THE CLEANUP AND PROTECTION OF THE WAHPETON BURIED VALLEY AQUIFER SYSTEM RICHLAND COUNTY, NORTH DAKOTA: GROUND-WATER DATA

By DAVID P. RIPLEY

Water Resource Investigation 20, Part I North Dakota State Water Commission

Prepared by the North Dakota State Water Commission



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INTRODUCTION

The chemical character of one of the city of Wahpeton's three city production wells was observed to have been changing in 1984. This study outlines the nature of the problems that caused that change, as well as the measures that were taken to clean up and protect the Wahpeton Buried Valley aquifer system in which the Wahpeton city wells are completed. Plate 1 shows the location of the study area and plate 2 the locations of wells in the N1/2 of Section 20, Township 133 North, Range 47 West. The results of this study will be published in two reports. This report is the first of the two reports, and is a compilation of the geologic and hydrologic data collected during this and previous investigations in the area. A subsequent report, North Dakota State Water Commission Water Resource Investigation 20, Part II, is an interpretive report which describes the hydrogeology of the Wahpeton Buried Valley aquifer system, the contamination problem, the cleanup, and the preventative measures that were taken.

PURPOSES

The purposes of this investigation were to determine the nature of the contamination problem, to determine how to clean up the Wahpeton Buried Valley aquifer, and to determine how to prevent additional contamination problems in the future.

LOCATION NUMBERING SYSTEM

The location numbering system used in this report (fig. 1) is based on the Federal system of rectangular surveys of the public lands. The first numeral denotes the township, the second denotes the range, and

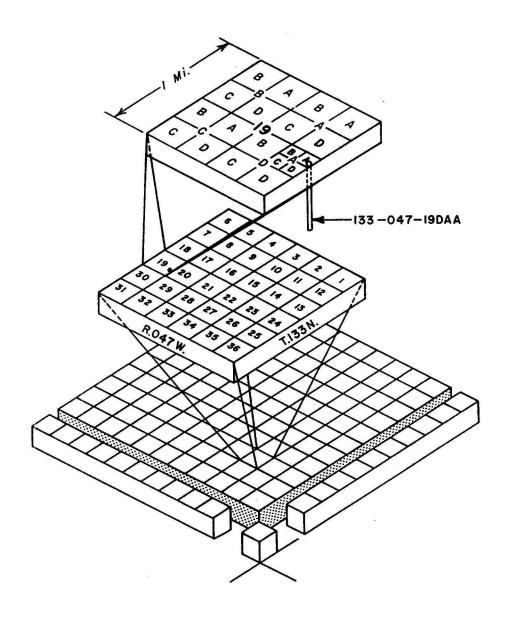


FIGURE 1. Location-numbering system.

the third denotes the section in which the well or test hole 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 hectare tract); thus, well 133-047-19DAA would be located in the NE1/4 of the NE1/4 of the SE1/4 of Section 19, Township 133 North, Range 47 West. Consecutive terminal numbers are added if more than one well or test hole is recorded within a 10-acre (4-ha) tract.

For parts of the north half of Section 20, Township 133 North, Range 47 West the density of wells was so great that 9 numbers in a ten acre area was insufficient to label all wells. In this study each 10 acre area was further divided into 2.5 and 0.625 acre areas in the same manner described above. Thus, well 133-47-20ABDDA9 is the ninth well located in the NE1/4 of the SE1/4 of the SE 1/4 of the NW1/4 of the NE1/4 of Section 20, Township 133 North, Range 47 West.

ACKNOWLEDGEMENTS

This ND State Water Commission (SWC) investigation received support from the Minn-Dak Farmers Cooperative, Inc. (MDFC), the city of Wahpeton, and the ND Department of Health (DOH). Thanks to John Groneman, MDFC, for his flexible support and insightful discussions, and to all of his staff, particularly Pete Jensen, for the chemical work and Dennis Kallstrom for field support. Thanks also to Lyle Mitzel and his staff, city of Wahpeton, for the cooperative operation of Wahpeton's water supply, and to Rick Nelson, DOH, for health considerations regarding the Wahpeton city water supply. Recognition is due the following personnel of the SWC: Alain Kahil, Larry Froelich, Lou Smith, Gary Calheim, Lewis

Knutson, Roger Schmid, Gary Sunderland, and Al Comeskey for drilling and logging test holes and for contributions to the understanding of the stratigraphy; Jim MacArthur, Kelvin Kunz, Mike Hove, and Chris Bader, for gathering field data; and Garvin Muri and Mary Osborne for the chemical analyses of water samples. Special appreciation is also expressed to Milt Lindvig for his guidance as this unique study evolved, and to Bob Shaver, whose earlier work with Schoeller diagrams (Shaver, 1985) provided the tools needed to make some semblance of chemical order out of this complex problem.

EXPLANATION OF TABLES AND METHODS OF DATA COLLECTION

The data in this report are listed in tables 1-3. The points of collection are shown on plates 1 and 2. The data consist of the following:

1) lithologic logs of wells, piezometers, and test holes; 2) water-level measurements in observation wells and piezometers; 3) chemical analyses of ground water and surface water. Depths, water quality, lithologies, and water levels of 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 materials and varying water quality in some aquifers.

Logs of Wells, Piezometers, and Test Holes

Logs collected from water-well drillers and other sources and logs of test holes drilled as part of this investigation are included in Table 1. Minor changes in word order have been made on some of the driller's logs, and logs of some of the test holes drilled during this and prior

investigations. Some of the logs have geophysical logs in addition to a description of the materials penetrated. The geophysical logs are useful for geologic correlation purposes. These logs are not published in this report but are available for inspection at the North Dakota State Water Commission office in Bismarck, ND. Grain-size determinations refer to the Wentworth (1922) size scale.

Most of the observation wells were constructed with 1 1/4" or 2" diameter ABS (acrylonitrile-Butadiene-Styrene) or PVC (polyvinyl chloride) pipe. The screens in these wells were generally 3 to 10 feet in length and either plastic, galvanized, or stainless steel with an attached check valve joined to the bottom of the pipe. The screens were most commonly 0.018 or 0.012 inch slot size. The components of an observation well were assembled on the ground and then lowered into the drill hole. The screen was set at the desired depth, the well back-flushed with clear water to clean the aquifer material and bore hole of drilling fluid, and compressed air pumped into the well to collapse the formation around the screen. The annulus was filled to ground level with drill cuttings. Each new observation well was pumped for several hours to assure a good hydrologic connection between the well and the aquifer. Pumping was accomplished with an airline connected to a small, trailermounted air compressor driven by a gasoline engine.

Nests of piezometers were also constructed for this study.

Construction of the piezometer nests involved the drilling of an initial deep test hole to determine the number of piezometers to be installed at a particular site. The initial deep test hole also served as the hole for the deep piezometer. First, the desired length of casing and screen were inserted into the test hole. Silica sand was then placed around the

screen using a tremie pipe. After the silica sand was installed around the screen the tremie pipe was lifted so that the bottom of the tremie pipe was a few feet above the top of the sand pack. Neat cement grout was then injected down the tremie pipe and upward in the annular space. This process continued until the grout came up the annulus to land surface. After the grout settled, additional grout was poured down the hole until the annular space was filled to land surface. The grout was allowed to "set" and then the piezometers were slugged with a small quantity of fresh water and pumped with air for development except for those piezometers where the water level was near the screen. Those piezometers where the water level was near the screen were bailed for development. Subsequent piezometers were completed at each nest site by moving the drilling rig ahead 10 to 20 feet and drilling the next hole. As few as one, or as many as five, piezometers were installed at various depths at the same site using this technique.

Water Levels in Selected Wells and Piezometers

Table 2 lists the monthly, quarterly, and intermittently measured water levels in selected wells and piezometers, in feet below or above land surface and in elevations. The reference datum for land-surface elevation is the National Geodetic Vertical Datum (NGVD).

Sampling and Analytical Procedures

The chemical composition and physical properties of water are reported in the Table of Chemical Analyses (Table III).

The chemical analyses were conducted on water samples collected from selected production wells, observation wells, and piezometers. The water sampling procedure involved the collection of 250 or 500 milliliters (ml) of raw water, filtered water, and filtered and acidified (nitric acid) water. Field measurements of specific conductance and water temperature were also made. Water temperature was, however, measured at land surface and does not represent an in-situ temperature. The pH was measured in the lab. Water samples were obtained from domestic, industrial, and city supply wells by using the existing pumps. SWC observation wells and piezometers, as well as MDFC piezometers were sampled using two methods: airlift and bailing. Airlift sampling was accomplished with a small diameter rubber hose attached to a portable air compressor. Sampling with a bailer involved the removal of at least two casing volumes of water by airlift and/or bailing techniques to introduce formation water into the well. After evacuating at least two casing volumes of water, a variable capacity point source bailer (pvc material) was lowered to just above the top of the well screen, except when the water level was close to the screened interval, in which case the bailer was extended into the screened interval. Bailing continued until enough water was secured for the sample.

Samples were analyzed at one of three laboratories. The three labs were: the SWC lab, the MDFC lab, and the DOH lab. The laboratory procedures for each of the three labs differed. The SWC lab analyzed the four cations (calcium, magnesium, sodium, and potassium) utilizing an atomic adsorption unit. Nitric acid and an ionization inhibitor (lanthanum chloride) were used. The dilution ranged from 1:5 to 1:50, except for potassium (K) which was almost entirely undiluted except for an occasional 1:10 dilution. The chloride (Cl) was determined by

electrode titration, as was the bicarbonate (HCO₃). The sulfate (SO₄) was determined by a gravimetric method.

The DOH lab analyzed the four cations utilizing an inductive coupled argon plasma (ICAP) method. The chloride was determined by an automated ferrocyanide process. The bicarbonate determination was accomplished with a potentiometric titration process, and the sulfate with the ICAP procedure.

The MDFC lab utilized an atomic adsorption spectrophotometer for determination of all cation concentrations. The ionization inhibitor was cesium chloride. Nitric acid was added to each sample, and dilutions ranged from undiluted to 1:10 to 1:100. All anions were determined using Dionex ion chromotography. The Cl and SO₄ were generally diluted 1:100, and the HCO₃ were generally 1:1 or 1:5.

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TABLE I. Table of Lithologic Logs of Wells and Test Holes.

Location: 133-47-7ADD

Use of well: Observation

Owner and number: SWC 3955

Principal aquifer: Reworked Dakota Sand

Depth drilled (ft.): 348

Altitude of land surface (ft., msl): 955.2 (S)

Screened interval (ft.):318-324

Lithologic log from: SWC

Casing diameter: 1.25"

Comments:

Date completed: 5/21/70

Unit description	Thickness (f	t.) Depth (ft.)
Topsoil, pebbly silt loam, black	2	0 - 2
Clay, slightly silty with sand grains and pebbles, yellowish and brownish gray, soft, cohesive, moderately plastic, oxidized (till)	20	2 - 22
Clay, silty to sandy with coarse sand grains and pebbles, olive gray, moderately soft, cohesive, slightly to moderately plastic (till) interbedded with numerous lenses of very fine to medium sand	38	22 - 60
Sand, medium, light olive gray, well-sorted, uniform, subrounded, mostly quartz with some carbonates and shale	9	60 - 69
Clay, silty with occasional sand grains and pebbles, olive gray and dark greenish gray, moderately soft to slightly hard, chunky, cohesive, fairly smooth and tight, contains blocks of bedrock clay and silt (till)	32	69 -101
Sand, fine and medium, gray, moderately sorted, subangular to subrounded, mostly quartz and granitics with shale and carbonates, occasional lignite chips, fairly clean	34	101 -135
Clay, very silty to sandy with pebbles, generally olive gray but contains blocks and chunks of white, gray, green, black and brown clay, silt and sandy clay, also lenses of sand and brown gravel and coarse sand that looks like partially decomposed granite; highly variable composition (till)	55	135 -190

Unit description	Thickness (ft.)	Depth (ft.)
Clay, white, green and gray, smooth, tight, moderately soft to slightly hard, cohesive to slightly crumbly, highly bentonitic, turned mud very thick (doubtfully bedrock)	14	190 -204
Silt and very fine to medium sand with interbedded clay, varigated from white to black with green and brown, loose to moderately cohesive, smooth to gritty, non to highly calcareous, highly variable, drills tight to real easy, possibly a preglacial alluvium or channel fill	81	204 -285
Sand, very fine to very coarse, white, subangular to rounded, predominantly quartz but contains a little shale and lignite, occasional carbonates, some interbedded soft, white, chalky-like, noncalcareous clay	56	285 -341
Clay, greenish white, soft, noncalcareous, contains occasional quartz grains, weathered granite	7	341 -348
Granite, extremely hard, white with small black, hornblende (?) specks		348

THE RECORD AND SAMPLE	DESCRI	PTION	
Test Hole No. 3965 Location/33 4/2 7 C			5-24-
County P. //2 -	14	14	3 47
County Richland Total Depth 280 D	epth to B	edrock	232
Alutude 937	_ Source _f	lara s	hast
Electric Log good, fair, poor, none		47 47	
Water sample and or other information:			
no obs well-drilled hole on road		_	7
		フー	133
		: 7	Ιν.
		*	
	cdd		
SAMPLE DESCRIPTION AND DRILLING CONDITIONS		7	
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	-6	-0	
Clay siffy to dearly ill		 	
Clay, sity to st. soudy with occassional sd. grain and pebbles, mod olive brown, mod. soft,	خ		· · · · · · · · · · · · · · · · · · ·
me pentiles, mod of we brown, mod satt,	<u> </u>		
cahesive, med plastic (Till)	2	6	/3
Clay, sifty to sondy with pebbles and sitty			1
May laxers, olive gray, soft to mad			
Seft sehanis			:
Seft, cahesive, plastice (T.11)	12	13	30
AL III			
May, silly, dark plive gray with brownish			
Stricts, mod. cott, co hesive of 1.4%			; ;
to mod plastic, tight, smooth	2		
	/	30	37
			i
SWC Form No. 129		1	-

SAMPLE DESCRIPTION AND DRILLING CONDITIONS		DEPTH	
Silt, st. dayer with long fine sand, light		FROM	TO
greens, soft, st. cohesive, neaplastic	+		
mily			
in luy	6	32	43
Schesice mad shale of the de hard			
cohesive, mod plastice to st. briffle,			
Smooth, aily, stippery, tight, interhedles			
Silt and sound and till	16	43	5-5
Sit 1.4 1.		·	
houseich intel !! (-	
brownish, interbodded with day and charge		**	
the sand loose to mod cohesive	30	54	89
and year (a. 1 C. 11/1 11			
loose mad la dine slightly silly, gray,			
loose, mad well-sorted generally subrounded			
grad quarts with some shale and occassioned	/		
tight engs	-6	89	95
and fine to medium, interbodded, sorted			
in leases, subjugular to subjounded			
mostly granifies with shake			
1 1 STIGHTS	25	95	120
nd, medium to coarse, interbedded			·
ubangular and subrounded, mostly	-		
renities dale and cade	49	(20	100
SWCC FORM No. 129 (Continuation) BUY NORTH DAKOTA PRODUCTS-	// /	20	Bks. 9-6

Test Hole No. 3965 (continued)

SAMDLE DESCRIPTION			
SAMPLE DESCRIPTION AND DRILLING CONDITIONS	THICK	- I	EPTH
Sand, coarse to very coarse, well-sorted,	,	TROM	TO
generally subangular, mostly granitus			
and carbonates with shale, losse,			
clean, toxing some water		-	
some water	3/	169	200
Sand as share, with fine gravel, passify			
Some medium gravel		-	
9000	37	200	237
Sillistage dans 1 1 1			
Sillstone, clayer to sandy, brownish black,			
J. trable, (arbanacance)			
hones/esreous	12	237	249
9-6-11			
Shale, black, hard, tight, brittle, smooth	31	249	280
			*
			-
			-
SWCC FORM No. 129 (Continuation) BUY NORTH DAKOTA PRODUCTS			į

Location: 133-47-8CDD

Use of well: Test hole

Owner and number: SWC 3964

Principal aquifer:

Depth drilled (ft.): 220

Altitude of land surface (ft., msl): 959 (T)

Screened interval (ft.): None

Lithologic log from: SWC

Casing diameter: None

Comments:

Date completed: 5/24/70

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, pebbly silty loam, black	. 2	0 - 2
Clay, silty to sandy with pebbles, yellowish gray to moderately olive brown with reddish streaks, moderately soft, cohesive, slightly to moderately plastic, oxidized (till)	15	2 - 17
Clay, very silty to sandy with pebbles and numerous lenses of sand and fine gravel, light olive gray to olive gray, moderately soft to slightly hard, chunky, tight (till)	19	17 - 36
Silt, clayey to sandy, interbedded, light olive gray, soft to moderately soft, moderately cohesive to slightly friable, calcareous	18	36 - 54
Gravel, fine, sandy with interbedded very sandy till, gravel mostly granitics and carbonates, till light olive gray mostly quartz with lignite chips and shale grains, slightly hard but crumbles under pressure, rocky drilling, taking water	43	54 - 97
Sand, very fine to fine, clayey with pebbles, light olive gray, slightly hard, chunky, crumbly, gritty, tightly compacted (till)	11	97 -108
Clay, dark olive gray, moderately soft, cohesive moderately plastic, smooth, tight, oily	5	108 -113
Till, as above, very sandy	31	113 -144
Clay, silty, olive gray, moderately soft, cohesive, plastic	4	144 -148
Sand, fine to coarse, interbedded, sorted in lenses, subangular to rounded, coarser fraction mostly granitics and carbonates, finer mainly quartz with shale, loose	21	148 -169

Unit description	Thickness (ft.)	Depth (ft.)
Silt, clayey, light olive gray to olive gray, soft, moderately cohesive, slightly to moderately plastic, calcareous	14	*	169 -183
Gravel, fine, sandy, sorted, subangular to subrounded, loose, appears to be oxidized, mostly granitics, carbonates, shale and some siltstone	3	*	183 -186
Shale, black, hard, carbonaceous, gaseous, noncalcareous, smooth, tight, brittle, some interbedded brown silt and clayey, micaceous, very fine sand	34		186 -220

Location: 133-47-16CAD Use of well: Observation

Owner and number: SWC 3773 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 220 Altitude of land surface (ft., msl): 951.6 (S)

Screened interval (ft.): 107-110 Lithologic log from: SWC

Casing diameter: 1.25" Comments: destroyed

Date completed: 8/21/69

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, sandy clay loam, black	2	0 - 2
Sand, fine to coarse, yellowish gray to reddish brown, contains lenses of fine gravel and soft yellowish gray clay, interbedded, oxidized	13	2 - 15
Clay and silty clay, light olive gray to olive gray, soft, cohesive, plastic, smooth, sticky, some very fine sand	14	15 - 29
Clay, silty and sandy with coarse sand grains, pebbles, and cobbles, olive gray, medium soft, moderately cohesive, slightly plastic (till)	10	29 - 39
Sand, coarse to very coarse with fine gravel, generally subangular, moderately sorted, predominantly granitics with limestone and dolomite, clean	4	39 - 43
Clay, silty and sandy with pebbles, and interbedded sand and gravel lenses, olive gray, moderately soft, moderately cohesive, slightly plastic, drills sporadically (till)	16	43 - 59
Clay, moderately soft to slightly hard, olive gray to dark olive gray, brittle, crumbly, waxy, tight, smooth	13	59 - 72
Clay, silty to sandy with pebbles, olive gray (till) contains lenses of sorted clay, silt, sand and gravel lenses, all mixed up	26	72 - 98
Sand, coarse, well-sorted, subangular to subrounded, clean, predominantly quartz and other granitic derivatives with limestone and dolomite	14	98 -112

Unit description	Thickness (ft.)	Depth (ft.)
Sand, as above, mixed with till and fine gravel	13	112-125
Clay, silt, sandy clay and clayey fine sand, intermixed and interbedded with very sandy till, drills smooth and easy except for occasional cobble, generally moderately soft to slightly hard (till)	26	125-151
Sand, fine to medium, well-sorted, subangular, clean, quartzose, light gray	7	151-158
Sand, as above, mixed and interbedded with a very sandy, slightly to moderately cohesive till with fine gravel	16	158-174
Shale, black, smooth, stiff, hard, tight, waxy, noncalcareous, fossiliferous, contains nearly white, highly calcareous soft clayey medium sand and slightly indurated sandstone lenses in lower 10'	46	174-220

Location: 133-47-16CBA

Use of well: Observation

Owner and number: SWC 3772

Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 100

Altitude of land surface (ft., msl): 957.7 (S)

Screened interval (ft.): 48-51

Lithologic log from: SWC

Casing diameter: 1.25"

Comments: destroyed

Date completed: 8/21/69

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, sandy clay loam with pebbles, black	. 2	0 - 2
Clay, silty to sandy with pebbles, dusky yellow to moderately olive brown, soft to moderately soft, cohesive, tough, oxidized (till)	17	2 - 19
Boulder, pinkish quartzite, indurated	3	19 - 22
<pre>Clay, sandy with pebbles, olive gray, soft, moderately cohesive (till)</pre>	2	22 - 24
Sand, fine to medium with some coarse, moderately well-sorted in layers, subangular to subrounded, mostly granitic derivatives and limestone	12	24 - 36
Sand, coarse to very coarse with fine and some medium gravel, also some fine to medium sand, interbedded, sorted in layers, subangular and subrounded, granitics and limestone-dolomite	20	36 - 56
Clay, sandy with pebbles, olive gray, soft, moderately cohesive, very slightly plastic (till)	4	56 - 60
Clay, olive gray to olive black, moderately soft, brittle, crumbly, waxy, interbedded with olive gray clayey silt	9	60 - 69
Clay, silty to sandy with pebbles, olive gray, soft to moderately soft, moderately cohesive, interbedded with sand and gravel lenses, it is about ½ till and ½ sand and gravel	31	69 -100

Location: 133-47-16CCD Use of well: Test hole

Owner and number: SWC 3776 Principal aquifer:

Depth drilled (ft.): 190 Altitude of land surface (ft., msl): 962 (T)

Screened interval (ft.): None Lithologic log from: SWC

Casing diameter: None Comments:

Date completed: 8/25/69

Unit description	Thickness (ft.)	
Topsoil, gravelly loam, black	, 1	0 - 1
Clay, silty and sandy with pebbles and cobbles, yellowish gray, dusky yellow and moderately olive brown with reddish brown iron-stains, moderately soft, cohesive, slightly to moderately plastic, oxidized (till)	12	1 - 13
<pre>Clay, very sandy with pebbles, olive gray, soft to moderately soft, slightly cohesive to crumbly (till)</pre>	1	13 - 14
Sand, medium to coarse, brown, well-sorted, subangular and subrounded, predominantly quartz with limestone-dolomite and black shale	8	14 - 22
Sand, medium to very coarse with fine gravel and thin silt and silty clay lenses, interbedded, gray	13	22 - 35
Clay, silty and sandy with pebbles and cobbles, olive gray, moderately soft, cohesive (till) rough rocky drilling	21	35 - 56
Sand, fine to medium, gray, loose, interbedded with light gray to olive gray silt and silty clay, occasional gravelly streak	23	56 - 79
Clay, silty to very sandy with pebbles, cobbles and thin streaks of sand and fine gravel, olive gray, moderately soft, moderately cohesive, slightly plastic, drills sporadically (till)	35	79 -114
Sand, fine, light olive gray, appears uniform but may contain clayey streaks, predominantly quartz but calcareous, generally subangular to subrounded	21	114 -135

Unit description	Thickness (ft.)	Depth (ft.)
Clay, dark brownish gray, smooth with occasional sand grains, slightly hard, moderately brittle, tight, calcareous (till?)	21	135 -156
Sand, fine, light olive gray, clayey?, drills tight	9	156-165
Sand, fine, silty to clayey, light to medium gray, predominantly quartz, calcareous	9	165-174
Clay, dark gray, smooth, moderately soft, cohesive, sticky, calcareous	2	174-176
Shale, black, smooth, hard, tight, massive, fossiliferous, noncalcareous	14	176-190

Location: 133-47-16CDA Use of well: Observation

Owner and number: SWC 3774 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 190 Altitude of land surface (ft., msl): 948.2 (S)

Screened interval (ft.): 37-40 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Destroyed

Date completed: 8/21/69

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, sandy loam, dark brownish gray	· ı	0 - 1
Sand, medium to coarse, yellowish reddish brown, well-sorted, subangular and subrounded, predominantly granitics and limestone-dolomite, uniform, oxidized, contains numerous thumbnail-sized clam shells	13	1 - 14
Sand, coarse to very coarse with fine to medium gravel and occasional cobbles, mixed and interlensed, clean, subangular, mostly granitics, limestone-dolomite and indurated shale pebbles, also clam shells, medium rough drilling, taking water	26	14 - 40
Clay, silty and sandy with pebbles and occasional cobbles, olive gray, soft to moderately soft, moderately cohesive, slightly plastic (till) contains lenses of sand and gravel	30	40 - 70
Sand, medium to very coarse with fine gravel, interbedded, sorted in lenses, generally subangular to subrounded, granitics and limestone-dolomite mainly, drills fairly good	21	70 - 91
Sand and fine gravel, as above, interbedded with very sandy, olive gray clayey till with pebbles and occasional cobbles, gravel caving in from above, mixed mud, samples return not too hot	43	91 -134
Clay, silty to sandy with pebbles, olive gray, moderately soft, cohesive, tough (till), contains lenses or blocks of clay, silt, sand and fine gravel in various combinations occasional rocks, sporadic drilling	19	134 -153

Unit description	Thickness (ft.)	Depth (ft.)
Sand, fine, light gray (white when dry) well sorted and uniform, subangular to subrounded, predominantly quartz, calcareous	7	153 -160
Till, as above, sandy with pebbles	5	160 -165
Clay, silty, olive gray, moderately soft, cohesive, plastic, sticky	4	165 -169
Shale, black, slightly hard, smooth, waxy, very tight, noncalcareous, lensed with calcareous medium-grained sand in lower portion	21	169 -190

Location: 133-47-16CDB

Use of well: Observation

Owner and number: SWC 3775

Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 190

Altitude of land surface (ft., msl): 959.4 (S)

Screened interval (ft.): 149-155

Lithologic log from: SWC

Casing diameter: 1.25"

Comments: destroyed

Date completed: 8/22/69

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, pebbly sandy clay loam, black	• 2	0 - 2
Clay, silty and sandy with pebbles and cobbles, yellowish gray, soft, crumbly, chunky (till)	6	2 - 8
Clay, silty and sandy with pebbles and cobbles, moderately olive brown, soft to moderately soft, moderately cohesive, slightly to moderately plastic, oxidized (till)	11	8 - 19
Sand, medium, light olive gray, well-sorted, subangular to subrounded, mostly quartz, indurated shale and limestone, loose, uniform	. 4	19 - 23
Clay, silty and sandy with pebbles, olive gray, moderately soft, moderately cohesive, slightly plastic (till)		23 - 31
Till, as above, interbedded with medium to coarse sand with some fine gravel	25	31 - 56
Gravel, fine with medium, moderately well- sorted, subangular and subrounded, predominantly limestone-dolomite and granitics, some indurated black shale	4	56 - 60
Till, as above, interbedded with predominantly fine to medium sand, some coarse sand and fine gravel, occasional cobbles, till mainly soft, slightly to moderately cohesive, very sandy clay with sand grains and pebbles, smooth dark clay (60-62)	8 .	60 - 68

Unit description	Thickness (ft.)	Depth (ft.)
Clay, silty and sandy with pebbles, moderately soft, cohesive, tight, rocky (till)	10	68 - 78
Clay, silty and sandy with pebbles (till), olive gray, moderately soft to slightly hard, moderately cohesive to slightly crumbly, thin fine sandy lenses	20	78 - 98
Sand, fine and medium, light olive gray, subangular and subrounded, predominantly quartz, limestone and shale, appears clean and uniform	. 7	98 -105
Clay, sandy, olive gray, moderately soft (till)	8	105 -113
Clay, dark gray, moderately soft, smooth, tight	2	113 -115
Till, as above, sandy clay with pebbles	11	115 -126
Clay, as above, dark gray, smooth, waxy	7	126 -133
Till, as above, very sandy clay with pebbles	7	133 -140
Sand, fine with medium, light gray, well-sorted, uniform, subangular and subrounded, clean, calcareous, predominantly quartz	27	140 -167
Till, as above, with interbedded smooth, waxy tight clay and loose, light gray, fine and medium sand	15	167 -182
Shale, black, hard, very tight, smooth, waxy, noncalcareous	8	182 -190

Location: 133-47-17ADD

Use of well: Observation

Owner and number: SWC 3771

Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 190

Altitude of land surface (ft., msl): 957.3 (S)

Screened interval (ft.): 149-155

Lithologic log from: SWC

Casing diameter: 1.25"

Comments: Destroyed

Date completed: 8/20/69

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, clayey loam, black	. 2	0 - 2
Clay, silty, yellowish gray and dusky yellow, moderately soft, cohesive, moderately plastic, oxidized, laminated with light gray thin calcareous streaks	8	2 - 10
Clay, as above, with interbedded poorly-sorted, heavily iron-stained beds of sand to fine gravel, oxidized	9	10 - 19
Clay, silty and sandy with pebbles and occasional cobbles and sand lenses, olive gray, heterogeneous (till)	17	19 - 36
Sand, coarse and very coarse with some fine gravel, subangular, moderately sorted, mainly quartz and limestone	6	36 - 42
Sand and fine gravel, as above, mixed with silty to sandy clay (till?)	14	42 - 56
Clay, dark olive gray, slightly hard, smooth, tight, waxy	4	56 - 60
Clay, silty with sand grains and pebbles intermixed, olive gray, moderately soft, cohesive, slightly plastic (till)	14	60 - 74
Clay and silty clay, olive gray to dark olive gray, moderately soft to slightly hard, brittle and crumbly under pressure, smooth, interbedded	16	74 - 90
Clay, as above with interbedded friable organic clayey sand, very fine to fine gray sand and occasional fine gravel, thinly interbedded	16	90 -106

Unit description	Thickness (ft.)	Depth (ft.)
Sand, coarse and very coarse with fine gravel, subangular, moderately sorted, predominantly granitic derivatives and limestone, slightly rough drilling, no mud needed	6	106-112
Sand and fine gravel, as above, mixed and interbedded with soft to moderately soft, slightly to moderately cohesive sandy till, samples all mixed up, drilling sporadic	34	112-146
Sand, fine, light gray, subangular, very well- sorted and uniform, 90%+ quartz, highly calcareous for same reason, drills tight - not as tight as a bedrock sand	26	146-172
Sand, as above, clayey, tighter	10	172-182
Clay (shale?), very dark gray - nearly black, slightly hard, cohesive, very stiff and tough	8 .	182-190

Location: 133-47-17CCC1

Use of well: Observation

Owner and number: SWC 3960

Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 320

Altitude of land surface (ft., msl): 959.22 (S)

Screened interval (ft.): 118-121

Lithologic log from: SWC

Casing diameter: 1.25"

Comments: North well

Date completed: 5/22/70

Unit description	Thickness (ft.) Depth (ft.)
Topsoil, silty pebbly loam, black	2	0 - 2
Clay, yellow, soft, cohesive, plastic	2	2 - 4
Silt, clayey, yellowish gray, sand grains and pebbles (washed till), soft, moderately cohesive, oxidized	6	4 - 10
<pre>Clay, reddish brown, soft to moderately soft, cohesive, moderately plastic, tight, oxidized</pre>	7	10 - 17
Clay, silty to sandy with pebbles, olive gray, moderately soft, cohesive, slightly plastic to slightly brittle, tight (till), interbedded with sand and gravel stringers	17	17 - 34
Sand, very fine, clayey and silty, variegated grays to brownish black, soft, slightly cohesive, nonplastic, organic material included, oily	19	34 - 53
Clay, very sandy, olive gray, moderately soft to slightly hard, cohesive, tightly compacted, occasional pebbles (till)	12	53 - 65
Sand, very fine to fine, silty, gray, loose, well-sorted, generally subrounded, predominantly quartz with shale and some carbonates	15	65 - 80
Sand, fine to medium, well-sorted, subangular to subrounded, clean, predominantly quartz and granitic derivatives with some shale and carbonates; taking water, mixed 1 bag of mud.	44	80 ~124

Unit description	Thickness (ft.)	Depth (ft.)
Sand, medium to coarse, well-sorted in layers, contains very coarse sand and some gravel, also some fine sand, subangular to subrounded, mostly granitics with shale and carbonates; drills good, taking water, mixed another bag of mud	186	124-310
Cobbles and boulders, mostly granitics, very rough drilling	5	310-315
Silt and very fine sand, clayey, brownish black, soft to moderately soft, micaceous, noncalcareous, oily; tight drilling	5	315-320

Location: 133-47-17CCC2

Use of well: Observation

Owner and number: SWC 9102

Principal aquifer: Undefined

Depth drilled (ft.): 60

Altitude of land surface (ft., msl): 958.98 (S)

Screened interval (ft.): 48-51

Lithologic log from: SWC

Casing diameter: 1.25"

Comments: South well

Date completed: 9/12/74

Unit description	Thickness (ft.)	Depth (ft.
<pre>Clay, silty, sandy, pebbly; dark yellowish- brown, iron-stained, soft, plastic; sand and gravel lenses; oxidized (till)</pre>	16	0 - 16
Clay, silty, very sandy, pebbly, dark-gray; dense, moderately plastic, sand and gravel lenses (till), occasional grayish- green silt lens	44	16 - 60

Location: 133-47-17DDD Use of well: Observation

Owner and number: SWC 2313 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 105 Altitude of land surface (ft., msl): 964 (T)

Screened interval (ft.): 60-80 Lithologic log from: SWC

Casing diameter: 1.25" Comments: destroyed

Date completed: 9/16/64

Unit description	Thickness (ft.) Depth (ft.)
Topsoil, black		0 - 1
Till, dusky yellowish brown, grayish ora light brown. It is mostly grayish shale, quartz, limestone-dolomite, highly calcareous, oxidized, angula subrounded, grain size varies great	orange, gypsum(?), ar to	1 - 15
Till, dark greenish-gray to olive gray, with pockets of white fine sand, sh quartz, dolomite-limestone, grains 1 mm, angular to rounded, unoxidize	male, about	15 - 18
Sand, unoxidized, well sorted, subangula subrounded, quartz, shale, dolomite limestone, igneous, pyrite gypsum, seams with high concentration of sh predominant grain size slightly less 1 mm	ale,	18 - 30
Sand, well sorted, predominantly grain angular to subrounded, quartz, shallimestone, lignite, igneous crystal gypsum, grades into a less well so with an average grain size of 1 mm between 1/2 to 2 mm, angular to we same composition as shore sand	le, dolomite, llines, rted sand, ranging	30 - 60
Clay, dark greenish gray, soft, cohesive calcareous	e, highly 2	60 - 62
Sand, well sorted (better than above) posize 1 mm, dolomite, limestone, quigneous crystallines, gypsum, lign angular to rounded, pyrite present	artz, shale, ite,	62 - 82
Gravel, fairly poorly sorted, average s angular to rounded, composition as		82 - 86
Till, olive gray with shade of dark gre highly calcareous, cohesive, hard, dolomite, limestone, lignite, igne crystalline, predominant size 1/2 angular to subrounded	quartz, ous	86 -105
MW. J		

Location: 133-47-18ABC Use of well: Industrial

Owner and number: Froedert Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 245 Altitude of land surface (ft., msl): 958 (T)

Screened interval (ft.): 145-235 Lithologic log from: Layne

Casing diameter: 12" Comments:

Date completed: 5/10/76

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	3	0 - 3
Blue clay (silty)	57	3 - 60
Fine blue sand	2	60 - 62
Blue clay	23	62 - 85
Brown sand (fine)	27	85 -112
Sand and boulders	2	112 -114
Medium sand	26	114 -140
Medium coarse sand	65	140 -205
Fine gravel, sand	30	205 -235
Medium sand	8	235 -243
Weathered limestone	2	243 -245

Location: 133-47-18ADA Use of well: Observation

Owner and number: SWC 3786 Principal aquifer: Wahpeton Buried valley

Depth drilled (ft.): 240 Altitude of land surface (ft., msl): 960.12 (S)

Screened interval (ft.): 219-225 Lithologic log from: SWC

Casing diameter: 1.25" Comments:

Date completed: 9/3/69

		7
Unit description	Thickness	(ft.) Depth (ft.)
Topsoil, sandy clay loam, black	1.5	0 - 1.5
Clay, silty and sandy with pebbles, soft, non- to slightly cohesive, yellowish gray, fractured and jointed, oxidized (till)	2.5	1.5- 4
Clay, silty to sandy with pebbles, moderately olive brown, soft to moderately soft, cohesive, moderately plastic, oxidized (till)	13	4 - 17
Clay, silty to sandy with pebbles, olive gray, moderately soft, cohesive, moderately to slightly plastic (till)	5	17 - 22
Sand, medium, well-sorted, subrounded, gray, clean	3	22 - 25
Clay, silty and sandy with pebbles, olive gray, moderately soft, cohesive, moderately plastic (till)	12	25 - 37
Silt, clayey, greenish gray to light olive gray, soft, slightly cohesive, nonplastic, slightly sticky	10	37 - 47
Clay, dark gray, smooth, soft, cohesive, plastic, sticky	2	47 - 49
Sand, medium to coarse, moderately well-sorted and uniform, generally subrounded, clean, nice, predominantly quartz with limestone-dolomite, some shale, etc.	15	49 - 64
Clay, generally dark brownish gray, slightly hard, slightly brittle to slightly plastic, cohesive, smooth, tight, interbedded with lighter soft silty clay, laminated, calcareous, organic	23	64 - 87

Unit description	Thickness (ft.)	Depth (ft.)
Silt and very fine sand, clayey, light olive gray, soft, slightly to moderately cohesive, non- to slightly plastic, soft, interbedded, easy drilling, drills like sand, calcareous	27	87 -114
Sand, fine and medium, moderately sorted, subangular and subrounded, no clay, clean, loose	16	114 -130
Clay and silt, interbedded, variegated medium to dark grays with brownish stains, moderately soft to slightly hard, cohesive, slightly brittle to moderately plastic, smooth, tight, calcareous	11	130 -141
Silt and very fine sand, slightly clayey, light olive gray, soft, very slightly cohesive, highly calcareous, predominantly quartz, sugary	14	141 -155
Sand, fine to medium, tannish gray, generally well-sorted and uniform except for clay streak at 165', predominantly quartz with limestone-dolomite, drills easy taking water	43	155 -198
Sand, medium and coarse, well-sorted and uniform, subangular to subrounded, clean, very nice; easy drilling, taking water	36	198 -234
Gravel, coarse, rough drilling	3	234 -237
Sandstone, dark gray, indurated with CaCO ₃ cement, highly calcareous	3	237 -240

Location: 133-47-18BBB Use of well: Test hole

Owner and number: SWC 3956 Principal aquifer:

Depth drilled (ft.): 236 Altitude of land surface (ft., msl): 955 (T)

Screened interval (ft.): None Lithologic log from: SWC

Casing diameter: None Comments:

Date completed:

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, pebbly silt loam, black	ĭ	0 - 1
Silt, clayey with pebbles, yellowish of crumbly, oxidized (till)	gray, soft, 2	1 - 3
Clay, silty with sand grains and pebbl dusky yellowish brown, soft, cohe moderately plastic, oxidized (til	esive,	3 - 16
Sand, medium and coarse, light grayish moderately well-sorted, subangula subrounded, predominantly quartz granitics with some carbonates an shale, few lignite flakes, slight iron-stained or oxidized, taking water, loose	ar and and nd	16 - 38
Clay, greenish gray to dark greenish moderately soft to slightly hard, tight, slightly crumbly		38 - 42
Sand, medium to very coarse with fine gray, moderately well-sorted, gen subrounded, @ 35% shale, 35% gran and 30% carbonates, very little I taking quite a bit of water, clean	nerally nitics, Lignite, etc.,	42 - 58
Clay, dark gray, slightly hard, tight,	smooth 2	58 - 60
Silt, clayey and sandy, occasional coargains and pebbles but generally and sorted in lenses, usually soft moderately soft and slightly to make the cohesive or crumbly, light olive olive gray but sometimes greenish gray or nearly black occasional temporary streaks, no gravely	uniform It to moderately gray to n, light tight,	60 -146
good drilling		

Unit description	Thickness (ft.)	Depth (ft.)
Sand, very fine, light olive gray, silty, fairly uniform, quartzose	8	146 -154
Silt, olive gray, soft, crumbly	2	154 -156
Sand, fine to medium, well-sorted, uniform, clean, subrounded, quartzose and granitics	12	156 -168
Clay, very silty, olive gray, soft, slightly cohesive, slightly plastic	15	168 -183
Shale, black, hard, smooth, very tight, noncalcareous	21	183 -204
Sand, very fine, silty to slightly clayey, light gray to slightly greenish, soft, slightly cohesive, noncalcareous, micaceous, shale stringers at 215'	21	204 -225
Shale, black, hard, tight, noncalcareous	10	225 -235
Sandstone, very fine grained, indurated, dark gray	1	235 -236

Location: 133-47-19DAA Use of well: Observation

Owner and number: SWC 3784 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 240 Altitude of land surface (ft., msl): 960.2 (S)

Screened interval (ft.): 46-49 Lithologic log from: SWC

Casing diameter: 1.25" Comments: destroyed

Date completed: 8/29/69

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, sandy clay loam, black	2	0 - 2
Clay, sandy, yellowish gray to dusky yellow, occasional pebble and cobble (washed till?), soft, non- to slightly cohesive, jointed (?)	4	2 - 6
Sand, medium to coarse, interbedded but well-sorted, subangular and subrounded, clean, predominantly granitics and limestone-dolomite with some shall occasional lignite fragment, loose, taking wate iron-stained and oxidized to approximately 10 or 11 feet	e,	6 - 51
Gravel, fine and medium, subrounded, clean, mostly limestone-dolomite with granitics and shale, taking water	9	51 - 60
Clay, silty and sandy with pebbles and cobbles, olive gray to dark olive gray, moderately soft and cohesive to slightly hard and slightly brittle, tight, interbedded with lenses or blocks or boulders of tight, crumbly brownish black, smooth, waxy, clay; soft, light olive gray, highly calcareous silt with brown organic stains, and clayey to silty very fine and fine sand, occasional large rock (till)		60 -120
Rocks, granitics and limestone, put on rock bit to get through, rough drilling	4	120 -124
Clay and very fine to fine sand, light olive gray, contains pebbles, cobbles and boulders, slightly hard, brittle to crumbly (under pressure) tightly compacted (till), toss-up whether it's clayey sand or sandy clay, it's highly calcareous and appears to have some degree of permeability	79 .	124 -199

Lithologic Log

Unit description

Thickness (ft.) Depth (ft.)

Shale, brownish black, hard, tight, noncalcareous interbedded with silt, brownish black, soft, slightly calcareous; sand, dark brownish green, clayey, calcareous, carbonaceous, sandstone (219 to 223), dark gray, indurated, CaCO₃ cement, highly calcareous; also shell fragments and pyrite crystals turned drilling mud brown (Cretaceous shale)

41 199 -240

Location: 133-47-20AACCA Use of well: Test hole

Owner and number: SWC 11649 Principal aquifer:

Depth drilled (ft.): 280 Altitude of land surface (ft., msl): 969 (T)

Screened interval (ft.): None Lithologic log from: SWC

Casing diameter: None Comments:

Date completed: 9/4/85

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay, sandy, silty, yellow brown, oxidized (till)	12	1 - 13
Clay, sandy, silty, gray (till)	16	13 - 29
<pre>Clay, silty, gray (squeezing off), plastic, soft, no sand particles</pre>	12	29 - 41
Sand, fine to coarse, poorly sorted, angular to subrounded	5	41 - 46
Clay, very silty, few returns	15	46 - 61
Clay, very silty, gray, layered, occasional small sand grains (lacustrine)	10	61 - 71
<pre>Clay, silty, brown-gray, no sand, color turing to light gray (lacustrine)</pre>	18	71 - 89
Clay, silty, sandy, dark gray, drills harder (till)	21	89 -110
Sand, fine to medium, dirty, getting coarser with depth	98	110 -208
Sand, fine to coarse, with gravel	28	208 -236
Sand, coarse, lots of gravel	44	236 -280

Location: 133-47-20AACCB1 Use of well: Piezometer

Owner and number: SWC 11650 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 280 Altitude of land surface (ft., msl): 970.35 (S)

Screened interval (ft.): 268-273 Lithologic log from: SWC

Casing diameter: 1.25" Comments: East well

Date completed: 9/4/85

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1 .	0 - 1
Clay, sandy, silty, yellow-brown, oxidized (till)	15	1 - 16
Clay, sandy, silty, gray (till)	20	16 - 36
Clay, silty, gray (lacustrine)	6	36 - 42
Sand, fine to coarse, silty	1	42 - 43
Clay, silty, gray (lacustrine)	18	43 - 61
Clay, sandy, silty with some pebbles, gray, stiff (till)	8	61 - 69
Clay, silty, soft, gray (lacustrine)	21	69 - 90
Clay, sandy, silty, gray (till)	19	90 -109
Sand, fine to coarse, dirty	16	109 -125
Clay, silty	1	125 -126
Sand, fine to coarse, becoming coarser with depth	35	126 -161
Sand, medium to coarse, some gravel	47	161 -208
Sand, coarse with gravel	28	208 -236
Sand and gravel	44	236 -280

Location: 133-47-20AACCB₂

Use of well: Piezometer

Owner and number: SWC 11651 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 120 Altitude of land surface (ft., msl): 970.40 (S)

Screened interval (ft.): 113-118 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Middle well

Date completed: 9/4/85

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay, sandy, silty, yellow oxidized (till)	19	1 - 20
Clay, sandy, silty, gray	18	20 - 38
Clay	18	38 - 56
Clay, silty, varying softness, varying grays (lacustrine)	31	56 - 87
Clay, sandy, silty, gray, stiff (till)	22	87 -109
Sand, fine to coarse, dirty	11	109 -120

Location: 133-47-20AACCB3 Use of well: Piezometer

Owner and number: SWC 11652 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 60 Altitude of land surface (ft., msl): 970.14 (S)

Screened interval (ft.): 42-57 Lithologic log from: SWC

Casing diameter: 2.00" Comments: West well

Date completed: 9/5/85

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay, sandy, silty, yellow brown, oxidized (till)	14	1 - 15
Clay, sandy, silty, gray (till)	7	15 - 22
Clay, silty, slightly plastic, soft (lacustrine)	14	22 - 36
Sand, fine to medium, dirty	1	36 - 37
Clay, silty, slightly plastic, stiff	5	37 - 42
Sand, fine to coarse, dirty	4	42 - 46
Clay, silty (lacustrine)	1	46 - 47
Sand, fine to coarse, dirty	1	47 - 48
Clay, silty, stiff (lacustrine)	6	48 - 54
Sand, fine to coarse, dirty	1	54 - 55
Clay, gray, silty, stiff	5	55 - 60

Location: 133-47-20AAD1 Use of well: Piezometer

Owner and number: SWC 11653 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 210 Altitude of land surface (ft., msl): 969.02 (S)

Screened interval (ft.): 195-200 Lithologic log from: SWC r

Casing diameter: 1.25" Comments: East well

Date completed: 9/5/85

Unit description	Thickness (ft	.) Depth (ft.)
Topsoi1	1	0 - 1
Clay, sandy, silty, yellow-brown, oxidized (till)	16	1 - 17
Clay, sandy, silty, gray (till)	6	17 - 23
Clay, very silty, gray, little plasticity, no sand	8	23 - 31
Sand, fine to medium, moderately sorted, fairly clean	15	31 - 46
Sand, fine to coarse, predominantly medium clean, lignitic in places	20	46 - 66
Gravel layer	1	66 - 67
Clay, sandy, stiff, dark gray, only occasional sand grains up to pebble sized, plastic (till)	49	67 -116
Clay, very silty, gray, moderately plastic (lacustrine)	5	116 -121
Sand, fine to coarse, dirty, poorly sorted, occasional silt layers	63	121 -184
Sand, medium to coarse with some gravel	17	184 -201
Clay, sandy, silty, dark gray, some pebbles, stiff, plastic (till)	9	201 -210

Location: 133-47-20AAD₂

Use of well: Piezometer

Owner and number: SWC 11654

Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 135

Altitude of land surface (ft., msl): 969.28 (S

Screened interval (ft.): 129-134

Lithologic log from: SWC

Casing diameter: 1.25"

Comments: Middle well

Date completed: 9/5/85

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay, sandy, yellow (till)	15	1 - 16
Clay, sandy, gray (till)	7	16 - 23
Clay, silty, some sand?, plastic (lacustrine)	8	23 - 31
Sand, fine to medium, clean	15	31 - 46
Sand, medium to coarse, clean, 1 foot gravel at base	20	46 - 66
Clay, dark gray, sand sized particles	54	66 -120
Sand, fine to coarse, dirty, poorly sorted	15	120 -135

Location: 133-47-20AAD3 Use of well: Piezometer

Owner and number: SWC 11655 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 60 Altitude of land surface (ft., msl): 969.44 (S)

Screened interval (ft.): 54-59 Lithologic log from: SWC (Right

Casing diameter: 2.00" Comments: West well

Date completed: 9/5/85

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	. 1	0 - 1
Clay, sandy, silty, yellow-brown, oxidized (till)	15	1 - 16
Clay, sandy, silty, gray (till)	17	16 - 33
Sand, fine to medium, clean	27	33 - 60

Location: 133-47-20ABAC1 Use of well: Piezometer

Owner and number: SWC 11749 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 271 Altitude of land surface (ft., msl): 974.01 (S)

Screened interval (ft.): 265-270 Lithologic log from: SWC

Casing diameter: 1.25" Comments: North well

Date completed: 3/11/86

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay, rocky (levee material)	7	1 - 8
Clay, yellow brown, sandy, silty with gravel (oxidized till)	28	8 - 36
Sand, fine to coarse with some gravel, angular to subrounded, poorly sorted	3	36 - 39
Clay, silty, light gray (lacustrine)	5	39 - 44
Sand, fine to coarse, dirty	2	44 - 46
Clay, gray, sandy, silty (till)	2	46 - 48
Rock	1	48 - 49
Clay, dark gray, firm, silty, occasional small pebbles (till?)	7	49 - 56
Clay, light greenish gray, silty (lacustrine)	10	56 - 66
Clay, dark gray, stiff, silty, sandy (till)	5	66 - 71
Clay, lighter gray, softer, some silt (lacustrine)	10	71 - 81
Clay, dark gray, firm, silty (till?)	20	81 -101
Sand, fine to medium, dirty	3	101 -104
Clay	1	104 -105
Sand, fine to medium, dirty, poorly sorted	18	105 -123
Sand, medium to coarse, fairly well sorted	63	123 -196

Unit description	Thickness (ft.)	Depth (ft.)
Sand, coarse to medium, some gravel	9	196 -205
Sand, coarse with gravel	26	205 -231
Sand and gravel, with some lignite	33	231 -264
Gravel, medium to coarse	5	264 -269
Gravel and rocks	2	269 -271

Location: 133-47-20ABAC2 Use of well: Piezometer

Owner and number: SWC 11750 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 125 Altitude of land surface (ft., msl): 974.06 (S)

Screened interval (ft.): 118-123 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Middle well

Date completed: 3/12/86

Unit description	Thickness (ft.)	Depth (ft.)
Fill material	8	0 - 8
Clay, sandy, silty, yellow brown (oxidized till)	13	8 - 21
Clay, sandy, silty, gray (till)	12	21 - 33
Sand, fine to medium, well sorted	6	33 - 39
Clay	4	39 - 43
Sand, fine to coarse, shale gravel	3	43 - 46
Clay, sandy, silty (till)	3	46 - 49
Clay, sandy, silty, green tinge, firm (till)	7	49 - 56
Clay, silty, gray bentonitic (lacustrine)	7	56 - 63
Clay, dark gray, firm occasional sand sized particles (lacustrine looking till)	33	63 - 96
Sand, fine, dirty, very few returns until approximately 100'	4	96 -100
Sand, fine, fairly well sorted	25	100 -125

Location: 133-47-20ABAC3

Use of well: Test hole

Owner and number: SWC 11751

Principal aquifer:

Depth drilled (ft.): 20

Altitude of land surface (ft., msl): 974 (T)

Screened interval (ft.): None

Lithologic log from: SWC

Casing diameter: None

Comments: Lost circulation

Date completed: 3/12/86

Unit description	Thickness (ft.)	Depth (ft.)
Fill material	1	0 - 1
Clay, yellow brown sandy, silty, oxidized (till)	19	1 - 20
Lost circulation		

Location: 133-47-20ABAC4 Use of well: Piezometer

Owner and number: SWC 11752 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 50 Altitude of land surface (ft., msl): 973.99 (S)

Screened interval (ft.): 38-48 Lithologic log from: SWC

Casing diameter: 2.00" Comments: South well

Date completed: 3/12/86

Unit description	Thickness (ft.)	Depth (ft.)
Fill material	1	0 - 1
Clay, sandy, silty, yellow brown (oxidized till)	20	1 - 21
Clay, sandy, silty, gray (till)	8	21 - 29
Clay, gray, laminated (lacustrine)	5	29 - 34
Sand, fine to medium	2	34 - 36
Sand, fine to coarse with gravel	9	36 - 45
Gravel, medium to coarse (put on rock bit)	3	45 - 48
Clay, dark with light streaks (lacustrine)	2	48 - 50

Location: 133-47-20ABB Use of well: Observation

Owner and number: SWC 3785 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 280 Altitude of land surface (ft., msl): 964.64 (S)

Screened interval (ft.): 178-184 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Northeast well

Date completed: 9/2/69

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, sandy clay loam with rocks, black	2	0 - 2
Clay, silty and sandy with pebbles, yellowish gray, soft, slightly cohesive, oxidized (till)	6	2 - 6
Gravel, fine and medium, brown, oxidized, iron-stained, angular to subrounded	2	6 - 8
<pre>Clay, as above, with much medium to coarse, iron-stained sand (till)</pre>	5	8 - 13
Sand, medium to coarse, tan, well-sorted, generally subangular, mostly quartz and limestone and dolomite	5	13 - 18
Silt, clayey with very fine sand in all combinations, interbedded and laminated, variegated grays to brownish black, generally soft, slightly cohesive and non- to very slightly plastic, lacustrine, occasional coarse sand grain and pebble, no shells	30	18 - 48
Clay, very silty, light olive gray, moderately hard, brittle, very tight, calcareous, greenish tint	9	48 - 57
Silt, light gray, calcareous, soft, slightly cohesive	5	57 - 62
Clay, silty to sandy with occasional coarse sand grains, dark olive gray to dark brownish gray, slightly hard, brittle, very tight (till?)	12	62 - 74

Unit description	Thickness (ft.)	Depth (ft.)
Sand, very fine to fine, light gray, loose, calcareous, gradually getting coarser with depth, very coarse in last 20', generally well-sorted and uniform, clean, no clay, taking water, really nice	190	74 -264
Shale, brownish black, hard, very tight, smooth, waxy, non-calcareous	16	264 -280

Location: 133-47-20ABBA1 Use of well: Piezometer

Owner and number: SWC 11759 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 277 Altitude of land surface (ft., msl): 975.36 (S)

Screened interval (ft.): 266-271 Lithologic log from: SWC

Casing diameter: 1.25" Comments: South well

Date completed: 3/25/86

Unit description	Thickness (ft.)	Depth (ft.)
Fill material	1	0 - 1
Clay, sandy, silty, rocky, yellow brown, stiff, plastic (oxidized till)	9	1 - 10
Clay, sandy, silty, rocky, dark gray (fill material) (Till)	3	10 - 13
<pre>Clay, sandy, silty, rocky, yellow brown, stiff, plastic (oxidized till)</pre>	8	13 - 21
Sand, fine to coarse, dirty, poorly sorted, angular to subrounded, cleaner and coarser with depth, clay lens at 39-40'	23	21 - 44
Clay, light gray, silty with layers of sand and gravel (lacustrine)	6	44 - 50
Gravel, medium	1	50 - 51
Clay, silty, sandy, dark gray (till)	10	51 - 61
Clay, silty, light gray, no plasticity, soft (lacustrine)	7	61 - 68
Clay, silty, dark gray, stiff, some plasticity, occasional sand grains (lacustrine till?)	31	68 - 99
Sand, fine to medium, poorly sorted, lots of fines	41	99 -140
Sand, medium to coarse with gravel	100	140 -240
Sand, coarse with medium to coarse gravel, gravel and rocks from 269 to 277', probably right on top of bedrock	37	240 -277

Location: 133-47-20ABBA2 Use of well: Piezometer

Owner and number: SWC 11760 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 125 Altitude of land surface (ft., msl): 975.56 (S)

Screened interval (ft.): 118-123 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Middle well

Date completed: 3/25/86

Unit description	Thickness (ft.)	Depth (ft.)
Fill material	1	0 - 1
Clay, sandy, silty, stiff, plastic, yellow- brown (oxidized till)	9	1 - 10
<pre>Clay, sandy, silty, dark gray (probably fill material) (till)</pre>	3	10 - 13
<pre>Clay, sandy, silty, rocky, yellow-brown, stiff, plastic (oxidized till)</pre>	8	13 - 21
Sand, fine to coarse	15	21 - 36
Sand, coarse with gravel, some coal and shale gravel	7	36 - 43
Gravel, medium to coarse, subangular to subrounded	7	43 - 50
Rock	1	50 - 51
Clay, sandy, silty, medium gray (till)	2	51 - 53
Rock	1	53 - 54
Clay, sandy, silty, medium gray (till)	5	54 - 59
Clay, silty, light gray, no plasticity, occasional bentonite layer (lacustrine)	4	59 - 63
Sand, medium to coarse	1	63 - 64
Clay, sandy, silty, dark gray, some light streaks, stiff, slightly plastic, rocks at 84-85', predominantly stiff, silty clay, with occasional sand and pebble sized grains	34	64 - 98
Sand, fine to coarse, turning to medium to coarse, poorly sorted turning to moderately sorted	27	98 -125

Location: 133-47-20ABBA3 Use of well: Piezometer

Owner and number: SWC 11761 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 55 Altitude of land surface (ft., msl): 976.07 (S)

Screened interval (ft.): 43-53 Lithologic log from: SWC

Casing diameter: 2.00" Comments: North well

Date completed: 3/25/86

Unit description	Thickness (ft.)	Depth (ft.)
Fill material	1	0 - 1
Clay, sandy, silty, yellow-brown (gray 10-13') plastic, stiff (oxidized till)	20	1 - 21
Sand, fine to coarse	15	21 - 36
Sand, coarse with some gravel	14	36 - 50
Clay, very sandy, silty, light gray (till)	5	50 - 55

Location: 133-47-20ABCA1 Use of well: Piezometer

Owner and number: SWC 11756 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 80 Altitude of land surface (ft., msl): 974.66 (S)

Screened interval (ft.): 50-60 Lithologic log from: SWC

Casing diameter: 2.00" Comments: North well

Date completed: 3/18/86

Unit description	Thickness (ft.)	Depth (ft.)
Fill material, dark clay	1	0 - 1
Fill material, rock	1 .	1 - 2
<pre>Clay, yellow brown, sandy, silty, stiff, plastic (oxidized till)</pre>	14	2 - 16
Sand, fine to medium, some gravel, oxidized, subangular	38	16 - 54
Clay, silty, soft	9	54 - 63
Gravel, fine to medium, angular to subrounded, clean	11	63 - 74
Clay, sandy, silty, dark gray, stiff (till)	6	74 - 80

Location: 133-47-20ABCA2 Use of well: Piezometer

Owner and number: SWC 11757 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 124 Altitude of land surface (ft., msl): 974.45 (S)

Screened interval (ft.): 118-122 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Middle well

Date completed: 3/18/86

Unit description	Thickness (ft.	Depth (ft.)
Fill material	1	0 - 1
<pre>Clay, sandy, silty, yellow brown, plastic, stiff (oxidized till)</pre>	16	1 - 17
Sand, medium to coarse with gravel, oxidized, angular to subrounded	14	17 - 31
Sand, coarse with fine to medium gravel (lignitic 45'-53')	25	31 - 56
Gravel, medium to coarse, rocks from 64 - 74	18	56 - 7 4
Clay, sandy, silty, dark gray	28	74 -102
Sand, fine to medium	4	102 -106
Clay, silty, soft, medium gray	1	106 -107
Clay and sand interbedded	3	107 -110
Rock, big tough one, put on rock bit then replaced with second rock bit, finally a third bit	2	110 -112
Sand, medium with fine to coarse sand, dirty	12	112 -124

Location: 133-47-20ABCA3 Use of well: Piezometer

Owner and number: SWC 11758 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 280 Altitude of land surface (ft., msl): 974.76 (S)

Screened interval (ft.): 273-278 Lithologic log from: SWC

Casing diameter: 1.25" Comments: South well

Date completed: 3/24/86

Unit description	Thickness (ft.)	Depth (ft.)
Fill material	1	0 - 1
Clay, sandy, silty, yellow-brown, plastic, stiff (oxidized till)	16	1 - 17
Sand, coarse, with gravel, angular to subrounded, oxidized	14	17 - 31
Sand and gravel	22	31 - 53
Gravel, with sand (rocks from 66-71)	18	53 - 71
Clay, sandy, silty, dark gray, plastic	30	71 -101
Silt, light gray, slightly cohesive	2	101 -103
Sand, fine grained	6	103 -109
Clay, silty (lacustrine)	2	109 -111
Sand, medium to coarse with gravel	56	111 -167
Sand and gravel	113	167 -280

Location: 133-47-20ABD Use of well: Municipal

Owner and number: Wahpeton #2 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 300 Altitude of land surface (ft., msl): 970 (T)

Screened interval (ft.): 240-300 Lithologic log from: Ervin Drillers

Casing diameter: 12" Comments: City well #2

Date completed: 7/18/73

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	2	0 - 2
Yellow clay	17	2 - 19
Gray clay	18	19 - 37
Sand, fine	6	37 - 43
Gray clay (hard)	49	43 - 92
Gray clay (soft)	3	92 - 95
Sand (medium)	26	95 -121
Gray clay	3	121 -124
Sand (medium)	176	124 -300

Location: 133-47-20ABDAC1 Use of well: Industrial supply

Owner and number: MDFC 8 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 302 Altitude of land surface (ft., msl): 973.54 (S)

Screened interval (ft.): 175-275 Lithologic log from: LTP

Casing diameter: 12" Comments:

Date completed: 9/22/86

Unit description	Thickness (ft.) Depth (ft.)
Topsoil	1	0 - 1
Clay, silty, brown	8	1 - 9
Sand, brown	2	9 - 11
Clay, brown	5	11 - 16
Clay, blue	16	16 - 32
Clay, sandy, blue	44	32 - 76
Sand, gray	11	76 - 87
Sand and gravel	29	87 - 116
Clay, blue	1	116 - 117
Rock, red	1	117 - 118
Gravel, brown	8	118 - 126
Rock, white	1	126 - 127
Sand, gray	41	127 - 168
Sand, gray	112	168 - 280
Sand with lenses of clay, gray	4	280 - 284
Sand, gray	18	284 - 302

Location: 133-47-20ABDA₁ Use of well: Observation

Owner and number: MDFC 7 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 272 Altitude of land surface (ft., msl): 971.28 (S)

Screened interval (ft.): 267-272 Lithologic log from: LTP

Casing diameter: 2.00" Comments:

Date completed: 9/4/86

Unit description	Thickness	(ft.) Depth (ft.)
Fill, brown	2	0 - 2
Clay, brown	27	2 - 29
Sand	28	29 - 57
Clay, sandy, gray	53	57 - 110
Sand, gray	30	110 - 140
Sand	60	140 - 200
Sand	47	200 - 247
Sand	25	247 - 272

Location: 133-47-20ABDB₁

Use of well: Piezometer

Owner and number: SWC 11705

Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 124

Altitude of land surface (ft., msl): 972.01(S)

Screened interval (ft.): 115-120

Lithologic log from: SWC

Casing diameter: 1.25"

Comments: North well

Date completed: 10/16/85

	Unit description	Thickness	(ft.)	Depth (ft.)
	Fill	4		0 - 4
	Topsoil, black, silty	2		4 - 6
	<pre>Clay, yellowish orange, silty, pebbly, soft, oxidized (till)</pre>	6		6 - 12
	Silt, gray, slightly clayey	3		12 - 15
10	Clay, silty, sandy, pebbly, oxidized (till)	3		15 - 18
	Sand, medium to very coarse, predominantly very coarse, angular to rounded, predominantly subrounded, quartz and carbonates, becomes gravelly at 26', taking water	8		18 - 26
	Gravel, very coarse sand to gravel ½" diameter, predominantly gravel to 1/8" diameter, angular to rounded, predominantly subrounded, taking water, predominantly quartz and carbonates, much coarser about 89'	98	b.	26 -124

Location: 133-47-20ABDB₂ Use of well: Piezometer

Owner and number: SWC 11706 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 280 Altitude of land surface (ft., msl): 972.14 (S)

Screened interval (ft.): 248-253 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Middle well

Date completed: 10/21/85

Unit description	Thickness (ft.)	Depth (ft.)
Fill	5	0 - 5
Clay, yellowish orange, silty, pebbly, soft (till)	13	5 - 18
Sand, medium to very coarse, predominantly very coarse, angular to rounded, predominantly subrounded, quartz, carbonates, shale, oxidized to about 30', below 26' becomes gravelly	8	18 - 26
Gravel, very coarse to gravel ½" diameter; predominantly gravel to ½" diameter, subrounded, predominantly shale and carbonates, appears coarser below 80', real coarse at 110', rounded shale and carbonates 1½+ diameter	95	26 -121
Clay, dark gray	1	121 -122
Gravel, as above	6	122 -128
Clay, no cuttings, dark gray, waxy	2	128 -130
Sand, all suspended in mud, appears to be very coarse sand, equal proportion quartz, shale and carbonates, angular to rounded, predominantly subangular to subrounded; tremendously coarse gravel in places from 130'to 150'	150	130 -280

Location: 133-47-20ABDB3

Use of well: Piezometer

Owner and number: SWC 11707

Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 55

Altitude of land surface (ft., msl): 972.15 (S)

Screened interval (ft.): 45-50

Lithologic log from: SWC

Casing diameter: 2.00"

Comments: South well

Date completed: 10/22/85

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay, oxidized, yellowish (till)	17	1 - 18
Sand, coarse	8	18 - 26
Sand and gravel, coarse	29	26 - 55

Location: 133-47-20ABDB4 Use of well: Piezometer

Owner and number: SWC 11753 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 280 Altitude of land surface (ft., msl): 975.21 (S)

Screened interval (ft.): 273-278 Lithologic log from: SWC

Casing diameter: 1.25" Comments: North well

Date completed: 3/13/86

Unit description	Thickness (ft.)	Depth (ft.)
Fill material	1	0 - 1
Clay, sandy, silty, yellow brown (oxidized till)	20	1 - 21
Sand, medium to coarse with gravel, predominantly shale gravel, coal at 45'	24	21 - 45
Sand, coarse, with gravel, turning to gravel with sand with depth	30	45 - 75
Clay, silty, slightly plastic	1	75 - 76
Gravel, medium to coarse	4	76 - 80
<pre>Clay, dark gray, stiff, occasional sand grains (lacustrine till?)</pre>	28	80 -108
Clay, some silty, some sandy, interbedded	9	108 -117
Sand, medium to coarse	24	117 -141
Gravel, with sand	139	141 -280

Location: 133-47-20ABDB5 Use of well: Piezometer

Owner and number: SWC 11754 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 120 Altitude of land surface (ft., msl): 975.02 (S)

Screened interval (ft.): 108-113 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Middle well

Date completed: 3/13/86

Unit description	Thickness (ft.)	Depth (ft.)
Fill material	1	0 - 1
Clay, sandy, silty, yellow-brown (oxidized till)	19	1 - 20
Sand, coarse to medium with gravel	14	20 - 34
Sand and gravel	47	34 - 81
Clay, dark gray, stiff, occasional sand sized grains	25	81 -106
Sand, medium to coarse (118-120' is coarse with gravel)	14	106 -120

Location: 133-47-20ABDB6

Use of well: Piezometer

Owner and number: SWC 11755

Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 60

Altitude of land surface (ft., msl): 975.06 (S)

Screened interval (ft.): 50-55

Lithologic log from: SWC

Casing diameter: 2.00"

Comments: South well

Date completed: 3/14/86

Unit description	Thickness (ft.)	Depth (ft.)
Fill material	1	0 - 1
Clay, sandy, silty, yellow-brown (oxidized till)	19	1 - 20
Gravel, medium to coarse (oxidized)	16	20 - 36
Gravel, coarse	24	36 - 60

Location: 133-47-20ABDB7 Use of well: Industrial supply

Owner and number: MDFC 12-D Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 120 Altitude of land surface (ft., msl): 971.84 (S)

Screened interval (ft.): 95-115 Lithologic log from: LTP

Casing diameter: 12.0" Comments:

Date completed: 8/26/86

Unit description	Thickness (ft.) Depth (ft.)
Sand, Brown	4	0 - 4
Clay and sand, brown	3	4 - 7
Clay and sand, brown	4	7 - 11
Clay, brown	9	11 - 20
Sand and gravel, took water	70	20 - 90
Sand and gravel, took water	23	90 -113
Gravel and rock	2	113 -115
Clay, sandy, gray	2	115 -117
Gravel	1	117 -118
Clay, sandy, gray	2	118 -120

Location: 133-47-20ABDBA1 Use of

Use of well: Piezometer

Owner and number: MDFC 10-A

Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 62

Altitude of land surface (ft., msl): 972.24 (S)

Screened interval (ft.): 55-60

Lithologic log from: LTP

Casing diameter: 2.00"

Comments:

Date completed: 8/26/86

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	2	0 - 2
Clay, sandy, brown	16	2 - 18
Sand, dirty with clay	2	18 - 20
Sand and gravel, took water	42	20 - 62

Location: 133-47-20ABDBA₂

Use of well: Piezometer

Owner and number: MDFC 10-B

Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 120

Altitude of land surface (ft., msl): 972.20 (s)

Screened interval (ft.): 114-119

Lithologic log from: LTP

Casing diameter: 2.00"

Comments:

Date completed: 8/27/86

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	2	0 - 2
Clay, sandy, brown	20	2 - 22
Sand and gravel, took water	97	22 -119
Clay, sandy, dark gray	1	119 -120

Location: 133-47-20ABDBA3 Use of well: Piezometer

Owner and number: MDFC 10-C Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 120.5 Altitude of land surface (ft., msl): 971.70 (S)

Screened interval (ft.): 115-120 Lithologic log from: LTP

Casing diameter: 2.00" Comments:

Date completed: 8/29/86

Unit description	Thickness (f	t.) Depth (ft.)
Topsoil	1	0 - 1
Clay, sandy, brown	18	1 - 19
Sand and gravel, brown	88	19 - 107
Gravel, very coarse	13	107 - 120
Clay, sandy with cobbles, blue	0.5	120 - 120.5

Location: 133-47-20 ABDBD1 Use of well: Piezometer

Owner and number: MDFC 9-A Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 122 Altitude of land surface (ft., msl): 972/26 (S)

Screened interval (ft.): 114-119 Lithologic log from: LTP

Casing diameter: 2.00" Comments:

Date completed: 8/28/86

Unit description	Thickness (ft.)	Depth (ft.)
Sand and fill, brown	2	0 - 2
Clay, brown	16	2 - 18
Sand, brown	4	18 - 22
Clay, gray	2	22 - 24
Sand and gravel	28	24 - 52
Sand, fine and dirty	, 6	52 - 58
Clay, sandy, gray	2	58 - 60
Sand and clay lenses, gray	1.5	60 - 61.5
Sand and gravel	23.5	61.5 -85
Clay, sandy, gray	2	85 - 87
Sand and gravel drilled good	13	87 - 100
Sand and gravel and rock, drilled poor	13	100 - 113
Rock, white	1	113 - 114
Gravel and rock	8	114 - 122

Location: 133-47-20ABDBD₂ Use of well: Piezometer

Owner and number: MDFC 9-B Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 60 Altitude of land surface (ft., msl): 972.14 (S)

Screened interval (ft.): 53-58 Lithologic log from: LTP

Casing diameter: 2.00" Comments:

Date completed: 8/29/86

Unit description	Thickness (f	t.) Depth (ft.)
Sand and fill, brown	2	0 - 2
Clay, brown	16	2 - 18
Sand, brown	4	18 - 22
Sand and gravel, gray	2	22 - 24
Sand	34	24 - 58
Clay, gray	2	58 - 60

Location: 133-47-20ABDC1 Use of well: Piezometer

Owner and number: SWC 11698 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 286 Altitude of land surface (ft., msl): 983.28 (S)

Screened interval (ft.): 278-283 Lithologic log from: SWC .

Casing diameter: 1.25" Comments: North well

Date completed: 10/10/85

Unit description	Thickness (ft.)	Depth (ft.)
Fill, levee material, clay and rocks	12	0 - 12
Clay, sandy, silty, yellow-brown, oxidized (till)	16	12 - 28
Clay, sandy, silty, gray (till)	1	28 - 29
Sand, medium to coarse, fairly clean with some fine material	11	29 - 40
<pre>Silt, clayey, gray, slightly plastic, not many returns (lacustrine)</pre>	5	40 - 45
Sand, medium, fairly well sorted, clean, some lignite	9	45 - 54
Silt, very few returns (lacustrine)	3	54 - 57
Sand, medium to fine	20	57 - 77
<pre>Clay, gray, stiff, silty, no sand, slightly plastic,</pre>	6	77 - 83
Silt, very fine, clayey, gray (lacustrine)	6	83 - 89
<pre>Clay, dark gray, very stiff, occasional small pebbles (till?, fluvial?)</pre>	20	89 - 109
Clay, sandy, silty, gray (till)	6	109 - 115
Sand, fine, poorly sorted	7	115 - 122
Clay, sandy, silty	5	122 - 127
Sand, medium to coarse, becoming coarser with depth	35	127 - 162
Gravel, fine to medium with sand, less sand, more gravel with depth; 2 bags of bentonite at 240'- 260'	124	162 - 286

Location: 133-47-20ABDC2 Use of well: Piezometer

Owner and number: SWC 11699 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 135 Altitude of land surface (ft., msl): 983.40 (S)

Screened interval (ft.): 128-133 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Middle well

Date completed: 10/10/85

Unit description	Thickness (ft.) Depth (ft.)
Fill material (levee)	11	0 - 11
Clay, sandy, silty, yellow-brown, oxidized (till)	15	11 - 26
Sand, medium, lignitic, oxidized	1	26 - 27
Clay, sandy, silty, yellow (till)	2	27 - 29
Clay, sandy, silty, gray (till)	17	29 - 46
Clay, light gray, very soft, very plastic	10	46 - 56
Sand, medium to coarse	17	56 - 73
Rock and gravel	2	73 - 75
Clay, dark gray, silty, occasional sand sized particles (looks lacustrine with some pebbles) becomes more plastic with depth (till)	38	75 -113
Sand, fine, not much return	5	113 -118
Silt, slightly plastic	2	118 -120
Sand, fine, very little return	3	120 -123
Silt, very little return	4	123 -127
Sand, fine, medium to coarse	8	127 -135

Location: 133-47-20ABDC3 Use of well: Piezometer

Owner and number: SWC 11700 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 75 Altitude of land surface (ft., msl): 983.26 (S)

Screened interval (ft.): 67-72 Lithologic log from: SWC

Casing diameter: 2.00" Comments: South well

Date completed: 10/11/85

Unit description	Thickness (ft.)	Depth (ft.)
Fill material	12	0 - 12
Clay, sandy, silty, yellow brown, oxidized (till)	17	12 - 29
Sand, medium, oxidized	2	29 - 31
Clay, sandy, silty, yellow brown (till)	6	31 - 37
Sand, medium to coarse, some fine sand, moderately to poorly sorted	35	37 - 72
Clay, gray, stiff, silty, no sand (lacustrine)	3	72 - 75

Location: 133-47-20ABDDAB Use of well: Piezometer

Owner and number: MDFC 6 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 272 Altitude of land surface (ft., msl): 971.16 (S)

Screened interval (ft.): 265-270 Lithologic log from: LTP

Casing diameter: 2.00" Comments:

Date completed: 9/9/86

Unit description	Thickness (ft.) Depth (ft.)
Fill, brown	2	0 - 2
Clay, brown	15	2 - 17
Clay, blue	11	17 - 28
Sand, fine with coal, gray	56	28 - 84
Clay, sandy, gray	5	84 - 89
Sand	16	89 - 105
Sand and gravel	7	105 - 112
Clay, sandy, gray	15	112 - 127
Sand	50	127 - 177
Sand	95	177 - 272

Location: 133-47-20ABDDA₂ Use of well: Observation

Owner and number: SWC CST Principal aquifer: None

Depth drilled (ft.): 12 Altitude of land surface (ft., msl): 970.24 (S)

Screened interval (ft.): 9-12 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Installed using a backhoe

Date completed: 8/22/85

Unit description	Thickness (ft.)	Depth (ft.)
Clay, rocky, sandy, silty (till and fill)	9	0 - 9
Sand, interspersed with other material (sand bed for pipeline)	2	9 - 11

Location: 133-47-20ABDDA₃ Use of well: Piezometer

Owner and number: SWC 11645 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 280 Altitude of land surface (ft., msl): 970.01 (S)

Screened interval (ft.): 268-273 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Southwest well

Date completed: 8/27/85

Unit description	Thickness	(ft.) Depth (ft.)
Topsoil	1	0 - 1
Clay, sandy, silty, yellow-brown, oxidized (till)	12	1 - 13
Clay, gray, sandy, silty (till)	19	13 - 32
Sand, fine to coarse, poorly sorted, angular to subrounded, lignitic	12	32 - 44
Silt, clayey, gray, few returns	3	44 - 47
<pre>Clay, silty, sandy, gray, a few small pebbles, stiff, but fairly easy drilling (lacustrine?) (till?)</pre>	14	47 - 61
Clay, very silty, gray, a few small sand grains (lacustrine clay)	15	61 - 76
Silt and clay, interbedded, silty clays, clayey silts (lacustrine)	6	76 - 82
Clay, gray, silty, a little stiffer (lacustrine)	4	82 - 86
<pre>Clay, dark gray, silty, sandy, very stiff, looks a little like lacustrine clay, a little like till; has gravel sized material in it (till?)</pre>	24	86 -110
Sand, fine to coarse with gravel and silt, very dirty, very poorly sorted, angular to subrounded	42	110 -152
Sand, medium to coarse, some gravel, angular to subrounded	32	152 -184
Sand, coarse with medium gravel	96	184 -280

Location: 133-47-20ABDDA₄ Use of well: Piezometer

Owner and number: SWC 11646 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 190 Altitude of land surface (ft., msl): 970.25 (S)

Screened interval (ft.): 178-183 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Northwest well

Date completed: 8/29/85

Unit description	Thickness (ft.) Depth (ft.)
Topsoil	1	0 - 1
Clay, sandy, silty, yellow brown, oxidized (till)	14	1 - 15
Clay, gray, sandy, silty, plastic (till)	11	15 - 26
Silt, clayey, somewhat plastic	6	26 - 32
Sand, fine to coarse, poorly sorted, lignitic	14	32 - 46
Gravel, medium, particles angular to subrounded	3	46 - 49
Clay, sandy, silty, fairly stiff, somewhat plastic (till)	12	49 - 61
<pre>Clay, very silty, gray, occasional small sand grains (lacustrine clay)</pre>	26	61 - 87
Clay, dark gray, stiff, silty, occasional sand grains (till?)	22	87 -109
Sand, fine to coarse, dirty, poorly sorted silty clay lenses at 112-113 and 116-117	23	109 -132
Sand, medium to coarse, some gravel, dirty, poorly sorted	58	132 -190

Location: 133-47-20ABDDA₅ Use of well: Piezometer

Owner and number: SWC 11647 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 120 Altitude of land surface (ft., msl): 969.90 (S)

Screened interval (ft.): 113-118 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Southeast well

Date completed: 8/29/85

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay, sandy, silty, yellow-brown, oxidized (till)	12	1 - 13
Clay, sandy, silty, gray, plastic (till)	10	13 - 23
Sand, fine to coarse, poorly sorted, predominantly fine	20	23 - 43
Sand, clayey with some gravel	6	43 - 49
Clay, silty, sandy, stiff (till)	18	49 - 67
Clay, silty, sandy (lacustrine)	20	67 - 87
Clay, sandy, silty, dark gray	23	87 -110
Sand, fine to medium, dirty, poorly sorted	10	110 -120

Location: 133-47-20ABDDA₆ Use of well: Piezometer

Owner and number: SWC 11648 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 47 Altitude of land surface (ft., msl): 969.93 (S)

Screened interval (ft.): 36-41 Lithologic log from: SWC

Casing diameter: 2.00" Comments: Northeast well

Date completed: 8/30/85

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay, sandy, silty, yellow-brown, plastic (gravel at 11-13) (till)	12	1 - 13
Clay, sandy, silty, gray, plastic (till)	19	13 - 32
Sand, fine to coarse, with lignite, predominantly fine grained	12	32 - 44
Clay, silty, gray	3	44 - 47

Location: 133-47-20ABDDA7 Use of well: Observation

Owner and number: SWC 11656 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 280 Altitude of land surface (ft., msl): 970.00 (S)

Screened interval (ft.): 269-274 Lithologic log from: SWC

Casing diameter: 1.25" Comments: East well

Date completed: 9/6/85

Unit description	Thickness	(ft.) Depth (ft.)
Topsoil	1	0 - 1
Clay, sandy, silty, yellow-brown (till)	12	1 - 13
Clay, sandy, silty, gray (till)	8	13 - 21
Clay, silty, gray, no sand (lacustrine)	7	21 - 28
Sand, fine to coarse, fairly clean	24	28 - 52
Sand, fine to coarse, lignitic	8	52 - 60
Clay, silty, gray, very occasional pebbles, gets stiffer at 72' (lacustrine)	29	60 - 89
Clay, silty, some pebbles and small sand grains, stiff. Looks a lot like above clay, except more sand grains interspersed and stiffer (till)	20	89 -109
Sand, fine to coarse, predominantly medium	40	109 -149
Sand, fine to coarse, some gravel	20	149 -169
Sand, medium to coarse with gravel	18	169 -187
Sand, coarse with gravel	22	187 -209
Sand and gravel	71	209 -280

Location: 133-47-20ABDDA8 Use of well: Observation

Owner and number: SWC 11657 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 120 Altitude of land surface (ft., msl): 970.18 (S)

Screened interval (ft.): 112-117 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Middle well

Date completed: 9/6/85

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay, sandy, silty, yellow, oxidized (till)	11	1 - 12
Clay, sandy, silty, gray (till)	11	12 - 23
Clay, silty (lacustrine)	6	23 - 29
Sand, fine to coarse, lignitic bottom 5'	25	29 - 54
Clay, silty, no sand, gravel layer at 61-62	26	54 - 80
Clay, silty, occasional pebbles (till ?)	30	80 -110
Sand, fine to coarse	10	110 -120

Location: 133-47-20ABDDA9 Use of well: Observation

Owner and number: SWC 11658 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 60 Altitude of land surface (ft., msl): 970.12 (S)

Screened interval (ft.): 50-55 Lithologic log from: SWC

Casing diameter: 2.00" Comments: West well

Date completed: 9/6/85

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay, sandy, silty yellow-brown, oxidized (till)	16	1 - 17
Clay, sandy, silty, gray (till)	6	17 - 23
Clay, silty, no sand	6	23 - 29
Sand, fine to coarse with gravel	28	29 - 57
Clay, sandy, silty, layers of sand (till)	3	57 - 60

Location: 133-47-20ABDDB1 Use of well: Piezometer

Owner and number: SWC 11642 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 280 Altitude of land surface (ft., msl): 971.06 (S)

Screened interval (ft.): 260-265 Lithologic log from: SWC

Casing diameter: 1.25" Comments: South well

Date completed: 8/27/85

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
<pre>Clay, silty, sandy, yellow, plastic, stiff, many pebbles (till)</pre>	15	1 - 16
Clay, silty, no sand, yellow-brown, slightly plastic, soft (lacustrine)	5	16 - 21
Gravel	1	21 - 22
Sand, fine, medium to coarse, silt and clay lenses	10	22 - 32
Sand, fine, medium to coarse, subangular to subrounded	14	32 - 46
Silt, gray, slightly plastic, very few returns (lacustrine)	18	46 - 64
Sand, medium to coarse, subangular to subrounded, poorly sorted, with a lot of gravel	6	64 - 70
<pre>Clay, dark gray, silty, sandy, very stiff, moderately plastic (till)</pre>	32	70 -102
Clay, gray, silty, very sandy, some gravel, softer	9	102 -111
Sand, fine, some medium size, some silt, returns came slow	30	111 -141
Sand, medium to coarse, some gravel	42	141 -183
Gravel, subangular to subrounded, some sand, poorly sorted	97	183 -280

Location: 133-47-20APDDB2 Use of well: Piezometer

Owner and number: SWC 11643 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 125 Altitude of land surface (ft., msl): 971.06 (S)

Screened interval (ft.): 114-119 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Middle well

Date completed: 8/28/85

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay, silty, sandy, with pebbles, yellow, oxidized (till)	16	1 - 17
Clay, silty, yellow brown, soft, slightly plastic (lacustrine)	4	17 - 21
Sand, fine to coarse, poorly sorted, yellow	11.	21 - 32
Sand, fine to coarse, poorly sorted, gray	4	32 - 36
Clay, gray, very soft, a little silt, plastic	3	36 - 39
<pre>Sand, fine to medium (predominantly fine), very poorly sorted, some lignite</pre>	27	39 - 66
Gravel, poorly sorted	4	66 - 70
<pre>Clay, dark gray, silty, some sand, very stiff (till)</pre>	14	70 - 84
Clay, dark gray, no silt or sand, very stiff, layered (lacustrine)	5	84 - 89
Clay, dark gray, silty, sandy, very stiff (till)	23	89 -112
Sand, gray, fine (some medium sized grains)	13	112 -125

Location: 133-47-20ABDDB3 Use of well: Piezometer

Owner and number: SWC 11644 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 50 Altitude of land surface (ft., msl): 970.95 (S)

Screened interval (ft.): 36-41 Lithologic log from: SWC

Casing diameter: 2.00" Comments: North well

Date completed: 8/28/85

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay, sandy, silty, yellow brown oxidized (till)	16	1 - 17
Sand, poorly sorted, yellow brown, oxidized	10	17 - 27
Clay, silty, dark gray	4	27 - 31
Sand, fine to coarse, poorly sorted, predominantly fine grained	10	31 - 41
Silt, few returns, mostly washed out	9	41 - 50

Location: 133-47-20ABDDD Use of well: Observation

Owner and number: SWC MST Principal aquifer: None

Depth drilled (ft.): 9.6 Altitude of land surface (ft., msl): 970.47 (S)

Screened interval (ft.): 7.2 - 9.6 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Installed using a backhoe

Date completed: 8/22/85

Unit description	Thickness (ft.)	Depth (ft.)
Clay, rocky, sandy, silty (till and fill)	, 9	0 - 9
Sand, minor amounts with other fill material (sand bed for pipeline)	0.5	9 - 9.5

Location: 133-47-20ACC1 Use of well: Observation

Owner and number: SWC 3783 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 265 Altitude of land surface (ft., msl): 968.4 (S)

Screened interval (ft.): 238 - 244 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Destroyed

Date completed: 8/28/69

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, pebbly loam, black	2	0 - 2
Sand, fine, clayey, yellowish gray, soft, loose, dry	4	2 - 6
Sand, medium and coarse with some fine gravel, brown, oxidized, subangular to subrounded, poorly to moderately sorted	8	6 - 14
Clay, silty and sandy with pebbles, moderately olive brown to light olive gray, soft to moderately soft, cohesive, moderately plastic, oxidized (till)	6	14 - 20
Clay, olive gray to dark olive gray, moderately soft, cohesive, plastic, smooth, sticky	6	20 - 26
Clay, silt and clayey fine sand, interbedded, various shades of gray with greenish gray and brownish black, soft, loose to slightly cohesive, nonplastic	36	26 - 62
Clay, silty with sand grains, pebbles and occasional cobbles, dark brownish gray, slightly hard, brittle, tight (till)	18	62 - 80
Clay, sandy with pebbles, light olive gray, moderately soft, slightly cohesive to slightly crumbly, chunky (till)	20	80 -100
Silt, light olive gray, soft, slightly friable	3	100 -103
Clay, olive gray to dark gray, moderately soft, cohesive, plastic, smooth	4	103 -107

Unit description	Thickness (ft.)	Depth (ft.)
Silt, clayey, light olive gray, soft, slightly cohesive, nonplastic, calcareous	9	107 -116
Sand, medium, light gray, loose, clean, subrounded, sorted, some coarse	5	116 -121
Clay, very sandy with pebbles, light olive gray to olive gray, very slightly friable (till)	21	121 -142
Sand, fine and medium, light gray, moderately well-sorted, subrounded, interbedded with sandy till as above	16	142 -158
<pre>Clay, black, moderately soft, crumbly, 'caving clay', smooth, waxy</pre>	3	158 -161
Silt, clayey to sandy with pebbles and occasional cobbles, light olive gray to olive gray, moderately soft, slightly crumbly, drills tight (till)	20	161 -181
Silt and very fine to fine sand, light gray, compacted, drills tight, predominantly quartz with limestone-dolomite and shale, calcareous	26	181 -207
Sand, fine and medium, light gray, well-sorted and uniform, appears clean but drills tight in spots, calcareous	49	207 -256
Clay, drills tight and rocky (till?)	8	256 -264
Boulder, black and white diorite, very hard (didn't get through it)	1	264 -265

Location: 133-47-20ACC3 Use of well: Observation

Owner and number: SWC 9440 Principal aquifer: Undefined

Depth drilled (ft.): 40 Altitude of land surface (ft., msl): 968.97 (S)

Screened interval (ft.): 23-26 Lithologic log from: SWC

Casing diameter: 1.25' Comments: Southeast well

Date completed: 9/4/75

Unit description	Thickness (ft.)	Depth (ft.)
Clay, sandy, silty, pebbly, with shale pebbles, moderate yellowish brown, moderately tight, cohesive, very slightly plastic, small (6-inch) interbedded lenses of sand (till)	14	0 - 14
Clay, as above, medium dark to olive gray	6	14 - 20
Sand, very fine to coarse, predominantly medium, subangular to subrounded, 75% quartz, 15% carbonates, 10% shale and igneous, well sorted, a few very small interbedded clay layers	6	20 - 26
Clay, very sandy, silty, medium gray to olive gray, moderately tight, smooth, cohesive, slightly plastic (lacustrine)	9	26 - 35
Sand, as above, a little cleaner	3	35 - 38
Clay, as above, (lacustrine)	2	38 - 40

Location: 133-47-20ACD2 Use of well: Observation

Owner and number: SWC 9441 Principal aquifer: Undefined

Depth drilled (ft.): 40 Altitude of land surface (ft., msl): 969 (T)

Screened interval (ft.): 24-30 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Destroyed

Date completed: 9/4/75

Unit description	Thickness (ft.)	Depth (ft.)
Clay, sandy, silty, pebbly, moderate yellowish brown, moderately tight, cohesive, slightly plastic, iron-stained, oxidized	14	0 - 14
Clay, as above, medium dark to olive gray (till)	6	14 - 20
Clay, silty, sandy, medium gray, tight, cohesive, sticky, slightly plastic (lacustrine)	3	20 - 23
Sand, fine to very coarse, predominantly medium to coarse, angular to subrounded, 60% quartz, 25% shale, 10% carbonates, 5% igneous, slightly lignitic, fairly clean, well sorted	7	23 - 30
Clay, sandy, silty, pebbly, medium dark to olive gray, tight, cohesive, very slightly plastic (till)	10	30 - 40

Location: 133-47-20ADB Use of well: Observation

Owner and number: SWC 3790 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 260 Altitude of land surface (ft., msl): 971.9 (S)

Screened interval (ft.): 254-260 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Destroyed

Date completed: 9/4/69

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, pebbly and cobbly loam, black	2	0 - 2
<pre>Clay, silty and sandy with pebbles and rocks, yellowish gray, soft, slightly cohesive, jointed, oxidized (till)</pre>	3	2 - 5
Clay, silty to sandy with pebbles and cobbles, medium olive brown, moderately soft, cohesive, moderatly plastic, oxidized (till)	11	5 - 16
Clay, silty and sandy with pebbles, olive gray, moderately soft to slightly hard, moderately cohesive to slightly brittle (till)	6	16 - 22
Sand, medium to coarse, tan, moderately sorted, subangular, predominantly quartz, limestone-dolomite and shale, interbedded with thin stringers of till	13	22 - 35
Till, as above, with thin stringers of sand, may also contain lenses of pure clay, samples very soft and hard to examine	9	35 - 44
Silt, greenish-gray, clayey with some very fine sand, soft, slightly cohesive, nonplastic, chalky, calcareous	16	44 - 60
Clay, silty and sandy with pebbles, dark olive gray, moderately soft and cohesive to slightly hard and brittle, tightly compacted (till) interbedded with lenses or blocks of dark gray, laminated, smooth stiff clay, banded with light gray, highly calcareous silty clay	44	60 -104

Unit description	Thickness (ft.)	Depth (ft.)
<pre>Clay, dark gray to silt, medium gray to sand, very fine, light gray, transitional</pre>	9	104 -113
Sand, fine to medium, gradually becoming coarser with depth, last 10' fine and medium gravel, generally well-sorted, uniform and clean, predominantly granitic derivative, limestone-dolomite and shale, loose, taking lots of water	147	113 -260

Location: 133-47-20ADB2 Use of well: Piezometer

Owner and number: SWC 11708 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 277 Altitude of land surface (ft., msl): 972.11 (S)

Screened interval (ft.): 265-270 Lithologic log from: SWC

Casing diameter: 1.25" Comments: South well

Date completed: 10/22/85

Unit description	Thickness (ft.)	Depth (ft.)
Fil1	5	0 - 5
Gravel	1	5 - 6
Clay, dark yellowish orange, silty, sandy, pebbly, slightly brittle, oxidized (till)	10	6 - 16
Clay, olive gray, silty, sandy, pebbly, soft (till)	5	16 - 21
Sand	5	21 - 26
Clay, as above	10	26 - 36
Clay, olive gray, very plastic, soft, (lacustrine)	· 6	36 - 42
Clay, olive gray, very silty, a few pebbles, soft (till)	20	42 - 62
Clay, olive green to brown, slightly to very silty, laminated, from 69' much less silt	10	62 - 72
Clay, dark gray, slightly pebbly, (reworked till) boulder at 88'	34	72 -106
Clay, olive gray, slightly silty (lacustrine)	5	106 -111
Sand, fine to medium, predominantly medium, rounded and subrounded, predominantly quartz, becomes predominantly coarse and very coarse by 140', subangular to subrounded, more carbonates and detrital shale, taking water, interbedded gravel beyond 205', much rougher starting at 216-220' below 120' much fine gravel	166	111 -277

Location: 133-47-20ADB3 Use of well: Piezometer

Owner and number: SWC 11709 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 125 Altitude of land surface (ft., msl): 972.33 (S)

Screened interval (ft.): 115-120 Lithologic log from: SWC

Casing diameter: 1.25" Comments: North well

Date completed: 10/22/85

Unit description	Thickness (ft.)	Depth (ft.)
Fill	5	0 - 5
Gravel	1	5 - 6
Clay, dark yellowish orange, silty, sandy, pebbly, slightly brittle, oxidized (till)	10	6 - 16
Clay, olive gray, silty, sandy, pebbly, soft (till)	5	16 - 21
Sand	5	21 - 26
Clay, as above	10	26 - 36
Clay, olive gray, very plastic, soft (lacustrine)	6	36 - 42
Clay, dark olive gray, pebbly, tight, many small gravel lenses (till)	20	42 - 62
Clay, olive gray to brownish gray, slightly to very silty, soft	11	62 - 73
Clay, dark gray, predominant sand grains, tight, (fluvially reworked till)	39	73 -112
Sand, cobbles 112'-113', thin sand, medium coarse	13	112 -125

Location: 133-47-20ADD

Use of well: Municipal

Owner and number: Wahpeton #3

Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 290

Altitude of land surface (ft., msl): 969 (T)

Screened interval (ft.): 250-290

Lithologic log from: Ervin Drillers

Casing diameter: 12"

Comments:

Date completed: 8/10/73

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	2	0 - 2
Clay, yellow	16	2 - 18
Clay, gray	24	18 - 42
Sand, fine, gray	4	42 - 46
Clay, hard, gray	48	46 - 94
Sand, medium	27	94 -121
Clay, gray	3	121 -124
Sand, medium	166	124 -290

Location: 133-47-20ADD2 Use of well: Piezometer

Owner and number: SWC 11713 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 275 Altitude of land surface (ft., msl): 968.67 (S)

Screened interval (ft.): 268-273 Lithologic log from: SWC

Casing diameter: 1.25" Comments: East well

Date completed: 10/24/85

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay, dark yellowish orange (till)	16	1 - 17
Clay, olive gray, soft, plastic, gravel lens 41'-42', below 42' much tighter (till)	38	17 - 55
Clay, greenish gray, silty	7	55 - 62
<pre>Clay, dark gray, tight, waxy, pebbly,</pre>	55	62 -117
Sand, fine to coarse, predominantly fine to moderate, subrounded to rounded, quartz, coarse sand and some gravel by 140', below 200' predominantly coarse sand and fine gravel, below 240' coarser gravel	158	117 -275

Location: 133-47-20ADD3 Use of well: Piezometer

Owner and number: SWC 11714 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.):129 Altitude of land surface (ft., msl): 968.83 (S)

Screened interval (ft.): 122-127 Lithologic log from: SWC

Casing diameter: 1.25" Comments: West well

Date completed: 10/24/85

Unit description	Thickness (ft.)	Depth (ft.)
Clay, dark yellowish orange, silty, pebbly, soft (till)	19	0 - 19
Clay, olive gray, silty, pebbly, soft, plastic, carbonate gravel 41'-43' (till)	24	19 - 43
Clay, olive gray, pebbly, tighter, brittle (till)	6	43 - 49
Silt, greenish gray, slightly clayey, interbedded with silty clay, fine sand 56'-57', gravel lense about 60'-61'	14	49 - 63
Clay, dark gray, tight, waxy, a few prominent sand grains and pebbles, at times appear carbonaceous (till)	56	63 -119
Sand	10	119 -129

Location: 133-47-20BAA1 Use of well: Observation

Owner and number: SWC 9444 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 40 Altitude of land surface (ft., msl): 965.86 (S)

Screened interval (ft.): 23-26 Lithologic log from: SWC

Casing diameter: 1.25" Comments:

Date completed: 9/4/75

Unit description	Thickness (ft.)	Depth (ft.)
Clay, sandy, silty, pebbly, moderate yellowish brown, moderately tight, cohesive, very slightly plastic (till)	8	0 - 8
Sand, very fine to coarse, predominantly medium subangular to subrounded, 70% quartz, 20% carbonates, 10% shale and igneous, clean, well sorted, taking a little water	12	8 - 20
Sand, very fine to very coarse, predominantly medium to coarse, 60% quartz, 25% shale, 10% carbonates, 5% igneous, slightly to moderately lignitic, moderately well sorted, clean, gravelly (fine) around 30'	12	20 - 32
Clay, sandy, silty, pebbly, medium dark to olive gray, tight, very slight plastic (till)	8	32 - 40

Location: 133-47-20BAA2 Use of well: Observation

Owner and number: SWC 9445 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 140 Altitude of land surface (ft., msl): 965.26 (S)

Screened interval (ft.): 128-134 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Southwest well

Date completed: 9/4/75

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, sandy clay loam with rocks, black	2	0 - 2
Clay, silty and sandy with pebbles, yellowish gray, soft, slightly cohesive, oxidized (till)	4	2 - 6
Gravel, fine and medium brown, oxidized, iron-stained, angular to subrounded	2	6 - 8
<pre>Clay, as above, with much medium to coarse, iron-stained sand (till)</pre>	5	8 - 13
Sand, medium to coarse, tan, well-sorted, generally subangular, mostly quartz and limestone and dolomite	5 .	13 - 18
Silt, clayey with very fine sand in all combinations, interbedded and laminated, variegated grays to brownish black, generally soft, slightly cohesive and non- to very slightly plastic, lacustrine, occasional coarse sand grains and pebbles, no shells	30	18 - 48
Clay, very silty, light olive gray, moderately hard, brittle, very tight, calcareous, greenish tint, very tight	9	48 - 57
Silt, light gray, calcareous, soft, slightly cohesive	5	57 - 62
Clay, silty to sandy with occasional coarse sand grains, dark olive gray to dark brownish gray, slightly hard, brittle, very tight (till?)	12	62 - 74

Lithologic Log

Unit description

Thickness (ft.) Depth (ft.)

