

WATER PERMIT NO. 2515-2

Name of Applicant: Tripp County Water Users District

Address: PO Box 1746, Winner SD 57580

Phone: 605 842-2755

Amount of Water Claimed: 3.33 cfs (1200 AF)

Total Acres: NA

Source of Water Supply: groundwater (3 wells)

Water to be used for: rural water system use

County: Tripp

Type of Waste Disposal System:

Location: 10 miles south of Winner

PRIORITY

Date Received: 12-4-2003

Application/License Fee: \$425

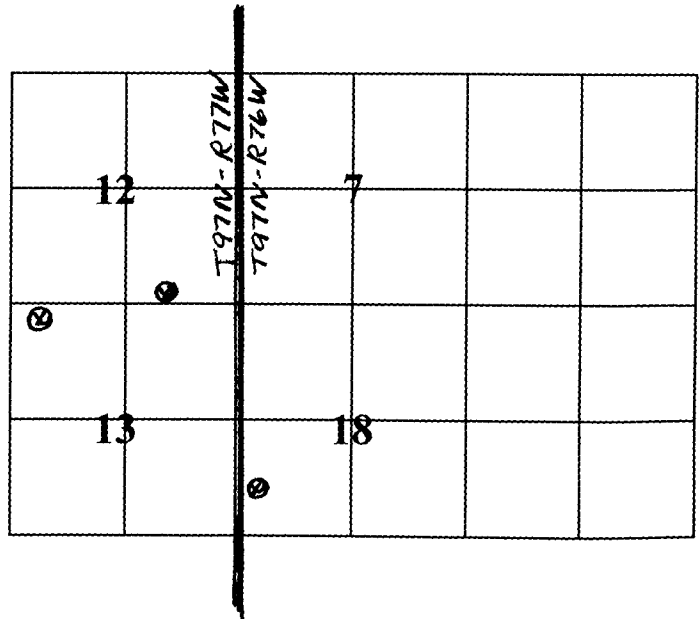
Corrected Application Received:

Period of Annual Use: January 1- December 31

Remarks: serves users in Tripp, Gregory, Lyman, Mellette and Todd Counties

Diversion Point: NW ¼ NW ¼ Sec 13, SW ¼ SE ¼
Sec 12; T97N-R77W and SW ¼ SW 14/ Sec 18-
T97N-R76W

Land to be Irrigated: NA



Depth of Well: approximately 200 feet

Well Driller:

Remarks:

Type of Map: topo

Prepared by: Jerold R Backes, PE

Reviewed and the Number Assigned on: 12-4-03

By: Karen Schlaak

Notice of Hearing - date to intervene: _____

Mail to: Water Rights Program Joe Foss Building 523 E. Capitol Pierre, SD 57501-3181 (605) 773-3352	No. <u>2515-2</u> (office use only)	Hydrologic Unit <u>10140204</u>
	Basin <u>White River</u>	
	Newspaper <u>see list</u>	

RECEIVED
DEC - 4 2003
WATER RIGHTS
PROGRAM

Application For Permit To Appropriate Water Within The State Of South Dakota

Check use(s) of water:

- | | | | |
|--|---|--|--|
| ☐ Municipal | ☐ Suburban Housing | ☐ Recreational | ☐ Institutional |
| ☒ Rural Water System | ☐ Commercial | ☐ Fish & Wildlife | ☐ Geothermal Heat |
| ☐ Domestic (over 18 gpm) | ☐ Industrial | ☐ Other | |

Type of Application: (check one)

- ☒ New ☐ Vested Right (Use predates Mar 2, 1955) ☐ Future Use Reservation
☐ Place to Beneficial Use Water Reserved by Future Use Permit No. _____
☐ Amendment/Correction to Permit No. _____

Description of amendment/correction: (i.e. change diversion point(s), add diversion point(s), change use, etc.)

1. Name of Applicant Tripp County Water Users District Phone (605) 842-2775
(check one) ☐ Owner ☐ Tenant/lessee
Mailing Address PO Box 1746 Winner State SD 57580
(Street, RR, or Box and City) (Zip Code)
2. Amount of water claimed 3.33 *CFS or 1,000 **GPM 1,200.00 ***AF
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)
3. Source of water supply Ground Water - Ogalla Aquifer (3 wells - each approximately 500 gpm)
4. Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) County Tripp
NE1/4 NW1/4 NW1/4 Section 13-T97N-R77W; SE1/4 SW1/4 SE1/4 Section 12-T97N-R77W;
NW1/4 SW1/4 SW1/4 Section 18-T97N-R76W
5. County or counties where water will be used Tripp County, Gregory County, Lyman, Mellelle + Todd
6. Annual period during which water is to be used Continuously Jan 1 - Dec 31
7. Give a description of the project. When available include any preliminary engineering report or other reports or information that will help explain the project. (Attach sheet if more space is needed)

Water is to be used for the Tripp County Water User District Gregory County Expansion. Test wells will be drilled in these three sections and pumping tests will be done to determine if they can be used for production wells.

STATE OF SOUTH DAKOTA)

County of Tripp SS

Attachments: Attach Form 2A if diversion is from a well or dugout, or if storage of water is proposed. Attach map and any other technical information. (see instructions)

I, Neil Frank, the applicant, certify that I have read this application, have examined the attached map and that the matters stated are true and that I intend, and am able to complete the necessary construction.

Applicant's signature Neil Frank mgr.

Subscribed and sworn to before me this 1st day of December 20 03

Neil Frank
Notary Public signature

SOUTH DAKOTA
WATER PERMIT NO. 2515-2

Date of first receipt of application December 4, 2003.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 2515-2 to Tripp County Water Users District, c/o Neil Frank, Mgr., PO Box 1746, Winner SD 57580 authorizing the construction of the water use system and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 2515-2 appropriates 3.33 cubic feet of water per second (1200 acre-feet annually) from three wells (Ogallala Formation) approximately 200 feet deep located in the NW ¼ NW ¼ Section 13, SW ¼ SE ¼ Section 12; T97N-R77W and SW ¼ SW ¼ Section 18-T97N-R76W. The water is for the Tripp County Water Users District Gregory County expansion project. The District serves users in Tripp, Gregory, Lyman, Mellette and Todd Counties.
2. The water appropriated shall be used for the purpose of rural water system use and may not exceed the amount of water needed for beneficial use.
3. The water is to be used during the following described annual period: January 1 – December 31.
4. The date of approval of Permit No. 2515-2 is February 9, 2004.
5. The date from which applicant may claim right is December 4, 2003.
6. One-fifth of the construction is to be completed on or before August 9, 2006.
7. All construction is to be completed on or before February 9, 2009.
8. Water is to be put to beneficial use on or before February 9, 2013.
9. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATIONS

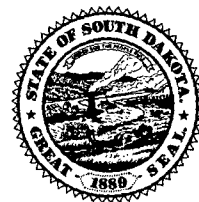
1. The wells approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. The wells authorized by Permit No. 2515-2 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.
3. Water Permit No. 2515-2 authorizes a total annual diversion of 1,200 acre feet of water.
4. The Tripp County Water Users District shall report to the Chief Engineer annually the amount of water withdrawn each year from the Ogallala Formation.

WATER MANAGEMENT BOARD

By: Garland Erbele
Garland Erbele, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

FEB 26 2004

date



(type or print in ink)

1. Well Information - Proposed Construction

- a) Drill Hole Diameter 30" Depth 200' (+/-)
- b) Casing Type Steel Diameter 16" Thickness 0.375
- c) Screen Type Stainless Steel Diameter 16" Thickness 0.375
- d) Gravel Pack Yes Length of Gravel Pack Screen Length Plus 5' Each Side
- e) Depth to Top of Water Bearing Material See Attached Cross-Sections From SDGS
- f) Depth to Water (ground surface to water level) See Attached Cross-Sections From SDGS
- g) Distance to nearest existing domestic well:
On applicants property 1,300' (+/-) Est. On property owned by others 1,300'

2. Wastewater Disposal System Information

- a) Type of System (i.e. septic tank, drain field) _____
- b) System Capacity (gallons) _____ Year Constructed _____
- c) Connected to the City of _____ Sanitary System

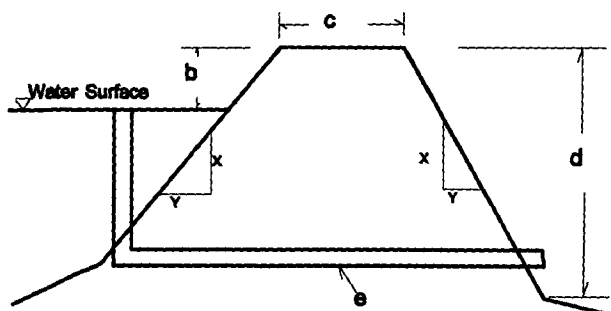
3. Dugout Information

- a) Surface Dimensions _____ Depth _____
- b) Depth to water (ground surface to water level) _____

4. Water Storage Dams

If the proposed water use system contains one or more storage dams, please furnish the information requested below for each dam. The locations of the dams need to be shown on the map submitted with the application.

- a) If a private engineering firm or government agency was involved in the design of this dam, please give their name and address:



- b) Freeboard _____
- c) Crest Width _____
Crest Length _____
- d) Height _____
- e) Primary Outlet Capacity _____
If pipe, diameter _____
- f) Secondary Spillway Capacity _____
Spillway Width _____
- g) X & Y Slope _____
Upstream _____
Downstream _____
- h) Surface Area of Impoundment _____
- i) Storage _____ Acre Feet
- j) Drainage Area Above Dam _____ Acres

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date DECEMBER 4, 20 03

RECEIVED OF Tripp Co. Water User District, PO Box 1746, Winner SD 57580-0946

The following amount in fees for services rendered as provided for by law:

Fee for Application for Permit No. _____ to Appropriate Water, to construct and to put water to beneficial use	475	00
Fee for Application for Permit No. _____ to Appropriate Water for Future use		
Fee to retain Future Use Permit No. _____ after period of seven years.		
Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No. _____	50	00
Fee for Filing Transfer Form _____		
Fee for _____		
Fee for Issuing New Well Driller's License No. _____ for C.Y. _____		
Fee for Renewal of Well Driller's License No. _____ for C.Y. _____		
Fee for Issuing Well Pump Installer's License No. _____ for C.Y. _____		
Fee for Renewal of Well Pump Installer's License No. _____ for C.Y. _____		
(Any Other Work Provided by Law)	TOTAL	525.00

No.

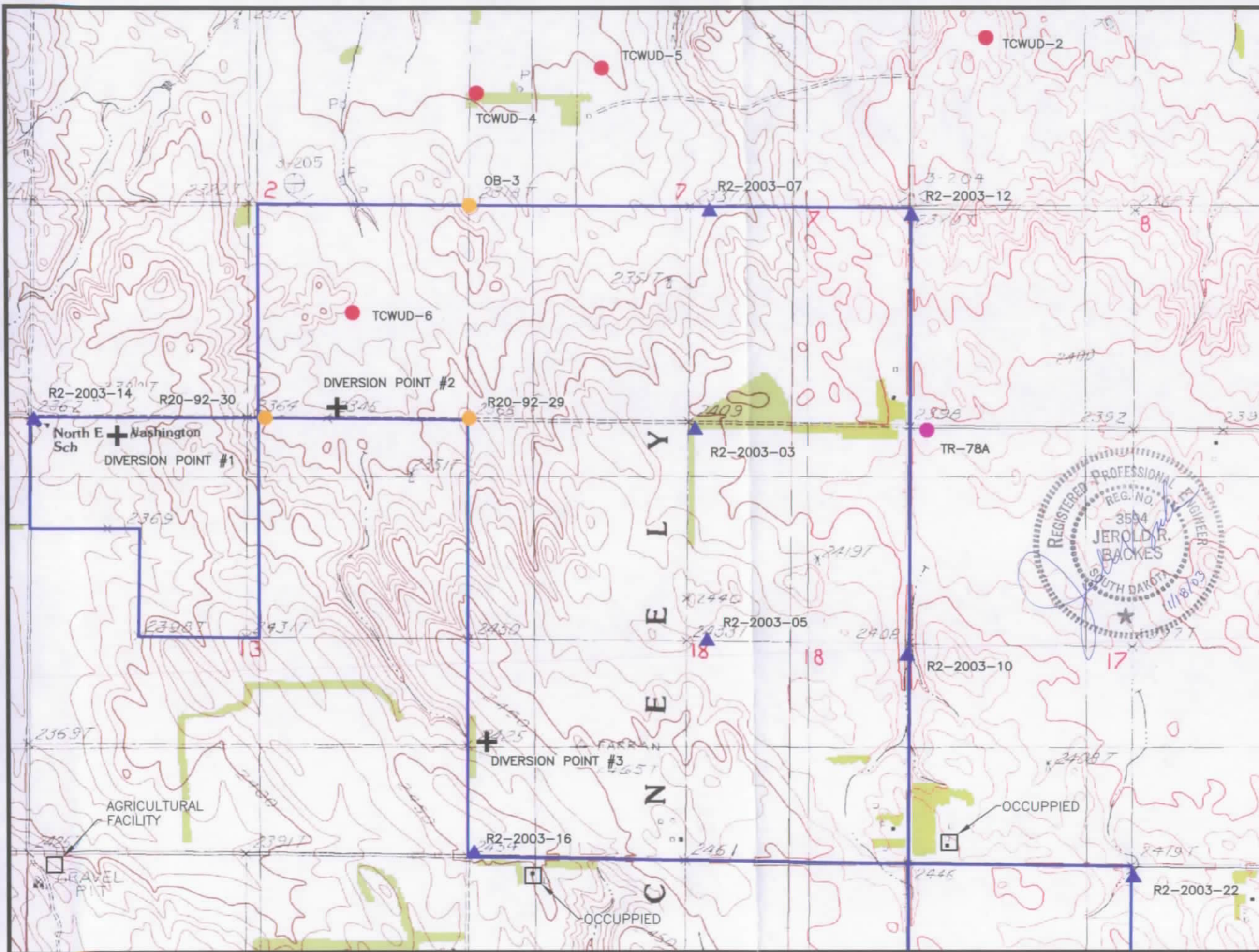
000941

By

Darland Ebel

Chief Engineer

gms



LOCATION OF MONITORING
WELLS IN THE VICINITY OF
THE TRIPP COUNTY WATER
USER DISTRICT



- TRIPP COUNTY WATER USER DISTRICT PROPERTY LINE
- TRIPP COUNTY WATER USER DISTRICT WELL
- SOUTH DAKOTA GEOLOGICAL SURVEY WELL INSTALLED PRIOR TO 2003
- WATER RIGHTS WELL
- ▲ SOUTH DAKOTA GEOLOGICAL SURVEY WELL INSTALLED IN 2003
- + DIVERSION POINT

DIVERSION POINT #1
1,100' EAST & 300' SOUTH
OF NW CORNER SEC 13
T97N R77W

DIVERSION POINT #2
1,600' WEST & 300' NORTH
OF SE CORNER SEC 12
T97N R77W

DIVERSION POINT #3
1,800' SOUTH & 300' EAST
OF SE CORNER SEC 18
T97N R77W

**Tripp County Water User District
P.O. Box 1746
Winner, South Dakota 57580-0946**

Phone: 605-842-2755

Fax: 605-842-1621

December 2, 2003

**Water Rights Program
523 East Capitol
Pierre, SD 57501**

RE: Application for Permit

Dear Sir:

Please find enclosed a Application for Permit to appropriate water, with a check in the amount of \$525.00 for the fee.

If there are further questions or further information is needed, please do not hesitate to call or write.

Thank you.

**Sincerely yours,
Neil Frank
Neil Frank, Mgr.**

**NFV/dgf
ENC
cc file**

**RECEIVED
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WATER RIGHTS
PROGRAM**

Water Rights Program - File Documentation

NAME: Tripp County Water Users District

ADDRESS: Winner

DATE: 12-4-03 **COUNTY:** TR **TELEPHONE:** 605 842-2755

RE: pending applications

COMMENTS:

I talked with Diane Frank, Office Manager for Lyman Co. RWS. Ms. Frank indicated the RWS serves users in Tripp, Gregory, Lyman, Mellette and Todd Counties. I indicated I would make those changes on the application.

I also indicated to Ms. Frank that the check submitted with the application was more than required for 1200 AF and that we would refund \$100 at the time the application is approved.



Karen Schlaak
Environmental Scientist

BARTLETT & WEST ENGINEERS

SERVICE. THE BARTLETT & WEST WAY.

3456 E CENTURY AVENUE ■ BISMARCK ND 58503-0737
701.258.1110 ■ FAX 701.258.1111 ■ 800.474.4117
WWW.BARTWEST.COM

Letter of Transmittal

To: Tripp County Water User District

Attn: Neil Frank, Manager

P. O. Box 1746

Winner, SD 57580

Date: November 18, 2003

Project No.: 3048.107

Re: TCWUD Water Permit Application

We are sending you the following: ☒ Attached ☐ Under separate cover via:

☐ Shop Drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Change Order ☐ Copy of Letter ☐ Report ☒ Other See below

Copies	Date	No.	Description
1			Application for Permit to Appropriate Water
1			Instructions for Processing
1			Copy of Preliminary Engineering Report (to be included with application)
1			Map showing proposed diversion points.

These are transmitted as noted below:

☐ For approval ☐ Approved as submitted ☐ Resubmit copies for approval
☒ For your use ☐ Approved as noted ☐ Submit copies for distribution
☒ As requested ☐ Returned for corrections ☐ Return corrected copies
☐ For your information ☐ For review and comment ☐ For signature & return

Remarks:

Follow the attached instructions for completing the permit application. Based on our conversations, you were provided with the necessary materials from the SD Geological Survey. If you have any questions regarding the process to follow or the items to include, please advise and we can assist you further.

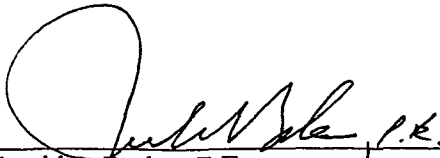
cc: SDDENR – Water Rights (w/o attach)

USDA – Clark Guthmiller (w/o attach)

PDD III – B. McGinnis (w/o attach)

File:

Signed:


Jerold R. Backes, P.E.

Location Information

Legal Location: NW NW NW NW SEC. 05, T. 097 N., R. 76 W.
County: TRIPP Location: 097N-76W-05BBBB
Basin: WHITE Latitude: 43 15' 20"
Hydrologic Unit Code: 10140204 Longitude: 99 52' 08"
Land Owner: Ground Surface Elevation (ft.): 2264 T

Project Information

Project: WATER RIGHTS Geologist: D. DRISCOLL
Drill Date: 06/06/1972 Geologist's Log: X
Company: EMPIRE IRRIGATION Driller:
Drilling Method: ROTARY Driller's Log:
Test Hole Number: Total Drill Hole Depth (ft.): 42.0
Samples:

Well Information

SDGS Well Name: Aquifer: OGALLALA
Water Rights Well: TR-72E Management Unit:
Other Well Name: T72E Casing Top Elevation: 2260.50 I
Casing Type: STEEL Casing Diameter (in.): 2.0
Screen Type: STEEL Screen Length (ft.): 2.0
Total Casing and Screen (ft.): 41.1 Casing Stick-up (ft.): 1.70
Well Maintenance Date: 06/21/1984

Geophysical Information

Spontaneous Potential: Single Point Resistivity:
Natural Gamma: Extra:

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2264.00 - 2222.00	0.0 - 42.0	SAND, FINE

* * * *

Location Information

Legal Location: NW NE NE NE SEC. 07, T. 097 N., R. 76 W.

County: TRIPP

Location: 097N-76W-07AAAB

Basin: WHITE

Latitude: 43 14' 30"

Hydrologic Unit Code: 10140204

Longitude: 99 52' 20"

Land Owner: C. WATZEL

Ground Surface Elevation (ft.): 2383 T

Project Information

Project: TRIPP WATER USERS DIST.

Geologist: A. BARARI

Drill Date: 07/21/1981

Geologist's Log: X

Company: SDGS

Driller: S. MITCHELL

Drilling Method: ROTARY

Driller's Log:

Test Hole Number: COMBO-1

Total Drill Hole Depth (ft.): 200.0

Samples: X

Geophysical Information

Spontaneous Potential:

Single Point Resistivity:

Natural Gamma:

Extra:

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2383.00 - 2381.00	0.0 - 2.0	TOPSOIL
2381.00 - 2377.00	2.0 - 6.0	CLAY, BROWNISH-BLACK
2377.00 - 2373.00	6.0 - 10.0	SAND, FINE; WITH CLAY, HARD DRILLING
2373.00 - 2295.00	10.0 - 88.0	SAND, FINE; WITH CLAY, EASY DRILLING
2295.00 - 2263.00	88.0 - 120.0	SAND, FINE; HARD DRILLING
2263.00 - 2221.00	120.0 - 162.0	CLAY
2221.00 - 2183.00	162.0 - 200.0	CLAY; HARD DRILLING

* * * *

Location Information

Legal Location:SW SW NE NW SEC. 07, T. 097 N., R. 76 W.

County:TRIPP

Location:097N-76W-07BACC

Basin:WHITE

Latitude:43 14' 18"

Hydrologic Unit Code:10140204

Longitude: 99 53' 03"

Land Owner:C. WATZEL

Ground Surface Elevation (ft.):2305 T

Project Information

Project:TRIPP WATER USERS DIST.

Geologist:A. BARARI

Drill Date:07/31/1981

Geologist's Log:X

Company:SDGS

Driller:M. THOMPSON

Drilling Method:ROTARY

Driller's Log:

Test Hole Number:ROTARY-6

Total Drill Hole Depth (ft.):215.0

Samples:

Geophysical Information

Spontaneous Potential:

Single Point Resistivity:

Natural Gamma:

Extra:X

E-LOG WAS TAKEN BUT NO INFORMATION IS AVAILABLE.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2305.00 - 2302.00	0.0 - 3.0	SAND, GRAYISH-BROWN, FINE
2302.00 - 2191.00	3.0 - 114.0	SAND; WITH SOME CLAY LAYERS
2191.00 - 2187.00	114.0 - 118.0	CLAY
2187.00 - 2175.00	118.0 - 130.0	SAND, FINE
2175.00 - 2167.00	130.0 - 138.0	CLAY
2167.00 - 2157.00	138.0 - 148.0	SAND, FINE TO MEDIUM
2157.00 - 2143.00	148.0 - 162.0	CLAY; AND SOME CEMENTED SAND LAYERS
2143.00 - 2125.00	162.0 - 180.0	SAND; WITH CLAY LAYERS
2125.00 - 2120.00	180.0 - 185.0	SAND, VERY COARSE TO GRAVEL; WITH SOME CLAY
2120.00 - 2114.00	185.0 - 191.0	CLAY
2114.00 - 2105.00	191.0 - 200.0	SHALE; OXIDIZED
2105.00 - 2090.00	200.0 - 215.0	SHALE, BLACK

* * * *

Location Information

Legal Location: SW SW NE NW SEC. 07, T. 097 N., R. 76 W.
County: TRIPP Location: 097N-76W-07BACC 1
Basin: WHITE Latitude: 43 14' 20"
Hydrologic Unit Code: 10140204 Longitude: 99 53' 03"
Land Owner: Ground Surface Elevation (ft.): 2300 T

Project Information

Project: Geologist:
Drill Date: 12/15/1987 Geologist's Log:
Company: SARGENT IRRIGATION Driller:
Drilling Method: REVERSE Driller's Log: X
Test Hole Number: Total Drill Hole Depth (ft.): 210.0
Samples:

Well Information

SDGS Well Name: Aquifer: OGALLALA
Water Rights Well: Management Unit:
Other Well Name: TCWUD-5 Casing Top Elevation:
Casing Type: STEEL Casing Diameter (in.): 16.0
Screen Type: STAINLESS STEEL Screen Length (ft.): 25.0
Total Casing and Screen (ft.): 210.0 Casing Stick-up (ft.):
Well Maintenance Date:

Geophysical Information

Spontaneous Potential: Single Point Resistivity:
Natural Gamma: Extra:

SCREEN SET FROM 205 TO 180 FEET, SLOT SIZE 45. GROUTED TO 25 FEET WITH 10 SACKS OF CEMENT. STATIC WATER LEVEL 10.6 FEET.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2300.00 - 2280.00	0.0 - 20.0	TOPSOIL AND SAND
2280.00 - 2240.00	20.0 - 60.0	SAND; WITH CLAY LAYERS
2240.00 - 2230.00	60.0 - 70.0	SAND, COARSE
2230.00 - 2220.00	70.0 - 80.0	SAND, COARSE; WITH CLAY LAYERS
2220.00 - 2180.00	80.0 - 120.0	SAND; CLAY LAYERS
2180.00 - 2160.00	120.0 - 140.0	SAND; SMALL CLAY LAYERS
2160.00 - 2150.00	140.0 - 150.0	SAND
2150.00 - 2140.00	150.0 - 160.0	SAND, COARSE; CLAY LAYERS
2140.00 - 2095.00	160.0 - 205.0	SAND, COARSE; TRACE OF GRAVEL
2095.00 - 2090.00	205.0 - 210.0	SHALE

Location Information

Legal Location: SW SW NE NW SEC. 07, T. 097 N., R. 76 W.

County: TRIPP

Location: 097N-76W-07BACC 2

Basin: WHITE

Latitude: 43 14' 21"

Hydrologic Unit Code: 10140204

Longitude: 99 53' 00"

Land Owner: C. WATZEL

Ground Surface Elevation (ft.): 2297 T

Project Information

Project: TRIPP WATER USERS DIST.

Geologist:

Drill Date: 09/10/1981

Geologist's Log:

Company: SARGENT IRRIGATION

Driller:

Drilling Method: ROTARY

Driller's Log: X

Test Hole Number:

Total Drill Hole Depth (ft.): 180.0

Samples:

Geophysical Information

Spontaneous Potential:

Single Point Resistivity:

Natural Gamma:

Extra:

TEST HOLE: SARGENT-4.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2297.00 - 2266.00	0.0 - 31.0	SAND
2266.00 - 2263.00	31.0 - 34.0	CLAY
2263.00 - 2260.00	34.0 - 37.0	SAND
2260.00 - 2257.00	37.0 - 40.0	CLAY
2257.00 - 2250.00	40.0 - 47.0	SAND, FINE TO MEDIUM
2250.00 - 2246.00	47.0 - 51.0	CLAY
2246.00 - 2225.00	51.0 - 72.0	SAND, FINE TO MEDIUM
2225.00 - 2222.00	72.0 - 75.0	CLAY
2222.00 - 2201.00	75.0 - 96.0	SAND, FINE TO MEDIUM
2201.00 - 2199.00	96.0 - 98.0	CLAY
2199.00 - 2198.00	98.0 - 99.0	SAND, FINE TO MEDIUM
2198.00 - 2197.00	99.0 - 100.0	CLAY
2197.00 - 2177.00	100.0 - 120.0	SAND, FINE TO MEDIUM; WITH CLAY LAYERS
2177.00 - 2157.00	120.0 - 140.0	SAND, MEDIUM TO COARSE
2157.00 - 2141.00	140.0 - 156.0	SAND, MEDIUM

2141.00 - 2137.00	156.0 - 160.0	CLAY
2137.00 - 2127.00	160.0 - 170.0	SAND, FINE TO MEDIUM; WITH CLAY LAYERS
2127.00 - 2117.00	170.0 - 180.0	SHALE

* * * *

Location Information

Legal Location: NW NW NW NW SEC. 07, T. 097 N., R. 76 W.
County: TRIPP Location: 097N-76W-07BBBB
Basin: WHITE Latitude: 43 14' 28"
Hydrologic Unit Code: 10140204 Longitude: 99 53' 22"
Land Owner: C. WATZEL Ground Surface Elevation (ft.): 2290 T

Project Information

Project: TRIPP WATER USERS DIST. Geologist: A. BARARI
Drill Date: 07/22/1981 Geologist's Log: X
Company: SDGS Driller: S. MITCHELL
Drilling Method: ROTARY Driller's Log:
Test Hole Number: COMBO-3 Total Drill Hole Depth (ft.): 146.0
Samples:

Well Information

SDGS Well Name: COMBO-3 Aquifer: OGALLALA
Water Rights Well: Management Unit:
Other Well Name: Casing Top Elevation:
Casing Type: PVC Casing Diameter (in.):
Screen Type: PVC, MFG. Screen Length (ft.): 5.0
Total Casing and Screen (ft.): 50.0 Casing Stick-up (ft.):
Well Maintenance Date:

Geophysical Information

Spontaneous Potential: Single Point Resistivity:
Natural Gamma: Extra:

WATER LEVEL 3.5 FEET.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2290.00 - 2287.00	0.0 - 3.0	TOPSOIL
2287.00 - 2280.00	3.0 - 10.0	SAND; WITH CLAY
2280.00 - 2241.00	10.0 - 49.0	SAND, FINE; SOME CLAY, EASY DRILLING
2241.00 - 2228.00	49.0 - 62.0	CLAY; HARD DRILLING
2228.00 - 2167.00	62.0 - 123.0	SAND, FINE; WITH CLAY LAYERS, MORE CLAY IN LOWER PART
2167.00 - 2151.00	123.0 - 139.0	CLAY; HARD DRILLING
2151.00 - 2144.00	139.0 - 146.0	SHALE

* * * *

Location Information

Legal Location: NW SW SW NW SEC. 07, T. 097 N., R. 76 W.
County: TRIPP Location: 097N-76W-07BCCB 1
Basin: WHITE Latitude: 43 14' 17"
Hydrologic Unit Code: 10140204 Longitude: 99 53' 22"
Land Owner: C. WATZEL Ground Surface Elevation (ft.): 2313 T

Project Information

Project: TRIPP WATER USERS DIST. Geologist:
Drill Date: 09/08/1981 Geologist's Log:
Company: SARGENT IRRIGATION Driller:
Drilling Method: ROTARY Driller's Log: X
Test Hole Number: Total Drill Hole Depth (ft.): 240.0
Samples:

Well Information

SDGS Well Name: Aquifer: OGALLALA
Water Rights Well: Management Unit:
Other Well Name: TCWUD-4 Casing Top Elevation:
Casing Type: Casing Diameter (in.):
Screen Type: Screen Length (ft.):
Total Casing and Screen (ft.): Casing Stick-up (ft.):
Well Maintenance Date:

Geophysical Information

Spontaneous Potential: Single Point Resistivity:
Natural Gamma: Extra:

TEST HOLE: SARGENT-1.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2313.00 - 2293.00	0.0 - 20.0	SAND
2293.00 - 2273.00	20.0 - 40.0	SAND; SOME CEMENTATION
2273.00 - 2256.00	40.0 - 57.0	SAND, MEDIUM
2256.00 - 2253.00	57.0 - 60.0	CLAY
2253.00 - 2223.00	60.0 - 90.0	SAND, MEDIUM; SOME CEMENTATION
2223.00 - 2213.00	90.0 - 100.0	SAND, FINE TO MEDIUM; WITH CLAY LAYERS
2213.00 - 2173.00	100.0 - 140.0	SAND, FINE; WITH CLAY LAYERS
2173.00 - 2163.00	140.0 - 150.0	SAND, FINE; TRACE OF CLAY
2163.00 - 2158.00	150.0 - 155.0	SAND, MEDIUM
2158.00 - 2157.00	155.0 - 156.0	SAND, FINE

2157.00 - 2149.00	156.0 - 164.0	SAND, MEDIUM
2149.00 - 2148.00	164.0 - 165.0	SANDSTONE
2148.00 - 2143.00	165.0 - 170.0	SAND, MEDIUM
2143.00 - 2123.00	170.0 - 190.0	SAND, FINE TO MEDIUM; SMALL CLAY LAYERS
2123.00 - 2085.00	190.0 - 228.0	SAND, MEDIUM
2085.00 - 2083.00	228.0 - 230.0	CLAY
2083.00 - 2081.00	230.0 - 232.0	SAND, MEDIUM TO COARSE
2081.00 - 2073.00	232.0 - 240.0	CLAY AND SHALE

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Location Information

Legal Location: NW SW SW NW SEC. 07, T. 097 N., R. 76 W.
County: TRIPP Location: 097N-76W-07BCCB 2
Basin: WHITE Latitude: 43 14' 17"
Hydrologic Unit Code: 10140204 Longitude: 99 53' 22"
Land Owner: C. WATZEL Ground Surface Elevation (ft.): 2300 T

Project Information

Project: TRIPP WATER USERS DIST. Geologist:
Drill Date: 09/09/1981 Geologist's Log:
Company: SARGENT IRRIGATION Driller:
Drilling Method: ROTARY Driller's Log: X
Test Hole Number: Total Drill Hole Depth (ft.): 240.0
Samples:

Geophysical Information

Spontaneous Potential: Single Point Resistivity:
Natural Gamma: Extra:

TEST HOLE: SARGENT-2.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2300.00 - 2256.00	0.0 - 44.0	SAND
2256.00 - 2254.00	44.0 - 46.0	CLAY
2254.00 - 2243.00	46.0 - 57.0	SAND, MEDIUM
2243.00 - 2239.00	57.0 - 61.0	CLAY
2239.00 - 2227.00	61.0 - 73.0	SAND, MEDIUM
2227.00 - 2225.00	73.0 - 75.0	CLAY
2225.00 - 2220.00	75.0 - 80.0	SAND, MEDIUM
2220.00 - 2200.00	80.0 - 100.0	SAND; SMALL CLAY LAYERS
2200.00 - 2190.00	100.0 - 110.0	SAND, FINE TO MEDIUM
2190.00 - 2187.00	110.0 - 113.0	CLAY
2187.00 - 2180.00	113.0 - 120.0	SAND, FINE
2180.00 - 2123.00	120.0 - 177.0	SAND, FINE TO MEDIUM; SMALL CLAY LAYERS
2123.00 - 2120.00	177.0 - 180.0	SAND, FINE TO MEDIUM
2120.00 - 2110.00	180.0 - 190.0	SAND, FINE TO MEDIUM; SMALL CLAY LAYERS
2110.00 - 2100.00	190.0 - 200.0	SAND, MEDIUM

2100.00 - 2080.00	200.0 - 220.0	SAND, MEDIUM TO COARSE
2080.00 - 2070.00	220.0 - 230.0	SAND, MEDIUM
2070.00 - 2065.00	230.0 - 235.0	SAND, FINE TO MEDIUM; WITH CLAY LAYERS
2065.00 - 2060.00	235.0 - 240.0	CLAY

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Location Information

Legal Location:SE SE SW NW SEC. 07, T. 097 N., R. 76 W.

