STATE OF SOUTH DAKOTA
Richard Kneip, Governor

DEPARTMENT OF NATURAL RESOURCE DEVELOPMENT
Vern W. Butler, Secretary

GEOLOGICAL SURVEY
Duncan J. McGregor, State Geologist

Open-File Report No. 13-UR

GROUND-WATER STUDY FOR THE TRIPP RURAL WATER DISTRICT

by

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GROUND-WATER STUDY FOR THE TRIPP RURAL WATER DISTRICT

At the request of the Tripp Rural Water District, the South Dakota Geological Survey conducted a ground-water study from May 13 through May 31, 1975. The study covered sec. 6 (except for the eastern part of the SE¼) T. 97 N., R. 76 W., NW¼ sec. 5, T. 97 N., R. 76 W., and SW¼ sec. 32, T. 98 N., R. 76 W.

During the study 38 test holes were drilled in the area. The locations of these test holes are shown on figure 1 and the logs of the test holes are in Appendix A. Figure 1 also shows the locations of other test holes drilled in the area for previous studies. Appendix A contains the logs of test holes and observation wells drilled in sec. 31, T. 98 N., R. 76 W. during 1974 and 1975 for the South Dakota Water Rights Commission. The logs of test holes drilled in 1965 are published by the South Dakota Geological Survey in Special Report 36, "Ground Water Study for the City of Winner."

After the field work was completed in 1975, the Survey recommended construction of a pump test well in the center of section 6 where the maximum saturated sand was found (see fig. 2). However, the Rural Water District could not reach an agreement with the landowners of that area for developing a well.

The Rural Water District obtained an agreement from the landowner of section 8, T. 91 N., R. 76 W. for water development. Four (4) test holes were drilled and a pump test well was constructed by Chase Drilling Company in the NW¼ sec. 8, T. 97 N., R. 76 W. Appendix B shows the logs of 4 observation wells and the production well (for map location, see fig. 1). Figure 2 also shows the saturated thickness of sand at this location.

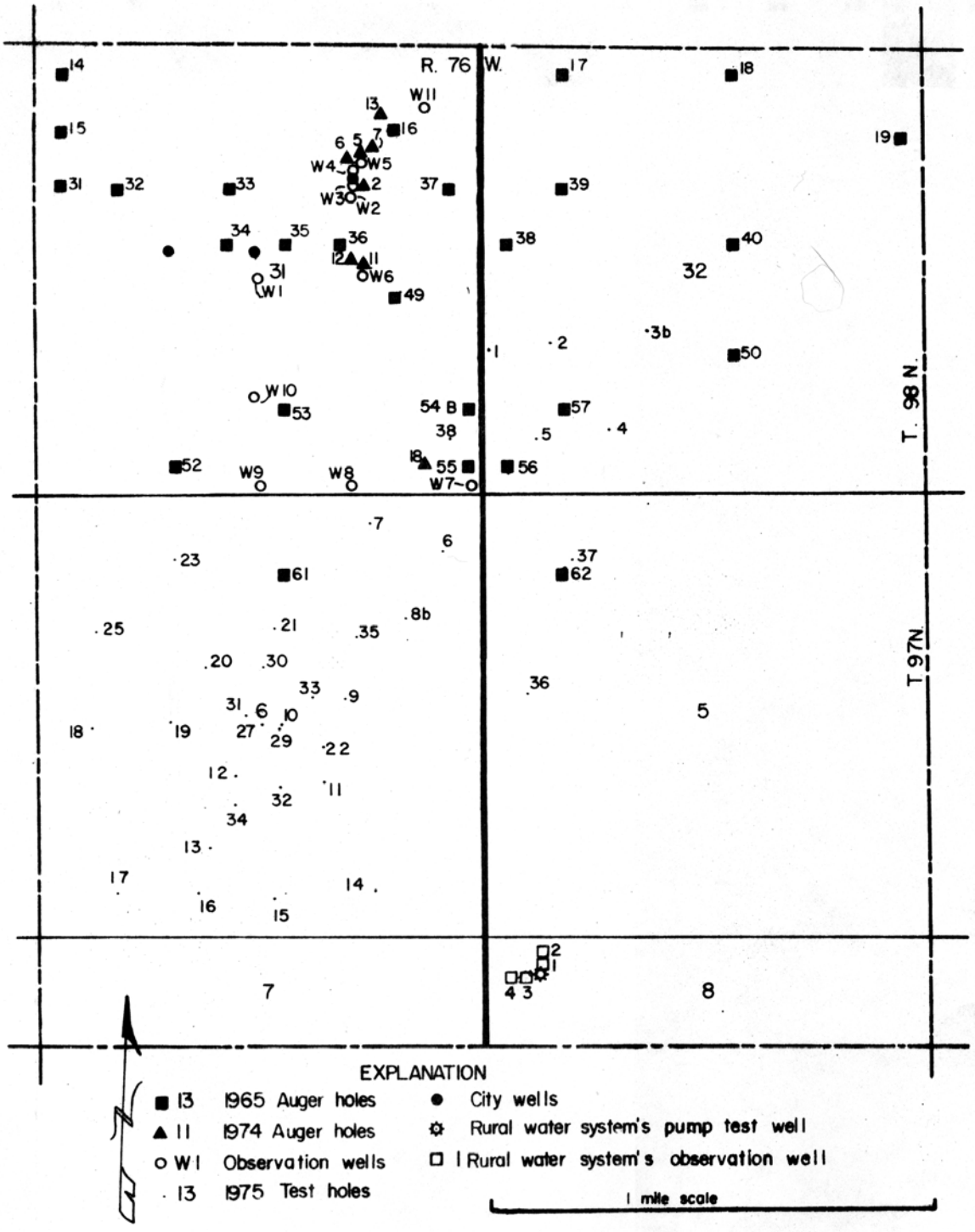

FIGURE 1-- DATA MAP

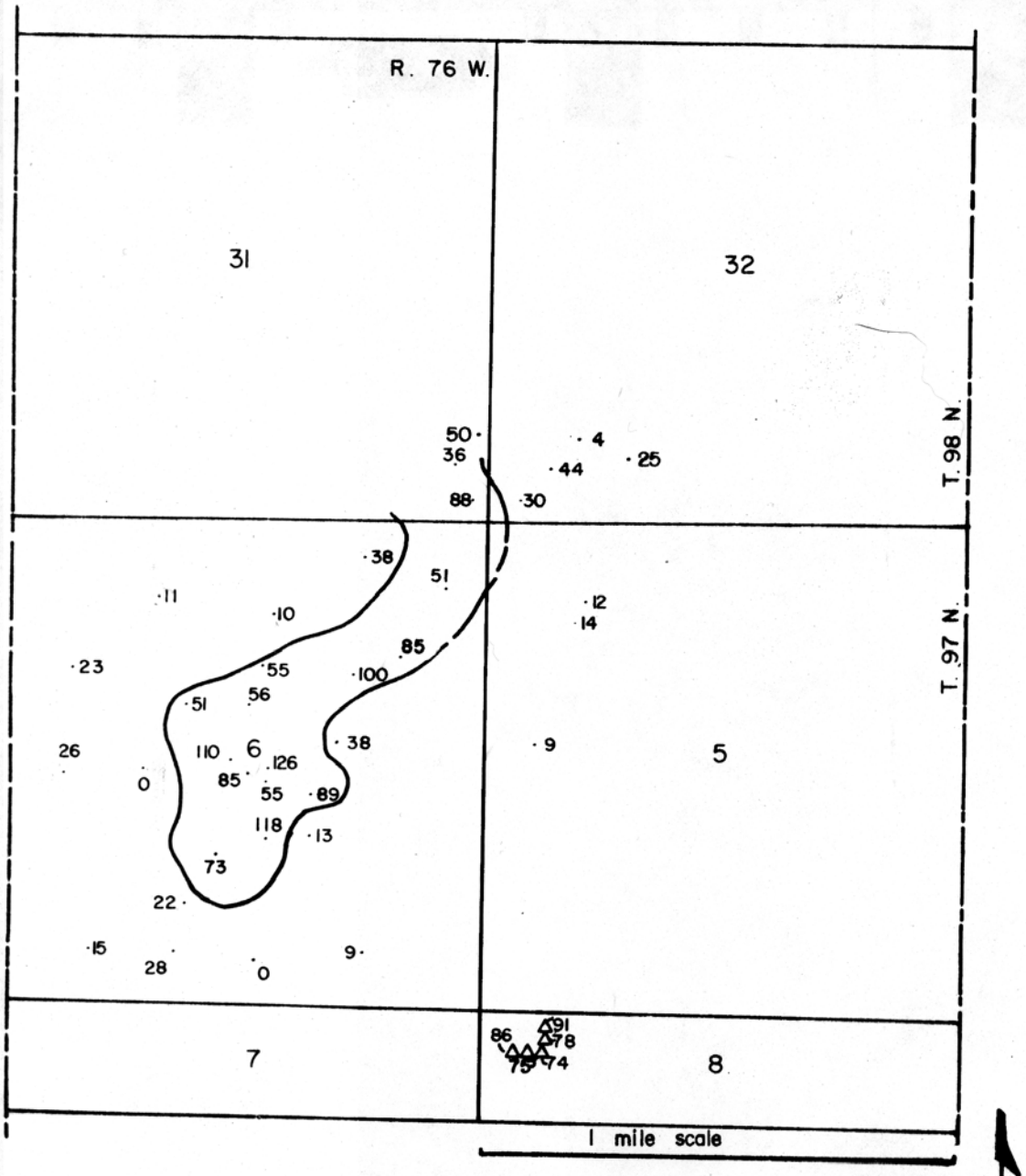

FIGURE 2 -- MAP SHOWING THE SATURATED THICKNESS OF SAND IN THE VICINITY OF SECTION 6, T. 97 N, R. 76 W.