66

74 -140

Sand, very fine to fine, light gray, loose, calcareous, gradually getting coarser with depth, very coarse in last 20', generally well-sorted and uniform, clean, no clay, taking water

Location: 133-47-20BAA3 Use of well: Industrial

Owner and number: Minn-Dak D-1 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 45 Altitude of land surface (ft., msl): 964.95

Screened interval (ft.): 33.5-36.5 Lithologic log from: SWC

Casing diameter: 4" Comments: South of RR tracks

Date completed: 4/14/76

	\$1	
Unit description	Thickness (ft.)	Depth (ft.)
Clay, till, sand, silt particles	11.5	0 - 11.5
Sand and gravel, very poorly sorted, subangular to rounded	3.5	11.5 -15
Sand, fine to medium, moderately sorted with some coarse layers	5	15 - 20
Sand, fine to very fine, with some larger lignite fragments	5	20 - 25
Sand, medium to coarse with some gravel sand, subangular to subrounded	5	25 - 30
Sand, coarse, well sorted, clean, subangular to subrounded	9	30 - 39
Clay, sandy, silty, very hard drilling (till)	6	39 - 45

Location: 133-47-20BAA4 Use of well: Piezometer

Owner and number: SWC 11701 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 267 Altitude of land surface (ft., msl): 965.33 (S)

Screened interval (ft.): 258-263 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Middle well

Date completed: 10/11/85

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay, sandy, silty, yellow brown, oxidized (till)	14	1 - 15
Clay, sandy, silty, gray (till)	4	15 - 19
Sand, fine, medium to coarse	12	19 - 31
Gravel, medium to coarse	4	31 - 36
Clay, sandy, silty, gray (till)	10	36 - 46
Clay, silty, medium gray (lacustrine)	10	46 - 56
Clay, dark gray, stiff, silty (lacustrine)	22	56 - 78
Clay, very silty, soft, plastic (lacustrine)	31	78 -109
Sand, fine, poorly sorted, dirty	13	109 -122
Sand, medium to coarse, moderately sorted, clean	79	122 -201
Sand, coarse with gravel	33	201 -234
Sand and gravel	31	234 -265
Clay, gray (not much return, only drilled a couple feet for room at the bottom of the hole)	2	265 -267

Location: 133-47-20BAB Use of well: Industrial

Owner and number: Minn-Dak D-3 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 60 Altitude of land surface (ft., msl): 963 (T)

Screened interval (ft.): 25-28 Lithologic log from: SWC

Casing diameter: 4" Comments: Destroyed

Date completed: 4/15/76

Unit description	Thickness (ft.)	Depth (ft.)
Clay, sandy, silty, pebbly (till)	3	0 - 3
Sand, silty, very fine to medium, poorly sorted, subangular to rounded, brown	2	3 - 5
Sand, medium to coarse, with some fines, brown	6	5 - 11
Sand, medium to coarse, becoming coarser with depth, angular to rounded, gravel sized material from 25 to 28, gray	17	11 - 28
Clay, no return (silt?)	0.5	28 - 28.5
Sand, becoming very coarse gravel at 29½ to 30	1.5	28.5-30
Clay	3	30 - 33
Sand, medium	1	33 - 34
Clay	3	34 - 37
Sand, interfingered, with silt and clay	12	37 - 49
Sand, medium to coarse, very poorly sorted, lots of fine material very angular becoming more gravelly, cleaner and rounded with depth	11	49 - 60

Location: 133-47-20BABAB1 Use of well: Piezometer

Owner and number: SWC 12003 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 120 Altitude of land surface (ft., msl): 966.07 (S)

Screened interval (ft.): 112-117 Lithologic log from: SWC

Casing diameter: 1.25" Comments:

Date completed: 7/16/87

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay with pebbles (fill material)	8	1 - 9
Sand, fine to medium, dirty, oxidized	7	9 - 16
Sand, medium to coarse, some gravel, particularly shale fragments, subangular to subrounded	5	16 - 21
Gravel, sandy, coarse sand to medium gravel, large proportion of shale fragments, subrounded	14	21 - 35
Clay, sandy, silty, light gray (till)	7	35 - 42
Clay, sandy, silt, gray, stiff, intermixed with red- brown to black-brown, clay, soft, plastic	11	42 - 53
Clay, sandy, silty, dark gray, stiff, occasional sand grains, also occasionally soft (usually light gray when soft)	36	53 - 89
Sand, probably medium to coarse with some gravel; hole mudded up from upper gravel, very few returns	31	89 -120

Location: 133-47-20BABB Use of well: Piezometer

Owner and number: SWC 12010 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 66 Altitude of land surface (ft., msl): 962.74 (S)

Screened interval (ft.): 53-63 Lithologic log from: SWC

Casing diameter: 2.00" Comments:

Date completed: 7/22/87

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay, sandy, silty, yellow-brown (oxidized till)	5	1 - 6
Sand, medium to coarse, poorly sorted, some gravel	27	6 - 33
Clay, light gray, sandy, silty (till)	7	33 - 40
Sand, fine to coarse	12	40 - 52
Sand and clay layers	5	52 - 57
Sand and gravel, shale gravel with clay layers	6.	57 - 63
Clay, sandy, silty, gray (till)	3	63 - 66

Location: 133-47-20BAD1 Use of well: Piezometer

Owner and number: SWC 11702 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 271 Altitude of land surface (ft., msl): 974.87 (S)

Screened interval (ft.): 255-260 Lithologic log from: SWC

Casing diameter: 1.25" Comments: east well

Date completed: 10/14/85

Unit description	Thickness (ft.)	Depth (ft.)
Fill	10	0 - 10
Topsoil, black, silty, organic	2	10 - 12
<pre>Clay, yellowish orange, silty, pebbly, soft, oxidized (till)</pre>	3	12 - 15
Sand and gravel, medium sand to gravel 1" dia., predominantly very coarse sand, angular to rounded, predominantly subangular, equal proportions quartz, shale, and carbonates, oxidized stain out of oxidized zone at 28', gravelly below 32' taking much water, less quartz more shale and carbonates	30	15 - 45
Gravel, very coarse sand to cobbles, 2" diameter, predominantly 1/8" - 1/4" diameter, rounded and subrounded, shale and carbonates, some quartz and silicates, appears to be interbedded finer then coarser gravel, predominantly 1/4" to 1/2" diameter by 60', 61'-64' finer sand?	19	45 - 64
Clay, dark gray to black, tight, waxy, some sand grains, with light gray laminations of silt (lacustrine) below 70' more sandy and looks more like till with a few pebbles	20	64 - 84
Sand, no cuttings return - stays suspended in mud	7	84 - 91
Clay, dark olive gray, light gray laminations, slightly silty, sand 98'	7	91 - 98
Sand?, no returns, much bit chatter, clay 110-111', 116'-118'	28	98 -126

Uni	t description	Thickness (ft.)	Depth (ft.)
Cla	y, olive gray, very silty, possibly interbedded, silty clay (till)	9	126 -135
San	d, as above, must be clayey because kelly falls slowly - bit chatters a lot, medium to very coarse sand suspended in mud, predominantly quartz and subangular below 220' coarser gravel to ½", predominantly very coarse sand to gravel 1/8" more carbonates, rougher drilling below 235' much rougher at 256', interbedded clay 260'-271'	136	135 -271

Location: 133-47-20BAD2 Use of well: Piezometer

Owner and number: SWC 11703 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 150 Altitude of land surface (ft., msl): 975.18 (S)

Screened interval (ft.): 135-140 Lithologic log from: SWC

Casing diameter: 1.25" Comments: middle well

Date completed: 10/16/85

Unit description	Thickness (ft.)	Depth (ft.)
Fill	11	0 - 11
Clay, yellowish orange, pebbly, soft (till)	4	11 - 15
Sand and gravel; fine sand to gravel 1/4" diameter, predominantly medium, very coarse sand, angular to rounded, predominantly	25	15 - 40
subrounded, oxidized to about 20', below 20' becomes coarser, predominantly very coarse sand and fine gravel, taking water, composed of predominantly shale and carbonates	~ ,	
Gravel, coarse sand to gravel 1" diameter, predominantly very coarse sand and gravel to 1/4" diameter, predominantly rounded and subrounded, predominantly carbonates, shale, some silicates below 50' predominantly gravel 1/4" to 1/2" diameter, rounded and subrounded, predominantly carbonates and silicates	26	40 - 66
Clay, olive gray, becoming dark gray by 70', tight, waxy, a few sand grains, sand lens 86'-87', 89'-90', 91'-92' (till)	33	66 - 99
Sand, coarse, very coarse, angular, quartz and carbonates, clay 110'-112'	26	99 -125
Clay, olive gray, very silty, fluvial	9	125 -136
Sand, as above	14	136 -150

Location: 133-47-20BAD3 Use of well: Piezometer

Owner and number: SWC 11704 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 70 Altitude of land surface (ft., msl): 975.53 (S)

Screened interval (ft.): 51-56 Lithologic log from: SWC

Casing diameter: 2.00" Comments: West well

Date completed: 10/16/85

Unit description	Thickness (ft.)	Depth (ft.)
Fill	11	0 - 11
Clay, yellowish orange, pebbly, soft (till)	4	11 - 15
Sand and gravel - medium sand to gravel, 1/4" diameter, predominantly very coarse sand and fine gravel to 1/8" diameter, angular to rounded, predominantly subrounded to rounded, equal proportions quartz, carbonates and shale, oxidized to about 30', becomes more gravelly at 28'	31	15 - 46
Gravel, very coarse sand to gravel 1/2" diameter, predominantly gravel 1/4" diameter, angular to rounded, predominantly subrounded, predominantly carbonates and silicates, coarser at 54' to 1" diameter	15	46 - 61
Clay, dark gray, boulder at 63' (till)	9	61 - 70

Location: 133-47-20BBA

Use of well: Municipal

Owner and number: Wahpeton #1

Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 327

Altitude of land surface (ft., msl): 962 (T)

Screened interval (ft.): 240-300

Lithologic log from: Ervin Drillers

Casing diameter: 12"

Comments:

Date completed: 7/9/73

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	2	0 - 2
Clay, yellow	15	2 - 17
Sand, gray	2	17 - 19
Clay, gray	20	19 - 39
Sand, gray	1.2	39 - 51
Clay, hard gray	45	51 - 96
Sand, medium	5	96 -101
Clay, gray	2	101 -103
Sand, medium	21	103 -124
Clay, gray	3	124 -127
Sand, medium	199	127 -326
Granite, decomposed	1	326 -327

Location: 133-47-20BBA2 Use of well: Observation

Owner and number: SWC 9442 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 80 Altitude of land surface (ft., msl): 961.34 (S)

Screened interval (ft.): 56-59 Lithologic log from: SWC

Casing diameter: 1.25" Comments: South well (east string)

Date completed: 9/4/75

Unit description	Thickness (ft.)	Depth (ft.)
Clay, sandy, silty, pebbly, moderate yellowish brown, moderately tight, cohesive, very slightly plastic, oxidized (till)	8	0 - 8
Sand, very fine to coarse, predominantly medium, subangular to subrounded, mostly quartz, some shale, carbonates, fairly clean, well sorted	2	8 - 10
Clay, as above, medium dark, to olive gray (till)	4	10 - 14
Sand, very fine to very coarse, predominantly medium to coarse, angular to subrounded, 60% quartz, 20% carbonates, 15% shale, 5% igneous, slightly lignitic, moderately well sorted, clean, taking a little water	22	14 - 36
Clay, sand, silty, pebbly, moderately dark to olive gray, cohesive, very slightly plastic (till)	3	36 - 39
Sand, as above	12	39 - 51
Clay, as above (till)	2	51 - 53
Sand, as above, gravelly, gravel predominantly, shale and carbonates, some quartz and igneous	14	53 - 67
Clay, as above (till)	13	67 - 80

Location: 133-47-20BBA3 Use of well: Observation

Owner and number: SWC 9442A Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 30 Altitude of land surface (ft., msl): 961.34 (S)

Screened interval (ft.): 23-26 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Middle well (east string)

Date completed: 9/4/75

Unit description	Thickness (ft.)	Depth (ft.)
Clay, sandy, silty, pebbly, moderate yellowish brown, moderately tight, cohesive, very slightly plastic, oxidized (till)	8	0 - 8
Sand, very fine to coarse, predominantly medium, subangular to subrounded, mostly quartz, some shale, carbonates, fairly clean, well sorted	2	8 - 10
Clay, as above, medium dark to olive gray (till)	4	10 - 14
Sand, very fine to very coarse, predominantly medium to coarse, angular to subrounded, 60% quartz, 20% carbonates, 15% shale, 5% igneous, slightly lignitic, moderately well sorted, clean, taking a little water	16	14 - 30

Location: 133-47-20BBA4 Use of well: Industrial

Owner and number: Minn-Dak D-5 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 56 Altitude of land surface (ft., msl): 963.35 (S)

Screened interval (ft.): 34-37 Lithologic log from: SWC

Casing diameter: 4" Comments: north well (east string)

Date completed: 4/14/76

Unit description	Thickness (ft.)	Depth (ft.)
Clay	6	0 - 6
Sand, brown, fine, medium, coarse, poorly sorted, large lignite fragments	9	6 - 15
Sand, gray, medium to coarse, poorly sorted	10	15 - 25
Sand, gray, medium to fine, moderately sorted, subangular to subrounded	14	25 - 39
Clay, very soft, very silty, little sample return	2.5	39 - 41.5
Sand, gray, medium to fine, moderately sorted, subangular to subrounded	2.5	41.5-44
Sand and gravel, poorly sorted, angular to subrounded	2	44 - 46
Sand, fine to very fine, silty, moderately sorted, taking no water	9 *	46 - 55
Clay, very plastic, no coarse material (lacustrine)	1	55 - 56

Location: 133-47-20BBA5 Use of well: Observation

Owner and number: Minn-Dak 0-5 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 60 Altitude of land surface (ft., msl): 960.57 (S)

Screened interval (ft.): 38-41 Lithologic log from: SWC

Casing diameter: 1.25" Comments: North of RR tracks

Date completed: 4/15/76

Unit description	Thickness (ft.)	Depth (ft.)
Clay, sandy, silty, pebbly	6	0 - 6
Sand, fine to medium, lots of silt sized material, poorly sorted angular to subrounded	8	6 - 14
Sand, very fine to fine, very silty, not much sample return	13	14 - 27
Clay	1	27 - 28
Sand, very silty, very clayey	2	28 - 30
Clay, silty, sandy (till)	5	30 - 35
Sand, very fine to medium, poorly sorted, very dirty	12	35 - 47
Silt, sandy, clayey, poorly sorted, very dirty	7	47 - 54
Sand, very fine, very silty, poor sample return	4	54 - 58
Silt, no sample return	2	58 - 60

Location: 133-47-20BBA6 Use of well: Piezometer

Owner and number: SWC 11710 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 280 Altitude of land surface (ft., msl): 961.81 (S)

Screened interval (ft.): 268-273 Lithologic log from: SWC

Casing diameter: 1.25" Comments: North well (west string)

Date completed: 10/23/85

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay, yellowish orange, silty, clayey, soft (till)	10	1 - 11
Sand, fine to coarse, predominantly medium rounded to subrounded	9	11 - 20
Silt, olive gray, clayey	3	20 - 23
Sand, medium, very coarse, subangular, quartz and carbonates predominant	13	23 - 36
Clay, olive gray to black, silty, carbonaceous	3	36 - 39
Sand, fine grain, rounded, quartz	10	39 - 49
Silt, clayey	2	49 - 51
Gravel, very coarse sand to gravel 1/2" diameter, predominantly fine gravel to 1/8" diameter, angular to rounded, quartz, carbonates, silicates and shale (interbedded with till)	21	51 - 72
Clay, dark olive gray, silty, some prominant sand grains, slightly brittle (till)	20	72 - 92
Sand, fine to coarse, predominantly medium, subrounded, quartz, becomes coarser below 100' to coarse and very coarse sand, more angular gravel at 109', taking water, mixed mud at 140' below 180' appear to be more gravelly	188	92 -280

Location: 133-47-20BBA7 Use of well: Piezometer

Owner and number: SWC 11711 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 120 Altitude of land surface (ft., msl): 961.90 (S)

Screened interval (ft.): 110-115 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Middle Well (West string)

Date completed: 10/23/85

Unit description	Thickness (ft.)	Depth (ft.)
Topsoi1	1	0 - 1
<pre>Clay, dark yellowish orange, silty, pebbly, soft-brittle (till)</pre>	13	1 - 14
Sand and gravel, fine sand to gravel 1/4" diameter predominantly very coarse sand and fine gravel, predominantly subrounded to rounded, quartz, carbonates, shale, lignite	6	14 - 20
Silt, olive gray, clayey	3	20 - 23
Sand and gravel, as above, boulders at 35'	13	23 - 36
Silt, olive gray to brownish gray, clayey, laminated, carbonaceous 40'-45'	15	36 - 51
Gravel, very coarse sand to gravel 1/4" diameter, predominantly fine gravel, predominantly shale and carbonates, angular to rounded, interbedded with clay or till	17	51 - 68
Clay, dark gray, a few sand grains, occasional laminations (reworked till), becomes more lacustrine in appearance with depth	23	68 - 91
Sand, no sample return	12	91 -103
Clay, as above	3	103 -106
Sand and gravel, fine sand to gravel 1/2" diameter, predominantly gravel to 1/8" diameter, angular to rounded, equal proportions quartz, silicates, carbonates, and shale	14	106 -120

Location: 133-47-20BBA8 Use of well: Piezometer

Owner and number: SWC 11712 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 65 Altitude of land surface (ft., msl): 961.97 (S)

Screened interval (ft.): 58-63 Lithologic log from: SWC

Casing diameter: 2.00" Comments: South well (west string)

Date completed: 10/23/85

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay, dark yellowish orange, silty, pebbly, soft (till)	12	1 - 13
Sand, fine sand to fine gravel, predominantly very coarse sand, subrounded to rounded, predominantly shale and carbonates, some quartz	7	13 - 20
Silt, clayey	2	20 - 22
Sand, as above, more quartz, less carbonates, gravelly at 32'-33'	11	22 - 33
Clay, olive to greenish gray, silty (fluvial or lacustrine) slightly more silty with depth, carbonaceous around 38'	8	33 - 41
Sand, fine grain, rounded, quartz, becomes gravelly around 52'	13	41 - 54
Gravel, very coarse sand to gravel 1/4" diameter, predominantly gravel to 1/8", angular to rounded, predominantly shale and carbonates, some silicates	11	54 - 65

Location: 133-47-20BBABB1 Use of well: Piezometer

Owner and number: SWC 12001 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 120 Altitude of land surface (ft., msl): 958.42 (S)

Screened interval (ft.): 113-118 Lithologic log from: SWC

Casing diameter: 1.25" Comments: West well

Date completed: 7/15/87

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	. 1	0 - 1
Clay, sandy, silty, yellow (oxidized till)	5	1 - 6
Sand, fine to very fine, moderately well sorted, yellow brown, oxidized	3	6 - 9
Sand, fine to very fine, moderately well sorted, gray	10	9 - 19
Clay, sandy, silty, gray (till)	2	19 - 21
Sand and gravel, angular to subrounded	2	21 - 23
Clay, sandy, silty, gray (till)	9	23 - 32
Gravel, sandy, very coarse, poorly sorted, angular to subrounded	1	32 - 33
Clay, sandy, silty, gray (till)	3	33 - 36
Sand, gravelly, poorly sorted, angular to subrounded	15	36 - 51
Clay, sandy, silty	1	51 - 52
Sand, gravelly, poorly sorted, some till or clay layer	s 5	52 - 57
Clay, sandy, very silty, stiff, not very plastic, becoming more plastic at 70-75'	39	57 - 96
Sand, fine to medium	11	96 -107
Sand, medium to coarse with gravel	13	107 -120

Location: 133-47-20BBABB2

Use of well: Piezometer

Owner and number: SWC 12002

Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 66

Altitude of land surface (ft., msl): 959.67 (S)

Screened interval (ft.): 58-63

Lithologic log from: SWC

Casing diameter: 2.00"

Comments: east well

Date completed: 7/16/87

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay, sandy, silty, yellow (till)	5	1 - 6
Sand, fine, yellow	3	6 - 9
Sand, fine, gray	12	9 - 21
Clay, sandy, soft, slightly plastic	2	21 - 23
Gravel, sandy, coarse	2	23 - 25
Clay, sandy, silty, gray	5	25 - 30
Gravel, coarse	1	30 - 31
Clay, sandy, silty, gray, stiff (till)	5	31 - 36
Sand, fine, gray, some medium	13	36 - 49
Clay, no returns	2	49 - 51
Sand, medium to coarse, some lignite, some gravel, some shale	3	51 - 54
Interbedded clay and sand and gravel	3	54 - 57
Sand, coarse, poorly sorted, angular to subrounded	5	57 - 62
Clay, no returns	1.	62 - 63
Sand, coarse, poorly sorted	2	63 - 65
Clay, sandy, silty, plastic (till)	1	65 - 66

Location: 133-47-20BBBAB1 Use of well: Piezometer

Owner and number: SWC 12000 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 320 Altitude of land surface (ft., msl): 959.09 (S)

Screened interval (ft.): 298-303 Lithologic log from: SWC

Casing diameter: 1.25" Comments: East well

Date completed: 7/14/87

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay, very silty, very sandy, pebbly, soft, plastic, cohesive, oxidized pale yellow orange (till)	7	1 - 8
Silt, slightly clayey, slightly cohesive, olive gray with much very fine sand settling out in pit	10	8 - 18
Clay, very silty, very sandy, pebbly, cobbles at 26', firmer than above, slightly brittle, noticeable Cretaceous pebbles then more limestone sand grains and pebbles with depth at more clay content (till)	14	18 - 32
Silt, slightly to very clayey, slightly to very cohesive, light to medium gray, interbedded silty to plastic, non-silty clay	8	32 - 40
Clay, slightly to very silty, many shell fragments, firm to soft, waxy, plastic, greenish gray	9	40 - 49
<pre>Clay, slightly silty, slightly sandy, pebbly (shale pebbles), firm, waxy, plastic, dark brown gray, becomes olive gray (till)</pre>	24	49 - 73
Sand, very fine to medium grained, moderately sorted, angular to rounded, predominantly subangular to subrounded, predominantly quartz with some dark minerals, not much clay, clay bed at 84'	12	73 - 85
Sand, very fine to medium, predominantly medium grain, moderately well sorted, angular to round, predominantly subangular to rounded, 80% quartz, 20% chert, limestone and dark mineral fragments, clay bed at 96'	15	85 -100
Sand, fine to coarse, predominantly medium to coarse, angular to rounded, predominantly subangular to rounded, 80% quartz, 20% other mineral fragments, clay bed at 107' and 117'	21	100 -121

Unit description	Thickness	(ft.)	Depth	(ft.)
Sand, fine to granule gravel (about 15%), predominantly very coarse sand, angular to round, predominantly subrounded and rounded, predominantly quartz, approximately 30% other mineral fragments, below 143'	29		121	-150
more gravelly Gravel, very sandy, medium sand to granules, predominantly very coarse sand and granules, as above, below 160', gravel to pebbles 1/2" diameter, round, predominantly granules, equal proportions, igneous and limestone, rougher drilling below 190', real rough at 232', pebbles to 1½" diameter	159		150	-309
Clay, soft, pale brown to light reddish brown at 316', quartz grains and some dark mineral and weathered feldspar grains (weathered Precambrian)	11		309-	-320

Location: 133-47-20BBBAB2 Use

Use of well: Piezometer

Owner and number: SWC 12000A

Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 200

Altitude of land surface (ft., msl): 958.95 (S)

Screened interval (ft.): 193-198

Lithologic log from: SWC

Casing diameter: 1.25"

Comments: East of middle well

Date completed: 7/14/87

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
<pre>Clay, very silty, very sandy, pebbly, soft, plastic, cohesive, oxidized, pale yellow orange (till)</pre>	7	1 - 8
Silt, slightly clayey, slightly cohesive, olive gray, with much very fine sand settling out in pit	10	8 - 18
Clay, very silty, very sandy, pebbly, cobbles at 26', firmer than above, slightly brittle, noticeable Cretaceous pebbles, then more limestone sand grains and pebbles with depth at more clay content (till)	14	18 - 32
Silt, slightly to very clayey, slightly to very cohesive, light to medium gray, interbedded silty to plastic, non-silty clay	8	32 - 40
Clay, slightly to very silty, many shell fragments, firm to soft, waxy, plastic, greenish gray	9	40 - 49
<pre>Clay, slightly silty, slightly sandy, pebbly (shale pebbles), firm waxy, plastic, dark brown gray, becomes olive gray (till)</pre>	24	49 - 73
Sand, very fine to medium grain, moderately sorted, angular to rounded, predominantly subangular to subrounded, predominantly quartz with some dark minerals, not much clay, clay bed at 84'	12	73 - 85
Sand, very fine to medium, predominantly medium grain, moderately well sorted, angular to rounded, predominantly subangular to round, 80% quartz, 20% chert, limestone and dark mineral fragments, clay bed at 96'	15	85 -100

Unit description	Thickness (ft.)	Depth (ft.)
Sand, fine to coarse, predominantly medium to coarse, angular to round, predominantly subangular to round, 80% quartz, 20% other mineral fragments, clay bed at 107' and 117'	21	100 -121
Sand, fine to granule gravel (approx. 15%), predominantly very coarse sand, angular to round, predominantly subrounded to round, predominantly quartz, approximately 30% other mineral fragments, below 143' more gravelly	29	121 -150
Gravel, very sandy, medium sand to granules, predominantly very coarse sand and granules, as above, below 160', gravel to pebbles ½" diameter, round, predominantly granules equal proportions igneous and limestone, rougher drilling below 190'	50	150 -200

Location: 133-47-20BBBAB3 Use of well: Piezometer

Owner and number: SWC 12000B Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 126 Altitude of land surface (ft., msl): 958.93 (S)

Screened interval (ft.): 118-123 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Middle well

Date completed: 7/15/87

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
<pre>Clay, very silty, sandy, pebbly (limestone pebbles , soft, plastic, cohesive, oxidized pale yellow gray, mottled with light gray (till)</pre>	8	1 - 9
Silt, slightly clayey, soft, slightly cohesive, dark mineral grains visible, olive gray, interbedded slightly silty to non-silty waxy clay from 15'-18'	9	9 - 18
Sand, very fine, well sorted, 90% quartz with 10% dark minerals	2	18 - 20
Clay, silty, sandy, pebbly, soft, cohesive, plastic to slightly brittle, olive gray, visible limestom pebbles, igneous rock at 30' to 31' (till)	11 ne	20 - 31
Clay, slightly to very silty, soft, plastic, cohesive greenish gray, interbedded, very clayey silt, sand 43'-45'	, 14	31 - 45
Clay, slightly silty, sandy and pebbly (shale and limestone pebbles, and sand grains), firm, waxy, plastic, dark gray, more till-like texture, less lacustrine or fluvial texture	2.3	45 - 68
Clay, very slightly silty, spomadic sand grains and pebbles, firm, waxy, dark gray, appears lacustrine	6	68 - 74
Sand, very fine to fine, predominantly very fine angular to rounded, predominantly	6	74 - 80
Sand, fine to very coarse and coarse granules, predominantly medium sand, angular to round, predominantly subrounded to round, 85% quartz, 25% dark minerals and feldspar, clay lens 94'-95'	25	80 -105

Unit description	Thickness (ft.)	Depth (ft.)
Sand, fine to very coarse, with granules and fine pebbles, predominantly coarse sand, subrounded to rounded, predominantly	21	105 -126
quartz, approximately 20% dark minerals, carbonates, feldspar, etc.		

Location: 133-47-20BBBAB4 Use of well

Use of well: Piezometer

Owner and number: SWC 12000C

Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 86

Altitude of land surface (ft., msl): 958.87 (S)

Screened interval (ft.): 78-83

Lithologic log from: SWC

Casing diameter: 2.00"

Comments: West of middle well

Date completed: 7/15/87

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil .	1	0 - 1
Clay, sandy, silty, yellow (oxidized till)	8	1 - 9
Clay, sandy, silty, gray, very silty	10	9 - 19
Clay, sandy, silty, gray; very sandy, stiffer clay	10	19 - 29
Sand, silty, fine, washes out easily	1	29 - 30
Clay, sandy, silty, gray; predominantly silty clay, stiff	* 3	30 - 33
Clay, silty, light gray, moderately plastic, very soft, looks bentonitic	10	33 - 43
Sand, medium, poorly sorted	2	43 - 45
Clay, very sandy, much coarse sand	2	45 - 47
Clay, silty, occasionally sandy, dark gray, stiff, has the occasional coarse sand grains	27	47 - 74
Sand, fine to very fine, silty, subangular to subrounded	12	74 - 86

Location: 133-47-20BBBAB5 Use of

Use of well: Piezometer

Owner and number: SWC 12000D

Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 55

Altitude of land surface (ft., msl): 958.95 (S)

Screened interval (ft.): 43'-53'

Lithologic log from: SWC

Casing diameter: 2.00"

Comments: West well

Date completed: 7/15/87

Unit description	Thickness	(ft.) Depth (ft.)
Topsoil	1	0 - 1
Clay, sandy, silty, yellow brown (till oxidized)	8	1 - 9
Silt, clayey, yellow-brown	1	9 - 10
Silt, clayey, gray to light gray, turning to clay, very silty, no sand, light gray	8	10 - 18
Clay, sandy, gray, very sandy, stiff, slightly brownish (till)	13 .	18 - 31
Clay, silty, light gray	12	31 - 43
Sand, very fine to fine, dirty	4	43 - 47
Clay, sandy, silty, light gray (till)	2	47 - 49
Sand, fine to medium, dirty	3	49 - 52
Clay, sandy, silty, gray (till)	3	52 - 55

Location: 133-47-20BBD1 Use of well: Industrial

Owner and number: Minn-Dak D-7 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 60 Altitude of land surface (ft., msl): 964.59 (S)

Screened interval (ft.): 42-45 Lithologic log from: SWC

Casing diameter: 4" Comments:

Date completed: 4/9/76

Unit description	Thickness (ft.)	Depth (ft.)
Clay	5	0 - 5
Sand, fine to medium, poorly sorted, brown	5	5 - 10
Sand, very fine to medium, becoming coarser with depth, subangular to subrounded, poorly sorted, gray, more rounding with depth	15	10 - 25
Sand, coarse, with some gravel, subangular to rounded, moderately sorted	, 15	25 - 40
Sand and gravel, poorly sorted, angular to subrounded	5	40 - 45
Gravel and sand, poorly sorted, angular to subrounded	5	45 - 50
Sand and gravel, poorly sorted, angular to subrounded	10	50 - 60

Location: 133-47-20BCA Use of well: Industrial

Owner and number: Minn-Dak D-9 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 60 Altitude of land surface (ft., msl): 964.59 (S)

Screened interval (ft.): 42-45 Lithologic log from: SWC

Casing diameter: 4" Comments:

Date completed: 4/13/76

Unit description	Thickness (ft.)	Depth (ft.)
Sand, very fine to medium, poorly sorted, angular to subrounded, brown	15	0 - 15
Sand, very fine to coarse, very poorly sorted with some rounded to subrounded, gravel, sand, subangular to rounded, gray	13	15 - 28
Sand, very fine to medium, poorly sorted, angular to subrounded, lignitic from 35-40 feet	. 22	28 - 50
Sand, very fine to coarse, poorly sorted with some gravel, subangular to rounded	10	50 - 60

Location: 133-47-20BCD2 Use of well: Industrial

Owner and number: Minn-Dak D-11 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 52 Altitude of land surface (ft., msl): 965.38 (S)

Screened interval (ft.): 42-45 Lithologic log from: SWC

Casing diameter: 4" Comments: North well

Date completed: 4/9/76

Unit description	Thickness (ft.)	Depth (ft.)
Clay	7	0 - 7
Sand, poorly sorted, with clay lenses of about a foot	8	7 - 15
Clay	1	15 - 16
Sand, moderate sorting, medium, more dark material	6	16 - 22
Clay	1	22 - 23
Sand, fine to coarse, predominantly medium becoming coarser with depth, very angular becoming subangular to subrounded with depth	12	23 - 35
Sand and gravel, poorly sorted, subangular to subrounded	5	35 - 40
Gravel, 2-4 millimeters diameter, subrounded, more dark material	5	40 - 45
Clay, firm (till)	7	45 - 52

BCDI

Location: 133-47-20 HOLD Use of well: Observation

Owner and number: SWC 9443 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 60 Altitude of land surface (ft., msl): 964.22 (S)

Screened interval (ft.): 38-44 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Destroyed

Date completed: 9/4/75

Unit description	Thickness (ft.)	Depth (ft.)
Sand, very fine to coarse, predominantly medium, subangular to subrounded, 80% quartz, 15% carbonates, 5% igneous, slightly lignitic, well sorted, clean, oxidized	8	0 - 8
Clay, sandy, silty, slightly pebbly, moderately yellow to 14', medium to olive gray, moderately tight, moderately cohesive, very slightly plastic (till?)	9	8 - 17
Sand, fine to very coarse, predominantly medium to coarse, angular to subrounded, 60% quartz, 20% shale, 15% carbonates, 5% igneous, moderately lignitic, clean, taking some water	23	17 - 40
Sand, as above, about 40% gravel predominantly shale and carbonates, some quartz, and igneous, moderately lignitic, angular to subrounded, poorly sorted	7	40 - 47
Clay, very sandy, silty, medium gray, smooth, cohesive, slightly plastic (lacustrine)	13	47 - 60

Location: 133-47-20BCD3 Use of well: Piezometer

Owner and number: SWC 12004 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 140 Altitude of land surface (ft., msl): 964.07 (S)

Screened interval (ft.): 130-135 Lithologic log from: SWC

Casing diameter: 1.25" Comments: South well

Date completed: 7/16/87

Unit description	Thickness (ft.)	Depth (ft.)
Fill material	1	0 - 1
Silt, slightly clayey, light yellow brown, slightly plastic, some fine sand	12	1 - 13
Clay, gray, soft, plastic	8	13 - 21
Sand, very fine to fine	7 .	21 - 28
Sand, coarse with medium gravel, coarse gravel 40-42'	14	28 - 42
Clay, silty, soft, slightly plastic, light-gray	15	42 - 57
Clay, silty, sandy, occasional sand grains, dark gray brown, occasionally dark brown, some layers are light gray, silty and soft, some hard and darker gray. Still occasional sand grain throughout	55	57 - 112
Clay, silty, slightly plastic, dark gray	16	112 -128
Sand and gravel	12	128 -140

Location: 133-47-20BCD4 Use of well: Piezometer

Owner and number: SWC 12005 Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 48 Altitude of land surface (ft., msl): 964.09 (S)

Screened interval (ft.): 36-46 Lithologic log from: SWC

Casing diameter: 2.00" Comments: Middle Well

Date completed: 7/17/87

Unit description	Thickness (ft.)	Depth (ft.)
Fill .	2	0 - 2
Silt, clayey, yellow	7	2 - 9
<pre>Clay, sandy, silty, very soft gray (some oxidized sand) (till)</pre>	* 7	9 - 16
Clay, silty, slightly stiff, light gray	5	16 - 21
Sand, fine	6	21 - 27
Sand, medium to coarse, some gravel	14	27 - 41
Clay, silty, light gray, soft, very light gray 45'-48'	7	41 - 48

Location: 133-47-20DDD1 Use of well: Observation

Owner and number: SWC 3779 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 290 Altitude of land surface (ft., msl): 966.89 (S)

Screened interval (ft.): 248-254 Lithologic log from: SWC

Casing diameter: 1.25" Comments: East well

Date completed: 8/26/69

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, pebbly clay loam, black	2	0 - 2
Clay, very sandy with pebbles, soft, slightly cohesive, yellowish gray (till)	4	2 - 6
Clay, silty to sandy with pebbles, yellowish gray to moderately olive brown with reddish iron-stains, moderately soft, cohesive, moderately plastic, oxidized (till)	10	6 - 16
Clay, sandy with pebbles, olive gray, soft to moderately soft, cohesive, moderately plastic (till)	5	16 - 21
Sand, fine, gray, loose, well-sorted	2	21 - 23
Clay, olive gray to dark brownish gray, moderately soft to slightly hard, slightly brittle but can be rolled, smooth, tight	8	23 - 31
Gravel, fine with coarse sand, moderately well sorted, subrounded, mainly limestone-dolomite and shale with granitics	3	31 - 34
Silt, clayey, light gray, moderately soft, slightly friable, very slightly plastic	5	34 - 39
Sand, very fine to medium, light gray, loose, interbedded with friable very fine sandy silt and some silty clay	20	39 - 59
Sand, medium, gray, well-sorted and uniform, clean, generally subrounded, mostly limestone-dolomite and granitics	5	59 - 64

Unit description	Thickness (ft.)	Depth (ft.)
Silt, clayey, light olive gray, friable, limey	5	64 - 69
Clay, silty to sandy with pebbles and occasional cobbles, olive gray, moderately soft, cohesive, tough (till)	17	69 - 86
Clay, as above, interbedded with lenses of very fine to medium sand and possibly some fine gravel (till)	20	86 -106
Sand, fine, gray, thinly interbedded with light gray highly calcareous silt and darker gray silty clay	8	106 -114
Sand, medium, light gray, loose, moderately well- sorted, subrounded, clean	11	114 -125
Sand, fine, possibly silty, predominantly quartz	11	125 -136
Clay and silt, interbedded	7	136 -143
Sand, fine, light gray, well-sorted, subrounded, calcareous, predominantly quartz	25	143 -168
Sand, medium to coarse, sorted but lensed or interbedded, clean, no clay, subangular to subrounded, drills like it is tightly compacted, mainly granitics (mostly quartz) with limestone-dolomite, steadily taking water, really really nice, very permeable	. 71	168 -239
Gravel, fine to medium with very coarse sand and a few big rocks, moderately rough drilling, subangular to subrounded, mostly granitics and limestone-dolomite, taking water	24	239 -263
<pre>Clay (shale?), dark brownish gray, silty, moderately soft, crumbly, waxy, possible organic, calcareous</pre>	5	263 -268
Silt and very fine sand, brownish black, slightly friable, organic (?), noncalcareous, drilling mud streaked and very dark	10	268 -278
Clay (shale), dark brown, smooth, oily, moderately calcareous, nonplastic, crumbly, chunky	, 12	278 -290

Location: 133-47-20DDD2 Use of well: Observation

Owner and number: SWC 9101 Principal aquifer: Undefined

Depth drilled (ft.): 80 Altitude of land surface (ft., msl): 967.50 (S)

Screened interval (ft.): 48-51 Lithologic log from: SWC

Casing diameter: 1.25" Comments: West well

Date completed: 9/12/74

Unit description	Thickness (ft.)	Depth (ft.)
Clay, very silty, sandy, pebbly, pale yellow- brown; cohesive, sticky, oxidized (till)	5	0 - 5
Clay, silty, sandy, pebbly, light-brown, very iron-stained, moderately soft, oxidized (till), sand and gravel lenses	9	5 - 14
Clayey, very silty, sandy, pebbly, dark-gray, soft to moderately soft, sand and gravel lenses, clay lenses (till)	28	14 - 42
Sand, very fine to medium, medium gray, silty, approximately 90% quartz, 10% carbonates, igneous	9	42 - 51
<pre>Clay, silty, very sandy, pebbly, dark gray, dense (till)</pre>	15	51 - 66
Sand, fine to medium, gravelly fine, medium gray, subrounded	2	66 - 68
Clay, very silty, sandy, pebbly, dark gray, dense, thin clay lenses (till)	12	68 - 80

Location: 133-47-21BCB Use of well: Observation

Owner and number: SWC 3778 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 220 Altitude of land surface (ft., msl): 967.1 (S)

Screened interval (ft.): 189-195 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Destroyed

Date completed: 8/26/69

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, pebbly clay loam, black	2	0 - 2
Clay, silty to sandy with pebbles and cobbles, yellowish gray to moderately olive brown with reddish iron stains, soft to moderately soft, cohesive, moderately plastic, oxidized (till)	14	2 - 16
Clay, silty to sandy with pebbles and gravel, olive gray, soft to moderately soft, cohesive, moderately plastic (till)	8	16 - 24
Silt and very fine to fine sand, gray, slightly cohesive to loose, permeable, predominantly quartz	20	24 - 44
Gravel, fine to medium, moderately well sorted, subangular to subrounded, clean - not stained, mostly limestone-dolomite and granitics with shale, nice	12	44 - 56
Clay, silty, and very sandy with pebbles and occasional cobbles, olive gray, moderately soft to slightly hard, moderately brittle, tough; contains beds or blocks of smooth tight dark clay, light gray friable silt, and gray, loose, fine to medium sand, occasional streak of fine gravel (till)	51	56 - 107
Silt and very fine sand, slightly clayey, light gray to light olive gray, moderately soft, friable to crumbly, chunky, calcareous	9	107 -116

Unit description	Thickness (ft.)	Depth (ft.)
Sand, medium to coarse, very well sorted and uniform, generally between subangular and subrounded, clean, drills fairly tight like a bedrock sand, stands up in hole very good. Very permeable, predominantly quartz and limestone-dolomite	84	116 -200
Gravel, fine and medium with a couple of cobbles and possible streak of very light gray limey clay, drills fairly rough	7	200 -207
Silt, clayey, brownish gray, moderately soft, slightly cohesive, noncalcareous	2	207 -209
Sand, medium, white, limey clay matrix, nearly pure quartz, highly calcareous	2	209 -211
Shale, black, hard, tight, smooth, waxy, noncalcareous	9	211 -220

Location: 133-47-21CBA Use of well: Observation

Owner and number: SWC 3789 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 262 Altitude of land surface (ft., msl): 964.4 (S)

Screened interval (ft.): 258-261 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Destroyed

Date completed: 9/4/69

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, pebbly loam, dry, black	2	0 - 2
Clay, silty to sandy with pebbles and cobbles, yellowish gray, soft, slightly cohesive, jointed, sloppy (till)	3	2 - 5
Clay, silty with sand grains and pebbles, moderately olive brown, moderatly soft, cohesive, tough (till), oxidized	21	5 - 26
Clay, silty with sand grains, pebbles and cobbles, olive gray, moderately soft to slightly hard, cohesive, tough, stiff (till)	10	26 - 36
Sand, medium to coarse, moderately sorted, generally subangular, predominantly quartz	3	36 - 39
Silt, clayey with very fine sand, greenish gray, soft, slightly cohesive, interbedded	14	39 ~ 53
Sand, medium to very coarse with fine gravel, moderately sorted, subangular to subrounded, sand mostly quartz and granitics, gravel mainly limestone-dolomite and shale	6	53 - 59
Clay, silty with sand grains, numerous pebbles and occasional cobbles, olive gray, moderately soft, cohesive, stiff, tough, interbedded with smooth, tight, stiff, dark brownish gray clay (till)	31	59 - 90
Clay, silty and sandy with pebbles and cobbles, dark olive gray, slightly hard, slightly brittle, tight (till)	20	90 -110

Unit description	Thickness (ft.)	Depth (ft.)
Sand, very fine and fine, silty, light olive gray, loose to slightly cohesive, sugary, calcareous	14	110 -124
Clay, olive gray, soft, cohesive, plastic, smooth, sticky	4	124 -128
Sand, fine and medium, tan, well-sorted, fairly uniform, clean, subangular to subrounded, mostly quartz and other granitic derivatives with limestone and dolomite, some shale	102	128 -230
Sand, as above, medium to coarse	32	230 -262

Location: 133-47-21BDA Use of well: Test hole

Owner and number: SWC 3777 Principal aquifer:

Depth drilled (ft.): 210 Altitude of land surface (ft., msl): 960 (T)

Screened interval (ft.): None Lithologic log from: SWC

Casing diameter: None Comments:

Date completed: 8/25/69

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, sandy loam, black	2	0 - 2
Sand, clayey with pebbles, yellowish gray, soft, loose (till)	4	2 - 6
Clay, silty and sandy with pebbles and cobbles, yellowish gray to moderately olive brown, moderately soft, cohesive, oxidized (till)	7	6 - 13
Clay, olive gray, soft, smooth, cohesive, plastic, sticky	3	13 - 16
Sand, fine, light olive gray, uniform, generally subrounded, clean	2	16 - 18
Clay, with sand grains and pebbles, olive gray, moderately soft, slightly brittle, very sandy (till)	2	18 - 20
Gravel, fine, well-sorted, subangular to subrounded, mostly limestone-dolomite and granitics, some shale, clean	. 4	20 - 24
Clay, as above, olive gray, very sandy clay with pebbles, moderately soft (till)	4	24 - 28
Clay, as above, interbedded with lenses of medium to very coarse sand and fine gravel, occasional cobble, medium sand at 40 to 50% of section	19	28 - 47
Clay, dark gray, moderately soft, cohesive, plastic, sticky, smooth, light gray, limey inclusions	3	47 - 50

Unit description	Thickness (ft.) Depth (ft.)
Clay, silty and sandy with pebbles, olive gray, moderately cohesive (till)	7	50 - 57
Sand, medium, light olive gray, well-sorted and uniform, clean, subangular to subrounded, predominantly quartz, calcareous	7	57 - 64
Silt, clayey to sandy (very fine), light olive gray to olive gray, soft, friable to slightly cohesive, nonplastic, calcareous	12	64 - 76
Clay, very sandy with pebbles and occasional cobbles, moderately soft to slightly hard, moderately brittle (till, may have some slight permeability to it, interbedded with lenses of fine to medium gray, sorted, generally subrounded sand and some fine gravel, it's about 1/2 till and 1/2 sand	:	76 -134
Sand, medium, light gray, well-sorted, generally subrounded, clean, calcareous, predominantly quartz and granitic derivatives	7	134 -141
Clay, as above, very sandy clay with interbedded fine to medium sand lenses (till)	14	141 -155
Clay, as above, with interbedded lenses of smooth dark gray clay and olive gray silty clay (till)	10	155 -165
Sand, medium to coarse, well sorted and uniform, generally subangular to subrounded, clean, mainly quartz and granitics with limestone and dolomite, a little shale	20	165 -185
Clay, dark gray, smooth, moderately soft, cohesive, plastic, tight, interbedded with silt, fine to medium sand and a little gravel	18	185 -203
Boulder	2	203 -205
Shale, black, hard, tight, noncalcareous	5	205 -210

Location: 133-47-21CBB1 Use of well: Observation

Owner and number: SWC 3787 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 310 Altitude of land surface (ft., msl): 968.2 (S)

Screened interval (ft.): 257-260 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Destroyed

Date completed: 9/3/69

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, pebbly cobbly loam, dry, black	2	0 - 2
Clay, sandy, yellowish gray, rocky, soft, slightly cohesive, fractured and jointed, oxidized (till)	3	2 - 5
Clay, silty and sandy with pebbles and cobbles, moderately olive brown, moderately soft, cohesive, moderatly plastic, oxidized (till)	12	5 - 17
Clay, silty to sandy with pebbles and cobbles, olive gray, moderately soft, cohesive, moderately plastic, tough (till)	25	17 - 42
Silt and very fine sand, clayey, greenish gray, soft, slightly cohesive, calcareous	5	42 - 47
Sand, medium, well-sorted, subangular, predominantly quartz with limestone-dolomite and shale, clean	4	47 - 51
Silt, clayey with very fine sand, brownish gray, soft, slightly cohesive, organic	, 2	51 - 53
Sand, fine, gray, moderately sorted, subangular to subrounded, predominantly quartz	4	53 - 57
Clay, silty with sand grains, pebbles and cobbles, olive gray to dark olive gray, moderately soft to slightly hard, stiff, tough, includes lenses or blocks of dark gray, smooth, laminated, very stiff, tight clay (till)	47	57 -104

Unit description	Thickness (ft.)	Depth (ft.)
Sand, very fine, clayey and silty, light olive gray, soft, slightly cohesive, calcareous	9	104 -113
Sand, medium with some coarse, tan, well-sorted and uniform, clean, subangular to subrounded, predominantly quartz and granitic derivatives with limestone-dolomite and some indurated dark gray shale	13	113 -126
Clay, sandy, olive gray, soft, cohesive, moderately plastic, sticky	3	126 -129
Sand, as above, predominantly medium to about 160', predominantly coarse to about 220', predominantly very coarse to about 270', predominantly fine gravel to T.D. of 310', very clean, well-sorted, and uniform, taking water	181	129 -310

Location: 133-47-21CBB2

Use of well: Observation

Owner and number: SWC 3788

Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 260

Altitude of land surface (ft., msl): 966.8 (S)

Screened interval (ft.): 248-251

Lithologic log from: SWC

Casing diameter: 1.25"

Comments: Destroyed

Date completed: 9/4/69

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, pebbly loam, dry, black	2	0 - 2
<pre>Clay, silty and sandy with pebbles, yellowish gray, soft, slightly cohesive, jointed, 'sloppy', oxidized (till)</pre>	3	2 - 5
Clay, silty to sandy with pebbles and cobbles, moderately olive brown, moderately soft, cohesive, moderately plastic, tough, oxidized (till)	20	5 - 25
Clay, silty and sandy with pebbles and cobbles, olive gray, moderately soft, cohesive, moderately plastic, stiff, tough (till)	14	25 - 39
Silt, clayey and sandy (very fine) greenish gray to clive gray, interbedded, generally soft, slightly to moderately cohesive, non- to slightly plastic, calcarecus	14	39 - 53
Sand, medium to coarse, sorted, subangular, predominantly quartz with limestone-dolomite	4	53 - 57
Silt, clayey, olive gray to dark brownish gray, soft, very slightly cohesive, organic, calcareous	7	57 - 64
Clay, silty with sand grains, pebbles and cobbles, olive gray to dark olive gray, moderately soft to slightly hard, very stiff and tough, includes blocks of dark gray, smooth, stiff, tight clay (till)	41	64 -105

Unit description	Thickness (ft.)	Depth (ft.)
Sand, clayey to silty, light to medium gray, loose to slightly cohesive, interbedded	11	105 -116
Sand, predominantly fine to about 140', predominantly medium to about 180', predominantly coarse to about 220' and predominantly very coarse to T.D. of 260', generally clean, well sorted and uniform, subangular to subrounded, mainly quartz and granitic derivatives, with limestone-dolomite with some shale; drills easy, taking water	144	116 -260

Location: 133-47-28ABB Use of well: Observation

Owner and number: SWC 3782 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 220 Altitude of land surface (ft., msl): 952.7 (S)

Screened interval (ft.): 178-181 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Destroyed

Date completed: 8/28/69

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, very fine sand, black	3	0 - 3
Sand, very fine to fine, clayey, yellowish gray, loose	4	3 - 7
Clay, silty to sandy with pebbles and rocks, yellowish gray and moderately olive brown,	6	7 - 13
soft, cohesive, moderately plastic, oxidized (till)	8	
Clay, silty and sandy with pebbles, light olive gray to olive gray, soft, cohesive, slightly to moderately plastic (till)	. 8	13 - 21
Sand, medium to coarse, light gray, well sorted, subangular to subrounded, quartz and limestone-dolomite and shale	7	21 - 28
Clay, silty and sandy with coarse sand grains and pebbles and cobbles, olive gray, soft to moderately soft, moderately cohesive and plastic, interbedded with lenses of fine to coarse sand and silt (till)	23	28 - 51
Sand, very fine, clayey and silty with pebbles and occasional cobbles, light olive gray, slightly hard, brittle, tightly compacted (till)	46	51 - 97
Clay, as above, interbedded with blocks or lenses of clay, silt, and fine to coarse sand, gravelly from 116-125 (till)	28	97 -125

Unit description	Thickness (ft.)	Depth (ft.)
Clay, olive gray with light gray spots and streaks, soft to moderately soft, cohesive, plastic, smooth, sticky, tight	9	125 -134
Sand, very fine to fine, silty, light gray, thinly interbedded, loose	10	134 -144
Sand, predominantly medium, varies from fine to coarse, well-sorted, generally subrounded, clean and uniform, mainly quartz, calcareous	55	144 -199
Shale, black, smooth, waxy, hard, tight, noncalcareous, possibly fossiliferous with streaks of sand	21	199 -220

Location: 133-47-28BBB Use of well: Test hole

Owner and number: SWC 2314 Principal aquifer:

Depth drilled (ft.): 73.5 Altitude of land surface (ft., msl): 969 (T)

Screened interval (ft.): None Lithologic log from: SWC

Casing diameter: None Comments:

Date completed: 9/16/64

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, black	1	0 - 1
Clay, grayish orange, with patches of light brown, shale, limestone, quartz, gypsum, dolomite fragments vary in size, angular to subrounded, highly calcareous, cohesive, oxidized (till)	13	1 - 14
Clay, dark greenish gray to clive gray, cohesive, shale, quartz, dolomite, limestone, lignite unoxidized, highly calcareous, grains vary greatly in size, angular to subangular (till)	24	14 - 38
Sand, coarse, composed almost exclusively of shale, some limestone, dolomite, quartz, poor sortings, angular to subrounded, average grain size 2 mm or less, reaches up to 20 mm, down to silt size	2	38 - 40
Clay, silty, olive gray to dark greenish gray, quartz, dolomite, limestone, pyrite, shale, cohesive, hard, grain size varies with an average of about 1/2 mm, occasionally a very sandy silt is observed, same composition and color as other till, both highly calcareous (till)	19	40 - 59
Sand, quartz, shale, limestone, dolomite, fairly poorly sorted, angular to subrounded, average size 1 to 1½ mm	5	59 - 64
Clay, olive gray, almost exclusively quartz, some limestone and dolomite, very highly calcareous, some seams or beds of greenish gray till which is sandy, contains shale, quartz, dolomite, lignite, grains are about 1/2 mm are less subangular to well rounded, highly calcareous (till)	9.5	64 - 73.5

Location: 133-47-28DCB Use of well: Test hole

Owner and number: SWC 3954 Principal aquifer:

Depth drilled (ft.): 400 Altitude of land surface (ft., msl): 950 (T)

Screened interval (ft.): None Lithologic log from: SWC

Casing diameter: None Comments:

Date completed: 5/20/70

Unit description	Thickness (ft.)	Depth (ft.)
Fill (dike for lagoon), clay, yellow and black, smooth, tight	12	0 - 12
Sand, fine and medium with some fine gravel, poorly sorted, oxidized, subangular, mostly granitics and shale with carbonates	7	12 - 19
Clays, silty with sand grains and pebbles, light olive gray to olive gray, soft to moderately soft, moderatly cohesive (till)	9	19 - 28
Sand, medium, light gray, well sorted, subrounded, quartzose, clean	4	28 - 32
Clay, very silty to sandy with pebbles, olive gray, moderately soft, moderately cohesive (till) sandy lenses	44	32 - 76
Sand, fine and medium, gray, well sorted, uniform, subrounded, mostly quartz and granitics with some shale and carbonates, occasional flakes of lignite	30	76 -106
Sand, as above, interbedded with gray silt and clayey silt, occasional streak of gravel	25	106 -131
Sand, fine and medium, mostly medium, gray but dries white, well sorted and uniform, drills tight like consolidated sand	23	131 -154
Clay, silty with sand grains and pebbles, olive gray, moderately soft, cohesive, slightly plastic (till)	8	154 -162
Sand, medium, gray, well sorted, uniform, subrounded, quartzose	34	162 -196

Unit description	Thickness (ft.)	Depth (ft.)
Clay, silty with sand grains and pebbles, olive gray, moderately soft, slightly brittle to moderately cohesive, non- to slightly plastic, tightly compacted (till)	51	196 -247
Gravel, sandy, poorly sorted, subangular to subrounded	2	247 -249
Sandstone, gray, very fine grained, very indurated, put on rock bit	4	249 -253
Siltstone, calyey to very sandy, thinly interbedded, variegated grays to black, occasionally greenish or white, possibly bentonite streaks, highly organic, turns mud thick and dark with cily scum. Drills very tight but cuttings usually soft to moderately soft, very poor sample return - using rock bit, interbedded thin lenses of sandstone and possibly limestone, some pyrite concentrations	147	253 -400

Location: 133-47-28DCD1 Use of well: Piezometer

Owner and number: SWC 12007 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 260 Altitude of land surface (ft., msl): 957.33 (S)

Screened interval (ft.): 238-243 Lithologic log from: SWC

Casing diameter: 1.25" Comments: South well

Date completed: 7/22/87

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay, fill	4	1 - 5
Clay, brown, sandy, silty	4	5 - 9
Clay, sandy, silty gray (till)	3	9 - 12
Sand, medium	6	12 - 18
Clay, sandy, silty, yellow brown (oxidized till)	6	18 - 24
Gravel, medium, yellow, oxidized	2	24 - 26
Clay, sandy, silty, yellow brown (oxidized till)	5	26 - 31
Clay, sandy, silty, gray, rock at 55' (till)	26	31 - 57
Sand, fine to coarse, poorly sorted, some gravel, very coarse gravel from 60-61'	11	57 - 68
Clay, sandy, silty, light gray (till)	20	68 - 88
Sand, fine to coarse, some gravel	5	88 - 93
Clay, sandy, silty, light gray, soft, sand layers at 109 and 111, gravel at 116-118', medium gray and stiffer after 118', rock at 143' (till)	54	93 -147
Sand, fine to coarse, some gravel	5	147 -152
Clay, very sandy, medium gray (till)	21	152 -173
Sand, fine and silty	4	173 -177
Sand and gravel, medium to coarse	11	177 -188

Unit description	Thickness (ft.)	Depth (ft.)
Clay, no returns, drilled like till	2	188 -190
Sand, medium to coarse, some gravel, occasional small clay layers	53	190 -243
Rock, granite	1	243 -244
Clay, brownish-gray, silty, some sand	12	244 -256
Clay, dark gray, waxy, some silty particles (Cretaceous shale)	4	256 -260

Location: 133-47-28DCD2 Use of well: Test hole

Owner and number: SWC 12008 Principal aquifer:

Depth drilled (ft.): 96 Altitude of land surface (ft., msl): 957 (T)

Screened interval (ft.): None Lithologic log from: SWC

Casing diameter: None Comments: Cemented shut

Date completed: 7/22/87

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay, brown, oxidized	. 8	1 - 9
Clay, gray, sandy	3	9 - 12
Sand, gray	6	12 - 18
Clay, sandy, silty, yellow brown, oxidized gravel 27-29' (oxidized till)	. 15	18 - 33
Clay, sandy, silty, gray (till)	26	33 - 59
Sand, fine to coarse, some gravel	9	59 - 68
Clay, sandy, silty, gray (till)	28	68 - 96

Location: 133-47-28DCD3 Use of well: Piezometer

Owner and number: SWC 12009 Principal aquifer: Undefined

Depth drilled (ft.): 70 Altitude of land surface (ft., msl): 957.33 (S)

Screened interval (ft.): 60-65 Lithologic log from: SWC

Casing diameter: 2.00" Comments: North well

Date completed: 7/22/87

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Fill material	8	1 - 9
Clay, sandy, silty, yellow (oxidized till)	3	9 - 12
Sand, fine to medium to coarse	8	12 - 20
Clay, sandy, silty, yellow-brown (oxidized till)	13	20 - 33
Clay, sandy, silty, gray, rock at 35'-36' (till)	28	33 - 61
Sand, fine to medium to coarse	6	61 - 67
Clay, sandy, silty, gray (till)	3	67 - 70

Location: 133-47-29BAB Use of well: Test hole

Owner and number: SWC 3780 Principal aquifer:

Depth drilled (ft.): 240 Altitude of land surface (ft., msl): 963 (T)

Screened interval (ft.): None Lithologic log from: SWC

Casing diameter: None Comments:

Date completed: 8/27/69

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, pebbly loam, black	1	0 - 1
<pre>Clay, silty and very sandy, slightly cohesive, yellowish gray, soft, jointed, dry, 'sloppy'</pre>	3	1 - 4
Clay, silty with sand grains and pebbles, yellowish gray to moderately olive brown with reddish iron stains, moderately soft, cohesive, moderately plastic, tight (till)	11	4 - 15
Clay, silty to sandy with pebbles, olive gray to dark greenish gray, soft to moderately soft, cohesive, moderately plastic, contains sandy and gravelly streaks (till)	20	15 - 35
Clay, olive gray, soft, smooth, cohesive, plastic, sticky - grading to silt, light gray, soft, slightly cohesive, nonplastic, highly calcareous	18	35 - 53
Sand, very fine, clayey, olive gray, very slightly cohesive, predominantly quartz	11	53 - 64
Gravel, fine with medium, moderately sorted, generally subrounded, mainly shale and limestone-dolomite with granitics	7 °,	64 - 71
Silt, clayey with very fine sand, moderately soft, tightly compacted, crumbly, calcareous	29	71 -100
Clay, silty and sandy with pebbles, olive gray, moderately soft, cohesive, interbedded fine gravelly streaks (till)	15	100 -115
Sand, fine to medium, gray, sorted, but may have streaks of clay or till	22	115 -137

Unit description	Thickness (ft.)	Depth (ft.)
Clay, smooth, moderately soft, olive gray to dark gray, cohesive, plastic, sticky	10	137 -147
Sand, fine to medium, gray, well-sorted, subrounded, clean, last 5' fairly coarse	13	147 -160
Silt, clayey to sandy (very fine), thinly interbedded and laminated, medium soft to slightly hard, brittle to crumbly, general light gray color, calcareous	18	160 -178
Gravel, fine and medium with cobble stones, rough drilling, mainly granitics	6	178 -184
Clay, dark gray, moderately soft, cohesive, plastic	4	184 -188
Gravel, fine to coarse with cobbles, rough drilling	10	188 -198
Clay, silty with sand grains and occasional pebbles, dark brownish gray, slightly hard, brittle, tightly compacted, calcareous, mostly blocks of reworked bedrock shale, occasional rocks	15	198 -213
Sand, (till) Sand, medium, light gray, medium well sorted, generally subrounded, clean and uniform, predominantly quartz, not taking much water, mud fairly heavy, poor sample return	13	213 -226
Shale, black, moderately soft to slightly hard, slightly brittle, tight, very oily or organic, noncalcareous	3	226 -229
Shale, very silty, medium light gray, moderately soft, moderately cohesive, highly calcareous	11	229 -240

Location: 133-47-29BAB2 Use of well: Observation

Owner and number: SWC 9100 Principal aquifer: Undefined

Depth drilled (ft.): 80 Altitude of land surface (ft., msl): 963.1 (S)

Screened interval (ft.): 65-68 Lithologic log from: SWC

Casing diameter: 1.25" Comments:

Date completed: 9/12/74

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, clayey, silty loam, black	1	0 - 1
Clay, very silty, sandy, pebbly, pale yellow- brown, very sticky, cohesive, very oxidized, sand and gravel lenses (till)	3	1 - 4
Clay, silty, sandy, pebbly, dark yellow-orange to moderately yellow-brown, firm, dense, iron- stained, organic, oxidized, sand and gravel lenses (till)	12	4 - 16
Slightly clayey, very silty, very sandy, slightly pebbly, medium dark gray, slightly to medium friable, sand and gravel lenses, thin dark-gray, plastic till approximately 10-29' (till)	24	16 - 40
Sand, very fine, silty, slightly clayey, medium dark gray, slightly sticky, slightly friable	28	40 - 68
Clay, silty, sandy, pebbly, dark gray, slightly plastic, dense (till)	12	68 - 80

Location: 133-47-29DAA Use of well: Test hole

Owner and number: SWC 3781 Principal aquifer:

Depth drilled (ft.): 250 Altitude of land surface (ft., msl): 965 (T)

Screened interval (ft.): None Lithologic log from: SWC

Casing diameter: None Comments:

Date completed: 8/28/69

Unit description	Thickness (ft.) Depth (ft.)
Topsoil, pebbly loam, black	2	0 - 2
Clay, silty with sand grains and pebbles, yellowish gray, moderately soft, cohesive, moderately plastic, oxidized (till)	4	2 - 6
Clay, silty and sandy with pebbles and thin lenses of sand and fine gravel, yellowish gray to moderately olive brown, iron-stained, soft, moderately cohesive, slightly plastic, oxidized (till)	10	6 - 16
Clay, silty and sandy with pebbles, olive gray, soft, cohesive, moderately plastic (till)	22	16 - 38
Gravel, fine and medium with a few cobbles, moderately well-sorted, generally subrounded, predominantly limestone- dolomite with granitics and shale, clean	16	38 - 54
Silt and very fine sand, light gray, soft, slightly cohesive, nonplastic, calcareous, predominantly quartz	10	54 - 64
Sand, fine and medium, sorted, subrounded, loose, predominantly quartz with limestone-dolomite and shale	14	64 - 78
Clay, olive gray, soft, smooth, cohesive, plastic, sticky	4	78 - 82
Silt, clayey, light gray to olive gray, laminated, soft, moderately cohesive, slightly to moderately plastic, calcareous	11	82 - 93
Clay, silty to sandy with pebbles, olive gray, soft to moderately soft, cohesive, slightly plastic to slightly brittle, occasional cobbles (till)	32	93 -125

Unit description	Thickness (ft.)	Depth (ft.)
Boulder, granite	2	125 -127
Clay, olive gray, soft, smooth, cohesive, plastic, sticky	6	127 -133
Sand, medium, light olive gray, well sorted, subrounded, clean	7	133 -140
Clay, silty, light olive gray, soft, moderately cohesive, moderately plastic	3	140 -143
Sand, fine and medium with some coarse, interbedded, light gray, subrounded, predominantly quartz with limestone-dolomite and shale, drills easy, taking a little water	13	143 -156
Clay, silty to sandy with pebbles and occasional cobbles, moderately soft to slightly hard, tightly compacted, moderately brittle (till)	39	156 -195
Clay, as above, interbedded with lenses or blocks of dark gray and brownish black, tight, waxy, smooth clay (till)	21	195 -216
Clay, as above, without clay lenses (till)	25	216 -241
Shale, black, slightly hard, smooth, tight, waxy, noncalcareous	9	241 -250

Location: 133-47-33BAB Use of well: Test hole

Owner and number: SWC 12006 Principal aquifer:

Depth drilled (ft.): 220 Altitude of land surface (ft., msl): 955 (T)

Screened interval (ft.): None Lithologic log from: SWC

Casing diameter: None Comments: Cemented shut

Date completed: 7/21/87

Unit description	Thickness (ft.)	Depth (ft.)
Fill .	4	0 - 4
Clay, soft, plastic, oxidized	14	4 - 18
<pre>Clay, sandy, silty, yellow, oxidized, more gravel at 33' (till)</pre>	25	18 - 43
Clay, sandy, silty, light gray	2	43 - 45
<pre>Clay, sandy, very silty, yellow brown (till, oxidized)</pre>	6	45 - 51
Clay, sandy, silty, gray (till)	66	51 -117
Sand, coarse, poorly sorted	1	117 -118
Clay, sandy, silty, light gray (till)	27	118 -145
Sand, fine to medium, poorly sorted occasional coarse grains, not much return	. 5	145 -150
Clay, silty, stiff, dark gray, slightly plastic, waxy (Cretaceous shale)	70	150 -220

Location: 133-48-1BAA Use of well: Test hole

Owner and number: SWC 3967 Principal aquifer:

Depth drilled (ft.): 100 Altitude of land surface (ft., msl): 951 (T)

Screened interval (ft.): None Lithologic log from: SWC

Casing diameter: None Comments:

Date completed: 5/24/70

Unit description	Thickness (ft.)	Depth (ft.)
Roadfill, clay, tight	4	0 - 4
Clay, silty with occasional sand grains and pebbles, yellowish gray, soft, smooth, sticky, tight (washed till)	5	4 - 9
Clay, silty to sandy with pebbles, reddish, moderately olive brown, moderately soft, chunky, moderately cohesive, tight, oxidized (till)	23	9 - 32
Clay, silty to sandy with pebbles, olive gray to dark olive gray, moderately soft to slightly hard, cohesive, tightly compacted, occasional blocks of clay and silt (till)	68	32 -100

Location: 133-48-IDDD2 Use of well: Test hole

Owner and number: SWC 3959 Principal aquifer: Wahpeton Shallow Sand ?

