark-greenish-gray, laminated, very clayey	1.3	381.8
	Claystone, dusky-brown, carbonaceous	.2	382
	Claystone, olive to dark-olive-gray, silty	.7	382.7
	Claystone, dusky-yellowish-brown, about one-half irregular coal seams 0.01 ft thick	.1	382.8
	Lignite	.9	383.7
	Claystone, brownish-black with 20 percent of unit coal in seams	.5	384.2
	Lignite	.48	384.68
	Claystone, light-olive-gray	.02	384.7
	Lignite, clayey lignite at 385.15 to 385.30 ft	.7	385.4
	Claystone, light-olive-gray, slightly silty	4.6	390

137-090-29ABB
(Log from U.S. Geological Survey Conservation Division)

Altitude: 2125 ft

Geologic source	Material	Thickness (feet)	Depth (feet)
	Sandstone	25	25
	Sandstone and gravel	15	40
	Sandstone and gravel	15	55
	Sandstone and gravel	45	100
	Sandstone, fine-grained	40	140
	Sandstone; calcareous layer at 143.5 ft	5	145
	Sandstone	30	175
	Sandstone and claystone	15	190
	Claystone	5	195
	Sandstone and claystone; calcareous layer at 199.0 ft	5	200
	Sandstone and claystone; calcareous layer at 201.5 ft	5	205
	Claystone	15	220
	Sandstone	10	230
	Claystone	10	240
	Sandstone and claystone; soft sandstone at 443 ft; water flow at 450 ft	210.6	450.6
	Sandstone, soft	10.2	460.8
	Sandstone, fine-grained, calcareous; 0.15 ft of lignite	20	480.8
	Sandstone and siltstone; 0.15 ft of lignite	7.5	488.3
	Claystone and siltstone	15.3	503.6
	Claystone and siltstone	5.7	509.3
	Sandstone, fine-grained, hard	12	521.3

LOCATION: 137-090-30AAC

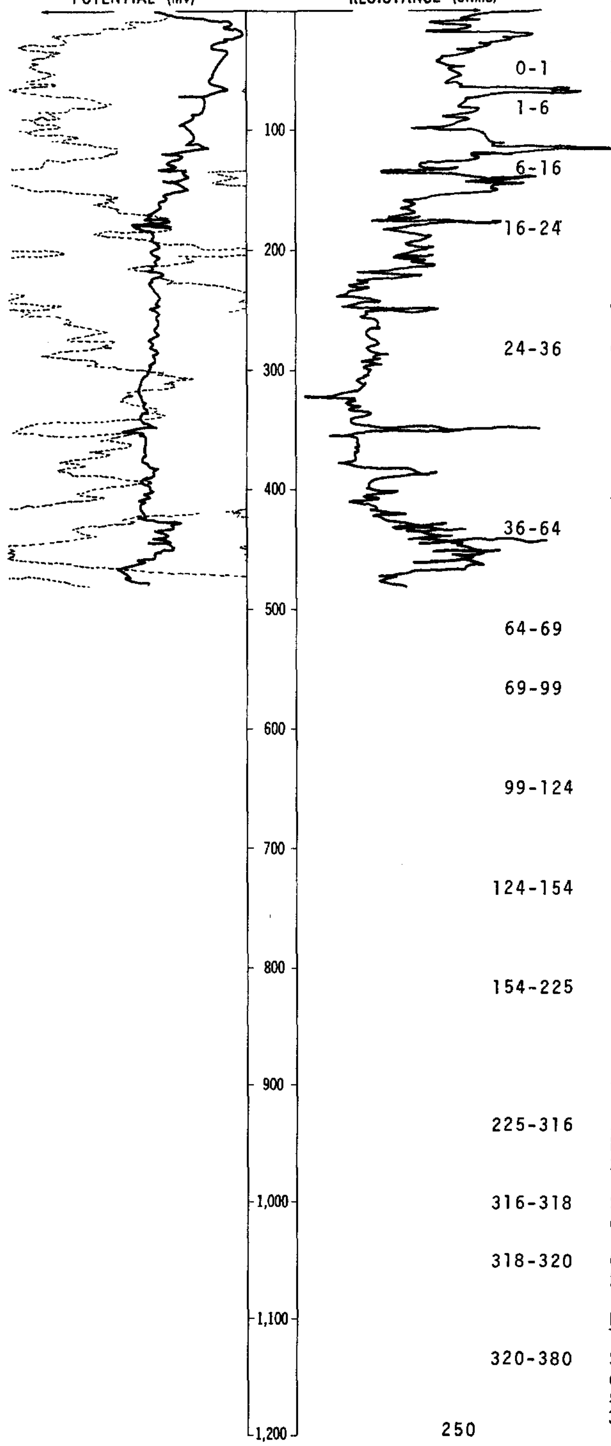
DATE DRILLED: May 1973

ALTITUDE: 2100
(FT, MSL)

DEPTH: 500
(FT)

Gamma log--------
(T.C. 8)
POTENTIAL (MV)

RESISTANCE (OHMS)



DESCRIPTION OF DEPOSITS

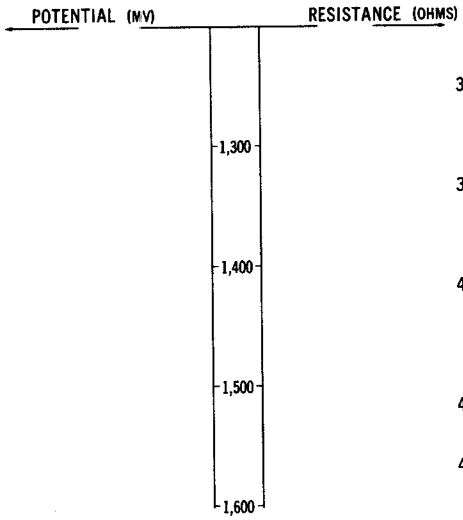
	Alluvium
0-1	Topsoil, dark-brown, silty.
1-6	Silt, yellowish-brown, sandy, oxidized, dry.
6-16	Silt, dusky-yellow, sandy, oxidized, damp.
16-24	Sand, medium to coarse, subangular to subrounded, oxidized; predominantly carbonates and silicates with iron-stained surfaces.
24-36	Gravel, fine, subrounded; some cobbles and coarse sand; predominantly detrital shale, silicates, and carbonates with iron-stained surfaces.
	Tongue River Formation
36-64	Sandstone, light-olive-gray, very fine to fine; interbedded with thin lenses of bentonitic to sandy clay.
64-69	Sandstone, light-gray, fine, indurated.
69-99	Sandstone, light-olive-gray, very fine to fine, quartzose; interbedded with thin lenses of carbonaceous clay.
99-124	Sandstone, brownish-gray, fine to medium, subangular; indurated 114-117 ft; carbonaceous streaks.
124-154	Sandstone, greenish-gray, very fine to medium; interbedded with carbonaceous shale and lignite seams.
154-225	Sandstone, greenish-gray, very fine to fine, clayey; interbedded with thin lenses of indurated fossiliferous sandstone; carbonaceous streaks.
225-316	Shale, dark-gray, silty, bentonitic; indurated 247-248 ft.
316-318	Shale, black, tight, carbonaceous.
318-320	Clay, light-gray, bentonitic.
	Ludlow Formation
320-380	Shale, dark-brown, tight, carbonaceous; indurated sandstone concretions 347-350 ft.

LOCATION: 137-090-30AAC

ALTITUDE: 2100 (FT, MSL)

DATE DRILLED: May 1973

DEPTH: 500 (FT)



DESCRIPTION OF DEPOSITS

Cannonball Formation

380-392	Sandstone, grayish-green, fine to medium, subangular, loose; flows about 10 gal/min.
392-427	Sandstone, brownish-green, very fine to medium, clayey; carbonaceous streaks.
427-467	Sandstone, brownish-green, fine to medium, subangular, loose, quartzose; carbonaceous streaks; flows about 100 gal/min.
467-483	Shale, dark-gray to brown, silty, hard, carbonaceous.
483-500	Sandstone, greenish-brown, very fine to fine; interbedded with thin lenses of carbonaceous shale and siltstone.

137-090-33DD
(Log from M & R Drilling Co.)

Geologic source	Material	Thickness (feet)	Depth (feet)
	Clay, yellowish-brown	20	20
	Clay, gravelly	2	22
	Sand, yellowish-brown	33	55
	Sand, bluish-gray	17	72
	Shale, bluish-gray	26	98
	Sandstone, unconsolidated	119	217
	Shale, bluish-gray	28	245
	Sandstone, cemented	2	247
	Shale, bluish-gray	124	371
	Sandstone, cemented	1	372
	Shale, bluish-gray	3	375
	Sandstone, cemented	4	379
	Shale, bluish-gray	6	385
	Sandstone, cemented	1	386
	Shale, bluish-gray	78	464
	Sandstone	12	476
	Sandstone, cemented	2	478
	Sandstone	7	485
	Shale, bluish-gray	15	500

TABLE 4.--Chemical analyses of ground water for major constituents

AQUIFER/ LOCAL WELL NUMBER	DEPTH OF WELL (FT)	DATE OF SAMPLE	DIS- SOLVED SILICA (SiO_2) (MG/L)	DIS- SOLVED IRON (Fe) (μG/L)	DIS- SOLVED MAN- GANESE (Mn) (μG/L)	DIS- SOLVED CAL- CIUM (Ca) (MG/L)	DIS- SOLVED MAG- NE- SIUM (Mg) (MG/L)	DIS- SOLVED SODIUM (Na) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO_3) (MG/L)	CAR- BONATE (CO_3) (MG/L)	DIS- SOLVED SULFATE (SO_4) (MG/L)	DIS- SOLVED CHLO- RIDE (Cl) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (NO_3) (MG/L)	DIS- SOLVED BORON (B) (μG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180°C) (MG/L)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	SPECIFIC CONDUCT- ANCE (μMHOS/CM @ 25°C)	PH (UNITS)	TEMPER- ATURE (DEG C)
Glacial-drift aquifers																								
130-079-19CCB	150	8-19-71	30	0	50	59	22	380	7.7	780	0	390	7.4	0.6	2.5	1400	1290	240	0	77	11	1900	8.1	7.0
130-080-03ABB	190	8-16-71	27	1300	10	41	22	360	5.2	700	0	360	27	1.0	2.5	1200	1220	190	0	80	11	1830	8.0	7.0
130-080-14CDD	163	5-10-73	27	570	80	45	29	270	7.0	670	0	240	9.2	.6	1.0	410	960	230	0	71	7.9	1460	8.0	10.0
130-080-23DDD	190	8- -71	28	0	10	38	22	430	5.5	770	0	460	3.1	.8	2.5	1200	1430	180	0	83	14	2050	7.9	7.0
131-080-33ADD	160	8-17-71	24	200	110	44	18	240	5.4	550	10	230	14	1.0	2.5	1100	883	180	0	74	7.9	1320	8.4	7.0
131-080-33BAA	168	8-18-71	24	0	100	48	25	220	5.8	530	0	250	9.8	.8	2.5	1100	869	220	0	68	6.5	1330	8.1	7.0
132-082-10CBC	128	11-23-71	23	680	630	52	21	140	5.1	530	0	85	4.2	1.1	1.0	530	592	220	0	58	4.1	916	8.0	8.0
132-082-19BDD	64	11-23-71	19	2100	10	52	10	88	3.3	390	0	51	1.1	.6	1.0	350	413	170	0	52	2.9	662	7.7	8.0
132-083-19CDC	104	12- 3-71	20	280	90	7.6	1.9	410	1.6	820	0	230	1.5	.7	1.0	1100	1060	27	0	97	34	1670	8.1	--
132-083-29CCC	243	8-26-71	27	1900	10	57	22	180	4.2	600	0	49	60	.8	2.5	710	684	230	0	62	5.0	1150	7.9	10.0
132-083-30BCB	212	11-16-71	26	13000	30	110	4.4	270	4.4	880	0	130	5.1	3.0	1.0	0	1050	290	0	67	6.9	1530	8.2	8.0
132-083-31DBA	138	11-18-71	22	2300	360	60	17	130	4.5	530	0	59	8.2	.5	1.0	620	547	220	0	55	4.9	877	7.9	8.0
132-083-35DDC1	290	8-25-71	23	630	20	15	6.7	400	2.7	820	0	250	5.4	2.1	1.0	1900	1090	65	0	93	22	1700	8.0	8.0
132-083-35DDC2	93	8-25-71	20	3300	20	71	23	94	4.5	440	0	130	1.8	.6	1.0	440	525	270	0	42	2.5	858	7.9	7.0
132-084-01DAA	68	11-15-71	22	15000	140	64	19	29	4.8	360	0	15	.0	.7	1.0	220	321	240	0	20	.8	558	8.0	8.0
132-084-12CCD	216	7-26-72	24	580	130	47	20	320	5.4	770	0	270	.6	.6	1.0	1400	1120	200	0	77	9.9	1610	8.1	8.0
133-079-29ABA	113	5- 8-73	21	180	470	67	52	520	11	950	0	700	10	.6	1.0	970	1870	380	0	74	12	2630	8.0	10.0
133-080-12DDD	134	8-11-71	19	6500	160	22	7.5	500	4.7	690	5	600	3.3	.7	3.6	1300	1540	86	0	92	23	2210	8.3	7.0
133-083-07CCB1	124	11-11-71	22	3200	0	26	6.3	380	3.2	620	0	370	2.5	1.5	1.0	980	1110	91	0	90	17	1710	8.1	8.5
133-083-12ADA2	84	5-17-73	27	1300	240	66	32	290	6.6	760	0	270	5.3	.5	1.0	790	1030	300	0	67	7.3	1590	7.8	8.0
133-083-17DAA	244	11-12-71	26	820	0	28	9.0	420	3.4	830	0	280	43	2.0	1.0	1600	1210	110	0	89	18	1900	8.1	8.5
133-083-21ABB	84	11-12-71	20	2100	10	39	10	500	3.7	820	0	530	5.6	1.9	1.0	1200	1520	140	0	88	18	2290	8.1	8.0
133-083-28AAB	98	11-13-71	21	4500	10	88	35	390	6.8	660	0	680	2.1	.9	2.5	620	1600	360	0	70	8.9	2210	7.9	8.0
133-083-28DCD	165	11-13-71	25	3300	120	160	65	180	8.6	730	0	480	1.4	.6	1.0	710	1320	660	61	37	3.1	1850	7.9	8.0
133-084-01DCC	99	5-17-73	15	0	160	28	12	240	3.7	510	3	200	4.5	1.4	1.0	630	736	120	0	81	9.4	1170	8.3	8.0
134-079-23C	50	4-11-59	19	20	100	51	27	54	5.9	360	0	33	4.2	.4	20	200	387	240	0	32	1.5	648	7.3	8.5
134-079-32ADD	288	10-23-73	24	120	160	17	6.4	380	3.8	920	0	140	6.6	1.3	1.0	2100	1040	69	0	92	20	1670	8.2	9.0
136-085-05ABB	138	8-31-71	26	5700	20	34	25	500	6.6	880	0	510	2.8	1.4	1.0	400	1510	190	0	85	16	2280	8.2	7.5
136-085-08DDD	98	8-31-71	21	2200	30	59	39	180	5.0	580	0	220	4.5	.7	1.0	130	819	310	0	56	4.6	1250	7.9	8.5
136-085-09BCD	178	8-31-71	24	2200	20	34	31	580	7.0	930	0	630	4.9	3.2	1.0	130	1790	210	0	85	17	2580	8.1	7.5
Tongue River aquifers (TR)																								
131-090-04CAA	230	9- 9-71	11	360	10	61	21	140	13	420	0	210	.9	.1	1.0	350	665	240	0	55	4.0	1040	7.7	--
131-090-04DDC1	210	9- 9-71	16	0	40	71	27	12	3.6	280	0	61	5.4	.1	31	40	368	290	59	8	.3	581	8.0	8.8
132-086-21BCB	Spring	11-15-71	16	0	0	92	34	120	4.4	410	0	310	.0	.4	2.0	530	790	370	33	41	2.7	1180	7.7	9.5
132-090-14AAB2	90	6-29-73	7.1	380	30	11	6.0	600	4.3	640	0	800	2.6	.2	1.0	750	1720	52	0	96	36	2620	8.2	8.5
133-089-15ABB	240	3-16-70	11	3100	--	4.6	1.1	480	2.7	1090	17	70	41	.4	3.0	1300	1380	16	0	98	52	1910	8.4	--
133-089-32BDA2	146	9-15-71	11	2800	20	120	68	370	5.6	520	0	880	8.6	.1	1.0	270	1710	570	140	58	6.7	2360	7.7	--
134-087-13BDD2	70	4-26-72	13	1300	490	79	41	20	4.4	280	0	81	40	.2	33	0	454	370	130	10	.4	756	7.7	8.0
134-089-22DBB3	68	9-25-72	15	1800	300	140	55	45	5.3	440	0	300	12	.2	1.0	300	834	580	220	14	.8	1100	7.6	--
134-089-27ABC1	69	9-25-72	13	1900	440	200	88	45	4.7	450	0	580	22	.2	2.0	170	1250	870	500	10	.7	1610	7.8	--
135-089-22CDD	201	5- 7-73	.9	940	40	11	6.4	330	1.5	670	23	160	18	4.2	1.0	0	926	54	0	93	20	1350	8.5	7.5
135-090-23BBB2	283	5-30-73	7.0	260	20	6.8	1.5	530	3.6	870	19	400	6.2	3.0	.90	530	1400	23	0	98	48	2170	8.5	9.0

AQUIFER/ LOCAL WELL NUMBER	DEPTH OF WELL (FT)	DATE OF SAMPLE	DIS-SOLVED SILICA (SiO_2) (MG/L)	DIS-SOLVED IRON (Fe) (µG/L)	DIS-SOLVED MAN-GANESE (Mn) (µG/L)	DIS-SOLVED CAL-CIUM (Ca) (MG/L)	DIS-SOLVED MAG-NE-SIUM (Mg) (MG/L)	DIS-SOLVED SODIUM (Na) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO_3) (MG/L)	CAR-BONATE (CO_3) (MG/L)	DIS-SOLVED SULFATE (SO_4) (MG/L)	DIS-SOLVED CHLO-RIDE (Cl) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRATE (NO_3) (MG/L)	DIS-SOLVED BORON (B) (µG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180°C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	SPECIFIC CONDUCT-ANCE (µMHOS/CM @ 25°C)	PH (UNITS)	TEMPER-ATURE (DEG C)
Cannonball aquifers (C)																								
129-088-05DDD3	180	7- 4-73	8.8	50	0	5.1	1.8	430	1.4	790	0	210	39	2.2	.22	2200	1140	20	0	98	42	1670	8.0	13.0
129-088-05DDD3	180	7- 4-73	8.2	40	0	4.6	2.3	410	2.7	780	7	210	39	3.0	2.5	1900	1080	21	0	97	39	1710	8.3	13.0
129-088-31DDA	312	8-16-71	15	240	140	62	22	420	3.9	590	0	670	6.4	.3	.20	620	1460	240	0	79	12	2150	7.9	--
129-089-18DDA	245	8-12-71	10	0	40	31	6.7	610	5.3	600	0	890	7.5	.5	2.5	2000	1920	100	0	92	26	2730	8.1	--
129-089-20BCC1	225	8-12-71	11	0	10	13	2.8	510	3.4	670	0	620	5.4	.7	2.0	1800	1530	44	0	96	34	2260	8.0	--
129-089-20BCC2	250	8-12-71	10	0	40	34	9.2	640	5.5	610	0	1000	5.3	.2	.20	1000	2010	120	0	91	25	2900	8.1	9.5
129-089-24DDD1	222	8-16-71	9.8	0	30	12	1.9	500	2.0	740	14	480	1.5	1.2	2.5	890	1390	38	0	96	35	2160	8.4	--
129-089-24DDD2	210	8-16-71	10	0	20	23	4.7	470	2.3	720	6	510	2.6	1.1	2.5	1100	1330	77	0	93	23	2000	8.3	--
130-090-04BBD	65	9- 7-71	13	600	50	38	36	520	3.9	690	0	740	13	.2	8.6	580	1700	240	0	82	15	2510	8.2	--
130-090-10DDD	210	9- 8-71	12	0	80	27	8.4	760	4.5	1050	0	870	3.5	.2	2.9	1100	2170	100	0	94	33	3100	8.2	--
131-086-04ADA	Spring	11-15-71	16	680	30	59	9.2	77	2.1	290	0	120	.3	.6	1.0	40	412	180	0	47	2.5	680	8.0	9.5
131-087-28CDD	326	11- 5-71	11	0	10	42	42	420	3.8	620	7	630	2.3	1.0	50	620	1510	280	0	76	11	2200	8.3	--
131-087-32CDC	327	11- 5-71	13	0	0	58	16	110	4.2	340	0	150	7.8	.6	39	40	546	210	0	53	3.4	897	8.2	7.5
131-087-33CBA	317	11- 5-71	6.4	0	60	16	5.1	240	2.7	480	0	200	1.3	.4	1.0	890	691	61	0	89	14	1120	8.0	7.0
132-084-06CCC	170	11-11-71	16	4800	110	11	18	540	1.4	630	0	720	.0	1.2	1.0	2700	1570	100	0	92	23	2390	8.1	9.0
132-088-22DAC	148	7-11-49	--	1500	--	61	28	810	--	570	0	1300	32	.2	7.0	--	2840	270	--	--	--	4680	7.9	8.0
132-090-14AAB1	314	7- 2-73	9.1	600	80	5.0	2.6	470	3.6	1020	19	130	52	1.7	1.0	1400	1230	23	0	97	43	1890	8.5	10.0
134-085-21BAB3	205	6-28-73	18	50	40	100	57	43	5.3	420	0	220	4.3	.4	.89	130	709	490	140	16	.9	1010	7.5	10.5
134-085-21BAB3	205	6-28-73	16	0	40	100	61	42	6.5	430	0	230	3.7	.2	.40	60	656	500	150	15	.8	1010	7.9	10.5
134-090-35DAC	560	9-26-72	9.9	700	60	2.6	.4	530	1.5	1240	0	13	97	2.7	1.0	2000	1150	8	0	99	81	2050	8.1	--
134-090-35DBD	431	5-22-52	--	100	--	6.4	.0	620	--	1200	170	.0	68	.5	2.1	--	2070	16	--	--	--	--	8.9	--
134-090-35DBD	431	5-23-52	--	500	--	5.6	.0	630	--	1170	180	.0	66	.5	21	--	2080	14	--	--	--	--	9.2	--
134-090-35DBD	431	9-26-72	10	820	10	2.5	.5	530	1.4	1190	0	7.4	100	4.0	1.9	2300	1210	8	0	99	81	2000	7.9	9.0
136-087-36AAB1	225	2-14-66	--	1900	--	--	--	650	--	1180	96	80	160	--	.00	--	1500	10	0	99	90	2300	8.5	--
137-090-30AAC	453	5-24-73	9.9	50	10	2.8	1.5	770	2.5	1890	17	44	53	1.2	.04	1700	1870	13	0	99	92	2780	8.4	10.5
137-090-30AAC	453	5-24-73	9.7	280	20	3.6	9.2	760	4.0	1880	41	39	53	1.5	1.0	970	1770	47	0	97	48	2830	8.5	10.5
Hell Creek aquifers (HC)																								
129-081-34BAA	225	12-13-71	24	140	30	6.9	1.9	420	1.6	740	0	340	1.5	.9	1.0	2000	1200	25	0	97	37	1800	7.9	--
129-083-26DAA	200	12- 9-71	18	0	10	7.4	2.1	170	.5	340	0	120	4.5	.4	1.0	710	483	27	0	93	14	765	7.6	--
129-084-21CDA	300	12- 9-71	10	0	20	10	1.2	420	1.4	710	0	340	.0	.6	1.0	890	1140	30	0	97	33	1750	8.0	--
129-085-26CCC1	280	8-19-71	5.4	0	50	110	43	320	4.0	660	0	540	7.8	.3	7.5	1400	1430	450	0	60	6.5	2020	8.1	--
129-086-04CDD1	56	8-18-71	10	0	10	4.7	.4	330	1.2	680	13	140	1.7	2.9	1.0	2100	816	13	0	98	39	1320	8.5	--
129-088-05DDD1	466	7- 4-73	9.1	260	20	3.4	2.3	500	2.9	840	24	23	270	3.2	1.0	2200	1290	18	0	98	51	2120	8.5	12.0
129-088-05DDD2	348	7- 4-73	11	420	30	3.3	1.1	440	.8	870	0	110	60	4.3	.04	2200	1100	13	0	99	54	1670	8.3	11.0
129-088-05DDD2	348	7- 4-73	9.8	1100	20	3.8	1.1	420	1.5	830	28	130	61	4.2	1.0	2000	1060	14	0	98	46	1710	8.6	11.0
129-090-19CD	335	4-12-59	8.8	220	10	5.1	1.6	460	2.4	720	0	400	9.6	1.4	1.4	1200	1270	19	0	98	46	1910	8.1	8.5
129-090-29ACA	360	8-11-71	9.0	0	140	11	2.8	480	3.4	590	0	580	3.3	1.3	1.0	1500	1330	39	0	96	33	2050	8.0	9.5
130-081-31BBB2	225	12-10-71	17	0	10	6.7	.4	340	1.3	580	13	250	.0	.4	1.0	440	928	18	0	97	35	1440	8.4	--
130-082-12DDB	250	12-13-71	25	0	130	50	13	420	1.9	770	0	410	19	.1	33	980	1340	180	0	84	14	2000	7.9	--
130-082-34ABD1	145	12-13-71	19	580	10	7.2	1.5	220	.8	410	0	170	4.3	.4	1.0	890	663	24	0	95	20	1040	7.7	--
130-083-25CBC	220	12- 9-71	15	0	20	16	3.9	620	1.3	820	0	740	5.2	.7	1.0	1900	1780	56	0	96	36	2590	7.9	--
130-084-13AAD	160	1-26-66	--	300	--	--	--	510	--	770	0	480	.0	.3	3.0	--	1340	24	0	98	46	2030	8.2	--