· 100 Test hole showing thickness of saturated sand.

Lines showing the saturated thickness of over 50 feet in section 6.

△ Saturated thickness of sand in sec. 8 in the vicinity of the pump test well.

A pump test was conducted by Foster-Van Gundy and Associates and was supervised by the South Dakota Geological Survey. The pumping started on June 28, 1976, and continued for 72 hours. The average pumping rate was 224 gallons per minute. After the pumping ended, the recovery was measured.

The attached page is the results of the chemical analyses of water samples collected at 4 hours and 19 hours after the pumping started. The third sample was collected near the end of the pumping period. All samples were analyzed by the South Dakota Geological Survey.

The water samples are of very good quality for the chemicals that were analyzed. Additional water samples should be collected and analyzed for fluoride content.

It is recommended that the production well for the Rural Water District be pumped at approximately 180 gallons per minute and future wells be drilled not less than 700 feet away from the first well.

This report was prepared by Assad Barari, September 1976.

PARTS PER MILLION

	After 4 hours	After 19 hours	End of test	Drinking water standards U.S. Public Health Service
Calcium	8	8	22	----
Sodium	10	10	0	----
Magnesium	6	6	3	----
Chlorides	0	0	8	250
Sulfate	25	25	3	500[2]
Iron	0.1	0.1	0.1	0.3
Manganese	0.05	0.05	0.05	0.05
Nitrate Nitrogen	1.2	1.2	1.2	10.0
Hardness $CaCO_3$[1]	40	40	148	----
Total Solids	208	192	180	1000[2]

[1]To convert to grains, divide ppm by 17

[2]Modified for South Dakota Department of Health (written communication, water sanitation section, September 1968)

Water samples were analyzed by the South Dakota Geological Survey.

APPENDIX A

LOGS OF TEST HOLES AND OBSERVATION WELLS DRILLED IN

SECTIONS 31, 32, T98N R76W AND SECTIONS 5 and 6, T97N R76W,

DRILLED IN 1974 and 1975

98N-76W-32-cbcc

SOUTH DAKOTA GEOLOGICAL SURVEY

Location SW¼SW¼NW¼SW¼ Section: 32 T. 98 N. R. 76 W.

Well: no Test Hole: #1 Land Owner: Herbert Coe

County: Tripp Date 5-13-75 Elevation: 2254.85 (A, I, T)

E-Log: no Samples: yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	12	Sand, fine	0-12
	48	Clay, green, silty	12-60
		T.D. 60 feet	

SOUTH DAKOTA GEOLOGICAL SURVEY

Location SE¼SE¼NW¼SW¼ Section: 32 T. 98 N. R. 76 W.

Well: no Test Hole: #2 Land Owner: Herbert Coe

County: Tripp Date 5-14-75 Elevation: 2251.2 (MSL T)

E-Log: no Samples: yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	30	Sand, fine, clean	0-30
	2	Sand, hard, cemented lenses about 2" thick	30-32
	4	Sand, fine to medium, clean	32-36
	2	Clay, green, silty, very fine sandy texture	36-38
	10	Sand, fine, clean (as at 0-30)	38-48
	7	Sand, fine to medium, light green tint,	
		rounded to subrounded grains	48-55
	40	Clay, silty, green, some fine sand grains	
		sand cemented at about 65', small white	
		cementation chips	55-95
	25	Shale, Pierre, good cuttings	95-120
		T.D. 120 '	

98N-76W-32-caca

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NE¼SW¼NE¼SW¼ Section: 32 T. 98 N. S. R. 76 E. W.

Well: no Test Hole: ##3A Land Owner: Herbert Coe

County: Tripp Date 5-14-75 Elevation: 2268.08 (MSL, T)

E-Log: no Samples: yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	35	Sand, fine, clean, slightly cemented from 9' down	0-35
	15	Sand, very fine to silty, green	35-50
	20	Sand, very fine, green	50-70
	10	Sand, very fine to silt, cemented sand, fine;	
		interbedded with green silt	70-80
	16	Portions cemented	80-96
		Sand, medium; interbedded with green silt	
	10	Portions cemented	96-106
		Hit a very hard layer and could not drill	
		through, abondon hole	106
		TD 106'	

98N-76W-32-caca

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NE¼SW¼NE¼SW¼ Section: 32 T. 98 N. R. 76 W.

Well: no Test Hole: #3b Land Owner: Herbert Coe

County: Tripp Date 5-15-75 Elevation: 2268.71 (KXXX, T)

E-Log: no Samples: yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	5	Soil, loess	0-5
	30	Sand, cemented, light green	5-35
	25	Sand, fine, cemented, intermixed with dark	
		green silt	35-60
	4	Sand, fine, cemented, interbedded with	
		light green silt	60-64
	49	Sand, fine; interbedded with green silt	64-113
	5	Shale, reworked, intermixed with green silt	113-118
	22	Shale, Pierre, compact	118-140
		TD 140 feet	

98N-76W-32-cbdc

SOUTH DAKOTA GEOLOGICAL SURVEY

Location SW¼SE¼NW¼SW¼ Section: 32 T. 98 N. R. 76 E. W.

Well: no Test Hole: #4 Land Owner: Herbert Coe

County: Tripp Date 5-15-75 Elevation 2251.39 (T)

E-Log: no Samples: yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	26	Sand, fine, clean	0-26
	4	Sand, fine to medium, sub rounded,	
		clean; intermittent cemented layers (lenses)	26-30
	35	silty clay, cemented, white to gray-green,	
		semi-hard	30-65
	10	Clay, very silty, light grey to green	65-75
	30	Sand, med; mixed with abundant cemented	
		particles	75-105
	10	Shale, Pierre, hard	105-115
		T. D. 115'	

98N-76W-32-ccca

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NE¼SW¼SW¼SW¼ Section: 32 T. 98 N. R. 76 W.

Well: no Test Hole: #5 Land Owner: Herbert Coe

County: Tripp Date 5-16-75 Elevation: 2252.81 (MSL, T)

E-Log: no Samples: yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	46	Sand, clean, medium to fine, angular grains	0-46
	11	Sand, very fine, cemented, green, small hard chips	46-57
	21	Sand, very fine, cemented, green; intermixed with silt	57-78
	6	Silt, green; intermixed with cemented very fine brown sand	78-84
	9	Silt, green, soft; intermixed with green cemented silt; some fine brown sand	84-93
	7	Shale, intermixed with silt and cemented silt and brown sand	93-100
	7	Shale, intermixed with green silt, and brown cemented sand	100-107
	13	Shale, Pierre, good cuttings	107-120
		TD 120 feet	

97N-76W-6-aaac

SOUTH DAKOTA GEOLOGICAL SURVEY

Location SW¼NE¼NE¼NE¼ Section: 6 T. 97 N. S. R. 76 E. W.

Well: no Test Hole: 6A Land Owner: Albert Novotony Jr.

County: Tripp Date 5-16-75 Elevation: 2268.8 XXXX, T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	5	Topsoil	0-5
	1	Sand, brown, medium, moist slightly clayey	5-6
	13	Clay, white to light brown, moist, silty	6-19
	2	Silt, to very fine sand, clayey, light brown	19-21
	3	Clay, light brown, saturated	21-24
	2	Sand, fine, clean, light brown, saturated	24-26
	49	Sand, medium, clean, light brown-gray	26-75
	10	Sand, very fine, cemented, light green	75-85
	44	Clay, dark green	85-129
	5	Shale, reworked	129-134
		W.T. - 9 feet	
		T.D. 134 feet	

97N-76W-6-aaac

SOUTH DAKOTA GEOLOGICAL SURVEY

Location SW¼NE¼NE¼NE¼ Section: 6 T. 97 N. S R. 76 W. W.