Depth drilled (ft.): 240 Altitude of land surface (ft., msl): 945 (T)

Screened interval (ft.): None Lithologic log from: SWC

Casing diameter: None Comments: Water sample taken from open hole

Date completed: 5/22/70

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, silty loam, black	1	0 - 1
Clay, yellowish gray, soft, smooth, cohesive, moderately plastic, slightly sticky, tight	5	1 - 6
Clay, silty with sand grains and pebbly, yellowish brown and grayish yellow, soft to moderately soft, cohesive, moderately plastic, oxidized, last 3' gray (till)	12	6 - 18
Silt, grayish green, soft, crumbly	10	18 - 28
Clay, greenish gray, moderately soft, brittle, tight	5	28 - 33
Clay, silty to sandy with pebbles, olive to dark olive gray, cohesive, tight (till)	20	33 - 53
Sand, very fine to fine, clayey to silty, interbedded, light olive gray, soft, loose to slightly cohesive	19	53 - 72
Clay, silty and sandy with pebbles, olive to dark olive gray, moderately soft to slightly hard, chunky, slightly crumbly, tightly compacted (till)	25	72 - 97
Clay, dark brownish gray, moderately soft, smooth, tight, stains	7	97 -104
Clay, sandy with pebbles, dark gray, slightly hard, slightly crumbly, chunky, tight, contains lenses of fine to medium sand (till)	10	104 -114
Clay, dark brownish gray to black, as above	5	114 -119
Clay, very sandy with pebbles, olive to dark olive gray, slightly hard and brittle, tight, moderately crumbly, contains numerous lenses of fine to medium sand (till)	45	119 -164

Unit description	Thickness (ft.) Depth	(ft.)
Silt, clayey to sandy (very fine), white with bluish and grayish tints, moderately soft to slightly hard, contains numerous specks, fossiliferous, absolutely noncalcareous, drills tight, thickens moderately	33	164	-197
Shale, silty, brownish black, hard, brittle, smooth, oily, mica specks, possibly fossiliferous (small bugs)	15	197	-212
Silt and clayey sand, as above, with interbedded shale, variegated white to black, moderately soft to hard, slightly crumbly to brittle, all noncalcareous	28	212	-240

Location: 133-48-2ADA Use of well: Observation

Owner and number: SWC 3958 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 280 Altitude of land surface (ft., msl): 948.2 (T)

Screened interval (ft.): 88-91 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Destroyed

Date completed: 5/21/70

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, silty loam, black	2	0 - 2
Clay, silty, yellowish gray, soft to moderately soft, cohesive, plastic, sticky, smooth	12	2 - 14
Silt, light olive gray, soft, chunky, crumbly, calcareous	7	14 - 21
Clay, silty, olive gray, soft, cohesive, plastic, smooth, tight	9	21 - 30
Silt and very fine sand, clayey, light olive gray to clive gray, soft, non- to moderately cohesive, non- to slightly plastic, calcareous	12	30 - 42
Sand, very fine to fine, silty, light olive gray, loose to slightly cohesive, predominantly quartz with shale, some carbonates	18	42 - 60
Sand, medium to coarse, medium well sorted, subangular to subrounded, clean, mostly granitics and carbonates with shale; taking water	15	60 - 75
Clay, silty to sandy with pebbles, clive gray, moderately soft to slightly hard, tightly compacted (till)	7	75 - 82
Sand, coarse with fine gravel, subangular to subrounded, moderately well sorted, clean, mostly granitics and carbonates with shale; taking water, drills okay	. 19	82 -101

Unit description	Thickness (ft.)	Depth (ft.)
<pre>Clay, sandy, olive gray, moderately soft, moderately cohesive, chunky, slightly brittle to crumbly, tightly compacted (till)</pre>	9	101 -110
Gravel, fine, sandy, moderately sorted, subangular, mostly carbonates and granitics	3	110 -113
Clay, sandy with pebbles, olive gray, moderately soft, cohesive, chunky, tight (till)	17	113 -130
Boulder, white and black diorite, very hard	2	130 -132
Sand, clayey and silty with pebbles, light olive gray to olive gray, moderately soft, moderately cohesive, slightly plastic, tightly compacted; contains lenses of sand and gravel (till)	22	132 -154
Sand, very fine to fine, clayey with pebbles, olive gray, moderately soft, slightly friable (till)	12	154 -166
Clay, silty to very sandy with pebbles and sandy gravel stringers, olive gray, moderately soft, cohesive (till)	20	166 -186
Clay, silty with sand grains and pebbles, dark olive gray, slightly hard, cohesive, tightly compacted, mostly brownish black recovered shale (till)	35	186 -221
Silt and very fine sand, dark brownish gray to black, micaceous, noncalcareous, soft, friable, possible bentonitic layer; drills slow and tight, oily	59	221 -280

Location: 133-48-2BBC

Use of well: Test hole

Owner and number: SWC 3968

Principal aquifer:

Depth drilled (ft.): 400

Altitude of land surface (ft., msl): 945 (T)

Screened interval (ft.): None

Lithologic log from: SWC

Casing diameter: None

Comments:

Date completed: 5/26/70

Unit description	Thickness (ft.)	Depth (ft.)
Fill, clay	4	0 - 4
Clay, silty with occasional sand grains and pebbles, yellowish gray, soft, smooth, cohesive, plastic, sticky, tight, oxidized (washed till)	14	4 - 18
Clay, silty, light olive to olive gray, soft, cohesive, moderately plastic, siltier with depth	. 12	18 - 30
Gravel, fine, subrounded, carbonate and granitics	2	30 - 32
Clay, silt, dark grayish green, moderately soft, moderately cohesive to slightly crumbly	9	32 - 41
Silt, clayey to sandy, interbedded, gray, soft, slightly to moderately cohesive	19	41 - 60
Clay, silt and sand (very fine), interbedded, light gray to olive gray, moderately cohesive to loose, soft, drills easy	21	60 - 81
Sand, fine, varies from silty to medium-grained; sand, gray, loose but so uniform it drills like it is consolidated, generally subrounded, mostly quartz with some carbonates and shale with a little lignite, also shell and wood fragments; taking water	22	81 -103
Clay, silty, olive gray, soft, cohesive, plastic, smooth, sticky	5	103 -108
Sand, as above, very fine to fine, interbedded, gray, quartzose with shale, little carbonates and lignite	26	108 -134

Unit description	Thickness (ft.)	Depth (ft.)
Sand, fine and medium, moderately well sorted and uniform, mostly subrounded, varies from subangular to rounded, clean, shell and wood fragments, taking water	57	134 -191
Sand, fine, clayey with pebbles and sand with fine gravel lenses, light olive gray, chunky, cohesive but crumbles under pressure, gritty (till)	44	191 -235
Clay, sandy, as above, more clay with included blocks or layers of pure smooth clay and loose very fine sand; drills tight but easy, no large rocks (till)	. 52	235 -287
Clay, silty to sandy with pebbles, olive gray, chunky, slightly hard, cohesive, very tightly compacted (till)	13	287 -300
Sand, fine, some very fine, some medium, gray, thinly interbedded but fairly uniform, mostly quartz with shale, some lignite chips	30	300 -330
Clay, dark olive gray, moderately soft to slightly hard, cohesive to slightly brittle, smooth, very tight	9	330 -339
Sand, fine and medium, well-sorted, subrounded, quartzose with shale and carbonates	7	339 -346
Clay, olive gray, moderately soft, smooth, cohesive, plastic, tight, sticky	3	346 -349
Clay, silty with sand grains and pebbles, dark olive gray, brownish tint, slightly hard, cohesive, very tightly compacted, calcareous (till)	16	349 -365
Shale, sandy, mostly clay with interbedded sand (quartz, angular to subangular) grains, green to dark green, moderately soft, moderately cohesive, waxy looking, noncalcareous except for calcareous shell fragments (Cretaceous Sediments)	10	365 -375
Sand, coarse, white, all quartz, subangular to subrounded, consolidated, noncalcareous (Cretaceous sediments)	10	375 -385
Shale, sandy, as above, green and white, soft, could be weathered granite (weathered Precambrian)	9	385 -394
Shale, dark green, tight, smooth, waxy (weathered Precambrian)	6	394 -400

Location: 133-48-3ABB1 Use of well: Observation

Owner and number: SWC 3969 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 400 Altitude of land surface (ft., msl): 944.8 (S)

Screened interval (ft.): 98-118 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Destroyed; replaced by 3ABB2 in 1974

Date completed: 5/26/70

Unit description	Thickness	(ft.) Dep	th (ft.)
Roadfill, clay	6	0	- 6
Clay, yellowish gray to moderately olive yellowish brown, soft to moderately soft, cohesive, plastic, sticky, occasional sand grains and pebbles, tight (weathered till)	11	6	- 17
Clay, silty with sand grains and pebbles, olive gray to dark olive gray, moderately soft to slightly hard, cohesive, tight; interbedded with clay, silt, sandy clay and fine sand, highly variable (till)	24	17	- 41
Clay, as above, also contains lenses of coarse sand and fine gravel (till)	19	41	- 60
Gravel, fine and medium, some coarse, some sand, generally subrounded but varies from subangular to rounded, appears clean but may have thin sandy clay streaks; taking lots of water, mixed mud, rough drilling. Mostly granitics (est. 40%), carbonates (est. 30%), indurated shale (est. 15%), est. 15% other igneous and metamorphic	49	60	-109
Sand, predominantly medium to coarse, varies from fine sand to fine gravel, about same composition as above, more quartz and granitics, fairly well-sorted and uniform, mostly subrounded, clean; taking water, mixed mud; lignite chips and a few wood fragments	. 87	109	-196

Unit description	Thickness (ft.)	Depth (ft.)
Sand, coarse with fine gravel, varies from medium sand to medium gravel, clean and uniform, subangular to subrounded, mostly granitics and carbonates	86	196 -282
Sand, very fine to fine, light olive gray, clayey with pebbles, slightly hard, chunky, crumbles, tightly compacted, gritty (till)	28	282 -310
Clay, silty with sand grains and pebbles, olive gray to dark olive gray, moderately soft to slightly hard, very cohesive, but slightly brittle, very tightly compacted (till)	6	310 -316
Sand, medium, some coarse, very well-sorted and uniform, subangular and subrounded, mostly quartz with very little carbonates, lignite and shale, possibly reworked 'Dakota', drills like it may be consolidated mixed 10 bags of mud so far	56	316 -372
Clay, yellowish-green to dark green, soft, crumbly, contains grains of quartz, noncalcareous, 'weathered granite' (Weathered Precambrian)	13	372 -385
Clay, as above, with blocks or boulders of hard granite (Weathered Precambrian)	15	385 -400

Location: 133-48-3ABB2 Use of well: Observation

Owner and number: SWC 9104 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 140 Altitude of land surface (ft., msl): 943.1 (S)

Screened interval (ft.): 116-119 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Replaced 133-48-3ABB

Date completed: 9/13/74

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, clayey silty loam, black	1	0 - 1
Clay, very silty, pale yellow brown, cohesive, very plastic, sticky, oxidized	5	1 - 6
Clay (as above), moderate yellow brown	6	6 - 12
Clay, very silty, sandy, pebbly, dark gray, soft, plastic, cohesive, sticky, thin sand and gravel lenses (till)	20	12 - 32
Clay, slightly silty, very sandy, pebbly, medium dark gray, moderately friable, dense, thin sand and gravel lenses, rock at 54' (till)	35	32 - 67
Sand, medium to very coarse, medium gray, angular to subrounded, sorted, shaley lenses, 70% quartz 25% carbonates, 5% igneous, shell fragments, plus 5% fine gravel, composed of 80% carbonates, 15% igneous, 5% quartz, shale fragments	*	67 -140

Location: 133-48-11DDD Use of well: Test hole

Owner and number: SWC 3958 Principal aquifer:

Depth drilled (ft.): 240 Altitude of land surface (ft., msl): 950 (T)

Screened interval (ft.): None Lithologic log from: SWC

Casing diameter: None Comments:

Date completed: 5/21/70

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, silty loam, black	1	0 - 1
Clay, silty with occasional pebble and coarse sediment, gray, yellowish brown, soft, cohesive, moderately plastic, washed till?	11	1 - 12
Clay, very sandy with coarse sand grains and pebbles, light olive gray to olive gray with bluish to greenish tint, moderately soft, slightly crumbly to slightly cohesive, tightly compacted, occasional lignite chips, numerous fine sandy lenses (till)	37	12 - 49
Clay, silty with sand grains and pebbles, olive gray to dark olive gray, moderately soft to slightly hard, very cohesive, moderately plastic, very tightly compacted, numerous lenses of clay and silty clay (till)	39	49 - 88
Sand, very fine, clayey to silty with coarse sand grains and pebbles, light olive gray, moderately soft to slightly hard, chunky, slightly crumbly, very tightly compacted but contains lenses of loose, very fine to fine sand (till)	73	88 -161
Clay, silty, dark gray, soft to moderately soft, cohesive, smooth, tight	10	161 -171
Silt, light olive gray, soft, crumbly, contains fine sand lenses	13	171 -184
Shale, black, hard, smooth, tight, noncalcareous, contains lenses of bluish white bentonitic clay	56	184 -240

Location: 133-48-12BAA Use of well: Observation

Owner and number: SWC 3966 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 235 Altitude of land surface (ft., msl): 949.2 (S)

Screened interval (ft.): 115-135 Lithologic log from: SWC

Casing diameter: 1.25" Comments:

Date completed: 5/24/70

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, silty loam, black	1	0 - 1
Clay, silty, yellowish gray, soft, slightly cohesive to crumbly, oxidized	5	1 - 6
Clay, silty with sand grains and pebbles, medium olive brown, moderately soft, cohesive, moderately plastic, oxidized (till)	9	6 - 15
Clay, silty to sandy with pebbles and numerous lenses of clay and silt, olive gray, moderately soft, cohesive, moderately plastic (till)	6	15 - 21
Silt, clayey to sandy, light olive gray to olive gray, soft to moderately soft, slightly to moderately cohesive, non- to slightly plastic, smooth, thinly interbedded, calcareous; occasional pebbles, possible till lenses	25	21 - 46
Clay, very sandy with pebbles and numerous lenses of sand and fine to medium gravel, light olive gray, moderately soft, moderately cohesive, very slightly plastic, chunky, gritty (till)	43	46 - 89

Unit description	Thickness (ft)	Depth (ft)
Gravel, fine and some medium, moderately well-sorted, subangular to subrounded, loose, clean, mostly granitics and carbonates; taking water	12	89 -101
Till, as above, very sandy with gravel stringers	13	101 -114
Gravel, fine to medium, quite sandy, sorted in layers, no clay or silt, clean, subangular to rounded, mainly granitics and carbonates, taking water, mixed 4 bags of bentonite	70	114 -184
Gravel, medium, varies from fine to coarse, some sand, fairly uniform, rough drilling	38	184 -222
Gravel, coarse with cobblestones, rough drilling, mainly granitics	9	222 -231
Shale, black, hard, smooth, tight, waxy, oily, carbonaceous, noncalcareous	4	231 -235
Sandstone, dark gray, very fine grained, extremely hard	0	235 -235

Location: 133-48-13ADD Use of well: Test hole

Owner and number: SWC 3961 Principal aquifer:

Depth drilled (ft.): 240 Altitude of land surface (ft., msl): 955 (T)

Screened interval (ft.): None Lithologic log from: SWC

Casing diameter: None Comments:

Date completed: 5/22/70

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, pebbly loam, black	1	0 - 1
Clay, silty, yellowish, reddish and brownish gray, moderately soft to slightly hard, slightly plastic to slightly brittle, smooth, sticky, occasional coarse sand grain or pebble, oxidized (washed till)	17	1 - 18
Clay, silt and very fine sand, interbedded, loose to cohesive and plastic, variegated grays with green and black, soft, drills easy	35	18 - 53
Clay, dark brownish gray, moderately soft, cohesive, slightly plastic to slightly crumbly, organic, oily, sand lenses	23	₹ 53 776
Clay, silty to sandy with pebbles, olive gray to dark olive gray, slightly hard, cohesive, chunky, slightly crumbly under pressure, tightly compacted, includes blocks and chunks of clay and silt, also, some lenses of fine to medium sand (till)	91	76 -167
Sand, fine and medium with some coarse, light olive gray, loose, moderately sorted, mostly quartz and granitic derivatives with shale and carbonates, taking water	36	167 -203
Shale, silt and clayey very fine sand, interbedded, variegated grays with brown and black, organic, oily, noncalcareous, micaceous, speckled (fossils?); drills very tight, turns mud thick and oily, bentonitic	37	203 -240

Location: 133-48-24AAD1 Use of well: Observation

Owner and number: SWC 9103 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 140 Altitude of land surface (ft., msl): 957.6 (S)

Screened interval (ft.): 132-135 Lithologic log from: SWC

Casing diameter: 1.25" Comments: North well

Date completed: 9/12/74

Unit description	Thickness (ft.)	Depth (ft.)
<pre>Clay, silty, sandy, pebbly; moderate brown, iron stained, plastic, sticky to moderately soft, oxidized (till)</pre>	16	0 - 16
<pre>Clay,very silty, sandy, pebbly; dark gray, plastic cohesive, soft to moderately dense, sand and gravel lenses (till)</pre>	19	16 - 35
Sand, very fine, silty, clayey, brownish-gray, well sorted, dense, slightly friable	11	35 - 46
Sand, very fine to moderate medium gray, 80% quartz, 20% carbonates, igneous	6	46 - 52
Clay, very sandy, silty, pebbly; dark gray to medium dark gray, slightly friable, tight to moderately plastic, sand and gravel lenses (till)	28	52 - 80
Clay, as above, grayish black, dense, tight (till)	29	80 -109
Clay, medium-dark-gray, slightly plastic, tight, sand and gravel lenses, clay lenses (till)	20	109 -129
Gravel, very coarse sand, fine to medium, subangular to round, numerous silt and clay lenses, "dirty"	6	129 -135
Clay, as above (till)	5	135 -140

Location: 133-48-24AAD2 Use of well: Observation

Owner and number: SWC 9103a Principal aquifer: Wahpeton Shallow Sand

Depth drilled (ft.): 60 Altitude of land surface (ft., msl): 956.9 (S)

Screened interval (ft.): 48-51 Lithologic log from: SWC

Casing diameter: 1.25" Comments: South well

Date completed: 9/12/74

Unit description	Thickness (ft.)	Depth (ft.
<pre>Clay, silty, sandy, pebbly; moderate brown, iron stained, plastic, sticky to moderately soft, oxidized (till)</pre>	16	0 - 16
Clay, very silty, sandy, pebbly; dark gray, plastic, cohesive, soft to moderately dense, sand and gravel lenses (till)	19	16 - 35
Sand, very fine, silty, clayey, brownish-gray, well sorted, dense, slightly friable	17	35 - 52
Clay, very sandy, silty, pebbly, dark gray to moderately dark gray, slightly friable, tight to moderately plastic, sand and gravel lenses (till)	8	52 - 60

Location: 133-48-24ABB Use of well: Test hole

Owner and number: SWC 3962 Principal aquifer:

Depth drilled (ft.): 240 Altitude of land surface (ft., msl): 957 (T)

Screened interval (ft.): None Lithologic log from: SWC

Casing diameter: None Comments:

Date completed: 5/23/70

Unit description	Thickness	(ft.) Depth (ft.)
Topsoil, silty clay loam, black	2	0 - 2
Clay, silty with occasional coarse sand grains and pebbles, reddish moderately olive brown, soft to slightly hard, cohesive, moderately plastic to slightly brittle, smooth, tight, oxidized (till)	18	2 - 20
Sand, very fine to fine, some medium, some silt, well sorted in layers, gray, mostly quartz with some shale, few carbonates, loose	45	20 - 65
Clay, dark gray, slightly hard and brittle, smooth, slippery, tightly compacted, stiff	9	65 - 74
Clay, silty to sandy with pebbles, olive gray to dark olive gray, moderately soft, chunky, cohesive, slightly to moderately plastic, tightly compacted (till)	26	74 -100
Clay, olive gray to dark olive gray, laminated, smooth, medium soft, cohesive, plastic, sticky, tight, organic	14	100 -114
Clay, silty to very sandy with pebbles and sand lenses, tight olive to olive gray, moderately soft, cohesive, slightly plastic, tight (till)	52	114 -166
Till, as above, interbedded clay and silt layers	40	166 -206
Silt and shale, generally brownish black but contains variegated grays, micaceous noncalcareous, tight, varies from soft to hard, oily, carbonaceous	34	206 -240

Location: 133-48-24ADA Use of well: Test hole

Owner and number: SWC 3963 Principal aquifer:

Depth drilled (ft.): 240 Altitude of land surface (ft., msl): 960 (T)

Screened interval (ft.): None Lithologic log from: SWC

Casing diameter: None Comments:

Date completed: 5/23/70

Unit description	Thickness (ft.) Depth (ft.)
Topsoil, silty loam, black	2	0 - 2
Clay, silty to sandy, very light gray to yellowish gray, soft, moderately cohesive, slightly plastic, leached (?), oxidized, occasional coarse sand grain or pebble	8	2 - 10
Clay, silty with sand grains and pebbles, moderately olive brown, moderately soft to slightly hard, moderately cohesive to moderately brittle, very tightly compacted, oxidized (till)	13	10 - 23
Silt and very fine to fine sand, clayey, grays and browns, very slightly cohesive to loose, quartzose, subrounded, interbedded, organic	35	23 - 58
Clay, silty with sand grains, pebbles and occasional cobbles, olive gray to dark olive gray, slightly hard, chunky, very tightly compacted, organic or carbonaceous shale blocks (till)	39	` 5 8 - '97
Clay, hard, dark brownish black, moderately hard, smooth, brittle, oily, tight	5	97 -102
Sand, very fine, clayey, dark brown, soft, slightly cohesive, organic, oily, stains	24	102 -126
Sand, coarse, well sorted, subangular to subrounded, clean, mostly granitics, with carbonates and shale, loose	13	126 -139
Sand, very fine to fine, silty to clayey, interbedded, moderately soft, chunky and friable to loose, light olive gray	38	139 -177

Unit description	Thickness (ft.)	Depth (ft.)
Clay, dark greenish gray with a shade of olive gray, shale, quartz, limestone, dolomite, lignite; cohesive, grains vary greatly in size; angular to rounded, mostly angular; color changes to lighter (till)	68	129 -197
Clay, silty, clayey; clive black, very few fragments, compact, hard, cohesive, pockets of white sand present; quartz predominant, slightly calcareous white sand not calcareous, grain size is predominantly ½ mm; becomes gravelly at about 282'	120	197 -317
Weathered granite, cohesive, soft, contains pyrite and gravel layers; light brownish gray, plastic; quartz fragments; noncalcareous (weathered Precambrian)	9	317 -326

Location: 134-48-17AAD

Use of well: Test hole

Owner and number: SWC 5670

Principal aquifer:

Depth drilled (ft.): 302

Altitude of land surface (ft., msl): 935 (T)

Screened interval (ft.): None

Lithologic log from: SWC

Casing diameter: None

Comments:

Date completed: 11/20/79

Unit description	Thickness	(ft.) Depth (ft.)
Topsoil, black loam	1	0 - 1
Clay, olive gray to 7 feet then yellowish brown, oxidized soft to well compacted, excellent cohesion, sticky. Few samples with gray partings (lacustrine)	29	1 - 30
Clay, slightly sandy, slightly pebbly, poorly compacted, good cohesion, yellowish brown to olive gray, drilling with some chatter, few rocks and pebbles at 38 feet (till)	18	30 - 48
<pre>Clay, very sandy, very silty, soft, poorly compacted, poor cohesion, drilling smooth, olive gray (till)</pre>	12	48 - 60
Sand, ranging from a very fine sand to fine gravel, predominantly a medium sand, some clay, mostly quartz 60%, some shale, some lignite, some igneous and metamorphic fragments, mostly well rounded to subrounded, taking little water	7	60 - 67
Sand, gravelly, ranging from a fine sand to medium gravel, predominantly a very coarse sand - fine gravel, mostly well rounded, predominantly carbonates and shale 70%, some silicates (quartz), olive gray, taking water, drilling rough	6	67 - 73
Clay, slightly silty, moderately compacted, good cohesion, olive gray (fluvial)	43	73 -116

Unit description	Thickness (ft)	Depth (ft)
Clay, silty to sandy with pebbles, lenses of clay, silt, sand and fine gravel with occasional cobblestones and boulders, general olive gray color; fairly rough drilling (till)	27	177 -204
Sand, coarse to very coarse, well-sorted, subangular to rounded, mostly granitics and carbonates, some shale, clean	9	204 -213
Shale, black with white specks and streaks, hard, very tight, brittle, smooth, oily, carbonaceous, gaseous, sandstone at 237'; drills very tight	27	213 -240

Location: 134-48-9AAA Use of well: Test hole

Owner and number: SWC 2309 Principal aquifer:

Depth drilled (ft.): 326 Altitude of land surface (ft., msl): 935 (T)

Screened interval (ft.): None Lithologic log from: SWC

Casing diameter: None Comments:

Date completed: 9/15/64

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, black	2	0 - 2
Clay, dusky yellow, cohesive, soft; highly calcareous, patches of dark yellowish orange (iron stains), oxidized, plastic, oxidized lignite flakes and mica, occasionally silty (lake deposit)	16	2 - 18
Clay, dark greenish gray to olive gray, unoxidized, otherwise exactly as above	20	18 - 38
Clay, dark greenish gray to olive gray, silty, shale, dolomite, quartz, limestone, lignite, calcareous; cohesive, soft to hard; grain size varies greatly average mm (till)	6	38 - 44
Sand, gravelly, fairly well to poorly sorted; predominant size ½ mm, ranges up to a gravel, quartz predominates, some shale, dolomite, limestone, lignite, angular to subangular	15	44 - 59
Clay, olive black, silty, hard cohesive; shale, quartz, dolomite, limestone, highly calcareous, grain-size varies greatly; angular to rounded; occasionally laminated (till); changing to silt, olive gray to dark greenish gray, cohesive, fairly soft, fairly brittle; occasional pockets of fine white sand, highly calcareous, and is not calcareous	70	59 -129

Unit description	Thickness (ft.)	Depth (ft.)
Clay, silty, sandy, pebbly, "rocky", moderately compacted, poor to moderate cohesion, drilling with chatter, olive gray (till)	84	116 -200
Sand, kelly dropped fast, no return of cuttings	2	200 -202
Clay, same as above, somewhat less pebbly, more sandy, poorly compacted, poor cohesion, olive gray (till)	75 °	202 -277
Sand, no cutting returns, drilled fast	3	277 -280
Clay, same as above (till)	22	280 -302

Location: 134-48-20ADD2 Use of well: Observation

Owner and number: SWC 5671 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 262 Altitude of land surface (ft., msl): 941.8 (S)

Screened interval (ft.): 130-135 Lithologic log from: SWC

Casing diameter: 5.00" Comments: 5" steel recording well

Date completed: 11/20/79

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil	1	0 - 1
Clay, soft, sticky, moderately to poorly compacted, very cohesive, yellowish brown to 10 feet then nonoxidized olive gray (lacustrine)	21	1 - 22
Clay, very sandy, very silty, pebbly, some cobbles (bit chattering) olive gray, nonoxidized, few small (6") sand lenses. Sand 43-46 feet, poor return (till)	24	22 - 46
Clay, silty, soft, moderately to poorly compacted, olive gray (fluvial deposit)	9	46 - 55
Sand, ranging from a very fine to coarse, predominantly a fine to medium poorly sorted, well rounded to subangular, mostly subrounded to angular. Drilling fast, taking water, abundant lignite and shale, abundant quartz, becomes somewhat cleaner with depth also coarser less lignite, olive gray	35	55 - 90
Sand, ranging from a very fine to a coarse sand, predominantly a fine, well to moderately sorted, mostly quartz, about 60%, abundant lignite 20% abundant shale (well rounded), rest of material is subrounded to well rounded drilling smooth taking little water. Olive gray	10	90 -100

Unit description T	hickness	(ft.)	Depth (ft.)
Sand, gravelly, ranging from a very fine sand to a medium gravel, predominantly a very coarse sand to fine gravel, moderately to poorly sorted, well rounded to very angular, mostly subrounded, abundant quartz, carbonates and shale, also igneous and metamorphic silicates, taking water, mud mixed, becomes little coarser with depth also little clay lenses at bottom	38		100 -1	38
Clay, soft, poorly compacted, moderately to poorly cohesive, yellowish brown to light olive gray (somewhat poor return of cuttings) also some cuttings appear to be dark brown possibly some organic material, drilling smooth, better cuttings with depth clay is slightly silty, very plastic cohesive, olive gray to dark olive gray (fluvial)	18	2	138 -1	56
Sand, gravel, cobbles, drilled very hard, lots of chatter	2		156 -1	58
Clay, slightly sandy, few small pebbles, drilling slow, few cobbles and larger pebbles caving little, chatter, clay is soft poorly compacted, plastic, moderately cohesive, olive gray (till)			158 -26	52

Location: 134-48-21BBB Use of well: Observation

Owner and number: SWC 3975 Principal aquifer: Wahpeton Buried Valley

Depth drilled (ft.): 395 Altitude of land surface (ft., msl): 941 (T)

Screened interval (ft.): 238-244 Lithologic log from: SWC

Casing diameter: 1.25" Comments: Obs. well plugged, destroyed

Date completed: 6/2/70

Unit description	Thickness (ft.) Depth (ft.)
Topsoil, clayey loam, black	2	0 - 2
Clay, yellowish gray, soft to moderately soft, cohesive, moderately plastic, sticky, smooth, oxidized	7	2 - 9
Clay, olive gray, soft, smooth, cohesive, plastic, sticky, tight, some silt	29	9 - 38
Sand, fine and medium with streaks of coarse, interbedded, sorted in lenses, generally subrounded	17	38 - 55
Clay, silty to sandy with pebbles, dark brownish gray, cohesive, chunky, tight (till)	11	55 - 66
Sand, fine and medium with streaks of coarse sand and fine gravel, sorted in lenses, subangular to rounded, mostly quartz and granitics with carbonates and shale; taking some water	65	66 -131
Clay, sandy, olive gray, moderately soft, cohesive, tightly compacted, shale pebbles (till)	6	131 -137
Sand, fine to coarse, interbedded, granitics, carbonates and shale; drills easy, taking water, mixed 1 bag of mud; clean - no clay layers	133	137 -270
Clay, very sandy with occasional pebbles, light olive gray, moderately soft, cohesive but crumbles under pressure, appears tightly compacted, gritty (till)	44	270 -314

Unit description	Thickness (ft.)	Depth (ft.)
Sand, fine and medium, gray, loose, moderately well sorted, subrounded, mostly quartz with carbonates and shale	11.	314 -325
<pre>Clay, as above, very sandy, gritty, light olive gray (till)</pre>	57	325 -382
Clay, white to light greenish, soft, smooth except for occasional quartz grains, smears easily, noncalcareous (weathered Precambrian)	13	382 -395
Granite, unaltered, extremely hard (Precambrian)	0	395 -395

Location: 134-48-32BAA Use of well: Test hole

Owner and number: SWC 3971 Principal aquifer:

Depth drilled (ft.): 350 Altitude of land surface (ft., msl): 940 (T)

Screened interval (ft.): None Lithologic log from: SWC

Casing diameter: None Comments:

Date completed: 5/27/70

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, silty loam, black	2	0 - 2
<pre>Silt, very light gray to yellowish gray, soft, non- to slightly cohesive, nonplastic (alluvium?)</pre>	4	2 - 6
<pre>Clay, silty, yellowish gray, soft, cohesive, plastic, sticky, smooth, tight, laminated, oxidized</pre>	17	6 - 23
Clay, silty and silt, clayey, olive gray, soft, smooth, cohesive, plastic, sticky, interbedded	10	23 - 33
Clay, silty with sand grains and pebbles, olive gray, moderately soft, cohesive, moderately plastic, contains lenses of fine gravel in upper part and tight, dark gray clay in bottom part (till)	17	33 - 50
Sand, medium with fine and some coarse, moderately well sorted, clean, subangular and subrounded mostly granitics and carbonates with some shale and occasional lignite chips, takes a little water, washes out easily	12	50 - 62
Clay, silty with sand grains and pebbles, dark olive gray, slightly hard, cohesive, tightly compacted, gravelly in lower part (till)	26	62 - 88
Gravel, fine, sandy, assorted, angular to subrounded, mostly carbonates and granitics	7	88 - 95
Boulder, granite	1	95 - 96
Sand, fine to medium, moderately well sorted and uniform, subrounded, mostly quartz and carbonates	13	96 -109 .

, a	Unit description	Thickness (ft.)	Depth (ft.)
	Clay, dark gray to dark brown, slightly hard and brittle, smooth, tight, organic, oily	4	109 -113
0	Sand, medium, varies from fine to coarse, moderately sorted in layers, generally subrounded, mostly quartz, carbonates and shale, occasional wood, lignite or pyrite	19	113 -132
Clay	Sand, very fine to fine, clayey with pebbles and numerous lenses of fine sand to fine gravel, light olive bluish gray, moderately soft, very slightly plastic, tightly compacted, gritty (till)	70	132 -202
	Clay, silty with sand grains, pebbles and occasional cobbles, olive gray to dark olive gray, moderately soft to medium hard, tightly compacted, cohesive, slightly brittle, contains blocks or layers of clay and silt and occasionally sand or gravel, thinly interbedded (till)	49	202 -251
30	Clay, silty with sand grains, yellowish, greenish to grayish brown, moderately soft, cohesive, slightly to moderately plastic, oxidized (till)	5	251 - 256
·	Clay, silty with sand grains, pebbles, a few cobbles, numerous blocks or layers of noncalcareous bedrock clays and silts, occasional streaks of sand or gravel and a boulder or two, general dark brownish gray or dark olive gray, sometimes nearly black. Contains lignite chips, granite pebbles, pyrite inclusions, oxidized clays, etc., very erratic tight drilling (till)	39	256 -295
	Sand, medium to coarse, well sorted, uniform, subangular to rounded, white quartzose. Also contains a little shale, carbonates, lignite chips and pyrite inclusions possibly reworked 'Dakota Sandstone' but drills like it could be in place (Cretaceous sediments)	31	295 -326 .
	Clay, white, soft, moderately cohesive, floury, noncalcareous, occasional block of hard granite (weathered Precambrian)	24	326 -350
	Granite, unaltered, extremely hard (Precambrian)	0	350 -350

Location: 134-48-32BBC Use of well: Test hole

Owner and number: SWC 3972 Principal aquifer:

Depth drilled (ft.): 150 Altitude of land surface (ft., msl): 940 (T)

Screened interval (ft.): None Lithologic log from: SWC

Casing diameter: None Comments:

Date completed: 5/22/70

Unit description	Thickness	(ft.)	Depth (ft.)
Topsoil, silty loam, black	2		0 - 2	
Clay, silty, yellowish gray, soft, smooth, cohesive, sticky, tight, occasional sand grain, oxidized	18		2 - 20	
Clay, silty, olive gray, soft, smooth, cohesive, sticky	15		20 - 35	WI
Clay, silty to sandy with pebbles, olive gray to dark olive gray, slightly hard and brittle, cohesive, tight, includes layers or blocks of pure clay (till)	7		35 - 42	78
Gravel, fine to coarse with some sand and cobbles, assorted but may be stratified in uniform layers, generally subrounded but varies from subangular to rounded, mostly carbonates and granitics, little indurated shale, taking lots of water, mixed 3 bags of drilling mud and 2 bags of cement. Rough drilling, had to use rock bit.	38		42 - 80	
Sand, very fine to fine, clayey with pebbles, light olive gray, moderately soft, crumbly, stiff, fairly tight, contains numerous lenses of fine to medium sand up to 8 or 9 feet thick (till)	47	* •	80 -127	
<pre>Clay, very sandy, as above, no sand or gravel lenses (till)</pre>	23	1	27 -150	

Location: 134-48-32DAA Use of well: Observation

Owner and number: SWC 3970 Principal aquifer: Wahpeton Sand Plain

Depth drilled (ft.): 120 Altitude of land surface (ft., msl): 943.1 (S)

Screened interval (ft.): 58-78 Lithologic log from: SWC

Casing diameter: 1.25" Comments:

Date completed: 5/26/70

Unit description	Thickness (ft.)	Depth (ft.)
Topsoil, silty clay loam, black	1	0 - 1
Clay, silty, yellowish gray, soft, cohesive, plastic, sticky, tight, smooth, oxidized, occasional sand grain	13	1 - 14
Clay, silty, olive gray, soft, cohesive, plastic	12	14 - 26
Clay, silty to sandy with pebbles, olive gray, moderately soft, cohesive, slightly plastic, thin gravelly stringers (till)	9	26 - 35
Sand, medium to very coarse with fine gravel, subangular and subrounded, mostly granitics with carbonates, taking lots of water	45	35 - 80
Gravel, fine to coarse, slightly sandy, interbedded, generally subrounded, mainly granitics, carbonates and indurated shale; taking lots of water, mixed 8 bags of mud. Got down to 120' but twisted off drill stem while trying to ream out hole, used 2200 gallons of water	40	80 -120

Location: 134-48-33AAA Use of well: Test hole

Owner and number: SWC 3974 Principal aquifer:

Depth drilled (ft.): 280 Altitude of land surface (ft., msl): 946 (T)

Screened interval (ft.): None Lithologic log from: SWC

Casing diameter: None Comments:

Date completed: 5/28/70

Unit description	Thickness (ft.)	Depth (ft.)
Fill, clay	4	0 - 4
Clay, silty, yellowish gray, soft, smooth, cohesive, plastic, sticky, oxidized	12	4 - 16
Clay, silty, olive gray, soft, smooth, cohesive, plastic, sticky	12	16 - 28
Clay, silty with sand grains and pebbles, olive gray to dark olive gray, moderately soft to slightly hard, brittle, chunky, tight, blocks of organic clay (till)	13	28 - 41
Sand, very fine and fine gradually becoming coarser with depth, fine gravel from 260 to 280, gray gradually becoming buff colored, generally subrounded, well sorted and uniform, mostly quartz and granitic derivatives with carbonates, some shale, occasional lignite chips and wood fragments, loose, taking lots of water. Had run out of bentonite so hole had a tendency to cave, got rods stuck twice, abandoned hole at 280 because of the head and no way to keep it down.	239	41 -280

Location: 134-48-33BAB Use of well: Test hole

Owner and number: SWC 3973 Principal aquifer:

Depth drilled (ft.): 200 Altitude of land surface (ft., msl): 946 (T)

Screened interval (ft.): None Lithologic log from: SWC

Casing diameter: None Comments:

Date completed: 5/27/70

Unit description	Th	ickness (ft.)	Depth (ft.)
Topsoil, silty clay loam, black		2	0 - 2
Clay, silty, yellowish gray, soft soft, cohesive, plastic, smotight, oxidized	to moderately oth, sticky,	12	2 - 14
Clay, silty, olive gray, soft, sm plastic, sticky, tight	ooth, cohesive,	21	14 - 35
Clay, silty to sandy with pebbles chunky, brittle, olive gray gray, very tight, contains l of smooth dark clay (till)	to dark olive	7	35 - 42
Clay, very sandy (very fine), ver slightly cohesive, interbedd sand, organic	y dark brown, soft, ed with silt and	11	42 - 53
Sand, fine to medium, gray, moder and uniform, generally subro quartz and shale, some carbo lignite, loose, clean	unded, mostly	19	53 - 72
Clay, silty with sand grains and gray to brownish gray, sligh hard, brittle, tightly compa layers or blocks of organic silt, tight (till)	tly to moderately cted, contains	38	72 -110
Sand, very fine to fine, clayey we light olive gray, moderately or friable, fairly porous, graymumerous lenses of fine and reloose sand (till)	soft, crumbly citty, contains	90 1	10 -200

TABLE II. Table of Water Levels in Observation Wells and Piezometers

Dakota Group Aquifer				LS Elev (msl,ft)=955.2 SI (ft.)=318-324		
	Depth to	WL Elev		Depth to	WL Elev	
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)	
06/09/71	0.59	954.61	06/22/78	10.81	944.39	
07/20/71	0.60	954.60	09/21/78	11.30	943.90	
			12/06/78	11.84	943.36	
08/28/73	1.00	954.20				
09/20/73	1.21	953.99	07/19/79	17.01	938.19	
			11/30/79	15.72	939.48	
06/19/74	1.09	954.11				
07/18/74	1.67	953.53	09/17/80	16.64	938.56	
07/29/74	2.66	952.54	11/18/80	17.86	937.34	
08/01/74	2.90	952.30	10 (04 (04	40.05		
08/05/74	3.23	951.97	12/01/81	19.25	935.95	
08/09/74	1.99	953.21	. 00/04/02	22.06	000 44	
08/14/74	3.40	951.80	08/24/83	22.06	933.14	
08/20/74	3.34 3.57	951.86	11/29/83	19.95	935.25	
08/27/74		951.63	11 /20 /0/	00 60	004 54	
09/05/74 09/14/74	3.54 3.52	951.66 951.68	11/29/84	23.69	931.51	
09/14/74	3.64	951.58	00/35/05	22.46	001 74	
	3.49		09/25/85	23.46	931.74	
09/24/74 10/03/74	3.49	951.71 951.67	10/03/85	23.38	931.82	
10/03/74	3.51	951.69	10/09/85	23.53	931.67	
10/05/74	3.61	951.59	10/15/85 10/23/85	23.41 23.21	931.79	
10/03/74	3.72	951.48	12/04/85	23.21	931.99 931.73	
10/16/74	3.96	951.24	12/04/65	23.4/	931./3	
10/22/74	4.58	950.62	07/16/86	23.17	932.03	
10/23/74	4.65	950.55	10/28/86	23.37	931.83	
10/30/74	4.98	950.22	11/04/86	23.57	931.63	
11/06/74	5.26	949.94	11/25/86	24.37	930.83	
11/18/74	5.57	949.63	12/01/86	24.35	930.85	
12/03/74	6.08	949.12	12/01/00	24.55	,,,,,,	
			01/07/87	25.34	929.86	
01/22/75	7.34	947.86	01/28/87	25.69	929.51	
02/25/75	7.46	947.74	03/03/87	26.40	928.80	
06/03/75	7.18	948.02	03/24/87	26.62	928.58	
07/15/75	6.38	948.82	05/13/87	26.59	928.61	
07/29/75	6.39	948.81	07/02/87	26.87	928.33	
08/25/75	6.92	948.28	08/03/87	27.03	928.17	
09/07/75	7.02	948.18	08/31/87	27.32	927.88	
12/02/75	6.49	948.71	10/02/87	27.28	927.92	
			11/02/87	26.91	928.29	
01/21/76	6.81	948.39	11/25/87	27.21	927.99	
04/14/76	5.49	949.71	11/30/87	26.73	928.47	
06/02/76	5.84	949.36				
06/17/76	6.02	949.18	04/22/88	25.91	929.29	
06/30/76	6.56	948.64	06/23/88	26.70	928.50	
07/21/76	7.22	947.98	07/01/88	26.91	928.29	
08/11/76	8.12	947.08	07/27/88	27.30	927.90	
08/24/76	8.69	946.51	08/23/88	27.52	927.68	
09/13/76	9.53	945.67	10/27/88	27.40	927.80	
09/28/76	9.84	945.36				
11/02/76	10.70	944.50	04/19/89	26.59	928.61	
12/06/76	10.95	944.25	05/16/89	26.59	928.61	
			06/20/89	26.88	928.32	
01/04/77	11.40	943.80	07/18/89	27.65	927.55	
04/04/77	11.32	943.88	08/15/89	28.35	926.85	
06/07/77	12.22	942.98	10/05/89	28.34	926.86	
07/07/77	11.55	943.65	10/24/89	28.08	927.12	
08/10/77	11.74	943.46	12/01/89	27.83	927.37	
09/15/77	11.49	943.71				
			01/03/90	27.51	927.69	

133-047-07ADD		(Continued)		LS Elev (ms	l,ft)=955.2
Dakota Gr	oup Aguifer			SI (f	(.) = 318 - 324
	Depth to	WL Elev		Depth to	WL Elev
	Water (ft)	OF DARK THE VEHICLE AND DESCRIPTION OF THE PERSON OF THE P		Water (ft)	E-102000 700 W 700 100 10
		928.12		27.01	
04/23/90	26.78	928.42	06/13/90	27.09	928.11
					to the ten the same that
133-047-16CDB				LS Elev (ms	12 (2)
Wahpeton Buried Valley Aguifer		Aquifer	SI (ft.)=149-15		
	Depth to	WL Elev		Depth to	WL Elev
	Water (ft)	(msl, ft)		Water (ft)	
	6.92				
133-047-1	L7ADD			LS Elev (ms	L,ft)=957.3
Wahpeton	Buried Valley	Aquifer	 	SI (f	-1=149-155
	Depth to	WL Elev		Depth to	WL Elev
	Water (ft)			Water (ft)	
	5.26			6.84	

Wahpeton Sand Plain Aguifer		SI (ft.)=118-121			
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
06/09/71	2.99	956.23	12/06/76	35.10	924.12
07/20/71	2.66	956.56			
08/30/71	2.78	956.44	01/04/77	34.89	924.33
			04/04/77	26.60	932.62
01/31/72	2.12	957.10	06/07/77	26.48	932.74
			07/07/77	24.98	934.24
06/26/73	3.18	956.04	08/10/77	25.73	933.49
08/28/73	8.39	950.83	09/15/77	24.33	
09/20/73	4.75	954.47		23.04	934.89
12/18/73	3.99	955.23	12/12/77	23.04	936.18
	III.		03/14/78	22.16	937.06
06/17/74	3.70	955.52	06/22/78	25.98	933.24
06/19/74	3.69	955.53	09/21/78	23.67	935.55
07/18/74	28.83	930.39	12/06/78	26.67	932.55
07/29/74	37.33	921.89	12,00,70	20.07	752.55
08/01/74	37.33	921.89	06/21/79	32.42	926.80
08/05/74	35.67	923.55	100 miles	36.33	
08/03/74	24.63	The state of the s	09/20/79		922.89
		934.59	11/30/79	31.03	928.19
08/14/74	18.69	940.53	A CONTRACTOR OF THE CONTRACTOR	000 000 1000 100	
08/20/74	15.92	943.30	03/20/80	30.84	928.38
08/27/74	14.16	945.06	06/18/80	35.09	924.13
09/05/74	12.36	946.86	09/10/80	39.13	920.09
09/13/74	11.23	947.99	09/17/80	37.20	922.02
09/14/74	11.40	947.82	11/18/80	34.46	924.76
09/17/74	11.38	947.84	8		
09/24/74	10.07	949.15	06/11/81	35.36	923.86
10/03/74	11.85	947.37	09/03/81	53.94	905.28
10/04/74	11.92	947.30	10/08/81	39.40	919.82
10/05/74	17.53	941.69	12/01/81	36.75	922.47
10/09/74	23.09	936.13	12/01/81	30.73	322.41
10/16/74	34.47	924.75	07/07/82	20 44	010 70
10/10/74	38.70	920.52	120 DE 180 DE 18	39.44	919.78
10/22/74	39.30		10/04/82	53.45	905.77
NOTE OF STREET OF STREET OF STREET	35.35	919.92	11/30/82	38.04	921.18
10/30/74		923.87	20124105		
11/06/74	37.48	921.74	08/24/83	43.27	915.95
11/18/74	30.00	929.22	11/29/83	38.90	920.32
12/03/74	30.12	929.10	04/04/84	41.73	017 40
01/22/75	37.82	921.40	06/14/84	41.75	917.49
	1200000 (20000000)				917.67
02/25/75 06/03/75	29.02	930.20	08/30/84	45.75	913.47
	13.01	946.21	11/29/84	40.36	918.86
06/18/75	10.90	948.32			
07/15/75	7.73	951.49	02/28/85	43.70	915.52
07/29/75	20.51	938.71	06/26/85	42.89	916.33
08/25/75	26.99	932.23	09/11/85	42.94	916.28
09/07/75	15.38	943.84	09/25/85	42.10	917.12
12/02/75	32.55	926.67	10/03/85	42.15	917.07
			10/09/85	41.90	917.32
01/21/76	20.19	939.03	10/15/85	42.08	917.14
01/22/76	13.28	945.94	10/23/85	41.75	917.47
04/09/76	8.67	950.55	10/24/85	41.41	917.81
06/02/76	19.40	939.82	11/01/85	41.53	917.69
06/02/76	20.23	938.99	12/04/85		
06/17/76	19.90	939.32	12/04/85	41.87	917.35
			04/10/06	44.45	015 05
07/21/76	24.15	935.07	04/12/86	44.17	915.05
08/11/76	35.68	923.54	05/23/86	40.78	918.44
08/24/76	36.68	922.54	07/16/86	41.22	918.00
09/13/76	33.70	925.52	09/04/86	54.68	904.54
09/28/76	32.88	926.34	10/28/86	42.12	917.10
11/02/76	27.36	931.86	11/04/86	54.42	904.80

133-047-1	L7CCC1	(Continued)		LS Elev (msl	ft)=959.22
Wahpeton	Sand Plain Ac	uifer		SI (f	t.) = 118 - 121
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
11/25/86	58.10	901.12	06/23/88	53.12	906.10
12/01/86	61.28	897.94	06/30/88	53.18	906.04
			07/27/88	51.48	907.74
01/07/87	59.94	899.28	08/23/88	52.12	907.10
01/28/87	60.71	898.51	09/30/88	48.78	910.44
03/03/87	61.97	897.25	10/27/88	49.92	909.30
03/24/87	65.67	893.55	11/30/88	48.45	910.77
05/13/87	51.98	907.24			
05/14/87	51.43	907.79	01/04/89	48.82	910.40
07/02/87	54.18	905.04	02/15/89	46.74	912.48
07/03/87	54.08	905.14	03/15/89	47.19	912.03
07/10/87	54.72	904.50	04/19/89	46.33	912.89
08/03/87	49.37	909.85	05/16/89	56.95	902.27
08/08/87	49.37	909.85	06/20/89	54.70	904.52
08/31/87	49.70	909.52	07/19/89	55.82	903.40
09/17/87	48.41	910.81	08/15/89	53.63	905.59
10/02/87	49.60	909.62	10/05/89	51.48	907.74
10/12/87	49.73	909.49	10/24/89	49.52	909.70
10/20/87	48.47	910.75	12/01/89	46.52	912.70
11/02/87	47.82	911.40			
11/17/87	46.80	912.42	01/03/90	46.12	913.10
11/25/87	46.48	912.74	03/30/90	45.70	913.52
11/30/87	48.16	911.06	04/23/90	47.28	911.94
			05/21/90	46.98	912.24
02/12/88	45.87	913.35	06/13/90	53.16	906.06
04/22/88	46.58	912.64			

	Aguifer Depth to	WL Elev			(ft.)=48-51
Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
 09/18/74	13.13	945.85	06/11/81	32.37	926.61
09/24/74	8.22	950.76	09/03/81	40.54	918.44
10/03/74	10.85	948.13	10/08/81	34.18	
10/04/74	10.87	948.11	12/01/81		924.80
10/05/74	10.90	948.08	12/01/81	32.26	926.72
10/03/74	13.40		05/05/05		212 21 212
		945.58	07/07/82	35.42	923.56
10/16/74	18.53	940.45	10/04/82	45.10	913.88
10/22/74	23.11	935.87	11/30/82	34.20	924.78
10/23/74	23.81	935.17			
10/30/74	26.42	932.56	03/10/83	33.59	925.39
11/06/74	26.60	932.38	06/15/83	36.86	922.12
11/18/74	24.75	934.23	08/24/83	37.38	921.60
12/03/74	24.65	934.33	11/29/83	36.05	922.93
01/22/75	28.36	930.62	04/04/84	36.50	922.48
02/25/75	24.06	934.92	06/14/84	36.61	922.37
06/03/75	13.04	945.94	08/30/84	38.49	920.49
6/18/75	11.58	947.40	11/29/84	36.78	922.20
7/15/75	9.22	949.76	,,	20.70	2 . L . L U
7/28/75	12.71	946.27	02/28/85	36.30	922.68
8/25/75	23.08	935.90	06/26/85	36.55	922.43
9/07/75	16.77	942.21	09/11/85	38.60	
.2/02/75	19.34	939.64			920.38
.2/02/13	17.34	939.04	09/25/85	37.69	921.29
1100/76	F 00	052.00	10/03/85	37.46	921.52
4/09/76	5.08	953.90	10/09/85	37.33	921.65
6/02/76	13.33	945.65	10/15/85	37.24	921.74
6/17/76	14.70	944.28	10/23/85	37.00	921.98
6/30/76	16.02	942.96	10/24/85	37.00	921.98
7/21/76	17.60	941.38	11/01/85	37.14	921.84
8/11/76	23.65	935.33	12/04/85	36.37	922.61
8/24/76	25.92	933.06			
9/13/76	26.18	932.80	04/12/86	37.90	921.08
9/28/76	26.39	932.59	05/23/86	36.40	922.58
1/02/76	25.24	933.74	09/04/86	43.05	915.93
2/06/76	25.60	933.38	10/28/86	36.90	922.08
			11/04/86	40.13	918.85
1/04/77	27.14	931.84	11/25/86	46.44	912.54
4/04/77	22.23	936.75	12/01/86	46.71	
6/07/77	23.12	935.86	12/01/60	40.71	912.27
7/07/77	22.21		01 /07 /07	40.70	010 10
		936.77	01/07/87	48.79	910.19
8/10/77	21.96	937.02	05/13/87	44.19	914.79
9/15/77	21.16	937.82	05/14/87	44.39	914.59
2/12/77	19.80	939.18	07/02/87	45.53	913.45
			07/03/87	45.58	913.40
3/14/78	18.55	940.43	07/10/87	45.47	913.51
6/22/78	19.74	939.24	08/03/87	43.50	915.48
9/21/78	20.27	938.71	08/31/87	43.67	915.31
2/06/78	22.45	936.53	09/17/87	43.29	915.69
			10/02/87	42.74	916.24
6/21/79	27.00	931.98	10/12/87	42.45	916.53
7/17/79	29.69	929.29	10/20/87	42.23	916.75
9/20/79	29.65	929.33	11/02/87	41.72	917.26
1/30/79	26.72	932.26	11/17/87	41.72	
_, _0, , ,	AU . 1 Z	JJ2.2V			917.55
3/20/80	27.19	931.79	11/25/87	41.89	917.09
			11/30/87	41.12	917.86
6/18/80	31.00	927.98	00 14 0 10 -		
9/10/80	31.42	927.56	02/12/88	40.59	918.39
9/17/80	33.13	925.85	04/22/88	41.12	917.86
1/18/80	30.27	928.71	06/23/88 06/30/88	45.14	913.84

133-047-17CCC2 (Continued) Undefined Aguifer				LS Elev (msl,	ft)=958.98 (ft.)=48-51
		WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
07/27/88	45.39	913.59	07/19/89	47.22	911.76
08/23/88	44.44	914.54	08/15/89	47.42	911.56
09/30/88	43.84	915.14	10/05/89	43.85	915.13
10/27/88	42.75	916.23	10/24/89		916.24
11/30/88	41.69	917.29	12/01/89	41.91	917.07
01/04/00	41.12	917.86	01/03/90	41.57	917.41
01/04/89 02/15/89	41.12	917.24	03/29/90	41.55	917.41
BO TO SELECTION OF THE PERSON	41.40	917.58	04/23/90	41.64	917.34
03/15/89			•	42.67	916.31
04/19/89	41.61	917.37	05/21/90	43.05	915.93
05/16/89	43.40	915.58	06/13/90	43.05	313.33
06/20/89	43.83	915.15			
133-047-1	7DDD			LS Elev (n	nsl,ft)=964
Wahpeton :	Shallow Sand	Aquifer	2	SI	(ft.)=60-80
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	
07/20/71	21.08	942.92			
08/30/71	21.55	942.45	12/18/73	22.05	941.95
			,		
133-047-1	.8ABC			LS Elev (r	nsl,ft)=958
Wahpeton	Buried Vallev	Aguifer		SI (ft	:.}=145-235
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
09/19/74	9.96	948.04	10/23/74	27.42	930.58
09/19/74	9.08	948.92	10/30/74	26.02	931.98
10/03/74	9.74	948.26	11/06/74	26.95	931.05
10/03/74	9.81	948.19	11/18/74		934.07
10/04/74	11.97	946.19	12/03/74	23.78	934.22
10/05/74	16.39	941.61	12/03/14	23.70	734.44
10/09/74	23.99	934.01	06/03/75	12.87	945.13
10/16/74		930.96	00,03/73	12.07	343·T3
10/22/14	27.04	730.70	40		

	Depth to	WL Elev		Donth +-	Mr ma
Date	Water (ft)	(msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
11/18/69	4.73	955.39	04/04/77	25.79	934.33
00/06/70	4 22	000	08/10/77	24.51	935.61
02/26/70	4.32	955.80	09/15/77	24.59	935.53
06/09/71	5.76	954.36	06/22/78	23.53	936.59
07/20/71	5.36	954.76	09/21/78	22.62	937.50
08/30/71	5.59	954.53	05.440.400		
01/31/72	4.90	955.22	06/18/80 07/23/80	32.33 34.52	927.79 925.60
01/31/12	4.50	755.22	09/10/80	35.43	924.69
06/26/73	5.81	954.31			221102
08/28/73	8.89	951.23	06/11/81	34.66	925.46
09/20/73	7.34	952.78	09/03/81	45.40	914.72
12/18/73	6.61	953.51	10/08/81	36.60	923.52
06/19/74	6.20	953.92	11/30/82	36.93	923.19
07/18/74	23.48	936.64			
07/29/74	31.25	928.87	03/10/83	36.70	923.42
08/01/74	32.04	928.08	06/15/83	38.74	921.38
08/05/74	31.50	928.62	08/24/83	40.23	919.89
08/09/74	25.05	935.07	11/29/83	39.12	921.00
08/14/74	20.44	939.68	04/04/04	20.60	
08/20/74 08/27/74	18.26 17.63	941.86	04/04/84	39.68	920.44
09/05/74	14.61	942.49 945.51	06/14/84 08/30/84	39.90 42.32	920.22
09/14/74	13.54	946.58	11/29/84	40.30	917.80 919.82
09/17/74	13.35	946.77	11/23/04	40.30	919.62
09/18/74	13.44	946.68	02/28/85	39.55	920.57
09/24/74	12.45	947.67	06/26/85	40.60	919.52
10/03/74	13.27	946.85	09/11/85	41.68	918.44
10/04/74	13.36	946.76	09/25/85	41.10	919.02
10/05/74	15.83	944.29	10/03/85	41.38	918.74
10/09/74	20.51	939.61	10/09/85	41.01	919.11
10/16/74	28.68	931.44	10/15/85	41.04	919.08
10/23/74	32.48	927.64	10/23/85	40.62	919.50
10/30/74	30.76	929.36	12/04/85	38.88	921.24
11/06/74	31.79	928.33			
11/18/74	28.24	931.88	04/12/86	40.13	919.99
12/03/74	28.01	932.11	05/23/86	39.39	920.73
01/00/75	20.06	000 00	07/16/86	39.03	921.09
01/22/75 02/25/75	30.86 27.86	929.26 932.26	09/04/86 10/28/86	47.26	912.86
06/03/75	16.12	944.00	11/04/86	40.95 48.19	919.17 911.93
06/18/75	13.70	946.42	11/25/86	49.82	910.30
07/15/75	10.51	949.61	12/01/86	52.26	907.86
12/02/75	28.22	931.90		32.20	307.00
01/21/74	18.51	941.61	01/07/87	52.88	907.24
01/21/76 04/09/76	18.51	941.61	01/28/87	52.55 54.67	907.57
06/02/76	17.47	949.19	03/03/87 03/24/87	54.67 55.75	905.45 904.37
06/02/76	18.26	941.86	05/13/87	48.97	911.15
06/30/76	19.28	940.84	07/02/87	49.44	910.68
07/21/76	22.02	938.10	07/10/87	49.64	910.48
08/11/76	28.93	931.19	08/03/87	47.28	912.84
08/24/76	30.67	929.45	08/31/87	47.70	912.42
09/28/76	29.08	931.04	09/17/87	46.80	913.32
11/02/76	26.50	933.62	10/02/87	46.65	913.47
12/06/76	29.77	930.35	11/02/87	46.81	913.31
NA N. ANDREW TO THE PARTY OF TH	19000000- 1900	AND MARKET THE PARTY OF THE PAR	11/25/87	45.48	914.64
01/04/77	29.72	930.40	11/30/87	45.44	914.68

Depth to Water (ft) (msl, ft) Date Water (ft) (msl, ft) Date Water (ft) (msl, ft) 04/19/89 45.55 914.57 02/12/88 44.48 915.64 05/16/89 50.65 909.47 04/22/88 45.16 914.96 06/20/89 49.59 910.53 05/23/88 45.16 914.96 06/20/89 52.33 907.79 07/01/88 49.57 910.55 08/15/89 52.33 907.79 07/01/88 49.57 910.55 08/15/89 52.33 907.79 08/23/88 47.45 912.67 12/01/89 48.19 911.73 10/03/89 47.45 912.67 12/01/89 47.11 913.01 11/30/88 45.68 914.44 01/03/90 45.59 914.53 01/04/89 45.70 914.42 04/23/90 45.50 914.62 01/04/89 45.70 914.42 04/23/90 45.50 914.62 01/04/89 45.70 914.44 05/21/90 46.09 914.03 03/15/89 45.72 914.40 05/21/90 46.09 914.03 03/15/89 45.72 914.40 05/21/90 46.09 914.03 03/15/89 45.79 914.14 06/13/90 48.60 911.52 133-047-19DAN Mahbeton Shallow Sand Acuifer Sand Marker (ft) (msl, ft) bate Water (ft) (msl, ft) 960.1 133-047-20AACCB1 Ashbeton Buried Vallev Acuifer Depth to WL Elev Date Water (ft) (msl, ft) 960.99/10/85 55.86 913.49 05/14/87 64.63 905.72 909/09/85 55.86 913.49 05/14/87 64.63 905.72 909/10/85 55.48 915.53 07/03/87 65.51 904.84 909/10/85 55.89 916.37 12/01/89 55.38 904.97 199/16/85 55.38 914.97 10/03/85 55.89 916.37 12/01/87 55.29 915.30 08/31/87 65.53 904.97 199/16/85 55.38 914.97 04/22/88 57.82 915.53 10/03/85 55.38 914.97 04/22/88 57.82 915.53 10/03/85 55.38 914.97 04/22/88 57.82 915.53 10/03/85 55.38 914.97 04/22/88 57.82 915.53 10/03/85 55.38 914.97 04/22/88 57.82 915.53 10/03/85 55.38 914.97 04/22/88 57.82 915.53 10/03/85 55.38 914.97 04/22/88 57.82 915.30 09/30/86 56.96 917.79 01/03/85 59.86 910.49 06/23/88 62.63 907.74 11/03/85 55.24 917.79 01/03/85 59.86 910.49 06/23/88 62.63 907.74 11/03/85 52.46 917.89 11/03/85 59.48 915.37 01/03/85 59.48 915.37 01/03/85 59.48 915.37 01/03/85 59.48 915.37 01/03/85 59.48 915.37 01/03/85 59.48 915.37 01/03/85 59.48 915.37 01/03/85 59.48 915.37 01/03/85 59.48 915.39 01/03/85 59.48 915.39 01/03/85 59.48 915.39 01/03/	133-047-1 Wahpeton	1 8ADA Buried Vallev	(Continued) Aguifer		LS Elev (msl SI (f	,ft)=960.12 t.)=219-225
Date Water (ft) (msl, ft) Date Water (ft) (msl, ft)						WL Elev
12/11/88	Date			Date		(msl, ft)
104/21/88 45.16 914.96 06/20/89 49.59 910.53 106/23/88 49.69 910.43 07/18/89 52.33 907.79 107/01/88 49.57 910.55 08/15/89 50.73 909.39 107/01/88 49.57 910.55 08/15/89 50.73 909.39 107/21/88 48.39 911.73 10/05/89 48.05 912.07 108/23/88 47.94 912.18 10/24/89 47.11 913.01 109/23/88 46.52 913.60 01/03/90 45.59 914.53 109/23/88 45.68 914.44 01/03/90 45.59 914.53 101/04/89 45.70 914.42 04/23/90 46.05 914.07 102/15/89 45.78 914.34 06/13/90 48.60 911.52 103/15/89 45.78 914.34 06/13/90 48.60 911.52 103-047-19DAA LS Elev (mal.ft) 60/13/90 48.60 911.52 103-047-19DAA LS Elev (mal.ft) 60/13/90 60.09 104/89 9.03 951.17 02/26/70 8.72 951.48 103-047-20AACCB1 LS Elev (mal.ft) 60/13/90 60.09 104/89 9.03 951.17 02/26/70 8.72 951.48 103-047-20AACCB1 LS Elev (mal.ft) 60/13/90 60/13/90 104/80 9.03 951.17 02/26/70 8.72 951.48 103-047-20AACCB1 LS Elev (mal.ft) 60/13/90 60/13/90 103/15/85 55.63 910.72 03/03/87 82.04 888.31 103/99/985 56.86 913.49 05/14/87 64.63 905.72 103/99/985 55.48 915.53 07/03/87 65.51 90.84 103/99/10/85 55.38 914.97 04/22/88 57.40 912.95 104/99/85 55.38 914.97 04/22/88 57.82 912.53 104/99/85 55.38 914.97 04/22/88 57.82 912.53 104/99/85 55.38 914.97 04/22/88 69.86 900.42 104/16/85 55.36 917.39 07/27/88 68.30 902.05 104/16/85 55.46 917.89 914.16 08/23/88 69.86 900.42 104/16/86 54.18 916.17 03/16/89 58.43 901.97 104/16/86 54.21 916.14 00/16/89 58.43 901.97 104/16/86 54.21 916.14 10/05/89 60.10 909.35 104/16/86 54.21 916.14 10/05/89 60.10 909.35 104/16/86 54.21 916.14 10/05/89 60.10 909.35 104/16/86 54.21 916.14 10/05/89 60.10 909.35 104/16/86 54.21 916.14 10				04/19/89	45.55	914.57
106/23/88 49.69 910.43 07/18/89 52.33 907.79 07/01/88 48.39 911.73 10/05/89 48.05 912.07 07/27/88 48.39 911.73 10/05/89 48.05 912.07 08/23/88 47.45 912.67 12/01/89 46.19 913.93 08/23/88 47.45 912.67 12/01/89 46.19 913.93 01/27/88 46.52 913.60 01/13/98 45.68 914.44 01/03/90 45.59 914.53 01/04/89 45.70 914.42 04/23/90 46.05 914.02 02/15/89 45.72 914.40 05/21/90 46.09 914.03 03/15/89 45.78 914.34 06/13/90 48.60 911.52 01/04/89 45.78 914.34 06/13/90 48.60 911.52 01/18/89 45.78 914.34 06/13/90 48.60 911.52 01/18/89 45.78 914.34 06/13/90 48.60 911.52 01/18/89 45.78 914.34 06/13/90 48.60 911.52 01/18/89 45.78 914.34 06/13/90 48.60 911.52 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 02/26/70 8.72 951.48 01/18/89 9.03 951.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17 95.17	02/12/88	44.48	915.64	05/16/89	50.65	909.47
	04/22/88	45.16	914.96	06/20/89	49.59	910.53
107/27/88	06/23/88	49.69	910.43	07/18/89	52.33	907.79
1872 188 47.48 912.18 10/24/89 47.11 913.01 1972 188 47.45 912.67 12/01/89 46.19 913.93 10/27/88 46.52 913.60 11/30/88 45.68 914.44 01/30/90 45.59 914.53 10/24/89 45.70 914.42 04/23/90 46.05 914.03 10/24/89 45.78 914.34 06/13/90 46.05 914.03 10/3/5/89 45.78 914.34 06/13/90 48.60 911.52 133-047-19DAA	07/01/88	49.57	910.55	08/15/89	50.73	909.39
197/39/88 47.45 912.67 10/27/88 46.52 913.60 11/30/88 45.68 914.44 01/03/90 45.59 914.53 01/04/89 45.70 914.42 01/04/89 45.70 914.42 01/03/90 46.05 914.02 01/16/89 45.72 914.40 05/21/90 46.05 914.03 03/15/89 45.72 914.40 05/21/90 46.09 914.03 03/15/89 45.78 914.34 06/13/90 48.60 911.52 133-047-19DAA Malmoeton Shallow Sand Adulfer Depth to WL Elev Date Water (ft) (msl, ft) Date W	07/27/88	48.39	911.73	10/05/89	48.05	912.07
10/27/88	08/23/88	47.94	912.18	10/24/89	47.11	913.01
11/30/88	09/29/88	47.45	912.67	12/01/89	46.19	913.93
03/29/90 45.50 914.62 04/23/90 46.05 914.07 02/15/89 45.72 914.40 05/21/90 46.05 914.07 02/15/89 45.78 914.34 06/13/90 48.60 911.52 133-047-19DAA LS Elev (msl,ft)=960. SI (ft.]=46-4 Mahneton Shallow Sand Acuifer Depth to WL Blev (msl, ft) Date Water (ft) (msl, ft) Date D	10/27/88	46.52	913.60			
	11/30/88	45.68	914.44	01/03/90	45.59	914.53
133-047-19DAN LS Elev				03/29/90	45.50	914.62
133-047-19DAN LS Elev (msl,ft)=960. 133-047-19DAN LS Elev (msl,ft)=960. Depth to WL Elev Depth to Water (ft) (msl, ft) Depth to WL Elev Date Water (ft) msl, ft Depth to WL Elev Date Water (ft) msl, ft 11/18/69 9.03 951.17 02/26/70 8.72 951.48 133-047-20AACCB1 LS Elev (msl,ft)=970.3 1448-10-10-10-10-10-10-10-10-10-10-10-10-10-	01/04/89	45.70	914.42	04/23/90	46.05	914.07
LS Elev (msl,ft)=960 ST (ftl)=46-4: Depth to ML Elev Date Depth to ML Elev Date Water (ft) (msl, ft) Date Depth to ML Elev Date Depth to ML Elev Date Depth to ML Elev Date Depth to ML Elev Date Depth to Maker (ft) (msl, ft ST (ftl)=45-27. ST (ftl)=45-27. Depth to ML Elev Depth to ML Elev Depth to ML Elev Depth to ML Elev Depth to ML Elev Date Maker (ft) (msl, ft Depth to ML Elev Date Maker (ft) (msl, ft Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to Maker (ft) (msl, ft Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to ML Elev Depth to ML Elev Date Depth to Date Depth to Depth to ML Elev Date Depth to Date Depth to Depth to Depth to ML Elev Date Depth to Date Depth to Depth	02/15/89	45.72	914.40	05/21/90	46.09	914.03
Sampleton Shallow Sand Acuifer Depth to Will Elev Date Water (ft) (msl, ft) Date Water (ft) (msl, ft)	03/15/89	45.78		06/13/90	48.60	911.52
Depth to Water (ft) (msl, ft) Date Water (ft) (msl, ft) 11/18/69 9.03 951.17 02/26/70 8.72 951.48 133-047-20AACCB1 Water (ft) (msl, ft) Depth to WL Elev Depth to WL Elev Depth to Water (ft) (msl, ft) Depth to WL Elev Depth to Water (ft) (msl, ft) Depth to Water (ft) (msl,	133-047-1	19DAA			LS Elev (ms	1,ft)=960.2
Date Water (ft) (msl, ft) Date Water (ft) (msl, ft)	Wahpeton	Shallow Sand	Aguifer		SI	(ft.)=46-49
Date Water (ft) (msl, ft) 11/18/69 9.03 951.17 02/26/70 8.72 951.48 133-047-20AACCB1					Depth to	WL Elev
Altered Buried Valley Aguifer SI (ft.) = 268-27	Date		(msl, ft)	Date	Water (ft)	(msl, ft)
Depth to WL Elev Depth to WL Elev Water (ft) (msl, ft) Date Depth to WL Elev Water (ft) (msl, ft) Date Water (ft) (msl, ft) Date Depth to WL Elev Water (ft) (msl, ft) Date Depth to WL Elev Water (ft) (msl, ft) Date Water (ft) (msl, ft) Date Depth to WL Elev Date D	11/18/69	9.03	951.17	02/26/70	8.72	951.48
Depth to Water (ft) (msl, ft) Date (msl						St on one or or continue
Date Water (ft) (ms1, ft) Date Water (ft) (ft) (46.63 Date Water (ft) Date Water (ft) (46.63 Date Water (ft) Date Water (ft) (46.63 Date Water (ft) Date Wa	Wahpeton	<u>Buried Vallev</u>	Aquifer			
09/05/85 59.63 910.72 03/03/87 82.04 888.31 09/09/85 56.86 913.49 05/14/87 64.63 905.72 09/10/85 54.82 915.53 07/03/87 65.51 904.84 09/11/85 55.24 915.11 08/04/87 61.93 908.42 09/12/85 54.05 916.30 08/31/87 65.38 904.97 09/25/85 55.38 916.37 12/01/87 57.40 912.95 09/25/85 55.38 914.97 10/03/85 55.38 914.97 10/03/85 55.38 914.97 04/22/88 57.82 912.53 10/09/85 55.28 915.07 06/30/88 69.86 900.49 10/15/85 55.28 915.07 06/30/88 60.86 900.49 10/15/85 55.29 917.39 07/27/88 68.30 902.05 10/23/85 56.19 914.16 08/23/88 62.63 907.72 10/24/85 53.13 917.22 09/30/88 62.88 907.47 11/01/85 53.40 916.95 10/27/88 59.86 910.49 11/01/85 53.40 916.95 10/27/88 59.86 910.49 11/01/85 52.46 917.89 11/21/085 52.46 917.89 10/21/85 52.46 917.89 10/21/85 55.60 917.39 01/04/89 59.04 911.31 00/15/86 53.31 917.04 04/19/89 60.19 910.16 09/30/86 55.96 913.39 05/17/89 66.19 910.16 09/30/86 54.18 916.17 03/16/89 58.22 912.13 00/16/89 58.22 912.13 00/16/86 54.18 916.17 03/16/89 58.43 911.92 05/15/86 53.31 917.04 04/19/89 60.19 910.16 09/30/86 56.96 913.39 05/17/89 67.76 902.59 01/00/86 54.84 915.51 07/19/89 69.12 901.23 01/00/86 54.84 915.51 07/19/89 69.12 901.23 01/00/86 54.84 915.51 07/19/89 69.12 901.23 01/00/86 54.77 915.58 06/21/89 64.15 906.29 01/00/86 54.77 915.58 06/21/89 64.15 906.29 01/00/86 54.77 915.58 06/21/89 64.15 906.29 01/01/86 53.98 916.37 10/25/89 59.98 910.37 10/15/86 54.29 916.06 11/29/89 58.93 911.42 10/16/86 54.29 916.06 11/29/89 58.93 911.42 11/04/86 75.09 895.26 01/03/90 57.48 912.87 11/04/86 75.09 895.26 01/03/90 57.48 912.87 11/00/86 77.49 892.86 03/30/90 57.48 912.87 11/00/86 77.49 892.86 03/30/90 57.48 912.87 11/00/86 77.49 892.86 03/30/90 57.48 912.87 11/00/86 77.49 892.86 03/30/90 57.48 912.87 11/00/86 76.63 893.72 04/23/90 61.55 908.80 05/21/90 61.51 908.80 05/21/90 61.51 908.80 05/21/90 61.51 908.80 05/21/90 61.51 908.80 05/21/90 61.51 908.80 05/21/90 61.51 908.80 05/21/90 61.51 908.80 05/21/90 61.51 908.80 05/21/90 61.51 908.80 05/21/90 61.51 907.17					-	
09/09/85 56.86 913.49 05/14/87 64.63 905.72 09/10/85 54.82 915.53 07/03/87 65.51 904.84 09/11/85 55.24 915.11 08/04/87 61.93 908.42 09/12/85 54.05 916.30 08/31/87 65.38 904.97 09/18/85 53.98 916.37 12/01/87 57.40 912.95 09/25/85 55.38 914.97 10/03/85 55.38 914.97 10/09/85 56.06 914.29 06/23/88 69.86 900.49 10/15/85 55.28 915.07 06/30/88 70.64 899.71 10/17/85 52.96 917.39 07/27/88 68.30 902.05 10/23/85 53.13 917.22 09/30/88 62.88 907.47 11/01/85 53.40 916.95 10/27/88 59.86 910.49 11/13/85 52.48 917.87 11/30/88 57.88 912.47 11/01/85 52.46 917.89 12/11/85 52.56 917.79 01/04/89 59.04 911.31 12/11/85 52.56 917.79 01/04/89 58.22 912.13 04/10/86 54.18 916.17 03/16/89 58.22 912.13 04/10/86 55.07 915.28 06/21/89 60.19 910.16 09/30/86 56.96 913.39 05/17/89 67.76 902.59 10/07/86 55.07 915.28 06/21/89 64.15 906.20 10/07/86 54.21 916.14 10/05/89 69.12 901.23 10/10/86 54.21 916.14 10/05/89 69.10 909.35 10/11/86 53.98 916.37 10/25/89 59.98 910.37 10/15/86 54.21 916.14 10/05/89 69.12 901.23 10/16/86 54.21 916.14 10/05/89 69.10 909.35 10/11/86 53.98 916.37 10/25/89 59.98 910.37 10/15/86 54.29 916.06 11/29/89 58.93 911.42 10/28/86 54.76 915.59 11/04/86 75.09 895.26 01/03/90 59.32 911.03 10/20/86 77.49 892.86 03/30/90 57.48 912.87 01/07/87 80.32 890.03 06/13/90 61.55 908.80	Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
09/10/85 54.82 915.53 07/03/87 65.51 904.84 09/11/85 55.24 915.11 08/04/87 61.93 908.42 09/12/85 54.05 916.30 08/31/87 65.38 904.97 09/25/85 55.38 914.97 10/03/85 55.38 914.97 10/03/85 55.28 915.07 06/30/88 70.64 899.71 10/15/85 55.29 915.07 06/30/88 70.64 899.71 10/17/85 52.96 917.39 07/27/88 68.30 902.05 10/23/85 55.31 917.22 09/30/88 62.88 907.47 11/01/85 53.40 916.95 10/27/88 59.86 910.49 11/10/85 52.48 917.87 11/30/88 57.88 912.47 12/10/85 52.46 917.89 12/11/85 52.56 917.79 01/04/89 59.04 911.31 004/10/86 54.18 916.17 03/16/89 58.22 912.13 004/10/86 55.07 915.28 06/21/89 60.19 910.16 009/30/86 56.96 913.39 05/17/89 67.76 902.59 10/00/86 54.77 915.58 08/15/89 71.04 899.31 10/10/86 54.21 916.14 10/05/89 61.00 909.35 10/12/86 53.98 916.37 10/25/89 59.98 910.37 10/10/86 54.77 915.58 08/15/89 71.04 899.31 10/10/86 54.21 916.14 10/05/89 61.00 909.35 10/10/86 54.77 915.58 08/15/89 71.04 899.31 10/10/86 54.21 916.14 10/05/89 61.00 909.35 10/10/86 54.77 915.58 08/15/89 71.04 899.31 10/10/86 54.77 915.58 08/15/89 71.04 899.31 10/10/86 54.77 915.58 08/15/89 59.98 910.37 10/10/86 54.77 915.58 08/15/89 59.98 910.37 10/10/86 54.77 915.58 08/15/89 59.98 910.37 10/10/86 54.77 915.58 08/15/89 59.98 910.37 10/10/86 54.79 916.14 10/05/89 61.00 909.35 10/10/86 54.76 915.59 11/04/86 75.09 895.26 01/03/90 59.32 911.03 10/10/86 77.49 892.86 03/30/90 57.48 912.87 10/10/86 77.49 892.86 03/30/90 57.48 912.87 10/10/86 77.49 892.86 03/30/90 57.48 912.87 10/10/87 80.32 890.03 06/13/90 63.18 907.17	09/05/85	59.63	910.72	03/03/87		
09/11/85	09/09/85			05/14/87		
09/12/85 54.05 916.30 08/31/87 65.38 904.97 09/18/85 53.98 916.37 12/01/87 57.40 912.95 09/25/85 55.38 914.97 04/22/88 57.82 912.53 10/09/85 56.06 914.29 06/33/88 69.86 900.49 10/15/85 55.28 915.07 06/30/88 70.64 899.71 10/15/85 55.28 915.07 06/30/88 62.63 907.72 10/17/85 52.96 917.39 07/27/88 68.30 902.05 10/23/85 56.19 914.16 08/23/88 62.63 907.72 10/24/85 53.13 917.22 09/30/88 62.88 907.47 11/01/85 53.40 916.95 10/27/88 59.86 910.49 11/13/85 52.48 917.89 11/30/88 57.88 912.47 12/11/85 52.56 917.79 01/04/89 59.04 911.31 06/51/86 53.31	09/10/85	54.82	915.53	07/03/87		
09/18/85 53.98 916.37 12/01/87 57.40 912.95 09/25/85 55.38 914.97 04/22/88 57.82 912.53 10/03/85 55.38 914.97 04/22/88 69.86 900.49 10/15/85 55.28 915.07 06/30/88 70.64 899.71 10/17/85 52.96 917.39 07/27/88 68.30 902.05 10/23/85 56.19 914.16 08/23/88 62.63 907.72 10/24/85 53.13 917.22 09/30/88 62.88 907.47 11/01/85 53.40 916.95 10/27/88 59.86 910.49 11/13/85 52.48 917.87 11/30/88 57.88 912.47 12/10/85 52.46 917.89 11/30/88 57.88 912.47 12/10/86 54.18 916.17 03/16/89 58.43 911.31 04/10/86 54.18 916.17 03/16/89 58.43 911.92 05/15/86 53.31	09/11/85	55.24	915.11	08/04/87		908.42
09/25/85 55.38 914.97 10/03/85 55.38 914.97 10/03/85 55.38 914.97 10/05/85 56.06 914.29 06/23/88 69.86 900.49 10/15/85 55.28 915.07 06/30/88 70.64 899.71 10/17/85 52.96 917.39 07/27/88 68.30 902.05 10/23/85 56.19 914.16 08/23/88 62.63 907.72 10/24/85 53.13 917.22 09/30/88 62.88 907.47 11/01/85 52.48 917.87 10/27/88 59.86 910.49 11/13/85 52.48 917.87 11/30/88 57.88 912.47 11/01/85 52.46 917.89 12/11/85 52.56 917.79 01/04/89 59.04 911.31 04/10/86 54.18 916.17 03/16/89 58.22 912.13 04/10/86 53.31 917.04 04/19/89 60.19 910.16 09/30/86 56.96 913.39 05/17/89 67.76 902.59 10/07/86 55.07 915.28 06/21/89 64.15 906.20 10/08/86 54.84 915.51 07/19/89 69.12 901.23 10/09/86 54.77 915.58 08/15/89 71.04 899.31 10/10/86 54.21 916.14 10/05/89 61.00 909.35 10/10/86 54.21 916.14 10/05/89 61.00 909.35 10/10/86 54.21 916.14 10/05/89 58.93 910.37 10/15/86 54.29 916.06 11/29/89 58.93 910.37 10/15/86 54.21 916.14 10/05/89 59.98 910.37 10/15/86 54.21 916.14 10/05/89 59.98 910.37 10/15/86 54.21 916.14 10/05/89 59.98 910.37 10/15/86 54.21 916.14 10/05/89 59.98 910.37 10/15/86 54.21 916.16 11/29/89 58.93 911.42 10/28/86 76.63 893.72 04/23/90 61.55 908.80 11/04/86 75.09 895.26 01/03/90 59.32 911.03 12/01/86 77.49 892.86 03/30/90 57.48 912.87 10/10/86 77.49 892.86 03/30/90 57.48 912.87 10/10/86 77.49 892.86 03/30/90 57.48 912.87 10/10/86 77.49 892.86 03/30/90 57.48 912.87 10/10/86 77.49 892.86 03/30/90 55.31 908.80 05/5/21/90 61.51 908.94	09/12/85	54.05	916.30	08/31/87	65.38	904.97
10/03/85	09/18/85	53.98	916.37	12/01/87	57.40	912.95
10/09/85 56.06 914.29 06/23/88 69.86 900.49 10/15/85 55.28 915.07 06/30/88 70.64 899.71 10/17/85 52.96 917.39 07/27/88 68.30 902.05 10/23/85 56.19 914.16 08/23/88 62.63 907.72 11/01/85 53.40 916.95 10/27/88 59.86 910.49 11/13/85 52.48 917.87 11/30/88 57.88 912.47 11/10/85 52.46 917.89 11/21/10/85 52.56 917.79 01/04/89 59.04 911.31 04/10/86 54.18 916.17 03/16/89 58.22 912.13 04/10/86 55.31 917.04 04/19/89 60.19 910.16 09/30/86 56.96 913.39 05/17/89 67.76 902.59 10/07/86 55.07 915.28 06/21/89 64.15 906.20 10/08/86 54.84 915.51 07/19/89 69.12 901.23 10/09/86 54.77 915.58 08/15/89 71.04 899.31 10/10/86 54.21 916.14 10/05/89 69.12 901.23 10/09/86 54.21 916.14 10/05/89 69.12 901.23 10/10/86 54.21 916.14 10/05/89 69.12 901.23 10/10/86 54.21 916.14 10/05/89 69.12 901.23 10/10/86 54.21 916.14 10/05/89 69.12 901.23 10/10/86 54.21 916.14 10/05/89 69.12 901.23 10/15/86 54.29 916.06 11/29/89 58.93 911.42 10/28/86 76.63 893.72 04/23/90 57.48 912.87 11/04/86 75.09 895.26 01/03/90 59.32 911.03 12/01/86 77.49 892.86 03/30/90 57.48 912.87 12/02/86 76.63 893.72 04/23/90 61.55 908.80 05/21/90 61.41 908.94 01/07/87 80.32 890.03 06/13/90 63.18 907.17	09/25/85	55.38	914.97			
10/15/85 55.28 915.07 06/30/88 70.64 899.71 10/17/85 52.96 917.39 07/27/88 68.30 902.05 10/23/85 56.19 914.16 08/23/88 62.63 907.72 10/24/85 53.13 917.22 09/30/88 62.88 907.47 11/01/85 53.40 916.95 10/27/88 59.86 910.49 11/13/85 52.48 917.87 11/30/88 57.88 912.47 12/10/85 52.46 917.89 12/11/85 52.56 917.79 01/04/89 59.04 911.31 04/10/86 54.18 916.17 03/16/89 58.22 912.13 04/10/86 55.31 917.04 04/19/89 60.19 910.16 09/30/86 56.96 913.39 05/17/89 67.76 902.59 10/07/86 55.07 915.28 06/21/89 64.15 906.20 10/08/86 54.84 915.51 07/19/89 69.12 901.23 10/09/86 54.77 915.58 08/15/89 71.04 899.31 10/10/86 54.21 916.14 10/05/89 61.00 909.35 10/11/86 53.98 916.37 10/25/89 59.98 910.37 10/15/86 54.29 916.06 11/29/89 58.93 911.42 10/28/86 75.09 895.26 01/03/90 59.32 911.03 12/01/86 77.49 892.86 03/30/90 57.48 912.87 12/02/86 76.63 893.72 04/23/90 61.55 908.80 05/21/90 61.41 908.94 01/07/87 80.32 890.03 06/13/90 63.18 907.17	10/03/85	55.38	914.97	04/22/88	57.82	912.53
10/17/85 52.96 917.39 07/27/88 68.30 902.05 10/23/85 56.19 914.16 08/23/88 62.63 907.72 10/24/85 53.13 917.22 09/30/88 62.88 907.47 11/01/85 53.40 916.95 10/27/88 59.86 910.49 11/13/85 52.48 917.89 11/30/88 57.88 912.47 12/10/85 52.46 917.89 12/11/85 52.56 917.79 01/04/89 59.04 911.31 04/10/86 54.18 916.17 03/16/89 58.22 912.13 04/10/86 54.18 916.17 03/16/89 58.43 911.92 05/15/86 53.31 917.04 04/19/89 60.19 910.16 09/30/86 56.96 913.39 05/17/89 67.76 902.59 10/07/86 55.07 915.28 06/21/89 64.15 906.20 10/08/86 54.84 915.51 07/19/89 69.12 901.23 10/10/86 54.21 916.14 10/05/89 61.00	10/09/85	56.06	914.29	06/23/88	69.86	900.49
10/23/85 56.19 914.16 08/23/88 62.63 907.72 10/24/85 53.13 917.22 09/30/88 62.88 907.47 11/01/85 53.40 916.95 10/27/88 59.86 910.49 11/13/85 52.48 917.87 11/30/88 57.88 912.47 12/10/85 52.46 917.89 91.79 01/04/89 59.04 911.31 04/10/86 54.18 916.17 03/16/89 58.22 912.13 04/10/86 54.18 916.17 03/16/89 58.43 911.92 05/15/86 53.31 917.04 04/19/89 60.19 910.16 09/30/86 56.96 913.39 05/17/89 67.76 902.59 10/07/86 55.07 915.28 06/21/89 64.15 906.20 10/08/86 54.84 915.51 07/19/89 69.12 901.23 10/09/86 54.21 916.14 10/05/89 61.00 909.35 10/15/86 54.29 916.06 11/29/89 58.93 911.42 10/28	10/15/85	55.28	915.07	06/30/88	70.64	899.71
10/24/85	10/17/85	52.96	917.39	07/27/88	68.30	902.05
11/01/85	10/23/85	56.19	914.16	08/23/88	62.63	907.72
11/13/85 52.48 917.87 11/30/88 57.88 912.47 12/10/85 52.46 917.89 01/04/89 59.04 911.31 04/10/86 54.18 916.17 03/16/89 58.22 912.13 05/15/86 53.31 917.04 04/19/89 60.19 910.16 09/30/86 56.96 913.39 05/17/89 67.76 902.59 10/07/86 55.07 915.28 06/21/89 64.15 906.20 10/08/86 54.84 915.51 07/19/89 69.12 901.23 10/09/86 54.77 915.58 08/15/89 71.04 899.31 10/10/86 54.21 916.14 10/05/89 61.00 909.35 10/11/86 53.98 916.37 10/25/89 59.98 910.37 10/28/86 54.76 915.59 11/29/89 58.93 911.42 11/04/86 75.09 895.26 01/03/90 59.32 911.03 12/01/86 77.49 892.86 03/30/90 57.48 912.87 12/02/86 76	10/24/85	53.13	917.22	09/30/88	62.88	907.47
12/10/85	11/01/85	53.40	916.95	10/27/88	59.86	910.49
12/11/85	11/13/85	52.48	917.87	11/30/88	57.88	912.47
02/16/89 58.22 912.13 04/10/86 54.18 916.17 03/16/89 58.43 911.92 05/15/86 53.31 917.04 04/19/89 60.19 910.16 09/30/86 56.96 913.39 05/17/89 67.76 902.59 10/07/86 55.07 915.28 06/21/89 64.15 906.20 10/08/86 54.84 915.51 07/19/89 69.12 901.23 10/09/86 54.77 915.58 08/15/89 71.04 899.31 10/10/86 54.21 916.14 10/05/89 61.00 909.35 10/11/86 53.98 916.37 10/25/89 59.98 910.37 10/15/86 54.29 916.06 11/29/89 58.93 911.42 10/28/86 54.76 915.59 11/04/86 75.09 895.26 01/03/90 59.32 911.03 12/01/86 77.49 892.86 03/30/90 57.48 912.87 12/02/86 76.63 893.72 04/23/90 61.55 908.80 05/21/90 61.41 908.94 01/07/87 80.32 890.03 06/13/90 63.18 907.17	12/10/85	52.46	917.89			
04/10/86 54.18 916.17 03/16/89 58.43 911.92 05/15/86 53.31 917.04 04/19/89 60.19 910.16 09/30/86 56.96 913.39 05/17/89 67.76 902.59 10/07/86 55.07 915.28 06/21/89 64.15 906.20 10/08/86 54.84 915.51 07/19/89 69.12 901.23 10/09/86 54.77 915.58 08/15/89 71.04 899.31 10/10/86 54.21 916.14 10/05/89 61.00 909.35 10/11/86 53.98 916.37 10/25/89 59.98 910.37 10/15/86 54.29 916.06 11/29/89 58.93 911.42 10/28/86 54.76 915.59 911.03 11/04/86 75.09 895.26 01/03/90 59.32 911.03 12/01/86 77.49 892.86 03/30/90 57.48 912.87 12/02/86 76.63 893.72 04/23/90 61.55 908.80 05/21/90 61.41 908.94	12/11/85	52.56	917.79	01/04/89	59.04	911.31
05/15/86 53.31 917.04 04/19/89 60.19 910.16 09/30/86 56.96 913.39 05/17/89 67.76 902.59 10/07/86 55.07 915.28 06/21/89 64.15 906.20 10/08/86 54.84 915.51 07/19/89 69.12 901.23 10/09/86 54.77 915.58 08/15/89 71.04 899.31 10/10/86 54.21 916.14 10/05/89 61.00 909.35 10/11/86 53.98 916.37 10/25/89 59.98 910.37 10/15/86 54.29 916.06 11/29/89 58.93 911.42 10/28/86 54.76 915.59 11/04/86 75.09 895.26 01/03/90 59.32 911.03 12/01/86 77.49 892.86 03/30/90 57.48 912.87 12/02/86 76.63 893.72 04/23/90 61.55 908.80 05/21/90 61.41 908.94 01/07/87 80.32 890.03 06/13/90 63.18 907.17				02/16/89	58.22	912.13
09/30/86 56.96 913.39 05/17/89 67.76 902.59 10/07/86 55.07 915.28 06/21/89 64.15 906.20 10/08/86 54.84 915.51 07/19/89 69.12 901.23 10/09/86 54.77 915.58 08/15/89 71.04 899.31 10/10/86 54.21 916.14 10/05/89 61.00 909.35 10/11/86 53.98 916.37 10/25/89 59.98 910.37 10/15/86 54.29 916.06 11/29/89 58.93 911.42 10/28/86 54.76 915.59 11/04/86 75.09 895.26 01/03/90 59.32 911.03 12/01/86 77.49 892.86 03/30/90 57.48 912.87 12/02/86 76.63 893.72 04/23/90 61.55 908.80 05/21/90 61.41 908.94 01/07/87 80.32 890.03 06/13/90 63.18 907.17	04/10/86	54.18	916.17	03/16/89	58.43	911.92
10/07/86 55.07 915.28 06/21/89 64.15 906.20 10/08/86 54.84 915.51 07/19/89 69.12 901.23 10/09/86 54.77 915.58 08/15/89 71.04 899.31 10/10/86 54.21 916.14 10/05/89 61.00 909.35 10/11/86 53.98 916.37 10/25/89 59.98 910.37 10/15/86 54.29 916.06 11/29/89 58.93 911.42 10/28/86 54.76 915.59 911.03 911.03 11/04/86 75.09 895.26 01/03/90 59.32 911.03 12/01/86 77.49 892.86 03/30/90 57.48 912.87 12/02/86 76.63 893.72 04/23/90 61.55 908.80 01/07/87 80.32 890.03 06/13/90 63.18 907.17	05/15/86		917.04	04/19/89	60.19	910.16
10/08/86 54.84 915.51 07/19/89 69.12 901.23 10/09/86 54.77 915.58 08/15/89 71.04 899.31 10/10/86 54.21 916.14 10/05/89 61.00 909.35 10/11/86 53.98 916.37 10/25/89 59.98 910.37 10/15/86 54.29 916.06 11/29/89 58.93 911.42 10/28/86 54.76 915.59 11/04/86 75.09 895.26 01/03/90 59.32 911.03 12/01/86 77.49 892.86 03/30/90 57.48 912.87 12/02/86 76.63 893.72 04/23/90 61.55 908.80 01/07/87 80.32 890.03 06/13/90 63.18 907.17	09/30/86	56.96	913.39	05/17/89	67.76	902.59
10/08/86 54.84 915.51 07/19/89 69.12 901.23 10/09/86 54.77 915.58 08/15/89 71.04 899.31 10/10/86 54.21 916.14 10/05/89 61.00 909.35 10/11/86 53.98 916.37 10/25/89 59.98 910.37 10/15/86 54.29 916.06 11/29/89 58.93 911.42 10/28/86 54.76 915.59 11/04/86 75.09 895.26 01/03/90 59.32 911.03 12/01/86 77.49 892.86 03/30/90 57.48 912.87 12/02/86 76.63 893.72 04/23/90 61.55 908.80 01/07/87 80.32 890.03 06/13/90 63.18 907.17	10/07/86	55.07	915.28			
10/09/86 54.77 915.58 08/15/89 71.04 899.31 10/10/86 54.21 916.14 10/05/89 61.00 909.35 10/11/86 53.98 916.37 10/25/89 59.98 910.37 10/15/86 54.29 916.06 11/29/89 58.93 911.42 10/28/86 54.76 915.59 11/04/86 75.09 895.26 01/03/90 59.32 911.03 12/01/86 77.49 892.86 03/30/90 57.48 912.87 12/02/86 76.63 893.72 04/23/90 61.55 908.80 05/21/90 61.41 908.94 01/07/87 80.32 890.03 06/13/90 63.18 907.17	10/08/86					
10/10/86 54.21 916.14 10/05/89 61.00 909.35 10/11/86 53.98 916.37 10/25/89 59.98 910.37 10/15/86 54.29 916.06 11/29/89 58.93 911.42 10/28/86 54.76 915.59 11/04/86 75.09 895.26 01/03/90 59.32 911.03 12/01/86 77.49 892.86 03/30/90 57.48 912.87 12/02/86 76.63 893.72 04/23/90 61.55 908.80 05/21/90 61.41 908.94 01/07/87 80.32 890.03 06/13/90 63.18 907.17	10/09/86					
10/11/86 53.98 916.37 10/25/89 59.98 910.37 10/15/86 54.29 916.06 11/29/89 58.93 911.42 10/28/86 54.76 915.59 11/04/86 75.09 895.26 01/03/90 59.32 911.03 12/01/86 77.49 892.86 03/30/90 57.48 912.87 12/02/86 76.63 893.72 04/23/90 61.55 908.80 01/07/87 80.32 890.03 06/13/90 63.18 907.17	10/10/86	54.21				
10/15/86 54.29 916.06 11/29/89 58.93 911.42 10/28/86 54.76 915.59 11/04/86 75.09 895.26 01/03/90 59.32 911.03 12/01/86 77.49 892.86 03/30/90 57.48 912.87 12/02/86 76.63 893.72 04/23/90 61.55 908.80 05/21/90 61.41 908.94 01/07/87 80.32 890.03 06/13/90 63.18 907.17	10/11/86	53.98				
10/28/86 54.76 915.59 11/04/86 75.09 895.26 01/03/90 59.32 911.03 12/01/86 77.49 892.86 03/30/90 57.48 912.87 12/02/86 76.63 893.72 04/23/90 61.55 908.80 05/21/90 61.41 908.94 01/07/87 80.32 890.03 06/13/90 63.18 907.17	10/15/86	54.29				
11/04/86 75.09 895.26 01/03/90 59.32 911.03 12/01/86 77.49 892.86 03/30/90 57.48 912.87 12/02/86 76.63 893.72 04/23/90 61.55 908.80 05/21/90 61.41 908.94 01/07/87 80.32 890.03 06/13/90 63.18 907.17	10/28/86					
12/01/86 77.49 892.86 03/30/90 57.48 912.87 12/02/86 76.63 893.72 04/23/90 61.55 908.80 05/21/90 61.41 908.94 01/07/87 80.32 890.03 06/13/90 63.18 907.17	11/04/86			01/03/90	59.32	911.03
12/02/86 76.63 893.72 04/23/90 61.55 908.80 05/21/90 61.41 908.94 01/07/87 80.32 890.03 06/13/90 63.18 907.17	12/01/86					
05/21/90 61.41 908.94 01/07/87 80.32 890.03 06/13/90 63.18 907.17	12/02/86					
01/07/87 80.32 890.03 06/13/90 63.18 907.17	Date for 100					
	01/07/87	80.32	890.03			
ACTUAL TOTAL MEMBER	01/29/87	74.54	895.81			

LS Elev (msl,ft)=970.4 SI (ft.)=113-118

133-047-20AACCB2		LS
Wahpeton Sand Plain Act	uifer	
Depth to	WL Elev	De

Wahpeton	Sand Plain Acu	liter		SI III	(0.1) = 113 - 118
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
09/05/85	59.77	910.63	03/03/87	82.09	888.31
09/09/85	56.90	913.50	05/14/87	64.71	905.69
09/10/85	54.86	915.54	07/03/87	65.60	904.80
09/11/85	55.60	914.80	08/04/87	63.10	907.30
09/12/85	54.08	916.32	08/31/87	65.45	904.95
09/18/85	54.03	916.37	12/01/87	57.59	912.81
09/25/85	55.39	915.01			
10/03/85	55.39	915.01	04/22/88	57.90	912.50
10/09/85	56.06	914.34	06/23/88	69.93	900.47
10/15/85	55.34	915.06	06/30/88	70.70	899.70
10/17/85	53.00	917.40	07/27/88	68.35	902.05
10/23/85	56.20	914.20	08/23/88	62.73	907.67
10/24/85	53.17	917.23	09/30/88	62.98	907.42
11/01/85	53.43	916.97	10/27/88	59.95	910.45
11/13/85	52.50	917.90	11/30/88	58.00	912.40
12/10/85	52.51	917.89			
12/11/85	52.59	917.81	01/04/89	59.14	911.26
			02/16/89	58.30	912.10
04/10/86	54.25	916.15	03/16/89	58.53	911.87
05/15/86	53.37	917.03	04/19/89	60.27	910.13
09/30/86	57.01	913.39	05/17/89	67.83	902.57
10/07/86	55.12	915.28	06/21/89	64.27	906.13
10/08/86	54.89	915.51	07/19/89	69.19	901.21
10/09/86	54.81	915.59	08/15/89	71.10	899.30
10/10/86	54.27	916.13	10/05/89	61.10	909.30
10/11/86	54.03	916.37	10/25/89	60.05	910.35
10/15/86	54.31	916.09	11/29/89	59.03	911.37
10/28/86	54.81	915.59			
11/04/86	75.14	895.26	01/03/90	59.42	910.98
12/01/86	77.58	892.82	03/30/90	57.35	913.05
12/02/86	76.71	893.69	04/23/90	61.62	908.78
			05/21/90	61.46	908.94
01/07/87	80.35	890.05	06/13/90	63.31	907.09
01/29/87	74.61	895.79			