County:TRIPP

Location:097N-76W-07BCDD

Basin:WHITE

Latitude:43 14' 04"

Hydrologic Unit Code:10140204

Longitude: 99 53' 03"

Land Owner:C. WATZEL

Ground Surface Elevation (ft.):2318 T

Project Information

Project:TRIPP WATER USERS DIST.

Geologist:A. BARARI

Drill Date:07/31/1981

Geologist's Log:X

Company:SDGS

Driller:M. THOMPSON

Drilling Method:ROTARY

Driller's Log:

Test Hole Number:ROTARY-5

Total Drill Hole Depth (ft.):200.0

Samples:

Geophysical Information

Spontaneous Potential:

Single Point Resistivity:

Natural Gamma:

Extra:

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2318.00 - 2317.00	0.0 - 1.0	TOPSOIL
2317.00 - 2315.00	1.0 - 3.0	SAND, DARK-BROWN
2315.00 - 2285.00	3.0 - 33.0	SAND, LIGHT-BROWN, FINE
2285.00 - 2267.00	33.0 - 51.0	CLAY AND SAND LAYERS
2267.00 - 2223.00	51.0 - 95.0	SAND, LIGHT-BROWN, FINE; SOME CEMENTED LAYERS
2223.00 - 2209.00	95.0 - 109.0	SAND, FINE
2209.00 - 2197.00	109.0 - 121.0	CLAY; SOME SAND
2197.00 - 2156.00	121.0 - 162.0	SAND, FINE
2156.00 - 2133.00	162.0 - 185.0	CLAY, TAN
2133.00 - 2128.00	185.0 - 190.0	CLAY
2128.00 - 2118.00	190.0 - 200.0	SHALE

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Location Information

Legal Location: NE NE NE SE SEC. 07, T. 097 N., R. 76 W.	
County: TRIPP	Location: 097N-76W-07DAAA
Basin: WHITE	Latitude: 43 14' 03"
Hydrologic Unit Code: 10140204	Longitude: 99 52' 13"
Land Owner:	Ground Surface Elevation (ft.): 2370 T

Project Information

Project: OGALLALA AQUIFER STUDY	Geologist: D. FILIPOVIC
Drill Date: 05/20/2003	Geologist's Log: X
Company: SDGS	Driller: D. IVERSON
Drilling Method: ROTARY	Driller's Log:
Test Hole Number: R2-2003-11	Total Drill Hole Depth (ft.): 262.0
Samples:	

Geophysical Information

Spontaneous Potential: X	Single Point Resistivity: X
Natural Gamma: X	Extra:

HOLE PLUGGED WITH BENTONITE GROUT FROM 262 TO 0 FEET.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2370.00 - 2369.00	0.0 - 1.0	TOPSOIL, BLACK, SANDY
2369.00 - 2355.00	1.0 - 15.0	SAND, GRAY TO OLIVE, FINE
2355.00 - 2344.00	15.0 - 26.0	SANDSTONE AND SAND, GRAY TO OLIVE, FINE, SILTY
2344.00 - 2331.00	26.0 - 39.0	SAND, OLIVE TO GRAY, FINE
2331.00 - 2322.00	39.0 - 48.0	SANDSTONE, OLIVE TO GRAY, FINE, SANDY
2322.00 - 2220.00	48.0 - 150.0	SAND, OLIVE TO GRAY, FINE TO MEDIUM
2220.00 - 2202.00	150.0 - 168.0	SILT AND SILTSTONE, TAN TO REDDISH
2202.00 - 2125.00	168.0 - 245.0	CLAY AND SILT, REDDISH TO TAN; SOME CLAYSTONE AND SILTSTONE
2125.00 - 2120.00	245.0 - 250.0	CLAY, YELLOWISH-BROWN TO LIGHT-GRAY
2120.00 - 2108.00	250.0 - 262.0	SHALE, DARK-GRAY TO BLACK

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Location Information

Legal Location: NE NE NE SE SEC. 07, T. 097 N., R. 76 W.	
County: TRIPP	Location: 097N-76W-07DAAA 1
Basin: WHITE	Latitude: 43 14' 03"
Hydrologic Unit Code: 0140204	Longitude: 99 52' 13"
Land Owner:	Ground Surface Elevation (ft.): 2370 T

Project Information

Project: OGALLALA AQUIFER STUDY	Geologist: D. FILIPOVIC
Drill Date: 05/20/2003	Geologist's Log: X
Company: SDGS	Driller: D. IVERSON
Drilling Method: ROTARY	Driller's Log:
Test Hole Number: R2-2003-12	Total Drill Hole Depth (ft.): 142.0
Samples:	

Well Information

SDGS Well Name: R2-2003-12	Aquifer: OGALLALA
Water Rights Well:	Management Unit:
Other Well Name:	Casing Top Elevation: 2372.00 T
Casing Type: PVC, SCH. 80	Casing Diameter (in.): 2.0
Screen Type: PVC, MFG., SLOT SIZE 0.020 IN.	Screen Length (ft.): 10.0
Total Casing and Screen (ft.): 144.0	Casing Stick-up (ft.): 2.00
Well Maintenance Date:	

Geophysical Information

Spontaneous Potential:	Single Point Resistivity:
Natural Gamma:	Extra:

SCREEN INTERVAL FROM 137 TO 127 FEET; BLANK CASING FROM 142 TO 137 FEET; FILTER PACK: COARSE QUARTZ SAND FROM 142 TO 115 FEET; BENTONITE GROUT FROM 115 TO 0 FEET; LOCKING STEEK WELL PROTECTOR INSTALLED.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2370.00 - 2369.00	0.0 - 1.0	TOPSOIL, BLACK, SANDY
2369.00 - 2355.00	1.0 - 15.0	SAND, OLIVE TO GRAY, FINE
2355.00 - 2320.00	15.0 - 50.0	SAND AND SANDSTONE, OLIVE TO GRAY, FINE, SILTY
2320.00 - 2228.00	50.0 - 142.0	SAND, GRAY TO OLIVE, FINE TO MEDIUM

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Location Information

Legal Location: NW NW NW SE SEC. 07, T. 097 N., R. 76 W.	
County: TRIPP	Location: 097N-76W-07DBBB
Basin: WHITE	Latitude: 43 14' 03"
Hydrologic Unit Code: 10140204	Longitude: 99 52' 45"
Land Owner:	Ground Surface Elevation (ft.): 2337 T

Project Information

Project: OGALLALA AQUIFER STUDY	Geologist: D. FILIPOVIC
Drill Date: 05/07/2003	Geologist's Log: X
Company: SDGS	Driller: S. JENSEN
Drilling Method: ROTARY	Driller's Log:
Test Hole Number: R2-2003-06	Total Drill Hole Depth (ft.): 210.0
Samples:	

Geophysical Information

Spontaneous Potential: X	Single Point Resistivity: X
Natural Gamma: X	Extra:

HOLE PLUGGED WITH BENTONITE GROUT FROM 0 TO 200 FEET.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2337.00 - 2335.00	0.0 - 2.0	TOPSOIL, BLACK, SANDY
2335.00 - 2226.00	2.0 - 111.0	SAND, OLIVE TO GRAY, FINE TO MEDIUM; SOME SANDSTONE AND SILT
2226.00 - 2180.00	111.0 - 157.0	SILT, OLIVE TO LIGHT-GRAY, SANDY; SOME SILTSTONE AND SANDSTONE
2180.00 - 2172.00	157.0 - 165.0	SILT AND SILTSTONE, BROWN TO PINKISH
2172.00 - 2167.00	165.0 - 170.0	SILT AND CLAY, PINKISH TO TAN
2167.00 - 2140.00	170.0 - 197.0	GRAVEL AND SAND, DIFFERENT COLOR, CLAYEY, WELL-ROUNDED; QUARTZ
2140.00 - 2127.00	197.0 - 210.0	SHALE, DARK-GRAY TO BLACK (PIERRE SHALE)

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Location Information

Legal Location: NW NW NW SE SEC. 07, T. 097 N., R. 76 W.	
County: TRIPP	Location: 097N-76W-07DBBB 1
Basin: WHITE	Latitude: 43 14' 03"
Hydrologic Unit Code: 10140204	Longitude: 99 52' 45"
Land Owner:	Ground Surface Elevation (ft.): 2337 T

Project Information

Project: OGALLALA AQUIFER STUDY	Geologist: D. FILIPOVIC
Drill Date: 05/07/2003	Geologist's Log: X
Company: SDGS	Driller: S. JENSEN
Drilling Method: ROTARY	Driller's Log:
Test Hole Number: R2-2003-07	Total Drill Hole Depth (ft.): 98.0
Samples:	

Well Information

SDGS Well Name: R2-2003-07	Aquifer: OGALLALA
Water Rights Well:	Management Unit:
Other Well Name:	Casing Top Elevation: 2339.00 T
Casing Type: PVC, SCH. 80	Casing Diameter (in.): 2.0
Screen Type: PVC, MFG., SLOT SIZE 0.020 IN.	Screen Length (ft.): 10.0
Total Casing and Screen (ft.): 100.0	Casing Stick-up (ft.): 2.00
Well Maintenance Date:	

Geophysical Information

Spontaneous Potential:	Single Point Resistivity:
Natural Gamma:	Extra:

SCREEN INTERVAL FROM 93 TO 83 FEET; BLANK CASING FROM 98 TO 93 FEET; FILTER PACK: COARSE QUARTZ SAND FROM 98 TO 77 FEET; BENTONITE GROUT FROM 63 TO 0 FEET; LOCKING STEEK WELL PROTECTOR INSTALLED.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2337.00 - 2336.00	0.0 - 1.0	TOPSOIL, BROWN, SANDY
2336.00 - 2237.00	1.0 - 100.0	SAND, OLIVE TO GRAY, FINE; SOME SANDSTONE

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Location Information

Legal Location: SW NE NW NW SEC. 08, T. 097 N., R. 76 W.
County: TRIPP Location: 097N-76W-08BBAC
Basin: WHITE Latitude: 43 14' 24"
Hydrologic Unit Code: 10140204 Longitude: 99 52' 01"
Land Owner: Ground Surface Elevation (ft.): 2341 T

Project Information

Project: Geologist:
Drill Date: 01/01/1977 Geologist's Log:
Company: HURON DRILLING Driller:
Drilling Method: Driller's Log:
Test Hole Number: Total Drill Hole Depth (ft.): 80.0
Samples:

Well Information

SDGS Well Name: Aquifer: OGALLALA
Water Rights Well: Management Unit:
Other Well Name: TCWUD-2 Casing Top Elevation:
Casing Type: STEEL Casing Diameter (in.): 12.0
Screen Type: STAINLESS STEEL Screen Length (ft.):
Total Casing and Screen (ft.): 75.0 Casing Stick-up (ft.):
Well Maintenance Date:

Geophysical Information

Spontaneous Potential: Single Point Resistivity:
Natural Gamma: Extra:

INFORMATION FOR THIS WELL OBTAINED FROM N. FRANK OF THE TRIPP COUNTY WATER USER'S DISTRICT. WATER LEVEL 20.6 FEET ON 10-19-1977.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2341.00 - 2309.00	0.0 - 32.0	SAND
2309.00 - 2306.00	32.0 - 35.0	CLAY
2306.00 - 2291.00	35.0 - 50.0	SAND; CLAY STREAKS
2291.00 - 2279.00	50.0 - 62.0	SAND
2279.00 - 2271.00	62.0 - 70.0	SAND; MOSTLY CLAY
2271.00 - 2261.00	70.0 - 80.0	CLAY

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Location Information

Legal Location: NE NW NW NW SEC. 08, T. 097 N., R. 76 W.
County: TRIPP Location: 097N-76W-08BBBA
Basin: WHITE Latitude: 43 14' 28"
Hydrologic Unit Code: 10140204 Longitude: 99 52' 06"
Land Owner: Ground Surface Elevation (ft.): 2350 T

Project Information

Project: Geologist:
Drill Date: 06/01/1976 Geologist's Log:
Company: CHASE WELL DRILLING Driller:
Drilling Method: Driller's Log:
Test Hole Number: Total Drill Hole Depth (ft.): 130.0
Samples:

Well Information

SDGS Well Name: Aquifer: OGALLALA
Water Rights Well: Management Unit:
Other Well Name: TCWUD-1 Casing Top Elevation:
Casing Type: STEEL Casing Diameter (in.): 12.0
Screen Type: STAINLESS STEEL Screen Length (ft.): 30.0
Total Casing and Screen (ft.): Casing Stick-up (ft.):
Well Maintenance Date:

Geophysical Information

Spontaneous Potential: Single Point Resistivity:
Natural Gamma: Extra:

INFORMATION FOR CASING AND SCREEN FROM WATER RIGHTS PERMIT 1560-2. WATER LEVEL 53.83 FEET FROM TOP OF CASING.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2350.00 - 2330.00	0.0 - 20.0	SAND, FINE
2330.00 - 2310.00	20.0 - 40.0	SAND, FINE TO MEDIUM
2310.00 - 2300.00	40.0 - 50.0	SAND, VERY FINE
2300.00 - 2290.00	50.0 - 60.0	SAND, FINE; SOME CLAY
2290.00 - 2280.00	60.0 - 70.0	SAND, MEDIUM
2280.00 - 2270.00	70.0 - 80.0	SAND, FINE; SOME CLAY
2270.00 - 2260.00	80.0 - 90.0	SAND; SOME CLAY, MORE CLAY AT 90 FEET
2260.00 - 2250.00	90.0 - 100.0	SAND; WITH CLAY BALLS
2250.00 - 2240.00	100.0 - 110.0	SAND; WITH CLAY
2240.00 - 2230.00	110.0 - 120.0	SAND, MEDIUM

2230.00 - 2227.00	120.0 - 123.0	CLAY(?)
2227.00 - 2220.00	123.0 - 130.0	UNREPORTED

THE THICKNESS OF THE CLAY FROM 120 TO 123 FEET IS QUESTIONABLE.

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Location Information

Legal Location: NW SE NW NW SEC. 08, T. 097 N., R. 76 W.

County: TRIPP

Location: 097N-76W-08BBDB

Basin: WHITE

Latitude: 43 14' 10"

Hydrologic Unit Code: 10140204

Longitude: 99 51' 24"

Land Owner: L. WAGNER

Ground Surface Elevation (ft.): 2335 T

Project Information

Project: TRIPP WATER USERS DIST.

Geologist: A. BARARI

Drill Date: 07/31/1981

Geologist's Log: X

Company: SDGS

Driller: M. THOMPSON

Drilling Method: ROTARY

Driller's Log:

Test Hole Number: ROTARY-7

Total Drill Hole Depth (ft.): 155.0

Samples:

Geophysical Information

Spontaneous Potential:

Single Point Resistivity:

Natural Gamma:

Extra:

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2335.00 - 2332.00	0.0 - 3.0	SAND, GRAYISH-BROWN, FINE
2332.00 - 2271.00	3.0 - 64.0	SAND, TAN, FINE
2271.00 - 2257.00	64.0 - 78.0	SAND; CEMENTED, WITH CLAY
2257.00 - 2241.00	78.0 - 94.0	CLAY, YELLOW
2241.00 - 2235.00	94.0 - 100.0	CLAY, RED; WITH VERY FINE SAND
2235.00 - 2219.00	100.0 - 116.0	CLAY, RED
2219.00 - 2180.00	116.0 - 155.0	CLAY, YELLOWISH-BROWN

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Location Information

Legal Location: SE SE SE NW SEC. 08, T. 097 N., R. 76 W.
County: TRIPP Location: 097N-76W-08BDDD
Basin: WHITE Latitude: 43 14' 06"
Hydrologic Unit Code: 10140204 Longitude: 99 51' 38"
Land Owner: L. WAGNER Ground Surface Elevation (ft.): 2360 T

Project Information

Project: TRIPP WATER USERS DIST. Geologist: A. BARARI
Drill Date: 07/31/1981 Geologist's Log: X
Company: SDGS Driller: E. KOGLIN
Drilling Method: ROTARY Driller's Log:
Test Hole Number: ROTARY-8 Total Drill Hole Depth (ft.): 140.0
Samples:

Geophysical Information

Spontaneous Potential: Single Point Resistivity:
Natural Gamma: Extra:

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2360.00 - 2352.00	0.0 - 8.0	SAND
2352.00 - 2336.00	8.0 - 24.0	SAND; WITH CLAY
2336.00 - 2317.00	24.0 - 43.0	SAND, FINE
2317.00 - 2265.00	43.0 - 95.0	CLAY; WITH SAND LAYERS
2265.00 - 2220.00	95.0 - 140.0	CLAY, REDDISH-BROWN

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Location Information

Legal Location: NW NW NW NW SEC. 16, T. 097 N., R. 76 W.

County: TRIPP

Basin: WHITE

Hydrologic Unit Code: 10140204

Land Owner:

Location: 097N-76W-16BBBB 1

Latitude: 43 13' 36"

Longitude: 99 51' 00"

Ground Surface Elevation (ft.): 2420 T

Project Information

Project: OGALLALA AQUIFER STUDY

Drill Date: 06/06/2001

Company: SDGS

Drilling Method: ROTARY

Test Hole Number: R20-2001-07

Samples:

Geologist: D. FILIPOVIC

Geologist's Log: X

Driller: D. IVERSON

Driller's Log:

Total Drill Hole Depth (ft.): 237.0

Geophysical Information

Spontaneous Potential:

Single Point Resistivity: X

Natural Gamma: X

Extra:

HOLE PLUGGED WITH BENTONITE GROUT FROM 0 TO 220 FEET.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2420.00 - 2412.00	0.0 - 8.0	SAND, TAN, MEDIUM
2412.00 - 2410.00	8.0 - 10.0	SILT AND SILTSTONE, TAN TO BROWN, SANDY
2410.00 - 2402.00	10.0 - 18.0	SILT, OLIVE TO GRAY, SANDY
2402.00 - 2388.00	18.0 - 32.0	SANDSTONE, WHITE TO TAN, FINE; SOME SILT AND SILTSTONE, OLIVE TO GRAY, CALCAREOUS
2388.00 - 2377.00	32.0 - 43.0	SAND, BROWN, FINE; SOME SANDSTONE
2377.00 - 2374.00	43.0 - 46.0	SANDSTONE, BROWN, FINE; SOME ASH, WHITE
2374.00 - 2353.00	46.0 - 67.0	SAND, BROWN, FINE
2353.00 - 2330.00	67.0 - 90.0	SANDSTONE AND SAND, BROWN, FINE
2330.00 - 2317.00	90.0 - 103.0	SAND, BROWN, FINE
2317.00 - 2307.00	103.0 - 113.0	SANDSTONE AND SAND, BROWN, FINE
2307.00 - 2253.00	113.0 - 167.0	SAND, BROWN, FINE
2253.00 - 2238.00	167.0 - 182.0	SILT, PINKISH, OLIVE TO GREEN; SOME SILTSTONE
2238.00 - 2233.00	182.0 - 187.0	CLAY, YELLOWISH-BROWN, GRAY, BLACK; SOFT
2233.00 - 2203.00	187.0 - 217.0	CLAY, LIGHT-GRAY, YELLOWISH-BROWN
2203.00 - 2192.00	217.0 - 228.0	CLAY, LIGHT-GRAY TO DARK-GRAY, YELLOWISH-BROWN

192.00 - 2183.00

228.0 - 237.0

SHALE, DARK-GRAY (PIERRE SHALE)

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Location Information

Legal Location: NW NW NW NW SEC. 16, T. 097 N., R. 76 W.
County: TRIPP Location: 097N-76W-16BBBB 2
Basin: WHITE Latitude: 43 13' 36"
Hydrologic Unit Code: 10140204 Longitude: 99 51' 00"
Land Owner: Ground Surface Elevation (ft.): 2420 T

Project Information

Project: OGALLALA AQUIFER STUDY Geologist: D. FILIPOVIC
Drill Date: 06/11/2001 Geologist's Log: X
Company: SDGS Driller: D. IVERSON
Drilling Method: ROTARY Driller's Log:
Test Hole Number: R20-2001-08 Total Drill Hole Depth (ft.): 163.0
Samples:

Well Information

SDGS Well Name: R20-2001-08 Aquifer: OGALLALA
Water Rights Well: Management Unit:
Other Well Name: Casing Top Elevation: 2422.00 T
Casing Type: PVC, SCH. 80 Casing Diameter (in.): 2.0
Screen Type: PVC, MFG., SLOT SIZE 0.020 IN. Screen Length (ft.): 10.0
Total Casing and Screen (ft.): 164.5 Casing Stick-up (ft.): 2.00
Well Maintenance Date:

Geophysical Information

Spontaneous Potential: Single Point Resistivity:
Natural Gamma: Extra:

SCREEN INTERVAL FROM 162.5 TO 152.5 FEET; FILTER PACK: COARSE QUARTZ SAND FROM 163 TO 146 FEET; BENTONITE GROUT FROM 146 TO 0 FEET; LOCKING STEEL WELL PROTECTOR INSTALLED.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2420.00 - 2412.00	0.0 - 8.0	SAND, TAN
2412.00 - 2408.00	8.0 - 12.0	SILT AND SILTSTONE, TAN TO BROWN, SILTY
2408.00 - 2397.00	12.0 - 23.0	SILT, OLIVE TO GRAY, SANDY
2397.00 - 2395.00	23.0 - 25.0	SANDSTONE, WHITE TO TAN; SOME SILT, OLIVE TO GRAY
2395.00 - 2257.00	25.0 - 163.0	SAND, BROWN, FINE; SOME SANDSTONE, WHITE

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Location Information

Legal Location: SE SE NE SE SEC. 16, T. 097 N., R. 76 W.
County: TRIPP Location: 097N-76W-16DADD
Basin: PONCA Latitude: 43 12' 59"
Hydrologic Unit Code: 10150001 Longitude: 99 49' 50"
Land Owner: Ground Surface Elevation (ft.): 2380 T

Project Information

Project: COLOME CITY STUDY Geologist: A. BARARI
Drill Date: 01/01/1968 Geologist's Log: X
Company: SDGS Driller:
Drilling Method: AUGER Driller's Log:
Test Hole Number: 122 Total Drill Hole Depth (ft.): 69.0
Samples:

Geophysical Information

Spontaneous Potential: Single Point Resistivity:
Natural Gamma: Extra:

DEPTH TO WATER: 57 FEET.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2380.00 - 2376.00	0.0 - 4.0	ROADBED
2376.00 - 2374.00	4.0 - 6.0	CLAY, DARK-GRAY, SANDY
2374.00 - 2323.00	6.0 - 57.0	SAND, FINE TO MEDIUM
2323.00 - 2317.00	57.0 - 63.0	SAND, LIGHT-BROWN, FINE TO MEDIUM
2317.00 - 2311.00	63.0 - 69.0	CLAY, BROWN; MANY PEBBLES

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Location Information

Legal Location: NW NW NW NW SEC. 17, T. 097 N., R. 76 W.

County: TRIPP

Location: 097N-76W-17BBBB

Basin: KEYA PAHA

Latitude: 43 13' 10"

Hydrologic Unit Code: 10150006

Longitude: 99 52' 10"

Land Owner:

Ground Surface Elevation (ft.): 2398 T

Project Information

Project: WATER RIGHTS

Geologist: J. GOODMAN

Drill Date: 05/01/1978

Geologist's Log: X

Company: SDGS

Driller: L. HELSETH

Drilling Method: ROTARY

Driller's Log:

Test Hole Number: TR-78-1

Total Drill Hole Depth (ft.): 200.0

Samples:

Well Information

SDGS Well Name:

Aquifer: OGALLALA

Water Rights Well: TR-78A

Management Unit:

Other Well Name:

Casing Top Elevation:

Casing Type: PVC

Casing Diameter (in.): 2.0

Screen Type: PVC, MFG. AND HM.

Screen Length (ft.): 45.0

Total Casing and Screen (ft.): 163.7

Casing Stick-up (ft.): 2.50

Well Maintenance Date: 06/21/1984

Geophysical Information

Spontaneous Potential:

Single Point Resistivity:

Natural Gamma:

Extra:

SLOTTED PIPE FROM 100 TO 120 FEET, AND 140 TO 160 FEET, PLUS A 5-FOOT SANDPOINT.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2398.00 - 2394.00	0.0 - 4.0	SAND, BROWN
2394.00 - 2366.00	4.0 - 32.0	CLAY, MEDIUM; WITH SAND
2366.00 - 2336.00	32.0 - 62.0	SAND; WITH SOME CLAY, DRILLED HARDER AT 60 FEET
2336.00 - 2333.00	62.0 - 65.0	SAND
2333.00 - 2266.00	65.0 - 132.0	SAND, VERY FINE; DRILLED HARDER THAN INTERVAL FROM 62 TO 65 FEET
2266.00 - 2243.00	132.0 - 155.0	SAND, VERY FINE; CEMENTED
2243.00 - 2228.00	155.0 - 170.0	SAND; GOOD
2228.00 - 2198.00	170.0 - 200.0	SAND, REDDISH-BROWN; SLIGHTLY CEMENTED MORE CLAY

Location Information

Legal Location:SW SW SW NE SEC. 18, T. 097 N., R. 76 W.	
County:TRIPP	Location:097N-76W-18ACCC
Basin:KEYA PAHA	Latitude:43 13' 12"
Hydrologic Unit Code:10150006	Longitude: 99 52' 45"
Land Owner:	Ground Surface Elevation (ft.):2433 T

Project Information

Project:OGALLALA AQUIFER STUDY	Geologist:D. FILIPOVIC
Drill Date:05/07/2003	Geologist's Log:X
Company:SDGS	Driller:G. JENSEN
Drilling Method:ROTARY	Driller's Log:
Test Hole Number:R2-2003-04	Total Drill Hole Depth (ft.):310.0
Samples:	

Geophysical Information

Spontaneous Potential:X	Single Point Resistivity:X
Natural Gamma:X	Extra:

HOLE PLUGGED WITH BENTONITE GROUT FROM 300 TO 0 FEET.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2433.00 - 2431.00	0.0 - 2.0	TOPSOIL, BLACK, SANDY
2431.00 - 2402.00	2.0 - 31.0	SAND AND SANDSTONE, GRAY TO OLIVE, FINE TO MEDIUM
2402.00 - 2397.00	31.0 - 36.0	SAND, GRAY TO OLIVE, FINE
2397.00 - 2387.00	36.0 - 46.0	CLAY, LIGHT-GRAY, SANDY; SOFT
2387.00 - 2238.00	46.0 - 195.0	SAND, OLIVE TO GRAY, FINE; SOME CLAY AND SANDSTONE
2238.00 - 2179.00	195.0 - 254.0	SILT, OLIVE TO GRAY, TAN, SANDY
2179.00 - 2135.00	254.0 - 298.0	SILT AND CLAY, REDDISH TO BROWN; SOME CLAYSTONE
2135.00 - 2123.00	298.0 - 310.0	SHALE, DARK-GRAY TO BLACK (PIERRE SHALE)

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Location Information

Legal Location:SW SW SW NE SEC. 18, T. 097 N., R. 76 W.	
County:TRIPP	Location:097N-76W-18ACCC 1
Basin:KEYA PAHA	Latitude:43 13' 12"
Hydrologic Unit Code:10150006	Longitude: 99 52' 45"
Land Owner:	Ground Surface Elevation (ft.):2433 T

Project Information

Project:OGALLALA AQUIFER STUDY	Geologist:D. FILIPOVIC
Drill Date:05/07/2003	Geologist's Log:X
Company:SDGS	Driller:G. JENSEN
Drilling Method:ROTARY	Driller's Log:
Test Hole Number:R2-2003-05	Total Drill Hole Depth (ft.):172.0
Samples:	

Well Information

SDGS Well Name: R2-2003-05	Aquifer:OGALLALA
Water Rights Well:	Management Unit:
Other Well Name:	Casing Top Elevation:2436.00 T
Casing Type:PVC, SCH. 80	Casing Diameter (in.):2.0
Screen Type:PVC, MFG., SLOT SIZE 0.020 IN.	Screen Length (ft.):10.0
Total Casing and Screen (ft.):175.0	Casing Stick-up (ft.):3.00
Well Maintenance Date:	

Geophysical Information

Spontaneous Potential:	Single Point Resistivity:
Natural Gamma:	Extra:

SCREEN INTERVAL FROM 167 TO 157 FEET; BLANK CASING FROM 172 TO 167 FEET; FILTER PACK: COARSE QUARTZ SAND FROM 172 TO 141 FEET; BENTONITE GROUT FROM 141 TO 0 FEET; LOCKING STEEL WELL PROTECTOR INSTALLED.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2433.00 - 2431.00	0.0 - 2.0	TOPSOIL, BLACK, SANDY
2431.00 - 2378.00	2.0 - 55.0	SAND AND SANDSTONE, OLIVE TO GRAY, FINE TO MEDIUM
2378.00 - 2261.00	55.0 - 172.0	SAND, OLIVE TO GRAY, FINE; SOME CLAY AND SANDSTONE

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Location Information

Legal Location: NE NE NE NW SEC. 18, T. 097 N., R. 76 W.	
County: TRIPP	Location: 097N-76W-18BAAA
Basin: WHITE	Latitude: 43 13' 37"
Hydrologic Unit Code: 10140204	Longitude: 99 52' 47"
Land Owner:	Ground Surface Elevation (ft.): 2409 T