Well: no Test Hole: #6 Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-30-75 Elevation: 2268.8 (A,X T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	4	Topsoil	0-4
	1	Sand, fine, silty dark brown, moist	4-5
	2	Sand, fine, clayey, brown, moist	5-7
	4	Clay, white-gray, moist, sandy	7-11
	13	Clay, white-gray, saturated, sandy	11-24
	8	Sand, medium light brown, saturated, clean	24-32
	1	Sand, medium, cemented	32-33
	42	Sand, medium, light brown, saturated, clean	33-75
	24	Clay, green-brown, sandy, saturated	75-99
		WT - 11 feet	
		TD - 99 feet	

97N-76W-6-aabc

SOUTH DAKOTA GEOLOGICAL SURVEY

Location SW¼NW¼NE¼NE¼ Section: 6 T. 97 N. R. 76 W.

Well: no Test Hole: #7 Land Owner: Albert Novotony, Jr

County: Tripp Date 5-16-75 Elevation 2269.26 (T)

E-Log: no Samples: yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil, black	0-1
	22	Sand, fine to medium, clean	1-23
	7	Sand, medium, clayey	23-30
	15	Sand, fine to medium, clean	30-45
	20	Sand, fine to medium, light brown; intermixed	
		with green clay	45-65
	20	Clay, silty, green to light brown, fairly	
		hard, some cemented lenses	65-85
	5	Clay, sandy and silty, very hard	85-90
	25	Clay, silty, light green	90-115
	15	Shale, Pierre, hard	115-130
		TD 130 feet	

97N-76W-6-adba

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NE¼NW¼SE¼NE¼ Section: 6 T. 97 N. R. 76 W.

Well: no Test Hole: #8A Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-16-75 Elevation: 2266.61 (T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	4	Topsoil	0-4
	1	Sand, very fine & fine, dark brown, silty,	
		moist	4-5
	9	Sand, medium, brown to gray, moist	5-14
	6	Sand, medium, dark brown, moist	14-20
	2	Sand, medium, brown, saturated	20-22
	5	Sand, medium, brown-gray, saturated	22-27
	24	Sand, medium, brown, saturated	27-51
	2	Sand, fine, brown, cemented	51-53
	7	Sand, medium, brown, saturated	53-60
		Hit something very hard, no sample	
		Abandon hole	60
		W.T. - 20	
		T.D. - 60 feet	

97N-76W-6-adba

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NE¼NW¼SE¼NE¼ Section: 6 T. 97 N. R. 76 W.

Well: no Test Hole: #8b Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-19-75 Elevation: 2266.61 T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	4	Topsoil	0-4
	2	Sand, light grey, medium, clayey	4-6
	2	Sand, medium, light tan, clayey	6-8
	19	Sand, medium, gray, clayey	8-27
	15,	Sand, medium, gray-brown, clayey	27-42
	15	Sand, fine, tan, few dark grains	42-57
	1	Sand, fine, cemented	57-58
	12	Sand, fine to medium, tan	58-70
	21	Sand, medium to fine, brown	70-91
	1	Sand, fine, cemented	91-92
	35	Sand, medium to fine, brown	92-127
	2	Clay, green-brown	127-129
		W.T. 5 feet	
		T. D. 129 feet	

97N-76W-6-acdd

SOUTH DAKOTA GEOLOGICAL SURVEY

Location SE¼SE¼SW¼NE¼ Section: 6 T. 97 N.~~S~~. R. 76 ~~E~~ W.

Well: no Test Hole: #9 Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-19-75 Elevation: 2278.01 (~~M~~, T)

E-Log: no Samples: yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil, black	0-1
	34	Sand, fine, clean	1-35
	6	Sand, fine to medium, clean; lower 2 feet	
		intermittent cemented lenses	35-41
	64	Clay, sandy, silty, light green	46-105
	1	Sand, fine, cemented, very hard	105-106
	69	Clay, intermixed with fine sand and silt,	
		light green	106-175
	13	Clay, sandy, cemented, reworked shale pebbles	175-188
	12	Shale, Pierre, very hard	188-200
		T. D. - 200 feet	

97N-76W-6-dbbb

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NW¼NW¼NW¼SE¼ Section: 6 T. 97 N. R. 76 W.

Well: no Test Hole: #10 Land Owner: Albert Novoton v. Jr.

County: Tripp Date 5-19-75 Elevation: 2285.4 (T)

E-Log: no Samples: yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Sand, medium, dark brown, moist	0-1
	6	Sand, medium, light brown, dry	1-7
	4	Sand, medium, dry	7-11
	2	Sand, medium, gray, some clay	11-13
	4	Sand, medium, tan, saturated	13-17
	132	Sand, fine, tan, saturated, few dark grains	17-149
	2	Clay, dark grey-green	149=151
		W.T. 13 feet	
		T.D. 151 feet	

97N-76W-6-dbdb

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NW¼SE¼NW¼SE¼ Section: 6 T. 97 N.~~S~~. R. 76 ~~W~~ W.

Well: no Test Hole: #11 Land Owner: Albert Novotony, Jr

County: Tripp Date 5-19-75 Elevation: 2289.12 (~~XXX~~ T)

E-Log: no Samples: yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	2	Topsoil	0-2
	23	Sand, medium to fine, clean	2-25
	7	Silt, cemented, green to light green	25-32
	25	Silt, cemented, interbedded with soft silt	32-57
	35	Silt, soft, green	57-92
	2	Siltstone, orange yellow, very hard	92-94
	20	Silt, soft, green	94-114
	11	Siltstone, cemented, brown, hard	114-125
	5	Siltstone, cemented, brown, hard, contains shale pebbles	125-130
	10	Shale, Pierre, hard	130-140
		T.D. 140 feet	

97N-76W-6 CBDD

SOUTH DAKOTA GEOLOGICAL SURVEY

Location SE¼SE¼NW¼SW¼ Section: 6 T. 97 N. ~~8x~~ R. 76 ~~E.x~~W.

Well: no Test Hole: 12 Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-20-75 Elevation: 2300.69 (A,I,T)

E-Log: _____ Samples: yes Drilling Company: SDGS

Source of Data: _____

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	3	~~Sand, medium, slightly silty, dark-~~ brown, dry	0- 3
	6	Sand, medium, dry, light-brown	3- 9
	5	Silt, dark gray-brown, moist	9- 14
	3	Silt, dark-gray, clayey, moist	14- 17
	4	Sand, fine, light-tan, moist, clayey	17- 21
	103	Sand, fine, light-tan, saturated, less clay than above 4 feet	21-124
	5	Clay	124-129
		Water table - 21 feet	
		Total depth - 129 feet	

97N-76W-6-cdab

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NW¼NE¼SE¼SW¼ Section: 6 T. 97 N. S. R. 76 E. W.

Well: no Test Hole: #13 Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-20-75 Elevation: 2308.97 (T)

E-Log: no Samples: yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	3	Topsoil	0-3
	43	Sand, medium to fine, clean	3-46
	30	Siltstone, brown and green, cemented	46-76
	19	Silt, soft, greenish-gray, not cemented	76-95
	90	Clay, sandy, cemented, green	95-185
	25	Shale, Pierre, hard	185-210
		T. D. 210 feet	

97N-76W-6-dcda

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NE¼SE¼SW¼SE¼ Section: 6 T. 97 N.~~B.~~ R. 76 ~~W.~~ W.

Well: no Test Hole: #14 Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-20-75 Elevation: 2354.52 (~~M~~, T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Sand, fine, brown, moist	0-1
	21	Sand, medium, tan, moist	1-22
	2	Sand, medium, gray, moist	22-24
	52	Sand, fine, tan, moist	24-76
	60	Sand, fine, tan, saturated, clayey	76-136
	23	Clay, light brown to green	136-159
		W.T. 67 feet	
		T. D. 159 feet	

97N-76W-6 DCCB

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NW¼SW¼SW¼SE¼ Section: 6 T. 97 N. ~~S.~~ R. 76 ~~E.~~ W.