	5	Aguifer			(ft.)=42-57
Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to	WL Elev
	(10)	(mar, rc,	pace	Water (ft)	(msl, ft)
09/05/85	32.98	937.16	07/03/87	48.88	921.26
09/09/85	33.24	936.90	08/04/87	49.58	920.56
09/10/85	33.43	936.71	08/31/87	49.80	920.34
09/11/85	33.17	936.97	10/02/87	50.64	919.50
09/12/85	33.20	936.94	10/12/87	50.34	919.80
09/18/85	33.18	936.96	10/20/87	50.71	919.43
09/25/85	33.16	936.98	11/02/87	50.71	919.43
10/03/85	32.99	937.15	11/17/87	51.00	919.14
10/09/85	33.15	936.99	12/01/87	50.99	919.15
10/15/85	33.23	936.91			
10/17/85	32.96	937.18	02/11/88	51.14	919.00
10/23/85	33.07	937.07	04/22/88	51.03	919.11
10/24/85	33.33	936.81	06/23/88	50.71	919.43
11/01/85	33.14	937.00	06/30/88	50.97	919.17
11/13/85	33.22	936.92	07/27/88	51.14	919.00
12/10/85	33.25	936.89	08/23/88	51.43	918.71
12/11/85	33.09	937.05	09/30/88	51.91	918.23
			10/27/88	51.98	918.16
04/10/86	32.70	937.44	11/30/88	52.39	917.75
05/15/86	32.22	937.92			
09/30/86	32.29	937.85	01/04/89	52.37	917.77
10/08/86	32.36	937.78	02/16/89	52.61	917.53
10/09/86	33.21	936.93	03/16/89	51.94	918.20
10/10/86	33.20	936.94	04/19/89	50.72	919.42
10/11/86	34.01	936.13	05/17/89	49.82	920.32
10/15/86	35.31	934.83	06/21/89	48.62	921.52
10/20/86	36.45	933.69	07/19/89	47.74	922.40
10/28/86	35.69	934.45	08/15/89	46.73	923.41
11/04/86	37.67	932.47	10/05/89	45.97	924.17
12/01/86	40.68	929.46	10/25/89	46.27	923.87
12/02/86	40.63	929.51	11/29/89	45.98	924.16
01/07/87	43.24	926.90	01/03/90	45.49	924.65
01/29/87	43.97	926.17	03/29/90	43.34	926.80
03/03/87	45.60	924.54	04/23/90	42.63	927.51
03/25/87	46.38	923.76	05/21/90	60.62	909.52
05/13/87	47.68	922.46	06/13/90	42.32	927.82

133-047-20AAD1 LS Elev (msl,ft)=969.02
Wahpeton Buried Valley Aguifer SI (ft.)=195-200

Wahpeton	Buried Valley	Aguifer		SI (f	t.)=195-200
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
09/06/85	55.87	913.15	03/03/87	80.12	888.90
09/09/85	56.10	912.92	05/14/87	63.56	905.46
09/10/85	53.72	915.30	07/03/87	63.09	905.93
09/11/85	54.12	914.90	08/04/87	60.64	908.38
09/12/85	52.68	916.34	08/31/87	64.80	904.22
09/18/85	52.43	916.59	11/30/87	56.46	912.56
09/25/85	54.51	914.51			
10/03/85	54.50	914.52	02/11/88	57.10	911.92
10/09/85	55.32	913.70	04/22/88	56.42	912.60
10/15/85	54.39	914.63	06/23/88	68.59	900.43
10/17/85	51.50	917.52	06/30/88	69.47	899.55
10/23/85	55.50	913.52	07/27/88	67.98	901.04
10/24/85	51.90	917.12	08/23/88	60.88	908.14
11/01/85	52.18	916.84	09/30/88	60.84	908.18
11/13/85	51.07	917.95	10/27/88	58.08	910.94
12/10/85	51.23	917.79	11/30/88	56.34	912.68
12/11/85	51.10	917.92			
			01/04/89	57.29	911.73
04/10/86	52.68	916.34	02/16/89	56.70	912.32
05/15/86	52.34	916.68	03/16/89	56.96	912.06
09/30/86	56.35	912.67	04/19/89	59.47	909.55
10/07/86	54.02	915.00	05/17/89	66.34	902.68
10/08/86	54.04	914.98	06/21/89	62.89	906.13
10/09/86	53.83	915.19	07/19/89	68.07	900.95
10/10/86	53.28	915.74	08/15/89	69.73	899.29
10/11/86	53.00	916.02	10/05/89	59.35	909.67
10/15/86	53.32	915.70	10/25/89	58.89	910.13
10/28/86	53.65	915.37	11/29/89	57.77	911.25
11/04/86	73.15	895.87			
12/01/86	74.53	894.49	01/03/90	58.34	910.68
12/02/86	74.11	894.91	03/30/90	56.03	912.99
			04/23/90	60.83	908.19
01/07/87	78.39	890.63	05/21/90	60.75	908.27
01/29/87	72.73	896.29	06/13/90	61.48	907.54

133-047-20AAD2

LS Elev (msl, ft) = 969.28

Wahpeton	Sand Plain Act	uifer		SI (f	1.)=129-134
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
09/06/85	56.17	913.11	05/14/87	63.75	905.53
09/10/85	54.04	915.24	07/03/87	63.32	905.96
09/11/85	54.37	914.91	08/04/87	60.87	908.41
09/12/85	52.90	916.38	08/31/87	65.02	904.26
09/18/85	52.64	916.64	11/30/87	56.66	912.62
09/25/85	54.72	914.56			
10/03/85	54.71	914.57	02/11/88	57.30	911.98
10/09/85	55.54	913.74	04/22/88	56.59	912.69
10/15/85	54.58	914.70	06/23/88	68.76	900.52
10/17/85	51.73	917.55	06/30/88	69.64	899.64
10/23/85	55.72	913.56	07/27/88	68.14	901.14
10/24/85	52.13	917.15	08/23/88	61.05	908.23
11/01/85	52.40	916.88	09/30/88	61.05	908.23
11/13/85	51.29	917.99	10/27/88	58.26	911.02
12/10/85	51.45	917.83	11/30/88	56.54	912.74
12/11/85	51.34	917.94			
			01/04/89	57.44	911.84
04/10/86	52.90	916.38	02/16/89	56.87	912.41
05/15/86	52.54	916.74	03/16/89	57.14	912.14
09/30/86	56.58	912.70	04/19/89	59.61	909.67
10/07/86	54.24	915.04	05/17/89	66.48	902.80
10/08/86	54.16	915.12	06/21/89	63.02	906.26
10/09/86	54.07	915.21	07/19/89	68.25	901.03
10/10/86	53.50	915.78	08/15/89	69.85	899.43
10/11/86	53.23	916.05	10/05/89	59.49	909.79
10/15/86	53.53	915.75	10/25/89	59.01	910.27
10/28/86	53.87	915.41	11/29/89	57.90	911.38
11/04/86	73.34	895.94			
12/01/86	74.73	894.55	01/03/90	58.51	910.77
12/02/86	74.31	894.97	03/30/90	56.19	913.09
	*		04/23/90	61.01	908.27
01/07/87	78.62	890.66	05/21/90	60.91	908.37
01/29/87	72.93	896.35	06/13/90	61.65	907.63
03/03/87	80.34	888.94			

133-047-20AAD3 LS Elev (msl,ft)=969.44 Wahpeton Shallow Sand Aquifer SI (ft.)=54-59

wantecon	Depth to	WL Elev	*	Depth to	(ft.)=54-59 WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
		(mb1, 10,			
09/06/85	31.50	937.94	07/03/87	46.77	922.67
09/09/85	31.53	937.91	08/04/87	47.97	921.47
09/10/85	31.65	937.79	08/31/87	48.45	920.99
09/11/85	31.68	937.76	10/02/87	49.79	919.65
09/12/85	31.48	937.96	10/12/87	49.26	920.18
09/18/85	31.46	937.98	10/20/87	49.73	919.71
09/25/85	31.69	937.75	11/02/87	49.15	920.29
10/03/85	31.18	938.26	11/17/87	49.07	920.37
10/09/85	31.75	937.69	11/30/87	48.42	921.02
10/15/85	31.57	937.87			
10/17/85	31.09	938.35	02/11/88	47.32	922.12
10/23/85	31.25	938.19	04/22/88	46.82	922.62
10/24/85	31.60	937.84	06/23/88	46.65	922.79
11/01/85	31.32	938.12	06/30/88	46.65	922.79
11/13/85	31.57	937.87	07/27/88	47.07	922.37
12/10/85	31.61	937.83	08/23/88	48.06	921.38
12/11/85	31.46	937.98	09/30/88	49.43	920.01
			10/27/88	48.81	920.63
04/10/86	30.28	939.16	11/30/88	48.74	920.70
05/15/86	29.45	939.99			
09/30/86	29.94	939.50	01/04/89	47.92	921.52
10/08/86	30.21	939.23	02/16/89	48.72	920.72
10/09/86	30.64	938.80	03/16/89	47.20	922.24
10/10/86	30.32	939.12	04/19/89	44.79	924.65
10/11/86	30.91	938.53	05/17/89	43.79	925.65
10/15/86	31.81	937.63	06/21/89	42.67	926.77
10/20/86	32.38	937.06	07/19/89	42.32	927.12
10/28/86	32.17	937.27	08/15/89	41.73	927.71
11/04/86	33.39	936.05	10/05/89	42.24	927.20
12/01/86	35.78	933.66	10/25/89	42.74	926.70
12/02/86	35.52	933.92	11/29/89	42.28	927.16
01/07/87	38.74	930.70	01/03/90	41.35	928.09
01/29/87	39.42	930.02	03/29/90	40.06	929.38
03/03/87	41.73	927.71	04/23/90	39.26	930.18
03/24/87	42.50	926.94	05/21/90	39.75	929.69
03/25/87	44.38	925.06	06/13/90	39.32	930.12
03/23/01					

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Wahpeton Buried Valley Aguifer SI (ft.)=265-					
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
			06.422.400	71 65	902.36
04/10/86		915.62	06/23/88	71.65	
05/15/86	56.54	917.47	06/30/88	72.87	901.14
08/27/86	70.01	904.00	07/27/88	70.52	903.49
09/30/86	59.51	914.50	08/24/88	65.87	908.14
10/08/86	57.93	916.08	09/30/88	65.17	908.84
10/09/86	57.84	916.17	10/27/88	64.04	909.97
10/10/86	57.31	916.70	11/30/88	62.30	911.71
10/11/86	57.11	916.90			
10/15/86	57.37	916.64	01/05/89	62.10	911.91
10/28/86	58.28	915.73	02/16/89	61.74	912.27
11/04/86	77.51	896.50	03/16/89	62.85	911.16
12/01/86	81.52	892.49	04/19/89	63.30	910.71
12/02/86	79.86	894.15	05/17/89	72.99	901.02
,,			06/21/89	68.58	905.43
01/07/87	81.90	892.11	07/19/89	72.73	901.28
01/29/87	78.37	895.64	08/15/89	72.38	901.63
03/03/87	84.18	889.83	10/05/89	65.10	908.91
03/24/87	85.76	888.25	10/25/89	63.77	910.24
05/14/87	67.94	906.07	11/29/89	63.07	910.94
07/03/87	69.58	904.43			
08/04/87	66.26	907.75	01/03/90	61.71	912.30
09/01/87	66.36	907.65	03/30/90	60.89	913.12
11/03/87	62.86	911.15	04/23/90	64.69	909.32
12/01/87	61.77	912.24	05/21/90	63.40	910.61
12, 51, 51			06/14/90	67.63	906.38
04/22/88	61.64	912.37			

133-047-20ABAC2

133-047-2	20ABAC2 Sand Plain Act	vifor		LS Elev (msl,ft)=974.06 SI (ft.)=118-123		
Manbecon 1	Depth to	WL Elev		Depth to	WL Elev	
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)	
Date	water (It)	(msi, ic)				
04/10/86	58.41	915.65	06/23/88	71.69	902.37	
05/15/86	56.58	917.48	06/30/88	72.91	901.15	
08/27/86	70.06	904.00	07/27/88	70.51	903.55	
09/30/86	59.54	914.52	08/24/88	65.87	908.19	
10/08/86	57.98	916.08	09/30/88	65.25	908.81	
10/09/86	57.88	916.18	10/27/88	64.03	910.03	
10/10/86	57.39	916.67	11/30/88	62.33	911.73	
10/11/86	57.15	916.91				
10/15/86	57.41	916.65	01/05/89	62.21	911.85	
10/28/86	58.31	915.75	02/16/89	62.78	911.28	
11/04/86	77.55	896.51	03/16/89	62.87	911.19	
12/01/86	81.54	892.52	04/19/89	63.36	910.70	
12/02/86	79.89	894.17	05/17/89	73.04	901.02	
			06/21/89	68.61	905.45	
01/07/87	81.95	892.11	07/19/89	72.76	901.30	
01/29/87	78.40	895.66	08/15/89	72.46	901.60	
03/03/87	84.22	889.84	10/05/89	65.12	908.94	
03/24/87	85.79	888.27	10/25/89	63.79	910.27	
05/14/87	67.98	906.08	11/29/89	63.11	910.95	
07/03/87	69.63	904.43				
08/04/87	66.23	907.83	01/03/90	61.71	912.35	
09/01/87	66.47	907.59	03/30/90	60.90	913.16	
11/03/87	62.85	911.21	04/23/90	64.71	909.35	
12/01/87	61.75	912.31	05/21/90	63.21	910.85	
		CA BLOCK BOOK	06/14/90	67.64	906.42	
04/22/88	61.67	912.39				

133-047-20ABAC4

LS Elev	(ms] ft	1-973 99

Wahpeton Shallow Sand Aguifer				SI	I (ft.) = 38 - 48	
Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)	
04/10/86	36.65	937.34				
05/15/86	36.19	937.80	01/07/87	45.23	928.76	
08/27/86	36.25	937.74	01/29/87	45.40	928.59	
09/30/86	36.20	937.79	03/03/87	45.89	928.10	
10/08/86	36.26	937.73	03/24/87	46.65	927.34	
10/09/86	37.19	936.80	05/13/87	47.20	926.79	
10/10/86	37.48	936.51	07/03/87	47.48	926.51	
10/11/86	38.40	935.59	08/04/87	47.62	926.37	
10/15/86	40.12	933.87				
10/20/86	41.49	932.50	03/29/90	45.70	928.29	
10/28/86	39.55	934.44	04/23/90	45.17	928.82	
11/04/86	42.46	931.53	05/21/90	45.03	928.96	
12/01/86	44.45	929.54	06/14/90	44.92	929.07	
12/02/86	44.41	929.58				

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Wahpeton E	Buried Vallev	Aquifer	8 10 10 10 10 10 10 10 10 10 10 10 10 10	SI (ft)=178-184
34 300 3234 2330 3002 31	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
11/18/69	7.65	956.99	04/04/77	31.93	932.71
			06/07/77	34.50	930.14
02/26/70	7.35	957.29	07/07/77	29.85	934.79
			08/10/77	30.22	934.42
02/08/71	8.30	956.34	09/15/77	29.41	935.23
07/20/71	8.13	956.51			
08/30/71	8.23	956.41	06/22/78	31.22	933.42
00 (00 (72	12.20	051 24	00/17/00	40.70	001 01
08/28/73	13.30	951.34	09/17/80	42.73	921.91
09/20/73	9.55	955.09	00/25/05	40 50	016 13
12/18/73	8.75	955.89	09/25/85	48.52	916.12
06/40/74	0.54	056.00	10/03/85	48.16	916.48
06/19/74	8.64	956.00	10/09/85	48.53	916.11
06/20/74	8.52	956.12	10/15/85	48.79	915.85
07/18/74	36.15	928.49	10/23/85	48.56	916.08
07/29/74	44.96	919.68	10/24/85	47.38	917.26
08/01/74	43.63	921.01	11/01/85	47.48	917.16
08/05/74	42.92	921.72	11/13/85	47.17	917.47
08/09/74	30.15	934.49	12/10/85	46.73	917.91
08/14/74	19.65	944.99	12/11/85	47.38	917.26
08/20/74	20.80	943.84			
08/27/74	19.01	945.63	04/10/86	49.50	915.14
09/05/74	17.33	947.31	09/30/86	49.02	915.62
09/14/74	16.54	948.10	10/08/86	48.03	916.61
09/17/74	16.52	948.12	10/10/86	47.34	917.30
09/24/74	14.74	949.90	10/11/86	47.27	917.37
10/03/74	17.34	947.30	10/15/86	47.29	917.35
10/04/74	17.27	947.37	10/28/86	48.68	915.96
10/05/74	22.44	942.20	11/04/86	64.79	899.85
10/09/74	28.34	936.30	12/01/86	70.42	894.22
10/16/74	42.04	922.60	12/02/86	68.34	896.30
10/22/74	46.75	917.89			
10/23/74	47.44	917.20	01/07/87	70.36	894.28
10/30/74	41.83	922.81	01/29/87	67.40	897.24
11/06/74	44.90	919.74	03/03/87	72.67	891.97
11/18/74	34.08	930.56	03/24/87	75.25	889.39
12/03/74	33.80	930.84	07/03/87	60.47	904.17
			08/04/87	56.42	908.22
01/22/75	32.31	932.33	08/31/87	57.31	907.33
02/25/75	33.74	930.90	10/02/87	54.93	909.71
06/03/75	17.42	947.22	11/02/87	54.59	910.05
07/15/75	12.75	951.89	11/30/87	53.63	911.01
08/25/75	31.54	933.10			
09/07/75	18.28	946.36	04/22/88	52.51	912.13
12/02/75	39.22	925.42	06/23/88	61.42	903.22
			06/30/88	61.63	903.01
01/22/76	17.90	946.74	07/27/88	59.59	905.05
04/09/76	13.53	951.11	08/23/88	57.99	906.65
06/03/76	26.28	938.36	09/30/88	54.88	909.76
06/17/76	25.21	939.43	10/27/88	55.50	909.14
06/30/76	25.72	938.92	11/30/88	52.76	911.88
07/21/76	30.75	933.89			
08/11/76	43.70	920.94	01/04/89	54.54	910.10
08/24/76	43.74	920.90	02/15/89	52.97	911.67
09/13/76	40.20	924.44	03/16/89	53.09	911.55
09/28/76	38.92	925.72	04/19/89	52.85	911.79
11/02/76	33.10	931.54	05/17/89	61.76	902.88
12/07/76	37.55	927.09	06/21/89	58.42	906.22
			07/19/89	62.43	902.21
01/04/77	38.70	925.94	08/15/89	61.85	902.79

133-047-2 Wahpeton	20ABB Buried Vallev	(Continued) Aguifer		LS Elev (msl SI (f	,ft)=964.64 t.}=178-184
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
10/05/89	56.84	907.80	03/30/90	51.51	913.13
10/25/89	53.39	911.25	04/23/90	54.53	910.11
12/01/89	52.18	912.46	05/21/90 06/13/90	53.84 58.95	910.80 905.69
01/03/90	52.47	912.17	00/13/90	30.73	703.09
133-047-	20ABBA1			LS Elev (msl	.ft)=975.36
Wahpeton	Buried Valley	Aguifer			t.) = 266 - 271
	Depth to	WL Elev	N 100 100 100 100 100 100 100 100 100 10	Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
04/10/86	60.02	915.34	02/11/88	63.59	911.77
05/15/86	57.74	917.62	04/22/88	63.09	912.27
08/27/86	71.28	904.08	06/23/88	72.39	902.97
09/30/86	60.40	914.96	06/30/88	73.49	901.87
10/08/86	59.09	916.27	07/27/88	71.25	904.11
10/09/86	59.00	916.36	08/24/88	66.76	908.60
10/10/86	58.50	916.86	09/30/88	66.32	909.04
10/11/86	58.30	917.06	10/27/88	65.56	909.80
10/15/86	58.46	916.90	11/30/88	64.09	911.27
10/28/86	59.48	915.88			
11/04/86	77.31	898.05	01/05/89	63.54	911.82
12/01/86	82.23	893.13	02/16/89	64.59	910.77
12/02/86	80.07	895.29	03/16/89	64.62	910.74
			04/19/89	64.39	910.97
01/07/87	81.89	893.47	05/17/89	73.68	901.68
01/29/87	78.89	896.47	06/21/89	69.73	905.63
03/03/87	84.16	891.20	07/19/89	73.81	901.55
03/24/87	85.98	889.38	08/15/89	73.26	902.10
05/14/87	69.15	906.21	10/05/89	66.86	908.50
07/03/87	71.06	904.30	10/25/89	64.96	910.40
08/04/87	67.91	907.45	11/29/89	64.18	911.18
09/01/87	67.49	907.87			
10/02/87	65.64	909.72	01/03/90	63.04	912.32
10/12/87	66.18	909.18	03/30/90	62.30	913.06
10/20/87	65.26	910.10	04/23/90	65.71	909.65
11/03/87	64.06	911.30	05/21/90	64.63	910.73
12/01/87	62.96	912.40	06/14/90	69.23	906.13

133-047-20ABBA2 Wahpeton Sand Plain Aguifer				LS Elev (msl,ft)=975.56 SI (ft.)=118-123		
	Depth to	WL Elev	10 1 100 100 100 100 100 100 100 100 10	Depth to	WL Elev	
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(ms), ft)	

190	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
04/10/86	60.19	915.37	02/11/88	63.76	911.80
05/15/86	57.88	917.68	04/22/88	63.23	912.33
08/27/86	71.40	904.16	06/23/88	72.51	903.05
09/30/86	60.58	914.98	06/30/88	73.62	901.94
10/08/86	59.24	916.32	07/27/88	71.39	904.17
10/09/86	59.13	916.43	08/24/88	66.89	908.67
10/10/86	58.69	916.87	09/30/88	66.47	909.09
10/11/86	58.45	917.11	10/27/88	65.73	909.83
10/15/86	58.60	916.96	11/30/88	64.20	911.36
10/28/86	59.64	915.92			
11/04/86	77.44	898.12	01/05/89	63.67	911.89
12/01/86	82.35	893.21	02/16/89	64.70	910.86
12/02/86	80.24	895.32	03/16/89	64.72	910.84
			04/19/89	64.51	911.05
01/07/87	82.01	893.55	05/17/89	73.77	901.79
01/29/87	79.06	896.50	06/21/89	69.87	905.69
03/03/87	84.33	891.23	07/19/89	73.91	901.65
03/24/87	86.13	889.43	08/15/89	73.42	902.14
05/14/87	69.30	906.26	10/05/89	67.00	908.56
07/03/87	71.17	904.39	10/25/89	65.10	910.46
08/04/87	68.04	907.52	11/29/89	64.36	911.20
09/01/87	67.61	907.95			
10/02/87	65.75	909.81	01/03/90	62.88	912.68
10/12/87	66.25	909.31	03/30/90	62.43	913.13
10/20/87	65.42	910.14	04/23/90	65.84	909.72
11/03/87	64.16	911.40	05/21/90	64.74	910.82
12/01/87	63.08	912.48	06/14/90	69.32	906.24

133-047-20ABBA3 LS Elev (msl,ft)=976.07 Wahpeton Shallow Sand Aguifer SI (ft)=43-53

Wahpeton	Shallow Sand	Aguifer		SI	(ft.)=43-53
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
04/10/86	37.97	938.10			
05/15/86	37.41	938.66	02/11/88	42.17	933.90
08/27/86	37.36	938.71	04/22/88	42.68	933.39
09/30/86	36.29	939.78	06/23/88	42.83	933.24
10/08/86	35.91	940.16	06/30/88	42.90	933.17
10/09/86	35.94	940.13	07/27/88	42.94	933.13
10/10/86	35.34	940.73	08/24/88	42.60	933.47
10/11/86	35.55	940.52	09/30/88	42.03	934.04
10/15/86	35.69	940.38	10/27/88	41.78	934.29
10/20/86	35.69	940.38	11/30/88	42.46	933.61
10/28/86	35.71	940.36			×
11/04/86	35.75	940.32	01/05/89	42.70	933.37
12/01/86	36.67	939.40	02/16/89	42.98	933.09
12/02/86	36.63	939.44	03/16/89	43.14	932.93
			04/19/89	42.76	933.31
01/07/87	38.94	937.13	05/17/89	42.57	933.50
01/29/87	39.34	936.73	06/21/89	42.46	933.61
03/03/87	40.13	935.94	07/19/89	42.56	933.51
03/24/87	40.24	935.83	08/15/89	42.51	933.56
05/13/87	40.89	935.18	10/05/89	42.61	933.46
07/03/87	41.58	934.49	10/25/89	42.63	933.44
08/04/87	41.91	934.16	11/29/89	42.83	933.24
09/01/87	41.99	934.08			
10/02/87	41.46	934.61	01/03/90	43.13	932.94
10/12/87	40.74	935.33	03/29/90	43.18	932.89
10/20/87	40.75	935.32	04/23/90	43.28	932.79
11/02/87	40.61	935.46	05/21/90	43.42	932.65
11/17/87	40.91	935.16	06/14/90	43.60	932.47
12/01/87	41.33	934.74			

133-047-20ABCA1	LS Elev $(msl,ft)=974.66$
Wahnoton Challow Cond Aguifor	CT (55) FO CO

71441000011	DIGITOR Dana	MARKET			110.7=30-00
Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
*					
04/10/86	37.27	937.39	03/03/87	55.44	919.22
05/15/86	36.83	937.83	03/24/87	57.54	917.12
08/27/86	36.76	937.90			
09/30/86	36.73	937.93	04/19/89	52.40	922.26
10/08/86	36.77	937.89	05/17/89	51.38	923.28
10/09/86	37.25	937.41	06/21/89	49.90	924.76
10/10/86	37.34	937.32	07/19/89	49.45	925.21
10/11/86	38.03	936.63	08/15/89	48.80	925.86
10/15/86	39.32	935.34	10/05/89	52.23	922.43
10/20/86	40.62	934.04	10/25/89	52.26	922.40
10/28/86	39.79	934.87	11/29/89	49.96	924.70
11/04/86	41.71	932.95			
12/01/86	45.70	928.96	01/03/90	49.02	925.64
12/02/86	45.78	928.88	03/29/90	47.17	927.49
			04/23/90	46.73	927.93
01/07/87	49.98	924.68	05/21/90	46.72	927.94
01/29/87	52.00	922.66	06/14/90	46.71	927.95
		2	2.2 (10.2) (10.2)		

133-047-20ABCA2 LS Elev (msl,ft)=974.45
Wahpeton Sand Plain Aguifer SI (ft.)=118-122

Wahpeton Sand Plain Aguifer			SI (ft.)=118-122		
. 18	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
04/10/86	58.92	915.53	06/23/88	71.62	902.83
05/15/86	56.91	917.54	06/30/88	72.85	901.60
08/27/86	70.37	904.08	07/27/88	70.53	903.92
09/30/86	59.69	914.76	08/24/88	65.75	908.70
10/08/86	58.23	916.22	09/30/88	65.48	908.97
10/09/86	58.12	916.33	10/27/88	64.45	910.00
10/10/86	57.65	916.80	11/30/88	62.98	911.47
10/11/86	57.41	917.04			
10/15/86	57.70	916.75	01/05/89	62.68	911.77
10/28/86	58.67	915.78	02/16/89	63.50	910.95
11/04/86	76.92	897.53	03/16/89	63.30	911.15
12/01/86	81.47	892.98	04/19/89	63.59	910.86
12/02/86	79.43	895.02	05/17/89	73.26	901.19
			06/21/89	68.93	905.52
01/07/87	81.32	893.13	07/19/89	72.81	901.64
01/29/87	78.08	896.37	08/15/89	72.32	902.13
03/03/87	83.54	890.91	10/05/89	65.80	908.65
03/24/87	85.16	889.29	10/25/89	64.15	910.30
05/14/87	68.19	906.26	11/29/89	63.28	911.17
07/03/87	70.12	904.33			8
08/04/87	66.88	907.57	01/03/90	62.16	912.29
09/01/87	66.63	907.82	03/30/90	61.28	913.17
11/03/87	63.22	911.23	04/23/90	64.94	909.51
12/01/87	62.13	912.32	05/21/90	63.68	910.77
			06/14/90	68.30	906.15
04/22/88	62.06	912.39			

133-047-				LS Elev (msl	,ft)=974.76
Wahpeton	Buried Vallev	Aquifer		SI (f	t.)=273-278
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
04/10/86	59.25	915.51	06/23/88	71.98	902.78
05/15/86	56.97	917.79	06/30/88	73.22	901.54
08/27/86	70.70	904.06	07/27/88	70.91	903.85
09/30/86	60.05	914.71	08/24/88	66.11	908.65
10/08/86	58.57	916.19	09/30/88	65.87	908.89
10/09/86	58.45	916.31	10/27/88	64.75	910.01
10/10/86	57.99	916.77	11/30/88	63.33	911.43
10/11/86	57.76	917.00			
10/15/86	58.04	916.72	01/05/89	63.27	911.49
10/28/86	59.00	915.76	02/16/89	63.77	910.99
11/04/86	77.29	897.47	03/16/89	63.83	910.93
12/01/86	81.75	893.01	04/19/89	63.95	910.81
12/02/86	79.72	895.04	05/17/89	73.58	901.18
			06/21/89	69.27	905.49
01/07/87	81.68	893.08	07/19/89	73.13	901.63
01/29/87	78.46	896.30	08/15/89	72.64	902.12
03/03/87	83.90	890.86	10/05/89	66.10	908.66
03/24/87	85.49	889.27	10/25/89	64.50	910.26
05/14/87	68.50	906.26	11/29/89	63.61	911.15
07/03/87	70.44	904.32			
08/04/87	67.23	907.53	01/03/90	62.52	912.24
09/01/87	67.08	907.68	03/30/90	61.60	913.16
11/03/87	63.52	911.24	04/23/90	65.29	909.47
12/01/87	62.52	912.24	05/21/90	64.06	910.70
			06/14/90	68.62	906.14
04/22/88	62.37	912.39			
133-047-	20ABCA4			LS Elev (msl	ft)=982.62
Wahpeton	Shallow Sand A	Aguifer		SI	(ft.)=64-74
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
05/17/89	59.30	923.32			
06/21/89	57.80	924.82	01/03/90	56.88	925.74
07/19/89	57.37	925.25	03/29/90	55.03	927.59
08/15/89	56.72	925.90	04/23/90	54.59	928.03
10/05/89	61.46	921.16	05/22/90	54.52	928.10
10/25/89	60.20	922.42	06/14/90	54.63	927.99
11/29/89	57.81	924.81			
	20ABCBA1			LS Elev (msl	
Wanbeton	Shallow Sand A				(ft.)=58-63
_	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
05/17/89	59.46	923.33			
06/21/89	58.03	924.76	01/03/90	56.88	925.91
07/19/89	57.47	925.32	03/29/90	55.24	927.55
08/15/89	56.87	925.92	04/23/90	54.81	927.98
10/05/89	59.71	923.08	05/22/90	54.78	928.01
10/25/89	60.35	922.44	06/14/90	54.78	928.01
11/29/89	57.93	924.86		: 14	

133-047-20ABCBB1	LS Elev $(msl,ft)=982.45$
Wahneton Shallow Sand Aguifer	OT (5t) CO CE

wanteron	Shallow Sand	<u>adulier</u>		SI	(ft.) = 60 - 65
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
05/17/89	58.51	923.94			
06/21/89	57.78	924.67	01/03/90	56.18	926.27
07/19/89	57.03	925.42	03/29/90	54.77	927.68
08/15/89	56.40	926.05	04/24/90	54.52	927.93
10/05/89	56.84	925.61	05/22/90	54.32	928.13
10/25/89	58.25	924.20	06/14/90	54.36	928.09
11/29/89	57.14	925.31			

133-047- Wahpeton	20ABDA1 Buried Vallev	Aquifer		LS Elev (msl	,ft)=971.28 ft.)=95-115
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
09/17/86	61.23	910.05	06/30/88	71.54	899.74
09/30/86	57.53	913.75	07/27/88	68.73	902.55
10/08/86	55.60	915.68	08/24/88	63.43	907.85
10/09/86	55.51	915.77	09/30/88	62.78	908.50
10/10/86	55.06	916.22	10/27/88	60.98	910.30
10/11/86	54.76	916.52	11/30/88	59.17	912.11
10/15/86	54.71	916.57			
10/28/86	55.81	915.47	01/04/89	60.04	911.24
11/04/86	76.65	894.63	02/16/89	59.52	911.76
12/01/86	79.58	891.70	03/16/89	59.70	911.58
12/02/86	78.31	892.97	04/19/89	61.04	910.24
			05/17/89	70.75	900.53
01/07/87	80.98	890.30	06/21/89	66.21	905.07
01/29/87	75.97	895.31	07/19/89	70.51	900.77
03/03/87	82.82	888.46	08/15/89	70.32	900.96
03/24/87	84.01	887.27	10/05/89	61.97	909.31
05/14/87	65.34	905.94	10/25/89	61.42	909.86
07/03/87	66.98	904.30	11/29/89	60.09	911.19
08/04/87	63.24	908.04			
09/01/87	64.07	907.21	01/03/90	59.98	911.30
11/03/87	60.26	911.02	03/30/90	58.14	913.14
12/01/87	59.03	912.25	04/23/90	62.52	908.76
			05/21/90	61.01	910.27
04/22/88	58.75	912.53	06/14/90	65.06	906.22
06/23/88	70.81	900.47			

LS Elev (msl, ft) = 972.01

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Wahpeton	Buried Valley	Aquifer		SI (f	t.)=175-275
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
10/08/86	59.50	912.99	06/30/88	72.14	900.35
10/09/86	56.69	915.80	07/27/88	69.67	902.82
10/10/86	56.19	916.30	08/24/88	64.53	907.96
10/11/86	55.97	916.52	09/30/88	63.86	908.63
10/15/86	56.31	916.18	10/27/88	62.33	910.16
10/28/86	57.08	915.41	11/30/88	60.52	911.97
11/04/86	103.59	868.90			
12/01/86	106.84	865.65	01/04/89	61.26	911.23
12/02/86	105.44	867.05	02/16/89	60.88	911.61
			03/16/89	61.04	911.45
01/07/87	107.82	864.67	04/19/89	62.07	910.42
01/29/87	104.07	868.42	05/17/89	79.44	893.05
03/03/87	109.24	863.25	06/21/89	67.28	905.21
03/24/87	109.59	862.90	07/19/89	71.53	900.96
05/14/87	66.54	905.95	08/15/89	71.65	900.84
07/03/87	68.08	904.41	10/05/89	63.31	909.18
08/04/87	64.49	908.00	10/25/89	62.48	910.01
09/01/87	74.56	897.93	11/29/89	61.22	911.27
11/03/87	68.17	904.32			
12/01/87	60.07	912.42	01/03/90	60.85	911.64
			03/30/90	59.34	913.15
02/11/88	60.66	911.83	04/23/90	63.56	908.93
04/22/88	60.02	912.47	05/21/90	62.18	910.31
06/23/88	71.65	900.84	06/14/90	66.10	906.39

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Wahpeton	Shallow Sand	Aguifer		The same of the same of the same of the	t.)=115-120
The state of the s	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
10/24/85	35.32	936.69	11/17/87	63.43	908.58
11/01/85	35.23	936.78	12/01/87	61.95	910.06
11/13/85	35.32	936.69			i.
12/09/85	35.22	936.79	02/11/88	58.19	913.82
12/10/85	35.35	936.66	04/22/88	58.34	913.67
12/11/85	35.21	936.80	06/23/88	57.38	914.63
			06/30/88	58.57	913.44
03/03/86	34.77	937.24	07/27/88	62.67	909.34
04/10/86	34.84	937.17	08/24/88	65.81	906.20
05/15/86	34.32	937.69	09/30/88	65.17	906.84
08/27/86	34.49	937.52	10/27/88	61.13	910.88
09/30/86	34.40	937.61	11/30/88	58.88	913.13
10/08/86	34.45	937.56			
10/28/86	37.81	934.20	01/04/89	59.14	912.87
11/04/86	43.87	928.14	02/16/89	56.37	915.64
12/01/86	48.32	923.69	03/16/89	52.63	919.38
12/02/86	48.34	923.67	04/19/89	49.65	922.36
			05/17/89	48.67	923.34
01/07/87	52.76	919.25	06/21/89	47.05	924.96
01/29/87	54.92	917.09	07/19/89	46.77	925.24
03/03/87	58.31	913.70	08/15/89	46.16	925.85
03/24/87	60.11	911.90	10/05/89	54.35	917.66
05/13/87	64.16	907.85	10/25/89	49.53	922.48
07/03/87	67.86	904.15	11/29/89	47.15	924.86
08/04/87	69.64	902.37			
09/01/87	71.34	900.67	01/03/90	46.30	925.71
10/02/87	74.15	897.86	03/29/90	44.35	927.66
10/12/87	70.67	901.34	04/23/90	43.88	928.13
10/20/87	68.33	903.68	05/21/90	43.83	928.18
11/02/87	65.42	906.59	06/14/90	43.93	928.08

133-047-	20ABDB2	**		LS Elev (msl	ft)=972.14
Wahpeton	Buried Valley	Aguifer		SI (f	=248-253
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
10/04/05		016.02	11/02/87	62.51	909.63
10/24/85	55.22	916.92 916.83	11/02/87	62.26	909.88
11/01/85	55.31				
11/13/85	54.57	917.57	12/01/87	59.63	912.51
12/09/85	56.10	916.04	00/11/00	60.00	011 06
12/10/85	54.51	917.63	02/11/88	60.28	911.86
12/11/85	54.74	917.40	04/22/88	59.68	912.46
		150	06/23/88	70.93	901.21
04/10/86	56.61	915.53	06/30/88	71.57	900.57
05/15/86	55.14	917.00	07/27/88	69.23	902.91
08/27/86	68.46	903.68	08/24/88	64.05	908.09
09/30/86	58.28	913.86	09/30/88	63.41	908.73
10/08/86	56.56	915.58	10/27/88	62.08	910.06
10/09/86	56.46	915.68	11/30/88	60.20	911.94
10/10/86	55.96	916.18			
10/11/86	55.73	916.41	01/04/89	61.15	910.99
10/15/86	56.02	916.12	02/16/89	60.61	911.53
10/28/86	56.64	915.50	03/16/89	60.74	911.40
11/04/86	78.12	894.02	04/19/89	61.67	910.47
12/01/86	81.42	890.72	05/17/89	71.20	900.94
12/02/86	79.92	892.22	06/21/89	66.79	905.35
	×		07/19/89	71.01	901.13
01/07/87	82.61	889.53	08/15/89	71.32	900.82
01/29/87	78.11	894.03	10/05/89	62.99	909.15
03/03/87	84.63	887.51	10/25/89	61.95	910.19
03/24/87	85.69	886.45	11/29/89	61.04	911.10
05/14/87	66.15	905.99			
07/03/87	67.71	904.43	01/03/90	60.24	911.90
08/04/87	64.14	908.00	03/30/90	58.97	913.17
09/01/87	64.87	907.27	04/23/90	63.06	909.08
10/02/87	62.37	909.77	05/21/90	61.90	910.24
10/12/87	62.50	909.64	06/14/90	65.58	906.56
10/20/87	61.54	910.60			TOTAL TOTAL BUILDING TOTAL
122 047	2020003			IC Flay (mel	f+1-972 15

133-047-	20ABDB3			PROBLEM ASSESSED METEROLOGICAL	(tt) = 9/2.15	
Wahpeton	Shallow Sand	Aquifer		SI	(ft.)=45-50	
	Depth to	WL Elev		Depth to	WL Elev	
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)	
10/23/85	35.17	936.98	11/04/86	42.66	929.49	
10/24/85	35.38	936.77	12/01/86	47.14	925.01	
11/01/85	35.25	936.90	12/02/86	47.22	924.93	
11/13/85	35.30	936.85				
12/09/85	35.30	936.85	07/19/89	46.91	925.24	
12/10/85	35.36	936.79	08/15/89	46.28	925.87	
12/11/85	35.23	936.92				
			01/03/90	47.06	925.09	
04/10/86	34.84	937.31	03/29/90	44.52	927.63	
05/15/86	34.34	937.81	04/23/90	44.08	928.07	
09/30/86	34.38	937.77	05/21/90	44.15	928.00	
10/08/86	34.45	937.70	06/14/90	44.18	927.97	
10/29/96	37 90	934 35				

Wahpeton	Buried Valley	Aguifer		SI (ft.)=273-278		
	Depth to	WL Elev		Depth to	WL Elev	
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)	
04/10/86	59.58	915.63	06/23/88	73.44	901.77	
05/15/86	57.75	917.46	06/30/88	74.02	901.19	
08/27/86	71.18	904.03	07/27/88	71.76	903.45	
09/30/86	60.73	914.48	08/24/88	66.82	908.39	
10/08/86	59.14	916.07	09/30/88	66.20	909.01	
10/09/86	59.03	916.18	10/27/88	65.36	909.85	
10/10/86	58.56	916.65	11/30/88	63.36	911.85	
10/11/86	58.32	916.89				
10/15/86	58.56	916.65	01/04/89	64.25	910.96	
10/28/86	59.34	915.87	02/16/89	63.73	911.48	
11/04/86	78.56	896.65	03/16/89	63.93	911.28	
12/01/86	82.58	892.63	04/19/89	64.40	910.81	
12/02/86	80.98	894.23	05/17/89	73.87	901.34	
			06/21/89	69.62	905.59	
01/07/87	83.45	891.76	07/19/89	73.72	901.49	
01/29/87	79.54	895.67	08/15/89	74.40	900.81	
03/03/87	85.59	889.62	10/05/89	66.22	908.99	
03/24/87	86.65	888.56	10/25/89	64.72	910.49	
05/14/87	69.14	906.07	11/29/89	64.37	910.84	
07/03/87	70.76	904.45				
08/04/87	67.26	907.95	01/03/90	62.86	912.35	
09/01/87	67.35	907.86	03/30/90	62.05	913.16	
11/03/87	63.70	911.51	04/23/90	65.79	909.42	
12/01/87	62.92	912.29	05/02/90	64.99	910.22	
			05/21/90	64.99	910.22	
04/22/88	62.81	912.40	06/14/90	68.27	906.94	

133-047-	20ABDB5 Sand Plain Acu	LS Elev (msl	ft)=975.02		
	Depth to	WL Elev	2	Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
04/10/86	59.18	915.84	04/22/88	62.66	912.36
05/15/86	57.38	917.64	06/23/88	73.04	901.98
08/27/86	70.57	904.45	06/30/88	73.59	901.43
09/30/86	60.30	914.72	07/27/88	71.49	903.53
10/08/86	58.75	916.27	08/24/88	66.81	908.21
10/09/86	58.67	916.35	09/30/88	66.16	908.86
10/10/86	58.21	916.81	10/27/88	65.25	909.77
10/11/86	58.00	917.02	11/30/88	63.26	911.76
10/15/86	58.25	916.77			
10/28/86	58.99	916.03	01/04/89	64.17	910.85
11/04/86	77.85	897.17	02/16/89	63.58	911.44
12/01/86	81.95	893.07	03/16/89	63.69	911.33
12/02/86	80.44	894.58	04/19/89	64.07	910.95
			05/17/89	73.31	901.71
01/07/87	82.91	892.11	06/21/89	69.14	905.88
01/29/87	79.11	895.91	07/19/89	73.16	901.86
03/03/87	85.10	889.92	08/15/89	73.79	901.23
03/24/87	86.08	888.94	10/05/89	65.94	909.08
05/14/87	69.01	906.01	10/25/89	64.42	910.60
07/03/87	70.64	904.38	11/29/89	64.00	911.02
08/04/87	67.25	907.77			
09/01/87	67.41	907.61	01/03/90	62.54	912.48
10/12/87	65.83	909.19	03/30/90	61.71	913.31
11/03/87	63.71	911.31	04/23/90	65.33	909.69
11/17/87	64.89	910.13	05/21/90	64.54	910.48
12/01/87	62.69	912.33	06/14/90	67.81	907.21

133-047-		Nami fa			LS Elev (msl	
wandeton	Shallow Sand Depth to	WL Elev				(ft.)=50-55
Date	Water (ft)	(msl, ft)		Date	Depth to Water (ft)	WL Elev (msl, ft)
04/10/86	37.77	937.29		01/07/87	53.54	921.52
05/15/86	37.31	937.75				
08/27/86	37.36	937.70		05/17/89	52.14	922.92
09/30/86	37.29	937.77		06/21/89	50.24	924.82
10/08/86	37.33	937.73		07/19/89	49.88	925.18
10/09/86	38.64	936.42		08/15/89	49.26	925.80
10/10/86	39.08	935.98		10/25/89	52.76	922.30
10/11/86	39.95	935.11		11/29/89	50.30	924.76
10/15/86	41.80	933.26		04 (00 (00	40.40	
10/20/86 10/28/86	43.32	931.74		01/03/90	49.43	925.63
11/04/86	40.74 44.47	934.32		03/29/90	47.50	927.56
		930.59		04/23/90	47.04	928.02
12/01/86 12/02/86	48.90 48.97	926.16 926.09		05/21/90	47.06	928.00
12/02/80	40.37	920.09		06/14/90	47.05	928.01
133-047-					LS Elev (msl	,ft)=971.84
<i>Mahpeton</i>	Shallow Sand A	Aguifer			SI (ft.)=95-115
Date	Depth to Water (ft)	WL Elev (msl, ft)		Date	Depth to Water (ft)	WL Elev (msl, ft)
 09/30/86	34.25	937.59		06/30/88	62.33	909.51
10/08/86	34.23	937.61		07/27/88	66.47	905.37
0/28/86	37.58	934.26		08/22/88	69.54	902.30
1/04/86	49.96	921.88	18	08/24/88	69.54	902.30
2/01/86	54.33	917.51		09/30/88	66.81	905.03
2/02/86	54.41	917.43	: *	10/27/88	62.44	909.40
				11/30/88	59.41	912.43
01/07/87	58.76	913.08		•		
01/29/87	61.14	910.70		01/04/89	60.82	911.02
03/03/87	64.27	907.57		02/16/89	56.37	915.47
03/24/87	65.87	905.97		03/16/89	52.45	919.39
05/13/87	70.30	901.54		04/19/89	49.47	922.37
7/02/87	73.69	898.15		05/17/89	48.51	923.33
07/03/87	73.79	898.05		06/21/89	46.96	924.88
09/01/87	76.00	895.84		07/19/89	46.66	925.18
10/02/87	80.01	891.83		08/15/89	46.01	925.83
10/12/87	63.74	908.10		10/05/89	59.39	912.45
10/20/87	70.18	901.66		10/25/89	49.44	922.40
11/02/87	67.03	904.81		11/29/89	47.07	924.77
11/17/87	65.09	906.75				
12/01/87	63.56	908.28		03/29/90	44.24	927.60
				04/23/90	43.73	928.11
02/11/88	58.08	913.76		05/21/90	43.80	928.04
04/22/88 06/23/88	59.95 58.78	911.89 913.06		06/14/90	43.81	928.03
L33-047-	20ABDB8			*	LS Elev (msl	ft)=982.74
Vahpeton :	Shallow Sand A	Aquifer				ft.)=92-102
	Depth to	WL Elev		an Anton	Depth to	WL Elev
)ate 	Water (ft)	(msl, ft)		Date	Water (ft)	(msl, ft)
05/17/89	59.34	923.40				

Wahpeton	Shallow Sand	Aquifer		LS Elev (msl,	ft.)=92-102
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
05/17/89	59.34	923.40			
06/21/89	57.93	924.81	01/03/90	57.02	925.72
07/19/89	57.51	925.23	03/29/90	55.11	927.63
08/15/89	56.89	925.85	04/23/90	54.63	928.11
10/05/89	62.94	919.80	05/21/90	54.68	928.06
10/25/89	60.31	922.43	06/14/90	54.68	928.06
11/29/89	57.90	924.84			

Name		-20ABDBA1	B		LS Elev (msl	
Date	Manbecon				Dec 1	
09/30/86	Date			Date	EXC VOICED DESCRIPTION EDITORS	
10/08/86 34.53 937.71 10/09/86 36.53 935.71 10/19/86 37.02 935.22 05/17/89 48.83 923.41 10/11/86 37.93 934.31 10/11/86 37.93 934.31 10/15/86 39.97 10/25/86 39.97 10/28/86 37.93 934.31 10/15/86 39.97 11/04/86 42.61 12/01/86 47.09 11/04/86 47.15 12/01/86 47.09 11/04/86 47.15 12/01/86 47.15 12/01/86 47.15 12/01/86 47.15 12/01/86 47.15 12/01/86 47.15 12/01/86 47.15 12/01/86 47.15 12/01/86 47.15 12/01/86 47.15 12/01/86 47.15 12/01/86 47.15 12/01/86 47.15 12/01/86 47.15 12/01/86 47.15 12/01/86 47.15 12/01/86 47.15 12/01/86 47.15 12/01/86 47.15 12/01/86 47.15 12/01/86 47.15 13/01/87 11/01/87 15.65 10/05/89 11/29/89 11/29/89 11/29/89 11/29/89 11/29/89 11/29/89 11/29/89 11/29/89 11/29/89 11/29/89 11/29/87 15.79 18.45 10/25/89 14.14 1928.10 10/21/488 18.55 1913.69 10/61/49/0 14.16 12/88.10 10/21/488 18.10 10/21/488 18.10 1937.76 10/23/88 17.25 11/21/41-119 10/28/86 13.44 1937.76 10/23/88 17.25 11/29/89 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 10/23/88 13/23/88 12/23/88 12/23/88 12/23/88 12/23/88 12/23/88 12/23/88 12/23/88 12/23/88 12/23/					0 000	915.04
10/10/86 37.02 935.71 04/19/89 49.80 922.44				06/30/88	58.51	913.73
10/10/86 37.02 935.22 05/17/89 48.83 923.41 10/11/86 37.93 934.31 06/21/89 47.29 924.95 10/15/86 39.97 932.27 07/19/89 46.97 925.27 10/28/86 37.93 934.31 08/15/89 46.97 925.27 10/28/86 47.61 929.63 10/05/89 53.28 918.96 12/01/86 47.09 925.15 10/25/89 49.74 922.50 12/02/86 47.15 925.09 11/29/89 47.36 924.88 01/07/87 51.65 920.59 01/03/90 46.52 925.72 01/29/87 53.79 918.45 03/29/90 44.55 927.69 03/03/87 57.23 915.01 04/23/90 44.14 928.10 02/11/88 58.55 913.69 06/14/90 44.16 928.08 04/12/88 58.07 914.17 133-047-20ABDBA2 LS Elev (ms1, ft) Depth to WL Elev						
10/11/86 37.93 934.31 06/21/89 47.29 924.95 10/15/86 39.97 932.27 07/19/89 46.97 925.27 10/28/86 37.93 934.31 08/15/89 46.97 925.27 11/04/86 42.61 929.63 10/05/89 53.28 918.96 11/04/86 47.09 925.15 10/25/89 49.74 922.50 11/20/286 47.15 925.09 11/29/89 47.36 924.88 01/07/87 51.65 920.59 01/03/90 46.52 925.72 01/29/87 53.79 918.45 03/29/90 44.55 927.69 03/03/87 57.23 915.01 04/23/90 44.08 928.16 02/11/88 58.55 913.69 06/14/90 44.16 928.08 04/22/88 58.07 914.17 133-047-20ABDBA2 LS Elev (msl.,ft) =972.2 Mahpeton Shallow Sand Aguifer SI (ft.)=114-119 Depth to WL Elev Date Water (ft) (msl., ft) 08/28/86 34.44 937.76 06/23/88 57.25 914.95 09/30/86 34.57 937.63 06/30/88 57.93 914.27 10/08/86 34.61 937.59 07/27/88 62.08 910.12 10/28/86 38.01 934.19 08/24/88 65.15 907.05 11/04/86 42.26 929.34 09/30/88 64.90 907.30 12/01/86 47.33 924.87 10/27/88 60.93 911.27 11/04/86 47.33 924.81 11/30/88 58.87 913.33 01/07/87 51.87 920.33 01/26/89 58.96 913.24 01/29/87 53.96 918.24 02/16/89 56.67 915.53 03/03/87 57.42 914.78 03/16/89 52.82 919.38 03/24/87 59.21 912.99 04/19/89 49.85 922.35 03/12/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.81 900.97 01/10/87 65.23 908.97 01/02/87 65.23 908.97 01/02/87 65.23 90				04/19/89	49.80	922.44
10/15/86	10/10/86	37.02	935.22	05/17/89	48.83	923.41
10/28/86 37.93 934.31 08/15/89 46.34 925.90 11/04/86 47.09 925.15 10/25/89 49.74 922.50 12/02/86 47.15 925.09 11/29/89 47.36 924.88 01/07/87 51.65 920.59 01/03/90 46.52 925.72 01/29/87 53.79 918.45 03/29/90 44.55 927.69 03/03/87 57.23 915.01 04/23/90 44.08 928.16 02/11/88 58.55 913.69 06/14/90 44.16 928.08 04/22/88 58.07 914.17 133-047-20ABDBA2 LS Elev (msl.,ft) = 72.2 Wahpeton Shallow Sand Acuifer SI (ft.)=114-119 Depth to WL Elev Water (ft) (msl., ft) Date Water (ft) (msl., ft) 09/30/86 34.44 937.76 06/23/88 57.25 914.95 09/30/86 34.61 937.59 07/27/88 62.08 910.12 10/28/86 38.01 934.19 08/24/88 65.15 907.05 11/04/86 42.86 929.34 09/30/88 67.93 914.27 12/01/86 47.33 924.87 10/27/88 60.93 911.27 12/01/86 47.39 924.81 11/30/88 58.87 913.33 01/07/87 51.87 920.33 01/05/89 58.96 913.24 01/29/87 53.96 918.24 02/16/89 56.67 915.53 03/03/87 57.42 914.78 03/16/89 52.82 919.38 03/24/87 59.21 912.99 04/19/89 49.85 922.35 03/03/87 66.89 905.31 06/21/89 48.93 923.27 07/03/87 66.89 905.31 06/21/89 48.93 923.27 07/03/87 66.89 905.31 06/21/89 48.93 923.27 07/03/87 66.89 905.31 06/21/89 49.85 922.35 05/13/87 66.89 905.31 06/21/89 49.85 922.35 05/13/87 66.89 905.31 06/21/89 49.85 922.35 05/13/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.73 903.47 07/19/89 49.85 922.35 05/13/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.73 903.47 07/19/89 49.85 922.35 05/13/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 66.83 905.31 06/21/89 47.41 924.79 08/04/87 66.83 905.31 06/21/89 47.41 924.79 08/04/87 66.83 905.31 06/21/89 47.41 924.79 08/04/87 66.83 905.31 06/21/89 47.41 924.79 08/04/87 66.83 905.31 06/21/89 47.41 924.79 08/04/87 66.83 905.31 06/21/89 47.41 924.79 08/04/87 66.83 905.31 06/21/89 47.41 924.79 08/04/87 66.83 905.31 06/21/89 47.41 924.79 08/04/87 66.83 905.31 06/21/89 47.41 924.79 08/04/87 66.83 906.97 01/01/27/87 70.42 901.78 10/05/89 53.45 918.75 01/01/27/87 66.23 906.97 01/01/27/87 66.23 906.97 01/01/27/87 66.23 906.97 01/01/27/87 66.23 906.97 01/01/27/87 66.23 906.97 01/01/27/87 66.23 906.97 01/01/27/88 58.3	10/11/86	37.93	934.31	06/21/89	47.29	924.95
11/04/86	10/15/86	39.97	932.27	07/19/89	46.97	925.27
12/01/86 47.09 925.15 10/25/89 49.74 922.50 12/02/86 47.15 925.09 11/29/89 47.36 924.88 01/07/87 51.65 920.59 01/03/90 46.52 925.72 01/29/87 53.79 918.45 03/29/90 44.08 928.16 05/21/90 44.14 928.10 02/11/88 58.55 913.69 06/14/90 44.16 928.08 04/22/88 58.07 914.17	10/28/86	37.93	934.31	08/15/89	46.34	925.90
12/01/86	11/04/86	42.61	929.63	10/05/89	53.28	918.96
01/07/87 51.65 920.59 01/03/90 46.52 925.72 01/29/87 53.79 918.45 03/29/90 44.55 927.69 03/03/87 57.23 915.01 04/23/90 44.08 928.16 05/21/90 44.14 928.10 05/21/90 44.16 928.08 04/22/88 58.55 913.69 06/14/90 44.16 928.08 04/22/88 58.07 914.17 I33-047-20ABDBA2	12/01/86	47.09	925.15	10/25/89	49.74	
01/29/87 53.79 918.45 03/29/90 44.55 927.69 03/03/87 57.23 915.01 04/23/90 44.08 928.16 02/11/88 58.55 913.69 06/14/90 44.16 928.08 04/22/88 58.07 914.17 133-047-20ABDBA2 Water (ft) WL Elev Depth to WL Elev Water (ft) (msl, ft) 08/28/86 34.44 937.76 06/23/88 57.25 914.95 09/30/86 34.57 937.63 06/30/88 57.93 914.27 10/28/86 38.01 934.19 08/24/88 65.15 907.05 11/04/86 42.86 929.34 09/30/88 64.90 907.30 11/04/86 47.33 924.87 10/27/88 60.93 911.27 12/02/86 47.39 924.81 11/30/88 58.87 913.33 01/07/87 51.87 920.33 01/05/89 58.87 913.33 01/07/87 53.96 918.24 02/16/89 56.67 915.53 03/03/87 57.42 914.78 03/16/89 52.82 919.38 03/24/87 55.21 912.99 04/19/89 49.85 922.35 05/13/87 63.24 908.96 05/17/89 49.85 922.35 05/13/87 63.24 908.96 05/17/89 49.85 922.35 05/13/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 68.73 903.47 07/19/89 49.85 922.35 05/13/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 68.73 903.47 07/19/89 49.85 922.35 05/13/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 68.73 903.47 07/19/89 47.08 925.12 09/01/87 70.57 901.63 08/15/89 47.41 924.79 08/04/87 68.73 903.47 07/19/89 47.08 925.12 09/01/87 70.57 901.63 08/15/89 47.41 924.79 08/04/87 68.73 903.47 07/19/89 47.08 925.12 01/02/87 65.23 906.97 11/17/87 63.23 908.97 01/03/90 46.74 925.46 11/17/87 63.23 908.97 01/03/90 46.74 925.46 11/17/87 63.23 908.97 01/03/90 44.15 928.05 02/11/88 58.36 913.84 05/21/90 44.18 928.05	12/02/86	47.15	925.09	11/29/89	47.36	924.88
03/03/87 57.23 915.01 04/23/90 44.08 928.16 05/21/90 44.14 928.10 05/21/188 58.55 913.69 06/14/90 44.16 928.08 04/22/88 58.07 914.17 133-047-20ABDBA2	01/07/87	51.65	920.59	01/03/90	46.52	925.72
02/11/88 58.55 913.69 06/14/90 44.14 928.10 04/22/88 58.07 914.17 133-047-20ABDBA2 LS Elev (msl,ft)=972.2 Wahneton Shallow Sand Acuifer SI (ft.)=114-119 Depth to Water (ft) (msl, ft) Depth to Water (ft) (msl, ft) 08/28/86 34.44 937.76 06/23/88 57.25 914.95 06/30/88 57.93 914.27 10/08/86 34.57 937.63 06/30/88 57.93 914.27 10/08/86 38.01 934.19 08/24/88 65.15 907.05 11/04/86 42.86 929.34 09/30/88 64.90 907.30 12/01/86 47.33 924.87 10/27/88 60.93 911.27 12/02/86 47.39 924.81 11/30/88 58.87 913.33 01/07/87 51.87 920.33 01/05/89 58.96 913.24 01/29/87 53.96 918.24 02/16/89 56.67 915.53 03/03/87 57.42 914.78 03/16/89 52.82 919.38 03/24/87 59.21 912.99 04/19/89 49.85 922.35 05/13/87 63.24 908.96 05/17/89 48.93 923.27 07/03/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 68.73 903.47 07/19/89 47.41 924.79 08/04/87 68.73 903.47 07/19/89 47.98 925.12 09/90/187 70.57 901.63 08/15/89 47.41 924.79 08/04/87 68.73 903.47 07/19/89 47.98 925.12 09/90/187 70.57 901.63 08/15/89 49.81 922.35 09/90/187 70.57 901.63 08/15/89 49.81 922.39 10/20/87 68.11 904.09 11/29/89 49.81 922.39 10/20/87 68.11 904.09 11/29/89 49.81 922.39 10/20/87 65.23 906.97 11/10/287 65.23 906.97 11/10/287 65.23 908.97 01/03/90 46.74 925.46 12/01/87 61.74 910.46 03/29/90 44.62 927.58 02/11/88 58.36 913.84 05/21/90 44.18 928.05 02/11/88 58.36 913.84 05/21/90 44.18 928.05	01/29/87	53.79	918.45	03/29/90	44.55	927.69
02/11/88 58.55 913.69 06/14/90 44.16 928.08 04/22/88 58.07 914.17 133-047-20ABDBA2	03/03/87	57.23	915.01	04/23/90	44.08	928.16
04/22/88 58.07 914.17 133-047-20ABDBA2 LS Elev (msl,ft)=972.2 Wahneton Shallow Sand Acuifer SI (ft.)=114-119 Depth to WL Elev Water (ft) Depth to WL Elev Water (ft) Depth to (msl, ft) 08/28/86 34.44 937.76 06/23/88 57.25 914.95 09/30/86 34.57 937.63 06/30/88 57.93 914.27 10/28/86 34.61 937.59 07/27/88 62.08 910.12 10/28/86 38.01 934.19 08/24/88 65.15 907.05 11/04/86 42.86 929.34 09/30/88 64.90 907.30 12/01/86 47.33 924.87 10/27/88 60.93 911.27 12/02/86 47.39 924.81 11/30/88 58.87 913.33 01/07/87 51.87 920.33 01/05/89 58.96 913.24 01/29/87 53.96 918.24 02/16/89 56.67 915.53 03/20/387 57.42 914.78 03/16/89 52.82 919.38				05/21/90	44.14	928.10
LS Elev (msl,ft) =972.2 Wahneton Shallow Sand Adulfer SI (ft.]=114-119 Depth to WL Elev Water (ft) (msl, ft) Depth to Water (ft) (msl, ft) Water (ft) Water (ft) (msl, ft) 08/28/86 34.44 937.76 06/23/88 57.25 914.95 09/30/86 34.57 937.63 06/30/88 57.93 914.27 10/08/86 34.61 937.59 07/27/88 62.08 910.12 10/28/86 38.01 934.19 08/24/88 65.15 907.05 11/04/86 42.86 929.34 09/30/88 64.90 907.30 12/01/86 47.33 924.87 10/27/88 60.93 911.27 12/02/86 47.39 924.81 11/30/88 58.87 913.33 01/07/87 51.87 920.33 01/05/89 58.96 913.24 01/05/89 56.67 915.53 03/30/387 57.42 914.78 03/16/89 52.82 919.38 03/24/87 59.21 912.99 04/19/89 49.85 922.35 05/13/87 63.24 908.96 05/17/89 48.93 923.27 07/03/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 68.73 903.47 07/19/89 47.08 925.12 09/01/87 70.57 901.63 08/15/89 46.44 925.76 09/01/87 70.57 901.63 08/15/89 47.08 925.12 09/01/87 70.57 901.63 08/15/89 47.98 192.39 10/02/87 68.11 904.09 11/29/89 47.50 924.70 11/02/87 65.23 906.97 11/17/87 63.23 908.97 01/03/90 46.74 925.46 11/17/87 63.23 908.97 01/03/90 44.62 927.58 02/11/88 58.36 913.84 05/21/90 44.18 928.02	02/11/88	58.55	913.69	06/14/90	44.16	928.08
Wahnbeton Shallow Sand Acquifer ST (ft.)=114-119 Date Depth to Water (ft) (msl, ft) Date Depth to Water (ft) (msl, ft) 08/28/86 34.44 937.76 06/23/88 57.25 914.95 09/30/86 34.57 937.63 06/30/88 57.93 914.27 10/08/86 34.61 937.59 07/27/88 62.08 910.12 11/04/86 42.86 929.34 09/30/88 64.90 907.30 11/04/86 42.86 929.34 09/30/88 64.90 907.30 12/01/86 47.33 924.87 10/27/88 60.93 911.27 12/02/86 47.39 924.81 11/30/88 58.87 913.33 01/07/87 51.87 920.33 01/05/89 58.96 913.24 01/29/87 53.96 918.24 02/16/89 56.67 915.53 03/03/87 57.42 914.78 03/16/89 52.82 919.38 03/24/87 59.21 912.99	04/22/88	58.07	914.17			
Depth to Date WL Elev (msl, ft) Date Depth to Water (ft) WL Elev (msl, ft) 08/28/86 34.44 937.76 06/23/88 57.25 914.95 09/30/86 34.57 937.63 06/30/88 57.93 914.27 10/08/86 34.61 937.59 07/27/88 62.08 910.12 10/28/86 38.01 934.19 08/24/88 65.15 907.05 11/04/86 42.86 929.34 09/30/88 64.90 907.30 12/01/86 47.33 924.87 10/27/88 60.93 911.27 12/02/86 47.39 924.81 11/30/88 58.87 913.33 01/07/87 51.87 920.33 01/05/89 58.96 913.24 01/29/87 53.96 918.24 02/16/89 56.67 915.53 03/03/87 57.42 914.78 03/16/89 52.82 919.38 03/24/87 59.21 912.99 04/19/89 49.85 922.35 05/13/87 63.	133-047-	20ABDBA2			LS Elev (ms	l,ft)=972.2
Date Water (ft) (msl, ft) Date Water (ft) (msl, ft) 08/28/86 34.44 937.76 06/23/88 57.25 914.95 09/30/86 34.57 937.63 06/30/88 57.93 914.27 10/08/86 34.61 937.59 07/27/88 62.08 910.12 10/28/86 38.01 934.19 08/24/88 65.15 907.05 11/04/86 42.86 929.34 09/30/88 64.90 907.30 12/01/86 47.33 924.87 10/27/88 60.93 911.27 12/02/86 47.39 924.81 11/30/88 58.87 913.33 01/07/87 51.87 920.33 01/05/89 58.96 913.24 01/29/87 53.96 918.24 02/16/89 56.67 915.53 03/24/87 59.21 914.78 03/16/89 52.82 919.38 03/24/87 59.21 912.99 04/19/89 49.85 922.35 05/13/87 63.24 908.96	Wahpeton :	Shallow Sand A	Aguifer		SI (ft) = 114 - 119
Date Water (ft) (msl, ft) Date Water (ft) (msl, ft) 08/28/86 34.44 937.76 06/23/88 57.25 914.95 09/30/86 34.57 937.63 06/30/88 57.93 914.27 10/08/86 34.61 937.59 07/27/88 62.08 910.12 10/28/86 38.01 934.19 08/24/88 65.15 907.05 11/04/86 42.86 929.34 09/30/88 64.90 907.30 12/01/86 47.33 924.87 10/27/88 60.93 911.27 12/02/86 47.39 924.81 11/30/88 58.87 913.33 01/07/87 51.87 920.33 01/05/89 58.96 913.24 01/29/87 53.96 918.24 02/16/89 56.67 915.53 03/24/87 59.21 912.79 04/19/89 49.85 922.35 05/13/87 63.24 908.96 05/17/89 48.93 923.27 07/03/87 66.89 905.31		Depth to	WL Elev		Depth to	WL Elev
09/30/86 34.57 937.63 06/30/88 57.93 914.27 10/08/86 34.61 937.59 07/27/88 62.08 910.12 10/28/86 38.01 934.19 08/24/88 65.15 907.05 11/04/86 42.86 929.34 09/30/88 64.90 907.30 12/01/86 47.33 924.87 10/27/88 60.93 911.27 12/02/86 47.39 924.81 11/30/88 58.87 913.33 01/07/87 51.87 920.33 01/05/89 58.96 913.24 01/29/87 53.96 918.24 02/16/89 56.67 915.53 03/03/87 57.42 914.78 03/16/89 52.82 919.38 03/24/87 59.21 912.99 04/19/89 49.85 922.35 05/13/87 63.24 908.96 05/17/89 48.93 923.27 07/03/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 68.73	Date	Water (ft)		Date		
10/08/86 34.61 937.59 07/27/88 62.08 910.12 10/28/86 38.01 934.19 08/24/88 65.15 907.05 11/04/86 42.86 929.34 09/30/88 64.90 907.30 12/01/86 47.33 924.87 10/27/88 60.93 911.27 12/02/86 47.39 924.81 11/30/88 58.87 913.33 01/07/87 51.87 920.33 01/05/89 58.96 913.24 01/29/87 53.96 918.24 02/16/89 56.67 915.53 03/03/87 57.42 914.78 03/16/89 52.82 919.38 03/24/87 59.21 912.99 04/19/89 49.85 922.35 05/13/87 63.24 908.96 05/17/89 48.93 923.27 07/03/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 68.73 903.47 07/19/89 47.08 925.12 09/01/87 70.57 901.63 08/15/89 46.44 925.76 10/12/87 70	08/28/86	34.44	937.76	06/23/88	57.25	914.95
10/28/86 38.01 934.19 08/24/88 65.15 907.05 11/04/86 42.86 929.34 09/30/88 64.90 907.30 12/01/86 47.33 924.87 10/27/88 60.93 911.27 12/02/86 47.39 924.81 11/30/88 58.87 913.33 01/07/87 51.87 920.33 01/05/89 58.96 913.24 01/29/87 53.96 918.24 02/16/89 56.67 915.53 03/03/87 57.42 914.78 03/16/89 52.82 919.38 03/24/87 59.21 912.99 04/19/89 49.85 922.35 05/13/87 63.24 908.96 05/17/89 48.93 923.27 07/03/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 68.73 903.47 07/19/89 47.08 925.12 09/01/87 70.57 901.63 08/15/89 46.44 925.76 10/02/87 73.26 898.94 10/05/89 53.45 918.75 10/12/87 70	09/30/86	34.57	937.63	06/30/88	57.93	914.27
11/04/86 42.86 929.34 09/30/88 64.90 907.30 12/01/86 47.33 924.87 10/27/88 60.93 911.27 12/02/86 47.39 924.81 11/30/88 58.87 913.33 01/07/87 51.87 920.33 01/05/89 58.96 913.24 01/29/87 53.96 918.24 02/16/89 56.67 915.53 03/03/87 57.42 914.78 03/16/89 52.82 919.38 03/24/87 59.21 912.99 04/19/89 49.85 922.35 05/13/87 63.24 908.96 05/17/89 48.93 923.27 07/03/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 68.73 903.47 07/19/89 47.08 925.12 09/01/87 70.57 901.63 08/15/89 46.44 925.76 10/02/87 73.26 898.94 10/05/89 53.45 918.75 10/12/87 70.42 901.78 10/25/89 49.81 922.39 11/02/87 65	10/08/86	34.61	937.59	07/27/88	62.08	910.12
11/04/86 42.86 929.34 09/30/88 64.90 907.30 12/01/86 47.33 924.87 10/27/88 60.93 911.27 12/02/86 47.39 924.81 11/30/88 58.87 913.33 01/07/87 51.87 920.33 01/05/89 58.96 913.24 01/29/87 53.96 918.24 02/16/89 56.67 915.53 03/03/87 57.42 914.78 03/16/89 52.82 919.38 03/24/87 59.21 912.99 04/19/89 49.85 922.35 05/13/87 63.24 908.96 05/17/89 48.93 923.27 07/03/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 68.73 903.47 07/19/89 47.08 925.12 09/01/87 70.57 901.63 08/15/89 46.44 925.76 10/02/87 73.26 898.94 10/05/89 53.45 918.75 10/12/87 70.42 901.78 10/25/89 49.81 922.39 11/02/87 65	10/28/86	38.01	934.19	08/24/88	65.15	907.05
12/02/86 47.39 924.81 11/30/88 58.87 913.33 01/07/87 51.87 920.33 01/05/89 58.96 913.24 01/29/87 53.96 918.24 02/16/89 56.67 915.53 03/03/87 57.42 914.78 03/16/89 52.82 919.38 03/24/87 59.21 912.99 04/19/89 49.85 922.35 05/13/87 63.24 908.96 05/17/89 48.93 923.27 07/03/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 68.73 903.47 07/19/89 47.08 925.12 09/01/87 70.57 901.63 08/15/89 46.44 925.76 10/02/87 73.26 898.94 10/05/89 53.45 918.75 10/12/87 70.42 901.78 10/25/89 49.81 922.39 10/20/87 68.11 904.09 11/29/89 47.50 924.70 11/02/87 65.23 906.97 01/03/90 46.74 925.46 12/01/87 61	11/04/86	42.86	929.34			907.30
01/07/87 51.87 920.33 01/05/89 58.96 913.24 01/29/87 53.96 918.24 02/16/89 56.67 915.53 03/03/87 57.42 914.78 03/16/89 52.82 919.38 03/24/87 59.21 912.99 04/19/89 49.85 922.35 05/13/87 63.24 908.96 05/17/89 48.93 923.27 07/03/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 68.73 903.47 07/19/89 47.08 925.12 09/01/87 70.57 901.63 08/15/89 46.44 925.76 10/02/87 73.26 898.94 10/05/89 53.45 918.75 10/12/87 70.42 901.78 10/25/89 49.81 922.39 10/20/87 68.11 904.09 11/29/89 47.50 924.70 11/02/87 65.23 906.97 906.97 907.58 907.58 11/17/87 63.23 908.97 01/03/90 46.74 925.46 12/01/87 61.	12/01/86	47.33	924.87	10/27/88		911.27
01/29/87 53.96 918.24 02/16/89 56.67 915.53 03/03/87 57.42 914.78 03/16/89 52.82 919.38 03/24/87 59.21 912.99 04/19/89 49.85 922.35 05/13/87 63.24 908.96 05/17/89 48.93 923.27 07/03/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 68.73 903.47 07/19/89 47.08 925.12 09/01/87 70.57 901.63 08/15/89 46.44 925.76 10/02/87 73.26 898.94 10/05/89 53.45 918.75 10/12/87 70.42 901.78 10/25/89 49.81 922.39 10/20/87 68.11 904.09 11/29/89 47.50 924.70 11/02/87 65.23 906.97 906.97 906.97 907.58 907.58 11/17/87 63.23 908.97 01/03/90 46.74 925.46 12/01/87 61.74 910.46 03/29/90 44.62 927.58 02/11	12/02/86	47.39	924.81	11/30/88	58.87	913.33
01/29/87 53.96 918.24 02/16/89 56.67 915.53 03/03/87 57.42 914.78 03/16/89 52.82 919.38 03/24/87 59.21 912.99 04/19/89 49.85 922.35 05/13/87 63.24 908.96 05/17/89 48.93 923.27 07/03/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 68.73 903.47 07/19/89 47.08 925.12 09/01/87 70.57 901.63 08/15/89 46.44 925.76 10/02/87 73.26 898.94 10/05/89 53.45 918.75 10/12/87 70.42 901.78 10/25/89 49.81 922.39 10/20/87 68.11 904.09 11/29/89 47.50 924.70 11/02/87 65.23 906.97 11/17/87 63.23 908.97 01/03/90 46.74 925.46 12/01/87 61.74 910.46 03/29/90 44.62 927.58 02/11/88 58.36 913.84 05/21/90 44.18	01/07/87	51.87	920.33	01/05/89	58.96	913.24
03/03/87 57.42 914.78 03/16/89 52.82 919.38 03/24/87 59.21 912.99 04/19/89 49.85 922.35 05/13/87 63.24 908.96 05/17/89 48.93 923.27 07/03/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 68.73 903.47 07/19/89 47.08 925.12 09/01/87 70.57 901.63 08/15/89 46.44 925.76 10/02/87 73.26 898.94 10/05/89 53.45 918.75 10/12/87 70.42 901.78 10/25/89 49.81 922.39 10/20/87 68.11 904.09 11/29/89 47.50 924.70 11/02/87 65.23 906.97 906.97 906.97 907.58 907.58 11/17/87 63.23 908.97 01/03/90 46.74 925.46 12/01/87 61.74 910.46 03/29/90 44.62 927.58 02/11/88 58.36 913.84 05/21/90 44.18 928.02	01/29/87	53.96	918.24		56.67	915.53
03/24/87 59.21 912.99 04/19/89 49.85 922.35 05/13/87 63.24 908.96 05/17/89 48.93 923.27 07/03/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 68.73 903.47 07/19/89 47.08 925.12 09/01/87 70.57 901.63 08/15/89 46.44 925.76 10/02/87 73.26 898.94 10/05/89 53.45 918.75 10/12/87 70.42 901.78 10/25/89 49.81 922.39 10/20/87 68.11 904.09 11/29/89 47.50 924.70 11/02/87 65.23 906.97 11/29/89 47.50 925.46 12/01/87 61.74 910.46 03/29/90 44.62 927.58 02/11/88 58.36 913.84 05/21/90 44.18 928.02	03/03/87	57.42	914.78			
07/03/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 68.73 903.47 07/19/89 47.08 925.12 09/01/87 70.57 901.63 08/15/89 46.44 925.76 10/02/87 73.26 898.94 10/05/89 53.45 918.75 10/12/87 70.42 901.78 10/25/89 49.81 922.39 10/20/87 68.11 904.09 11/29/89 47.50 924.70 11/02/87 65.23 906.97 11/17/87 63.23 908.97 01/03/90 46.74 925.46 12/01/87 61.74 910.46 03/29/90 44.62 927.58 02/11/88 58.36 913.84 05/21/90 44.18 928.05	03/24/87	59.21	912.99	04/19/89	49.85	
07/03/87 66.89 905.31 06/21/89 47.41 924.79 08/04/87 68.73 903.47 07/19/89 47.08 925.12 09/01/87 70.57 901.63 08/15/89 46.44 925.76 10/02/87 73.26 898.94 10/05/89 53.45 918.75 10/12/87 70.42 901.78 10/25/89 49.81 922.39 10/20/87 68.11 904.09 11/29/89 47.50 924.70 11/02/87 65.23 906.97 11/17/87 63.23 908.97 01/03/90 46.74 925.46 12/01/87 61.74 910.46 03/29/90 44.62 927.58 02/11/88 58.36 913.84 05/21/90 44.18 928.02	05/13/87	63.24	908.96	10.		
08/04/87 68.73 903.47 07/19/89 47.08 925.12 09/01/87 70.57 901.63 08/15/89 46.44 925.76 10/02/87 73.26 898.94 10/05/89 53.45 918.75 10/12/87 70.42 901.78 10/25/89 49.81 922.39 10/20/87 68.11 904.09 11/29/89 47.50 924.70 11/02/87 65.23 906.97 11/17/87 63.23 908.97 01/03/90 46.74 925.46 12/01/87 61.74 910.46 03/29/90 44.62 927.58 02/11/88 58.36 913.84 05/21/90 44.18 928.02	07/03/87	66.89		CARONELES DE CONTROL DE LA CON		
09/01/87 70.57 901.63 08/15/89 46.44 925.76 10/02/87 73.26 898.94 10/05/89 53.45 918.75 10/12/87 70.42 901.78 10/25/89 49.81 922.39 10/20/87 68.11 904.09 11/29/89 47.50 924.70 11/02/87 65.23 906.97 11/17/87 63.23 908.97 01/03/90 46.74 925.46 12/01/87 61.74 910.46 03/29/90 44.62 927.58 02/11/88 58.36 913.84 05/21/90 44.18 928.02	08/04/87		903.47	07/19/89		
10/02/87 73.26 898.94 10/05/89 53.45 918.75 10/12/87 70.42 901.78 10/25/89 49.81 922.39 10/20/87 68.11 904.09 11/29/89 47.50 924.70 11/02/87 65.23 906.97 11/17/87 63.23 908.97 01/03/90 46.74 925.46 12/01/87 61.74 910.46 03/29/90 44.62 927.58 02/11/88 58.36 913.84 05/21/90 44.18 928.02						
10/12/87 70.42 901.78 10/25/89 49.81 922.39 10/20/87 68.11 904.09 11/29/89 47.50 924.70 11/02/87 65.23 906.97 11/17/87 63.23 908.97 01/03/90 46.74 925.46 12/01/87 61.74 910.46 03/29/90 44.62 927.58 02/11/88 58.36 913.84 05/21/90 44.18 928.02						
10/20/87 68.11 904.09 11/29/89 47.50 924.70 11/02/87 65.23 906.97 11/17/87 63.23 908.97 01/03/90 46.74 925.46 12/01/87 61.74 910.46 03/29/90 44.62 927.58 02/11/88 58.36 913.84 05/21/90 44.18 928.02						
11/02/87 65.23 906.97 11/17/87 63.23 908.97 01/03/90 46.74 925.46 12/01/87 61.74 910.46 03/29/90 44.62 927.58 02/11/88 58.36 913.84 05/21/90 44.18 928.02						
11/17/87 63.23 908.97 01/03/90 46.74 925.46 12/01/87 61.74 910.46 03/29/90 44.62 927.58 02/11/88 58.36 913.84 05/21/90 44.18 928.02						1 / X
12/01/87 61.74 910.46 03/29/90 44.62 927.58 04/23/90 44.15 928.05 02/11/88 58.36 913.84 05/21/90 44.18 928.02				01/03/90	46.74	925.46
04/23/90 44.15 928.05 02/11/88 58.36 913.84 05/21/90 44.18 928.02				THE SAME SHOWN AND THE REST		
02/11/88 58.36 913.84 05/21/90 44.18 928.02						
	02/11/88	58.36	913.84			
	The section of the section with the section of					

133-047-20ABDBA3 LS Elev (msl,ft)=971.7 Wahpeton Shallow Sand Aguifer SI (ft.)=115-120

Wahbeton Shallow Sand Aguifer SI (ft.)		t.) = 115 - 120		
Depth to	WL Elev		Depth to	WL Elev
Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
34.02	937.68	06/23/88	56.89	914.81
34.09	937.61	06/30/88	57.73	913.97
37.47	934.23	07/27/88	61.85	909.85
42.79	928.91	08/24/88	64.95	906.75
47.30	924.40	09/30/88	64.55	907.15
47.30	924.40	10/27/88	60.53	911.17
		11/30/88	58.44	913.26
51.78	919.92			
53.87	917.83	02/16/89	56.16	915.54
57.29	914.41	03/16/89	52.34	919.36
59.10	912.60	04/19/89	49.37	922.33
63.15	908.55	05/17/89	48.46	923.24
66.81	904.89	06/21/89	46.87	924.83
68.62	903.08	07/19/89	46.50	925.20
70.40	901.30	08/15/89	45.82	925.88
73.12	898.58	10/05/89	53.26	918.44
70.06	901.64	10/25/89	49.29	922.41
67.69	904.01	11/29/89	46.93	924.77
64.71	906.99	200		
62.81	908.89	01/03/90	46.02	925.68
61.38	910.32	03/29/90	44.04	927.66
		04/23/90	43.55	928.15
57.88	913.82	05/21/90	43.59	928.11
57.78	913.92	06/14/90	43.62	928.08
	Depth to Water (ft) 34.02 34.09 37.47 42.79 47.30 47.30 51.78 53.87 57.29 59.10 63.15 66.81 68.62 70.40 73.12 70.06 67.69 64.71 62.81 61.38	Depth to WL Elev Water (ft) (msl, ft) 34.02 937.68 34.09 937.61 37.47 934.23 42.79 928.91 47.30 924.40 47.30 924.40 51.78 919.92 53.87 917.83 57.29 914.41 59.10 912.60 63.15 908.55 66.81 904.89 68.62 903.08 70.40 901.30 73.12 898.58 70.06 901.64 67.69 904.01 64.71 906.99 62.81 908.89 61.38 910.32	Depth to WL Elev Water (ft) (msl, ft) Date 34.02 937.68 06/23/88 34.09 937.61 06/30/88 37.47 934.23 07/27/88 42.79 928.91 08/24/88 47.30 924.40 09/30/88 47.30 924.40 10/27/88 11/30/88 51.78 919.92 53.87 917.83 02/16/89 57.29 914.41 03/16/89 59.10 912.60 04/19/89 63.15 908.55 05/17/89 66.81 904.89 06/21/89 68.62 903.08 07/19/89 70.40 901.30 08/15/89 70.40 901.30 08/15/89 73.12 898.58 10/05/89 70.06 901.64 10/25/89 67.69 904.01 11/29/89 64.71 906.99 62.81 908.89 01/03/90 61.38 910.32 03/29/90 57.88 913.82 05/21/90	Depth to Water (ft) WL Elev (msl, ft) Date Depth to Water (ft) 34.02 937.68 06/23/88 56.89 34.09 937.61 06/30/88 57.73 37.47 934.23 07/27/88 61.85 42.79 928.91 08/24/88 64.95 47.30 924.40 09/30/88 64.55 47.30 924.40 10/27/88 60.53 11/30/88 58.44 51.78 919.92 53.87 917.83 02/16/89 56.16 57.29 914.41 03/16/89 52.34 59.10 912.60 04/19/89 49.37 63.15 908.55 05/17/89 48.46 66.81 904.89 06/21/89 46.87 68.62 903.08 07/19/89 46.50 70.40 901.30 08/15/89 45.82 73.12 898.58 10/05/89 53.26 70.06 901.64 10/25/89 49.29 67.69

133-047-20ABDBD1	LS Elev $(msl,ft)=972.26$
Wahpeton Shallow Sand Aquifer	SI (ft.)=114-119

Wahpeton Shallow Sand Aquifer				ft.) = 114 - 119	
Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
08/28/86	37.57	934.69	06/23/	′88 57.16	915.10
09/17/86	34.78	937.48	06/30/	^{'88} 57.79	914.47
09/30/86	34.51	937.75	07/27/	^{'88} 61.92	910.34
10/08/86	34.56	937.70	08/24/	^{'88} 65.02	907.24
10/28/86	37.98	934.28	09/30/	′88 64 . 90	907.36
11/04/86	42.75	929.51	10/27/	'88 60.96	911.30
12/01/86	47.16	925.10	11/30/	'88 58.92	913.34
12/02/86	47.18	925.08			
			01/04/	789 58.89	913.37
01/07/87	51.64	920.62	02/16/	^{'89} 56.69	915.57
01/29/87	53.74	918.52	03/16/	/89 52.82	919.44
03/03/87	57.20	915.06	04/19/	49.86	922.40
03/24/87	58.99	913.27	05/17/	^{'89} 48.93	923.33
05/13/87	63.03	909.23	06/21/	47.32	924.94
07/03/87	66.76	905.50	07/19/	47.02	925.24
08/04/87	68.61	903.65	08/15/	^{'89} 46.39	925.87
09/01/87	70.50	901.76	10/05/	789 53.27	918.99
10/02/87	73.11	899.15	10/25/	49.79	922.47
10/12/87	70.39	901.87	11/29/	'89 47.4 0	924.86
10/20/87	68.09	904.17			
11/02/87	65.19	907.07	01/03/	90 46.54	925.72
11/17/87	63.20	909.06	03/29/	90 44.60	927.66
12/01/87	61.72	910.54	04/23/	90 44.12	928.14
			05/21/	90 44.21	928.05
02/11/88	58.34	913.92	06/14/		928.08
04/22/88	58.06	914.20			

133-047-20ABDBD2	LS Elev $(msl, ft) = 972.14$
Wahneton Shallow Sand Aquifer	ST 1ft 1-53-58

wanbeton	Snallow Sand A	Rduller	0.00	21	(IC./=33-38
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
00/17/06	24.60	007 50	05 (17 (00	40.70	000 00
09/17/86	34.62	937.52	05/17/89	48.78	923.36
09/30/86	34.35	937.79	06/21/89	47.20	924.94
10/08/86	34.40	937.74	07/19/89	46.88	925.26
10/21/86	41.23	930.91	08/15/89	46.25	925.89
10/28/86	37.79	934.35	10/05/89	53.07	919.07
11/04/86	42.45	929.69	10/25/89	49.66	922.48
12/01/86	46.91	925.23	11/29/89	47.97	924.17
12/02/86	46.91	925.23			
			01/03/90	46.39	925.75
01/07/87	51.41	920.73	03/29/90	44.48	927.66
01/29/87	53.53	918.61	04/23/90	43.99	928.15
			05/21/90	44.04	928.10
04/19/89	49.72	922.42	06/14/90	44.06	928.08

Wahpeton	Buried Vallev				t.1 = 278 - 283
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
10/17/85	66.08	917.20	11/03/87	72.16	911.12
10/23/85	68.88	914.40	12/01/87	70.94	912.34
10/24/85	66.27	917.01			
11/01/85	66.38	916.90	02/11/88	71.41	911.87
11/13/85	65.58	917.70	04/22/88	70.89	912.39
12/10/85	65.56	917.72	06/23/88	82.41	900.87
12/11/85	65.75	917.53	06/30/88	83.04	900.24
			07/27/88	80.71	902.57
04/10/86	67.52	915.76	08/23/88	76.18	907.10
05/15/86	66.23	917.05	09/30/88	74.68	908.60
09/17/86	73.42	909.86	10/27/88	73.27	910.01
09/30/86	69.57	913.71	11/30/88	71.27	912.01
10/08/86	67.63	915.65	*		
10/09/86	67.55	915.73	01/04/89	72.34	910.94
10/10/86	67.03	916.25	02/16/89	71.58	911.70
10/11/86	66.79	916.49	03/16/89	71.82	911.46
10/15/86	67.14	916.14	04/19/89	73.01	910.27
10/28/86	67.66	915.62	05/17/89	81.84	901.44
11/04/86	87.59	895.69	06/21/89	78.12	905.16
12/01/86	90.74	892.54	07/19/89	82.32	900.96
12/02/86	89.50	893.78	08/15/89	83.43	899.85
			10/05/89	74.22	909.06
01/07/87	92.51	890.77	10/25/89	73.15	910.13
01/29/87	87.78	895.50	11/29/89	72.44	910.84
03/03/87	94.36	888.92			
03/24/87	95.28	888.00	01/03/90	71.60	911.68
05/14/87	77.52	905.76	03/30/90	70.28	913.00
07/03/87	78.74	904.54	04/23/90	74.43	908.85
08/04/87	75.29	907.99	05/21/90	73.55	909.73
00/01/07	75 71	007 57	06/14/00	76 20	006 00