Project Information

Project: OGALLALA AQUIFER STUDY	Geologist: D. FILIPOVIC
Drill Date: 05/06/2003	Geologist's Log: X
Company: SDGS	Driller: D. IVERSON
Drilling Method: ROTARY	Driller's Log:
Test Hole Number: R2-2003-02	Total Drill Hole Depth (ft.): 282.0
Samples:	

Geophysical Information

Spontaneous Potential: X	Single Point Resistivity: X
Natural Gamma: X	Extra:

HOLE PLUGGED WITH BENTONITE GROUT FROM 0 TO 280 FEET.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2409.00 - 2408.00	0.0 - 1.0	TOPSOIL, BLACK, SANDY
2408.00 - 2403.00	1.0 - 6.0	SAND, BROWN, FINE
2403.00 - 2397.00	6.0 - 12.0	SILT AND SAND, TAN
2397.00 - 2378.00	12.0 - 31.0	CLAY, WHITE TO LIGHT-TAN, SILTY
2378.00 - 2345.00	31.0 - 64.0	SAND, TAN, FINE, SILTY; SOME CLAY
2345.00 - 2335.00	64.0 - 74.0	SAND, TAN, FINE
2335.00 - 2331.00	74.0 - 78.0	SANDSTONE AND SAND, TAN TO DARK-TAN
2331.00 - 2327.00	78.0 - 82.0	SAND, OLIVE TO TAN, FINE
2327.00 - 2325.00	82.0 - 84.0	CLAY, WHITE; SOFT
2325.00 - 2323.00	84.0 - 86.0	SAND, OLIVE TO TAN, FINE
2323.00 - 2315.00	86.0 - 94.0	SILT, OLIVE TO TAN, SANDY
2315.00 - 2251.00	94.0 - 158.0	SAND, TAN, FINE
2251.00 - 2244.00	158.0 - 165.0	CLAY AND SILT, OLIVE TO TAN
2244.00 - 2235.00	165.0 - 174.0	SAND, OLIVE TO TAN, FINE
2235.00 - 2233.00	174.0 - 176.0	SILT, WHITE TO TAN, SANDY

** Preliminary Log - Subject To Change **

2233.00 - 2229.00	176.0 - 180.0	CLAY AND SILT, TAN, WHITE, SANDY
2229.00 - 2203.00	180.0 - 206.0	SILT, TAN TO DARK-TAN, SANDY; SOME CLAY
2203.00 - 2173.00	206.0 - 236.0	SILT AND SILTSTONE, TAN TO BROWN
2173.00 - 2164.00	236.0 - 245.0	CLAY, BROWN TO TAN, GRAY; SOME SAND, CLEAR, WHITE, FINE; MAINLY QUARTZ
2164.00 - 2153.00	245.0 - 256.0	SILT AND SILTSTONE, TAN TO DARK-TAN
2153.00 - 2145.00	256.0 - 264.0	SILT, TAN TO DARK-TAN; SOME SILTSTONE, WHITE AND BLACK
2145.00 - 2133.00	264.0 - 276.0	CLAY, YELLOW TO BROWN
2133.00 - 2127.00	276.0 - 282.0	SHALE, DARK-GRAY (PIERRE SHALE)

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Location Information

Legal Location: NE NE NE NW SEC. 18, T. 097 N., R. 76 W.	
County: TRIPP	Location: 097N-76W-18BAAA 1
Basin: WHITE	Latitude: 43 13' 37"
Hydrologic Unit Code: 10140204	Longitude: 99 52' 47"
Land Owner:	Ground Surface Elevation (ft.): 2409 T

Project Information

Project: OGALLALA AQUIFER STUDY	Geologist: D. FILIPOVIC
Drill Date: 05/06/2003	Geologist's Log: X
Company: SDGS	Driller: D. IVERSON
Drilling Method: ROTARY	Driller's Log:
Test Hole Number: R2-2003-03	Total Drill Hole Depth (ft.): 162.0
Samples:	

Well Information

SDGS Well Name: R2-2003-03	Aquifer: OGALLALA
Water Rights Well:	Management Unit:
Other Well Name:	Casing Top Elevation: 2411.00 T
Casing Type: PVC, SCH. 80	Casing Diameter (in.): 2.0
Screen Type: PVC, MFG., SLOT SIZE 0.020 IN.	Screen Length (ft.): 10.0
Total Casing and Screen (ft.): 164.0	Casing Stick-up (ft.): 2.00
Well Maintenance Date:	

Geophysical Information

Spontaneous Potential:	Single Point Resistivity:
Natural Gamma:	Extra:

SCREEN INTERVAL FROM 157 TO 147 FEET; BLANK CASING FROM 162 TO 157 FEET; FILTER PACK: COARSE QUARTZ SAND FROM 162 TO 128 FEET; BENTONITE GROUT FROM 128 TO 0 FEET; LOCKING STEEL WELL PROTECTOR INSTALLED.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2409.00 - 2408.00	0.0 - 1.0	TOPSOIL, BLACK, SANDY
2408.00 - 2403.00	1.0 - 6.0	SAND, BROWN, FINE
2403.00 - 2397.00	6.0 - 12.0	SILT AND SAND, TAN
2397.00 - 2378.00	12.0 - 31.0	CLAY, WHITE TO LIGHT-TAN, SILTY
2378.00 - 2247.00	31.0 - 162.0	SAND, OLIVE, TAN TO DARK-TAN, FINE; SOME SILT AND SANDSTONE

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Location Information

Legal Location:SW SW SW SW SEC. 18, T. 097 N., R. 76 W.	
County:TRIPP	Location:097N-76W-18CCCC
Basin:KEYA PAHA	Latitude:43 12' 46"
Hydrologic Unit Code:10150006	Longitude: 99 53' 22"
Land Owner:	Ground Surface Elevation (ft.):2454 T

Project Information

Project:OGALLALA AQUIFER STUDY	Geologist:D. FILIPOVIC
Drill Date:05/28/2003	Geologist's Log:X
Company:SDGS	Driller:G. JENSEN
Drilling Method:ROTARY	Driller's Log:
Test Hole Number:R2-2003-16	Total Drill Hole Depth (ft.):302.0
Samples:	

Well Information

SDGS Well Name: R2-2003-16	Aquifer:OGALLALA
Water Rights Well:	Management Unit:
Other Well Name:	Casing Top Elevation:2456.00 T
Casing Type:PVC, SCH. 80	Casing Diameter (in.):2.0
Screen Type:PVC, MFG., SLOT SIZE 0.020 IN.	Screen Length (ft.):10.0
Total Casing and Screen (ft.):302.5	Casing Stick-up (ft.):2.00
Well Maintenance Date:	

Geophysical Information

Spontaneous Potential:	Single Point Resistivity:
Natural Gamma:	Extra:

SCREENED INTERVAL FROM 267.5 TO 257.5 FEET; BLANK CASING FROM 300.5 TO 267.5 FEET; FILTER PACK: COARSE QUARTZ SAND FROM 302 TO 236 FEET; BENTONITE GROUT FROM 236 TO 0 FEET; LOCKING STEEL WELL PROTECTOR INSTALLED.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2454.00 - 2452.00	0.0 - 2.0	TOPSOIL, BROWN, SANDY
2452.00 - 2439.00	2.0 - 15.0	SANDSTONE AND SILTSTONE, LIGHT-GRAY; CALCAREOUS (ASH HOLLOW FORMATION)
2439.00 - 2430.00	15.0 - 24.0	SILT, GRAY TO OLIVE, SANDY
2430.00 - 2423.00	24.0 - 31.0	SAND, OLIVE TO GRAY, FINE, SILTY
2423.00 - 2396.00	31.0 - 58.0	SILT, OLIVE TO GRAY, SANDY
2396.00 - 2187.00	58.0 - 267.0	SAND, OLIVE TO GRAY, FINE; SOME SILT
2187.00 - 2166.00	267.0 - 288.0	SILT AND SILTSTONE, REDDISH TO TAN; SOME SAND AND CLAY
2166.00 - 2164.00	288.0 - 290.0	SAND, VARIOUS COLOR, COARSE; QUARTZ

** Preliminary Log - Subject To Change **

2164.00 - 2154.00

290.0 - 300.0

CLAY, YELLOWISH-BROWN, GRAY

2154.00 - 2152.00

300.0 - 302.0

SHALE, DARK-GRAY TO BLACK (PIERRE SHALE)

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Location Information

Legal Location:SE SE SE SW SEC. 18, T. 097 N., R. 76 W.	
County:TRIPP	Location:097N-76W-18CDDD
Basin:KEYA PAHA	Latitude:43 12' 46"
Hydrologic Unit Code:10150006	Longitude: 99 52' 47"
Land Owner:	Ground Surface Elevation (ft.):2461 T

Project Information

Project:OGALLALA AQUIFER STUDY	Geologist:D. FILIPOVIC
Drill Date:05/28/2003	Geologist's Log:X
Company:SDGS	Driller:S. JENSEN
Drilling Method:ROTARY	Driller's Log:
Test Hole Number:R2-2003-17	Total Drill Hole Depth (ft.):322.0
Samples:	

Geophysical Information

Spontaneous Potential:X	Single Point Resistivity:X
Natural Gamma:X	Extra:

HOLE PLUGGED WITH BENTONITE GROUT FROM 300 TO 0 FEET.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2461.00 - 2460.00	0.0 - 1.0	TOPSOIL, BLACK, SANDY
2460.00 - 2436.00	1.0 - 25.0	SANDSTONE, LIGHT-GRAY; CALCAREOUS (ASH HOLLOW FORMATION)
2436.00 - 2418.00	25.0 - 43.0	SAND AND SANDSTONE, OLIVE TO GREEN, FINE
2418.00 - 2368.00	43.0 - 93.0	SILT AND SAND, OLIVE TO GRAY; SOME SILTSTONE
2368.00 - 2225.00	93.0 - 236.0	SAND, OLIVE TO GRAY, FINE; SOME SILTSTONE AND SANDSTONE
2225.00 - 2203.00	236.0 - 258.0	SILT AND CLAY, WHITE TO LIGHT-GRAY, GREENISH, SANDY
2203.00 - 2199.00	258.0 - 262.0	SAND, VARIOUS COLOR, COARSE, CLAYEY; QUARTZ
2199.00 - 2170.00	262.0 - 291.0	SILT AND CLAY, REDDISH TO TAN
2170.00 - 2163.00	291.0 - 298.0	SAND, VARIOUS COLOR, COARSE, CLAYEY
2163.00 - 2149.00	298.0 - 312.0	SILT AND CLAY, REDDISH TO TAN
2149.00 - 2139.00	312.0 - 322.0	SHALE, DARK-GRAY TO BLACK (PIERRE SHALE)

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Location Information

Legal Location: NE NE NE SE SEC. 18, T. 097 N., R. 76 W.

County: TRIPP

Basin: KEYA PAHA

Hydrologic Unit Code: 10150006

Land Owner:

Location: 097N-76W-18DAAA

Latitude: 43 13' 10"

Longitude: 99 52' 13"

Ground Surface Elevation (ft.): 2408 T

Project Information

Project: OGALLALA AQUIFER STUDY

Drill Date: 05/13/2003

Company: SDGS

Drilling Method: ROTARY

Test Hole Number: R2-2003-08

Samples:

Geologist: D. FILIPOVIC

Geologist's Log: X

Driller: D. IVERSON

Driller's Log:

Total Drill Hole Depth (ft.): 275.0

Geophysical Information

Spontaneous Potential: X

Natural Gamma: X

Single Point Resistivity: X

Extra:

HOLE PLUGGED WITH BENTONITE GROUT FROM 275 TO 0 FEET.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2408.00 - 2407.00	0.0 - 1.0	TOPSOIL, BROWN, SANDY
2407.00 - 2227.00	1.0 - 181.0	SAND, OLIVE TO GRAY, FINE; SOME SANDSTONE AND SILT
2227.00 - 2208.00	181.0 - 200.0	SILT AND CLAY, REDDISH TO TAN; SOME SILTSTONE
2208.00 - 2196.00	200.0 - 212.0	SILT AND CLAY, TAN TO LIGHT-TAN, REDDISH TO TAN
2196.00 - 2190.00	212.0 - 218.0	SILT, REDDISH TO TAN, SANDY
2190.00 - 2168.00	218.0 - 240.0	CLAY, LIGHT-TAN TO DARK-TAN, SILTY
2168.00 - 2148.00	240.0 - 260.0	CLAY, YELLOWISH-GRAY, SILTY
2148.00 - 2133.00	260.0 - 275.0	SHALE, DARK-GRAY TO BLACK

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Location Information

Legal Location: NE NE NE SE SEC. 18, T. 097 N., R. 76 W.

County: TRIPP

Location: 097N-76W-18DAAA 1

Basin: KEYA PAHA

Latitude: 43 13' 10"

Hydrologic Unit Code: 10150006

Longitude: 99 52' 13"

Land Owner:

Ground Surface Elevation (ft.): 2408 T

Project Information

Project: OGALLALA AQUIFER STUDY

Geologist: D. FILIPOVIC

Drill Date: 05/13/2003

Geologist's Log: X

Company: SDGS

Driller: D. IVERSON

Drilling Method: ROTARY

Driller's Log:

Test Hole Number: R2-2003-09

Total Drill Hole Depth (ft.): 170.0

Samples:

Geophysical Information

Spontaneous Potential:

Single Point Resistivity:

Natural Gamma:

Extra:

HOLE PLUGGED WITH BENTONITE GROUT FROM 145 TO 0 FEET.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2408.00 - 2407.00	0.0 - 1.0	TOPSOIL, BROWN, SANDY
2407.00 - 2238.00	1.0 - 170.0	SAND, OLIVE TO GRAY, FINE; SOME SANDSTONE AND SILT

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Location Information

Legal Location: NE NE NE SE SEC. 18, T. 097 N., R. 76 W.	
County: TRIPP	Location: 097N-76W-18DAAA 2
Basin: KEYA PAHA	Latitude: 43 13' 10"
Hydrologic Unit Code: 10150006	Longitude: 99 52' 13"
Land Owner:	Ground Surface Elevation (ft.): 2408 T

Project Information

Project: OGALLALA AQUIFER STUDY	Geologist: D. FILIPOVIC
Drill Date: 05/20/2003	Geologist's Log: X
Company: SDGS	Driller: D. IVERSON
Drilling Method: ROTARY	Driller's Log:
Test Hole Number: R2-2003-10	Total Drill Hole Depth (ft.): 182.0
Samples:	

Well Information

SDGS Well Name: R2-2003-10	Aquifer: OGALLALA
Water Rights Well:	Management Unit:
Other Well Name:	Casing Top Elevation: 2410.00 T
Casing Type: PVC, SCH. 80	Casing Diameter (in.): 2.0
Screen Type: PVC, MFG., SLOT SIZE 0.020 IN.	Screen Length (ft.): 10.0
Total Casing and Screen (ft.): 184.0	Casing Stick-up (ft.): 2.00
Well Maintenance Date:	

Geophysical Information

Spontaneous Potential:	Single Point Resistivity:
Natural Gamma:	Extra:

SCREEN INTERVAL FROM 177 TO 167 FEET; BLANK CASING FROM 182 TO 177 FEET; FILTER PACK: COARSE QUARTZ SAND FROM 182 TO 164 FEET; BENTONITE GROUT FROM 164 TO 0 FEET; LOCKING STEEL WELL PROTECTOR INSTALLED.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2408.00 - 2407.00	0.0 - 1.0	TOPSOIL, DARK-BROWN, SANDY
2407.00 - 2259.00	1.0 - 149.0	SAND, OLIVE TO GRAY, FINE; SOME SANDSTONE AND SILT
2259.00 - 2255.00	149.0 - 153.0	SANDSTONE, OLIVE TO GRAY, FINE
2255.00 - 2226.00	153.0 - 182.0	SAND, OLIVE TO GRAY, FINE; SOME SILT AND SANDSTONE

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Location Information

Legal Location:SE SE SE SE SEC. 19, T. 097 N., R. 76 W.

County:TRIPP

Location:097N-76W-19DDDD

Basin:KEYA PAHA

Latitude:43 11' 55"

Hydrologic Unit Code:10150006

Longitude: 99 52' 14"

Land Owner:

Ground Surface Elevation (ft.):2390 T

Project Information

Project:WATER RIGHTS

Geologist:J. GOODMAN

Drill Date:05/02/1978

Geologist's Log:X

Company:SDGS

Driller:R. DANZL

Drilling Method:

Driller's Log:

Test Hole Number:TR-78-2

Total Drill Hole Depth (ft.):185.0

Samples:

Well Information

SDGS Well Name:

Aquifer:OGALLALA

Water Rights Well:TR-78B

Management Unit:

Other Well Name:

Casing Top Elevation:

Casing Type:PVC

Casing Diameter (in.):2.0

Screen Type:PVC, MFG. AND HM.

Screen Length (ft.):45.0

Total Casing and Screen (ft.):167.0

Casing Stick-up (ft.):3.00

Well Maintenance Date:06/20/1984

Geophysical Information

Spontaneous Potential:

Single Point Resistivity:

Natural Gamma:

Extra:

SLOTTED CASING FROM 100 TO 120 FEET, AND 140 TO 160 FEET, PLUS A 5-FOOT SANDPOINT.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2390.00 - 2374.00	0.0 - 16.0	SAND, VERY FINE TO FINE
2374.00 - 2370.00	16.0 - 20.0	SAND, GREEN, FINE TO MEDIUM; PARTIALLY CEMENTED
2370.00 - 2361.00	20.0 - 29.0	SAND, BROWN, VERY FINE, SILTY
2361.00 - 2346.00	29.0 - 44.0	SAND, FINE; PARTIALLY CEMENTED
2346.00 - 2279.00	44.0 - 111.0	SAND, FINE TO MEDIUM; PARTIALLY CEMENTED
2279.00 - 2259.00	111.0 - 131.0	SAND, BROWN, MEDIUM; PARTIALLY CEMENTED
2259.00 - 2250.00	131.0 - 140.0	SAND, FINE, SILTY; PARTIALLY CEMENTED
2250.00 - 2234.00	140.0 - 156.0	SAND, GREEN, MEDIUM; CEMENTED
2234.00 - 2232.00	156.0 - 158.0	CLAY OR SILT, BROWN
2232.00 - 2225.00	158.0 - 165.0	SAND, FINE; PARTIALLY CEMENTED, SILT LAYERS

2225.00 - 2210.00

165.0 - 180.0

CLAY, GREEN, SHALEY, SILTY

2210.00 - 2205.00

180.0 - 185.0

SAND, BROWN, FINE; PARTIALLY CEMENTED

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Location Information

Legal Location: NE NE NE NW SEC. 20, T. 097 N., R. 76 W.	
County: TRIPP	Location: 097N-76W-20BAAA
Basin: KEYA PAHA	Latitude: 43 12' 44"
Hydrologic Unit Code: 10150006	Longitude: 99 51' 36"
Land Owner:	Ground Surface Elevation (ft.): 2419 T

Project Information

Project: OGALLALA AQUIFER STUDY	Geologist: D. FILIPOVIC
Drill Date: 06/04/2003	Geologist's Log: X
Company: SDGS	Driller: S. JENSEN
Drilling Method: ROTARY	Driller's Log:
Test Hole Number: R2-2003-21	Total Drill Hole Depth (ft.): 242.0
Samples:	

Geophysical Information

Spontaneous Potential: X	Single Point Resistivity: X
Natural Gamma: X	Extra:

HOLE PLUGGED WITH BENTONITE GROUT FROM 242 TO 0 FEET.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2419.00 - 2417.00	0.0 - 2.0	TOPSOIL, BLACK, SANDY
2417.00 - 2409.00	2.0 - 10.0	SILT, OLIVE TO GRAY; SOME CLAY, DARK-BROWN
2409.00 - 2399.00	10.0 - 20.0	SAND, OLIVE, FINE
2399.00 - 2389.00	20.0 - 30.0	SANDSTONE, LIGHT-GRAY, OLIVE, FINE, SANDY; CALCAREOUS (ASH HOLLOW FORMATION)
2389.00 - 2385.00	30.0 - 34.0	SAND, OLIVE, FINE
2385.00 - 2379.00	34.0 - 40.0	SANDSTONE, OLIVE, FINE
2379.00 - 2357.00	40.0 - 62.0	SAND, OLIVE TO GRAY, FINE; SOME SANDSTONE, OLIVE, FINE
2357.00 - 2337.00	62.0 - 82.0	SAND, OLIVE TO GRAY, FINE; SOME SILT AND SANDSTONE
2337.00 - 2272.00	82.0 - 147.0	SAND, OLIVE TO GRAY, FINE; SOME SILT
2272.00 - 2245.00	147.0 - 174.0	SAND AND SILT, OLIVE, FINE
2245.00 - 2224.00	174.0 - 195.0	SILT AND CLAY, WHITE, REDDISH TO TAN; SOME SILTSTONE AND CLAYSTONE
2224.00 - 2184.00	195.0 - 235.0	CLAY, YELLOWISH-BROWN TO LIGHT-GRAY

** Preliminary Log - Subject To Change **

2184.00 - 2177.00

235.0 - 242.0

SHALE, DARK-GRAY TO BLACK (PIERRE SHALE)

* * * *

Location Information

Legal Location: NE NE NE NW SEC. 20, T. 097 N., R. 76 W.

County: TRIPP

Basin: KEYA PAHA

Hydrologic Unit Code: 10150006

Land Owner:

Location: 097N-76W-20BAAA 1

Latitude: 43 12' 44"

Longitude: 99 51' 36"

Ground Surface Elevation (ft.): 2419 T

Project Information

Project: OGALLALA AQUIFER STUDY

Drill Date: 06/04/2003

Company: SDGS

Drilling Method: ROTARY

Test Hole Number: R2-2003-22

Samples:

Geologist: D. FILIPOVIC

Geologist's Log: X

Driller: S. JENSEN

Driller's Log:

Total Drill Hole Depth (ft.): 142.0

Well Information

SDGS Well Name: R2-2003-22

Water Rights Well:

Other Well Name:

Casing Type: PVC, SCH. 80

Screen Type: PVC, MFG., SLOT SIZE 0.020 IN.

Total Casing and Screen (ft.): 144.0

Well Maintenance Date:

Aquifer: OGALLALA

Management Unit:

Casing Top Elevation: 2421.00 T

Casing Diameter (in.): 2.0

Screen Length (ft.): 10.0

Casing Stick-up (ft.): 2.00

Geophysical Information

Spontaneous Potential:

Natural Gamma:

Single Point Resistivity:

Extra:

SCREEN INTERVAL FROM 137 TO 127 FEET; BLANK CASING FROM 142 TO 137 FEET; FILTER PACK: COARSE QUARTZ SAND FROM 142 TO 107 FEET; BENTONITE GROUT FROM 107 TO 0 FEET; LOCKING STEEL WELL PROTECTOR INSTALLED.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2419.00 - 2417.00	0.0 - 2.0	TOPSOIL, BLACK, SANDY
2417.00 - 2389.00	2.0 - 30.0	SANDSTONE, LIGHT-GRAY, FINE; CALCAREOUS (ASH HOLLOW FORMATION)
2389.00 - 2324.00	30.0 - 95.0	SILT AND SAND, OLIVE TO GRAY, FINE; SOME SANDSTONE, OLIVE, FINE
2324.00 - 2277.00	95.0 - 142.0	SAND, OLIVE TO GRAY, FINE

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Location Information

Legal Location: NW NW NW NW SEC. 20, T. 097 N., R. 76 W.	
County: TRIPP	Location: 097N-76W-20BBBB
Basin: KEYA PAHA	Latitude: 43 12' 44"
Hydrologic Unit Code: 10150006	Longitude: 99 52' 10"
Land Owner:	Ground Surface Elevation (ft.): 2446 T

Project Information

Project: OGALLALA AQUIFER STUDY	Geologist: D. FILIPOVIC
Drill Date: 06/04/2003	Geologist's Log: X
Company: SDGS	Driller: D. IVERSON
Drilling Method: ROTARY	Driller's Log:
Test Hole Number: R2-2003-23	Total Drill Hole Depth (ft.): 302.0
Samples:	

Geophysical Information

Spontaneous Potential: X	Single Point Resistivity: X
Natural Gamma: X	Extra:

HOLE PLUGGED WITH BENTONITE GROUT FROM 302 TO 0 FEET.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2446.00 - 2445.00	0.0 - 1.0	TOPSOIL, BLACK, SANDY
2445.00 - 2425.00	1.0 - 21.0	SANDSTONE, LIGHT-GRAY, FINE; CALCAREOUS (ASH HOLLOW FORMATION)
2425.00 - 2416.00	21.0 - 30.0	SAND, OLIVE TO GRAY, FINE
2416.00 - 2392.00	30.0 - 54.0	SAND, OLIVE TO GRAY, FINE, SILTY; SOME SANDSTONE
2392.00 - 2240.00	54.0 - 206.0	SAND, OLIVE TO GRAY, FINE; SOME SILT
2240.00 - 2211.00	206.0 - 235.0	CLAY, WHITE TO LIGHT-GRAY, SILTY; SOFT
2211.00 - 2166.00	235.0 - 280.0	SILT AND SILTSTONE, GRAY, YELLOWISH-BROWN, PINKISH; SOME CLAY AND SAND, VARIOUS COLOR; QUARTZ
2166.00 - 2155.00	280.0 - 291.0	CLAY, YELLOWISH-BROWN, GRAY
2155.00 - 2144.00	291.0 - 302.0	SHALE, DARK-GRAY TO BLACK (PIERRE SHALE)

* * * *

Location Information

Legal Location: SW SW SW NW SEC. 20, T. 097 N., R. 76 W.	
County: TRIPP	Location: 097N-76W-20BCCC
Basin: KEYA PAHA	Latitude: 43 12' 20"
Hydrologic Unit Code: 10150006	Longitude: 99 52' 10"
Land Owner:	Ground Surface Elevation (ft.): 2463 T

Project Information

Project: OGALLALA AQUIFER STUDY	Geologist: D. FILIPOVIC
Drill Date: 06/02/2003	Geologist's Log: X
Company: SDGS	Driller: D. IVERSON
Drilling Method: ROTARY	Driller's Log:
Test Hole Number: R2-2003-18	Total Drill Hole Depth (ft.): 302.0
Samples:	

Geophysical Information

Spontaneous Potential: X	Single Point Resistivity: X
Natural Gamma: X	Extra:

HOLE PLUGGED WITH BENTONITE GROUT FROM 302 TO 0 FEET.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2463.00 - 2461.00	0.0 - 2.0	TOPSOIL, BROWN, SANDY
2461.00 - 2454.00	2.0 - 9.0	SAND, LIGHT-GRAY TO OLIVE, FINE
2454.00 - 2445.00	9.0 - 18.0	SANDSTONE, LIGHT-GRAY TO DARK-GRAY, FINE; SOME SAND, OLIVE, FINE
2445.00 - 2434.00	18.0 - 29.0	SILTSTONE AND SILT, OLIVE TO GRAY; SOME SANDSTONE, FINE
2434.00 - 2418.00	29.0 - 45.0	SANDSTONE, OLIVE TO GRAY, FINE, SILTY
2418.00 - 2413.00	45.0 - 50.0	CLAY, LIGHT-GRAY, SILTY
2413.00 - 2401.00	50.0 - 62.0	SANDSTONE, LIGHT-GRAY TO OLIVE, FINE, SILTY
2401.00 - 2378.00	62.0 - 85.0	SILT AND SAND, OLIVE TO TAN, FINE
2378.00 - 2262.00	85.0 - 201.0	SAND, OLIVE TO GRAY, FINE
2262.00 - 2243.00	201.0 - 220.0	SAND AND SILT, OLIVE TO GRAY, FINE
2243.00 - 2228.00	220.0 - 235.0	SAND, OLIVE TO GRAY, FINE; SOME SANDSTONE, GRAY, FINE
2228.00 - 2213.00	235.0 - 250.0	SILTSTONE, REDDISH TO TAN, SANDY
2213.00 - 2207.00	250.0 - 256.0	CLAYSTONE, DARK-BROWN TO YELLOWISH-BROWN

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** Preliminary Log - Subject To Change **

2207.00 - 2168.00 256.0 - 295.0 CLAY, YELLOWISH-BROWN, GRAY

2168.00 - 2161.00 295.0 - 302.0 SHALE, DARK-GRAY TO BLACK

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Location Information

Legal Location:SW SW SW NW SEC. 20, T. 097 N., R. 76 W.	
County:TRIPP	Location:097N-76W-20BCCC 1
Basin:KEYA PAHA	Latitude:43 12' 20"
Hydrologic Unit Code:10150006	Longitude: 99 52' 10"
Land Owner:	Ground Surface Elevation (ft.):2463 T

Project Information

Project:OGALLALA AQUIFER STUDY	Geologist:D. FILIPOVIC
Drill Date:06/03/2003	Geologist's Log:X
Company:SDGS	Driller:D. IVERSON
Drilling Method:ROTARY	Driller's Log:
Test Hole Number:R2-2003-19	Total Drill Hole Depth (ft.):182.0
Samples:	

Well Information

SDGS Well Name: R2-2003-19	Aquifer:OGALLALA
Water Rights Well:	Management Unit:
Other Well Name:	Casing Top Elevation:2465.00 T
Casing Type:PVC, SCH. 80	Casing Diameter (in.):2.0
Screen Type:PVC, MFG., SLOT SIZE 0.020 IN.	Screen Length (ft.):10.0
Total Casing and Screen (ft.):184.0	Casing Stick-up (ft.):2.00
Well Maintenance Date:	

Geophysical Information

Spontaneous Potential:	Single Point Resistivity:
Natural Gamma:	Extra:

SCREEN INTERVAL FROM 177 TO 167 FEET; BLANK CASING FROM 182 TO 177 FEET; FILTER PACK: COARSE QUARTZ SAND FROM 182 TO 161 FEET; BENTONITE GROUT FROM 161 TO 0 FEET; LOCKING STEEL WELL PROTECTOR INSTALLED.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2463.00 - 2462.00	0.0 - 1.0	TOPSOIL, BROWN, SANDY
2462.00 - 2455.00	1.0 - 8.0	SAND, LIGHT-GRAY TO OLIVE, FINE
2455.00 - 2445.00	8.0 - 18.0	SANDSTONE, LIGHT-GRAY TO DARK-GRAY, FINE; SOME SAND, OLIVE, FINE
2445.00 - 2434.00	18.0 - 29.0	SILTSTONE AND SILT, OLIVE TO GRAY; SOME SANDSTONE, FINE
2434.00 - 2421.00	29.0 - 42.0	SANDSTONE, OLIVE TO GRAY, FINE, SILTY
2421.00 - 2405.00	42.0 - 58.0	SILT AND CLAY, LIGHT-GRAY
2405.00 - 2398.00	58.0 - 65.0	SANDSTONE, LIGHT-GRAY TO OLIVE, FINE, SILTY
2398.00 - 2380.00	65.0 - 83.0	SANDSTONE AND SAND, OLIVE TO GRAY, FINE, SILTY

** Preliminary Log - Subject To Change **

2380.00 - 2281.00

83.0 - 182.0

SAND, OLIVE TO GRAY, FINE

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Location Information

Legal Location:SE SE SE NW SEC. 20, T. 097 N., R. 76 W.	
County:TRIPP	Location:097N-76W-20BDDD
Basin:KEYA PAHA	Latitude:43 12' 20"
Hydrologic Unit Code:10150006	Longitude: 99 51' 36"
Land Owner:	Ground Surface Elevation (ft.):2455 T

Project Information

Project:OGALLALA AQUIFER STUDY	Geologist:D. FILIPOVIC
Drill Date:06/03/2003	Geologist's Log:X
Company:SDGS	Driller:G. JENSEN
Drilling Method:ROTARY	Driller's Log:
Test Hole Number:R2-2003-20	Total Drill Hole Depth (ft.):282.0
Samples:	

Geophysical Information

Spontaneous Potential:X	Single Point Resistivity:X
Natural Gamma:X	Extra:

HOLE PLUGGED WITH BENTONITE GROUT FROM 260 TO 0 FEET.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2455.00 - 2453.00	0.0 - 2.0	TOPSOIL, DARK-BROWN, SANDY
2453.00 - 2417.00	2.0 - 38.0	SANDSTONE, LIGHT-GRAY TO GREENISH, FINE; CALCAREOUS (ASH HOLLOW FORMATION)
2417.00 - 2405.00	38.0 - 50.0	SAND, LIGHT-GRAY, FINE
2405.00 - 2372.00	50.0 - 83.0	SAND, LIGHT-GRAY, FINE, CLAYEY, SILTY
2372.00 - 2347.00	83.0 - 108.0	SAND, OLIVE TO GRAY, FINE
2347.00 - 2327.00	108.0 - 128.0	SAND, OLIVE TO GRAY, FINE, SILTY
2327.00 - 2240.00	128.0 - 215.0	SAND, OLIVE TO GREEN, SILTY; SOME CLAY, WHITE
2240.00 - 2235.00	215.0 - 220.0	CLAY, WHITE; SOFT
2235.00 - 2182.00	220.0 - 273.0	CLAY, YELLOWISH-BROWN
2182.00 - 2173.00	273.0 - 282.0	SHALE, DARK-GRAY TO BLACK (PIERRE SHALE)

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Location Information

Legal Location: NW NW NW SW SEC. 01, T. 097 N., R. 77 W.
County: TRIPP Location: 097N-77W-01CBBB
Basin: WHITE Latitude: 43 14' 56"
Hydrologic Unit Code: 10140204 Longitude: 99 54' 33"
Land Owner: J. NOVOTNY Ground Surface Elevation (ft.): 2322 T

Project Information

Project: TRIPP WATER USERS DIST. Geologist: A. BARARI
Drill Date: 07/30/1981 Geologist's Log: X
Company: SDGS Driller: S. MITCHELL
Drilling Method: ROTARY Driller's Log:
Test Hole Number: COMBO-11 Total Drill Hole Depth (ft.): 136.0
Samples: X

Geophysical Information

Spontaneous Potential: Single Point Resistivity:
Natural Gamma: Extra:

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2322.00 - 2306.00	0.0 - 16.0	SAND, VERY FINE; WITH CLAY
2306.00 - 2262.00	16.0 - 60.0	SAND; EASY DRILLING; SOME CLAY
2262.00 - 2242.00	60.0 - 80.0	CLAY, WHITE
2242.00 - 2202.00	80.0 - 120.0	CLAY, YELLOW
2202.00 - 2186.00	120.0 - 136.0	SHALE; HARD DRILLING

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Location Information

Legal Location:SE SE NW SW SEC. 01, T. 097 N., R. 77 W.