Well: NO Test Hole: No. 15 Land Owner: Albert Novotony, Jr

County: Tripp Date 5-21-75 Elevation: 2346.14 (A,I,T)

E-Log: ~~No~~ Samples: Yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil, brown, dry	0- 1
	19	Sand, medium, clean	1- 20
	43	Silt, clayey, light-brown to gray-green	20- 63
	17	Clay, silty, light-green, soft clay,	
		silty, with medium-grained sand	63- 80
	15	Stringers 1-2 feet thick	80- 95
	10	Clay, sandy, light-green to gray, with	
		intermittent hard cemented sand	
		layers	95-105
	5	Sand, medium, very clayey, light-green	105-110
	55	Sand, medium, interbedded with clay	
		stringers	110-165
	15	Clay, silty, light-green, soft with a	
		few thin sandy stringers	165-180
	20	Clay, silty, light-green, no sand	180-200
	20	Shale, Pierre, hard	200-220
		Total Depth - 220 feet	

97N-76W-6 BDCA

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NE¼SW¼SE¼NW¼ Section: 6 T. 97 N. ~~S~~ R. 76 ~~E~~ W.

Well: No Test Hole: No. 16 Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-21-75 Elevation: _____ (A,I,T)

E-Log: NO Samples: No Drilling Company: SDGS

Source of Data: _____

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	2	Sand, fine, dark-brown, dry	0- 2
	3	Sand, fine, brown, dry	2- 5
	3	Sand, fine to silty, dark-brown, moist	5- 8
	2	Sand, fine, light-brown, dry	8- 10
	2	Sand, medium, tan, dry	10- 12
	4	Sand, very fine, tan, dry	12- 16
	21	Sand, fine, tan, dry	16- 37
	4	Sand, fine, tan, moist	37- 41
	17	Sand, fine, tan, saturated	41- 58
	1	Clay, silty, gray-green	58- 59
	10	Sand, fine, tan, clayey	59- 69
		Water Table - 30 feet	
		Total Depth - 69 feet	

97N-76W-6 CCDB

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NW¼SE¼SW¼SW¼ Section: 6 T. 97 N. S. R. 76 E. W.

Well: No Test Hole: No. 17 Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-21-75 Elevation: 2290.57 (A,I,T)

E-Log: No Samples: Yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	2	Topsoil, black, damp	0- 2
	9	Sand, fine to silt, gray	2- 11
	7	Sand, fine to medium clean	11- 18
	7	Clay, sandy, green	18- 25
	98	Clay, yellow-brown, silty, greasy	
		texture	25-123
	30	Clay, silty, yellow to orange, cemented	123-153
	17	Clay, white to gray	153-170
	47	Clay, brown, cemented slightly	170-217
	13	Shale, Pierre, hard	217-230
		Total Depth - 230 feet	

97N-76W-6 BCDC

SOUTH DAKOTA GEOLOGICAL SURVEY

Location SW¼SE¼SW¼NW¼ Section: 6 T. 97 N. S. R. 76 W.

Well: No Test Hole: 18a Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-22-75 Elevation: _____ (A,I,T)

E-Log: No Samples: No Drilling Company: SDGS

Source of Data: _____

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	2	Silt, black, moist	0- 2
	7	Clay, silty, dark-gray, saturated	2- 9
	7	Sand, fine, clayey, gray	9- 16
	5	Sand, fine, clayey, light-gray	16- 21
	3	Sand, very fine, clayey, gray-brown	21- 24
	6	Sand, very fine, brown	24- 30
	9	No sample, had to abandon hole	30- 39
		Water Table - 2 feet	
		Total Depth - 39 feet	

97N-76W-6 BCDC

SOUTH DAKOTA GEOLOGICAL SURVEY

Location SW¼SE¼SW¼NW¼ Section: 6 T. 97 N.~~S~~. R. 76 ~~X~~E. W.

Well: No Test Hole: 18b Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-23-75 Elevation: 2278.56 (A,I,T)

E-Log: No Samples: Yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Silt, black, moist	0- 1
	13	Sand, fine, gray, clayey, saturated	1- 14
	4	Sand, fine, slightly clayey, gray-brown	14- 18
	47	Sand, fine, brown, clayey	18- 65
	22	Sand, fine, brown	65- 87
	20	Sand, fine, brown, clayey	87-107
	10	Clay, silty, green	107-117
		Water Table - 2 feet	
		Total Depth - 117 feet	

97N-76W-6 BDCC

SOUTH DAKOTA GEOLOGICAL SURVEY

Location SW¼SW¼SE¼NW¼ Section: 6 T. 97 N. X S. R. 76 XX E. W.

Well: No Test Hole: No. 19 Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-21-75 Elevation: 2279.59 (A,I,T)

E-Log: No Samples: Yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil	0- 1
	13	Sand, fine, intermixed with green silt	1- 14
	20	Sand, fine, intermixed with green and	
		white silt	14- 34
	2	Siltstone, yellow, cemented, intermixed	
		with fine sand and green and white	
		silt	34- 36
	59	Clay, brown, soft	36- 95
	3	Clay, white to brown	95- 98
	11	Clay, brown, soft	98-109
	38	Silt, cemented, brown to yellow-orange	109-147
	52	Clay, brown, soft	147-199
	11	Shale, Pierre, hard	199-210
		Total Depth - 210 feet	

97N-76W-6 BDDB

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NW¼SE¼SE¼NW¼ Section: 6 T. 97 N. ~~X~~ R. 76 ~~XX~~ W.

Well: No Test Hole: No. 20 Land Owner: Albert Novotony, Jr.

County: ~~Tripp~~ Date 5-27-75 Elevation: 2279.00 (A,I,T)

E-Log: ~~No~~ Samples: ~~Yes~~ Drilling Company: ~~SDGS~~

Source of Data: _____

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	3	Topsoil	0- 3
	1	Clay, silty, dark-brown, moist	3- 4
	3	Sand, silty and clayey, white to light-	
		brown, moist	4- 7
	2	Sand, silty and clayey, light-brown,	
		moist	7- 9
	4	Sand, silty and clayey, brown to gray,	
		saturated	9- 13
	17	Sand, medium, slightly silty, brown-	
		gray, saturated	13- 30
	15	Sand, medium, clayey, brown-gray,	
		saturated	30- 45
	8	Sand, medium, silty, brown, saturated	45- 53
	27	Sand, medium, slightly silty, brown,	
		saturated	53- 80
	27	Clay, white-brown	80-107
	13	Sand, medium, slightly silty	107-120
	4	Clay, white	120-124
		Water Table - 13 feet	
		Total Depth - 124 feet	

97N-76W-9 BDAA

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NE¼NE¼SE¼NW¼ Section: 6 T. 97 N. ~~S~~. R. 76 ~~W~~ E. W.

Well: No Test Hole: No. 21 Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-22-75 Elevation: 2280.38 (A,I,T)

E-Log: No Samples: Yes Drilling Company: SDGS

Source of Data: _____

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil, black, damp	0- 1
	7	Sand, fine to silt, brown, dirty	1- 8
	47	Sand, fine, clean, with intermittent	
		thin clayey stringers	8- 55
	10	Clay, sandy, light-green, hard cemented	
		layers present intermittently	55- 65
	15	Clay, sandy to silty, light-green	65- 80
	8	Sand, fine to medium, clean	80- 88
	12	Clay, silty, light-green, semi-hard	88-100
	20	Clay, sandy, cemented and compact, hard	
		drilling	100-120
	20	Shale, Pierre, hard	120-140
		Total Depth - 140 feet	

97N-76W-6 DBAC

SOUTH DAKOTA GEOLOGICAL SURVEY

Location ~~SW¼NE¼NW¼SE¼~~ Section: 6 T. 97 N. ~~S~~ R. 76 ~~E~~ W.

Well: ~~No~~ Test Hole: No. 22 Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-28-75 Elevation: 2285.06 (A,I,T)

E-Log: No Samples: Yes Drilling Company: SDGS

Source of Data: _____

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	5	Silt, slightly sandy, dark-brown, moist	0- 5
	2	Clay, slightly sandy, brown-white,	
		moist	5- 7
	10	Sand, fine, very silty, brown-white,	
		moist	7- 17
	8	Sand, fine, silty and clayey, brown-	
		white, saturated	17- 25
	6	Sand, fine to medium, clean, light-	
		brown, saturated	25- 31
	83	Sand, fine to medium, clean, brown,	
		saturated	31-114
		Water Table - 9 feet	
		Total Depth - 114 feet	

97N-76W-6 BACA

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NE¼SW¼NE¼NW¼ Section: 6 T. 97 N. R. 76 W.