907.99 907.57

09/01/87

75.71

05/21/90 06/14/90

76.38

909.73 906.90

100 015 0000000	
133-047-20ABDC2	LS Elev $(msl,ft)=983.4$
Wahneton Sand Plain Aguifer	CT (ft) 120 122

Wahpeton Sand Plain Aguifer		SI (ft.)=128-133			
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
10/17/85	66.10	917.30	11/03/87	72.18	911.22
10/23/85	68.90	914.50	12/01/87	70.90	912.50
10/24/85	66.28	917.12			
11/01/85	66.80	916.60	02/11/88	71.45	911.95
11/13/85	65.61	917.79	04/22/88	70.93	912.47
12/10/85	65.57	917.83	06/23/88	82.48	900.92
12/11/85	65.76	917.64	06/30/88	83.12	900.28
			07/27/88	80.79	902.61
04/10/86	67.57	915.83	08/23/88	76.23	907.17
05/15/86	66.31	917.09	09/30/88	74.73	908.67
09/17/86	73.66	909.74	10/27/88	73.32	910.08
09/30/86	69.63	913.77	11/30/88	71.31	912.09
10/08/86	67.71	915.69			
10/09/86	67.62	915.78	01/04/89	72.42	910.98
10/10/86	67.10	916.30	02/16/89	71.64	911.76
10/11/86	66.87	916.53	03/16/89	71.91	911.49
10/15/86	67.22	916.18	04/19/89	73.08	910.32
10/28/86	67.74	915.66	05/17/89	81.87	901.53
11/04/86	87.69	895.71	06/21/89	78.19	905.21
12/01/86	90.83	892.57	07/19/89	82.39	901.01
12/02/86	89.61	893.79	08/15/89	83.54	899.86
			10/05/89	74.32	909.08
01/07/87	92.62	890.78	10/25/89	73.23	910.17
01/29/87	87.91	895.49	11/29/89	72.55	910.85
03/03/87	94.48	888.92			
03/24/87	95.32	888.08	01/03/90	71.70	911.70
05/14/87	77.62	905.78	03/30/90	70.36	913.04
07/03/87	78.78	904.62	04/23/90	74.52	908.88
08/04/87	75.33	908.07	05/21/90	73.65	909.75
09/01/87	75.76	907.64	06/14/90	76.47	906.93

133-047-20ABDC3 LS Elev (msl,ft)=983.26

Wahpeton	Shallow Sand	Aguifer		SI	(ft.) = 67 - 72
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
10/17/85	46.03	937.23	01/29/87	61.87	921.39
10/23/85	46.18	937.08	03/03/87	65.30	917.96
10/24/85	46.40	936.86	03/25/87	67.29	915.97
11/01/85	46.28	936.98	05/13/87	71.39	911.87
11/13/85	46.30	936.96		,_,,,	,,,,,,
12/10/85	46.37	936.89	02/11/88	69.85	913.41
12/11/85	46.22	937.04	04/22/88	68.15	915.11
			06/23/88	67.30	915.96
04/10/86	45.89	937.37	06/30/88	67.11	916.15
05/15/86	45.49	937.77	07/27/88	70.53	912.73
09/17/86	45.57	937.69			
09/30/86	45.43	937.83	05/17/89	60.19	923.07
10/08/86	45.49	937.77	06/21/89	58.65	924.61
10/09/86	46.06	937.20	07/19/89	58.15	925.11
10/10/86	46.04	937.22	08/15/89	57.48	925.78
10/11/86	46.81	936.45	10/05/89	61.23	922.03
10/15/86	48.15	935.11	10/25/89	61.17	922.09
10/20/86	49.54	933.72	11/29/89	58.59	924.67
10/28/86	48.99	934.27			
11/04/86	50.76	932.50	01/03/90	57.65	925.61
12/01/86	55.10	928.16	03/29/90	55.78	927.48
12/02/86	55.16	928.10	04/23/90	55.29	927.97
3.			05/21/90	55.33	927.93
01/07/87	59.76	923.50	06/14/90	55.33	927.93

133-047-20ABDDA2 Undefined Aguifer			LS Elev (msl,	posterio del 1811 del	
underined	Adulier			SI	(ft.)=9-12
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)

	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
		,			
09/04/85	4.50	965.74	09/25/85	4.66	965.58
09/05/85	4.41	965.83	10/03/85	5.01	965.23
09/06/85	4.36	965.88	10/09/85	5.30	964.94
09/09/85	3.37	966.87	10/15/85	4.71	965.53
09/10/85	3.21	967.03	10/23/85	5.08	965.16
09/11/85	3.11	967.13	10/24/85	5.19	965.05
09/12/85	3.30	966.94	11/01/85	5.28	964.96
09/18/85	4.17	966.07			

	-20ABDDA3			LS Elev (msl	
Wahpeton	Buried Vallev				t.)=268-273
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
09/04/85	54.61	915.40	01/07/87	81.13	888.88
09/05/85	57.71	912.30	01/29/87	74.44	895.57
09/06/85	57.73	912.28	03/03/87	82.67	887.34
09/09/85	56.33	913.68	05/14/87	64.31	905.70
09/10/85	54.49	915.52	07/03/87	66.54	903.47
09/11/85	55.01	915.00	08/04/87	61.82	908.19
09/12/85	54.05	915.96	08/31/87	64.93	905.08
09/18/85	53.81	916.20	11/03/87	58.32	911.69
09/25/85	55.01	915.00	12/01/87	57.29	912.72
10/03/85	55.00	915.01			
10/09/85	55.61	914.40	04/22/88	57.59	912.42
10/15/85	54.49	915.52	06/23/88	70.41	899.60
10/17/85	52.66	917.35	06/30/88	71.23	898.78
10/23/85	55.72	914.29	07/27/88	67.77	902.24
10/24/85	52.81	917.20	08/23/88	62.55	907.46
11/01/85	53.08	916.93	09/30/88	62.50	907.51
11/13/85	52.20	917.81	10/27/88	59.78	910.23
12/10/85	52.25	917.76	11/30/88	57.71	912.30
12/11/85	52.36	917.65			
			01/04/89	58.91	911.10
04/10/86	54.10	915.91	02/16/89	58.01	912.00
05/15/86	52.95	917.06	03/16/89	58.27	911.74
08/27/86	66.21	903.80	04/19/89	59.81	910.20
09/17/86	59.99	910.02	05/17/89	67.50	902.51
09/30/86	56.47	913.54	06/21/89	64.38	905.63
10/07/86	54.71	915.30	07/19/89	68.90	901.11
10/08/86	54.43	915.58	08/15/89	71.77	898.24
10/09/86	54.35	915.66	10/05/89	60.81	909.20
10/10/86	53.83	916.18	10/25/89	59.76	910.25
10/11/86	53.57	916.44	11/29/89	58.71	911.30
10/15/86	53.87	916.14			
10/28/86	54.43	915.58	01/03/90	57.93	912.08
11/04/86	76.02	893.99	03/30/90	56.97	913.04
12/01/86	78.69	891.32	04/23/90	61.14	908.87
12/02/86	77.68	892.33	05/21/90	60.77	909.24
			06/13/90	63.08	906.93

133-047-20ABDDA4

LS Elev (msl,ft)=970.25

Wahpeton	Buried Valley	Aguifer		SI (f	t.)=178-183
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
09/04/85	55.14	915.11	04/21/88	57.80	912.45
09/05/85	57.36	912.89	06/23/88	70.10	900.15
09/06/85	57.83	912.42	06/30/88	70.84	899.41
09/09/85	56.60	913.65	07/27/88	68.00	902.25
09/10/85	54.75	915.50	08/23/88	62.79	907.46
09/11/85	55.15	915.10	. 09/30/88	62.73	907.52
09/12/85	54.28	915.97	10/27/88	59.99	910.26
09/18/85	54.04	916.21	11/30/88	57.97	912.28
09/25/85	55.22	915.03			
10/03/85	55.23	915.02	01/04/89	59.12	911.13
10/09/85	55.83	914.42	02/16/89	58.27	911.98
10/15/85	54.73	915.52	03/16/89	58.49	911.76
10/17/85	52.90	917.35	04/19/89	60.02	910.23
10/23/85	55.95	914.30	05/17/89	67.73	902.52
10/24/85	53.06	917.19	06/21/89	64.60	905.65
11/01/85	53.31	916.94	07/19/89	69.15	901.10
11/13/85	52.45	917.80	08/15/89	71.32	898.93
12/10/85	52.49	917.76	10/05/89	61.03	909.22
12/11/85	52.63	917.62	10/25/89	59.98	910.27
			11/29/89	58.90	911.35
04/10/86	54.10	916.15			
05/15/86	53.17	917.08	01/03/90	59.06	911.19
08/27/86	66.46	903.79	03/30/90	57.20	913.05
09/17/86	60.21	910.04	04/23/90	61.36	908.89
09/30/86	56.94	913.31	05/21/90	60.96	909.29
			06/13/90	63.33	906.92

Wahpeton	Sand Plain Act	uifer		SI (f	t.) = 113 - 118
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
09/04/85	54.63	915.27	01/07/87	80.17	889.73
09/05/85	56.86	913.04	01/29/87	74.28	895.62
09/06/85	57.31	912.59	03/03/87	81.89	888.01
09/09/85	56.20	913.70	05/14/87	64.12	905.78
09/10/85	54.31	915.59	07/03/87	65.53	904.37
09/11/85	54.81	915.09	08/04/87	61.63	908.27
09/12/85	53.87	916.03	08/31/87	64.75	905.15
09/18/85	53.62	916.28	11/03/87	58.24	911.66
09/25/85	54.81	915.09	12/01/87	57.06	912.84
10/03/85	54.80	915.10			
10/09/85	55.43	914.47	04/22/88	57.38	912.52
10/15/85	54.34	915.56	06/23/88	69.50	900.40
10/17/85	52.47	917.43	06/30/88	70.28	899.62
10/23/85	55.56	914.34	07/27/88	67.59	902.31
10/24/85	52.65	917.25	08/23/88	62.35	907.55
11/01/85	52.90	917.00	09/30/88	62.32	907.58
11/13/85	52.05	917.85	10/27/88	59.58	910.32
12/10/85	52.10	917.80	11/30/88	57.55	912.35
12/11/85	52.27	917.63			
	50 50		01/04/89	58.73	911.17
04/10/86	53.79	916.11	02/16/89	57.83	912.07
05/15/86	52.76	917.14	03/16/89	58.08	911.82
08/27/86	66.03	903.87	04/19/89	59.62	910.28
09/17/86	59.78	910.12	05/17/89	67.34	902.56
09/30/86	56.29	913.61	06/21/89	64.16	905.74
10/07/86	54.54	915.36	07/19/89	68.70	901.20
10/08/86	54.26	915.64	08/15/89	70.76	899.14
10/09/86	54.08	915.82	10/05/89	60.63	909.27
10/10/86	53.65	916.25	10/25/89	59.55	910.35
10/11/86	53.40	916.50	11/29/89	58.52	911.38
10/15/86	53.69 54.25	916.21	01 /02 /00	E0 76	011 14
10/28/86		915.65	01/03/90		911.14
11/04/86	75.06 77.74	894.84 892.16	03/30/90	56.79	913.11
12/01/86	76.73	892.16	04/23/90	60.96	908.94
12/02/86	70.73	893.17	05/21/90 06/13/90	60.65 62.88	909.25 907.02
133-047-	20ABDDA6			LS Elev (msl	ft)=969.93
Wahpeton :	Shallow Sand A		·	SI	(ft.)=36-41
Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
09/04/85	32.92	937.01	12/10/85	33.09	936.84
09/05/85	32.89	937.04	12/11/85	32.83	937.10
09/06/85	33.04	936.89	,,		200
09/09/85	33.06	936.87	04/10/86	32.56	937.37
09/10/85	33.21	936.72	05/15/86	32.12	937.81
09/11/85	33.13	936.80	08/27/86	32.24	937.69
09/12/85	33.03	936.90	09/17/86	32.28	937.65
09/18/85	32.99	936.94	09/30/86	32.12	937.81
09/25/85	33 00	036 03	10/00/06	22.20	027.72

10/08/86

10/09/86

10/10/86

10/11/86

10/15/86

10/20/86

10/28/86

11/04/86

32.20

32.82

32.70

33.53

34.81

36.16

35.85

37.47

937.73

937.11

937.23

936.40

935.12

933.77

934.08

932.46

09/25/85

10/03/85

10/09/85

10/15/85

10/17/85

10/23/85

10/24/85

11/01/85

11/13/85

33.00

32.84

32.93

33.07

32.71

32.90

33.14

32.98

33.04

936.93

937.09

937.00

936.86

937.22

937.03

936.79

936.95

936.89

133-047-20ABDDA7 LS Elev (msl,ft)=970

Wahpeton J	Buried Valley	Aguifer	SI (ft.)=269-27				
	Depth to	WL Elev		Depth to	WL Elev		
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)		
09/09/85	56.29	913.71	03/03/87	82.23	887.77		
09/10/85	54.58	915.42	03/25/87	78.38	891.62		
09/11/85	55.09	914.91	05/14/87	65.23	904.77		
09/12/85	53.82	916.18	07/03/87	66.01	903.99		
09/18/85	53.93	916.07	08/04/87	61.79	908.21		
09/25/85	54.06	915.94	08/31/87	64.80	905.20		
10/03/85	55.05	914.95	11/03/87	58.42	911.58		
10/09/85	55.60	914.40	12/01/87	57.26	912.74		
10/15/85	54.52	915.48					
10/17/85	52.75	917.25	04/22/88	57.52	912.48		
10/23/85	55.72	914.28	06/23/88	69.83	900.17		
10/24/85	52.92	917.08	06/27/88	70.54	899.46		
11/01/85	53.13	916.87	06/30/88	70.54	899.46		
11/13/85	52.30	917.70	07/27/88	67.61	902.39		
12/09/85		916.39	08/23/88	62.54	907.46		
12/10/85	52.35	917.65	09/30/88	62.39	907.61		
12/11/85	52.50	917.50	10/27/88	59.77	910.23		
			11/30/88	57.75	912.25		
03/04/86	51.98	918.02					
04/10/86	54.08	915.92	01/04/89	58.91	911.09		
05/15/86	53.17	916.83	02/16/89	58.04	911.96		
09/17/86	60.13	909.87	03/16/89	58.25	911.75		
09/30/86	56.45	913.55	04/19/89	59.69	910.31		
10/07/86	54.76	915.24	05/17/89	67.44	902.56		
10/08/86	54.47	915.53	06/21/89	64.34	905.66		
10/09/86	54.38	915.62	07/19/89	68.87	901.13		
10/10/86	53.88	916.12	08/15/89	71.09	898.91		
10/11/86	53.62	916.38	10/05/89	60.77	909.23		
10/15/86	53.92	916.08	10/25/89	59.67	910.33		
10/28/86	54.48	915.52	11/29/89	58.69	911.31		
11/04/86	75.56	894.44	PRODUCT DESCRIPTION OF STATE	100 CM 16 100/CC	-		
12/01/86	78.40	891.60	01/03/90	58.86	911.14		
12/02/86	77.27	892.73	03/30/90	56.92	913.08		
	31 % G (35 45		04/23/90	61.06	908.94		
01/07/87	80.57	889.43	05/21/90	60.58	909.42		
01/29/87	74.55	895.45	06/13/90	63.09	906.91		

133-047-20ABDDA8

LS Elev	(msl,ft) = 970.18
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Wahpeton	Sand Plain Acr	uifer			t.)=112-117
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
09/10/85	55.11	915.07	03/25/87	78.39	891.79
09/11/85	55.09	915.09	05/14/87	64.26	905.92
09/12/85	53.77	916.41	07/03/87	65.71	904.47
09/18/85	53.96	916.22	08/04/87	61.82	908.36
09/25/85	55.12	915.06	08/31/87	64.82	905.36
10/03/85	55.02	915.16	11/03/87	58.88	911.30
10/09/85	55.51	914.67	12/01/87	56.34	913.84
10/15/85	54.42	915.76			
10/17/85	52.68	917.50	04/22/88	57.56	912.62
10/23/85	55.66	914.52	06/23/88	69.42	900.76
10/24/85	52.84	917.34	06/30/88	70.29	899.89
11/01/85	53.07	917.11	07/27/88	67.63	902.55
11/13/85	52.22	917.96	08/23/88	62.60	907.58
12/09/85	53.67	916.51	09/30/88	62.42	907.76
12/10/85	52.42	917.76	10/27/88	59.82	910.36
12/11/85	52.42	917.76	11/30/88	57.81	912.37
04/10/86	54.06	916.12	01/04/89	58.96	911.22
05/15/86	52.93	917.25	02/16/89	58.09	912.09
09/17/86	59.95	910.23	03/16/89	58.30	911.88
09/30/86	56.40	913.78	04/19/89	59.73	910.45
10/07/86	54.72	915.46	05/17/89	67.50	902.68
10/08/86	54.42	915.76	06/21/89	64.32	905.86
10/09/86	54.33	915.85	07/19/89	68.92	901.26
10/10/86	53.83	916.35	08/15/89	70.77	899.41
10/11/86	53.59	916.59	10/05/89	60.83	909.35
10/15/86	53.87	916.31	10/25/89	59.74	910.44
10/28/86	54.45	915.73	11/29/89	58.85	911.33
11/04/86	75.18	895.00			
12/01/86	78.05	892.13	01/03/90	58.91	911.27
12/02/86	76.93	893.25	03/30/90	56.99	913.19
			04/23/90	61.11	909.07
01/07/87	80.24	889.94	05/21/90	60.63	909.55
01/29/87	74.55	895.63	06/13/90	63.17	907.01
03/03/87	82.02	888.16			

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	-3	_	-	u	4	-	_	4	u	м		u	ш	-	

Wahpeton Shallow Sand Aquifer				SI (ft.):			
	Depth to	WL Elev	•	Depth to	WL Elev		
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)		
09/10/85	33.35	936.77	12/01/86	41.95	928.17		
09/11/85	33.26	936.86	12/02/86	42.00	928.12		
09/12/85	33.18	936.94					
09/18/85	33.11	937.01	01/07/87	45.71	924.41		
09/25/85	33.15	936.97	01/29/87	47.18	922.94		
10/03/85	32.99	937.13	03/03/87	49.65	920.47		
10/09/85	33.08	937.04	03/24/87	51.03	919.09		
10/15/85	33.22	936.90	03/25/87	51.03	919.09		
10/17/85	32.86	937.26	05/13/87	54.98	915.14		
10/23/85	33.07	937.05					
10/24/85	33.30	936.82	04/21/88	54.54	915.58		
11/01/85	33.15	936.97	06/23/88	53.72	916.40		
11/13/85	33.21	936.91	06/30/88	53.71	916.41		
12/09/85	33.12	937.00	07/27/88	55.66	914.46		
12/10/85	33.27	936.85					
12/11/85	33.13	936.99	05/17/89	47.45	922.67		
			06/21/89	45.84	924.28		
04/10/86	32.74	937.38	07/19/89	45.26	924.86		
05/15/86	32.30	937.82	08/15/89	44.59	925.53		
09/17/86	32.45	937.67	10/05/89	46.64	923.48		
09/30/86	32.29	937.83	10/25/89	47.70	922.42		
10/08/86	32.37	937.75	11/29/89	45.81	924.31		
10/09/86	33.07	937.05					
10/10/86	33.09	937.03	01/03/90	44.72	925.40		
10/11/86	33.92	936.20	03/29/90	42.77	927.35		
10/15/86	35.33	934.79	04/23/90	42.26	927.86		
10/20/86	36.71	933.41	05/21/90	42.25	927.87		
10/28/86	35.98	934.14	06/13/90	42.07	928.05		
11/04/86	37.91	932.21	×				

LS Elev (msl,ft)=971.16 SI (ft.)=265-270 133-047-20ABDDAB

	Buried Valley	Aguifer		SI (f	t.1 = 265 - 270
Date	Depth to Water (ft)		Date	Depth to Water (ft)	WL Elev (msl, ft)
	55.80			71.66	899.50
09/30/86 10/08/86	55.51	915.65	06/30/88 07/27/88	68.65	902.51
10/08/86	55.43	915.73	08/23/88	63.70	902.51
100			4 4		
10/10/86	54.91	916.25	09/30/88	63.48	907.68
10/11/86	54.57	916.59	10/27/88	60.92	910.24
10/15/86	54.98	916.18	11/30/88	58.82	912.34
10/28/86	55.52	915.64			
11/04/86	76.82	894.34	01/04/89	60.03	911.13
12/01/86	79.75	891.41	02/16/89	59.25	911.91
12/02/86	78.60	892.56	03/16/89	59.36	911.80
			04/19/89	60.79	910.37
01/07/87	81.83	889.33	05/17/89	69.75	901.41
01/29/87	75.85	895.31	06/21/89	65.48	905.68
03/03/87	83.52	887.64	07/19/89	69.89	901.27
03/24/87	84.30	886.86	08/15/89	72.22	898.94
05/14/87	65.31	905.85	10/05/89	61.88	909.28
07/03/87	67.24	903.92	10/25/89	60.79	910.37
08/04/87	62.94	908.22	11/29/89	59.81	911.35
08/31/87	65.88	905.28			
11/03/87	59.61	911.55	01/03/90	59.96	911.20
12/01/87	58.49	912.67	03/30/90	58.02	913.14
			04/23/90	62.15	909.01
04/22/88	58.65	912.51	05/21/90		909.62
06/23/88	70.97	900.19	06/14/90		906.49
00/23/00	10.91	300.19	00/14/90	04.07	500.49

133-047-20ABDDB1

LS Elev (msl, ft) = 971.06

Wahpeton	Buried Valley	Aquifer		TO TIEN (MSI	t.) = 260 - 265
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
		(1101, 10)	Date	water (It)	(msi, it)
09/04/85	55.75	915.31	01/29/87	75.55	895.51
09/05/85	57.15	913.91	03/03/87	82.42	888.64
09/06/85	57.99	913.07	03/25/87	79.37	891.69
09/09/85	58.31	912.75	05/14/87	65.27	905.79
09/10/85	55.63	915.43	07/03/87	66.50	904.56
09/11/85	56.18	914.88	08/04/87	62.99	908.07
09/12/85	55.33	915.73	09/01/87	63.35	907.71
09/18/85	55.09	915.97	11/03/87	59.67	911.39
09/25/85	56.02	915.04	12/01/87	58.51	912.55
10/03/85	56.02	915.04			
10/09/85	56.58	914.48	04/22/88	58.64	912.42
10/15/85	55.65	915.41	06/23/88	70.21	900.85
10/17/85	53.86	917.20	06/30/88	70.87	900.19
10/23/85	56.69	914.37	07/27/88	68.54	902.52
10/24/85	54.00	917.06	08/23/88	63.83	907.23
11/01/85	54.19	916.87	09/30/88	63.41	907.65
11/13/85	53.37	917.69	10/27/88	61.01	910.05
12/10/85	53.36	917.70	11/30/88	58.96	912.10
12/11/85	53.55	917.51			
			01/04/89	60.07	910.99
04/10/86	55.25	915.81	02/16/89	59.27	911.79
05/15/86	53.97	917.09	03/16/89	59.48	911.58
08/27/86	67.28	903.78	04/19/89	60.76	910.30
09/17/86	61.03	910.03	05/17/89	69.11	901.95
09/30/86	57.38	913.68	06/21/89	65.81	905.25
10/08/86	55.44	915.62	07/19/89	70.00	901.06
10/09/86	55.29	915.77	08/15/89	71.28	899.78
10/10/86	54.84	916.22	10/05/89	61.96	909.10
10/11/86	54.60	916.46	10/25/89	60.87	910.19
10/15/86	54.91	916.15	11/29/89	59.86	911.20
10/28/86	55.50	915.56			
11/04/86	75.65	895.41	01/03/90	59.94	911.12
12/01/86	78.72	892.34	03/30/90	58.00	913.06
12/02/86	77.42	893.64	04/23/90	62.09	908.97
			05/21/90	61.49	909.57
01/07/87	80.62	890.44	06/14/90	63.86	907.20

	-20ABDDB2 Sand Plain Ac	uifer			LS Elev (msl SI (f	, rc) =9/1.06 t.)=114-119
Date	Depth to Water (ft)	WL Elev (msl, ft)	,	Date	Depth to Water (ft)	WL Elev (msl, ft)
09/04/85	55.62	915.44		01/29/87	75.55	895.51
09/05/85	57.03	914.03		03/03/87	82.49	888.57
09/06/85	57.81	913.25		03/25/87	79.25	891.81
09/09/85	57.14	913.92		05/14/87	65.16	905.90
09/10/85	55.47	915.59		07/03/87	66.44	904.62
09/11/85	56.00	915.06		08/04/87	62.87	908.19
09/12/85	55.18	915.88		09/01/87	63.22	907.84
09/18/85	54.94	916.12		11/03/87	59.61	911.45
09/25/85	55.85	915.21		12/01/87	58.43	912.63
10/03/85	55.84	915.22				
10/09/85	56.41	914.65		04/22/88	58.54	912.52
10/15/85	55.49	915.57		06/23/88	70.13	900.93
10/17/85	53.70	917.36		06/30/88	70.80	900.26
10/23/85	56.50	914.56		07/27/88	68.42	902.64
10/24/85	53.85	917.21		08/23/88	63.74	907.32
11/01/85	54.03	917.03		09/30/88	63.30	907.76
11/13/85	53.22	917.84		10/27/88	60.91	910.15
12/10/85	53.20	917.86		11/30/88	58.85	912.21
12/11/85	53.41	917.65				7.0.01
	*			01/04/89	59.99	911.07
04/10/86	55.13	915.93		02/16/89	59.19	911.87
05/15/86	53.85	917.21		03/16/89	59.41	911.65
08/27/86	67.14	903.92		04/19/89	60.64	910.42
09/17/86	60.89	910.17		05/17/89	69.12	901.94
09/30/86	57.21	913.85		06/21/89	65.65	905.41
10/08/86	55.29	915.77		07/19/89	69.88	901.18
10/09/86	55.21	915.85		08/15/89	71.18	899.88
10/10/86	54.69	916.37		10/05/89	61.86	909.20
10/11/86	54.45	916.61		10/25/89	60.77	910.29
10/15/86	54.75	916.31		11/29/89	59.73	911.33
10/28/86	55.34	915.72		11/23/03	33.73	711.33
11/04/86	75.67	895.39		01/03/90	59.84	911.22
12/01/86	78.74	892.32		03/30/90	57.92	913.14
12/02/86	77.43	893.63		04/23/90	61.97	909.09
12,02,00	77.43	0,5.05		05/21/90	61.28	909.78
01/07/87	80.60	890.46		06/14/90	63.81	907.25
133-047-	-20ABDDB3				LS Elev (msl	.ft)=970.95
Wahpeton	Shallow Sand A	Aguifer				(ft.) = 36 - 41
	Depth to	WL Elev			Depth to	WL Elev
Date	Water (ft)	(msl, ft)		Date	Water (ft)	(msl, ft)
09/04/85	33.92	937.03		12/10/85	34.11	936.84
09/05/85	33.89	937.06		12/11/85	33.98	936.97
09/06/85	34.34	936.61				
09/09/85	34.04	936.91		04/10/86	33.54	937.41
09/10/85	34.17	936.78		05/15/86	33.12	937.83
09/11/85	34.12	936.83		08/27/86	33.19	937.76

Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
09/04/85	33.92	937.03	12/10/85	34.11	936.84
09/05/85	33.89	937.06	12/11/85	33.98	936.97
09/06/85	34.34	936.61			
09/09/85	34.04	936.91	04/10/86	33.54	937.41
09/10/85	34.17	936.78	05/15/86	33.12	937.83
09/11/85	34.12	936.83	08/27/86	33.19	937.76
09/12/85	34.01	936.94	09/17/86	33.31	937.64
09/18/85	33.93	937.02	09/30/86	33.12	937.83
09/25/85	34.00	936.95	10/08/86	33.19	937.76
10/03/85	33.84	937.11	10/09/86	33.99	936.96
10/09/85	33.94	937.01	10/10/86	34.24	936.71
10/15/85	34.06	936.89	10/11/86	35.09	935.86
10/17/85	33.79	937.16	10/15/86	36.77	934.18
10/23/85	33.92	937.03	10/20/86	38.24	932.71
10/24/85	34.13	936.82	10/28/86	36.83	934.12
11/01/85	33.98	936.97	11/04/86	39.47	931.48
11/13/85	34.04	936.91			

Undefined	Aquifer			SI (f	t.1=7.2-9.6
392.03	Depth to	WL Elev	2. 3.	Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
09/04/85	6.09	964.38	09/25/85	6.08	964.39
09/05/85	6.03	964.44	10/03/85	6.38	964.09
09/09/85	5.49	964.98	10/09/85	6.73	963.74
09/10/85	5.42	965.05	10/15/85	4.47	966.00
09/11/85	5.22	965.25	10/24/85	4.78	965.69
09/12/85	5.12	965.35	11/01/85	4.94	965.53
09/18/85	5.58	964.89			
133-047-2				LS Elev (ms	
Wahpeton	Buried Vallev	Aquifer		SI (f	t.)=238-244
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
11/18/69					
11/10/03	11.67	956.73	06/09/70	11.53	956.87
11/16/09	11.67	956.73	06/09/70 07/20/70	11.53 11.24	956.87 957.16
11/18/09 133-047-2 Undefined	ROACC2	956.73	MANUAL MANUAL MANUAL PROPERTY.	11.24 LS Elev (msl,	957.16 ,ft)=970.94
133-047-2	20ACC2 Aguifer		MANUAL MANUAL MANUAL PROPERTY.	11.24 LS Elev (msl	957.16
133-047-2	ROACC2	WL Elev (msl, ft)	MANUAL MANUAL MANUAL PROPERTY.	11.24 LS Elev (msl,	957.16 ,ft)=970.94 (ft.)=?-25
133-047-2 Undefined	20ACC2 Aguifer Depth to	WL Elev	07/20/70	LS Elev (msl. SI	957.16 ,ft)=970.94 (ft.)=?-25 WL Elev
133-047-2 Undefined	Aguifer Depth to Water (ft)	WL Elev (msl, ft)	07/20/70 Date	LS Elev (msl SI Depth to Water (ft)	957.16 (ft)=970.94 (ft.)=?-25 WL Elev (msl, ft)
133-047-2 Undefined Date 06/17/76 06/30/76	Acuifer Depth to Water (ft)	WL Elev (msl, ft) 965.35	Date 07/07/77	LS Elev (msl, SI Depth to Water (ft)	957.16 (ft)=970.94 (ft.)=?-25 WL Elev (msl, ft) 964.51
133-047-2 Undefined Date 	Acuifer Depth to Water (ft) 5.59 6.19	WL Elev (msl, ft) 965.35 964.75	Date 07/07/77 08/10/77	LS Elev (msl, SI Depth to Water (ft) 6.43 6.86	957.16 (ft)=970.94 (ft.)=?-2! WL Elev (msl, ft) 964.51 964.08
133-047-2 Undefined Date 06/17/76 06/30/76 07/21/76 08/11/76	Acuifer Depth to Water (ft) 5.59 6.19 7.01	WL Elev (msl, ft) 965.35 964.75 963.93	Date 07/07/77 08/10/77	LS Elev (msl, SI Depth to Water (ft) 6.43 6.86	957.16 (ft)=970.94 (ft.)=?-2! WL Elev (msl, ft) 964.51 964.08
Date 06/17/76 06/30/76 07/21/76 08/11/76	Depth to Water (ft) 5.59 6.19 7.01 7.59	WL Elev (msl, ft) 965.35 964.75 963.93 963.35	Date 07/07/77 08/10/77 09/15/77	11.24 LS Elev (msl, SI Depth to Water (ft) 6.43 6.86 6.49	957.16 (ft)=970.94 (ft.)=?-2! WL Elev (msl, ft) 964.51 964.08 964.45
Date 06/17/76 06/30/76 07/21/76 08/11/76 08/24/76	Depth to Water (ft) 5.59 6.19 7.01 7.59 17.21	WL Elev (msl, ft) 965.35 964.75 963.93 963.35 953.73	Date 07/07/77 08/10/77 09/15/77	11.24 LS Elev (msl, SI Depth to Water (ft) 6.43 6.86 6.49 4.38	957.16 (ft)=970.94 (ft.)=?-2! WL Elev (msl, ft) 964.51 964.08 964.45 966.56
Date 06/17/76 06/30/76 07/21/76 08/11/76 08/24/76 09/13/76	Depth to Water (ft) 5.59 6.19 7.01 7.59 17.21 18.05	WL Elev (msl, ft) 965.35 964.75 963.93 963.35 953.73	Date 	11.24 LS Elev (msl, SI Depth to Water (ft) 6.43 6.86 6.49 4.38 5.35	957.16 (ft)=970.94 (ft.)=?-29 WL Elev (msl, ft) 964.51 964.08 964.45 966.56 965.59
133-047-2 Undefined Date 	Depth to Water (ft) 5.59 6.19 7.01 7.59 17.21 18.05 18.30	WL Elev (msl, ft) 965.35 964.75 963.93 963.35 953.73 952.89 952.64	Date 	11.24 LS Elev (msl, SI Depth to Water (ft) 6.43 6.86 6.49 4.38 5.35	957.16 (ft)=970.94 (ft.)=?-29 WL Elev (msl, ft) 964.51 964.08 964.45 966.56 965.59
Date 06/17/76 06/30/76 07/21/76 08/11/76 08/24/76 09/13/76 09/28/76 11/02/76	Depth to Water (ft) 5.59 6.19 7.01 7.59 17.21 18.05 18.30 8.36	WL Elev (msl, ft) 965.35 964.75 963.93 963.35 953.73 952.89 952.64 962.58	Date 07/07/77 08/10/77 09/15/77 06/22/78 09/21/78 12/06/78	11.24 LS Elev (msl. SI Depth to Water (ft) 6.43 6.86 6.49 4.38 5.35 6.48	957.16 (ft)=970.94 (ft.)=?-2! WL Elev (msl, ft) 964.51 964.08 964.45 966.56 965.59 964.46
Date	Depth to Water (ft) 5.59 6.19 7.01 7.59 17.21 18.05 18.30 8.36 8.16	WL Elev (msl, ft) 965.35 964.75 963.93 963.35 953.73 952.89 952.64 962.58 962.78	Date 07/07/77 08/10/77 09/15/77 06/22/78 09/21/78 12/06/78	11.24 LS Elev (msl. SI Depth to Water (ft) 6.43 6.86 6.49 4.38 5.35 6.48 5.20	957.16 (ft)=970.94 (ft.)=2-25 WL Elev (msl, ft) 964.51 964.08 964.45 966.56 965.59 964.46

133-047-20ACC3		LS Elev (msl,ft)=968.97
Undefined Aguifer		SI (ft.)=23-26
Double to	M 131	D

Undefined	Aquifer			SI	(ft.)=23-26
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
12/02/75	4.98	963.99	03/24/87	5.19	963.78
			05/14/87	5.61	963.36
06/03/76	5.08	963.89	07/03/87	6.71	962.26
06/17/76	5.40	963.57	08/04/87	7.05	961.92
06/30/76	6.00	962.97	09/01/87	7.37	961.60
07/21/76	6.79	962.18	10/01/87	7.13	961.84
08/11/76	7.42	961.55	10/12/87	7.28	961.69
08/24/76	8.00	960.97	10/20/87	7.48	961.49
09/13/76	8.42	960.55	11/03/87	7.34	961.63
09/28/76	8.41	960.56	11/17/87	7.38	961.59
11/02/76	8.17	960.80	12/01/87	7.36	961.61
12/07/76	8.00	960.97			
			02/11/88	8.02	960.95
01/04/77	8.22	960.75	04/22/88	7.31	961.66
04/04/77	4.91	964.06	06/23/88	6.78	962.19
06/07/77	5.95	963.02	06/30/88	6.92	962.05
07/07/77	6.72	962.25	07/27/88	7.21	961.76
08/10/77	7.20	961.77	08/23/88	7.33	961.64
09/15/77	6.90	962.07	09/30/88	6.56	962.41
			10/27/88	7.05	961.92
06/22/78	4.67	964.30	11/30/88	7.46	961.51
09/21/78	5.50	963.47			N .
12/06/78	6.75	962.22	01/05/89	7.79	961.18
180			02/16/89	8.47	960.50
09/17/80	4.86	964.11	03/16/89	8.68	960.29
			04/19/89	7.18	961.79
10/09/85	4.61	964.36	05/16/89	6.54	962.43
10/24/85	4.28	964.69	06/21/89	5.90	963.07
10/30/85	4.41	964.56	07/19/89	6.41	962.56
11/13/85	4.77	964.20	08/15/89	6.56	962.41
12/11/85	5.29	963.68	10/05/89	5.03	963.94
			10/25/89	5.75	963.22
04/10/86	2.59	966.38	11/29/89	6.16	962.81
10/28/86	4.41	964.56			
11/04/86	4.49	964.48	01/02/90	7.27	961.70
12/01/86	4.36	964.61	03/29/90	7.45	961.52
			04/24/90	6.48	962.49
01/07/87	5.56	963.41	05/22/90	5.47	963.50
01/28/87	6.06	962.91	06/14/90	5.85	963.12
03/03/87	6.02	962.95			

133-047-20ACD1 LS Elev (msl,ft)=969
Undefined Aguifer SI (ft.)=?-30

underined	Adulier			SI	(IC.) = ? - 30
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
06/17/76	15.86	953.14	06/07/77	22.20	946.80
06/30/76	16.37	952.63	08/10/77	22.72	946.28
07/21/76	16.89	952.11	09/15/77	22.62	946.38
08/11/76	17.38	951.62			
11/02/76	23.01	945.99	06/22/78	20.26	948.74
12/07/76	20.53	948.47	09/21/78	21.80	947.20
			12/06/78	22.60	946.40
01/04/77	21.34	947.66			
04/05/77	22.00	947.00	09/17/80	25.04	943.96

133-047-: Undefined	Aguifer		·	SI	msl,ft)=969 (ft.)=24-30
	Depth to	WL Elev		Depth to	
Date	Water (ft)	(msl, ft)	Date	Water (ft)	
09/07/75	14.01	954.99	06/07/76		953.14
12/02/75	15.47	953.53	06/17/76		952.84
			06/30/76	16.68	952.32
06/03/76	15.90	953.10		20.00	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
133-047-2	ROADB			LS Elev (ms	1,ft)=971.9
Wahpeton 1	Buried Valley	Aguifer		SI (f	t.)=254-260
	Depth to	WL Elev			WL Elev
Date	Water (ft)		Date	Water (ft)	
11/18/69	14.62	957.28	06/09/71	7.41	964.49
			07/20/71	14.12	957.78
133-047-2				LS Elev (msl	
Wahpeton	Buried Valley	Aquifer		SI (f	t.)=265-270
	Depth to			Depth to	WL Elev
	Water (ft)		Date	Water (ft)	
10/24/85	54.87	917.24	12/01/87	61.33	910.78
10/30/85	55.79	916.32	,,		
11/01/85	55.08	917.03	04/22/88	59.56	912.55
11/13/85	54.12	917.99	06/23/88	71.39	900.72
12/10/85	54.26	917.85	06/30/88	73.19	898.92
12/11/85	54.25	917.86	07/27/88	70.57	901.54
			08/23/88	64.39	907.72
04/10/86	55.97	916.14	10/27/88	61.29	910.82
08/27/86	68.70	903.41	11/30/88	59.92	912.19
09/30/86	59.31	912.80			
10/07/86	57.08	915.03	01/05/89	62.03	910.08
10/08/86	56.94	915.17	02/16/89	60.48	911.63
10/10/86	56.09	916.02	03/16/89	60.53	911.58
10/11/86	56.03	916.08	04/19/89	61.55	910.56
10/15/86	56.27	915.84	05/16/89	71.14	900.97
10/28/86	58.12	913.99	06/21/89	67.82	904.29
11/04/86	76.58	895.53	07/19/89	72.74	899.37
12/01/86	78.52	893.59	08/15/89	72.37	899.74
12/02/86	77.48	894.63	10/05/89	62.64	909.47
12/02/00	,,,,,	074.03	10/25/89	63.49	908.62
01/07/87	79.29	892.82	12/01/89	60.26	911.85
01/29/87	75.95	896.16	12101109	55.20	222.00
03/03/87	81.89	890.22	01/03/90	61.48	910.63
05/14/87	66.58	905.53	03/30/90	59.10	913.01
07/03/87	66.61	905.50	04/24/90	61.12	910.99
08/04/87	64.09	908.02	05/22/90	60.56	911.55
09/01/87	65.49	906.62	06/14/90	65.67	906.44
11/03/87	62.44	909.67	00/14/90	03.07	200.44
	V2.11	202.07			

133-047-20ADB3 LS Elev (msl,ft)=972.33

Wahpeton	Sand Plain Act	ulfer		SI (f	t.)=115-120
Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
10/24/85	55.07	917.26	12/01/87	61.53	910.80
10/30/85	55.99	916.34		32.55	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
11/01/85	55.29	917.04	04/22/88	59.79	912.54
11/13/85	54.32	918.01	06/23/88	71.62	900.71
12/10/85	54.47	917.86	06/30/88	73.43	898.90
12/11/85	54.44	917.89	07/27/88	70.79	901.54
			08/23/88	64.57	907.76
04/10/86	56.19	916.14	10/27/88	61.50	910.83
05/27/86	68.92	903.41	11/30/88	60.14	912.19
09/30/86	59.57	912.76			
10/07/86	57.32	915.01	01/05/89	62.21	910.12
10/08/86	57.17	915.16	02/16/89	60.73	911.60
10/10/86	56.33	916.00	03/16/89	60.76	911.57
10/11/86	56.27	916.06	04/19/89	61.76	910.57
10/15/86	56.52	915.81	05/16/89	72.61	899.72
10/28/86	58.35	913.98	06/21/89	69.30	903.03
11/04/86	76.86	895.47	07/19/89	72.98	899.35
12/01/86	78.76	893.57	08/15/89	72.63	899.70
12/02/86	77.73	894.60	10/05/89	62.86	909.47
			10/25/89	63.74	908.59
01/07/87	79.44	892.89	12/01/89	60.49	911.84
01/29/87	76.20	896.13			
03/03/87	82.15	890.18	01/03/90	61.70	910.63
05/14/87	66.81	905.52	03/30/90	59.34	912.99
07/03/87	66.82	905.51	04/24/90	61.37	910.96
08/04/87	64.34	907.99	05/22/90	60.81	911.52
09/01/87	65.72	906.61	06/14/90	65.94	906.39
11/03/87	62.74	909.59			

133-047-20ADD2 LS Elev (msl,ft)=968.67

Wahpeton	Buried Valley	Aquifer		SI (f	t.1 = 268 - 273
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
10/30/85	51.84	916.83	12/01/87	60.42	908.25
11/01/85	51.61	917.06			
11/13/85	50.40	918.27	02/11/88	57.95	910.72
12/10/85	50.73	917.94	04/22/88	55.64	913.03
12/11/85	50.45	918.22	07/27/88	70.50	898.17
			08/22/88	63.12	905.55
04/10/86	52.13	916.54	08/24/88	63.12	905.55
08/27/86	67.26	901.41	09/30/88	64.85	903.82
09/30/86	58.38	910.29	10/27/88	57.58	911.09
10/07/86	54.44	914.23	11/30/88	56.20	912.47
10/08/86	54.36	914.31			
10/10/86	53.41	915.26	01/05/89	61.55	907.12
10/11/86	53.35	915.32	02/16/89	56.71	911.96
10/15/86	55.18	913.49	03/16/89	56.84	911.83
10/28/86	57.22	911.45	04/19/89	58.23	910.44
11/04/86	71.88	896.79	05/16/89	67.39	901.28
12/01/86	77.10	891.57	06/21/89	68.05	900.62
12/02/86	72.56	896.11	07/19/89	72.50	896.17
			08/15/89	71.57	897.10
01/07/87	74.28	894.39	10/05/89	58.84	909.83
01/29/87	71.59	897.08	10/25/89	62.97	905.70
03/03/87	77.21	891.46	11/29/89	61.97	906.70
08/04/87	60.18	908.49			
09/01/87	62.34	906.33	01/02/90	56.15	912.52
10/01/87	62.16	906.51	03/30/90	55.90	912.77
10/12/87	51.70	916.97	04/24/90	57.92	910.75
10/20/87	57.29	911.38	05/22/90	57.14	911.53
11/03/87	61.70	906.97	06/14/90	61.63	907.04
11/17/87	62.50	906.17			

133-047- Wahpeton	Sand Plain Ac	uifer	W 10. SERVICE/SERVICE	LS Elev (msl SI (f	,ft)=968.8 t.)=122-12
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft
10/30/85	51.95	916.88	11/17/87	61.65	907.18
11/01/85	5171	917.12	12/01/87	59.54	909.29
11/13/85	50.50	918.33			
12/10/85	50.82	918.01	02/11/88	58.35	910.48
12/11/85	50.56	918.27	04/22/88	55.90	912.93
			06/23/88	68.37	900.46
04/10/86	52.23	916.60	07/27/88	69.20	899.63
08/27/86	66.41	902.42	08/24/88	61.69	907.14
09/30/86	57.77	911.06	09/30/88	63.53	905.30
10/07/86	54.43	914.40	10/27/88	57.43	911.40
10/08/86	54.39	914.44	11/30/88	56.03	912.80
10/10/86	53.46	915.37	South State Control of the Control of Contro		
10/11/86	53.38	915.45	01/05/89	60.21	908.62
10/15/86	54.51	914.32	02/16/89	56.53	912.30
10/28/86	56.58	912.25	03/16/89	56.63	912.20
11/04/86	72.42	896.41	04/19/89	58.05	910.78
12/01/86	77.58	891.25	05/16/89	67.19	901.64
12/02/86	73.02	895.81	06/21/89	66.75	902.08
22, 02, 00	,,,,,,	0,5.01	07/19/89	71.18	897.65
01/07/87	74.73	894.10	08/15/89	70.33	898.50
01/29/87	72.03	896.80	10/05/89	58.65	910.18
03/03/87	77.66	891.17	10/25/89	61.68	907.15
05/03/07	63.36	905.47	11/29/89	60.22	908.61
07/03/87	62.35	906.48	11/29/09	00.22	300.01
08/04/87	60.39	908.44	01/02/00	EE 06	010 07
09/01/87	62.17	906.66	01/02/90	55.96	912.87
10/01/87	62.23	906.60	03/30/90	55.66	913.17
10/01/87	58.00	910.83	04/24/90	57.71 56.91	911.12
10/12/87	57.58	911.25	05/22/90		911.92
11/03/87	60.80	908.03	06/14/90	61.43	907.40
133-047-2	20BAA1			LS Elev (msl,	ft)=965 8
	Shallow Sand A	Aguifer			(ft.)=23-2
	Depth to	WL Elev		Depth to	WL Elev
Date 	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft
09/07/75	7.80	958.06	08/10/77	16.57	949.29
12/02/75	9.97	955.89	09/15/77	16.80	949.06
			12/12/77	16.70	949.16
01/22/76	10.83	955.03			
04/09/76	7.79	958.07	06/22/78	14.20	951.66
06/03/76	9.00	956.86	09/00/78	14.20	951.66
06/17/76	9.37	956.49	09/21/78	16.00	949.86
06/30/76	10.00	955.86	12/06/78	17.44	948.42
07/21/76	10.75	955.11			
08/11/76	11.53	954.33	06/18/80	20.89	944.97
08/24/76	11.98	953.88	07/23/80	20.95	944.91
09/13/76	12.74	953.12	09/10/80	21.18	944.68
09/28/76	13.13	952.73	09/17/80	21.14	944.72
11/02/76	14.10	951.76	11/18/80	21.72	944.72
12/07/76	14.63	951.23			744.14
			06/11/01	22 00	040 05

01/04/77 04/04/77 07/07/77

13.55

13.22

15.95

952.31

952.64 949.91 06/11/81

09/03/81

10/08/81

12/01/81

22.99

22.71

23.85

23.05

942.87 943.15

942.01

942.81

	-					

Wahpeton S	Sand Plain Acı	uifer		SI (fi	(10) = 903.20 (10) = 128 - 134
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
09/07/75	23.16	942.10	10/15/85	49.49	915.77
12/02/75	40.35	924.91	10/23/85	49.31	915.95
			10/24/85	47.97	917.29
04/09/76	14.48	950.78	11/01/85	48.14	917.12
06/03/76	27.27	937.99	12/04/85	47.67	917.59
06/17/76	26.41	938.85			
06/30/76	26.80	938.46	04/12/86	50.17	915.09
07/21/76	31.78	933.48	05/23/86	47.79	917.47
08/11/76	45.12	920.14	07/16/86	47.93	917.33
08/24/76	45.49	919.77	09/04/86	62.67	902.59
09/13/76	41.47	923.79	10/28/86	49.28	915.98
09/28/76	40.41	924.85	11/04/86	65.27	899.99
11/02/76	34.25	931.01	11/25/86	69.03	896.23
12/07/76	39.06	926.20	12/01/86	70.81	894.45
			12/02/86	69.10	896.16
01/04/77	39.23	926.03			
04/04/77	32.98	932.28	01/07/87	70.80	894.46
07/07/77	31.08	934.18	01/29/87	68.34	896.92
08/10/77	31.78	933.48	03/03/87	73.00	892.26
09/13/77	31.77	933.49	03/24/87	75.17	890.09
09/15/77	31.77	933.49	05/14/87	59.36	905.90
06/00/70	22.24	022 02	07/03/87	60.14	905.12
06/22/78	32.34	932.92	07/10/87	60.75	904.51 908.00
09/21/78	30.97	934.29	08/04/87	57.26	
00 (00 (70	42.00	000 00	08/31/87	57.84	907.42
09/20/79	42.90	922.36	09/17/87	55.53	909.73
11/30/79	36.97	928.29	10/02/87	56.02 54.42	909.24 910.84
02/20/00	35.50	929.76	11/02/87 11/25/87	53.29	910.84
03/20/80 06/18/80	41.01	924.25	11/30/87	53.29	911.42
09/10/80	41.01	923.33	11/30/6/	33.64	911.42
09/10/80	44.80	920.46	02/11/88	53.61	911.65
11/18/80	41.37	923.89	04/22/88	53.02	912.24
11/10/00	41.3/	923.09	06/23/88	62.24	903.02
06/11/81	41.21	924.05	06/30/88	61.66	903.60
09/03/81	62.32	902.94	07/27/88	60.52	904.74
10/08/81	44.78	920.48	08/23/88	58.24	907.02
12/01/81	42.91	922.35	09/30/88	55.57	909.69
,,			10/27/88	55.89	909.37
07/07/82	46.64	918.62	11/30/88	55.10	910.16
10/04/82	62.20	903.06			
11/30/82	44.43	920.83	01/04/89	54.17	911.09
			02/15/89	53.75	911.51
03/10/83	46.00	919.26	03/16/89	53.51	911.75
06/15/83	47.26	918.00	04/19/89	53.14	912.12
08/24/83	48.65	916.61	05/17/89	62.92	902.34
11/29/83	45.58	919.68	06/21/89	59.42	905.84
		101	07/19/89	63.30	901.96
04/04/84	48.06	917.20	08/15/89	62.47	902.79
06/14/84	48.07	917.19	10/05/89	57.13	908.13
08/30/84	53.11	912.15	10/25/89	54.13	911.13
11/29/84	47.83	917.43	12/01/89	52.56	912.70
02/28/85	52.64	912.62	01/03/90	52.71	912.55
06/26/85	47.96	917.30	03/30/90	52.28	912.98
09/11/85	50.07	915.19	04/23/90	55.05	910.21
09/25/85	49.26	916.00	05/21/90	54.43	910.83
10/03/85	48.92	916.34	06/13/90	59.55	905.71
10/09/85	49.24	916.02			

133-047-20BAA3

LS Elev (msl,ft)=964.95

Wahpeton	Shallow Sand I	Aguifer			SI (ft.)=33.5-36.5
	Depth to	WL Elev			Depth to	WL Elev
Date	Water (ft)	(msl, ft)		Date	Water (ft)	(msl, ft)
10/09/85	27.44	937.51		10/20/87	35.41	929.54
10/23/85	27.38	937.57		11/02/87	35.42	929.53
10/24/85	27.44	937.51		11/17/87	35.49	929.46
11/01/85	27.37	937.58		11/30/87	36.24	928.71
11/13/85	27.41	937.54				
12/11/85	27.41	937.54		02/11/88	35.62	929.33
				04/22/88	35.48	929.47
04/10/86	26.79	938.16		06/23/88	35.70	929.25
09/30/86	26.12	938.83		06/30/88	35.70	929.25
10/08/86	26.11	938.84		07/27/88	35.73	929.22
10/09/86	26.13	938.82		08/23/88	35.51	929.44
10/10/86	26.05	938.90		09/30/88	35.49	929.46
10/11/86	26.11	938.84		10/27/88	35.53	929.42
10/15/86	26.23	938.72				
10/20/86	26.45	938.50		04/19/89	34.80	930.15
10/28/86	26.75	938.20		05/17/89	34.41	930.54
11/04/86	27.01	937.94		06/21/89	34.53	930.42
12/01/86	28.36	936.59		07/19/89	34.51	930.44
12/02/86	28.38	936.57		08/15/89	34.66	930.29
				10/05/89	34.96	929.99
01/07/87	30.51	934.44		10/25/89	35.18	929.77
01/29/87	31.72	933.23		12/01/89	35.37	929.58
03/03/87	33.41	931.54		d2		
05/13/87	34.76	930.19		01/03/90	35.55	929.40
07/03/87	35.04	929.91		03/29/90	35.69	929.26
08/04/87	35.26	929.69		04/23/90	35.66	929.29
08/31/87	3600	928.95		05/21/90	35.66	929.29
10/02/87	35.41	929.54	**	06/13/90	35.63	929.32
10/12/87	35 46	929.49				

Wahpeton 1				1 1 1 1	t.)=258-26
Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft
	udser (IC)	(MOI) IU/	Date	water (IL)	(MBI, [[
10/23/85	49.33	916.00	11/17/87	54.40	910.93
10/24/85	47.99	917.34	11/30/87	54.14	911.19
11/01/85	48.16	917.17			
11/13/85	47.88	917.45	02/11/88	52.97	912.36
12/10/85	47.41	917.92	04/22/88	53.05	912.28
12/11/85	48.05	917.28	06/23/88	62.12	903.21
			06/30/88	62.34	902.99
04/10/86	50.32	915.01	07/27/88	60.30	905.03
09/30/86	49.83	915.50	08/23/88	58.80	906.53
10/08/86	48.74	916.59	09/30/88	55.63	909.70
10/10/86	48.06	917.27	10/27/88	56.32	909.01
10/11/86	47.97	917.36	11/30/88	53.72	911.61
10/15/86	48.08	917.25			
10/28/86	49.51	915.82	01/04/89	55.38	909.95
11/04/86	65.55	899.78	04/19/89	53.42	911.91
12/01/86	71.24	894.09	05/17/89	62.28	903.05
12/02/86	68.96	896.37	06/21/89	58.99	906.34
			07/19/89	63.03	902.30
01/07/87	71.06	894.27	08/15/89	62.46	902.87
01/29/87	68.07	897.26	10/05/89	57.57	907.76
03/03/87	73.32	892.01	10/25/89	54.05	911.28
03/24/87	75.87	889.46	12/01/89	52.89	912.44
05/14/87	58.82	906.51			
07/03/87	61.37	903.96	01/03/90	53.10	912.23
30/01/07	57.16	908.17	03/30/90	52.16	913.17
08/31/87	58.02	907.31	04/23/90	55.20	
08/31/87 10/02/87	58.02 55.97	907.31 909.36	05/21/90	55.20 54.51	910.82
08/31/87 10/02/87 11/02/87	58.02 55.97 55.61	907.31	100 to 10	55.20 54.51 59.70	910.13 910.82 905.63
08/31/87 10/02/87 11/02/87 133-047-	58.02 55.97 55.61	907.31 909.36 909.72	05/21/90	55.20 54.51 59.70 LS Elev (msl.	910.82 905.63 ,ft)=974.8
08/31/87 10/02/87 11/02/87	58.02 55.97 55.61	907.31 909.36 909.72	05/21/90	55.20 54.51 59.70 LS Elev (msl.	910.82 905.63 ,ft)=974.8 t.)=61.7-6
08/31/87 10/02/87 11/02/87 133-047-2 Wahpeton S	58.02 55.97 55.61 20BAACD Shallow Sand A	907.31 909.36 909.72 Aguifer	05/21/90	55.20 54.51 59.70 LS Elev (msl SI (fi	910.82 905.63 ,ft)=974.8 t.)=61.7-6 WL Elev
08/31/87 10/02/87 11/02/87 133-047-2 Wahpeton S	58.02 55.97 55.61 20BAACD Shallow Sand A Depth to Water (ft)	907.31 909.36 909.72 Aguifer WL Elev (msl, ft)	05/21/90 06/13/90	55.20 54.51 59.70 LS Elev (msl SI (ft	910.82 905.63 ,ft)=974.8 t.)=61.7-6 WL Elev
08/31/87 10/02/87 11/02/87 133-047-2 Wahpeton S	58.02 55.97 55.61 20BAACD Shallow Sand A Depth to Water (ft)	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12	05/21/90 06/13/90 Date	55.20 54.51 59.70 LS Elev (msl SI (fi Depth to Water (ft)	910.82 905.63 ,ft)=974.8 t.)=61.7-6 WL Elev (msl, ft
08/31/87 10/02/87 11/02/87 133-047-2 Wahpeton S Date 06/21/89 07/19/89	58.02 55.97 55.61 20BAACD Shallow Sand A Depth to Water (ft) 67.70 66.48	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12 908.34	05/21/90 06/13/90 Date 0	55.20 54.51 59.70 LS Elev (msl SI (fi Depth to Water (ft)	910.82 905.63 ,ft)=974.8 t.)=61.7-6 WL Elev (msl, ft
08/31/87 10/02/87 11/02/87 133-047-2 Wahpeton S Date 06/21/89 07/19/89 08/15/89	58.02 55.97 55.61 20BAACD Shallow Sand A Depth to Water (ft) 67.70 66.48 66.37	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12 908.34 908.45	05/21/90 06/13/90 Date 01/03/90 03/29/90	55.20 54.51 59.70 LS Elev (msl SI (fi Depth to Water (ft) 	910.82 905.63 ,ft)=974.8 t.)=61.7-6 WL Elev (msl, ft
08/31/87 10/02/87 11/02/87 133-047-2 Wahpeton S Date 06/21/89 07/19/89 08/15/89 10/05/89	58.02 55.97 55.61 20BAACD Shallow Sand A Depth to Water (ft) 67.70 66.48 66.37 47.45	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12 908.34 908.45 927.37	05/21/90 06/13/90 Date 01/03/90 03/29/90 04/24/90	55.20 54.51 59.70 LS Elev (msl SI (fi Depth to Water (ft) 47.73 47.05 46.96	910.82 905.63 ,ft)=974.8 t.)=61.7-6 WL Elev (msl, ft) 927.09 927.77 927.86
08/31/87 10/02/87 11/02/87 133-047-2 Wahpeton S Date 06/21/89 07/19/89 08/15/89 10/05/89	58.02 55.97 55.61 20BAACD Shallow Sand A Depth to Water (ft) 67.70 66.48 66.37 47.45 47.73	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12 908.34 908.45 927.37 927.09	05/21/90 06/13/90 Date 01/03/90 03/29/90 04/24/90 05/22/90	55.20 54.51 59.70 LS Elev (msl. SI (find the series) of the series o	910.82 905.63 ,ft)=974.8 t.)=61.7-6 WL Elev (ms1, ft) 927.09 927.77 927.86 928.06
08/31/87 10/02/87 11/02/87 133-047-2 Wahpeton S Date 	58.02 55.97 55.61 20BACD Shallow Sand A Depth to Water (ft) 67.70 66.48 66.37 47.45 47.73 47.98	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12 908.34 908.45 927.37	05/21/90 06/13/90 Date 01/03/90 03/29/90 04/24/90	55.20 54.51 59.70 LS Elev (msl. SI (fi Depth to Water (ft) 	910.82 905.63 ,ft)=974.8 t.)=61.7-6 WL Elev (msl, ft) 927.09 927.77 927.86 928.06 928.03
08/31/87 10/02/87 11/02/87 133-047-2 Wahpeton S Date 	58.02 55.97 55.61 20BAACD Shallow Sand A Depth to Water (ft) 67.70 66.48 66.37 47.45 47.73	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12 908.34 908.45 927.37 927.09 926.84	05/21/90 06/13/90 Date 01/03/90 03/29/90 04/24/90 05/22/90	55.20 54.51 59.70 LS Elev (msl. SI (fit) Depth to Water (ft) 	910.82 905.63 ,ft)=974.8 t.)=61.7-6 WL Elev (msl, ft) 927.09 927.77 927.86 928.03
08/31/87 10/02/87 11/02/87 133-047-2 Nahpeton S Oate 	58.02 55.97 55.61 20BAACD Shallow Sand A Depth to Water (ft) 67.70 66.48 66.37 47.45 47.73 47.98	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12 908.34 908.45 927.37 927.09 926.84	05/21/90 06/13/90 Date 01/03/90 03/29/90 04/24/90 05/22/90	55.20 54.51 59.70 LS Elev (msl. SI (fit) Depth to Water (ft) 	910.82 905.63 ,ft)=974.8 t.)=61.7-6 WL Elev (msl, ft 927.09 927.77 927.86 928.03 ,ft)=966.0
08/31/87 10/02/87 11/02/87 133-047-2 Wahpeton S Date 06/21/89 07/19/89 08/15/89 10/05/89 10/25/89 11/29/89 133-047-	58.02 55.97 55.61 20BAACD Shallow Sand A Depth to Water (ft) 67.70 66.48 66.37 47.45 47.73 47.98 20BABAB1 Sand Plain Acu	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 	05/21/90 06/13/90 Date 01/03/90 03/29/90 04/24/90 05/22/90	55.20 54.51 59.70 LS Elev (msl. SI (find the second of	910.82 905.63 ,ft)=974.8 t.)=61.7-6 WL Elev (ms1, ft) 927.09 927.77 927.86 928.03 ,ft)=966.0 t.)=112-11
08/31/87 10/02/87 11/02/87 133-047-2 Wahpeton S Date 06/21/89 07/19/89 08/15/89 10/05/89 11/29/89 11/29/89	58.02 55.97 55.61 20BACD Shallow Sand A Depth to Water (ft) 67.70 66.48 66.37 47.45 47.73 47.98 20BABAB1 Sand Plain Act	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12 908.34 908.45 927.37 927.09 926.84 Difer WL Elev (msl, ft)	05/21/90 06/13/90 Date 01/03/90 03/29/90 04/24/90 05/22/90 06/14/90	55.20 54.51 59.70 LS Elev (msl. SI (fi Depth to Water (ft) 47.73 47.05 46.96 46.76 46.79 LS Elev (msl. SI (fi Depth to Water (ft)	910.82 905.63 ,ft)=974.8 t.)=61.7-6 WL Elev (msl, ft) 927.09 927.77 927.86 928.06 928.06 ,ft)=966.0 t.)=112-11 WL Elev (msl, ft
08/31/87 10/02/87 11/02/87 133-047-2 Wahpeton S Date 06/21/89 07/19/89 08/15/89 10/05/89 11/29/89 11/29/89	58.02 55.97 55.61 20BACD Shallow Sand A Depth to Water (ft) 67.70 66.48 66.37 47.45 47.73 47.98 20BABAB1 Sand Plain Agn Depth to Water (ft) 58.17	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12 908.34 908.45 927.37 927.09 926.84 ML Elev (msl, ft) 907.90	Date 01/03/90 03/29/90 04/24/90 05/22/90 06/14/90 Date 	55.20 54.51 59.70 LS Elev (msl. SI (fi Depth to Water (ft) 47.73 47.05 46.96 46.76 46.79 LS Elev (msl. SI (fi Depth to Water (ft)	910.82 905.63 ,ft)=974.8 t.)=61.7-6 WL Elev (msl, ft) 927.09 927.77 927.86 928.06 928.03 ,ft)=966.0 t.)=112-11 WL Elev (msl, ft)
08/31/87 10/02/87 11/02/87 133-047-2 Nahpeton S Oate 06/21/89 07/19/89 08/15/89 10/05/89 10/25/89 11/29/89 133-047- Wahpeton S Oate	58.02 55.97 55.61 20BAACD Shallow Sand A Depth to Water (ft) 67.70 66.48 66.37 47.45 47.73 47.98 20BABAB1 Sand Plain Agn Depth to Water (ft) 58.17 57.47	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12 908.34 908.45 927.37 927.09 926.84 Difer WL Elev (msl, ft) 907.90 908.60	Date 01/03/90 03/29/90 04/24/90 05/22/90 06/14/90 Date 03/16/89 04/19/89	55.20 54.51 59.70 LS Elev (msl. SI (fi Depth to Water (ft) 47.73 47.05 46.96 46.76 46.79 LS Elev (msl. SI (fi Depth to Water (ft)	910.82 905.63 ,ft)=974.8 t.)=61.7-6 WL Elev (msl, ft) 927.09 927.77 927.86 928.06 928.03 ,ft)=966.0 t.)=112-13 WL Elev (msl, ft) 910.60 912.00
08/31/87 10/02/87 11/02/87 133-047-2 Nahpeton S Oate 06/21/89 07/19/89 08/15/89 10/05/89 10/25/89 11/29/89 133-047- Wahpeton S Oate	58.02 55.97 55.61 20BAACD Shallow Sand A Depth to Water (ft) 67.70 66.48 66.37 47.45 47.73 47.98 20BABAB1 Sand Plain Act Depth to Water (ft) 58.17 57.47 56.59	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12 908.34 908.45 927.37 927.09 926.84 Difer WL Elev (msl, ft) 907.90 908.60 909.48	Date 01/03/90 03/29/90 04/24/90 05/22/90 06/14/90 Date 03/16/89 04/19/89 05/17/89	55.20 54.51 59.70 LS Elev (msl. SI (ft) Depth to Water (ft) 47.73 47.05 46.96 46.76 46.79 LS Elev (msl. SI (ft) Depth to Water (ft)	910.82 905.63 ,ft)=974.8 t.)=61.7-6 WL Elev (msl, ft) 927.09 927.77 927.86 928.06 928.03 ,ft)=966.0 t.)=112-13 WL Elev (msl, ft) 910.60 912.00 903.19
08/31/87 10/02/87 11/02/87 133-047-2 Nahpeton S Oate 06/21/89 07/19/89 08/15/89 10/05/89 10/25/89 11/29/89 133-047- Wahpeton S Oate	58.02 55.97 55.61 20BAACD Shallow Sand A Depth to Water (ft) 67.70 66.48 66.37 47.45 47.73 47.98 20BABAB1 Sand Plain Agn Depth to Water (ft) 58.17 57.47	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12 908.34 908.45 927.37 927.09 926.84 Difer WL Elev (msl, ft) 907.90 908.60	Date 01/03/90 03/29/90 04/24/90 05/22/90 06/14/90 Date 03/16/89 04/19/89 05/17/89 06/21/89	55.20 54.51 59.70 LS Elev (msl. SI (ft) Depth to Water (ft) 47.73 47.05 46.96 46.76 46.79 LS Elev (msl. SI (ft) Depth to Water (ft)	910.82 905.63 ,ft)=974.6 t.)=61.7-6 WL Elev (msl, ft) 927.09 927.77 927.86 928.00 ,ft)=966.0 t.)=112-13 WL Elev (msl, ft) 910.60 903.19 906.09
08/31/87 10/02/87 11/02/87 133-047-2 Nahpeton S Oate 06/21/89 07/19/89 08/15/89 10/05/89 10/25/89 11/29/89 133-047- Wahpeton S Oate 08/31/87 10/02/87 11/02/87	58.02 55.97 55.61 20BACD Shallow Sand A Depth to Water (ft) 67.70 66.48 66.37 47.45 47.73 47.98 20BABAB1 Sand Plain Aon Depth to Water (ft) 58.17 57.47 56.59 55.19	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12 908.34 908.45 927.37 927.09 926.84 Difer WL Elev (msl, ft) 907.90 908.60 909.48 910.88	Date 01/03/90 03/29/90 04/24/90 05/22/90 06/14/90 Date 03/16/89 04/19/89 05/17/89 06/21/89 07/19/89	55.20 54.51 59.70 LS Elev (msl. SI (ft) Depth to Water (ft) 47.73 47.05 46.96 46.76 46.79 LS Elev (msl. SI (ft) Depth to Water (ft)	910.82 905.63 ,ft)=974.8 t.)=61.7-6 WL Elev (msl, ft) 927.09 927.77 927.86 928.00 ,ft)=966.0 t.)=112-13 WL Elev (msl, ft) 910.60 903.19 906.09 902.30
08/31/87 10/02/87 11/02/87 133-047-2 Nahpeton S Oate 06/21/89 07/19/89 08/15/89 10/05/89 10/25/89 11/29/89 133-047- Wahpeton S Oate 08/31/87 10/02/87 11/30/87	58.02 55.97 55.61 20BACD Shallow Sand A Depth to Water (ft) 67.70 66.48 66.37 47.45 47.73 47.98 20BABAB1 Sand Plain Aon Depth to Water (ft) 58.17 57.47 56.59 55.19	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12 908.34 908.45 927.37 927.09 926.84 Difer WL Elev (msl, ft) 907.90 908.60 909.48	Date 01/03/90 03/29/90 04/24/90 05/22/90 06/14/90 Date 03/16/89 04/19/89 05/17/89 06/21/89 07/19/89 08/15/89	55.20 54.51 59.70 LS Elev (msl. SI (ft) Depth to Water (ft) 47.73 47.05 46.96 46.76 46.79 LS Elev (msl. SI (ft) Depth to Water (ft) 	910.82 905.63 ,ft)=974.6 t.)=61.7-6 WL Elev (msl, ft) 927.09 927.77 927.86 928.03 ,ft)=966.0 (t.)=112-13 WL Elev (msl, ft) 910.60 903.19 906.09 903.56
08/31/87 10/02/87 11/02/87 11/02/87 133-047-2 Nahpeton S 06/21/89 07/19/89 10/05/89 10/05/89 10/25/89 11/29/89 11/29/89 11/29/89 11/29/89 08/31/87 10/02/87 11/02/87 11/30/87	58.02 55.97 55.61 20BACD Shallow Sand A Depth to Water (ft) 67.70 66.48 66.37 47.45 47.73 47.98 20BABAB1 Sand Plain Aon Depth to Water (ft) 58.17 57.47 56.59 55.19	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12 908.34 908.45 927.37 927.09 926.84 Difer WL Elev (msl, ft) 907.90 908.60 909.48 910.88 912.18 903.97	Date 01/03/90 03/29/90 04/24/90 05/22/90 06/14/90 Date 03/16/89 04/19/89 05/17/89 06/21/89 07/19/89 08/15/89 10/05/89	55.20 54.51 59.70 LS Elev (msl. SI (ft) Depth to Water (ft) 47.73 47.05 46.96 46.76 46.79 LS Elev (msl. SI (ft) Depth to Water (ft)	910.8; 905.6; ,ft)=974.1; t.)=61.7-(WL Elem (msl, ft) 927.0; 927.7; 927.8; 928.0; ,ft)=966.0; (msl, ft) 910.6; 912.0; 903.1; 906.0; 903.5; 906.8;
08/31/87 10/02/87 11/02/87 11/02/87 133-047-2 Nahpeton S 06/21/89 07/19/89 10/05/89 10/05/89 10/25/89 11/29/89 133-047- Nahpeton S 08/31/87 10/02/87 11/02/87 11/30/87	58.02 55.97 55.61 20BACD Shallow Sand A Depth to Water (ft) 67.70 66.48 66.37 47.45 47.73 47.98 20BABAB1 Sand Plain Accompleted to Water (ft) 58.17 57.47 56.59 55.19 53.89 62.10	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12 908.34 908.45 927.37 927.09 926.84 Difer WL Elev (msl, ft) 907.90 908.60 909.48 910.88	Date 01/03/90 03/29/90 04/24/90 05/22/90 06/14/90 Date 03/16/89 04/19/89 05/17/89 06/21/89 07/19/89 08/15/89 10/05/89	55.20 54.51 59.70 LS Elev (msl. SI (ft) Depth to Water (ft) 47.73 47.05 46.96 46.76 46.79 LS Elev (msl. SI (ft) Depth to Water (ft)	910.8; 905.6; ,ft)=974.1; t.)=61.7-(WL Elem (msl, ft) 927.0; 927.7; 928.0; 928.0; ,ft)=966.0; (msl, ft) 910.6; 912.0; 903.1; 906.0; 903.5; 906.8; 911.1;
08/31/87 10/02/87 11/02/87 133-047-2 Nahpeton S 06/21/89 07/19/89 08/15/89 10/05/89 10/25/89 11/29/89 133-047- Nahpeton S 06/21/89 11/29/89 11/29/89 11/29/89 11/29/89 11/30/87 11/30/87 11/30/87 11/30/88 06/23/88 06/30/88 07/27/88	58.02 55.97 55.61 20BACD Shallow Sand A Depth to Water (ft) 67.70 66.48 66.37 47.45 47.73 47.98 20BABAB1 Sand Plain Accompleted to Water (ft) 58.17 57.47 56.59 55.19 53.89 62.10 62.21 60.30	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12 908.34 908.45 927.37 927.09 926.84 ML Elev (msl, ft) 907.90 908.60 909.48 910.88 912.18 903.97 903.86 905.77	Date 01/03/90 03/29/90 04/24/90 05/22/90 06/14/90 Date 03/16/89 04/19/89 05/17/89 06/21/89 07/19/89 08/15/89 10/05/89	55.20 54.51 59.70 LS Elev (msl. SI (ft) Depth to Water (ft) 47.73 47.05 46.96 46.76 46.79 LS Elev (msl. SI (ft) Depth to Water (ft)	910.8; 905.6; (ft) = 974.1; 205.6; (msl, ft) = 61.7-1; (msl, ft) = 927.0; 927.7; 927.8; 928.0; 928.0; (ft) = 966.1; (msl, ft) = 910.6; 912.0; 903.1; 906.0; 903.3; 906.8; 911.1;
08/31/87 10/02/87 11/02/87 11/02/87 133-047-2 Nahpeton S 06/21/89 07/19/89 10/05/89 10/25/89 11/29/89 133-047- Nahpeton S 08/31/87 10/02/87 11/02/87 11/02/87 11/30/87 04/22/88 06/30/88 07/27/88 08/23/88	58.02 55.97 55.61 20BACD Shallow Sand A Depth to Water (ft) 67.70 66.48 66.37 47.45 47.73 47.98 20BABAB1 Sand Plain Accompleted to Water (ft) 58.17 57.47 56.59 55.19 53.89 62.10 62.21	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12 908.34 908.45 927.37 927.09 926.84 ML Elev (msl, ft) 907.90 908.60 909.48 910.88 912.18 903.97 903.86	Date 01/03/90 03/29/90 04/24/90 05/22/90 06/14/90 Date 03/16/89 04/19/89 05/17/89 06/21/89 07/19/89 08/15/89 10/05/89	55.20 54.51 59.70 LS Elev (msl. SI (ft) Depth to Water (ft) 47.73 47.05 46.96 46.76 46.79 LS Elev (msl. SI (ft) Depth to Water (ft)	910.8; 905.6; ,ft)=974.1; E.)=61.7-(WL Elem (msl, ft) 927.0; 927.7; 928.0; 928.0; ,ft)=966.0; (msl, ft) 910.6; 912.0; 903.1; 906.0; 903.5; 906.8; 911.1; 912.2;
08/31/87 10/02/87 11/02/87 11/02/87 133-047-2 Nahpeton S 06/21/89 07/19/89 10/05/89 10/25/89 11/29/89 11/29/89 133-047- Nahpeton S 08/31/87 10/02/87 11/02/87 11/02/87 11/30/87 04/22/88 06/30/88 07/27/88 08/23/88 09/30/88	58.02 55.97 55.61 20BARCD Shallow Sand A Depth to Water (ft) 67.70 66.48 66.37 47.45 47.73 47.98 20BABAB1 Sand Plain Accompleted to Water (ft) 58.17 57.47 56.59 55.19 53.89 62.10 62.21 60.30 60.30	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12 908.34 908.45 927.37 927.09 926.84 ML Elev (msl, ft) 907.90 908.60 909.48 910.88 912.18 903.97 903.86 905.77 905.77	Date 01/03/90 03/29/90 04/24/90 05/22/90 06/14/90 Date 03/16/89 04/19/89 05/17/89 06/21/89 07/19/89 10/05/89 10/05/89 12/01/89	55.20 54.51 59.70 LS Elev (msl. SI (ft) Depth to Water (ft) 47.73 47.05 46.96 46.76 46.79 LS Elev (msl. SI (ft) Depth to Water (ft) 55.47 54.07 62.88 60.02 63.77 62.51 59.23 54.91 53.79 53.75	910.82 905.63 ,ft)=974.6 t.)=61.7-6 WL Eleven (msl, ft) 927.09 927.77 927.86 928.03 ,ft)=966.0 (msl, ft) 910.60 903.19 906.09 902.30 903.56 906.84 911.16 912.28
08/31/87 10/02/87 11/02/87 11/02/87 133-047-2 Nahpeton S 06/21/89 07/19/89 10/05/89 10/05/89 10/25/89 11/29/89 11/29/89 133-047-2 Nahpeton S 08/31/87 10/02/87 11/02/87 11/02/87 11/30/87 04/22/88 06/30/88 07/27/88 08/23/88 09/30/88 10/27/88	58.02 55.97 55.61 20BARCD Shallow Sand A Depth to Water (ft) 67.70 66.48 66.37 47.45 47.73 47.98 20BABAB1 Sand Plain Accurate (ft) 58.17 57.47 56.59 55.19 53.89 62.10 62.21 60.30 60.30 60.30 56.19	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12 908.34 908.45 927.37 927.09 926.84 ML Elev (msl, ft) 907.90 908.60 909.48 910.88 912.18 903.97 903.86 905.77 905.77 909.88	Date 01/03/90 03/29/90 04/24/90 05/22/90 06/14/90 Date 03/16/89 04/19/89 05/17/89 06/21/89 07/19/89 10/05/89 10/05/89 12/01/89	55.20 54.51 59.70 LS Elev (msl. SI (ft) Depth to Water (ft) 47.73 47.05 46.96 46.76 46.79 LS Elev (msl. SI (ft) Depth to Water (ft) 55.47 54.07 62.88 60.02 63.77 62.51 59.23 54.91 53.79	910.82 905.63 ,ft)=974.8 t.)=61.7-6 WL Elev (msl, ft) 927.09 927.77 927.86 928.06 928.06 ,ft)=966.0 t.)=112-13 WL Elev (msl, ft
08/31/87 10/02/87 11/02/87 11/02/87 133-047-2 Wahpeton S 06/21/89 07/19/89 08/15/89 10/05/89 10/25/89 11/29/89 133-047- Wahpeton S 08/31/87 10/02/87 11/02/87 11/02/87 11/30/87 04/22/88 06/23/88 06/30/88 07/27/88 08/23/88 09/30/88 10/27/88	58.02 55.97 55.61 20BARCD Shallow Sand A Depth to Water (ft) 67.70 66.48 66.37 47.45 47.73 47.98 20BABAB1 Sand Plain Am Depth to Water (ft) 58.17 57.47 56.59 55.19 53.89 62.10 62.21 60.30 60.30 60.30 56.19 57.92	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12 908.34 908.45 927.37 927.09 926.84 ML Elev (msl, ft) 907.90 908.60 909.48 910.88 912.18 903.97 903.86 905.77 905.77 909.88 908.15	Date 01/03/90 03/29/90 04/24/90 05/22/90 06/14/90 Date 03/16/89 04/19/89 05/17/89 06/21/89 07/19/89 10/05/89 10/05/89 12/01/89 01/03/90 03/30/90	55.20 54.51 59.70 LS Elev (msl. SI (ft) Depth to Water (ft) 47.73 47.05 46.96 46.76 46.79 LS Elev (msl. SI (ft) Depth to Water (ft) 55.47 54.07 62.88 60.02 63.77 62.51 59.23 54.91 53.79 53.75 52.98	910.82 905.63 ,ft)=974.8 t.)=61.7-6 WL Elev (msl, ft) 927.09 927.77 927.86 928.03 ,ft)=966.0 (t.)=112-11 WL Elev (msl, ft) 910.60 903.19 906.09 902.30 903.56 906.84 911.16 912.28 912.32 913.09
Date 	58.02 55.97 55.61 20BARCD Shallow Sand A Depth to Water (ft) 67.70 66.48 66.37 47.45 47.73 47.98 20BABAB1 Sand Plain Am Depth to Water (ft) 58.17 57.47 56.59 55.19 53.89 62.10 62.21 60.30 60.30 60.30 56.19 57.92	907.31 909.36 909.72 Aguifer WL Elev (msl, ft) 907.12 908.34 908.45 927.37 927.09 926.84 ML Elev (msl, ft) 907.90 908.60 909.48 910.88 912.18 903.97 903.86 905.77 905.77 909.88 908.15	Date 01/03/90 03/29/90 04/24/90 05/22/90 06/14/90 Date 03/16/89 04/19/89 05/17/89 06/21/89 07/19/89 10/05/89 10/05/89 12/01/89 01/03/90 03/30/90 04/23/90	55.20 54.51 59.70 LS Elev (msl. SI (ft) Depth to Water (ft) 47.73 47.05 46.96 46.76 46.79 LS Elev (msl. SI (ft) Depth to Water (ft) 55.47 54.07 62.88 60.02 63.77 62.51 59.23 54.91 53.79 53.75 52.98 55.52	910.82 905.63 ,ft)=974.6 t.)=61.7-6 WL Elevent (msl, ft) 927.09 927.77 927.86 928.03 ,ft)=966.0 (t.)=112-11 WL Elevent (msl, ft) 910.60 903.19 906.09 902.30 903.56 906.86 911.16 912.28 913.09 910.55

133-047-20BABB

Wahpeton Shallow Sand Aquifer			SI (ft.)=53		
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
00/04/02		000 54			
08/31/87	3320	929.54			
10/02/87	33.89	928.85	01/04/89	37.19	925.55
10/12/87	33.39	929.35	02/15/89	37.83	924.91
10/20/87	33.78	928.96	03/16/89	37.03	925.71
11/02/87	33.62	929.12	04/19/89	36.72	926.02
11/17/87	34.00	928.74	05/17/89	36.17	926.57
11/30/87	33.98	928.76	06/21/89	36.33	926.41
			07/19/89	37.30	925.44
02/11/88	3469	928.05	08/15/89	37.45	925.29
04/22/88	35.31	927.43	10/05/89	37.10	925.64
06/23/88	36.53	926.21	10/25/89	36.73	926.01
06/30/88	36.75	925.99	12/01/89	36.90	925.84
07/27/88	36.78	925.96			
08/22/88	37.01	925.73	01/03/90	36.90	925.84
08/23/88	37.01	925.73	03/29/90	36.81	925.93
09/30/88	37 . 33	925.41	04/23/90	36.39	926.35
10/27/88	36.95	925.79	05/21/90	37.13	925.61
11/30/88	37.43	925.31	06/13/90	37.05	925.69

	AND NO DEC AND ADDRESS OF ADDRESS OF
133-047-20BAD1	LS Elev $(msl.ft) = 974$.
133-04/-20DADI	DO DIEV INSTITUTOR

Wahpeton Buried Valley Aguifer			SI (ft.)=255-260		
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
10/24/85	57 - 62	917.25	11/03/87	63.32	911.55
11/01/85	57.71	917.16	12/01/87	62.34	912.53
11/13/85	5733	917.54			
12/10/85	56.97	917.90	02/11/88	62.91	911.96
12/11/85	57.56	917.31	04/22/88	62.56	912.31
			06/23/88	71.08	903.79
04/10/86	59.94	914.93	06/30/88	72.05	902.82
05/15/86	57.01	917.86	07/27/88	69.94	904.93
08/27/86	70.68	904.19	08/23/88	69.14	905.73
09/30/86	59.36	915.51	09/30/88	65.54	909.33
10/08/86	58.29	916.58	10/27/88	65.09	909.78
10/09/86	58.16	916.71	11/30/88	64.15	910.72
10/10/86	57.75	917.12			
10/11/86	57.52	917.35	01/05/89	62.97	911.90
10/15/86	57.61	917.26	02/16/89	64.78	910.09
10/28/86	58.78	916.09	03/16/89	64.71	910.16
11/04/86	75.20	899.67	04/19/89	63.46	911.41
12/01/86	81.24	893.63	05/17/89	72.61	902.26
12/02/86	78.36	896.51	06/21/89	68.89	905.98
			07/19/89	72.81	902.06
01/07/87	79.93	894.94	08/15/89	71.99	902.88
01/29/87	77.49	897.38	10/05/89	67.13	907.74
03/03/87	82.21	892.66	10/25/89	64.25	910.62
03/24/87	84.93	889.94	11/29/89	63.42	911.45
05/14/87	68.30	906.57			
07/03/87	70.83	904.04	01/03/90	62.08	912.79
08/04/87	67.89	906.98	03/30/90	61.72	913.15
09/01/87	66.67	908.20	04/24/90	63.91	910.96
10/02/87	65.23	909.64	05/22/90	64.11	910.76
10/12/87	66.20	908.67	06/14/90	69.25	905.62
10/20/87	65.26	909.61			

133-047-20BAD2 LS Elev (msl,ft)=975.18

Wahpeton Sand Plain Aguifer			SI (ft.)=135-140		
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
10/24/85	57.96	917.22	11/03/87	63.59	911.59
11/01/85	57.99	917.19	12/01/87	62.55	912.63
11/13/85	57.59	917.59			
12/10/85	57.21	917.97	02/11/88	63.17	912.01
12/11/85	57.79	917.39	04/22/88	62.83	912.35
			06/23/88	71.34	903.84
04/10/86	60.22	914.96	06/30/88	72.32	902.86
05/15/86	57.25	917.93	07/27/88	70.22	904.96
08/27/86	70.94	904.24	08/23/88	69.38	905.80
09/30/86	59.64	915.54	09/30/88	65.77	909.41
10/08/86	58.54	916.64	10/27/88	65.39	909.79
10/09/86	58.45	916.73	11/30/88	64.42	910.76
10/10/86	58.00	917.18			
10/11/86	57.79	917.39	01/05/89	63.22	911.96
10/15/86	57.85	917.33	02/16/89	65.03	910.15
10/28/86	59.08	916.10	03/16/89	64.97	910.21
11/04/86	75.51	899.67	04/19/89	63.73	911.45
12/01/86	81.50	893.68	05/17/89	72.86	902.32
12/02/86	78.62	896.56	06/21/89	69.16	906.02
			07/19/89	73.07	902.11
01/07/87	80.20	894.98	08/15/89	72.24	902.94
01/29/87	77.77	897.41	10/05/89	67.35	907.83
03/03/87	82.47	892.71	10/25/89	64.50	910.68
03/24/87	85.19	889.99	11/29/89	63.55	911.63
05/14/87	68.56	906.62			
07/03/87	71.08	904.10	01/03/90	62.33	912.85
08/04/87	68.15	907.03	03/30/90	61.98	913.20
09/01/87	66.87	908.31	04/24/90	64.02	911.16
10/02/87	65.45	909.73	05/22/90	64.33	910.85
10/12/87	66.45	908.73	06/14/90	69.48	905.70
10/20/87	69.24	905.94	was - second of the th	SANCOL DE OUCHS	

wanbeton	Shallow Sand A				(ft.)=51-56
Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
 10/24/85	38.18	937.35	11/02/87	48.90	926.63
11/01/85	38.03	937.50	11/17/87	49.13	926.40
11/13/85	38.13	937.40	12/01/87	49.18	926.35
12/10/85	38.27	937.26	12/01/01	17.10	220.33
12/11/85	38.18	937.35	02/11/88	49.63	925.90
			04/22/88	50.07	925.46
04/10/86	37.93	937.60	06/23/88	50.29	925.24
05/15/86	37.54	937.99	06/30/88	50.34	925.19
08/27/86	37.17	938.36	07/27/88	50.30	925.23
09/30/86	37.13	938.40	08/23/88	50.63	924.90
10/08/86	37.18	938.35	09/30/88	50.96	924.57
10/09/86	37.26	938.27	10/27/88	51.05	924.48
10/10/86	36.92	938.61	11/30/88	51.43	924.10
10/11/86	37.16	938.37			
10/15/86	37.32	938.21	01/05/89	51.48	924.05
10/20/86	37.56	937.97	02/16/89	48.46	927.07
10/28/86	37.98	937.55	03/16/89	49.36	926.17
11/04/86	38.14	937.39	04/19/89	49.56	925.97
12/01/86	39.52	936.01	05/17/89	50.27	925.26
12/02/86	39.57	935.96	06/21/89	50.69	924.84
			07/19/89	50.06	925.47
01/07/87	41.46	934.07	08/15/89	49.47	926.06
01/29/87	42.21	933.32	10/05/89	48.22	927.31
03/03/87	43.51	932.02	10/25/89	48.51	927.02
03/24/87	44.15	931.38	11/29/89	48.69	926.84
05/13/87	45.44	930.09			
07/03/87	46.65	928.88	01/03/90	48.54	926.99
08/04/87	47.43	928.10	03/29/90	47.77	927.76
09/01/87	47.93	927.60	04/24/90	47.68	927.85
10/02/87	48.51	927.02	05/22/90	47.52	928.01
10/12/87	48.55	926.98	06/14/90	47.51	928.02
10/20/87	48.70	926.83			
	-20BADAB1			LS Elev (msl	
wanpeton	Shallow Sand A				(ft.)=57-62
-	Depth to	WL Elev		Depth to	WL Elev
Date 	Water (ft)	(msl, ft)	Date 	Water (ft)	(msl, ft)
05/17/89	58.01	924.45			
06/21/89	57 . <i>77</i>	924.69	01/03/90	55.99	926.47
07/19/89	56.96	925.50	03/29/90	54.77	927.69
08/15/89	56.42	926.04	04/24/90	54.54	927.92
10/05/89	56.36	926.10	05/22/90	54.21	928.25
10/25/89 11/29/89	57.50 56.85	924.96 925.61	06/14/90	54.40	928.06
	-20BADBD1				51.3 000 45
	Shallow Sand A	quifer		LS Elev (msl,	(ft.)=982.45
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
05/17/89	57.37	925.08			
06/21/89	57.52	924.93	01/03/90	55.67	926.78
7/19/89	56.83	925.62	03/29/90	54.71	927.74
	56.21	926.24	04/24/90	54.48	927.97
08/15/89					
	5588	926.57	05/22/90	54.49	927.96
08/15/89 10/05/89 10/25/89				54.49 54.23	927.96 928.22