AQUIFER/ LOCAL WELL NUMBER	DEPTH OF WELL (FT)	DATE OF SAMPLE	DIS-SOLVED SILICA (SiO_2) (MG/L)	DIS-SOLVED IRON (Fe) (µG/L)	DIS-SOLVED MAN-GANESE (Mn) (µG/L)	DIS-SOLVED CAL-CIUM (Ca) (MG/L)	DIS-SOLVED MAG-NE-SIUM (Mg) (MG/L)	DIS-SOLVED SODIUM (Na) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO_3) (MG/L)	CAR-BONATE (CO_3) (MG/L)	DIS-SOLVED SULFATE (SO_4) (MG/L)	DIS-SOLVED CHLO-RIDE (Cl) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRATE (NO_3) (MG/L)	DIS-SOLVED BORON (B) (µG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180°C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	SPECIFIC CONDUCT-ANCE (µMHOS/CM @ 25°C)	PH (UNITS)	TEMPER-ATURE (DEG C)
Hell Creek aquifers (HC), Continued																								
130-084-31AAA1	466	7-10-73	7.3	150	70	120	49	900	6.4	500	0	1900	83	0.3	28	1200	3320	500	94	79	17	4260	8.0	13.5
130-086-28CCC2	210	6-10-73	19	50	0	5.6	1.4	440	1.4	820	0	240	45	3.2	1.5	3200	1200	20	0	98	43	1800	8.1	11.0
130-086-28CCC2	210	7-10-73	18	230	10	4.3	2.1	440	2.4	800	8	260	43	2.9	.40	2000	1180	19	0	98	44	1830	--	11.0
130-088-22CDD	350	11- 3-71	11	0	10	4.0	1.7	410	1.2	890	19	7.9	97	4.4	1.8	2000	1040	17	0	98	43	1680	8.5	8.5
130-090-09ADA	233	6-16-67	--	1900	--	--	--	590	--	1060	0	400	14	--	.00	--	1520	24	0	98	52	2280	7.8	--
131-081-31DBC	200	12-15-71	16	120	10	4.9	.5	430	1.4	970	0	100	30	3.4	2.0	2200	1090	14	0	98	50	1730	8.0	--
131-081-33ACA	200	12-15-71	17	260	10	12	2.4	590	2.6	980	0	480	18	1.0	1.0	1100	1530	40	0	97	41	2420	8.1	--
131-085-08DDD1	394	11-17-71	18	280	0	4.7	1.6	420	1.2	830	13	19	150	3.2	1.0	170	1040	18	0	98	43	1740	8.4	--
131-087-06BCB1	560	11- 5-71	9.9	100	40	4.4	2.4	420	1.3	740	14	290	13	2.3	2.5	1600	1100	21	0	98	40	1770	8.5	--
132-087-27ADA	180	11-15-72	13	100	80	3.1	.9	430	1.3	930	0	99	80	3.3	1.0	2500	1070	11	0	99	57	1760	8.0	9.5
132-087-27ADA	180	5- 1-73	13	120	0	3.1	.6	440	1.5	840	44	100	69	5.8	.04	1400	1170	10	0	99	60	1780	8.4	9.5
132-087-27ADA	180	5- 1-73	12	160	10	2.6	1.3	440	1.3	900	23	120	70	2.5	1.0	2200	1110	12	0	99	56	1770	8.5	9.5
133-089-04DAD	612	11-14-72	10	4200	20	2.6	.6	500	1.5	1160	19	2.5	100	4.6	1.0	2400	1220	9	0	99	73	1990	8.4	7.5
133-089-04DAD	612	5- 3-73	11	450	10	2.4	.5	480	1.5	1070	61	6.3	110	7.8	.13	2700	1260	8	0	99	74	2020	8.6	12.0
134-089-22BDD	876	3-17-70	12	50	120	2.5	1.5	540	1.5	1260	13	2.9	92	.9	.00	2200	1370	12	0	99	68	2150	8.4	--
135-086-15DDD1	592	6-22-73	15	790	10	2.4	1.9	590	3.7	1170	45	5.8	180	3.6	1.0	2600	1430	14	0	99	69	2360	8.6	11.5
136-087-36ABD	428	11-15-72	13	880	0	2.9	.5	600	1.9	1240	0	1.2	240	5.1	1.0	3200	1520	9	0	99	88	2450	8.1	7.5
136-087-36ABD	428	4-25-73	14	210	0	3.0	.7	610	2.1	1230	0	6.4	250	4.4	.00	4100	1560	10	0	99	82	2450	8.0	10.0
136-088-13AAA	732	5-25-73	11	610	40	2.6	1.8	570	2.6	1170	28	2.9	170	5.9	1.0	1900	1320	14	0	99	66	2270	8.5	12.0
137-089-09ABA1	1026	5-24-73	11	160	20	2.4	.6	600	1.9	1120	42	6.6	230	4.8	.13	3700	1550	9	0	99	90	2480	8.7	12.0
137-089-09ABA1	1026	5-24-73	10	220	40	3.2	.2	620	3.1	1180	45	3.3	230	6.1	.60	1700	1460	9	0	99	91	2480	8.6	12.0
Fox Hills aquifers (FH)																								
129-079-07CBD	210	12-14-71	12	700	10	51	12	310	5.3	580	0	390	.4	.6	2.5	660	1090	180	0	79	10	1600	8.1	--
129-080-23DDD	140	10-19-73	10	0	80	100	58	290	8.6	540	0	670	7.5	.7	1.7	90	1390	490	46	56	5.7	1990	7.8	11.0
129-081-01BAB	104	7-13-73	12	2100	40	11	2.6	610	5.1	900	17	600	13	1.1	1.0	2400	1690	38	0	97	43	2520	8.4	9.0
129-081-25DCC	420	12-13-71	12	0	10	7.8	3.3	450	2.3	840	0	310	7.5	.9	2.0	1900	1230	33	0	96	34	1890	8.0	--
129-087-10BBC	361	11-15-72	9.7	2000	40	3.2	.7	480	1.4	910	0	21	220	2.9	.00	2700	1200	11	0	99	63	2030	8.1	6.5
129-087-10BBC	361	5- 1-73	11	70	10	3.4	.5	490	1.4	880	21	4.9	220	3.7	.00	2400	1200	11	0	99	66	2010	8.5	10.5
130-084-36ABA	417	10-10-73	13	1200	80	7.4	.9	540	2.0	680	11	410	130	2.0	.20	2600	1470	22	0	98	50	2470	8.4	10.0
130-085-17DAA1	245	11-16-72	15	4000	0	3.8	.4	490	1.7	870	0	11	250	2.9	1.0	2400	1280	11	0	99	64	2020	8.1	6.0
130-086-28CCC1	424	7- 5-73	11	0	10	3.8	1.6	510	3.2	870	20	30	250	3.2	.20	2300	1310	16	0	98	55	2130	8.5	11.0
130-089-32DDA	543	11-14-72	9.2	5100	80	3.3	1.2	480	1.4	890	0	9.4	220	3.5	1.0	2400	1170	13	0	99	58	2000	8.0	7.0
131-080-02AD	50	4-11-59	27	2300	250	76	28	680	7.5	1590	0	420	2.4	.3	.10	1700	2020	300	0	82	17	2950	7.2	8.0
131-080-21AAC	240	12-14-71	24	1600	130	40	18	190	5.0	550	0	120	7.5	.5	1.0	660	699	170	0	69	6.2	1100	8.1	--
131-089-30AAA	809	7- 2-73	9.8	980	40	3.9	.6	550	2.6	880	21	10	330	3.4	1.0	2200	1380	12	0	99	72	2330	8.5	13.0
132-082-30ADB	400	12- 9-71	21	340	10	24	5.8	230	1.7	580	0	110	5.6	.4	1.0	660	694	84	0	85	11	1090	8.0	--
132-083-29BBB	400	12- 3-71	17	430	10	5.0	1.6	440	1.3	860	0	220	17	3.2	1.0	2000	1140	19	0	98	44	1760	8.2	--
132-084-16DAA	396	7-11-73	15	1200	10	3.6	1.0	430	3.8	870	0	17	170	4.2	.20	1600	1120	13	0	98	52	1770	8.2	10.0
133-079-27BD		4-11-59	23	1900	0	59	34	480	8.1	920	0	560	6.2	.7	.50	1700	1650	280	0	78	12	2380	7.3	8.0
133-080-31CCD1	180	5-15-73	24	160	180	63	25	65	5.0	440	0	27	3.5	.2	2.5	0	400	260	0	35	1.7	687	8.0	8.5
133-081-35DCB	210	12-15-71	18	100	20	5.6	4.1	540	2.7	980	0	350	53	1.7	1.0	2000	1500	31	0	97	42	2270	8.2	--
133-083-06CDD	307	12- 3-71	18	0	0	3.6	1.2	330	1.0	640	0	190	0	1.4	1.0	620	855	14	0	98	38	1330	8.0	--

AQUIFER/ LOCAL WELL NUMBER	DEPTH OF WELL (FT)	DATE OF SAMPLE	DIS-SOLVED SILICA (SiO_2) (MG/L)	DIS-SOLVED IRON (Fe) (μG/L)	DIS-SOLVED MAN-GANESE (Mn) (μG/L)	DIS-SOLVED CAL-CIUM (Ca) (MG/L)	DIS-SOLVED MAG-NE-SIUM (Mg) (MG/L)	DIS-SOLVED SODIUM (Na) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO_3) (MG/L)	CAR-BONATE (CO_3) (MG/L)	DIS-SOLVED SULFATE (SO_4) (MG/L)	DIS-SOLVED CHLO-RIDE (Cl) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRATE (NO_3) (MG/L)	DIS-SOLVED BORON (B) (μG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180°C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	SPECIFIC CONDUCT-ANCE (μMHOS/CM @ 25°C)	PH (UNITS)	TEMPER-ATURE (DEG C)
Fox Hills aquifers (FH), Continued																								
133-083-12ADA1	230	5-17-73	17	100	20	4.7	1.6	540	2.5	950	19	330	24	2.1	1.0	1900	1410	18	0	98	56	2170	8.4	10.0
133-083-34CBC2	310	12- 1-71	24	2400	160	77	24	260	3.7	780	0	200	29	1.2	2.5	930	1030	290	0	66	6.7	1560	8.0	--
133-085-12AAD	522	11-16-72	17	920	0	3.3	1.0	560	1.8	1130	0	6.2	220	3.4	1.0	3000	1390	12	0	99	70	2270	8.2	7.0
133-085-12AAD	522	4-24-73	18	200	10	3.8	.9	540	2.0	1120	0	15	230	2.9	.00	3100	1390	13	0	99	65	2240	8.3	10.0
134-079-26CC2	96	4-11-59	16	110	30	3.0	1.6	110	1.6	280	4	15	2.4	.5	1.5	330	296	14	0	94	13	476	8.3	12.0
134-080-31BBA2	168	4-23-71	--	100	0	1.0	1.0	500	--	1040	36	10	150	3.2	5.0	--	1730	1	--	--	--	--	8.4	--
134-082-36DCD	157	9- 1-71	11	280	100	9.1	3.8	650	3.4	1050	31	480	56	2.1	3.3	2700	1870	38	0	97	46	2670	8.5	12.0
134-082-36DCD	157	4-24-73	16	300	160	6.2	1.6	650	2.9	1140	0	480	50	2.3	.09	3100	1840	22	0	98	60	2620	8.2	8.0
134-090-36CBC	880	9-26-72	11	1200	20	2.6	1.3	520	1.5	1200	0	12	100	4.2	1.0	2200	1250	12	0	99	66	2000	8.0	--
135-090-23BBB1	1047	5-30-73	9.5	300	80	3.3	1.0	570	2.9	1080	56	20	170	4.6	.30	1900	1280	12	0	99	71	2250	8.8	10.0
137-088-21DDC	923	11-15-72	11	520	0	2.9	1.2	690	2.1	1250	9	1.6	340	5.1	1.0	3000	1730	12	0	99	87	2800	8.3	9.0
137-088-21DDC	923	5-14-73	10	420	20	3.9	.8	670	2.1	1180	33	6.5	350	15	.09	2800	1730	13	0	99	81	2910	8.5	12.0

TABLE 5.--Chemical analyses of water from streams during low flow

DISCHARGE (FT^3/S)	DATE OF SAMPLE	DIS-SOLVED SILICA (SiO_2) (MG/L)	DIS-SOLVED IRON (Fe) (μG/L)	DIS-SOLVED MAN-GANESE (Mn) (μG/L)	DIS-SOLVED CAL-CIUM (Ca) (MG/L)	DIS-SOLVED MAG-NE-SIUM (Mg) (MG/L)	DIS-SOLVED SODIUM (Na) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO_3) (MG/L)	CAR-BONATE (CO_3) (MG/L)	DIS-SOLVED SULFATE (SO_4) (MG/L)	DIS-SOLVED CHLO-RIDE (Cl) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRATE (NO_3) (MG/L)	DIS-SOLVED BORON (B) (μG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180°C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE NESS (MG/L)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	SPECIFIC CONDUCT-ANCE (μMHOS/CM @ 25°C)	PH (UNITS)	TEMPER-ATURE (DEG C)
CANNONBALL RIVER NEAR SHIELDS																							
131-084-03AAD (Upstream from buried-valley aquifer)																							
--	8-31-72	5.4	470	50	76	56	200	11	270	0	630	0.0	0.3	1.0	300	1170	420	200	50	4.2	1590	7.3	13.0
7.4	8-14-73	4.9	140	20	120	120	490	12	390	0	1500	20	.5	2.5	650	2430	800	480	57	7.5	3130	8.1	23.0
14.1	10- 2-73	5.9	0	10	55	59	260	7.5	280	6	660	10	.7	2.5	690	1220	380	140	59	5.8	1710	8.3	16.5
132-083-30DCC (On buried-valley aquifer)																							
--	8-31-72	6.5	340	0	74	52	180	11	250	0	590	.0	.2	2.5	640	1090	400	190	49	4.0	1500	7.4	13.0
7.0	8-14-73	4.4	230	20	210	50	470	12	380	0	1400	17	.5	1.0	650	2370	730	420	58	7.6	3050	8.0	23.0
14.3	10- 2-73	6.6	60	10	53	43	240	7.0	270	3	590	9.6	.3	1.0	340	1120	310	83	62	5.9	1570	8.3	17.0
132-083-08DCD (Downstream from buried-valley aquifer)																							
--	8-31-72	6.7	550	50	72	50	170	11	240	0	560	.0	.3	1.0	520	1010	380	180	48	3.8	1420	7.5	14.0
6.7	8-14-73	4.1	100	20	130	100	460	12	370	0	1400	18	.4	2.5	170	2390	750	440	57	7.3	3000	8.2	23.0
14.6	10- 2-73	7.9	40	10	47	32	210	6.5	250	0	500	8.1	.3	2.0	430	997	250	42	64	5.8	1390	8.2	17.5
HEART RIVER BELOW LAKE TSCHIDA (Low-flow stations)																							
136-086-10CDC																							
8.6	10- 2-73	2.5	0	10	69	50	160	7.5	360	0	440	8.0	.3	1.0	690	941	380	87	47	3.6	1340	8.1	15.5
136-085-09BCC																							
12.9	10- 2-73	3.8	40	20	66	47	180	7.5	410	0	420	8.5	.4	1.0	470	972	360	25	51	4.1	1390	8.2	14.5
136-084-17ACC (Morton County)																							
20.6	10- 2-73	4.2	20	10	62	43	200	6.8	430	0	400	11	.4	1.0	470	979	330	0	56	4.8	1400	8.1	15.0
136-084-29BCD (Morton County)																							
15.4	10- 2-73	4.5	0	10	64	44	200	7.0	430	0	410	9.9	.4	1.0	690	988	340	0	56	4.7	1410	8.2	15.0
BIG MUDDY CREEK NEAR CONFLUENCE WITH HEART RIVER																							
136-085-05ABD																							
1.5	9- 1-72	9.0	1600	20	46	25	169	8.2	360	0	300	3.7	.2	1.0	90	749	220	0	62	5.0	1140	7.2	17.0
.65	10- 2-73	6.7	0	40	45	48	390	8.9	730	6	560	7.5	.6	1.0	470	1540	310	0	73	9.6	2070	8.3	14.5

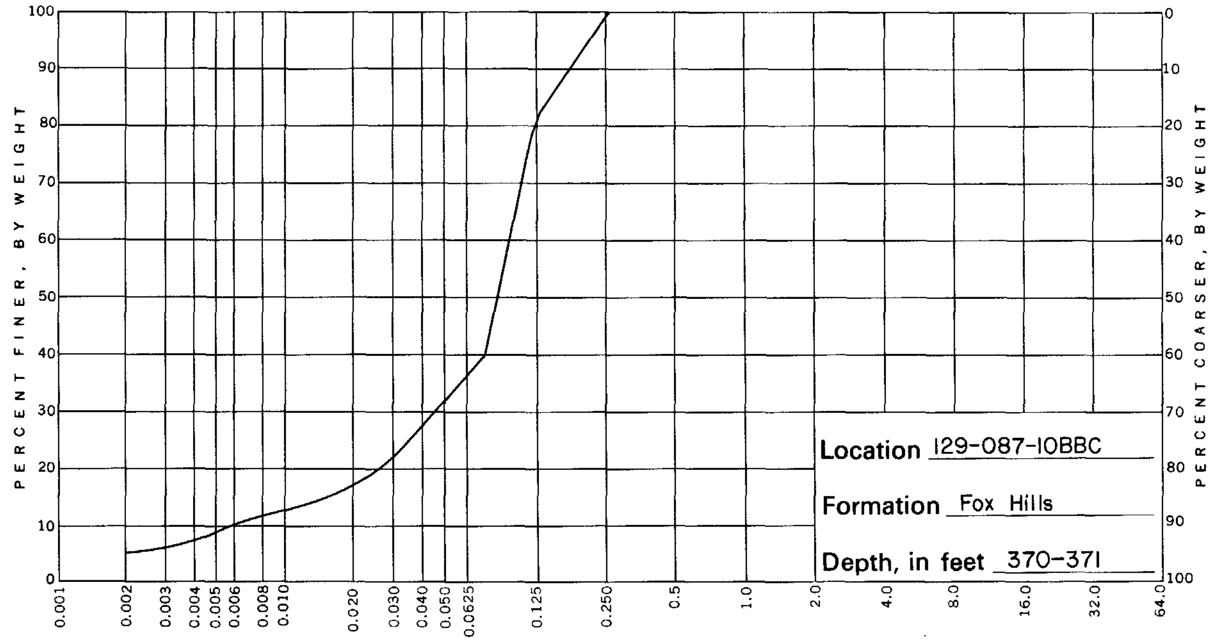
TABLE 6.--Chemical analyses of ground water for minor elements[1]

(Dissolved mineral constituents in micrograms per litre (µg/l), except as indicated)

Location	129-088-05DDD3	134-085-21BAB3	137-090-30AAC	129-088-05DDD2	130-086-28CCC2	132-087-27ADA	133-089-04DAD	136-087-36ABD	137-089-09ABA1	129-087-10BBC	133-085-12AAD	134-082-36DCD	137-088-21DDC
Aquifer	Cannonball (C)			Hell Creek (HC)						Fox Hills (FH)			
Well depth (feet)	180	205	453	348	210	180	612	428	1026	361	522	157	921
Date of collection	7- 4-73	6-28-73	5-24-73	7- 4-73	6-10-73	5- 1-73	5- 3-73	4-25-73	5-24-73	1- 5-73	4-24-73	4-24-73	5-14-73
Color	30	3	40	40	50	50	20	20	30	7	8	30	20
Aluminum (Al)	20	10	0	0	20	20	10	0	10	10	0	0	10
Arsenic (As)	0	0	0	0	9	3	0	0	0	2	0	0	3
Barium (Ba)	0	100	100	0	200	100	0	0	100	0	0	0	0
Beryllium (Be)	0	0	0	0	0	0	0	0	0	0	0	0	0
Cadmium (Cd)	0	0	1	0	1	0	0	0	1	1	0	0	0
Chromium (Cr)	0	0	0	0	0	0	0	0	0	0	0	0	0
Cobalt (Co)	1	1	1	1	2	2	1	1	1	1	0	0	2
Copper (Cu)	6	6	2	7	11	10	9	0	4	3	1	4	4
Cyanide (Cn) (mg/l)	.04	.02	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00
Lead (Pb)	13	24	2	3	5	4	1	2	1	1	2	3	3
Lithium (Li)	40	80	70	50	50	50	60	70	70	60	70	120	80
Mercury (Hg)	.2	.0	.1	.1	.2	.1	.1	.1	.2	.1	.7	.0	.1
Molybdenum (Mo)	9	0	8	21	100	5	7	6	4	9	9	5	4
Nickel (Ni)	4	21	0	3	3	1	9	2	0	0	0	2	1
Phosphorus (P) (mg/l)	.10	.12	.22	.13	.15	.14	.13	.11	.08	.15	.17	.05	.12
Selenium (Se)	6	5	8	8	5	4	5	4	0	3	6	4	6
Silver (Ag)	0	0	0	1	0	0	0	0	0	0	0	0	0
Strontium (Sr)	130	1100	180	100	110	120	120	100	120	130	90	100	170
Vanadium (V)	.9	.7	.5	1.3	.0	1.3	1.5	5.5	5.4	5.6	5.4	.0	4.9
Zinc (Zn)	100	2000	10	100	150	60	20	20	10	30	50	20	30

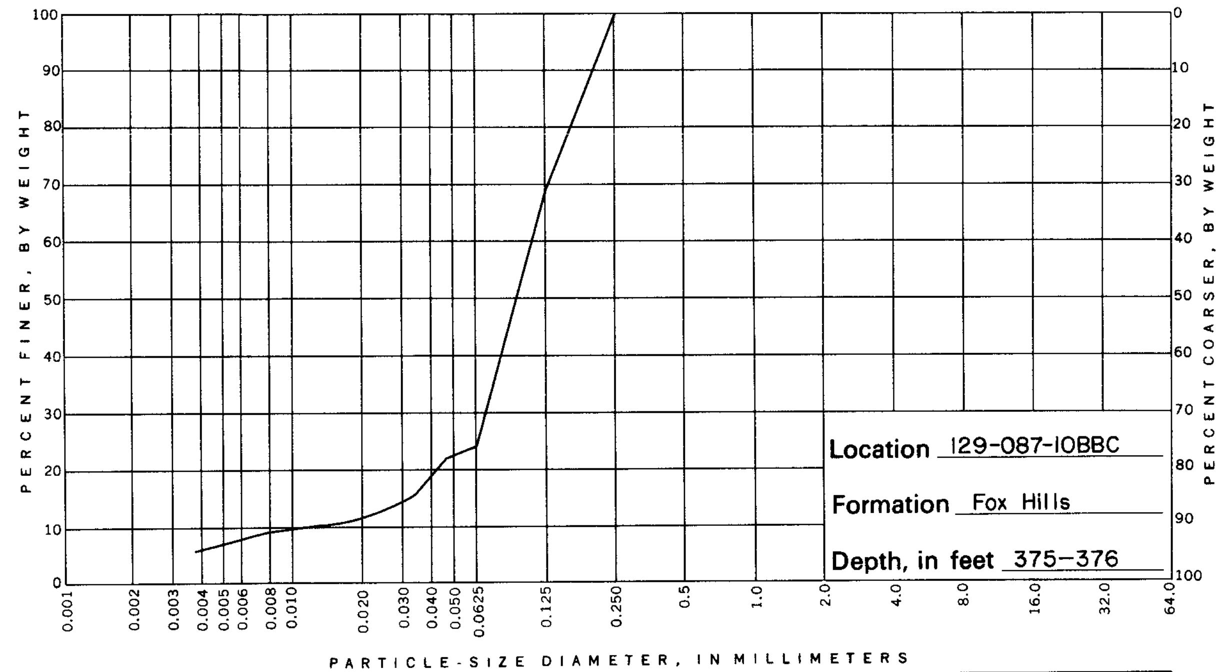
[1]Analyses by the U.S. Geological Survey laboratory, Salt Lake City, Utah.

TABLE 7.--Particle-size distribution graphs

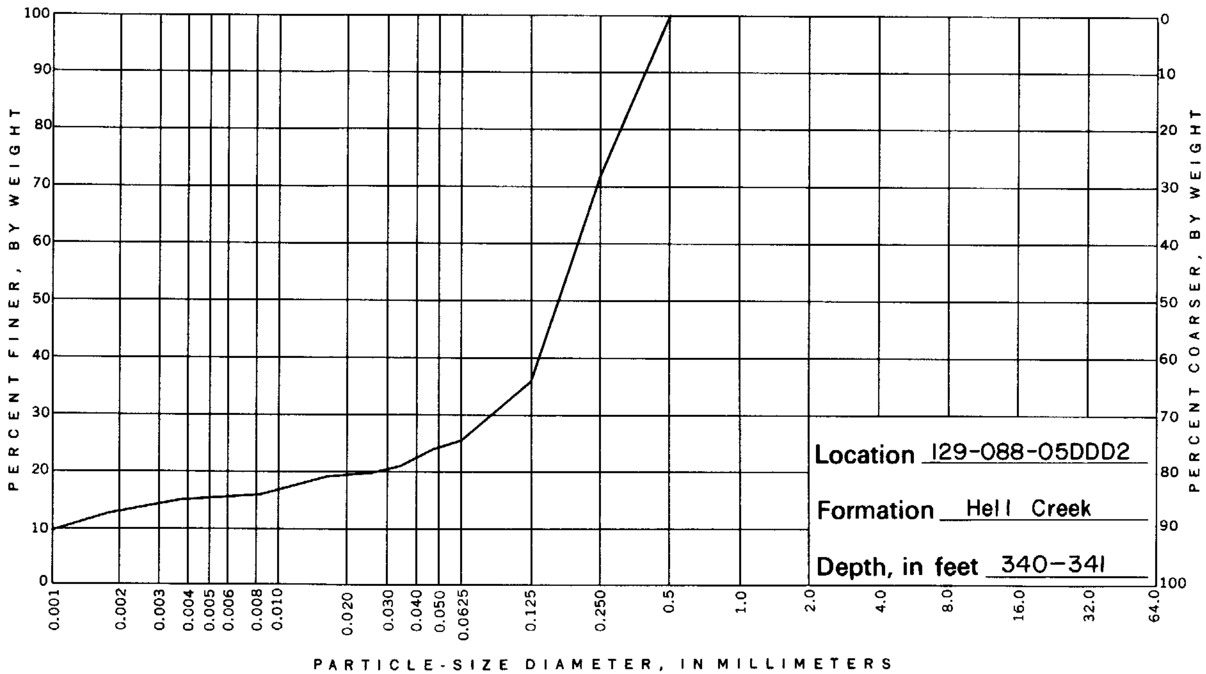


	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES V. FINE .0625-.125	SAND SIZES FINE .125-.25	SAND SIZES MEDIUM .25-.5	SAND SIZES COARSE .5-1	SAND SIZES V. COARSE 1-2	GRAVEL SIZES V. FINE 2-4	GRAVEL SIZES FINE 4-8	GRAVEL SIZES MEDIUM 8-16	GRAVEL SIZES COARSE 16-32	GRAVEL SIZES V. COARSE 32-64
PERCENT OF SIZE	8	19	55	18	0	0	0	0	0	0	0	0

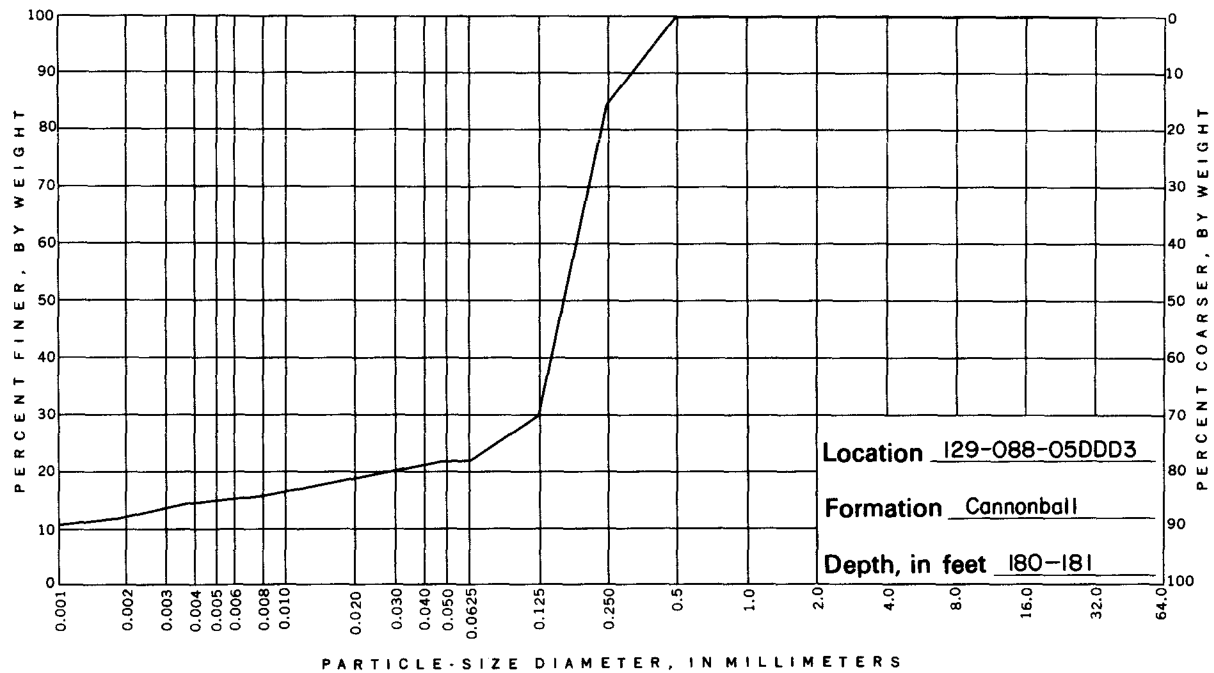
PREPARED BY U.S. GEOLOGICAL SURVEY
HYDROLOGIC LABORATORY DENVER, COLO.