County:TRIPP

Location:097N-77W-01CBDD

Basin:WHITE

Latitude:43 14' 44"

Hydrologic Unit Code:10140204

Longitude: 99 54' 18"

Land Owner:J. NOVOTNY

Ground Surface Elevation (ft.):2308 T

Project Information

Project:TRIPP WATER USERS DIST.

Geologist:A. BARARI

Drill Date:07/29/1981

Geologist's Log:X

Company:SDGS

Driller:S. MITCHELL

Drilling Method:ROTARY

Driller's Log:

Test Hole Number:COMBO-10

Total Drill Hole Depth (ft.):116.0

Samples:X

Geophysical Information

Spontaneous Potential:

Single Point Resistivity:

Natural Gamma:

Extra:

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2308.00 - 2303.00	0.0 - 5.0	SAND, VERY FINE; SOME CLAY
2303.00 - 2254.00	5.0 - 54.0	SAND, FINE; EASY DRILLING, SOME CLAY
2254.00 - 2252.00	54.0 - 56.0	SAND; CEMENTED
2252.00 - 2192.00	56.0 - 116.0	CLAY; HARD DRILLING

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Location Information

Legal Location:SE NW NW NE SEC. 12, T. 097 N., R. 77 W.

County:TRIPP

Location:097N-77W-12ABBD

Basin:WHITE

Latitude:43 14' 25"

Hydrologic Unit Code:10140204

Longitude: 99 53' 50"

Land Owner:J. NOVOTNY

Ground Surface Elevation (ft.):2298 T

Project Information

Project:TRIPP WATER USERS DIST.

Geologist:A. BARARI

Drill Date:07/28/1981

Geologist's Log:X

Company:SDGS

Driller:S. MITCHELL

Drilling Method:ROTARY

Driller's Log:

Test Hole Number:COMBO-7

Total Drill Hole Depth (ft.):116.0

Samples:X

Geophysical Information

Spontaneous Potential:

Single Point Resistivity:

Natural Gamma:

Extra:

WATER LEVEL: 3 FEET.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2298.00 - 2295.00	0.0 - 3.0	TOPSOIL
2295.00 - 2276.00	3.0 - 22.0	SAND, VERY FINE; SOME CLAY
2276.00 - 2270.00	22.0 - 28.0	SAND, FINE; WITH CLAY
2270.00 - 2252.00	28.0 - 46.0	SAND, FINE; EASY DRILLING
2252.00 - 2238.00	46.0 - 60.0	CLAY; SOME SAND LAYERS
2238.00 - 2182.00	60.0 - 116.0	CLAY; HARD DRILLING

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Location Information

Legal Location: SE SW SE NE SEC. 12, T. 097 N., R. 77 W.

County: TRIPP

Location: 097N-77W-12ADCD

Basin: WHITE

Latitude: 43 14' 04"

Hydrologic Unit Code: 10140204

Longitude: 99 53' 30"

Land Owner: J. NOVOTNY

Ground Surface Elevation (ft.): 2318 T

Project Information

Project: TRIPP WATER USERS DIST.

Geologist: A. BARARI

Drill Date: 07/28/1981

Geologist's Log: X

Company: SDGS

Driller: M. THOMPSON

Drilling Method: ROTARY

Driller's Log:

Test Hole Number: ROTARY-1

Total Drill Hole Depth (ft.): 215.0

Samples:

Geophysical Information

Spontaneous Potential: X

Single Point Resistivity: X

Natural Gamma:

Extra:

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2318.00 - 2315.00	0.0 - 3.0	TOPSOIL, SANDY
2315.00 - 2310.00	3.0 - 8.0	SAND, YELLOWISH-GRAY, FINE
2310.00 - 2289.00	8.0 - 29.0	SAND, BROWN, FINE
2289.00 - 2287.00	29.0 - 31.0	SAND, YELLOWISH-BROWN, FINE; SOME CEMENTATION
2287.00 - 2171.00	31.0 - 147.0	SAND, YELLOWISH-BROWN, FINE; SOME CLAY
2171.00 - 2167.00	147.0 - 151.0	CLAY; HARD DRILLING
2167.00 - 2165.00	151.0 - 153.0	SAND, FINE
2165.00 - 2136.00	153.0 - 182.0	CLAY, GREENISH-YELLOW
2136.00 - 2124.00	182.0 - 194.0	CLAY, YELLOWISH-BROWN
2124.00 - 2103.00	194.0 - 215.0	SHALE, BLACK

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Legal Location: NE SE SE NE SEC. 12, T. 097 N., R. 77 W.

County: TRIPP

Basin: WHITE

Hydrologic Unit Code: 10140204

Land Owner: J. NOVOTNY

Location Information

Location: 097N-77W-12ADDA

Latitude: 43 14' 10"

Longitude: 99 53' 24"

Ground Surface Elevation (ft.): 2310 T

Project: TRIPP WATER USERS DIST.

Drill Date: 07/29/1981

Company: SDGS

Drilling Method: ROTARY

Test Hole Number: ROTARY-2

Samples:

Project Information

Geologist: A. BARARI

Geologist's Log: X

Driller: E. KOGLIN

Driller's Log:

Total Drill Hole Depth (ft.): 264.0

SDGS Well Name: OB-1

Water Rights Well:

Other Well Name:

Casing Type: PVC

Screen Type: PVC, MFG.

Total Casing and Screen (ft.): 233.0

Well Maintenance Date:

Well Information

Aquifer: OGALLALA

Management Unit:

Casing Top Elevation:

Casing Diameter (in.): 2.0

Screen Length (ft.): 10.0

Casing Stick-up (ft.): 3.00

Spontaneous Potential: X

Natural Gamma:

Geophysical Information

Single Point Resistivity: X

Extra:

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2310.00 - 2308.00	0.0 - 2.0	TOPSOIL
2308.00 - 2262.00	2.0 - 48.0	SAND, YELLOWISH-BROWN, FINE TO MEDIUM
2262.00 - 2252.00	48.0 - 58.0	CLAY AND SAND LAYERS
2252.00 - 2219.00	58.0 - 91.0	SAND; SOME CLAY LAYERS
2219.00 - 2172.00	91.0 - 138.0	CLAY AND SAND LAYERS
2172.00 - 2138.00	138.0 - 172.0	SAND, FINE TO MEDIUM; WITH SOME CLAY LAYERS
2138.00 - 2122.00	172.0 - 188.0	CLAY; WITH SOME SAND LAYERS
2122.00 - 2080.00	188.0 - 230.0	SAND, MEDIUM TO COARSE; SOME CLAY LAYERS
2080.00 - 2046.00	230.0 - 264.0	SHALE, BLACK

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097N77W12ADDA

Location Information

Legal Location:SE SE SE NE SEC. 12, T. 097 N., R. 77 W.

County:TRIPP

Location:097N-77W-12ADDD

Basin:WHITE

Latitude:43 14' 04"

Hydrologic Unit Code:10140204

Longitude: 99 53' 20"

Land Owner:J. NOVOTNY

Ground Surface Elevation (ft.):2318 T

Project Information

Project:TRIPP WATER USERS DIST.

Geologist:A. BARARI

Drill Date:07/30/1981

Geologist's Log:X

Company:SDGS

Driller:M. THOMPSON

Drilling Method:ROTARY

Driller's Log:

Test Hole Number:ROTARY-3

Total Drill Hole Depth (ft.):249.0

Samples:

Well Information

SDGS Well Name: OB-3

Aquifer:OGALLALA

Water Rights Well:

Management Unit:

Other Well Name:

Casing Top Elevation:

Casing Type:PVC

Casing Diameter (in.):2.0

Screen Type:PVC, MFG.

Screen Length (ft.):5.0

Total Casing and Screen (ft.):145.0

Casing Stick-up (ft.):

Well Maintenance Date:

Geophysical Information

Spontaneous Potential:X

Single Point Resistivity:X

Natural Gamma:

Extra:

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2318.00 - 2316.00	0.0 - 2.0	TOPSOIL
2316.00 - 2258.00	2.0 - 60.0	SAND, YELLOWISH-BROWN, FINE; FEW CLAY BALLS
2258.00 - 2248.00	60.0 - 70.0	SAND, LIGHT-BROWN, FINE TO MEDIUM
2248.00 - 2242.00	70.0 - 76.0	CLAY; HARD DRILLING
2242.00 - 2240.00	76.0 - 78.0	SAND; EASY DRILLING
2240.00 - 2236.00	78.0 - 82.0	CLAY; HARD DRILLING
2236.00 - 2214.00	82.0 - 104.0	SAND; SOME CLAY LAYERS
2214.00 - 2199.00	104.0 - 119.0	CLAY, YELLOWISH-GRAY
2199.00 - 2158.00	119.0 - 160.0	SAND, FINE TO MEDIUM; FEW CLAY BALLS
2158.00 - 2150.00	160.0 - 168.0	CLAY, LIGHT-GREEN; LAYERS OF EASY AND HARD DRILLING
2150.00 - 2138.00	168.0 - 180.0	SAND, FINE TO MEDIUM

2138.00 - 2123.00	180.0 - 195.0	CLAY, LIGHT-GREEN
2123.00 - 2111.00	195.0 - 207.0	SAND, FINE TO MEDIUM
2111.00 - 2092.00	207.0 - 226.0	CLAY, YELLOWISH-BROWN
2092.00 - 2069.00	226.0 - 249.0	SHALE, BLACK

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Location Information

Legal Location:SW NE NE SE SEC. 12, T. 097 N., R. 77 W.

County:TRIPP

Location:097N-77W-12DAAC

Basin:WHITE

Latitude:43 13' 58"

Hydrologic Unit Code:10140204

Longitude: 99 53' 30"

Land Owner:B. MULSO

Ground Surface Elevation (ft.):2339 T

Project Information

Project:TRIPP RURAL WATER SYSTEM

Geologist:L. SCHULZ

Drill Date:07/28/1992

Geologist's Log:X

Company:SDGS

Driller:D. IVERSON

Drilling Method:ROTARY

Driller's Log:

Test Hole Number:R20-92-26

Total Drill Hole Depth (ft.):239.0

Samples:

Geophysical Information

Spontaneous Potential:X

Single Point Resistivity:X

Natural Gamma:X

Extra:

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2339.00 - 2338.00	0.0 - 1.0	TOPSOIL
2338.00 - 2320.00	1.0 - 19.0	SAND, BROWN, FINE-GRAINED
2320.00 - 2311.00	19.0 - 28.0	SILTSTONE, GREEN-BROWN, SANDY; SOME CLAY
2311.00 - 2257.00	28.0 - 82.0	SAND, LIGHT-BROWN, FINE-GRAINED; SOME SILTSTONE IN CUTTINGS
2257.00 - 2254.00	82.0 - 85.0	SILTSTONE, LIGHT-BROWN, SANDY; SOME CLAY
2254.00 - 2246.00	85.0 - 93.0	SAND, TAN-BROWN, FINE-GRAINED, SILTY; SOME CLAY
2246.00 - 2243.00	93.0 - 96.0	SILTSTONE, LIGHT-BROWN, SANDY; SOME CLAY
2243.00 - 2224.00	96.0 - 115.0	SAND, LIGHT-BROWN, FINE-GRAINED, WELL- ROUNDED; SOME SILTSTONE AND CLAY IN CUTTINGS
2224.00 - 2222.00	115.0 - 117.0	CLAY, TAN-BROWN, SILTY, SANDY
2222.00 - 2221.00	117.0 - 118.0	SAND, BROWN, FINE-GRAINED, SILTY; SOME CLAY
2221.00 - 2220.00	118.0 - 119.0	CLAY, TAN-BROWN, SILTY, SANDY
2220.00 - 2216.00	119.0 - 123.0	SAND, BROWN, FINE-GRAINED, SILTY; SOME CLAY
2216.00 - 2210.00	123.0 - 129.0	CLAY, TAN-BROWN, SILTY, SANDY
2210.00 - 2208.00	129.0 - 131.0	SAND, BROWN, FINE-GRAINED, SILTY; SOME CLAY
2208.00 - 2203.00	131.0 - 136.0	CLAY, TAN-BROWN, SILTY, SANDY
2203.00 - 2199.00	136.0 - 140.0	SAND, BROWN, FINE-GRAINED, SILTY; SOME CLAY

2199.00 - 2191.00	140.0 - 148.0	CLAY, TAN-BROWN, SILTY, SANDY; SOME SILTSTONE IN CUTTINGS
2191.00 - 2165.00	148.0 - 174.0	SAND, LIGHT-BROWN, FINE-GRAINED, WELL- ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS
2165.00 - 2161.00	174.0 - 178.0	SILTSTONE, BROWN, SANDY
2161.00 - 2143.00	178.0 - 196.0	SAND, LIGHT-BROWN, FINE-GRAINED, WELL- ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS; SOME SILTSTONE IN CUTTINGS
2143.00 - 2121.00	196.0 - 218.0	CLAY, TAN-BROWN TO ORANGE, SILTY, VERY SANDY
2121.00 - 2110.00	218.0 - 229.0	SAND, LIGHT-BROWN, FINE-GRAINED, WELL- ROUNDED
2110.00 - 2109.00	229.0 - 230.0	CLAY, WHITE, SILTY, SANDY
2109.00 - 2100.00	230.0 - 239.0	CLAY, GRAY TO BLACK; GREASY (PIERRE SHALE)

INTERVALS BETWEEN 115 AND 148 FEET WERE INTERPRETED FROM THE ELECTRIC LOG ONLY.

* * * *

Location Information

Legal Location:SW NE NE SE SEC. 12, T. 097 N., R. 77 W.

County:TRIPP

Location:097N-77W-12DAAC 1

Basin:WHITE

Latitude:43 13' 58"

Hydrologic Unit Code:10140204

Longitude: 99 53' 30"

Land Owner:B. MULSO

Ground Surface Elevation (ft.):2339 T

Project Information

Project:TRIPP RURAL WATER SYSTEM

Geologist:L. SCHULZ

Drill Date:08/12/1992

Geologist's Log:X

Company:SDGS

Driller:D. IVERSON

Drilling Method:ROTARY

Driller's Log:

Test Hole Number:R20-92-31

Total Drill Hole Depth (ft.):195.0

Samples:

Well Information

SDGS Well Name: R20-92-31

Aquifer:OGALLALA

Water Rights Well:

Management Unit:

Other Well Name:

Casing Top Elevation:2341.00 T

Casing Type:PVC

Casing Diameter (in.):2.0

Screen Type:PVC, MFG., SLOT SIZE 0.010 IN.

Screen Length (ft.):30.0

Total Casing and Screen (ft.):195.0

Casing Stick-up (ft.):2.00

Well Maintenance Date:

Geophysical Information

Spontaneous Potential:

Single Point Resistivity:

Natural Gamma:

Extra:

WELL INFORMATION: TOTAL CASING AND SCREEN = 195 FEET. 30 FOOT SCREEN FROM 195 TO 165 FEET BELOW CASING TOP. FILTER PACK FROM 195 TO 125 FEET BELOW CASING TOP. BENTONITE GROUT FROM 125 FEET TO LAND SURFACE. 1 STEEL WELL PROTECTOR INSTALLED.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2339.00 - 2338.00	0.0 - 1.0	TOPSOIL
2338.00 - 2320.00	1.0 - 19.0	SAND, BROWN, FINE-GRAINED
2320.00 - 2311.00	19.0 - 28.0	SILTSTONE, GREEN-BROWN, SANDY; SOME CLAY
2311.00 - 2257.00	28.0 - 82.0	SAND, LIGHT-BROWN, FINE-GRAINED, WELL- ROUNDED; SOME SILTSTONE IN CUTTINGS
2257.00 - 2254.00	82.0 - 85.0	SILTSTONE, LIGHT-BROWN, SANDY; SOME CLAY
2254.00 - 2246.00	85.0 - 93.0	SAND, TAN-BROWN, FINE-GRAINED, SILTY; SOME CLAY
2246.00 - 2243.00	93.0 - 96.0	SILTSTONE, LIGHT-BROWN, SANDY; SOME CLAY
2243.00 - 2224.00	96.0 - 115.0	SAND, LIGHT-BROWN, FINE-GRAINED, WELL- ROUNDED; SOME SILTSTONE AND CLAY IN CUTTINGS

2224.00 - 2222.00	115.0 - 117.0	CLAY, TAN-BROWN, SILTY, SANDY
2222.00 - 2221.00	117.0 - 118.0	SAND, BROWN, FINE-GRAINED, SILTY; SOME CLAY
2221.00 - 2220.00	118.0 - 119.0	CLAY, TAN-BROWN, SILTY, SANDY
2220.00 - 2216.00	119.0 - 123.0	SAND, BROWN, FINE-GRAINED, SILTY; SOME CLAY
2216.00 - 2210.00	123.0 - 129.0	CLAY, TAN-BROWN, SILTY, SANDY
2210.00 - 2208.00	129.0 - 131.0	SAND, BROWN, FINE-GRAINED, SILTY; SOME CLAY
2208.00 - 2203.00	131.0 - 136.0	CLAY, TAN-BROWN, SILTY, SANDY
2203.00 - 2199.00	136.0 - 140.0	SAND, BROWN, FINE-GRAINED, SILTY; SOME CLAY
2199.00 - 2191.00	140.0 - 148.0	CLAY, TAN-BROWN, SILTY, SANDY; SOME SILTSTONE IN CUTTINGS
2191.00 - 2165.00	148.0 - 174.0	SAND, LIGHT-BROWN, FINE-GRAINED, WELL- ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS
2165.00 - 2161.00	174.0 - 178.0	SILTSTONE, BROWN, SANDY; SOME LIGHT- OLIVE-GREEN SANDSTONE IN CUTTINGS
2161.00 - 2144.00	178.0 - 195.0	SAND, LIGHT-BROWN, FINE-GRAINED, WELL- ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS; SOME SILTSTONE IN CUTTINGS

INTERVALS WERE INTERPRETED FROM THE DRILLER'S LOG AND THE ELECTRIC LOG OF R20-92-26.
BOTH HOLES WERE DRILLED ONLY A FEW FEET APART.

* * * *

Legal Location: NE NE NW SE SEC. 12, T. 097 N., R. 77 W.

County: TRIPP

Basin: WHITE

Hydrologic Unit Code: 10140204

Land Owner: B. MULSO

Location Information

Location: 097N-77W-12DBAA

Latitude: 43 14' 03"

Longitude: 99 53' 42"

Ground Surface Elevation (ft.): 2312 T

Project: TRIPP RURAL WATER SYSTEM

Drill Date: 07/15/1992

Company: SDGS

Drilling Method: ROTARY

Test Hole Number: R20-92-22

Samples:

Project Information

Geologist: L. SCHULZ

Geologist's Log: X

Driller: D. IVERSON

Driller's Log:

Total Drill Hole Depth (ft.): 167.0

Spontaneous Potential: X

Natural Gamma: X

Geophysical Information

Single Point Resistivity: X

Extra:

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2312.00 - 2311.00	0.0 - 1.0	TOPSOIL
2311.00 - 2290.00	1.0 - 22.0	CLAY, OLIVE-GREEN, SILTY, VERY SANDY
2290.00 - 2268.00	22.0 - 44.0	SAND, BROWN, FINE-GRAINED, WELL-ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS; SOME LIGHT-GREEN SANDSTONE CHIPS IN CUTTINGS
2268.00 - 2257.00	44.0 - 55.0	CLAY AND SILTSTONE INTERBEDDED, OLIVE-GREEN
2257.00 - 2239.00	55.0 - 73.0	CLAY, BUFF COLORED SILTSTONE, SANDY
2239.00 - 2194.00	73.0 - 118.0	SAND, BROWN, FINE-GRAINED, WELL-ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS; SOME LIGHT-GREEN SANDSTONE CHIPS IN CUTTINGS
2194.00 - 2183.00	118.0 - 129.0	CLAY, CREAM-WHITE TO LIGHT-GREEN, SILTY, VERY SANDY; SOME DARK-BROWN TO LIGHT-PINK SANDSTONE IN CUTTINGS
2183.00 - 2168.00	129.0 - 144.0	SAND, LIGHT-BROWN, FINE TO MEDIUM, WELL-ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS; SOME CLAY LAYERS INTERBEDDED
2168.00 - 2156.00	144.0 - 156.0	CLAY, LIGHT-BROWN, SILTY, SANDY; THIS INTERVAL INTERPRETED FROM E-LOG
2156.00 - 2145.00	156.0 - 167.0	SANDSTONE AND CLAY INTERBEDDED, DARK-BROWN SANDSTONE, BROWN CLAY, SILTY; MUCH FINE SAND
		CLAY, DARK-GRAY TO BLACK; GREASY (PIERRE SHALE)

097N77W12DBAA

Location Information

Legal Location: NW NW NW SE SEC. 12, T. 097 N., R. 77 W.

County: TRIPP

Location: 097N-77W-12DBBB

Basin: WHITE

Latitude: 43 14' 02"

Hydrologic Unit Code: 10140204

Longitude: 99 53' 57"

Land Owner: B. MULSO

Ground Surface Elevation (ft.): 2322 T

Project Information

Project: TRIPP RURAL WATER SYSTEM

Geologist: L. SCHULZ

Drill Date: 07/15/1992

Geologist's Log: X

Company: SDGS

Driller: D. IVERSON

Drilling Method: ROTARY

Driller's Log:

Test Hole Number: R20-92-21

Total Drill Hole Depth (ft.): 168.0

Samples:

Geophysical Information

Spontaneous Potential: X

Single Point Resistivity: X

Natural Gamma: X

Extra:

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2322.00 - 2321.00	0.0 - 1.0	TOPSOIL
2321.00 - 2301.00	1.0 - 21.0	SAND, DARK-BROWN, FINE-GRAINED, WELL- ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS; SOME SMALL CLAY LAYERS
2301.00 - 2256.00	21.0 - 66.0	CLAY, CREAM-WHITE, SILTY, VERY SANDY; THIN LAYERS OF SANDSTONE AND UNCONSOLIDATED SANDS INTERBEDDED THROUGHOUT
2256.00 - 2208.00	66.0 - 114.0	SAND, TAN-BROWN TO OLIVE-BROWN, FINE- GRAINED, WELL-ROUNDED; MOSTLY QUARTZ WITH SOME LITHIC FRAGMENTS; SOME SMALL CLAY LAYERS
2208.00 - 2202.00	114.0 - 120.0	CLAY, TAN-BROWN TO OLIVE-GREEN, SILTY, SANDY
2202.00 - 2196.00	120.0 - 126.0	SANDSTONE, BROWN; LIGHTLY CEMENTED
2196.00 - 2166.00	126.0 - 156.0	CLAY, TAN-BROWN TO OLIVE-GREEN, SILTY, SANDY
2166.00 - 2161.00	156.0 - 161.0	CLAY, ORANGE-RED; GREASY, WEATHERED (PIERRE SHALES)
2161.00 - 2154.00	161.0 - 168.0	CLAY, DARK-GRAY TO BLACK; GREASY (PIERRE SHALES)

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Location Information

Legal Location: NE NE SW SE SEC. 12, T. 097 N., R. 77 W.

County: TRIPP

Location: 097N-77W-12DCAA

Basin: WHITE

Latitude: 43 13' 50"

Hydrologic Unit Code: 10140204

Longitude: 99 53' 42"

Land Owner: B. MULSO

Ground Surface Elevation (ft.): 2329 T

Project Information

Project: TRIPP RURAL WATER SYSTEM

Geologist: L. SCHULZ

Drill Date: 07/20/1992

Geologist's Log: X

Company: SDGS

Driller: D. IVERSON

Drilling Method: ROTARY

Driller's Log:

Test Hole Number: R20-92-23

Total Drill Hole Depth (ft.): 275.0

Samples:

Geophysical Information

Spontaneous Potential: X

Single Point Resistivity: X

Natural Gamma: X

Extra:

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2329.00 - 2328.00	0.0 - 1.0	TOPSOIL
2328.00 - 2313.00	1.0 - 16.0	CLAY, BROWN TO LIGHT-BROWN, SILTY, VERY SANDY; SOME FINE SAND
2313.00 - 2260.00	16.0 - 69.0	SAND, BROWN TO LIGHT-BROWN, FINE-GRAINED, WELL-ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS; SOME CLAY AND SILT
2260.00 - 2253.00	69.0 - 76.0	SILTSTONE, DARK-OLIVE-GREEN, SANDY; SOME CLAY AND FINE SAND
2253.00 - 2243.00	76.0 - 86.0	SAND, LIGHT-BROWN, FINE-GRAINED, WELL- ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS; SOME CLAY
2243.00 - 2231.00	86.0 - 98.0	SILTSTONE, DARK-OLIVE-GREEN, SANDY; SOME CLAY AND FINE SAND
2231.00 - 2215.00	98.0 - 114.0	SAND, LIGHT-BROWN, FINE-GRAINED, WELL- ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS; SOME INTERBEDDED CLAY AND SILTSTONE LAYERS
2215.00 - 2203.00	114.0 - 126.0	SILTSTONE, OLIVE-GREEN, SANDY; SOME INTERBEDDED SANDSTONE, CLAY, AND UNCONSOLIDATED FINE-GRAINED SAND LAYERS
2203.00 - 2146.00	126.0 - 183.0	SAND, LIGHT-BROWN TO WHITE, FINE- TO MEDIUM-GRAINED, WELL-ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS; VERY LITTLE CLAY OR SILT

2146.00 - 2139.00	183.0 - 190.0	SILTSTONE, DARK-OLIVE-GREEN, SANDY
2139.00 - 2115.00	190.0 - 214.0	CLAY, LIGHT-OLIVE-GREEN, SILTY, SANDY; SOME BROWN SANDSTONE CHIPS IN CUTTINGS
2115.00 - 2093.00	214.0 - 236.0	SAND AND SANDSTONE, LIGHT-OLIVE-GREEN, FINE SAND; SOME SILTSTONE AND CLAY
2093.00 - 2058.00	236.0 - 271.0	CLAY, LIGHT-PINK, SILTY, SANDY
2058.00 - 2054.00	271.0 - 275.0	UNKNOWN; HARD LAYER; DRILLER REPORTS GRAY CLAY ON BIT SAMPLE (PIERRE SHALE?)

* * * *

Location Information

Legal Location: NE NE SW SE SEC. 12, T. 097 N., R. 77 W.

County: TRIPP

Location: 097N-77W-12DCAA 1

Basin: WHITE

Latitude: 43 13' 50"

Hydrologic Unit Code: 10140204

Longitude: 99 53' 42"

Land Owner: B. MULSO

Ground Surface Elevation (ft.): 2329 T

Project Information

Project: TRIPP RURAL WATER SYSTEM

Geologist: L. SCHULZ

Drill Date: 07/29/1992

Geologist's Log: X

Company: SDGS

Driller: D. IVERSON

Drilling Method: ROTARY

Driller's Log:

Test Hole Number: R20-92-27

Total Drill Hole Depth (ft.): 184.0

Samples:

Well Information

SDGS Well Name: R20-92-27

Aquifer: OGALLALA

Water Rights Well:

Management Unit:

Other Well Name:

Casing Top Elevation: 2331.00 T

Casing Type: PVC

Casing Diameter (in.): 2.0

Screen Type: PVC, MFG., SLOT SIZE 0.010 IN.

Screen Length (ft.): 25.0

Total Casing and Screen (ft.): 182.5

Casing Stick-up (ft.): 2.50

Well Maintenance Date:

Geophysical Information

Spontaneous Potential: X

Single Point Resistivity: X

Natural Gamma: X

Extra:

WELL INFORMATION: TOTAL CASING AND SCREEN = 182.5 FEET. 25 FEET OF SCREEN FROM 182.5 TO 157.5 FEET BELOW CASING TOP. FILTER PACK FROM 182.5 TO 123 FEET BELOW CASING TOP. BENTONITE GROUT FROM 123 FEET TO LAND SURFACE. 1 STEEL WELL PROTECTOR INSTALLED.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2329.00 - 2328.00	0.0 - 1.0	TOPSOIL
2328.00 - 2314.00	1.0 - 15.0	CLAY, TAN-BROWN, SILTY, SANDY
2314.00 - 2260.00	15.0 - 69.0	SAND, BROWN, FINE-GRAINED, WELL-ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS
2260.00 - 2253.00	69.0 - 76.0	SILTSTONE, DARK-OLIVE-GREEN, CLAYEY, VERY SANDY
2253.00 - 2243.00	76.0 - 86.0	SAND, LIGHT-BROWN, FINE-GRAINED, WELL-ROUNDED; SOME CLAY
2243.00 - 2231.00	86.0 - 98.0	SILTSTONE, DARK-OLIVE-GREEN, SANDY; SOME CLAY AND FINE SAND LAYERS INTERBEDDED
2231.00 - 2215.00	98.0 - 114.0	SAND, LIGHT-BROWN, FINE-GRAINED, WELL-ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS; SOME INTERBEDDED CLAYSTONE AND SILTSTONE LAYERS

2215.00 - 2202.00

114.0 - 127.0

SILTSTONE, DARK-OLIVE-GREEN, VERY SANDY; SOME
INTERBEDDED SANDSTONE, CLAY, AND UNCONSOLIDATED
SAND LAYERS

2202.00 - 2145.00

127.0 - 184.0

SAND, LIGHT-BROWN, FINE TO MEDIUM, WELL-
ROUNDED; MAINLY QUARTZ WITH SOME LITHIC
FRAGMENTS; VERY LITTLE CLAY OR SILT

* * * *

Location Information

Legal Location:SW SW SW SE SEC. 12, T. 097 N., R. 77 W.