Well: No Test Hole: No. 23 Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-22-75 Elevation: 2269.07 (A,I,T)

E-Log: No Samples: Yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil	0- 1
	14	Sand, fine to medium, clean	1- 15
	8	Clay, silty, green, soft, slightly	
		cemented	15- 23
	13	Clay, brownish-green	23- 36
	7	Sand, brown, cemented, interbedded with	
		brown clay	36- 43
	2	Sand, fine, cemented, brown	43- 45
	5	Clay, silty, green	45- 50
	7	Clay, orange-brown	50- 57
	2	Clay, silty, white, well-cemented	57- 59
	27	Clay, silty, orange-brown	59- 86
	15	Clay, silty, green, interbedded with	
		calcareous material	86-101
	1	Clay, cemented, calcareous, brown	101-102
	10	Clay, silty, orange-yellow	102-112
	8	Shale, Pierre, hard	112-120
		Total Depth - 120 feet	

98N-76W-31 AADA

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NE¼SE¼NE¼NE¼ Section: 31 T. 98 N. S. R. 76 E. W.

Well: no Test Hole: No. 24 Land Owner: In the ditch

County: Tripp Date 5-29-75 Elevation: _____ (A,I,T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data: _____

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	4	Clay, sandy, brown, moist	0- 4
	31	Sand, medium, brown, moist	4- 35
	2	Sand, medium, brown, clayey, moist	35- 37
	7	Sand, medium, brown, clayey, saturated	37- 44
		Water Table - 37 feet	
		Total Depth - 44 feet	

97N-76W-6 BCAB

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NW¼NE¼SW¼NW¼ Section: 6 T. 97 N~~xx~~S. R. 76 ~~xE~~ W.

Well: no Test Hole: 25 Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-22-75 Elevation: 2272.73 (A,I,T)

E-Log: ~~no~~ Samples: ~~yes~~ Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	2	Topsoil	0- 2
	23	Sand, fine to medium	2- 25
	28	Silt, brown and green, interbedded with	
		soft brown and green silty clay	25- 53
	14	Clay, silty, green, soft	53- 67
	23	Silt, brown and green, cemented, inter-	
		bedded with soft silty clay	67- 90
		Total depth - 90 feet	

98N-76W-31 AADD

SOUTH DAKOTA GEOLOGICAL SURVEY

Location SE¼SE¼NE¼NE¼ Section: 31 T. 98 N. ~~S~~. R. 76 ~~E~~ W.

Well: no Test Hole: 26 Land Owner: In ditch

County: Tripp Date 5-29-75 Elevation: _____ (A,I,T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data: _____

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	2	Silt, sandy, brown, moist	0- 2
	18	Sand, clayey, light-brown, moist	2- 20
	9	Clay, sandy, light-brown, moist	20- 29
	5	Sand, very clayey, light-brown,	
		saturated	29- 34
		Water table - 29 feet	
		Total depth - 34 feet	

98N-76W-31 DCDB

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NW¼SE¼SW¼SE¼ Section: 31 T. 98 N. R. 76 W.

Well: _____ Test Hole: Winner No. 8 Land Owner: _____

County: Tripp Date 8-20-74 Elevation: _____ (A,I,T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data: Steve Jorgensen

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil	0- 1
	3	Sand, fine, dry, greenish	1- 4
	2	Clay, green	4- 6
	4	Sand, fine, tan, dry	6- 10
	9	Clay, green, moist	10- 19
	3	Sand, fine, much clay, saturated	19- 22
	3	Clay, very hard	22- 25
	5	Sand, fine, very clean, saturated	25- 30
	6	Clay, green	30- 36
	13	Sand, fine, clean, tan	36- 49
	11	Sand, fine-medium, little clay	49- 60
	15	Sand, medium, clean, tan	60- 75
	13	Sand, medium, some clay, pebbles, green	75- 88
	1	Clay, green	88- 89

SOUTH DAKOTA GEOLOGICAL SURVEY

Location abdd Section: 31 T. 98 N. ~~S~~ R. 76 ~~E~~ W.

Well: _____ Test Hole: Winner #9 Land Owner: _____

County: Tripp Date Aug 14, 1974 Elevation: _____ (A, I, T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data: Steve Jorgensen

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil	0-1
	3	Clay, dark brown, hard, (lake silt?)	1-4
	2	Medium sand	4-6
	3	Clay, green, moist	6-9
	8	Medium sand, moist, green	9-17
	71	Medium sand, saturated, green	17-88
	6	Clay, greenish	88-94
		Wouldn't pump Observation well #5 Winner #9 hole	
		5' #50 Sandpoint	
		30 1/2' steel pipe below ground (1 1/4")	
		3 1/2' steel pipe above ground (1 1/4")	
		39' total	
		Depth to water on Aug 15 - 18'8"	
		Aug 19 - 23'2"	
		Aug 21 - 18.6'	
		200' NNE of City Well	

SOUTH DAKOTA GEOLOGICAL SURVEY

Location acdd Section: 31 T. 98 N. X S. R. 76 X E. W.

Well: _____ Test Hole: Winner #10 Land Owner: _____

County: Tripp Date Aug 15, 1974 Elevation: _____ (A, I, T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data: Steve Jorgensen

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	2	Topsoil	0-2
	2	Very fine sand, some clay	2-4
	5	Fine sand, much clay, moist, green	4-9
	9	Fine sand, little clay, saturated	9-18
	6	Clay, light-medium green	18-24
		Wouldn't pump Observation Well #6	
		3' #80 Sandpoint	
		15' plastic pipe below ground (1 1/4")	
		3' plastic pipe above ground (1 1/4")	
		21' Total	
		Septh to water on Aug 19 - 12'3" Aug 21 - 12.1'	

98N-76W-31 ADCD

SOUTH DAKOTA GEOLOGICAL SURVEY

Location SE¼SW¼SE¼NE¼ Section: 31 T. 98 N. Sx R. 76 ExW.

Well: _____ Test Hole: Winner No. 11 Land Owner: _____

County: Tripp Date 8-15-74 Elevation: _____ (A,I,T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data: Steve Jorgensen

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	2	Topsoil	0- 2
	2	Sand, medium, moist, light-green	2- 4
	3	Sand, medium, much clay	4- 7
	5	Sand, fine, little clay, saturated	7- 12
	7	Clay, greenish	12- 19

98N-76W-31 ADCB

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NW¼SW¼SE¼NE¼ Section: 31 T. 98 N x8 R. 76 xEx W.

Well: _____ Test Hole: Winner No.1 2 Land Owner: _____

County: Tripp Date 8-15-74 Elevation: _____ (A,I,T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data: Steve Jorgensen

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil	0- 1
	2	Clay, light gray	1- 3
	5	Sand, medium, greenish-yellow	3- 8
	17	Sand, fine, greenish, some clay,	
		saturated	8- 25
	5	Clay, dark-green, hard	25- 30
	17	Sand, fine, greenish, saturated	30- 47
	4	Clay, light-green, moist	47- 51
	29	Sand, fine, green, saturated	51- 80
	10	Clay, light medium-green, moist	80- 90

98N-76W-31 AACB

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NW¼SW¼NE¼NE¼ Section: 31 T. 98 N. ~~&x~~ R. 76 ~~xE~~ W.

Well: _____ Test Hole: Winner No. 13 Land Owner: _____

County: Tripp Date 8-15-74 Elevation: _____ (A,I,T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data: Steve Jorgensen

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil	0- 1
	5	Sand, fine, many white pebbles (1 - 5 mm)	1- 6
	10	Sand, fine, moist, no pebbles	6- 16
	14	Sand, medium, saturated, light-green	16- 30
	14	Clay, light-green, moist	30- 44

SOUTH DAKOTA GEOLOGICAL SURVEY

Location dddd Section: 31 T. 98 N. S. R. 76 E. W.

Well: Test Hole: Winner #14 Land Owner:

County: Tripp Date Aug 16, 1974 Elevation: (A, I, T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data: Steve Jorgensen

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil	0-1
	2	Fine sand, saturated, gray	1-3
	10	Fine sand, very little clay, dark gray, sat-	
		urated, brown	3-13
	5	Slough mud, high in organics, black	13-18
	4	Clay, gray, some sand	18-22
	24	Fine sand, no clay, saturated	22-46
	9	Fine-medium sand, no clay, saturated	46-54
	41	Medium sand, no clay, many small pebbles (1-2mm)	54-95
	9	Clay, green	95-104
		Wouldn't pump Observation Well #7 Winner	#14 hole
		3' #80 Sandpoint	
		20' plastic pipe in ground (1 1/4")	
		3' plastic pipe above ground (1 1/4")	
		26' total	
		Depth to water Aug 19 - 5'6" Aug 21 - 5.5'	

SOUTH DAKOTA GEOLOGICAL SURVEY

Location dcdd Section: 31 T. 98 N. S. R. 76 E. W.