	-20BADCA1 Shallow Sand	Aguifer		LS Elev (msl	
	Depth to	WL Elev		Depth to	
	Water (ft)	A 104 G 100		Water (ft)	(msl, ft)
	58.33	924.06			
06/21/89	57.76	924.63	01/03/90	55.77	926.62
07/19/89	56.26	926.13		54.61	927.78
08/15/89	56.32	926.07	04/24/90	54.44	927.95
10/05/89	56.41	925.98	05/22/90	54.19	928.20
10/25/89	57.27	925.12	06/14/90	54.21	928.18
11/29/89	56.37	926.02			
	-20BADCA3			LS Elev (r	msl,ft)=982
Wahpeton	Shallow Sand	Aquifer		SI (f	:.)=73.8-85
	Depth to	WL Elev		Depth to	WL Elev
	Water (ft)	THE STATE OF THE S	Date	Water (ft)	(msl, ft)
05/17/89	73.19	908.81			
06/21/89	73.91	908.09	01/03/90	55.41	926.59
07/19/89	55.89	926.11	03/29/90	54.26	927.74
		907.42	04/24/90	54.09	927.91
10/25/89	56.98	925.02	05/22/90	53.84	928.16
11/29/89	56.03	925.97	06/14/90	53.86	928.14
133-047-	20BADCD1		27	LS Elev (msl,	ft)=982.66
Wahpeton	Shallow Sand A	Aguifer		SI	
	Depth to	WL Elev		Depth to	WL Elev
	Water (ft)		Date	Water (ft)	
		925.32			
		925.80	01/03/90	55.86	926.80
07/19/89	56.25	926.41		54.87	
08/15/89	55.65	927.01	04/24/90	54.72	927.94
10/05/89	55.85	926.81	05/22/90	54.51	928.15
10/25/89 11/29/89	D 1949 CS 7/10 1960/07-97	925.35 926.23	06/14/90		928.07
, 47, 07	30.43	740.43			

133-047-20BBA2 Wahpeton Shallow

LS Elev (msl, ft) = 961.34

Wahpeton Shallow Sand Aguifer				SI (ft.)=56-59		
	Depth to	WL Elev		Depth to	WL Elev	
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)	
09/07/75	4.42	956.92	12/01/86	23.67	937.67	
12/02/75	6.12	955.22	12/02/86	23.55	937.79	
01/22/76	6.65	954.69	01/07/87	24.91	936.43	
04/09/76	4.47	956.87	01/29/87	24.97	936.37	
06/03/76	5.78	955.56	03/03/87	25.95	935.39	
06/17/76	6.20	955.14	03/24/87	26.78	934.56	
06/30/76	6.65	954.69	05/13/87	26.84	934.50	
07/21/76	7.46	953.88	07/03/87	28.14	933.20	
08/11/76	8.39	952.95	08/04/87	28.84	932.50	
08/24/76	8.82	952.52	09/01/87	29.17	932.17	
09/13/76	9.36	951.98	10/02/87	30.09	931.25	
09/28/76	9.71	951.63	10/12/87	29.69	931.65	
11/02/76	10.44	950.90	10/20/87	30.11	931.23	
12/07/76	10.84	950.50	11/03/87	30.16	931.18	
			11/17/87	30.58	930.76	
01/04/77	10.84	950.50	12/01/87	30.63	930.71	
04/04/77	9.87	951.47			2301,1	
06/07/77	10.33	951.01	02/11/88	31.43	929.91	
07/07/77	12.88	948.46	04/22/88	32.30	929.04	
08/10/77	13.38	947.96	06/23/88	32.98	928.36	
09/15/77	13.80	947.54	06/30/88	33.06	928.28	
12/12/77	13.78	947.56	07/27/88	33.09	928.25	
			08/23/88	33.38	927.96	
03/14/78	13.30	948.04	09/30/88	33.83	927.51	
06/22/78	11.52	949.82	10/27/88	33.72	927.62	
09/21/78	12.95	948.39	11/30/88	34.43	926.91	
12/06/78	14.20	947.14	11/30/00	34.43	720.71	
			01/05/89	34.53	926.81	
09/17/80	17.44	943.90	02/16/89	34.46	926.88	
			03/16/89	34.05	927.29	
10/31/85	27.29	934.05	04/19/89	33.83	927.51	
11/01/85	25.47	935.87	05/17/89	33.28	928.06	
11/13/85	24.51	936.83	06/21/89	33.32	928.02	
12/11/85	24.36	936.98	07/19/89	33.71	927.63	
			08/15/89	33.60	927.74	
04/10/86	24.26	937.08	10/05/89	33.54	927.80	
09/30/86	23.16	938.18	10/25/89	33.51	927.83	
10/08/86	23.25	938.09	11/29/89	33.74	927.60	
10/09/86	23.15	938.19	recommendation of adii \$6000	200000000000 NV - 19000		
10/10/86	22.86	938.48	01/02/90	33.58	927.76	
10/11/86	23.10	938.24	03/29/90	33.62	927.72	
10/15/86	23.08	938.26	04/24/90	33.56	927.78	
10/20/86	22.85	938.49	05/22/90	33.62	927.72	
10/28/86	22.99	938.35	06/14/90	33.82	927.52	
11/04/86	22.93	938.41	T = 1 = 21 2 V	33.00	241.34	

133-047-20BBA3 LS Elev (msl,ft)=961.34

Wahpeton Shallow Sand Aguifer			SI	I (ft.)=23-26	
Date	Depth to Water (ft)	(msl, ft)	Date	Depth to Water (ft)	
09/07/75	3.90	957.44	09/17/80	16.30	945.04
12/02/75	5.56	955.78			
			10/09/85	24.01	937.33
01/22/76	5.45	955.89	10/24/85	23.94	937.40
04/04/76	4.27	957.07	11/01/85	23.97	937.37
06/03/76	6.25	955.09	11/13/85	24.10	937.24
06/17/76	6.73	954.61	12/11/85	24.12	937.22
06/30/76	7.04	954.30			
07/21/76	7.66	953.68	04/10/86	23.81	937.53
08/11/76	8.35	952.99	09/30/86	22.61	938.73
08/24/76	8.72	952.62	10/08/86	22.58	938.76
09/13/76	9.41	951.93	10/09/86	22.53	938.81
09/28/76	9.73	951.61	10/10/86	22.51	938.83
11/02/76	10.44	950.90	10/11/86	22.52	938.82
12/07/76	10.80	950.54	10/15/86	22.96	938.38
			10/20/86	22.46	938.88
01/04/77	10.77	950.57	10/28/86	22.47	938.87
04/04/77	9.67	951.67	11/04/86	22.50	938.84
06/07/77	11.25	950.09	12/01/86	23.05	938.29
07/07/77	11.87	949.47	12/02/86	22.99	938.35
08/10/77	11.55	949.79			
09/15/77	12.80	948.54	01/07/87	23.80	937.54
12/12/77	12.65	948.69	01/29/87	24.25	937.09
			03/03/87	24.96	936.38
03/14/78	12.40	948.94	03/24/87	25.30	936.04
06/22/78	10.44	950.90	05/13/87	25.22	936.12
09/21/78	11.82	949.52			
12/06/78	12.91	948.43	08/15/89	0.00	961.34

133-047-20BBA4 LS Elev (msl,ft)=963.35

Wahpeton	Shallow Sand	Aquifer	· · · · · · · · · · · · · · · · · · ·	SI	(ft.)=34-37
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
10/09/85	25.98	937.37	11/17/87	31.25	932.10
10/24/85	25.93	937.42	12/01/87	31.45	931.90
11/01/85	25.97	937.38			
11/13/85	26.11	937.24	02/11/88	32.50	930.85
12/11/85	26.10	937.25	04/22/88	33.23	930.12
			06/23/88	33.87	929.48
04/10/86	25.76	937.59	06/30/88	33.98	929.37
09/30/86	24.58	938.77	07/27/88	34.27	929.08
10/08/86	24.56	938.79	08/23/88	34.51	928.84
10/09/86	24.53	938.82	09/30/88	34.87	928.48
10/10/86	24.50	938.85	10/27/88	35.15	928.20
10/11/86	24.51	938.84	11/30/88	35.50	927.85
10/15/86	24.49	938.86			
10/20/86	24.44	938.91	01/05/89	35.82	927.53
10/28/86	24.46	938.89	02/16/89	35.98	927.37
11/04/86	24.48	938.87	03/16/89	35.57	927.78
12/01/86	24.97	938.38	04/19/89	35.27	928.08
12/02/86	24.94	938.41	05/17/89	34.64	928.71
	8		06/21/89	34.55	928.80
01/07/87	25.75	937.60	07/19/89	35.05	928.30
01/29/87	26.17	937.18	08/15/89	34.95	928.40
03/03/87	26.85	936.50	10/05/89	35.03	928.32
03/24/87	27.26	936.09	10/25/89	35.07	928.28
05/13/87	28.12	935.23	11/29/89	35.24	928.11
07/03/87	29.03	934.32			
08/04/87	29.66	933.69	01/02/90	35.36	927.99
09/01/87	30.10	933.25	03/29/90	35.38	927.97
10/02/87	30.53	932.82	04/24/90	35.28	928.07
10/12/87	30.65	932.70	05/22/90	35.33	928.02
10/20/87	30.81	932.54	06/14/90	35.41	927.94
11/03/87	31.08	932.27			

133-047-20BBA5 LS Elev (msl,ft)=960.57

Wahpeton	Shallow Sand	Aguifer			(ft.)=38-41
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
06/03/76	8.27	052.20	22.422.425		
06/03/76	8.56	952.30	03/03/87	30.98	929.59
06/30/76	9.10	952.01	03/24/87	32.03	928.54
07/21/76	10.48	951.47	05/13/87	29.79	930.78
08/11/76	13.33	950.09	07/03/87	31.03	929.54
		947.24	08/04/87	31.12	929.45
08/24/76 09/13/76	13.49 13.81	947.08	08/31/87	31.31	929.26
09/13/76	14.08	946.76	10/02/87	31.81	928.76
11/02/76	13.72	946.49	10/12/87	31.43	929.14
		946.85	10/20/87	31.73	928.84
12/07/76	15.03	945.54	11/02/87	31.48	929.09
01/04/77	15 10	0.45 45	11/17/87	31.82	928.75
01/04/77 04/04/77	15.10	945.47	11/30/87	31.72	928.85
THE PART OF THE PART OF THE		947.50			
06/07/77	14.75	945.82	02/11/88	33.16	927.41
07/07/77	14.89	945.68	04/22/88	33.02	927.55
08/10/77	15.04	945.53	06/23/88	35.26	925.31
09/15/77	15.43	945.14	06/30/88	34.66	925.91
12/12/77	13.59	946.98	07/27/88	34.61	925.96
00//1//50			08/23/88	34.58	925.99
03/14/78	14.34	946.23	09/30/88	34.96	925.61
06/22/78	13.29	947.28	10/27/88	34.52	926.05
09/21/78	14.50	946.07	11/30/88	34.90	925.67
12/06/78	15.86	944.71			
00115100			01/04/89	34.61	925.96
09/17/80	19.70	940.87	02/15/89	35.35	925.22
			03/16/89	34.70	925.87
09/25/85	27.68	932.89	04/19/89	34.47	926.10
10/03/85	27.37	933.20	05/17/89	34.37	926.20
10/09/85	27.82	932.75	06/21/89	34.45	926.12
10/15/85	26.84	933.73	07/19/89	35.48	925.09
10/23/85	26.40	934.17	08/15/89	35.55	925.02
10/24/85	26.66	933.91	10/05/89	34.90	925.67
11/01/85	26.62	933.95	10/25/89	34.50	926.07
		N COLUMN TO THE	12/01/89	34.58	925.99
10/28/86	25.25	935.32			
11/04/86	26.22	934.35	01/03/90	34.53	926.04
12/01/86	28.47	932.10	03/29/90	34.50	926.07
	2.22		04/23/90	34.13	926.44
01/07/87	29.81	930.76	05/21/90	34.89	925.68
01/28/87	29.97	930.60	06/13/90	34.83	925.74

133-047-20BBA6

LS Elev (msl, ft) = 961.81

Wahpeton Buried Valley Aguifer			SI (ft.)=268-273		
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
10/24/85	44.62	917.19	11/03/87	49.84	911.97
11/01/85	44.46	917.35	11/17/87	50.10	911.71
11/13/85	44.31	917.50	12/01/87	48.92	912.89
12/10/85	43.77	918.04			
12/11/85	44.55	917.26	04/22/88	49.44	912.37
			06/23/88	56.89	904.92
04/10/86	48.59	913.22	06/30/88	57.54	904.27
05/15/86	43.52	918.29	07/27/88	55.65	906.16
08/27/86	57.75	904.06	07/29/88	55.65	906.16
09/30/86	45.48	916.33	08/23/88	57.82	903.99
10/08/86	44.68	917.13	09/30/88	51.90	909.91
10/09/86	44.48	917.33	10/27/88	52.04	909.77
10/10/86	44.08	917.73	11/30/88	52.95	908.86
10/11/86	43.99	917.82			
10/15/86	43.95	917.86	01/05/89	49.75	912.06
10/28/86	45.28	916.53	02/16/89	53.68	908.13
11/04/86	59.79	902.02	03/16/89	53.50	908.31
12/01/86	66.88	894.93	04/19/89	49.73	912.08
12/02/86	63.49	898.32	05/17/89	58.20	903.61
			06/21/89	55.13	906.68
01/07/87	64.92	896.89	07/19/89	58.83	902.98
01/29/87	62.98	898.83	08/15/89	57.79	904.02
03/03/87	66.99	894.82	10/05/89	55.95	905.86
03/24/87	69.73	892.08	10/25/89	50.65	911.16
05/14/87	54.69	907.12	11/29/89	49.68	912.13
07/03/87	59.08	902.73			
08/04/87	56.50	905.31	01/02/90	53.80	908.01
09/01/87	54.74	907.07	03/30/90	48.50	913.31
10/02/87	53.20	908.61	04/24/90	52.23	909.58
10/12/87	55.03	906.78	05/22/90	52.75	909.06
10/20/87	53.88	907.93	06/14/90	57.60	904.21

133-047-20BBA7

LS Elev (msl, ft) = 961.9

Wahpeton Sand Plain Aquifer			t.) = 110 - 115		
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
10/24/85	45.61	916.29	11/03/87	49.75	912.15
11/01/85	44.48	917.42	11/17/87	50.12	911.78
11/13/85	44.35	917.55	12/01/87	48.90	913.00
12/10/85	43.77	918.13			
12/11/85	44.25	917.65	04/22/88	49.47	912.43
			06/23/88	56.89	905.01
04/10/86	48.37	913.53	06/30/88	57.56	904.34
05/15/86	43.52	918.38	07/27/88	55.65	906.25
08/27/86	57.53	904.37	08/23/88	57.49	904.41
09/30/86	45.48	916.42	09/30/88	51.92	909.98
10/08/86	44.68	917.22	10/27/88	52.03	909.87
10/09/86	44.49	917.41	11/30/88	52.62	909.28
10/10/86	44.09	917.81			
10/11/86	44.00	917.90	01/05/89	49.63	912.27
10/15/86	43.97	917.93	02/16/89	53.32	908.58
10/28/86	45.30	916.60	03/16/89	53.16	908.74
11/04/86	59.80	902.10	04/19/89	49.76	912.14
12/01/86	66.91	894.99	05/17/89	58.20	903.70
12/02/86	63.49	898.41	06/21/89	55.15	906.75
			07/19/89	58.82	903.08
01/07/87	64.91	896.99	08/15/89	57.81	904.09
01/29/87	63.00	898.90	10/05/89	55.59	906.31
03/03/87	66.97	894.93	10/25/89	50.69	911.21
03/24/87	70.04	891.86	11/29/89	49.73	912.17
05/14/87	54.70	907.20	Mi.		
07/03/87	58.76	903.14	01/02/90	53.39	908.51
08/04/87	56.20	905.70	03/30/90	48.53	913.37
09/01/87	54.42	907.48	04/24/90	51.94	909.96
10/02/87	52.72	909.18	05/22/90	52.44	909.46
10/12/87	54.64	907.26	06/14/90	57.31	904.59
10/20/87	53.61	908.29			

LS Elev (msl,ft)=961.97133-047-20BBA8

Wahpeton Shallow Sand Aquifer				SI	(ft.) = 58 - 63
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
10/24/85	24.77	937.20	10/20/87	30.67	931.30
10/30/85	24.84	937.13	11/02/87	30.74	931.23
11/01/85	25.95	936.02	11/17/87	31.17	930.80
11/13/85	25.21	936.76	12/01/87	31.29	930.68
12/10/85	25.31	936.66			
12/11/85	25.18	936.79	02/11/88	32.02	929.95
			04/22/88	32.86	929.11
04/10/86	24.90	937.07	06/23/88	33.56	928.41
05/15/86	24.51	937.46	06/30/88	33.65	928.32
08/27/86	24.10	937.87	07/27/88	33.69	928.28
09/30/86	23.80	938.17	08/23/88	33.99	927.98
10/08/86	23.88	938.09	09/30/88	34.43	927.54
10/09/86	23.78	938.19	10/27/88	34.32	927.65
10/10/86	23.51	938.46	11/30/88	34.99	926.98
10/11/86	23.74	938.23			
10/15/86	23.71	938.26	01/05/89	35.10	926.87
10/20/86	23.50	938.47	02/16/89	35.00	926.97
10/28/86	23.61	938.36	03/16/89	34.64	927.33
11/04/86	23.60	938.37	04/19/89	34.40	927.57
12/01/86	24.36	937.61	05/17/89	33.90	928.07
12/02/86	24.25	937.72	06/21/89	33.90	928.07
			07/19/89	34.29	927.68
01/07/87	25.54	936.43	08/15/89	34.22	927.75
01/29/87	25.63	936.34	10/05/89	34.14	927.83
03/03/87	26.60	935.37	10/25/89	34.09	927.88
03/24/87	27.03	934.94	11/29/89	34.34	927.63
05/13/87	27.50	934.47			
07/03/87	28.77	933.20	01/02/90	34.17	927.80
08/04/87	29.47	932.50	03/29/90	34.22	927.75
09/01/87	29.82	932.15	04/24/90	34.15	927.82
10/02/87	30.68	931.29	05/22/90	34.21	927.76
10/12/87	30.38	931.59	06/14/90	34.40	927.57

LS Elev (msl,ft)=959.42 SI (ft.)=113-118 133-047-20BBABB1

Wahpeton Sand Plain Aguifer			SI (ft.)=113-			
Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)		
50.64	908.78	03/16/89	48.88	910.54		
51.17	908.25	04/19/89	46.93	912.49		
49.79	909.63	05/17/89	55.57	903.85		
48.54	910.88	06/21/89	53.04	906.38		
**		07/19/89	56.59	902.83		
47.04	912.38	08/15/89	54.73	904.69		
54.30	905.12	10/05/89	52.97	906.45		
54.38	905.04	10/25/89	48.09	911.33		
52.57	906.85	12/01/89	46.95	912.47		
53.94	905.48					
49.25	910.17	01/03/90	46.64	912.78		
51.64	907.78	03/30/90	46.10	913.32		
48.64	910.78	04/23/90	48.13	911.29		
		05/21/90	47.65	911.77		
50.59	908.83	06/13/90	54.97	904.45		
47.32	912.10					
	Sand Plain Act Depth to Water (ft) 50.64 51.17 49.79 48.54 47.04 54.30 54.38 52.57 53.94 49.25 51.64 48.64	Sand Plain Aguifer Depth to WL Elev Water (ft) (msl, ft) 50.64 908.78 51.17 908.25 49.79 909.63 48.54 910.88 47.04 912.38 54.30 905.12 54.38 905.04 52.57 906.85 53.94 905.48 49.25 910.17 51.64 907.78 48.64 910.78	Sand Plain Aguifer Depth to WL Elev Water (ft) (msl, ft) 50.64 908.78 03/16/89 51.17 908.25 04/19/89 49.79 909.63 05/17/89 48.54 910.88 06/21/89 07/19/89 47.04 912.38 08/15/89 54.30 905.12 10/05/89 54.38 905.04 10/25/89 52.57 906.85 12/01/89 53.94 905.48 49.25 910.17 01/03/90 51.64 907.78 03/30/90 48.64 910.78 04/23/90 50.59 908.83 06/13/90	Sand Plain Acuifer SI (ff) Depth to Water (ft) (msl, ft) Date Water (ft) 50.64 908.78 51.17 908.25 949.79 909.63 97.17/89 55.57 909.63 97.19/89 56.59 909.63 97.19/89 56.59 909.63 97.19/89 56.59 909.63 97.19/89 56.59 909.63 97.19/89 56.59 909.63 97.19/89 56.59 909.63 909.12 909.63 909.12 909.63 909.12 909.63 909.12 909.63 909.12 909.63 909.12 909.63 909.12 909.63 909.12 909.63 909.12 909.63 909.12 909.63 909.12 909.63 909.12 909.63 909.12 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 909.63 90		

133-047-20BBABB2

LS Elev (msl, ft) = 959.67

Wahpeton	Shallow Sand	Aquifer		SI	(ft.) = 58 - 63
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
08/31/87	30.37	929.30	01/04/89	33.46	926.21
10/02/87	30.57	929.10	02/15/89	34.09	925.58
10/12/87	30.45	929.22	03/16/89	33.39	926.28
10/20/87	30.50	929.17	04/19/89	33.40	926.27
11/02/87	30.32	929.35	05/17/89	33.49	926.18
11/17/87	30.71	928.96	06/21/89	33.48	926.19
11/30/87	30.80	928.87	07/19/89	34.55	925.12
			08/15/89	34.62	925.05
02/11/88	31.36	928.31	10/05/89	33.77	925.90
04/22/88	31.95	927.72	10/25/89	33.42	926.25
06/23/88	33.48	926.19	12/01/89	33.49	926.18
06/30/88	33.67	926.00			
07/27/88	33.59	926.08	01/03/90	33.39	926.28
08/23/88	33.50	926.17	03/29/90	33.41	926.26
09/30/88	33.77	925.90	04/23/90	33.08	926.59
10/27/88	33.45	926.22	05/21/90	33.78	925.89
11/30/88	33.56	926.11	06/13/90	33.71	925.96

133-047-20BBBAB1

	-20BBBAB1 Buried Vallev	Aguifer		LS Elev (msl	ft)=959.09
Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev
08/31/87	50.18	908.91	02/15/89	46.96	912.13
10/02/87	50.33	908.76	03/16/89	47.44	911.65
10/20/87	48.74	910.35	04/19/89	46.54	912.55
11/02/87	48.89	910.20	05/17/89	55.12	903.97
11/30/87	48.24	910.85	06/21/89	52.68	906.41
			07/19/89	56.18	902.91
04/22/88	46.73	912.36	08/15/89	54.22	904.87
06/23/88	53.78	905.31	10/05/89	52.14	906.95
06/30/88	53.83	905.26	10/25/89	47.80	911.29
07/27/88	52.06	907.03	12/01/89	46.66	912.43
08/23/88	53.09	906.00			
09/30/88	48.93	910.16	01/03/90	46.32	912.77
10/27/88	50.83	908.26	03/30/90	45.77	913.32
11/30/88	47.79	911.30	04/23/90 05/21/90	47.64 47.26	911.45 911.83
01/04/89	49.75	909.34	06/13/90	54.12	904.97

	20BBBAB2			LS Elev (msl	
Wahpeton	Buried Vallev				t.)=193-198
Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
08/31/87	49.98	908.97	02/15/89	46.77	912.18
10/02/87	50.14	908.81	03/16/89	47.25	911.70
10/20/87	48.58	910.37	04/19/89	46.35	912.60
11/02/87	48.65	910.30	05/17/89	54.92	904.03
11/30/87	48.13	910.82	06/21/89	52.50	906.45
			07/19/89	55.98	902.97
04/22/88	46.55	912.40	08/15/89	54.01	904.94
06/23/88	53.59	905.36	10/05/89	51.92	907.03
06/30/88	53.64	905.31	10/25/89	47.60	911.35
07/27/88	51.85	907.10	12/01/89	46.46	912.49
07/27/88	51.85	907.10	12/01/89	40.40	312.43
08/23/88	52.85	906.10	01/03/00	46 10	012 05
			01/03/90	46.10	912.85
09/30/88	48.74	910.21	03/30/90	45.59	913.36
10/27/88	50.60	908.35	04/23/90	47.43	911.52
11/30/88	47.58	911.37	05/21/90	47.07	911.88
01/04/89	49.52	909.43	06/13/90	53.89	905.06
133-047-	-20BBBAB3			LS Elev (msl	.ft)=958.93
	Sand Plain Acu	uifer	E		t.)=118-123
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
08/31/87	49.99	908.94	03/16/89	47.27	911.66
10/02/87	50.13	908.80	04/19/89	46.37	912.56
11/02/87	48.59	910.34	05/17/89	54.94	903.99
11/30/87	48.16	910.77	06/21/89	52.53	906.40
			07/19/89	55.99	902.94
04/22/88	46.55	912.38	08/15/89	53.99	904.94
06/23/88	53.57	905.36	10/05/89	51.89	907.04
06/30/88	53.63	905.30	10/25/89	47.61	911.32
07/27/88	51.85	907.08	12/01/89	46.46	912.47
08/23/88	52.82	906.11	,,		
09/30/88	48.74	910.19	01/03/90	46.13	912.80
10/27/88	50.56	908.37	03/30/90	45.60	913.33
11/30/88	47.52	911.41	04/23/90	47.44	911.49
11/30/00	47.54	711.41	05/21/90	47.07	911.86
01/04/89	49.48	909.45	06/13/90	53.86	905.07
02/15/89	46.77	912.16	00/13/30	33.00	303.07
		312.10			AND RESIDENCE MANAGEMENT
	-20BBBAB4 Sand Plain Aco	uifer		LS Elev (msl SI	,ft)=958.87 (ft.)=78-83
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
08/31/87	49.85	909.02	02/15/89	46.70	912.17
10/02/87	50.05	908.82	03/16/89	47.18	911.69
11/02/87	48.46	910.41	04/19/89	46.26	912.61
11/30/87	48.10	910.77	05/17/89	54.83	904.04
,, , ,		240.11	06/21/89	52.43	906.44
04/20/88	46.46	912.41	07/19/89	55.91	902.96
04/22/88	46.46	912.41	08/15/89	53.89	904.98
06/23/88	53.48	905.39	10/05/89	51.77	907.10
06/30/88	53.52	905.35	10/05/89	47.52	911.35
07/27/88	51.73	907.14	12/01/89	46.47	912.40
08/23/88	52.71	906.16	12/01/89	40.4/	712.4U
			01 /02 /00	16 02	012 04
09/30/88	48.63	910.24	01/03/90	46.03 45.49	912.84 913.38
10/27/88	50.45	908.42	03/30/90		
11/30/88	47.38	911.49	04/23/90	47.33	911.54 911.90
01/04/89	49.16	909.71	05/21/90 06/13/90	46.97 53.75	905.12
01/04/09	47.10	JUJ./1	00/13/90	33.73	903.12

133-047-20BBBAB5 Wahpeton Shallow Sand Aguife

	-20BBBBBB Shallow Sand A	Aguifer		LS Elev (msl SI	,ft)=958.95 (ft.)=43-53
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
08/31/87	29.12	929.83	01/04/89	31.39	927.56
10/02/87	29.03	929.92	02/15/89	31.85	927.10
10/12/87	29.16	929.79	03/16/89	31.45	927.50
10/20/87	29.05	929.90	04/19/89	31.38	927.57
11/02/87	29.00	929.95	05/17/89	31.74	927.21
11/17/87	29.10	929.85	06/21/89	31.57	927.38
11/30/87	29.10	929.85	07/19/89	32.75	926.20
			08/15/89	32.93	926.02
02/12/88	29.60	929.35	10/05/89	31.85	927.10
04/22/88	30.25	928.70	10/25/89	31.57	927.38
06/23/88	31.95	927.00	12/01/89	31.55	927.40
06/30/88	32.09	926.86			
07/27/88	31.95	927.00	01/03/90	31.40	927.55
08/23/88	31.65	927.30	03/29/90	31.58	927.37
09/30/88	31.76	927.19	04/23/90	31.39	927.56
10/27/88	31.45	927.50	05/21/90	31.90	927.05
11/30/88	31.41	927.54	06/13/90	31.85	927.10

LS Elev	(msl, ft) = 964.59
	LS Elev

Wahpeton	Shallow Sand	Aguifer		SI	(ft.)=42-45
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
10/09/85	26.75	937.84	11/17/87	33.39	931.20
10/24/85	26.75	937.84	12/01/87	33.56	931.03
11/01/85	26.70	937.89			
11/13/85	26.86	937.73	02/11/88	34.37	930.22
12/11/85	26.85	937.74	04/22/88	35.01	929.58
			06/23/88	35.54	929.05
04/10/86	26.76	937.83	06/30/88	35.61	928.98
09/30/86	25.38	939.21	07/27/88	35.82	928.77
10/08/86	25.45	939.14	08/23/88	36.03	928.56
10/09/86	25.38	939.21	09/30/88	36.46	928.13
10/10/86	25.27	939.32	10/27/88	36.65	927.94
10/11/86	25.35	939.24	11/30/88	37.09	927.50
10/15/86	25.35	939.24	8		
10/20/86	25.29	939.30	01/05/89	37.31	927.28
10/28/86	25.34	939.25	02/16/89	36.34	928.25
11/04/86	25.41	939.18	03/16/89	36.49	928.10
12/01/86	25.92	938.67	04/19/89	36.58	928.01
12/02/86	25.84	938.75	05/17/89	35.88	928.71
			06/21/89	35.94	928.65
01/07/87	26.91	937.68	07/19/89	36.08	928.51
01/29/87	27.25	937.34	08/15/89	36.00	928.59
03/03/87	28.13	936.46	10/05/89	35.97	928.62
03/24/87	28.56	936.03	10/25/89	36.08	928.51
05/13/87	29.61	934.98	11/29/89	36.33	928.26
07/03/87	30.77	933.82			
08/04/87	31.51	933.08	01/02/90	36.24	928.35
09/01/87	32.05	932.54	03/29/90	36.08	928.51
10/02/87	32.63	931.96	04/24/90	36.02	928.57
10/12/87	32.72	931.87	05/22/90	35.98	928.61
10/20/87	32.92	931.67	06/14/90	35.98	928.61
11/03/87	33.22	931.37			

133-047-20BBD2 Wahpeton Shallow Sand Aquifer				LS Elev (msl,ft)=966. SI (ft.)=0		
	Depth to	WL Elev		Depth to	WL Elev	
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)	
09/15/77	15.61	950.84	12/06/78	16.19	950.26	
06/22/78	14.07	952.38	09/17/80	19.56	946.89	
09/21/78	15.20	951.25				
133-047-2				LS Elev (msl		
Wahpeton	Shallow Sand I				(ft.) = 42 - 45	
	Depth to	WL Elev		Depth to	WL Elev	
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)	
10/09/85	27.16	937.43	11/17/87	33.85	930.74	
10/24/85	27.21	937.38	12/01/87	34.08	930.51	
11/01/85	27.18	937.41				
11/13/85	27.35	937.24	02/11/88	34.70	929.89	
12/11/85	27.35	937.24	04/22/88	35.36	929.23	
			06/23/88	35.88	928.71	
04/10/86	27.28	937.31	06/30/88	35.92	928.67	
09/30/86	25.86	938.73	07/27/88	36.12	928.47	
10/08/86	25.92	938.67	08/23/88	36.43	928.16	
10/09/86	25.80	938.79	09/30/88	36.91	927.68	
10/10/86	25.78	938.81	10/27/88	37.13	927.46	
10/11/86	25.83	938.76	11/30/88	37.50	927.09	
10/15/86	25.81	938.78				
10/20/86	25.78	938.81	01/05/89	37.66	926.93	
10/28/86	25.88	938.71	02/16/89	37.27	927.32	
11/04/86	25.87	938.72	03/16/89	37.20	927.39	
12/01/86	26.37	938.22	04/19/89	37.00	927.59	
12/02/86	26.37	938.22	05/17/89	36.65	927.94	
	and the transfer of		06/21/89	36.55	928.04	
01/07/87	27.38	937.21	07/19/89	36.55	928.04	
01/29/87	27.80	936.79	08/15/89	36.38	928.21	
03/03/87	28.56	936.03	10/05/89	36.34	928.25	
03/24/87	28.98	935.61	10/25/89	36.60	927.99	
05/13/87	30.11	934.48	11/29/89	36.78	927.81	
07/03/87	31.23	933.36	11/23/03	30.73	227.01	
08/04/87	31.23	932.64	01/02/90	36.65	927.94	
09/01/87	32.46	932.13	03/29/90	36.44	928.15	
10/01/87	33.53	932.13	04/24/90	36.42	928.13	
10/12/87	33.25	931.34	05/22/90	36.32	928.27	
10/20/87	33.36	931.23	06/14/90	36.30	928.29	
11/03/87	33.65	930.94				

133-047-20BCD1 LS Elev (msl,ft)=964.22 SI (ft.)=38-44 Wahpeton Shallow Sand Aquifer

wandeton	Shallow Sand	Adulier		SI	(ft.) = 38 - 44
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
09/07/75	7.36	956.86	06/07/77	15.03	949.19
12/02/75	8.49	955.73	07/07/77	15.38	948.84
			08/10/77	15.81	948.41
01/22/76	9.71	954.51	09/15/77	16.25	947.97
04/09/76	8.72	955.50			
06/03/76	8.59	955.63	06/22/78	14.99	949.23
06/17/76	8.87	955.35	12/06/78	16.58	947.64
06/30/76	9.33	954.89			
07/21/76	10.02	954.20	09/17/80	20.07	944.15
08/11/76	10.59	953.63			
08/24/76	11.79	952.43	10/09/85	26.94	937.28
09/13/76	12.45	951.77	10/24/85	27.00	937.22
09/28/76	12.75	951.47	11/01/85	27.00	937.22
11/02/76	12.78	951.44	11/13/85	26.82	937.40
12/07/76	12.43	951.79	12/11/85	26.89	937.33
01/04/77	13.76	950.46	04/10/86	26.84	937.38
04/04/77	14.62	949.60	c .		

133-047-20BCD3

133-047-2 Wahpeton	20BCD3 Sand Plain Aco	uifer		LS Elev (msl SI (f	,ft)=964.07 t.)=130-135
	Depth to Water (ft)	(msl, ft)	Date	Depth to Water (ft)	
08/31/87 10/01/87 10/12/87 10/20/87 11/03/87 11/17/87 12/01/87 02/11/88 04/22/88 06/23/88	56.28 54.87 54.75 53.53 53.15 52.90 52.26 52.08 52.81 60.11	907.79 909.20 909.32 910.54 910.92 911.17 911.81 911.99 911.26 903.96	01/05/89 02/16/89 03/16/89 04/19/89 05/17/89 06/21/89 07/19/89 08/15/89 10/05/89 10/25/89	52.78 52.78 52.31 60.48 58.41 62.53 60.65 55.07	912.32 911.29 911.76 903.59 905.66 901.54 903.42 909.00 910.46 911.85
06/30/88 07/27/88 08/23/88 09/30/88 10/27/88 11/30/88	59.92 57.78 56.80 55.17 54.01 52.23	904.15 906.29 907.27 908.90 910.06 911.84	01/02/90 03/30/90 04/24/90 05/22/90 06/14/90	52.21 51.57 53.03	911.86 912.50 911.04 911.39 907.12

133-047-20BCD4	LS Elev	(msl, ft) = 964.09

Wahpeton Shallow Sand Aquifer			SI	(ft.) = 36 - 46	
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
08/31/87	31.26	932.83			
10/01/87	31.81	932.28	01/05/89	35.61	928.48
10/12/87	31.95	932.14	02/16/89	36.71	927.38
10/20/87	32.15	931.94	03/16/89	36.59	927.50
11/03/87	31.44	932.65	04/19/89	36.28	927.81
11/17/87	31.65	932.44	05/17/89	36.03	928.06
12/01/87	32.81	931.28	08/15/89	35.77	928.32
			10/05/89	35.71	928.38
02/11/88	33.63	. 930.46	10/25/89	35.95	928.14
04/22/88	34.35	929.74	11/29/89	36.16	927.93
06/23/88	34.93	929.16			
06/30/88	34.96	929.13	01/02/90	36.08	928.01
07/27/88	35.20	928.89	03/29/90	35.90	928.19
08/23/88	3550	928.59	04/24/90	35.93	928.16
09/30/88	35.95	928.14	05/22/90	35.79	928.30
10/27/88	36.21	927.88	06/14/90	35.75	928.34
11/30/88	36.58	927.51			
133-047-2	OBDD			LS Elev (msl,	ft)=968.24
100					

133-047-20BD	1	33-	04	-20	BD	n
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Wahpeton Shallow Sand Aquifer				SI	(ft.)=0-30
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
06/17/76	9.39	958.85	01/04/77	14.53	953.71
06/30/76	9.88	958.36	04/04/77	15.32	952.92
07/21/76	10.47	957.77	06/07/77	15.80	952.44
08/11/76	10.97	957.27	07/07/77	15.73	952.51
08/24/76	7.95	960.29	08/10/77	16.49	951.75
09/13/76	7.23	961.01	09/15/77	16.93	951.31
09/28/76	8.21	960.03			
11/02/76	13.02	955.22	06/22/78	16.48	951.76
12/07/76	13.80	954.44	09/20/78	16.81	951.43

Wahpeton Buried Valley Aguifer			(10)=248-254		
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
11 (10 (60	7 22	050 57	07/06/77	20.24	027 55
11/18/69	7.32	959.57	07/06/77	29.34	937.55
06/00/70	0.60	050 06	08/10/77	29.51	937.38
06/09/70	8.63	958.26	09/15/77	28.91	937.98
07/20/70	8.36	958.53	12/12/77	27.39	939.50
08/30/70	8.47	958.42			
			03/14/78	28.74	938.15
08/28/73	14.14	952.75	06/22/78	28.78	938.11
09/20/73	9.80	957.09	09/21/78	30.91	935.98
12/18/73	8.70	958.19	12/06/78	36.34	930.55
06/19/74	8.83	958.06	07/19/79	43.64	923.25
07/17/74	31.25	935.64	09/20/79	42.63	924.26
07/18/74	34.29	932.60	11/30/79	38.56	928.33
07/29/74	43.74	923.15	,,		
08/01/74	42.63	924.26	03/20/80	35.75	931.14
08/05/74	40.62	926.27	06/18/80	39.84	927.05
08/09/74	31.74	935.15	09/10/80	42.07	924.82
08/14/74	24.36	942.53	09/17/80	19.90	946.99
08/20/74	20.88	946.01	11/18/80	43.19	923.70
08/27/74	18.98	947.91	11/10/00	43.17	223.10
09/05/74	17.33	949.56	06/11/81	42.98	923.91
09/03/74	16.24	950.65	09/03/81	60.43	906.46
09/13/74	16.41	950.48	10/08/81	44.22	922.67
THE REAL PROPERTY AND ADDRESS.		950.48	12/01/81	40.92	925.97
09/17/74	16.41	951.77	12/01/61	40.92	943.91
09/24/74	15.12		07/07/03	47 42	010 46
10/03/74	17.09	949.80	07/07/82	47.43	919.46 904.90
10/04/74	17.16	949.73	10/04/82	61.99	
10/05/74	18.74	948.15	11/30/82	43.90	922.99
10/09/74	24.17	942.72	02/40/02	40.70	000 11
10/16/74	40.21	926.68	03/10/83	43.78	923.11
10/22/74	45.87	921.02	06/15/83	48.32	918.57
10/23/74	46.58	920.31	08/24/83	49.36	917.53
10/30/74	39.66	927.23	11/29/83	45.72	921.17
11/06/74	44.26	922.63			
11/18/74	33.26	933.63	04/04/84	46.72	920.17
12/03/74	32.02	934.87	06/14/84	46.62	920.27
			08/30/84	52.19	914.70
06/03/75	17.24	949.65	11/19/84	46.97	919.92
06/18/75	15.63	951.26	11/29/84	46.97	919.92
07/15/75	13.26	953.63			
07/28/75	21.46	945.43	02/28/85	49.12	917.77
08/25/75	28.53	938.36	06/26/85	46.92	919.97
09/07/75	20.30	946.59	09/11/85	50.34	916.55
12/02/75	35.47	931.42	09/25/85	50.50	916.39
			10/03/85	49.30	917.59
04/14/76	13.34	953.55	10/09/85	49.84	917.05
06/02/76	28.57	938.32	10/15/85	50.32	916.57
06/17/76	27.07	939.82	10/24/85	49.15	917.74
06/30/76	27.43	939.46	11/01/85	49.72	917.17
07/21/76	32.97	933.92	12/04/85	46.76	920.13
08/11/76	42.80	924.09	-		
08/24/76	44.29	922.60	04/12/86	48.60	918.29
09/13/76	39.74	927.15	05/23/86	47.88	919.01
09/28/76	39.13	927.76	07/16/86	49.16	917.73
11/02/76	34.99	931.90	09/04/86	61.33	905.56
12/06/76	38.56	928.33	10/28/86	51.44	915.45
			11/04/86	66.19	900.70
01/04/77	37.89	929.00	11/25/86	69.41	897.48
04/04/77	29.97	936.92	12/01/86	68.12	898.77
06/07/77	32.64	934.25			

133-047-20DDD1 (Cont Wahpeton Buried Valley Aguif		(Continued) Aquifer		LS Elev (msl,	ft)=966.89
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
01/07/87	70.72	896.17	10/28/88	53.80	913.09
01/28/87	69.23	897.66	12/01/88	53.42	913.47
05/14/87	60.98	905.91			
07/03/87	59.18	907.71	01/05/89	54.81	912.08
07/10/87	58.87	908.02	02/16/89	53.72	913.17
08/04/87	57.67	909.22	03/16/89	54.08	912.81
09/01/87	59.15	907.74	04/19/89	54.34	912.55
09/17/87	55.39	911.50	05/16/89	62.50	904.39
10/01/87	57.00	909.89	06/20/89	60.09	906.80
11/03/87	54.58	912.31	07/19/89	65.67	901.22
11/17/87	54.89	912.00	08/15/89	64.28	902.61
11/25/87	53.02	913.87	10/05/89	55.20	911.69
12/01/87	53.07	913.82	10/25/89	54.20	912.69
			11/29/89	54.10	912.79
02/11/88	54.18	912.71	20		
04/22/88	53.08	913.81	01/02/90	52.66	914.23
06/23/88	62.00	904.89	03/29/90	54.08	912.81
07/27/88	63.48	903.41	04/24/90	54.87	912.02
08/23/88	56.95	909.94	05/22/90	54.35	912.54
09/29/88	55.96	910.93	06/14/90	57.52	909.37

133-047-2	200002 Shallow Sand A	Naui for		LS Elev (ms.	(ft.) = 967.5
wantecon	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
Date	water (rt)	(msi, ic)	Date	water (It)	(11151, 10)
09/17/74	15.78	951.72	10/08/81	21.04	946.46
09/24/74	15.35	952.15	12/01/81	20.90	946.60
10/03/74	15.40	952.10			
10/04/74	15.41	952.09	07/07/82	21.55	945.95
10/05/74	15.44	952.06	10/04/82	21.62	945.88
10/09/74	15.39	952.11	11/30/82	21.52	945.98
10/16/74	15.40	952.10			
10/22/74	15.70	951.80	03/10/83	20.98	946.52
10/23/74	15.62	951.88	06/15/83	21.69	945.81
10/30/74	15.76	951.74	08/24/83	21.50	946.00
11/06/74	15.73	951.77	11/29/83	22.28	945.22
11/18/74	15.80	951.70			
12/03/74	15.92	951.58	04/04/84	21.49	946.01
			06/14/84	21.35	946.15
01/22/75	15.96	951.54	08/30/84	21.18	946.32
02/25/75	15.86	951.64	11/29/84	22.18	945.32
06/03/75	15.35	952.15			
06/18/75	15.14	952.36	02/28/85	21.65	945.85
07/15/75	14.80	952.70	06/26/85	22.08	945.42
07/28/75	14.79	952.71	09/11/85	22.28	945.22
08/25/75	14.82	952.68	09/25/85	22.58	944.92
09/07/75	14.85	952.65	10/03/85	22.59	944.91
12/02/75	11.96	955.54	10/09/85	22.66	944.84
			10/15/85	22.60	944.90
01/22/76	14.71	952.79	10/24/85	22.56	944.94
04/14/76	14.32	953.18	11/01/85	22.52	944.98
06/02/76	14.64	952.86	12/04/85	21.93	945.57
06/17/76	14.80	952.70			
06/30/76	14.99	952.51	04/12/86	21.18	946.32
07/21/76	15.31	952.19	05/23/86	21.00	946.50
08/11/76	15.77	951.73	07/16/86	21.08	946.42
08/24/76	15.86	951.64	09/04/86	20.95	946.55
09/13/76	16.27	951.23	10/28/86	21.27	946.23
09/28/76	16.44	951.06	11/04/86	21.30	946.20
11/02/76	16.84	950.66	11/25/86	21.05	946.45
12/06/76	16.94	950.56	12/01/86	21.48	946.02
01/04/77	16.65	950.85	01/07/87	21.46	946.04
04/04/77	17.34	950.16	01/28/87	21.55	945.95
06/07/77	18.08	949.42	03/03/87	21.64	945.86
07/06/77	18.38	949.12	05/14/87	22.75	944.75
08/10/77	18.56	948.94	07/03/87	23.40	944.10
09/15/77	18.68	948.82	07/10/87	23.20	944.30
12/12/77	17.58	949.92	08/04/87	23.76	943.74
			09/01/87	24.14	943.36
06/22/78	17.14	950.36	09/17/87	23.92	943.58
09/21/78	17.55	949.95	10/01/87	24.29	943.21
12/06/78	17.50	950.00	11/03/87	24.63	942.87
			11/17/87	24.60	942.90
07/19/79	22.22	945.28	11/25/87	24.36	943.14
09/20/79	18.64	948.86	12/01/87	24.64	942.86
11/30/79	18.59	948.91	00 /11 /00	24 21	042 10
03/20/80	18.50	949.00	02/11/88 04/22/88	24.31 24.68	943.19 942.82
06/18/80	19.30	949.00	06/23/88	25.53	942.82
09/10/80	19.88	947.62	07/27/88	25.79	941.71
11/18/80	19.92	947.58	08/23/88	25.98	941.71
,,,			09/29/88	26.05	941.45
06/11/81	20.34	947.16	10/28/88	26.18	941.32
09/03/81	20.94	946.56	12/01/88	26.11	941.39

	0DDD2			LS Elev (ms	
		Aquifer		SI	
Date	Depth to Water (ft)	(msl, ft)		Depth to Water (ft)	(msl, ft)
				26.52	
01/05/89	25 83	941.67		26.59	
02/16/89	25.83 25.56	941.94	11,23,03	20.55	340.31
03/16/89	25.29	942.21	01/02/90	26.14	941.36
04/19/89		941.86			
05/16/89	25.64 25.85	941.65	04/24/90	25.77 25.89	941.61
06/20/89	26.14	941.36	05/20/90	26.21	941.29
	26.39		05/22/90	26.21	
08/15/89	26.52	940.98		26.50	
10/05/89	26.52 26.51	940.99			
133-047-2	1BCB			LS Elev (ms	
Wahpeton			7.7	SI (fi	
	Depth to			Depth to	WL Elev
	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
	9.63				
02/26/70	9.28	957.82	08/30/71	8.10	959.00
122 047 1	11003			IC Ploy (mg) f+_06/ /
133-047-2 Wahpeton		Aguifer		LS Elev (ms: SI (fi	
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)		Water (ft)	(msl, it)
		958.11		5.85	
133-047-2 Wahpeton		Aguifer		LS Elev (ms: SI (f	
				Depth to	
		WL Elev (msl, ft)		Water (ft)	(msl, ft)
		956.09		10.07	
133-047-2	21CBB2			LS Elev (ms	l,ft)=966.8
Wahpeton	Buried Valley	Aguifer		SI (f	t.) = 248 - 251
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
11/18/69	8.89	957.91	02/26/70	8.66	958.14
133-047-2	220001			LS Elev (msl	ft\=956 71
	Buried Vallev	Aguifer			t.) = 238 - 243
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
09/01/87	44.60	912.11	05/16/89	48.92	907.79
10/01/87	42.13	914.58	06/21/89	45.97	910.74
11/03/87	39.60	917.11	07/19/89	51.83	904.88
12/01/87	38.52	918.19	08/15/89	50.65	906.06
		048 55	10/05/89	42.35	914.36
02/11/88	39.18	917.53	10/24/89	42.18	914.53
04/22/88	39.72	916.99	12/01/89	39.00	917.71
07/27/88	49.25	907.46	02/20/00	40.21	916.50
08/23/88	45.25	911.46 914.61	03/29/90 04/24/90	41.08	915.63
10/27/88	42.10 39.60	917.11	05/22/90	40.52	916.19
12/01/88			06/14/90	45.80	910.91
04/19/89	40.52	916.19			

133-047-28DCD3	LS Elev $(msl, ft) = 957.33$
	The second secon

Wahpeton	Shallow Sand	Aguifer		SI	(ft.)=60-65
Date	Depth to Water (ft)	WL Elev (msl, ft)	Date	Depth to Water (ft)	WL Elev (msl, ft)
09/01/87	26.62	930.71	05/16/89	19.57	937.76
10/01/87	24.08	933.25	06/21/89	21.12	936.21
11/03/87	23.55	933.78	07/19/89	25.65	931.68
12/01/87	22.76	934.57	08/15/89	24.68	932.65
			10/05/89	23.72	933.61
02/11/88	22.11	935.22	10/24/89	24.28	933.05
04/22/88	35.64	921.69	12/01/89	24.86	932.47
07/27/88	23.29	934.04			
08/23/88	23.22	934.11	03/29/90	23.84	933.49
10/27/88	23.79	933.54	04/24/90	24.74	932.59
12/01/88	24.19	933.14	05/22/90	25.70	931.63
			06/14/90	25.29	932.04
04/19/89	14.86	942.47			

133-047-29BA	B 2
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LS Elev $(msl,ft)=963.1$	LS	Elev	(msl.ft	1 = 963.1
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133-047-2 Wahpeton S	Shallow Sand	Amuifer		LS Elev (ms	l,ft)=963.1 (ft.)=65-68
	Depth to	WL Elev		Depth to	WL Elev
Date	Water (ft)	(msl, ft)	Date	Water (ft)	(msl, ft)
09/17/74	10.83	952.27	12/06/76	12.57	950.53
09/24/74	10.01	953.09			
10/03/74	10.03	953.07	01/04/77	12.97	950.13
10/04/74	10.01	953.09	04/04/77	13.48	949.62
10/05/74	10.06	953.04	06/07/77	14.09	949.01
10/09/74	10.08	953.02	07/06/77	14.33	948.77
10/16/74	10.26	952.84	08/10/77	14.54	948.56
10/22/74	10.65	952.45	. 09/15/77	14.72	948.38
10/23/74	10.68	952.42	12/12/77	14.05	949.05
10/30/74	10.76	952.34			
11/06/74	10.95	952.15	06/22/78	13.22	949.88
11/18/74	11.11	951.99	09/21/78	13.80	949.30
12/03/74	11.37	951.73	12/06/78	14.35	948.75
01/22/75	11.69	951.41	09/17/80	17.55	945.55
02/25/75	11.27	951.83			
06/03/75	8.10	955.00	01/07/87	23.10	940.00
06/18/75	7.66	955.44	01/28/87	23.45	939.65
07/15/75	6.62	956.48	09/01/87	26.95	936.15
07/28/75	6.86	956.24	10/03/87	27.36	935.74
08/25/75	7.66	955.44	12/01/87	27.44	935.66
09/07/75	7.96	955.14			
12/03/75	8.49	954.61	04/22/88	25.40	937.70
			06/23/88	28.43	934.67
01/22/76	9.25	953.85	07/27/88	25.80	937.30
04/14/76	8.52	954.58	08/23/88	28.60	934.50
06/02/76	8.34	954.76	09/29/88	28.70	934.40
06/17/76	8.66	954.44	,		
06/30/76	9.00	954.10	03/16/89	28.70	934.40
07/21/76	9.62	953.48	08/16/89	28.95	934.15
08/11/76	10.28	952.82			
08/24/76	10.66	952.44	04/25/90	28.28	934.82
09/13/76	11.15	951.95	05/22/90	28.37	934.73
09/28/76	11.44	951.66	06/13/90	29.69	933.41
11/02/76	12.05	951.05			•

TABLE III. Table of Chemical Analyses.

Explanation of abbreviations, codes, and units in chemical analysis table:

Township, range, section, and quarter(s) identifier Location Depth of the bottom of the lowest screen; 'O-O' indicates a Well Depth surface water sample. Date the sample was gathered in the field Date Sampled Chemical laboratory in which samples were analyzed: Lab ID HD = North Dakota Department of Health MD = Minn-Dak Farmers Cooperative WC = North Dakota State Water Commission Dissolved silica in milligrams per liter SIO2 Dissolved iron in milligrams per liter Fe Dissolved manganese in milligrams per liter Mn Dissolved calcium in milligrams per liter Ca Dissolved magnesium in milligrams per liter Mg Dissolved sodium in milligrams per liter Na-Dissolved potassium in milligrams per liter K Dissolved bicarbonate in milligrams per liter HCO3 Dissolved carbonate in milligrams per liter CO₃ Dissolved sulfate in milligrams per liter **SO4** Dissolved chloride in milligrams per liter C1 Dissolved fluoride in milligrams per liter F Dissolved nitrate in milligrams per liter NO₃ Dissolved boron in milligrams per liter B Total dissolved solids (residue) in milligrams per liter TDS Hardness: As calcium carbonate (CaCO3) hardness in milligrams per liter as CaCO3 As noncarbonate hardness in milligrams per liter as NCH Percent sodium of total cations (milliequivalents per liter) % Na Sodium adsorption ratio SAR Field measurement of specific conductance in micromhos per Spec Cond centimeter corrected to 25 degrees centigrade Field measurement of water temperature in degrees centigrade Temp

Field measurement of pH

Hg

	Screened			 ←		· · · · · · · · · · · · · · · · · · ·				······································	—(millig	grams	per liter)——		-	8		→ l			Spec		
Location	Interval (ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na	к	HCO3	CO3	so	CI	F NO	3 В	TDS	Hardnes CaCO ₃	ss as NCH	% Na	SAR	Cond (µmho)	Temp (∞C)	рН
133-047-06CCA 133-047-07ADD 133-047-07ADD 133-047-16CAD 133-047-16CBA	318-324 318-324 107-110	09/19/69 06/05/70 06/19/74 08/25/69 08/00/69	WC WC	10 11 9.7 25 27	0.03 0 0.49 0.24 1.2	0.01 0.04 0.06 0.06 0.15	32 23 17 59 179	9.7 6.9 7.2 11	208 221 210 89 112	14 12 13 9.6 10	452 452 550 324 397	0 12 0 0	152 142 61 106 663	41 37 29 21 17	3.2 2.5 2.5 1 1.1 2.5 0.3 1.3 0.5 1	1 1.2 6.4 0.56 0.45	696 693 628 483 1280	120 86 72 191 765	0 0 0 0 439	77 83 84 49 24	8.3 10 11 2.8 1.8	1100 960 1140 790	8.9 12 10.6 8.9	
133-047-16CCD1 133-047-16CCD2 133-047-16CDA 133-047-16CDB 133-047-16CDC	0-0 37-40 149-155	08/12/69 08/12/69 08/22/69 08/26/69 09/04/69	WC	14 15 29 36 5.4	1.1 0.44 0.72 0.44 1.6	0.01 0.01 0.11 0.05 0.01	41 54 99 70 49	25 21 24 24 25	8.6 18 111 83 11	3.6 4.5 7.6 14 3.9	257 176 363 420 259	0 0 0 0	14 114 267 103 32	2.2 3.5 29 24 3	0.2 1 0.3 2.5 0.5 0 0.7 0 2.5	0.04 0.04 0.71 0.64	238 320 748 563 261	206 220 348 272 226	0 76 50 0 14	8 15 40 38 9	0.3 0.5 2.6 2.2 0.3	1120 950	28.9 26.7 9.4 9.4	
133-047-17ADD 133-047-17CC1 133-047-17CC1 133-047-17CC1 133-047-17CC1	118-121 118-121 118-121	08/21/69 06/04/70 06/19/74 12/02/75 01/21/76	WC WC	32 31 22 21	0.1 0 0.76 0.06	0.06 0.17 0.16 0.26	78 85 78 77	22 26 33 36	92 68 67 67	10 5.9 6.1 7.2	440 490 490 490 480	0 0 0 0	120 73 65 66	20 4 17 16	0.9 0 0.5 0 0.6 1 0.5 1.5	0.56 0.37 0.34 0.96	593 535 532 534	284 320 330 340	0 0 0	40 31 30 29	2.4 1.7 1.6 1.6	880 760 960	8.9 8.9 12	
133-047-17CC1 133-047-17CC1 133-047-17CC1 133-047-17CC1 133-047-17CC1	118-121 118-121 118-121	09/18/80 02/16/84 04/09/86 03/23/87 04/21/88	WC WC	27 28 34 27	0.31 1.06 0.78 0.49 0.48	0.13 0.05 0.14 0.15 0.1	75 76 77 74 76	32 29.5 34 33 32	66 63.5 67 70 64	5 6.3 7.2 7.8 7.1	330 485 467 481 472	0 0 0	61 67 69 64 70	20 15.9 17 17 17	0.5 1 0.5 1 0.5 1 0.5 5.6	0.35 0.32 0.29	451 498 532 539 533	320 311 330 320 320	49 0 0 0	31 31 30 32 30	1.6 1.6 1.7 1.6	930 925 848 840	9 6.5 9	
133-047-17CCC1 133-047-17CCC1 133-047-17CCC2 133-047-17CCC2 133-047-17CCC2	118-121 48-51 48-51	06/29/89 04/25/90 07/17/79 02/16/84 04/09/86	WC WC HD	22 27 27 17	0.02 0.11 0.51 10.2 0.02	0.12 0.12 0.1 0.12 0.02	64 79 80 32.5 32	33 33 32 29 37	66 69 69 73	7.6 7.4 6.2 5.2 5.3	446 481 488 402 419	0	49 68 58 11 13	17 17 14 22.6 25	0.4 2.8 0.5 5.2 0.5 1 0.3 0.2 6.7	0.37 0.38 0.27	482 541 529 367 416	300 330 330 201 230	0 0 0	32 30 31 43 40	1.7 1.6 1.6 2.1 2.1	852 895 900	13 9 10	7.53
133-047-17CCC2 133-047-17CCC2 133-047-17DDD 133-047-17DDD 133-047-17DDD	48-51 60-80 60-80	04/21/88 04/25/90 09/16/64 09/02/69 06/13/78	WC WC WC	12 13 24 28 24	3.3 0.04 0.31 1.2 0.79	0.08 0.04 0.1 0.3	38 35 128 126 99	35 36 63 45 37	73 68 9.6 59 71	6.5 5.8 7.1 5.7 5.7	414 418 423 438 529	0 0 0 0	65 16 246 268 98	29 26 6 10 16	0.3 1.3 0.5 2 0.2 2.5 0.6 1	0.31 0.36 0 0.15 0.34	467 408 694 762 615	240 240 580 500 400	0 0 234 141 0	39 38 3 20 28	2.1 1.9 0.2 1.1 1.5	820 765 1020 975	9 11 9.4 8.5	
133-047-17DDD 133-047-18ABC 133-047-18ADA 133-047-18ADA 133-047-18ADA	219-225 219-225	07/18/79 09/17/74 09/04/69 06/19/74 08/24/83	WC WC WC	29 19 29 20 28	0.43 0.55 2.2 0.2 0.06	0.12 0.2 0.18 0.16 0.15	93 110 124 110 120	46 47 35 47 45	75 63 52 46 48	5.6 7.1 6.9 6.6 8.4	573 480 477 470 455	0 0 0 0	80 200 186 190 180	25 17 8 10 9.1	0.5 1 0.4 1 0.3 1 0.5 1 0.4 0.5	0.33 0.35 0.11 6.2 0.28	638 702 680 670 664	420 470 454 470 480	0 76 63 85 110	28 22 20 17 17	1.6 1.3 1.1 0.9	1075 1060 1220 1060	9.5 9.4 9	7.78
133-047-18ADA 133-047-19DAA 133-047-20AACCB1 133-047-20AACCB1 133-047-20AACCB1	46-49 268-273 268-273	05/12/87 09/02/69 09/05/85 09/12/85 04/09/86	WC WC WC HD	35 28 25 23	0.61 0.82 0.19 0.28 0.44	0.16 0.3 0.16 0.25 0.14	110 126 110 110 116	45 35 44 44 42.6	51 81 54 51 54.4	7.5 7.1 8.1 8.1 7.1	463 472 450 460 486	0 0 0	180 239 190 150 180	10 13 9.1 8.9 10.9	0.5 1 0.5 1 0.4 1 0.4 1	0.28 0.22 0.45 0.44 0.45	669 765 664 624 651	460 460 460 460 467	80 73 87 79	19 27 20 19 20	1.6 1.1 1	1180 1010 790	9.4 11 10	
133-047-20AACCB1 133-047-20AACCB1 133-047-20AACCB1 133-047-20AACCB1 133-047-20AACCB2	268-273 268-273 268-273	04/09/86 04/20/88 06/28/89 04/25/90 09/05/85	WC WC WC WC	29 29 27 26 27	0.54 1.1 1.2 0.3 0.22	0.18 0.14 0.15 0.12 0.14	110 110 110 110 71	44 43 44 45 31	52 52 50 51 68	7.5 7.9 7.5 7.6 7.3	462 466 458 481 468	0	180 180 190 170 86	11 10 11 14 16	0.4 1 0.5 1 0.4 5.4 0.5 1.8 0.5 1	0.26 0.28 0.33 0.35 0.56	664 665 673 664 540	460 450 460 460 300	77 70 80 66 0	20 20 19 19 32	1.1 1.1 1 1	781 970 1079 1024 815	7 8 10 10	
133-047-20AACCB2 133-047-20AACCB2 133-047-20AACCB2 133-047-20AACCB2 133-047-20AACCB2	113-118 113-118 113-118	09/12/85 04/09/86 04/09/86 04/20/88 06/28/89		26 31 31 28	0.16 0.21 0.69 0.57 0.03	0.13 0.17 0.21 0.15 0.14	72 76.2 72 71 69	31 30.8 32 31 31	66 71.4 67 68 66	7.2 5.7 6.2 6.5 6.2	469 477 452 465 447	0 0 0	68 64 68 68	15 16.1 17 16 16	0.5 1 0.4 0.5 1 0.5 1 0.4 7.1	0.55 0.53 0.33 0.31 0.38	519 499 519 523 493	310 317 310 300 300	0 0 0	31 33 31 32 32	1.6 1.7 1.7 1.7	670 738 828 857	9 7 8 10	
133-047-20AACCB2 133-047-20AACCB3 133-047-20AACCB3 133-047-20AACCB3 133-047-20AACCB3	42-57 42-57 42-57	04/25/90 09/05/85 09/12/85 04/09/86 04/09/86	WC WC	28 26 24	0.03 0.01 0.13 0.81 1.2	0.1 0.19 0.15 0.3 0.34	69 91 93 118 110	32 71 70 71.9 68	71 20 19 15.1 15	7 4.1 5.2 3.5 4.2	465 426 415 411 404	0 0 0	61 200 210 258 260	18 5.5 5.8 4.9 4.2	0.5 7.1 0.5 1 0.4 1 0.3 0.5 0.3 1	0.4 0.17 0.16 0.29 0.09	523 629 633 674 696	300 520 520 590 550	0 170 180 220	3 3 8 7 5 5	1.8 0.4 0.4 0.3	1626 960 734	10 12 9	
133-047-20AACCB3 133-047-20AACCB3 133-047-20AACCB3 133-047-20AAD1 133-047-20AAD1	42-57 42-57 195-200	04/10/86 06/28/89 04/25/90 09/06/85 09/11/85	WC WC WC	30 26 25 25 25	0.26 0.21 1 0.11 0.32	0.35 0.52 0.73 0.09 0.11	110 160 190 79 79	69 110 140 32 33	17 18 17 84 81	3.8 5.4 5.2 9.9 9.9	398 471 455 443 442	0 0 0 0	260 520 660 130 160	5.2 8 19 17	0.3 1 0.3 1 0.3 1.1 0.6 1 0.5 1	0.07 0.12 0.12 0.65 0.64	694 1080 1270 599 625	560 850 1100 330 330	230 470 680 0	6 4 3 3 5 3 4	0.3 0.3 0.2 2	1515 846 910 940	10 10 11 9	

	Screened	Date	Lab	I 		30					—(millié	grams	per liter)						>			Spec		
Location	(ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na	K	нсоз	∞₃	SO4	CI	F	NO ₃	В	TDS	Hardnes CaCO ₃	s as NCH	% Na	SAR	Cond (µmho)	Temp (∞C)	рΗ
133-047-20AAD1 133-047-20AAD1 133-047-20AAD1 133-047-20AAD1 133-047-20AAD2	195-200 195-200 195-200	04/09/86 04/20/88 06/28/89 04/25/90 09/06/85	MC MC MC	28 28 26 27 28	0.74 0.81 0.84 0.17 0.02	0.14 0.09 0.09 0.09 0.12	79 76 78 78 76	32 32 32 33 32	80 81 81 82 75	8.7 9.6 9.1 9.3 8.8	430 442 432 443 438	0 0 0 0	130 130 140 130 110	20 20 21 22 17	0.6 0.6 0.6 0.6	0 1 4 4.2	0.41 0.37 0.48 0.52 0.6	592 597 606 605 565	330 320 330 330 320	0 0 0 0	34 35 34 34 33	1.9 2 1.9 2 1.8	815 890 1150 955 850	9 9 10 10	
133-047-20AAD2 133-047-20AAD2 133-047-20AAD2 133-047-20AAD2 133-047-20AAD2	129-134 129-134 129-134	09/11/85 04/09/86 04/20/88 06/28/89 04/25/90	MC MC MC MC	28 29 31 29 29	0.73 0.49 1 0.56 0.15	0.1 0.42 0.14 0.14	73 74 73 73 74	32 33 33 32 33	73 73 74 72 73	8.3 7.3 7.7 7.4 7.5	436 426 432 409 429	0 0 0 0	100 110 110 95 110	17 19 18 18 20	0.4 0.5 0.5 0.4 0.5	1 1 7.7 6.4	0.59 0.36 0.29 0.4 0.44	549 558 563 537 565	310 320 320 310 320	0 0 0	33 33 33 33	1.8 1.8 1.8 1.8	835 830 865 942 902	9 9 9 10 10	
133-047-20AAD3 133-047-20AAD3 133-047-20AAD3 133-047-20AAD3 133-047-20AAD3	54-59 54-59 54-59	09/11/85 04/09/86 04/20/88 06/28/89 04/25/90	MC MC MC	26 32 28 27 28	0.1 1 1.7 1.9 0.95	0.3 0.35 0.29 0.31 0.33	190 190 170 170 180	110 110 110 110 150	36 32 38 33 36	6.2 4.7 6.2 5.6 5.6	409 426 421 422 525	0 0 0 0	650 640 600 560 550	8.9 6.1 13 38	0.4 0.4 0.4 0.3	1 0.7 1.7 1.8	0.2 0.11 0.09 0.18 0.18	1230 1230 1170 1130 1250	930 930 880 880 1100	590 580 530 530 640	8 1 9 8 7	0.5 0.5 0.6 0.5 0.5	1610 1525 1651 1666	9 10 10	
133-047-20ABAC1 133-047-20ABAC1 133-047-20ABAC1 133-047-20ABAC1 133-047-20ABAC1	265-270 265-270 265-270	04/09/86 04/09/86 03/24/87 03/24/87 04/19/88	MC MC MC HD	29 28 31 27	0.18 0.49 0.03 0.21 0.97	0.14 0.18 0.06 0.14 0.14	120 110 120 120 110	45.6 45 44 45 45	58.9 58 55 60 57	7.4 7.9 8.6 8.6 8.7	489 459 462 480 478	0 0 0	193 190 200 200 200	9.5 13 11 11	0.5 0.5 0.5 0.5	0.1 1 1 1	0.5 0.37	675 681 696 713 697	488 460 480 480 460	84 100 91 68	21 21 20 21 21	1.2 1.2 1.1 1.2 1.2	960 887 908 1012	9 7.7 7.8 10	
133-047-20ABAC1 133-047-20ABAC1 133-047-20ABAC1 133-047-20ABAC2 133-047-20ABAC2	265-270 265-270 118-123	02/26/89 06/28/89 04/25/90 04/09/86 04/09/86	MD WC HD WC	30 27 33	0.5 0.86 0.15 0.2 0.86	0.15 0.15 0.19 0.22	126 110 110 99 95	45 44 46 37.8 38	64 56 53 55.5 54	9.5 8.6 8.5 6.7 7.1	514 470 476 464 439	0 0 0	196 200 200 132 140	8.8 11 12 7.7 11	0 0.5 0.5 0.4 0.4	0 0.5 4.7 0.1	0.4 0.44 0.46 0.4	694 696 568 596	460 460 403 390	71 74 34	21 20 23 23	1.1 1.1 1.2 1.2	1157 1065 860	10 10	
133-047-20ABAC2 133-047-20ABAC2 133-047-20ABAC2 133-047-20ABAC2 133-047-20ABAC2	118-123 118-123 118-123	06/30/86 09/18/86 09/18/86 11/21/86 12/19/86	WC WC MD MD MD	29 30	0.37 0.03 1.3 0	0.23	95 97 108.2 101 102	39 38 39 39	55 54 56.8 55 56	7.8 7.2 10.2 8 7.9	442 452 388 425 451	0	140 170 161.2 166 150	8.9 7.8 7.4 7 8.6	0.4	0.2	0.51 0.46	594 629	400 400	36 28	23 22	1.2	920 940	11 10	
133-047-20ABAC2 133-047-20ABAC2 133-047-20ABAC2 133-047-20ABAC2 133-047-20ABAC2	118-123 118-123 118-123	01/30/87 02/26/87 03/24/87 03/24/87 04/19/88	MD MC MD WC	35 30	0.02 0.1 0.66	0.2	106 104 99 109	39 42 40 42 37	55 58 55 62 52	7.3 7.5 8 7.9 7.9	451 450 458 459 457	0 0	139 137 170 155 140	7.1 7.1 13 7.4 8.5	0.4	1	0.24	648 594	410 380	3 6 5	22	1.2	810 875	7.7	
133-047-20ABAC2 133-047-20ABAC2 133-047-20ABAC4 133-047-20ABAC4 133-047-20ABAC4	118-123 38-48 38-48	06/28/89 04/25/90 04/09/86 04/09/86 07/01/86	WC HD WC WC	28 29 30 26	0.65 0.11 0.04 0.7 1.1	0.15 0.16 0.99 1 0.85	94 88 262 250 230	37 36 98.6 95 88	56 51 12 14 12	7.5 7.4 4.3 4.3	437 418 404 387 376	0 0 0	140 140 722 660 630	9.8 9.3 4.8 6.1 4.1	0.3 0.4 0.3 0.3	5.9 5.3 1 3.9	0.37 0.39 0.22 0.09 0.08	595 573 1300 1250 1190	390 370 1060 1000 940	29 25 700 630	24 23 2 3 3	1.2 1.2 0.2 0.2 0.2	988 880 1550	10 10	
133-047-20ABAC4 133-047-20ABAC4 133-047-20ABAC4 133-047-20ABB 133-047-20ABB	38-48 38-48 178-184	09/18/86 09/18/86 10/23/86 09/03/69 09/20/73	WC MD MD WC WC	31 28 17	2.2 2.9 6 0.46 0.77	0.7	270 247.1 237 128 79	110 98.2 107 33 22	16.3 17 52 20	5.2 7.6 5 6.7 5.2	384 459.2 255 478 243	0 0	830 824.5 840 188 130	7.4 2.5 2.6 7.3	0.2 0.4 0.5	1 2.5	0.15 0.04 0.34	1460 680 402	1100 456 290	810 64 91	3 20 13	0.2 1.1 0.5	1825	10 9.4	
133-047-20ABB 133-047-20ABB 133-047-20ABB 133-047-20ABB 133-047-20ABB	178-184 178-184 178-184	06/19/74 09/05/75 01/22/76 09/18/80 02/16/84	WC WC WC HD	14 12 15 20	1.8 0.12 0.04 0.25 1.79	0.2 0.65 0.02 0.7 0.73	140 120 120 120 120	34 41 41 32 23.5	31 47 54 60 49.5	8.6 8.8 7.4 16 23.2	430 473 459 478 548	0 0 0	210 190 180 170 122	8.2 8.2 7.7 13 12.3	0.4 0.5 0.6 0.2	1 4.9 18 0.4	3.8 0.16 0.48 0.1	665 662 657 685 621	490 470 470 430 398	140 82 94 38	12 17 20 22 21	31 0.9 1.1 1.3	1205 1120	9	
133-047-20ABB 133-047-20ABB 133-047-20ABB 133-047-20ABB 133-047-20ABB	178-184 178-184 178-184	10/31/85 04/09/86 04/21/88 06/29/89 04/25/90	WC WC WC WC	21 14 17 17 18	0.17 0.04 0.12 0.08 0.07	0.54 0.3 0.23 0.28 0.28	120 110 92 99 100	30 27 30 32 37	66 69 58 59	21 23 20 17 14	511 577 626 589 609	0 0 0 0	150 53 14 9.1 49	12 11 8 9.5	0.3 0.2 0.2 0.2 0.2	1 1 1 1.4 20	0.48 0.46 0.35 0.42 0.4	670 593 549 535 605	420 390 350 380 400	4 0 0 0	24 27 25 24 22	1.4 1.5 1.3 1.3	960 980 930 1020 1020	8 9 8 13 9	
133-047-20ABBA1 133-047-20ABBA1 133-047-20ABBA1 133-047-20ABBA1 133-047-20ABBA1	266-271 266-271 266-271	04/09/86 04/09/86 06/30/86 03/24/87 04/19/88	HD WC WC WC	31 27 31 26	0.08 0.62 0.46 0.03 0.94	0.15 0.18 0.18 0.09 0.14	116 110 110 110 110	42.5 44 44 42 43	61 60 62 60 58	7.1 8 8.6 8.8 8.9	486 466 460 465 474	0 0 0	192 190 190 190	10.6 13 12 12 9.1	0.4 0.5 0.4 0.5 0.5	0.1 0 0.3 1 0.3	0.46 0.45 0.53	668 688 682 684 680	464 460 460 450	74 79 66 63	22 22 22 22 21	1.2 1.3 1.2 1.2	946 1050 908 1042	9 10 7.9 10	

												(millio		nor litor						-10-	 >∣					
	Screened Interval	Date		Lab	0:0	F.		~	Ma	Na.	K	—(mmy н∞ _з	00 ₃	per liter so,	CI	F	NO ₃	В	TDS	Hardnes CaCO ₃		% Na	SAR	Spec Cond (µmho)	Temp (∞C)	F
Location 133-047-20ABBA1	266-271	Same 06/3		WC WC	25	0.72	Mn 0.12	110	Mg 4 3	60	8.5	464	0	190	11		5.1	0.36	683	450	72 66	22 21	1.2	1114 1158	11 9	
133-047-20ABBA1 133-047-20ABBA2 133-047-20ABBA2	266-271 118-123 118-123	04/04/04/04/04/04/04/04/04/04/04/04/04/0	24/90 09/86 09/86	WC HD WC	19 32	0.51 0.16 1.2	0.14 0.15 0.19 0.21	110 104 99 97	45 39.6 39 40	58 53.7 54 54	8.5 5.9 6.4 7.3	480 462 441 441	0	200 144 150 140	7.5 9.9 9.7	0.4	0.1 6 0.3	0.3 0.44 0.35 0.45	690 582 615 597	460 423 410 410	4 6 4 5	22 22 22	1.1 1.2 1.2	860 950	9 11	
133-047-20ABBA2 133-047-20ABBA2 133-047-20ABBA2 133-047-20ABBA2 133-047-20ABBA2	118-123 118-123 118-123 118-123 118-123 119-123	09/ 09/ 11/ 12/	18/86 18/86 21/86 19/86	MD	3 0 3 2	0.65 0.82 2.6 2.6	0.2	99	39 39.6 39 41 40	52 54.8 51 52 52	7 9.4 7.2 7.8 7.1	456 421.5 425 451 457	0	140 165.5 168 146 145	8.1 7.2 7 7.1 6.9	0.4	1	0.47	605	410	.34	21	1.1	950	10	
133-047-20ABBA2 133-047-20ABBA2 133-047-20ABBA2 133-047-20ABBA2 133-047-20ABBA2	118-123 118-123 118-123 118-123 118-123	02/ 03/ 03/ 04/	26/87 24/87 24/87 19/88	MD WC MD WC	35 30 28	0 0.03 0.2 0.67 0.66	0.18 0.18 0.14	108 100 111 97	43 39 40 39 38	58 50 49 52 52	7.5 7.3 7.9 7.4 7.3	459 456 448 457 445	0	148 150 144 150 150	6.9 9.1 6.8 6.6	0.4 0.4 0.3	1 5.4	0.22 0.32	617 609 608	410 400 400	37 28 34	21 22 22	1.1 1.1 1.1	759 900 1020	7.7 11 11	
133-047-20ABBA2 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3	118-123 43-53 43-53 43-53 43-53	04/ 04/ 04/ 07/	24/90 09/86 09/86 01/86	WC HD WC WC	23 30 28 32	0.08 3.28 3.7 7.9	0.16 0.77 0.84 1.3 0.83	98 330 320 300 320	39 172 170 160 170	51 29.2 30 23 22	7.3 6.9 6.5 6.4 6.3	442 544 525 586 552	0 0 0	150 1080 1100 930 1100	9.5 21.4 18 17 18	0.4 0.3 0.3 0.2 0.2	0.4 1 1	0.27 0.36 0.2 0.09 0.25	597 1910 1940 1760 1950	410 1530 1500 1400 1500	43 1100 930 1000	21 4 4 3 3	1.1 0.3 0.3 0.3	960 2250 2375	11 13 10	
133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3	43-53 43-53 43-53 43-53 43-53	09/ 10/ 10/ 11/	18/86 11/86 23/86 21/86	MD WC MD MD	32	11.7 6.8 3 3.2 0.1	1	308.1 360 556 500 463	187 180 301 202 197	26.4 25 61 267 357		456.9 784 400 484 477	0	1293 910 2377 2602 2055	15.2 23 201 236 248	0.2	1	0.22	1930	1600	1000	3	0.3	2400		
133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3	43-53 43-53 43-53	02/	28/87 26/87 24/87 24/87 23/87	MD WC MD	37 28	2.8 2.7 2.6 2.7 3.4	2.7 1.8	443 403 420 383 340	182 168 160 157 140	90	27.1 18.8 18 17.4	535 761 815 801 753	0	2074 1349 1200 1190 820	240 76 35 31 26	0.2	1	0.26	2370 1780	1700 1400	1000	10 5	0.9	2510 2350	11.1	
133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3	43-53 43-53 43-53	10/ 10/ 10/	09/87 06/87 12/87 19/87 22/87	MD WC WC	28 27	3.3 8.9 3.8 4.3 25.7	1.6 1.7	473 475 360 330 396	168 187 180 170 182	49 17 19 21	8.1	743 827 699 706 792	0	948 983 960 770 790	19 31 29 30 35	0.3	0.7	0.17 0.15	1940 1710	1600 1500	1100 940	2 3	0.2	2490 1874	11 10	
133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3	43-53 43-53 43-53	3 11/ 3 12/ 3 12/	05/87 20/87 04/87 18/87	MD MD MD		7.4 2.3 0.58 0.6 1.5		726 735 712 711 478	276 283 247 236 186	222 351	14.9 21.6 26.7 33.2 22	763 756 763 813 856		1831 2205 1988 2020 1432	145 205 234 228 98											
133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3	43-53 43-53 43-53 43-53	3 01/ 3 02/ 3 03/ 3 03/	29/88 17/88 10/88 30/88 19/88	MD MD MD MD		2.7 0 0.5 1.6 0.7		418 368 423 459 471	165 179 194 194 185	127 93 61	19.2 18.5 17.4 14.9 14.5	752 739 830 821 751		1155 1108 1185 1203 1166	50 51 46 45 50	0	0									
133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3	43-5: 43-5: 43-5: 43-5:	3 04/ 3 05/ 3 06/ 3 07/	/19/88 /24/88 /30/88 /29/88 /08/88	WC MD MD MD	26	1.1 1.2 1.9 1.4 1.8	1.9	390 376 300 304 300	180 176 170 176 170	62 70	14.6 15.2 15.9	793 779 789 897 855	0	1100 1026 947 925 988	46 42 39 31 37	0.2 0 0 0	0.2 0 0 0 0	0.35	2210	1700	1100	7	0.7	2775	11	
133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3	43-5: 43-5: 43-5: 43-5:	3 08/ 3 08/ 3 08/ 3 09/	/15/88 /22/88 /29/88 /06/88 /06/88	MD MD MD MD		2.6 2 1.9 2		298 305 301 305 331	174 173 159 164 152	8 6 8 3 8 9	16.4 16.3 16.4 17.3 17.3	860 859 858 845 742		989 967 984 1082 1000	38 37 20 48 41	0 0 0 0	0 0 0 0									
133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3	43-5 43-5 43-5 43-5	3 11, 3 12, 3 01, 3 02,	/08/88 /14/88 /26/89 /26/89	MD MD MD MD		0.7 2.4 0 1.1 1.1		330 348 319 345 343	168 152 161	6 8 5 4 8 0	16.9 17.3 14.9 16.4 13.6	846		951 965 857 934 1040	41 49 47 40 31	0 0 0 0	0 0 0 0									

	Commend			I ←—					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		—(millig	grams	per liter)						 →1			Sana		
Location	Screened Interval (ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na	ĸ	нсо3	∞_3	SO,	CI	F	NO ₃	В	TDS	Hardne CaCO ₃	SS 2S NCH	% Na	SAR	Spec Cond (µmho)	Temp (∞C)	рН
133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3	43-53 43-53	04/27/89 06/05/89 06/28/89 06/28/89 08/01/89	MD MD WC	25	2.1 2.8 1.1 1.2	1.8	375 385 368 340 332	186 184 177 180 158	34	12.2 10.8 10.8 11 9.5	746 719 705 670 533	0	1155 1134 1214 960 1005	38 24 18 25	0 0 0 0.2	0 0 0 1	0.29	1900	1600	1000	4	0.3	2800	11	
133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3	43-53 43-53	09/07/89 10/11/89 11/07/89 12/27/89 02/06/90	MD MD		2.7 2.1 2.3 2.8 2.6		336 349 331 353 336	152 176 164 173 158	32 31 40	10.5 12.6 11.6 11.3 11.8	662 669 640 648 658		1055 1068 1049 1093 1085	16 24 14.8 16 17		0									
133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBA3 133-047-20ABBC	43-53 43-53	03/21/90 04/24/90 04/24/90 06/25/90 06/05/86	MD WC MD	25	2.8 3 2.9 4.7 0.3	1.4	322 343 360 304 62.1	178 178 180 174 208	31 31 30 28 803	11 10.6 9.5 9.8 506	703 712 699 700 2290	0	1075 1102 1100 1034 994	16 18 23 18 681	0.2	1 0 6.2	0.34	2080 4390	1600 1010	1100	4 63	0.3	2600	9	
133-047-20ABBC 133-047-20ABBC 133-047-20ABBC 133-047-20ABBC 133-047-20ABBC	0 - 0 0 - 0	11/19/86 01/13/87	MD	13	2.3 0 5 2.7	0.39	130 250 231 247 238	120 120 117 110 108	360 399 472 462 414	190 188 204 193 193	0 0 0 0	0	1500 2643 2242 2157 1856	250 243 235 214 198	0.8	1.6	4.6	2570	820	0	42	5.5			
133-047-20ABBC 133-047-20ABBC 133-047-20ABBC 133-047-20ABBC 133-047-20ABBC	0 - 0	04/22/88 02/26/89	MD	3.7	26.6 4.1 0.07 47 4.5	0.38	226 270 280 311 165	175 164 130 105 102	498 493 380 200 376	158 220 140 193 204	0 0 106	0	2125 2154 1900 895 1811	308 235 220 261 197	2 0 0	1.3	2.6	3110	1200	1100	37	4.8	3600	5	
133-047-20ABBC 133-047-20ABBC 133-047-20ABBC 133-047-20ABBC 133-047-20ABBC	0 - 0		MD MD		8.2 12 1.1 11.9 3.5		349 427 191 654 271	87 104 163 429 174	328 360 527 1551 643	301 262 298 617 329	1334 1286 879		742 892 1432 7376 2883	244 255 307 575 285	0	0 0 3 3 0									
133-047-20ABBC 133-047-20ABBD 133-047-20ABBD 133-047-20ABBD 133-047-20ABBD	0 - 0 0 - 0 0 - 0	03/21/90 12/17/87 01/29/88 10/06/88 11/08/88	MD MD MD		1.8 13.3 6.5 1.6		218 279 324 177 147	123 149 164 154 153	445 534 542 377 439	236 252 269 97 147	22 0 0		2139 2280 2754 1753 2288	178 251 283 274 244	0	37.6 55 0									
133-047-20ABBD 133-047-20ABBD 133-047-20ABBD 133-047-20ABBD 133-047-20ABCA1		04/27/89	MD MD	33	8.4 5,4 24 2.3 7.4	0.72	199 207 255 219 220	173 159 154 105 240	507 507 263 444 130	178 230 134 186 10	0 185 960	0	2556 3098 2828 1622 720	234 254 259 273 200	0 0 0 0 0.3	0 0 0 0	0.36	2040	1500	750	15	1.5			
133-047-20ABCA1 133-047-20ABCA1 133-047-20ABCA1 133-047-20ABCA1 133-047-20ABCA1	50-60		WC WC MD	28 34	9.07 8.1 15 21.1 20	0.63 0.93 0.23	225 210 250 253 288	234 200 270 289 297	110 130	10.2 11 11 13.8 11	987 894 989 819 665	0	672 550 870 1091 1246	229 180 190 193.7 193	0.3 0.3 0.3	0.1	0.39 0.17 0.51	1990 1740 2260	1520 1300 1700	610 920	16 15 14	1.5 1.3 1.4	2400 3100	15 10	
133-047-20ABCA1 133-047-20ABCA1 133-047-20ABCA1 133-047-20ABCA1 133-047-20ABCA1	50-60 50-60	11/21/86 12/19/86 01/28/87 02/26/87 06/29/89	MD MD MD	21	20.4 18.7 16.6 19.3 0.18	2.7	279 273 222 239 540	297 291 239 300 570	120 161	11.5 11.2 11.4 12.1 20	791 670 773 958 791	0	1542 1167 1056 1018 3000	187 203 133 193 220	0.2	52	1.2	5050	3700	3000	12	1.6	5900	12	
133-047-20ABCA1 133-047-20ABCA2 133-047-20ABCA2 133-047-20ABCA2 133-047-20ABCA2	118-122 118-122 118-122	04/24/90 04/09/86 04/09/86 06/30/86 09/18/86	HD WC WC	16 33 28 31	1.2 0.15 0.2 0.38 1.5	3.8 0.12 0.16 0.19 0.17	380 78.7 75 72 74	310 29.7 31 32 31	290 70.3 69 71 69	27 6.2 6.8 8.1 7	1530 494 468 462 480	0 0 0	1300 56 59 60 62	210 16.9 20 19	0.2 0.4 0.5 0.5 0.5	1 1 1	0.49 0.49 0.6 0.58	3290 501 527 521 532	2200 319 310 310 310	970 0 0	22 32 32 32 32	2.7 1.7 1.7 1.8 1.7	4200 840 870 860	11 9 11 10	
133-047-20ABCA2 133-047-20ABCA2 133-047-20ABCA2 133-047-20ABCA2 133-047-20ABCA2	118-122 118-122 118-122	09/18/86 11/21/86 12/19/86 01/30/87 02/26/87	MD MD MD		3.5 1.9 0.2		85.4 82 81 83 85	31.8 32 33 32 36	69.2 69 66 68 75	9.3 7.1 7.4 6.8 7.2	390.8 472 483 483 482		60.6 63 52 54 51	16.1 15 17 16 15											