County:TRIPP

Location:097N-77W-12DCCC

Basin:WHITE

Latitude:43 13' 38"

Hydrologic Unit Code:10140204

Longitude: 99 53' 57"

Land Owner:B. MULSO

Ground Surface Elevation (ft.):2353 T

Project Information

Project:TRIPP RURAL WATER SYSTEM

Geologist:L. SCHULZ

Drill Date:07/14/1992

Geologist's Log:X

Company:SDGS

Driller:D. IVERSON

Drilling Method:ROTARY

Driller's Log:

Test Hole Number:R20-92-20

Total Drill Hole Depth (ft.):197.0

Samples:

Geophysical Information

Spontaneous Potential:X

Single Point Resistivity:X

Natural Gamma:X

Extra:

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2353.00 - 2352.00	0.0 - 1.0	TOPSOIL
2352.00 - 2329.00	1.0 - 24.0	CLAY, LIGHT-OLIVE-GREEN, SILTY, VERY SANDY; SOME FINE TO MEDIUM SAND
2329.00 - 2319.00	24.0 - 34.0	CLAY, LIGHT-OLIVE-GREEN, SILTY, SANDY; SOME INTERBEDDED SILTSTONE AND SANDSTONE LAYERS
2319.00 - 2273.00	34.0 - 80.0	SAND, LIGHT-BROWN TO BROWN, FINE-GRAINED, WELL-ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS; SOME CLAY, SOME LIGHTLY CEMENTED SILTSTONE CHIPS IN CUTTINGS
2273.00 - 2269.00	80.0 - 84.0	SILTSTONE, DARK-OLIVE-GREEN, SANDY; MUCH CLAY
2269.00 - 2267.00	84.0 - 86.0	SANDSTONE, LIGHT-OLIVE-GREEN, FINE- GRAINED, SILTY
2267.00 - 2264.00	86.0 - 89.0	SILTSTONE, DARK-OLIVE-GREEN, SANDY; MUCH CLAY
2264.00 - 2262.00	89.0 - 91.0	SANDSTONE, LIGHT-OLIVE-GREEN, FINE- GRAINED, SILTY
2262.00 - 2259.00	91.0 - 94.0	SILTSTONE, DARK-OLIVE-GREEN, SANDY; MUCH CLAY
2259.00 - 2247.00	94.0 - 106.0	SAND, BROWN, FINE-GRAINED, WELL-ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS
2247.00 - 2195.00	106.0 - 158.0	CLAY AND SILTSTONE, LIGHT-GREEN CLAY, LIGHT-PINK SILTSTONE; SOME SANDSTONE CHIPS IN CUTTINGS; MUCH FINE SAND

2177.00 - 2170.00

2170.00 - 2169.00

2169.00 - 2156.00

176.0 - 183.0

183.0 - 184.0

184.0 - 197.0

SAND, BROWN, FINE- TO MEDIUM-GRAINED,
WELL-ROUNDED, SILTY; MAINLY QUARTZ WITH SOME
LITHIC FRAGMENTS

GRAVEL, BROWN, MEDIUM TO COARSE; MAINLY LITHIC
FRAGMENTS OF SANDSTONE AND SILTSTONE; SOME
QUARTZ SAND

CLAY, ORANGE-RED TO BROWN

CLAY, DARK-GRAY TO BLACK; GREASY (PIERRE SHALE)

* * * *

Location Information

Legal Location:SW SW SW SE SEC. 12, T. 097 N., R. 77 W.

County:TRIPP

Basin:WHITE

Hydrologic Unit Code:10140204

Land Owner:B. MULSO

Location:097N-77W-12DCCC 1

Latitude:43 13' 38"

Longitude: 99 53' 57"

Ground Surface Elevation (ft.):2353 T

Project Information

Project:TRIPP RURAL WATER SYSTEM

Drill Date:08/11/1992

Company:SDGS

Drilling Method:ROTARY

Test Hole Number:R20-92-30

Samples:

Geologist:L. SCHULZ

Geologist's Log:X

Driller:D. IVERSON

Driller's Log:

Total Drill Hole Depth (ft.):182.0

Well Information

SDGS Well Name: R20-92-30

Water Rights Well:

Other Well Name:

Casing Type:PVC

Screen Type:PVC, MFG., SLOT SIZE 0.010 IN.

Total Casing and Screen (ft.):183.0

Well Maintenance Date:

Aquifer:OGALLALA

Management Unit:

Casing Top Elevation:2355.00 T

Casing Diameter (in.):2.0

Screen Length (ft.):10.0

Casing Stick-up (ft.):2.00

Geophysical Information

Spontaneous Potential:

Natural Gamma:

Single Point Resistivity:

Extra:

WELL INFORMATION: TOTAL CASING AND SCREEN = 183 FEET. 10 FOOT SCREEN FROM 183 TO 173 FEET BELOW CASING TOP. FILTER PACK FROM 183 TO 138 FEET BELOW CASING TOP. BENTONITE GROUT FROM 138 FEET TO LAND SURFACE. 1 STEEL WELL PROTECTOR INSTALLED.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2353.00 - 2352.00	0.0 - 1.0	TOPSOIL
2352.00 - 2329.00	1.0 - 24.0	CLAY, LIGHT-OLIVE-GREEN, SILTY, VERY SANDY; SOME FINE TO MEDIUM SAND
2329.00 - 2319.00	24.0 - 34.0	CLAY, LIGHT-OLIVE-GREEN, SILTY, VERY SANDY; SOME INTERBEDDED SILTSTONE AND SANDSTONE LAYERS
2319.00 - 2273.00	34.0 - 80.0	SAND, LIGHT-BROWN TO BROWN, FINE-GRAINED, WELL-ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS; SOME CLAY, SOME LIGHTLY CEMENTED SILTSTONE
2273.00 - 2269.00	80.0 - 84.0	SILTSTONE, DARK-OLIVE-GREEN, SANDY; MUCH CLAY
2269.00 - 2267.00	84.0 - 86.0	SANDSTONE, LIGHT-OLIVE-GREEN, FINE- GRAINED, SILTY

2267.00 - 2264.00	86.0 - 89.0	SILTSTONE, DARK-OLIVE-GREEN, SANDY; MUCH CLAY
2264.00 - 2262.00	89.0 - 91.0	SANDSTONE, LIGHT-OLIVE-GREEN, FINE- GRAINED, SILTY
2262.00 - 2259.00	91.0 - 94.0	SILTSTONE, DARK-OLIVE-GREEN, SANDY; MUCH CLAY
2259.00 - 2247.00	94.0 - 106.0	SAND, LIGHT-BROWN, FINE-GRAINED, WELL- ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS
2247.00 - 2195.00	106.0 - 158.0	CLAY AND SILTSTONE, LIGHT-GREEN CLAY, LIGHT-PINK SILTSTONE, SILTY, SANDY CLAY, VERY SANDY SILTSTONE; SOME SANDSTONE CHIPS IN CUTTINGS, MUCH FINE SAND
2195.00 - 2177.00	158.0 - 176.0	SAND, LIGHT-BROWN, FINE TO MEDIUM, WELL- ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS
2177.00 - 2171.00	176.0 - 182.0	GRAVEL, BROWN, MEDIUM TO COARSE; MAINLY LITHIC FRAGMENTS OF SANDSTONE AND SILTSTONE; SOME QUARTZ SAND

INTERVALS WERE INTERPRETED FROM THE DRILLER'S LOG AND THE ELECTRIC LOG OF R20-92-20. BOTH HOLES WERE DRILLED ONLY A FEW FEET APART.

* * * *

Location Information

Legal Location:SE SE SW SE SEC. 12, T. 097 N., R. 77 W.

County:TRIPP

Location:097N-77W-12DCDD

Basin:WHITE

Latitude:43 13' 39"

Hydrologic Unit Code:10140204

Longitude: 99 53' 41"

Land Owner:B. MULSO

Ground Surface Elevation (ft.):2340 T

Project Information

Project:TRIPP RURAL WATER SYSTEM

Geologist:L. SCHULZ

Drill Date:07/27/1992

Geologist's Log:X

Company:SDGS

Driller:D. IVERSON

Drilling Method:ROTARY

Driller's Log:

Test Hole Number:R20-92-24

Total Drill Hole Depth (ft.):288.0

Samples:

Geophysical Information

Spontaneous Potential:X

Single Point Resistivity:X

Natural Gamma:X

Extra:

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2340.00 - 2339.00	0.0 - 1.0	TOPSOIL
2339.00 - 2328.00	1.0 - 12.0	CLAY, BROWN TO OLIVE-BROWN, SILTY, SANDY
2328.00 - 2277.00	12.0 - 63.0	SAND, LIGHT-BROWN, FINE-GRAINED, WELL- ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS; SMALL CLAY LAYER FROM 25 TO 28 FEET
2277.00 - 2254.00	63.0 - 86.0	SILTSTONE AND SAND, DARK-BROWN SILTSTONE, BROWN SAND; SOME CLAY
2254.00 - 2235.00	86.0 - 105.0	SAND, BROWN, FINE-GRAINED, WELL-ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS; SOME DARK-BROWN SILTSTONE IN CUTTINGS
2235.00 - 2223.00	105.0 - 117.0	SILTSTONE, DARK-BROWN; SOME FINE SAND
2223.00 - 2205.00	117.0 - 135.0	SAND, DARK-BROWN, FINE-GRAINED, WELL- ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS
2205.00 - 2169.00	135.0 - 171.0	CLAY AND SILTSTONE, DARK-BROWN, SANDY, MUCH FINE SAND IN CUTTINGS
2169.00 - 2135.00	171.0 - 205.0	SAND, BROWN, FINE-GRAINED, WELL-ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS; SOME SANDSTONE CHIPS IN CUTTINGS
2135.00 - 2108.00	205.0 - 232.0	CLAY, TAN-BROWN TO WHITE, SILTY, VERY SANDY
2108.00 - 2088.00	232.0 - 252.0	SAND, BROWN, FINE-GRAINED, WELL-ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS; SOME SMALL CLAYSTONE LAYERS

2077.00	252.0 - 263.0	CLAY, TAN-BROWN, SILTY, VERY SANDY
2077.00 - 2072.00	263.0 - 268.0	CLAY, ORANGE-RED, SILTY; SOME SAND
2072.00 - 2052.00	268.0 - 288.0	CLAY, GRAY; GREASY (PIERRE SHALE)

* * * *

Location Information

Legal Location: NE NE SE SE SEC. 12, T. 097 N., R. 77 W.

County: TRIPP

Location: 097N-77W-12DDAA

Basin: WHITE

Latitude: 43 13' 50"

Hydrologic Unit Code: 10140204

Longitude: 99 53' 23"

Land Owner: B. MULSO

Ground Surface Elevation (ft.): 2335 T

Project Information

Project: TRIPP RURAL WATER SYSTEM

Geologist: L. SCHULZ

Drill Date: 07/28/1992

Geologist's Log: X

Company: SDGS

Driller: D. IVERSON

Drilling Method: ROTARY

Driller's Log:

Test Hole Number: R20-92-25

Total Drill Hole Depth (ft.): 188.0

Samples:

Geophysical Information

Spontaneous Potential: X

Single Point Resistivity: X

Natural Gamma: X

Extra:

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2335.00 - 2334.00	0.0 - 1.0	TOPSOIL
2334.00 - 2327.00	1.0 - 8.0	CLAY, BROWN, SILTY, SANDY
2327.00 - 2317.00	8.0 - 18.0	SAND, BROWN, FINE-GRAINED, SILTY; SOME CLAY
2317.00 - 2258.00	18.0 - 77.0	SAND AND CLAY INTERBEDDED, TAN-BROWN SAND, TAN-WHITE CLAY, FINE-GRAINED SAND, SILTY, SANDY CLAY; SOME DARK- GREEN SILTSTONE FROM 45 TO 50 FEET
2258.00 - 2234.00	77.0 - 101.0	SAND, TAN-BROWN, FINE-GRAINED, WELL- ROUNDED; SOME DARK-GREEN SILTSTONE INTERBEDDED FROM 87 TO 93 FEET
2234.00 - 2218.00	101.0 - 117.0	SILTSTONE AND CLAY, DARK-GREEN SILTSTONE, TAN CLAY, VERY SANDY
2218.00 - 2178.00	117.0 - 157.0	SAND, LIGHT-TAN-BROWN TO WHITE, FINE- TO MEDIUM-GRAINED, WELL-ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS, VERY LITTLE CLAY
2178.00 - 2169.00	157.0 - 166.0	CLAY, CREAM-WHITE, SILTY, SANDY
2169.00 - 2161.00	166.0 - 174.0	CLAY, REDDISH-ORANGE-BROWN
2161.00 - 2147.00	174.0 - 188.0	CLAY, GRAY TO BLACK; GREASY (PIERRE SHALE)

* * * *

Location Information

Legal Location:SE SE SE SE SEC. 12, T. 097 N., R. 77 W.

County:TRIPP

Location:097N-77W-12DDDD

Basin:WHITE

Latitude:43 13' 38"

Hydrologic Unit Code:10140204

Longitude: 99 53' 23"

Land Owner:B. MULSO

Ground Surface Elevation (ft.):2365 T

Project Information

Project:TRIPP RURAL WATER SYSTEM

Geologist:L. SCHULZ

Drill Date:08/10/1992

Geologist's Log:X

Company:SDGS

Driller:D. IVERSON

Drilling Method:ROTARY

Driller's Log:

Test Hole Number:R20-92-28

Total Drill Hole Depth (ft.):212.0

Samples:

Geophysical Information

Spontaneous Potential:X

Single Point Resistivity:X

Natural Gamma:X

Extra:

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2365.00 - 2364.00	0.0 - 1.0	TOPSOIL
2364.00 - 2359.00	1.0 - 6.0	CLAY, TAN-BROWN, SILTY, SANDY
2359.00 - 2353.00	6.0 - 12.0	SILT, BROWN, SANDY; SOME CLAY
2353.00 - 2338.00	12.0 - 27.0	SILTSTONE, CREAM-WHITE, VERY SANDY
2338.00 - 2327.00	27.0 - 38.0	SANDSTONE AND SILTSTONE INTERBEDDED, WHITE SANDSTONE, DARK-OLIVE-GREEN SILTSTONE; SOME CLAY
2327.00 - 2295.00	38.0 - 70.0	SAND, LIGHT-BROWN, FINE-GRAINED, WELL- ROUNDED; SOME SILTSTONE AND CLAY LAYERS INTERBEDDED
2295.00 - 2273.00	70.0 - 92.0	SILTSTONE, DARK-OLIVE-GREEN TO DARK- BROWN, VERY SANDY; SOME TAN CLAY, SOME UNCONSOLIDATED LIGHT-BROWN SAND
2273.00 - 2256.00	92.0 - 109.0	SAND, LIGHT-BROWN, FINE-GRAINED, WELL- ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS; SOME CLAY IN CUTTINGS
2256.00 - 2251.00	109.0 - 114.0	SILTSTONE, DARK-OLIVE-GREEN, VERY SANDY; SOME CLAY
2251.00 - 2245.00	114.0 - 120.0	SAND, LIGHT-BROWN, SILTY; SOME CLAY
2245.00 - 2244.00	120.0 - 121.0	SILTSTONE, DARK-OLIVE-GREEN, VERY SANDY; SOME CLAY
2244.00 - 2237.00	121.0 - 128.0	SAND, LIGHT-BROWN, SILTY; SOME CLAY

2237.00 - 2236.00	128.0 - 129.0	SILTSTONE, DARK-OLIVE-GREEN, VERY SANDY; SOME CLAY
2236.00 - 2229.00	129.0 - 136.0	SAND, LIGHT-BROWN, SILTY; SOME CLAY
2229.00 - 2227.00	136.0 - 138.0	SILTSTONE, DARK-OLIVE-GREEN, VERY SANDY; SOME CLAY
2227.00 - 2199.00	138.0 - 166.0	SAND, LIGHT-BROWN, FINE-GRAINED, WELL- ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS
2199.00 - 2165.00	166.0 - 200.0	CLAY, TAN, SILTY, SANDY; SOME SILTSTONE IN CUTTINGS
2165.00 - 2161.00	200.0 - 204.0	CLAYSTONE, LIGHT-RED-PINK, SILTY, SANDY
2161.00 - 2153.00	204.0 - 212.0	CLAY, GRAY TO BLACK; GREASY (PIERRE SHALE)

INTERVALS FROM 109 TO 138 FEET WERE INTERPRETED FROM THE ELECTRIC LOG ONLY.

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Location Information

Legal Location: SE SE SE SE SEC. 12, T. 097 N., R. 77 W.

County: TRIPP

Location: 097N-77W-12DDDD 1

Basin: WHITE

Latitude: 43 13' 38"

Hydrologic Unit Code: 10140204

Longitude: 99 53' 23"

Land Owner: B. MULSO

Ground Surface Elevation (ft.): 2365 T

Project Information

Project: TRIPP RURAL WATER SYSTEM

Geologist: L. SCHULZ

Drill Date: 08/11/1992

Geologist's Log: X

Company: SDGS

Driller: D. IVERSON

Drilling Method: ROTARY

Driller's Log:

Test Hole Number: R20-92-29

Total Drill Hole Depth (ft.): 167.0

Samples:

Well Information

SDGS Well Name: R20-92-29

Aquifer:

Water Rights Well:

Management Unit:

Other Well Name:

Casing Top Elevation: 2367.00 T

Casing Type: PVC

Casing Diameter (in.): 2.0

Screen Type: PVC, MFG., SLOT SIZE 0.010 IN.

Screen Length (ft.): 10.0

Total Casing and Screen (ft.): 167.0

Casing Stick-up (ft.): 2.00

Well Maintenance Date:

Geophysical Information

Spontaneous Potential:

Single Point Resistivity:

Natural Gamma:

Extra:

WELL INFORMATION: TOTAL CASING AND SCREEN = 167 FEET. 10 FOOT SCREEN FROM 167 TO 157 FEET BELOW CASING TOP. FILTER PACK FROM 167 TO 128 FEET BELOW CASING TOP. BENTONITE GROUT FROM 128 FEET TO LAND SURFACE. 1 STEEL WELL PROTECTOR INSTALLED.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2365.00 - 2364.00	0.0 - 1.0	TOPSOIL
2364.00 - 2359.00	1.0 - 6.0	CLAY, TAN-BROWN, SILTY, SANDY
2359.00 - 2353.00	6.0 - 12.0	SILT, BROWN, SANDY; SOME CLAY
2353.00 - 2338.00	12.0 - 27.0	SILT, CREAM-WHITE, SANDY; SOME TAN CLAY
2338.00 - 2327.00	27.0 - 38.0	SANDSTONE AND SILTSTONE INTERBEDDED, WHITE SANDSTONE, DARK-OLIVE-GREEN SILTSTONE; SOME CLAY
2327.00 - 2295.00	38.0 - 70.0	SAND, LIGHT-BROWN, FINE-GRAINED, WELL- ROUNDED; SOME SILTSTONE AND CLAY LAYERS INTERBEDDED
2295.00 - 2273.00	70.0 - 92.0	SILTSTONE AND CLAY, DARK-OLIVE-GREEN SILTSTONE, TAN CLAY; SOME UNCONSOLIDATED FINE-GRAINED SAND LAYERS

2273.00 - 2256.00	92.0 - 109.0	SAND, LIGHT-BROWN, FINE-GRAINED, WELL- ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS
2256.00 - 2251.00	109.0 - 114.0	SILTSTONE, DARK-OLIVE-GREEN, VERY SANDY; SOME CLAY
2251.00 - 2245.00	114.0 - 120.0	SAND, LIGHT-BROWN, SILTY; SOME CLAY
2245.00 - 2244.00	120.0 - 121.0	SILTSTONE, DARK-OLIVE-GREEN, VERY SANDY; SOME CLAY
2244.00 - 2237.00	121.0 - 128.0	SAND, LIGHT-BROWN, SILTY; SOME CLAY
2237.00 - 2236.00	128.0 - 129.0	SILTSTONE, DARK-OLIVE-GREEN, VERY SANDY; SOME CLAY
2236.00 - 2229.00	129.0 - 136.0	SAND, LIGHT-BROWN, SILTY; SOME CLAY
2229.00 - 2227.00	136.0 - 138.0	SILTSTONE, DARK-OLIVE-GREEN, VERY SANDY; SOME CLAY
2227.00 - 2198.00	138.0 - 167.0	SAND, LIGHT-BROWN, FINE-GRAINED, WELL- ROUNDED; MAINLY QUARTZ WITH SOME LITHIC FRAGMENTS

INTERVALS WERE INTERPRETED FROM THE DRILLER'S LOG AND THE ELECTRIC LOG OF R20-92-28.
BOTH HOLES WERE DRILLED ONLY A FEW FEET APART.

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Location Information

Legal Location: NW NW NW NW SEC. 13, T. 097 N., R. 77 W.	
County: TRIPP	Location: 097N-77W-13BBBB
Basin: WHITE	Latitude: 43 14' 03"
Hydrologic Unit Code: 10140204	Longitude: 99 54' 32"
Land Owner:	Ground Surface Elevation (ft.): 2362 T

Project Information

Project: OGALLALA AQUIFER STUDY	Geologist: D. FILIPOVIC
Drill Date: 05/21/2003	Geologist's Log: X
Company: SDGS	Driller: D. IVERSON
Drilling Method: ROTARY	Driller's Log:
Test Hole Number: R2-2003-13	Total Drill Hole Depth (ft.): 201.0
Samples:	

Geophysical Information

Spontaneous Potential: X	Single Point Resistivity: X
Natural Gamma: X	Extra:

HOLE PLUGGED WITH BENTONITE GROUT FROM 0 TO 201 FEET.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2362.00 - 2347.00	0.0 - 15.0	SAND, GRAY TO OLIVE, FINE
2347.00 - 2334.00	15.0 - 28.0	SAND AND SANDSTONE, GRAY TO OLIVE, FINE; SOME SILT
2334.00 - 2319.00	28.0 - 43.0	SILT AND SAND, BROWN, GRAY TO OLIVE; SOME SILTSTONE AND SANDSTONE
2319.00 - 2297.00	43.0 - 65.0	SAND, OLIVE, FINE
2297.00 - 2278.00	65.0 - 84.0	SAND AND SILT, OLIVE TO GRAY, FINE
2278.00 - 2217.00	84.0 - 145.0	SAND, OLIVE, FINE; SOME SILT
2217.00 - 2192.00	145.0 - 170.0	SILT, LIGHT-TAN TO GRAY; SOME SAND, FINE
2192.00 - 2175.00	170.0 - 187.0	CLAY, LIGHT-GRAY TO YELLOWISH-GRAY; SOME SILT
2175.00 - 2163.00	187.0 - 199.0	CLAY, LIGHT-GRAY TO YELLOWISH-GRAY, DARK-BROWN
2163.00 - 2161.00	199.0 - 201.0	SHALE, DARK-GRAY TO BLACK

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Location Information

Legal Location: NW NW NW NW SEC. 13, T. 097 N., R. 77 W.
 County: TRIPP Location: 097N-77W-13BBBB 1
 Basin: WHITE Latitude: 43 13' 37"
 Hydrologic Unit Code: 1040204 Longitude: 99 54' 34"
 Land Owner: Ground Surface Elevation (ft.): 2362 T

Project Information

Project: OGALLALA AQUIFER STUDY Geologist: D. FILIPOVIC
 Drill Date: 05/21/2003 Geologist's Log: X
 Company: SDGS Driller: D. IVERSON
 Drilling Method: ROTARY Driller's Log:
 Test Hole Number: R2-2003-14 Total Drill Hole Depth (ft.): 142.0
 Samples:

Well Information

SDGS Well Name: R2-2003-14 Aquifer: OGALLALA
 Water Rights Well: Management Unit:
 Other Well Name: Casing Top Elevation: 2364.00 T
 Casing Type: PVC, SCH. 80 Casing Diameter (in.): 2.0
 Screen Type: PVC, MFG., SLOT SIZE 0.020 IN. Screen Length (ft.): 10.0
 Total Casing and Screen (ft.): 143.0 Casing Stick-up (ft.): 2.00
 Well Maintenance Date:

Geophysical Information

Spontaneous Potential: Single Point Resistivity:
 Natural Gamma: Extra:

SCREEN INTERVAL FROM 136 TO 126 FEET; BLANK CASING FROM 141 TO 136 FEET; FILTER
 PACK: COARSE QUARTZ SAND FROM 142 TO 115 FEET; BENTONITE GROUT FROM 115 TO 0 FEET;
 LOCKING STEEL WELL PROTECTOR INSTALLED.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2362.00 - 2342.00	0.0 - 20.0	SAND, BROWN, GRAY TO OLIVE, FINE; SOME SANDSTONE, FINE
2342.00 - 2317.00	20.0 - 45.0	SAND AND SILT, OLIVE TO GRAY; SOME SILTSTONE
2317.00 - 2220.00	45.0 - 142.0	SAND, GRAY TO OLIVE, FINE; SOME SILT

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Location Information

Legal Location: NE SE SE NW SEC. 13, T. 097 N., R. 77 W.
 County: TRIPP
 Basin: WHITE

Location: 097N-77W-13BDDA
 Latitude: 43 13' 15"

Longitude: 99 54' 00"

Ground Surface Elevation (ft.): 2410 T

Hydrologic Unit Code: 10140204
 Land Owner:

Project Information

Project: OGALLALA AQUIFER STUDY
 Drill Date: 05/21/2003

Company: SDGS

Drilling Method: ROTARY

Test Hole Number: R2-2003-15

Samples:

Geologist: D. FILIPOVIC

Geologist's Log: X

Driller: D. IVERSON

Driller's Log:

Total Drill Hole Depth (ft.): 282.0

Geophysical Information

Spontaneous Potential: X

Natural Gamma: X

Single Point Resistivity: X

Extra:

HOLE PLUGGED WITH BENTONITE GROUT FROM 282 TO 0 FEET.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2410.00 - 2409.00	0.0 - 1.0	TOPSOIL, BLACK, SANDY
2409.00 - 2399.00	1.0 - 11.0	SAND, GRAY TO OLIVE, FINE
2399.00 - 2393.00	11.0 - 17.0	SILT AND CLAY, TAN TO GRAY
2393.00 - 2358.00	17.0 - 52.0	SAND, OLIVE TO GRAY, FINE, SILTY
2358.00 - 2354.00	52.0 - 56.0	SILT AND CLAY, GRAY TO OLIVE, SANDY
2354.00 - 2201.00	56.0 - 209.0	SAND, OLIVE TO GRAY, FINE; SOME SILT
2201.00 - 2147.00	209.0 - 263.0	SILT, REDDISH TO TAN, SANDY; SOME CLAY, LIGHT-GRAY, BROWN
2147.00 - 2133.00	263.0 - 277.0	SAND, TRANSPARENT, BROWN, PINKISH, COARSE; QUARTZ; SOME CLAY
2133.00 - 2128.00	277.0 - 282.0	SHALE, DARK-GRAY TO BLACK

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Legal Location: NW NE NE NE SEC. 15, T. 097 N., R. 77 W.

County: TRIPP

Basin: WHITE

Hydrologic Unit Code: 10140204

Land Owner:

Location Information

Location: 097N-77W-15AAAB

Latitude: 43 13' 37"

Longitude: 99 55' 53"

Ground Surface Elevation (ft.): 2393 T

Project: OGALLALA AQUIFER STUDY

Drill Date: 06/12/2001

Company: SDGS

Drilling Method: ROTARY

Test Hole Number: R20-2001-09

Samples:

Project Information

Geologist: D. FILIPOVIC

Geologist's Log: X

Driller: D. IVERSON

Driller's Log:

Total Drill Hole Depth (ft.): 217.0

Spontaneous Potential: X

Natural Gamma: X

Geophysical Information

Single Point Resistivity: X

Extra:

HOLE PLUGGED WITH BENTONITE GROUT FROM 215 TO 0 FEET.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2393.00 - 2378.00	0.0 - 15.0	SAND, TAN TO BROWN, FINE TO MEDIUM
2378.00 - 2298.00	15.0 - 95.0	SAND, TAN TO BROWN, FINE; SOME ASH AND SANDSTONE, WHITE
2298.00 - 2289.00	95.0 - 104.0	CLAY, WHITE, TAN, SILTY; SOME SAND
2289.00 - 2263.00	104.0 - 130.0	SAND, TAN TO BROWN, FINE
2263.00 - 2245.00	130.0 - 148.0	CLAY, WHITE, TAN, SILTY; SOME SILT, SOFT
2245.00 - 2203.00	148.0 - 190.0	CLAY, PINKISH, GRAY; SOME SILT, SOFT
2203.00 - 2195.00	190.0 - 198.0	CLAY AND SILT, TAN, BROWN, YELLOWISH-BROWN
2195.00 - 2189.00	198.0 - 204.0	CLAY, YELLOWISH-BROWN, OLIVE TO GRAY
2189.00 - 2186.00	204.0 - 207.0	CLAY, YELLOWISH-BROWN, OLIVE TO GRAY; SOME, SAND, DARK-GRAY, COARSE
2186.00 - 2176.00	207.0 - 217.0	SHALE, DARK-GRAY TO BLACK (PIERRE SHALE)

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097N77W15AAAB

Location Information

Legal Location: NW NW NW NW SEC. 23, T. 097 N., R. 77 W.
County: TRIPP Location: 097N-77W-23BBBB
Basin: KEYA PAHA Latitude: 43 12' 44"
Hydrologic Unit Code: 10150006 Longitude: 99 55' 43"
Land Owner: Ground Surface Elevation (ft.): 2340 T

Project Information

Project: WATER RIGHTS Geologist: J. GOODMAN
Drill Date: 05/02/1978 Geologist's Log: X
Company: SDGS Driller: L. HELSETH
Drilling Method: ROTARY Driller's Log:
Test Hole Number: TR-78-3 Total Drill Hole Depth (ft.): 140.0
Samples:

Well Information

SDGS Well Name: Aquifer: OGALLALA
Water Rights Well: TR-78C Management Unit:
Other Well Name: Casing Top Elevation:
Casing Type: PVC Casing Diameter (in.): 2.0
Screen Type: PVC, MFG. AND HM. Screen Length (ft.): 45.0
Total Casing and Screen (ft.): 107.4 Casing Stick-up (ft.): 2.50
Well Maintenance Date: 06/27/1984

Geophysical Information

Spontaneous Potential: Single Point Resistivity:
Natural Gamma: Extra:

CASING SLOTTED 40 FEET ABOVE A 5-FOOT SANDPOINT.

<u>Elevation (ft.)</u>	<u>Depth (ft.)</u>	<u>Description</u>
2340.00 - 2315.00	0.0 - 25.0	SAND, BROWN, MEDIUM
2315.00 - 2295.00	25.0 - 45.0	CLAY, GREEN; WITH SAND
2295.00 - 2285.00	45.0 - 55.0	SAND, BROWN; SOME GREEN CLAY
2285.00 - 2270.00	55.0 - 70.0	CLAY, GREEN; WITH SAND
2270.00 - 2265.00	70.0 - 75.0	SAND; SOME CLAY STRINGERS
2265.00 - 2250.00	75.0 - 90.0	CLAY, GREEN, SILTY
2250.00 - 2234.00	90.0 - 106.0	SAND AND CLAY LAYERED
2234.00 - 2200.00	106.0 - 140.0	CLAY, VERY LIGHT-GRAY AT 118 FEET, TURNED BROWN, GREEN; WITH SOME CONCRETIONS, WEATHERED SHALE?