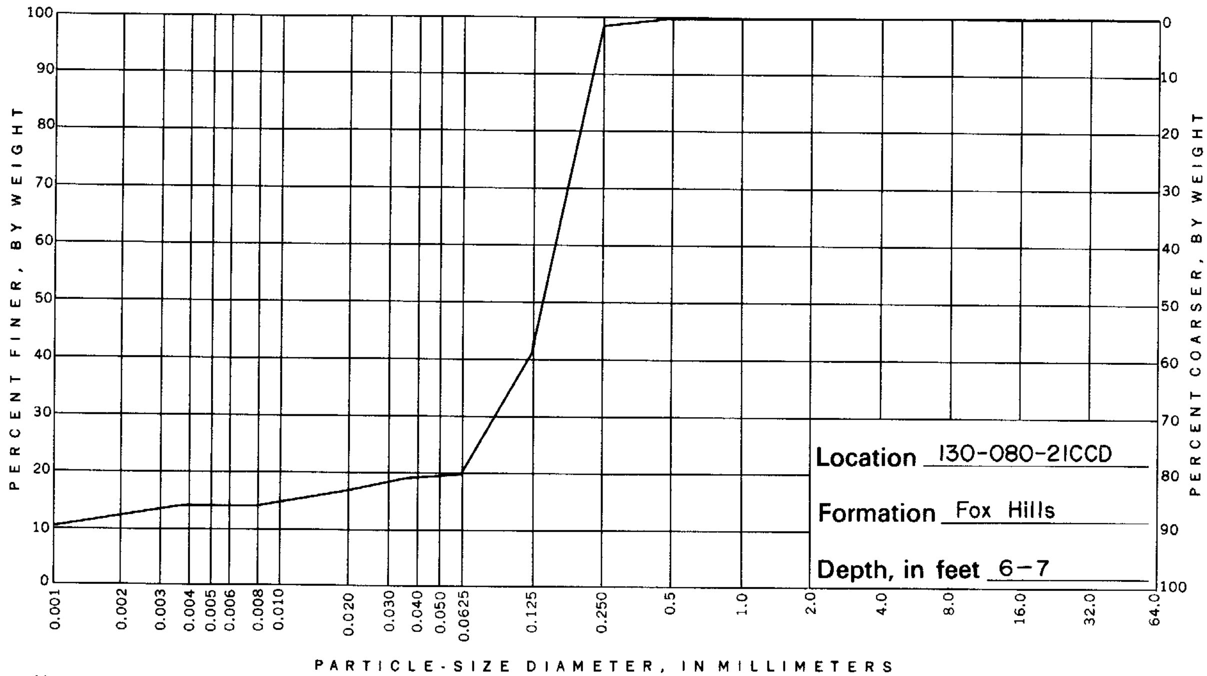
	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES					GRAVEL SIZES				
			V. FINE .0625-.125	FINE .125-.25	MEDIUM .25-.5	COARSE .5-1	V. COARSE 1-2	V. FINE 2-4	FINE 4-8	MEDIUM 8-16	COARSE 16-32	V. COARSE 32-64
PERCENT OF SIZE	6	18	44	31	1	0	0	0	0	0	0	0



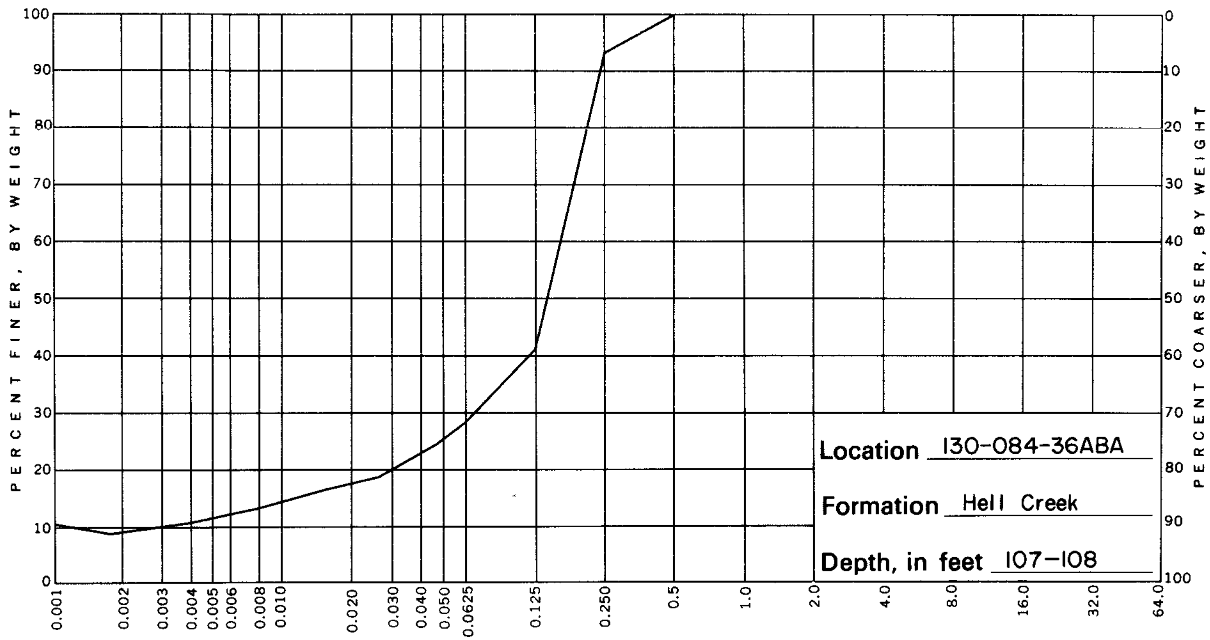
PERCENT OF SIZE	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES V. FINE .0625-.125	SAND SIZES FINE .125-.25	SAND SIZES MEDIUM .25-.5	SAND SIZES COARSE .5-1	SAND SIZES V. COARSE 1-2	GRAVEL SIZES V. FINE 2-4	GRAVEL SIZES FINE 4-8	GRAVEL SIZES MEDIUM 8-16	GRAVEL SIZES COARSE 16-32	GRAVEL SIZES V. COARSE 32-64
	15	11	10	36	28	0	0	0	0	0	0	0



	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES V. FINE .0625-.125	SAND SIZES FINE .125-.25	SAND SIZES MEDIUM .25-.5	SAND SIZES COARSE .5-1	SAND SIZES V. COARSE 1-2	GRAVEL SIZES V. FINE 2-4	GRAVEL SIZES FINE 4-8	GRAVEL SIZES MEDIUM 8-16	GRAVEL SIZES COARSE 16-32	GRAVEL SIZES V. COARSE 32-64
PERCENT OF SIZE	14	7	8	55	15	1	0	0	0	0	0	0

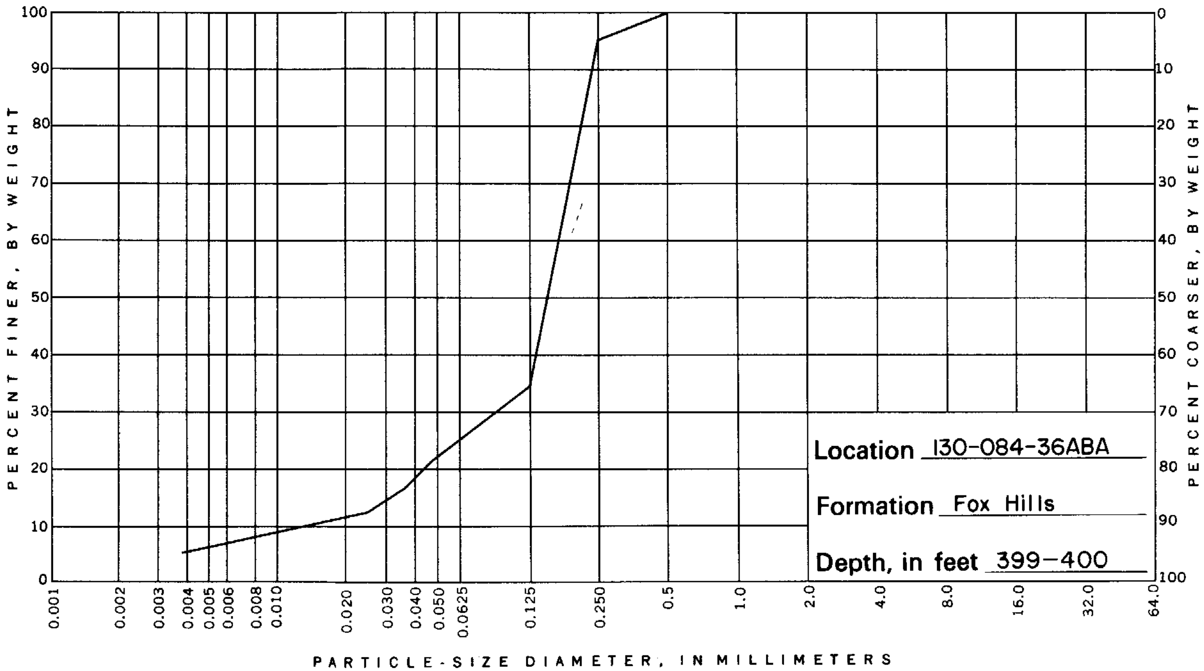


	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES					GRAVEL SIZES				
			V. FINE .0625-.125	FINE .125-.25	MEDIUM .25-.5	COARSE .5-1	V. COARSE 1-2	V. FINE 2-4	FINE 4-8	MEDIUM 8-16	COARSE 16-32	V. COARSE 32-64
PERCENT OF SIZE	14	5	21	58	2	0	0	0	0	0	0	0

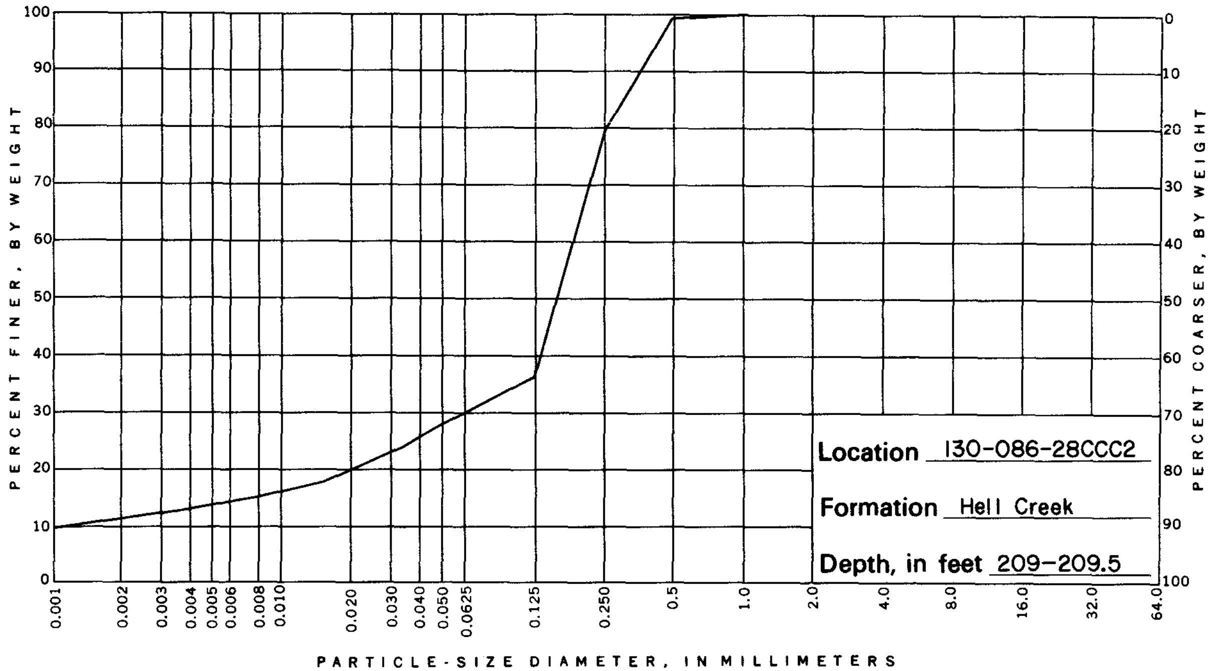


PARTICLE-SIZE DIAMETER, IN MILLIMETERS

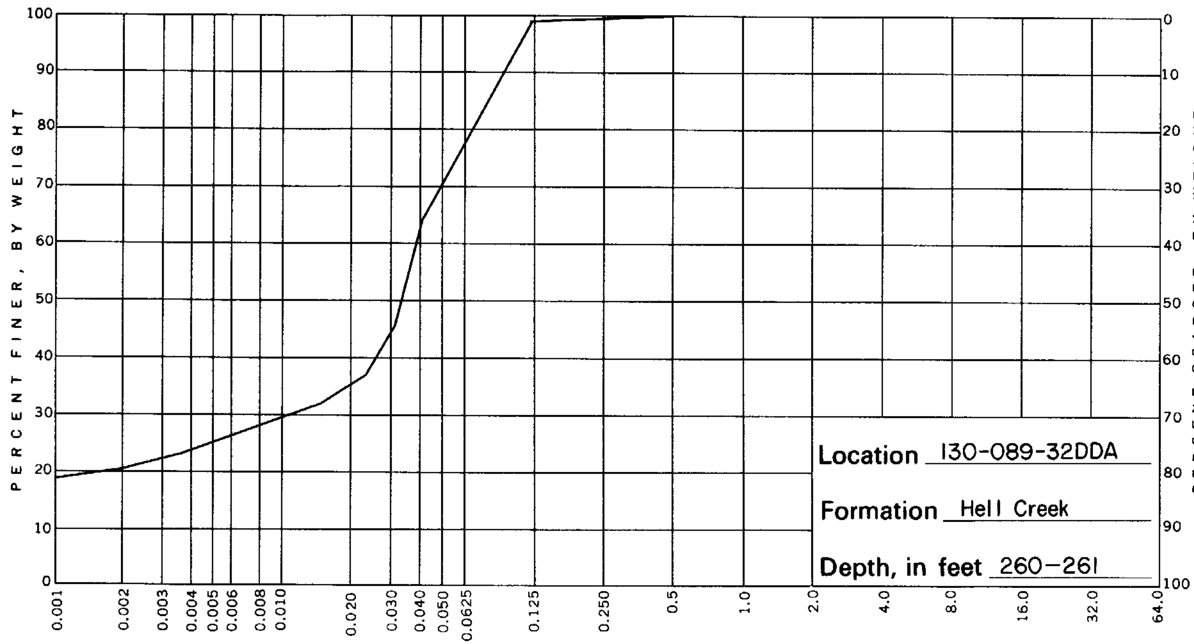
	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES V. FINE .0625-.125	SAND SIZES FINE .125-.25	SAND SIZES MEDIUM .25-.5	SAND SIZES COARSE .5-1	SAND SIZES V. COARSE 1-2	GRAVEL SIZES V. FINE 2-4	GRAVEL SIZES FINE 4-8	GRAVEL SIZES MEDIUM 8-16	GRAVEL SIZES COARSE 16-32	GRAVEL SIZES V. COARSE 32-64
PERCENT OF SIZE	10	18	13	52	7	0	0	0	0	0	0	0



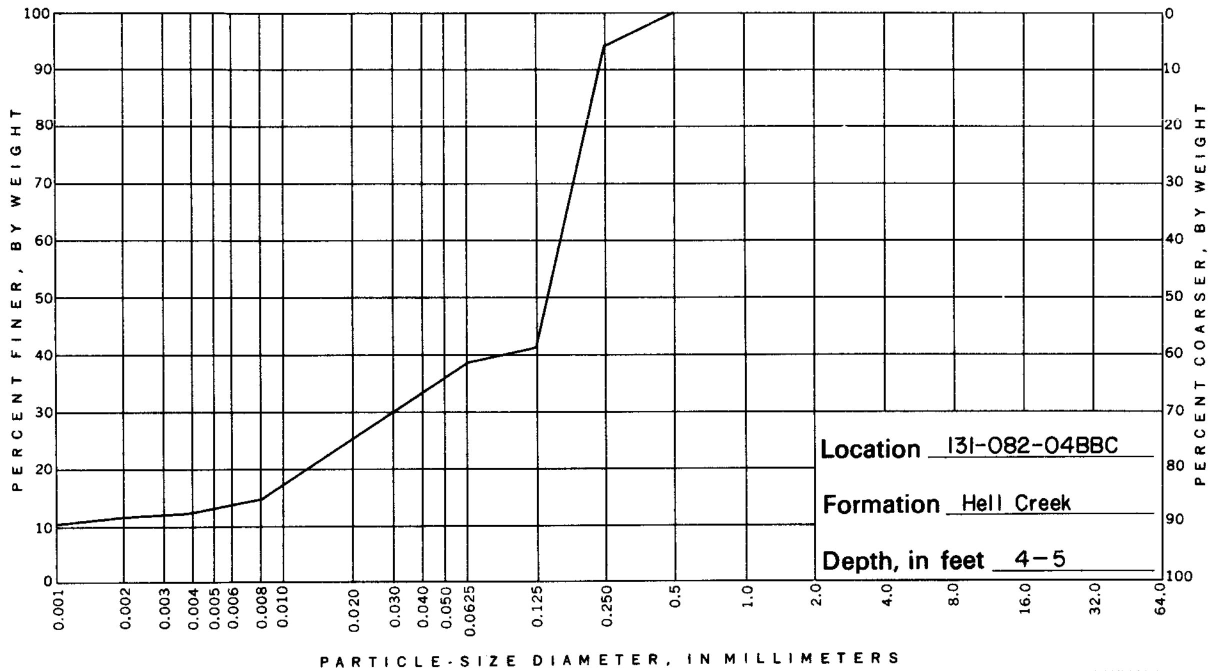
	CLAY SIZES	SILT SIZES	SAND SIZES					GRAVEL SIZES				
	<0.004 mm	0.004-0.0625 mm	V. FINE .0625-.125	FINE .125-.25	MEDIUM .25-.5	COARSE .5-1	V. COARSE 1-2	V. FINE 2-4	FINE 4-8	MEDIUM 8-16	COARSE 16-32	V. COARSE 32-64
PERCENT OF SIZE	5	11	18	61	5	0	0	0	0	0	0	0



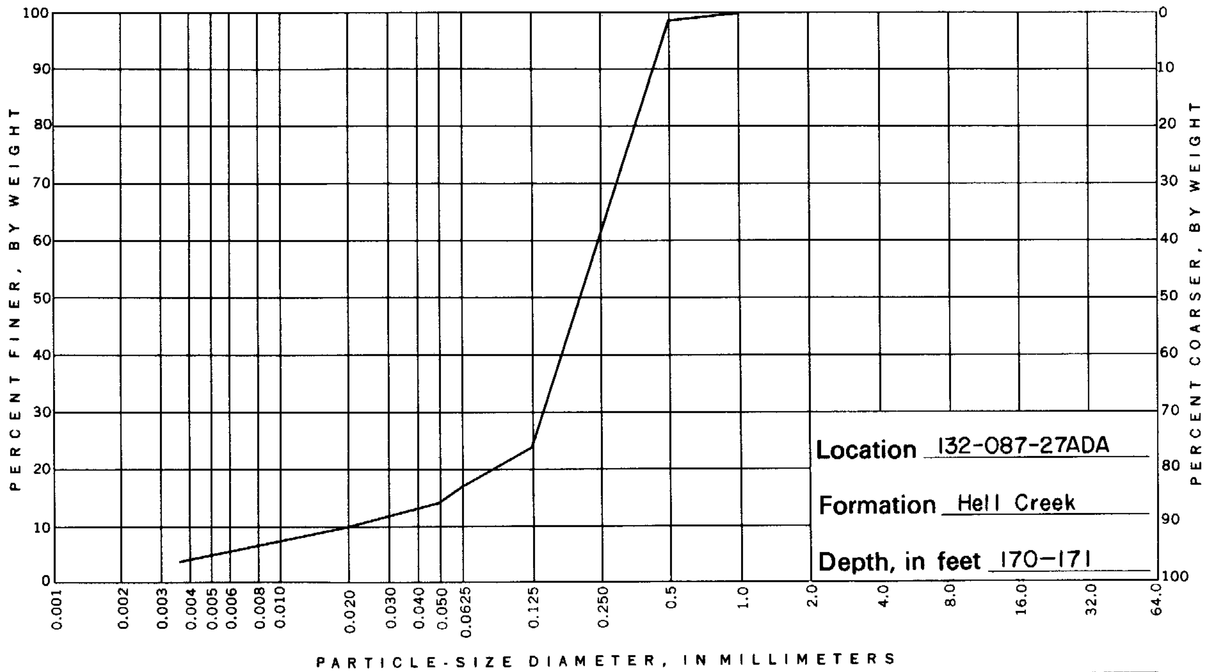
	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES					GRAVEL SIZES				
			V. FINE .0625-.125	FINE .125-.25	MEDIUM .25-.5	COARSE .5-1	V. COARSE 1-2	V. FINE 2-4	FINE 4-8	MEDIUM 8-16	COARSE 16-32	V. COARSE 32-64
PERCENT OF SIZE	13	12	11	43	20	1	0	0	0	0	0	0



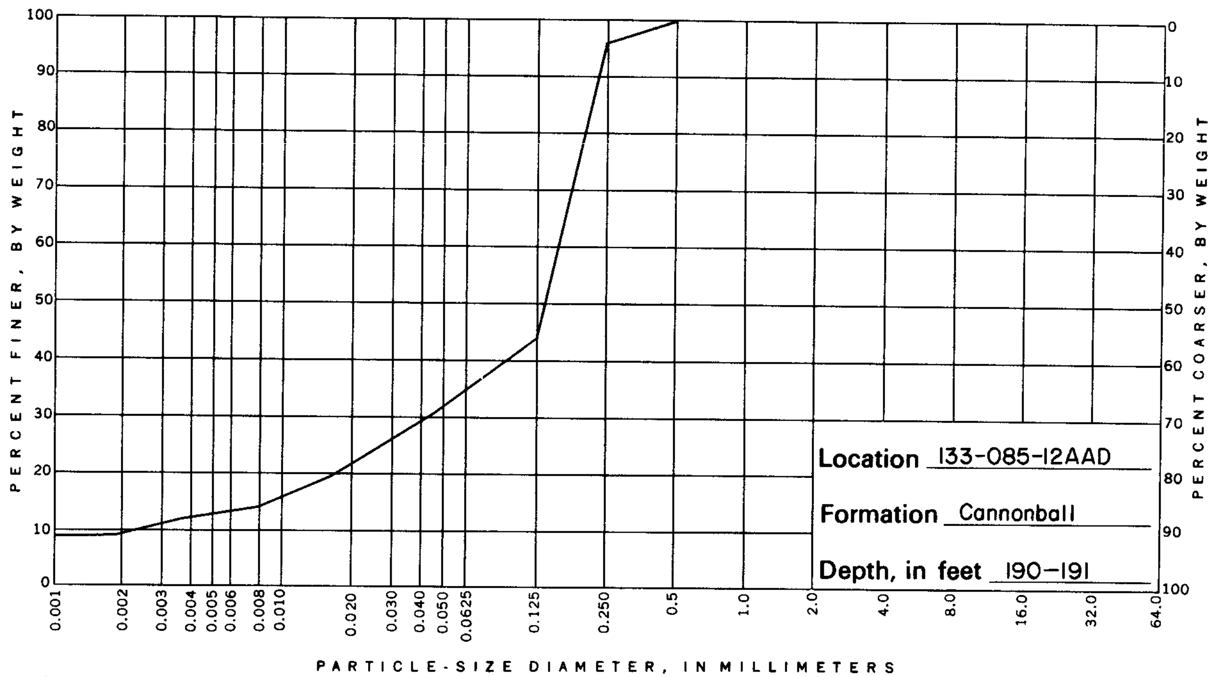
PERCENT OF SIZE	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES					GRAVEL SIZES				
			V. FINE .0625-.125	FINE .125-.25	MEDIUM .25-.5	COARSE .5-1	V. COARSE 1-2	V. FINE 2-4	FINE 4-8	MEDIUM 8-16	COARSE 16-32	V. COARSE 32-64
	23	43	33	1	0	0	0	0	0	0	0	0



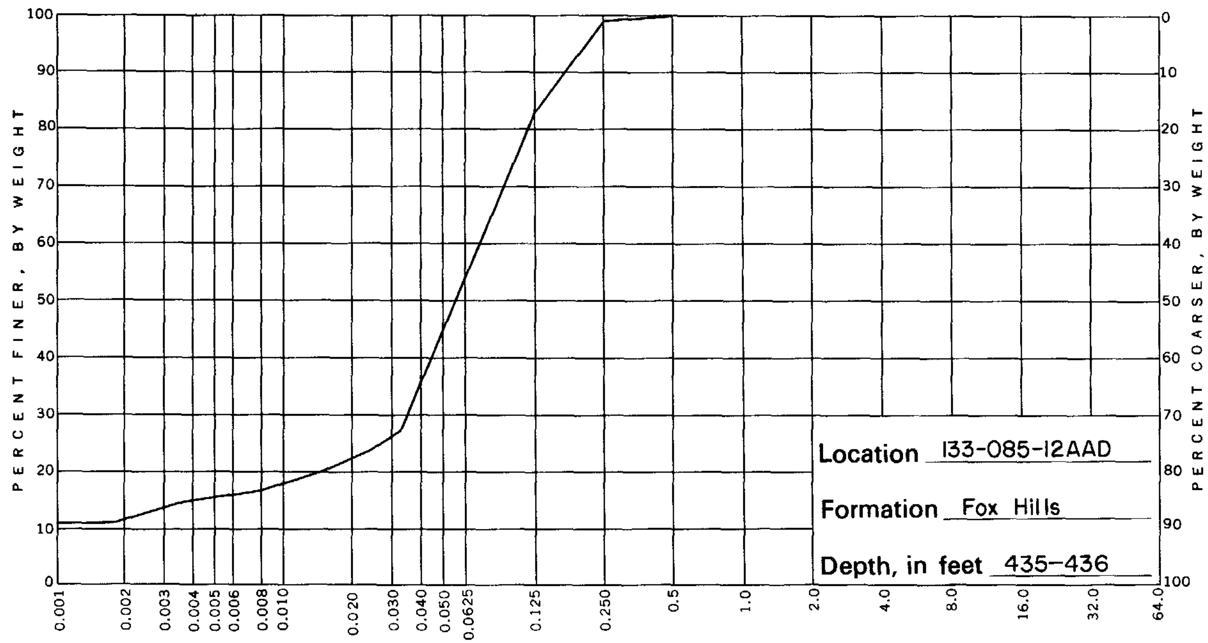
	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES					GRAVEL SIZES				
			V. FINE .0625-.125	FINE .125-.25	MEDIUM .25-.5	COARSE .5-1	V. COARSE 1-2	V. FINE 2-4	FINE 4-8	MEDIUM 8-16	COARSE 16-32	V. COARSE 32-64
PERCENT OF SIZE	10	28	2	54	6	0	0	0	0	0	0	0