	Screened			l ←—				ton const-			—(milliq	grams	per liter)						> 1			Spec		
Location	Interval (ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na	к	нсо3	∞₃	SO4	CI	F	NO ₃	В	TDS	Hardnes CaCO ₃	s as NCH	% Na	SAR	Cond (µmho)	Temp (∞C)	рН
133-047-20ABCA2 133-047-20ABCA2	118-122	03/24/87 03/24/87		17	0.04	0.12	76 90	3 2 3 4	71 71	7.4	487 477	0	5 2 5 5	19 16	0.5	1	0.34	516	320	0		1.7	803	7.9	
133-047-20ABCA2 133-047-20ABCA2 133-047-20ABCA2	118-122	04/19/88 06/29/89 04/24/90	WC	29 28 31	0.8 0.46 0.16	0.13 0.11 0.14	74 75 77	31 31 33	69 71 69	7.2 7.3 7.5	484 477 501	0 0 0	61 54 56	15 21 23	0.5 0.4 0.4	7.3 6.7	0.29 0.4 0.46	527 531 551	310 310 330	0 0 0	32 32 31	1.7 1.8 1.6	831 983 900	10 12 11	
133-047-20ABCA3 133-047-20ABCA3 133-047-20ABCA3 133-047-20ABCA3 133-047-20ABCA3	273-278 273-278 273-278	04/09/86 04/09/86 04/19/88 06/29/89 04/24/90	WC WC WC	31 28 27 29	0.15 0.76 0.53 0.86 1.3	0.15 0.2 0.16 0.13 0.18	120 110 120 120 120	43.7 45 46 43 47	56.5 56 49 50 49	6.8 7.5 7.9 7.6 7.9	486 458 485 470 480	0 0 0	194 200 190 190 190	9.3 12 9.1 11 9.5	0.4 0.4 0.4 0.3	0.1 1 0.6 5	0.43 0.38 0.23 0.33 0.36	670 690 691 683 696	480 460 490 480 490	84 91 92 100	20 21 18 18	1.1 1.1 1 1	940 827 1138 1065	9 11 11 11	
133-047-20ABCA4 133-047-20ABCA4 133-047-20ABCA4 133-047-20ABCA4 133-047-20ABCA4	64-74 64-74	02/26/89 03/23/89 04/26/89 06/05/89 06/28/89	MD		3.2 4.4 3.9 3.2 1.3		223 270 274 276 275	139 156 163 159 159	233 236 247	17.8 17 16.9 17.2 17.6	1592 1640 1775 1674 1602		124 110 97 112 163	222 238 252 230 201	0 0 0 0	0 0 0 0									
133-047-20ABCA4 133-047-20ABCA4 133-047-20ABCA4 133-047-20ABCA4 133-047-20ABCA4	64-74 64-74	06/28/89 08/03/89 09/07/89 10/09/89 11/06/89	MD	28	4.1 1.5 5.7 13.8 9.2	0.47	250 268 259 365 310	170 156 145 234 189		20 17.7 17.7 21.1 20.5	1670 1559 1669 1339 1478	0	190 141 126 1366 605	230 237 240 295 264	0.3	0	0.91	1960	1300	0	28	2.9	3390	12	
133-047-20ABCA4 133-047-20ABCA4 133-047-20ABCA4 133-047-20ABCA4 133-047-20ABCA4	64-74 64-74 64-74	12/27/89 02/06/90 03/21/90 04/24/90 04/24/90	MD MD MD	31	10.2 11.9 10.1 6.2	0.4	285 265 240 241 250	163 151 164 155 160	253 240	21.1 18.3 18.1 19.1 20	1601 1680 1671 1504 1160	0	236 176 169 206 230	239 232 233 214 220	0.2	0	1.2	1730	1300	330	29	2.9	3100	11	
133-047-20ABCA4 133-047-20ABCBA1 133-047-20ABCBA1 133-047-20ABCBB1 133-047-20ABCBB1	58-63 58-63 60-65	06/25/90 06/29/89 04/24/90 02/26/89 03/23/89	WC WC MD	24 26	7.1 1.3 0.85 4.3 3.9	7.1 5.6	241 320 490 209 326	168 240 310 114 183	400 380 240	19.9 25 30 24 23.7	1542 1120 1060 1064 1775	0	349 1500 2000 421 286	227 190 250 124 232	0.1 0.1 0	0 1 1 0 0	2.6 2.7	3260 4020	1800 2500	870 1600	32 25	4.13.3	4250 5000	12 11	
133-047-20ABCBB1 133-047-20ABCBB1 133-047-20ABCBB1 133-047-20ABCBB1 133-047-20ABCBB1	60-65 60-65 60-65	04/26/89 06/05/89 06/28/89 06/28/89 08/03/89	MD	30	6.4 5.8 3.2 7.2 3.5	1	340 349 330 320 328	191 193 185 200 187	256 250	25 23.3 22.5 26 23.2	2008 1723 1709 1860 1922	0	226 211 200 230 194	263 250 250 240 242	0 0 0 0.3	0 0 0 0.5	0.84	2220	1600	97	25	2.7	3550	11	
133-047-20ABCBB1 133-047-20ABCBB1 133-047-20ABCBB1 133-047-20ABCBB1 133-047-20ABCBB1	60-65 60-65	09/07/89 10/09/89 11/06/89 12/27/89 02/07/90	MD		6.1 12.3 7.5 16.3		317 300 377 395 401	180 181 219 230 225	268	22 21 24.8 28.6 22.9	1915 1310 1733 1516 1713		187 549 689 800 888	257 227 244 237 238		0									
133-047-20ABCBB1 133-047-20ABCBB1 133-047-20ABCBB1 133-047-20ABCBB1 133-047-20ABCBB1	60-65 60-65	03/21/90 04/24/90 04/24/90 06/25/90 07/29/74	WC	31 19	13.7 13.6 16 14.5 0.43	0.63	378 398 400 368 110	243 241 250 249 43	269 270	23.2 23.4 30 23.2 5.7	1641 1694 1350 1666 470	0	958 1002 970 1042 170	227 221 210 210 14	0.2	2 0 0 1	1.1	2860 646	2000 450	920 65	22 19	2.6	4300	9	
133-047-20ABD 133-047-20ABD		12/03/75 01/21/76	WC	20	2.1	0.14	100	41	55	7.7	475 470	0	150	12	0.5	1.5	0.4	624	420	3 0	22	1.2			
133-047-20ABD 133-047-20ABD 133-047-20ABD	240-300	06/30/76 09/18/80		27 27 31	5.8 1.8 3.4	0.38 0.17 0.21	100 120 170	41 49 71	55 61 72	5.2 10	473 509 789	0 0	150 130 110	10 18 40	0.4 0.3 0.4	1.9 0.7 1	$\begin{smallmatrix}1.5\\0.1\\0.31\end{smallmatrix}$	632 664 898	420 500 720	32 83 70	22 21 18	1.2 1.2 1.2	1480 1100 1500	9 11	
133-047-20ABD 133-047-20ABD 133-047-20ABD 133-047-20ABD 133-047-20ABD	240-300 240-300	02/16/84 03/28/84 08/28/84 06/19/85 07/30/85	WC	3 0 3 0 2 8	0.27 6.75 3.5 5.7 17	0.03 0.27 0.21 0.3 0.4	190 195 180 240 180	80.5 82 75 110 77	74 80 71 93 71	9 9.4 10 11 10	1060 1080 909 1340 921	0	85 82 110 55 110	54.7 62.5 50 97 58	0.3 0.2 0.4	0.1 1 1	0.44 0.4 0.33	1010 1040 979 1300 1010	806 825 760 1100 770	13 0 11	17 17 17 16 17	1.1 1.2 1.1 1.2 1.1	1750 1700	10 10 10	
133-047-20ABD 133-047-20ABD 133-047-20ABD 133-047-20ABD 133-047-20ABD	240-300 240-300 240-300	07/30/85 07/31/85 08/01/85 08/02/85 08/03/85	MC MC	29 26 30 29 29	4.6 4 4 3.9 3.9	0.25 0.22 0.22 0.21 0.21	210 190 190 190 180	99 86 86 84 82	78 75 72 74 72	11 11 11 10 10	1010 990 988 966 947	0 0 0	94 100 100 110 110	81 65 66 62 61	0.3 0.3 0.3 0.3	1 1 1 1	0.36 0.33 0.35 0.34 0.36	1150 1050 1050 1040 1020	930 830 830 820 790	38 16 18 28 11	15 16 16 16	1.1 1.1 1.1 1.1	1800 1590 1560 1560 1540	10 10 10 10	

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		Screened] (—(millig	grams	per liter	·)——						 →I			Spec		
	Location	Interval (ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na	к	нсо3	∞₃	SO4	CI	F	NO ₃	В	TDS	Hardnes CaCO ₃	is as NCH	% Na	SAR	Cond (µmho)	Temp (∞C)	pН
	133-047-20ABD 133-047-20ABD 133-047-20ABD 133-047-20ABD 133-047-20ABD	240-300 240-300 240-300	08/05/85 08/06/85 08/06/85 08/07/85 08/08/85	WC WC WC WC	29 29 30 30 29	3.8 3.8 3.8 3.8	0.21 0.21 0.21 0.21 0.21	180 180 180 180	81 80 79 79	73 71 73 73 72	10 10 10 10	935 938 941 935 930	0 0 0	110 110 110 110 110	60 61 60 59	0.3 0.3 0.3 0.3	1 1 1 1	0.34 0.34 0.34 0.33 0.33	1010 1010 1010 1010 1010	780 780 770 770 770	16 10 3 8 12	17 16 17 17	1.1 1.1 1.1 1.1	1530 1520 1585 1590 1525	10 10 10 10	
	133-047-20ABD 133-047-20ABD 133-047-20ABD 133-047-20ABD 133-047-20ABD	240-300 240-300 240-300	08/13/85 08/21/85 09/25/85 10/10/85 10/16/85	WC WC WC WC	29 31 27 31 25	3.6 6.2 5.5 5.5	0.21 0.27 0.26 0.33 0.43	180 220 210 220 210	79 99 98 100 96	68 73 84 84 79	10 11 11 12 11	910 960 1120 1170 1080	0 0 0 0	110 100 90 92 98	61 82 91 97 83	0.4 0.3 0.2 0.3	1 1 1 1	0.33 0.35 0.45 0.45 0.4	991 1100 1170 1220 1150	770 960 930 960 920	29 170 9 2 34	16 14 16 15	1.1 1.2 1.2 1.1	1480 1810 1835 1850 1810	10 10 8 8	
	133-047-20ABD 133-047-20ABD 133-047-20ABD 133-047-20ABD 133-047-20ABD	240-300 240-300 240-300	11/01/85 12/12/85 03/04/86 04/09/86 04/10/86	WC HD WC HD WC	32 30 34	3.6 3.53 14 3.19 5.5	0.25 0.28 0.36 0.24 0.27	210 218 240 205 200	98 101 110 89.2 95	82 83.2 94 83.9 83	9.7 11 9.6 9.7	1120 1220 1220 1080 1040	0 0 0	88 78 70 88 97	87 109 110 110 90	0.3 0.3 0.3 0.2	1 1 1	0.43 0.38 0.49 0.38	1170 1200 1280 1120 1130	930 962 1100 879 890	9 52 37	16 16 17 17	1.2 1.2 1.2 1.2	1670 1960	8 7	
	133-047-20ABD 133-047-20ABD 133-047-20ABD 133-047-20ABD 133-047-20ABD	240-300 240-300 240-300	06/30/86 09/24/86 09/24/86 10/29/86 11/14/86	WC WC MD MD MD	31 28	5.9 7.9 9 4.2	0.22	190 170 168.7 212 183	87 70 68 102 79	79 75 65.1 79 73	10 11 6.9 10 10	981 832 829 1093 990	0	100 130 137.6 116 120	78 63 55.2 96 67	0.2	1	0.56 0.52	1060 965	830 710	28 30	17 18	1.2	1725 1725	10 9	
	133-047-20ABD 133-047-20ABD 133-047-20ABD 133-047-20ABD 133-047-20ABD	240-300 240-300 240-300	11/21/86 12/10/86 12/30/86 01/13/87 02/12/87	MD MD MD MD MD		11 4.1 3.6 3.2 2.9		184 168 158 162 165	78 72 67 65 61	82 73 69 69 66	9.6 11.7 9.2 8.9 8.9	1020 850 799 773 717		120 119 98 98 109	65 56 49 45 35											
3	133-047-20ABD 133-047-20ABD 133-047-20ABD 133-047-20ABD 133-047-20ABD	240-300 240-300 240-300	02/26/87 03/13/87 03/23/87 03/24/87 07/03/87	MD WC MD WC	35 30	3.1 2.9 2.5 3.1 2.7	0.19	151 150 130 150 130	61 58 55 56 54	66 71 65 71 64	8.6 8.5 8.9 9.5 8.9	711 679 665 664 531	0	109 123 130 124 140	36 32 32 30 32	0.4	16.7	0.33	788 731	550 550	6 110	20 20	1.2	1080	8 - 4	
	133-047-20ABD 133-047-20ABD 133-047-20ABD 133-047-20ABD 133-047-20ABD	240-300 240-300 240-300	04/19/88 06/29/88 02/26/89 06/29/89 05/22/90	WC WC MD WC WC	23 28 28 24	3.5 2.4 3 3.3 1.4	0.16 0.14 0.16 0.16	140 130 149 130 120	54 56 61 59 50	62 65 59 64 63	8.4 8.2 9.8 8.9 8.4	657 618 656 623 524	0 0 0	120 140 138 140 160	34 34 51 46 34	0.5 0.5 0 0.3 0.4	1 0 1 0.2	0.26 0.5 0.39 0.4	771 770 788 720	570 560 570 510	33 49 57 76	19 20 19 21	1.1 1.2 1.2	1062 1360 1037	9 9 9	
	133-047-20ABDA1 133-047-20ABDA1	95-115	09/23/86 09/23/86	WC MD	30	9.8 10.9	0.7	210 219.8	150 163	140 125	16 9.4	1420 1480	0		210 233.1	0.1	1	0.64	1520	1100		21	1.8	2390	10	
	133-047-20ABDA1 133-047-20ABDA1 133-047-20ABDA1	95-115	12/30/86 03/24/87 03/24/87	MD MD	3 3	0.9 0.04 0.4	0.3	174 130 150	122 100 101	110 67 70	11.9 10 9.9	921 774 719	0	74 65 61	216 100 115	0.3	1	0.25	888	740	100	16	1.1	1304	8.8	
	133-047-20ABDA1 133-047-20ABDA1 133-047-20ABDA1 133-047-20ABDA1 133-047-20ABDA1	95-115 95-115 95-115	04/19/88 02/26/89 03/28/89 04/26/89 06/05/89	WC MD MD MD MD	29	1.2 0.8 0 0.3	0.85	130 166 162 163 158	100 121 120 127 120	70 67	9.7 10.6 11.2 10.2 11.1	941 927 910 933 814	0	52 65 72 79 58	78 145 158 168 110	0.4 0 0 0	1 0 0 0	0.23	932	740	0	16	1.1	1400	10	
	133-047-20ABDA1 133-047-20ABDA1 133-047-20ABDA1 133-047-20ABDA1 133-047-20ABDA1	95-115 95-115 95-115	06/28/89 06/28/89 08/03/89 09/07/89 10/10/89	MD WC MD MD MD	28	0.8 0.08 0 0	0.45	163 140 163 154 164	119 120 122 112 125	69 76 78	10.4 10 10.2 10.8 15.7	909 875 806 838 825	0	58 74 62 51 67	133 130 136 135 140	0 0.2 0	2.7	0.32	1010	840	130	15	1	1770	10	
	133-047-20ABDA1 133-047-20ABDA1 133-047-20ABDA1 133-047-20ABDA1 133-047-20ABDA1	95-115 95-115 95-115	11/07/89 12/27/89 02/06/90 03/21/90 04/24/90	MD MD MD MD MD		0.2 0.3 0.2 0		156 167 155 143 142	117 120 114 123 119	75 91 73	14.2 12.9 12.5 10.8 10.5	892 803 897 813 825		67 86 108 203 121	141 153 155 298 158		0									
	133-047-20ABDA1 133-047-20ABDA1 133-047-20ABDAC1 133-047-20ABDAC1	95-115 175-275 175-275	04/24/90 06/25/90 10/08/86 10/28/86	WC MD WC MD	24 40	0.05 0.2 1.1 17	0.7	150 142 260 263	150 120 220 221	71 72 190 167	10 10.6 17 14	837 742 1490 1417	0	140 128 410 501	160 163 220 223	0.4	1 0 1	0.29	1120 2090	990 1600	310 940	13 21	1 2.1	1850 3030	10 10	
	133-047-20ABDAC1	175-275	11/14/86	MD		9.2		225	134	116	11.4	1210		261	128											

	Screened			I ←							—(milliq	grams	per lite	·)——						 1			Spec		
Location	Interval (ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na	к	нсо3	∞₃	SO4	CI	F	NO ₃	В	TDS	Hardne CaCO ₃	SS AS NCH	% Na	SAR	Cond (µmho)	Temp (∞C)	рН
133-047-20ABDAC1 133-047-20ABDAC1 133-047-20ABDAC1 133-047-20ABDAC1 133-047-20ABDAC1	175-275 175-275 175-275	12/10/86 12/30/86 01/13/87	MD MD MD MD MD		12.7 6.1 5 4.3 4.5		205 165 150 138 145	124 97 85 79 75	109 88 80 70 93	11.1 10.8 8.9 8.5 8.7	1051 791 728 676 638	2	248 229 175 171 159	110 76 62 48 45											
133-047-20ABDAC1 133-047-20ABDAC1 133-047-20ABDAC1 133-047-20ABDAC1 133-047-20ABDAC1	175-275 175-275 175-275	02/12/87 02/26/87 03/13/87 03/23/87 03/24/87	MD MD WC MD	34	4 . 1 3 . 4 3 . 2 3 . 9	0.14	144 131 132 120 133	75 70 67 64 64	71 67 73 65	8.4 8.2 8 8.3 8.2	632 609 588 579 580	0	164 169 169 180 181	44 40 35 35 34	0.5	1		796	560	88	20	1.2	1186	8.5	
133-047-20ABDAC1 133-047-20ABDAC1 133-047-20ABDAC1 133-047-20ABDAC1 133-047-20ABDAC1	175-275 175-275 175-275	07/02/87 09/11/87 10/07/87 10/13/87 12/04/87	WC MD MD WC MD	32 28	5.2 4.9 8.4 4	0.17	140 176 179 130 185	80 78 72 85 74	80 85 74 68 73	9 9.3 8.2 7.9 8.3	601 622 604 538 633	0	260 213 228 220 209	52 38 41 36 41		8.1	0.39	963 854	680 670	190 230		1.3	1380	8	
133-047-20ABDAC1 133-047-20ABDAC1 133-047-20ABDAC1 133-047-20ABDAC1 133-047-20ABDAC1	175-275 175-275 175-275	03/31/88 04/22/88 10/06/88 01/26/89 02/26/89	MD WC MD MD MD	28	5.1 4.5 3.6 0 5.9	0.14	148 120 113 141 149	63 71 51 70 77	56 70 53 67	7.9 8.9 7.4 8.8 8.5	635 613 523 644 634	0	201 220 214 264 250	35 40 13 44 37	0.5	1 0 0 0	0.33	866	590	89	20	1.3	1260	9	
133-047-20ABDAC1 133-047-20ABDAC1 133-047-20ABDAC1 133-047-20ABDAC1 133-047-20ABDAC1	175-275 175-275 175-275	03/11/89 03/12/89 03/29/89 04/27/89 06/05/89	MD MD MD MD MD		5.6 4.7 0.3 0.6 5.7		165 151 135 112 151	75 71 70 70 88	67 69 75 64 89	8.1 8.5 9 8.2 9.7	575 593 576 496 651		252 250 172 154 270	34 37 39 34 49	0 0 0 0	0 0 0 0									
133-047-20ABDAC1 133-047-20ABDAC1 133-047-20ABDAC1 133-047-20ABDAC1 133-047-20ABDAC1	175-275 175-275 175-275	06/29/89 06/29/89 08/03/89 09/07/89 10/10/89	MD WC MD MD MD	17	10.7 14 1 3.9 5.2	0.64	143 110 146 139 125	84 70 71 66 72	90 67 76 79 77	8.5 8.4 8.4 8.7 12.4	679 606 580 586 677	0	222 170 237 253 306	52 40 34 36 53	0.4	1.5 0	0.39	798	560	66	20	1.2	1378	11	
133-047-20ABDAC1 133-047-20ABDAC1 133-047-20ABDAC1 133-047-20ABDAC1 133-047-20ABDAC1	175-275 175-275 175-275	11/06/89 12/27/89 02/06/90 03/21/90 04/24/90	MD MD MD MD MD		1.6 0.2 0.3 3.7 5.8		139 90 43 130 123	67 67 62 91 88	75 71 75 86 84	9.6 9.8 9.9 9.4 7.8	609 578 448 680 656		253 164 132 302 294	37 38 38 56 48		0						ä			
133-047-20ABDAC1 133-047-20ABDAC1 133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1	175-275 115-120 115-120	04/24/90 06/28/90 10/24/85 12/09/85 03/04/86	MC MC WC WC	28 27 34 32	4.1 4.8 15 2.5 9.7	0.17 0.22 0.17 0.19	130 117 220 220 220	89 79 270 260 260	85 80 240 240 230	8.7 8.9 16 15	613 584 1260 1360 1220	0 0 0	300 292 700 600 770	53 42 250 280 260	0.4 0.3 0.4	0.8 0 1 1	0.47 0.58 1.4 0.54	1000 2360 2320 2400	690 1660 1620 1600	190 630 510 620	21 24 24 23	1.4 2.6 2.6 2.5	1560 2860 3460 3600	9 10 9 6	H
133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1	115-120 115-120 115-120	04/09/86 04/09/86 06/30/86 09/18/86 09/18/86	MD WC WC MD	36 33 36	14.4 7.1 2.5 8.6 8.7	0.17 0.2 0.16 0.2	221 220 200 250 254.3	245 260 250 310 323	220 220 200 240 251	12.5 13 15 16 25.1	1200 1170 1030 1060 960.2	0 0 0	695 760 660 1100 1413	246 240 250 250 253.3	0.3 0.4 0.3 0.4	1 1 1	1.19 1.3 1.3 2.2	2230 2340 2120 2740	1560 1600 1500 1900	660 680 1000	23 23 22 21	2.4 2.4 2.2 2.4	2900 3100 3680	9 12 11	
133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1	115-120 115-120 115-120	10/23/86 11/21/86 12/30/86 01/28/87 02/26/87	MD MD MD MD MD		11 10.9 6.4 2 2.2		293 282 258 254 241	319 304 240 204 200	241 224	16 15.7 14.1 14.5 14.1	933 1062 1076 1063 1111		1596 1665 983 741 624	247 217 191 164 156							÷				
133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1	115-120 115-120 115-120	03/24/87 03/24/87 07/22/87 09/09/87 10/07/87	WC MD WC MD MD	20 31	7.8 12.9 5.7 3.5 1.2	0.15	230 238 190 226 217	190 192 150 154 137	180 186 140 147 120	14 13.8 10 9.6 9.5	1200 1190 940 809 749	0	580 559 440 448 461	170 172 110 100 84	0.3	1	0.74	1980 1540	1400 1100	370 320	22 22	2.1	2440 2500	9 10	
133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1	115-120 115-120 115-120	10/22/87 11/05/87 11/20/87 12/04/87 12/18/87	MD MD MD MD		1.1 1.6 0.38 0.4		211 256 286 274 314	149 161 181 157 179	163 154	9.2 10.6 13.2 11 12.5	662 979 1173 1137 1317		486 424 346 331 293	81 119 152 135 175											

		Screened			l ((millig	rams	per lite	r)———						 →1			Spec		
	Location	interval (ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na	K	нсо3	∞್ತ	so ₄	CI	F	NO ₃	В	TDS	Hardnes CaCO ₃	NCH	% Na	SAR	Cond (µmho)	Temp (∞C)	рН
į	133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1	115-120 115-120 115-120	01/14/88 01/29/88 02/17/88 03/10/88 03/30/88	MD MD MD		0.83 0.8 0 0.5		267 287 240 245 278	172 186 170 171 184	153 151	11.4 12.4 11.9 11.5 12.4	1152 986 1100 1215 1251		332 299 316 308 270	140 167 150 145 171											
	133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1	115-120 115-120 115-120	04/19/88 04/19/88 05/24/88 06/30/88 07/29/88	MD WC MD MD MD	33	2.1 2.6 0.7 4.5 0.4	0.04	232 180 209 191 160	144 140 155 155 132	163		1029 1030 1214 1232 956	0	313 360 240 219 260	114 120 146 147 108	0.5 0 0	0 1 0 0	0.56	1500	1000	180	23	1.9	2250	11	
	133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1	115-120 115-120 115-120	09/06/88 10/06/88 11/08/88 12/14/88 01/26/89	MD MD MD MD MD		0.4 0.5 0.2 0		154 180 187 216 238	124 132 131 148 163	142 168	10.5 10.8 10.9 13.4 13.6	1003 874 999 1254 1216		287 250 232 286 550	112 120 122 143 147	0 0 0 0	0 0 0 0									
	133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1	115-120	02/26/89 03/27/89 04/26/89 06/05/89 06/28/89	MD MD MD MD MD		2.7 5 0.1 1.4	¥	336 323 263 174 101	202 195 166 110 58	222	18 17.3 18.2 14.7 9.1	1390 1402 1434 598 447		879 702 386 589 219	209 202 173 69 26	0 0 0 0	0 0 0 0									
	133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1	115-120 115-120 115-120	06/28/89 08/02/89 09/07/89 10/10/89 11/06/89	WC MD MD MD MD	30	0.35 0 0 1.2 0.3	0.05	86 112 126 305 166	56 63 69 212 104	73 77 92 282 151		387 434 560 975 586	0	240 212 252 1078 607	24 26 39 191 65	0.5	1.5	0.55	712	450	130	26	1.5	1169	11	
27.4	133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1 133-047-20ABDB1	115-120 115-120 115-120	12/27/89 02/06/90 03/21/90 04/24/90 04/24/90	MD MD MD MD WC	29	0.4 0.4 0 0.1 0.61	0.06	98 101 77 72 74	53 59 49 45 46	63 79 56 49 49		466 526 427 404 368	0	183 198 161 157 160	24 32 21 15 18	0.5	0 5.2	0.37	571	370	72	22	1.1	912	12	
	133-047-20ABDB1 133-047-20ABDB2 133-047-20ABDB2 133-047-20ABDB2 133-047-20ABDB2	248-253 248-253 248-253	06/25/90 10/24/85 04/09/86 04/09/86 06/30/86	MD WC HD WC	27 36 32	0.2 7.7 6.4 5.8 3.2	0.24 0.17 0.25 0.26	197 220 236 240 260	144 210 203 240 260	180 200 232 230 240	17.6 15 14 14 17	853 1720 1780 1550 1270	0 0 0	634 98 251 290 710	123 240 270 270 250	0.3 0.2 0.2 0.2	0 1 1	0.21 0.57 0.47 1.6	1870 2080 2090 2400	1400 1420 1600 1700	3 320 680	23 26 24 23	2.3 2.7 2.5 2.5	3020 2780 3500	10 10 11	
	133-047-20ABDB2 133-047-20ABDB2 133-047-20ABDB2 133-047-20ABDB2 133-047-20ABDB2	248-253 248-253 248-253	09/18/86 09/18/86 10/23/86 11/21/86 12/30/86	WC MD MD MD MD	34	0.08 4.3 4 0.4 0.5	0.23	250 253.7 273 194 111	250 262 281 96 48	240 245 235 95 58	14	1450 1066 1100 720 464	0	630 722.8 874 233 194	240 250.4 226 72 10	0.2	1	1	2380	1700	460	24	2.5	3400	11	
	133-047-20ABDB2 133-047-20ABDB2 133-047-20ABDB2 133-047-20ABDB2 133-047-20ABDB2	248-253 248-253 248-253	01/28/87 02/25/87 03/24/87 03/24/87 09/09/87	MD WC MD MD	9.6	0.1 0.3 0.17 0.5 0.06	0.09	126 119 120 125 161	48 49 50 49	60 61 53 58 69	7.6 8.2 7.7 8.2 7.5	470 462 457 412 459	0	185 177 220 197 197	9.4 6.8 14 7.4 14	0.5	1	0.25	700	500	130	18	1	986	8.7	
	133-047-20ABDB2 133-047-20ABDB2 133-047-20ABDB2 133-047-20ABDB2 133-047-20ABDB2	248-253 248-253 248-253	10/06/87 11/05/87 12/04/87 01/14/88 02/17/88	MD MD MD MD MD		0.2 0.08 0 0		160 163 162 159 145	45 46 45 46	53 53 51 50 50	7.9 7.3 7.1 7.4 7.5	465 482 482 453 440		201 196 193 196 215	7.6 7.8 7.4 7.4											
	133-047-20ABDB2 133-047-20ABDB2 133-047-20ABDB2 133-047-20ABDB2 133-047-20ABDB2	248-253 248-253 248-253	03/10/88 04/19/88 04/19/88 05/24/88 06/30/88	MD WC MD MD	27	0 0 0.08 0 0	0.03	157 152 120 149 157	51 47 48 56 65	52 47 53 56 73	7.7 7.4 7.8 7.9 8.8	498 447 485 529 495	0	233 200 200 271 354	16.1 9.5 14 26 42	0 0.5 0 0	0 1 0 0	0.26	709	500	100	19	1	1090	12	
	133-047-20ABDB2 133-047-20ABDB2 133-047-20ABDB2 133-047-20ABDB2 133-047-20ABDB2	248-253 248-253 248-253	07/29/88 09/06/88 10/06/88 11/08/88 12/14/88	MD MD MD MD MD		0.2 1.1 0		156 133 128 137 144	66 52 51 55	103 62 56 58 55	8.7 8.2 7.8 7.9 9.6	584 522 417 438 567		343 249 247 259 279	44 21 18 21 24	0 0 0 0	0 0 0 0			90						

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	Scre	eened			I 				***			—(milliç	grams	per liter)	-					→ 1			Spec		
Location	Inte	erval ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na	к	нсо3	∞3	SO ₄	CI	F	NO ₃	В	TDS	Hardnes CaCO ₃	ss as NOH	% Na	SAR	Cond (µmho)	Temp (∞C)	ρН
133-047-202 133-047-202 133-047-202 133-047-202 133-047-202	ABDB2 24 ABDB2 24 ABDB2 24	8-253 8-253 8-253	01/26/89 02/26/89 03/27/89 04/26/89 06/05/89	MD MD MD MD		0.6 0.2 0		154 168 177 154 141	58 64 68 61 53	60 51 74 59 61	8.9 8.5 8.8 8.3 8.7	577 559 568 545 450		283 286 342 267 221	33 33 42 26 14	0 0 0	9 9 0 0 0									
133-047-201 133-047-201 133-047-201 133-047-201 133-047-201	ABDB2 24 ABDB2 24 ABDB2 24	8-253 8-253 8-253	06/28/89 06/28/89 08/02/89 09/07/89 10/10/89	MD MD MD MD	27	0.09 0 0 0.2	0.14	174 160 196 141 129	64 62 71 48 47	69 60 72 65 60	8.7 8.5 9.2 8.3 9.3	517 509 475 461 468	0	308 310 368 249 213	28 34 46 18 13	0.4	1.8	0.39	915	650	240	16	1	1404	12	
133-047-201 133-047-201 133-047-201 133-047-201 133-047-201	ABDB2 24 ABDB2 24 ABDB2 24	8-253 8-253 8-253	11/07/89 12/27/89 02/06/90 03/21/90 04/24/90	MD MD MD MD MD		0.5 0.5 0.3 0		127 134 121 117 124	44 46 44 45 52	56 53 55 54 55	9.6 12.6 8.9 82 8.5	499 460 496 501 487		202 196 189 187 246	10.4 9.4 10.6 8.8 17		0				*					
133-047-202 133-047-202 133-047-202 133-047-202 133-047-202	ABDB2 24 ABDB3 ABDB3	8-253 45-50 45-50	04/24/90 06/25/90 10/25/85 04/09/86 04/09/86	WC MD WC HD WC	25 25 31	0.07 0.9 0.1 0.07 0.31	0.14 0.19 0.14 0.35	130 193 90 81 91	56 79 68 66.1 67	57 82 59 54.4 52	8.1 10.5 5.8 4.4 4.6	473 555 520 606 587	0 0 0	260 468 86 54 57	22 59 62 63 59	0.4 0.4 0.4	0.9 0 1 0.2	0.42 0.23 0.34 0.28	793 650 622 653	560 500 475 500	170 78 22	18 20 20 18	1 1.1 1.1 1	1200 980	12	
133-047-201 133-047-201 133-047-201 133-047-201 133-047-201	ABDB3 ABDB3 ABDB3	45-50 45-50 45-50	07/01/86 09/18/86 09/18/86 10/23/86 11/21/86	WC WC MD MD MD	27 31	0.77 0.76 4.4 5 3.4	0.43 0.28	92 100 114.9 97 85	68 79 82.6 72 73	52 57 70.2 49 64	5.4 5.5 138 6 6.3	571 613 605.7 452 460	0	74 120 127.7 219 219	60 64 58.3 16 61	0.3	0.3	0.37 0.36	661 761	510 580	41 72	18 18	1	1130 1235	15 11	
133-047-202 133-047-202 133-047-202 133-047-202 133-047-202	ABDB4 27 ABDB4 27 ABDB4 27	3-278 3-278 3-278	04/25/90 04/09/86 04/09/86 07/01/86 09/18/86	WC HD WC WC WC	22 29 25 26	0.29 0.06 0.09 0.1 0.63	3.5 0.21 0.26 0.28 0.24	220 118 110 110 110	95 43.7 44 44 44	39 67.2 63 63 64	8.3 7.8 8.3 9	551 489 443 435 474	0 0 0	550 192 190 190 230	20 9.9 13 12 18	0.2 0.5 0.5 0.4 0.6	1.2 0.1 1 0	0.3 0.54 0.42 0.55 0.58	1230 680 678 668 736	940 476 460 460 460	490 93 99 67	8 23 23 23 23	0.6 1.3 1.3 1.3	920 1030 1040	9 11 10	
133-047-201 133-047-201 133-047-201 133-047-201 133-047-201	ABDB4 27 ABDB4 27 ABDB4 27	3-278 3-278 3-278	09/18/86 12/19/86 03/24/87 03/24/87 04/19/88	MD WC MD WC	3.7	6.2 0.1 0.05 0.2 0.52	0.04	123.2 115 110 123 110	45.4 46 44 47 45	69 77 63 62 58	11.4 8.7 9.1 8.9 9.2	428 470 460 430 480	0	258 204 190 198 210	8.7 9.2 11 8.4 13	0.5	1	0.32	660 710	460 460	79 66	23 21	1.3	888 1120	8.6	
133-047-201 133-047-201 133-047-201 133-047-201 133-047-201	ABDB4 27 ABDB4 27 ABDB5 10	3-278 3-278 8-113	02/26/89 06/29/89 04/24/90 04/09/86 04/09/86	MD WC WC HD WC	26 25 35	0.4 0.4 0.09 6.16 2.4	0.13 0.25 0.14 0.17	126 110 110 324 300	46 44 46 254 260	44 59 58 136 130	8.7 8.7 7.4 11 12	510 467 474 1060 886	0 0	186 210 200 927 960	8.3 14 12 249 210	0 0.4 0.5 0.3 0.2	0.7 4.9 0.1	0.38 0.4 0.83 0.74	704 698 2420 2350	460 460 1860 1800	73 75 1100	22 21 14 13	1.2 1.2 1.4 1.3	1250 1080 2650	12 12 9	
133-047-201 133-047-201 133-047-201 133-047-201 133-047-201	ABDB5 10 ABDB5 10 ABDB5 10	8-113 8-113 8-113	07/01/86 09/18/86 09/18/86 10/23/86 11/21/86	WC WC MD MD	3 2 3 4	0.75 6.9 12 6 3.8	0.15 0.17	330 370 334.6 370 351	300 300 316 319 297	150 170 171 168 171	13	799 869 660 458 886	0	1200 1300 1778 1818 1725	220 230 233.9 236 232	0.2	1	0.99	2640 2860	2100 2200	1400 1450	14 15	1.4	3400 3775	13 11	
133-047-202 133-047-202 133-047-202 133-047-202 133-047-202	ABDB5 10 ABDB5 10 ABDB5 10	8-113 8-113 8-113	12/19/86 01/28/87 02/26/87 03/24/87 03/24/87	MD MD MD WC MD	13	0 . 1 0 . 1 4 . 9 1 0	0.17	366 346 364 390 365	316 304 307 330 312	182 175 197 190 186	13.5 13.9 13.8 15 14	837 773 714 864 848	0	1521 1520 1642 1400 1626	242 239 245 240 246	0.3	1	0.47	3010	2300	1600	15	1.7	3460	8.9	
133-047-201 133-047-201 133-047-201 133-047-201 133-047-201	ABDB5 10: ABDB5 10: ABDB5 10:	8-113 8-113 8-113	07/22/87 09/09/87 10/06/87 10/12/87 10/19/87	WC MD MD WC WC	32 30 30	0.43 0.06 1 2.1 2.3	0.17 0.11 0.13	360 328 291 160 140	300 240 203 130 110	180 162 134 100 97	13 11.1 10.6 9.4 8.6	708 706 664 527 442	0	1400 932 871 560 460	210 135 132 79 71	0.3 0.4 0.3	1 9.9 11	0.54 0.45 0.4	2850 1340 1150	2100 930 800	1600 500 440	15 19 21	1.8 1.4 1.5	4100 1975 1858	11 10 10	
133-047-202 133-047-202 133-047-202 133-047-202 133-047-202	ABDB5 10 ABDB5 10 ABDB5 10	8-113 8-113 8-113	11/05/87 11/20/87 12/04/87 01/14/88 02/17/88	MD MD MD MD MD		1.4 0.3 0 0.1		192 225 197 192 216	118 153 116 120 166	97 111 97 92 110	8.5 9.6 8.5 8.5 9.7	597 641 597 612 678		415 584 417 411 659	61 89 63 66 107											

		Screened			I ←—		*					—(milliç	grams	per liter)				-		 →1			Spec	
ı	ocation	interval (ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na	K	нсо _з	∞_3	SO	CI	F	NO ₃	В	TDS	Hardnes CaCO ₃	ss as NCH	% Na	SAR	Cond (µmho)	Temp (∞C) pH
1 1 1	133-047-20ABDB5 133-047-20ABDB5 133-047-20ABDB5 133-047-20ABDB5 133-047-20ABDB5	108-113 108-113 108-113	03/10/88 04/19/88 04/19/88 05/24/88 06/30/88	MD WC MD	26	1 . 4 1 . 2 2 0	0.04	230 274 220 278 288	178 189 180 234 301	130 145	10 10.5 11 11.3 13.7	665 725 704 748 702	0	737 822 820 1132 1630	20 132 130 168 229	0 0.4 0 0	0 1 0 0	0.42	1870	1300	710	18	1.6	2500	10
1 1 1	133-047-20ABDB5 133-047-20ABDB5 133-047-20ABDB5 133-047-20ABDB5 133-047-20ABDB5	108-113 108-113 108-113	07/29/88 09/06/88 10/06/88 11/08/88 12/14/88	MD MD MD		0.1 0.1 3 3.5 5.2		304 303 351 369 384	314 301 286 293 298	190	13.9 13.7 13.6 13.3 14.7	804 884 883 947 913		1711 1688 1566 1560 1557	247 249 239 245 232	0	0 0 0								
1 1 1	133-047-20ABDB5 133-047-20ABDB5 133-047-20ABDB5 133-047-20ABDB5 133-047-20ABDB6	108-113 108-113 108-113	01/26/89 02/26/89 06/29/89 04/24/90 04/09/86	MD WC WC	30 28	0 .7 1 .4 0 .87 7 .26	0.14 0.16 1.36	388 393 330 370 279	314 305 280 380 216	195 210 210 250 244	14.2 14 15 15 63.7	910 910 1120 954 790	0	1620 1580 1200 1600 1180	236 222 210 200 480	0 0.3 0.3 0.4	0 0 1 1 0.1	0.98 1.6 2.19	2830 3320 2850	2000 2500 1580	1100 1700	19 18 25	2 2.2 2.7	3830 4000	13 12
]] 1	133-047-20ABDB6 133-047-20ABDB6 133-047-20ABDB6 133-047-20ABDB6 133-047-20ABDB6	50-55 50-55 50-55	04/09/86 07/01/86 09/18/86 09/18/86 10/23/86	WC WC MD	32 28 32	5.6 8.2 8.9 13.6	1.4 1.3 0.54	270 260 200 207.5 302	200 200 170 186 248	230 240 130 149 90	58 71 50 64 14	736 687 655 433.2 439	0 0 0	1200 1100 760 906.2 1106	230 220 200 205.4 211	0.3 0.3 0.4	1 1 1	2.2 1 0.9	2590 2470 1880	1500 1500 1200	890 910 660	24 25 18	2.6 2.7 1.6	3300 2600	15 12
1 1 1	133-047-20ABDB6 133-047-20ABDB6 133-047-20ABDB6 133-047-20ABDB7 133-047-20ABDB7	50-55 50-55 95-115	11/21/86 12/19/86 04/24/90 09/18/86 09/18/86	MD WC WC	26 33	15.1 15.3 6.5 0.09 5.7	8.9 0.32	356 350 360 200 208.5	259 261 240 180 186	157 199 210 160 170	14.2 14.6 45 13 15.5	697 760 890 1020 981	0	1722 1437 1400 440 523.4	222 197 130 210 209.4	0.2	1 1	1.5	2870 1740	1900 1200	1200 400	19 22	2.1	3500 2575	13 11
3 1 1 1	133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7	95-115 95-115 95-115	10/08/86 10/09/86 10/10/86 10/11/86 10/28/86	WC WC	34 34 34 33	12 12 10 10	0.16 0.13 0.13 0.12	190 170 170 160 210	170 150 140 140 178	150 150 140 140 140	14 13 12 12 12	1030 958 916 900 891	0 0 0 0	380 340 310 340 508	210 170 160 150 147	0.4 0.4 0.4 0.4	1 1 1	0.98 1 0.97 0.93	1670 1510 1430 1430	1200 1000 1000 980	330 260 250 240	22 24 23 24	1.9 2.1 1.9 1.9	2470 2310 662 2140	10
1 1 1	133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7	95-115 95-115 95-115	11/14/86 11/21/86 12/10/86 12/30/86 01/13/87	MD MD MD		10.3 15.3 10.2 11.8 5.7		192 187 188 183 181	140 145 140 136 135	125 128 115 107 100		732 827 803 831 824		530 543 518 403 382	122 121 112 106 101										
1 1 1	133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7	95-115 95-115 95-115	01/28/87 02/12/87 02/26/87 03/13/87 03/23/87	MD MD MD	35	11.2 9 11 9.4 7.6	0.15	187 193 188 188 189	127 129 125 126 130	100 97 102 114 100	9.3 9.2 9 8.9 9.5	805 809 814 820 827	0	355 357 347 347 380	97 95 92 89 92	0.4	1		1340	980	310	18	1.4	1808	9.8
1 1	133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7	95-115 95-115 95-115	03/24/87 04/29/87 05/13/87 05/27/87 07/02/87	MD MD MD	32	11.7 9.4 10 9.6 7.9	0.13	189 172 188 202 180	127 143 144 138 120	99 102 99 103 97	9.3 10.5 9.2 9	807 815 833 830 861	0	377 377 384 371 320	96 91 96 94 94	0.4	1	0.41	1290	940	240	18	1.4	1950	
1 1 1	133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7	95-115 95-115 95-115	07/13/87 07/22/87 09/09/87 09/29/87 10/07/87	WC MD MD	31	8.2 8.7 8.1 11.1 13.6	0.13	190 180 238 233 233	131 120 131 116 116	104 96 122 98 98	9.7 8.3 8.9 8.7 8.7	870 864 839 827 815	0	302 290 292 292 296	95 89 100 92 93	0.3	4.5	0.23	1250	940	230	18	1.4	2100	9
1 1 1	133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7	95-115 95-115 95-115	10/19/87 10/22/87 11/02/87 11/05/87 11/20/87	MD	30 32	6.8 6.5 8.2 8.5	0.13	160 224 170 234 232	110 117 110 116 118	95 97 95 99 102	8.8 8.3 8.6 8.9	832 806 850 857 885	0	290 261 270 261 243	86 80 87 90 93	0.3	7.7	0.34	1200 1200	850 880	170 180	19 19	1.4	1974 1865	8 10
1 1 1	133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7	95-115 95-115 95-115	12/04/87 12/17/87 01/14/88 01/29/88 02/17/88	MD MD MD		6.8 9.2 9.3 8.7 6.1		234 241 236 227 211	112 117 125 124 125	104 105 100 106 102	9.5	885 921 907 814 916		232 246 262 264 262	96 99 99 99										

	Screened			l 							(milliq	grams	per lite	r)——									Cooo		
Location	Interval (ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na	κ	нсо3	∞ ₃	so ₄	CI	F	NO ₃	8	TDS	Hardne CaCO ₃	ess as NCH	% Na	SAR	Spec Cond (µmho)	Temp (∞C)	рΗ
133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7	95-115 95-115 95-115	03/10/88 03/30/88 04/19/88 04/19/88 05/24/88	MD MD WC	28	9.5 6.6 8.7 7.8 9.6	0.11	217 212 220 170 175	122 121 115 110 113	101 98 96 100 96	9.3 9.4 9.8	913 889 742 879 833	0	270 269 269 290 273	100 95 92 91 92	0 0.5 0	0 1 0	0.35	1240	880	160	20	1.5	1900	10	
133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7	95-115 95-115 95-115	06/30/88 07/29/88 09/06/88 10/06/88 11/08/88	MD MD MD		9.7 8.8 7.9 9		153 154 149 150 163	112 113 102 99 102	102 123 91 85 88		817 888 796 774 726		274 284 303 286 264	88 84 77 72 75	0 0 0 0	0 0 0 0									
133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7	95-115 95-115 95-115	12/14/88 01/26/89 02/26/89 03/29/89 04/27/89	MD MD MD		11.4 0 10.7 16.3 7.9		173 181 211 228 83	108 108 122 135 79	93 93 147 142 76	10.4 12.8 13.3	861 831 910 1282 592		300 365 422 106 134	76 81 94 145 64	0 0 0 0	0 0 0									
133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7	95-115 95-115 95-115	06/05/89 06/29/89 06/29/89 08/03/89 09/07/89	MD WC MD	30	2.9 3.4 0 4	0.09	71 100 88 71 122	59 51 48 61 61	73 61 55 69 65	8.3 6.5 6.5 7.8 7.4	408 447 365 382 480	0	161 191 210 173 279	27 14 18 36 25	0.5	0 0 0 0 0 0	0.35	640	420	120	22	1.2	1285	9	
133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7	95-115 95-115 95-115	09/19/89 09/27/89 10/09/89 11/06/89 12/28/89	MD MD MD		8.3 8.9 7.6 0.5 0.3		159 170 145 89 70	97 102 90 44 42	89 54	11.2 11.3	749 783 769 407 366		337 334 348 173 143	59 70 76 17 18					ė						
133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB7	95-115 95-115 95-115	02/06/90 03/21/90 04/24/90 04/24/90 06/14/90	MD MC	29	1.1 2.7 1.4 2.7 3.7	0.1	51 81 88 93 96	40 45 50 52 51	54 49 48 49 54	7.2 65 6.7 6.2 6.9	342 388 413 396 425	0	123 168 186 200 206	18 18 17 22 19	0.5	4.2	0.35	654	450	120	19	1.	1015	9	
133-047-20ABDB7 133-047-20ABDB7 133-047-20ABDB8 133-047-20ABDB8 133-047-20ABDB8	95-115 92-102 92-102	06/21/90 06/28/90 02/26/89 03/27/89 04/26/89	MD MD MD		7.6 7.8 3.2 0 0.2		128 139 243 402 413	83 91 138 259 279	222	9.6 10.2 16.1 18.8 23	651 748 1431 1115 1051		261 268 235 1580 1878	50 62 172 244 253	0 0 0	0 0 0 0									
133-047-20ABDB8 133-047-20ABDB8 133-047-20ABDB8 133-047-20ABDB8 133-047-20ABDB8	92-102 92-102 92-102	06/05/89 06/28/89 06/28/89 08/03/89 09/07/89	MD WC MD	32	1.5 0 1.2 0	0.21	459 397 390 400 357	279 239 250 242 213	402 337 330 393 380	20.4 19.7 22 21 24	892 1191 1130 906 1001	0	2129 1599 1200 1790 1511	232 187 220 262 222	0.3	0 0 1 0	3.1	3010	2000	1100	26	3.2	4240	11	
133-047-20ABDB8 133-047-20ABDB8 133-047-20ABDB8 133-047-20ABDB8 133-047-20ABDB8	92-102 92-102 92-102	10/09/89 11/06/89 12/27/89 02/06/90 03/21/90	MD MD MD		0.3 0.1 0.6 0.3		245 315 321 297 263	168 207 204 183 196	273 268	20 22.2 26.6 24.2 27.3	1216 1429 1177 1280 1260		313 717 704 587 504	241 253 244 244 236		0									
133-047-20ABDB8 133-047-20ABDB8 133-047-20ABDB8 133-047-20ABDBA1 133-047-20ABDBA1	92-102 92-102 55-60	04/24/90 04/24/90 06/25/90 09/18/86 09/18/86	WC MD WC	31 27	1.1 1.4 0.4 0.11 4.4	0.16	226 240 237 70 80.9	160 170 194 70 74.5	230 289 97	25.9 22 27.3 9.3 22.4	1563 1620 1342 545 528.9	0	226 260 531 140 121.5	205 200 211 94 82.9	0.1	0 0 1	1.2	1950 778	1300 460	0 16	27 31	2.8	3100 1230	11 11	
133-047-20ABDBA1 133-047-20ABDBA1 133-047-20ABDBA1 133-047-20ABDBA1 133-047-20ABDBA1	55-60 55-60	10/23/86 11/21/86 12/29/86 01/28/87 06/28/89	MD	20	12.1 7.2 13.7	2.8	118 149 205 217 400	139 160 168 171 160		9 10.3 10.9 9.6 11	733 633 754 766 494	0	223 757 784 671 1300	143 143 102 111 22	0.2	1	0.28	2220	1700	1300	6	0.5	2900	13	
133-047-20ABDBA1 133-047-20ABDBA2 133-047-20ABDBA2 133-047-20ABDBA2 133-047-20ABDBA2	114-119 114-119 114-119	04/25/90 09/18/86 09/18/86 10/23/86 11/21/86	WC MD MD	20 33	6.9 12 16.6 4 6.7	1.2	220 300 292.6 364 408	110 300 318 332 402	216	9.4 15 24.5 14 15.4	593 699 632.2 466 768	0	540 1300 1799 2188 2782	26 220 230.2 233 256	0.2	1	0.26	1270 2720	1000 2000	520 1400	8 17	0.5 1.8	1750 3650	11 11	

		Screened			l <i>←</i>	,						—(milliç	grams	per lite	or)						 >1			Spec		
	Location	interval (ft)	Date Sampled	Lab ID	SiO2	Fe	Mn	Ca	Mg	Na	κ	н∞ _з	∞_3	so ₄	CI	F	NO ₃	В	TDS	Hardne CaCO ₃	ss as NCH	% Na	SAR	Cond (µmho)	Temp (∞C)	рН
	133-047-20ABDBA3 133-047-20ABDBA3 133-047-20ABDBA3 133-047-20ABDBA3 133-047-20ABDBA3	115-120 115-120 115-120	10/22/8 11/05/8 11/20/8 12/04/8 12/18/8	MD MD MD		0.1 0.04 0.7 0		226 219 250 265 296	176 149 181 176 207	137	10.4	626 648 748 806 864		646 618 672 723 840	81 65 85 89 105											
	133-047-20ABDBA3 133-047-20ABDBA3 133-047-20ABDBA3 133-047-20ABDBA3 133-047-20ABDBA3	115-120 115-120 115-120	01/14/8 01/29/8 02/17/8 03/10/8 03/30/8	MD MD MD		0 .8 0 0 .7 2 .1		333 331 311 332 371	241 244 259 266 261	164 159 165	11.4 11.7 12.4 12.3 12.7	770 622 643 792 753		1133 1096 1232 1305 1362	127 127 142 153 157											
	133-047-20ABDBA3 133-047-20ABDBA3 133-047-20ABDBA3 133-047-20ABDBA3 133-047-20ABDBA3	115-120 115-120 115-120 115-120 115-120	04/19/8 05/24/8 06/30/8	WC MD	30	3.6 2.1 0.3 6.2 0.6	0.22	398 320 364 306 271	264 260 269 266 245	190 232 254	13.7 15 14.4 15.5 15.3	529 760 706 688 693	0	1462 1400 1692 1635 1501	169 170 180 178 156	0.3 0 0	0 1 0 0	1	2760	1900	1200	18	1.9	3450	10	
	133-047-20ABDBA3 133-047-20ABDBA3 133-047-20ABDBA3 133-047-20ABDBA3 133-047-20ABDBA3	115-120 115-120 115-120	09/06/8 10/06/8 11/08/8 12/14/8 01/26/8	MD MD MD		0.8 1.4 0.2 0.3		143 144 203 249 351	118 107 146 171 234	135		541 532 668 717 775		394 540 814 961 1508	37 55 87 96 180	0 0 0 0	0 0 0 0			ž.	÷				8	
	133-047-20ABDBA3 133-047-20ABDBA3 133-047-20ABDBA3 133-047-20ABDBA3 133-047-20ABDBA3	115-120 115-120	02/26/8 03/27/8 04/26/8 06/05/8 06/28/8	MD MD MD		0.6 3.4 1.8 2.9 3.8		398 376 354 375 363	268 262 255 244 230	379 330	24.8	1005 967 1066 862 848		1600 1719 1486 1558 1418	191 218 211 182 176	0 0 0 0	0 0 0 0									
279	133-047-20ABDBA3 133-047-20ABDBA3 133-047-20ABDBA3 133-047-20ABDBA3 133-047-20ABDBA3	115-120 115-120 115-120	06/28/8 08/02/8 09/07/8 10/11/8 11/06/8	MD MD MD	31	3.3 1.9 0 6.3 2.2	0.28	340 232 199 351 337	240 147 122 234 221	181 283	22 15.4 14.7 22.1 21.1	818 589 555 573 657	0	1400 820 737 1755 1675	180 95 83 154 166	0.2	0	2.8	2880	1800	1200	23	2.7	3920	10	
	133-047-20ABDBA3 133-047-20ABDBA3 133-047-20ABDBA3 133-047-20ABDBA3 133-047-20ABDBA3	115-120 115-120 115-120	12/27/89 02/06/99 03/21/99 04/24/99 04/24/99	MD MD MD	25	3.6 3.9 3.1 0.3 0.08	0.13	273 193 156 139 150	169 119 112 97 100	168 125	21.6 15.9 13.6 12.1 12	621 520 489 469 431	0	1185 804 653 544 600	107 77 51 36 40	0.4	0.6	0.91	1240	790	430	21	1.6	1725	12	
	133-047-20ABDBA3 133-047-20ABDBB 133-047-20ABDBB 133-047-20ABDBB 133-047-20ABDBB	0 - 0 0 - 0 0 - 0	06/25/99 02/21/89 10/06/89 11/08/89 12/14/89	HD MD WC		1.3 20.9 12.6 81 1.5	1.77	215 588 262 201 237	161 206 190 417 275	129 449 455 1468 809	15.2 307 36 246 197	593 2780		970 4550 3430 7914 3435	62 343 213 424 287	0.6	0.4	6.44	7810	2320		30	4.1			
	133-047-20ABDBB 133-047-20ABDBB 133-047-20ABDBB 133-047-20ABDBD1 133-047-20ABDBD1	0-0 0-0 114-119	01/26/89 02/26/89 03/27/89 09/18/86 09/18/86	MD MD WC	36	10.5 27 3 7.5 12.1	0.22	199 205 150 200 210.3	177 130 96 120 132	755 213 315 120 132	210 124 198 13 31.4	0 0 1300 960	0	2561 2341 1566 32 35.1	1111 224 159 130 133.2	0 0 0 0.3	0 0 0 1	0.84	1300	990	0	21	1.7	2130	11	
	133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1	114-119 114-119 114-119	10/23/86 11/21/86 12/30/86 01/28/87 02/26/87	MD MD MD		3 4.6 0.3 0.5 0.2		252 202 191 200 148	206 151 147 143 113	102 79 103 141 154	10 8.8 9 10.2 9.3	926 803 812 818 673		366 346 332 318 405	318 221 207 212 120											
	133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1	114-119 114-119 114-119	03/24/87 03/24/87 07/22/87 09/09/87 10/06/87	MD WC MD	14 30	0.38 0.7 2.5 0.09 1.1	0.12	130 144 210 287 294	110 109 170 193 184	110 117 26 48 57	8.6 8.7 3.8 5.6 7.1	522 519 452 598 688	0	510 558 840 585 417	46 40 15 67 137	0.4	1 0	0.36	1190 1520	780 1200	350 850	23 4	1.7	1440 2050	9.3	
	133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1	114-119 114-119 114-119	10/12/87 10/19/87 11/05/87 11/20/87 12/04/87	WC MD MD	29 29	0.04 0.11 0.09 0.2	0.24	220 220 299 305 296	170 170 186 202 177		6.9 6.4 9.5 10.7	670 549 1044 972 964	0	430 470 96 385 431	130 120 194 174 160	0.4	3.5	0.37	1370 1350	1200 1200	700 800	9	0.6	2000 1910	11 10	

					I 4							—(millig	rams	per liter))			-, ""		-1.5	 →]			Spec		
	Location	Screened interval (ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na	к	нсо3	∞₃	so ₄	CI	F	NO ₃	В	TDS	Hardness CaCO ₃	NCH	% Na	SAR	Cond (µmho)	Temp (∞C)	рН
	133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1	114-119 114-119 114-119	01/14/88 02/17/88 03/10/88 04/19/88 04/19/88	MD MD MD	30	0 0 0 0 0.05	0.09	285 245 247 255 200	196 190 195 197 190			914 904 869 886 1060	0	473 402 471 499 490	143 168 149 165 150	0.5	0 1	0.29	1730	1300	410	18	1.6	2360	10	
	133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1	114-119 114-119 114-119	05/24/88 06/30/88 07/29/88 09/06/88 10/06/88	MD MD MD		0.2 0 0.4 0.1		196 178 152 160 204	202 202 163 168 202		10.7 11.1 10.9 9.2 9.8	1031 825 723 839 1046		483 579 598 526 243	150 121 65 55 189	0 0 0 0	0 0 0 0									
	133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1	114-119 114-119 114-119	11/08/88 12/14/88 01/26/89 02/26/89 03/27/89	MD MD MD		0.2 0.3 0 0.9 0.2		219 213 218 228 206	209 193 198 199 180	122 111 108	10.6 13.7 11.4 11.2 10.9	918 939 1059 1032 951		503 719 646 630 516	135 75 104 93 108	0 0 0 0	0 0 0 0									
	133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1	114-119 114-119 114-119	04/26/89 06/05/89 06/28/89 06/28/89 08/02/89	MD MD WC	30	0 0 0 0.26	0.16	203 205 182 160 210	185 173 151 150 177	105 84 74	11.5 11.2 9.7 9.9 10.2	1236 769 705 670 743	0	320 573 548 570 515	122 74 49 52 81	0 0 0 0 . 4	0 0 0 3.7 0	0.38	1380	1000	467	14	1	2090	10	
	133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1	114-119 114-119 114-119	09/07/89 10/10/89 11/07/89 12/27/89 02/06/90	MD MD MD		0 0.3 0.1 0.4 0.4		192 199 188 205 207	157 182 160 168 166	114 100 69	10.3 12.6 13.3 10.5 12.3	767 827 843 715 850		551 538 537 540 564	66 100 83 76 86		0									
280	133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1 133-047-20ABDBD1	114-119 114-119 114-119	03/21/90 04/24/90 04/24/90 06/25/90 09/18/86	MD WC MD	29 27	0.2 0.04 0.2 0.01	0.14	165 152 160 178 82	157 140 150 175 71	51 47 49 104 76	8.2 7.8 7.3 10.5 6.9	645 586 559 851 493	0	582 541 610 563 190	47 31 40 94 51	0.4	1 0 1	0.24	1320 749	1000 500	560 93	9 25	0.7	1835 1210	11 11	
	133-047-20ABDBD2 133-047-20ABDBD2 133-047-20ABDBD2 133-047-20ABDBD2 133-047-20ABDBD2	53-58 53-58 53-58	09/18/86 10/23/86 11/21/86 12/29/86 01/28/87	MD MD MD		3.2 4 7.9 2.3 3.5		94.4 98 105 170 134	77.2 72 57 127 110	87.3 65 75 34 77	21.8 6 6.8 5.1 7.5	505.7 366 436 612 593		247.1 309 205 216 118	55.7 29 70 153 250											
	133-047-20ABDBD2 133-047-20ABDBD2 133-047-20ABDBD2 133-047-20ABDC 133-047-20ABDC	53-58 53-58 0-0	06/29/89 06/29/89 04/25/90 05/03/84 07/30/85	WC WC HD	30 30 24	8.1 8.1 6.1 0.12 0.06	3.3 3.3 1.8 0.03	270 270 190 56 42	120 120 87 169 190	42 42 30 348 440	8.8 8.8 7.3 298 320	754 754 675 1600 819	0 0 20	610 610 300 364 910	50 50 34 273 360	0.1 0.1 0.2 0.3 0.7		0.33 0.33 0.16	1510 1510 1010 2390 2710	1200 1200 830 835 890	550 550 280 180	7 7 7 47 42	0.5 0.5 0.5 5.2 6.4	2220 2220 1500 3650	11 11 11 23	
	133-047-20ABDC 133-047-20ABDC 133-047-20ABDC 133-047-20ABDC 133-047-20ABDC	0 - 0 0 - 0	02/20/86 02/21/86 04/10/86 06/05/86 09/18/86	MC HD	14	0.25 0.59 0.08 0.03 0.08	0.2 0.24 0.33 0.03	119 123 130 34.3 51	130 139 130 133 100	339 326 340 385 290	271 252 230 272 180	796 772 634 518	0 10 0	903 892 970 815 610	283 310 367 240	0.7 0.9 0.5 0.5	0.5	2.94 2.5 3.32 2.5	2440 2510 2330 1730	834 880 860 634 540	230 110	47 45 39 57 45	5.1 4.8 5 6.7 5.4			
	133-047-20ABDC 133-047-20ABDC 133-047-20ABDC 133-047-20ABDC 133-047-20ABDC	0 - 0 0 - 0	11/19/86 01/13/87 02/12/87 03/13/87 10/07/87	MD MD MD		0 0 0.2 0.5		91 106 102 110 68	88 81 76 91 119	287 302 307 327 335	183 185 210 230 198	625 644 588 788 829		734 651 593 537 527	239 205 186 235 252											
	133-047-20ABDC 133-047-20ABDC 133-047-20ABDC 133-047-20ABDC 133-047-20ABDC	0 - 0 0 - 0 0 - 0 0 - 0 0 - 0	01/29/88 03/30/88	MD MD MD	9.1	7.7 2.5 0	0.01	112 106 195 180 83	119 114 132 111 100	340 349 383 305 370	208 233 258 153 300	846 1080 441 729 634	0	919 757 1059 866 910	303 239 268 217 250	1.1	3 8 3 2	0.15	2370	620	99	45	6.5	3225	7	
	133-047-20ABDC 133-047-20ABDC 133-047-20ABDC 133-047-20ABDC 133-047-20ABDC	0 - 0 0 - 0 0 - 0 0 - 0 0 - 0	09/06/88 10/06/88 11/08/88	MD MD MD		0.3 0.3 0 1.1	·	89 80 67 81 110	173 120 108 123 145	473 297 239 298 368	352 205 67 135 191	761 846 795 618 611		960 225 538 895 1054	338 586 193 228 263	0 0 0 0	0 0 0 0									

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		Screened			l ←—						-	(milli	grams	per lite	r)———						 →			Spec		
	Location	Interval (ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na	к	нсо3	∞_3	SO ₄	CI	F	NO ₃	В	TDS	Hardnes CaCO ₃	ss as NCH	% Na	SAR	Cond (µmho)	Temp (∞C)	рН
	133-047-20ABDC 133-047-20ABDC 133-047-20ABDC 133-047-20ABDC 133-047-20ABDC	0 - 0 0 - 0 0 - 0	03/27/89	MD MD MD		1.4 22 0 0		76 184 129 169 196	90 113 101 91 100	288 172 265 278 287	208 124 177 202 199	597 515 493 839 694		993 1151 690 633 541	223 21 163 176 194	0 0 0 0	9 9 0 0 0									_
	133-047-20ABDC 133-047-20ABDC 133-047-20ABDC 133-047-20ABDC 133-047-20ABDC	0-0 0-0 0-0 0-0 0-0	06/29/89 08/09/89 09/06/89	MD	18	0.31 100 1.3 0	0.03	110 128 75 40 74	100 102 128 117 157	280 284 393 450 305	220 198 230 265 225	1070 1130 1348 1218	0	450 440 146 123 202	200 185 251 248 234	0.8	1 0 0	2.6	1910	690	0	39	4.6	2710	22	
	133-047-20ABDC 133-047-20ABDC 133-047-20ABDC 133-047-20ABDC 133-047-20ABDC	0 - 0 0 - 0 0 - 0 0 - 0 0 - 0	12/28/89 02/06/90 03/21/90	MD MD MD		0.8 0.9 0 1.1 48		49 84 88 104 105	108 123 100 105 148	307 305 334 312 366	244 243 290 284 261	1075 1025 968 1114		172 207 561 679 718	218 217 212 199 227		138 22 15 75									
	133-047-20ABDC 133-047-20ABDC 133-047-20ABDC1 133-047-20ABDC1 133-047-20ABDC1	278-283 278-283	04/25/90 06/26/90 10/16/85 04/09/86 04/09/86	MD WC HD	12 24 31	0.05 2.7 0.72 0.34 0.99	0.05 0.17 0.16 0.23	80 82 120 121 120	120 139 47 43.4 46	310 350 51 49.5 50	270 234 8.4 7.4 7.8	838 889 484 486 463	0 0 0	800 701 190 183 190	220 213 7.3 8.9	0.1 0.5 0.4 0.5	76 189 1	2.9 0.32 0.44 0.38	2300 690 652 686	690 490 480 490	7 97 110	39 18 18 18	5.1 1 1 1	3400 990 860	16 9 9	
	133-047-20ABDC1 133-047-20ABDC1 133-047-20ABDC1 133-047-20ABDC1 133-047-20ABDC1	278-283 278-283	06/30/86 11/21/86 12/29/86 01/28/87 02/26/87	MD	28	0.34 6 0 0 0.2	0.2	120 132 125 152 130	46 47 46 48 49	51 66 52 95 58	8.4 9 8.8 9 8.5	456 504 483 490 441	0	190 234 209 209 208	11 8 8.4 8.8 8.1	0.4	0.2	0.42	681	490	120	18	1	1040	11	
281	133-047-20ABDC1 133-047-20ABDC1 133-047-20ABDC1 133-047-20ABDC1 133-047-20ABDC1	278-283 278-283 278-283	03/24/87 03/24/87 09/09/87 12/04/87 03/10/88	MD	8.8	0.06 0.5 1.09 0	0.15	120 134 163 171 151	47 46 49 47 46	51 54 66 55 46	8.8 8.9 8.6 8.5 8.5	460 441 483 497 449	0	190 202 198 203 191	11 8.5 13 8.5 7.9	0.5	1	0.28	666	490	120	18	1	893	7.8	
	133-047-20ABDC1 133-047-20ABDC1 133-047-20ABDC1 133-047-20ABDC1 133-047-20ABDC1	278-283 278-283 278-283	04/19/88 10/06/88 01/26/89 02/26/89 03/28/89	MD MD	19	0.01 0.3 0 0.4 0.1	0.06	120 123 127 132 128	47 44 43 47 47	5 2 4 6 4 5 3 5 5 1	9 8.3 8.9 8.6 9.2	487 437 558 513 493	0	200 188 191 177 175	12 8 12 8.3 9	0.6 0 0 0	1 0 0 0	0.23	701	490	94	18	1	1040	11	
	133-047-20ABDC1 133-047-20ABDC1 133-047-20ABDC1 133-047-20ABDC1 133-047-20ABDC1	278-283 278-283 278-283	04/26/89 06/05/89 06/28/89 06/28/89 08/02/89	MD	28	0.3 0 0 0.05	0.16	130 131 132 120 131	49 49 48 47 49	48 61 57 50 55	9.7 9.8 8.7 8.4 12.5	510 469 590 473 403	0	176 180 175 170 184	9 10 8.9 14 8.4	0 0 0 0 0	0 0 0 1	0.37	672	490	110	18	1	1140	11	
	133-047-20ABDC1 133-047-20ABDC1 133-047-20ABDC1 133-047-20ABDC1 133-047-20ABDC1	278-283 278-283 278-283	09/07/89 10/10/89 11/07/89 12/27/89 02/06/90	MD MD MD MD MD		0 0.4 0.1 0.3 0.2		116 125 125 136 124	44 45 44 46 44	55 52 51	11.3 14 10.3 14.8 13.7	421 465 492 453 517		175 180 177 186 183	9.1 8.8 9 9.2 8.6		0									
	133-047-20ABDC1 133-047-20ABDC1 133-047-20ABDC1 133-047-20ABDC2 133-047-20ABDC2	278-283 278-283 128-133	03/21/90 04/24/90 06/25/90 10/16/85 04/09/86	WC MD WC	26 27	0.02 1.1 0.76 0.24	0.17 0.2 0.08	115 120 115 110 188	46 48 44 50 99.8	49 47 52 73 91	12.6 7 9.1 8.8 9.7	492 490 513 627 1220	0	183 190 188 71 60	11 12 8.4 34 96.3	0.4 0.3 0.1	1.9	0.35 0.45 0.61	694 690 1140	500 480 880	9 6 0	17 24 18	0.9 1.4 1.3	1090 1110	11 8	
	133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2	128-133 128-133 128-133	04/09/86 06/30/86 09/24/86 09/24/86 10/23/86	WC	36 33 32	0.1 0.59 1 2	0.18 0.13 0.13	220 220 210 212.5 255	100 110 110 100 132	87 90 84 73.8 95	10 11 12 7 11	965 980 1230 843.4 1149	0 0 0	65 62 65 66.9	88 92 89 89.6 101	0.2 0.1 0.1	0.2	0.62 0.77 0.68	1080 1100 1210	960 1000 980	170 200 0	16 16 16	1.2 1.3 1.2	1600 1975 2100	9 10 10	
	133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2	128-133 128-133 128-133	11/21/86 12/29/86 01/28/87 02/26/87 03/24/87	MD MD MD MD WC	19	8.6 0.2 0.5 0.2 0.09	0.13	225 221 254 240 240	105 117 117 118 120	87 122	10.9 11.5 11.7 10.9	1098 1018 1295 1097 1130	0	77 47 42 47 53	90 118 119 125 110	0.1	1	0.44	1200	1100	170	14	1.1	1760	8.1	

		Screened			I ←							—(milliq	grams	per lite	r)						>			Spec	
	Location	interval (ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na	κ	н∞з	∞₃	SO ₄	CI	F	NO ₃	В	TDS	Hardner CaCO ₃	SS BUS NCH	% Na	SAR	Cond (µmho)	Temp (∞C) p⊦
	133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2	128-133 128-133 128-133	03/24/87 07/22/87 09/09/87 10/06/87 11/05/87	MC MD MD	30	0.4 0.03 0.03 0.2 0.03	0.06	266 91 103 109 108	123 44 38 34 33	100 70 79 74 79	12.3 6.9 7 7 6.9	1082 541 507 459 497	0	44 57 57 71 58	115 28 23 21 21	0.4	0.5	0.3	595	410	0	27	1.5	1100	10
	133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2	128-133 128-133 128-133	12/04/87 01/14/88 02/17/88 03/10/88 04/19/88	MD MD MD		0.2		110 107 97 100 104	34 32 32 34 34	75 68 66 63 64	6.7 6.9 7.2 6.9 7.3	497 497 477 484 531		52 52 55 55 52	18 17 19 18 19	0	0								v
	133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2	128-133 128-133 128-133	04/19/88 05/24/88 06/30/88 07/29/88 09/06/88	MD MD MD	22	0.04 0.2 0.3 0.2 0.1	0.01	75 120 205 213 184	35 52 109 115 94	96	7.3 8 11.1 11.2 10.3	501 682 884 914 1017	0	56 51 45 46 40	21 39 105 117 88	0.5 0 0 0	1 0 0 0	0.32	535	330	0	31	1.7	850	10
	133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2	128-133 128-133 128-133	10/06/88 11/08/88 12/14/88 01/26/89 02/26/89	MD MD MD		0.2 0.3 1.3 0		95 121 240 250 253	47 57 114 118 117	89	7.6 8.4 12.7 12.1 11.8	566 660 1325 1439 1371		49 49 45 43	33 44 129 120 115	0 0 0 0	0 0 0 0								
	133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2	128-133 128-133 128-133	03/28/89 04/26/89 06/05/89 06/28/89 06/28/89	MD	32	0.2 0.4 0.7 0.3 0.82	0.13	261 259 266 258 240	123 126 127 128 130	108	13 13.6 14.3 11.9	1191 1224 1059 1175 1240	0	39 39 38 37 44	126 129 121 124 120	0 0 0 0 0.2	0 0 0 0	0.62	1290	1100	120	15	1.2	2270	11
282	133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2	128-133 128-133 128-133	08/02/89 09/07/89 10/10/89 11/07/89 12/27/89	MD MD MD MD		0 0.4 0.6 0.1 0.5		269 219 232 206 277	130 119 123 121 131	100 98 99	14.6 13.5 15.6 12.9 15.8	968 1053 921 1119 943		35 36 44 41 42	125 122 130 121 137	0	0								
	133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2 133-047-20ABDC2	128-133 128-133 128-133	02/06/90 03/21/90 04/24/90 04/24/90 06/25/90	MD MD	3 0	0.3 0.1 0.05	0.11	236 224 220 220 240	118 127 131 140 136	94 94 90	14.8 13.6 12.4 11 12.6	1163 1098 1293 1170 1245	0	47 47 38 45 38	124 124 128 130 129	0.1	0 1 0	0.57	1240	1100	170	15	1.2	2200	11
	133-047-20ABDC3 133-047-20ABDC3 133-047-20ABDC3 133-047-20ABDC3 133-047-20ABDC3	67-72 67-72 67-72	10/16/85 04/09/86 04/09/86 04/10/86 07/01/86	WC WC	24 32 30 30	1.2 1.74 1.9 2 2.3	0.51 0.68 0.77 0.74 0.63	200 271 260 250 240	170 175 170 170 160	29 29.6 29 28 24	5.7 6.8 6.6 5.8 6.5	595 706 685 633 601	0 0 0	590 564 600 630 650	110 195 170 160 120	0.2 0.1 0.2 0.2	0.2 1 1 1	0.13 0.25 0.13 0.11 0.14	1420 1590 1610 1590 1530	1200 1400 1300 1300 1300	710 790 800 770	5 4 4 4	0.4 0.3 0.4 0.3	1900	8
	133-047-20ABDC3 133-047-20ABDC3 133-047-20ABDC3 133-047-20ABDC3 133-047-20ABDC3	67-72 67-72 67-72	09/24/86 09/24/86 10/23/86 11/21/86 12/29/86	MD MD MD	28	2.9 4.7 5 4.9 2.2	0.66	260 254.1 227 170 213	180 171 174 137 159	24 24.9 23 25 29	6.9 4.6 6 6.2 6.8	710 782 411 273 431	0	590 697.1 716 791 919	170 176.7 70	0.1	1	0.16	1610	1400	810	4	0.3	2410	10
	133-047-20ABDC3 133-047-20ABDC3 133-047-20ABDC3 133-047-20ABDC3 133-047-20ABDC3	67-72 67-72 67-72	01/14/87 01/28/87 02/26/87 04/20/88 04/25/90	MD MD WC WC	20 21	1.8 2.2 0.52 7.4	3.5 3.9	204 243 225 260 460	164 142 165 150 210	28 40 31 34 63	7 7.4 6.4 9.9	438 444 462 530 697	0	958 908 1037 870 1200	2.7 2.6 61 240	0.2	1	0.21 0.36	1670 2560	1300 2000	830 1400	5 6	0.4	3300	10
	133-047-20ABDDA2 133-047-20ABDDA2 133-047-20ABDDA3 133-047-20ABDDA3 133-047-20ABDDA3	9-12 268-273 268-273	08/23/85 09/11/85 09/10/85 04/09/86 04/09/86	WC WC HD WC	25 26 26 30	0.13 0.06 0.14 0.34 0.58	5.3 4.9 0.19 0.18 0.23	490 510 120 126 120	420 360 45 45.8 47	20 55 54 51.4 50	8.5 8.2 8.3 7	724 706 469 518 468	0 0 0	2300 2000 170 192 190	81 67 9.2 10.5	0.3 0.2 0.4 0.4	4.6 1 1 0.1	0.08 0.16 0.48 0.51 0.26	3710 3380 666 688 689	3000 2800 480 505 490	2400 2200 100	1 4 19 18 18	0.2 0.5 1.1 1	3800 3150 940 842	15 13 9
	133-047-20ABDDA3 133-047-20ABDDA3 133-047-20ABDDA3 133-047-20ABDDA3 133-047-20ABDDA3	268-273 268-273 268-273	06/30/86 09/23/86 09/23/86 12/30/86 03/24/87	WC WC MD MD WC	29 27 32	0.22 1.1 1.6 0	0.23 0.27 0.23	120 130 133.4 132 130	48 48 48.8 48.50	52 53 55.2 52 53	8 8.4 4.9 8.1 8.1	462 544 570.9 502 543	0	180 180 216.4 182 170	15 12 11.1 11 15	0.2	0.2	0.47 0.45 0.25	681 730	500 520 530	120 76 85	18 18	1 1	1070 1105	11 14 7.5

0.4

1040

720

340

-(milligrams per liter)-

Spec

Screened

Interval

Date

Lab

		Screened			1						,	(millig	grams (per liter)						→ 1			Spec		
	Location	Interval (ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na.	к	нсо3	ಯ್ಯ	SO4	CI	F	NO ₃	В	TDS	Hardner CaCO ₃	SE RE NCH	% Na	SAR	Cond (µmho)	Temp (∞C)	рН
	133-047-20ABDDA9 133-047-20ABDDA9 133-047-20ABDDA9 133-047-20ABDDA9 133-047-20ABDDA9	50-55 50-55 50-55	09/10/85 12/09/85 04/09/86 04/09/86 04/10/86	WC HD WC WC	22 28 30 29	0.05 0.27 0.06 0.24 0.12	0.43 0.55 0.64 0.71 0.66	130 140 154 140 180	100 120 130 120 150	19 14 12.9 13 17	3.8 3.5 3.6 3.9	389 407 419 408 405	0 0 0	390 520 549 520 720	4.3 0.6 4.7 5.1	0.1 0.3 0.3 0.3 0.3	0.2 0 1	0.11 0.11 0.17 0.07 0.06	864 1030 1060 1030 1310	740 840 920 840 1100	420 510 510 730	5 3 3 3	0.3 0.2 0.2 0.2 0.2	1230 1445	9	
	133-047-20ABDDA9 133-047-20ABDDA9 133-047-20ABDDA9 133-047-20ABDDA9 133-047-20ABDDA9	50-55 50-55 50-55	07/01/86 09/23/86 09/23/86 12/29/86 04/25/90		27 26 20	0.47 0.71 1.3 1.7 0.19	0.56 0.59	140 160 168.7 169 530	130 130 136 132 380	13 13 34.4 20 25	4.5 2.8 5.1 9.6	403 413 358.9 425 624	0	560 630 752 571 2200	4.5 3.1 1.4 10.3 8.9	0.2 0.3	0.9	0.09 0.07	1080 1170 3490	880 930 2900	550 600 2400	3 3 2	0.2	1410 1410	11 11	
	133-047-20ABDDAB 133-047-20ABDDAB 133-047-20ABDDAB 133-047-20ABDDAB 133-047-20ABDDAB	265-270 265-270 265-270	09/23/86 09/23/86 12/30/86 03/24/87 03/24/87	WC MD WC MD	32	8.4 10 0.1 0.07 0.5	0.25	220 221.3 208 160 188	120 127 106 84 86	96 80	18 12.6 16.7 13 13.2	1340 1040 1037 878 779	0	57 25.1 42 57 53	130 128 111 54 58	0.2	1	0.62	1360 917	1000 750	0 25	18	1.5	2400 1330	10	
	133-047-20ABDDAB 133-047-20ABDDAB 133-047-20ABDDAB 133-047-20ABDDAB 133-047-20ABDDAB	265-270 265-270 265-270	09/09/87 12/04/87 03/10/88 04/19/88 10/06/88	MD MD MD WC MD	22	0.04 0 0.1 3.2 0.2	0.07	184 172 149 120 126	64 55 53 56 58		10 11.3 12.1 11 9.9	592 597 537 694 549	0	141 123 128 120 136	29 26 24 29 22	0.3	1 0	0.3	779	530	o	23	1.4	1080	9	
	133-047-20ABDDAB 133-047-20ABDDAB 133-047-20ABDDAB 133-047-20ABDDAB 133-047-20ABDDAB	265-270 265-270 265-270	01/26/89 02/26/89 03/28/89 04/26/89 06/05/89	MD MD MD MD MD		0 . 6 0 . 2 1 0 . 2		127 139 130 130 131	56 64 63 65 64	60 72 68	11.6 10.8 11.4 10.1 10.8	722 699 653 667 554		135 136 139 141 111	29 23 24 24 22	0 0 0 0	0 0 0									
)	133-047-20ABDDAB 133-047-20ABDDAB 133-047-20ABDDAB 133-047-20ABDDAB 133-047-20ABDDAB	265-270 265-270 265-270	06/28/89 06/28/89 08/03/89 09/07/89 10/10/89	MD WC MD MD MD	29	0.03	0.19	133 120 132 131 137	63 60 60 53 57	71 71 69	10.1 10 9.8 10.4 13.5	630 598 517 540 552	0	138 140 155 146 142	23 26 20 20 21	0.3	0 1 0	0.43	753	550	57	22	1.3	1330	9	
	133-047-20ABDDAB 133-047-20ABDDAB 133-047-20ABDDAB 133-047-20ABDDAB 133-047-20ABDDAB	265-270 265-270 265-270	11/07/89 12/27/89 02/06/90 03/21/90 04/24/90	MD MD MD WC	31	0.6 0.3 0.3 1 0.02	0.22	131 140 129 117 120	52 54 53 55 67	67 88	12.6 13.1 13.4 10.3 9.6	605 539 655 614 592	0	138 187 144 146 150	22 22 21 21 25	0.2	0 7.5	0.43	770	580	90	20	1.2	1245	9	
	133-047-20ABDDAB 133-047-20ABDDB1 133-047-20ABDDB1 133-047-20ABDDB1 133-047-20ABDDB1	260-265 260-265 260-265	06/25/90 08/30/85 09/11/85 09/11/85 04/09/86	MD WC WC HD	28 27 26	0.1 0.07 0.76 0.8 0.21	0.23 0.36 0.24 0.24	127 160 160 160 148	69 66 65 58.7	70 71 75 70 74.9	10.6 9.2 10 10 8.1	646 828 862 886 872	0 0 0	139 42 49 43 42	54 38 34 33 32.3	0.2 0.2 0.5 0.2	0 1 1 1	0.55 0.58 0.56 0.49	824 849 846 794	670 670 670 611	0 0 0	18 19 18 21	1.2 1.3 1.2 1.3	1380 1265 1380	1 1 9 9	
	133-047-20ABDDB1 133-047-20ABDDB1 133-047-20ABDDB1 133-047-20ABDDB1 133-047-20ABDDB1	260-265 260-265 260-265	04/09/86 06/30/86 09/23/86 09/23/86 12/30/86	WC WC WC MD MD	31 30 29	0.52 0.44 3.9 6 0.5	0.28 0.28 0.33	150 140 160 172.4 172	62 60 65 68 66	69 73 81 75.6 80	8.7 9 10 6.4 9.7	729 722 966 990.1 927	0	48 53 24 27.9 29	33 31 42 40.4 43	0.2 0.2 0.1	1 1 1	0.37 0.6 0.7	763 755 893	630 600 670	32 5 0	19 21 21	1.2 1.3 1.4	1125 1300 1625	9 11 10	
	133-047-20ABDDB1 133-047-20ABDDB1 133-047-20ABDDB1 133-047-20ABDDB1 133-047-20ABDDB1	260-265 260-265 260-265	03/24/87 03/24/87 09/09/87 12/04/87 03/10/88	WC MD MD MD	8.8	0.06 0.5 0.03 0	0.17	120 133 167 168 144	48 46 49 47 44	53 56 70 58 45	8 8.1 7.8 7.9	471 447 483 468 468	0	190 200 199 206 190	14 9.3 13 8.8 8.9	0.4	1	0.29	676	500	110	19	1	870	7.8	
	133-047-20ABDDB1 133-047-20ABDDB1 133-047-20ABDDB1 133-047-20ABDDB1 133-047-20ABDDB1	260-265 260-265 260-265	04/19/88 10/06/88 01/26/89 02/26/89 06/29/89	WC MD MD MD WC	31 28	1.3 0.1 0.6 0.48	0.08	120 118 127 134 120	46 45 43 47 46	51 47 46 34 50	8.2 8.4 8.4 8.1	482 463 516 514 474	0	210 201 198 191 200	12 8 12 7.7 10	0.5 0 0 0 0	1 0 0 0 1.1	0.21	718 698	490	94	18	1	1020	10	
	133-047-20ABDDB1 133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2	114-119 114-119 114-119	04/25/90 08/30/85 09/11/85 04/09/86 04/09/86	WC WC HD WC	27 29 29 37	0.19 0.09 0.05 0.12 1.2	0.18 0.11 0.1 0.19 0.24	120 75 65 120 130	48 31 27 51 58	49 69 70 76.8 75	6.9 7.4 8.4 7 7.6	485 441 408 642 635	0 0 0	200 74 66 108 120	12 16 21 41.9 45	0.4 0.4 0.3	0.4 1 0.1 0.1	0.37 0.54 0.54 0.5 0.5	704 521 489 721 788	500 320 270 511 560	100 1 0	17 32 35 25 22	1 1.7 1.9 1.5	1065 775 805	11 11 9	

	Screened			l ←							(millig	grams	per lite	r)						 }			S		
Location	interval (ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na	K	нсо3	∞ ₃	SO ₄	CI	F	NO ₃	В	TDS	Hardne CaCO ₃	ess as NCH	% Na	SAR	Spec Cond (µmho)	Temp (∞C)	рΗ
133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2	114-119 114-119 114-119	06/30/86 09/23/86 09/23/86 10/23/86 11/21/86	MD	3 4 3 1	0.55 0.58 0.6 3	0.18 0.15	140 150 152.7 166 127	66 69 68.5 72 54	77 72 63.3 73 98	5.3	647 729 683 769 734	0	130 160 148.3 153 116	60 71 68.9 71 48	0.2	0.2	0.59 0.52	836 923	620 660	91 61	21 19	1.3	1430 1670	11 10	
133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2	114-119 114-119 114-119	12/30/86 01/28/87 02/26/87 03/24/87 03/24/87	MD MD WC MD	17	0.1 0.2 0.06 0.4	0.1	120 155 134 120 141	52 60 58 57 57	72 76 68 70 76	7.8	599 644 638 627 598	0	82 94 95 110 100	46 62 59 59	0.4	1	0.32	752	530	20	22	1.3	1059	8.3	
133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2	114-119 114-119 114-119	07/22/87 09/09/87 10/06/87 11/05/87 12/04/87	WC MD MD MD MD	32	0.24 0.06 0.4 0.04	0.09	78 105 107 110 110	34 35 32 32 33	69 82 70 80 78	6.5 6.6 6.6	470 489 459 482 497	0	60 57 60 57 54	21 21 19 18 16	0.4	0.6	0.25	534	330	0	30	1.6	930	9	
133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2	114-119 114-119 114-119	01/14/88 02/17/88 03/10/88 04/19/88 04/19/88	MD MD MD MD WC	28	0 0 0.1 0 0.66	0.07	107 98 99 103 76	31 31 32 33 34	71 64 62 62 70	7.1	482 479 487 503 471	0	55 57 55 58 68	17 17 17 19 15	0.6	0	0.35	532	330	0	31	1.7	935	11	
133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2	114-119 114-119 114-119	05/24/88 06/30/88 07/29/88 09/06/88 10/06/88	MD MD MD MD MD		0 . 2 0 . 1 0 . 1 0 . 1		87 101 133 86 78	35 44 63 36 34	70 81 78 75 64	6.6 7.2 8.1 6.8 6.8	494 533 644 538 472		61 75 112 60 59	23 36 72 24 21	0 0 0 0	0 0 0 0									
133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2	114-119 114-119 114-119	11/08/88 12/14/88 01/26/89 02/26/89 03/28/89	MD MD MD MD MD		1.3 0.1 0 1.5 0.4		82 95 112 129 143	34 38 45 52 61	64 63 65 59 76	6.5 9 7.7 7.6 8.9	510 565 633 638 667		56 65 85 88 102	21 29 44 48 65	0 0 0 0	0 0 0 0									
133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2	114-119 114-119 114-119	04/26/89 06/05/89 06/28/89 06/28/89 08/02/89	MD MD MD WC MD	31	0.3 1.2 0 0.15	0.17	149 181 156 140 156	67 80 67 63 68	69 89 82 70 78	8	715 616 675 666 552	0	106 133 108 110 112	73 92 74 70 75	0 0 0 0.4	0 0 0 1	0.43	822	610	63	20	1.2	1430	10	
133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2	114-119 114-119 114-119	09/07/89 10/10/89 11/07/89 12/27/89 02/06/90	MD MD MD MD MD		0 0.2 0.6 0.2 0.3		177 172 176 189 180	74 76 76 77 77	81		653 611 774 610 746		132 135 138 139 148	106 100 102 103 108		0						21			
133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB2 133-047-20ABDDB3	114-119 114-119 114-119	03/21/90 04/24/90 04/24/90 06/25/90 08/30/85	MD WC MD WC	31 34	0.2 0.35 0.2 1.4	0.17	169 149 160 158 280	84 73 75 77 160	75 73 69 75 78	10.8 8.8 7.3 9.1	706 774 744 676 671	0	155 137 150 154 820	113 91 94 97 92	0.3	1 0 1	0.44	956 1810	710 1400	98 810	17 11	1.1	1570 2200	11 12	
133-047-20ABDDB3 133-047-20ABDDB3 133-047-20ABDDB3 133-047-20ABDDB3 133-047-20ABDDB3	36-41 36-41 36-41	09/11/85 04/09/86 04/09/86 07/01/86 09/23/86	WC WC WC	26 32 30 29	5.3 6.17 5.7 4.5 4.1	1.73 1.8 1.7 1.8	350 351 340 320 350	210 212 200 210 220	80 111 100 90 110	12 11.6 11 12 13	803 877 852 831 905	0 0 0	970 1050 1000 1000	110 138 120 120 120	0.1 0.1 0.1 0.1 0.1	1 1 1	0.65 0.74 0.68 0.71 1.3	2160 2310 2230 2200 2300	1700 1750 1700 1700 1800	970 980 1000	9 12 11 10 12	0.8 1.2 1.1 0.9 1.1	2610 2850 3200	10 12 8	
133-047-20ABDDB3 133-047-20ABDDB3 133-047-20ABDDD 133-047-20ABDDD 133-047-20ABCC1	36-41 7.2-9.6 7.2-9.6	09/23/86 10/23/86 09/05/85 09/12/85 08/29/69	MD WC WC	26 26 26	6.1 11 0.17 0.6 1.1	8.4 8.9 0.13	329 330 530 580 78	208 259 190 270 28	96.4 103 53 80 68	7.8 12 11 12 6.4	782.7 744 401 489 369	0 0	1238 1313 1700 1900 137	103.9 111 110 170 15	0.3 0.4 0.6	1 1 1	0.14 0.27 0.22	2830 3290 543	2100 2600 309	1800 2200 6	5 6 32	0.5 0.7 1.7	3250 2880 860	16 15 10	
133-047-20ACC1 133-047-20ACC3 133-047-20ACC3 133-047-20ACC3	23-26 23-26	09/02/69 09/07/75 12/02/75 02/16/84	WC WC HD	30 12	1.9 0.08	0.14 0.25	87 160 392	32 170 165	89 30 16.5	6.5 6.1	448 390 361 375	0 0 0	128 770	21 2.1	0.8	0.2	0.3	618 1340	348 1100	0 780	3 5 6	2.1	980	10	
133-047-20ACC3		11/01/85	WC	24	2.9	0.95	410	180	22	6.2	415	0	1400 1200	34.7 64	0.4	0.2	0.2	2200 2120	1660 1800	1400	3	0.2	2200	10	