WATER PERMIT APPLICATION NO. 2515-2
TRIPP COUNTY WATER USERS DISTRICT
JANUARY 5, 2004

Water Permit No. 2515-2 proposes to appropriate 3.33 cubic feet of water per second (1200 acre-feet annually) from three wells (Ogallala Group) approximately 200 feet deep located in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 13, SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 12; T97N-R77W and SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 18, T97N-R76W. The water is for the Tripp County Water Users District Gregory County expansion project. The District serves users in Tripp, Gregory, Lyman, Mellette and Todd Counties.

AQUIFER: Ogallala Group (OGLL)

GENERAL:

The High Plains aquifer consists of the upper sandstone units of the Arikaree Formation, the Ogallala Group, the Sand Hills Formation, and any terrace or alluvial deposits; all of which are hydraulically connected (Kolm and Case, 1983). The High Plains aquifer underlies 4,750 square miles of South Dakota and contains an estimated 700 million acre feet of water in the state (Gutentag and others, 1984). The Ogallala Group, which consists of clays, silts, sands and surface gravel deposits, makes up a major part of the High Plains aquifer. In this area the Ogallala Group consists of the Ash Hollow Formation and the Valentine Formation (Collins, 1958). The Ogallala underlies an estimated 230,400 acres of Tripp County and contains an estimated 3,304,000 acre-feet of recoverable water in storage in the county (Allen and others, 1985).

The saturated thickness of the aquifer is estimated to be 88-158 feet in this area. (Schultz, 1994). The aquifer is under unconfined conditions with the water table controlled locally by topography. Precipitation is the principal source of recharge to the aquifer. The annual recharge rate has been estimated to be 8 percent of the precipitation rate, or about 1.3 in./yr to 1.8 in./yr (Kolm and Case, 1983). This would equate to an annual recharge of 24,960 acre-feet to 34,560 acre-feet for Tripp County. Natural discharge occurs to streams and springs, and directly to the atmosphere by evapotranspiration.

WATER AVAILABILITY:

Water Rights Program monitors 84 observation wells completed into the Ogallala, of which 36 are located in Tripp County. Eighteen of these observation wells are within five miles of the well sites proposed by this application. Three Ogallala wells (TR-78A, TR-78B, and TR-78C) are located within approximately two and one-quarter miles of Water Permit

Application No.2515-2. The hydrographs for the wells are shown in figures 1-3.

**WATER RIGHTS' OBSERVATION WELL
TR-78A**

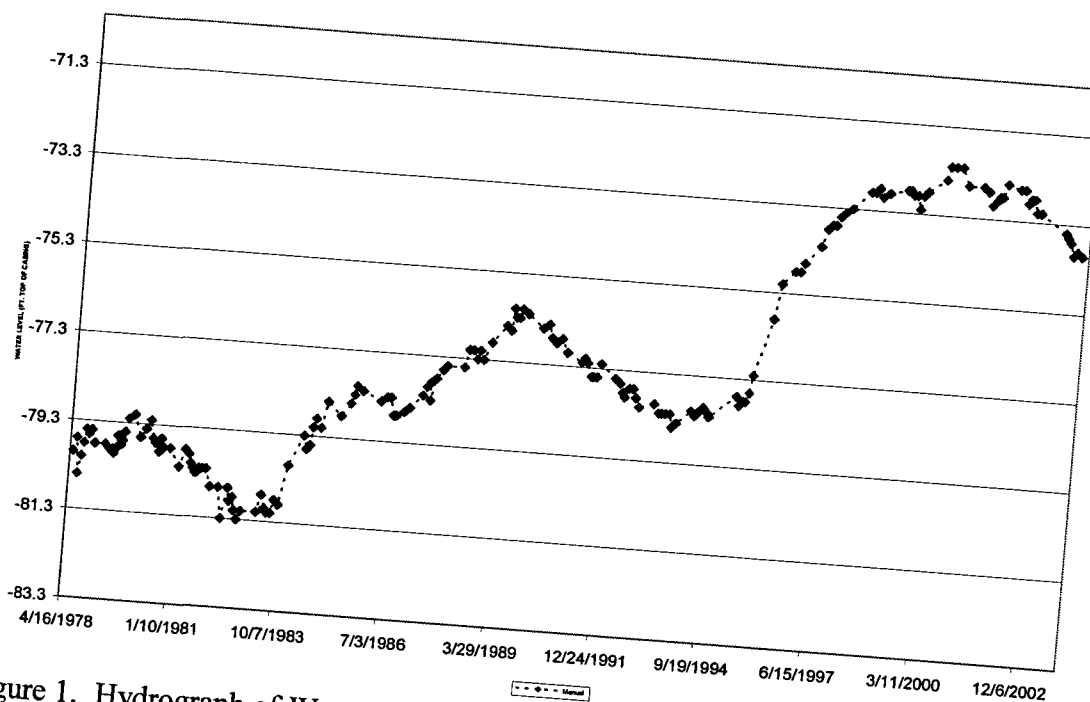


Figure 1. Hydrograph of Water Rights' Observation Well TR-78A, located about 1.5 miles east of Water Permit Application No. 2515-2

**WATER RIGHTS' OBSERVATION WELL
TR-78B**

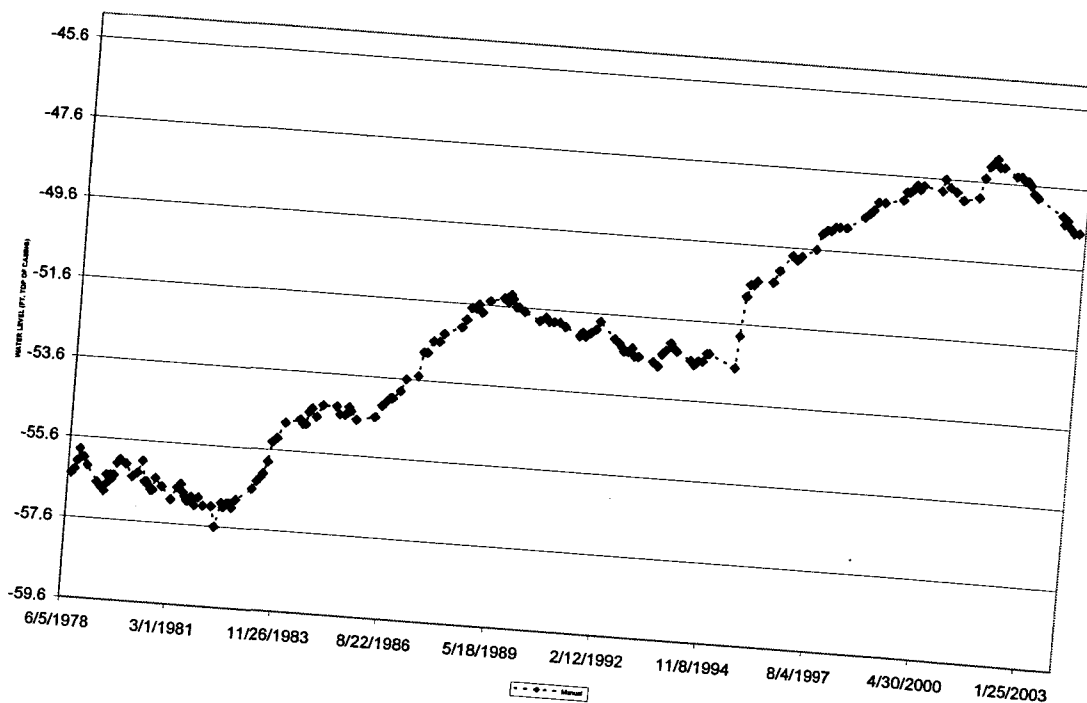


Figure 2. Hydrograph of Water Rights' Observation Well TR-78B, located about 2 miles southeast of Water Permit Application No. 2515-2

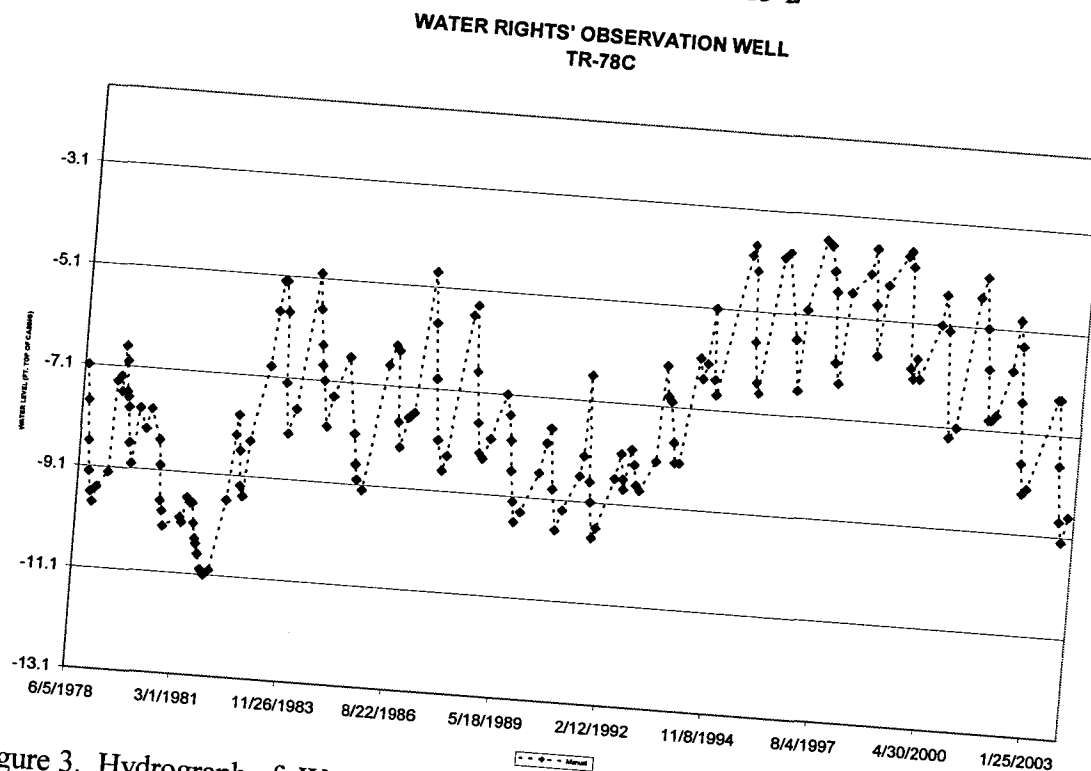


Figure 3. Hydrograph of Water Rights' Observation Well TR-78C, located about 1.5 miles southwest of Water Permit Application No. 2515-2

These observation wells are read monthly and show only slight fluctuations due to existing pumping, and changes due to climatic conditions. The hydrographs show good response to climatic conditions, (i.e. water levels rise during wet years and decline gradually during dry years). The observation well data indicates that the aquifer is capable of sustaining additional withdrawals (Water Rights, 2003b).

There are 136 permits/rights which appropriate water from the Ogallala in South Dakota. There are 21 permits/rights from the Ogallala in Tripp County (Water Rights, 2004c). Irrigation is the major water use from the aquifer. Reported pumpage from the Ogallala for irrigation use can be seen in figure 5.

**Reported Irrigation Pumpage
from the Ogallala Aquifer in South Dakota**

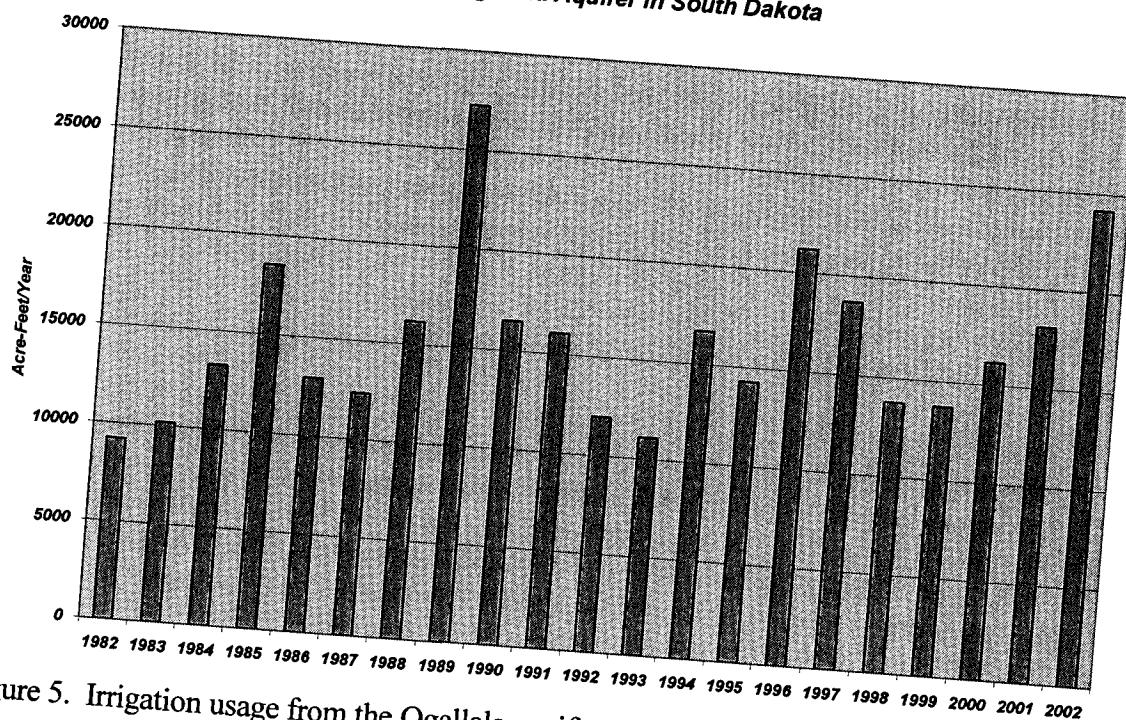


Figure 5. Irrigation usage from the Ogallala aquifer (Water Rights, 2003).

AFFECTS ON EXISTING RIGHTS:

Since the Ogallala is under unconfined conditions, drawdown from pumping an individual well is not expected be significant very far from the well. There are 10 existing Water Rights appropriating water from the Ogallala aquifer within four miles of 2515-2 (Water Rights, 2004c). They are shown in table one.

PERMIT NO	NAME	USE	CFS	DISTANCE FROM 2515-2 (miles)
1038-2	CITY OF WINNER	MUN	0.87	2.7
1285-2	CITY OF WINNER	MUN	0.67	2.8
1286-2	CITY OF WINNER	MUN	0.72	2.7
1307-2	ALBERT NOVOTNY JR	IRR	0.91	1.7
1416-2	CITY OF WINNER	MUN	0.69	2.5
1516-2	EUGENE ENGEL	IRR	1.14	0.5
1769-2	GLEN NOVOTNY	IRR	1.11	1.38
1808-2	GLEN NOVOTNY	IRR	0.89	2.4
521-2	CITY OF WINNER	MUN	4.11	3.9
551-2	CITY OF WINNER	MUN	2.44	3.8

Table 1. Water Rights within four miles of the well proposed by Water Permit Application No. 2515-2

The nearest existing water right to the wells proposed by this application is Water Right No. 1769-2 which is located about one-half mile west of Water Permit Application No. 2515-2. Well interference is not expected to be a problem in this area.

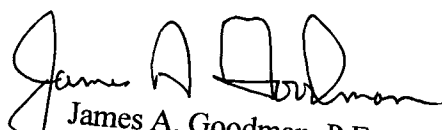
CONCLUSIONS:

1. The Ogallala Aquifer is a viable aquifer in this area, and water is available for these appropriations.
2. Well interference should not be a problem in this area.



Ken Buhler
Natural Resources Engineer

approved by



James A. Goodman, P.E.
Natural Resources Engineer

REFERENCES:

- Allen, J.C., Iles, D.L., and Petres, A.K., 1984, Analysis of Groundwater and Streamflow Data Western Dakotas Region of South Dakota, Task 3A.B.C. and 4A.B.: Groundwater Resource Inventory: South Dakota Department of Water and Natural Resources,
- Collins, S.G., 1958, Geology of the Wewela Quadrangle South Dakota; SD DENR-Geological Survey, scale 1:62500
- Gutentag, E.D., Heimes, F.J., Krothe, N.C., Luckey, R.R., Weeks, J.B. 1984, Geohydrology of the High Plains Aquifer in Parts of Colorado, Kansas, Nebraska, New Mexico, Oklahoma, South Dakota, Texas, and Wyoming: U.S. Geological Survey Professional Paper 1400-B, 63 p.
- Kolm, K.E., and Case III, H.L., 1983, A Two-Dimensional, Finite-Difference Model of the High Plains Aquifer in Southern South Dakota: U.S. Geological Survey Water-Resources Investigations Report 83-4175, 34 p.

- Schultz, L.D., 1994, Investigation of Ground-Water Resources for the Tripp County Water User District: S.D. Geological Survey Open-File Report 69-UR, 22 p.
- Water Rights, 2003, Irrigation Summary by Aquifer: South Dakota DENR-Water Rights Program
- Water Rights Program, 2004a, "Domestic Well Log Files", South Dakota DENR-Water Rights Program,
- Water Rights Program, 2004b, "Unpublished Observation Well Records", South Dakota DENR-Water Rights Program,
- Water Rights Program, 2004c, "Water Permit/Right Files", South Dakota DENR-Water Rights Program,



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 2515-2, Tripp County Water Users District**

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Program, Department of Environment and Natural Resources concerning Water Permit Application No. 2515-2, Tripp County Water Users District, c/o Neil Frank, PO Box 1746, Winner SD 57580-0946.

The Chief Engineer is recommending APPROVAL of Application No. 2515-2 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) it is in the public interest with the following qualifications:

1. The wells approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. The wells authorized by Permit No. 2515-2 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.
3. Water Permit No. 2515-2 authorizes a total annual diversion of 1,200 acre feet of water.
4. The ~~city~~^{est} Tripp County Water Users District shall report to the Chief Engineer annually the amount of water withdrawn each year from the Ogallala Formation.

See report on application for additional information.

Garland Erbele, Chief Engineer
January 9, 2004



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

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**NOTE: TO BE SURE OF PUBLICATION ON
THE CORRECT DATES, CONTACT
THE NEWSPAPERS RIGHT AWAY.**

January 12, 2004

Neil Frank Manager
Tripp County Water Users District
PO Box 1746
Winner SD 57580

Dear Mr. Frank:

Water Permit Application No. 2515-2 for rural water system use has been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice of hearing has been sent to the Publishers of the Winner Advocate printed at Winner, SD (Ph # 605-842-1481), Times-Advocate printed at Gregory, SD (Ph #605-835-8089), Lyman County Herald printed at Presho, SD (605-895-6397), Mellette Co News printed at White River, SD (Ph #605-259-3642), Todd Co Tribune printed at Mission, SD (Ph #605-856-4469). You will need to contact the newspaper and authorize publication of this notice. For your information, a copy of the notice, the recommendation of the Chief Engineer and a report on the application are enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

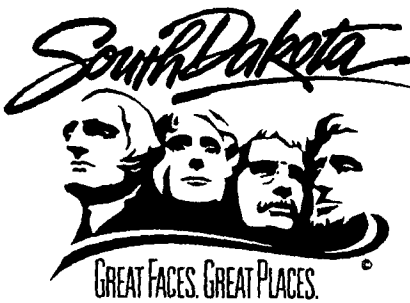
Be sure to contact the above newspapers to authorize publication of your Notice of Hearing and to arrange for payment. Early contact with the papers can eliminate delays. Upon receiving authorization, the publisher has been instructed to publish your notice once each week for two consecutive weeks with the last publication to occur twenty days before the board meeting. The newspapers have also been instructed to send us the Proof of Publication. We must receive Proof of Publication before action can be taken on the application.

Sincerely,

Eric Gronlund
Natural Resources Engineer
(605) 773-3352

enclosures

NOTE: If you plan to contest any part of the Chief Engineer's recommendation, you must file a petition pursuant to the procedures outlined in the attached notice of hearing. The Water Management Board will then consider your concerns during a hearing on the application.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

January 12, 2004

Winner Advocate
PO Box 71
Winner SD 57580-0071

ATTENTION: Legal Public Notice

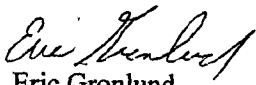
Enclosed is a Notice of Hearing on Application No. 2515-2 to Appropriate Water to be published twice. Please publish the first notice on January 21, 2004 with the second publication 7 days later.

The applicant must verify to you that the notice is to be published, before you make the first publication. **Please BILL the APPLICANT for the cost of publication.** The APPLICANT is Tripp County Water Users District, PO Box 176, Winner SD (Ph # 605-842-2755).

Please send the Water Rights Program the first publication immediately. The publication is checked for accuracy so any corrections can be made in the second publication. You may use the form below or fax a copy of the first publication. Any fax should be sent to the attention of Karen Schlaak at (605) 773-4068. Publication errors can invalidate the public notice.

After the second publication, **please send us an affidavit or use the enclosed Proof of Publication form.** The applicant pays the cost of publication, but the Water Rights Program records require an affidavit or Proof of Publication. Delays in receiving the affidavit can be costly to the applicant.

Sincerely,


Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

-----CUT HERE-----

No. 2515-2

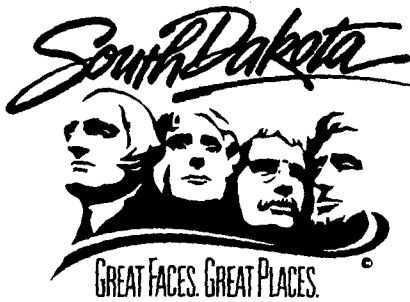
TO: Eric Gronlund
Water Rights Program
Joe Foss Building
Pierre SD 57501-3181

Date _____

We are in receipt of your letter of January 12, 2004 enclosing Notice of Hearing to Appropriate Water by Application No. 2515-2 which was first published in our issue of _____. **ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.**

Name

Newspaper



January 12, 2004

Times-Advocate
PO Box 378
Gregory SD 57533-0378

ATTENTION: Legal Public Notice

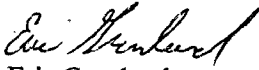
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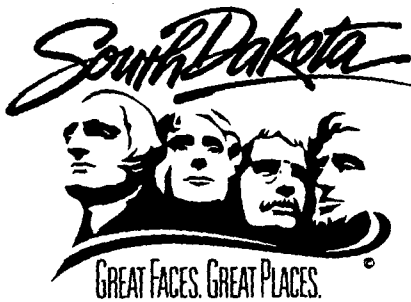
No. 2515-2

TO: Eric Gronlund
Water Rights Program
Joe Foss Building
Pierre SD 57501-3181

Date _____

We are in receipt of your letter of January 12, 2004 enclosing Notice of Hearing to Appropriate Water by Application No. 2515-2 which was first published in our issue of _____. **ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.**

Name Newspaper



January 12, 2004

Todd County Tribune
PO Box 229
Mission SD 57555-0229

ATTENTION: Legal Public Notice

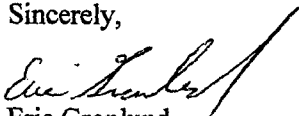
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Sincerely,


Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

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No. 2515-2

TO: Eric Gronlund
Water Rights Program
Joe Foss Building
Pierre SD 57501-3181

Date _____

We are in receipt of your letter of January 12, 2004 enclosing Notice of Hearing to Appropriate Water by Application No. 2515-2 which was first published in our issue of _____. **ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.**

Name

Newspaper



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
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PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

January 12, 2004

Mellette County News
PO Box F
White River SD 57579

ATTENTION: Legal Public Notice

Enclosed is a Notice of Hearing on Application No. 2515-2 to Appropriate Water to be published twice. Please publish the first notice on January 21, 2004 with the second publication 7 days later.

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Sincerely,


Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

-----CUT HERE-----

No. 2515-2

TO: Eric Gronlund
Water Rights Program
Joe Foss Building
Pierre SD 57501-3181

Date _____

We are in receipt of your letter of January 12, 2004 enclosing Notice of Hearing to Appropriate Water by Application No. 2515-2 which was first published in our issue of _____. **ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.**

Name Newspaper



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

January 12, 2004

Lyman County Herald
PO Box 518
Presho SD 57568

ATTENTION: Legal Public Notice

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Natural Resources Engineer
605 773-3352

enclosures

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No. 2515-2

TO: Eric Gronlund
Water Rights Program
Joe Foss Building
Pierre SD 57501-3181

Date _____

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Name

Newspaper

Instruction to Newspaper - Publish first Notice on January 21, 2004 with the second publication 7 days later. The applicant is responsible for payment.

NOTICE OF APPLICATION NO. 2515-2 to Appropriate Water

Notice is given that Tripp County Water Users District, PO Box 1746, Winner SD 57580 has filed an application for a water permit to appropriate 3.33 cubic feet of water per second (1200 acre-feet annually) from three wells (Ogallala Formation) approximately 200 feet deep located in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 13, SW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 12; T97N-R77W and SW $\frac{1}{4}$ SW $\frac{1}{4}$ Section 18-T97N-R76W. The water is for the Tripp County Water Users District Gregory County expansion project. The District serves users in Tripp, Gregory, Lyman, Mellette and Todd Counties.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 2515-2 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. In accordance with SDCL 46-2A-23, the Chief Engineer will act on the application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the Chief Engineer's recommendation. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider the application. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by February 9, 2004.

The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. Contact Eric Gronlund at the above Water Rights Program address to request copies of information pertaining to this application. Steven M. Pirner, Secretary, Department of Environment and Natural Resources.

Publisher's Affidavit of Publication

STATE OF SOUTH DAKOTA)

)SS

COUNTY OF LYMAN)

Lucy Halverson, of said county and state being duly sworn on her oath says: The Lyman County Herald is a weekly newspaper of general circulation and published in Presho, Lyman County, and State of South Dakota; and has been such newspaper during the times hereinafter mentioned; That said newspaper is a legal weekly, that it has a bonafide circulation of more than 200 copies weekly, that it has been published within said County of Lyman more than fifty-two successive weeks next prior to publication of the notice hereinafter mentioned and maintained at the place of publication; That I, the undersigned am editor of said newspaper, in charge of the advertising department thereof, and have personal knowledge of all the facts stated in this affidavit; that the advertisement headed:

Notice of Application

a printed copy of which is hereto attached and published in the said newspaper for 1 consecutive week(s).

The first publication of said notice in said newspaper aforesaid was on Wednesday, the 28 day of Jan A.D., 2004 and that the succeeding publications were severally

Wednesday, the _____ day of _____ A.D., 2004
Wednesday, the _____ day of _____ A.D., 2004
Wednesday, the _____ day of _____ A.D., 2004
Wednesday, the _____ day of _____ A.D., 2004
Wednesday, the _____ day of _____ A.D., 2004
Wednesday, the _____ day of _____ A.D., 2004
Wednesday, the _____ day of _____ A.D., 2004

and the last publication on Wednesday, the 28 day of Jan 2004, that the full sum of fees charged for publishing the same, to-wit; the sum of \$44.93 ~~34.96~~ insures solely to the editor of The Lyman County Herald. That no agreement or understanding for any division thereof had been made with any other person, and that no part thereof has been agreed to be paid to any person whatsoever.

Lucy Hal
Renelle Utke

Notary Public

Subscribed and sworn to before me this 30 day of Jan, 2004

My Commission expires _____
RENELLE UTKE
NOTARY PUBLIC - SOUTH DAKOTA
My Commission Expires
September 20, 2007

NOTICE OF APPL

Notice is given that Tripp County Water Users District, PO Box 1746, Winner SD 57580 has filed an application for a water permit to appropriate 3.33 cubic feet of water per second (1200 acre-feet annually) from three wells (Ogallala Formation) approximately 200 feet deep located in the NW 1/4 NW 1/4 Section 13, SW 1/4 SE 1/4 Section 12; T97N-R77W and SW 1/4 SW 1/4 Section 18-T97N-R76W. The water is for the Tripp County Water Users District Gregory County expansion project. The District serves users in Tripp, Gregory, Lyman, Mellette and Todd Counties.

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Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting the Chief

RECEIVED
FEB - 3 2004

ICATION NO. 2515-2 to Appropriate Water

Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by February 9, 2004.

The petition may be informal, but must include a statement describing the petitioner's interest in the application,

the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. Contact Eric Gronlund at the above Water Rights Program address to request copies of information pertaining to this application. Steven M. Pimer, Secretary, Department of Environment and Natural Resources.

AFFIDAVIT OF PUBLICATION

State of South Dakota, county of Tripp-ss.

Cheryl Schroeder

of said county being first duly sworn, on oath says that she is the Advertising Manager of

THE WINNER ADVOCATE

a weekly newspaper printed and published at Winner, said county of Tripp, and has full and personal knowledge of all the facts herein stated that said newspaper is a legal newspaper and has a bona fide circulation of a least two hundred copies weekly and has been published within said County for fifty-two successive weeks prior to the publication of the notice herein mentioned, and was printed wholly or in part in a office maintained at said place of publication; that the

35 lines @ 2 col rate

35 lines @ 2 col. rate x 80%

notice of application

Tripp Co. Water User District

a printed copy of which, taken from the paper in which the same was published, is attached to this sheet, and is made a part of this affidavit, was published in said newspaper at least one in each week for 2 successive weeks, on the day of each week on which said newspaper was regularly published to wit:

1-28-04

1-21-04

That the full amount of the fees for the publication of the annexed notice is \$ 41.11

Cheryl Schroeder

Subscribed and sworn to before me this 28th

day of January, 2004

Patricia Davis

Notary Public

County of Tripp, South Dakota

My Commission Expires November 4, 2009

NOTICE OF APPLICATION NO. 2515-2 to Appropriate Water

Notice is given that Tripp County Water User District, PO Box 1746, Winner, SD 57580 has filed an application for a water permit to appropriate 3.33 cubic feet of water per second (1200 acre-feet annually) from three wells (Ogallala Formation) approximately 200 feet deep located in the NW 1/4 NW 1/4 Section 13, SW 1/4 SE 1/4 Section 12; T97N-R77W and SW 1/4 SW 1/4 Section 18-T97N-R76W. The water is for the Tripp County Water User District Gregory County expansion project. The District serves users in Tripp, Gregory, Lyman, Mellette and Todd Counties.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 2515-2 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. In accordance with SDCL 46-2A-23, the Chief Engineer will act on the application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the Chief Engineer's recommendation. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider the application. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre, SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by February 9, 2004.

The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. Contact Eric Gronlund at the above Water Rights Program address to request copies of information pertaining to this application. Steven M. Pirner, Secretary, Department of Environment and Natural Resources. (3-4 1011)

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FEB - 9 2004

WATER RIGHTS
PROGRAM

RECEIVED

FEB - 10

WATER
RIGHTS



AFFIDAVIT OF PUBLICATION

State of South Dakota
County of Todd

Susan Maure, being duly sworn, says: That The Todd County Tribune is, and during all the times hereinafter mentioned was, a weekly legal newspaper as defined in SDCL 17-2-2.1 through 17-2-2.4 inclusive, as amended, published at Mission, Todd County, South Dakota by Huether Brothers Publishing, Inc.; that affiant is and during all of said times was, an employee of the publisher of such newspaper and has personal knowledge of the facts stated in this affidavit; that the notice, order of advertisement, a printed copy of which is attached, was published in said newspaper for 2 successive issues, bearing the following dates:

1/21/04
1/28/04

that the full amount of the fee charged for publishing the same, to-wit, the sum of \$ 44.73, insures solely to the benefit of the publisher of said newspaper; that no agreement or understanding for the division of the fee has been made with any person, and that no part of the fee has been agreed to be paid by any other person.

Susan A Maure

Bookkeeper

Subscribed and sworn to before me this 11
day of February A.D., 2004.

Sammy J Scott
Notary Public

**NOTICE OF APPLICATION NO. 2515-2 TO
APPROPRIATE WATER**

Notice is given that Tripp County Water Users District, Po Box 1746, Winner, SD 57580, has filed an application for a water permit to appropriate 3.33 cubic feet of water per second (1200 acre-feet annually) from three wells (Ogallala Formation) approximately 200 feet deep located in the NW1/4NW1/4 Section 13, SW1/4SE1/4 Section 12; T97N-R77W and SW1/4SW1/4 Section 18-T97N-R76W. The water is for the Tripp County Water Users District Gregory County expansion project. The District serves users in Tripp, Gregory, Lyman, Mellette and Todd Counties.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 2515-2 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. In accordance with SDCL 46-2A-23, the Chief Engineer will act on the application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the Chief Engineer's recommendation. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider the application. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E. Capitol, Pierre, SD 57501 (605-773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by February 9, 2004.