Well: _____ Test Hole: Winner #15 Land Owner: _____

County: Tripp Date Aug 16, 1974 Elevation: _____ (A, I, T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data: Steve Jorgensen

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	7	Fine sand, brown, dry	0-7
	5	Fine sand, tan, moist	7-12
	7	Clay, some fine sand, light green	12-15
	59	Fine sand, very little clay, saturated	15-74
	6	Clay, greenish	74-80
	6	Fine sand, some clay	80-86
	8	Clay, green	86-94
		Wouldn't pump Observation Well #8 Winner #15 hole	
		3' #60 Sandpoint	
		31' plastic pipe in ground (1 1/4")	
		4' plastic pipe above ground (1 1/4")	
		38' Total	
		Depth to water Aug 19 - 23'0" Aug 21 - 22.8'	

SOUTH DAKOTA GEOLOGICAL SURVEY

Location dccc Section: 31 T. 98 N. ~~S.~~ X R. 76 ~~E.~~ X W.

Well: _____ Test Hole: Winner #16 Land Owner: _____

County: Tripp Date Aug 16, 1974 Elevation: _____ (A, I, T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data: Steve Jorgensen

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	4	Fine sand, brown	0-4
	8	Medium sand, dry, tan	4-12
	7	Medium sand, saturated	12-19
	6	Clay, light green	19-25
	8	Medium sand, no clay, saturated	25-33
	34	Fine sand, very little clay, saturated	33-67
	8	Medium sand, some clay	67-75
	9	Clay, green, hard	75-84
		Wouldn't pump Observation Well #9 Winner	#16 hole
		3' #60 Sandpoint	
		34' plastic pipe in ground (1 1/4")	
		4' plastic pipe below ground (1 1/4")	
		41' total	
		Depth to water Aug 19 - 15'8" Aug 21 - 15.6'	

SOUTH DAKOTA GEOLOGICAL SURVEY

Location ccbb Section: 31 T. 98 N. S. R. 76 E. W.

Well: _____ Test Hole: Winner #17 Land Owner: _____

County: Tripp Date Aug 19, 1974 Elevation: _____ (A, I, T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data: Steve Jorgensen

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	2	Topsoil	0-2
	16	Fine sand, greenish, saturated	2-18
	8	Clay, green, quartzite pebbles	18-26
	28	Fine sand, some clay, greenish, saturated	26-59
	21	Clay, greenish, some fine sand	59-80
	10	Medium sand, little clay	80-90
	14	Clay, light tan-brown, (weathered shale?)	90-104
		Wouldn't pump Observation well #10 Winner #17 hole	
		5' #60 Sandpoint	
		24' plastic pipe in ground (1 1/4")	
		3' plastic pipe below ground (1 1/4")	
		32' Total	
		Depth to water Aug 19 - 9'8" Aug 21 - 9'0"	

APPENDIX B

LOGS OF OBSERVATION WELLS AND THE PUMP TEST WELL

SECTION 8 T91N R76W

97 76 8 bbb

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NW¼NW¼NW¼ Section: 8 T. 97 N. ~~X~~ R. 76 ~~X~~ W.

Well: Pump test well Test Hole: Land Owner:

County: Tripp Date: 6-76 Elevation: (A, I, T)

E-Log: Samples: Drilling Company: Chase Drilling Co

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	20	Sand, fine	0-20
	20	Sand, fine to medium	20-40
	10	Sand, very fine	40-50
	10	Sand, fine, some clay	50-60
	10	Sand, medium	60-70
	10	Sand, fine, some clay	70-80
	10	Sand, some clay, more clay near 90'	80-90
	10	Sand, with clay balls	90-100
	10	Sand, with clay	100-110
	10	Sand, medium	110-120
	3?	Clay?	120-123?
		Water level - 53,83 from the top of casing	

97 76 8 bbb

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NW¼NW¼NE¼NW¼ Section: 8 T. 97 N. S R. 76 E. W.

Well: _____ Test Hole: Obs Well #1 50' North of production well Land Owner: _____

County: Tripp Date: 6-76 Elevation: _____ (A, I, T)

E-Log: _____ Samples: _____ Drilling Company: Chase Drilling

Source of Data: _____

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	18	Sand, fine	0-18
	2	Sandstone	18-20
	5	Sand, fine	20-25
	20	Sand, fine, some clay	50-70
	30	Sand, medium	70-100
	20	Sand, medium to fine	100-120
	10	Sand, fine	120-130
	5?	Clay	130-135?
		Water lever - 53.54 feet from the top of the pipe	

97 76 8 bbb

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NW¼NW¼NW¼ Section: 8 T. 97 N. ~~S.~~ R. 76 ~~E.~~ W.

Well: _____ Test Hole: Observation Well #2 ~~Land Owner:~~ 100' N. of production well

County: Tripp Date: 6-76 Elevation: _____ (A, I, T)

E-Log: _____ Samples: _____ Drilling Company: Chase Drilling Co

Source of Data: _____

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	20	Sand, fine	0-20
	10	Sand, fine, little clay	20-30
	10	Sand, fine, some clay	30-40
	20	Sand, very fine, some clay	40-60
	10	Sand, fine, some clay	60-70
	10	Sand, medium, little clay	70-80
	20	Sand, fine, little clay	80-100
	10	Sand, fine	100-110
	18	Sand, medium, little clay	110-138
	1	Clay (bottom of sand)	138-139
		Water level - 53.91' from the top of the pipe	

97 76 8 bbb

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NW¼NW¼NW¼ Section: 8 T. 97 N. XX S. R. 76 XX W.

Well: _____ Test Hole Observation Well #3 XXXXXXXXX Land Owner: 50' west of Prod. Well

County: Tripp Date: 6-76 Elevation: _____ (A, I, T)

E-Log: _____ Samples: _____ Drilling Company: Chase Drilling Co

Source of Data: _____

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	10	Sand, fine	0-10
	20	Sand, fine, some sandstone	10-30
	10	Sand, fine	30-40
	10	Sand, fine, some clay	40-50
	10	Sand, fine, little clay	50-60
	20	Sand, medium to fine	60-80
	10	Sand, fine	80-90
	10	Sand, fine, little clay	90-100
	20	Sand, fine to medium, little clay	100-120
	10	Sand, fine to medium	120-130
	5	Clay?	130-135
	25	Clay	135-160
		Water level - 54.10 feet from the top of the pipe	

97N-76W-6 CAAA

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NE¼NE¼NE¼SW¼ Section: 6 T. 97 N. S. R. 76 W.

Well: no Test Hole: 27 Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-23-75 Elevation: 2283.44 (A,I,T)

E-Log: no Samples: yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil	0- 1
	21	Sand, fine, clean	1- 22
	8	Sand, medium, very thin cemented layers	
		clean	22- 30
	35	Sand, very fine to fine, some very thin	
		clay stringers	30- 65
	35	Clay, sandy, yellow interbedded with	
		thin very fine sandy lenses	65-100
	10	Clay, sandy, yellow-brown	100-110
	15	Sand, very clayey, medium to fine	110-125
	20	Sand, medium, very clean	125-145
	5	Sand, medium clayey, interbedded with	
		silty clay	145-150
	50	Clay, silty, sandy, green-brown	150-200
	10	Shale, Pierre, hard	200-210
		Total Depth - 210 feet	

98N-76W-31 AACD

SOUTH DAKOTA GEOLOGICAL SURVEY

Location SE¼SW¼NW¼NW¼ Section: 31 T. 98 N. ~~S~~ R. 76 ~~E~~ W.

Well: no Test Hole: 28 Land Owner: In ditch

County: Tripp Date 5-29-75 Elevation: _____ (A,I,T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data: _____

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	2	Silt, sandy, dark-brown, moist	0- 2
	1	Clay, slightly sandy, dark-brown,	
		moist	2- 3
	6	Clay, silty, reddish-brown, moist	3- 9
	1	Clay, sandy, reddish-brown, moist	9- 10
	2	Sand, clayey, reddish-brown, moist	10- 12
	4	Sand, light-brown, moist	12- 16
	18	Sand, clayey, light-brown, saturated	16- 34
		Water table - 16 feet	
		Total depth - 34 feet	

97N-76W-6 DBBB

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NW¼NW¼NW¼SE¼ Section: 6 T. 97 N. S. R. 76 xxE. W.