	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES					GRAVEL SIZES				
			V. FINE .0625-.125	FINE .125-.25	MEDIUM .25-.5	COARSE .5-1	V. COARSE 1-2	V. FINE 2-4	FINE 4-8	MEDIUM 8-16	COARSE 16-32	V. COARSE 32-64
PERCENT OF SIZE	5	12	6	39	36	1	1	0	0	0	0	0

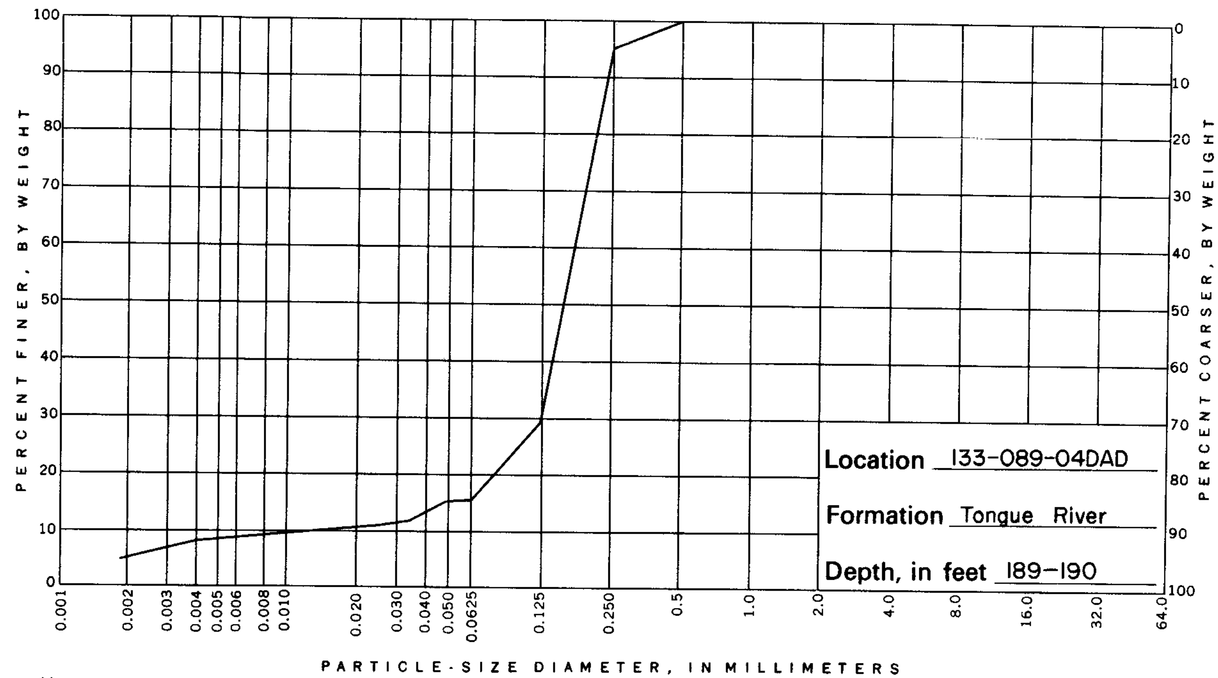


	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES V. FINE .0625-.125	SAND SIZES FINE .125-.25	SAND SIZES MEDIUM .25-.5	SAND SIZES COARSE .5-1	SAND SIZES V. COARSE 1-2	GRAVEL SIZES V. FINE 2-4	GRAVEL SIZES FINE 4-8	GRAVEL SIZES MEDIUM 8-16	GRAVEL SIZES COARSE 16-32	GRAVEL SIZES V. COARSE 32-64
PERCENT OF SIZE	13	18	14	51	4	0	0	0	0	0	0	0

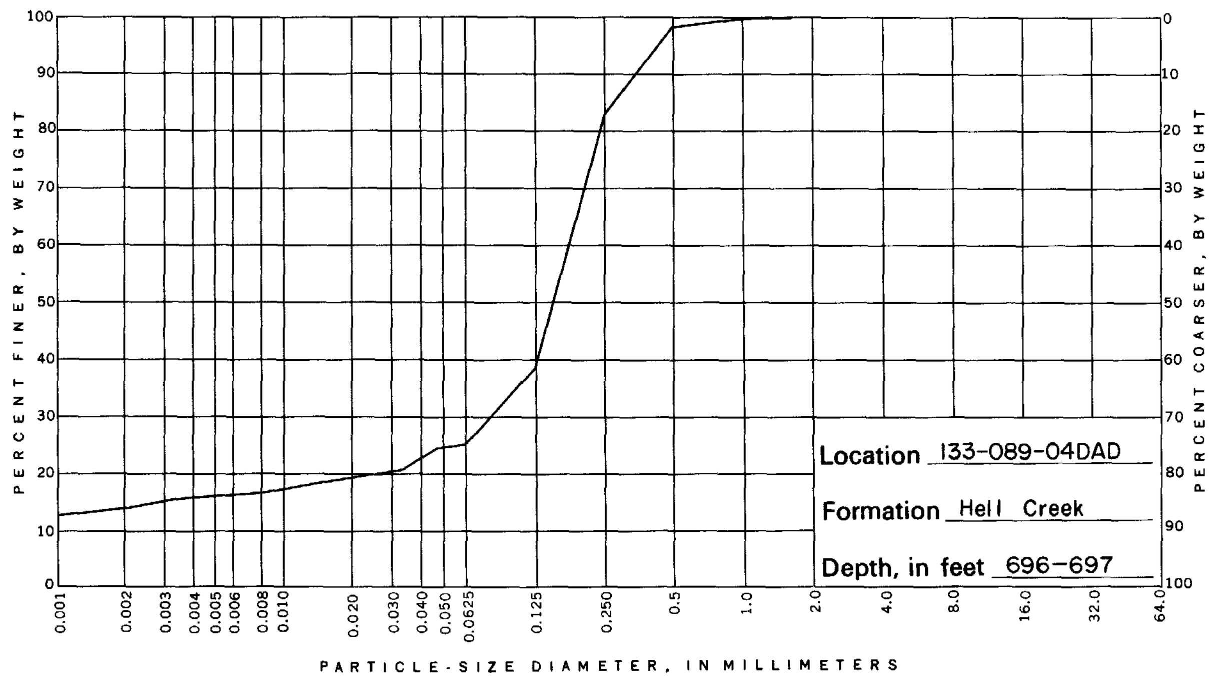


PARTICLE-SIZE DIAMETER, IN MILLIMETERS

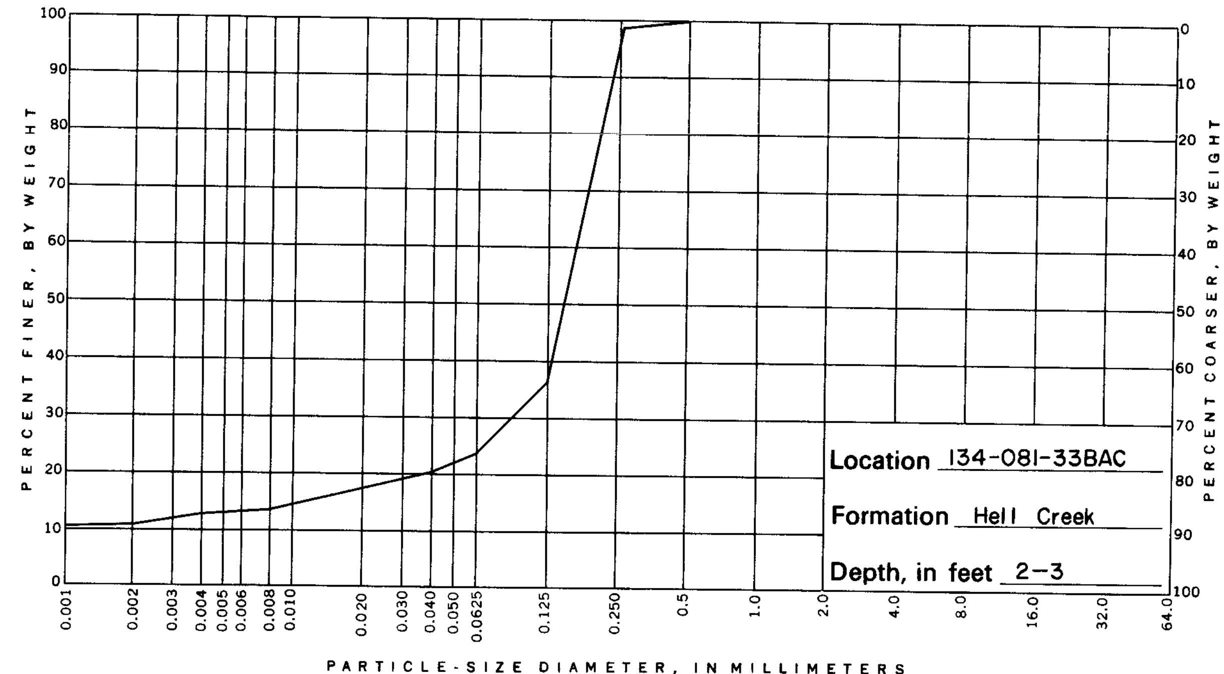
	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES					GRAVEL SIZES				
			V. FINE .0625-.125	FINE .125-.25	MEDIUM .25-.5	COARSE .5-1	V. COARSE 1-2	V. FINE 2-4	FINE 4-8	MEDIUM 8-16	COARSE 16-32	V. COARSE 32-64
PERCENT OF SIZE	14	22	47	16	1	0	0	0	0	0	0	0



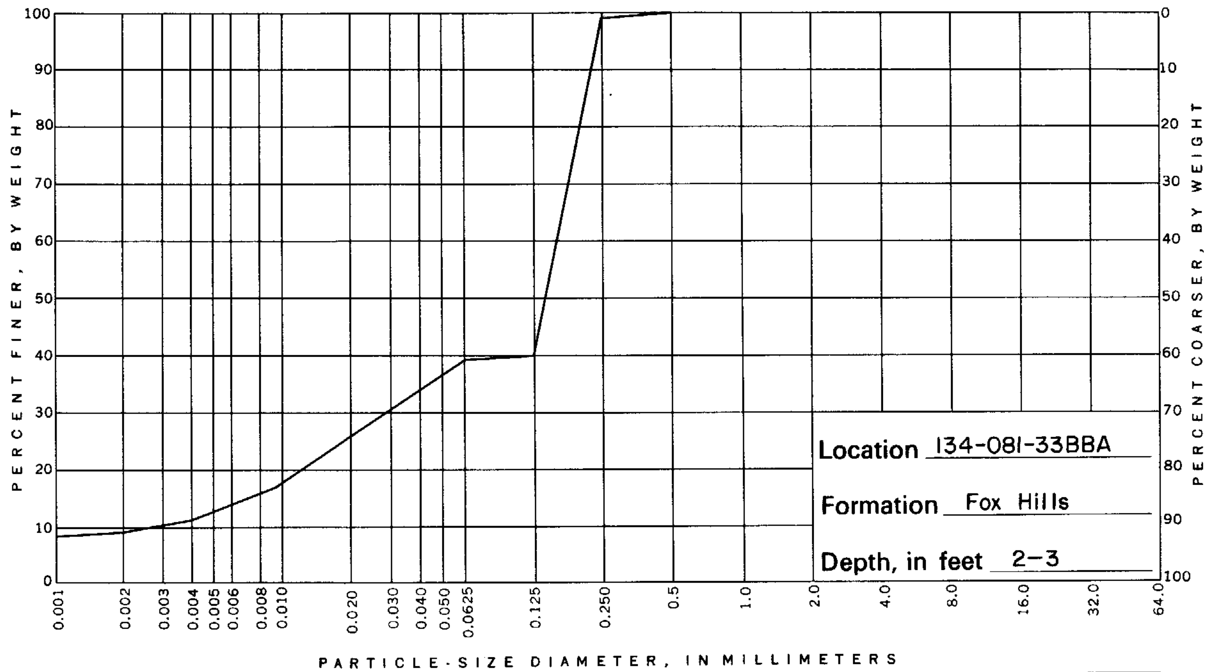
PERCENT OF SIZE	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES V. FINE .0625-.125	SAND SIZES FINE .125-.25	SAND SIZES MEDIUM .25-.5	SAND SIZES COARSE .5-1	SAND SIZES V. COARSE 1-2	GRAVEL SIZES V. FINE 2-4	GRAVEL SIZES FINE 4-8	GRAVEL SIZES MEDIUM 8-16	GRAVEL SIZES COARSE 16-32	GRAVEL SIZES V. COARSE 32-64
	8	7	14	66	5	0	0	0	0	0	0	0



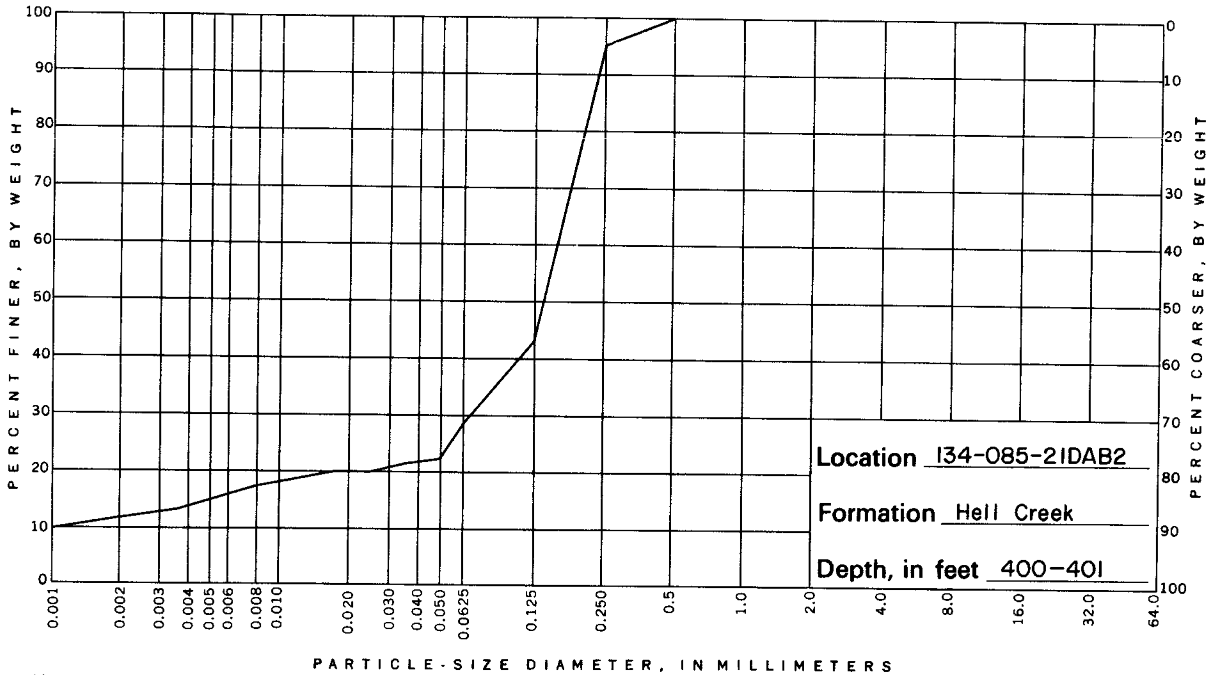
	CLAY SIZES	SILT SIZES	SAND SIZES					GRAVEL SIZES				
	<0.004 mm	0.004-0.0625 mm	V. FINE .0625-.125	FINE .125-.25	MEDIUM .25-.5	COARSE .5-1	V. COARSE 1-2	V. FINE 2-4	FINE 4-8	MEDIUM 8-16	COARSE 16-32	V. COARSE 32-64
PERCENT OF SIZE	16	9	13	45	16	1	0	0	0	0	0	0



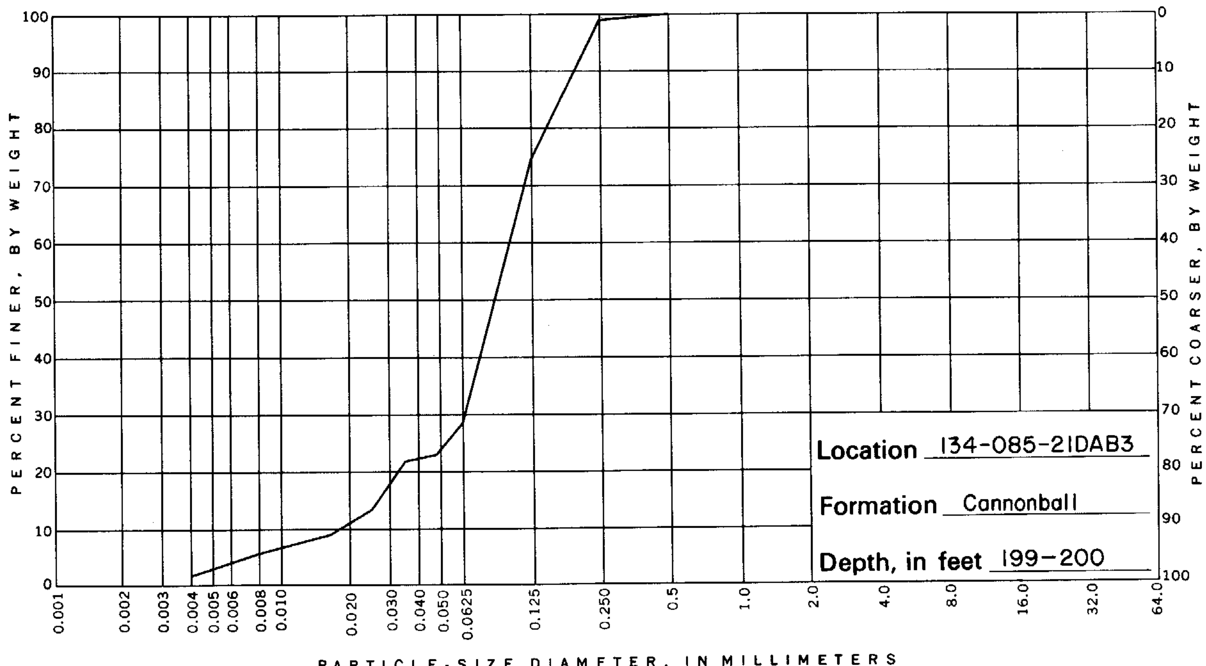
	CLAY SIZES	SILT SIZES	SAND SIZES					GRAVEL SIZES				
	<0.004 mm	0.004-0.0625 mm	V. FINE .0625-.125	FINE .125-.25	MEDIUM .25-.5	COARSE .5-1	V. COARSE 1-2	V. FINE 2-4	FINE 4-8	MEDIUM 8-16	COARSE 16-32	V. COARSE 32-64
PERCENT OF SIZE	12	12	13	62	1	0	0	0	0	0	0	0



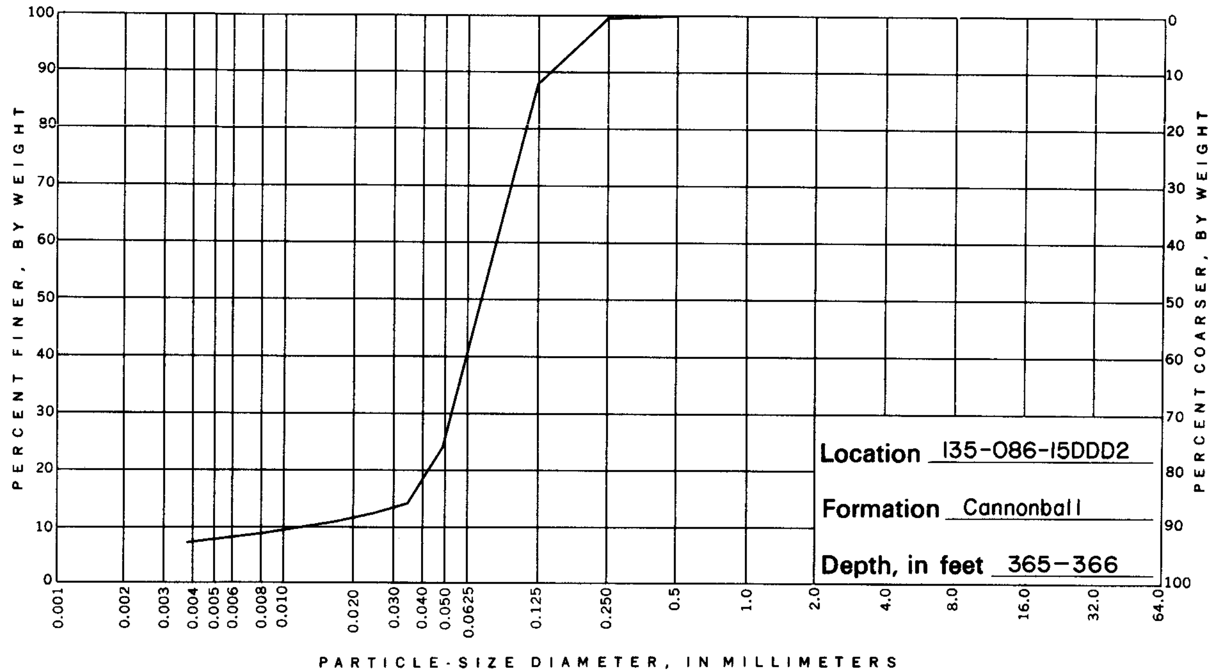
	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES V. FINE .0625-.125	SAND SIZES FINE .125-.25	SAND SIZES MEDIUM .25-.5	SAND SIZES COARSE .5-1	SAND SIZES V. COARSE 1-2	GRAVEL SIZES V. FINE 2-4	GRAVEL SIZES FINE 4-8	GRAVEL SIZES MEDIUM 8-16	GRAVEL SIZES COARSE 16-32	GRAVEL SIZES V. COARSE 32-64
PERCENT OF SIZE	8	30	1	60	1	0	0	0	0	0	0	0



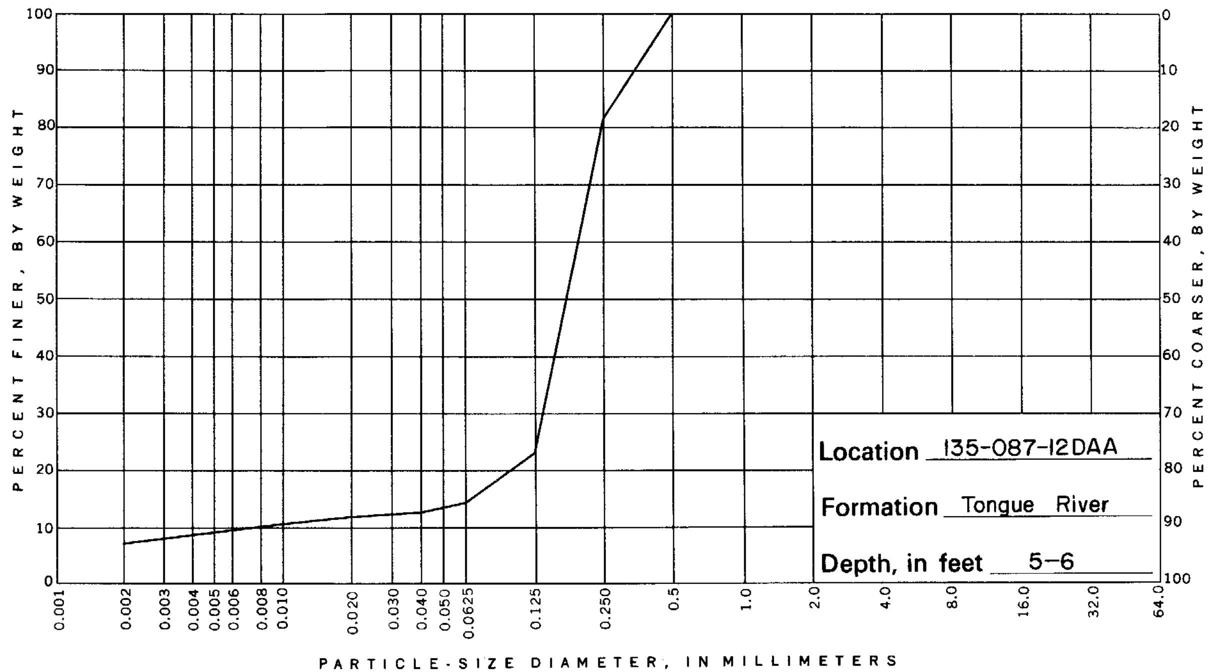
	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES					GRAVEL SIZES				
			V. FINE .0625-.125	FINE .125-.25	MEDIUM .25-.5	COARSE .5-1	V. COARSE 1-2	V. FINE 2-4	FINE 4-8	MEDIUM 8-16	COARSE 16-32	V. COARSE 32-64
PERCENT OF SIZE	13	15	14	53	4	1	0	0	0	0	0	0