The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. Contact Eric Gronlund at the above Water Rights Program address to request copies of information pertaining to this application. Steven M. Pirner, Secretary, Department of Environment and Natural Resources.
Publ.: Jan. 21 and 28, 2004.

RECEIVED

FEB 12 2004

WATER RIGHTS
PROGRAM

AFFIDAVIT OF PUBLICATION

State of South Dakota
County of Mellette

Susan Mair, being duly sworn, says: That The Mellette County News is, and during all the times hereinafter mentioned was, a weekly legal newspaper as defined in SDCL 17-2-2.1 through 17-2-2.4 inclusive, as amended, published at White River, Mellette County, South Dakota by Huether Brothers Publishing, Inc.; that affiant is and during all of said times was, an employee of the publisher of such newspaper and has personal knowledge of the facts stated in this affidavit; that the notice, order of advertisement, a printed copy of which is attached, was published in said newspaper for 2 successive issues, bearing the following dates:

1/21/04
1/28/04

that the full amount of the fee charged for publishing the same, to-wit, the sum of \$ 44.73, insures solely to the benefit of the publisher of said newspaper; that no agreement or understanding for the division of the fee has been made with any person, and that no part of the fee has been agreed to be paid by any other person.

Susan A Mair
Bookkeeper

Subscribed and sworn to before me this 11 day of February A.D., 2004.

Johnny J. Scott
Notary Public

NOTICE OF APPLICATION NO. 2515-2 TO APPROPRIATE WATER

Notice is given that Tripp County Water Users District, Po Box 1746, Winner, SD 57580, has filed an application for a water permit to appropriate 3.33 cubic feet of water per second (1200 acre-feet annually) from three wells (Ogallala Formation) approximately 200 feet deep located in the NW1/4NW1/4 Section 13, SW1/4SE1/4 Section 12; T97N-R77W and SW1/4SW1/4 Section 18-T97N-R76W. The water is for the Tripp County Water Users District Gregory County expansion project. The District serves users in Tripp, Gregory, Lyman, Mellette and Todd Counties.

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Publ.: Jan. 21 and 28, 2004.

RECEIVED
FEB 12 2004
WATER RIGHTS
PROGRAM

NOTICE OF APPLICATION**NO. 2515-2****To Appropriate Water**

Notice is given that Tripp County Water Users District, PO Box 1746, Winner, SD 57580 has filed an application for a water permit to appropriate 3.33 cubic feet of water per second (1200 acre-feet annually) from three wells (Ogallala Formation) approximately 200 feet deep located in the NW 1/4 NW 1/4 Section 13, SW 1/4 SE 1/4 Section 12; T97N-R77W and SW 1/4 SW 1/4 Section 18-T97N-R76W. The water is for the Tripp County Water Users District Gregory County expansion project. The District serves users in Tripp, Gregory, Lyman, Mellette and Todd Counties.

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The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signa-

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(3-4)

Form 8

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
) SS
County of Gregory)

I, Cheryl Sperl

certify that the attached printed Notice was taken

from the Gregory Times-Advocate

printed and published in Gregory

County of Gregory and

state of South Dakota. The notice was published

in the newspaper on the following two dates:

January 21, 2004

January 28, 2004

Cost of Printing \$41.18

Cheryl Sperl
(Signature)

Publisher

(Title)

January 28, 2004

(Date Signed)

RECEIVED**JAN 29 2004****WATER RIGHTS
PROGRAM**

PAYMENT REQUEST FORM

PAYEE: Tripp County Water Users District
PO Box 1746
Winner SD 57580

FROM: Water Rights Program
523 E. Capitol
Pierre, SD 57501-3181

DESCRIPTION OF SERVICE, PRODUCE OR TRANSFER

Refund for overpayment of application fee

AMOUNT: \$100.00

FUNDING SOURCE:

GENERAL: X

FEDERAL:

COMMENTS:

AUTHORIZATION:

Harland E. Eide

I declare and affirm under the penalties of perjury that this claim is in all things, true and correct. I further agree to comply with the provisions of the Civil Rights Act of 1964 and regulations issued thereunder relating to nondiscrimination in federal assisted programs.



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

FEB 26 2004

Tripp County Water Users District
c/o Neil Frank, Mgr
PO Box 1746
Winner SD 57580

Dear Sir:

Enclosed is Water Permit No. 2515-2 authorizing construction of your water diversion system and beneficial use of the water, not exceeding the limits as specified in the Water Permit.

Form 10, *Notice of Completion of Works and Application of Water to Beneficial Use*, is enclosed. Please return this completed form after you have finished the system and have put the water to beneficial use. An investigation can then be scheduled so the water license may be issued, thus completing the acquisition of a water right.

An informational sheet *Common Water Right Questions?* is also enclosed. This sheet is intended to answer some of the questions associated with obtaining and keeping a water right.

At the time of application, a fee of \$525 was submitted. The correct fee for the amount of water requested is \$425. Therefore, the District will be receiving a refund check for \$100 within the next couple of weeks.

Sincerely,

Garland Erbele, Chief Engineer
Water Rights Program
(605) 773-3352

enclosures

2515-2

BARTLETT & WEST
ENGINEERS
SERVICE. THE BARTLETT & WEST WAY.

RECEIVED
NOV 04 2004
WATER RIGHTS
PROGRAM

November 2, 2004

Mr. Neil Frank, Jr.; Manager
TCWUD
P.O. Box 1746
Winner, SD 57580

Re: TCWUD Gregory County Expansion, Well Additions – Yield Recommendations/Aquifer Review
Project No.: 3048.080

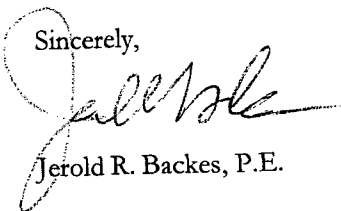
Dear Neil:

As discussed, we had the pump test results analyzed by an independent hydrogeologist to determine the yields available from the wells based on the data acquired from the pump tests. Based on that data and a review of past information, the hydrogeologist (Martha Silks) concluded that the safe yield from each of the wells would be at or above a 500 gpm pumping rate. Based on the project needs, the wells were preliminarily sized 500 gpm. Therefore, the wells constructed matched the design parameters. A copy of Ms. Silk's summary is attached for your records.

Based on the analysis, each well pump was selected to yield 500 gpm with an allowance for wear over time. Thus, the initial yield expected at each well will be slightly over 500 gpm when pumped individually. It may be advisable to use the variable frequency drives to lower the yield rate to 500 gpm to match the yield recommendations.

If you have any questions regarding the above please advise.

Sincerely,



Jerold R. Backes, P.E.

cc: USDA – Clark Guthmiller, Jim Valer
SDDENR – Water Rights
PDD III – Brian McGinnis
Sargent Drilling – Gary McCracken

File: TCWUD 2004 Well Addition: 1.0

Enclosure

3456 E CENTURY AVENUE ■ BISMARCK ND 58503-0737

701.258.1110 ■ FAX 701.258.1111 ■ 800.474.4117

F:\3000\3048.000 - TCWUD\2004 WELLS\CORRES\TCWUD WELL YIELD.DOC\JRB
WWW.BARTWEST.COM

Yield Recommendations
Tripp County Water Users District

Well No. 1

- SWL 102 ft bgs
- PWL 200 ft bgs after ~ 1 day @ 700 gpm
- Drawdown after ~ 1 day @ 700 gpm = 98.2 feet
- Available drawdown (210': top of screen – 20 feet safety margin – SWL = 88 ft.
- Q/s 7.13 gpm/ft (7.14 gpm/ft * .80) * 88 ft = no more than 502 gpm
- Drawdown trend flattened after 500 minutes and project no more than 100' ddn long term.
- Recovery in less than $t/t' = 1$ – good indicator that safe yield was not exceeded by test pumping
- Recommendation: 500 gpm design yield

Well No. 2

- SWL 38.25 ft bgs
- PWL 146.67 ft bgs after ~ 1 day @ 720 average gpm
- Drawdown after ~ 1 day @ 720 gpm = 108.42 feet
- Available drawdown = (164': top of screen – 20 feet safety margin – SWL = 105.75 ft.
- Q/s 6.64 gpm/ft (6.64 gpm/ft * .80) * 105.75 ft = no more than 562 gpm
- Drawdown trend flattened after 300 minutes. Drawdown impacted by other pumping in area. Long term DDN projected no more than 110 feet.
- Recovery in less than $t/t' = 1$ – good indicator that safe yield was not exceeded by test pumping
- Recommendation: 500 - 550gpm design yield

Well No. 3

- SWL 88 ft bgs
- PWL 153.85 ft bgs after ~ 1 day @ 750 average gpm
- Drawdown after ~ 1 day @ 750 gpm = 65.85 feet
- Available drawdown = (190': top screen – 20 feet safety margin – SWL = 82 ft.
- Q/s 11.39 gpm/ft (11.39 gpm/ft * .80) * 82 ft = no more than 747 gpm
- Drawdown trend flattened after 150 minutes. Drawdown impacted by other pumping in area? Long term DDN projected no more than 65 feet.
- Recovery in less than $t/t' = 1$ – good indicator that safe yield was not exceeded by test pumping
- Recommendation: 500 to 700 gpm design yield

Martha Silks
Hydrogeologist
Quad State Services, Inc.

SD EForm - 1621 V1

SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

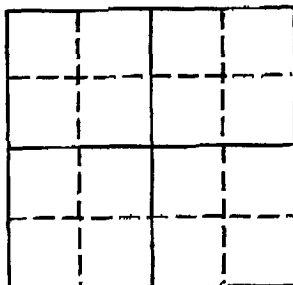
Location SW 1/4 SE 1/4 Sec 12 Twp 97N Rg 77W

County

Tripp

North

Please mark well location with an "X"



Well Completion Date

10/5/2004

Distance to nearest potential pollution source (Septic tank, abandoned well, feed lot, etc.)

? ft. from (Identify source)

PROPOSED USE:

☐ Domestic/Stock Irrigation
 ☒ Municipal Industrial
 ☐ Business Institutional
 ☐ Test Holes Monitoring well

METHOD OF DRILLING:

Reverse Rotary

CASING DATA:

☒ Steel
 ☐ Plastic
 ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
62.6 LB/FT	16.00 IN	2.0 FT	164.0 FT	30.00 IN
62.6 LB/FT	16.00 IN	182.0 FT	208.0 FT	30.00 IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
Neat Cement	66	16.0 Lb/gal	0.0 Ft	22.0 Ft

Describe grouting procedure
Tremmie

SCREEN:

☐ Perforated pipe
 ☒ Manufactured

Diameter 16.00 Inches Length 52.0 Feet

Material Stainless Steel

Slot Size 0.020 Set From 164.0 Feet to 182.0 Feet

Other Information Slot Size 0.030 Set From 208 Feet to 242 Feet

WAS A PACKER OR SEAL USED?

☐ Yes
 ☒ No

If so, what material?

Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?

☒ Yes, How? Chlorine

☐ No, Why Not?

Lab sample sent to for water quality analysis

State Health Lab in Pierre, SD

Well Owner: Tripp County Water Users District

Business Name:

Address:

PO Box 1746, 130 West 4th Street

City, State, Zip:

Winner SD 57580-0946

WELL LOG:

DEPTH

FORMATION

FROM

TO

* See Attached Log

STATIC WATER LEVEL

38.0 FEET

If flowing: closed in pressure

PSI

GPM flow

through

Inch pipe

Controlled by

☐ Valve

☐ Reducers

☐ Other

Reduced flow rate

GPM

Can well be completely shut in? Yes

WELL TEST DATA:

☒ Pumped Describe:

☐ Bailed

☐ Other

Pumping Level Below Land Surface

68.0 Ft After 24.0 Hrs. pumped 720.0 GPM

Ft. After Hrs. pumped GPM

If pump installed, pump rate:

GPM

REMARKS

This well was drilled under license #

273

And this report is true and accurate.

Drilling firm:

Charles Sargent Irrigation, Inc.

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

Date:

2-15-05

Sargent Drilling

INDUSTRIAL ENGINEERING
COMPLETE MUNICIPAL AND INDUSTRIAL
PUMPS AND WELL SERVICE

Box 627
South Highway 21

Broken Bow, Nebraska
68822

Phone
(308) 872-5125
(866) 872-6451
FAX (308) 872-6912

TEST WELL LOG TRIPP CO RURAL WATER DISTRICT TEST LOG

0	20	Fine to Medium Sand
20	75	Fine to Medium Sand, Sandstone with Thin Clay Layers
75	80	Sandy Clay with Fine to Medium Sand, Sandstone
80	85	Sandy Clay with Fine Sand, Sandstone
85	100	Fine to Medium Sand, Sandstone with Thin Clay Layers
100	109	Fine to Medium Sand, Sandstone
109	140	Fine to Medium Sand, Sandstone with Thin Clay Layers
140	160	Sandy Clay with Fine to Medium Sand, Sandstone Streaks
160	163	Sandy Clay
163	204	Fine to Medium Sand, Sandstone
204	230	Sandy Clay
230	240	Medium to Coarse Sand, Sandstone with Thin Clay Layers
240	242	

5

11-02

Location SW 1/4 NW 1/4 Sec 18 Twp 97N Rg 76W

County Tripp

Please mark well location with an "X"

Well Completion Date
10/6/2004

Distance to nearest potential pollution source (Septic tank, abandoned well, feed lot, etc.)
? _____ ft. from _____ (Identify source)

PROPOSED USE:
☐ Domestic/Stock Irrigation
☒ Municipal Industrial
☐ Business Institutional
☐ Test Holes Monitoring well

METHOD OF DRILLING:
Reverse Rotary

CASING DATA:
☒ Steel ☐ Plastic ☐ Other

If other describe _____

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
62.6 LB/FT	18.00 IN	2.0 FT	190.0 FT	30.00 IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:
Grout Type No. of Sacks Grout Weight From To
Neat Cement 66 16.0 Lb/gal 0.0 Ft 22.0 Ft

Lb/gal Ft Ft

Describe grouting procedure
Tremmie

SCREEN:
☐ Perforated pipe ☒ Manufactured

Diameter 16.00 Inches Length 64.0 Feet

Material Stainless Steel

Slot Size 0.030 Set From 190.0 Feet to 254.0 Feet

Other information _____

WAS A PACKER OR SEAL USED? ☐ Yes ☒ No

If so, what material? _____

Describe packer(s) and location _____

DISINFECTION: Was well disinfected upon completion?
☒ Yes, How? Chlorine

☐ No, Why Not? _____

Lab sample sent to for water quality analysis
State Health Lab in Pierre, SD

Well Owner: Tripp County Water Users District

Business Name: _____

Address: PO Box 1746, 130 West 4th Street

City, State, Zip: Winner SD 57580-0946

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
* See Attached Log		

STATIC WATER LEVEL 88.0 FEET

If flowing: closed in pressure _____ PSI

GPM flow _____ through _____ Inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other _____

Reduced flow rate _____ GPM

Can well be completely shut in? Yes

WELL TEST DATA:

☒ Pumped Describe: _____

☐ Bailed

☐ Other

Pumping Level Below Land Surface
153.0 Ft. After 24.0 Hrs. pumped 750.0 GPM

_____ Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate: _____ GPM

REMARKS

This well was drilled under license # 273

And this report is true and accurate.

Drilling firm: Charles Sargent Irrigation, Inc.

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder: _____

Date: _____

Sargent Drilling

INDUSTRIAL ENGINEERING
COMPLETE MUNICIPAL AND INDUSTRIAL
PUMPS AND WELL SERVICE

Box 627
South Highway 21

Broken Bow, Nebraska
68822

Phone
(308) 872-5125
(866) 872-6451
FAX (308) 872-6912

TEST WELL LOG
TRIPP CO RURAL WATER DISTRICT
TEST LOG

0	23	Sand, Clay with Fine and Medium Sand, Sandstone with Hard Layers
23	40	Fine to Medium Sand, Sandstone with Thin Clay Streaks
40	156	Fine to Medium Sand, Sandstone
156	176	Fine to Medium Sand, Sandstone with Thin Clay Layers
176	180	Fine to Medium Sand, Sandstone
180	200	Fine to Medium Sand, Sandstone with Thin Clay Layers
200	252	Medium to Coarse Sand, Sandstone
252	254	Shale

SD EForm - 1621 V1

SOUTH DAKOTA WATER WELL COMPLETION REPORT

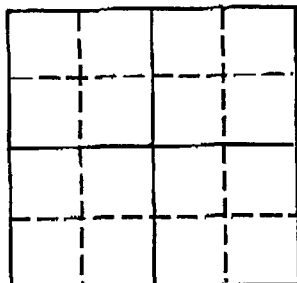
11-02

Location SE 1/4 NW 1/4 Sec 13 Twp 97N Rg 77W

County

Tripp

North



Please mark well location with an "X"

Well Completion Date

10/7/2004

1 Mile

Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)

? ft. from (Identify source)

PROPOSED USE:

☐ Domestic Stock Irrigation ☒ Municipal ☐ Business Institutional ☐ Test Holes Monitoring well

METHOD OF DRILLING:

Reverse Rotary

CASING DATA:

☒ Steel ☐ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
62.6 LB/FT	16.00 IN	2.0 FT	210.0 FT	30.00 IN
62.6 LB/FT	16.00 IN	235.0 FT	246.0 FT	30.00 IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
Neat Cement	66	16.0 Lb/gal	0.0 Ft	22.0 Ft
		Lb/gal	Ft	Ft

Describe grouting procedure
Tremmie

SCREEN:

☐ Perforated pipe ☒ Manufactured
 Diameter 16.00 Inches Length 55.0 Feet
Material Stainless SteelSlot Size 0.030 Set From 210.0 Feet to 235.0 Feet

Other information Slot Size 0.030 Set From 246 Feet to 286 Feet

WAS A PACKER OR SEAL USED?

☐ Yes ☒ No

If so, what material?

Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?

☒ Yes, How? Chlorine
☐ No, Why Not?

Lab sample sent to for

water quality analysis

State Health Lab in Pierre, SD

Well Owner: Tripp County Water Users District

Business Name:

Address: PO Box 1746, 130 West 4th StreetCity, State, Zip: Winner SD 57580-0946

WELL LOG:

DEPTH

FORMATION

FROM

TO

* See Attached Log

STATIC WATER LEVEL

102.0 FEET

If flowing: closed in pressure

PSI

GPM flow

through

Inch pipe

Controlled by

☐ Valve☐ Reducers☐ Other

Reduced flow rate

GPM

Can well be completely shut in? Yes

WELL TEST DATA:

☒ Pumped

Describe:

☐ Bailed☐ Other

Pumping Level Below Land Surface

200.0 Ft. After24.0 Hrs. pumped700.0 GPM

FL After

Hrs. pumped

GPM

If pump installed, pump rate:

GPM

REMARKS

This well was drilled under license #

273

And this report is true and accurate.

Drilling firm: Charles Sargent Irrigation

Signature of Licensee Representative:

Signature of Well Owner or Equitable Property Holder:

Date:

Sargent Drilling

INDUSTRIAL ENGINEERING
COMPLETE MUNICIPAL AND INDUSTRIAL
PUMPS AND WELL SERVICE

Box 627
South Highway 21

Broken Bow, Nebraska
68822

Phone
(308) 872-5125
(866) 872-6451
FAX (308) 872-6912

TEST WELL LOG TRIPP CO RURAL WATER DISTRICT TEST LOG

0	20	Medium to Coarse Sand and Sandstone with Thin Clay Layers
20	33	Medium to Coarse Sand and Sandstone
33	36	Medium to Coarse Sand and Sandstone with Clay Layers
36	60	Medium to Coarse Sand and Sandstone
60	100	Medium to Coarse Sand and Sandstone with Clay Streaks
100	137	Medium to Coarse Sand and Sandstone
137	149	Clay
149	155	Medium to Coarse Sand and Sandstone with Clay Layers
155	160	Medium to Coarse Sand and Sandstone
160	200	Medium to Coarse Sand and Sandstone with Thin Clay Streaks
200	220	Medium to Coarse Sand and Sandstone with Lots of Clay Layers
220	237	Medium to Coarse Sand and Sandstone
237	240	Clay
240	260	Medium to Coarse Sand and Sandstone with Thin Clay Layers
260	283	Medium to Coarse Sand and Sandstone
283	286	Trashy Sandstone and Clay

Permit No. 2515-2
White River - Water District

Other permit/license(s) associated with project: District holds Water Right No. 2293-2 for six wells that are independent of this permit.

Contact Person & Address: Russ Phillips, Manager, PO Box 1746, Winner SD 57580

Report Of Examination Of Works

On, September 20, 2010, I made a thorough examination of the water use system constructed by Tripp County Water Users District of 1052 West 1st Street, (Box 1746 – mailing address) Winner SD 57580 holder of Permit No. 2515-2, bearing the priority of December 4, 2003 authorizing the diversion of 3.33 cu. ft. per second with an annual volume of 1200 acre feet of the waters of the Ogallala Aquifer for rural water system purposes, in Tripp County for supplying water in Tripp, Gregory, Lyman, Mellette and Todd Counties.

The system is in the following condition excellent. The points of diversion are located:

- Well 1 - 2,590 feet south and 2,660 feet west of NE corner of Section 13, T97N, R77W (SE 1/4 NW 1/4)
Latitude 43.22013 Longitude -99.90005
- Well 2 - 210 feet north and 1500 feet west of SE corner Section 12, T97N, R77W (SW 1/4 SE 1/4)
Latitude 43.22773 Longitude -99.89563
- Well 3 - 1390 feet south and 160 feet east of NW corner Section 18, T97N, R76W (SW 1/4 NW 1/4)
Latitude 43.22335 Longitude -99.88927

The works are capable of diverting and conveying to the place of use 2.68 cu. ft. per second of water which is being used for rural water system use. Water has been put to beneficial use to the maximum extent and should be licensed should be issued for 2.68 cfs and a annual volume of 1200 acre feet of water annually.

The diversion rate is to be reduced from 3.33 cfs to 2.68 cfs based on the level of development. However, the annual volume should remain at 1200 acre feet of water. This is based on the fact that 60% pumping of 2.68 cfs equates to 1164 acre feet annually which is very close to the authorized annual volume. The 60% pumping is guideline commonly followed when converting instantaneous diversion rate to an annual volume.

Review of Permit Qualifications And Regulations:

- 1) Special qualifications to permit being abided by Yes
- 2) All structures, wells and lands on map Yes
- 3) Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period not applicable
- 4) Exceptions to compliance are: see change of diversion point report

Report On the Specifics of the System

Diversion Point Information:

Well No. 1 - SE ¼ NW ¼ Section 13, T97N, R77W

- 1) Well Drilling Firm: Charles Sargent Irrigation
- 2) Well No 1
- 3) Depth(s) 286 feet
- 4) Well log is available yes

Casing:

- 1) Diameter 16 inches
- 2) Length 221 feet
- 3) Type steel

Screen:

- 1) Type stainless steel
- 2) Length 65 feet
- 3) Static water level 102 feet

Screen set from 210 to 235 feet and 246 to 286 feet

Pump\ Motor:

- 1) Pump Make Amarillo Gear Drive
- 2) Pump Model C60A
- 3) Capacity
- 4) Motor Make US Electric
- 5) Make No. BF50A
- 6) Horsepower rating 50 hp

There is a back-up motor in this well house. It is a Chevy 350 motor

Well No .2 - SW ¼ SE ¼ Section 12, T97N, R77W

- 1) Well Drilling Firm: Charles Sargent Irrigation
- 2) Well No 2
- 3) Depth(s) 242 feet
- 4) Well log is available yes

Casing:

- 1) Diameter 16 inches
- 2) Length 190 feet
- 3) Type steel

Screen:

- 1) Type stainless steel
- 2) Length 52 feet
- 3) Static water level 102 feet

Screen set from 164 to 182 feet and 208 to 242 feet

Pump\ Motor:

- 1) Pump Make Amarillo Gear Drive
- 2) Pump Model C60A
- 3) Capacity
- 4) Motor Make US Electric

5) Make No. BF50A

6) Horsepower rating 60 hp

Well No. 3 - SW ¼ NW ¼ Section 18, T97N, R76W

1) Well Drilling Firm: Charles Sargent Irrigation 2) Well No 2

3) Depth(s) 242 feet 4) Well log is available yes

Casing:

1) Diameter 16 inches

2) Length 231 feet

3) Type steel

Screen:

1) Type stainless steel

2) Length 55 feet

3) Static water level 102 feet

Screen set from 164 to 182 feet and 208 to 242 feet

Pump\ Motor:

1) Pump Make Amarillo Gear Drive

2) Pump Model C60A

3) Capacity

4) Motor Make US Electric

5) Make No. BF50A

6) Horsepower rating 60 hp

COMMENTS: Russ Phillips and Jim of his staff accompanied me on the licensing investigation. Prior to my arrival they had put together production information from August 1 – 31, 2010. This is representative of a peak month

Total flow from August 1 – 31 was 21,050,900 gallons (64.6 acre feet)

Maximum combined flow from three wells – 1,204 gallons per minute (2.68 cfs)

Average combined flow from the three wells - 1,113 gallons per minute (2.48 cfs)

Average daily pump time – 9.96 hours per day


Eric Gronlund, PE

Natural Resources Engineer
DENR, Water Rights Program

12/17/10
Date

Well Completion Reports on File for Domestic Wells in Township 97N Ranges 76 & 77 W

LAST_NAME	FIRST_NAME	QSEC	SEC	TWN	RNG	COMPL	DEPTH
HARDER	JOHN	SENE	1	97N	76W	12/05/2000	36
SAND	FRANCIS	SWSW	2	97N	76W	07/12/2003	70
O'BRYAN	RICHARD	NE	5	97N	76W	05/14/1975	145
NOVOTNY	BUTCH	SWNE	6	97N	76W	03/01/2000	70
O'BRYAN	DAN	NESE	6	97N	76W	05/22/1990	45
SAND	FRANCIS	SWNE	10	97N	76W	07/10/2003	130
SAND	FRANCIS	NWNW	10	97N	76W	07/11/2003	90
KEMP	ART	SWSW	17	97N	76W	12/20/1981	216
KEMP	ART	NWNW	19	97N	76W	?	195
BOWLING	ALLEN	SESE	19	97N	76W	10/07/2002	50
MULSO	ROBERT	NWNW	20	97N	76W	08/24/1998	180
EWING	IVAN	NWNE	21	97N	76W	08/29/2002	112
OLSON	MARVIN	NWSE	29	97N	76W	10/12/1977	67
		SESE	2	97N	77W	08/17/2001	92
WILLIAMS	CLARK	SW	3	97N	77W	08/07/1974	58
HOPKINS	DALE	SWNW	4	97N	77W	07/09/1975	122
BREUKLANDER	WILLIAM	SE	10	97N	77W	09/08/1979	96
NAGEL	LYDIA	SENE	11	97N	77W	07/10/1980	173
MULSO	ROBERT	SNE	13	97N	77W	07/01/1980	197
MULSO	ROBERT	NENW	13	97N	77W	07/01/1980	187
GOODNEW	ROBERT	SESE	14	97N	77W	07/10/1997	160
PATERSON	JERRY	ENE	14	97N	77W	09/10/1979	70
PATMORE	RICHARD	NWNW	19	97N	77W	06/16/1973	52
EWING	ROBERT	NWNW	21	97N	77W	10/25/1991	27
BOWLING	DON	SWSE	26	97N	77W	06/14/1993	85
AHLMAN	ROBERT	SESW	33	97N	77W	10/20/2004	111
WEIDNER	FRED	SWSW	34	97N	77W	10/04/2000	77
DOCKEN	JACK L.	SENE	34	97N	77W	05/10/2001	70



Well 1 - 2,590 feet south and 2,660 feet west of NE corner of Section 13, T97N, R77W (SE 1/4 NW 1/4)
Well 2 - 210 feet north and 1500 feet west of SE corners Section 12, T97N, R77W (SW 1/4 SE 1/4)
Well 3 - 1390 feet south and 160 feet east of NW corner Section 18, T97N, R76W (SW 1/4 NW 1/4)



Eric Gronlund
Eric Gronlund
Water Rights Program, DENR
Licensing Investigation - September 20, 201

Approval of a Change of Diversion Point

NAME: Tripp County Water Users District

ADDRESS: 1052 West 1st Street, Box 1746, Winner SD 57580 (Russ Phillips, Manager)

DATE: December 16, 2010 **COUNTY:** Tripp **TELEPHONE:**

BACKGROUND:

Water Permit No. 2515-2 appropriates 3.33 cubic feet of water per second (1,200 acre feet annually) from three wells completed into the Ogallala Aquifer to be located in the NW ¼ NW ¼ Section 13, SW ¼ SE ¼ Section 12; T97N, R77W and the SW ¼ SW ¼ Section 18, T97N, R76W. The water was developed for the District's Gregory County expansion project. The permit has a December 4, 2003 priority date.

On September 20, 2010, a licensing investigation of the water permit was conducted. It found that the location of the well Nos. 1 and 3 designated on the attached map were not developed in the same quarter quarter section listed on the water permit. Well No. 2 is developed in the same location defined on the permit. The locations of the wells as developed are:

Well 1 - 2,590 feet south and 2,660 feet west of NE corner of Section 13, T97N, R77W (SE 1/4 NW 1/4)

Well 2 - 210 feet north and 1500 feet west of SE corner Section 12, T97N, R77W (SW 1/4 SE 1/4)

Well 3 - 1390 feet south and 160 feet east of NW corner Section 18, T97N, R76W (SW 1/4 NW 1/4)

AUTHORITY:

Pursuant to SDCL 46-5-13.1, the location of a diversion point may be changed or additional diversion points may be licensed provided the following conditions are met and the potential for interference with other existing diversions is not increased:

- **Developed water source same as permitted source and no additional water appropriated**

The water source authorized by Water Permit No. 2515-2 is the Ogallala Aquifer. There is no change in the proposed depth or water source.

No additional appropriation of water is requested. The water permit appropriates 3.33 cfs. The licensing investigation found the three well producing 2.68 cfs. Therefore, no additional water will be appropriated by the change in the well location and the water license will be issued for the developed amount.

- **Review of Existing Diversions**

A review of the well log database found twenty eight domestic/stock wells and four water rights for irrigation in the two townships where the District's wells are located. An attached map shows the approximate location of domestic wells and irrigation wells in the two townships. Also attached is a table indicating the location and depth of domestic wells drilled over the years. The status of the domestic wells is unknown.

The domestic well depths vary from 27 feet to 197 feet. There are two domestic well reports in Section 13 in relatively close proximity to District's Well No. 1. Both these domestic wells were constructed in 1980 and it is uncertain whether they are still in use. There has not been any controversy regarding interference with domestic wells for the six years the District wells have been in place.

The four nearest water rights are located approximately

0.5 miles west – Water Right No. 516-2
1.4 miles west – Water Right No. 1769-2
2 miles west – Water Right No 1808-2
1.7 miles north west – Water Right No. 1307-2

All these water rights for irrigation were in place when Permit No. 2515-2 was reviewed and interference was not expected to be a concern. The change in diversion point location for District Well Nos. 1 and 3 does not locate the wells in closer proximity to these existing rights. In the six years, the District wells have been used there has not been any issues with interference in the area.

CONCLUSION

- The change in the well locations does not appropriate additional water.
- The wells will still be completed into the Ogallala Aquifer .
- Interference is not expected to be a concern.
- Existing domestic wells should not be adversely impacted by authorizing this change of well location.

RECOMMENDED ACTION

Based on the above criteria, it is recommended that the change of diversion points for Well Nos. 1 and 3 be authorized under Water Permit No. 2515-2.