Well: no Test Hole: 29 Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-23-75 Elevation: 2285.42 (A,I,T)

E-Log: no Samples: yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil	0- 1
	42	Sand, fine to medium, clean	1- 43
	29	Silt, green and brown, cemented	43- 72
	12	Sand, fine to medium clean	72- 84
	3	Clay, silty green, interbedded with	
		cemented brown and green clay	84- 87
	6	Silt, brown, cemented	87- 93
	50	Clay, silty, green interbedded with	
		brown cemented silt	93-143
	5	Siltstone, cemented, white, shale	
		pebbles	143-148
	24	Siltstone, gray, with shale pebbles	148-172
	25	Clay, silty, green, soft	172-197
	13	Shale, Pierre, hard	197-210
		Total depth - 210 feet	

97N-76W-6 BDDA

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NE¼SE¼SE¼NW¼ Section: 6 T. 97 N. S. R. 76 W.

Well: no Test Hole: 30 Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-27-75 Elevation: 2282.78 (A,I,T)

E-Log: yes Samples: yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil	0- 1
	26	Sand, fine to medium	1- 27
	9	Clay, silty, brownish-green	27- 36
	3	Silt, cemented, brown	36- 39
	24	Silt, cemented, brown, interlayered with	
		brown and green silty clay	39- 63
	9	Sand, fine to medium, interbedded with	
		cemented brown and green clay	63- 72
	60	Sand, fine to medium, interbedded with	
		green silt	72-132
	33	Sand, fine to medium, intermixed with	
		brown and green cemented silt	132-165
	10	Clay, silty, green, intermixed with	
		cemented brown and green silt	165-175
	15	Shale, Pierre, hard	175-190
		Total depth - 190 feet	

97N-76W-6 BDDD

SOUTH DAKOTA GEOLOGICAL SURVEY

Location SE¼SE¼SE¼NW¼ Section: 6 T. 97 N. S. R. 76 xx E. W.

Well: no Test Hole: 31 Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-27-75 Elevation: 2282.78 (A,I,T)

E-Log: yes Samples: yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	2	Topsoil, black	0- 2
	28	Sand, fine to medium, clean	2- 30
	25	Sand, fine to silty, clayey, yellow	30- 55
	30	Sand, fine to medium, clean, no clay	55- 85
	10	Sand, fine to medium, clayey	85- 95
	50	Sand, medium, clean	95-145
	65	Clay, yellow, white, with hard green	
		cemented silt	145-210
	20	Shale, Pierre, very hard	210-230
		Total depth - 230 feet	

97N-76W-6 DBBD

SOUTH DAKOTA GEOLOGICAL SURVEY

Location SE¼NW¼NW¼SE¼ Section: 6 T. 97N. R. 76 E.W.

Well: no Test Hole: 32 Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-28-75 Elevation: 2279.93 (A,I,T)

E-Log: yes Samples: yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil	0- 1
	76	Sand, medium, subrounded, thin layers	
		of soft green silty clay	1- 77
	1	Silt, sandy, green, cemented	77- 78
	7	Sand, medium, subrounded, layers of	
		cemented brown and green silt present	78- 85
	9	Clay, silty, greenish-brown	85- 94
	16	Sand, fine to medium, subangular with	
		brown-green silty clay and cemented	
		sand	94-110
	25	Sand, fine to medium, subangular, clean	110-135
	5	Clay, yellow to white	135-140
	20	Shale, Pierre, hard	140-160
		Total depth - 160 feet	

97N-76W-6 ACDC

SOUTH DAKOTA GEOLOGICAL SURVEY

Location SW¼SE¼SW¼NE¼ Section: 6 T. 97 N. ~~xx~~ R. 76 ~~xx~~ W.

Well: no Test Hole: 33 Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-29-75 Elevation: 2279.28 (A,I,T)

E-Log: yes Samples: yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil	0- 1
	21	Sand, medium, subrounded	1- 22
	9	Sand, medium, subrounded, intermixed	
		with green silty clay	22- 31
	23	Sand, medium, subrounded, interbedded	
		with green silty clay and cemented	
		green silt	31- 54
	1	Clay, cemented, dark-green, very hard	54- 55
	3	Sand, medium, subrounded, pure	55- 58
	38	Sand, medium, subrounded, intermixed	
		with cemented green and brown silt	58- 96
	1	Sand, medium, well cemented	96- 97
	27	Sand, medium, subrounded, interbedded	
		with cemented brown and green	
		siltstone	97-124
	13	Clay, silty, green, soft	124-137
	11	Sand, medium, subrounded, clean	137-148
	14	Clay, silty, green, soft	148-162
	2	Siltstone, green, cemented	162-164
		(CONTINUED)	

Location BLM _____
Legal

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	7	Dolomite, white-gray with dark clay	
		particles	171-172
	51	Clay, silty, green with intermittent	
		cemented green siltstone	172-223
	7	Shale, Pierre, hard	223-230
		Total depth - 230 feet	

97N-76W-6 CADB

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NW¼SE¼NE¼SW¼ Section: 6 T. 97 N. ~~S.~~ R. 76 ~~E.~~ W.

Well: no Test Hole: 34 Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-29-75 Elevation: 2288.92 (A,I,T)

E-Log: no Samples: yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil	0- 1
	34	Sand, medium to coarse, subangular to	
		subrounded, brown	1- 35
	47	Sand, medium, some very thin clay layers	
		toward bottom	35- 82
	33	Clay, silty, yellow-brown, soft	82-115
	1	Cemented layer, vary hard	115-116
	9	Sand, very coarse, clayey, hard	116-125
	15	Shale, Pierre, hard, greasy, black	125-140
		Total depth - 140 feet	

97N-76W-6 ACAD

SOUTH DAKOTA GEOLOGICAL SURVEY

Location SE¼NE¼SW¼NE¼ Section: 6 T. 97 N. ~~S~~. R. 76 ~~XX~~ W.

Well: no Test Hole: 35 Land Owner: Albert Novotony, Jr.

County: Tripp Date 5-28-75 Elevation: 2272.02 (A,I,T)

E-Log: No Samples: yes Drilling Company: SDGS

Source of Data: _____

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil, black	0- 1
	11	Clay, sandy, yellow-brown	1- 12
	13	Sand, medium, subangular, clean, very	
		clayey	12- 25
	100	Sand, medium clean, intermittent cemented	
		layers 6 inches thick	25-125
	15	Shale, Pierre, hard, black	125-140
		Total Depth - 140 feet	

97N-76W-5 BCCD

SOUTH DAKOTA GEOLOGICAL SURVEY

Location SE¼SW¼SW¼NW¼ Section: 5 T. 97 N. 8. R. 76 ~~xE~~ W.

Well: no Test Hole: 36 Land Owner: Dorothy Novotony

County: Tripp Date 5-29-75 Elevation: 2265.76 (A,I,T)

E-Log: no Samples: yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil, black, wet	0- 1
	9	Sand, fine, gray, silty	1- 10
	55	Sand, medium, layers of rich black	
		organic clay and silt	10- 65
	80	Clay, silty, yellow-brown	65-145
	15	Shale, Pierre, hard	145-160
		Total Depth - 160 feet	

97N-76W-6 BBDA

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NE¼SE¼NW¼NW¼ Section: 5 T. 97 N. ~~S.~~ R. 76 ~~E.~~ W.

Well: No Test Hole: 37 Land Owner: Dorothy Novotony

County: Tripp Date 5-29-75 Elevation: 2253.26 (A,I,T)

E-Log: ~~no~~ Samples: yes Drilling Company: SDGS

Source of Data: _____

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil	0- 1
	16	Sand, fine to medium, subrounded	1- 17
	17	Clay, silty, green, soft	17- 34
	31	Clay, silty, brown, soft	34- 65
	21	Clay, silty, green, soft	65- 86
	3	Sand, medium, soft	86- 89
	3	Silt, cemented, brown	89- 92
	6	Sand, medium, subrounded, with layers	
		of cemented brown siltstone	92- 98
	6	Clay, silty, green	98-104
	16	Shale, Pierre, hard, black	104-120
		Total Depth - 120 feet	

98N-76W-31 DDDB

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NW¼SE¼SE¼SE¼ Section: 31 T. 98 N. S. R. 76 E. W.

Well: no Test Hole: 38 Land Owner: McKabe

County: Tripp Date 5-31-75 Elevation: 2257.70 (A,I,T)

E-Log: no Samples: yes Drilling Company: SDGS

Source of Data:

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil	0- 1
	26	Sand, medium, subrounded, clean	1- 27
	1	Silt, green, cemented	27- 28
	11	Sand, medium, subrounded, clean	28- 39
	83	Silt, cemented, green, interbedded with	
		green silty clay and sand	39-122
	41	Clay, silty, green, soft	122-163
	10	Sand, fine-grained, subangular, clayey	163-173
	21	Sand, fine, subangular, interbedded	
		with green silty clay and green	
		cemented silt	173-194
	6	Shale, Pierre, hard, black	194-200
		Total Depth - 200 feet	

98N-76W-31 AACA

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NE¼SW¼NE¼NE¼ Section: 31 T. 98 N. S~~X~~ R. 76 E~~X~~ W.