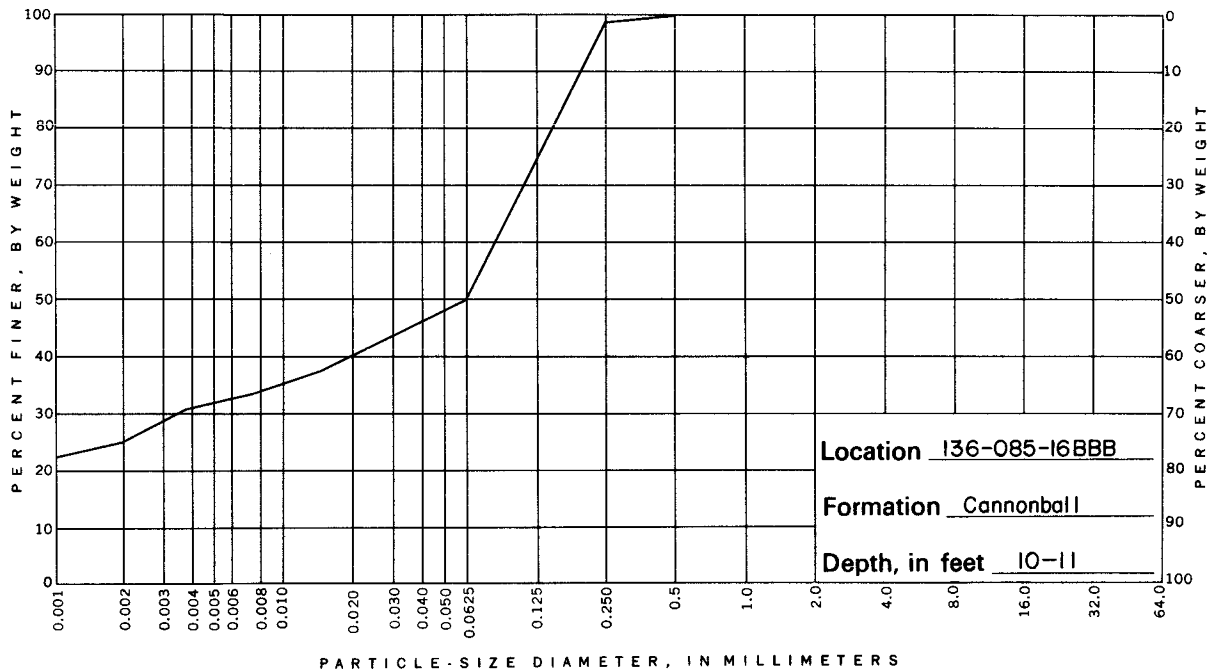
	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES V. FINE .0625-.125	SAND SIZES FINE .125-.25	SAND SIZES MEDIUM .25-.5	SAND SIZES COARSE .5-1	SAND SIZES V. COARSE 1-2	GRAVEL SIZES V. FINE 2-4	GRAVEL SIZES FINE 4-8	GRAVEL SIZES MEDIUM 8-16	GRAVEL SIZES COARSE 16-32	GRAVEL SIZES V. COARSE 32-64
PERCENT OF SIZE	1	26	45	25	1	1	1	0	0	0	0	0



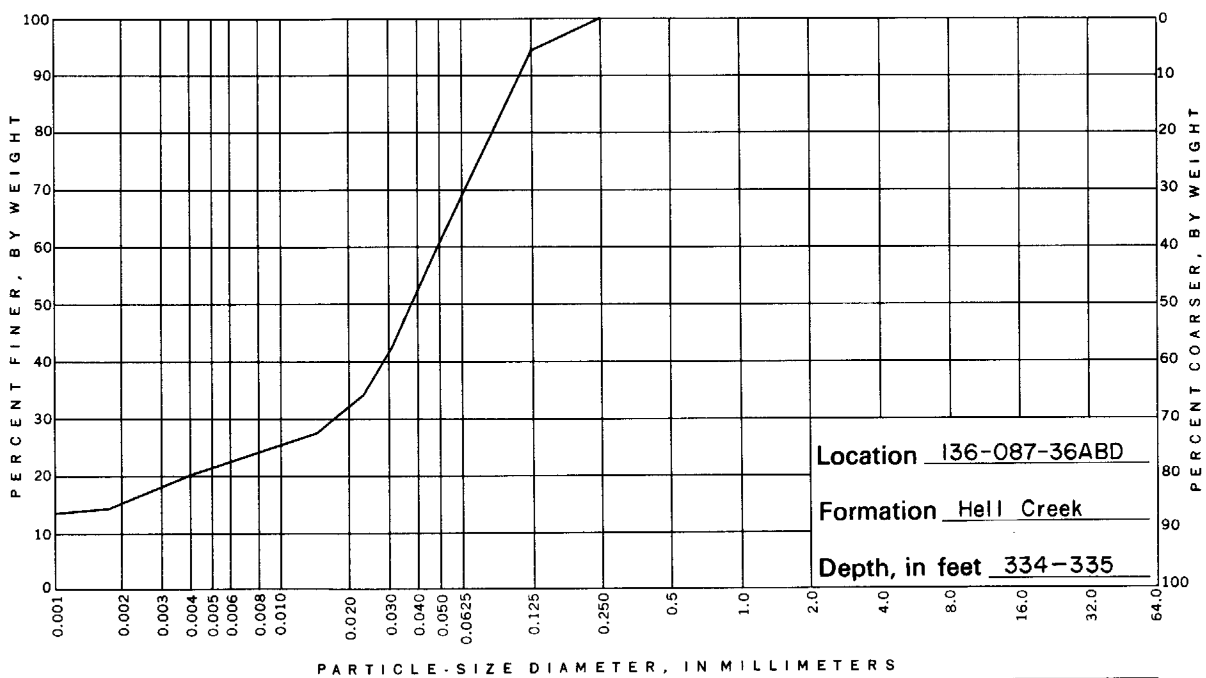
PERCENT OF SIZE	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES V. FINE .0625-.125	FINE .125-.25	MEDIUM .25-.5	COARSE .5-1	V. COARSE 1-2	GRAVEL SIZES V. FINE 2-4	FINE 4-8	MEDIUM 8-16	COARSE 16-32	V. COARSE 32-64
	8	10	70	11	1	0	0	0	0	0	0	0



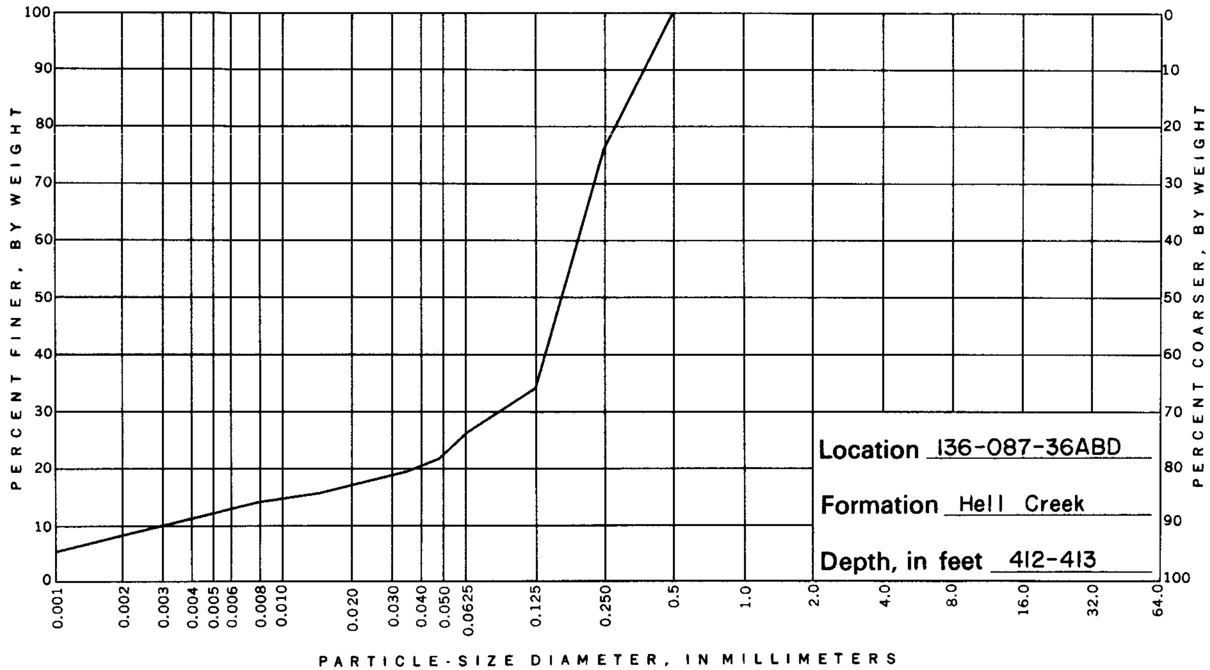
	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES					GRAVEL SIZES				
			V. FINE .0625-.125	FINE .125-.25	MEDIUM .25-.5	COARSE .5-1	V. COARSE 1-2	V. FINE 2-4	FINE 4-8	MEDIUM 8-16	COARSE 16-32	V. COARSE 32-64
PERCENT OF SIZE	8	6	9	59	18	0	0	0	0	0	0	0



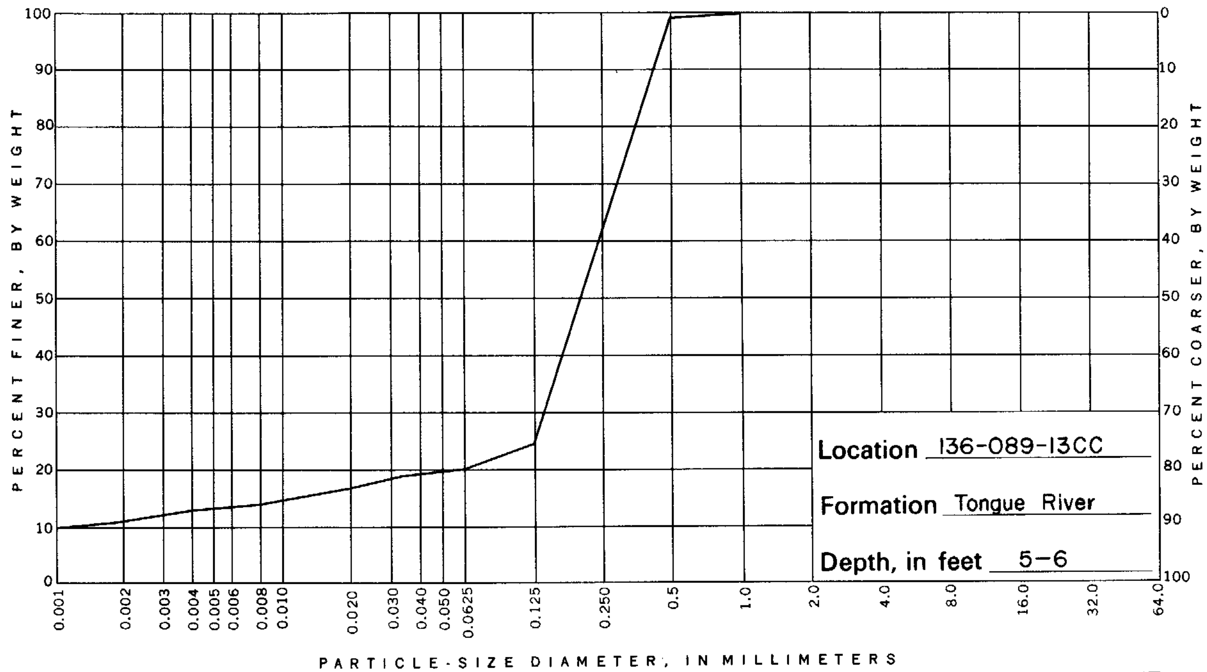
PERCENT OF SIZE	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES V. FINE .0625-.125	SAND SIZES FINE .125-.25	SAND SIZES MEDIUM .25-.5	SAND SIZES COARSE .5-1	SAND SIZES V. COARSE 1-2	GRAVEL SIZES V. FINE 2-4	GRAVEL SIZES FINE 4-8	GRAVEL SIZES MEDIUM 8-16	GRAVEL SIZES COARSE 16-32	GRAVEL SIZES V. COARSE 32-64
	30	20	26	23	1	0	0	0	0	0	0	0



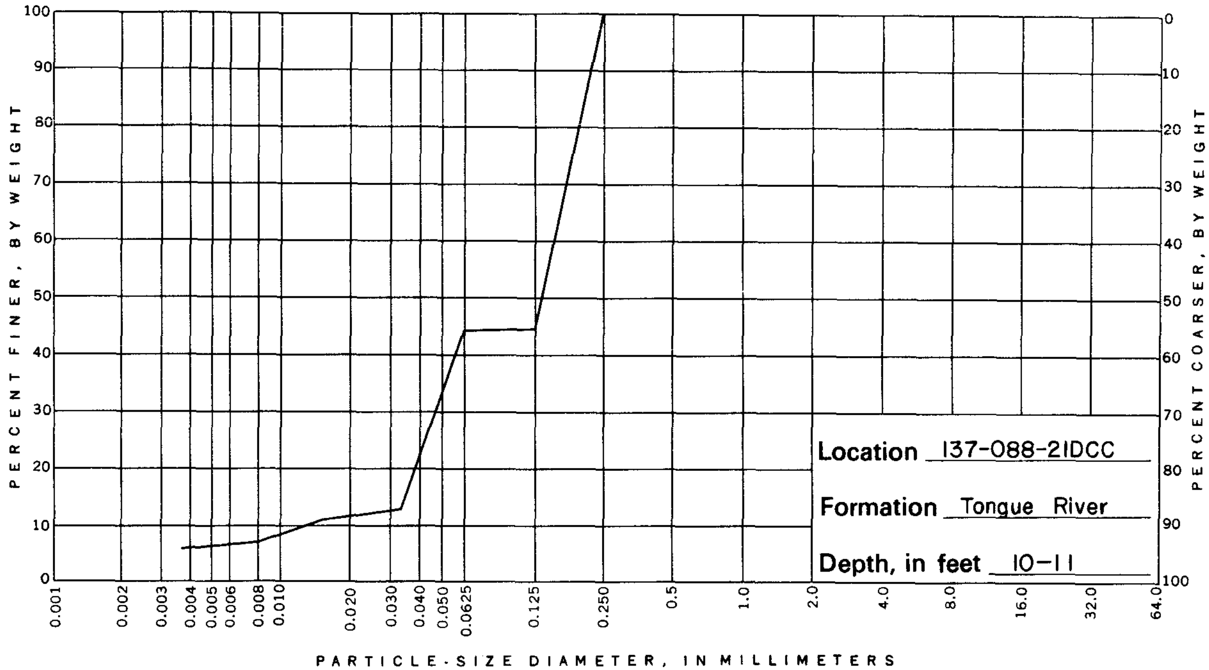
PERCENT OF SIZE	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES					GRAVEL SIZES				
			V. FINE .0625-.125	FINE .125-.25	MEDIUM .25-.5	COARSE .5-1	V. COARSE 1-2	V. FINE 2-4	FINE 4-8	MEDIUM 8-16	COARSE 16-32	V. COARSE 32-64
	19	40	35	6	0	0	0	0	0	0	0	0



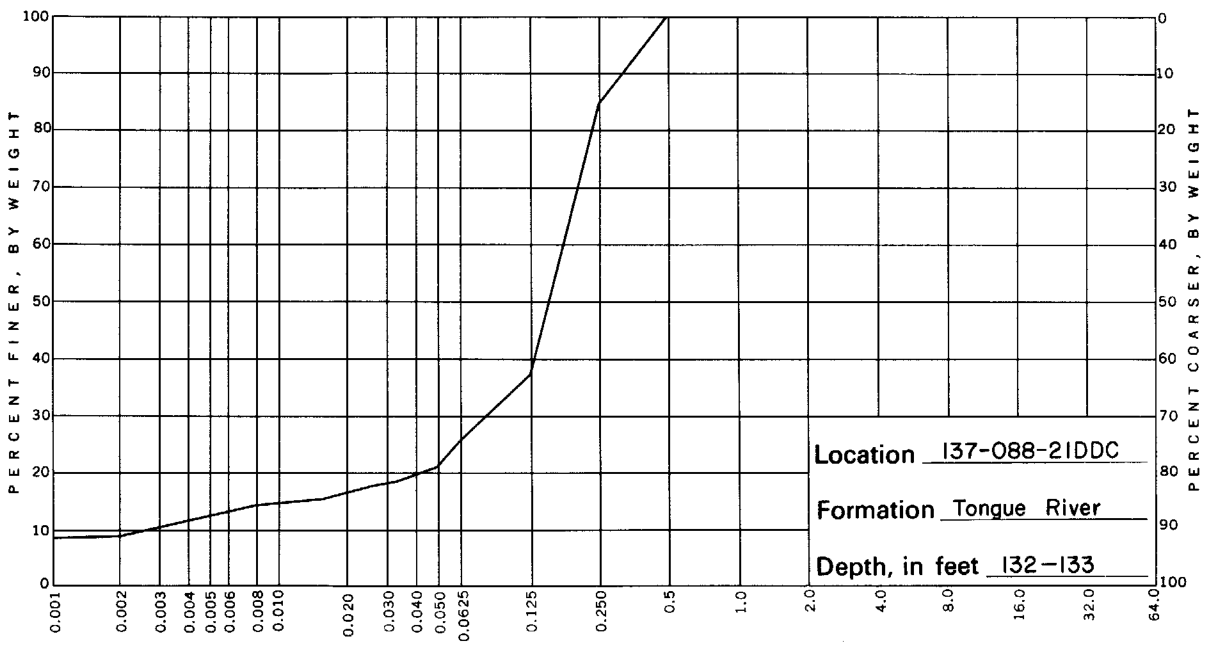
PERCENT OF SIZE	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES V. FINE .0625-.125	SAND SIZES FINE .125-.25	SAND SIZES MEDIUM .25-.5	SAND SIZES COARSE .5-1	SAND SIZES V. COARSE 1-2	GRAVEL SIZES V. FINE 2-4	GRAVEL SIZES FINE 4-8	GRAVEL SIZES MEDIUM 8-16	GRAVEL SIZES COARSE 16-32	GRAVEL SIZES V. COARSE 32-64
	10	16	8	43	23	0	0	0	0	0	0	0



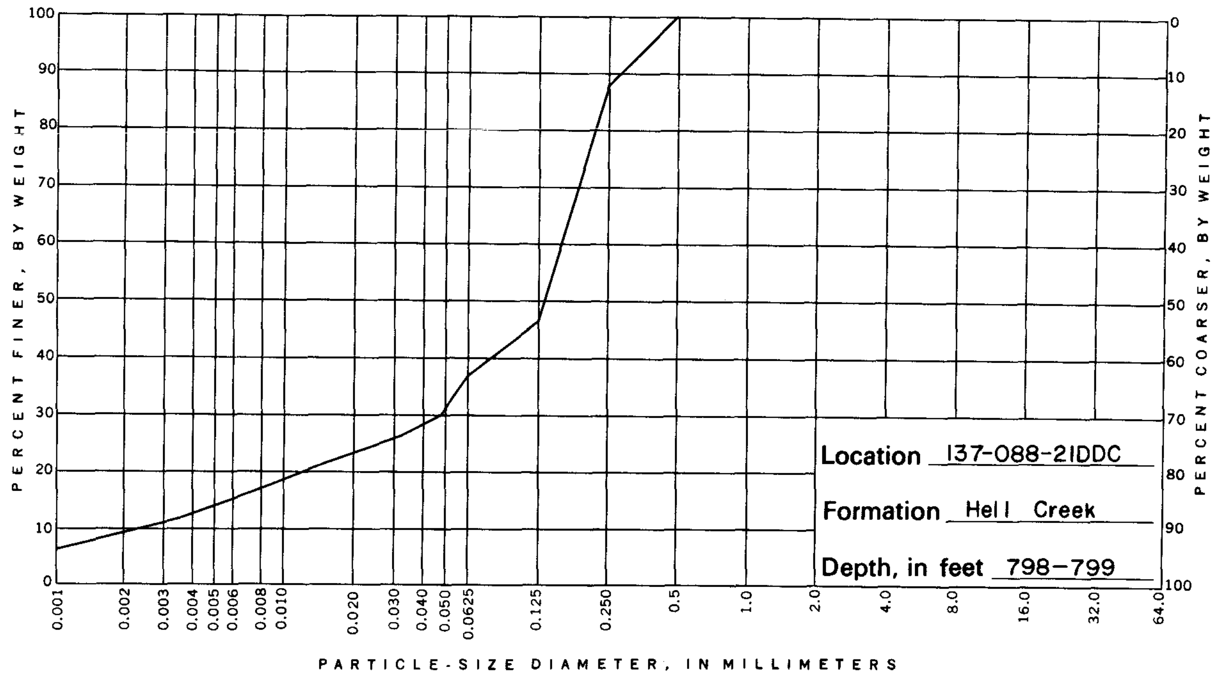
PERCENT OF SIZE	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES					GRAVEL SIZES				
			V. FINE .0625-.125	FINE .125-.25	MEDIUM .25-.5	COARSE .5-1	V. COARSE 1-2	V. FINE 2-4	FINE 4-8	MEDIUM 8-16	COARSE 16-32	V. COARSE 32-64
	13	7	4	35	40	1	0	0	0	0	0	0



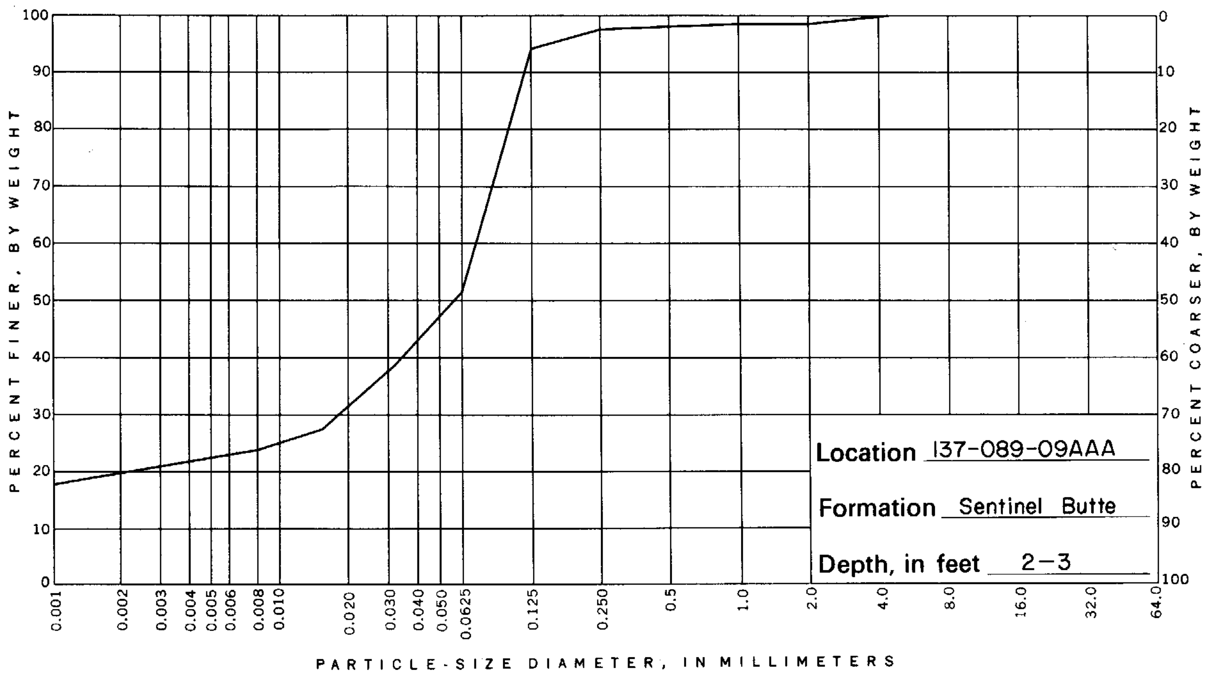
	Clay sizes	Silt sizes	Sand sizes					Gravel sizes				
	<0.004 mm	0.004-0.0625 mm	V. fine .0625-.125	Fine .125-.25	Medium .25-.5	Coarse .5-1	V. coarse 1-2	V. fine 2-4	Fine 4-8	Medium 8-16	Coarse 16-32	V. coarse 32-64
Percent of size	6	37	1	54	1	1	0	0	0	0	0	0



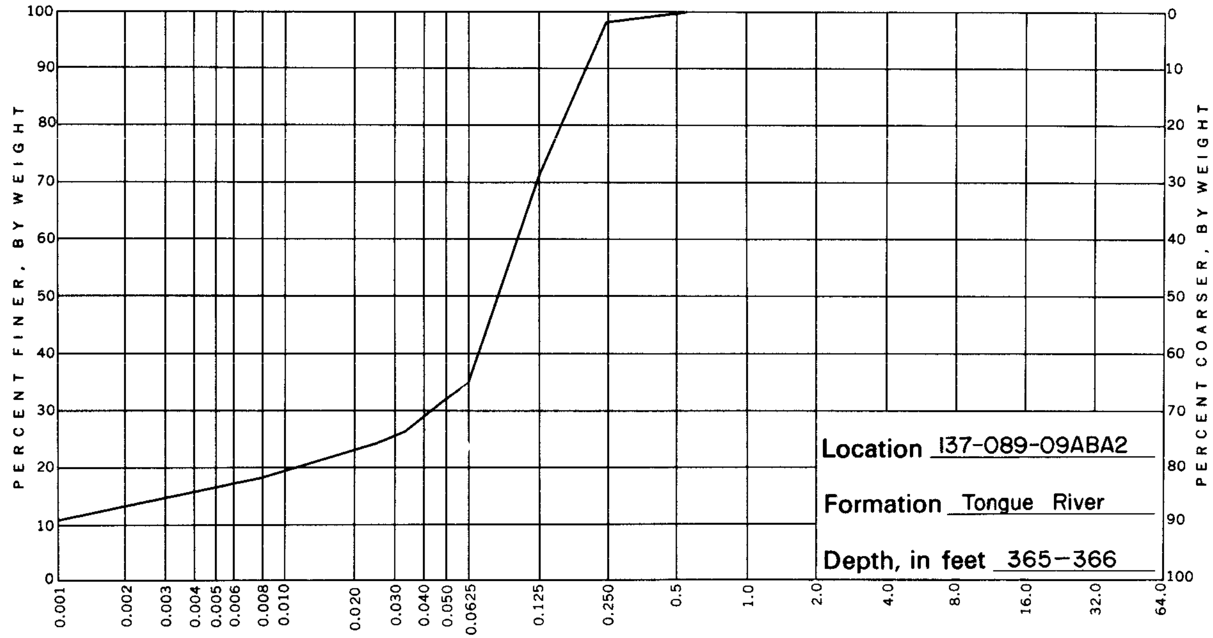
	CLAY SIZES	SILT SIZES	SAND SIZES					GRAVEL SIZES				
	<0.004 mm	0.004-0.0625 mm	V. FINE .0625-.125	FINE .125-.25	MEDIUM .25-.5	COARSE .5-1	V. COARSE 1-2	V. FINE 2-4	FINE 4-8	MEDIUM 8-16	COARSE 16-32	V. COARSE 32-64
PERCENT OF SIZE	11	14	12	48	15	0	0	0	0	0	0	0



	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES V. FINE .0625-.125	FINE .125-.25	MEDIUM .25-.5	COARSE .5-1	V. COARSE 1-2	GRAVEL SIZES V. FINE 2-4	FINE 4-8	MEDIUM 8-16	COARSE 16-32	V. COARSE 32-64
PERCENT OF SIZE	12	25	10	41	12	0	0	0	0	0	0	0



	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES					GRAVEL SIZES				
			V. FINE .0625-.125	FINE .125-.25	MEDIUM .25-.5	COARSE .5-1	V. COARSE 1-2	V. FINE 2-4	FINE 4-8	MEDIUM 8-16	COARSE 16-32	V. COARSE 32-64
PERCENT OF SIZE	21	30	41	4.0	1	1	0	1	1	0	0	0



PARTICLE-SIZE DIAMETER, IN MILLIMETERS

	CLAY SIZES <0.004 mm	SILT SIZES 0.004-0.0625 mm	SAND SIZES V. FINE .0625-.125	SAND SIZES FINE .125-.25	SAND SIZES MEDIUM .25-.5	SAND SIZES COARSE .5-1	SAND SIZES V. COARSE 1-2	GRAVEL SIZES V. FINE 2-4	GRAVEL SIZES FINE 4-8	GRAVEL SIZES MEDIUM 8-16	GRAVEL SIZES COARSE 16-32	GRAVEL SIZES V. COARSE 32-64
PERCENT OF SIZE	15	18	34	27	2	4	0	0	0	0	0	0