				I ← —							(millig	grams	per liter)———						 }			Spec		
Location	Screened Interval (ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na	κ	нсо _з	∞₃	so ₄	CI	F	NO ₃	В	TDS	Hardner CaCO ₃	ss as NOH	% Na	SAR	Cond (µmho)	Temp (∞C) p	рН
133-047-20ACC3 133-047-20ACC3 133-047-20ACC3 133-047-20ACC3 133-047-20ACC3	23-26 23-26 23-26	04/09/86 04/09/86 04/20/86 06/28/89 04/25/96	WC WC	17 13 15 15	52.4 59 67 46 61	0.93 0.99 0.92 0.92 0.95	392 370 380 420 400	167 160 160 160 160	18.1 20 22 17 20	4.9 5.1 5.9 5.1 5.4	328 330 290 395 400	0 0 0	1290 1200 1200 1200 1100	96 89 130 140 150	0.3 0.3 0.4 0.3	0.1 1 1 1 1	0.3 0.14 0.14 0.16 0.15	2130 2090 2120 2200 2110	1670 1600 1600 1700 1700	1300 1400 1400 1300	2 3 3 2 3	0.2 0.2 0.2 0.2 0.2	2700 2840 2600	8 12 9	
133-047-20ACD2 133-047-20ACD2 133-047-20ADB 133-047-20ADB2 133-047-20ADB2	24-30 254-260 265-270	09/07/75 12/02/75 09/05/65 04/09/86 04/20/88	WC WC WC	12 29 33 26	0.5 0.7 0.58 0.07	0.08 0.17 0.17 0.12	320 125 73 120	170 33 30 46	25 52 73 52	5.9 6.7 6.2 8.4	330 391 484 466 475	0 0 0	1200 170 54 190	3.4 9.7 19 11	0.5 0.4 0.5 0.5	2 2.5 5.8 1	0.47 0.19 0.49 0.25	1900 667 526 689	1500 448 310 490	1200 51 0 99	3 20 34 18	0.3 1.1 1.8 1	1060 790 1020	10 9 9	
133-047-20ADB2 133-047-20ADB2 133-047-20ADB2 133-047-20ADB2 133-047-20ADB3	265-270 265-270 265-270	06/29/88 06/29/89 04/24/96 10/25/89	WC WC	27 29 27 24 31	0.59 0.26 0.31 0.43 0.12	0.14 0.16 0.21 0.16 0.27	120 120 120 120 110	47 46 47 46 45	53 51 53 51 48	8 8.1 8.4 8.4 7.6	478 477 486 486 468	0 0 0 0	200 180 200 190 190	13 12 13 8.1 11	0.5 0.4 0.5 0.5	3.3 3.9 1 0.1	0.48 0.34 0.35 0.33 0.37	710 686 713 690 675	490 490 490 490	100 98 95 90 76	19 18 19 18	1 1 1 1	1191 1120 910 970	11 9 8 9	
133-047-20ADB3 133-047-20ADB3 133-047-20ADB3 133-047-20ADB3 133-047-20ADB3	115-120 115-120 115-120	04/20/88 06/29/88 06/29/88 04/24/98 01/25/88	WC WC	27 28 30 29 24	0.19 0.46 0.34 0.11 0.43	0.11 0.13 0.14 0.16 0.16	65 72 70 71 120	30 30 29 29 46	70 74 69 72 51	6.9 6.7 6.8 6.9	465 426 458 472 486	0 0 0 0	59 58 49 59	17 20 19 18 8.1	0.6 0.6 0.5 0.5	1 6.2 4.6	0.34 0.53 0.4 0.42 0.33	506 501 506 524 690	290 300 290 300 490	0 0 0 0 90	34 34 33 34 18	1.8 1.9 1.8 1.8	945 855 910	8 11 9 8	
133-047-20ADB3 133-047-20ADD 133-047-20ADD 133-047-20ADD 133-047-20ADD	250-290 250-290 250-290	10/31/8! 07/29/74 06/30/76 09/18/86 09/18/86	WC WC	30 19 28 27 27	0.5 1.4 2.1 1.7	0.13 0.14 0.18 0.18 0.16	73 110 110 120 110	31 47 45 54 43	72 51 53 59 55	7 6.4 6.4 5.6 5.3	477 490 489 508 329	0 0 0 0	54 180 170 120 160	17 10 10 17 14	0.5 0.7 0.4 0.5	1 1 6.7 6.7	0.43 0.35 0.49 0.32 0.16	520 668 668 662 586	310 470 460 520 450	0 68 59 100 180	33 19 20 20 21	1.8 1 1.1 1.1 1.1	633 1080 1020 1020	9 9	
133-047-20ADD 133-047-20ADD N 133-047-20ADD M 133-047-20ADD M 133-047-20ADD	250-290 250-290 250-290	08/31/83 02/16/84 03/28/84 08/28/84 06/19/89	HD HD WC	31 30 28	1.5 0.24 1.59 1	0.16 0.12 0.15 0.15 0.15	110 102 100 110 100	43 38 38 43 41	57 53 57 58 59	8.7 6.7 7 8.5 7.5	470 482 483 469 468	0 0	160 153 155 160 150	12 10.8 11.2 11 10	0.5 0.6 0.5	0.1 0.6 4.8	0.28 0.39 0.3	657 602 607 654 634	450 413 408 450 420	67 67 35	21 22 23 21 23	1.2 1.1 1.2 1.2	1020	12 9 10	
133-047-20ADD 133-047-20ADD 133-047-20ADD 133-047-20ADD 133-047-20ADD	250-290 250-290 250-290	08/01/8 12/12/8 04/10/8 04/10/8 06/30/8	HD HD WC	29 33 30	1.5 1.33 0.2 1.6 1.5	0.15 0.13 0.12 0.16 0.14	110 104 112 110 110	41 40.2 41.9 42 42	57 55.6 58.8 58	8.1 6.8 6.8 7.2	477 475 495 470 481	0	160 141 155 160 150	12 11 13.9 13	0.5 0.5 0.5 0.5	1 0.6 0.2	0.29 0.52 0.42 0.48	656 593 633 658 653	440 426 453 450 450	52 62 53	21 22 22 22 22	1.2 1.2 1.2 1.2	9 4 5	10	
133-047-20ADD 133-047-20ADD		03/23/8		35	1.5	0.16	110 134	43 39	5 5 4 9	8.1	486 514	0	160 157	10 10.6	0.5	1		663	450	53	21	1.1	870	8.4	
133-047-20ADD 133-047-20ADD	250-290 250-290	04/19/8 02/26/8	WC MD	25	1.3	0.11	100 120	42	5 6 5 0	7.9	475 503	0	160 146	13 11	0	0.2	0.22	640 634	420 420	33 32	22	1.2	1040 1143	10 9	
133-047-20ADD 133-047-20ADD 133-047-20ADD2 133-047-20ADD2 133-047-20ADD2 133-047-20ADD2	250-290 268-273 268-273 268-273	06/29/8 04/23/9 10/31/8 04/09/8 06/30/8 09/24/8	WC WC WC	28 29 28 33 30 28	1.4 1.2 1.3 0.57	0.14 0.15 0.15 0.17 0.14 0.14	100 110 110 110 110	41 42 45 42 43 42	55 57 56 59 55	7.8 7.7 8.3 7.7 8.1 8.7	471 482 485 475 472 479	0 0 0 0 0	150 160 170 160 150	12 13 11 15 17	0.5 0.5 0.5 0.3 0.3	0.5 1 1 0.9	0.36 0.37 0.41 0.48 0.47	659 670 661 652 645	450 460 450 450 450	52 62 58 65 55	21 21 21 22 22	1.2 1.2 1.1 1.2	1065 665 1040 1040	8 7 10 10	
133-047-20ADD2 133-047-20ADD2 133-047-20ADD2 133-047-20ADD2 133-047-20ADD2	268-273 268-273 268-273	09/24/8 07/22/8 09/09/8 12/04/8 03/10/8	WC MD MD	30	0.3 1.1 0.09 0	0.14	121.6 110 141 138 121	43.8 42 43 38 36	55.3 57 75 64 61	8 7.7 8.1 7.9 7.8	386.3 482 489 489 453	0	196.3 150 134 129 122	11 13 14 14 14.6	0.5	5.9	0.26	655	450	52	21	1.2	1060	9	
133-047-20ADD2 133-047-20ADD2 133-047-20ADD2 133-047-20ADD2 133-047-20ADD2	268-273 268-273 268-273	04/20/8 06/30/8 10/06/8 01/26/8 02/26/8	WC MD MD	27 27	0.58 0.97 0.1 0	0.09	93 98 99 110 113	38 40 39 39 42	66 63 55 49 64	8.1 7.8 8 8.4 8.9	473 437 498 538 515	0	120 140 143 140 143	15 17 13 16 12	0.6 0.5 0		0.32	603 615	390 410	1 51	26 25	1.5	940	9	
133-047-20ADD2 133-047-20ADD2 133-047-20ADD2 133-047-20ADD3 133-047-20ADD3	268-273 268-273 122-127	06/29/8 04/25/9 04/25/9 10/25/8 04/09/8	WC WC WC	28 29 28 27 34	0.04 0.15 0.11 0.56 0.37	0.13 0.14 0.16 0.11 0.19	99 74 100 72 71	41 33 41 30 31	57 73 58 73 71	7.5 8 7 7.1	475 429 484 475 464	0 0 0 0	140 110 140 55 58	14 20 13 17 20	0.5 0.5 0.3 0.5	6.4	0.34 0.44 0.37 0.39 0.53	625 565 630 520 524	420 320 420 300 300	26 0 22 0 0	23 33 23 34 33	1.2 1.8 1.2 1.8 1.8	1058 902 990 640		

remanda de la compacta de la compact

		Screened			I 		,					(milliç	grams	per liter)						 →I			Spec		
	Location	interval (ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na	K	нсо3	∞ ₃	so ₄	CI	F	NO ₃	В	TDS	Hardnes CaCO ₃	ss as NCH	% Na	SAR	Cond (µmho)	Temp (∞C)	рН
	133-047-20ADD3 133-047-20ADD3 133-047-20ADD3 133-047-20BAA1 133-047-20BAA1	122-127 23-26	04/20/88 06/29/89 04/25/90 09/05/75 12/02/75	MC MC MC	28 29 30 14 21	0.02 0.03 0.04 0.19 0.85	0.1 0.14 0.13 0.2 0.32	70 67 71 87 84	30 30 30 88 83	71 67 70 31 35	6.9 6.7 6.9 4.7 5.3	461 460 474 455 456	0 0 0 0	55 43 52 250 250	17 18 19 5 6.9	0.5 0.4 0.5 0.5	0.2 4.9 5.4 1	0.33 0.38 0.42 0.28 0.4	506 494 518 706 714	300 290 300 580 550	0 0 0 210 180	33 33 33 10 12	1.8 1.7 1.8 0.6 0.6	830 907 855	8 10 10	
	133-047-20BAA1 133-047-20BAA1 133-047-20BAA2 133-047-20BAA2 133-047-20BAA2	23-26 128-134 128-134	01/22/76 07/18/79 09/05/75 09/18/80 08/24/83	MC MC MC MC	25 14 21 15	0.43 0.4 1.3 0.08	0.52 0.04 0.61 0.18	100 91 100 74	41 37 17 13	63 54 50 49	30 6.2 11 13	624 471 481 398 329	0	170 100 62 44	10 12 14 10	0.3 0.5 0.2 0.2	1 1 59 0.8	0.33 0.39 0	674 554 532 382	420 380 320 240	3 4 0	23 23 25 30	1.3 1.2 1.2	1150 900 763	9 10.5	7.56
	133-047-20BAA2 133-047-20BAA2 133-047-20BAA2 133-047-20BAA2 133-047-20BAA3	128-134 128-134 128-134	10/10/85 04/09/86 06/29/88 04/25/90 03/29/84	WC WC WC HD	26 26 27 26	0.27 0.43 0.06 0.05 22.4	0.45 0.34 0.39 0.27 0.12	110 100 100 86 220	31 33 42 47 275	52 55 50 51 112	12 12 7.8 8 15.6	468 434 460 428 2120	0 0 0 18	140 130 140 130	7.5 10 11 10 206	0.4 0.4 0.4 0.3	0.1 1 0.5 0.1	0.33 0.28 0.45 0.35	612 582 607 588 1880	400 390 420 410 1680	19 30 45 28	21 23 20 21 13	1.1 1.2 1.1 1.1	945 850 930	9 9 11	
	133-047-20BAA3 133-047-20BAA3 133-047-20BAA3 133-047-20BAA3 133-047-20BAA3		04/09/86	WC HD WC MD MD	32 29	0.83 5.8 6.8 29.4 5.2	0.15 0.42 0.5	230 207 210 287 279	310 276 300 331 318	67 72.6 74 78 75	11 10.8 11 12.5 8.1	1360 1370 1340 1190 1137	0	580 639 690 1034 919	93 91.7 86 44 40	0.1 0.1 0.1	1.1	0.45 0.52 0.4	2000 1970 2070	1800 1660 1800	720 660	7 9 1	0.7 0.8 0.8	2300	9	
	133-047-20BAA3 133-047-20BAA3 133-047-20BAA3 133-047-20BAA3 133-047-20BAA3	34-37 34-37 34-37	11/05/87 11/20/87 12/04/87 12/18/87 01/14/88	MD MD MD MD MD		24 22.4 16.3 21.5 12.5		284 269 286 270 246	291 272 236 257 253	71 65 68	13.3 14.2 12.8 16.6 15.7	1080 1159 1123 1483 1641		839 750 761 471 277	38 37 33 34 32											
သွ	133-047-20BAA3 133-047-20BAA3 133-047-20BAA3 133-047-20BAA3 133-047-20BAA3	34-37 34-37 34-37	01/29/88 02/17/88 03/10/88 03/30/88 04/19/88	MD		14.6 11.5 22.1 15.1 12.3		243 234 250 253 264	249 246 242 232 202	60 61 59	14.6 12.9 12.8 13.3 11.8	1372 1305 1310 1229 1536		347 518 582 500 505	31 28 30 30 29	0	0									
~	133-047-20BAA3 133-047-20BAA3 133-047-20BAA3 133-047-20BAA3 133-047-20BAA3	34-37 34-37 34-37	04/20/88 05/24/88 06/30/88 07/29/88 09/06/88	MD	31	11 22 7.6 12.6 20.6	0.94	210 210 172 195 204	190 193 196 229 229	67 68	12 10.7 11.4 11.5 11.4	1210 1131 1324 1357 1161	0	480 484 298 481 755	33 28 26 22 22	0.2 0 0 0	1 0 0 0	0.32	1630	1300	310	9	0.8	2150	10	
	133-047-20BAA3 133-047-20BAA3 133-047-20BAA3 133-047-20BAA3 133-047-20BAA3	34-37 34-37 34-37	10/06/88 11/08/88 12/14/88 01/26/89 02/26/89	MD MD		33.6 45.5 46.5 0 44.1		235 249 250 255 262	221 217 228 223 215	56 48	11 10.3 11.8 10.9 11.1	1026 1034 1039 1024 955		838 826 837 849 887	21 23 25 34 26	0 0 0 0	0 0 0 0									
	133-047-20BAA3 133-047-20BAA3 133-047-20BAA3 133-047-20BAA3 133-047-20BAA3	34-37 34-37 34-37	03/24/89 04/27/89 06/05/89 06/29/89 06/29/89	MD MD	18	42.6 0.7 16 21.6 22	2.2	261 297 441 459 460	225 364 400 406 420	76 80	11.3 15.3 15.3 14.9	886 1233 1225 1203 1150	0	891 1439 2012 2207 1800	26 23 18 16 24	0 0 0 0 0.1	0 0 0 0	0.37	3400	2900	1900	5	0.6	4310	11	
	133-047-20BAA3 133-047-20BAA3 133-047-20BAA3 133-047-20BAA3 133-047-20BAA3	34-37 34-37 34-37	08/01/89 09/08/89 10/11/89 11/08/89 12/27/89	MD MD		23 14.1 40 50 49		413 366 356 325 315	391 349 327 314 294	59 49 48	14.5 14.2 13.3 12.9 12.2	1145 1122 1029 1063 914		1892 1733 1615 1461 1294	20 24 28 26 28	0	0									
	133-047-20BAA3 133-047-20BAA3 133-047-20BAA3 133-047-20BAA3 133-047-20BAA3	34-37 34-37 34-37	02/07/90 03/21/90 04/24/90 04/26/90 06/25/90	MD	13	83 61 60 46 59	2.2	316 305 310 340 256	265 285 272 280 281	48 48 50	11.4 11.1 11 10 11.5	883 869 871 886 828	0	1326 1385 1335 1300 1292	29 32 25 29 26	0.1	0 1 0	0.33	2510	2000	1300	5	0.5	2900	10	
	133-047-20BAA4 133-047-20BAA4 133-047-20BAA4 133-047-20BAA4 133-047-20BAA4	258-263 258-263 258-263	10/24/85 04/09/86 04/09/86 04/21/88 06/29/89	WC	24 27 24 10	0.09 0.72 0.46 1.7	0.15 0.18 0.22 0.22 0.64	110 113 110 110 73	43 43.5 43 43 8.5	61 64 59 59	9.1 8.1 8.6 9	478 491 467 469 238	0 0 0	190 182 190 190 61	10 13.6 12 10 5.4	0.5 0.5 0.6 0.2	1 0.2 3.7	0.37 0.5 0.3 0.26 0.12	690 667 682 678 303	450 463 450 450 220	69 67 22	22 23 22 22 15	1.3 1.3 1.2 1.2	990 930 1080 576	10 9 9 11	

		Screened			 ←	30,00						—(millig	grams	per liter)	· · · · · ·				* , * * * ***				Spec		
	Location	Interval (ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na	K	н∞₃	∞₃	SO ₄	CI	F	NO ₃	В	TDS	Hardnes CaCO ₃	85 a.5 NCH	% Na	SAR	Cond (µmho)	Temp (∞C)	рН
	133-047-20BAA4 133-047-20BAACD 133-047-20BAACD 133-047-20BAACD 133-047-20BAACD	61.7-67		MD MD MD	16	0.05 7.3 10.7 2.2 0.8	0.51	110 309 376 409 388	32 151 205 234 215		8.3 20 18.2 19.5 19.4	435 1867 2319 2154 2176	0	170 44 184 165 143	10 203 248 243 254	0.3 0 0 0	1 0 0 0	0.35	615	410	50	21	1.1	1000	9	
	133-047-20BAACD 133-047-20BAACD 133-047-20BAACD 133-047-20BAACD 133-047-20BAACD	61.7-67 61.7-67 61.7-67	06/29/89 07/31/89 09/05/89 01/05/90 02/06/90	MD MD MD	34	12 0 1.5 8 3.6	0.13	370 385 373 355 338	230 218 211 202 185	280 286 312 284 269		2380 2267 2250 2274 2279	0	150 143 268 164 83	230 256 233 219 219	0.2	1 0 0	0.62	2500	1900	0	24	2.8	4250	10	
	133-047-20BAACD 133-047-20BAACD 133-047-20BAACD 133-047-20BAACD 133-047-20BABAB1	61.7-67 61.7-67 61.7-67	04/24/90	MD WC MD	3 5 3 0	5.1 2.7 12 3 0.32	0.11	318 328 330 303 84	204 197 200 199 33	264 260	19.2 19.4 20 19.3 6.9	1830 2055 1900 2149 487	0	51 101 65 78 72	218 210 230 216 15	0.1	1 0 1.4	0.53	2090 550	1600 350	89	25 29	2.8	3700 950	9 9	
	133-047-20BABAB1 133-047-20BABAB1 133-047-20BABAB1 133-047-20BABB 133-047-20BABB	112-117 112-117 53-63	04/21/88 06/29/89 04/25/90 07/23/87 04/21/88	WC WC WC	25 29 30 32 28	0.61 0.3 0.05 0.17 0.34	0.23 0.21 0.12 0.27 0.09	79 83 83 300 130	34 34 34 200 56	66 64 65 240 70	7.4 7.3 7.4 16 8.2	481 480 495 1700 769	0 0 0 0	74 66 97 14 37	14 14 15 210 29	0.5 0.4 0.5 0.2	0 · 1 7 · 5 5 · 4 1 1	0.33 0.35 0.41 0.42 0.3	538 542 582 1850 739	340 350 350 1600 560	0 0 0 180	29 28 28 25 21	1.6 1.5 1.5 2.6 1.3	940 968 930 3500 1150	10 12 10 12 10	
	133-047-20BABB 133-047-20BABB 133-047-20BABB 133-047-20BABB 133-047-20BABB	53-63 53-63 53-63	06/30/88 02/26/89 03/24/89 04/26/89 06/05/89	MD MD MD	30	0.06 1.5 1.5 1.3 0.7	0.17	200 144 153 141 146	120 57 62 59 56	130 66 65 65 72	10 8.8 8.5 8.4 8.6	1080 796 806 816 802	0	23 42 33 33 29	110 34 37 35 36	0.2 0 0 0	1 0 0 0	0.49	1160	990	110	22	1.8			
288	133-047-20BABB 133-047-20BABB 133-047-20BABB 133-047-20BABB 133-047-20BABB	53-63 53-63 53-63	06/29/89 06/29/89 08/01/89 09/08/89 10/11/89	WC MD MD	31	0.6 1.4 0.6 0	0.12	161 150 147 144 153	68 65 60 58 60	81 71 69 75 70	8.6 8.8 8.6 9.7	857 864 812 827 880	0	27 32 25 23 28	40 46 37 42 43	0.3	0 1 0	0.42	833	640	0	19	1.2			
	133-047-20BABB 133-047-20BABB 133-047-20BABB 133-047-20BABB 133-047-20BABB	53-63 53-63 53-63	11/08/89 12/28/89 02/07/90 03/21/90 04/24/90	MD MD MD		2.2 1.9 1.5 1.1		154 162 153 150 169	57 61 61 64 74	72 72 74 72 74	10.1 10.4 10 9.8 9.8	868 803 889 881 1007		26 29 27 28 25	43 44 48 50 60		0									
	133-047-20BABB 133-047-20BABB 133-047-20BAD1 133-047-20BAD1 133-047-20BAD1	53-63 255-260 255-260	04/24/90 06/25/90 10/16/85 04/09/86 04/09/86	MD WC HD	31 24 30	1.7 2.2 0.36 0.24 0.81	0.13 0.16 0.17 0.21	170 156 120 123 120	76 69 47 45.5 47	76 80 55 53.6 54	9.3 9.8 8.3 6.9 7.5	1010 950 466 495 471	0 0 0	27 23 220 200 200	62 58 8.3 14.6 13	0.3 0.5 0.5	1 0 1	0.43 0.35 0.54 0.33	953 715 688 706	740 490 494 490	0 110 110	18 19 19	1.2 1.1 1.1 1.1	1660 1250 990	9 10 9	
	133-047-20BAD1 133-047-20BAD1 133-047-20BAD1 133-047-20BAD1 133-047-20BAD2	255-260 255-260 255-260		WC WC	33 26 27 30 25	0.04 0.04 0.65 0.23 0.07	0.12 0.1 0.15 0.15 0.15	120 120 120 120 74	46 47 47 47 30	53 54 54 52 74	8.4 8.5 8.4 8.6 7.7	449 487 476 485 476	0 0 0 0	180 210 190 200 53	11 10 12 13	0.5 0.5 0.5 0.4 0.5	1 1 5.8 4.8	0.25 0.25 0.31 0.37 0.37	674 717 700 716 520	490 490 490 490 310	120 94 100 96 0	19 19 19 18	1 1.1 1.1 1 1.8	915 1030 1145 1100 830	7.9 9 11 10	
	133-047-20BAD2 133-047-20BAD2 133-047-20BAD2 133-047-20BAD2 133-047-20BAD2	135-140 135-140 135-140	04/09/86 04/09/86 06/30/86 09/18/86 09/18/86	WC WC	33 32 32	0.08 0.05 0.03 0.31	0.1 0.13 0.1 0.13	69 58 72	28.3 29 26 30 31.2	72.6 73 74 73 75.8	6.4 7.6 7	480 436 282 458 464	0 0 0	55 54 58 66 61.8	23.4 18 19 23 16.4	0.2	0.4 0.5 0.3	0.58 0.46 0.6 0.66	494 499 415 531	296 290 250 300	2 1 0	35 35 38 34	1.8 1.9 2 1.8	670 610 1045	9 12 10	
	133-047-20BAD2 133-047-20BAD2 133-047-20BAD2 133-047-20BAD2 133-047-20BAD2	135-140 135-140	11/21/86 12/19/86 01/30/87 02/26/87 03/24/87	MD	17	2.7 0.3 0.1 0	0.1	50 63 75 66 70	22 25 29 29 30	68 69 71 71.	7.1 7.2 6.8 6.7 7.5	342 361 438 400 468	0	70 57 50 55	15 16 16 17	0.5	1	0.35	502	300	0	34	1.8	730	7.8	
	133-047-20BAD2 133-047-20BAD2 133-047-20BAD2 133-047-20BAD2 133-047-20BAD2	135-140 135-140 135-140	03/24/87 09/09/87 12/04/87 03/10/88 04/20/88	MD MD MD	28	0.2 0.14 0 0 0	0.06	83 85 104 92 69	30 27 29 28 29	70 89 72 67 71	7.6 6.7 6.8 6.7 7.2	459 398 489 470 454	0	55 61 53 54 58	17 19 14 17 16	0.6	1	0.32	504	290	0	34	1.8	790	9	

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	Command			I 	·						—(millio	orams	per lite	r)	<u>:</u> _										
Location	Screened Interval (ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na	ĸ	нсоз	ಯ ₃	so ₄	CI	F	NO ₃	В	TDS	Hardne CaCO ₃	es as NOH	% Na	SAR	Spec Cond (µmho)	Temp (∞C)	pН
133-047-20BAD2 133-047-20BAD2 133-047-20BAD2 133-047-20BAD2 133-047-20BAD2	135-140 135-140 135-140	10/06/88 01/26/89 02/26/89 06/28/89 04/24/90	MD MC	29 35	0.1 0.6 0.04 0.05	0.11	69 76 78 73 69	29 28 30 30	67 62 78 72 69	6.8 7.2 8.2 7	472 540 493 465 453	0	52 58 48 52 56	16 19 16 18	0 0 0 0.5	0 0 0 6.4 5.1	0.38 0.45	517 513	310 290	0	33 33	1.8	879 860	11	
133-047-20BAD3 133-047-20BAD3 133-047-20BAD3 133-047-20BAD3 133-047-20BAD3	51-56 51-56 51-56	10/24/85 04/09/86 04/09/86 04/10/86 07/01/86	HD WC WC	35 42 34 39	2.4 22.9 29 16 28	0.35 0.49 0.66 1 0.43	350 466 500 540 470	220 271 310 290 290	220 405 420 450 400	22 45 44 60	1680 1660 1620 1340 1640	0	370 1610 1800 2100 1500	210 277 270 280 250	0.1 0.1 0.2 0.2	1 1 1 1	0.62 4.32 4.6 7.6 0.83	2260 3890 4220 4440 3830	1800 2280 2500 2500 2400	400 1200 1400 1000	21 28 26 27 26	2.2 3.7 3.7 3.9 3.5	2710 4350	10	
133-047-20BAD3 133-047-20BAD3 133-047-20BAD3 133-047-20BAD3 133-047-20BAD3	51-56 51-56 51-56	09/18/86 09/18/86 10/23/86 11/21/86 12/19/86	MD MD MD	41	26 25.7 25 26.6 11.9	0.5	390 365 395 375 380	200 207 223 186 187	245 200	42	1940 2012 1839 2113 2158	0	500 540.7 454 175 27	210 200.9 212 201 217	0.2	1	2.2	2630	1800	210	23	2.7	3750	14	
133-047-20BAD3 133-047-20BAD3 133-047-20BAD3 133-047-20BAD3 133-047-20BAD3	51-56 51-56 51-56	01/28/87 02/26/87 03/24/87 03/24/87 07/23/87	MD WC MD WC	27 34	16.9 22.8 26 22.7 24	0.13	381 371 370 376 370	167 175 190 165 180	178 180	15.2 14.4 15 14.6 17	2126 2158 2150 2079 1840	0	1.6 0 5.4	224 222 210 219 220	0.2	1	0.45	2080 1960	1700 1700	0 160	19 21	1.9	2910 3700	8.5	
133-047-20BAD3 133-047-20BAD3 133-047-20BAD3 133-047-20BAD3 133-047-20BAD3	51-56 51-56	09/09/87 10/06/87 11/05/87 12/04/87 01/14/88			16.6 8.3 9.6 1.2 20.4		548 523 552 542 495	229 209 208 194 223	237 240 255	16.3 17.1 17.2 17.5 17.7	2168 1993 2361 2404 2181		0 0 0 0	251 238 237 226 273											
133-047-20BAD3 133-047-20BAD3 133-047-20BAD3 133-047-20BAD3 133-047-20BAD3	51-56 51-56	02/17/88 03/10/88 04/19/88 04/20/88 05/24/88	MD MD WC	31	16.4 2.1 16 22.1	0.1	449 440 444 350 356	225 217 206 200 205	265 267 260	17.5 17.4 17.5 19	1982 2369 1804 2070 2315	0	0 0 0 6.6 0	249 253 251 240 251	0.6	0 1 0	0.39	2140	1700	0	25	2.7	3500	9	
133-047-20BAD3 133-047-20BAD3 133-047-20BAD3 133-047-20BAD3 133-047-20BAD3	51-56 51-56 51-56	06/30/88 07/29/88 09/06/88 10/06/88 11/08/88	MD MD		7.7 2.1 10.3 4.5		311 327 317 336 344	210 212 201 198 194	272	18 18.1 17.9 18.2 17.3	2169 2256 2356 1980 1947		0 0 0	246 250 278 280 274	0 0 0 0	0 0 0 0									
133-047-20BAD3 133-047-20BAD3 133-047-20BAD3 133-047-20BAD3 133-047-20BAD3	51-56 51-56 51-56	12/14/88 01/26/89 02/26/89 03/09/89 03/23/89	MD MD MD MD MD		0 0 15.1 5.9 1.5		339 351 496 463 392	205 201 283 263 219	303 263 298 278 258	17.6 19.2 19.3	2377 2479 2759 2800 2428		0 10 451 175 0	272 298 262 248 239	0 0 0 0	0 0 0 0									
133-047-20BAD3 133-047-20BAD3 133-047-20BAD3 133-047-20BAD3 133-047-20BAD3	51~56 51-56 51-56	04/26/89 06/05/89 06/28/89 06/28/89 07/31/89	MD MD MD WC MD	40	2.7 0.6 16 0	0.38	427 518 488 500 420	257 305 304 320 273	308 332 333 320 315	22.2 21.8 24	2631 2532 2921 2510 2522	0	290	231 263 255 280 283	0 0 0 0.1	0 0 0 1	1.2	2740	2600	510	21	2.7	5120	11	
133-047-20BAD3 133-047-20BAD3 133-047-20BAD3 133-047-20BAD3 133-047-20BAD3	51-56 51-56 51-56	09/05/89 10/09/89 11/06/89 12/27/89 02/07/90	MD MD MD MD MD		0 1.8 8.5 0.3 1.5		337 363 354 337 321	228 247 235 221 201		23 20 20.3 18.8 20.2	2251 2213 2586 1985 2420		0 0 0 0	296 271 248 241 237		0									
133-047-20BAD3 133-047-20BAD3 133-047-20BAD3 133-047-20BAD3 133-047-20BADAB1	51-56 51-56 51-56	03/21/90 04/24/90 04/24/90 06/25/90 02/26/89	MD WC MD	40	7.2 5.8 12 1.2 3.7	0.19	381 392 410 298 280	279 278 280 244 150	348 350 330 320 264	22.7 29 20.1	1990 2085 1240 2019 1642	0	767 787 760 316 286	269 245 260 264 176	0.1	1 0 0	1.3	2730	2200	1200	25	3.1	4700	9	
133-047-20BADAB1 133-047-20BADAB1 133-047-20BADAB1 133-047-20BADAB1 133-047-20BADAB1	57-62 57-62 57-62	03/23/89 04/26/89 06/05/89 06/28/89 06/28/89	MD MD MD	37	9.1 16.1 7.9 0.3 20	0.86	317 341 369 374 390	183 197 212 218 230	257 260 273 276 280	19.5	1911 2260 2114 2379 2150	0	146 77 0 0 10	211 250 250 259 240	0 0 0 0	0 0 0 0	0.64	2290	1900	160	24	2.8	4060	11	
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		Screened			I (—(milliç	grams	per liter)———						> 1			Spec		
	Location	Interval (f1)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na	к	н∞з	∞_3	SO	CI	F	NO ₃	В	TDS	Hardnes CaCO ₃	s as NCH	% Na	SAR	Cond (µmho)	Temp (∞C)	рН
	133-047-20BADAB1 133-047-20BADAB1 133-047-20BADAB1 133-047-20BADAB1 133-047-20BADAB1	57-62 57-62 57-62	07/31/89 09/05/89 10/09/89 11/06/89 12/27/89	MD MD MD		9.9 13.1 4.8 10.1 6.7		344 288 289 308 306	214 189 197 196 197	273 283 282 282 286	20	2260 2101 1891 2226 1834		0 35 119 27 148	251 245 244 292 258	0	O									
	133-047-20BADAB1 133-047-20BADAB1 133-047-20BADAB1 133-047-20BADAB1 133-047-20BADAB1	57-62 57-62 57-62	02/07/90 03/21/90 04/24/90 04/24/90 06/25/90	MD MD WC	35	16.1 7.7 3 11 3.2	0.37	298 277 293 300 263	184 205 202 210 201	281 288 284 280 289	20 20 20 21 19.5	2053 2061 2234 1720 1888	0	144 14 0 8.2 118	263 265 271 260 257	0.1	0.8	0.85	1970	1600	200	27	3.1	3900	9	
	133-047-20BADB 133-047-20BADB 133-047-20BADB 133-047-20BADB 133-047-20BADB	0-0	01/26/89 10/10/89 11/07/89 12/28/89 04/24/90	MD MD MD		11.7 1.4 1.2 3.8 3.2		228 81 119 194 95	91 126 153 258 142	355 393 541 868 304	349 310 340 579 268	0 1661 1193 1185		671 313 949 1802 342	308 67 323 562 183	0	9.6 65 0 231									
	133-047-20BADBD1 133-047-20BADC 133-047-20BADCA1 133-047-20BADCA1 133-047-20BADCA1	0-0 66-76 66-76	02/26/89 02/21/86 02/26/89 03/23/89 04/26/89	MD MD		4.3 10.8 2.1 13.3 3.8	5.39	353 1100 246 263 253	181 213 144 159 154	255 352 147 151 144		1808 693 1536 1664 1672		362 787 91 22 74	215 447 111 124 103	0.2 0 0	3.5 0 0	2.12	3760	3640		17	2.5			
	133-047-20BADCA1 133-047-20BADCA1 133-047-20BADCA1 133-047-20BADCA1 133-047-20BADCA1	66-76 66-76 66-76	06/05/89 06/29/89 06/29/89 07/31/89 09/05/89	MD WC MD	36	4.3 1.8 6 3.3 4.2	0.22	245 273 250 277 266	148 165 170 175 170	161 150	12.2 12.9 14 13.6 14.4	1554 1793 1840 1661 1715	0	91 0 1.2 0 0	81 123 120 137 178	0.3	0 0 1 0	0.44	1660	1300	0	20	1.8	2740	10	
290	133-047-20BADCA1 133-047-20BADCA1 133-047-20BADCA1 133-047-20BADCA1 133-047-20BADCA1	66-76 66-76 66-76	10/13/89 11/07/89 12/27/89 02/07/90 03/21/90	MD MD MD		3.9 9.3 6 10.3 7.2		287 271 272 255 265	183 170 171 157 165			1895 1953 1621 1830 1764		0 4 18 29 33	145 130 121 123 120		0									
	133-047-20BADCA1 133-047-20BADCA1 133-047-20BADCA1 133-047-20BADCA3 133-047-20BADCA3	66-76 66-76 73.8-85	04/24/90 04/24/90 06/25/90 03/28/89 04/27/89	MC MD MD	36	7.7 8.8 6 16.5 11.6	0.2	241 240 223 279 304	164 170 161 172 181	150 162 156	13.6 14 13.6 13.2 13.8	1813 1580 1682 1734 2019	0	32 37 26 41 23	119 120 116 153 162	0.2	1 0 0 0	0.52	1560	1300	3	20	1.8	2800	9	
	133-047-20BADCA3 133-047-20BADCA3 133-047-20BADCA3 133-047-20BADCA3 133-047-20BADCA3	73.8-85 73.8-85 73.8-85	06/05/89 06/29/89 06/29/89 08/09/89 09/05/89	MD WC MD	31	6.3 1.1 9.8 1.2 3.7	0.15	326 318 310 315 300	190 190 200 194 186	190 180 187	14.4 14.1 15 14.5 15.2	1895 2100 2119 1627	0	0 0 1 1 0 0	167 171 170 187 178	0.3	0 0 1 0	0.5	1960	1600	0	20	2	3280	9	
	133-047-20BADCA3 133-047-20BADCA3 133-047-20BADCA3 133-047-20BADCA3 133-047-20BADCA3	73.8-85 73.8-85 73.8-85	10/11/89 11/07/89 01/04/90 02/06/90 03/21/90	MD MD MD		7.5 11.6 5.3 10.1 9.3		295 282 295 282 266	196 196 202 191 213	177	14.5 15.3 14.6	1875 2058 2083 2066 1807		0 0 0	166 158 161 172 177		0									
	133-047-20BADCA3 133-047-20BADCA3 133-047-20BADCA3 133-047-20BADCD1 133-047-20BA	73.8-85 73.8-85 53-58	04/24/90 04/24/90 06/25/90 04/24/90 07/29/74	WC MD WC	35 23 18	7.1 13 13.9 6.3 1.8	0.14 2.4 0.16	270 270 250 380 120	201 200 199 190 49	170 170 182 170 51	15 14.5 17	1973 1870 1956 1120 490	0 0 0	0 2.1 0 890 200	169 170 173 130	0.2 0.1 0.7	1 0 1 1	0.53 1.5 0.55	1800 2360 701	1500 1700 500	0 810 98	20 17 18	1.9	3200 3400	8 11	
	133-047-20BBA 133-047-20BBA 133-047-20BBA 133-047-20BBA 133-047-20BBA	240-300 240-300 240-300	12/03/75 01/21/76 06/30/76 09/18/80 08/31/83	WC WC	20 27 26 30	1.9 2.2 1.8 1.5	0.15 0.18 0.14 0.14	110 110 110 110	45 47 40 44	54 57 58	9.2	488 481 483 432 461	0 0 0 0	170 180 160 170	19 25 15 12		1.5 0.7 6.4 1	0.36 0.57 0.29 0.27	671 694 635 663	460 470 440 460	60 74 86 78	20 20 22 21	1.1 1.1 1.2 1.2	1750 1040 1050	9 11	*
	133-047-20BBA 133-047-20BBA 133-047-20BBA 133-047-20BBA 133-047-20BBA	240-300 240-300 240-300	02/16/84 03/28/84 08/28/84 06/19/85 08/02/85	WC WC	30 29 28	0.07 1.52 0.99 1.7 1.4	0.13 0.14 0.14 0.14 0.14	105 102 110 110 110	38.5 39 43 43 42	53 55 58 56 56	8.6 7.7	485 485 471 489 471	0 0 0	161 163 160 160 170	11.6 11.9 14 17 12	0.6 0.5 0.5	0.1 0.5 1 1	0.39 0.16 0.29	615 617 658 667 662	421 415 450 450 450	66 51 61	21 22 21 21 21	1.1 1.2 1.2 1.1	11 4 0 970	10 10 10	

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	Screened Interval	Date	Lab	I 		-			•				per lite	r)——–			0-10		Hardne	—→	%		Spec Cond	Temp	
Location 133-047-20BBA	(ft)	Sampled	ID	SiO2	Fe	Mn	Ca	Mg	Na	К	HCO3	∞_3	so	CI	F	NO ₃	8	TDS	CaCO ₃	NOH	Na	SAR	(µmho)	(∞C)	pН
133-047-20BBA 133-047-20BBA 133-047-20BBA 133-047-20BBA 133-047-20BBA	240-300 240-300 240-300 240-300 240-300	04/10/86		3 2 3 4 2 9	0.78 0.25 1.6 1.5 1.7	0.13 0.13 0.16 0.16 0.13	107 114 110 110 110	40.5 43.3 43 45 42	55.4 59.4 58 60 58	6.8 7.3 7.2 8.5 8.4	478 493 472 488 359	0 0	144 166 170 180 170	11.8 15.5 14 13 14	0.5 0.5 0.5 0.5	0.1 0.3 1 4.8	0.52 0.39 0.31	601 649 670 694 616	435 464 450 460 450	65 60 150	22 22 21 22 22	1.2 1.2 1.2 1.2	840 980	8.1 13	
133-047-20BBA 133-047-20BBA 133-047-20BBA 133-047-20BBA 133-047-20BBA	240-300 240-300 240-300 240-300 56-59	04/20/88 02/26/89 06/28/89 04/24/90 09/06/75	WC MD WC WC	25 28 28 14	1.2 2.2 1.4 1 0.29	0.11 0.13 0.14 0.06	110 122 110 110 77	42 42 43 43	58 56 58 58	8.1 9.4 7.9 8.2 5.2	474 505 475 491 472	0 0 0	170 173 170 150 30	13 14 14 14	0.5 0.5 0.5	0 0 5.8 1 1	0.23 0.32 0.38 0.43	661 673 656 462	450 450 450 320	59 62 49	22 21 21 27	1.2 1.2 1.2 1.4	990 1270 1042	9 8 8	
133-047-20BBA2 133-047-20BBA2		12/02/75 01/22/76	WC WC	22	0.9	0.09	99	44	64	6.9	570 665	0	67	16	0.4	1.5	0.32	603	430	0	24	1.3			
133-047-20BBA2 133-047-20BBA2 133-047-20BBA2	56-59	09/17/80 10/31/85 04/20/88	WC WC	29 32 23	0.5 0.17 0.36	0.07 0.08 0.1	180 140 180	110 160 190	94 58 80	7.1 36 28	973 1330 1440	0 0 0	4.5 7.4 8.6	37 49 83	0.2 0.1 0.1	1 1 1	0.23 0.39 0.4	943 1140 1300	910 1010 1200	110 0 51	18 11 12	1.4 0.8 1	2000 1750 2360	9 9 9	
133-047-20BBA2 133-047-20BBA3 133-047-20BBA3 133-047-20BBA3 133-047-20BBA3	23-26 23-26 23-26	04/24/90 09/06/75 12/02/75 01/22/76 09/17/80	WC WC WC	27 13 20	0.26 1.7 0.31	0.15 0.34 0.22	190 150 110	190 200 150	79 77 79	28 5.5 5.9	1430 1040 815 1090	0 0 0	62 140 150	67 61 74		1 1 1.5	0.5 0.43 0.36	1350 1140 993	1300 1200 880	84 350 210	12 12 16	$\begin{smallmatrix}1\\1\\1\\2\end{smallmatrix}$	2300	8	
133-047-20BBA4 133-047-20BBA4	34-37	03/29/84 10/31/85	HD WC	29	15.3	0.15	69.5 76	110 120	42 35	3.9	616 664	0	91 174	10 24.1	. 0.5		0.06	683 751	710 626	200	10	0.6	1400	10	
133-047-20BBA4 133-047-20BBA4 133-047-20BBA4	34-37 34-37	04/09/86 04/09/86 04/20/88	WC WC	29 14	5.83 4.9 23	0.18 0.22 0.17	98.9 100 150	140 140 180	35.3 39 28	4.2 3.7 4.1 4.2	527 709 678 702	0 0 0	300 316 330 550	3 16 13 8.9	0.5 0.4 0.5 0.2	5.4 4.2 1	0.25 0.34 0.26 0.24	830 964 999 1310	680 821 830 1100	250 270 540	10 9 9 5	0.6 0.5 0.6	1200	9 10	
133-047-20BBA4 133-047-20BBA4 133-047-20BBA5 133-047-20BBA5 133-047-20BBA5	34-37 38-41 38-41	06/28/89 04/24/90 10/31/85 04/09/86 04/09/86	WC WC WC HD WC	9.7 7.6 35	90 58 0.14 4.39 4.8	1.2 0.92 0.29 0.05 0.26	290 210 280 193 260	340 310 130 147 160	53 45 93 95.5 93	7.6 6.5 12 11.2	811 668 1250 1560 1380	0 0 0	1400 1300 68 95 110	14 14 70 109 84	0.1 0.1 0.2 0.1	1 1 1	0.21 0.24 0.52 0.76 0.63	2610 2280 1310 1420 1440	2100 1800 1200 1090 1300	1500 1300 210	5 5 14 16 13	0.5 0.5 1.2 1.3	3610 2900 1435	11 10 8	
133-047-20BBA5 133-047-20BBA5 133-047-20BBA5 133-047-20BBA6 133-047-20BBA6	38-41 38-41 268-273	04/21/88 06/29/89 04/25/90 10/31/85 04/09/86	WC WC WC	31 29 28 28 32	7.9 5.4 4.8 0.51 1.2	0.32 0.32 0.32 0.14 0.17	320 260 250 120 120	170 150 170 47 47	82 53 67 56 57	13 9.9 10 8.3 7.8	1340 804 755 484 476	5 0 0 0	360 680 840 200 200	74 10 11 9.8 13	0.5	7.5 1 3.6	0.37 0.26 0.32 0.38 0.34	1720 1600 1760 710 717	1500 1300 1300 490 490	390 610 710 97 100	11 8 10 20 20	0.9 0.6 0.8 1.1	2575 2240 2300 1005 990	10 12 9 9	
133-047-20BBA6 133-047-20BBA6 133-047-20BBA6	268-273	07/01/86 09/18/86 09/18/86	WC WC MD	29 30	0.55 1.5 1.3	0.14 0.16	120 120 129.8	47 46 46.2	56 53 54.3	8.6 8 10.1	473 487 493.7	0	210 190 237.8	13 12 9.4	0.4 0.5	0 1	0.49 0.55	718 703	490 490	110 90	19 19	1.1	1100 1030	11 10	
133-047-20BBA6 133-047-20BBA6	268-273	12/29/86 03/24/87	MD WC	11	0.05	0.13	110	40	5 6 6 2	8.1	477 474	0	135 130	12.3	0.5	1	0.3	605	410	26	24	1.3	842	7.6	
133-047-20BBA6 133-047-20BBA6 133-047-20BBA6 133-047-20BBA6 133-047-20BBA6	268-273 268-273 268-273	03/24/87 09/09/87 12/04/87 03/10/88 04/20/88	MD MD MD WC	29	0.2 0.08 0 0	0.11	114 148 155 137 100	40 44 41 40 42	59 75 62 55 57	8.6 8.1 7.9 7.9 8.2	465 483 489 436 469	0	134 146 154 157 170	14 16 13 13.7 16	0.6	1	0.29	656	420	38	22	1.2	980	8	
133-047-20BBA6 133-047-20BBA6 133-047-20BBA6 133-047-20BBA6 133-047-20BBA6	268-273 268-273 268-273	10/06/88 01/26/89 02/26/89 06/28/89 04/24/90	MD MD MC WC	28 29	0.1 0 0.5 0.1 0.98	0.13 0.14	107 118 119 110 110	41 40 44 43 42	56 50 72 58 61	8.1 8.5 9.2 8.2 8.2	478 506 514 475 486	0	171 165 156 170 170	11 16 12 14 16		0 0 0 1.5 3.8	0.31	668 681	450 450	62 49	21 22	1.2	1108 1050	11	
133-047-20BBA7 133-047-20BBA7 133-047-20BBA7 133-047-20BBA7 133-047-20BBA7	110-115 110-115 110-115 110-115 110-115	07/01/86 03/24/87	MC MC MC	30 34 31 34 32	0.4 0.86 0.61 0.62 0.23	0.14 0.18 0.14 0.11	79 78 79 75 75	32 32 32 30 31	71 69 69 68 67	7.6 6.8 7.7 7.2 7.3	487 475 476 459 470	0 0 0 0	61 63 71 11 64	16 18 18 20	0.4 0.5 0.4 0.5	1 15 0 1	0.42 0.45 0.59 0.32 0.32	540 552 543 474 529	330 330 330 310 310	0 0 0	31 31 31 32 31	1.7 1.6 1.6 1.7	840 815 870 731	9 9 11 7.5	
133-047-20BBA7 133-047-20BBA7 133-047-20BBA8 133-047-20BBA8 133-047-20BBA8	58-63		WC WC HD WC	30 31 33	0.68 0.18 0.07 0.21 2	0.13 0.15 0.13 0.05 0.17	78 75 230 159 210	31 31 160 92.7 100	71 69 110 93.7	7.1 7.4 12 8.6 9.1	470 485 1430 1360 1240	0 0 0	56 61 26 8	19 18 67 44.6 34	0.5 0.5 0.1	6.2 5.5 1 0.1	0.37 0.43 0.47 0.56 0.52	532 538 1340 1070 1100	320 310 1200 778 940	0 0 60	3 2 3 2 1 6	1.7 1.7 1.4 1.5	918 890 2050	11 9 10	

		Screened			←							—(millig	grams	per liter)———						 >1			Spec		
	Location	interval (ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na	к	н∞₃	∞₃	so ₄	CI	F	NO ₃	В	TDS	Hardnes CaCO ₃	ssas NCH	% Na	SAR	Cond (µmho)	Temp (∞C)	рН
	133-047-20BBA8 133-047-20BBA8 133-047-20BBA8 133-047-20BBA8 133-047-20BBA8		03/24/87	WC WC MD	32 17 32	0.21 2.4 0.86 0.7 1.9	0.15 0.08 0.08	200 220 200 186 200	97 110 100 83 93	97 100 93 84 86	11 11 10 9.9 9.6	1160 1340 1240 1080 1150	0 0 0	23 3.3 9.9 17 14	33 42 36 28 34	0.1 0.3 0	1 1 0 0	0.61 0.39 0.32	1070 1170 1090	900 1000 910	0 0 0	19 18 18	1.4 1.4 1.3	2100 1800 1650	7.9 10	
	133-047-20BBA8 133-047-20BBA8 133-047-20BBA8 133-047-20BBA8 133-047-20BBA8	58-63		MD WC MD MD	31	1.6 1.2 1.4 1.1	0.1	199 186 200 214 215	95 81 100 101 101		9.8 9.5 11 10.2 10.2	1273 1074 1230 1180 1018	0	10 10 33 0 4.9	34 28 37 33 35	0 0.2 0 0	0 0 0.3 0	0.47	1110	910	0	18	1.3	2150	10	
in in	133-047-20BBA8 133-047-20BBA8 133-047-20BBA8 133-047-20BBA8 133-047-20BBA8	58-63 58-63	09/08/89 10/11/89 11/08/89 12/28/89 02/07/90	MD MD MD MD MD		1.1 3 2.2 1.8 2.4		210 212 199 194 187	98 96 87 85 85	98 92 87	11.3 11.5 11 11.1 10.7	1070 1086 1282 1024 1215		5.5 5.4 6.7 11 9.9	36 35 32 32 29		0									
	133-047-20BBA8 133-047-20BBA8 133-047-20BBA8 133-047-20BBA8 133-047-20BBABB1	58-63 58-63 58-63	03/21/90 04/24/90 04/24/90 06/25/90 07/21/87	WC	3 0 3 0	1.6 1.1 2.8 3.3 0.42	0.1	172 192 210 189 81	86 94 110 96 32	90 97	10.3 10.7 11 10.8 6.9	989 1174 1400 1265 482	0	12.6 6 8.2 0 66	29 32 39 33 16	0.1	1 0 0.7	0.47	1200 538	980 330	0	18 30	1.3	1900 920	9 9	
	133-047-20BBABB1 133-047-20BBABB1 133-047-20BBABB1 133-047-20BBABB2 133-047-20BBABB2	113-118 113-118 58-63	04/20/88 06/29/89 04/25/90 07/23/87 04/21/88	WC WC WC	27 29 29 29 24	0.01 0.03 0.19 0.02 0.01	0.09 0.13 0.14 0.07 0.18	81 80 80 76 77	33 33 32 40 40	65 66 64 63 62	7.4 7.2 7.1 8.9 6.5	480 476 495 416 450	0 0 0 0	73 74 66 94 100	17 17 16 24 22		7.4 4.7 9.6 2.1	0.28 0.37 0.39 0.35 0.31	541 549 544 550 556	340 340 330 350 360	0 0 0 13	29 29 29 27 27	1.5 1.6 1.5 1.5	825 996 905 930 920	10 12 9 12 9	
292	133-047-20BBABB2 133-047-20BBABB2 133-047-20BBABB2 133-047-20BBBAB1 133-047-20BBBAB1	58-63 58-63 298-303	02/26/89 06/29/89 04/25/90 07/22/87 10/20/87	MD WC WC WC	26 26 28 29	0.3 0.03 0.05 0.18 0.03	0.23 0.21 0.18 0.19	89 79 79 120 120	42 41 40 44 45	63 65 64 66 65	6.7 6.3 6.3 7.9 8.3	480 445 466 476 423	0 0 0	105 110 100 200 210	21 22 23 15 15	0.2 0.3 0.5 0.5	0 13 8.4 0 4.9	0.35 0.38 0.25 0.41	582 578 716 706	370 360 480 480	1 0 91 140	27 27 23 22	1.5 1.5 1.3 1.3	1042 940 1140 1308	10 9 9 7	
	133-047-20BBBAB1 133-047-20BBBAB1 133-047-20BBBAB1 133-047-20BBBAB2 133-047-20BBBAB2	298-303 298-303 193-198	04/21/88 06/29/89 04/25/90 07/22/87 10/20/87	MC MC MC	26 26 27 30 28	0.77 0.8 0.38 0.76 0.02	0.32 0.28 0.14 0.15 0.16	110 110 110 120 120	44 45 44 46 46	62 64 63 54 50	8.5 8.6 8.6 7.7 8	475 473 487 483 374	0 0 0 0	200 200 200 200 200 200	15 16 16 12 11	0.6	0.2 5.5 3.8 0.5	0.27 0.34 0.4 0.19 0.27	702 710 714 710 653	460 460 460 490 490	66 72 57 93 180	22 23 23 19 18	1.3 1.3 1.3 1.1	1025 1130 1125 1140 1092	10 11 9 9	
	133-047-20BBBAB2 133-047-20BBBAB2 133-047-20BBBAB2 133-047-20BBBAB3 133-047-20BBBAB3	193-198 193-198 118-123	04/21/88 06/29/89 04/25/90 07/22/87 04/21/88	WC WC WC	30 29 30 31 31	0.01 1.2 0.36 0.36 0.99	0.13 0.15 0.15 0.13 0.11	110 120 120 81 77	45 47 46 32 32	50 53 52 68 64	8.1 8.3 6.9 7.2	475 476 487 484 475	. 0 0 0	200 190 200 65 67	12 12 12 16 15	0.6 0.5 0.5 0.4 0.6	0 5.9 4.2 0.3 1.1	0.22 0.31 0.38 0.23 0.3	690 701 714 539 530	460 490 490 330 320	70 100 90 0	19 19 18 30 29	1 1 1 1.6 1.6	975 1186 1090 930 845	10 11 9 9	
	133-047-20BBBAB3 133-047-20BBBAB3 133-047-20BBBAB4 133-047-20BBBAB4 133-047-20BBBAB4	118-123 78-83 78-83	06/29/89 04/25/90 07/22/87 04/21/88 06/29/89	WC WC WC WC	30 30 31 30 30	0.9 0.13 0.11 0.02 0.04	0.12 0.12 0.1 0.12 0.1	79 78 74 71 75	32 32 32 31 32	68 66 69 66 74	7.3 7.4 6.3 6.7 6.5	478 489 463 467 467	0 0 0 0	65 66 56 56 78	17 17 18 16 19	0.5	8.2 6 0.9 0.1 8.9	0.36 0.42 0.22 0.3 0.36	543 545 516 508 554	330 330 320 300 320	0 0 0 0	30 30 32 31 33	1.6 1.6 1.7 1.7	1041 895 900 818 1074	10 9 9 9	
	133-047-20BBBAB4 133-047-20BBBAB5 133-047-20BBBAB5 133-047-20BBBAB5 133-047-20BBBAB5	43-53 43-53 43-53	04/25/90 07/22/87 04/21/88 06/29/88 02/26/89	WC WC WC MD	31 28 27 25	0.31 0.04 1.4 3 2.3	0.12 0.14 0.12 0.14	74 180 310 380 433	32 100 160 200 221	68 160 190 240 253	6.6 8.4 10 11 11.3	476 458 422 413 475	0 0 0	58 720 1400 1800 1996	17 76 91 110	0.5 0.2 0.3 0.3	5.6 1 0.1 18 0	0.45 0.26 0.31 0.53	528 1500 2400 2990	320 860 1400 1800	0 490 1100 1400	31 29 22 23	1.7 2.4 2.2 2.4	850 2450 2900	9 9 10	
	133-047-20BBBAB5 133-047-20BBBAB5 133-047-20BBD1 133-047-20BBD1 133-047-20BBD1	43-53 42-45 42-45	06/29/89 04/25/90 03/29/84 10/31/85 04/09/86	WC HD WC HD	28 25 35	2.4 4.2 43 2.6 18.5	0.2 0.25 0.11 0.12 0.1	470 520 240 280 225	270 310 250 310 259	290 310 112 120 120	12 13 26.4 14 12.3	384 442 2100 2130 2240	0	2300 2600 4 2.5 4	110 120 197 240 222	0.2 0.2 0.2 0.1	25 29 1	0.39 0.42 0.6 0.66	3700 4150 1860 2060 1950	2300 2600 1630 1960 1630	2000 2200 210	22 21 13 12 14	2.6 2.6 1.2 1.2	4540 4600 2150	10 9 10	
	133-047-20BBD1 133-047-20BBD1 133-047-20BBD1 133-047-20BBD1 133-047-20BBD1	42-45 42-45 42-45	04/09/86 03/24/87 03/24/87 09/09/87 12/04/87	WC WC MD MD	39 4.5 8.5	22 0.62 5.4 54.3 20.9	0.19 0.07 0.08	270 50 61 272 255	290 62 73 263 205		13 28 24 12.2 10.2	2230 315 369 1715 1612	0 0 0	1.6 130 150 0 38	220 13 19 137 96	0.2 0.1 0.1	1 21 19	0.64 0.21 0.23	2080 480 562	1900 380 450	39 120 150	12 7 8	1.2 0.3 0.4	755 875	9.1	

					14				pac : a			—{milli	arams	per liter)	.						 →I			Spec		
Location	Screened Interval (ft)	Date Sampled	Lat I IC		SiO ₂	Fe	Mn	Ca	Mg	Na	К		∞ ₃	so ₄	CI	F	NO ₃	В	TDS	Hardness CaCO ₃	ss as NCH	% Na		Spec Cond (µmho)	Temp) (∞C)	рН
133-047-20BBD1 133-047-20BBD1 133-047-20BBD1 133-047-20BBD1 133-047-20BBD1	42-45 42-45 42-45	5 03/10/8 5 04/20/8 5 10/06/8 5 01/26/8 5 02/26/8	88 WG 88 MI 89 MI	MD WC MD MD MD	28	16.5 21 35 0 29.4	0.14	204 180 249 313 301	200 190 214 236 216		10	1292 1160 913 780 730	0	230 380 1002 1333 1305	69 54 42 40 34	0.2 0 0 0	1 0 0 0	0.45	1520	1200	280	13	1.1	2250	8	
133-047-20BBD1 133-047-20BBD1 133-047-20BBD1 133-047-20BBD1 133-047-20BBD1	42-45 42-45 42-45	5 03/23/8 5 04/26/8 5 06/05/8 5 06/28/8 5 06/29/8	89 M1 89 M1 89 W	MD MD MD WC MD	25	30.8 35.5 32.6 27 33.2	0.38	307 310 293 260 284	226 233 209 200 204	121 113 100	11.1 11 11.1 11 11.1	687 727 731 715 753	0	1337 1369 1150 1100 1152	48 38 30 37 31	0 0 0 0.2	0 0 0 1	0.44	2110	1500	890	13	1.1	2850	9	
133-047-20BBD1 133-047-20BBD1 133-047-20BBD1 133-047-20BBD1 133-047-20BBD1	42-45 42-45 42-45	5 08/01/8 5 09/05/8 5 10/13/8 5 11/08/8 5 12/28/8	89 M 89 M	MD MD MD MD MD		34 25 29 35 31.7		291 274 278 288 302	209 196 208 216 218	113 108 108	11.2 12.2 12.6 12.7 12.2	733 743 718 747 717		1180 1119 1156 1225 1243	34 30 35 31 34	0	0									
133-047-20BBD1 133-047-20BBD1 133-047-20BBD1 133-047-20BBD1 133-047-20BBD1	42-45 42-45 42-45	5 02/07/5 5 03/21/5 5 04/24/5 5 04/24/5 5 06/25/5	/90 M /90 M /90 W	MD MD MD WC MD	25	37.3 33 25.1 35 37.8	0.32	280 269 274 280 245	194 214 204 210 202	107 107 100		730 645 643 628 616		1228 1271 1252 1200 1213	3 Q 3 3 2 6 3 1 2 2	0.2	0 1 0	0.42		1600	1000		1.1		ı 9	
133-047-20BCA 133-047-20BCA 133-047-20BCA 133-047-20BCA 133-047-20BCA	42-45 42-45 42-45	5 03/29/8 5 10/31/8 5 04/09/8 5 04/09/8 5 03/24/8	/85 W /86 H /86 W	HD WC HD WC WC	30 31 32	35.2 2.3 20.3 20 27	0.21 0.13 0.09 0.19 0.16	238 230 205 230 220	141 150	94 98.5 97	$9.7 \\ 10$	1640 1480 1620 1610 1410	0	3.3 1 3.3 56	107 79 99.6 79 100	0.2 0.2 0.3 0.2	$\begin{smallmatrix}1\\0.4\\1\\1\end{smallmatrix}$	0.46 0.62 0.48 0.34	1360	1190 1200 1090 1200 1100	. 0 0 0	18 15 16 15	1.2 1.3 1.2	2000		
133-047-20BCA N 133-047-20BCA O 133-047-20BCA U 133-047-20BCA 133-047-20BCA	42-45 42-45 42-45	09/09/1 5 10/06/1 5 11/05/1 5 12/04/1 5 01/14/1	/87 M /87 M /87 M	MD MD MD MD MD		25.4 25 15.2 17.7 20.7		307 310 320 324 351		237 111		1002 984 1080 1080 1051		494 477 421 414 515	129 102 97 101 102											
133-047-20BCA 133-047-20BCA 133-047-20BCA 133-047-20BCA 133-047-20BCA	42-45 42-45 42-45	15 02/17/1 15 03/10/1 15 04/19/1 15 04/20/1 15 05/24/1	/88 M /88 M /88 W	MD MD WC MD	22	23.5 26.1 12.5 1.7 21.1	0.1	314 324 342 280 285	156		9.9 13.1 11	921 1083 980 879 1005	0	537 537 526 600 562	96 94 84 89 79	0.2	0	0.34	1680	1300	600	13	1.1	2350) 9	
133-047-20BCA 133-047-20BCA 133-047-20BCA 133-047-20BCA 133-047-20BCA	42-45 42-45 42-45	15 06/30/15 07/29/15 09/06/15 10/06/15 11/08/1	/88 M /88 M /88 M	MD MD MD MD MD		22.2 17.5 8.6 16.2 26.5		241 245 244 259 274	148 143	86 85 78		1098		594 586 522 538 625	64 57 65 53 43	0 0 0 0	0 0 0 0									
133-047-20BCA 133-047-20BCA 133-047-20BCA 133-047-20BCA 133-047-20BCA	42-45 42-45 42-45	15 12/14/ 15 01/26/ 15 02/26/ 15 03/23/ 15 04/26/	/89 M /89 M /89 M	MD MD MD MD		25 0 19.2 22.2 21		279 280 288 295 284	142 137	71 87 90	11.2 10.1 10.6 10.3 10.1	971 1025 1023 927 874		644 604 570 665 713	45 55 46 35 33	0 0 0 0	0 0 0 0									
133-047-20BCA 133-047-20BCA 133-047-20BCA 133-047-20BCA 133-047-20BCA	42-45 42-45 42-45	45 06/05/ 45 06/28/ 45 06/29/ 45 08/01/ 45 09/05/	/89 W /89 M /89 M	MD WC MD MD MD	26	17 19 19.3 9.3 5.2	0.2	285 250 269 267 267	130 130	87 103 95		890 855 891 758 918	0	645 630 611 626 608	33 38 32 33 30	0.3	0	0.5	1610	1200	460	14	1.1	2330	0 10	
133-047-20BCA 133-047-20BCA 133-047-20BCA 133-047-20BCA 133-047-20BCA	42-4! 42-4! 42-4!	45 10/13/ 45 11/08/ 45 12/28/ 45 02/07/ 45 03/21/	/89 M /89 M /90 M	MD MD MD MD MD		13.7 16 16.2 14.3 6.9		281 277 278 252 220	135 121	99 97 97	12.3 12.1 11.8 11.4			648 643 646 625 576	37 29 29 31 25		0									
133-047-20BCA 133-047-20BCA 133-047-20BCA 133-047-20BCD1 133-047-20BCD1	42-4! 42-4! 38-4	45 04/24/ 45 04/24/ 45 06/25/ 44 09/06/ 44 12/02/	/90 W /90 M /75 W	MD WC MD WC WC	27 13 19	8.7 13 16.1 5.3 21	0.22 0.47 0.24	203 200 192 260 250	110 105 160	99 105 72	7.2	753 779 1260	0	536 54	20 24 19 42 43	0.3 0.5 0.5	0 1	0.56 0.47 0.04	1240	950 1300 1300	330 270 310	18 11 8	0.9	ı	0 9	

		Screened			1←			-	,	- Heren		—(milliç	grams	per liter)						 →			Spec		
	Location	Interval (ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na.	κ	нсо _з	∞₃	SO ₄	CI	F	NO ₃	В	TDS	Hardner CaCO ₃	SE ALS NCH	% Na	SAR	Cond (µmho)	Temp (∞C)	рΗ
	133-047-20BCD1 133-047-20BCD1 133-047-20BCD1 133-047-20BCD1 133-047-20BCD3	38-44 38-44 38-44	01/22/76 09/17/80 02/16/84 10/31/85 07/21/87	WC HD WC	30 32 32	1.2 11.4 2.2 0.28	0.09 0.15 0.14 0.06	140 106 160 67	150 143 250 32	45 42.5 100 61	3.2 4.6 8.3 6.3	801 726 815 1110 409	0 8 0 0	7 151 290 61	150 108 300 30	0.3 0.3 0.3	0.2 1 0.5	0 0.34 0.29	894 957 1690 492	970 855 1400 300	360 520 0	9 10 13 30	0.6 0.6 1.2 1.5	2100 1875 890	7 9 9	
	133-047-20BCD3 133-047-20BCD3 133-047-20BCD3 133-047-20BCD4 133-047-20BCD4	130-135 130-135 36-46	04/20/88 06/28/89 04/24/90 07/22/87 09/09/87	WC WC	28 29 32 28	0.65 0.02 0.13 1.9 7.3	0.11 0.09 0.11 0.16	65 66 69 220 298	33 33 33 180 220	58 60 62 39 47	6.9 6.7 6.8 4.5 4.9	407 397 416 576 622	0 0 0	87 63 53 820 823	31 31 31 16 16	0.5 0.4 0.4 0.3	9.7 7.7 1	0.31 0.39 0.42 0.05	510 495 501 1590	300 300 310 1300	0 0 0 820	29 30 30 6	1.5 1.5 1.5 0.5	820 882 870 2250	7 10 10 10	
	133-047-20BCD4 133-047-20BCD4 133-047-20BCD4 133-047-20BCD4 133-047-20BCD4	36-46 36-46 36-46	10/06/87 11/05/87 12/04/87 01/14/88 02/17/88	MD MD MD		12.3 10.9 8.9 10.9 8.7		311 326 325 341 287	194 194 185 204 211	32 34 33 25 21	4.7 4.9 4.4 4.2 4.2	598 597 619 597 603		864 906 930 975 958	17 16 15 16 17	,										
	133-047-20BCD4 133-047-20BCD4 133-047-20BCD4 133-047-20BCD4 133-047-20BCD4	36-46 36-46 36-46	03/10/88 04/19/88 04/20/88 05/24/88 06/30/88	MD WC MD	27	11.5 12.5 9.4 12.8 11.3	0.19	297 316 270 256 222	213 206 190 205 204	21 20.5 22 22 22 32	4.1 4.3 3.8 4.2	629 576 587 640 588	0	951 977 980 976 1018	16 21 23 19 20	0 0.2 0 0	0 1 0	0.12	1820	1500	970	3	0.2	2150	9	
	133-047-20BCD4 133-047-20BCD4 133-047-20BCD4 133-047-20BCD4 133-047-20BCD4	36-46 36-46 36-46	07/29/88 09/06/88 10/06/88 11/08/88 12/14/88	MD MD MD		10.6 11.6 15.2 17.8 17.9		234 235 279 311 302	213 211 211 216 231	35 32 31 39 37	5.3 5.1 5.2 5.6 6.6	686 647 631 649 722		1037 1135 1200 1313 1225	14 17 13 14 12	0 0 0 0	0 0 0 0									
294	133-047-20BCD4 133-047-20BCD4 133-047-20BCD4 133-047-20BCD4 133-047-20BCD4	36-46 36-46 36-46	01/26/89 02/26/89 03/23/89 04/26/89 06/05/89	MD MD MD		0 10.4 9.3 8.1 8.5		292 285 282 276 282	214 193 192 188 184	27 34 31 40 41	5.8 6.2 5.6 5.4 5.6	667 622 588 609 592		1104 1064 1017 1014 1004	19 14 14 12 12	0 0 0 0	0 0 0 0									
	133-047-20BCD4 133-047-20BCD4 133-047-20BCD4 133-047-20BCD4 133-047-20BCD4	36-46 36-46 36-46	06/28/89 06/29/89 08/01/89 09/08/89 10/13/89	MD MD MD	28	6.1 7.6 7.4 7.6 8.3	0.26	260 279 291 289 309	180 183 192 187 211	34 45 36 43 42	5.4 5.6 5.9 6.9 7.2	565 622 582 578 624	0	980 1012 1091 1161 1204	16 12 14 14 25	0.3	1 0 0	0.17	1790	1400	930	5	0.4	2430	10	
	133-047-20BCD4 133-047-20BCD4 133-047-20BCD4 133-047-20BCD4 133-047-20BCD4	36-46 36-46 36-46	11/08/89 12/28/89 02/07/90 03/21/90 04/24/90	MD MD MD		9.7 11 13.5 10.4 7.6		309 325 307 277 282	209 218 199 204 197	40 41 41 42 42	7.3 8.6 7.1 7	694 718 742 711 720		1166 1212 1122 1110 1067	15 16 22 24 18		0									
	133-047-20BCD4 133-047-20BCD4 133-047-20BDAB 133-047-20BDAB 133-047-20BDAB	36-46 0-0 0-0	04/24/90 06/25/90 06/05/86 01/13/87 02/12/87	MD WC MD	31	9.2 12.6 0.34 0 2.5	0.28	290 251 71.9 656 1267	200 191 143 120 167	45 43 227 445 353	6.1 6.6 200 365 359	676 770 1340 1610 2940	0	1000 939 146 521 502	22 18 212 340 289	0.2	1 0 3.1	0.19	1940 1660	1500 769	990	6 39	0.5	2600	9	
	133-047-20BDAB 133-047-20BDAB 133-047-20BDAB 133-047-20BDAB 133-047-20BDAB	0 - 0 0 - 0 0 - 0	03/13/87 10/07/87 11/20/87 12/17/87 01/29/88	MD MD MD		8.1 5.4 0 9.3 10.2		1218 229 836 700 1199	179 121 184 131 128	492 446 443 445 361	443 193 401 382 420	4410 1279 3599 3239 3855		540 692 696 699 746	263 330 390 358 317		21									
	133-047-20BDAB 133-047-20BDAB 133-047-20BDAB 133-047-20BDAB 133-047-20BDAB	0 - 0	03/30/88 10/06/88 11/08/88 01/26/89 02/26/89	MD MD MD		2.4 8 0 8.8 43		1305 209 158 212 337	114 97 90 73 89	684 366 328 334 188	604 250 168 370 191	948 1138 1474		1361 629 544 519 701	485 391 320 323 281	0 0 0 0	3 0 0 0 4.9									
	133-047-20BDAB 133-047-20BDAB 133-047-20BDAB 133-047-20BDAB 133-047-20BDAB	0 - 0 0 - 0 0 - 0	03/29/89 04/27/89 06/05/89 06/28/89 06/29/89	MD MD WC	23	6.6 121 9.4 0.72 6.8	0.98	282 773 501 440 511	71 143 136 130 139	296 429 368 320 343	263 358 308 310 284	1364 2814 1282 2430 2847	0	610 817 39 2.5	266 356 305 270 269	0 0 0 0.6	0 0 0 1	2.5	2700	1600	0	26	3.5	4570	21	

	Screened			←							—(milli	grams	per liter	r)——						 1			0		
Location	Interval (ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na	κ	нсо3	∞₃	SO ₄	CI	F	NO ₃	В	TDS	Hardne CaCO ₃	NCH	% Na	SAR	Spec Cond (µmho)	Temp (∞C)	pН
133-047-20BDAB 133-047-20BDAB 133-047-20BDAB 133-047-20BDAB 133-047-20BDAB	0 - 0 0 - 0 0 - 0 0 - 0 0 - 0	09/06/89	MD MD MD		0 5.3 2.2 6.4		265 103 170 242 541	140 120 94 101 101	432 511 409 401 333	284 313 297 335 384	1571 1809		0 0 202 172 243	296 283 360 315 265	0	7 8 1 8									
133-047-20BDAB 133-047-20BDAB 133-047-20BDAC 133-047-20BDAC 133-047-20BDAC	0 - 0 0 - 0 0 - 0 0 - 0 0 - 0	03/21/90	MD WC WC	34	8.6 13.1 1.02 0.97	0.14 0.33	882 1208 122 140 328	145 178 156 95 67	374 379 328 460 340	478 439 294 230 277	2773 3181 2080 1060 1180	0	396 541 267 350 608	323 223 292 400 511	0.3	15 2.7 1	2.66	2490 2240	948 740	0	43 49	4.6 7.4			
133-047-20BDAC 133-047-20BDAC 133-047-20BDAC 133-047-20BDAC 133-047-20BDAC	0 - 0 0 - 0 0 - 0	12/14/88	MD		8.8 7 8.6 49		1295 1385 265 208 448	187 193 209 72 95	404 374 68.7 345 213	380 473 231 384 203	3381 4851 0		764 560 684 601 915	418 316 314 285 286	0 0 0	0 9 9 0	¥								
133-047-20BDAC 133-047-20BDAC 133-047-20BDAC 133-047-20BDAC 133-047-20BDAC		04/27/89	MD MD MD MD WC	23	5.1 3.2 0 1 0.79	1.4	508 826 632 710 620	101 98 120 125 110	666 504 394 395 370	408 408 322 316 360	1670 2413 2550 3357 2780	0	1094 1031 634 45 17	402 393 295 292 350	0 0 0 0 0.7	0 0 0 0	2.8	3230	2000	0	25	3.6	5410	25	
133-047-20BDAC 133-047-20BDAC 133-047-20BDAC 133-047-20BDD 133-047-20BDD		09/06/89	MD MD WC WC	10	0 0 94 0.21	1.6	345 100 1369 130	128 245 252 110	401 451 390 15	355 380 568 6.2	2659 4552 461 469	0	0 0 443 390	298 300 294 3.7	0.4	0	0	895	780	400	4	0.2			
133-047-20BDDB 133-047-20DD1 133-047-20DD1 133-047-20DD1 133-047-20DD1	248-254 248-254 248-254	02/20/86 08/29/69 09/20/73 06/21/74 12/02/75	HD WC WC WC	24 24 18 20	0.24 0.08 0.58 0.16 0.67	0.22 0.13 0.24 0.32 0.23	121 97 94 93 92	130 33 40 38 39	337 79 84 86 85	273 9.3 7.2 7.7	807 459 467 487 477	0 0 0	905 167 170 170 170	288 18 21 21 21	0.9 0.9 0.7	0.4 1 3.4 1	0.45 1.7 2 0.44	2450 656 677 678 677	838 379 400 390 390	17 0 0	47 31 31 32 32	5.1 1.8 1.8 1.9	1100 1170	10.6	
133-047-20DDD1 133-047-20DDD1 133-047-20DDD1 133-047-20DDD1 133-047-20DDD1	248-254 248-254	07/19/79 02/16/84 04/20/88 06/30/89 04/25/90	WC WC WC	21 14 5.8 5.2	0.79 17.9 1.7 0.1 2.9	0.2 0.3 0.24 0.14 0.35	80 90.5 84 32 40	27 34 39 5.5 7.5	65 83 85 3.5	7.2 7 8.4 3 3.7	392 503 473 112 154	0 0 0	120 144 150 26 29	16 21.4 22 3.3 5.3	0.6 0.7 0.2 0.1	0.5 1 8.7	0.17 0.38 0.04 0.04	532 628 639 143 178	310 366 370 100 130	0 11 5	31 33 33 7	1.6 1.9 1.9 0.2	870 980 289	10 8 10	7.6
133-047-20DDD2 133-047-20DDD2 133-047-20DDD2 133-047-20DDD2 133-047-20DDD2	48-51 48-51 48-51	09/17/74 12/02/75 01/22/76 02/16/84 04/09/86	WC WC HD WC	20 20 16 26	2.9 4.8 3.2 9.6 12	0.26 0.4 0.03 0.56 0.48	310 360 370 381 340	130 150 140 136 140	160 180 170 175 170	9.4 12 12 12	430 415 341 446 394	0 0 0	1200 1500 1500 1470 1400	18 16 41 18 21	0.3	1 1.5 2.5 0.2	0.63 0.8 0.84	2060 2450 2420 2410 2320	1300 1500 1500 1510 1400	940 1200 1200	21 21 20 20 20	1.9 2 1.9 2 2			
133-047-20DDD2 133-047-20DDD2 133-047-20DDD2 133-047-21AAA 133-047-21AAA	48-51 48-51 0-0		WC WC MD MD	23 25 18	7.6 6.8 13 5.6 11.1	0.36 0.37 0.3	300 300 250 909 1437	120 120 150 279 429	150 160 160 419 458	12 12 12 472 855	399 384 282 3666	0 0 0	1200 1200 1200 240 307	23 20 22 330 393	0.3 0.2 0.1	3.3 1 1 98 0	0.43 0.56 0.63	2040 2030 1970	1200 1200 1200	920 930 1000	21 22 22	1.9	2450 2710 2400	8 10 9	
133-047-21AAA 133-047-21AAA 133-047-21BAD 133-047-21BCB 133-047-21CBA	0-0 0-160 189-195	02/06/90 03/21/90 08/12/69 08/28/69 09/05/69	MD WC WC	17 29 30	108 60 0.36 0.2 1.7	0.06 0.11 0.16	4219 4018 41 99 114	609 484 18 28 35	436 350 132 70 52	824 696 11 9.7 6.4	9369 8708 367 454 451	0 0 0	449 494 131 143 150	261 213 32 13 6.2	0.7	0 2.3 0 0.1	0.56 0.37 0.15	567 617 618	176 364 430	0 60	59 29 21	4.2 1.6 1.1	1040 990 920	11.7 9.4 10	
133-047-21CBB1 133-047-21CBB2 133-047-21CBB2 133-047-21CBB3 133-047-21CBB3		09/24/69	WC WC WC WC	28 26 28 30 30	0.78 2.1 0.78 0.08 0.98	0.2 0.13 0.2 0.16 0.18	132 114 132 134 129	35 31 35 27 31	47 53 47 51 50	6.9 6.2 6.9 5.6	483 476 483 486 486	0 0 0	183 133 183 150 158	8.1 9.1 8.1 10	0.4	0.2 2.5 0.2 1	0.07 0.07 0.07 0.15 0.15	679 611 679 649 656	474 412 474 444 448	78 22 78 45	17 22 17 20	0.9 1.1 0.9 1.1	1040 990 1040 1020 1050	10 9.4 10 8.3	
133-047-21CBB3 133-047-21CBB3 133-047-28ABB 133-047-28DCD1 133-047-28DCD1	230-280 178-181 238-243	09/26/69 09/27/69 08/29/69 07/23/87 04/20/88	WC WC WC	30 30 32 29 28	1.2 0.76 0.58 0.08 0.47	0.14 0.17 0.08 0.06 0.13	128 126 79 30 30	32 33 23 14 14	50 50 95 160 170	5.6 5.6 10 9.1	488 486 445 448 463	0 0 0	163 162 121 80 80	10 10 18 30 31	0.8	2.5 0 7.6 0.2	0.15 0.19 0.49 1.1 0.69	662 660 599 584 592	452 452 291 130 130	52 53 0 0	19 19 40 71 72	1 1 2.4 6.1 6.5	1050 1050 950 970 930	8.3 9.4 12 10	

					(milligrams per liter)————————————————————————————————————														>			Spec				
Location		Screened Interval (ft)	Date Sampled	Lab ID	SiO ₂	Fe	Mn	Ca	Mg	Na	к	н∞₃	∞ ₃	so ₄	СІ	F	NO ₃	В	TDS	Hardnes CaCO ₃	s as NCH	% Na	SAR	Cond (µmho)	Temp (∞C)	рН
	133-047-28DCD1 133-047-28DCD1 133-047-28DCD3 133-047-28DCD3 133-047-28DCD3	238-243 60-65 60-65		MC MC MC	31 27 24 26 25	0.02 0.06 0.01 0.24 0.08	0.08 0.08 0.08 0.16 0.17	28 28 62 67 57	14 14 36 37 29	170 170 75 77 53	8.1 8.5 4.8 4.9 4.9	459 473 479 553 397	0 0 0 0	77 77 20 21 29	31 31 15 16 12	1.7 1.7 0.2 0.3	5.9 0.8 16	0.98 1 0.32 0.36 0.27	594 591 474 523 423	130 130 300 320 260	0 0 0 0	73 73 35 34 30	6.5 6.5 1.9 1.9	980 990 920 880 722	10 9 13 10 10	
	133-047-28DCD3 133-047-28DDC 133-047-29BAB2 133-047-29BAB2 133-048-01DDD1	0-216 65-68	04/25/90 09/04/69 09/18/74 04/25/90 09/19/69	MC MC MC	25 32 20 28 9.9	0.72 1.4 0.45 0.32 0.44	0.25 0.13 0.06 0.18 0.01	65 66 100 130 36	34 18 56 69	66 102 140 170 211	5.5 5.6 7.1 10 12	529 461 620 583 456	0 0 0 0	24 65 250 500 151	15 23 26 27 43	0.1 1 0.2 0.2 3.4	13 0.4 1 3.6	0.37 0.37 0.31 0.36	510 569 906 1220 707	300 238 480 610 136	0 0 0 130 0	32 48 38 37 75	1.7 2.9 2.8 3 7.9	860 1020 1780 1210	9 9 9	
	133-048-01DDD2 133-048-02ADA 133-048-03ABB1 133-048-03ABB2 133-048-03ABB2	98-118 116-119	06/03/70 05/26/70 05/28/70 09/18/74 07/19/79	WC WC WC WC	29 31 29 19	0 1.4 0.8 0.12 0.99	0.11 0.23 0.16 0.32	104 114 124 120 50	36 39 36 44 16	68 62 57 52 21	6.1 5.5 5.6 6.5 3.9	500 469 480 480 181	0 0 0 0	127 198 191 190 82	19 11 11 11 6.1	0.3 0.3 0.4 0.2	0.9 0.5 0.5 1	0.22 0 0.31 0	637 694 691 680 283	406 445 457 480 190	0 60 63 86 42	26 23 21 19 19	1.5 1.3 1.2 1	950 470	8.3 8.3 9.5	7.69
	133-048-03ABB2 133-048-12BAA 133-048-12BAA 133-048-12BAA 133-048-18AAD	115-135 115-135 115-135	08/23/83 05/26/70 06/19/74 07/19/79 07/23/64	MC MC MC	17 24 21 30 23	0.03 0.72 1.2 0.63 0.94	0.58 0.11 0.15 0.2	120 120 110 100 75	46 40 38 44 24	51 76 51 53 710	9.4 7.1 6 6.1 17	466 387 480 475 278	0 0 0 0	200 310 150 140 1100	12 10 11 8.8 335	0.3 0.4 0.6 0.4 5.7	4.8 3 1 1 3	0.3 0 2.9 0.33 1.8	691 782 629 618 2420	490 465 430 430 286	110 148 36 40 58	18 26 20 21 83	1 1.5 1.1 1.1 18	1050 1050 1090 975	10 10 10.5 10	7.5 7.45
	133-048-24AAD1 133-048-24AAD2 134-048-04CBD 134-048-09DAB 134-048-17AAA	48-51 ?-378 ?-390	09/18/74 09/13/74 02/08/71 07/23/64 02/08/71	MC MC MC MC	19 20 13 22 28	0.06 0.04 0.2 0.19 0.66	0.18 0.03 0.03	28 130 25 6.4 88	15 79 9.6 2.9 35	220 160 251 325 136	5.2 8.6 9.6 9	560 520 319 438 469	0 0 0 7.2 0	92 540 246 217 131	47 27 100 110 102	0.6 0.2 4.2 0.4 0.9	1 1 3.4 3 0.7	1.4 0.63 1.2 1.2 0.8	705 1220 820 918 761	130 650 102 28 363	220 0 0	78 35 83 95 44	8.4 2.7 11 27 3.1		13.3	
296	134-048-20ADD2 134-048-20ADD2 134-048-20ADD2 134-048-20ADD2 134-048-21BBB	130-135 130-135 130-135	11/26/79 07/21/81 07/25/83 09/03/86 06/04/70	MC MC MC	29 27 30 28 30	0.49 0.44 0.34 0.91 8.9	0.14 0.11 0.1 0.22 0.23	60 55 68 160 91	27 27 28 100 24	180 190 180 370 117	6.5 9.6 10 12 5.7	387 402 383 392 426	0 0 0 0	220 220 260 1000 169	95 95 100 220 53	1.3 0.8 1.1 1.2 0.5	1 1 1 10 0	0.45 0.64 0.48 0.78 0.41	812 825 868 2100 710	260 250 280 810 327	0 0 0 490 0	59 61 57 49 43	4.9 5.2 4.7 5.7 2.8	1200 1325 3000 1000	9 9 9 8.9	7.8 7.2
	134-048-25CCB 134-048-26CDA 134-048-31 134-048-32DAA 134-048-32DAA	7-352 7-7 58-78	09/19/69 09/19/69 00/00/68 06/03/70 06/19/74	WC WC WC	14 17 28 20	5.7 0.24 2.3	0.04 0.01 0.03 0.1	35 29 94 94	12 11 28 38	267 277 95 82	13 9.7 6.9 6.8	352 397 250 455 470	0 0 0 0	230 212 1250 171 160	144 131 298 22 24	3 3 0.4 0.5	0.2 2.5 0 0.5	0.82 0.9 0.41 2	898 889 670 661	135 118 302 349 390	0 0 0 5	79 82 37 31	10 11 2.2 1.8	1510 1460 930 1210	8.9 8.9 9	