Eric Gronlund

Water Rights Program

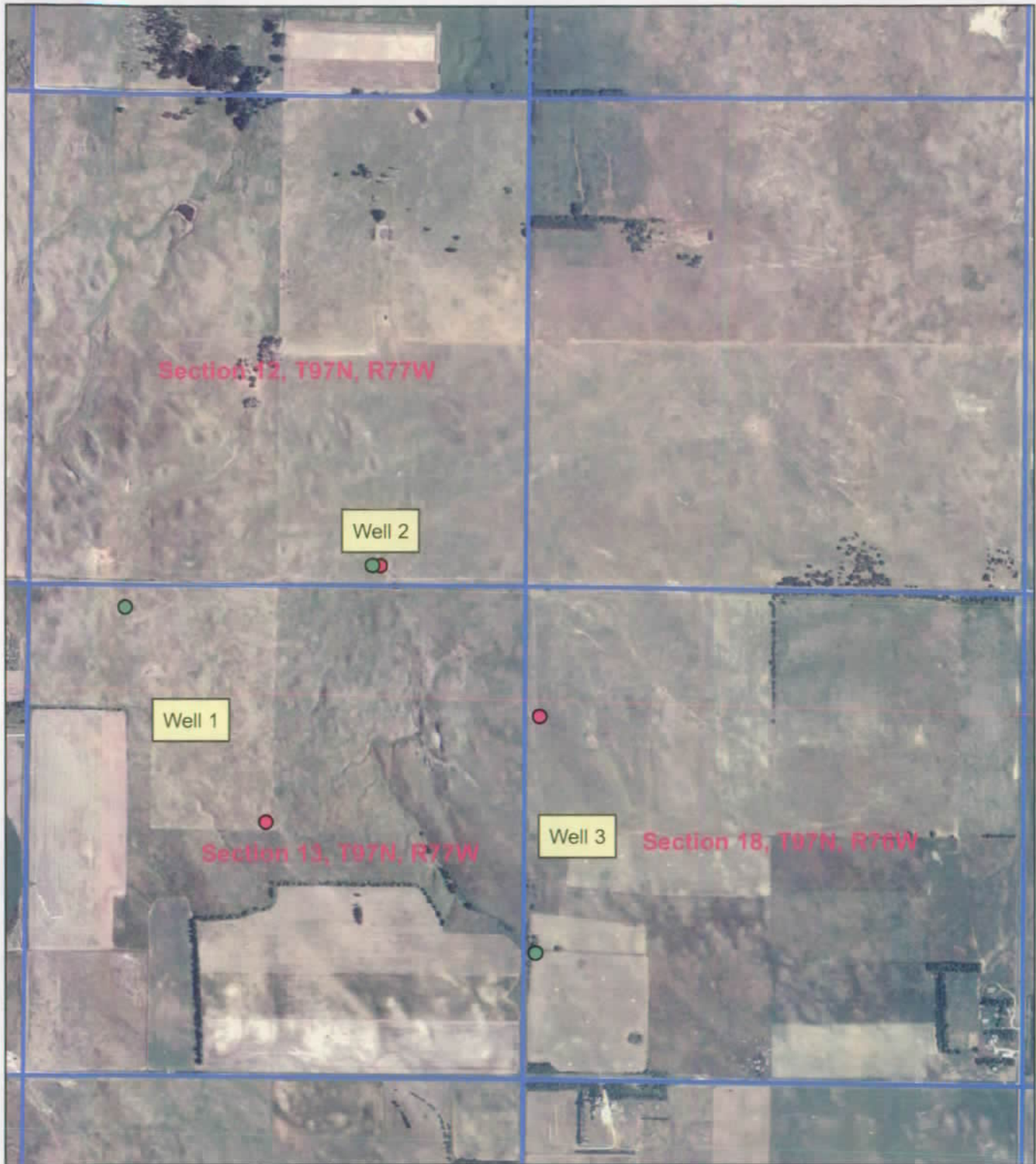
The Chief Engineer makes a finding pursuant SDCL 46-5-13.1 and ARSD 74:02:01:14.01 that:

This change of diversion points does not increase the potential for adverse effects to existing diversions.



Garland Erbele, Chief Engineer

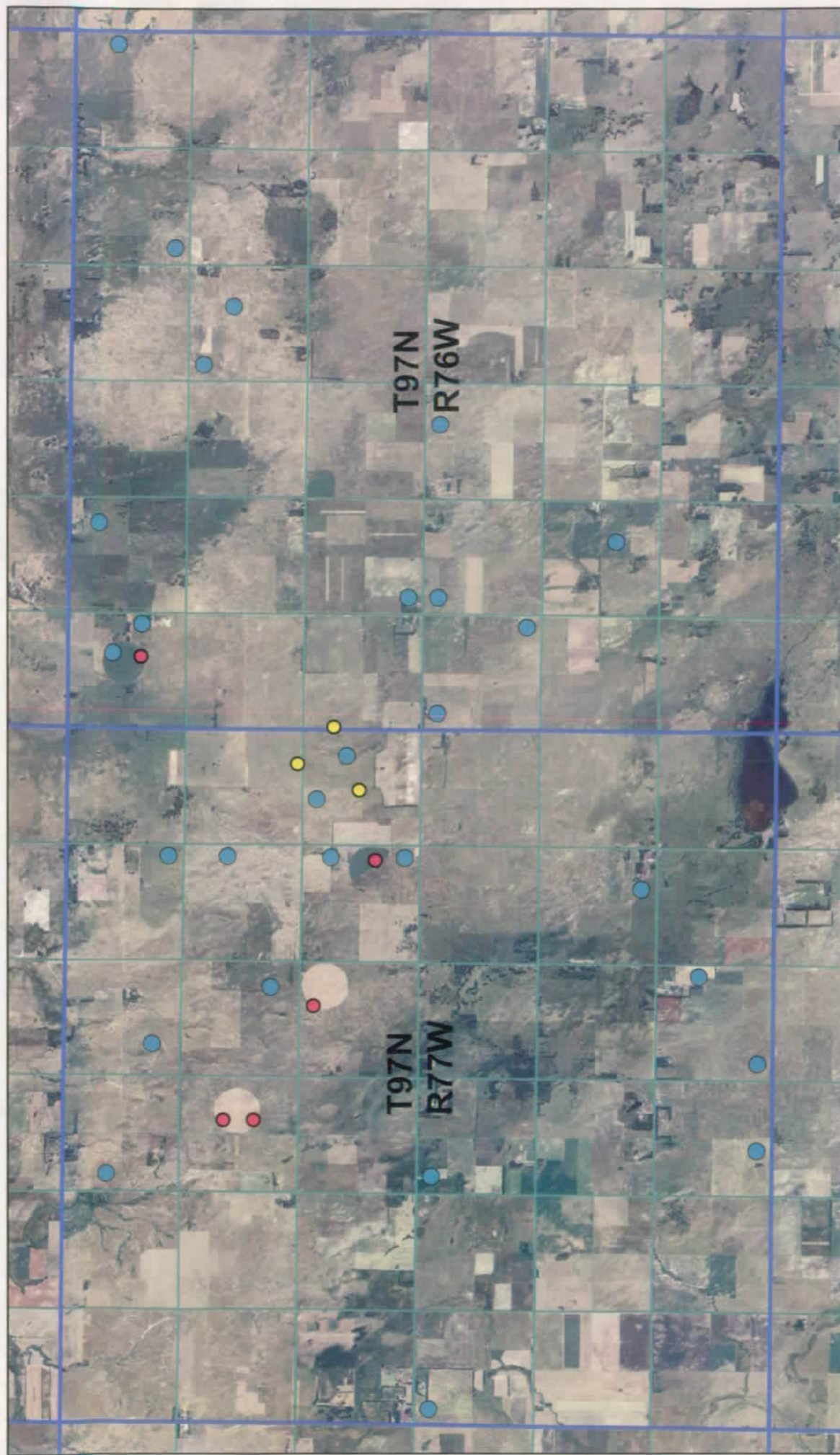
Water Rights Program



0 650 1,300 2,600 3,900 5,200 Feet



- Proposed well locations submitted with application
- Developed Location of wells



Proposed well locations submitted with application



Developed Location of wells



Approximate Irrigation well locations





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

FEB 11 2011

2515-2

Tripp County Water Users District
Russ Phillips, Manager
PO Box 1746
Winner SD 57580

Dear Mr. Phillips:

Enclosed is Water License No. 2515-2. This is the final water right document completing your process of obtaining a Water Right. Also, included with your license is a map prepared by the staff engineer who conducted the investigation.

As long as you use the water beneficially, as stated in the Water License, the State Water Laws provide that you have a continuing right to use the water. If you have any questions, please contact our office.

Sincerely,

Garland Erbele, Chief Engineer
Water Rights Program
(605) 773-3352

enclosures

STATE OF SOUTH DAKOTA
WATER LICENSE NO. 2515-2

(1) Tripp County Water Users District, c/o Russ Phillips, Manager, PO Box 1746, Winner SD 57580 made Application No. 2515-2, December 4, 2003 for a water permit to divert 3.33 cubic feet of water per second (1200 acre-feet annually) from groundwater (three wells), Tripp County, South Dakota for rural water system use purposes. Permit No. 2515-2, with a priority date of December 4, 2003 was approved February 9, 2004 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before February 9, 2009 and for the application to beneficial use of water on or before February 9, 2013.

An investigation conducted for licensing purposes found two of the wells under Water Permit No. 2515-2 were not in the locations authorized by the permit. Pursuant to SDCL 46-5-13.1, the Chief Engineer makes a finding that the change in location of diversion points does not increase the potential for interference with existing water rights.

(2) The water supply system has been completed and water applied to beneficial use in accordance with South Dakota State Law. Pursuant to South Dakota Codified Law 46-5-30.1, the holder and/or owner of Water Right No. 2515-2 is issued a license, bearing a priority date of December 4, 2003 to appropriate 2.68 cubic feet of water per second (1200 acre-feet annually) from groundwater (three wells) for rural water system use. The District serves users in Tripp, Gregory, Lyman, Mellette and Todd Counties.

The diversion points are located as follows:

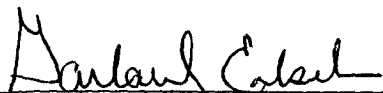
Well 1 – 2,590 feet south and 2,660 feet west of northeast corner Section 13-T97N-R77W (SE ¼ NW ¼)

Well 2 – 210 feet north and 1,500 feet west of southeast corner Section 12-T97N-R77W (SW ¼ SE ¼)

Well 3 – 1,390 feet south and 160 feet east of northwest corner Section 18-T97N-R76W (SW ¼ NW ¼)

(3) This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Permit No. 2515-2 including the following now applicable qualifications:

- The wells approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
- The wells authorized by Permit No. 2515-2 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.
- Water Permit No. 2515-2 authorizes a total annual diversion of 1,200 acre feet of water.
- The County Water Users District shall report to the Chief Engineer annually the amount of water withdrawn each year from the Ogallala Formation.



Garland Erbele, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

FEB 11 2011

date



2515-2



RECEIVED
OCT 12 2012
WATER RIGHTS
PROGRAM

October 8, 2012

South Dakota Dept. of Environment & Natural Resources
Mr. Eric Gronlund
Joe Foss Building
523 E. Capitol
Pierre, SD 57501

RE: Tripp County Water Users District Proposed Well

Dear Eric,

Tripp County Water User District (TCWUD) is requesting approval to construct a new well in the Ogallala Aquifer where they currently have six operating wells. Our understanding is that TCWUD has permits in place which allow for a total of 6.56 cfs diversion or 2950gpm. TCWUD is not requesting to increase the diversion rate but rather intends to drill an additional well to use as a backup in the event that one of their other wells needs maintenance or repairs and it would also be used to alternate with the other wells to reduce the usage of each and extend their working life. The maximum diversion rate currently being used by TCWUD on a peak day is approximately 1805gpm or 2.6 mgd. This is 61% of their total permitted diversion.

The proposed construction would be completed in a similar fashion to the wells drilled in 2004. We have attached drawings of the proposed well construction and the proposed location. Following completion of the well we will forward to you copies of the drilling logs, information on the production well, survey location of the completed well, and pump test information. Please advise if more information is needed for TCWUD to proceed with plans to construct a new well. If you have any questions please call.

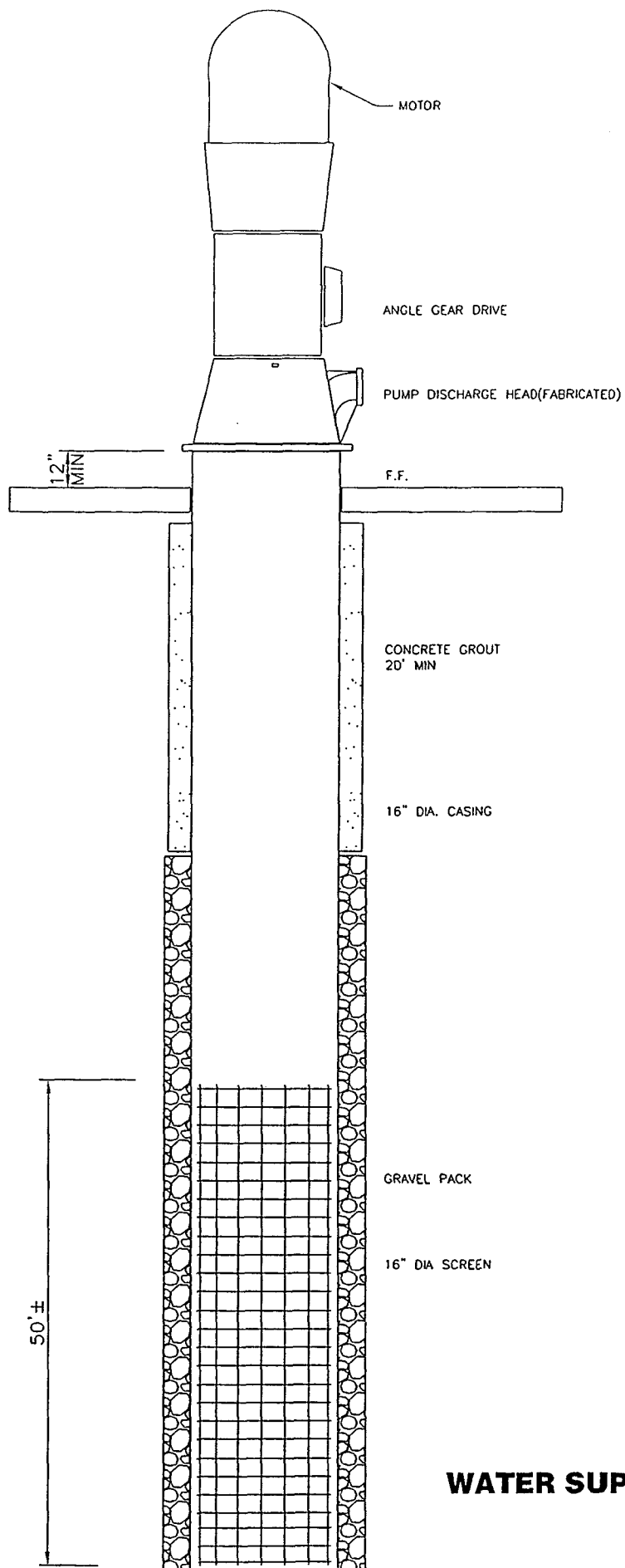
Sincerely

Bartlett & West, Inc.

Lyle Schumack

Lyle Schumack
Project Manager

CC: TCWUD - Russ
File: Tripp Wells



WATER SUPPLY WELL

Gronlund, Eric

From: Lyle Schumack <lyle.schumack@bartwest.com>
Sent: Wednesday, October 17, 2012 8:59 AM
To: Gronlund, Eric
Subject: RE: Tripp County RWS

Eric,

1. TCWUD Well 2 in the NW ¼ of Section 8 is inoperable.
2. Both wells that were in the NW 1/4 ,NW 1/4 of Section 8 are inoperable.

TCWUD has 6 operable wells. The one that is shown on the map in the NW ¼ of Section 8 is inoperable. That should leave six remaining on the map. All other wells that they may have had are inoperable at this time.

*Lyle Schumack
Project Manager
Bartlett & West, Inc.
Office No. 605-274-7415
Cell No. 605-222-4362*

From: Gronlund, Eric [<mailto:Eric.Gronlund@state.sd.us>]
Sent: Tuesday, October 16, 2012 11:40 AM
To: Lyle Schumack
Subject: Tripp County RWS

Lyle – on behalf of Tripp County RWS – Bartlett&West filed a request for an additional diversion point. A couple quick questions.

1. Your letter indicates six operating wells and the submitted map shows seven wells. Is one of the wells shown on the map inoperable?
2. The RWS has two water rights. WR 2515-2 for three wells all shown on the map. WR 2293-2 is for five wells with only four shown on the map. It appears at one time two wells were in the NW ¼ NW ¼ Section 8. Am I correct to assume one of these two wells is abandoned and now only one well as shown on the map exists in the NW ¼ NW ¼ Section 8?

Eric Gronlund
Water Rights Program, DENR
605 773-3352
eric.gronlund@state.sd.us

This e-mail and any files transmitted with it are confidential and intended solely for the use of the addressee. If you receive this transmission in error, please notify the sender and delete this e-mail. No employee or agent is authorized to conclude any binding agreement on behalf of Bartlett & West, Inc. with another party by e-mail.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
denr.sd.gov

October 19, 2012

Lyle Schumack, Project Manager
Bartlett and West
5900 S. Western Avenue, Suite 101
Sioux Falls, SD 57108

Russ Phillips, Manager
Tripp County Water Users District
PO Box 1746
Winner SD 57580

Dear Mr. Schumack and Mr. Phillips:

I am writing in regard to a request for an additional diversion point for Water Right Nos. 2293-2 and 2515-2 for Tripp County Water Users District (TCWUD).

Water Right No. 2293-2 appropriates 3.88 cfs from five wells located in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 8, and SW $\frac{1}{4}$ NW $\frac{1}{4}$, NE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 7; all in T97N, R76W and the SW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 12, T97N, R77W. Mr Schumack indicated that the two wells located in the NW $\frac{1}{4}$ of Section 8 are no longer in operation.

Water Right No. 2515-2 appropriates 2.68 cfs from three wells completed into the Ogallala Aquifer located in the SE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 13, SW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 12; T97N, R77W and the SW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 18, T97N, R76W.

TCWUD has requested authorization for a new well is to be located in the NE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 13, T97N, R77W. The request states well will be completed in the Ogallala Aquifer and will be used in conjunction with TCWUD other wells. Specifically, the new well will be used as backup when other wells are out of service and used on an alternating basis with other permitted wells to extend their working life.

Upon review of the request and pursuant to SDCL 46-5-13.1, the new well is authorized without application or publication of a notice of hearing. No additional appropriation above the amounts authorized by Water Right Nos. 2293-2 and 2515-2 is authorized. If more than a combined total of 6.56 cfs is diverted from the six existing wells and this new well, a new water right permit is required.

This new well will be in close proximity to existing TCWUD wells. Pumping may result in interference between wells. The operation to minimize interference between its own wells is a management issue for TCWUD.

If you have any questions, please contact Eric Gronlund at (605) 773-3352.

Sincerely,

Garland Erbele, Chief Engineer
Water Rights Program

Request for Additional Diversion Point

NAME: Tripp County Water Users District**ADDRESS:** PO Box 1746, Winner SD 57580**DATE:** October 16, 2012 **COUNTY:** Tripp **TELEPHONE:**

Lyle Schumack with Bartlett and West filed a request on behalf of Tripp County Water Users District (TCWUD) for a new well to be completed in the Ogallala Aquifer. TCWUD does not request an increase in the diversion rate but instead the additional well is to be for back-up when other wells are out of service and may be used on an alternating basis with other wells extend the working life of wells in their well field.

Water Right No. 2293-2 appropriates 3.88 cfs from five wells located in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 8, and SW $\frac{1}{4}$ NW $\frac{1}{4}$, NE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 7; all in T97N, R76W and the SW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 12, T97N, R77W. The map submitted with the request only shows four of the wells. One of the two wells listed on the water right in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 8 is not shown. Mr Schumack was contacted and indicated that there is only one well in the NW $\frac{1}{4}$ of Section 8 and it is no longer operable

Water Right No. 2515-2 appropriates 2.68 cfs from three wells completed into the Ogallala Aquifer located in the SE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 13, SW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 12; T97N, R77W and the SW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 18, T97N, R76W.

The new well is to be located in the NE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 13, T97N, R77W. See map for the location of the new well in relation to existing TCWUD wells, neighboring domestic wells and appropriative rights.

AUTHORITY:

Pursuant to SDCL 46-5-13.1, the location of a diversion point may be changed or additional diversion points may be licensed provided the following conditions are met and the potential for interference with other existing diversions is not increased:

- **Developed water source same as permitted source and no additional water appropriated**

The water source remains the Ogallala Aquifer. TCWUD current wells are in a range of 190 to 280 feet deep. The consultant anticipates a well depth of 240 – 280 feet deep for this additional well. No additional water is to be appropriated by this request. The wells authorized by Water Right Nos. 2293-2 and 2515-2 appropriate a combined total of 6.56 cfs from the aquifer in this area. The submitted request reflects the additional well and existing wells will not exceed the authorized this amount. The additional well will be used on an alternating basis with the existing wells in order to rest wells and will not result in a greater diversion from the aquifer.

- **Review of Existing Diversions**

The Water Rights Program's database of well completion reports was reviewed for domestic wells in the area. The nearest domestic well on file is approximately 1300 foot to the south. There are a number of domestic wells on file in the area. It is not known how many are active. The TCWUD wells and any active domestic wells have been in existence for a number of years without controversy.

The water rights database was also reviewed. The nearest water rights from the Ogallala Aquifer are shown in the table below.

Water Right	CFS	Use	Depth	Approximate Distance from new well location
1516-2	1.14 cfs	Irrigation	137 ft	1.1 miles to the southwest
1307-2	0.91 cfs	Irrigation	160 ft	1.6 miles to the northeast
1769-2	1.11 cfs	Irrigation	156 ft	2.2 miles to the west
Winner's WR		Municipal	100 – 120 ft	2.5 miles to the northeast

The proximity of the additional new well and the other existing wells authorized Water Right No. 2515-2 may result in interference. However, since the wells are operated by TCWUD this becomes a management decision by the water right holder.

CONCLUSION

- The additional well does not appropriate additional water.
- The additional well is to be completed into the Ogallala Aquifer.
- Interference is not expected to be a concern.
- Existing domestic wells will not be adversely impacted by authorizing this additional well.
- Water Right Nos. 2293-2 and 2515-2 appropriate a total of 6.56 cfs from eight wells. Two of the wells in the NW ¼ Section 8 under No. 2293-2 are no longer operable. This request could be viewed as a change of well location.

RECOMMENDED ACTION

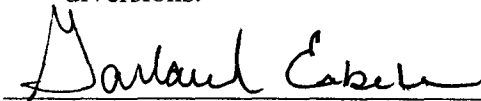
Based on the above criteria, it is recommended that the additional/change of diversion point be authorized pursuant to SDCL 46-5-13.1.



Eric Gronlund, Natural Resources Engineer
Water Rights Program

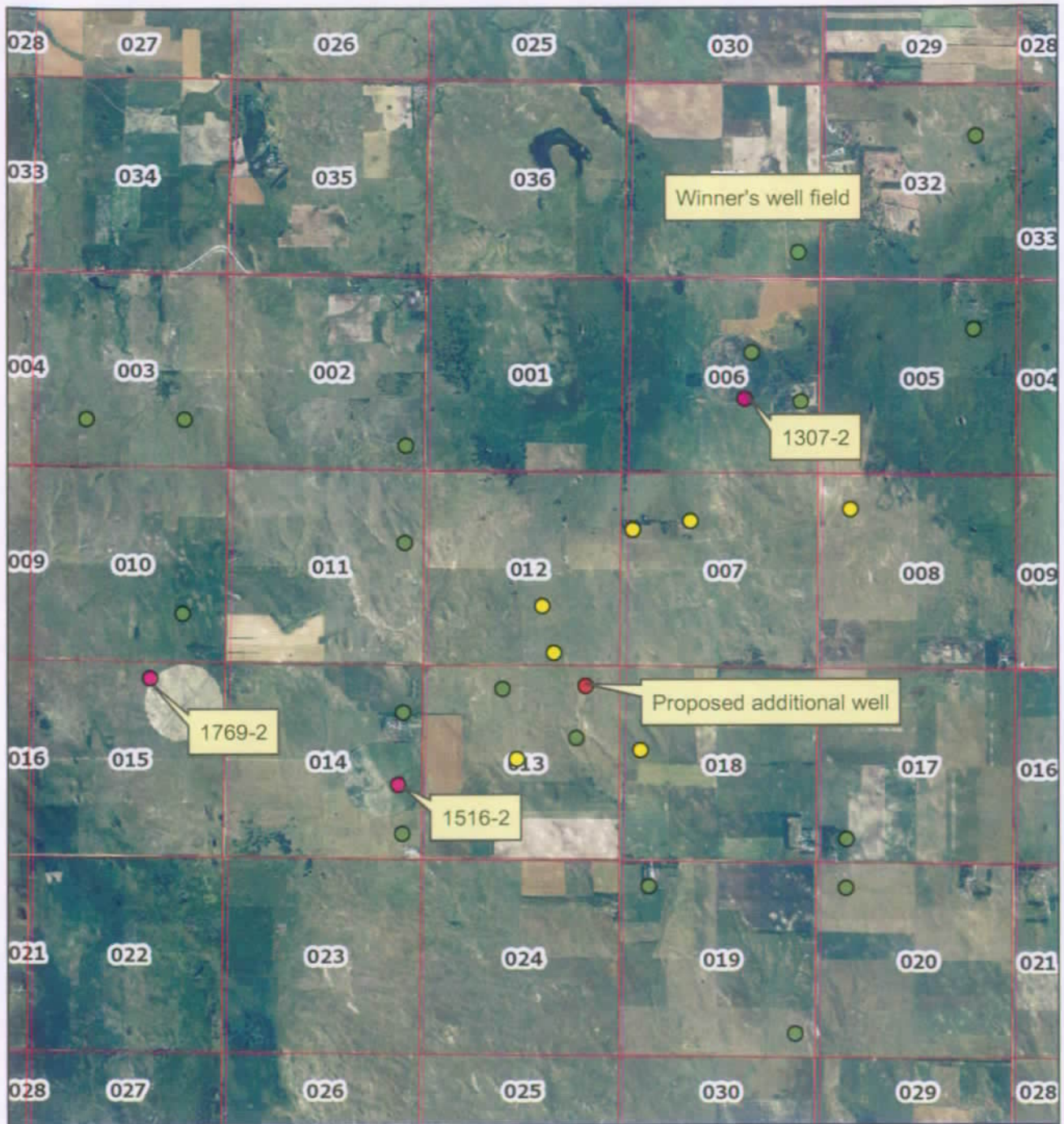
The Chief Engineer makes a finding pursuant SDCL 46-5-13.1 and ARSD 74:02:01:14.01 that:

This additional diversion point does not increase the potential for adverse effects to existing diversions.



Garland Erbele, Chief Engineer
Water Rights Program

tripp county Water User District's request for an additional well

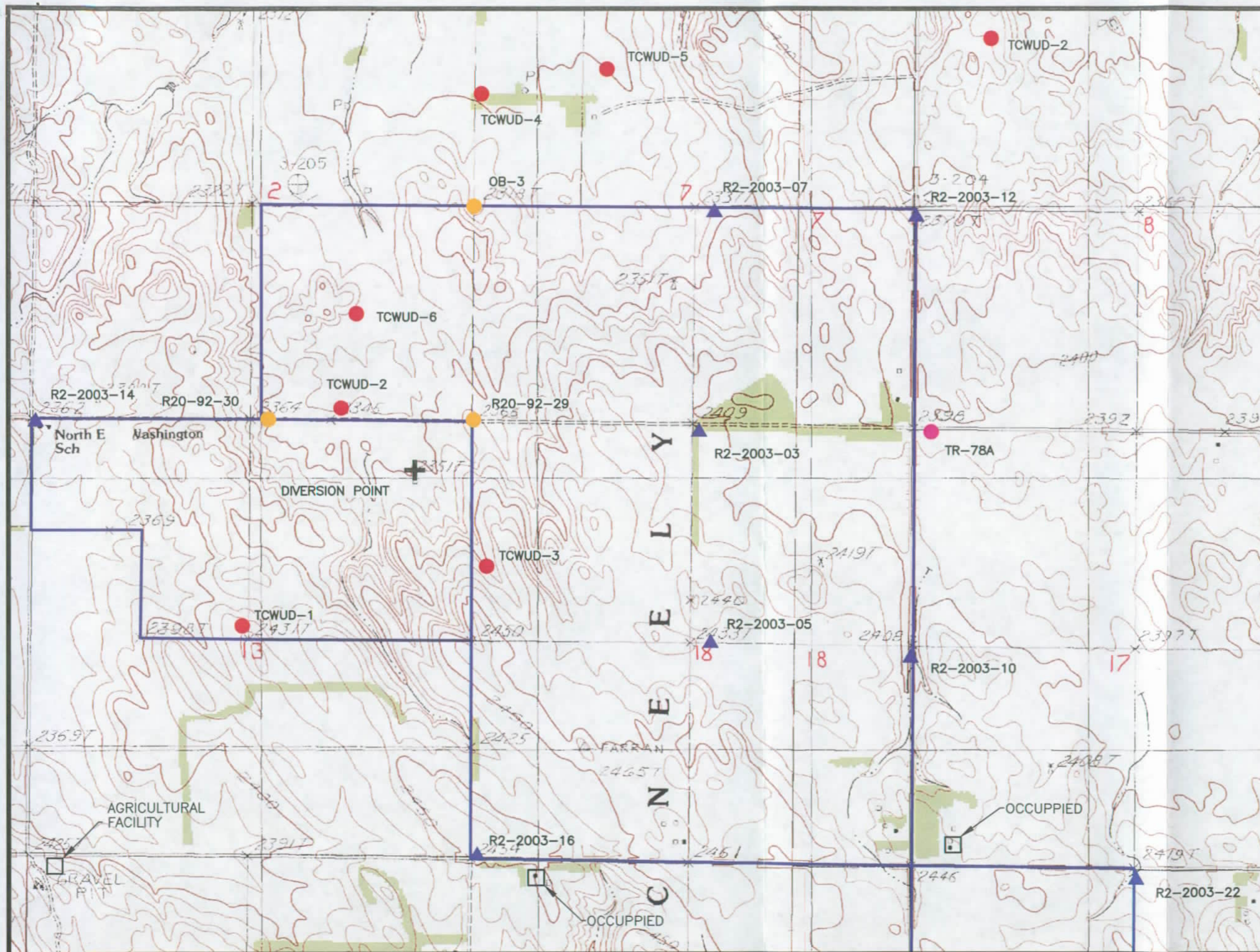


5,000 2,500 0 5,000 Feet



- Location of well completion reports on file
- Existing Tripp County Water User District wells
wells in NW 1/4 Section 8 are inoperable
- Nearby water rights from Ogallala Aquifer





LOCATION OF MONITORING
WELLS IN THE VICINITY OF
THE TRIPP COUNTY WATER
USER DISTRICT



- TRIPP COUNTY WATER USER DISTRICT PROPERTY LINE
- TRIPP COUNTY WATER USER DISTRICT WELL
- SOUTH DAKOTA GEOLOGICAL SURVEY WELL INSTALLED PRIOR TO 2003
- WATER RIGHTS WELL
- ▲ SOUTH DAKOTA GEOLOGICAL SURVEY WELL INSTALLED IN 2003
- + PROPOSED DIVERSION POINT

DIVERSION POINT 800'
WEST & 800' SOUTH OF
NE CORNER SEC 13 T97N
R77W