TABLE 9.--Hydraulic parameters and heavy mineral content of core samples[1]

(Percent heavy minerals per 300-grain samples)

Geologic unit/ location	Depth (feet)	Specific gravity of solids	Total porosity (percent)	Vertical hydraulic conductivity @ 15°C (m/d)	Median size (mm)	Sorting coefficient	Uniformity coefficient	Total heavy minerals (percent)	Pyrite	Magnetite	Ilmenite	Magnetite and Ilmenite	Hematite	Leucoxene	Rutile	Limonite	Carbonates	Apatite	Light minerals with heavy inclusions	Quartz	Altered Micas	Muscovite	Biotite	Chlorite	Actinolite	Hornblende	Tourmaline	Zoisite	Clinozoisite	Epidote	Andalusite	Garnet	Zircon	Sphere	Amorphous, weathered, etc.	Unidentified
Sentinel Butte Formation																																				
137-089-09AAA	2-3	2.64	43.2	--	0.06	2.9	--	2.8	--	1	--	1	--	3	--	15	58	2	--	--	--	4	5	3	--	--	<1	--	--	<1	--	1	--	--	2	6
Tongue River Formation																																				
133-089-04DAD	189-190	2.67	41.6	5.7×10^{-2}	.16	1.4	11	.9	6	5	--	5	--	4	--	<1	22	<1	--	--	23	5	3	10	--	3	--	--	1	2	<1	<1	--	--	--	15
135-087-12DDA	5-6	2.67	42.7	--	.17	1.3	23	2.0	<1	9	<1	9	2	10	<1	1	<1	1	--	<1	--	7	11	9	2	21	<1	<1	1	5	--	1	--	--	11	6
136-089-13CC	5-6	2.65	42.6	--	.21	1.6	236	1.0	--	2	--	2	--	3	--	4	74	1	--	1	--	1	--	1	--	--	--	<1	--	1	--	--	<1	<1	7	4
137-088-21DCC	10-12	2.75	45.5	--	.13	2.1	11	10.0	--	15	<1	15	--	8	--	6	2	--	<1	--	--	6	13	5	--	<1	--	1	<1	6	1	4	--	--	27	6
137-088-21DCC	132-133	2.66	36.8	7.1×10^{-6}	.15	1.9	63	1.8	2	14	1	15	--	5	--	1	<1	1	1	--	37	4	6	13	--	--	--	--	2	3	<1	1	1	--	--	8
137-089-09ABA2	365-366	2.71	[2]29.0	2.0×10^{-4}	.08	2.2	--	5.2	--	--	--	2	--	--	--	23	40	--	1	--	6	3	10	3	--	--	1	<1	--	1	1	1	<1	--	6	3
Cannonball Formation																																				
129-088-05DDD3	180-181	2.67	[2]34.5	6.7×10^{-2}	.16	1.6	--	1.3	--	--	--	10	<1	5	--	1	1	--	2	--	16	2	6	6	<1	--	<1	<1	--	1	<1	1	1	1	41	3
133-085-12AAD	190-191	2.63	32.7	1.1×10^{-5}	.13	2.7	80	.6	2	5	1	6	--	4	--	--	1	1	<1	--	20	12	16	12	--	<1	<1	--	1	4	<1	1	1	--	--	19
134-085-21DAB3	199-200	2.66	[2]30.3	7.7×10^{-2}	.09	1.6	5.6	.8	--	--	--	8	--	6	<1	<1	2	2	<1	--	20	8	5	8	--	1	2	1	2	4	2	3	<1	<1	16	6
135-086-15DDD2	365-366	2.66	[2]37.9	3.7×10^{-2}	.09	1.3	8.3	1.6	--	--	--	4	--	6	--	4	1	1	1	--	27	11	6	9	--	--	1	<1	1	1	1	1	<1	1	18	4
136-085-16BBB	10-11	2.64	42.8	--	.06	7.9	--	1.5	1	6	1	7	2	6	--	9	27	2	--	--	--	6	10	3	1	2	1	--	--	3	1	1	--	1	9	8
Hell Creek Formation																																				
129-088-05DDD2	340-341	2.65	[2]34.1	4.3×10^{-4}	.16	2.4	190	2.4	<1	--	--	5	--	3	--	1	<1	1	1	--	27	5	2	4	<1	6	--	2	1	3	--	1	1	1	35	2
130-084-36ABA	107-108	2.67	37.5	2.1×10^{-5}	.14	2.1	50	.6	<1	11	3	14	--	13	<1	2	<1	--	<1	--	26	6	6	4	--	--	1	--	1	5	--	3	1	--	--	17
130-086-28CCC2	209-209.5	2.62	[2]31.2	4.1×10^{-4}	.15	2.1	160	1.4	--	--	--	3	--	3	--	1	<1	--	1	--	31	6	12	7	1	5	<1	--	--	--	--	1	--	1	26	2
130-089-32DDA	260-261	2.66	36.8	8.5×10^{-6}	.03	3.9	--	.7	--	4	1	5	--	6	--	1	--	1	<1	--	24	10	10	17	--	1	1	--	4	2	--	1	--	--	--	19
131-082-04BBC	4-5	2.66	39.5	3.5×10^{-3}	.14	3.1	380	1.4	--	8	2	10	--	11	--	1	<1	1	--	--	--	1	12	4	1	27	--	--	1	4	--	3	2	<1	15	6
132-087-27ADA	170-171	2.70	42.6	4.6×10^{-2}	.20	1.6	14	1.9	3	11	1	12	--	5	--	6	--	--	1	--	29	3	12	4	--	2	--	--	1	2	--	<1	<1	<1	--	20
133-089-04DAD	696-697	2.67	37.5	6.7×10^{-6}	.15	1.9	--	1.6	<1	29	2	31	<1	5	<1	5	<1	<1	<1	<1	21	3	2	6	--	--	<1	--	2	5	<1	2	1	--	--	14
134-081-33BAC	2-3	2.66	38.0	1.5×10^{-2}	.15	1.7	85	1.0	--	10	2	12	--	14	--	1	14	2	--	1	--	2	6	3	1	18	<1	1	2	5	--	1	1	--	6	9
134-085-21DAB2	400-401	2.66	[2]35.5	1.6×10^{-5}	.14	2.0	140	2.1	--	--	--	5	--	1	<1	--	--	1	1	--	30	7	9	8	<1	--	--	<1	<1	3	--	2	<1	1	26	3
136-087-36ABD	334-335	2.68	47.0	2.4×10^{-5}	.05	2.9	--	.4	1	14	3	17	--	11	--	1	--	1	<1	--	15	9	8	7	--	<1	1	--	6	7	--	2	<1	--	--	11
136-087-36ABD	412-413	2.70	40.0	1.1×10^{-5}	.16	2.1	56	1.3	1	10	<1	10	--	8	--	2	3	--	1	--	24	2	5	20	--	--	1	--	2	4	--	2	--	--	--	16
137-088-21DDC	798-799	2.70	28.1	9.8×10^{-6}	.13	2.8	66	1.1	<1	10	1	11	<1	6	--	1	--	--	1	<1	37	4	7	12	--	5	--	--	1	2	--	2	1	--	--	8
Fox Hills Formation																																				
129-087-10BBC	370-371	2.70	45.2	6.0×10^{-5}	.08	1.4	17	2.1	<1	1	1	2	--	3	--	8	47	--	--	--	11	10	9	4	--	--	--	--	--	<1	--	<1	--	--	--	6
129-087-10BBC	375-376	2.69	43.1	3.2×10^{-2}	.09	1.5	9.9	1.8	<1	2	1	3	--	2	--	9	36	--	--	--	17	11	10	5	--	1	<1	--	--	--	--	--	<1	--	--	6
130-080-31CCD	6-7	2.67	53.2	3.3×10^{-3}	.14	1.6	150	1.5	--	11	2	13	--	6	<1	30	13	<1	1	1	--	7	3	4	--	1	--	<1	<1	5	--	--	<1	<1	5	9
130-084-36ABA	399-400	2.66	40.6	3.3×10^{-3}	.15	1.5	13	.6	--	6	2	7	--	3	--	5	24	--	--	--	21	7	7	10	--	1	--	--	<1	1	--	<1	<1	--	--	12
133-085-12AAD	435-436	2.70	39.3	3.6×10^{-5}	.08	2.0	--	1.2	1	2	1	3	--	2	--	8	4	--	--	--	7	31	27	12	--	<1	--	--	<1	<1	--	--	<1	--	--	4
134-081-33BBA	2-3	2.64	44.3	7.7×10^{-2}	.14	3.1	45	1.0	--	19	1	20	--	8	--	4	--	1	--	--	--	--	6	2	--	6	1	1	2	9	--	7	1	1	21	10

[1]Analyses by U.S. Geological Survey laboratory, Denver, Colorado

[2]Effective porosity for pores larger than 0.1 micron.

APPENDIX A

Local Well Numbers and Corresponding U.S. Geological Survey Station Numbers

LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)
129N079W07BC	460035N1003731.1
129N079W07CBD	460019N1003726.1
129N079W21BAA	455907N1003439.1
129N079W22DD	455825N1003252.1
129N079W29BA	455812N1003558.1
129N079W29CC	455733N1003616.1
129N080W11DD	460010N1003903.1
129N080W12BDD	460032N1003822.1
129N080W22DA	455839N1004018.1
129N080W22DD	455832N1004018.1
129N080W23CCD	455823N1003954.1
129N080W23DDD	455822N1003859.1
129N080W24DA	455838N1003749.1
129N080W35AA	455720N1003903.1
129N081W01BAB	460148N1004556.1
129N081W10ABC	460049N1004807.1
129N081W10ACB	460043N1004807.1
129N081W14DD	455921N1004629.1
129N081W19BB	455909N1005225.1
129N081W20AA	455909N1005014.1
129N081W20DD	455830N1005014.1
129N081W25DCC	455734N1004538.1
129N081W25DCD	455733N1004528.1
129N081W26DDC	455737N1004629.1
129N081W27BA	455816N1004821.1
129N081W28AB	455816N1004918.1
129N081W33DD	455645N1004859.1
129N081W34BAA	455727N1004817.1
129N082W02DAD1	460116N1005354.1
129N082W02DAD2	460116N1005354.2
129N082W02DAD3	460116N1005354.3
129N082W03AB	460145N1005532.1
129N082W06CAC	460116N1005941.1
129N082W06DAD	460116N1005854.1
129N082W07DA	460027N1005858.1
129N082W08AD	460040N1005743.1
129N082W11CC	460014N1005455.1
129N082W11DAD1	460024N1005354.1
129N082W11DAD2	460024N1005354.2

LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)
129N082W12BB	460053N1005340.1
129N082W19BA	455909N1005936.1
129N082W23CC	455830N1005455.1
129N082W27CC	455738N1005610.1
129N082W29BCC	455804N1005840.1
129N082W30DD	455738N1005858.1
129N082W31BA	455725N1005936.1
129N082W36DAA	455659N1005243.1
129N083W01DBD	460116N1010027.1
129N083W05AA	460145N1010513.1
129N083W12BAC1	460050N1010055.1
129N083W12BAC2	460050N1010055.2
129N083W15AA	455941N1010311.1
129N083W20DA	455842N1010513.1
129N083W25DA	455751N1010013.1
129N083W26DAA	455754N1010124.1
129N083W31BCA	455715N1010715.1
129N084W02DD	460105N1010857.1
129N084W21CDA	455832N1011200.1
129N084W22ADD	455852N1011007.1
129N084W24BCA	455859N1010834.1
129N084W24BCB	455859N1010843.1
129N085W09DBD	460022N1011910.1
129N085W09DD	460012N1011856.1
129N085W09DDA	460015N1011851.1
129N085W11CDC	460009N1011708.1
129N085W14BAC	455956N1011708.1
129N085W16BCC1	455943N1011957.1
129N085W16BCC2	455943N1011957.2
129N085W25CAA	455753N1011544.1
129N085W26CC	455736N1011722.1
129N085W26CCC1	455733N1011727.1
129N085W26CCC2	455733N1011727.2
129N085W27DCD1	455733N1011755.1
129N085W27DCD2	455733N1011755.2
129N085W28CC	455736N1011952.1
129N085W28CDD1	455733N1011929.1
129N085W28CDD2	455733N1011929.2
129N085W32DA	455657N1012011.1
129N085W33CBB	455700N1011957.1

LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)
129N086W02ABB	460146N1012418.1
129N086W04CDD1	460101N1012657.1
129N086W04CDD2	460101N1012657.2
129N086W04CDD3	460101N1012657.3
129N086W06ABC1	460140N1012917.1
129N086W06ABC2	460140N1012917.2
129N086W10ABD1	460048N1012524.1
129N086W10ABD2	460048N1012524.2
129N086W13DBC	455929N1012304.1
129N086W14CBC	455930N1012456.1
129N086W15BAA	460002N1014522.1
129N086W17ADC	455943N1012744.1
129N086W17DD	455920N1012739.1
129N086W17DDD	455917N1012734.1
129N086W20CDD	455825N1012812.1
129N086W22BCB	455857N1012610.1
129N086W22CDA	455831N1012542.1
129N086W25BAA	455818N1012313.1
129N086W25BCC	455758N1012341.1
129N086W27AAA	455818N1012505.1
129N086W29BAA	455819N1012812.1
129N086W29DD	455736N1012739.1
129N086W29DDD	455733N1012734.1
129N086W32ABC	455720N1012802.1
129N086W32BAB	455727N1012821.1
129N086W33ACC1	455707N1012648.1
129N086W33ACC2	455707N1012648.2
129N086W33BDD	455707N1012657.1
129N086W36AB	455723N1012259.1
129N087W02BBD1	460140N1013214.1
129N087W02BBD2	460140N1013214.2
129N087W03BAC	460139N1013320.1
129N087W04ACD	460126N1013406.1
129N087W04DAB1	460120N1013357.1
129N087W04DAB2	460120N1013357.2
129N087W08AAA1	460053N1013502.1
129N087W08AAA2	460053N1013502.2
129N087W08DD	460011N1013507.1
129N087W09ACC	460034N1013416.1
129N087W10BBB	460054N1013338.1

LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)
129N087W10BBC	460047N1013338.1
129N087W13CC	455920N1013104.1
129N087W21CC	455827N1013448.1
129N087W22ADA	455857N1013233.1
129N087W23BC	455854N1013219.1
129N087W26BCC	455759N1013224.1
129N087W33AAD	455719N1013348.1
129N087W34BAC	455719N1013320.1
129N088W01DAA	460119N1013732.1
129N088W05DDD1	460059N1014232.1
129N088W05DDD2	460059N1014232.2
129N088W05DDD3	460059N1014232.3
129N088W11ABB	460053N1013915.1
129N088W13BAA	460000N1013809.1
129N088W14BCB	455947N1013953.1
129N088W14DBB	455934N1013915.1
129N088W19DCC	455823N1014416.1
129N088W20CAA	455842N1014310.1
129N088W28BBD	455810N1014214.1
129N088W28CA	455747N1014159.1
129N088W28CDD	455730N1014155.1
129N088W31DD	455642N1014352.1
129N088W31DDA	455645N1014348.1
129N088W33BAA	455724N1014155.1
129N088W33DBB	455704N1014145.1
129N089W02AA	460142N1014622.1
129N089W02BBB1	460145N1014723.1
129N089W02BBB2	460145N1014723.2
129N089W02BCB	460132N1014723.1
129N089W02DDA	460106N1014618.1
129N089W03CDC	460100N1014819.1
129N089W05DDD	460100N1015002.1
129N089W11DD	460010N1014622.1
129N089W17BAA	460001N1015039.1
129N089W17BCC	455942N1015107.1
129N089W18DDA	455922N1015117.1
129N089W20BCC1	455850N1015107.1
129N089W20BCC2	455850N1015107.2
129N089W20CDD	455823N1015039.1
129N089W22CC	455826N1014833.1

LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)
129N089W22CDC	455823N1014819.1
129N089W23CC	455826N1014718.1
129N089W23CCC1	455823N1014723.1
129N089W23CCC2	455823N1014723.2
129N089W23DAB	455842N1014627.1
129N089W24BBC	455902N1014608.1
129N089W24DDD1	455823N1014503.1
129N089W24DDD2	455823N1014503.2
129N089W27ABC	455810N1014800.1
129N089W27DAA	455750N1014732.1
129N089W30CDD1	455731N1015154.1
129N089W30CDD2	455731N1015154.2
129N089W31CC	455643N1015218.1
129N090W01BBB	460146N1015336.1
129N090W02CC	460104N1015446.1
129N090W02CCC	460101N1015450.1
129N090W04CC	460104N1015714.1
129N090W05ABB	460146N1015755.1
129N090W05DDB	460107N1015737.1
129N090W06DDA	460108N1015842.1
129N090W07CD	460012N1015923.1
129N090W07CDD1	460009N1015919.1
129N090W07CDD2	460009N1015919.2
129N090W08DDA	460015N1015728.1
129N090W09AB	460051N1015637.1
129N090W09BCC	460035N1015718.1
129N090W15ADC	455943N1015509.1
129N090W19CD	455828N1015923.1
129N090W19DCC	455825N1015909.1
129N090W25DDD	455732N1015232.1
129N090W29ACA	455805N1015746.1
129N090W29CBB	455753N1015832.1
130N079W19BBB	460423N1003739.1
130N079W19CCB	460342N1003736.1
130N080W03ABB	460659N1004041.1
130N080W08CB	460539N1004342.1
130N080W10BBA	460607N1004109.1
130N080W11AD	460550N1003904.1
130N080W14AA	460511N1003904.1
130N080W14AD	460458N1003904.1

LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)
130N080W14CDD	460429N1003937.1
130N080W23AAA	460423N1003857.1
130N080W23ABB	460424N1003930.1
130N080W23ADA	460409N1003900.1
130N080W23DAA1	460356N1003900.1
130N080W23DAA2	460356N1003900.2
130N080W23DDD	460336N1003900.1
130N080W24ACC	460402N1003813.1
130N080W24BAB	460422N1003832.1
130N080W24BBA	460422N1003841.1
130N080W24DDC	460336N1003755.1
130N080W26BAA	460330N1003937.1
130N080W35BBB	460238N1004004.1
130N081W31BBB1	460240N1005228.1
130N081W31BBB2	460240N1005228.2
130N082W12DDB	460529N1005247.1
130N082W12DDD	460523N1005238.1
130N082W13AAC	460510N1005247.1
130N082W14CCA	460437N1005450.1
130N082W34AA	460237N1005513.1
130N082W34ABD1	460233N1005527.1
130N082W34ABD2	460233N1005527.2
130N082W36BBC	460233N1005344.1
130N083W25CBC	460259N1010115.1
130N083W28DCD1	460246N1010412.1
130N083W28DCD2	460246N1010412.2
130N083W28DCD3	460246N1010412.3
130N083W36AAA	460240N1010010.1
130N083W36BDB	460227N1010056.1
130N084W13AAD	460510N1010737.1
130N084W31AAA1	460239N1011353.1
130N084W31AAA2	460239N1011353.2
130N084W34ADA	460227N1011007.1
130N084W36ABA	460240N1010755.1
130N085W04BBB	460700N1011958.1
130N085W09CCC	460522N1011958.1
130N085W17ADD	460456N1012007.1
130N085W17DAA1	460449N1012007.1
130N085W17DAA2	460449N1012007.2
130N085W20BA	460420N1012049.1

LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)
130N085W23CCB	460344N1011728.1
130N085W26BDA	460318N1011700.1
130N085W27CCC	460245N1011843.1
130N085W28CC	460249N1011953.1
130N085W28CCC1	460245N1011958.1
130N085W28CCC2	460245N1011958.2
130N085W28CCC3	460245N1011958.3
130N085W32AAD	460232N1012007.1
130N085W33BBD	460232 1011948.1
130N086W01CC	460617N1012337.1
130N086W04BBC	460653N1012727.1
130N086W06DDD1	460613N1012851.1
130N086W06DDD2	460613N1012851.2
130N086W07CAD1	460534N1012928.1
130N086W07CAD2	460534N1012928.2
130N086W07CAD3	460534N1012928.3
130N086W08ADB	460554N1012745.1
130N086W08CAB	460540N1012823.1
130N086W08CC	460524N1012837.1
130N086W18ABB	460514N1012919.1
130N086W18DBD	460441N1012910.1
130N086W22BBB1	460422N1012612.1
130N086W22BBB2	460422N1012612.2
130N086W22BBB3	460422N1012612.3
130N086W25BC	460314N1012337.1
130N086W25BCC1	460311N1012342.1
130N086W25BCC2	460311N1012342.2
130N086W26CBB	460304N1012457.1
130N086W27DCC1	460244N1012534.1
130N086W27DCC2	460244N1012534.2
130N086W28CCC1	460244N1012727.1
130N086W28CCC2	460244N1012727.2
130N086W32DDA1	460158N1012736.1
130N086W32DDA2	460158N1012736.2
130N086W33AB	460234N1012645.1
130N086W33BAB	460237N1012708.1
130N086W34BDD	460218N1012544.1
130N086W36CDD	460152N1012314.1
130N087W02DCD	460613N1013139.1
130N087W05BAD	460653N1013542.1
130N087W07DBA1	460541N1013639.1
130N087W07DBA2	460541N1013639.2
130N087W08BAB	460607N1013552.1
130N087W09ACC	460548N1013418.1
130N087W09DBD	460535N1013409.1
130N087W12ABC	460600N1013034.1
130N087W14DBA1	460449N1013139.1
130N087W14DBA2	460449N1013139.2
130N087W22DAA	460357N1013235.1
130N087W27BDC	460311N1013322.1
130N087W32CDA1	460200N1013542.1
130N087W32CDA2	460200N1013542.2
130N087W34BCA1	460225N1013331.1
130N087W34BCA2	460225N1013331.2
130N088W03BDD	460640N1014042.1
130N088W04ABB1	460700N1014148.1
130N088W04ABB2	460700N1014148.2
130N088W05CBB	460634N1014340.1
130N088W05DBA1	460634N1014253.1
130N088W05DBA2	460634N1014253.2
130N088W06CDB	460620N1014437.1
130N088W06DAD	460627N1014350.1
130N088W07AAB	460607N1014359.1
130N088W10ADD	460548N1014005.1
130N088W11CAC	460535N1013937.1
130N088W13ACC	460455N1013803.1
130N088W14BCD1	460455N1013946.1
130N088W14BCD2	460455N1013946.2
130N088W14BCD3	460455N1013946.3
130N088W14BDC	460455N1013937.1
130N088W19CAA	460357N1014427.1
130N088W21BAC	460416N1014207.1
130N088W22AAB1	460423N1014014.1
130N088W22AAB2	460423N1014014.2
130N088W22CDD	460337N1014042.1
130N088W23CB	460353N1013951.1
130N088W25CBA	460304N1013831.1
130N088W32CBA	460212N1014331.1
130N088W32CBB	460212N1014340.1
130N088W35DB	460209N1013854.1
130N089W02ADC	460640N1014629.1
130N089W12CAA	460541N1014542.1
130N089W13CAB	460449N1014551.1
130N089W29AAC	460324N1015013.1
130N089W29ACA	460317N1015023.1
130N089W31BBB	460238N1015254.1
130N089W32DDA	460159N1015004.1
130N089W33ADB	460225N1014859.1
130N089W33CCB	460155N1014955.1
130N089W34DDD	460152N1014734.1
130N090W02DCC	460614N1015415.1
130N090W03CDD	460614N1015539.1
130N090W04ADD	460640N1015616.1
130N090W04BBD	460653N1015711.1
130N090W07DDC1	460522N1015852.1
130N090W07DDC2	460522N1015852.2
130N090W08AAD	460601N1015730.1
130N090W09ADA	460541N1015622.1
130N090W09CAA1	460541N1015653.1
130N090W09CAA2	460541N1015653.2
130N090W09CAC	460535N1015702.1
130N090W10ABD1	460601N1015520.1
130N090W10ABD2	460601N1015520.2
130N090W10DDD	460522N1015502.1
130N090W11CCC	460522N1015452.1
130N090W11DDA	460528N1015348.1
130N090W12ABB	460607N1015301.1
130N090W13CBC	460442N1015338.1
130N090W17AAA	460515N1015730.1
130N090W17AAB	460515N1015739.1
130N090W18BBA	460515N1015939.1
130N090W18DBC	460442N1015911.1
130N090W19AAA	460423N1015844.1
130N090W19CCD	460337N1015939.1
130N090W19DAD	460350N1015844.1
130N090W20DAA	460357N1015730.1
130N090W20DDA1	460333N1015730.1
130N090W20DDA2	460343N1015730.2
130N090W21CDD	460337N1015653.1
130N090W25CCC1	460245N1015338.1

LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)
130N090W25CCC2	460245N1015338.2
130N090W27CDA	460251N1015539.1
130N090W28CBB	460304N1015720.1
130N090W30BBD	460324N1015939.1
130N090W32BAD1	460232N1015807.1
130N090W32BAD2	460232N1015807.2
130N090W33CCB	460159N1015720.1
130N090W34DBB	460212N1015529.1
130N090W35BAA	460238N1015424.1
130N090W35DD	460156N1015352.1
130N090W35DDD	460152N1015348.1
130N090W36BCD	460218N1015329.1
131N080W02AD	461156N1003904.1
131N080W04BB	461209N1004227.1
131N080W06BCD	461153N1004450.1
131N080W06BDD1	461153N1004432.1
131N080W06BDD2	461153N1004432.2
131N080W16DDD	460943N1004127.1
131N080W21AAC	460930N1004136.1
131N080W29CA	460815N1004325.1
131N080W33ADD	460733N1004127.1
131N080W33BAA	460752N1004204.1
131N081W01AA	461209N1004513.1
131N081W01ABC	461206N1004537.1
131N081W01DAD	461140N1004509.1
131N081W01DDA	461134N1004509.1
131N081W06AC	461157N1005145.1
131N081W12DB	461051N1004532.1
131N081W31DBC	460720N1005150.1
131N081W33ACA	460739N1004911.1
131N082W18CDB	460950N1005940.1
131N082W18DCD	460944N1005911.1
131N082W21AA	460934N1005627.1
131N082W22BC	460921N1005608.1
131N083W11BA	461118N1010205.1
131N083W11BAB	461121N1010210.1
131N084W02AAA	461213N1010853.
131N084W03AAD	461206N1011008.1
131N084W08BCC	461100N1011343.1
131N084W09DAA	461054N1011123.1
131N084W09DBA	461054N1011141.1
131N084W09DBB	461054N1011151.1
131N084W17AAB	461028N1011247.1
131N084W17AAC	461021N1011247.1
131N085W01BAC1	461205N1011554.1
131N085W01BAC2	461205N1011554.2
131N085W08DDD1	461033N1012007.1
131N085W08DDD2	461033N1012007.2
131N085W09CCC	461033N1011958.1
131N085W13BCD	461008N1011603.1
131N085W17AA	461023N1012012.1
131N085W18AAB1	461027N1012132.1
131N085W18AAB2	461027N1012132.2
131N085W23BB	460932N1011723.1
131N085W26DBD	460810N1011641.1
131N085W27ACC1	460823N1011805.1
131N085W27ACC2	460823N1011805.2
131N085W29BBD	460836N1012404.1
131N085W32AAA	460750N1012007.1
131N085W32ADA	460737N1012007.1
131N085W32CAC1	460718N1012054.1
131N085W32CAC2	460718N1012054.2
131N085W32DAA	460724N1012007.1
131N085W34BBB	460750N1011843.1
131N086W04BBB	461211N1012727.1
131N086W04BBB	461211N1012727.1
131N086W09BB	461116N1012722.1
131N086W14DAC	460954N1012402.1
131N086W18CAD1	460955N1012928.1
131N086W18CAD2	460955N1012928.2
131N086W18CC	460945N1012952.1
131N086W32ABA1	460751N1012755.1
131N086W32ABA2	460751N1012755.2
131N086W32CCC	460705N1012842.1
131N086W34DBB	460724N1012535.1
131N087W01AAD	461205N1013006.1
131N087W02CAB	461146N1013207.1
131N087W03DD	461130N1013240.1
131N087W06BCB1	461201N1013725.1
131N087W06BCB2	461201N1013725.2
131N087W06DDB	461230N1013005.1
131N087W11CDD	461034N1013158.1
131N087W12DAA	461054N1013006.1
131N087W12DAB	461054N1013015.1
131N087W13ACD	461008N1013024.1
131N087W15DDC	460942N1013245.1
131N087W19ACC	460917N1013648.1
131N087W22DDA1	460857N1013235.1
131N087W22DDA2	460857N1013235.2
131N087W28BCD	460825N1013446.1
131N087W28CDD	460759N1013428.1
131N087W30BDC1	460825N1013707.1
131N087W30BDC2	460825N1013707.2
131N087W31BDA	460740N1013657.1
131N087W31DD	460710N1013625.1
131N087W32CDC	460707N1013552.1
131N087W33CBA	460726N1013446.1
131N087W35AA	460748N1013125.1
131N088W01AAD	461207N1013735.1
131N088W03BAA	461213N1014043.1
131N088W04BBB	461213N1014226.1
131N088W05AAB	461213N1014245.1
131N088W05ABD	461206N1014254.1
131N088W05BBA	461213N1014332.1
131N088W07ADC	461101N1014400.1
131N088W07DA	461051N1014355.1
131N088W10DCD1	461036N1014024.1
131N088W10DCD2	461036N1014024.2
131N088W10DCD3	461036N1014024.3
131N088W14BCA	461016N1013946.1
131N088W14CAD	460957N1013927.1
131N088W15AAD	461023N1014005.1
131N088W15ADD	461010N1014005.1
131N088W24DAA	460911N1013735.1
131N088W25CCC	460759N1013840.1
131N088W28CAB	460818N1014207.1
131N088W30CBA1	460818N1014447.1
131N088W30CBA2	460818N1014447.2
131N088W30CBA3	460818N1014447.3
131N088W31CAA	460726N1014428.1

LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)
131N088W32ACC	460733N1014304.1
131N088W33BDC	460733N1014207.1
131N089W04BAC1	461207N1014937.1
131N089W04BAC2	461207N1014937.2
131N089W04BAC3	461207N1014937.3
131N089W04CC	461131N1014951.1
131N089W05BAB	461214N1015052.1
131N089W05BAC1	461207N1015052.1
131N089W05BAC2	461207N1015052.2
131N089W08AAC	461115N1015014.1
131N089W08ADB	461108N1015014.1
131N089W10BAA	461121N1014813.1
131N089W18AAA1	461029N1015120.1
131N089W18AAA2	461029N1015120.2
131N089W24CAB	460910N1014552.1
131N089W26CCA	460805N1014717.1
131N089W30AAA	460845N1015120.1
131N089W36DBD	460719N1014524.1
131N090W02CBB	461148N1015452.1
131N090W04CAA2	461148N1015651.2
131N090W04DDC1	461129N1015624.1
131N090W04DDC2	461129N1015624.2
131N090W09AAB	461122N1015624.1
131N090W09BCC	461103N1015719.1
131N090W10CAD	461049N1015538.1
131N090W11CCD	461036N1015443.1
131N090W15DBC	460957N1015529.1
131N090W19BBA	460938N1015936.1
131N090W22BDD	460918N1015538.1
131N090W28BAA1	460846N1015651.1
131N090W28BAA2	460846N1015651.2
131N090W28BAA3	460846N1015651.3
131N090W34AAA	460753N1015501.1
132N079W28BAA	461355N1003439.1
132N079W28BCC	461335N1003507.1
132N080W16CCC	461457N1004232.1
132N080W23ADB	461436N1003909.1
132N080W23BAC	461443N1003946.1
132N080W27DDD	461311N1004014.1
132N080W32BBD	461300N1004337.1
132N080W32CDB	461227N1004328.1
132N080W34AAC1	461258N1004023.1
132N080W34AAC2	461258N1004023.2
132N080W35ABB	461305N1003927.1
132N081W04CB	461656N1004956.1
132N081W13CC	461459N1004611.1
132N081W27ACC	461338N1004808.1
132N081W29BBB	461357N1005115.1
132N081W30AAC	461351N1005134.1
132N081W30CDC	461311N1005212.1
132N081W30DBB	461331N1005153.1
132N081W34AD	461249N1004744.1
132N081W36ADB	461252N1004519.1
132N081W36CC	461223N1004611.1
132N082W09DCB	461553N1005652.1
132N082W09DDC	461547N1005633.1
132N082W09DDD	461547N1005624.1
132N082W10CBB	461606N1005614.1
132N082W10CBC	461600N1005614.1
132N082W10CDD	461547N1005546.1
132N082W10DDB	461553N1005518.1
132N082W19BDD	461429N1005930.1
132N082W19CAC	461416N1005940.1
132N082W30ADB	461343N1005902.1
132N083W05CBB	461700N1010614.1
132N083W08DCD	461548N1010527.1
132N083W09CCC	461548N1010459.1
132N083W10DAD	461601N1010238.1
132N083W11CBA1	461607N1010219.1
132N083W11CBA2	461607N1010219.2
132N083W19CDC	461404N1010711.1
132N083W29BBB	461357N1010614.1
132N083W29CCC	461311N1010614.1
132N083W30AAC	461351N1010633.1
132N083W30BCB	461344N1010729.1
132N083W30DCC	461311N1010652.1
132N083W31BAA	461305N1010701.1
132N083W31BBB	461305N1010729.1
132N083W31DBA	461239N1010642.1
132N083W32BAB	461305N1010555.1
132N083W33AAD	461258N1010353.1
132N083W34DDA	461226N1010238.1
132N083W35DDC1	461219N1010132.1
132N083W35DDC2	461219N1011032.2
132N083W36CCC	461219N1010113.1
132N084W01CCD	461641N1010835.1
132N084W01DAA	461701N1010739.1
132N084W01DDC	461641N1010748.1
132N084W06CCC	461637N1011457.1
132N084W07BAB	461631N1011439.1
132N084W07DD	461549N1011357.1
132N084W12AAA	461635N1010739.1
132N084W12BAA1	461634N1010816.1
132N084W12BAA2	461634N1010816.2
132N084W12CCD	461548N1010835.1
132N084W15DD	461459N1011013.1
132N084W16DAA	461514N1011123.1
132N084W19DAD	461414N1011352.1
132N084W20ACC	461428N1011305.1
132N084W25BAB	461358N1010825.1
132N084W27AAA	461357N1011008.1
132N084W31DAA	461236N1011352.1
132N085W04DAC1	461652N1011903.1
132N085W04DAC2	461652N1011903.2
132N085W10CCC1	461546N1011844.1
132N085W10CCC2	461546N1011844.2
132N085W11DBC	461559N1011651.1
132N085W12CCC1	461545N1011613.1
132N085W12CCC2	461545N1011613.2
132N085W12CCC3	461545N1011613.3
132N085W14DCC1	461453N1011651.1
132N085W14DCC2	461453N1011651.2
132N085W17BDB1	461528N1012056.1
132N085W17BDB2	461528N1012056.2
132N085W19BCC	461430N1012230.1
132N085W22AAA	461447N1011738.1
132N085W26DCA	461316N1011641.1
132N085W26DDB	461316N1011632.1
132N085W27BB	461352N1011839.1
132N085W28BCB	461343N1011959.1

LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)
132N085W29ADA	461343N1012009.1
132N085W30CBB1	461331N1012230.1
132N085W30CBB2	461331N1012230.2
132N086W03DBC	461655N1012537.1
132N086W04CAA1	461701N1012701.1
132N086W04CAA2	461701N1012701.2
132N086W04DAC	461655N1012633.1
132N086W07ACD	461616N1012912.1
132N086W09DBD	461603N1012642.1
132N086W10CDA	461556N1012546.1
132N086W13CAB1	461516N1012326.1
132N086W13CAB2	461516N1012326.2
132N086W15CAC	461510N1012556.1
132N086W15DBD1	461510N1012528.1
132N086W15DBD2	461510N1012528.2
132N086W15DBD3	461510N1012528.3
132N086W16AAA	461543N1012624.1
132N086W17ADD	461524N1012738.1
132N086W17DD	461517N1012757.1
132N086W18AAC1	461537N1012902.1
132N086W18AAC2	461537N1012902.2
132N086W18ACA	461530N1012912.1
132N086W20BAD	461444N1012816.1
132N086W22AAC1	461444N1012518.1
132N086W22AAC2	461444N1012518.2
132N086W24ABD1	461444N1012258.1
132N086W24ABD2	461444N1012258.2
132N086W24ABD3	461444N1012258.3
132N086W30BDD1	461339N1012930.1
132N086W30BDD2	461339N1012930.2
132N086W30BDD3	461339N1012930.3
132N086W32DDD	461221N1012738.1
132N087W03DDB	461647N1013247.1
132N087W10ABD	461628N1013256.1
132N087W11AAA	461634N1013123.1
132N087W14DDC	461457N1013132.1
132N087W20DDC	461404N1013517.1
132N087W23CBA1	461424N1013219.1
132N087W23CBA2	461424N1013219.2
132N087W26BDB	461345N1013210.1
132N087W26CCB	431319N1013228.1
132N087W27ABA	461358N1013256.1
132N087W27ADA	461345N1013238.1
132N087W27DAA	461332N1013238.1
132N087W28AAD	461351N1013353.1
132N087W29AAA	461357N1013508.1
132N087W29AAB	461357N1013517.1
132N087W34BAB	461305N1013325.1
132N087W34BAD	461259N1013315.1
132N088W03DBD	461652N1014027.1
132N088W04CBB	461658N1014229.1
132N088W04CBC	461652N1014229.1
132N088W05DDD	461639N1014238.1
132N088W11ACB1	461620N1013921.1
132N088W11ACB2	461620N1013921.2
132N088W11ACB3	461620N1013921.3
132N088W22DAC	461416N1014017.1
132N088W27DBA1	461330N1014027.1
132N088W27DBA2	461330N1011427.2
132N088W28DBB	461330N1014151.1
132N088W29ADB	461343N1014248.1
132N088W30CBA	461329N1014450.1
132N088W31DBD	461231N1014412.1
132N088W32ABA	461338N1011457.1
132N088W32DCD	461218N1014257.1
132N088W33ABD1	461257N1014142.1
132N088W33ABD2	461257N1014142.2
132N088W34CAD	461231N1014046.1
132N088W34DAB1	461239N1015514.1
132N088W34DAB2	461239N1015514.2
132N089W02CAB	461703N1014710.1
132N089W04CCC1	461643N1014957.1
132N089W04CCC2	461643N1014957.2
132N089W04CCC3	461643N1014957.3
132N089W06DDC	461643N1015130.1
132N089W08ABA	461636N1015025.1
132N089W09DAB	461610N1014901.1
132N089W09DD	461554N1014857.1
132N089W14CBA	461518N1014719.1
132N089W16BAA	461544N1014929.1
132N089W16CDA	461504N1014929.1
132N089W18ADD	461524N1015121.1
132N089W18BDC	461524N1015208.1
132N089W19CCC	461405N1015226.1
132N089W22CCC1	461405N1014843.1
132N089W22CCC2	461405N1014843.2
132N089W22DCC	461405N1014806.1
132N089W25AD	461343N1014513.1
132N089W25CCA	461319N1014605.1
132N089W26ACD	461339N1014632.1
132N089W28DDC1	461312N1014901.1
132N089W28DDC2	461312N1014901.2
132N089W32BAA1	461306N1015044.1
132N089W32BAA2	461306N1015044.2
132N090W02CCB	461647N1015455.1
132N090W04CCB1	461645N1015724.1
132N090W04CCB2	461645N1015724.2
132N090W06CCC	461637N1015952.1
132N090W06DDA	461644N1015847.1
132N090W07BBB	461631N1015952.1
132N090W08ADA	461619N1015733.1
132N090W10BBA	461633N1015600.1
132N090W13CCC	461457N1015341.1
132N090W14AAB1	461542N1015359.1
132N090W14AAB2	461542N1015359.2
132N090W20CBB1	461421N1015838.1
132N090W20CBB2	461421N1015838.2
132N090W26ACC	461338N1015418.1
132N090W30DDD1	461309N1015847.1
132N090W30DDD2	461309N1015847.2
132N090W31CCD1	461216N1015943.1
132N090W31CCD2	461216N1015943.2
132N090W34ABB1	461305N1015532.1
132N090W34ABB2	461305N1015532.2
133N079W02CBB	462148N1003518.1
133N079W06ACC	462156N1003941.1
133N079W06BCB	462203N1004018.1
133N079W07DCD	462038N1003931.1
133N079W07DD	462041N1003917.1
133N079W08CAB	462057N1003844.1

LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)
133N079W08CAD	462050N1003835.1
133N079W11BAA	462122N1003449.1
133N079W17BDC	462011N1003844.1
133N079W27BD	461830N1003609.1
133N079W29AAB	461846N1003807.1
133N079W29ABA	461847N1003816.1
133N079W33DAC	461721N1003652.1
133N080W01DDD	462130N1004028.1
133N080W03BC	462159N1004358.1
133N080W11CA	462054N1004225.1
133N080W12ACB	462111N1004056.1
133N080W12DDD	462038N1004028.1
133N080W13BAB1	462031N1004114.1
133N080W13BAB2	462031N1004114.2
133N080W13DDA	461952N1004028.1
133N080W14DCD	461946N1004201.1
133N080W15DD	461949N1004302.1
133N080W24CB	461910N1004128.1
133N080W31CCD1	461709N1004738.1
133N080W31CCD2	461709N1004738.2
133N080W34DC	461713N1004321.1
133N081W04AA	462212N1005147.1
133N081W13DCC1	461946N1004825.1
133N081W13DCC2	461946N1004825.2
133N081W24ABB	461939N1004825.1
133N081W35DCB	461716N1004940.1
133N082W14CBA	462005N1005740.1
133N082W14CBB	462005N1005750.1
133N083W05DCC	462129N1010829.1
133N083W06CDD	462129N1010953.1
133N083W07CCB1	462043N1011021.1
133N083W07CCB2	462043N1011021.2
133N083W08BBB	462123N1010906.1
133N083W12ADA1	462111N1010300.1
133N083W12ADA2	462111N1010300.2
133N083W14BBB	462031N1010521.1
133N083W17CBB	462005N1010906.1
133N083W17DAA	462005N1010800.1
133N083W19BBB	461938N1011021.1
133N083W21AAA	461939N1010645.1
133N083W21ABB	461939N1010713.1
133N083W26CC	461804N1010516.1
133N083W28AAB	461847N1010655.1
133N083W28DCD	461801N1010704.1
133N083W32DAA	461728N1010800.1
133N083W33DDC	461709N1010655.1
133N083W34CBC	461722N1010636.2
133N083W34CBC1	461722N1010636.1
133N083W35CBB	461729N1010521.1
133N083W35DDA	461716N1010415.1
133N084W01DCC	462129N1011059.1
133N084W02CDD	462129N1011224.1
133N084W03DAD	462142N1011301.1
133N084W04DBB1	462149N1011445.1
133N084W04DBB2	462149N1011445.2
133N084W22DCA1	461859N1011320.1
133N084W22DCA2	461859N1011320.2
133N084W24DAA	461912N1011031.1
133N084W27DAB	461820N1011311.1
133N084W29BAA	461846N1011610.1
133N084W30AAA	461846N1011647.1
133N084W30DAD	461813N1011647.1
133N085W02CAC	462142N1011233.1
133N085W04ABD	462208N1012209.1
133N085W06CBB	462149N1012527.1
133N085W08BCC1	462103N1012412.1
133N085W08BCC2	462103N1012412.2
133N085W10DCA1	462043N1012053.1
133N085W10DCA2	462043N1012053.2
133N085W12ADD	462103N1011803.1
133N085W17AAA	462030N1012305.1
133N085W19CDD1	461853N1012459.1
133N085W19CDD2	461853N1012459.2
133N085W20CDD1	461853N1012343.1
133N085W20CDD2	461853N1012343.2
133N085W20CDD3	461853N1012343.3
133N085W21CCC	461853N1012256.1
133N085W25CDD1	461800N1011841.1
133N085W25CDD2	461800N1011841.2
133N085W26CCC	461800N1012025.1
133N085W28CBB1	461820N1012256.1
133N085W28CBB2	461820N1012256.2
133N085W29BAA	461846N1012343.1
133N085W29DAD	461813N1012305.1
133N085W32CCC	461708N1012412.1
133N085W35BCB	461741N1012025.1
133N086W06BBB	462214N1013256.1
133N086W11DAA1	462056N1012652.1
133N086W11DAA2	462056N1012652.2
133N086W14CAD1	461958N1012729.1
133N086W14CAD2	461958N1012729.2
133N086W20CAB	461911N1013123.1
133N086W20CAC	461905N1013123.1
133N086W32CAC1	461721N1013123.1
133N086W32CAC2	461721N1013123.2
133N086W34DCB	461714N1012834.1
133N086W35CDC	461708N1012738.1
133N087W03DDB	462135N1013544.1
133N087W06BCD	462154N1014015.1
133N087W06BDB	462201N1014006.1
133N087W06CAB	462148N1014006.1
133N087W08AA	462118N1013809.1
133N087W08AAA	462122N1013804.1
133N087W08ADA	462109N1013804.1
133N087W08BBA	462122N1013900.1
133N087W08CCC	462036N1013910.1
133N087W09DAC	462049N1013659.1
133N087W10BCC	462102N1013640.1
133N087W10BCD	462102N1013631.1
133N087W11ADA1	462109N1013420.1
133N087W11ADA2	462109N1013420.2
133N087W12BCB	462109N1013411.1
133N087W14CAA	462003N1013458.1
133N087W19ADA1	461924N1013919.1
133N087W19ADA2	461924N1013919.2
133N087W19ADA3	461924N1013919.3
133N087W22AAC1	461931N1013544.1
133N087W22AAC2	461931N1013544.2
133N087W28CAD	461812N1013727.1
133N087W30AAD	461839N1013919.1

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133N087W33ABD	461746N1013708.1	133N089W19CC	461851N1015515.1	133N090W23ABB	461935N1015712.1
133N088W01CDD	462128N1014111.1	133N089W20CC	461851N1015359.1	133N090W23DAD	461902N1015644.1
133N088W01DAB	462148N1014043.1	133N089W23ABB1	461934N1014941.1	133N090W26DAA	461817N1015644.1
133N088W02DDD	462128N1014148.1	133N089W23ABB2	461934N1014941.2	133N090W28CBD	461810N1020011.1
133N088W05BCD	462153N1014625.1	133N089W25DBB	461816N1014826.1	133N090W30CDD1	461757N1020222.1
133N088W05BDB1	462200N1014616.1	133N089W26ACC	461822N1014941.1	133N090W30CDD2	461757N1020222.2
133N088W05BDB2	462200N1014616.2	133N089W26DBB	461815N1014941.1	133N090W30CDD3	461757N1020222.3
133N088W06ADD	462153N1014644.1	133N089W28DD	461759N1015148.1	133N090W30DCA1	461803N1020203.1
133N088W12AAD	462115N1014034.1	133N089W28DDD	461755N1015143.1	133N090W30DCA2	461803N1020203.2
133N088W14DAC1	461957N1014157.1	133N089W29ABB	461841N1015327.1	133N090W33DAB	461724N1015924.1
133N088W14DAC2	461957N1014157.2	133N089W30CAA	461815N1015451.1	134N079W23C	462413N1003500.1
133N088W15ACB	462016N1014329.1	133N089W31ABB	461748N1015442.1	134N079W26CC1	462314N1003510.1
133N088W17CC	461946N1014630.1	133N089W31BCC	461729N1015519.1	134N079W26CC2	462314N1003510.2
133N088W20DAD	461904N1014530.1	133N089W32BDA1	461735N1015336.1	134N079W28AAC	462351N1003649.1
133N088W22AAB	461937N1014311.1	133N089W32BDA2	461735N1015336.2	134N079W29CC	462315N1003858.1
133N088W23BBA	461937N1014243.1	133N089W32BDA3	461735N1015336.3	134N079W29DDD	462311N1003756.1
133N088W25DCC	461759N1014101.1	133N089W34BAB1	461749N1015115.1	134N079W32ABB	462305N1003824.1
133N089W01CAA	462146N1014835.1	133N089W34BAB2	461749N1015115.2	134N079W32ADA	462246N1003756.1
133N089W01CCB1	462133N1014903.1	133N089W34BAB3	461749N1015115.3	134N079W32ADD	462239N1003756.1
133N089W01CCB2	462133N1014903.2	133N089W34BBA	461749N1015124.1	134N079W32BAB	462305N1003843.1
133N089W01CCB3	462133N1014903.3	133N090W01AC	462155N1015552.1	134N079W32BBA	462305N1003834.1
133N089W03ADC	462153N1015037.1	133N090W03CC	462129N1015900.1	134N079W32DAA	462239N1003756.1
133N089W04DAD	462139N1015143.1	133N090W03DAD	462139N1015759.1	134N079W32DDD	462219N1003756.1
133N089W05AAA1	462212N1015258.1	133N090W05BCD1	462151N1020126.1	134N079W33CAA	462239N1003718.1
133N089W05AAA2	462212N1015258.2	133N090W05BCD2	462151N1020126.2	134N079W33DAA	462238N1003640.1
133N089W06ABA	462212N1015432.1	133N090W07ABB	462119N1020213.1	134N079W33DC	462222N1003704.1
133N089W06BBD1	462205N1015510.1	133N090W08BDB	462106N1020116.1	134N079W34CBB	462238N1003630.1
133N089W06BBD2	462205N1015510.2	133N090W09BCA1	412106N1020011.1	134N080W30CCD	462310N1004740.1
133N089W07DC	462036N1015437.1	133N090W09BCA2	462106N1020011.2	134N080W31BBA1	462303N1004740.1
133N089W07DCA	462040N1015432.1	133N090W09BCA3	462106N1020011.3	134N080W31BBA2	462303N1004740.2
133N089W07DCD	462033N1015432.1	133N090W10BBA	462119N1015855.1	134N080W35ADA	462251N1004143.1
133N089W11CAD	462047N1014950.4	133N090W10BBB	462119N1015905.3	134N081W31CD	462225N1005458.1
133N089W11CAD1	462047N1014950.1	133N090W10BBB1	462119N1015905.1	134N082N36CDC	462222N1005618.1
133N089W11CAD2	462047N1014950.2	133N090W10BBB2	462119N1015905.2	134N082W36CAD	462233N1005603.1
133N089W11CAD3	462047N1014950.3	133N090W12ABC	462113N1015557.1	134N082W36DCD	462222N1005627.1
133N089W14BCD1	462007N1015009.1	133N090W14CDD1	461942N1015721.1	134N085W03BBD	462721N1012131.1
133N089W14BCD2	462007N1015009.2	133N090W14CDD2	461942N1015721.2	134N085W03BCC	462708N1012140.1
133N089W15AAA	462027N1015028.1	133N090W20BAA	461934N1020107.1	134N085W04AAC	462721N1012159.1
133N089W15ABB	462027N1015056.1	133N090W22CCB	461900N1015904.1	134N085W04CDD1	462642N1012227.1
133N089W15ABC	462020N1015056.1	133N090W22DAA	461909N1015759.1	134N085W04CDD2	462642N1012227.2

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134N085W04CDD3	462642N1012227.3
134N085W05BCA	462715N1012401.2
134N085W05BCA	462715N1012401.1
134N085W05DCC	462642N1012333.1
134N085W06AAD	462721N1012420.1
134N085W06BCC	462708N1012525.1
134N085W06DAA	462702N1012420.1
134N085W08CDC1	462550N1012352.1
134N085W08CDC2	462550N1012352.2
134N085W10AAA1	462636N1012035.1
134N085W10AAA2	462636N1012035.2
134N085W13DCA1	462504N1011823.1
134N085W13DCA2	462504N1011826.2
134N085W16CBB	462517N1012255.1
134N085W16DDB	462504N1012159.1
134N085W17BAD1	462537N1012342.1
134N085W17BAD2	462537N1012342.2
134N085W20BDD1	462432N1012342.1
134N085W20BDD2	462432N1012342.2
134N085W21BAB1	462451N1012237.1
134N085W21BAB2	462451N1012237.2
134N085W21BAB3	462451N1012237.3
134N085W22AAC1	462445N1012044.1
134N085W22AAC2	462445N1012044.2
134N085W22DCA	462412N1012053.1
134N085W23DDD	462406N1011920.1
134N085W31CDD	462221N1012457.1
134N085W32BCC	462247N1012410.1
134N085W32DBA	462241N1012323.1
134N086W06BBC	462722N1013258.1
134N086W10DDB1	462557N1012815.1
134N086W10DDB2	462557N1012815.2
134N086W11BCC	462616N1012756.1
134N086W18BBD	462538N1013249.1
134N086W18BCC	462525N1013258.1
134N086W18CCA	462505N1013249.1
134N086W20DCB1	462413N1013105.1
134N086W20DCB2	462413N1013105.2
134N086W30ABC1	462353N1013221.1
134N086W30ABC2	462353N1013221.2

LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)
134N087W01ADA1	462716N1013308.1
134N087W01ADA2	462716N1013308.2
134N087W01ADA3	462716N1013308.3
134N087W02CCC	462642N1013528.1
134N087W03CAA	462702N1013615.1
134N087W04DCA1	462649N1013711.1
134N087W04DCA2	462649N1013711.2
134N087W04DCA3	462649N1013711.3
134N087W08ABD1	462629N1013826.1
134N087W08ABD2	462629N1013826.2
134N087W08ABD3	462629N1013826.3
134N087W08BBD1	462628N1013904.1
134N087W08BBD2	462628N1013904.2
134N087W09CBB1	462609N1013758.1
134N087W09CBB2	462609N1013758.2
134N087W09DCB	462556N1013721.1
134N087W10CDC1	462550N1013625.1
134N087W10CDC2	462550N1013625.2
134N087W10CDC3	462550N1013625.3
134N087W11BBC1	462629N1013528.1
134N087W11BBC2	462629N1013528.2
134N087W11BBC3	462629N1013528.3
134N087W11BBC4	462629N1013528.4
134N087W12ADD	462617N1013808.1
134N087W13BDD1	462525N1013345.1
134N087W13BDD2	462525N1013345.2
134N087W13BDD3	462525N1013345.3
134N087W13BDD4	462525N1013345.4
134N087W14BCC1	462524N1013528.1
134N087W14BCC2	462524N1013528.2
134N087W14BCC3	462524N1013528.3
134N087W18ABD1	462536N1013941.1
134N087W18ABD2	462536N1013941.2
134N087W21AAA1	462451N1013653.1
134N087W21AAA2	462451N1013653.2
134N087W21AAA3	462451N1013653.3
134N087W21DDA1	462412N1013653.1
134N087W21DDA2	462412N1013653.2
134N087W21DDA3	462412N1013653.3
134N087W21DDA4	462412N1013653.4

LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)
134N087W22BAB	462451N1013625.1
134N087W22BBD	462445N1013634.1
134N087W23DCC	462406N1013451.1
134N087W26BBA1	462359N1013519.1
134N087W26BBA2	462359N1013519.2
134N087W26CAD1	462327N1013500.1
134N087W26CAD2	462327N1013500.2
134N087W26CAD3	462327N1013500.3
134N087W29CCC	462313N1013913.1
134N087W30DDD	462313N1013923.1
134N087W32DDD	462221N1013808.1
134N087W33ABC	462300N1013721.1
134N088W02AAA	462726N1014150.1
134N088W05ADC	462706N1014538.1
134N088W05BDD	462706N1014605.1
134N088W06BDD1	462705N1014718.1
134N088W06BDD2	462705N1014718.2
134N088W10BAB	462634N1014349.1
134N088W11BCB	462621N1014254.1
134N088W12AAB1	462635N1014047.1
134N088W12AAB2	462635N1014047.2
134N088W13DCB	462503N1014105.1
134N088W14CCC	462456N1014254.1
134N088W19DAC	462416N1014651.1
134N088W20BBB	462449N1014633.1
134N088W22DDD1	462404N1014303.1
134N088W22DDD2	462404N1014303.2
134N088W23CCC	462404N1014254.1
134N088W24BAC1	462443N1014123.1
134N088W24BAC2	462443N1014126.2
134N088W24BCC1	462430N1014141.1
134N088W24BCC2	462430N1014141.2
134N088W24BCC3	462430N1014141.3
134N088W26BBA1	462357N1014245.1
134N088W26BBA2	462357N1014245.2
134N088W31ABC	462258N1014709.1
134N088W32BBB	462304N1014633.1
134N089W02BBB	462724N1015015.1
134N089W02CBC1	462652N1015015.1
134N089W02CBC2	462652N1015015.2

LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)
134N089W04BCD1	462705N1015235.1
134N089W04BCD2	462705N1015235.2
134N089W05BAA	462724N1015331.1
134N089W07DDD	462547N1015409.1
134N089W09AAB1	462633N1015149.1
134N089W09AAB2	462633N1015149.2
134N089W10ACD	462613N1015043.1
134N089W10CDB	462554N1015111.1
134N089W12ABA	462633N1014813.1
134N089W14CBA	462515N1015006.1
134N089W14CBB1	462515N1015015.1
134N089W14CBB2	462515N1015015.2
134N089W14CBB3	462515N1015015.3
134N089W16DCC	462456N1015207.1
134N089W17DDB	462502N1015303.2
134N089W17DDB	462502N1015303.1
134N089W18BBD	462534N1015505.1
134N089W18CDD	462455N1015446.1
134N089W19DD	462407N1015414.1
134N089W21ACB1	462436N1015207.1
134N089W21ACB2	462436N1015207.2
134N089W22BDD	462430N1015102.1
134N089W22CBA	462423N1015120.1
134N089W22DBB1	462424N1015052.1
134N089W22DBB2	462424N1015052.2
134N089W22DBB3	462424N1015052.3
134N089W22DBD	462417N1015043.1
134N089W23CAB	462424N1014956.1
134N089W23CCB	462411N1015015.1
134N089W23DCD	462404N1014928.1
134N089W24CAA1	462424N1014832.1
134N089W24CAA2	462424N1014832.2
134N089W27ABC1	462351N1015052.1
134N089W27ABC2	462351N1015052.2
134N089W27ACB	462345N1015052.1
134N089W28BCA1	462345N1015235.1
134N089W28BCA2	462345N1015235.2
134N089W32BDD	462246N1015331.1
134N089W35AAC1	462300N1014919.1
134N089W35AAC2	462300N1014919.2
134N089W35AAD	462300N1014910.1
134N090W04DCC1	462638N1015939.1
134N090W04DCC2	462638N1015939.2
134N090W06CAA	462658N1020220.1
134N090W07BCD	462612N1020239.1
134N090W13ACA1	462527N1015543.1
134N090W13ACA2	462527N1015543.2
134N090W13CBC	462507N1015630.1
134N090W14BAA	462540N1015717.1
134N090W14DAA1	462514N1015639.1
134N090W14DAA2	462514N1015639.2
134N090W18CBC	462507N1020248.1
134N090W20CDA	462409N1020104.1
134N090W20DAD1	462415N1020026.1
134N090W20DAD2	462415N1020026.2
134N090W22BCA1	462435N1015852.1
134N090W22BCA2	462435N1015852.2
134N090W22BCA3	462435N1015852.3
134N090W23ADA	462435N1015639.1
134N090W24BCA	462435N1015620.1
134N090W24DBC	462415N1015552.1
134N090W25AAA	462356N1015524.1
134N090W25BCC1	462336N1015630.1
134N090W25BCC2	462336N1015630.2
134N090W25BCC3	462336N1015630.3
134N090W26ADC	462336N1015649.1
134N090W26DAD1	462323N1015639.1
134N090W26DAD2	462323N1015639.2
134N090W27ADA	462343N1015755.1
134N090W29DAD	462323N1020026.1
134N090W30DAC	462323N1020152.1
134N090W33CCB1	462225N1020017.1
134N090W33CCB2	462225N1020017.2
134N090W35ACD	462244N1015658.1
134N090W35CDB	462225N1015727.1
134N090W35DAC	462231N1015649.1
134N090W35DBD	462231N1015658.1
134N090W36CBC	462231N1015630.1
134N090W36CCB	462225N1015630.1
135N085W04DCD1	463155N1012205.1
135N085W04DCD2	463155N1012205.2
135N085W04DCD3	463155N1012205.3
135N085W04DCD4	463155N1012205.4
135N085W05CDD	463155N1012339.1
135N085W06BCD	463221N1012513.1
135N085W06BDA1	463228N1012454.1
135N085W06BDA3	463228N1012454.3
135N085W06BDA4	463228N1012454.4
135N085W06DCC	463155N1012445.1
135N085W08BBB1	463149N1012407.1
135N085W08BBB2	463149N1012407.2
135N085W08CCD	463103N1012358.1
135N085W10ACA1	463136N1012050.1
135N085W10ACA2	463136N1012050.2
135N085W12CBD	463116N1011858.1
135N085W14DDB	463017N1011926.1
135N085W14DDD	463011N1011917.1
135N085W17CCB1	463017N1012407.1
135N085W17CCB2	463017N1012407.2
135N085W17CCB3	463017N1012407.3
135N085W18BAA1	463056N1012454.1
135N085W18BAA2	463056N1012454.2
135N085W18DDB	463017N1012426.1
135N085W19DD	462922N1012421.1
135N085W19DDA	462925N1012417.1
135N085W20BBC1	462958N1012407.1
135N085W20BBC2	462958N1012407.2
135N085W20BCC	462945N1012407.1
135N085W29CCC	462826N1012407.1
135N085W31BCD	462800N1012513.1
135N085W32BBB1	462820N1012407.1
135N085W32BBB2	462820N1012407.2
135N085W34BCA1	462807N1012128.1
135N085W34BCA2	462807N1012128.2
135N086W02AAC1	463234N1012656.1
135N086W02AAC2	463234N1012656.2
135N086W02AAC3	463234N1012656.3
135N086W02BDC1	463221N1012734.1
135N086W02BDC2	463221N1012734.2

LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)
135N086W02BDC3	463221N1012734.3
135N086W02CCD	463155N1012743.1
135N086W04ADA1	463227N1012917.1
135N086W04ADA2	463227N1012917.2
135N086W04CCA	463201N1013013.1
135N086W06BDA2	463228N1012454.2
135N086W07DDD	463102N1013147.1
135N086W10CCC1	463102N1012907.1
135N086W10CCC2	463102N1012907.2
135N086W10DDA1	463109N1012802.1
135N086W10DDA2	463109N1012802.2
135N086W11BBC1	463142N1012752.1
135N086W11BBC2	463142N1012752.2
135N086W12BCA	463135N1012628.1
135N086W14ABC	463050N1012715.1
135N086W14BBB	463056N1012752.1
135N086W15DDD1	463010N1012802.1
135N086W15DDD2	463010N1012802.2
135N086W17BCC	463036N1013137.1
135N086W18ADD1	463036N1013147.1
135N086W18ADD2	463036N1013147.2
135N086W18ADD3	463036N1013147.3
135N086W20DBD	462931N1013050.1
135N086W24ABB	463004N1012600.1
135N086W26BBB	462912N1012752.1
135N086W28BAC	462905N1013004.1
135N086W28DCA1	462832N1012935.1
135N086W28DCA2	462832N1012935.2
135N086W28DCA3	462832N1012935.3
135N086W28DCA4	462832N1012935.4
135N086W28DCA5	462832N1012935.5
135N086W29CCA1	462832N1013128.1
135N086W29CCA2	462832N1013128.2
135N086W29CCA3	462832N1013128.3
135N086W29DCC	462826N1013100.1
135N086W31BAD	462812N1013224.1
135N086W31CBB	462753N1013252.1
135N086W32CAA	462753N1013109.1
135N086W35DCB1	462741N1012715.1
135N086W35DCB2	462741N1012715.2
135N087W04BDB	463226N1013734.1
135N087W04BDC1	463220N1013734.1
135N087W04BDC2	463220N1013734.2
135N087W05DDB1	463200N1013812.1
135N087W05DDB2	463200N1013812.2
135N087W06AAC1	463232N1013927.1
135N087W06AAC2	463232N1013927.2
135N087W06AAC3	463232N1013927.3
135N087W12AAD	463141N1013302.1
135N087W13BCB	463042N1013407.1
135N087W14ADA1	463042N1013417.1
135N087W14ADA2	463042N1013417.2
135N087W18CBA	463028N1014014.1
135N087W19ADB1	462949N1013927.1
135N087W19ADB2	462949N1013927.2
135N087W21CCD	462917N1013744.1
135N087W27DDC1	462825N1013541.1
135N087W27DDC2	462825N1013541.2
135N087W27DDC3	462825N1013541.3
135N087W32BBB1	462818N1013908.1
135N087W32BBB2	462818N1013908.2
135N088W02ACC1	463219N1014215.1
135N088W02ACC2	463219N1014215.2
135N088W03ABA	463238N1014320.1
135N088W06CAB	463212N1014732.1
135N088W08BAB	463146N1014617.1
135N088W08CCD	463100N1014627.1
135N088W10BCA	463133N1014358.1
135N088W11DDD1	463101N1014147.1
135N088W11DDD2	463101N1014147.2
135N088W11DDD3	463101N1014147.3
135N088W13DBD1	463022N1014051.1
135N088W13DBD2	463022N1014051.2
135N088W13DBD3	463022N1014051.3
135N088W13DBD4	463022N1014051.4
135N088W16DDC1	463009N1014425.1
135N088W16DDC2	463009N1014425.2
135N088W17BCA	463041N1014627.1
135N088W18DBD1	463021N1014704.1
135N088W18DBD2	463021N1014704.2
135N088W21ADC	462943N1014425.1
135N088W21DDC	462917N1014425.1
135N088W22ADC	462943N1014311.1
135N088W22DAD	462930N1014302.1
135N088W24AAA1	463003N1014033.1
135N088W24AAA2	463003N1014033.2
135N088W24AAA3	463003N1014033.3
135N088W24AAB	463003N1014042.1
135N088W25CCD	462825N1014129.1
135N088W26BAA	462910N1014224.1
135N088W26BCA1	462857N1014243.1
135N088W26BCA2	462857N1014243.2
135N088W26DAD1	462838N1014147.1
135N088W26DAD2	462838N1014147.2
135N088W28DAA	462844N1014416.1
135N088W28DAD	462838N1014416.1
135N088W33ABC	462812N1014444.1
135N088W33CDA1	462739N1014453.1
135N088W33CDA2	462739N1014453.2
135N088W34DDD	462733N1014302.1
135N088W35DDD1	462733N1014147.1
135N088W35DDD2	462733N1014147.2
135N088W35DDD3	462733N1014147.3
135N088W35DDD4	462733N1014147.4
135N088W36CCC	462733N1014138.1
135N089W01AAA	463238N1014800.1
135N089W01ACB1	463225N1014828.1
135N089W01ACB2	463225N1014828.2
135N089W01ACB3	463225N1014828.3
135N089W01ACB4	463225N1014828.4
135N089W04BAB1	463237N1015232.1
135N089W04BAB2	463237N1015232.2
135N089W06AAA	463237N1015415.1
135N089W07BCD	463125N1015511.1
135N089W08DBD	463113N1015318.1
135N089W09DAA	463119N1015145.1
135N089W09DAD	463113N1015145.1
135N089W10DCD	463100N1015048.1
135N089W11CDC1	463100N1015002.1
135N089W11CDC2	463100N1015002.2

LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)
135N089W11CDC3	463100N1015002.3
135N089W11DDB	463107N1014924.1
135N089W12ADD1	463126N1014800.1
135N089W12ADD2	463126N1014800.2
135N089W12BBA1	463146N1014856.1
135N089W12BBA2	463146N1014856.2
135N089W14DCC	463008N1014943.1
135N089W14DDC	463008N1014924.1
135N089W15BCB1	463040N1015135.1
135N089W15BCB2	463040N1015135.2
135N089W16CCC	463008N1015250.1
135N089W17CBB	463027N1015405.1
135N089W19BDD	462941N1015452.1
135N089W20ACA1	462948N1015318.1
135N089W20ACA2	462948N1015318.2
135N089W20ACA3	462948N1015318.3
135N089W20CAA	462935N1015337.1
135N089W22ABA	463001N1015048.1
135N089W22CBC	462929N1015135.1
135N089W22CDD	462916N1015107.1
135N089W24AAB	463002N1014809.1
135N089W27BBD	462903N1015126.1
135N089W28ADA1	462856N1015145.1
135N089W28ADA2	462856N1015145.2
135N089W28ADA3	462856N1015145.3
135N089W29DDB1	462830N1015309.1
135N089W29DDB2	462830N1015309.2
135N089W31AAA	462817N1015415.1
135N089W34CCC	462732N1015135.1
135N089W35CDB1	462738N1015002.1
135N089W35CDB2	462738N1015002.2
135N089W35CDB3	462738N1015002.3
135N090W02CCB1	463158N1015751.1
135N090W02CCB2	463158N1015751.2
135N090W04BAB1	463237N1020003.1
135N090W04BAB2	463237N1020003.2
135N090W04BAB3	463237N1020003.3
135N090W04DCA1	463158N1015935.1
135N090W04DCA2	463158N1015935.2
135N090W04DCA3	463158N1015935.3

LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)
135N090W04DCA4	463158N1015935.4
135N090W04DCA5	463158N1015935.5
135N090W05AAA	463237N1020032.1
135N090W06BAD	463230(1020225.1
135N090W06DDA	463158N1020147.1
135N090W10AAB1	463145N1015810.1
135N090W10AAB2	463145N1015810.2
135N090W12DBB1	463118N1015558.1
135N090W12DBB2	463118N1015558.2
135N090W15BCB	463039N1015907.1
135N090W15CDC1	463007N1015848.1
135N090W15CDC2	463007N1015848.2
135N090W18DDD1	463007N1020147.1
135N090W18DDD2	463007N1020147.2
135N090W21BAA1	463000N1015954.1
135N090W21BAA2	463000N1015954.2
135N090W23BBB1	463000N1015751.1
135N090W23BBB2	463000N1015751.2
135N090W24CAC1	462928N1015617.1
135N090W24CAC2	462928N1015617.2
135N090W24CAC3	462928N1015617.3
135N090W28DBD1	462835N1015935.1
135N090W28DBD2	462835N1015935.2
135N090W28DBD3	462835N1015935.3
135N090W31DDA	462737N1020147.1
135N090W32DCC	462730N1020100.1
135N090W33DAC	462743N1015926.1
135N090W34ADB	462803N1015810.1
135N090W34ADC	462756N1015810.1
135N090W34BBB1	462816N1015907.1
135N090W34BBB2	462816N1015907.2
135N090W35AA	462813N1015650.1
136N085W04CBA1	463729N1012243.1
136N085W04CBA2	463729N1012243.2
136N085W04CBA3	463729N1012243.3
136N085W05ABB	463754N1012330.1
136N085W05ABD	463748N1012320.1
136N085W08AAD	463656N1012301.1
136N085W08CDB	463624N1012348.1

LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)
136N085W08DDD	463618N1012301.1
136N085W09BCC	463637N1012254.1
136N085W09BCD	463644N1012243.1
136N085W15CBC	463540N1012137.1
136N085W16BCD	463552N1012243.1
136N085W17BAC	463605N1012348.1
136N085W25AAA	463430N1011801.1
136N085W25DAA1	463404N1011801.1
136N085W25DAA2	463404N1011801.2
136N085W27DDB	463350N1012040.1
136N085W30AAA	463428N1012417.1
136N085W32BBB	463337N1012407.1
136N086W06ADA1	463736N1013148.1
136N086W06ADA2	463736N1013148.2
136N086W07BAA	463657N1013226.1
136N086W17BCD1	463547N1013130.1
136N086W17BCD2	463547N1013130.2
136N086W18AAA	463606N1013148.1
136N086W20ADB1	463502N1013042.1
136N086W20ADB2	463502N1013042.2
136N086W25BAD1	463421N1012609.1
136N086W25BAD2	463421N1012609.2
136N086W26BBD	463420N1012744.1
136N086W26CBC	463354N1012753.1
136N086W29ABC1	463417N1013101.1
136N086W29ABC2	463417N1013101.2
136N086W29ABC3	463417N1013101.3
136N086W29ABC4	463417N1013101.4
136N086W30CDD1	463337N1013226.1
136N086W30CDD2	463337N1013226.2
136N086W30CDD3	463337N1013226.3
136N086W30CDD4	463337N1013226.4
136N086W34AAD	463328N1012802.1
136N087W04BBD1	463741N1013747.1
136N087W04BBD2	463741N1013747.2
136N087W04BBD3	463741N1013747.3
136N087W06BAC	463740N1014008.1
136N087W07DDD	463611N1013921.1
136N087W08BAB	463656N1013853.1
136N087W10AAB	463656N1013544.1

LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)	LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)	LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)
136N087W10BCC	463637N1013641.1	136N088W32DBD2	463259N1014553.2	136N090W24AAC	463506N1015541.1
136N087W12ADB1	463644N1013313.1	136N088W34DCA	463252N1014324.1	136N090W27DBC	463349N1015832.1
136N087W12ADB2	463644N1013313.2	136N089W03ABC	463742N1015100.1	136N090W28AAB	463421N1015929.1
136N087W12ADB3	463644N1013313.3	136N089W04BDD1	463729N1015225.1	136N090W30AAC	463415N1020200.1
136N087W14BAD	463558N1013457.1	136N089W04BDD2	463729N1015225.2	136N090W32ABD1	463323N1020054.1
136N087W15DDB	463526N1013544.1	136N089W06ADB1	463736N1015426.1	136N090W32ABD2	463323N1020054.2
136N087W19BCD1	463454N1013245.1	136N089W06ADB2	463736N1015426.2	136N090W33DAC	463257N1015929.1
136N087W19BCD2	463454N1013245.2	136N089W10AAA1	463656N1015032.1	136N090W34BBA1	463329N1015900.1
136N087W20CCB	463434N1013912.1	136N089W10AAA2	463656N1015032.2	136N090W34BBA2	463329N1015900.2
136N087W20DDD	463428N1013806.1	136N089W11BD	463640N1015000.1	136N090W34BBB	463329N1015910.1
136N087W21DAC1	463441N1013700.1	136N089W12CBC	463614N1014903.1	137N088W06BDA1	464247N1015005.1
136N087W21DAC2	463441N1013700.2	136N089W12CLB	463618N1014908.1	137N088W06BDA2	464247N1015005.2
136N087W22BDB1	463501N1013622.1	136N089W13ACC	463545N1014831.1	137N088W06BDA3	464247N1015005.3
136N087W22BDB2	463501N1013622.2	136N089W13BAC	463558N1014849.1	137N088W06CBA	464234N1015024.1
136N087W22DCB1	463435N1013603.1	136N089W13BDD	463545N1014840.1	137N088W10ADA	464155N1014541.1
136N087W22DCB2	463435N1013603.2	136N089W18AAD	463559N1015417.1	137N088W10ADB	464155N1014550.1
136N087W25DCA1	463344N1013323.1	136N089W18DCD1	463520N1015436.1	137N088W11CCB	464128N1014531.1
136N087W25DCA2	463344N1013323.2	136N089W18DCD2	463520N1015436.2	137N088W12CCD	464122N1014406.1
136N087W25DCA3	463344N1013323.3	136N089W20BCB	463501N1015407.1	137N088W14DAA	464049N1014425.1
136N087W26BAC	463416N1013506.1	136N089W21BDD	463454N1015225.1	137N088W14DD	464033N1014430.1
136N087W27CDB	463344N1013622.1	136N089W21CDA1	463435N1015225.1	137N088W17CCC	464030N1014918.1
136N087W28DAB	463356N1013700.1	136N089W21CDA2	463435N1015225.2	137N088W20CC	463941N1014913.1
136N087W32DBA1	463305N1013825.1	136N089W21CDA3	463435N1015225.3	137N088W21DDC	463938N1014706.1
136N087W32DBA2	463305N1013825.2	136N089W21CDA4	463435N1015225.4	137N088W22BCA1	464010N1014637.1
136N087W32DBA3	463305N1013825.3	136N089W21CDD	463428N1015225.1	137N088W22BCA2	464010N1014637.2
136N087W33BBD	463324N1013747.1	136N089W26BCA1	463408N1015014.1	137N088W22CBD1	463951N1014637.1
136N087W36AAB1	463331N1013313.1	136N089W26BCA2	463408N1015014.2	137N088W22CBD2	463951N1014637.2
136N087W36AAB2	463331N1013313.2	136N089W26DCA1	463343N1014936.1	137N088W22CBD3	463951N1014637.3
136N087W36ABD	463325N1013323.1	136N089W26DCA2	463343N1014936.2	137N088W24BDD1	464004N1014347.1
136N088W01BCC	463728N1014142.1	136N089W30BAB	463422N1015504.1	137N088W24BDD2	464004N1014347.2
136N088W11CAA	463630N1014228.1	136N089W33DBA1	463304N1015206.1	137N088W26BB	463928N1014527.1
136N088W12DCC	463611N1014105.1	136N089W33DBA2	463304N1015206.2	137N088W26BBA	463931N1014522.1
136N088W13AAA	463604N1014037.1	136N090W02BDD	463730N1015725.1	137N088W26BCB1	463918N1014531.1
136N088W13BAA	463604N1014114.1	136N090W06BBA	463750N1020248.1	137N088W26BCB2	463918N1014531.2
136N088W26ABA1	463422N1014210.1	136N090W08BDB1	463645N1020122.1	137N088W28CBA1	463905N1014753.1
136N088W26ABA2	463422N1014210.2	136N090W08BDB2	463645N1020122.2	137N088W28CBA2	463905N1014753.2
136N088W26BDC1	463402N1014237.1	136N090W08BDB3	463645N1020122.3	137N088W31DDD	463753N1014927.1
136N088W26BDC2	463402N1014237.2	136N090W14BAA	463605N1015725.1	137N088W32AAC	463832N1014821.1
136N088W26BDC3	463402N1014237.3	136N090W17CAB	463540N1020122.1	137N088W32CBA1	463813N1014908.1
136N088W32DBD1	463259N1014553.1	136N090W20BAC	463507N1020122.1	137N088W32CBA2	463813N1014908.2

LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)
137N088W34BCB1	463826N1014647.1
137N088W34BCB2	463826N1014647.2
137N088W36CBD	463806N1014406.1
137N089W02AAB	464300N1015207.1
137N089W02ABA1	464300N1015217.1
137N089W02ABA2	464300N1015217.2
137N089W02ABA3	464300N1015217.3
137N089W02ABA4	464300N1015217.4
137N089W02ABA5	464300N1015217.5
137N089W03CCB1	464221N1015419.1
137N089W03CCB2	464221N1015419.2
137N089W08ACB1	464155N1015612.1
137N089W08ACB2	464155N1015612.2
137N089W09ABA1	464208N1015448.1
137N089W09ABA2	464208N1015448.2
137N089W10BCA	464155N1015410.1
137N089W12CDB	464129N1015130.1
137N089W13ACA	464102N1015102.1
137N089W13BAB1	464116N1015130.1
137N089W13BAB2	464116N1015130.2
137N089W13BAB3	464116N1015130.3
137N089W13BAB4	464116N1015130.4
137N089W13CCC	464030N1015149.1
137N089W14DBD	464043N1015217.1
137N089W17CDB	464037N1015631.1
137N089W19BBD	464018N1015756.1
137N089W20ACC1	464004N1015612.1
137N089W20ACC2	464004N1015612.2
137N089W20ACC3	464004N1015612.3
137N089W21DAB1	463958N1015438.1
137N089W21DAB2	463958N1015438.2
137N089W23DCC	463938N1015226.1
137N089W24AAB	464023N1015052.1
137N089W24BBB1	464023N1015149.1
137N089W24BBB2	464023N1015149.2
137N089W24DDD	463938N1015043.1
137N089W26BAA1	463931N1015236.1
137N089W26BAA2	463931N1015236.2
137N089W35DCA	463800N1015217.1
137N090W08AAC	464203N1020328.1

LOCAL WELL NUMBER	U.S. GEOLOGICAL SURVEY STATION NUMBER (LAT-LONG)
137N090W09BBA	464209N1020259.1
137N090W14DCC	464031N1015959.1
137N090W15BDC	464057N1020134.1
137N090W16DAA	464051N1020202.1
137N090W21DAB	463959N1020212.1
137N090W24BDD1	464005N1015853.1
137N090W24BDD2	464005N1015853.2
137N090W24BDD3	464005N1015853.3
137N090W25DBB1	463906N1015843.1
137N090W25DBB2	463906N1015843.2
137N090W29ABB	463933N1020347.1
137N090W30AAC	463926N1020443.1
137N090W31CDC	463755N1020521.1
137N090W33DD	463758N1020207.1

APPENDIX B

Temperature Conversion Table

Degrees Celsius (°C)	Degrees Fahrenheit (°F)	Degrees Celsius (°C)	Degrees Fahrenheit (°F)	Degrees Celsius (°C)	Degrees Fahrenheit (°F)
0.0	32	10.0	50	20.0	68
0.5	33	10.5	51	20.5	69
1.0	34	11.0	52	21.0	70
1.5	35	11.5	53	21.5	71
2.0	36	12.0	54	22.0	72
2.5	36	12.5	54	22.5	72
3.0	37	13.0	55	23.0	73
3.5	38	13.5	56	23.5	74
4.0	39	14.0	57	24.0	75
4.5	40	14.5	58	24.5	76
5.0	41	15.0	59	25.0	77
5.5	42	15.5	60	25.5	78
6.0	43	16.0	61	26.0	79
6.5	44	16.5	62	26.5	80
7.0	45	17.0	63	27.0	81
7.5	45	17.5	63	27.5	81
8.0	46	18.0	64	28.0	82
8.5	47	18.5	65	28.5	83
9.0	48	19.0	66	29.0	84
9.5	49	19.5	67	29.5	85