Well: Ob well-11 Test Hole: 39 Land Owner: McKabe

(To top of observation well)

County: Tripp Date 5-29-75 Elevation: 2266.53/ (A,I,T)

E-Log: No Samples: yes Drilling Company: SDGS

Source of Data: _____

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil	0- 1
	6	Clay, sandy, dark-brown, moist	1- 7
	20	Sand, medium light brown-white, moist	7- 27
	3	Sand, medium, light-brown, saturated	27- 30
	5	Clay, sandy, light-brown, saturated	30- 35
	14	Sand, medium, light-brown, saturated	35- 49
		Water table - 27 feet	
		Total depth - 49 feet	
		Approximately 40 feet of pipe plus	
		sand point	

SOUTH DAKOTA GEOLOGICAL SURVEY

Location accc Section: 31 T. 98 N. X S. R. 76 X E. W.

Well: _____ Test Hole: Winner #1 Land Owner: _____

County: Tripp Date Aug 12, 1974 Elevation: _____ (A, I, T)

E-Log: no Samples: n o Drilling Company: SDGS

Source of Data: Steve Jorgensen

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	2	Topsoil	0-2
	4	Very fine sand, tan	2-6
	5	Medium sand, tan, moist	6-11
	18	Medium sand, saturated	11-29
	6	Clay, gray-green	29-35
	13	Medium sand, saturated, greenish	35-48
	13	Medium sand, much clay, greenish	48-61
	9	Medium sand, little clay, saturated	61-70
	18	Clay, green-tan, moist	70-89
		Observation well #1 8 feet SE of Winner test hole #1	
		Slow, hard pumping to clean out	
		Drilled to 32'	
		5' #60 Sandpoint	
		20' plastic pipe in ground (1 1/4")	
		3' plastic pipe above ground (1 1/4")	
		28' total	
		Depth to water on August 14 - 15'6"	
		August 19 - 15'3"	
		August 21 - 15.2'	

98N-76W-31 ACAA

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NE¼NE¼SW¼NE¼ Section: 31 T. 98 N. R. 76 W.

Well: _____ Test Hole: Winner No. 2 Land Owner: _____

County: Tripp Date August 13, 1974 Elevation: _____ (A,I,T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data: Steve Jorgensen

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	2	Topsoil	0- 2
	10	Sand, medium, gray, dry	2- 12
	4	Sand, medium, some clay, greenish-tan,	
		moist	12- 16
	6	Clay, lime-green, quartzite pebbles	16- 22
		Bijou Quartzite	22
		100 feet south of city well	

SOUTH DAKOTA GEOLOGICAL SURVEY

Location acaa Section: 31 T. 98 N. S. X R. 76 E. W. #

Well: _____ Test Hole: Winner #3 Land Owner: _____

County: Tripp Date Aug. 13, 1974 Elevation: _____ (A, I, T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data: Steve Jorgensen

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	2	Topsoil	0-2
	6	Medium sand, light brown, dry	2-8
	8	Medium sand, gray, moist	8-16
	4	Medium sand, much clay, light green	16-20
	53	Medium sand, light green, saturated, some clay	20-73
	24	Medium sand, no clay	73-97
	7	Clay, lime green	97-104
		Observation well #2 Winner #3 hole	
		Pumped fair but slowly	
		5' #50 Sandpoint	
		39' Steel pipe below ground (1 1/4")	
		3' Steel pipe above ground (1 1/4")	
		43' Total	
		Depth to water on August 14 - 20'10"	
		August 19 - 23'5"	
		August 21 - 21.3'	
		84' South of city well	

SOUTH DAKOTA GEOLOGICAL SURVEY

Location acaa Section: 31 T. 98 N. ~~S~~ R. 76 E. ~~W~~

Well: _____ Test Hole: Winner #4 Land Owner: _____

County: Tripp Date August 14, 1974 Elevation: _____ (A, I, T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data: Steve Jorgensen

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	2	Topsoil	0-2
	10	Medium sand, dry	2-12
	23	Medium sand, little clay, gray-green, saturated	12-35
	4	As above - some clay	35-39
	11	Clay, lime green, moist	39-50
	4	Medium sand, much clay, green	50-54
	12	Clay, light green, sandy	54-66
	24	Medium sand, very clean, saturated	66-90
	14	Clay, light green	90-104
		Observation well #3 Winner #4 hole	
		Wouldn't pump	
		5' #50 Sandpoint	
		26' Steel pipe below ground (1 1/4")	
		2' Steel pipe above ground (1 1/4")	
		33' Total	
		Depth to water on August 14 - 17'4"	
		August 19 - 18'1"	
		August 21 - 17.4'	
		164' South of City well	

98N-76W-31 ACAA

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NE¼NE¼SW¼NE¼ Section: 31 T. 98 N. R. 76 W.

Well: _____ Test Hole: Winner no. 5 Land Owner: _____

County: Tripp Date 8-14-74 Elevation: _____ (A,I,T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data: Steve Jorgensen

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil	0- 1
	11	Clay, silty, reddish-brown, hard	1- 12
	6	Sand, medium, moist, greenish	12- 18
		Rock or Bijou	18
		80 feet NNE of city well	

98N-76W-31 ACAA

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NE¼NE¼SW¼NE¼ Section: 31 T. 98 N. S~~x~~ R. 76 ~~E~~x W.

Well: _____ Test Hole: Winner No. 6 Land Owner: _____

County: Tripp Date 8-14-74 Elevation: _____ (A,I,T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data: Steve Jorgensen

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil	0- 1
	10	Clay, dark-brown, hard	1- 11
	4	Sand, medium, greenish, moist	11- 15
	4	Sand, medium, green, small clay pebbles	15- 19
		Bijou	19
		90 feet NNE of city well	

98N-76W-31 ACAA

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NE¼NE¼SW¼NE¼ Section: 31 T. 98 N. S. R. 76 W.

Well: _____ Test Hole: Winner No. 7 Land Owner: _____

County: Tripp Date 8-14-74 Elevation: _____ (A,I,T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data: Steve Jorgensen

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil	0- 1
	2	Clay, dark-brown, hard	1- 3
	13	Clay, silty, brown hard	3- 16
	2	Sand, medium, light-green, saturated,	
		much clay	16- 18
		Bijou	18
		100 feet NE of city well	

SOUTH DAKOTA GEOLOGICAL SURVEY

Location abdd Section: 31 T. 98 N. X S. R. 76 X E. W.

Well: _____ Test Hole: Winner #8 Land Owner: _____

County: Tripp Date Aug 14, 1974 Elevation: _____ (A, I, T)

E-Log: no Samples: no Drilling Company: SDGS

Source of Data: Steve Jorgensen

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	1	Topsoil	0-1
	3	Clay, dark brown, hard	1-4
	3	Very fine sand	4-7
	4	Clay, brown, hard	7-11
	7	Medium sand, green, dry	11-18
	91	Medium sand, green, saturated	18-109
	5	Clay, green	109-114
		Wouldn't pump Observation Well #4 Winner #8 Hole	
		5' #50 Sandpoint	
		26 1/2' Steel pipe below ground (1 1/4")	
		5 1/2' Steel pipe above ground (1 1/4")	
		37' Total	
		Depth to water on August 15 - 21'10"	
		August 19 - 23' 8"	
		August 21 - 22.2'	
		120' NNE of City Well	

97 76 8 bbb

SOUTH DAKOTA GEOLOGICAL SURVEY

Location NW¼NW¼NW¼ Section: 8 T. 97 N. ~~X~~ R. 76 ~~XX~~ W.

Well: _____ Test Hole Observation Well #4 ~~XXXXXXXXXX~~ Land Owner: 100' West of Prod. Well

County: Tripp Date: 6-76 Elevation: _____ (A, I, T)

E-Log: _____ Samples: _____ Drilling Company: Chase Drilling Co

Source of Data: _____

Geologic Unit	Thickness	Lithologic Description	From - to Feet
	20	Sand, fine	0-20
	10	Sand, fine to medium	20-30
	10	Sand, fine to medium, some clay	30-40
	10	Sand, fine, some clay	40-50
	20	Sand, very fine	50-70
	10	Sand, fine to medium	70-80
	10	Sand, fine to medium, little clay	80-90
	40	Sand, fine to medium	90-130
	10	Sand, with clay	130-140
	20	Sand, with lots of clay	140-160
		Water level - 54.49 feet from the top fo the pipe	